

# C++

C and C++ are some of the most widely used programming languages, having managed to hang on for decades while old rivals faded and new upstarts became popular. They are valued for their power, speed, and ability to allow novice programmers to learn (through errors) how computers really work.

## Documentation

Functions currently available in the C++ library are covered in the Documentation folder (start with `class_finch.html`).

## C++ - Command Line Compilation

Download the C++ Source Only download for your OS.

Ensure that you have a C++ compiler installed. For windows, we recommend using [MinGW](#).

To compile a new program, first set the name of your cpp file that contains main to the `MAIN_CPP_FILES` variable on line 29 of the makefile.

Next add any other cpp files that are used to the `OTHER_CPP_FILES` on line 30 of the makefile.

Next add any header files you're using to the `HFILES` variable on line 32.

Running 'make' from the FinchC++ directory should now produce an executable for all the programs in `MAIN_CPP_FILES` to the `exes` folder in the FinchC++ folder.

To run the program:

- Windows: type `.\` followed by your program's name with no extensions.
- Mac: Type `./` followed by your program's name.
- Linux: Type `sudo ./` followed by your program's name. Example: `sudo ./funkyChicken`

### LINUX USERS ONLY:

- You will need to install `libusb-1.0`. To do so, run `sudo apt-get install libusb-1.0-0-dev` in any terminal window.

## WINDOWS USERS ONLY:

- You need to either add the hidapi.dll file to the directory you are running your executable from or copy the dll to the Windows\System32 directory. This dll is used to allow for HID connections to the Finch.
- Do not use the command prompt program provided by Windows to compile files, instead use [Github's PowerShell](#) or a similar program.

## Important Files and Folders

The following files and folders are common to all C++ downloads:

Finch.cpp and Finch.h - The Finch class source and header files.

hipapi.h - The header file for [HIDAPI](#), the third-party cross-platform class used to communicate over USB.

hidapi.dll and .lib (Windows), hid.c (Mac and Linux) - Contains the HIDAPI source.

SampleMain.cpp - A skeleton main file containing all that is necessary to begin writing a Finch C++ program.

CommandLineFinch.cpp - A program which tests all of the Finch class functions and provides access to them with a simple command line interface. By default, this file will be run if the user does not change the IDE or Makefile configuration options.

Documentation - A local copy of the Finch C++ class documentation

Licensing - Licensing information for the Finch C++ package.

## Version Information

Version 1.02 of the Finch C++ package is now available and has been successfully tested on Windows 10 64-bit, Mac OS 10.11, and Ubuntu.

Revision history:

Version 1.02 (6/2/2016) - Multiple bug and style fixes. Thanks Matt Healy!

Version 1.01 (5/31/2011) - Fixed finchRead bug that would cause hanging after 127 reads.

Version 1.0 (5/29/2011) - First release.