

NoSQL + SQL = MySQL 8.0

MySQL is the most trusted and widely used open source database platform in use today, with the most popular and highly trafficked websites in the world relying on it. This new version introduces NoSQL support and hundreds of new features.

Here are the top 10 reasons you should be using MySQL 8.0:

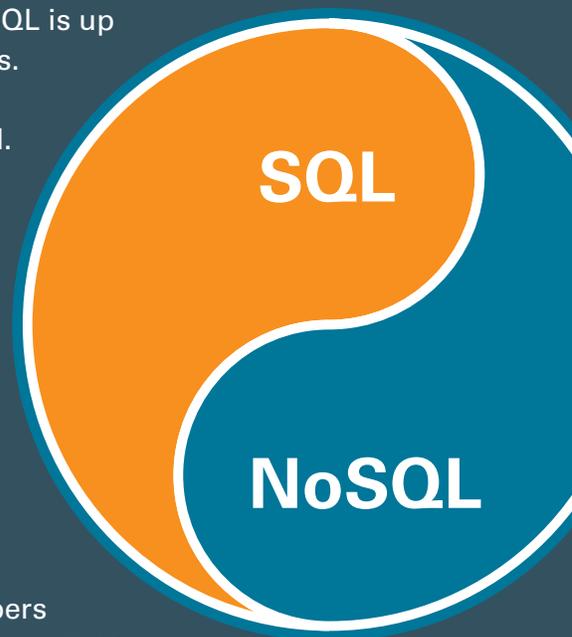
1. **MySQL DOCUMENT STORE** enables developers to create NoSQL applications using schema-less JSON collections. Developers have the flexibility of developing both relational and NoSQL document applications using a single database, without having to use a separate document database.

2. **MySQL 8.0 IS UPTO 2X FASTER** than MySQL 5.7. Sysbench Performance Benchmarks demonstrate that MySQL is up to 2x faster in both read/write and read-only tests. Furthermore, MySQL 8.0 sets new benchmark records with up to 1.8 million queries per second.

3. **TRANSACTIONAL DATA DICTIONARY** for increased reliability. Previously, database data dictionary metadata was stored in multiple file formats and different locations. The MySQL 8.0 Data Dictionary is implemented as a set of SQL tables stored in a single InnoDB tablespace. DDL statements are atomic and crash-safe, resulting in improved reliability.

4. **COMMON TABLE EXPRESSIONS** to help developers be more productive with advanced tooling. Common Table Expressions (CTEs, which are also known as WITH queries) have been added to MySQL 8.0. A CTE is a named temporary result set that exists within the scope of a single statement and that can be referred to later within that statement, recursively or not.

5. **WINDOW FUNCTIONS** to reduce code complexity and help developers be more productive. A window function, for each row from a query, performs a calculation using rows related to that row. It's like a GROUP BY, but it preserves rows rather than collapses them.



6. **SQL ROLES** for improved security. A role is a named collection of privileges. One can grant roles, grant to roles, create roles, drop roles, and decide what roles are applicable during a session. Also provided is an SQL function `ROLES_GRAPHML()` returning a graphml document representing role subgraphs.

7. **DEFAULT TO UTF8MB4 CHARACTER SET** for richer mobile applications and international character sets. In the mobile world, emojis and a multitude of charsets and collations need to coexist. Unicode (or, more specifically, UTF-8 encoding) has become universal even in English-speaking markets. This is why the default character set has been changed from latin-1 to utf8mb4. MySQL supports the latest Unicode 9.0 with new collations based on DUCET, and accent- and case-sensitive collations.



8. **IMPROVED JSON SUPPORT.** JSON support is one of the most well-received features of MySQL 5.7, and with MySQL 8.0 it has been enhanced. One of the most impressive functions added in MySQL 8.0 for JSON documents is the `JSON_TABLE()` function. This function accepts JSON data and returns it as a relational table. Columns and casting can be specified. Users can query the result returned by the function as a regular relational table using SQL.

9. **INVISIBLE INDEXES** to better manage software upgrades and database changes for applications that run 24x7 and have no clear maintenance window. Customers have provided key feedback which is that any change to indexing can have unintended consequences. Invisible indexes are a new feature in MySQL 8.0 that provide the ability to mark an index as unavailable for use by the Optimizer.

10. **DESCENDING INDEXES** to eliminate the need for sorting results, which lead to performance improvements in a number of queries. With the introduction of descending indexes, InnoDB can now store entries in descending order, and the optimizer will take advantage of it when descending order is requested in the query.

Additional reasons to upgrade or select MySQL 8.0 include:

- Better handling of hot rows
- Enhanced GIS support for mobile applications
- Improved performance and information schema
- Improved group replication and InnoDB Cluster
- Open SSL as the default TLS/SSL library in MySQL
- Protection against brute force attacks
- Password rotation policy
- REDO & UNDO Logs encryption for increased security
- Pluggable dynamic privileges
- Improvements to defaults
- Upgrade checker utility
- And many more