

Assignment and Exam Content

Cloud SQL

Always Delete your Cloud Resources to Avoid \$\$ Charges.

Cloud SQL Lab

Cloud SQL Lab Contains – Three major areas below to say complete Lab 😊

A

Launch Cloud SQL(MYSQL) Instance

Understand basic concepts – Locations, Performance Read/ Write IOPS etc

B

Cloud SQL Advanced Concepts

High Availability , Read Replica , Binary Logging

3

Exam Tips

Always Delete your Cloud Resources to Avoid \$\$ Charges.

A

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

1

Go To -> STORAGE -> SQL -> Click on Create Instance

You will have three Options

2

1. MYSQL 2nd Generation
2. PostgreSQL
3. MYSQL 1st Generation

- Choose MySQL for this workshop.

- Type : Name of instance
- Your Password
- Select Region and Zone.
- And Database version – Click Create.

Congratulations - Your instance is created now ..

Cloud SQL

Cloud SQL Cloud SQL Instances

Cloud SQL instances are fully managed, relational MySQL and PostgreSQL databases. Google handles replication, patch management, and database management to ensure availability and performance. [Learn more](#)

To get started with Cloud SQL, you can create a new instance or use Cloud SQL to migrate your SQL database to Google Cloud.

[Create instance](#) or [Migrate data](#)

Cloud SQL is RDBMS in GCP and you can launch MySQL and PostgreSQL instances. MySQL 1st Generations instance also can be created if required. Using can SSH to Virtual Machine where Cloud SQL instance is running.

1

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

3

Check the status of instance – once its created – Click on instance and explore multiple options

Explore Overview : Dashboard for all information about your instance. Like IP, connection name etc.

Explore Connections : See networks options – Currently not configured to any network so that you can connect this instance.

Choose your default network and give IP to 0.0.0.0/0 – Open to all – or instance IP

Check other options like SSL certificates etc.

Explore Users : Try creating users with/without IP address.

Explore Database: Try creating database of your own name.

Explorer Backups: Try Creating backup or configure automatic backup.

Explorer Replicas : Try Creating Read Replica and failover Replicas

The screenshot displays the Google Cloud Platform console for a Cloud SQL instance named 'mysqlinstance' in the 'us-central1-a' region. The instance is a 'MySQL Second Generation master' and is currently in a 'running' state. The 'Overview' tab is selected, showing a 'CPU utilization' graph (no data for the selected interval) and a table of 'Operations and logs' with one entry: 'Create' operation finished on Jul 9, 2019, at 12:42:09 PM. The 'Configuration' section shows 1 vCPU, 3.75 GB memory, and 10 GB SSD storage. The 'Database version' is MySQL 5.7. The 'Connect to this instance' section provides the public IP address (34.68.152.63) and the instance connection name (tokyo-data-243419:us-central1:mysqlinstance). The 'Connect using Cloud Shell' and 'Connect from a Compute Engine VM instance' options are available. The 'See all connection methods' link is also present.

1

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

4

Try exploring other instance level options

Instance Edit : You can edit database instance

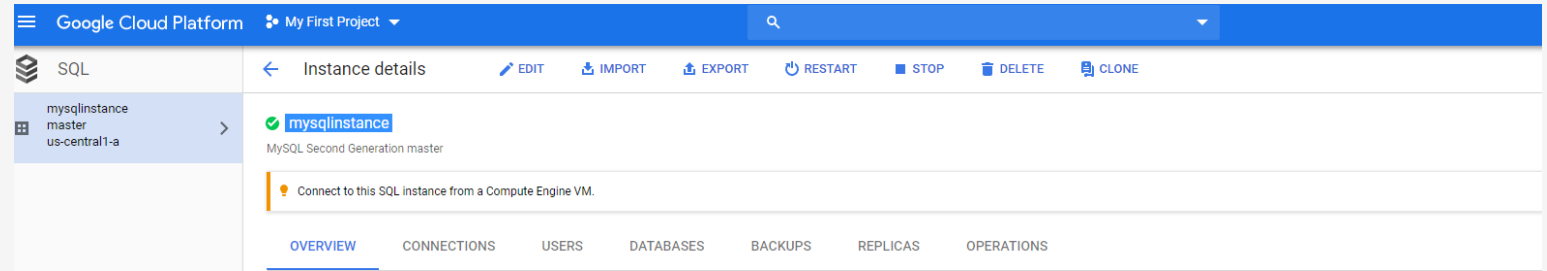
You can change Zone of Instance.

You can change instance configuration - Add More CPUs, or Memory , Size of Storage

Try to change Size of Disk and watch how disk throughput changes.

Try to add Labels to instance.

Observe : What you can change and what you can not.



Instance Import : You can import external MYSQL data files

Instance Export : export existing database into files.

Instance CLONE : Try to clone instance.

1

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

4

☒ **Enable auto backups** ⬆

Backups and binary logging
Enabling backups protects your data from loss with minimal cost. [Learn more](#)

☒ **Automate backups**

9:00 PM – 1:00 AM ⬇

Choose a window for automated backups. May continue outside window until complete. Time is your local time (UTC-7).

☒ **Enable binary logging** (required for replication and earlier position point-in-time recovery)

Close

Point in Time recovery

- If you need – point in time recovery for your database. You need to “Enable binary logging”
- If you want to understand more on point in time recovery – Please check youtube or google 😊
- As one liner : point in time recovery means – you can recover database on failure (of any kind) without losing data.

OVERVIEW CONNECTIONS USERS DATABASES BACKUPS **REPLICAS** OPERATIONS

Replicas

Google Cloud SQL enables data to be replicated from Cloud SQL (master) instances to Cloud SQL (read-replica) instances or external (read-replica) MySQL instances.

Create read replica Create failover replica

There are no replicas for this instance.

← Create failover replica of mysqlinstance

Instance ID
Choice is permanent. Use lowercase letters, numbers, and hyphens. Start with a letter.
mysqlinstance-failover

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

Region us-central1 **Zone** us-central1-b

Database version
MySQL 5.7

⌵ Show configuration options

Create Cancel

High Availability Configurations

- If you need HA configurations – You can enable it by creating “failover replica”
- If primary instance goes down for any reason – failover replica becomes primary instance seamless without you doing it.
- Synchronizations is taken care by Google without any problems.
- Once you create failover replica – You can see options for failover

Google Cloud Platform My First Project

SQL Instance details EDIT IMPORT EXPORT RESTART STOP DELETE CLONE **FAILOVER**

mysqlinstance-master-us-central1-a

mysqlinstance-failover-replica-us-central1-b

mysqlinstance
MySQL Second Generation master

OVERVIEW CONNECTIONS USERS DATABASES BACKUPS REPLICAS OPERATIONS

2

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations

- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

1

Before Creating next Instance

- Delete Old Instance and Proceed further

Always Delete your Cloud Resources to Avoid \$\$ Charges.

2

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

1

Create SQL Instance with advanced Configurations

Now go to create instance – Choose following options and create instance

Google Cloud Platform | My First Project

SQL | Create a MySQL Second Generation instance

Instance ID
Choice is permanent. Use lowercase letters, numbers, and hyphens. Start with a letter.
my2ndinstance

Root password
Set a password for the root user. [Learn more](#)
mypassword [Generate](#)

☐ No password

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

Region
Choice is permanent
us-central1

Zone
Can be changed at any time
Any

Database version
MySQL 5.7

Configuration options

- ☒ Set connectivity
Public IP enabled
- ☒ 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.
- ☒ Add database flags
No flags set
- ☒ Set maintenance schedule
- ☒ Add labels
No labels set

[Hide configuration options](#)

Google Cloud Platform | Create a MySQL Second Generation instance

Select a machine type

Your Cloud SQL machine type determines the virtual resources available to your instance, such as memory, virtual CPUs, and network throughput. This choice affects billing. Your largest table size is limited by the machine type. Capacity cannot be decreased later. [Learn more](#)

Shared-core machines

- ☐ db-f1-micro
1vCPU, 614.4 MB
- ☐ db-g1-small
1vCPU, 1.7 GB

Standard machines

- ☒ db-n1-standard-1
1vCPU, 3.75 GB
- ☐ db-n1-standard-2
2vCPU, 7.5 GB
- ☐ db-n1-standard-4
4vCPU, 15 GB
- ☐ db-n1-standard-8
8vCPU, 30 GB
- ☐ db-n1-standard-16
16vCPU, 60 GB
- ☐ db-n1-standard-32
32vCPU, 120 GB
- ☐ db-n1-standard-64
64vCPU, 240 GB

High memory machines

- ☐ db-n1-highmem-2
2vCPU, 13 GB
- ☐ db-n1-highmem-4
4vCPU, 25 GB
- ☐ db-n1-highmem-8
8vCPU, 52 GB
- ☐ db-n1-highmem-16
16vCPU, 104 GB
- ☐ db-n1-highmem-32
32vCPU, 208 GB
- ☐ db-n1-highmem-64
64vCPU, 416 GB

Machine type
For better performance, choose a machine type that holds your largest table.

db-n1-standard-1
vCPUs: 1, Memory: 3.75 GB

Network throughput (MB/s)

Storage type
Choice is permanent.

☐ SSD (Recommended)
Most popular choice. Lower latency than HDD with higher read and data throughput.

☐ HDD
Lower performance than SSD with lower storage rates.

Storage capacity
10 – 30720 GB. Higher capacity improves performance, up to the limits set by the machine type. Capacity cannot be decreased later.

100 GB

☒ Enable automatic storage increases
Whenever you're near capacity, space will be incrementally increased. All increases are permanent. [Learn more](#)

☒ Enable auto backups and high availability

Storage type
Choice is permanent.

☒ SSD (Recommended)
Most popular choice. Lower latency than HDD with higher read and data throughput.

☐ HDD
Lower performance than SSD with lower storage rates.

Storage capacity
10 – 30720 GB. Higher capacity improves performance, up to the limits set by the machine type. Capacity cannot be decreased later.

100 GB

☒ Enable automatic storage increases
Whenever you're near capacity, space will be incrementally increased. All increases are permanent. [Learn more](#)

Disk throughput (MB/s)

Read: 48.0 Max: 240.0 Write: 48.0 Max: 240.0

IOPS

Read: 3,000 Max: 15,000 Write: 3,000 Max: 4,500

☒ Enable auto backups and high availability

Disk Performance

Try changing Type of disk and Size of Disk and see how
Throughput changes
This means disk performance is dependent on Size as well as type of disk

High Availability and Read Replica

You can configure read replica at the time of instance creation.

3 Enable auto backups and high availability

Backups and binary logging
Enabling backups protects your data from loss with minimal cost. [Learn more](#)

☒ Automate backups
2:00 PM – 6:00 PM
Choose a window for automated backups. May continue outside window until complete. Time is your local time (UTC-7).

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

High availability

☒ Recommended for all production instances to improve fault tolerance. Failover replica is hosted in a different zone from the master and is billed as a separate instance. [Learn more](#)

☒ Create failover replica
Enter an ID for your failover replica. ID is permanent. Use lowercase letters, numbers and hyphens. Start with a letter.
my2ndinstance-failover

2

Create Cloud SQL Instance

Create SQL Instance

- Create Instance with default configurations
- Add Instance HA , read Replica etc

Create Instance advanced Configurations

- Provide custom configurations

Maintenance

- Add read replica, Delete master , Trigger failover

1

Before proceeding further

- Delete Old Instance and Proceed further

Always Delete your Cloud Resources to Avoid \$\$ Charges.

Cloud SQL : Try Yourself

1

Create PostgreSQL instance and explore different options

2

Create 1st generations Mysql instance and see what options are available (should be limited)

3

Exam Tips

High Availability , Read Replica , Binary Logging , Connection – **Very Important for Exam.**

End of Cloud SQL Assignment