

# Python MCU

Mackie Host Controller written in Python

© 2011 [Martin Zuther](#)

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# 1 Mackie Control

**Mackie Control** (abbreviated to MCU), its predecessor **Logic Control** and their respective extension units (**XT**) are control surfaces that use a proprietary MIDI protocol to control digital audio workstations (DAWs), especially their mixing sections. However, these control surfaces have two drawbacks: they are definitely not cheap and require quite a bit of space. If these are no restrictions to you, by all means go and try them. But don't stop reading here, as this application might be useful for Mackie Control users as well.

If, on the other hand, you have a certain lack of money or available space (or you have a controller that is simply too good to be exchanged for an MCU), you might have found just the application you need. It might not support your MIDI hardware controller yet, but if you know a bit of **Python** (or a programmer) it's pretty easy to change that.

## 2 Installation

Download and install the latest version of [Python 2.6](#) on your computer. As of August 2011, there is no installer of Python 2.6.7 for Microsoft Windows yet. Users of this operating system may download [Python 2.6.6](#), instead.

Please also download and install these libraries:

- [PySide](#) (version 1.0.5 or above)
- [pygame](#) (version 1.9.1 or above; please note that pygame's MIDI implementation is still in its infancy and may occasionally crash **Python MCU**)

You'll also need virtual MIDI ports or cables to connect **Python MCU** to your DAW and hardware controller. I have successfully used **MidiYoke NT** (Microsoft Windows) and **JACK** (GNU/Linux), but others may work just as well.

When you're done, simply run the file `PythonMcu.py` in the directory `src` by either double-clicking it or starting a console window, moving to the directory `src` and running `python PythonMcu.py`.

## 3 Tested configurations

### 3.1 Hardware controllers

- Novation ZeRO SL MkII

### 3.2 Microsoft Windows XP

- Ableton Live 8
- Cockos Reaper 4
- Emagic Logic 5

### 3.3 Apple Mac

I haven't got a Mac, but things should work just as well. Please report working configurations to me. Thanks!

### 3.4 GNU/Linux

- ardour 2 (*skipped a lot of commands, though*)

## 4 Extending Python MCU

**Python MCU** consists of three parts:

- the **MackieHostControl** class communicates with a connected sequencer using the Mackie Control protocol, translating the raw protocol to something much easier to read and use
- the generalised **MidiControllerTemplate** class and its more specific relatives handle all the details of sending data to and receiving data from your hardware controller, again translating raw protocols to something easier to read and use
- finally, the **McuInterconnector** class connects the **MackieHostControl** and **MidiControllerTemplate** classes (and thus your DAW and hardware controller) with each other

This modular design means that the application happily works away with the irrelevant implementation details being effectively hidden from you. As long as you adhere to the internal protocol, you may easily extend **Python MCU** by deriving a class from **MidiControllerTemplate** to include your own controller.

If all this means nothing to you, go find yourself a Python programmer (or learn Python yourself, it's rather easy and a lot of fun!). As long as you know the relevant MIDI implementation of your hardware controller and worked out a suitable layout of its buttons and controllers, hooking into **Python MCU** is pretty simple. If you don't believe me, just have a look into the `src/Hardware` directory.

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