

main

Go to file

Code

	Experimental file co...	✓	0286e50 · 45 minutes ago	
	.github	Bump actions/check...	14 hours ago	
	driver	Fix #335.	2 days ago	
	embed	Experimental file co...	45 minutes ago	
	ext	Prepare 3.51.0.	last month	
	gormlite	Deps.	last week	
	internal	Deps.	18 hours ago	
	litestream	Deps.	18 hours ago	
	sqlite3	Deps.	18 hours ago	
	tests	VFS error handling.	last month	
	util	wasi-sdk-28.	2 weeks ago	
	vfs	Experimental file co...	45 minutes ago	
	.gitignore	Ignore.	9 months ago	
	LICENSE	Initial commit	3 years ago	
	README.md	Test more, log less.	2 weeks ago	
	backup.go	More type safe. (#216)	10 months ago	
	blob.go	Rework context canc...	8 months ago	
	config.go	VFS error handling.	last month	
	conn.go	SQLite 3.51.0.	2 weeks ago	
	const.go	SQLite 3.51.0.	2 weeks ago	
	context.go	VFS error handling.	last month	
	error.go	Improve error report...	last month	
	error_test.go	Optimize errors a bit.	8 months ago	
	example_test.go	Simplify tests.	last year	
	func.go	Fixes.	3 months ago	
	func_seq_test.go	Seq aggregate functi...	8 months ago	
	func_test.go	Regular expression e...	last year	
	func_win_test.go	Fix encoding.	last year	
	go.mod	Deps.	18 hours ago	
	go.sum	Deps.	18 hours ago	
	json.go	JSON experiment.	2 months ago	
	json_test.go	Use memdb for tests...	last year	
	json_v2.go	JSON experiment.	2 months ago	
	pointer.go	Remove unneeded g...	4 months ago	
	quote.go	Improved quoting.	last year	
	registry.go	Automatically load e...	last year	
	sqlite.go	wazero v1.10.0.	2 weeks ago	
	sqlite_test.go	Fix #255.	8 months ago	
	stmt.go	JSON experiment.	2 months ago	
	time.go	Time improvements.	2 months ago	
	txn.go	Avoid escaping time...	8 months ago	
	value.go	JSON experiment.	2 months ago	
	vtab.go	Prepare 3.51.0.	last month	
	vtab_test.go	Fix API inconsistency.	last year	

Go bindings to SQLite using wazero

Go

reference

go report

A+

coverage

93.7%

Go module github.com/ncruces/go-sqlite3 is a cgo - free [SQLite](#) wrapper. It provides a [database/sql](#) compatible driver, as well as direct access to most of the [C SQLite API](#).

It wraps a [Wasm build](#) of SQLite, and uses [wazero](#) as the runtime. Go, wazero and [x/sys](#) are the *only* direct dependencies.

Getting started

Using the [database/sql](#) driver:

```
import "database/sql"
import _ "github.com/ncruces/go-sqlite3/driver"
import _ "github.com/ncruces/go-sqlite3/embed"

var version string
db, _ := sql.Open("sqlite3", "file:demo.db")
db.QueryRow(`SELECT sqlite_version()`).Scan(&v
```

Packages

- [github.com/ncruces/go-sqlite3](#) wraps the [C SQLite API](#) ([example](#)).
- [github.com/ncruces/go-sqlite3/driver](#) provides a [database/sql](#) driver ([example](#)).
- [github.com/ncruces/go-sqlite3/embed](#) embeds a build of SQLite into your application.
- [github.com/ncruces/go-sqlite3/vfs](#) wraps the [C SQLite VFS API](#) and provides a pure Go implementation.
- [github.com/ncruces/go-sqlite3/gormlite](#) provides a [GORM](#) driver.

Advanced features

- [incremental BLOB I/O](#) ([example](#))
- [nested transactions](#) ([example](#))
- [custom functions](#) ([example](#))
- [virtual tables](#) ([example](#))
- [custom VFSes](#) ([examples](#))
- [online backup](#) ([example](#))
- [JSON support](#) ([example](#))
- [math functions](#)
- [full-text search](#)
- [geospatial search](#)
- [Unicode support](#)
- [statistics functions](#)
- [encryption at rest](#)
- [many extensions](#)
- [and more...](#)

Caveats

This module replaces the SQLite [OS Interface](#) (aka VFS) with a [pure Go](#) implementation, which has advantages and disadvantages. Read more about the Go VFS design [here](#).

Because each database connection executes within a Wasm sandboxed environment, memory usage will be higher than alternatives.

Testing

This project aims for [high test coverage](#). It also benefits greatly from [SQLite's](#) and [wazero's](#) thorough testing.

Every commit is tested on:

- Linux: amd64, arm64, 386, arm, riscv64, ppc64le, loong64, s390x
- macOS: amd64, arm64
- Windows: amd64, arm64
- BSD:
 - FreeBSD: amd64, arm64
 - NetBSD: amd64, arm64
 - DragonFly BSD: amd64
 - OpenBSD: amd64
- illumos: amd64
- Solaris: amd64

Certain operating system and CPU combinations have some limitations. See the [support matrix](#) for a complete overview.

The Go VFS is tested by running SQLite's [mptest](#).

Performance

Performance of the [database/sql](#) driver is [competitive](#) with alternatives.

The Wasm and VFS layers are also benchmarked by running SQLite's [speedtest1](#).

Concurrency

This module behaves similarly to SQLite in [multi-thread](#) mode: it is goroutine-safe, provided that no single database connection, or object derived from it, is used concurrently by multiple goroutines.

The [database/sql](#) API is safe to use concurrently, according to its documentation.

About

Go bindings to SQLite using wazero

[pkg.go.dev/github.com/ncruc...](https://pkg.go.dev/github.com/ncruces/go-sqlite3)

[wasm](#) [sqlite3](#) [no-cgo](#)
[wazero](#)

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Releases 39

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+ 38 releases

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Used by 538

 + 530

Contributors 7



Languages

● Go 90.0% ● C 5.1%
● WebAssembly 3.5%
● Shell 1.4%

FAQ, issues, new features

For questions, please see [Discussions](#).

Also, post there if you used this driver for something interesting ("[Show and tell](#)"), have an [idea](#)...

The [Issue](#) tracker is for bugs, and features we're working on, planning to work on, or asking for help with.

Alternatives

- modernc.org/sqlite
- crawshaw.io/sqlite
- github.com/mattn/go-sqlite3
- github.com/zombiezen/go-sqlite

