FerretDB

A truly open-source MongoDB alternative built on PostgreSQL.

Marcin Gwozdz
Director of Strategic Alliances, FerretDB Inc.
Postgres Conference, 2024

FerretDB

AGENDA

- Introduction
- Why we are doing this?
- What is FerretDB?
- Examples of use
- Conclusion
  - Document Database Community

FerretDB

ABOUT ME

- Marcin Gwozdz
- 9+ years of experience in vendor relationships, mainly OSS
- ex-Percona, ex-Exclusive Networks
- Open Source Enthusiast

Marcin Gwóźdź
Director of Strategic Alliances at FerretDB //
Partner Development Manager // Relationship...

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Working with data should be as easy as possible!

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What does it mean?

- Database of your choice
  - Reliability
  - Flexibility
  - Intuitive interface
- No vendor lock-in
- No legal constraints
- Supportive vendor/community
- ...

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MongoDB's popularity

MySQL	46.85%
PostgreSQL	43.59%
SQLite	32.01%
MongoDB	28.3%
Microsoft SQL Server	26.87%
Redis	22.13%

"Which database environments have you done extensive development work in over the past year, and which do you want to work in over the next year? " 65k responses

Source: StackExchange Developer Survey, 2022 (excerpt)
"Which database environments have you done extensive development work in over the past year, and which do you want to work in over the next year? "

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NoSQL nr 1: MongoDB

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MongoDB advantages:

- Document-oriented use cases
- Flexible schema
- Query language
- Aggregation framework
- Drivers
- Developers experience overall

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MongoDB: it's great! But... SSPL?

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SSPL

MongoDB - since 2018, released under the Server Side Public Licence (SSPL).

If MongoDB is used as part of a Cloud Service...

... everything you use to provide that service needs to be open - sourced. Or you pay a licence fee.

SSPL kills innovation and creates vendor lock-in.

More info:

www.ssplisbad.com

Also: Peter Zaitsev and Matt Yonkovit's articles on Percona Blog

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We've talked to users - here's what they said

"The SSPL license is vague - we are looking to replace MongoDB due to the <u>legal risks</u> and uncertainty." - a FAANG company

"We are looking to find a MongoDB Atlas alternative, without <u>vendor lock-in.</u>" - Major travel search portal

"Pricing of <u>MongoDB Atlas is not suitable</u> for our use case." - Small SaaS business

"We are unable to offer our customers an <u>open-source</u>, MongoDB-compatible database." - Cloud Infrastructure provider

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Impact of SSPL on competition and availability

Let's look at the NoSQL databases available on the Civo Marketplace:

Database

 Ferretdb

A truly Open Source MongoDB alternative.

Version: 1.9.0

Database

 Mariadb

MariaDB is a community-developed fork of MySQL intended to remain free under the GNU GPL.

Version: 10.4.7

Database

 Mongodb

MongoDB document databases provide high availability and easy scalability.

Version: 4.2.12 ⬅ Outdated 2018 version, before SSPL

Database

 Percona MySQL

Percona Operator for MySQL based on Percona XtraDB Cluster.

Version: 1.11.0

Database

 Postgresql

The PostgreSQL object-relational database system provides reliability and data integrity.

Version: 11.5

Database

 Redis

Redis is an open source (BSD licensed), in-memory data structure store, used as a database, cache and message broker.

Version: 3.2

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MongoDB compatibility on top of Postgres, SQLite…

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FerretDB

- A MongoDB compatibility layer
- Written in Go
- Set out to become the de facto MongoDB Alternative
- Usable on-prem or in the cloud
- Can utilize various DBMS as backend
- Released under Apache 2.0

open source initiative®

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FerretDB vs. MongoDB architecture and licensing

MongoDB Drivers

- Main reason behind high adoption of MongoDB
- Provides unmatched Developer Experience
- Free to use under Apache 2.0

MongoDB Backend

- Licensed under SSPL
- Proprietary vendors (Amazon, IBM, Oracle, etc.) replaced it in their own implementations of a compatible product
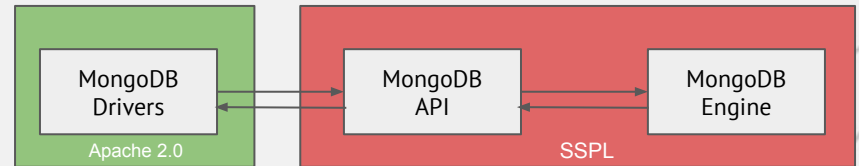
FerretDB replaces the MongoDB Backend with another database backend, mainly PostgreSQL.

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MongoDB compatibility means that all of the existing elements of the MongoDB Ecosystem (tools, frameworks and applications) are possible to use with FerretDB.

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composetest — mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelection...

```
Current Mongosh Log ID: 6419b780db253be44e1ab1eb
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2
000&appName=mongosh+1.6.1
Using MongoDB:          6.0.42
Using Mongosh:          1.6.1

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

------
    The server generated these startup warnings when booting
    2023-03-21T13:56:16.265Z: Powered by FerretDB v0.9.0 and PostgreSQL .
    2023-03-21T13:56:16.265Z: Please star us on GitHub: https://github.com/FerretDB/FerretDB.
    2023-03-21T13:56:16.265Z: The telemetry state is undecided; the first report will be sent
Read more about FerretDB telemetry and how to opt out at https://beacon.ferretdb.io.
------

    Enable MongoDB's free cloud-based monitoring service, which will then receive and display
    metrics about your deployment (disk utilization, CPU, operation statistics, etc).

    The monitoring data will be available on a MongoDB website with a unique URL accessible to
    and anyone you share the URL with. MongoDB may use this information to make product
    improvements and to suggest MongoDB products and deployment options to you.

    To enable free monitoring, run the following command: db.enableFreeMonitoring()
    To permanently disable
------

test>
```

Docker Desktop   Upgrade plan   Search for local and remote images, containers, and more…   ⌘K   Sign in

Containers
Images
Volumes
Dev Environments BETA

Extensions
Add Extensions

Containers Give feedback

A container packages up code and its dependencies so that the application runs quickly and reliably from one computing environment to another. Learn more

Only show running containers   Search

	Name	Image	Status	Port(s)	Last started	Actions
	ferretdb	-	Running (2/2)		2 hours ago	
	postgres b9409ae77ce8	postgres	Running	5432:5432	2 hours ago	
	ferretdb da179fc80902	ghcr.io/ferretdb/ferretdb:late	Running	27017:27017	2 hours ago	

Showing 3 items

avail. of 58.37 GB   Not connected to Hub   v4.17.0

Accommodation:

MongoDB Compass - localhost:27017

localhost:27017   My Queries   Databases   Performance

{} My Queries
Databases
Search

Connection info

Stats
0 DBs
0 Collections

Host
localhost:27017

Cluster
Standalone

Edition
MongoDB 6.0.42 Community

Close

>_MONGOSH

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Backend

Why PostgreSQL?

- FOSS
- Huge, supportive community
- High number of PostgreSQL users run MongoDB
- Existing JSON compatibility
- Strong interest from users with extensive operational experience

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Can run with many derivatives and flavors of PostgreSQL...

Not just Postgres...

FerretDB can add MongoDB compatibility to various backends:

Backend	FerretDB Version
PostgreSQL	newest releases
SQLite	newest releases
SAP HANA	experimental

It is possible for anyone to create a handler for FerretDB to support a database or database as a service.

MySQL?

"Which database environments have you done extensive development work in over the past year, and which do you want to work in over the next year? " 65k responses

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Applications

Why not just use Postgres and JSON?

Ease of use and compatibility. Many JS frameworks, stacks (MERN, MEAN, MEVN…) and other tools include or depend on MongoDB compatibility to work.

Enmeshed

Enmeshed is an open source project combining various assets into an overarching digitalization approach for users and organizations. Its overall goal is to introduce a secure but easy-to-use way to share and request data and digital signatures between contacts.

Enmeshed Team

The official enmeshed Team

🔗 Website

⚙ GitHub

📦 NPM

🔹 FerretDB compatibility for the enmeshed Connector

🕐 1 minute read

At enmeshed, we believe in the importance of open-source software and the freedom it gives developers.

MongoDB is licensed under the Server Side Public License (SSPL) and from the start of our project we knew that we needed to find an alternative database solution for the enmeshed Connector. After researching and testing several options, we found FerretDB to be a suitable truly open source replacement for MongoDB.

What is FerretDB?

FerretDB acts as a drop-in replacement for MongoDB. It does this by proxying the MongoDB wire protocol and translating it to SQL, using PostgreSQL as the database engine.

More information about FerretDBs architecture can be found in their docs.
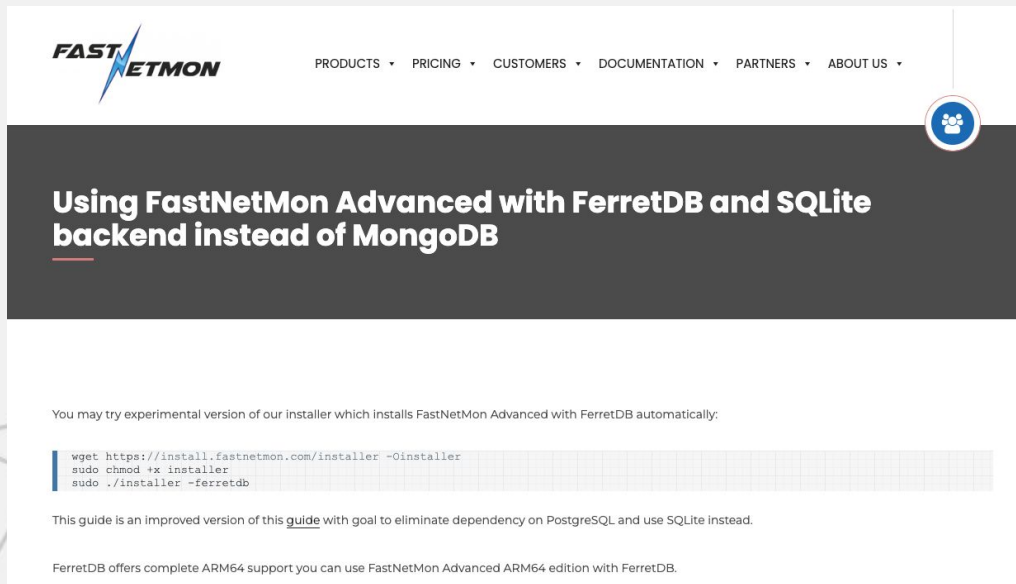
This means that the enmeshed Connector can now also be used with the PostgreSQL database, as requested some time ago.

How did we make sure that FerretDB is compatible with the enmeshed Connector?

https://enmeshed.eu/blog/announcing-ferretdb-compatibility

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FastNetMon

FastNetMon is a team of professionals in cyber security. Our goal is delivering a versatile and reliable DDoS detection tool which can be used by companies of any scale in any country.

https://fastnetmon.com/using-fastnetmon-advanced-with-ferretdb-and-sqlite-backend-instead-of-mongodb/

Visit our blog!

All posts

How to run and deploy FerretDB in Kubernetes using Pulumi

PostgreSQL – can it be a database for everything?

How to Run MongoDB Workloads with FerretDB on Tembo

A Guide to Disaster Recovery for FerretDB with Elotl Nova on Kubernetes

FerretDB releases v1.19.0

Add MongoDB Compatibility to Ubicloud Managed Postgres

FerretDB releases v1.18.0 with OpLog Support!

FerretDB releases v1.17.0!

FerretDB and Neon: Add MongoDB Compatibility to your Project

FerretDB releases v1.16.0!

FerretDB releases v1.15.0!

A Guide on Migrating from MongoDB to FerretDB

How to Package and Deploy FerretDB with Acorn

Why FastNetMon picked FerretDB for their SaaS offering

FerretDB releases v1.14.0!

How MongoDB Sorting Works for Scalar Values

How to run and deploy FerretDB in Kubernetes using Pulumi

February 26, 2024 · 12 min read
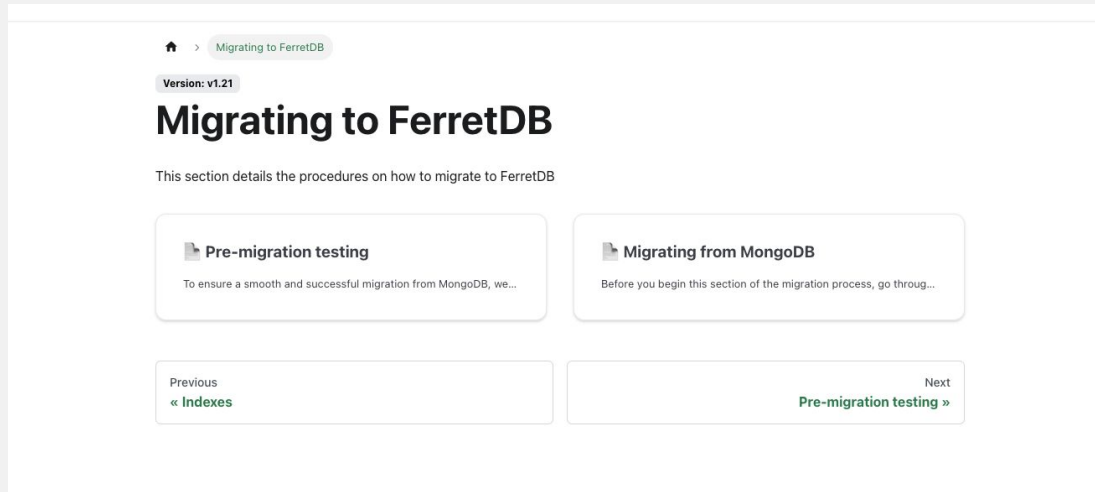
Alexander Fashakin
FerretDB Team

Setting up a scalable, reliable, and highly performant database application is essential for all production environments. But before then, you still need robust testing environments for your operations and teams.

Tags: | tutorial | community | postgresql tools | open source | cloud | **Read More**

https://blog.ferretdb.io/

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Documentation

https://docs.ferretdb.io/

Conclusion

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Current progress

- FerretDB 1.23 is production ready

- Good traction in the OSS community
  - Steady stream of outside contributors
  - 8900 stars, 380+ forks
  - Over 100 contributors
- Onboarding real world users
  - Network appliances
  - CMS
  - JS frameworks
  - Applications with light use of MongoDB

- FerretDB leads the way opening up the Document Database market
- We build FerretDB with the community

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Where to find us?

- Available as Managed Service:
    - Aenix
    - Civo
    - Elestio
    - Tembo
- Self-Managed Offering:
    - AppsCode - KubeDB
    - Elastisys
    - Leafcloud
    - Neon
    - Pigsty
    - Scaleway
    - Stackgres
    - Ubicloud
    - ...

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Demo

Try FerretDB for 2-hours for free, courtesy of Civo:

try.ferretdb.io

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Why to choose FerretDB?

- Database of your choice: **different possible backends**
  - Reliability: **backends supported by communities/proven vendors**
  - Flexibility: **choose the backend that is best for your workflow**
  - Intuitive interface: **MQL**
- No vendor lock-in: **fully open source project**
- No legal constraints: **Apache 2.0 license**
- Supportive community: **check our Community Slack channel!**
- …

FerretDB

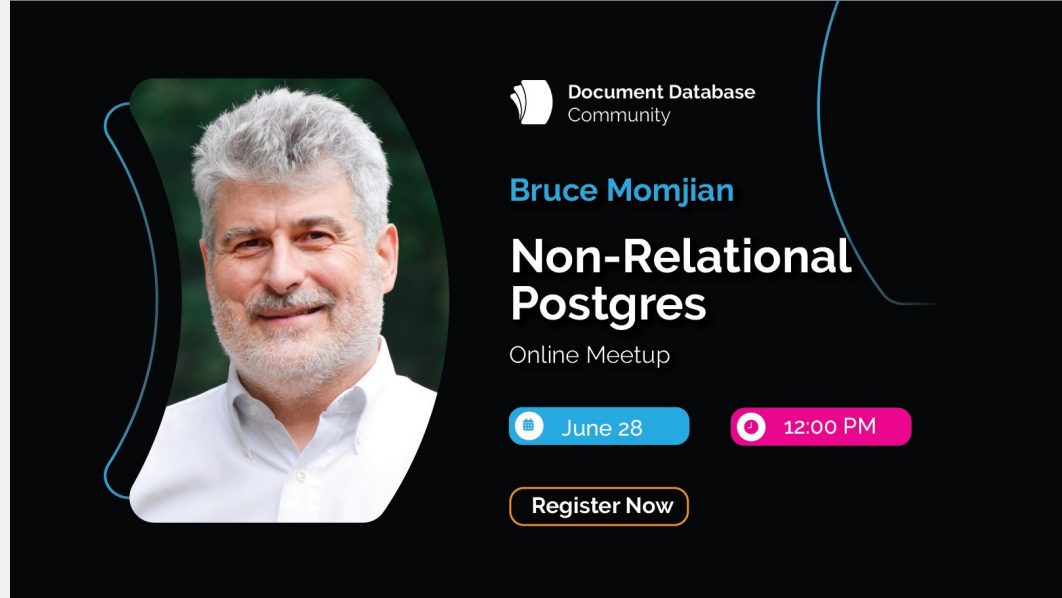# Document Database Community

FerretDB

The Document Database Community

**Founded by FerretDB,
open to all.**

Monthly, soon bi-weekly talks.

Aim is to facilitate discussion
between vendors on industry trends,
standardizing
document databases.

www.documentdatabase.org

Document Database Community

Bruce Momjian

Non-Relational Postgres

Online Meetup

📅 June 28   🕐 12:00 PM

Register Now

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Questions

Try FerretDB for free: https://try.ferretdb.io/
Run it on prem: https://docs.ferretdb.io/
Visit us on GitHub: https://github.com/FerretDB/FerretDB
Community Slack: https://ferretdb.slack.com

www.ferretdb.io

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