Second generation capabilities

This page describes the advantages of Cloud SQL for MySQL Second Generation, and some of the differences between Second Generation instances and First Generation instances.

Note: Second Generation is replacing First Generation; support for First Generation instances ends January 30, 2020. To upgrade a First Generation instance to Second Generation, see Upgrading a First Generation Instance to Second Generation (https://cloud.google.com/sql/docs/mysql/upgrade-2nd-gen).

Introduction

Cloud SQL Second Generation is the latest version for Cloud SQL for MySQL. Second Generation instances support most of the features of First Generation instances, and offer higher performance and storage capacity at a lower cost.

For a high-level list of Cloud SQL features, see Features (https://cloud.google.com/sql/docs/mysql/features#mysql).

For help with migrating an existing Cloud SQL instance to Second Generation, see Migrating an instance to Second Generation (https://cloud.google.com/sql/docs/mysql/upgrade-2nd-gen).

Advantages of using Cloud SQL Second Generation instances

The advantages of using Second Generation instances include:

- Up to 7X throughput and 20X storage capacity of First Generation instances
- Less expensive than First Generation for most use cases

- Option to add High Availability failover and read replication Learn more. (https://cloud.google.com/sql/docs/mysql/high-availability)
- Configurable backup period and maintenance window
- Proxy support Learn more. (https://cloud.google.com/sql/docs/mysql/sql-proxy)
- Private IP support Learn more. (https://cloud.google.com/sql/docs/mysql/private-ip)

Differences between Second Generation and First Generation instances

If you have been using First Generation instances, the following list of differences between First Generation instances and Second Generation instances can help you plan for the differences between the two instance types.

Pricing differences

Cloud SQL Second Generation does not provide a per-use pricing package; instance pricing is determined by the machine type. With the introduction of per-minute billing and sustained use discounts, Cloud SQL Second Generation can be more cost effective for many workloads. For more information, see the Pricing page (https://cloud.google.com/sql/docs/mysql/pricing#2nd-gen-pricing).

On Demand activation policy

Second Generation instances do not support the **On Demand** activation policy. Only **Always On** and **Off** are supported.

IPv6 connectivity

IPv6 connectivity is not supported for Second Generation instances. IPv4 connectivity is fully supported. For information about configuring an IPv4 address, see Configuring IP Access (https://cloud.google.com/sql/docs/mysql/configure-ip).

Storage engine support

For Second Generation instances, InnoDB is the only supported storage engine. For more information, see the FAQ (https://cloud.google.com/sql/docs/mysql/faq#innodb).

GTID Replication

Second Generation instances use GTID replication. This means that certain SQL statements and operations are not allowed. For more information, see Differences between Cloud SQL and standard MySQL functionality (https://cloud.google.com/sql/docs/mysql/features#differences).

MySQL versions

Second Generation instances support MySQL 5.7 and MySQL 5.6.

Import requirements

Second Generation instances apply tighter controls on imports. Before you export data for import into a Second Generation instance, be sure to use the instructions in Exporting Data for Import into Cloud SQL (https://cloud.google.com/sql/docs/mysql/import-export/creating-sqldump-csv).

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