What's new in Go 1.21.0

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https://go.dev/doc/go1.21

- Most of its changes are in the implementation of the toolchain, runtime, and libraries.

- Starting in Go 1.21, the first release is now Go 1.N.0.

Compiler — Profile-guided optimization

- Profile-guided optimization (PGO), added as a preview in Go 1.20, is now ready for general use.

- PGO is enabled by default for binaries that contain a default.pgo profile in the main package directory

- Go 1.21 improves build speed by up to 6%, largely thanks to building the compiler itself with PGO.

Changes to the Language and Standard Library

- New builtins: **min**, **max**, **clear**
  - `x := min(42, 1337)   // x == int(42)`
  - `x := max(42, 1337.0) // x == float64(1337.0)`
  - `x := min(42, 1337.0) // x == float64(42)`
  - `clear(myMap)         // len(myMap) == 0`
  - `clear(mySlice)       // zero out all elements`

- Structured logging package: **log/slog**
  - `slog.Info("hello", "count", 3) // 15:28:26 INFO hello count=3`

- New **slices** package
  - defines various functions useful with slices of any type

Loopvar Experiment

```go
func TestAllEvenBuggy(t *testing.T) {
    testCases := []int{1, 2, 4, 6}
    for _, v := range testCases {
        t.Run("sub", func(t *testing.T) {
            t.Parallel()
            if v&1 != 0 {
                t.Fatal("odd v", v)
            }
        })
    }
}
```

Fixed with: `GOEXPERIMENT=loopvar`

[net/http: enhanced ServeMux routing](#)

```
POST /item/{user}
GET /item/{user}                // Also matches HEAD
/item/{user}/{id}
/info/{parts...}
/item/{$}                       // Only match until trailing slash
POST alt.com/user/{id}
/dl/item_{id}/pdf               // `item_{id}` is NOT ALLOWED
```

```go
package http


func (*Request) PathValue(wildcardName string) string
func (*Request) SetPathValue(name, value string)
```

Thanks!