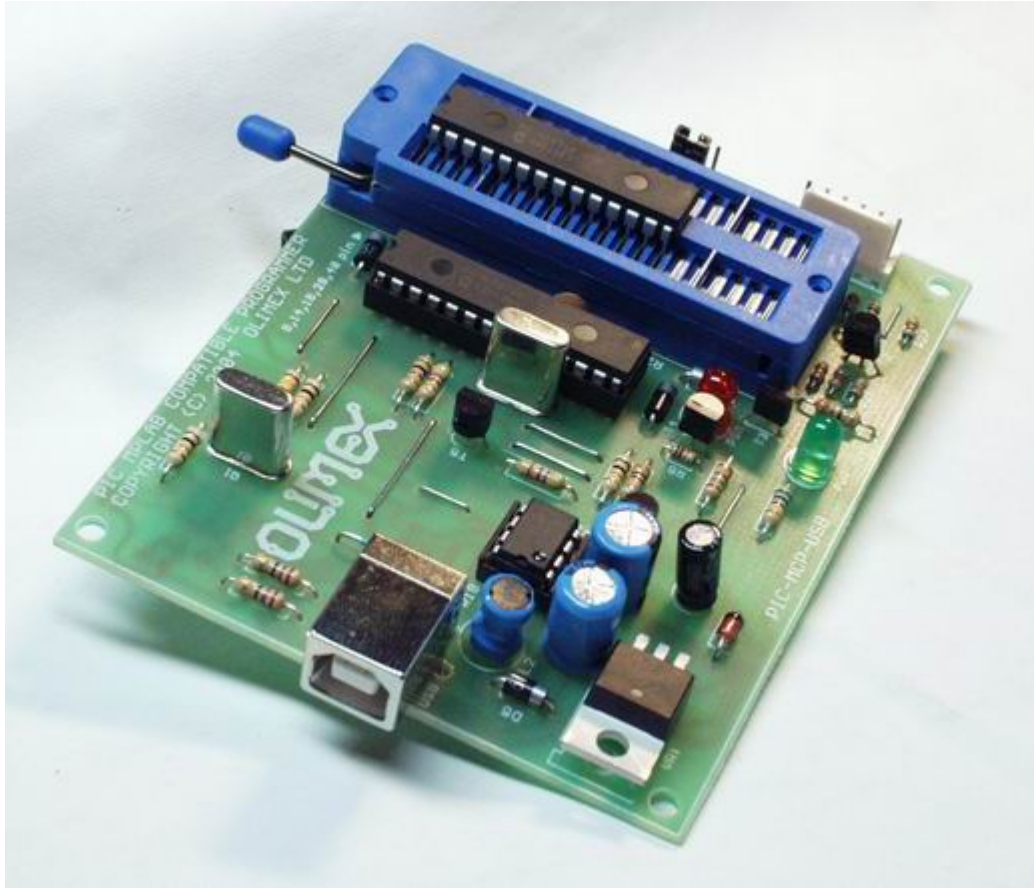


# PIC-MCPUSB

Installing the MCP programmer with USB connection



Olimex PIC, AVR, MSP, and ARM Development tools

[www.olimex.com/dev](http://www.olimex.com/dev)

Spark Fun Electronics – Prototyping Tools and Supplies

[www.sparkfun.com](http://www.sparkfun.com)

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# 1 Overview

The original MCP was a great drop-in replacement for the PIC Start+ Programmer. It had the ability to program almost any DIP packaged PIC on the market. But it was plagued by all production grade programmers in that it needed an external 15-18V DC power supply. Power supplies at this voltage become bulky and expensive. This is the key benefit to the PIC-MCPUSB from Olimex. The ability to generate all the needed power and serial signals from a single USB connection means the MCPUSB can be used with any portable system including laptops and tablet PCs. No external power supply is needed. No 9-pin serial port is required.

## 2 The USB<->RS232 Converter

The key to the MCPUSB is the FT232B chip. This chip takes care of the USB protocol implementation. When a MCPUSB is attached to a USB port, Windows will attempt to install drivers for the new device.

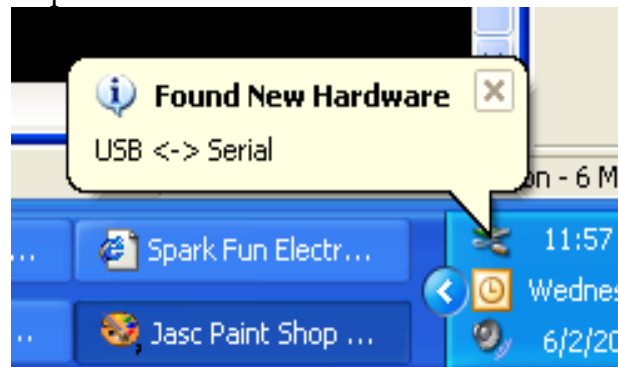


Figure 1: Found new USB Device

If you already have a device using a similar USB to RS232 chip, the correct drivers will be installed. It turns out our XM Radio PCR Receiver uses an FTDI Chip to handle the power and serial control so Windows found drivers without any help! If you are in need of the FTDI drivers, you can find them at: <http://www.ftdichip.com/FTWinDriver.htm>. There are drivers currently available for various platforms, but since MPLAB is currently only a Windows application, the PIC-MCPUSB is primarily a Windows based programmer.

Once the correct drivers are installed you should see a window like this:

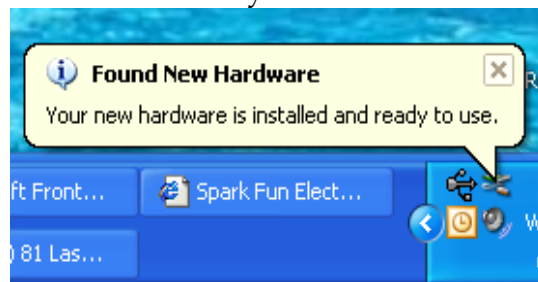


Figure 2: Hardware ready to use

You can now start using the PIC-MCPUSB under MPLAB.

### 3 Changing the COM Port Assignment

MPLAB v6.50 allows a PIC Start+ to be installed to Com Ports 1-4. Because the FTDI chip is not a true-hardware serial port – you may change the Com Port to any you wish! In our case, COMs 1-5 were taken, so we will need to shuffle things around a bit.

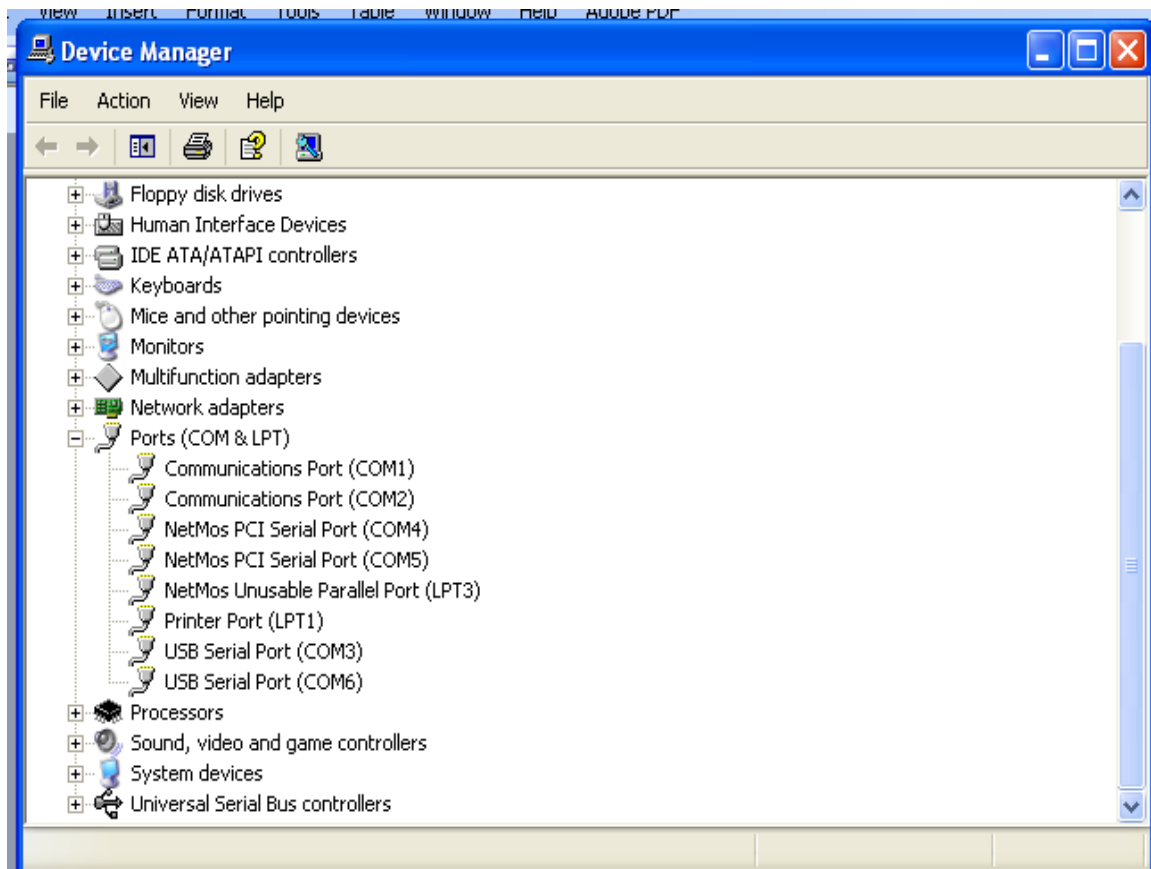
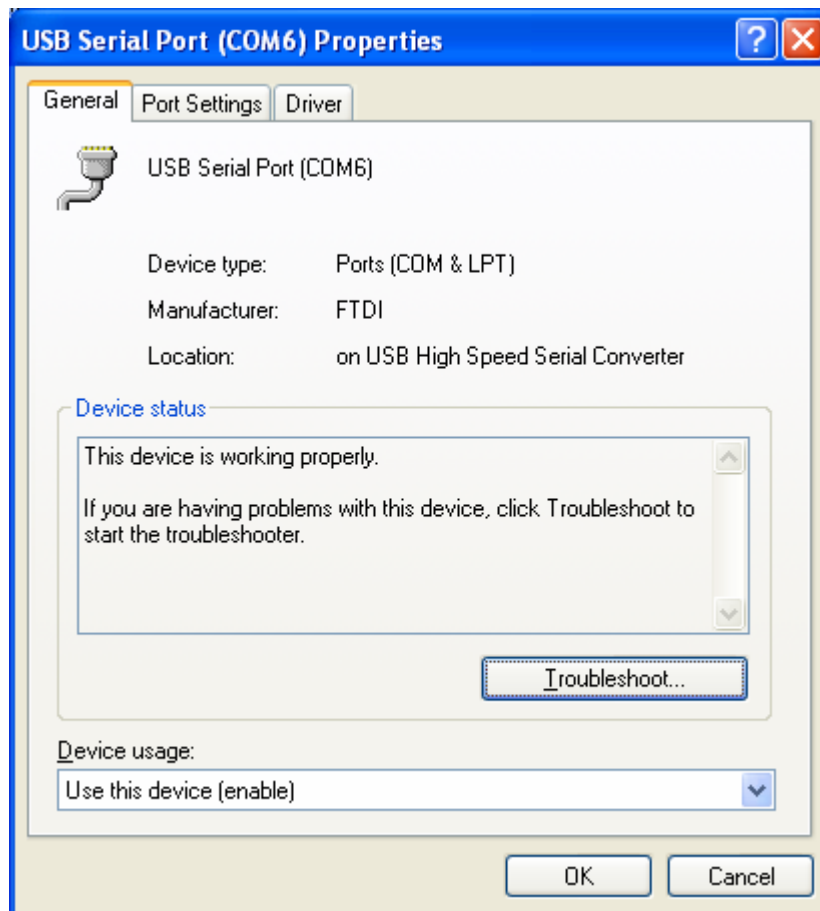


Figure 3: Navigating the Device Manager

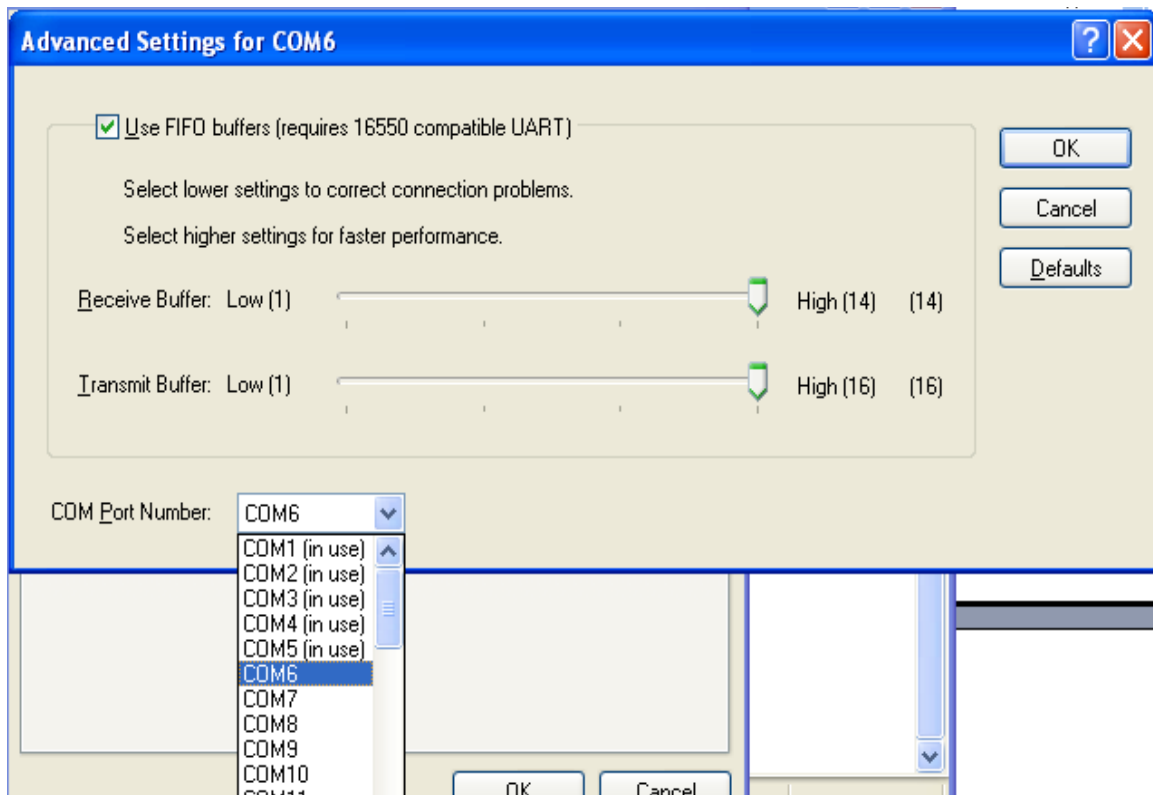
Bring up Device Manager and expand the COM Ports branch. As you can see, we have a few COM Ports installed. Oddly enough, COM2 is a port installed on the motherboard that is never used. So we can steal it! To tell which “USB Serial Port” is actually the MCP and not our XM PCR Receiver (COM 3 vs COM 6), unplug the MCP! One of them will disappear, and you will know which USB Serial Port is the MCP. For us it is COM 6 so we will need to move it to COM 2.

Double click on the USB Serial Port:



**Figure 4: Device Properties**

Now the Port Settings Tab, and click the Advanced button:

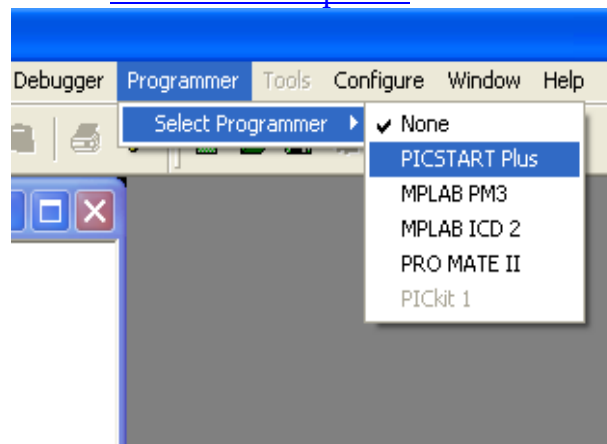


**Figure 5: Selecting the COM Port Number**

As you can see, we can now force the USB Serial COM Port to any port we wish. Be careful! You may try to assign the USB Serial COM Port to a port that is actively being used. In our case, COM2 is fine because it is not actually used by our motherboard.

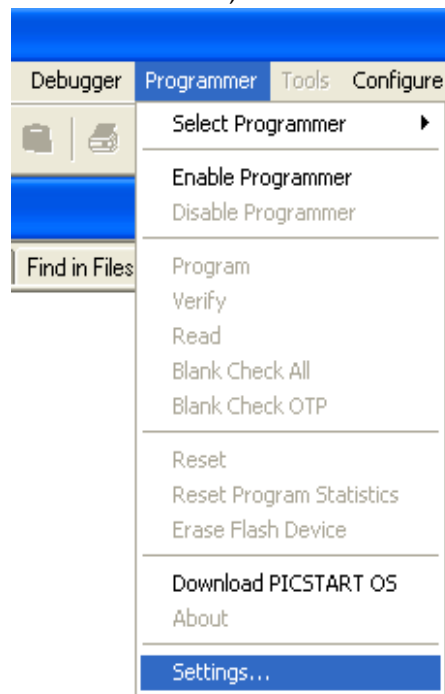
## 4 Starting the MCP under MPLAB

Once you have the COM Ports sorted out, start up MPLAB. MPLAB can be freely downloaded from [www.microchip.com](http://www.microchip.com)

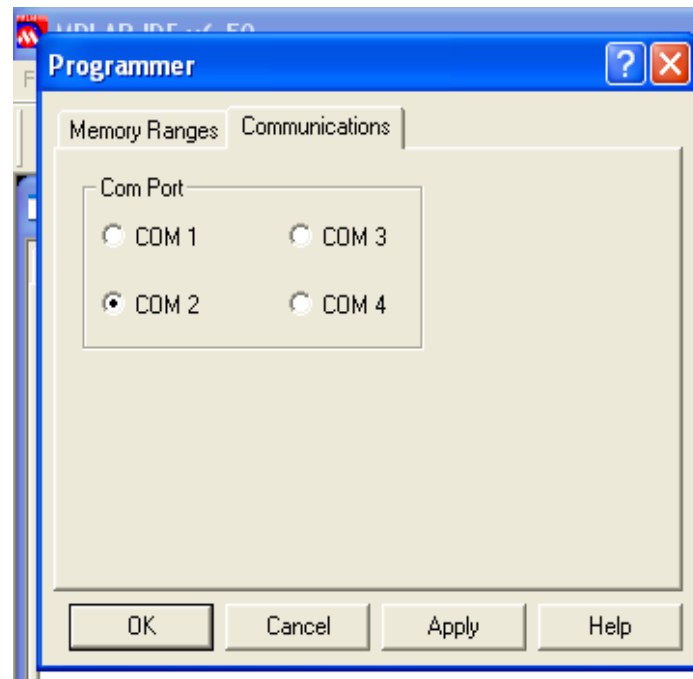


**Figure 6: Programmer Selection**

Once you have the correct programmer selected, you'll probably need to point it to the correct COM Port. For our case, we need to select COM 2:

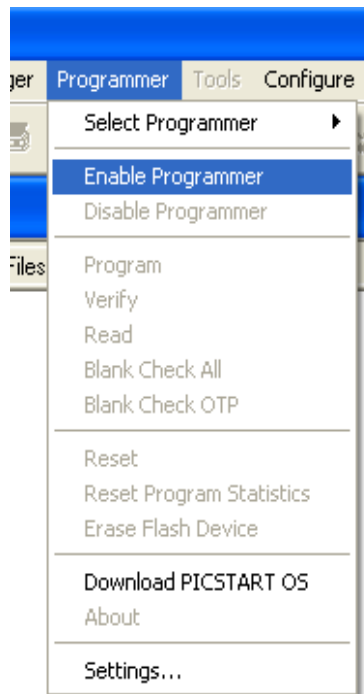


**Figure 7: Programmer Settings**



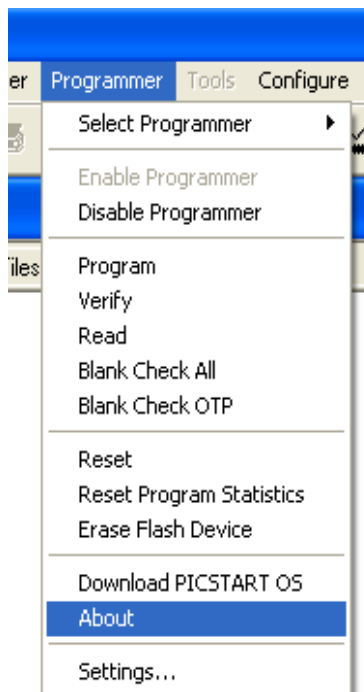
**Figure 8: Selecting the COM Port**

Now that we have the correct COM Port installed, we must tell MPLAB to start using it:



**Figure 9: Enable the MCP**

To double check all the communications are working select the 'About' command:



**Figure 10: About Command**



This will make the MCP respond with the firmware revision installed.

**Please note:** You cannot 'Download PICSTART OS'. The MCP uses much different firmware than the PIC START+ from Microchip. If you attempt to download new PICSTART OS to the MCP, it won't work; it won't do anything at all but time out. You will need to follow the MCP Upgrade procedure found at <http://www.sparkfun.com/tutorial/MCP-Upgrade/MCP-Upgrade.htm>.

Microchip seems to be coming out with a new revision of MPLAB every other week. Olimex continues to keep up the firmware for the MCP, but *you will not need to upgrade the MCP firmware unless you need to use a newly released PIC that was not supported by previous versions of MPLAB.*

That's it! If you have any problems, we are here to help! Visit the Olimex/Spark Fun Support Forum at:

<http://www.sparkfun.com/cgi-bin/phpbb/>

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