Gophers: ARMed and Dangerous

Golang on the Pi

By Sue Spence

Twitter: virtualsue
Github: virtualsue
Blog: https://medium.com/@virtualsue

Image courtesy of Wisit Mongkhonsrisawat & Renée French

(Go Gophers have no arms)

What is the Go Programming Language?

It was invented at Google in 2007

Creators:

- Robert Griesemer
- Rob Pike
- Ken Thompson

Design Goals

Scalable to Large Systems

Design Goals

Scalable to Large Systems

‘Light On The Page’

Design Goals

Scalable to Large Systems

‘Light On The Page’ - like Python, Ruby etc.

Design Goals

Scalable to Large Systems

‘Light On The Page’

Support Networking & Multitasking

Design Goals

Scalable to Large Systems

‘Light On The Page’

Support Networking & Multitasking

Not Require An IDE

Quick Summary

- General Purpose Language

- General Purpose Language
- Compiles to Static Binary

- General Purpose
- Compiles to Static Binary
- Strongly Typed

- General Purpose Language
- Compiles to Static Binary
- Strongly Typed
- Garbage collection

- General Purpose Language
- Compiles to Static Binary
- Strongly Typed
- Garbage collection
- Deliberately Simple Syntax

Also

- Simplified Concurrency

- Simplified Concurrency
- Straightforward Toolchain

- Simplified Concurrency
- Straightforward Toolchain
- Extensive Standard Library

Go is a Reboot of C

golang.org

The Home of Go

The Go Programming Language

Documents | Packages | The Project | Help | Blog | Search

Try Go

Pop-out

```
// You can edit this code!
// Click here and start typing.
package main

import "fmt"

func main() {
        fmt.Println("Hello, 世界")
}
```

Hello, World!

Run | Share | Tour

Go is an open source programming language that makes it easy to build simple, reliable, and efficient software.

Download Go

Binary distributions available for Linux, Mac OS X, Windows, and more.

Featured video

Featured articles

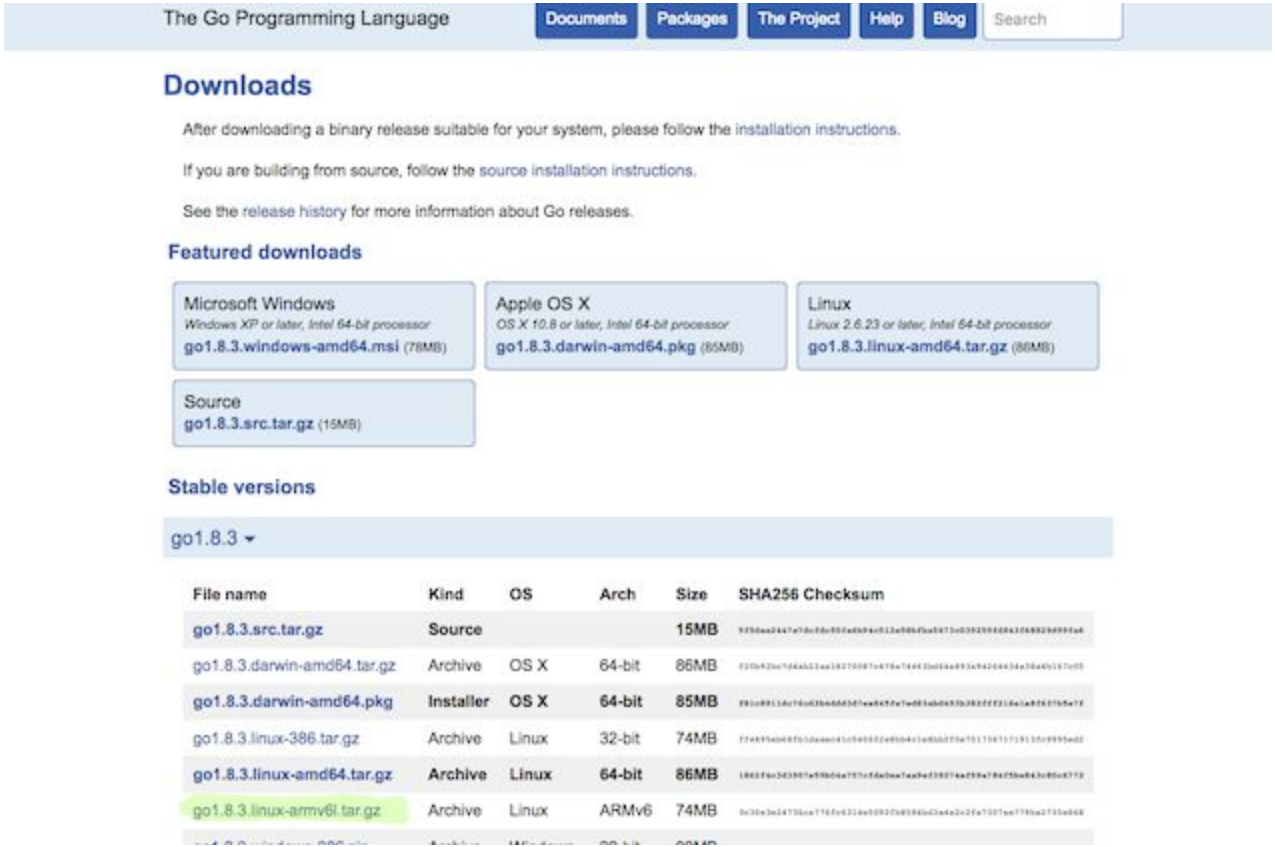
Introducing the Developer Experience Working Group

Over the last several years, Go's audience has shifted from early adopters to mainstream users. Today, our users come from a wide variety of backgrounds, experiences, and expectations. The needs of users are growing faster than the Go project can currently address them. To streamline the experience for first-time Go users, we've created the Developer eXperience Working Group (DXWG).

Published 10 April 2017

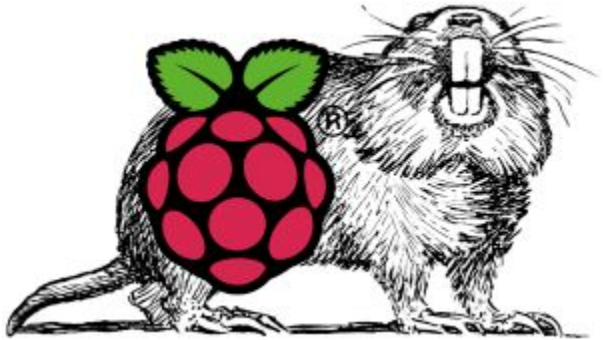
HTTP/2 Server Push

HTTP/2 is designed to address many of the failings of HTTP/1.x. Modern web pages use many resources: HTML,

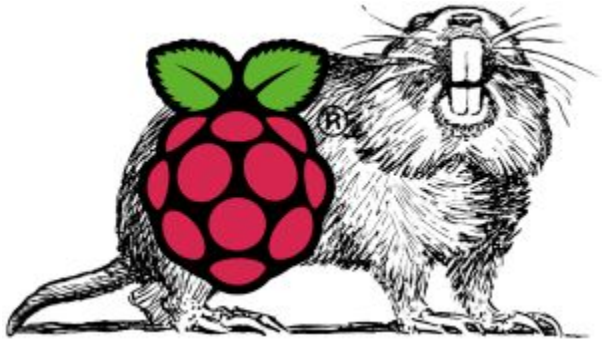

The Go Programming Language
Documents
Packages
The Project
Help
Blog
Search
Downloads
After downloading a binary release suitable for your system, please follow the installation instructions.
If you are building from source, follow the source installation instructions.
See the release history for more information about Go releases.
Featured downloads
Microsoft Windows
Windows XP or later, Intel 64-bit processor
go1.8.3.windows-amd64.msi (78MB)
Apple OS X
OS X 10.8 or later, Intel 64-bit processor
go1.8.3.darwin-amd64.pkg (85MB)
Linux
Linux 2.6.23 or later, Intel 64-bit processor
go1.8.3.linux-amd64.tar.gz (86MB)
Source
go1.8.3.src.tar.gz (15MB)
Stable versions
go1.8.3
File name
Kind
OS
Arch
Size
SHA256 Checksum
go1.8.3.src.tar.gz
Source
15MB
go1.8.3.darwin-amd64.tar.gz
Archive
OS X
64-bit
86MB
go1.8.3.darwin-amd64.pkg
Installer
OS X
64-bit
85MB
go1.8.3.linux-386.tar.gz
Archive
Linux
32-bit
74MB
go1.8.3.linux-amd64.tar.gz
Archive
Linux
64-bit
86MB
go1.8.3.linux-armv6l.tar.gz
Archive
Linux
ARMv6
74MB

Go Is Supported on ARM

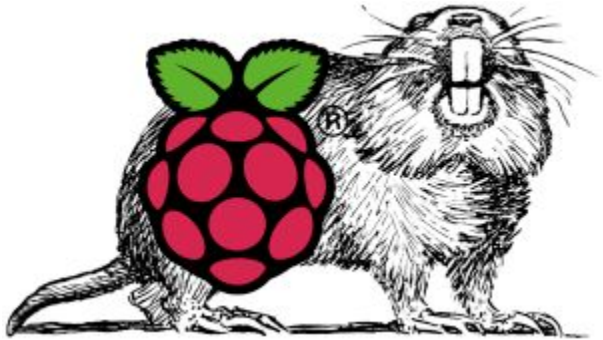
We Can Use It On Raspberry Pi



On Pi Zero Anyway



Compile From Source For Other Pis



Better: Cross-Compile From Your Computer

1. Write Your Code
2. Compile It Like This:

```
GOARM=6 GOARCH=arm GOOS=linux go build yourcode.go
```

3. Copy the Binary to Your Raspberry Pi & Run It:

```
scp yourcode pi@192.168.1.##:

ssh -t pi@192.168.1.## “./yourcode”
```

Go Basics

- Every Go program starts with a package statement.

  If the program is standalone, then

  ```
  package main
  ```

  Otherwise

  ```
  package library_name
  ```

Go Basics

- Next, the import statement.

```
import (
    "fmt"
)
```

- You must only import libraries that are used in your program.

Go Basics

- Next, package level declarations of
  - Variables
  - Constants
  - Functions

Go Basics

- Hello, world

```
package main

import “fmt”

func main() {

    fmt.Println(“Hello, Pi! π”)

}
```

The Go Command

- Fetches dependencies
- Builds code
- Runs it
- Shows documentation
- Shows environment information
- Sends bug reports
- Lots more - type ‘go’ and ‘go help <topic>’ for more info

GOBOT

Docs Platforms Resources News Blog Github

Go, Robot, Go!

Golang Powered Robotics

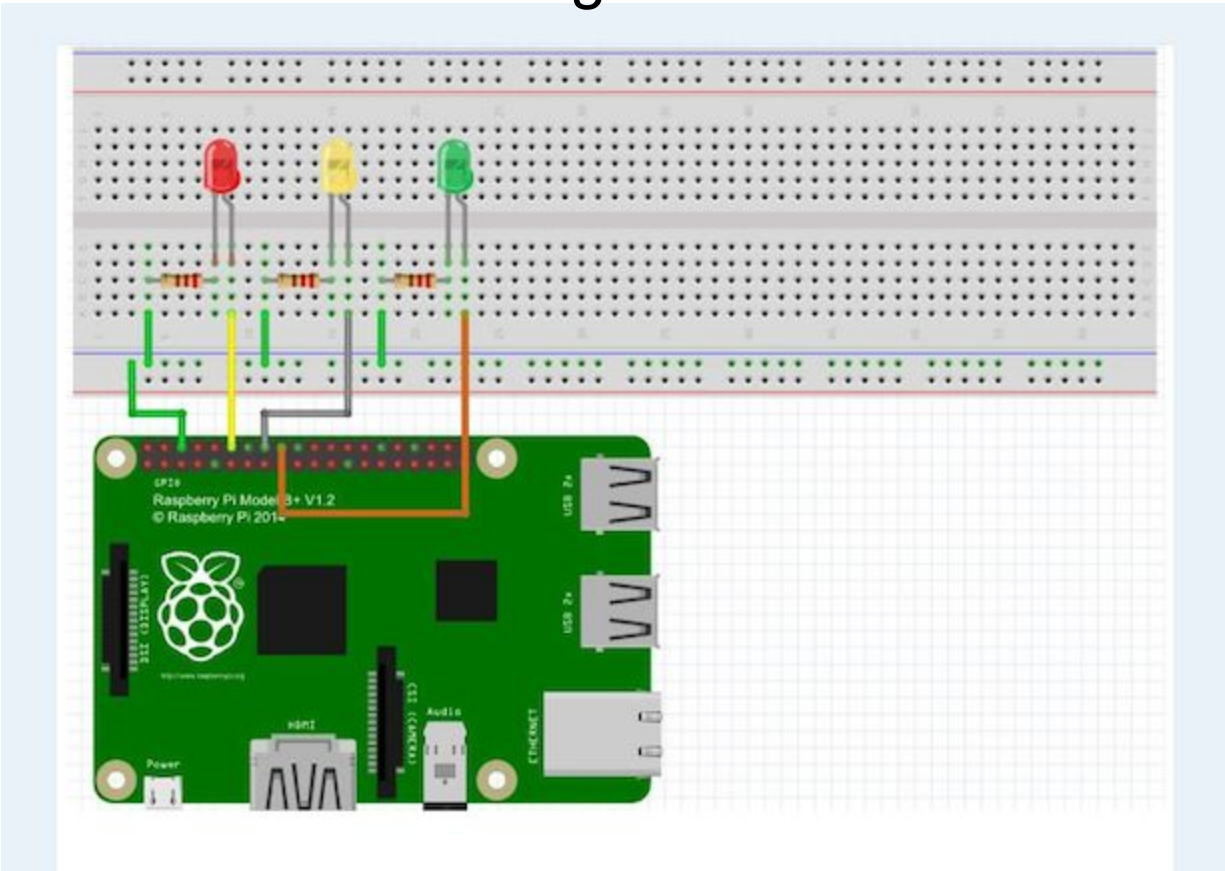
Next generation robotics/IoT framework with support for 29 different platforms

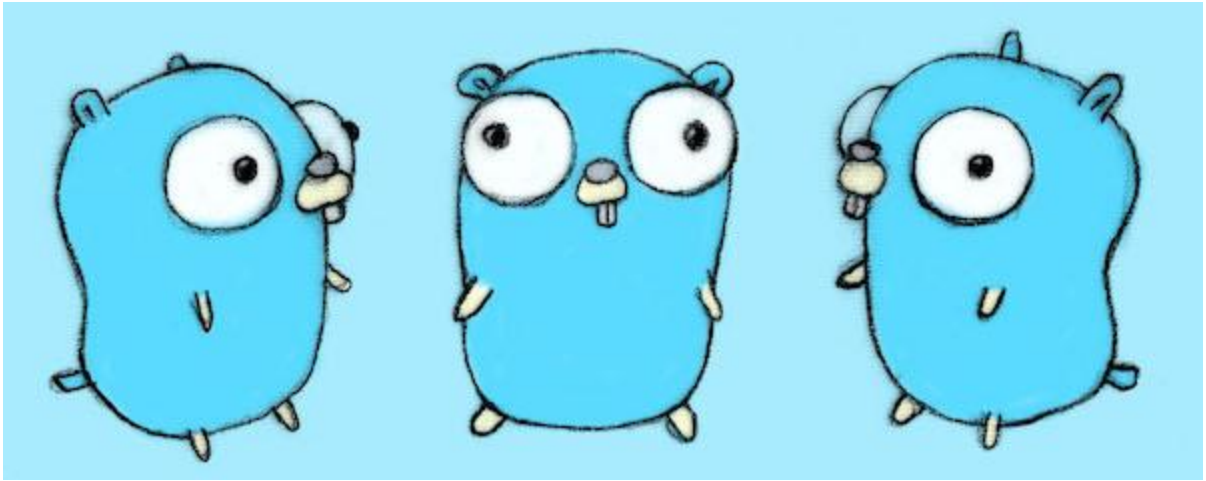
Start Now

Star 3,144 Fork 361 Tweet Follow @gobotio

Gobot is a framework for robots, drones, and the Internet of Things (IoT), written in the Go programming language

Traffic Light LEDs





Thanks for listening!