## Loading MMJoy2 Firmware on the Arduino Pro Micro (and clones)

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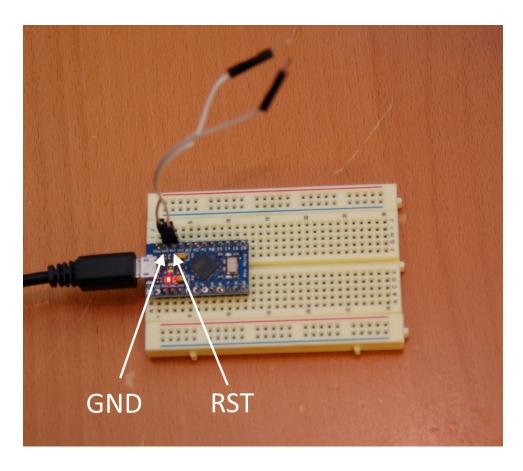
If you don't yet have the MMJoy2 firmware and JoySetup program, go here: <a href="https://drive.google.com/folderview?">https://drive.google.com/folderview?</a>

 $\underline{id=}0B2zIeYwbAIHOMFlzSkNPZ1NXV1k\&usp=sharing\#list.$ 

Select the most current release directory and download the RAR file you'll find there. As of this writing, the most current release is labeled [v20150121]

Loading the MMJoy2 firmware on a Pro Micro is a very simple task and doesn't require any special programming hardware. The only things you'll need for this task is the Pro Micro (or clone) and two jumper wires. A small breadboard will make the task a bit easier and I show that in these instructions.

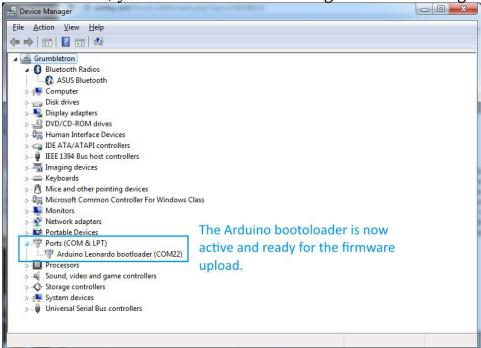
First, set your Pro Micro into a small breadboard and attach two jumper wires. The first should go to the GND (ground) and the second should go to the RST (reset) pin as shown below:



When you power up the Pro Micro and short the GND and RST lines together twice, the firmware goes into "Arduino Leonardo Bootloader" mode. This is how the JoySetup software can upload the MMJoy2 firmware into the Pro Micro without requiring an external programmer.

Connect your Pro Micro to your computer and then open up Device Manager. I want you to practice putting the Pro Micro into bootloader mode before you do it "for real". The bootloader mode is only active for 8 seconds, so it helps to do it a few times to make sure you get it right when you're ready to upload the MMJoy2 firmware.

Once you have Device Manager open, touch the GND and RST wires together twice, with a heartbeat or two between the first and second touch. When the Pro Micro goes into bootloader mode, you should see the following in Device Manager:



As you can see, it appears under the Ports tree as "Arduino Leonardo Bootloader (COM??) where ?? is the port number that Windows has assigned to the device. Make sure you write down the port number it assigns – you'll need it for the next step.

After 8 seconds, the device will revert to "run" mode and the bootloader entry in the Port tree will disappear.

Now start up JoySetup and we'll do a firmware upload! If you've never run JoySetup before, it will likely be using Russian as the default language. You can change the default language by choosing it from the language dropdown:



Currently the only languages available are English, German and Russian.

Click on the Firmware tab and we'll get started! MMJoy2 [20150121] (FREE. PERSONAL DIY ONLY. NOT FOR COMMERCIAL.) - - X Device hardware data VID:046D PID:C52B USB Receiver () VID:046D PID:C625 SpacePilot HP () Scheme: MMJ0Y2.ATMEGA32U4 English VID:1058 PID:1102 WD HID Interface (57442D57434155 Load sets from device 0:8:21 VID:24F0 PID:0140 Keyboard () VID:24F0 PID:0140 System Control () VID:8888 PID:8888 MMJoy2 (MMJoy2-20150121) Save sets to device VID 8888 PID 8888 Poll 1 ▼ Clear sets Load sets from file USB Name Donate. Help the project! Update USB list Save sets to file Error. No assignment at axis #1 Plug device and click at list Joysticks axes | Joysticks axes (Spec.Functions) | Joysticks buttons | LED | Firmware | Joy-tester | I:\MMJoy2\Firmware\_lufa\_[MMJOY2.ATMEGA32U4].hex Chip ATmega32U4 Firmware loading tab. Bootloader type Arduino Port(arduino) COM22 COM ports list Start bootloader Upload firmware Clear EEPROM I:\MMJoy2\JoyLoader\_arduino\arduino.cmd Device management

In order to do the upload, you'll first need to select the .hex file that you're going to upload. In the case of the Pro Micro, you need to select the file that contains "ATMEGA32U4" in the filename. In my example above, the file name is "Firmware lufa [MMJOY2.ATMEGA32U4].hex"

Click in the **Chip** drop-down and choose the ATmega32U4 – that's the CPU that the Pro Micro uses. **Bootloader Type** should be set to "Arduino".

In the input field marked **Port(arduino)**, enter in "COM" followed by the port number that appeared when you put your Pro Micro into bootloader mode.

Now all you need to do is put the Pro Micro into bootloader mode as you have before and click on the **Upload firmware** button. When you do this, a window similar to the one below will appear. It will close automatically when the upload is completed.

```
0
h Ra
    C:\Windows\system32\cmd.exe
Blu
er
     Connecting to programmer:
    Connecting to programmer: .
Found programmer: Id = "CATERIN"; type = S
Software Version = 1.0; No Hardware Version given.
Programmer supports auto addr increment.
Programmer supports buffered memory access with buffersize=128 bytes.
25
dap
RO
    Programmer supports the following devices:
nter
         Device code: 0x44
ATA
Bus
    avrdude.exe: AVR device initialized and ready to accept instructions
dev
    ls
    avrdude.exe: Device signature = 0x1e9587
avrdude.exe: reading input file "I:\MMJoy2\Firmware_lufa_[MMJ0Y2.ATMEGA32U4].hex
oth
t Cd
    avrdude.exe: writing flash (19694 bytes):
    1 96% 1.69s
ada
Dev
M
rs
```

When the firmware upload is finished, the Pro Micro is ready to be configured! Note that until at least one axis or button is assigned in the configuration, it will not appear as a game device under Windows.

That's all there is to it! If you have any questions, comments or error corrections, please contact me at geneb@deltasoft.com.