

Migrate to Cloud SQL for PostgreSQL Using Database Migration Service

GSP918



Google Cloud Self-Paced Labs

Note: Labs for this section may cause some trouble, so the labs needs to be performed more than 3 times also. So follow the steps shown in the images carefully.

- Database Migration Service migrates PostgreSQL databases to Cloud SQL with minimal downtime using continuous jobs.
- Lab migrates standalone PostgreSQL VM database via VPC peering connectivity for secure networking.
- **Source Preparation**
 - Create dedicated replication user, install `pglogical` extension, grant schema/table rights on source PostgreSQL.
- **Migration Process**
 - Initial Copy Transfers database snapshot to Cloud SQL instance.
 - Continuous Sync: Real-time CDC replication keeps destination updated.
 - Promotion: Switches Cloud SQL to standalone read/write mode.
- **Key Tasks**
 - Configure VPC peering, firewall rules, source connection profile, run/verify continuous migration job.

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3. (Optional) You can list the active account name with this command:

```
gcloud auth list
```

4. Click Authorize.

Output:

```
ACTIVE: *
ACCOUNT: student-02-9e1a71f76bad@qwiklabs.net

To set the active account, run:
$ gcloud config set account `ACCOUNT`
```

5. (Optional) You can list the project ID with this command:

```
gcloud config list project
```

Output:

End Lab

01:44:42 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

Lab instructions and tasks 0/100

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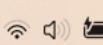


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Dashboard – qwiklabs-gcp-00-977... Cloud Shell

https://shell.cloud.google.com/?hl=en_US&theme=system&authuser=0&fromcloudshell=true&show=terminal

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Cloud Shell Editor

(qwiklabs-gcp-00-977e388aec2d)

Welcome to Cloud Shell! Type "help" to get started, or type "gemini" to try prompting with Gemini CLI.
Your Cloud Platform project in this session is set to **qwiklabs-gcp-00-977e388aec2d**.
Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_02_9ela71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$ gcloud auth list
Credentialed Accounts

ACTIVE: *
ACCOUNT: student-02-9ela71f76bad@qwiklabs.net

To set the active account, run:
\$ gcloud config set account `ACCOUNT`

student_02_9ela71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$ gcloud config list project
[core]
project = qwiklabs-gcp-00-977e388aec2d

Your active configuration is: [cloudshell-21973]
student_02_9ela71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$

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Username: student-02-9e1a71f76badc Password: w9qNayqxdvq Project ID: qwiklabs-gcp-00-977e388e

Verify that the Database Migration API is enabled

The Database Migration API is required to manage the movement of database data through the Database Migration Service.

- In the Google Cloud console title bar, enter **Database Migration API** into the **Search** field, and then click **Database Migration API** from the results.

The **Manage** button is visible when the API is enabled.

- If you see the **Enable** button, click it to enable the API.

Verify that the Service Networking API is enabled

The Service Networking API is required to configure Cloud SQL to support VPC Peering and connections over a private ip-address.

- In the Cloud console title bar, enter **Service Networking API** into the **Search** field, and then click **Service Networking API** from the search results.

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Database Migration API – Market | Cloud Shell | +

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Google Cloud qwiklabs-gcp-00-977e388aec2d

Product details

Database Migration API

Google Enterprise API

Manage Cloud Database Migration Service resources on Google Cloud Platform.

Manage Try this API API Enabled

Overview Documentation Related Products

Overview

Google Database Migration Service is a fully managed service for migrating databases to Google Cloud Platform. Database Migration Service allows you to migrate your databases to Google Cloud managed databases with minimal downtime, freeing you from operational considerations such as resource management and performance optimization.

Database Migration Service isn't yet in scope for any Compliance certifications or reports (unlike Cloud SQL, for example). But, we're

Additional details

Type: SaaS & APIs

Last product update: 4/30/22

Category: Databases, Storage, Google Enterprise APIs

Service name: datamigration.googleapis.com

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Service Networking API – Market x Cloud Shell +

https://console.cloud.google.com/marketplace/product/google/servicenetworking.googleapis.com?q=search&referrer=search&project=qwiklabs... t³

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Product details

Service Networking API

Google Enterprise API

Provides automatic management of network configurations

Manage Try this API API Enabled

[Overview](#) [Documentation](#) [Related Products](#)

Overview

The Service Networking API provides automatic management of network configurations necessary for certain services.

Additional details

Type: [SaaS & APIs](#)

Last product update: 4/30/22

Category: [Networking](#), [Google Enterprise APIs](#)

Service name: servicenetworking.googleapis.com

Tutorials and documentation



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01:40:54

Time limit

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[Learn more.](#)[Open Google Cloud console](#)

Username

student-02-9e1a71f76bad



Password

w9qNayqxdxvq



Project ID

qwiklabs-gcp-00-977e388c



Task 1. Prepare the source database for migration

To prepare the source database for the migration through the Database Migration Service, you upgrade the database with the `pglogical` extension and then create the database migration user.

To upgrade the database with the `pglogical` extension, you:

- Install and configure the `pglogical` database extension.
- Configure the stand-alone PostgreSQL database to allow access from Cloud Shell and Cloud SQL.
- Add the `pglogical` database extension to the `postgres`, `orders` and `gmemegen_db` databases on the stand-alone server.

To create the database migration user, you create a `migration_admin` user (with Replication permissions) for database migration and then grant them the required permissions to schemata and relations.

Upgrade the database with the `pglogical` extension

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

Upgrade the database with the pglogical extension

In this section, you download and add the pglogical database extension to the orders and postgres databases on the postgresql-vm VM Instance.

1. In the Google Cloud console, on the Navigation menu (≡), click Compute Engine > VM instances.
2. In the postgresql-vm VM instance, click SSH.
3. If prompted, click Authorize.
4. In the new terminal window, install the pglogical database extension:
`sudo apt install postgresql-14-pglogical`

Note: pglogical is a logical replication system implemented entirely as a PostgreSQL extension. Fully integrated, it requires no triggers or external programs. This alternative to physical replication is a highly efficient method of replicating data.

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Linux postgresql-vm 5.10.0-36-cloud-amd64 #1 SMP Debian 5.10.244-1 (2025-09-29) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

student-02-9e1a71f76bad@postgresql-vm:~\$ sudo apt install postgresql-14-pglogical



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Linux postgresql-vm 5.10.0-36-cloud-amd64 #1 SMP Debian 5.10.244-1 (2025-09-29) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

student-02-9e1a71f76bad@postgresql-vm:~\$ sudo apt install postgresql-14-pglogical

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following NEW packages will be installed:

 postgresql-14-pglogical

0 upgraded, 1 newly installed, 0 to remove and 12 not upgraded.

Need to get 443 kB of archives.

After this operation, 1277 kB of additional disk space will be used.

Get:1 http://apt.postgresql.org/pub/repos/apt bullseye-pgdg/main amd64 postgresql-14-pglogical amd64 2.4.6-1.pgdg11+1 [443 kB]

Fetched 443 kB in 0s (2040 kB/s)

Selecting previously unselected package postgresql-14-pglogical.

(Reading database ... 78568 files and directories currently installed.)

Preparing to unpack .../postgresql-14-pglogical_2.4.6-1.pgdg11+1_amd64.deb ...

Unpacking postgresql-14-pglogical (2.4.6-1.pgdg11+1) ...

Setting up postgresql-14-pglogical (2.4.6-1.pgdg11+1) ...

Processing triggers for postgresql-common (287.pgdg11+1) ...

Building PostgreSQL dictionaries from installed myspell/hunspell packages...

Removing obsolete dictionary files:

student-02-9e1a71f76bad@postgresql-vm:~\$ █

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End Lab 01:39:24 Time limit

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

5. Download and apply some additions to the PostgreSQL configuration files (to enable the `pglogical` extension) and restart the `postgresql` service:

```
sudo su - postgres -c "gsutil cp gs://spl/gsp918/pg_hba_append.conf /etc/postgresql/14/main/pg_hba.conf"
sudo su - postgres -c "gsutil cp gs://spl/gsp918/postgresql_append.conf /etc/postgresql/14/main/postgresql.conf"
sudo su - postgres -c "cat pg_hba_append.conf >> /etc/postgresql/14/main/pg_hba.conf"
sudo su - postgres -c "cat postgresql_append.conf >> /etc/postgresql/14/main/postgresql.conf"

sudo systemctl restart postgresql@14-main
```

These files in `pg_hba.conf` add a rule to allow access to all hosts:

```
#GSP918 - allow access to all hosts
host    all    all    0.0.0.0/0    md5
```

These commands in `postgresql.conf` set the minimal configuration for `pglogical` to listen on all addresses:

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```
student-02-9e1a71f76bad@postgresql-vm:~$ sudo su - postgres -c "gsutil cp gs://spls/gsp918/pg_hba_append.conf ."
sudo su - postgres -c "gsutil cp gs://spls/gsp918/postgresql_append.conf ."
sudo su - postgres -c "cat pg_hba_append.conf >> /etc/postgresql/14/main/pg_hba.conf"
sudo su - postgres -c "cat postgresql_append.conf >> /etc/postgresql/14/main/postgresql.conf"

sudo systemctl restart postgresql@14-main
Copying gs://spls/gsp918/pg_hba_append.conf...
/ [1 files] [ 68.0 B/ 68.0 B]
Operation completed over 1 objects/68.0 B.
Copying gs://spls/gsp918/postgresql_append.conf...
/ [1 files] [ 543.0 B/ 543.0 B]
Operation completed over 1 objects/543.0 B.
student-02-9e1a71f76bad@postgresql-vm:~$ █
```

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Username: student-02-9e1a71f76bad Password: w9qNayqxdxvq Project ID: qwiklabs-gcp-00-977e388c

6. Launch the psql tool:

```
sudo su - postgres
```

```
psql
```

7. Add the pglogical database extension to the postgres, orders and gmemegen_db databases:

```
\c postgres;
```

```
CREATE EXTENSION pglogical;
```

```
\c orders;
```

```
CREATE EXTENSION pglogical;
```

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End Lab

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Open Google Cloud console

Username: student-02-9e1a71f76bad (copy)

Password: w9qNayqxvxq (copy)

Project ID: qwiklabs-gcp-00-977e388 (copy)

7. Add the pglogical database extension to the `postgres`, `orders` and `gmemege_db` databases:

\c postgres;

CREATE EXTENSION pglogical;

\c orders;

CREATE EXTENSION pglogical;

\c gmemege_db;

CREATE EXTENSION pglogical;

8. List the PostgreSQL databases on the server:

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

CREATE EXTENSION pglogical;

\c orders;

CREATE EXTENSION pglogical;

\c gmemegen_db;

CREATE EXTENSION pglogical;

8. List the PostgreSQL databases on the server:

\l

The output below lists the default postgres database, as well as the orders and

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```
student-02-9e1a71f76bad@postgresql-vm:~$ sudo su - postgres
```

```
postgres@postgresql-vm:~$
```

```
postgres@postgresql-vm:~$ psql
```

```
psql (14.20 (Debian 14.20-1.pgdg11+1))
```

```
Type "help" for help.
```

```
postgres=#
```

```
postgres=# \c postgres;
```

```
You are now connected to database "postgres" as user "postgres".
```

```
postgres=#
```

```
postgres=# CREATE EXTENSION pglogical;
```

```
CREATE EXTENSION
```

```
postgres=#
```

```
postgres=# \c orders;
```

```
You are now connected to database "orders" as user "postgres".
```

```
orders=#
```

```
orders=# CREATE EXTENSION pglogical;
```

```
CREATE EXTENSION
```

```
orders=#
```

```
orders=# \c gmemegen_db;
```

```
You are now connected to database "gmemegen_db" as user "postgres".
```

```
gmemegen_db=#
```

```
gmemegen_db=# CREATE EXTENSION pglogical;
```

```
CREATE EXTENSION
```

```
gmemegen_db=#
```

```
gmemegen_db=# \l
```

List of databases

Name	Owner	Encoding	Collate	Ctype	Access privileges
gmemegen_db	postgres	UTF8	C.UTF-8	C.UTF-8	
orders	postgres	UTF8	C.UTF-8	C.UTF-8	
postgres	postgres	UTF8	C.UTF-8	C.UTF-8	
template0	postgres	UTF8	C.UTF-8	C.UTF-8	=c/postgres + postgres=CTc/postgres
template1	postgres	UTF8	C.UTF-8	C.UTF-8	=c/postgres + postgres=CTc/postgres

(5 rows)

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388c

Create the database migration user

In this section you create a dedicated user to manage database migration.

- In psql, enter the commands below to create a new user with the replication role:

```
CREATE USER migration_admin PASSWORD 'DMS_1s_cool!';
ALTER DATABASE orders OWNER TO migration_admin;
ALTER ROLE migration_admin WITH REPLICATION;
```

Assign permissions to the migration user

In this section, you assign the necessary permissions to the `migration_admin` user to enable **Database Migration Service** to migrate your database.

- In psql, grant permissions to the `pglogical` schema and tables for the `postgres` database:

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```
You are now connected to database "postgres" as user "postgres".
postgres=# CREATE EXTENSION pglogical;
CREATE EXTENSION
postgres=# \c orders;
You are now connected to database "orders" as user "postgres".
orders=# CREATE EXTENSION pglogical;
CREATE EXTENSION
orders=# \c gmemegen_db;
You are now connected to database "gmemegen_db" as user "postgres".
gmemegen_db=#
```

```
gmemegen_db=# \c gmemegen_db;
CREATE EXTENSION pglogical;
CREATE EXTENSION
gmemegen_db=# \l
      List of databases
   Name    |  Owner   | Encoding | Collate | Ctype | Access privileges
-----+-----+-----+-----+-----+-----+
gmemegen_db | postgres | UTF8     | C.UTF-8 | C.UTF-8 | 
orders       | postgres | UTF8     | C.UTF-8 | C.UTF-8 | 
postgres     | postgres | UTF8     | C.UTF-8 | C.UTF-8 | 
template0    | postgres | UTF8     | C.UTF-8 | C.UTF-8 | =c/postgres      +
              |          |          |          |          | postgres=CTc/postgres
template1    | postgres | UTF8     | C.UTF-8 | C.UTF-8 | =c/postgres      +
              |          |          |          |          | postgres=CTc/postgres
(5 rows)
```

```
gmemegen_db=# CREATE USER migration_admin PASSWORD 'DMS_1s_cool!';
ALTER DATABASE orders OWNER TO migration_admin;
ALTER ROLE migration_admin WITH REPLICATION;
CREATE ROLE
ALTER DATABASE
ALTER ROLE
gmemegen_db=#
```

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Assign permissions to the migration user

In this section, you assign the necessary permissions to the `migration_admin` user to enable **Database Migration Service** to migrate your database.

1. In `psql`, grant permissions to the `pglogical` schema and tables for the `postgres` database:

```
\c postgres;
```

```
GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
```

0/100 Lab instructions and tasks

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\c postgres;

GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad
Password: w9qNayqxvq
Project ID: qwiklabs-gcp-00-977e388e

Lab setup instructions and requirements

Protect your account and

End Lab 01:36:16 Time limit

0/100 Lab instructions and tasks

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```
CREATE ROLE
ALTER DATABASE
ALTER ROLE
gmemegen_db=# 
gmemegen_db=# 
gmemegen_db=# \c postgres;
You are now connected to database "postgres" as user "postgres".
postgres=# GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;
GRANT
postgres=# 
```

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

2. Grant permissions to the pglogical schema and tables for the orders database:

```
\c orders;
```

```
GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO
migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO
migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;
```

0/100 Lab instructions and tasks

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```
GRANT
GRANT
GRANT
GRANT
postgres=# 
postgres=# \c orders;
You are now connected to database "orders" as user "postgres".
orders=# 
orders=# GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;
GRANT
orders=# 
```

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

3. Grant permissions to the `public` schema and tables for the `orders` database:

```
GRANT USAGE ON SCHEMA public TO migration_admin;
GRANT ALL ON SCHEMA public TO migration_admin;

GRANT SELECT ON public.distribution_centers TO migration_admin;
GRANT SELECT ON public.inventory_items TO migration_admin;
GRANT SELECT ON public.order_items TO migration_admin;
GRANT SELECT ON public.products TO migration_admin;
GRANT SELECT ON public.users TO migration_admin;
```

4. Grant permissions to the `pglogical` schema and tables for the `gmemegen_db` database:

```
\c gmemegen_db;

GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
```

0/100 Lab instructions and tasks

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Open Google Cloud console

Username: student-02-9e1a71f76bad Password: w9qNayqxdxvq Project ID: qwiklabs-gcp-00-977e388c

4. Grant permissions to the pglogical schema and tables for the gmemegen_db database:

```
\c gmemegen_db;  
  
GRANT USAGE ON SCHEMA pglogical TO migration_admin;  
GRANT ALL ON SCHEMA pglogical TO migration_admin;  
  
GRANT SELECT ON pglogical.tables TO migration_admin;  
GRANT SELECT ON pglogical.depend TO migration_admin;  
GRANT SELECT ON pglogical.local_node TO migration_admin;  
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;  
GRANT SELECT ON pglogical.node TO migration_admin;  
GRANT SELECT ON pglogical.node_interface TO migration_admin;  
GRANT SELECT ON pglogical.queue TO migration_admin;  
GRANT SELECT ON pglogical.replication_set TO migration_admin;  
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;  
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;  
GRANT SELECT ON pglogical.sequence_state TO migration_admin;  
GRANT SELECT ON pglogical.subscription TO migration_admin;
```

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```
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;
GRANT
orders=# 
orders=# 
orders=# GRANT USAGE ON SCHEMA public TO migration_admin;
GRANT ALL ON SCHEMA public TO migration_admin;

GRANT SELECT ON public.distribution_centers TO migration_admin;
GRANT SELECT ON public.inventory_items TO migration_admin;
GRANT SELECT ON public.order_items TO migration_admin;
GRANT SELECT ON public.products TO migration_admin;
GRANT SELECT ON public.users TO migration_admin;
GRANT
GRANT
GRANT
GRANT
GRANT
GRANT
orders=# 
```



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```
GRANT
GRANT
orders=# 
orders=# \c gmemegen_db;
You are now connected to database "gmemegen_db" as user "postgres".
gmemegen_db=# 
gmemegen_db=# GRANT USAGE ON SCHEMA pglogical TO migration_admin;
GRANT ALL ON SCHEMA pglogical TO migration_admin;

GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;

GRANT
gmemegen_db=# 
```

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Open Google Cloud console

Username: student-02-9e1a71f76bad1

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

5. Grant permissions to the `public` schema and tables for the `gmemegen_db` database:

```
GRANT USAGE ON SCHEMA public TO migration_admin;
GRANT ALL ON SCHEMA public TO migration_admin;

GRANT SELECT ON public.meme TO migration_admin;
```

The source databases are now prepared for migration. The permissions you have granted to the `migration_admin` user are all that is required for **Database Migration Service** to migrate the `postgres`, `orders` and `gmemegen_db` databases.

Make the `migration_admin` user the owner of the tables in the `orders` database, so that you can edit the source data later, when you test the migration.

6. Run the following commands:

```
\c orders;
\dt
```

```
ALTER TABLE public.distribution_center OWNER TO migration_admin;
```

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GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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Open Google Cloud console

Username: student-02-9e1a71f76bad Password: w9qNayqxdxvq Project ID: qwiklabs-gcp-00-977e388c

granted to the migration_admin user are all that is required for **Database Migration Service** to migrate the postgres, orders and gmemege_db databases.

Make the migration_admin user the owner of the tables in the orders database, so that you can edit the source data later, when you test the migration.

6. Run the following commands:

```
\c orders;
\dt
```

```
ALTER TABLE public.distribution_centers OWNER TO migration_admin;
ALTER TABLE public.inventory_items OWNER TO migration_admin;
ALTER TABLE public.order_items OWNER TO migration_admin;
ALTER TABLE public.products OWNER TO migration_admin;
ALTER TABLE public.users OWNER TO migration_admin;
\dt
```

Output

0/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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```
GRANT SELECT ON pglogical.tables TO migration_admin;
GRANT SELECT ON pglogical.depend TO migration_admin;
GRANT SELECT ON pglogical.local_node TO migration_admin;
GRANT SELECT ON pglogical.local_sync_status TO migration_admin;
GRANT SELECT ON pglogical.node TO migration_admin;
GRANT SELECT ON pglogical.node_interface TO migration_admin;
GRANT SELECT ON pglogical.queue TO migration_admin;
GRANT SELECT ON pglogical.replication_set TO migration_admin;
GRANT SELECT ON pglogical.replication_set_seq TO migration_admin;
GRANT SELECT ON pglogical.replication_set_table TO migration_admin;
GRANT SELECT ON pglogical.sequence_state TO migration_admin;
GRANT SELECT ON pglogical.subscription TO migration_admin;

GRANT
gmemegen_db=#  
gmemegen_db=#  
gmemegen_db=#  
gmemegen_db=# GRANT USAGE ON SCHEMA public TO migration_admin;
GRANT ALL ON SCHEMA public TO migration_admin;

GRANT SELECT ON public.meme TO migration_admin;
GRANT
GRANT
GRANT
gmemegen_db=#
```

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```
gmemegen_db=#  
gmemegen_db=# \c orders;  
\dt  
You are now connected to database "orders" as user "postgres".
```

```
List of relations  
Schema | Name | Type | Owner  
-----+-----+-----+-----  
public | distribution_centers | table | postgres  
public | inventory_items | table | postgres  
public | order_items | table | postgres  
public | products | table | postgres  
public | users | table | postgres  
(5 rows)
```

```
orders=#  
orders=#  
orders=# ALTER TABLE public.distribution_centers OWNER TO migration_admin;  
ALTER TABLE public.inventory_items OWNER TO migration_admin;  
ALTER TABLE public.order_items OWNER TO migration_admin;  
ALTER TABLE public.products OWNER TO migration_admin;  
ALTER TABLE public.users OWNER TO migration_admin;
```

```
\dt  
ALTER TABLE  
ALTER TABLE  
ALTER TABLE  
ALTER TABLE  
ALTER TABLE
```

```
List of relations  
Schema | Name | Type | Owner  
-----+-----+-----+-----  
public | distribution_centers | table | migration_admin  
public | inventory_items | table | migration_admin  
public | order_items | table | migration_admin  
public | products | table | migration_admin  
public | users | table | migration_admin  
(5 rows)
```

```
orders=#
```

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

List of relations

Schema	Name	Type	Owner
public	distribution_centers	table	migration_admin
public	inventory_items	table	migration_admin
public	order_items	table	migration_admin
public	products	table	migration_admin
public	users	table	migration_admin

(5 rows)

Output

7. Exit psql and the postgres user session:

```
\q
```

```
exit
```

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```
+-----+-----+
public | distribution_centers | table | postgres
public | inventory_items   | table | postgres
public | order_items        | table | postgres
public | products           | table | postgres
public | users              | table | postgres
(5 rows)
```

```
orders=# 
orders=# 
orders=# ALTER TABLE public.distribution_centers OWNER TO migration_admin;
ALTER TABLE public.inventory_items OWNER TO migration_admin;
ALTER TABLE public.order_items OWNER TO migration_admin;
ALTER TABLE public.products OWNER TO migration_admin;
ALTER TABLE public.users OWNER TO migration_admin;
\dt
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
```

List of relations			
Schema	Name	Type	Owner
public	distribution_centers	table	migration_admin
public	inventory_items	table	migration_admin
public	order_items	table	migration_admin
public	products	table	migration_admin
public	users	table	migration_admin

```
(5 rows)
```

```
orders=# 
orders=# \q
postgres@postgresql-vm:~$ 
postgres@postgresql-vm:~$ exit
logout
student-02-9e1a71f76bad@postgresql-vm:~$ 
student-02-9e1a71f76bad@postgresql-vm:~$ 
```

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388e

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

In this task, you create a connection profile for the PostgreSQL source instance.

Get the connectivity information for the PostgreSQL source instance

In this step, you identify the internal IP address of the source database instance that you migrate to Cloud SQL.

1. In the Google Cloud console, on the Navigation menu (≡), click Compute Engine > VM instances.
2. In the Instance list, locate postgresql-vm.
3. Copy the Internal IP (e.g., 10.128.0.2) to use to configure a connection profile in the next section.

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

Get the connectivity information for the PostgreSQL source instance

In this step, you identify the internal IP address of the source database instance that you migrate to Cloud SQL.

1. In the Google Cloud console, on the **Navigation menu** (≡), click **Compute Engine > VM instances**.
2. In the Instance list, locate **postgresql-vm**.
3. Copy the **Internal IP** (e.g., 10.128.0.2) to use to configure a connection profile in the next section.

Create a new connection profile for the PostgreSQL source instance

A connection profile stores information about the source database instance (e.g., stand-alone PostgreSQL) and is used by the **Database Migration Service** to migrate data from the source to your destination Cloud SQL database instance. After you create a connection profile, it can be reused across migration jobs.

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Filter Enter property name or value

Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>	<input checked="" type="checkbox"/> postgresql-vm	us-west1-c			10.138.0.2 (nic0)	34.168.164.213 (nic0)	SSH

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

Create a new connection profile for the PostgreSQL source instance

A connection profile stores information about the source database instance (e.g., stand-alone PostgreSQL) and is used by the **Database Migration Service** to migrate data from the source to your destination Cloud SQL database instance. After you create a connection profile, it can be reused across migration jobs.

In this step you create a new connection profile for the PostgreSQL source instance.

1. In the Google Cloud console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database migration > Connection profiles**.
2. Click **Create profile**.
3. Specify the following fields and leave those remaining as their defaults:

Field	Value
Profile role	Source
Database engine	PostgreSQL

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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End Lab 01:30:14 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76bad (copy)

Password: w9qNayqxdxvq (copy)

Project ID: qwiklabs-gcp-00-977e388 (copy)

1. In the Google Cloud console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database migration** > **Connection profiles**.

2. Click **Create profile**.

3. Specify the following fields and leave those remaining as their defaults:

Field	Value
Profile role	Source
Database engine	PostgreSQL
Connection profile name	postgres-vm
Region	us-west1
Define connection configurations	Define
Hostname or IP address	the internal IP for the PostgreSQL source instance that you copied in the previous task (e.g., 10.128.0.2)
Port	5432

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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Open Google Cloud console

Username: student-02-9e1a71f76bad (Copy)

Password: w9qNayqxdxvq (Copy)

Project ID: qwiklabs-gcp-00-977e388 (Copy)

Profile role: Source

Database engine: PostgreSQL

Connection profile name: postgres-vm

Region: us-west1

Define connection configurations: Define

Hostname or IP address: the internal IP for the PostgreSQL source instance that you copied in the previous task (e.g., 10.128.0.2)

Port: 5432

Username: migration_admin

Password: DMS_1s_cool!

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

4. Click Save.

5. Click Create.

A new connection profile named **postgres-vm** shows in the Connections profile list.

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Connection profiles – Database x Cloud Shell +

https://console.cloud.google.com/dbmigration/connection-profiles?project=qwiklabs-gcp-00-977e388aec2d

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Google Cloud qwiklabs-gcp-00-977e388aec2d Database migration X Search

Database Migration / Connection profiles

Migration jobs Conversion workspaces Connection profiles Private connectivity

Connection profiles + Create profile Refresh

Connection profiles represent all the info you need to connect to a data source. [Learn more](#)

Filter Filter connection profiles

<input type="checkbox"/> Display name ↑	In use by	Profile role	Database engine	Hostname/IP:Port	Created
No rows to display					

No connection profiles

Create profile

https://console.cloud.google.com/dbmigration/connection-profiles/create?project=qwiklabs...

9 10°C Clear

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Create a connection profile – Data Migration

Cloud Shell

https://console.cloud.google.com/dbmigration/connection-profiles/create?project=qwiklabs-gcp-00-977e388aec2d

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Google Cloud qwiklabs-gcp-00-977e388aec2d Database migration X Search

Database Migration / Connection profiles / Create connection profile

Create a connection profile

Connection profiles securely store the details needed to connect to your database. Begin by providing basic information about your database migration. Don't see your database engine listed? [Request support](#) or [explore other migration options](#).

Specify your migration scenario

Source engine: PostgreSQL

Destination engine: Cloud SQL for PostgreSQL

Choose the profile type to create

Source

Destination

Specify connection profile details

Provide high-level information, specify a region, and enter connection details for your connection profile.

Connection profile name * postgres-vm

Must be less than 60 characters. 11/60

Connection profile ID * postgres-vm

Lowercase letters, numbers, or hyphens. It must be unique in this project and cannot be changed later. 11/60

Region *

Upcoming Earnings 9

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Create a connection profile – Data +

https://console.cloud.google.com/dbmigration/connection-profiles/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Connection profiles / Create connection profile

Create a connection profile

Choose the profile type to create

Source
 Destination

Specify connection profile details

Provide high-level information, specify a region, and enter connection details for your connection profile.

Connection profile name * postgres-vm
Must be less than 60 characters. 11/60

Connection profile ID * postgres-vm
Lowercase letters, numbers, or hyphens. It must be unique in this project and cannot be changed later. 11/60

Region * us-west1 (Oregon)
Choice is permanent. For performance, choose a region that is close to the services that need your data.

Define connection configurations

The combination of source and destination engines determines further configuration of your source connection profile.

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Create a connection profile – Data + https://console.cloud.google.com/dbmigration/connection-profiles/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Connection profiles / Create connection profile

Create a connection profile

cannot be changed later.

Region * us-west1 (Oregon)

Choice is permanent. For performance, choose a region that is close to the services that need your data.

Define connection configurations

The combination of source and destination engines determines further configuration of your source connection profile.

PostgreSQL to PostgreSQL

Select to further configure this PostgreSQL source connection profile for a migration with Cloud SQL for PostgreSQL and AlloyDB.

Hostname or IP address 10.138.0.2
Port 5432
Username migration_admin
Encryption type None (SSL/TLS)

Edit Clear

Create Cancel

9+ 10°C Clear

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Connection profiles – Database X

https://console.cloud.google.com/dbmigration/connection-profiles?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Connection profiles

Connection profiles + Create profile C Refresh

Connection profiles represent all the info you need to connect to a data source. [Learn more](#)

Filter connection profiles Filter ? ☰

<input type="checkbox"/> Display name ↑	In use by	Profile role	Database engine	Hostname/IP:Port	Created	⋮
<input type="checkbox"/> postgres-vm	0 jobs	Source	PostgreSQL	10.138.0.2:5432	Jan 14, 2026	⋮

Connection profile postgres-vm successfully created X

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Lab setup instructions and requirements

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Username: student-02-9e1a71f76bad Project ID: qwiklabs-gcp-00-977e388c

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 3. Create and start a continuous migration job

To create a new migration job, you must first specify the source database instance by using an existing connection profile. Next, you establish the destination database instance and set up the necessary connectivity between the source and destination instances.

In this task, you use the migration job interface to create a new Cloud SQL for PostgreSQL database instance and set it as the destination for the continuous migration job from the PostgreSQL source instance.

Create a new continuous migration job

In this step you create a new continuous migration job.

1. In the console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database Migration > Migration jobs**.

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Migrate to Cloud SQL for PostgreSQL Using Data

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Protect your account and

End Lab 01:20:49 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388c

Create a new continuous migration job

In this step you create a new continuous migration job.

1. In the console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database Migration > Migration jobs**.
2. Click **Create migration job**.
3. Specify the following fields and leave those remaining as their defaults:

Field	Value
Migration job name	vm-to-cloudsql
Source database engine	PostgreSQL
Destination database engine	Cloud SQL for PostgreSQL
Destination region	us-west1
Migration job type	Continuous

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Migrate to Cloud SQL for PostgreSQL Using Data

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Protect your account and

End Lab 01:20:43 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76bad1

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

1. In the console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database Migration** > **Migration jobs**.

2. Click **Create migration job**.

3. Specify the following fields and leave those remaining as their defaults:

Field	Value
Migration job name	vm-to-cloudsql
Source database engine	PostgreSQL
Destination database engine	Cloud SQL for PostgreSQL
Destination region	us-west1
Migration job type	Continuous

4. Click **Save & continue**.

Define the source instance

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Contents Migrate to Cloud SQL for PostgreSQL Using Data

Destination region: us-west1
Migration job type: Continuous

Lab setup instructions and requirements

Protect your account and 4. Click Save & continue.

End Lab 01:20:37 Time limit

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Open Google Cloud console

Username: student-02-9e1a71f76bad
Password: w9qNayqxdxvq
Project ID: qwiklabs-gcp-00-977e388c

Define the source instance

In this step you define the source instance for the migration.

1. For Source connection profile, select postgres-vm.
Leave the defaults for the other settings.

2. Click Save & continue.

Define the destination instance

In this step, you define the destination instance for the migration.

1. For Type of destination instance, select Existing instance.

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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Protect your account and

End Lab 01:20:32 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76badc

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

1. For **Source connection profile**, select **postgres-vm**.
Leave the defaults for the other settings.

2. Click **Save & continue**.

Define the destination instance

In this step, you define the destination instance for the migration.

1. For **Type of destination instance**, select **Existing instance**.

2. For **Select destination instance**, select **postgresql-cloudsql**.

3. Click **Select & continue**.

4. If prompted to confirm, enter the instance name **postgresql-cloudsql**.

5. Click **Confirm & continue**.

Note: Ignore the warning note: Your destination instance will be demoted and

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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Dashboard Catalog Paths

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Open Google Cloud console

Username: student-02-9e1a71f76bad (Copy)

Password: w9qNayqxvq (Copy)

Project ID: qwiklabs-gcp-00-977e388 (Copy)

5. Click **Confirm & continue**.

Note: Ignore the warning note: Your destination instance will be demoted and converted into a replica for your source database.

Define the connectivity method

In this step, you define the connectivity method for the migration.

Instance creation in progress. This may take a few minutes. You can begin defining the connectivity method. Configure & Continue is enabled when both are complete.

1. For **Connectivity method**, select **VPC peering**.
2. For **VPC**, select **default**.

VPC peering is configured by **Database Migration Service** using the information provided for the VPC network (the default network in this example).

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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2. FOR VPC, SELECT default.

VPC peering is configured by Database Migration Service using the information provided for the VPC network (the default network in this example).

When you see an updated message that the destination instance was created, proceed to the next step.

Instance was created. Define the connectivity method, then Configure & Continue.

3. Click **Configure & continue**.

Configure migration databases

In this step, you define the source instance for the migration.

1. For **Databases to migrate**, select **All databases**.
2. Click **Save & continue**.

Allow access to the postaresal-vm instance

20/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

End Lab 01:20:19 Time limit

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388c

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Migration jobs – Database Migr... +

https://console.cloud.google.com/dbmigration/migrations?project=qwiklabs-gcp-00-977e388aec2d | 1

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Database Migration / Migration jobs

Migration jobs + Create migration job Start Stop Restart Delete Refresh

Conversion workspaces Connection profiles Private connectivity

Jobs (0) Drafts (0)

No rows to display

Filter migration jobs

Migration job name Status ↑ Phase Source connection profile Destination ID

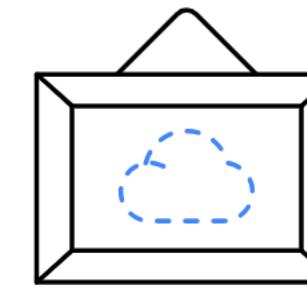
No rows to display

Release Notes

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Migration jobs – Database Migr... +

https://console.cloud.google.com/dbmigration/migrations?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs

Migration jobs + Create migration job Start Stop Restart Delete Refresh

Conversion workspaces Connection profiles Private connectivity

Jobs (0) Drafts (0)

No rows to display

Filter migration jobs

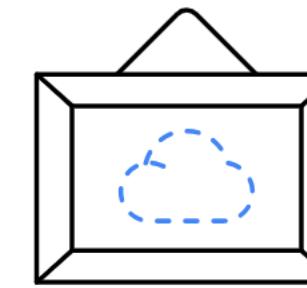
Migration job name Status ↑ Phase Source connection profile Destination ID

No rows to display

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Create a migration job – Database

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

1 Get started Not configured

2 Define a source Not configured

3 Define a destination Not configured

4 Define connectivity method Not configured

5 Configure migration databases Not configured

6 Test and create migration job Not tested

Describe your migration job

Provide some basic info about your migration job and review what you need to do to complete it successfully. Want to know which types of migrations are supported right now? [Learn more](#)

Note: All DMS resources must share the same region as the destination database. This includes the conversion workspace, connection profiles, migration job, and private connectivity configuration (if relevant).

Migration job name * vm-to-cloudsql
Must be less than 60 characters. 14/60

Migration job ID * vm-to-cloudsql
Lowercase letters, numbers, or hyphens. It must be unique in this project and cannot be changed later. 14/60

Source database engine * PostgreSQL

Destination database engine * Cloud SQL for PostgreSQL

Destination region * us-west1 (Oregon)

Choice is permanent. For performance, choose a region that is close to the services that need your data.

Save & Exit Cancel

9+ 10°C Clear

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Create a migration job – Database

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

1 Get started Not configured

2 Define a source Not configured

3 Define a destination Not configured

4 Define connectivity method Not configured

5 Configure migration databases Not configured

6 Test and create migration job Not tested

Save & Exit Cancel

PostgreSQL

Destination database engine * Cloud SQL for PostgreSQL

Destination region * us-west1 (Oregon)

Migration job type * Continuous

Before you continue, review the prerequisites

Depending on your migration type, there are some steps you should take to make sure the job is successful. You can always test your migration job before starting it to make sure it's correctly set up.

PostgreSQL source Open

For this migration job to be able to pull data from PostgreSQL, the database needs some specific configuration.

Connectivity Open

Choose how you'd like to connect your source and destination databases and review how to connect successfully.

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Create a migration job – Database

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source
Not configured

Define a destination
Not configured

Define connectivity method
Not configured

Configure migration databases
Not configured

Test and create migration job
Not tested

Save & Exit Cancel

Define your source

Your data source's connection profile represents all the info needed to connect. Choose a connection profile that already exists. [Learn more](#)

Source database engine
PostgreSQL

Select source connection profile * —
postgres-vm

Connection profile name
postgres-vm

Connection profile ID
postgres-vm

Region
us-west1 (Oregon)

Hostname or IP address
10.138.0.2

Port
5432

Username
migration_admin

Encryption type (SSL/TLS)
None

Customize parallelism configurations

SHOW PARALLELISM CONFIGURATIONS

Save & continue

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Create a migration job – Database

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source
postgres-vm

3 Define a destination
Not configured

4 Define connectivity method
Not configured

5 Configure migration databases
Not configured

6 Test and create migration job
Not tested

Save & Exit Cancel

Define a destination

You can create a new instance or select an existing instance to be associated with this migration job.

Under-provisioned storage and compute resources can slow down your migration job. For a smooth database migration, ensure your instance has adequate machine and storage configurations to accommodate the size of your source database. [Learn more](#)

Destination database engine
Cloud SQL for PostgreSQL

Type of destination instance * Existing instance

This choice is permanent.

DMS will demote the existing instance and convert it into a replica for the source database. Only empty instances are supported, otherwise the migration will fail to start. [Learn more](#)

Select destination instance

Instance ID * postgresql-cloudsql

Instance ID	postgresal-cloudsql
-------------	---------------------

9+ 10°C Clear

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Create a migration job – Database

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source
postgres-vm

3 Define a destination
Not configured

4 Define connectivity method
Not configured

5 Configure migration databases
Not configured

6 Test and create migration job
Not tested

Save & Exit Cancel

your migration job. For a smooth database migration, ensure your instance has adequate machine and storage configurations to accommodate the size of your source database. [Learn more](#)

Destination database engine
Cloud SQL for PostgreSQL

Type of destination instance *
Existing instance

This choice is permanent.

DMS will demote the existing instance and convert it into a replica for the source database. Only empty instances are supported, otherwise the migration will fail to start. [Learn more](#)

Select destination instance

Instance ID *
postgresql-cloudsql

Instance ID	postgresql-cloudsql
Region	us-west1 (Oregon)
Database version	POSTGRES_14

Select & Continue

9+ 10°C Clear

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Create a migration job – Database

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Google Cloud qwiklabs-gcp-00-977e388aec2d Search (/) for resources, docs, products, and more Search

Database Migration / Migration jobs / Create migration

Create a migration job

Get started
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source
postgres-vm

3 Define a destination
Not configured

4 Define connectivity method
Not configured

5 Configure migration databases
Not configured

6 Test and create migration job
Not tested

Save & Exit Cancel

Confirm migration to postgresql-cloudsql?

Note: Your destination instance will be demoted and converted into a replica for your source database. [Learn more](#)

This process might take several minutes. You can safely save the migration job and return later.

Confirm by typing the instance name: postgresql-cloudsql

postgresql-cloudsql * postgresql-cloudsql

Cancel Confirm & continue

Instance ID postgresql-cloudsql
Region us-west1 (Oregon)
Database version POSTGRES_14

Select & Continue

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Create a migration job – Database

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source
postgres-vm

Define a destination
postgresql-cloudsql

Define connectivity method
Not configured

Configure migration databases
Not configured

Test and create migration job
Not tested

Save & Exit Cancel

Define connectivity method

Choose the best connectivity method for your migration job based on your security and throughput requirements.

Need help choosing? [View connectivity guide](#)

Connectivity method * VPC peering

Selecting VPC peering as the connectivity method will update the instance to turn on private IP.

Configure your destination to accept connections

Make sure the replication connections section of the pg_hba.conf file or the security groups definitions in AWS RDS on the source database are updated to accept connections from the Cloud SQL VPC's IP address range.

Select the VPC network of your source

Select the network where your source database resides. Once you save, your source instance will be authorized to connect to it. [Learn more](#)

VPC * default

9+ 10°C Clear Search

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Create a migration job – Database

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
Define a source
Define a destination
Define connectivity method
Configure migration databases
Test and create migration job

Select objects to migrate
Databases to migrate: All databases

The list below represent all databases from the source instance. Select the databases that you want DMS to migrate into a destination.

Save & continue

Save & Exit Cancel

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Create a migration job – Database

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started
Define a source
Define a destination
Define connectivity method
Configure migration databases
Test and create migration job

Select objects to migrate

Databases to migrate: All databases

The list below represent all databases from the source instance. Select the databases that you want DMS to migrate into a destination.

Save & continue

Save & Exit Cancel

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Create a migration job – Database

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started

Define a source

Define a destination

Define connectivity method

Configure migration databases

Test and create migration job

Migration job name: vm-to-cloudsql

Source database engine: PostgreSQL

Destination database engine: Cloud SQL for PostgreSQL

Type: Continuous

Connection profile display name: postgres-vm

Hostname:Port: 10.138.0.2:5432

Full dump method: Logical

Data dump parallelism level: Optimal

Destination instance ID: postgresql-cloudsql

Region: us-west1

Connectivity method: VPC peering

Databases to migrate: All databases

Save & Exit Cancel

Test the migration job

Test your job to make sure all prerequisites were fulfilled to ensure your source can connect to your destination.

Test job

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Contents

Migrate to Cloud SQL for PostgreSQL Using Data

40/100

Lab setup instructions and requirements

Protect your account and

01:07:59

? Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.

[Learn more.](#)[Open Google Cloud console](#)

Username

student-02-9e1a71f76bad



Password

w9qNayqxdxvq



Project ID

qwiklabs-gcp-00-977e388c



Allow access to the postgresql-vm instance from automatically allocated IP range

In this step you edit the `pg_hba.conf` PostgreSQL configuration file to allow the Database Migration Service to access the stand-alone PostgreSQL database.

1. Get the allocated IP address range. In the console, on the **Navigation menu** (≡), click **VPC network** and then right-click **VPC network peering** and open it in a new tab.
2. Click on the `servicenetworking-googleapis-com` entry and then click **Effective routes view** at the bottom.
3. From the dropdown for **Network** select **default** and for **Region** select **us-west1**. Click **View**.
4. In the **Destination IP range** column, record the **IP range** (e.g. 10.107.176.0/24) next to **peering-route-xxxx...** route to use in an upcoming step.
5. In the terminal session on the VM instance, edit the `pg_hba.conf` file as follows:

Lab instructions and tasks	GSP918
Overview	
What you'll do	
Setup and requirements	
Task 1. Prepare the source database for migration	
Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database	
Task 3. Create and start a continuous migration job	
Task 4. Confirm the data in Cloud SQL for PostgreSQL	

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Create and Manage Cloud SQL for PostgreSQL Instances

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Lab setup instructions and requirements

Protect your account and

End Lab 01:07:48 Time limit

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

40/100 Lab instructions and tasks

5. In the terminal session on the VM instance, edit the `pg_hba.conf` file as follows:

```
sudo nano /etc/postgresql/14/main/pg_hba.conf
```

6. On the last line of the file:

```
#GSP918 - allow access to all hosts
host    all    all    0.0.0.0/0    md5
```

Replace the "all IP addresses" range (0.0.0.0/0) with the range recorded in the previous step.

```
#GSP918 - allow access to all hosts
host    all    all    10.107.176.0/24    md5
```

Note: The above step is not required to make the migration work, but it is good practice to make the source database more secure during the migration process. It also restricts access after the migration when the migrated database becomes the

Next >



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Lab setup instructions and requirements

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End Lab 01:07:43 Time limit

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Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388c

Note: The above step is not required to make the migration work, but it is good practice to make the source database more secure during the migration process. It also restricts access after the migration when the migrated database becomes the source of truth.

40/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

7. Press CTRL+O, ENTER, CTRL+X to save the file and exit the nano editor.

8. Restart the PostgreSQL service to make the changes take effect. In the VM instance terminal session:

```
sudo systemctl start postgresql@14-main
```

Test and start the continuous migration job

In this step, you test and start the migration job.

1. In the **Database Migration Service** tab you opened earlier, review the details of the migration job.

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Lab setup instructions and requirements

Protect your account and

End Lab 01:07:36 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

40/100 Lab instructions and tasks

7. Press CTRL+O, ENTER, CTRL+X to save the file and exit the nano editor.

8. Restart the PostgreSQL service to make the changes take effect. In the VM instance terminal session:

```
sudo systemctl start postgresql@14-main
```

Test and start the continuous migration job

In this step, you test and start the migration job.

1. In the **Database Migration Service** tab you opened earlier, review the details of the migration job.
2. Click **Test job**.
3. After a successful test, click **Create & start job**.
4. If prompted to confirm, click **Create & start**.

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Create a migration job – Database M VPC network peering – VPC Netw +

https://console.cloud.google.com/networking/peering/list?project=qwiklabs-gcp-00-977e388aec2d

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VPC Network / Peering connections

VPC networks IP addresses Internal ranges Bring your own IP Firewall Routes VPC network peering Shared VPC Serverless VPC access Packet mirroring VPC Flow Logs

VPC network peering + Create peering connection Refresh Delete

Filter Enter property name or value

Name ↑	Your VPC network	Peered VPC network	Peered project ID	Update strategy	Status	IP stack type	Custom routes
servicenetworking-googleapis.com	default	servicenetworking	w4709dc6c8fbc3797p-tp	Independent (default)	Active	IPv4	None

9+ 10°C Clear Search

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Create a migration job – Database M | servicenet..eapis.com – Peering +

https://console.cloud.google.com/networking/peering/details/default/servicenetworking-googleapis-com?project=qwiklabs-gcp-00-977e388... | 1

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VPC Network / Peering connections / Peering connection: servicenetworking-googleapis-com

VPC networks IP addresses Internal ranges Bring your own IP Firewall Routes **VPC network peering** Shared VPC Serverless VPC access Packet mirroring VPC Flow Logs

← Peering connection details Edit Delete

Peered VPC network
servicenetworking

Peered project ID
w4709dc6c8fbc3797p-tp

IP stack type
IPv4 (single-stack)

Exchange IPv4 custom routes ?
None

Exchange subnet routes with public IPv4 ?
None

Advanced options

Update strategy ?
Independent (default)

Use the Effective Routes view to see routes for each VPC network. The Effective Routes view lets you see only peering routes if you use the Next hop type: Network peering filter.

Effective Routes View

https://console.cloud.google.com/networking/routes/list?pageState=("routesPageTab":("t":"e...

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VPC Network / Routes Learn

Routes

[Effective routes](#) [Route management](#)

Select the VPC network and region for which you want to view routes

Network * [default](#) Region * [us-west1 \(Oregon\)](#) [View](#) [Refresh](#)

[Filter](#) Enter property name or value [Show suppressed routes](#)

Status	Name ↑	Type	IP version	Destination IP range	Priority	Scope limits ?	Next hop
✓	default-route-a9336731468c314e	Static	IPv4	0.0.0.0/0	1000	—	Default internet gateway
✓	default-route-r-0558bacdf0094452	Subnet	IPv4	10.128.0.0/20	0	—	Network default
✓	default-route-r-0ae6dc4a45e7c854	Subnet	IPv4	10.156.0.0/20	0	—	Network default
✓	default-route-r-197a9818fe22dfe9	Subnet	IPv4	10.148.0.0/20	0	—	Network default
✓	default-route-r-1cae707c1b82ea40	Subnet	IPv4	10.214.0.0/20	0	—	Network default
✓	default-route-r-4ec45d9679af682c	Subnet	IPv4	10.232.0.0/20	0	—	Network default
✓	default-route-r-7a515c311556f422	Subnet	IPv4	10.202.0.0/20	0	—	Network default

Create a migration job – Database Migration Service												
servicenet.eapis-com – Routes												
https://console.cloud.google.com/networking/routes/list?pageState={"routesPageTab":("t":"effective_routes"),"routeTableState":("n":"default","r":1,"s":1,"l":1,"c":1,"o":1})												
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VPC Network / Routes												
VPC networks IP addresses Internal ranges Bring your own IP Firewall Routes VPC network peering Shared VPC Serverless VPC access Packet mirroring VPC Flow Logs	Routes											
	default-route-r-c7a6d62e3ddbdeda	Subnet	IPv4	10.212.0.0/20	0	–	Network default					
	default-route-r-c845636ff96d9af4	Subnet	IPv4	10.218.0.0/20	0	–	Network default					
	default-route-r-d31eb2cc2836645e	Subnet	IPv4	10.208.0.0/20	0	–	Network default					
	default-route-r-d9202d96cd763e67	Subnet	IPv4	10.194.0.0/20	0	–	Network default					
	default-route-r-e13a5d5de9d2c59c	Subnet	IPv4	10.182.0.0/20	0	–	Network default					
	default-route-r-f24dd0604a3e7130	Subnet	IPv4	10.160.0.0/20	0	–	Network default					
	default-route-r-f88e9705748764fd	Subnet	IPv4	10.140.0.0/20	0	–	Network default					
	default-route-r-fb41ddfce430ac8	Subnet	IPv4	10.142.0.0/20	0	–	Network default					
	default-route-r-fe5d9e58b8c1ea05	Subnet	IPv4	10.180.0.0/20	0	–	Network default					
	peering-route-c1279895a2df5794	Peering subnet	IPv4	10.12.0.0/24	0	–	Network peering servicenetworking-googleapis-com (network servicenetworking)					
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SSH-in-browser

UPLOAD FILE

DOWNLOAD FILE



```
student-02-9e1a71f76bad@postgresql-vm:~$ sudo nano /etc/postgresql/14/main/pg_hba.conf
student-02-9e1a71f76bad@postgresql-vm:~$ █
```

```
GNU nano 5.4                               /etc/postgresql/14/main/pg_hba.conf *
```

If you want to allow non-local connections, you need to add more
"host" records. In that case you will also need to make PostgreSQL
listen on a non-local interface via the listen_addresses
configuration parameter, or via the -i or -h command line switches.

DO NOT DISABLE!
If you change this first entry you will need to make sure that the
database superuser can access the database using some other method.
Noninteractive access to all databases is required during automatic
maintenance (custom daily cronjobs, replication, and similar tasks).

Database administrative login by Unix domain socket
local all postgres peer

TYPE DATABASE USER ADDRESS METHOD

"local" is for Unix domain socket connections only
local all all peer
IPv4 local connections:
host all all 127.0.0.1/32 scram-sha-256
IPv6 local connections:
host all all ::1/128 scram-sha-256
Allow replication connections from localhost, by a user with the
replication privilege.
local replication all peer
host replication all 127.0.0.1/32 scram-sha-256
host replication all ::1/128 scram-sha-256
#GSP918 - allow access to all hosts
host all all 10.12.0.0/24 md5

 ^G Help
 ^X Exit

 ^O Write Out
 ^R Read File

 ^W Where Is
 ^\ Replace

 ^K Cut
 ^U Paste

 ^T Execute
 ^J Justify

 ^C Location
 ^_ Go To Line

 M-U Undo
 M-E Redo

 M-A Set Mark
 M-6 Copy

 M-] To Bracket
 ^Q Where Was



SSH-in-browser

UPLOAD FILE

DOWNLOAD FILE



```
student-02-9e1a71f76bad@postgresql-vm:~$ sudo nano /etc/postgresql/14/main/pg_hba.conf
student-02-9e1a71f76bad@postgresql-vm:~$ sudo systemctl start postgresql@14-main
student-02-9e1a71f76bad@postgresql-vm:~$ █
```

Create a migration job – Database

servicenet.eapis.com – Routes – VPC

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started (checked): vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source (checked): postgres-vm

Define a destination (checked): postgresql-cloudsql

Define connectivity method (checked): VPC peering

Configure migration databases (checked): All databases

Test and create migration job (checked): Test success

Hostname:Port: 10.138.0.2:5432
Full dump method: Logical
Data dump parallelism level: Optimal
Destination instance ID: postgresql-cloudsql
Region: us-west1
Connectivity method: VPC peering
Databases to migrate: All databases

Test the migration job

Test your job to make sure all prerequisites were fulfilled to ensure your source can connect to your destination.

Test run complete

Your migration job test was successful! You can create this job without starting it yet, or start it immediately.

Retest job

Create job Create & start job

Save & Exit Cancel

9+ 10°C Clear

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Create a migration job – Database

servicenet.eapis.com – Routes – VPC

https://console.cloud.google.com/dbmigration/migrations/create?project=qwiklabs-gcp-00-977e388aec2d

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Database Migration / Migration jobs / Create migration

Create a migration job

Get started (checked)
vm-to-cloudsql, PostgreSQL to Cloud SQL for PostgreSQL (Continuous)

Define a source (checked)
postgres-vm

Define a destination (checked)
postgresql-cloudsql

Define connectivity method (checked)
VPC peering

Configure migration databases (checked)
All databases

Test and create migration job (checked)
Test success

Save & Exit Cancel

Hostname:Port 10.138.0.2:5432
Full dump method Logical
Data dump parallelism level Optimal
Destination instance ID postgresql-cloudsql
Region us-west1
Connectivity method VPC peering

Create & start migration job?

Keep in mind: For tables in your source PostgreSQL database that don't have primary keys, only the initial snapshot and INSERT statements are migrated.

Cancel Create & start

Test run complete

Your migration job test was successful! You can create this job without starting it yet, or start it immediately.

Retest job

Create job Create & start job

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Review the status of the continuous migration job

In this step, you confirm that the continuous migration job is running.

1. In the Google Cloud console, on the Navigation menu (≡), click Database migration > Migration jobs.
2. Click the migration job **vm-to-cloudsql** to see the details page.
3. Review the migration job status.
 - If you have not started the job, the status shows as **Not started**. You can choose to start or delete the job.
 - After the job has started, the status shows as **Starting** and then transition to **Running full dump in progress** to indicate that the initial database dump is in progress.
 - After the initial database dump has been completed, the status transitions to **Running CDC in progress** to indicate that continuous migration is active.

40/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

Open Google Cloud console

Username: student-02-9e1a71f76bad Project ID: qwiklabs-gcp-00-977e388e

End Lab 01:06:09 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

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Migrate to Cloud SQL for PostgreSQL Using Data

Lab setup instructions and requirements

Protect your account and

End Lab 01:05:57 Time limit

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[Open Google Cloud console](#)

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

1. In the Google Cloud console, on the **Navigation menu** (≡), click **Database migration** > **Migration jobs**.

2. Click the migration job **vm-to-cloudsql** to see the details page.

3. Review the migration job status.

- If you have not started the job, the status shows as **Not started**. You can choose to start or delete the job.
- After the job has started, the status shows as **Starting** and then transition to **Running full dump in progress** to indicate that the initial database dump is in progress.
- After the initial database dump has been completed, the status transitions to **Running CDC in progress** to indicate that continuous migration is active.

When the job status changes to **Running CDC in progress**, proceed to the next task.

Note: Continuous migration jobs remain in a running status to ensure that the destination database continues to receive data updates from the source.

40/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

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Create a migration job – Database

servicenet.eapis.com – Routes – VPC

https://console.cloud.google.com/dbmigration/migrations/locations/us-west1/instances/vm-to-cloudsql?project=qwiklabs-gcp-00-977e388ae...

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Database Migration / Migration jobs / Migration job details: vm-to-cloudsql

vm-to-cloudsql Edit Resume Stop Restart Promote Delete View logs

Migration job name: vm-to-cloudsql
Status: Running
Phase: CDC
Source/Destination: PostgreSQL / Cloud SQL for PostgreSQL
Migration type: Continuous

Show all details

Databases Monitoring

3 Databases Refresh Restart failed databases

Filter Enter property name or value

Name	Status	Phase	Errors	Replication delay
postgres	Running	CDC	0 View details	0 B
orders	Running	CDC	0 View details	0 B
gmemegen_db	Running	CDC	0 View details	0 B

Migration job was started successfully.

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Create and Manage Cloud SQL for PostgreSQL Instances

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End Lab 00:58:12 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

Task 4. Confirm the data in Cloud SQL for PostgreSQL

60/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

Check the PostgreSQL databases in Cloud SQL

- In the Google Cloud console, on the **Navigation menu** (≡), click **SQL**.
- Expand the instance ID called **postgresql-cloudsql-master**.
- Click the instance **postgresql-cloudsql** (PostgreSQL read replica).
- In the **Replica instance** menu, click **Databases**.

Notice that the databases called **postgres**, **orders** and **gmemegen_db** have been migrated to Cloud SQL.

Connect to the PostgreSQL instance

- In the **Replica instance** menu, click **Overview**.

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Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76badc Password: w9qNayqxdxvq Project ID: qwiklabs-gcp-00-977e388e

4. In the **Replica instance** menu, click **Databases**. Notice that the databases called **postgres**, **orders** and **gmemegen_db** have been migrated to Cloud SQL.

60/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

Connect to the PostgreSQL instance

1. In the **Replica instance** menu, click **Overview**.
2. Scroll down to the **Connect to this instance** section and click **Open Cloud Shell**.

The command to connect to PostgreSQL pre-populates in Cloud Shell:

```
gcloud sql connect postgresql-cloudsql --user=postgres --quiet
```

3. Run the pre-populated command.
4. If prompted, click **Authorize** for the API.
5. When prompted for a password, which you previously set, enter:

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End Lab 00:57:54 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388e

60/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

Connect to the PostgreSQL instance

- In the **Replica instance** menu, click **Overview**.
- Scroll down to the **Connect to this instance** section and click **Open Cloud Shell**.

The command to connect to PostgreSQL pre-populates in Cloud Shell:

```
gcloud sql connect postgresql-cloudsql --user=postgres --quiet
```

- Run the pre-populated command.
- If prompted, click **Authorize** for the API.
- When prompted for a password, which you previously set, enter:

supersecret!

You have now activated the PostgreSQL interactive console for the destination instance.

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Instances – Cloud SQL – qwiklab X servicenet.eapis.com – Routes – VPC +

https://console.cloud.google.com/sql/instances?project=qwiklabs-gcp-00-977e388aec2d

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Cloud SQL Instances Create Instance Migrate Database Show info panel Learn

Get Started Instances Backups

Starting Feb 1, 2025, all instances running community end-of-life versions of PostgreSQL and MySQL are under extended support. These instances will be charged for extended support from May 1, 2025. Upgrade your instances running end-of-life versions before May 1, 2025 to prevent additional charges. [Learn more](#)

View affected instances Dismiss

Filter Enter property name or value

Status	Instance ID	Issues	Cloud SQL edition	Type	Public IP address	Private IP address	Actions
<input type="checkbox"/>	postgresql-cloudsql-master		Enterprise	PostgreSQL external primary			<input type="button" value="⋮"/>
<input checked="" type="checkbox"/>	postgresql-cloudsql		Enterprise	PostgreSQL read replica	34.82.20.185	10.12.0.3	<input type="button" value="⋮"/>

Release Notes

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postgresql-cloudsql – Databases

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

Cloud SQL Databases

Replica instance

All instances > postgresql-cloudsql-master > postgresql-cloudsql

✓ postgresql-cloudsql

PostgreSQL read replica

Name ↑	Collation	Character set
gmemegen_db	C.UTF-8	UTF8
orders	C.UTF-8	UTF8
postgres	C.UTF-8	UTF8

Overview Cloud SQL Studio System insights Query insights Connections Users Databases Replicas Operations Release Notes

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Overview Cloud SQL Studio System insights Query insights Connections Users Databases Replicas Operations Release Notes

instance. [Learn more](#)

To connect using gcloud,
[Open Cloud Shell](#)

No maintenance scheduled right now.

Maintenance version [?](#)
POSTGRES_14_20.R20251004.01_26
Instance has the latest supported maintenance version.

→ Edit maintenance preferences on primary instance

→ Edit notification preferences

Service account

p212397812756-l5z7kc@gcp-sa-cloud-sql.iam.gserviceaccount.com

Operations and logs

Creation Time	Completion Time	Type	Status
Jan 14, 2026, 7:51:06 PM	Jan 14, 2026, 7:52:49 PM	Start external sync	finished
Jan 14, 2026, 7:50:32 PM	Jan 14, 2026, 7:50:54 PM	Update	finished
Jan 14, 2026, 7:50:19 PM	Jan 14, 2026, 7:50:25 PM	Update	finished
Jan 14, 2026, 7:47:41 PM	Jan 14, 2026, 7:47:48 PM	Update	finished
Jan 14, 2026, 7:40:21 PM	Jan 14, 2026, 7:41:15 PM	Operation	finished

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https://console.cloud.google.com/sql/instances/postgresql-cloudsql/overview?project=qwiklabs-gcp-00-977e388aec2d&cloudshell=true | 3

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Cloud SQL Overview Edit Export Restart Delete

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

Welcome to Cloud Shell! Type "help" to get started, or type "gemini" to try prompting with Gemini CLI.
Your Cloud Platform project in this session is set to **qwiklabs-gcp-00-977e388aec2d**.
Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_02_9ela71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet

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https://console.cloud.google.com/sql/instances/postgresql-cloudsql/overview?project=qwiklabs-gcp-00-977e388aec2d&cloudshell=true | 3

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

Cloud SQL Overview Edit Export Restart Delete

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

Welcome to Cloud Shell! Type "help" to get started, or type "gemini" to try prompting with Gemini CLI.
Your Cloud Platform project in this session is set to **qwiklabs-gcp-00-977e388aec2d**.
Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [postgres].Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

postgres=>

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Protect your account and 00:53:57 Time limit

End Lab

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

Review the data in the Cloud SQL for PostgreSQL instance

1. To select the database in the PostgreSQL interactive console, run the following command:

```
\c orders;
```

2. When prompted for a password, enter:

```
supersecret!
```

3. Query the distribution_centers table:

```
select * from distribution_centers;
```

(Output)

longitude	latitude	name	id
100.0	50.0	New York City	1
120.0	35.0	Tokyo	2
150.0	40.0	Singapore	3
180.0	25.0	Mumbai	4
200.0	15.0	Bangalore	5
220.0	5.0	Chennai	6
250.0	10.0	Kolkata	7
280.0	20.0	Mumbai	8
300.0	30.0	Bangalore	9
320.0	40.0	Chennai	10
350.0	50.0	Kolkata	11
380.0	60.0	Mumbai	12
400.0	70.0	Bangalore	13
420.0	80.0	Chennai	14
450.0	90.0	Kolkata	15
480.0	100.0	Mumbai	16
500.0	110.0	Bangalore	17
520.0	120.0	Chennai	18
550.0	130.0	Kolkata	19
580.0	140.0	Mumbai	20
600.0	150.0	Bangalore	21
620.0	160.0	Chennai	22
650.0	170.0	Kolkata	23
680.0	180.0	Mumbai	24
700.0	190.0	Bangalore	25
720.0	200.0	Chennai	26
750.0	210.0	Kolkata	27
780.0	220.0	Mumbai	28
800.0	230.0	Bangalore	29
820.0	240.0	Chennai	30
850.0	250.0	Kolkata	31
880.0	260.0	Mumbai	32
900.0	270.0	Bangalore	33
920.0	280.0	Chennai	34
950.0	290.0	Kolkata	35
980.0	300.0	Mumbai	36
1000.0	310.0	Bangalore	37
1020.0	320.0	Chennai	38
1050.0	330.0	Kolkata	39
1080.0	340.0	Mumbai	40
1100.0	350.0	Bangalore	41
1120.0	360.0	Chennai	42
1150.0	370.0	Kolkata	43
1180.0	380.0	Mumbai	44
1200.0	390.0	Bangalore	45
1220.0	400.0	Chennai	46
1250.0	410.0	Kolkata	47
1280.0	420.0	Mumbai	48
1300.0	430.0	Bangalore	49
1320.0	440.0	Chennai	50
1350.0	450.0	Kolkata	51
1380.0	460.0	Mumbai	52
1400.0	470.0	Bangalore	53
1420.0	480.0	Chennai	54
1450.0	490.0	Kolkata	55
1480.0	500.0	Mumbai	56
1500.0	510.0	Bangalore	57
1520.0	520.0	Chennai	58
1550.0	530.0	Kolkata	59
1580.0	540.0	Mumbai	60
1600.0	550.0	Bangalore	61
1620.0	560.0	Chennai	62
1650.0	570.0	Kolkata	63
1680.0	580.0	Mumbai	64
1700.0	590.0	Bangalore	65
1720.0	600.0	Chennai	66
1750.0	610.0	Kolkata	67
1780.0	620.0	Mumbai	68
1800.0	630.0	Bangalore	69
1820.0	640.0	Chennai	70
1850.0	650.0	Kolkata	71
1880.0	660.0	Mumbai	72
1900.0	670.0	Bangalore	73
1920.0	680.0	Chennai	74
1950.0	690.0	Kolkata	75
1980.0	700.0	Mumbai	76
2000.0	710.0	Bangalore	77
2020.0	720.0	Chennai	78
2050.0	730.0	Kolkata	79
2080.0	740.0	Mumbai	80
2100.0	750.0	Bangalore	81
2120.0	760.0	Chennai	82
2150.0	770.0	Kolkata	83
2180.0	780.0	Mumbai	84
2200.0	790.0	Bangalore	85
2220.0	800.0	Chennai	86
2250.0	810.0	Kolkata	87
2280.0	820.0	Mumbai	88
2300.0	830.0	Bangalore	89
2320.0	840.0	Chennai	90
2350.0	850.0	Kolkata	91
2380.0	860.0	Mumbai	92
2400.0	870.0	Bangalore	93
2420.0	880.0	Chennai	94
2450.0	890.0	Kolkata	95
2480.0	900.0	Mumbai	96
2500.0	910.0	Bangalore	97
2520.0	920.0	Chennai	98
2550.0	930.0	Kolkata	99
2580.0	940.0	Mumbai	100

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

Your Cloud Platform project in this session is set to **qwiklabs-gcp-00-977e388aec2d**. Use `gcloud config set project [PROJECT_ID]` to change to a different project.

student_02_9ela71f76bad@cloudshell:~ (**qwiklabs-gcp-00-977e388aec2d**)\$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet

Allowlisting your IP for incoming connection for 5 minutes...done.

Connecting to database with SQL user [postgres].Password:

psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)

SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)

Type "help" for help.

```
postgres=> \c orders;
Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "orders" as user "postgres".
orders=>
orders=> select * from distribution_centers;
   longitude |   latitude |          name | id
-----+-----+-----+-----+-----+
-89.9711 | 35.1174 | Memphis TN | 1
-87.6847 | 41.8369 | Chicago IL | 2
-95.3698 | 29.7604 | Houston TX | 3
-118.25 | 34.05 | Los Angeles CA | 4
-90.0667 | 29.95 | New Orleans LA | 5
-73.7834 | 40.634 | Port Authority of New York/New Jersey NY/NJ | 6
-75.1667 | 39.95 | Philadelphia PA | 7
-88.0431 | 30.6944 | Mobile AL | 8
-79.9333 | 32.7833 | Charleston SC | 9
-81.1167 | 32.0167 | Savannah GA | 10
(10 rows)

orders=>
```

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Protect your account and 00:53:02 Time limit

End Lab

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

-89.9711 | 35.1174 | Memphis TN 1
-87.6847 | 41.8369 | Chicago IL 2
-95.3698 | 29.7604 | Houston TX 3
-118.25 | 34.05 | Los Angeles CA 4
-90.0667 | 29.95 | New Orleans LA 5
-73.7834 | 40.634 | Port Authority of New York/New Jersey NY/NJ 6
-75.1667 | 39.95 | Philadelphia PA 7
-88.0431 | 30.6944 | Mobile AL 8
-79.9333 | 32.7833 | Charleston SC 9
-81.1167 | 32.0167 | Savannah GA 10

60/100 Lab instructions and tasks

GSP918 Overview What you'll do Setup and requirements Task 1. Prepare the source database for migration Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database Task 3. Create and start a continuous migration job Task 4. Confirm the data in Cloud SQL for PostgreSQL

4. Exit the PostgreSQL interactive console by typing:

\q

Update stand-alone source data to test continuous migration

1. In Cloud Shell, type the following commands to connect to the source

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

Use `gcloud config set project [PROJECT_ID]` to change to a different project.
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [postgres].Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

postgres=> \c orders;
Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "orders" as user "postgres".
orders=>
orders=> select * from distribution_centers;

longitude	latitude	name	id
-89.9711	35.1174	Memphis TN	1
-87.6847	41.8369	Chicago IL	2
-95.3698	29.7604	Houston TX	3
-118.25	34.05	Los Angeles CA	4
-90.0667	29.95	New Orleans LA	5
-73.7834	40.634	Port Authority of New York/New Jersey NY/NJ	6
-75.1667	39.95	Philadelphia PA	7
-88.0431	30.6944	Mobile AL	8
-79.9333	32.7833	Charleston SC	9
-81.1167	32.0167	Savannah GA	10

(10 rows)

orders=> \q
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)\$

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Protect your account and
End Lab 00:52:43 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad1
Password: w9qNayqxdxvq
Project ID: qwiklabs-gcp-00-977e388e

Update stand-alone source data to test continuous migration

1. In Cloud Shell, type the following commands to connect to the source PostgreSQL instance:

```
export VM_NAME=postgresql-vm
export PROJECT_ID=$(gcloud config list --format 'value(core.project')
export POSTGRESQL_IP=$(gcloud compute instances describe ${VM_NAME}
--zone=us-west1-c --format="value(networkInterfaces[0].accessConfig
echo $POSTGRESQL_IP
psql -h $POSTGRESQL_IP -p 5432 -d orders -U migration_admin
```

Note: The above is an alternative approach to accessing the stand-alone database on the VM instance.

2. When prompted for a password, enter:

DMS_1s_cool1

60/100

source database for migration

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

Task 3. Create and start a continuous migration job

Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

Congratulations!

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Migrate to Cloud SQL for PostgreSQL Using Data

2. When prompted for a password, enter:

DMS_1s_cool!

3. In psql, enter the following commands:

\c orders;

insert into distribution_centers values(-80.1918, 25.7617, 'Miami FL', 11);

4. Close the interactive psql session:

\q

source database for migration

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

Task 3. Create and start a continuous migration job

Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

Congratulations!

Dashboard

Catalog

Paths

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdxvq

Project ID: qwiklabs-gcp-00-977e388

00:51:55 Time limit

End Lab

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Connect to the Cloud SQL PostgreSQL database

postgresql-cloudsql – Overview ✘ servenet.eapis.com – Routes – VPC +

https://console.cloud.google.com/sql/instances/postgresql-cloudsql/overview?project=qwiklabs-gcp-00-977e388aec2d&cloudshell=true | 3

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

```
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)$ export VM_NAME=postgresql-vm
export PROJECT_ID=$(gcloud config list --format 'value(core.project)')
export POSTGRESQL_IP=$(gcloud compute instances describe ${VM_NAME} \
--zone=us-west1-c --format="value(networkInterfaces[0].accessConfigs[0].natIP)")
echo $POSTGRESQL_IP
psql -h $POSTGRESQL_IP -p 5432 -d orders -U migration_admin
34.168.164.213
Password for user migration_admin:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20 (Debian 14.20-1.pgdg11+1))
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

orders=>
orders=> \c orders;
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20 (Debian 14.20-1.pgdg11+1))
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "orders" as user "migration_admin".
orders=>
orders=> insert into distribution_centers values(-80.1918,25.7617,'Miami FL',11);
INSERT 0 1
orders=>
orders=> \q
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)$
```

Upcoming Earnings 9 Search

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Create and Manage Cloud SQL for PostgreSQL Instances

https://partner.skills.google/course_templates/652/labs/564279

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Contents Migrate to Cloud SQL for PostgreSQL Using Data

Lab setup instructions and requirements

Protect your account and

End Lab 00:51:21 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxdvxq

Project ID: qwiklabs-gcp-00-977e388

Connect to the Cloud SQL PostgreSQL database to check that updated data has been migrated

1. In Cloud Shell, type the following commands to connect to the destination Cloud SQL PostgreSQL instance:

```
gcloud sql connect postgresql-cloudsql --user=postgres --quiet
```

2. When prompted for a password, which you previously set, enter the password for the Cloud SQL instance:

```
supersecret!
```

You have now activated the PostgreSQL interactive console for the destination instance.

Review data in Cloud SQL for PostgreSQL database

60/100

source database for migration

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

Task 3. Create and start a continuous migration job

Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

Congratulations!

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor | ☰ ⚙️ 🌐 📺 📈 📉 📊 📈 📈

```
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [postgres].Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

postgres=>
postgres=>
```

Create and Manage Cloud SQL for PostgreSQL Instances

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Google Cloud Partner

Contents Migrate to Cloud SQL for PostgreSQL Using Data

Lab setup instructions and requirements

Protect your account and

End Lab 00:50:15 Time limit

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

Review data in Cloud SQL for PostgreSQL database

1. In Cloud Shell, select the active database in the PostgreSQL interactive console:

```
\c orders;
```

2. When prompted for a password, which you previously set, enter:

```
supersecret!
```

3. Query the distribution_centers table:

```
select * from distribution_centers;
```

(Output)

longitude	latitude	name	id
100.0	50.0	New York City	1
120.0	35.0	Tokyo	2
150.0	35.0	Singapore	3
180.0	25.0	Bangalore	4
200.0	15.0	Mumbai	5
220.0	10.0	Chennai	6
250.0	5.0	Kolkata	7
280.0	0.0	Melbourne	8
300.0	-10.0	Sydney	9
320.0	-20.0	Paris	10
350.0	-30.0	London	11
380.0	-40.0	Berlin	12
400.0	-50.0	Rome	13
420.0	-60.0	Auckland	14
450.0	-70.0	Hong Kong	15
480.0	-80.0	Sao Paulo	16
500.0	-90.0	Bogota	17
520.0	-100.0	Caracas	18
550.0	-110.0	Buenos Aires	19
580.0	-120.0	Montevideo	20
600.0	-130.0	Asuncion	21
620.0	-140.0	Lima	22
650.0	-150.0	Quito	23
680.0	-160.0	Porto Alegre	24
700.0	-170.0	Curitiba	25
720.0	-180.0	Salvador	26
750.0	-190.0	Recife	27
780.0	-200.0	Natal	28
800.0	-210.0	Fortaleza	29
820.0	-220.0	Manaus	30
850.0	-230.0	Belém	31
880.0	-240.0	Porto Velho	32
900.0	-250.0	Macapá	33
920.0	-260.0	Brasília	34
950.0	-270.0	Salvador	35
980.0	-280.0	Recife	36
1000.0	-290.0	Natal	37
1020.0	-300.0	Fortaleza	38
1050.0	-310.0	Manaus	39
1080.0	-320.0	Belém	40
1100.0	-330.0	Porto Velho	41
1120.0	-340.0	Macapá	42
1150.0	-350.0	Brasília	43
1180.0	-360.0	Salvador	44
1200.0	-370.0	Natal	45
1220.0	-380.0	Fortaleza	46
1250.0	-390.0	Manaus	47
1280.0	-400.0	Belém	48
1300.0	-410.0	Porto Velho	49
1320.0	-420.0	Macapá	50
1350.0	-430.0	Brasília	51
1380.0	-440.0	Salvador	52
1400.0	-450.0	Natal	53
1420.0	-460.0	Fortaleza	54
1450.0	-470.0	Manaus	55
1480.0	-480.0	Belém	56
1500.0	-490.0	Porto Velho	57
1520.0	-500.0	Macapá	58
1550.0	-510.0	Brasília	59
1580.0	-520.0	Salvador	60
1600.0	-530.0	Natal	61
1620.0	-540.0	Fortaleza	62
1650.0	-550.0	Manaus	63
1680.0	-560.0	Belém	64
1700.0	-570.0	Porto Velho	65
1720.0	-580.0	Macapá	66
1750.0	-590.0	Brasília	67
1780.0	-600.0	Salvador	68
1800.0	-610.0	Natal	69
1820.0	-620.0	Fortaleza	70
1850.0	-630.0	Manaus	71
1880.0	-640.0	Belém	72
1900.0	-650.0	Porto Velho	73
1920.0	-660.0	Macapá	74
1950.0	-670.0	Brasília	75
1980.0	-680.0	Salvador	76
2000.0	-690.0	Natal	77
2020.0	-700.0	Fortaleza	78
2050.0	-710.0	Manaus	79
2080.0	-720.0	Belém	80
2100.0	-730.0	Porto Velho	81
2120.0	-740.0	Macapá	82
2150.0	-750.0	Brasília	83
2180.0	-760.0	Salvador	84
2200.0	-770.0	Natal	85
2220.0	-780.0	Fortaleza	86
2250.0	-790.0	Manaus	87
2280.0	-800.0	Belém	88
2300.0	-810.0	Porto Velho	89
2320.0	-820.0	Macapá	90
2350.0	-830.0	Brasília	91
2380.0	-840.0	Salvador	92
2400.0	-850.0	Natal	93
2420.0	-860.0	Fortaleza	94
2450.0	-870.0	Manaus	95
2480.0	-880.0	Belém	96
2500.0	-890.0	Porto Velho	97
2520.0	-900.0	Macapá	98
2550.0	-910.0	Brasília	99
2580.0	-920.0	Salvador	100

source database for migration
Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database
Task 3. Create and start a continuous migration job
Task 4. Confirm the data in Cloud SQL for PostgreSQL
Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data
Congratulations!

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) + Open Editor

```
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)$ gcloud sql connect postgresql-cloudsql --user=postgres --quiet
Allowlisting your IP for incoming connection for 5 minutes...done.
Connecting to database with SQL user [postgres].Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
Type "help" for help.

postgres=>
postgres=> \c orders;
Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "orders" as user "postgres".
orders=>
orders=> select * from distribution_centers;
   longitude |   latitude |          name | id
-----+-----+-----+-----+-----+
-89.9711 | 35.1174 | Memphis TN | 1
-87.6847 | 41.8369 | Chicago IL | 2
-95.3698 | 29.7604 | Houston TX | 3
-118.25 | 34.05 | Los Angeles CA | 4
-90.0667 | 29.95 | New Orleans LA | 5
-73.7834 | 40.634 | Port Authority of New York/New Jersey NY/NJ | 6
-75.1667 | 39.95 | Philadelphia PA | 7
-88.0431 | 30.6944 | Mobile AL | 8
-79.9333 | 32.7833 | Charleston SC | 9
-81.1167 | 32.0167 | Savannah GA | 10
-80.1918 | 25.7617 | Miami FL | 11
(11 rows)

orders=>
```

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Create and Manage Cloud SQL for PostgreSQL Instances

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Dashboard Catalog Paths

Lab setup instructions and requirements

Protect your account and 00:49:37 Time limit

End Lab

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. Learn more.

Open Google Cloud console

Username: student-02-9e1a71f76bad

Password: w9qNayqxvq

Project ID: qwiklabs-gcp-00-977e388

-89.9711 | 35.1174 | Memphis TN | 1
-87.6847 | 41.8369 | Chicago IL | 2
-95.3698 | 29.7604 | Houston TX | 3
-118.25 | 34.05 | Los Angeles CA | 4
-90.0667 | 29.95 | New Orleans LA | 5
-73.7834 | 40.634 | Port Authority of New York/New Jersey NY/NJ | 6
-75.1667 | 39.95 | Philadelphia PA | 7
-88.0431 | 30.6944 | Mobile AL | 8
-79.9333 | 32.7833 | Charleston SC | 9
-81.1167 | 32.0167 | Savannah GA | 10
-80.1918 | 25.7617 | Miami FL | 11

Note that the new row added on the stand-alone `orders` database, is now present on the migrated database.

4. Exit the PostgreSQL interactive console:

\q

Click **Check my progress** to verify the objective.

Test the continuous migration of data from the source to the destination

60/100

source database for migration

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

Task 3. Create and start a continuous migration job

Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

Congratulations!

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

CLOUD SHELL Terminal (qwiklabs-gcp-00-977e388aec2d) +

Open Editor | ☰ ⚙️ 🌐 📺 ⋮

Allowlisting your IP for incoming connection for 5 minutes...done.

Connecting to database with SQL user [postgres].Password:

psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)

SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)

Type "help" for help.

```
postgres=>
postgres=> \c orders;
Password:
psql (16.11 (Ubuntu 16.11-1.pgdg24.04+1), server 14.20)
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, compression: off)
You are now connected to database "orders" as user "postgres".
orders=>
orders=> select * from distribution_centers;
   longitude |   latitude |          name | id
-----+-----+-----+-----+
-89.9711 | 35.1174 | Memphis TN | 1
-87.6847 | 41.8369 | Chicago IL | 2
-95.3698 | 29.7604 | Houston TX | 3
-118.25 | 34.05 | Los Angeles CA | 4
-90.0667 | 29.95 | New Orleans LA | 5
-73.7834 | 40.634 | Port Authority of New York/New Jersey NY/NJ | 6
-75.1667 | 39.95 | Philadelphia PA | 7
-88.0431 | 30.6944 | Mobile AL | 8
-79.9333 | 32.7833 | Charleston SC | 9
-81.1167 | 32.0167 | Savannah GA | 10
-80.1918 | 25.7617 | Miami FL | 11
(11 rows)

orders=> \q
student_02_9e1a71f76bad@cloudshell:~ (qwiklabs-gcp-00-977e388aec2d)$
```

Air: Severe Saturday

Search

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Contents Migrate to Cloud SQL for PostgreSQL Using Data

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

1. In the Google Cloud console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **Database Migration > Migration jobs**.

2. Click the migration job name **vm-to-cloudsql** to see the details page.

3. Click **Promote**.

4. If prompted to confirm, click **Promote**.

When the promotion is complete, the status of the job updates to **Completed**.

4. In the Google Cloud console, on the **Navigation menu** (≡), click **View all products**. Under the **Databases** section, click **SQL**.

Note that **postgresql-cloudsql** is now a stand-alone instance for reading and writing data.

Click **Check my progress** to verify the objective.

source database for migration 100/100

Task 2. Create a Database Migration Service connection profile for a stand-alone PostgreSQL database

Task 3. Create and start a continuous migration job

Task 4. Confirm the data in Cloud SQL for PostgreSQL

Task 5. Promote Cloud SQL to be a stand-alone instance for reading and writing data

Congratulations!

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9+ 10°C Clear

Search

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Search – qwiklabs-gcp-00-977... X Cloud Shell servicenet...eapis.com – Routes – VPC +

https://console.cloud.google.com/search;q=Database%20Migration;searchScope=projects%2Fqwiklabs-gcp-00-977e388aec2d;tab=all?project=qwiklabs-gcp-00-977e388aec2d

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Google Cloud qwiklabs-gcp-00-977e388aec2d Database Migration Search

Search

Search All Documentation & Tutorials Resources Marketplace & APIs Send Feedback

Filter by

- Product or Page
- Documentation or tutorial
- Marketplace and APIs
- Organization
- Folder
- Project
- Resources

Resource filters

Project, folder, or org: qwiklabs-gcp-00-977... ▾

Resource type: Any ▾

Search results

Showing 30 of 63 results for "Database Migration".

Database Migration
Streamline migrations to Cloud SQL and AlloyDB
Type: Product or Page

Database Migration Service
A fully managed service for migrating databases to Google Cloud Platform
Type: Marketplace Product
Producer: Google

Database Migration API
Manage Cloud Database Migration Service resources on Google Cloud Platform.
Type: API
Producer: Google Enterprise API

Database Migration Service for SQL Server
You can migrate SQL Server databases to Cloud SQL for SQL Server instances

Speed up your search with these quick tips ▾
Press / to search from anywhere in the console
Find 111 resource types and more by using the new filters on this page
Find an API key by entering its key string in search
Search for top AWS or Azure offerings and get suggestions for similar Google Cloud products.
[Learn more](#)

https://console.cloud.google.com/dbmigration?referrer=search&project=qwiklabs-gcp-00-977e388aec2d backup and restore flow.

9+ Finance headline India Wholesale... Search

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Migration jobs – Database Migration x Cloud Shell servicenet...eapis-com – Routes – VPC + https://console.cloud.google.com/dbmigration/migrations?referrer=search&project=qwiklabs-gcp-00-977e388aec2d 2

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Google Cloud qwiklabs-gcp-00-977e388aec2d Database Migration X Search Database Migration / Migration jobs

Migration jobs + Create migration job Start Stop Restart Delete Refresh

Conversion workspaces Connection profiles Private connectivity

Migration jobs allow you to move data between source and destination databases. You can define your source by creating a new job, or just its connection profile. [Learn more](#)

Jobs (1) Drafts (0)

Filter migration jobs

Migration job name	Status	Phase	Source connection profile	Destination ID
vm-to-cloudsql	Running	CDC	postgres-vm	postgresql-cloudsql

Release Notes

console.cloud.google.com/dbmigration/migrations/locations/us-west1/.../vm-to-cloudsql?proj...

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vm-to-cloudsql – Database Migr. x Cloud Shell servicenet...eapis-com – Routes – VPC +

https://console.cloud.google.com/dbmigration/migrations/locations/us-west1/instances/vm-to-cloudsql?project=qwiklabs-gcp-00-977e388ae...

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Google Cloud qwiklabs-gcp-00-977e388aec2d Database Migration X Search

Database Migration / Migration jobs / Migration job details: vm-to-cloudsql

Migration jobs ← vm-to-cloudsql Edit Resume Stop Restart Promote Delete View logs ▾

Conversion workspaces Connection profiles Private connectivity

Migration job name: vm-to-cloudsql Status: Running Phase: CDC

Source/Destination

Migration type: Show all details Databases Monitoring

Promote migration job?

Promote disconnects the source from the destination, and promotes the destination to be a writeable instance. It's recommended to stop writes to the source, and to wait until the replication delay is at zero before initiating promote.

Cancel Promote

Databases Refresh Filter Enter property name or value

Name	Status	Phase	Errors	Replication delay
postgres	Running	CDC	0 View details	0 B
orders	Running	CDC	0 View details	0 B
gmemegen_db	Running	CDC	0 View details	0 B

Release Notes

9+ 10°C Clear

Search

08:09 PM 14-01-2026 ENG IN

vm-to-cloudsql – Database Migr. x Cloud Shell servicenet...eapis-com – Routes – VPC +

https://console.cloud.google.com/dbmigration/migrations/locations/us-west1/instances/vm-to-cloudsql?project=qwiklabs-gcp-00-977e388ae... | 3

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Google Cloud qwiklabs-gcp-00-977e388ae2d Database Migration X Search

Database Migration / Migration jobs / Migration job details: vm-to-cloudsql

Migration jobs

← vm-to-cloudsql Edit Resume Stop Restart Promote Delete View logs ▾

Migration job name: vm-to-cloudsql
Status: Completed
Phase: —
Source/Destination: PostgreSQL / Cloud SQL for PostgreSQL
Migration type: Continuous

Show all details

Databases Monitoring

3 Databases Refresh Restart failed databases

Filter Enter property name or value

Name	Status ↑	Phase ?	Errors	Replication delay ?
postgres	Completed	Promoted	0 View details	0 B
orders	Completed	Promoted	0 View details	0 B
gmemegen_db	Completed	Promoted	0 View details	0 B

Release Notes

Migration promoted successfully X

9+ 10°C Clear

Search

Cloud Shell servicenet...eapis-com – Routes – VPC

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https://console.cloud.google.com/welcome?project=qwiklabs-gcp-00-977e388aec2d

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Google Cloud qwiklabs-gcp-00-977e388aec2d

SQL

X Search

sql server

microsoft sql server

Top results

- Cloud SQL
Product · Managed MySQL, PostgreSQL, SQL Server
- AlloyDB for PostgreSQL
Product · Enterprise-grade, PostgreSQL-compatible databases
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- Cloud SQL for MySQL, PostgreSQL, and SQL Server
Documentation · Fully managed, cost-effective relational database service for PostreSQL....

Welcome

You're working in [qwiklabs-gcp-00-977e388aec2d](#)

Project number: 212397812756

Dashboard Cloud Hub New

Create a VM Run a query in BigQuery Create a storage bucket

Recommended based on your activity

Unlock powerful insights

You use Logging for app data; now get data from images. Automatically extract text, detect objects, and understand image content to save time on manual business tasks.

See code samples

https://console.cloud.google.com/sql?referrer=search&project=qwiklabs-gcp-00-977e388aec2d

9+ 10°C Clear Search

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https://console.cloud.google.com/sql/instances/postgresql-cloudsql/overview?project=qwiklabs-gcp-00-977e388aec2d | 1

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Google Cloud qwiklabs-gcp-00-977e388aec2d SQL X Search

Cloud SQL Overview Edit Import Export Restart Stop Delete Clone Migrate to AlloyDB

All instances > postgresql-cloudsql

Primary instance

Overview Cloud SQL Studio System insights Query insights Connections Users Databases Backups Replicas Operations Release Notes

PostgreSQL 14

This instance's backups settings don't follow your organization policy "Resource Location Restriction" Edit Settings

Learn the basics of Cloud SQL

0 of 3 completed

1 Import data With your Cloud SQL instance now running, the next step is to import data. You can import CSV and SQL files from your local file system or from a GCS bucket.

2 Query and explore data If you don't have existing data, you can [create a database](#), then create a table in Cloud SQL Studio in the next step.

3 Connect source application Import data Mark as complete

Chart CPU utilization 1 hour 6 hours 1 day 7 days 30 days Custom

100% 50%

9+ 10°C Clear

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