

Arduino Makefiles

Why?

- I want to use my own editor
- Upload over the network
- Support for local libraries
- Can burn bootloaders to boards
- Can use Raw C & C++
- Compatible with more micro controllers (EG: chipKIT, Teensy, etc)
- Customizable

Requirements

- Arduino 1.6.3 or above recommended (No need to start it) NOTE: Will work with older versions but maybe missing some features.
- serial - for monitoring mode.

Setup

Debian

```
sudo apt-get install arduino arduino-mk
```

Arch

```
yaourt -S arduino arduino-mk
```

Install pyserial

```
pip install pyserial
```

Environment Variables (optional)

Arduino-makefile will autodetect, most of the time.

If it doesn't use environment variables

```
ARDUINO_DIR – Directory where Arduino is installed  
ARMDK_DIR – Directory where you have copied the makefile  
AVR_TOOLS_DIR – Directory where avr tools are installed
```

Project setup

Create a Makefile with the following line

```
include /usr/share/arduino/Arduino.mk
```

Optional lines in Makefile (should autodetect)

```
BOARD_TAG      = mega2560  
MONITOR_PORT   = /dev/ttyACM0  
ARDUINO_LIBS   = Wire SoftwareSerial
```

Advanced

If you are using special libraries then you have to include them.

eg: from my blind controller

```
ARDUINO_LIBS += U8g2/src/clib U8g2/src SPI Wire Adafruit_MotorShield
```

Using

Create your arduino file and make sure you have a Makefile

```
make  
make upload
```

Monitor serial output

Simply type the following

```
make monitor
```

Other commands

clean	cleans up the build files
boards	list of available boards
size	Display size of build
bootloader	Burns any bootloader to Arduino
<file>	specify object files or target

Editor integration

Emacs

[EmacsWiki: Arduino Support](#)

Installation

```
M-x package-install  
  arduino-mode
```

Usage

Compile

```
M-x compile  
make -k
```

Upload

```
M-x compile  
make -k upload
```

Autocomplete installation

GitHub - [yuutayamada/company-arduino](https://github.com/yuutayamada/company-arduino): Company-mode for Arduino using irony-mode

Install packages

```
sudo apt-get install cmake libclang-dev
```

Install emacs package company-arduino

```
M-x package-install  
company-arduino
```

Install irony

```
M-x irony-install-server
```

This compiles

Autocomplete Configuration

Add to your .emacs.d/init.el

```
(add-hook 'irony-mode-hook 'company-arduino-turn-on)

(defun my-company-c-headers-get-system-path ()
  "Return the system include path for the current buffer."
  (let ((default '("/usr/include/" "/usr/local/include/")))
    (company-arduino-append-include-dirs default t)))
(setq company-c-headers-path-system 'my-company-c-headers-get-system-path)

(add-hook 'arduino-mode-hook 'irony-mode)

(add-to-list 'company-backends 'company-irony)
(add-to-list 'company-backends 'company-c-headers)
```


VIM

GitHub - sudar/vim-arduino-syntax: Arduino syntax files for Vim

GitHub - sudar/vim-arduino-snippets: Vim snippets for Arduino files

References

- [Arduino Development; There's a Makefile for That | Hackaday](#)
- [:: { edam } :: » Arduino Makefile](#)
- [Arduino-Makefile/examples at master · sudar/Arduino-Makefile · GitHub](#)
- [GitHub - sudar/Arduino-Makefile: Makefile for Arduino sketches. It defines th...](#)

Questions

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