
confduino Documentation

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confduino

Date November 20, 2011

PDF [confduino.pdf](#)

Contents:

confduino is an [arduino](#) library configurator

Links:

- home: <https://github.com/ponty/confduino>
- documentation: <http://ponty.github.com/confduino>
- arduino libraries: <http://www.arduino.cc/en/Reference/Libraries>

Features:

- list, install, remove [arduino](#) libraries
- install libraries from internet or local drive
- fix `examples` directory name before installing
- clean library (`.*_*`) before installing
- move examples under `examples` directory
- list, install, remove [arduino](#) programmers
- list, install, remove [arduino](#) boards
- written in python
- crossplatform
- can be used as a python library or as a console program
- unpacker backend: [pyunpack](#)
- downloader backend: [urllib](#)
- some functionality is based on [arscons](#)

Known problems:

- Python 3 is not supported
- tested only on linux
- some libraries with unusual structure can not be installed
- not all commands have console interface

BASIC USAGE

install library:

```
>>> from confduino.libinstall import install_lib
>>> install_lib('http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip')
```

or on console:

```
python -m confduino.libinstall http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip
```

install a lot of libraries:

```
python -m confduino.libinstall.examples.upgrademany
```

INSTALLATION

2.1 General

- install `arduino`
- install `python`
- install `setuptools`
- install backends for `pyunpack` (optional)
- install the program:

```
# as root
easy_install confduino
```

2.2 Ubuntu

```
sudo apt-get install arduino
sudo apt-get install python-setuptools
sudo easy_install confduino
sudo apt-get install unzip unrar p7zip-full
```

2.3 Uninstall

first install `pip`:

```
# as root
pip uninstall confduino
```

USAGE WITH LIBRARIES

3.1 Arduino path

If Arduino can not be found at default path, then ARDUINO_HOME environment variable should be set.

on Ubuntu: in ~/.profile:

```
ARDUINO_HOME=~/.opt/arduino
export ARDUINO_HOME
```

Default path:

- Mac: /Applications/Arduino.app/Contents/Resources/Java
- Linux: /usr/share/arduino/

3.2 List installed libraries

From python:

```
>>> from confduino.liblist import libraries
>>> libraries()
['AdvButton', 'Bounce', 'CapSense', 'Charlieplex', 'Collection', 'DallasTemperature', 'DateTime', 'D'
```

From console:

```
$ python -m confduino.liblist
AdvButton
Bounce
CapSense
Charlieplex
Collection
DallasTemperature
DateTime
DateTimeStrings
DigitalToggle
EEPROM
Enerlib
EventFuse
Flash
FreqCounter
LiquidCrystal
Metro
```

```
MsTimer2
NewSoftSerial
OneWire
PID_v1
PS2Keyboard
PString
PinChangeInt
Qtouch1Wire
SSerial2Mobile
SerialDebug
SerialIP
SevenSegment
Streaming
TimedAction
TimerOne
UComms
bassdll
libcoll
myprojects
```

3.3 Install new library

Existing library will not be changed.

From python:

```
>>> from confduino.libinstall import install_lib
>>> install_lib('http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip')
```

From console:

```
python -m confduino.libinstall http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip
```

3.4 Upgrade existing library

Same as install with *replace_existing* option.

From python:

```
>>> from confduino.libinstall import install_lib
>>> install_lib('http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip', replace_existing=1)
```

From console:

```
python -m confduino.libinstall http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip --replace
```

3.5 Remove existing library

From python:

```
>>> from confduino.libremove import remove_lib
>>> remove_lib('PS2Keyboard')
```


From console:

```
python -m confduino.libremove PS2Keyboard
```

USAGE WITH BOARDS

4.1 List installed boards

From python:

```
>>> from confduino.boardlist import boards
>>> boards()
AutoBunch(atmega8=AutoBunch(bootloader=AutoBunch(file='ATmegaBOOT.hex', high_fuses='0xca', lock_bits=
>>> boards().diecimila.build.f_cpu
'16000000L'
>>> boards()['diecimila']['build']['f_cpu']
'16000000L'
```

From console:

```
$ python -m confduino.boardlist
atmega8
atmega88
bt
bt328
diecimila
fio
lilypad
lilypad328
mega
mega2560
metaboard
mini
pro
pro328
pro5v
pro5v328
uno
```

verbose:

```
$ python -m confduino.boardlist --verbose
{'atmega8': {'bootloader': {'file': 'ATmegaBOOT.hex',
                             'high_fuses': '0xca',
                             'lock_bits': '0x0F',
                             'low_fuses': '0xdf',
                             'path': 'atmega8',
                             'unlock_bits': '0x3F'},
             'build': {'core': 'arduino',
```

```

        'f_cpu': '16000000L',
        'mcu': 'atmega8'},
    'name': 'Arduino NG or older w/ ATmega8',
    'upload': {'maximum_size': '7168',
               'protocol': 'stk500',
               'speed': '19200'}},
    'atmega88': {'build': {'core': 'arduino',
                          'f_cpu': '20000000L',
                          'mcu': 'atmega88'},
                 'name': 'atmega88@20000000 programmer:usbasp',
                 'upload': {'maximum_size': '8192',
                           'using': 'usbasp'}}},
    'bt': {'bootloader': {'extended_fuses': '0x00',
                          'file': 'ATmegaBOOT_168.hex',
                          'high_fuses': '0xdd',
                          'lock_bits': '0x0F',
                          'low_fuses': '0xff',
                          'path': 'bt',
                          'unlock_bits': '0x3F'},
           'build': {'core': 'arduino',
                     'f_cpu': '16000000L',
                     'mcu': 'atmega168'},
           'name': 'Arduino BT w/ ATmega168',
           'upload': {'disable_flushing': 'true',
                     'maximum_size': '14336',
                     'protocol': 'stk500',
                     'speed': '19200'}}},
    'bt328': {'bootloader': {'extended_fuses': '0x05',
                              'file': 'ATmegaBOOT_168_atmega328_bt.hex',
                              'high_fuses': '0xd8',
                              'lock_bits': '0x0F',
                              'low_fuses': '0xff',
                              'path': 'bt',
                              'unlock_bits': '0x3F'},
              'build': {'core': 'arduino',
                        'f_cpu': '16000000L',
                        'mcu': 'atmega328p'},
              'name': 'Arduino BT w/ ATmega328',
              'upload': {'disable_flushing': 'true',
                        'maximum_size': '28672',
                        'protocol': 'stk500',
                        'speed': '19200'}}},
    'diecimila': {'bootloader': {'extended_fuses': '0x00',
                                  'file': 'ATmegaBOOT_168_diecimila.hex',
                                  'high_fuses': '0xdd',
                                  'lock_bits': '0x0F',
                                  'low_fuses': '0xff',
                                  'path': 'atmega',
                                  'unlock_bits': '0x3F'},
                  'build': {'core': 'arduino',
                            'f_cpu': '16000000L',
                            'mcu': 'atmega168'},
                  'name': 'Arduino Diecimila, Duemilanove, or Nano w/ ATmega168',
                  'upload': {'maximum_size': '14336',
                            'protocol': 'stk500',
                            'speed': '19200'}}},
    'fio': {'bootloader': {'extended_fuses': '0x05',
                           'file': 'ATmegaBOOT_168_atmega328_pro_8MHz.hex',

```

```

        'high_fuses': '0xDA',
        'lock_bits': '0x0F',
        'low_fuses': '0xFF',
        'path': 'arduino:atmega',
        'unlock_bits': '0x3F'},
    'build': {'core': 'arduino:arduino',
              'f_cpu': '8000000L',
              'mcu': 'atmega328p'},
    'name': 'Arduino Fio',
    'upload': {'maximum_size': '30720',
               'protocol': 'stk500',
               'speed': '57600'}},
'lilypad': {'bootloader': {'extended_fuses': '0x00',
                           'file': 'LilyPadBOOT_168.hex',
                           'high_fuses': '0xdd',
                           'lock_bits': '0x0F',
                           'low_fuses': '0xe2',
                           'path': 'lilypad',
                           'unlock_bits': '0x3F'},
            'build': {'core': 'arduino',
                      'f_cpu': '8000000L',
                      'mcu': 'atmega168'},
            'name': 'LilyPad Arduino w/ ATmega168',
            'upload': {'maximum_size': '14336',
                       'protocol': 'stk500',
                       'speed': '19200'}},
'lilypad328': {'bootloader': {'extended_fuses': '0x05',
                              'file': 'ATmegaBOOT_168_atmega328_pro_8MHz.hex',
                              'high_fuses': '0xDA',
                              'lock_bits': '0x0F',
                              'low_fuses': '0xFF',
                              'path': 'atmega',
                              'unlock_bits': '0x3F'},
              'build': {'core': 'arduino',
                        'f_cpu': '8000000L',
                        'mcu': 'atmega328p'},
              'name': 'LilyPad Arduino w/ ATmega328',
              'upload': {'maximum_size': '30720',
                         'protocol': 'stk500',
                         'speed': '57600'}},
'mega': {'bootloader': {'extended_fuses': '0xF5',
                        'file': 'ATmegaBOOT_168_atmega1280.hex',
                        'high_fuses': '0xDA',
                        'lock_bits': '0x0F',
                        'low_fuses': '0xFF',
                        'path': 'atmega',
                        'unlock_bits': '0x3F'},
        'build': {'core': 'arduino',
                  'f_cpu': '16000000L',
                  'mcu': 'atmega1280'},
        'name': 'Arduino Mega (ATmega1280)',
        'upload': {'maximum_size': '126976',
                   'protocol': 'stk500',
                   'speed': '57600'}},
'mega2560': {'bootloader': {'extended_fuses': '0xFD',
                             'file': 'stk500boot_v2_mega2560.hex',
                             'high_fuses': '0xD8',
                             'lock_bits': '0x0F',

```

```

        'low_fuses': '0xFF',
        'path': 'stk500v2',
        'unlock_bits': '0x3F'},
    'build': {'core': 'arduino',
              'f_cpu': '16000000L',
              'mcu': 'atmega2560'},
    'name': 'Arduino Mega 2560',
    'upload': {'maximum_size': '258048',
               'protocol': 'stk500v2',
               'speed': '115200'}},
'metaboard': {'build': {'core': 'arduino',
                        'f_cpu': '16000000L',
                        'mcu': 'atmega168'},
              'name': 'Metaboard',
              'upload': {'disable_flushing': 'true',
                         'maximum_size': '14336',
                         'protocol': 'usbasp',
                         'speed': '19200'}}},
'mini': {'bootloader': {'extended_fuses': '0x00',
                        'file': 'ATmegaBOOT_168_ng.hex',
                        'high_fuses': '0xdd',
                        'lock_bits': '0x0F',
                        'low_fuses': '0xff',
                        'path': 'atmega',
                        'unlock_bits': '0x3F'},
         'build': {'core': 'arduino',
                   'f_cpu': '16000000L',
                   'mcu': 'atmega168'},
         'name': 'Arduino Mini',
         'upload': {'maximum_size': '14336',
                    'protocol': 'stk500',
                    'speed': '19200'}}},
'pro': {'bootloader': {'extended_fuses': '0x00',
                       'file': 'ATmegaBOOT_168_pro_8MHz.hex',
                       'high_fuses': '0xdd',
                       'lock_bits': '0x0F',
                       'low_fuses': '0xc6',
                       'path': 'atmega',
                       'unlock_bits': '0x3F'},
        'build': {'core': 'arduino',
                   'f_cpu': '8000000L',
                   'mcu': 'atmega168'},
        'name': 'Arduino Pro or Pro Mini (3.3V, 8 MHz) w/ ATmega168',
        'upload': {'maximum_size': '14336',
                    'protocol': 'stk500',
                    'speed': '19200'}}},
'pro328': {'bootloader': {'extended_fuses': '0x05',
                          'file': 'ATmegaBOOT_168_atmega328_pro_8MHz.hex',
                          'high_fuses': '0xDA',
                          'lock_bits': '0x0F',
                          'low_fuses': '0xFF',
                          'path': 'atmega',
                          'unlock_bits': '0x3F'},
          'build': {'core': 'arduino',
                    'f_cpu': '8000000L',
                    'mcu': 'atmega328p'},
          'name': 'Arduino Pro or Pro Mini (3.3V, 8 MHz) w/ ATmega328',
          'upload': {'maximum_size': '30720',
                     'protocol': 'stk500',
                     'speed': '19200'}}},

```

```

        'protocol': 'stk500',
        'speed': '57600'}},
'pro5v': {'bootloader': {'extended_fuses': '0x00',
                        'file': 'ATmegaBOOT_168_diecimila.hex',
                        'high_fuses': '0xdd',
                        'lock_bits': '0x0F',
                        'low_fuses': '0xff',
                        'path': 'atmega',
                        'unlock_bits': '0x3F'},
        'build': {'core': 'arduino',
                  'f_cpu': '16000000L',
                  'mcu': 'atmega168'},
        'name': 'Arduino Pro or Pro Mini (5V, 16 MHz) w/ ATmega168',
        'upload': {'maximum_size': '14336',
                   'protocol': 'stk500',
                   'speed': '19200'}}},
'pro5v328': {'bootloader': {'extended_fuses': '0x05',
                           'file': 'ATmegaBOOT_168_atmega328.hex',
                           'high_fuses': '0xDA',
                           'lock_bits': '0x0F',
                           'low_fuses': '0xFF',
                           'path': 'atmega',
                           'unlock_bits': '0x3F'},
        'build': {'core': 'arduino',
                  'f_cpu': '16000000L',
                  'mcu': 'atmega328p'},
        'name': 'Arduino Pro or Pro Mini (5V, 16 MHz) w/ ATmega328',
        'upload': {'maximum_size': '30720',
                   'protocol': 'stk500',
                   'speed': '57600'}}},
'uno': {'bootloader': {'extended_fuses': '0x05',
                      'file': 'optiboot_atmega328.hex',
                      'high_fuses': '0xde',
                      'lock_bits': '0x0F',
                      'low_fuses': '0xff',
                      'path': 'optiboot',
                      'unlock_bits': '0x3F'},
        'build': {'core': 'arduino',
                  'f_cpu': '16000000L',
                  'mcu': 'atmega328p'},
        'name': 'Arduino Uno',
        'upload': {'maximum_size': '32256',
                   'protocol': 'stk500',
                   'speed': '115200'}}}

```

4.2 List installed MCUs

From python:

```

>>> from confduino.mculist import mcus
>>> mcus()
['at90can128', 'at90can32', 'at90can64', 'at90usb1286', 'at90usb1287', 'at90usb162', 'at90usb646', 'a

```

From console:

4.3 Install new board

Existing board will not be changed.

From python:

```
from confduino.boardinstall import install_board
from confduino.util import AutoBunch
from entrypoint2 import entrypoint

@entrypoint
def install(id='atmega88', mcu='atmega88', f_cpu=20000000, upload='usbasp', core='arduino', replace_existing=False):
    'install atmega88 board'
    board = AutoBunch()
    board.name = '{mcu}@{f_cpu} programmer:{upload}'.format(mcu=mcu, f_cpu=f_cpu, upload=upload)

    board.upload.using = upload
    board.upload.maximum_size = 8*1024

    board.build.mcu = mcu
    board.build.f_cpu = str(f_cpu) + 'L'
    board.build.core = core

    install_board(id, board, replace_existing=replace_existing)
```

console is not implemented

4.4 Remove existing board

From python:

```
>>> from confduino.boardremove import remove_board
>>> remove_board('diecimila')
```

From console:

```
python -m confduino.boardremove diecimila
```

USAGE WITH PROGRAMMERS

5.1 List installed programmers

From python:

```
>>> from confduino.proglist import programmers
>>> programmers()
AutoBunch(arduinoisp=AutoBunch(communication='serial', name='Arduino as ISP', protocol='stk500v1', speed='19200'),
>>> programmers().arduinoisp.speed
'19200'
>>> programmers()['arduinoisp']['speed']
'19200'
```

From console:

```
$ python -m confduino.proglist
{'arduinoisp': {'communication': 'serial',
                'name': 'Arduino as ISP',
                'protocol': 'stk500v1',
                'speed': '19200'},
 'avrisp': {'communication': 'serial',
            'name': 'AVR ISP',
            'protocol': 'stk500v1'},
 'avrispmkii': {'communication': 'usb',
                'name': 'AVRISP mkII',
                'protocol': 'stk500v2'},
 'parallel': {'force': 'true',
              'name': 'Parallel Programmer',
              'protocol': 'dapa'},
 'stk200': {'force': 'true', 'name': 'STK200', 'protocol': 'dapa'},
 'usbasp': {'communication': 'usb', 'name': 'USBasp', 'protocol': 'usbasp'},
 'usbtinyisp': {'name': 'USBtinyISP', 'protocol': 'usbtiny'}}
```

5.2 Install new programmer

From python:

```
from confduino.proginstall import install_programmer
from confduino.util import AutoBunch
from entrypoint2 import entrypoint

@entrypoint
```



```
def install(replace_existing=False):  
    'install usbasp programmer'  
    usbasp = AutoBunch()  
    usbasp.name = 'USBasp'  
    usbasp.communication = 'usb'  
    usbasp.protocol = 'usbasp'  
  
    install_programmer('usbasp', usbasp, replace_existing=replace_existing)
```

console is not implemented

5.3 Remove existing programmer

From python:

```
>>> from confduino.progremove import remove_programmer  
>>> remove_programmer('parallel')
```

From console:

```
python -m confduino.progremove parallel
```

EXAMPLES

6.1 Install libraries

Many libraries are upgraded in examples/upgrademany.py, this can be started:

```
python -m confduino.examples.upgrademany
```

Code:

```
from confduino.libinstall import install_lib
from entrypoint2 import entrypoint

UPGRADE = True

def upgrade(url):
    print 'upgrading ' + url
    install_lib(url, UPGRADE)

@entrypoint
def upgrade_many():
    'upgrade many libs'

    # you can set your arduino path if it is not default
    #os.environ['ARDUINO_HOME'] = '/home/...'

    #####
    # arduino.cc
    #####
    upgrade('http://arduino.cc/playground/uploads/Main/PS2Keyboard002.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/Metro.zip')
    upgrade('http://www.arduino.cc/playground/uploads/Main/MsTimer2.zip')
    # upgrade('http://www.arduino.cc/playground/uploads/Code/Time.zip')
    # upgrade('http://arduino.cc/playground/uploads/Main/LedControl.zip')
    # upgrade('http://www.arduino.cc/playground/uploads/Code/ks0108GLCD.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/Bounce.zip')
    upgrade('http://arduino.cc/playground/uploads/Main/CapacitiveSense003.zip')
    upgrade('http://arduino.cc/playground/uploads/Main/PinChangeInt.zip')
    # upgrade('http://arduino.cc/playground/uploads/Code/TimerThree.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/TimedAction-1_6.zip')
    # upgrade('http://www.arduino.cc/playground/uploads/Code/Time.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/EventFuse.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/Charlieplex.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/DigitalToggle.zip')
    upgrade('http://arduino.cc/playground/uploads/Code/Enerlib.zip')
```

```

upgrade('http://arduino.cc/playground/uploads/Code/AdvButton_11.zip')
#upgrade('http://arduino.cc/playground/uploads/Code/AdvButton.zip') # old version

#   upgrade('http://arduino.cc/playground/uploads/Code/SerialDebugger.zip') # can't install

#####
# arduiniana.org
#####
# TODO: how to get latest version??
upgrade('http://arduiniana.org/PString/PString2.zip')
upgrade('http://arduiniana.org/Flash/Flash3.zip')
upgrade('http://arduiniana.org/NewSoftSerial/NewSoftSerial10c.zip')
upgrade('http://arduiniana.org/Streaming/Streaming4.zip')
#   upgrade('http://arduiniana.org/PWMServo/PWMServo.zip')
#   upgrade('http://arduiniana.org/TinyGPS/TinyGPS10.zip')

#####
# google
#####

#   upgrade('http://rogue-code.googlecode.com/files/Arduino-Library-Tone.zip') # already in core!

#   upgrade('http://arduino-playground.googlecode.com/files/LedDisplay03.zip')
upgrade('http://sserial2mobile.googlecode.com/files/SSerial2Mobile-1.1.0.zip')
#   upgrade('http://webduino.googlecode.com/files/webduino-1.4.1.zip')
upgrade('http://arduino-pid-library.googlecode.com/files/PID_v1.0.1.zip')
upgrade('http://ideoarduinolibraries.googlecode.com/files/Qtouch1Wire.zip')
upgrade('http://arduino-timerone.googlecode.com/files/TimerOne-v2.zip')

#####
# others
#####
upgrade('http://download.milesburton.com/Arduino/MaximTemperature/DallasTemperature_370Beta.zip')
upgrade('http://www.pjrc.com/teensy/arduino_libraries/OneWire.zip')
upgrade('http://interface.khm.de/wp-content/uploads/2009/01/FreqCounter1.zip')
#   upgrade('http://github.com/wimleers/flexitimer2/zipball/v1.0')
#   upgrade('http://www.state-machine.com/arduino/qp_arduino.zip')
#   upgrade('ftp://momjian.us/pub/arduino/TButton.zip') # AdvButton is better
upgrade('http://johnmchilton.com/media/UComms.zip')
upgrade('http://www.shikadi.net/files/arduino/SerialIP-1.0.zip')

```

6.2 Install USBasp programmer

python -m confduino.examples.usbasp

Code:

```

from confduino.proginstall import install_programmer
from confduino.util import AutoBunch
from entrypoint2 import entrypoint

@entrypoint
def install(replace_existing=False):
    'install usbasp programmer'

```

```
usbasp = AutoBunch()
usbasp.name = 'USBasp'
usbasp.communication = 'usb'
usbasp.protocol = 'usbasp'

install_programmer('usbasp', usbasp, replace_existing=replace_existing)
```

6.3 Install STK200 programmer

```
python -m confduino.examples.stk200
```

Code:

```
from confduino.proginstall import install_programmer
from confduino.util import AutoBunch
from entrypoint2 import entrypoint

@entrypoint
def install(replace_existing=False):
    'install stk200 programmer'
    bunch = AutoBunch()
    bunch.name = 'STK200'
    bunch.protocol = 'stk200'
    #bunch.force = 'true'
    # bunch.delay=200

    install_programmer('stk200', bunch, replace_existing=replace_existing)
```

6.4 Install atmega88 board

```
python -m confduino.examples.atmega88
```

Code:

```
from confduino.boardinstall import install_board
from confduino.util import AutoBunch
from entrypoint2 import entrypoint

@entrypoint
def install(id='atmega88', mcu='atmega88', f_cpu=20000000, upload='usbasp', core='arduino', replace_
    'install atmega88 board'
    board = AutoBunch()
    board.name = '{mcu}@{f_cpu} programmer:{upload}'.format(mcu=mcu, f_cpu=f_cpu, upload=upload)

    board.upload.using = upload
    board.upload.maximum_size = 8*1024

    board.build.mcu = mcu
    board.build.f_cpu = str(f_cpu) + 'L'
    board.build.core = core

    install_board(id, board, replace_existing=replace_existing)
```

options:

```
$ python -m confduino.examples.atmega88 --help
usage: atmega88.py [-h] [-i ID] [-m MCU] [-f F_CPU] [-u UPLOAD] [-c CORE] [-r]
                  [--debug]
```

```
install atmega88 board
```

optional arguments:

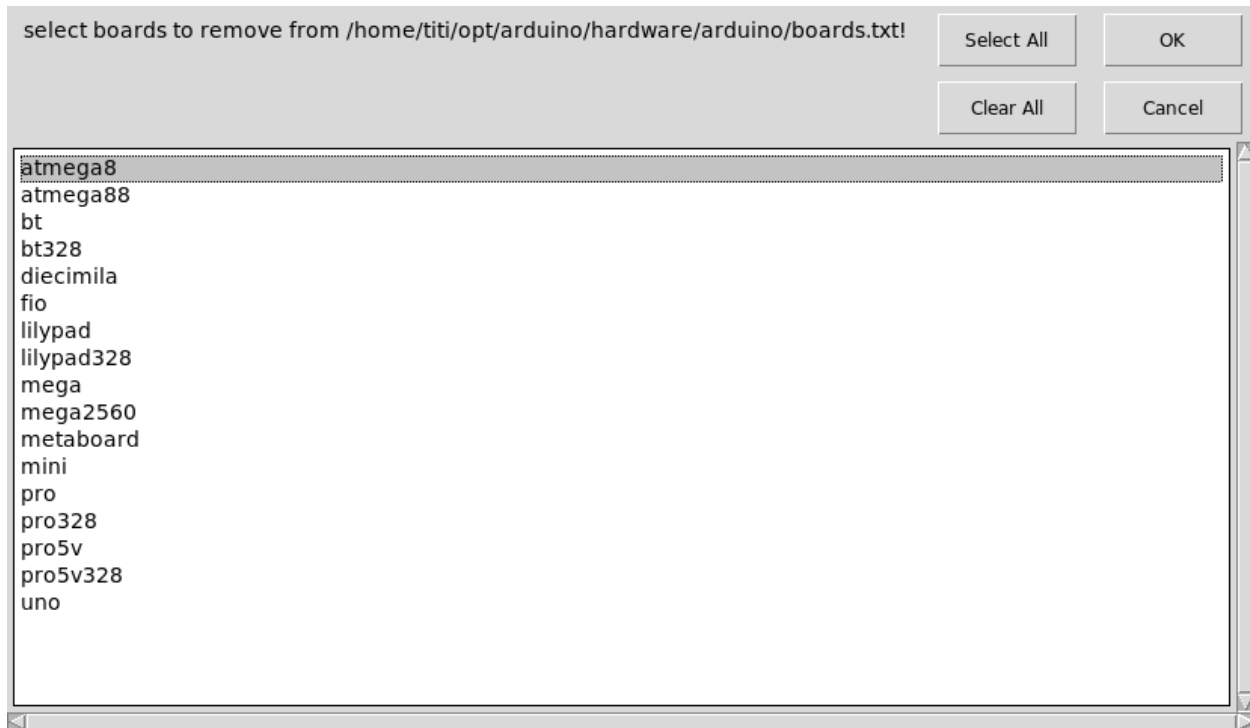
```
-h, --help            show this help message and exit
-i ID, --id ID
-m MCU, --mcu MCU
-f F_CPU, --f-cpu F_CPU
-u UPLOAD, --upload UPLOAD
-c CORE, --core CORE
-r, --replace-existing
--debug              set logging level to DEBUG
```

6.5 remove boards

```
$ python -m confduino.examples.remove_boards
```



```
$ python -m confduino.examples.remove_boards --hwpack arduino
```



Code:

```
from confduino.boardlist import boards, boards_txt, board_names
from confduino.boardremove import remove_board
from confduino.hwpacklist import hwpack_names
from entrypoint2 import entrypoint
import psdialogs

@entrypoint
def remove_boards_gui(hwpack=''):
    'remove boards by GUI'
    if not hwpack:
        if len(hwpack_names()) > 1:
            hwpack = psdialogs.choice(hwpack_names(),
                                     'select hardware package to select board from!',
                                     title='select')
        else:
            hwpack = hwpack_names()[0]
    print hwpack, 'selected'

    if hwpack:
        sel = psdialogs.multi_choice(board_names(hwpack),
                                     'select boards to remove from %s!' % boards_txt(hwpack),
                                     title='remove boards')
        print sel, 'selected'

        if sel:
            for x in sel:
                remove_board(x)
                print x + ' was removed'
```

COMMAND LINE HELP

7.1 lib

7.1.1 list

```
$ python -m confduino.liblist --help
usage: liblist.py [-h] [--debug]

print installed arduino libraries

optional arguments:
  -h, --help  show this help message and exit
  --debug     set logging level to DEBUG
```

7.1.2 install

```
$ python -m confduino.libinstall --help
usage: libinstall.py [-h] [-r] [--debug] url

install library from web or local files system

positional arguments:
  url                  web address or file path

optional arguments:
  -h, --help           show this help message and exit
  -r, --replace-existing
                        bool
  --debug              set logging level to DEBUG
```

7.1.3 remove

```
$ python -m confduino.libremove --help
usage: libremove.py [-h] [--debug] lib_name

remove library

positional arguments:
  lib_name    library name (e.g. 'PS2Keyboard')
```

```
optional arguments:
  -h, --help  show this help message and exit
  --debug     set logging level to DEBUG
```

7.2 board

7.2.1 list

```
$ python -m confduino.boardlist --help
usage: boardlist.py [-h] [--hwpack HWPACK] [-v] [--debug]
```

```
print boards from boards.txt
```

```
optional arguments:
  -h, --help            show this help message and exit
  --hwpack HWPACK
  -v, --verbose
  --debug               set logging level to DEBUG
```

7.2.2 install

not implemented

7.2.3 remove

```
$ python -m confduino.boardremove --help
usage: boardremove.py [-h] [--debug] board_id
```

```
remove board
```

```
positional arguments:
  board_id  board id (e.g. 'diecimila')
```

```
optional arguments:
  -h, --help  show this help message and exit
  --debug     set logging level to DEBUG
```

7.3 programmer

7.3.1 list

```
$ python -m confduino.proglist --help
usage: proglist.py [-h] [--debug]
```

```
print programmers from programmers.txt
```

```
optional arguments:
  -h, --help  show this help message and exit
  --debug     set logging level to DEBUG
```


7.3.2 install

not implemented

7.3.3 remove

```
$ python -m confduino.progremove --help
usage: progremove.py [-h] [--debug] programmer_id
```

```
remove programmer
```

positional arguments:

programmer_id programmer id (e.g. 'avrisp')

optional arguments:

-h, --help show this help message and exit
--debug set logging level to DEBUG

API

8.1 lib

```
confduino.liblist.libraries()  
    return installed library names  
  
confduino.liblist.libraries_dir()  
    return library root path  
  
confduino.liblist.print_libraries()  
    print installed arduino libraries  
  
confduino.libinstall.find_lib_dir(root)  
    search for lib dir under root  
  
confduino.libinstall.fix_examples_dir(lib_dir)  
    rename examples dir to examples  
  
confduino.libinstall.install_lib(url, replace_existing=False)  
    install library from web or local files system
```

Parameters

- **url** – web address or file path
- **replace_existing** – bool

Return type

 None

```
confduino.libinstall.move_examples(root, lib_dir)  
    find examples not under lib dir, and move into examples  
  
confduino.libremove.remove_lib(lib_name)  
    remove library
```

Parameters **lib_name** – library name (e.g. 'PS2Keyboard')

Return type

 None

8.2 board

```
confduino.boardlist.board_names(hwpack='arduino')  
    return installed board names
```

`confduino.boardlist.boards` (*hwpack='arduino'*)
read boards from boards.txt

Parameters `core_package` – ‘all,’arduino’,..

`confduino.boardlist.boards_txt` (*hwpack='arduino'*)
path of boards.txt

`confduino.boardlist.print_boards` (*hwpack='arduino', verbose=False*)
print boards from boards.txt

`confduino.boardinstall.install_board` (*board_id, board_options, hwpack='arduino', replace_existing=False*)
install board in boards.txt

Parameters

- **board_id** – string identifier
- **board_options** – dict like
- **replace_existing** – bool

Return type None

`confduino.boardremove.remove_board` (*board_id*)
remove board

Parameters `board_id` – board id (e.g. ‘diecimila’)

Return type None

8.3 programmer

`confduino.proglist.print_programmers` ()
print programmers from programmers.txt

`confduino.proglist.programmers` ()
read programmers from programmers.txt

`confduino.proglist.programmers_txt` ()
path of programmers.txt

`confduino.proginstall.install_programmer` (*programmer_id, programmer_options, replace_existing=False*)
install programmer in programmers.txt

Parameters

- **programmer_id** – string identifier
- **programmer_options** – dict like
- **replace_existing** – bool

Return type None

`confduino.progremove.remove_programmer` (*programmer_id*)
remove programmer

Parameters `programmer_id` – programmer id (e.g. ‘avrisp’)

Return type None

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