MySQL (/sql/docs/mysql/features) | **PostgreSQL** | SQL Server (/sql/docs/sqlserver/features)

This page describes the major features and capabilities of Cloud SQL for PostgreSQL. Cloud SQL is also available for MySQL (/sql/docs/mysql/features) and SQL Server (/sql/docs/sqlserver/features).

- Fully managed PostgreSQL databases in the cloud, based on the Cloud SQL Second Generation platform.
- Custom machine types with up to 416 GB of RAM and 64 CPUs.
- Up to 30 TB of storage available, with the ability to automatically increase storage size as needed.
- Create and manage instances in the Google Cloud Console (https://console.cloud.google.com/).
- Instances available in US, EU, Asia or Australia.
- Customer data encrypted on Google's internal networks and in database tables, temporary files, and backups.
- Support for secure external connections with the Cloud SQL Proxy or with the SSL/TLS protocol.
- Data replication between multiple zones with automatic failover.
- Import and export databases using SQL dump files.
- Support for PostgreSQL client-server protocol and standard PostgreSQL connectors.
- Automated and on-demand backups.
- Instance cloning.
- Integration with Stackdriver logging and monitoring.

- Support for multiple PostgreSQL versions (/sql/docs/postgres/db-versions).

Some PostgreSQL features are not yet available for Cloud SQL:

- Point-in-time recovery (PITR)
- Import/export in CSV format using Cloud Console or the `gcloud` command-line tool.

Postgres 11 (default) features that are not yet available for Cloud SQL:

- Logical replication
- Allow setting WAL size during initdb
- JIT plan compilation

Cloud SQL for PostgreSQL supports many PostgreSQL extensions. For a complete list, see PostgreSQL Extensions (/sql/docs/postgres/extensions).

Cloud SQL for PostgreSQL supports the `PL/pgSQL` SQL procedural language (https://www.postgresql.org/docs/9.6/static/plpgsql.html).

You can use Cloud SQL for PostgreSQL with App Engine applications running in the flexible environment that are written in Java, Python, PHP, Node.js, Go, and Ruby. You can also use Cloud SQL for PostgreSQL with external applications using the standard PostgreSQL client-server protocol.

You can connect to a Cloud SQL instance for PostgreSQL from:

- A `psql` client. Learn more (/sql/docs/postgres/connect-admin-ip).
- Third-party tools that use the standard PostgreSQL client-server protocol.
- External applications. Learn more (/sql/docs/postgres/connect-external-app).
- App Engine applications. Learn more (/sql/docs/postgres/connect-app-engine).
- Applications running on Compute Engine. Learn more (/sql/docs/postgres/connect-compute-engine).
- Applications running on Google Kubernetes Engine. Learn more (/sql/docs/postgres/connect-kubernetes-engine).
- Cloud Functions. Learn more (/sql/docs/postgres/connect-functions).

Connecting to Cloud SQL by using Private Google access is not supported.

In general, the PostgreSQL functionality provided by a Cloud SQL instance is the same as the functionality provided by a locally-hosted PostgreSQL instance. However, there are a few differences between a standard PostgreSQL instance and a Cloud SQL for PostgreSQL instance.

- Any features that require `SUPERUSER` privileges

  An exception to this rule is made for the `CREATE EXTENSION` statement, but only for supported extensions (#extensions).
- Custom background workers
- The `psql` client in Cloud Shell does not support operations that require a reconnection, such as connecting to a different database using the `\c` command.

- There are some PostgreSQL options and parameters that are not enabled for editing as Cloud SQL flags (/sql/docs/postgres/flags).

To request the addition of a configurable Cloud SQL flag, use the Cloud SQL Discussion group (https://groups.google.com/forum/#!forum/google-cloud-sql-discuss).