

Go 1.22: Safer Loops, Smarter Routing

Go 1.22 arrives six months after Go 1.21, with most changes in the toolchain, runtime and libraries. It keeps the Go 1 compatibility promise, so almost all programs build and run as before.

for loops

net/http

PGO

● Built for image-led stories, dense insights, and motion-first reveals.

SPOTLIGHT

Secondary image for product, people, or process context.

Visual anchor for the deck. Use this frame to establish tone, environment, and momentum.

Third perspective to keep the slide cinematic and content-rich.



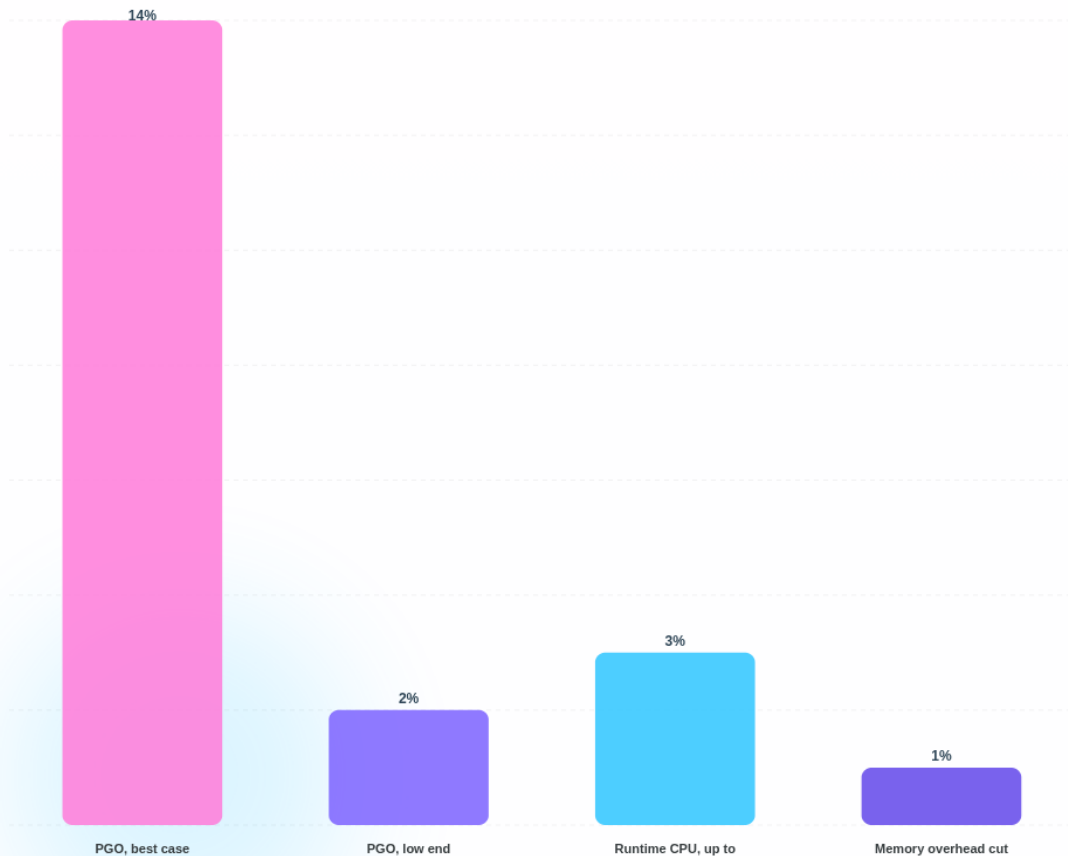
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Free speed from runtime and compiler

Figures as stated in the Go 1.22 release notes.

Reported improvement, percent

GO 1.22



Core Analysis

PGO devirtualizes more

Most programs in a representative set gain 2 to 14% with PGO on.

GC metadata moved

Type metadata now sits nearer each heap object, worth 1 to 3% CPU.

Alignment caveat

Some objects are now 8-byte aligned, not 16. Rare assembly may break.

Four changes to check when moving to 1.22

In the order a team would hit them during an upgrade.



LANGUAGE

Per-iteration loop variables

Each for-loop iteration gets new variables, ending accidental sharing bugs.



LANGUAGE

Range over integers

for i := range 10 now works.



TOOLS

go test -cover

Packages without test files now report 0.0% instead of no test files.



TOOLS

Workspace vendoring

go work vendor creates a vendor directory for the whole workspace.

Range-over-func iterators are a preview behind GOEXPERIMENT=rangefunc.



GO 1 COMPATIBLE

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ServeMux patterns now take methods and wildcards

Many services can drop a third-party router for basic routing.

PATTERN	MATCHES	READ VALUE WITH	NOTE
POST /items/create	Only POST requests	n/a	GET also registers HEAD
/items/{id}	One path segment	Request.PathValue("id")	SetPathValue also added
/files/{path...}	All remaining segments	Request.PathValue("path")	Must end the pattern
/exact/match/{\$}	Exact path with slash	n/a	No prefix matching

When patterns overlap, **the more specific one wins** and registration order does not matter.



SMALL BREAKING CHANGES

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VET AND STDLIB

New warnings and the first v2 package

go vet adds checks for mistakes that compile cleanly but almost never do what was meant. The standard library also ships math/rand/v2, its first v2 package.

append with no values

slice = append(slice) does nothing and is now flagged.

defer time.Since

A non-deferred time.Since inside defer is reported.

log/slog pairs

Bad key positions and missing final values are reported.

math/rand/v2 drops Read and always seeds the global generator randomly.



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SUMMARY

Where Go 1.22 lands in a codebase

Language

New loop variable per iteration,
range over int.

Routing

Methods and wildcards in
`http.ServeMux`.

Go 1.22

Performance

PGO 2 to 14%, runtime 1 to 3% CPU.

Tooling

Stricter vet, cover reports,
workspace vendor.

Source: go.dev/doc/go1.22



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