

The Arduino Fio enables you to wirelessly connect to Breakout Server (or to Processing or even other Arduino Fio boards). The Fio also operates at a lower voltage than standard Arduino boards (3.3 volts vs 5.0 volts) so it is ideal for a number of low voltage sensors. Many sensors that use the I2C protocol are low voltage and can be ruined if you use them with a 5v Arduino board. See [schematics.pdf](#) in Breakout/examples for wiring diagrams.

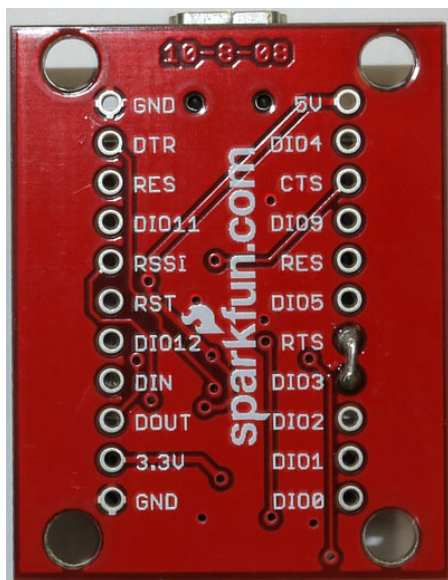
You can use any sensor or actuator with a Fio that you would use with a standard Arduino. Note that LEDs won't be as bright and that high voltage motors will require their own power supply.

The USB connector on the Arduino Fio is only used to charge the battery. Sketches are uploaded to the board wirelessly once the XBee radios are configured (see the following instructions). You can also use a FTDI Basic Breakout – 3.3v board to upload sketches (<http://www.sparkfun.com/products/9873>).

## Arduino Fio Setup Instructions

### Step 1. Configuring XBee Radios

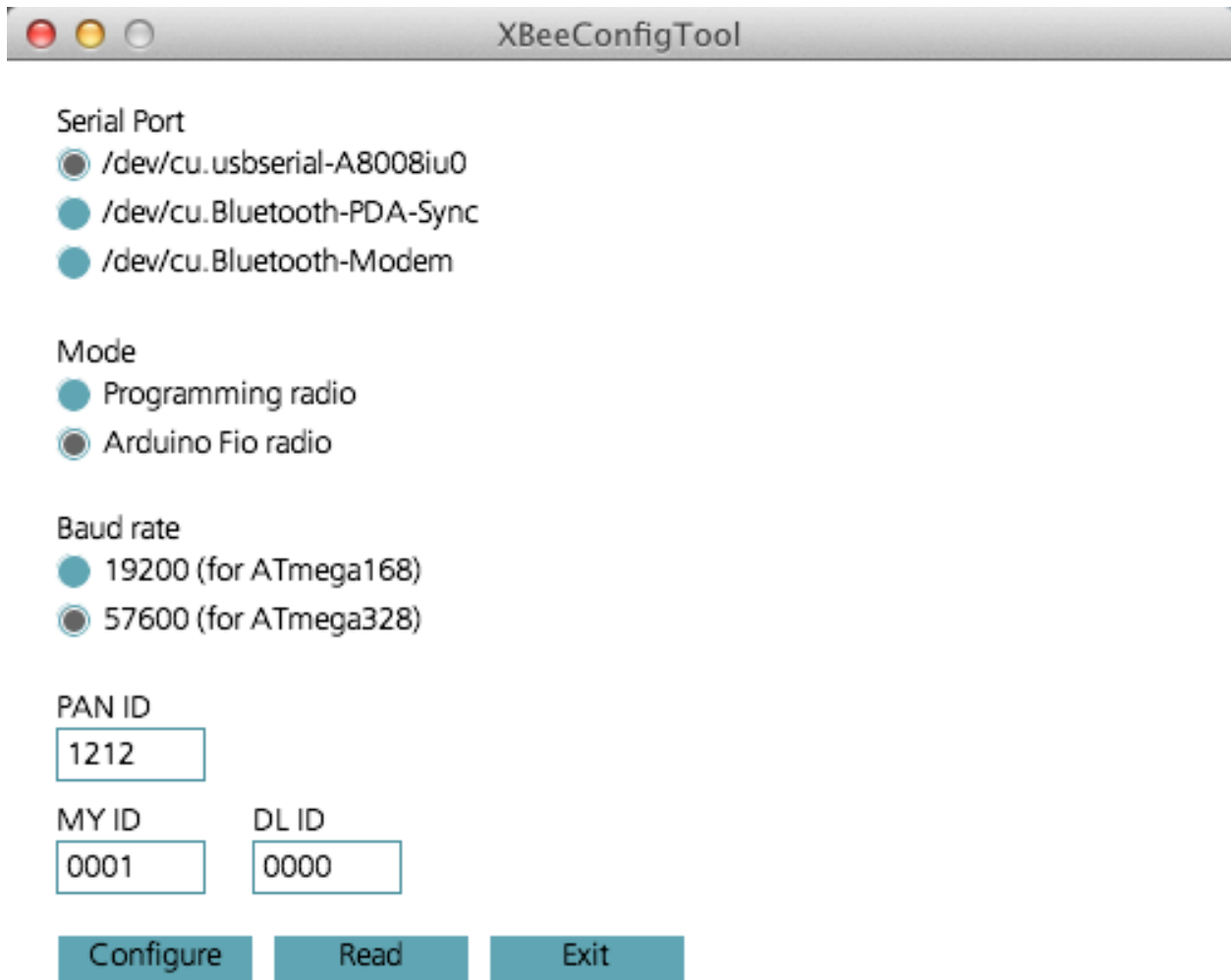
1. Round up 2 XBee Series 1 radios (note they must be Series 1 in order to program the Fio wirelessly).
2. You will also need an XBee explorer board (<http://www.sparkfun.com/products/8687>). In order to enable auto reset (and program the Arduino Fio wirelessly), solder a small wire between the RTS and D3 pins as shown in the following image:



3. After you have soldered the jumper, connect the first XBee module to the XBee Explorer board and then connect the XBee explorer to your computer.

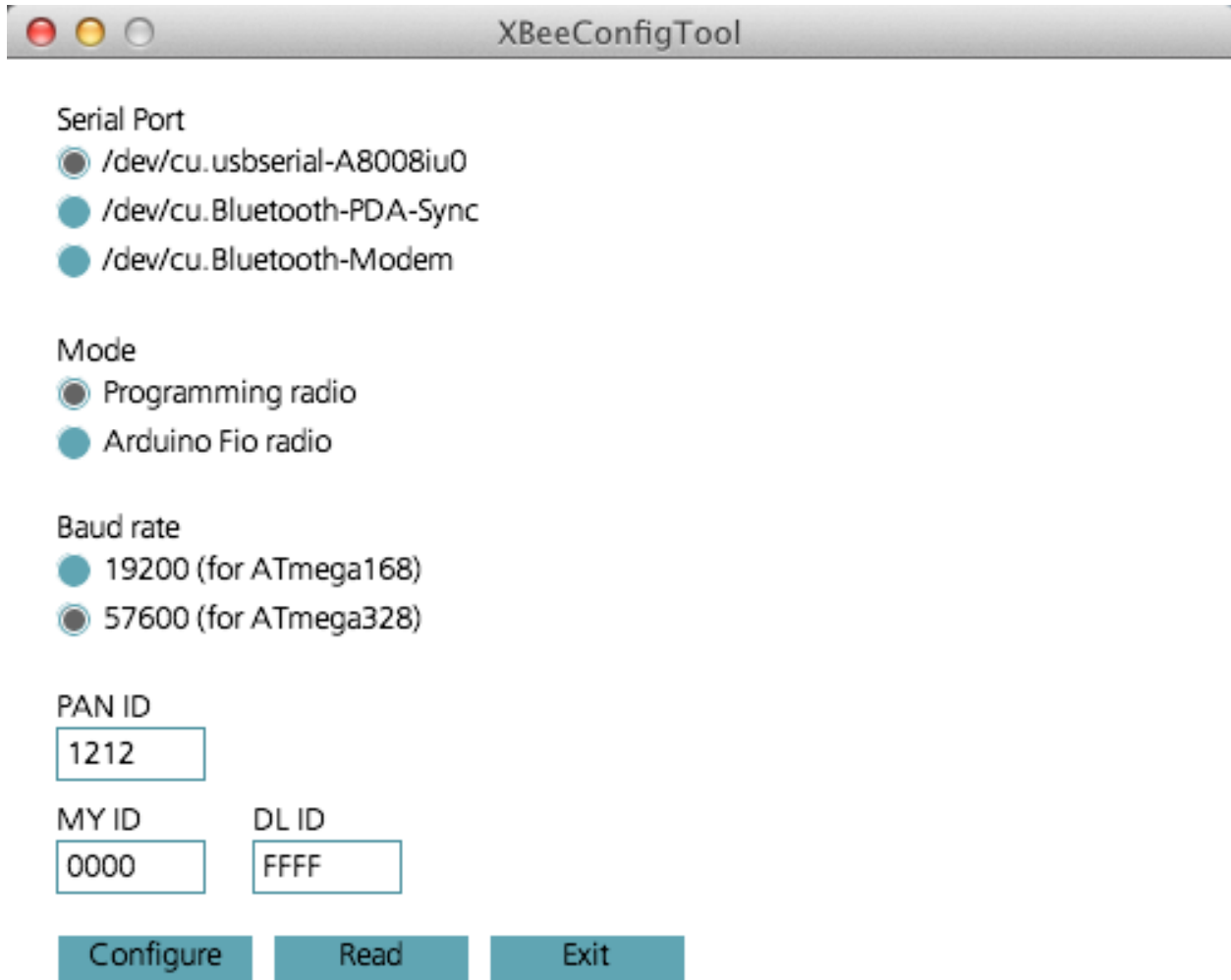


4. Open the XBeeConfigTool application (you can download it here: <http://www.breakoutjs.com/tools/XBeeConfigTool.zip> ).
5. First we'll configure the XBee radio that will be connected to the Arduino Fio board. Select the serial port, set the Mode to Arduino Fio radio, and set the baud rate to 57600. Each network of XBee radios needs a unique PAN ID so you should use the same PAN ID for all XBee radios you are using, but make sure your PAN ID is different than anyone else who may be using XBee radios nearby.



Click Configure. You should see the LEDs flicker on the XBee explorer board and then hopefully see the “Configured successfully” message below the Configure button.

- Click Exit to close the XBeeConfigTool and then disconnect the XBee explorer board from your computer.
- Carefully remove the XBee radio from the XBee explorer board and attach it to the Arduino Fio. Attach the other XBee radio to the XBee explorer board and re-launch the XBeeConfigTool.
- Configure the other XBee radio to be the programming radio. Be sure to set the PAN ID to the same value you set for the other radio. Each network of radios must have a unique PAN ID.



Click Configure, check for success, then Exit.

## Step 2. Uploading StandardFirmata to the Arduino Fio

1. Connect the XBee explorer board to your computer and open the Arduino Application.
2. Make sure the Arduino Fio board is turned on. There is a tiny on/off switch on the top of the board.
3. Open File -> Examples -> Firmata -> StandardFirmata.
4. Select 'Arduino Fio' from the Tools -> Boards menu and make sure the correct serial port is also selected (if the top serial port in the list contains the text 'bluetooth' then recheck your connections).

5. Compile the code (click the 'play' button or Command + R).
6. Upload the sketch. You will see the 3 LEDs on the XBee Explorer Board flicker for a few seconds.
7. If you happen to get an error, make sure the correct board and serial port are selected from the tool menu. Sometimes the wireless upload process can be a bit fussy so if it fails, toggle the Arduino Fio on and off, wait a couple of seconds then try to upload again. If you continue to get an error, redo the XBee configuration steps.

If the upload was successful, close the Arduino application.

You can now use the Arduino Fio with Breakout.