

The GNU Go Compiler

For GCC version 16.0.0 (pre-release)

(GCC)

Ian Lance Taylor

Published by the Free Software Foundation
51 Franklin Street, Fifth Floor
Boston, MA 02110-1301, USA

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4.2 Function Names

Go code can call C functions directly using the `//extern` or `//go:linkname` compiler directives. An `//extern` directive must be at the beginning of the line and must start with `//extern`. This must be followed by a space and then the external name of the function. The function declaration must be on the line immediately after the comment. For example, here is how the C function `open` can be declared in Go:

```
//extern open
func c_open(name *byte, mode int, perm int) int
```

You can do the same thing using the `//go:linkname` compiler directive. The `//go:linkname` directive must be at the start of the line. It is followed by whitespace, the name of the Go function, more whitespace, and the external name of the function. Unlike `//extern`, `//go:linkname` does not need to appear immediately adjacent to the function definition or declaration.

```
//go:linkname c_open open
func c_open(name *byte, mode int, perm int) int
```

The C function naturally expects a nul terminated string, which in Go is equivalent to a pointer to an array (not a slice!) of `byte` with a terminating zero byte. So a sample call from Go would look like (after importing the `os` package):

```
var name = [4]byte{'f', 'o', 'o', 0};
i := c_open(&name[0], os.O_RDONLY, 0);
```

Note that this serves as an example only. To open a file in Go please use Go's `os.Open` function instead.

The name of Go functions accessed from C is subject to change. At present the name of a Go function that does not have a receiver is `pkgpath.Functionname`. The `pkgpath` is set by the `-fgo-pkgpath` option used when the package is compiled; if the option is not used, the default is `go.packagename`. To call the function from C you must set the name using the gcc `__asm__` extension.

```
extern int go_function(int) __asm__ ("mypkgpath.Function");
```

