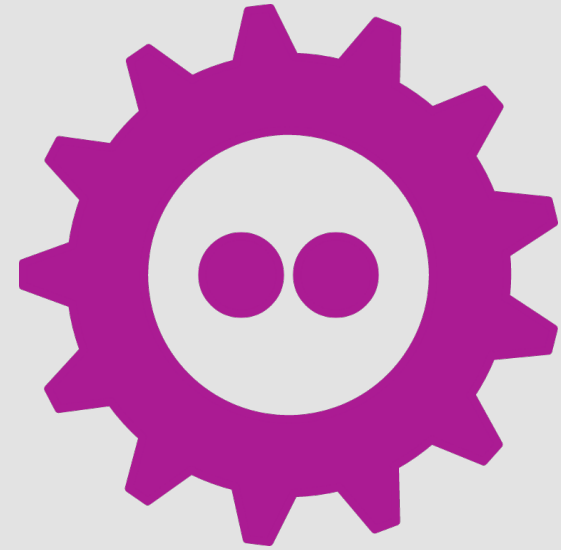


MySQL 8 vs MariaDB 10.10

Comparison between two wonderful databases



Peter Zaitsev,
Founder, Percona

FOSDEM 2023
MariaDB Devroom
February 5, 2023



Congratulations to
MariaDB on Becoming
Public Company!

MariaDB is **not**
MySQL



Started from the same roots MariaDB and MySQL diverged enough so they should be seen as two different, **great** databases



Fairness

I pledge to be an **equal opportunity offender** Both MySQL and MariaDB folks will find plenty to disagree with

MySQL

- Developed by Oracle Corporation
- Contributions are accepted
- Drop-ship Open Source (for Community Version)

MariaDB

- Server Released by MariaDB Foundation
- Development and Roadmap mostly driven by MariaDB Corporation
- Contributions are encouraged
- Development is done more in Public

Development Model

Future of Open Source MySQL Innovation ?



MariaDB Foundation

About MariaDB Foundation

The cornerstones of the MariaDB Foundation mission are Openness, Adoption, and Continuity.

- We ensure the MariaDB Server code base remains open for usage and contributions on technical merits.
- We strive to increase adoption by users and across use cases, platforms and means of deployment.
- We provide continuity to the MariaDB Server ecosystem, independent of any commercial entities.

The MariaDB Foundation is the global contact point for collaboration on MariaDB Server.

The Foundation is non-profit incorporated in Delaware, USA. and is funded by corporate and individual sponsors.

<https://mariadb.org/about/#about-mariadb-foundation>

MariaDB Corporation vs MariaDB Foundation – Specifics

- **Why Would you Care ?**
 - MariaDB Foundation is about serving MariaDB Community
 - Develops Open Source Software around MariaDB
 - MariaDB Corporation is a Public Company providing Proprietary solutions around MariaDB (Software, SaaS)
- **Relationship details are ~~Super~~ Complicated**

MariaDB Foundation responsible for “MariaDB Server”

Many other components such as Connectors, MaxScale, Xpand, ColumnStore are owned by MariaDB Corporation (variety of licenses)

Majority of Roadmap Development is done by MariaDB Corporation

MariaDB Knowledgebase while built by community is hosted by MariaDB Corporation

MariaDB Corporation
and
MariaDB Foundation

Downloading from MariaDB.org



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Latest releases [11.0.0 \(Alpha\)](#) [10.11.1 \(RC\)](#) [10.10.2](#), [10.9.4](#), [10.8.6](#), [10.7.7](#), [10.6.11](#), [10.5.18](#), [10.4.27](#), [10.3.37](#). [Vote in our poll!](#)

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[Connector/J](#)

[Connector/ODBC](#)

[Connector/Python](#)

[Connector/Node.js](#)

This is a **short term release** which is maintained for one year only. The latest **long-term support release** is MariaDB 10.6, which is maintained for five years.

MariaDB Server Version

MariaDB Server 10.10.2

Display older releases: ☐

Operating System

Windows

Architecture

x86_64

Package Type

MSI Package

Download

Mirror

Triple IT B.V. - Amsterdam

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Takes to MariaDB Corporation Lead Capture



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MariaDB Server 10.10.2

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Last Name:

Company:

Email Address:

Phone Number (optional):

Country:

How long have you used MariaDB in production?

☐ Yes, MariaDB Corporation may share my information with MariaDB Foundation

Create MariaDB ID

About this Release

- MariaDB Server 10.10.2 was released on 17 Nov 2022.
- [What's new in this release?](#)

Is this “Fair” ?

- **MariaDB Corporation Carries largest weight developing and Promoting MariaDB and supporting MariaDB Foundation**
- **MariaDB Foundation efforts benefit MariaDB Corporation more than other parties**

MySQL

- Very Clear and Simple “Open Core” Model
- There is Community Version of “Whole Platform”
- MySQL InnoDB Cluster is Open Source
- Enterprise - Commercially Licensed Plugins and Tools
- No Components were re-licensed in Proprietary License
- Increasing Focus on Cloud Only Heatwave

MariaDB

- MariaDB Server is Open Source
- MariaDB Connectors are Open Source
- Other Parts of Solution, such as MaxScale are not
- MaxScale was Open Source but later re-licensed Proprietary (BSL)
- MariaDB Enterprise Server is “Open Source for Customers”
- Xpand Storage Engine (Clustrix Reborn) is Proprietary

What is Open Source ?

MySQL

- MySQL Enterprise is a Superset of MySQL Community
- Anything which runs on community can be run on Enterprise
- Aligned Release Schedule

MariaDB

- MariaDB Enterprise Server is extended subset of Community
- Some features available in Community Server are not available in Enterprise
- MariaDB Platform Enterprise has separate lifecycle

Relationship between Open Source and Subscription Version

Cloud Native

- [New MySQL Operator](#) (GA) available from Oracle
- “Third Party” Kubernetes Operators for MySQL available from Number of Parties, Including Percona
- Using MariaDB SkySQL is MariaDB Corporation approach to running MariaDB in the cloud
- Number of Third Party MariaDB Helm/Operator Projects exists
- Project [Started](#) by MariaDB Foundation to Create Official Open Source Kubernetes Operator

DBaaS

MySQL and MariaDB Community Versions are available on variety of clouds

MySQL serves as a base for Amazon Aurora – the most popular “Cloud Forked” version

MariaDB Corporation and Oracle offer DBaaS for their Enterprise Versions

Alibaba Cloud offers enterprise version of MariaDB through Partnership

Oracle Push on MySQL Heatwave – Cloud only solution now available in OCI an other major clouds

Analytics

ColumnStore Storage Engine available in
MariaDB 10.5+ (Open Source)

MariaDB Enterprise ColumnStore is
available as part of MariaDB Enterprise
Subscription

MySQL Analytics Service in Oracle Cloud
“Heatwave” (Cloud Only)

What is the Focus ?

MariaDB

- Initially competed with MySQL on features
- Improving SQL Support (ie CTE, Windowing Functions)
- Now A lot of Focus on migration from Oracle, MS SQL
- Usability for Sysadmin/DBA (ie startup scripts) and Developers
- Cloud Integration (ie S3 Engine)

MySQL

- Focused on “Traditional” MySQL Use Case
- Improving SQL Support (ie CTE, Windowing Functions)
- Docstore and JSON
- Usability for Developers (ie MySQL Shell)
- Focus on Oracle Cloud rather than General Cloud
- Not focused on Advanced Oracle Features
- Is it because customers are not asking or because of Product Strategy ?

Architecture and Approach

MySQL

- Started Painful refactoring of old codebase
 - InnoDB Data Dictionary, Vulcan Optimizer
- Prioritize Ease of use, limit choices
 - Focus on InnoDB storage engine
- Some needlessly complex decisions
 - Disconnected from Reality
- Make InnoDB better for many use cases
- Making things work for Oracle Cloud

MariaDB

- Pushing old codebase further
- Prioritize choice and flexibility
- Support multiple storage engines
- Its own philosophy of Making InnoDB better
- Development Team closer to practical operations

MySQL

- MySQL 5.6 - GA Feb, 2013
- MySQL 5.7 - GA Oct, 2015
- MySQL 8.0 - GA Apr, 2018
- MySQL 8.0.31 – Oct 2022
- MySQL 8.0.32 - Jan 2023

MariaDB

- MariaDB 10.0 - Stable Mar 2014
- MariaDB 10.1 - Stable Oct 2015
- MariaDB 10.2 - Stable May 2017
- MariaDB 10.3 - Stable May 2018
- MariaDB 10.4 - Stable June 2019
- MariaDB 10.5 - Stable June 2020
- MariaDB 10.6 - Stable July 2021 [LTS]
- **MariaDB 10.7 - Stable Feb 2022**
- MariaDB 10.8 - Stable May 2022
- MariaDB 10.9 - Stable Aug 2022
- MariaDB 10.10 - Stable Nov 2022

Major Release Frequency

Release Philosophy

- **MariaDB**
 - Now Follows [New Release Model](#) similar to Ubuntu
 - Quarterly Major Releases with 1 year of maintenance
 - LTS (Long Term Support – 5y) Releases every 2 years
 - No Major Changes in Minor Releases
 - Can do minor downgrades, keeping dataset intact
- **MySQL**
 - MySQL 8 is “evergreen release”
 - Features are introduced in minor releases
 - **Can’t do minor downgrades**



Lets Look at
Some Specifics!

MySQL

- Classic MySQL Protocol
- SRV DNS Records Support
- X/Protocol

MariaDB

- Classic MySQL Protocol
- Extensions for Progress Reporting

Client Protocol

Interface Support

MySQL

- SQL
- Document Store
- Memcached

MariaDB

- SQL
- Handlersocket

JSON Support

MySQL

- Native JSON Datatype
- Efficient Partial Updates
- JSON Shortcuts

MariaDB

- JSON text stored
- Caught Up a lot with MySQL Recently

Replication

MySQL

- MySQL Group Replication
- MySQL GTID
- Clone Plugin for efficient provisioning

MariaDB

- Galera Replication
- MariaDB GTID

SQL Standard and Compatibility

- **MySQL**
 - Nothing MariaDB Does not offer comes to mind
- **MariaDB**
 - `sql_mode=Oracle`
 - System Versioned Tables
 - SEQUENCE
 - PACKAGES (Stored Procedures)



Security

Significant Difference in Security
and User Account Management



Dual Passwords



**Reloading TLS
Context**



**Dynamic
Privileges**



**Password
Policies**

Recent MySQL 8 Changes

Optimizer

Optimizer is different. Expect different execution plans and performance for complicated queries.

MySQL Compatibility

MariaDB picks the most important innovations from MySQL

Performance Schema

Ignored/Invisible Indexes

Atomic DDL

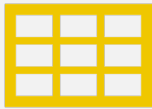
SKIP LOCKED (for Innodb)

Include Sys_Schema

Unique MariaDB Goodness



UUID Data Type



**“Lag Free” ALTER TABLE in
Replication**



GRANT TO PUBLIC (10.11)

Have you
Submitted
your
Proposal ?



A large crowd of runners is shown from a high angle, filling a city street. The runners are wearing various athletic gear, including tank tops, shorts, and running shoes. Some runners are wearing costumes, such as a person in a red mask and another in a Captain America shirt. The text "Run for MariaDB rather Than Run MariaDB" is overlaid in white outline font on the upper half of the image. The background is a dense crowd of people, mostly men, running towards the camera.

Run for MariaDB rather
Than Run MariaDB

5 People Teams Relay Run

Thank you, Let's Connect!

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<http://www.peterzaitsev.com>