

PERCONA

MySQL 8 vs MariaDB 10.11

Comparison between two wonderful databases



Peter Zaitsev,
Founder, Percona

Oct 5th, 2023

Interesting times in MariaDB Ecosystem



MariaDB Uncertainty

- **Stock Price Warning**
 - https://www.theregister.com/2023/07/05/mariadb_stock_exchange_compliance/
- **Company Valuation Warning**
 - <https://www.businesswire.com/news/home/20230921298202/en/MariaDB-Receives-NYSE-Continued-Listing-Standards-Notice>
- **Runa Capital Buyout Proposal**
 - https://www.theregister.com/2023/09/19/vc_makes_bid_for_mariadb/
- **Azure Plans to Retire MariaDB**
 - <https://azure.microsoft.com/en-us/updates/azure-database-for-mariadb-will-be-retired-on-19-september-2025-migrate-to-azure-database-for-mysql-flexible-server/>



MariaDB Happenings

- **AWS Joins as Diamond Sponsor Providing \$500K**
 - <https://mariadb.org/aws-diamond-sponsor/>
- **Great Energy at Board Level**
 - <https://mariadb.org/bodminutes/2023-09-06/>



Board Meeting Highlights

“Amazon’s first suggestion is for increased MySQL compatibility for MariaDB, promoting user choice”.

“Amazon’s second suggestion is for MariaDB Server to provide infrastructure for AI through a vector storage engine, something Postgres is already looking at in their pgvector initiative.”

“MariaDB plc appointed a new CEO and new senior management, who have a very different and fundamentally positive attitude to Open Source and MariaDB Foundation.”

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

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

Development Model

Future of Open Source MySQL Innovation ?



Oracle adds machine learning features to MySQL HeatWave

In addition to updating MySQL HeatWave's AutoML and Autopilot, Oracle will now offer a small shape for the service, targeting customers with smaller volumes of data.



By **Anirban Ghoshal**

Senior Writer, InfoWorld | MAR 23, 2023 10:59 AM PDT

AI Is Cloud Only Too...

<https://www.infoworld.com/article/3691614/oracle-adds-machine-learning-features-to-mysql-heatwave.html>

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 PLC vs MariaDB Foundation – Specifics

Why Would you Care ?

- MariaDB Foundation is about serving MariaDB Community
- Develops Open Source Software around MariaDB
- MariaDB PLC 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 PLC (variety of licenses)

Majority of Roadmap Development is done by MariaDB PLC

MariaDB Knowledgebase while built by community is hosted by MariaDB PLC

MariaDB PLC
and
MariaDB Foundation

MariaDB PLC Governance



Alex Suh
Chairman of the Board

Christine Russell
Director

Hal Berenson
Director

Jurgen Ingels
Director



Alex Suh

Chairman of the Board

Alex Suh is a founding Managing Director with California Technology Ventures, LLC, a Southern California venture capital firm that focuses its investments in the fields of Life Sciences and Information Technology. Alex is the managing director that invests in Life Sciences as well as Information Technology.

<https://investors.mariadb.com/governance/board-of-directors/default.aspx>

Downloading from MariaDB.org

Download MariaDB Server

[REST API](#)

Release Schedule

Reporting Bugs

MariaDB Server Statistics

Download MariaDB Server Documentation

View all releases for:

- [MariaDB Server](#)
- [MariaDB Galera](#)
- [Connector/C](#)
- [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

Thank you, your download will begin shortly. If it fails to start, [click here](#) to download directly.

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Takes to MariaDB Corporation Lead Capture



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MariaDB Server 10.10.2

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First Name:	Last Name:	Company:	Email Address:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Phone Number (optional):	Country:	How long have you used MariaDB in production?	
<input type="text"/>	<input type="text" value="-- Please Select --"/>	<input type="text" value="Select..."/>	

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 about to
change ?

“The CEO likened this to the end of the Cold War. He noted that we now have the opportunity to end somewhat strange practices (such as users downloading MariaDB Server on mariadb.org suddenly ending up on mariadb.com), and expected that most matters can be resolved by the CEO within his normal mandate. ”

Is this “Fair” ?

- **MariaDB PLC 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 PLC approach to running MariaDB in the cloud
- Number of Third Party MariaDB Helm/Operator Projects exists
- Open Source [MariaDB Operator](#) is in development

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
- MariaDB 11 for more breaking changes (like Optimizer)

MySQL

- MySQL 5.6 - GA Feb,2013
- MySQL 5.7 - GA Oct, 2015
- MySQL 8.0 - GA Apr, 2018
- MySQL 8.0.32 - Jan 2023
- MySQL 8.0.33 - Apr 2023
- MySQL 8.0.34 - Jul 2023
- MySQL 8.1.0 - Jul 2023 (Innovation Release)

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
- MariaDB 10.11 - Stable Feb 2023 [LTS]
- MariaDB 11.0 - Stable Jun 2023
- MariaDB 11.1 - Stable Aug 2023

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**

- [Innovation and LTS Release](#) Model
- MySQL 8 followed “Innovation Release” model so far
- Plan to ship features and bug fixes in Innovation Releases
- But Provide Bugfix Only releases for LTS Releases
- **Can't do minor downgrades in current MySQL 8.0**



Let's 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)

The background of the slide features a close-up, low-angle shot of a silver combination lock on the left, with its dial showing the number '5'. To the right and in the foreground, a dark green printed circuit board (PCB) is visible, populated with numerous small, gold-colored surface-mount components. The lighting is dramatic, highlighting the metallic textures and the intricate details of the electronics.

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



UUID Data Type



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



GRANT TO PUBLIC (10.11)

Community... Three of Them



User Community



Contributor Community



Vendor Community

<https://peterzaitsev.com/there-are-three-open-source-communities-not-just-one/>

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