RIOduino

GETTING STARTED GUIDE

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1 GUIDE OVERVIEW

This Getting Started Guide describes how to setup the required software to program the RIOduino. The RIOduino is an Arduino Uno R3 compatible microcontroller board that is compatible with vast ecosystem of Arduino shields and code examples.

This guide will cover:

- Installing the Arduino software
- Installing the USB driver
- Programming the RIOduino

Further turtorials can be found on the Arduino website and in the Arduino community. Please visit arduino.cc for more information.

For specific information on the RIOduino and its hardware please visit www.revrobotics.com/product/rioduino.

2 INSTALL ARDUINO SOFTWARE

Programming the RIOduino is done with the Arduino Integrated Development Environment (IDE). Users can develop code and program the RIOduino all from this single piece of software. The IDE also comes with many examples that make getting started with Arduino programming simple and straightforward.

Step 1 - Download the Arduino Software Installer

The Arduino IDE can be found on the Download section of the Arduino website: arduino.cc. Download the appropriate installer for your operating system and launch the installer.

Step 2 - Install with default options

Keep the default options when progressing through the installer.

3 INSTALL USB DRIVER

The RIOduino uses an FTDI USB Serial Converter as its programming interface. Some operating systems will install the driver automatically while others will not. The steps below will walk you through the driver installation process for Windows.

Step 1 - Connect the RIOduino

Connect the RIOduino to the computer with the provided USB A to USB mini B cable. If using Windows 7 or newer, the drivers should be found automatically through Windows Update. See Figure 3-1.
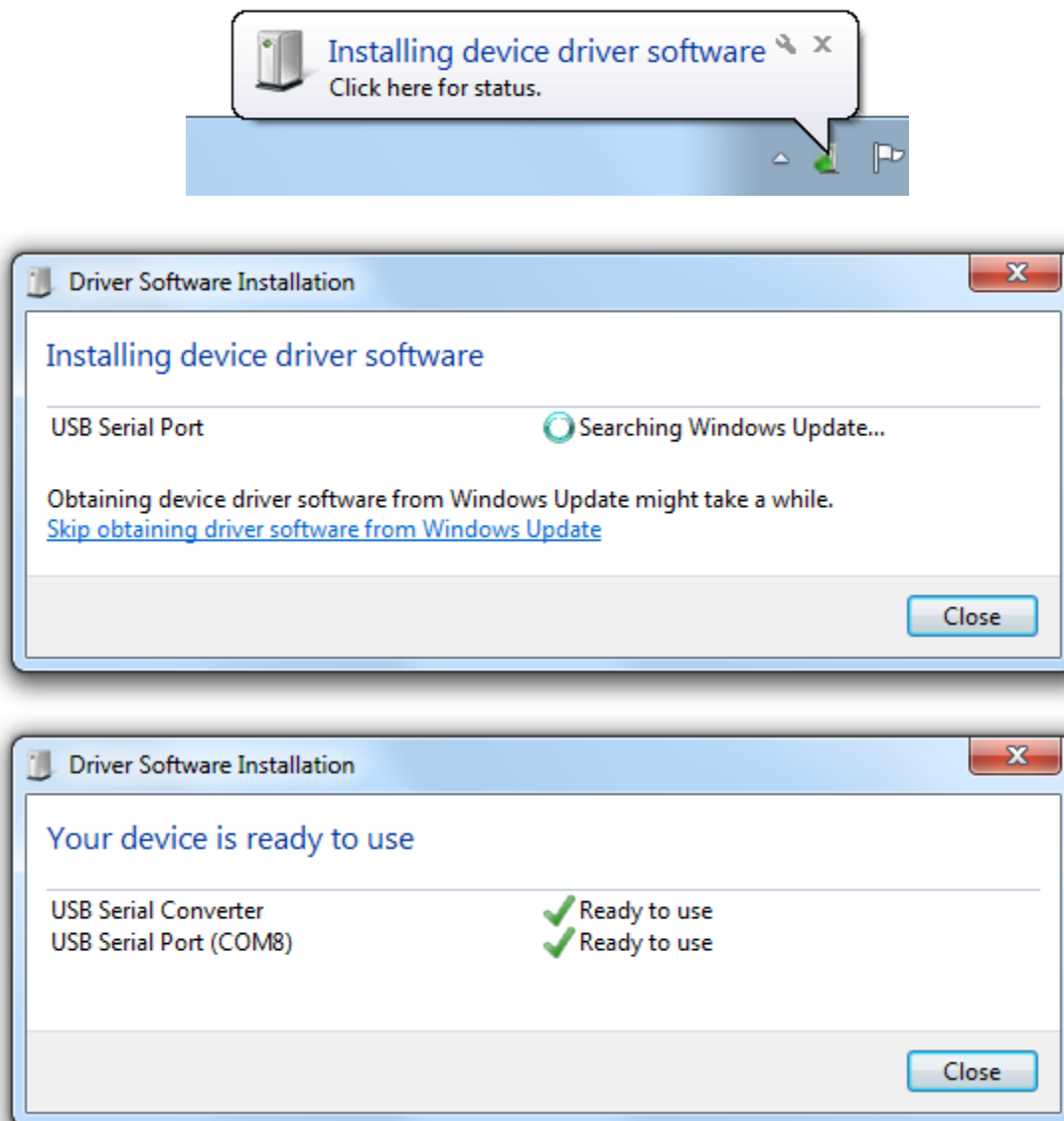
Figure 3-1 Automatic Driver Installation

Please note that the COM port number may be different.

If the drivers installed correctly please proceed on to section 4 PROGRAM THE RIODUINO. Otherwise unplug the RIOduino and proceed to Step 2.

Step 2 - Download FTDI Drivers

Download the FTDI VCP Drivers that are appropriate for your operating system at www.ftdichip.com/Drivers/VCP.htm. For Windows, download the WHQL Certified setup executable. See Figure 3-2.

Currently Supported VCP Drivers:

Operating System	Release Date	Processor Architecture							Comments
		x86 (32-bit)	x64 (64-bit)	PPC	ARM	MIPSII	MIPSIV	SH4	
Windows*	2014-09-29	Available as setup executable Contact support1@ftdichip.com if looking to create cusomised drivers		-	-	-	-	-	2.12.00 WHQL Certified Available as setup executable Release Notes
Linux	2009-05-14	1.5.0	1.5.0	-	-	-	-	-	All FTDI devices now supported in Ubuntu 11.10, kernel 3.0.0-19 Refer to TN-101 if you need a custom VCP VID/PID in Linux
Mac OS X	2012-08-10	2.2.18	2.2.18	2.2.18	-	-	-	-	Refer to TN-105 if you need a custom VCP VID/PID in MAC OS

Figure 3-2 FTDI VCP Drivers Page

Step 3 - Install FTDI Drivers

Launch the downloaded executable and follow the installation wizard. See Figure 3-3.
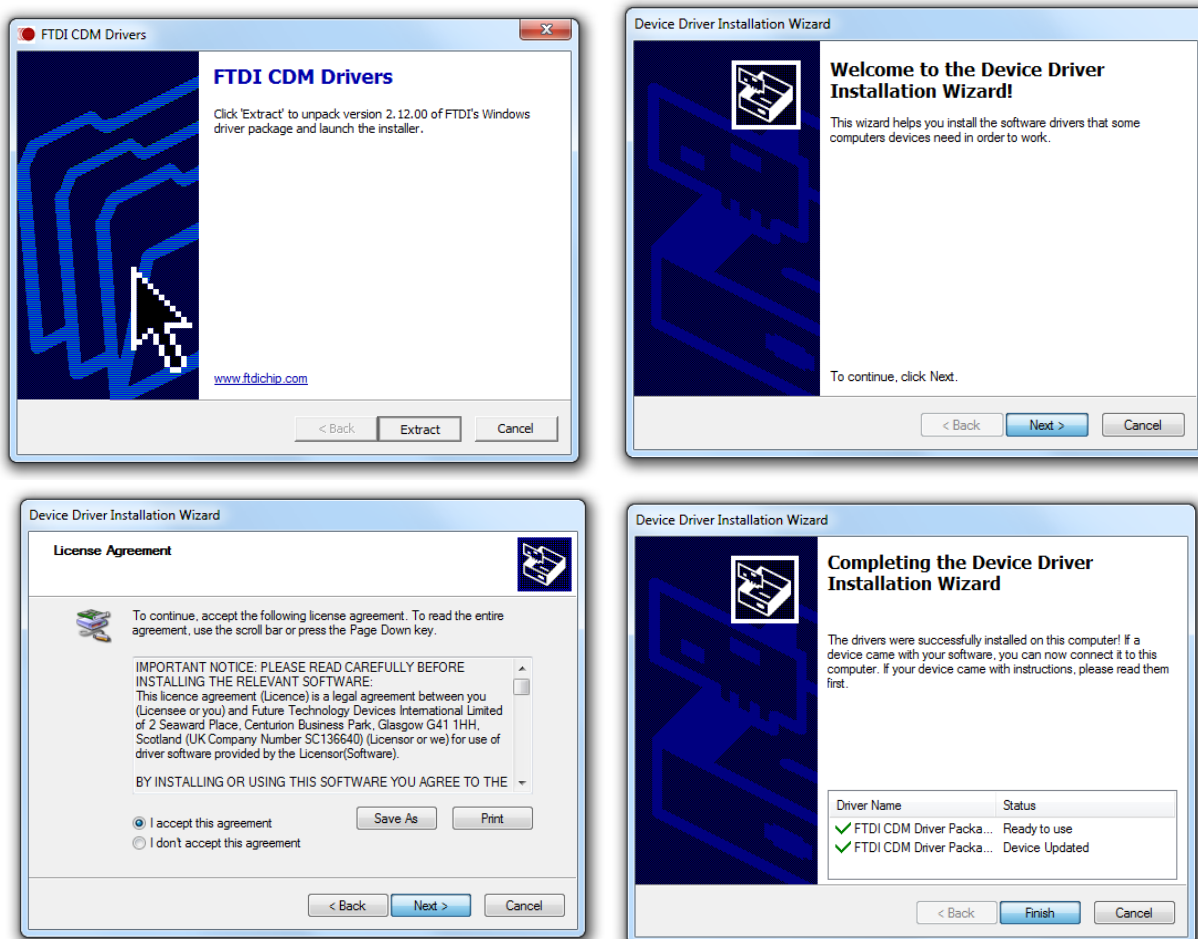

Figure 3-3 Installing FTDI Drivers

Step 4 - Reconnect in the RIOduino

After successfully installing the drivers, reconnect the RIOduino to the computer. Windows should display a "Your device is ready to use" notification. You can also verify that the RIOduino is properly recognized by looking for a *USB Serial Port* on the *Device Manager* under *Ports (COM & LPT)*. See Figure 3-4.
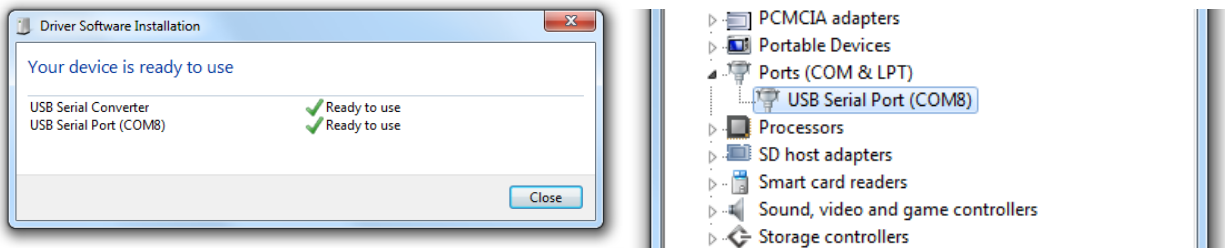

Figure 3-4 RIOduino successfully recognized

4 PROGRAM THE RIODUINO

Programming the RIOduino is done through the Arduino IDE. The following steps describe how to load a program onto the RIOduino using the Arduino IDE.

Step 1 - Connect the RIOduino

If it isn't already, connect the RIOduino to the computer using the provided USB cable.

Step 2 - Start the Arduino IDE

Start the Arduino IDE by launching the Arduino application that was installed in section 2.

Step 3 - Open the desired program

Open the program that you would like to load on to the RIOduino. For this example, we will use the Blink example program found in *File>Examples>01.Basics>Blink*.

Step 4 - Verify the correct board and port

Verify that *Tools>Board>Arduino Uno* is selected as the board and appropriate COM port is checked in *Tools>Serial Port*. See Figure 4-1.
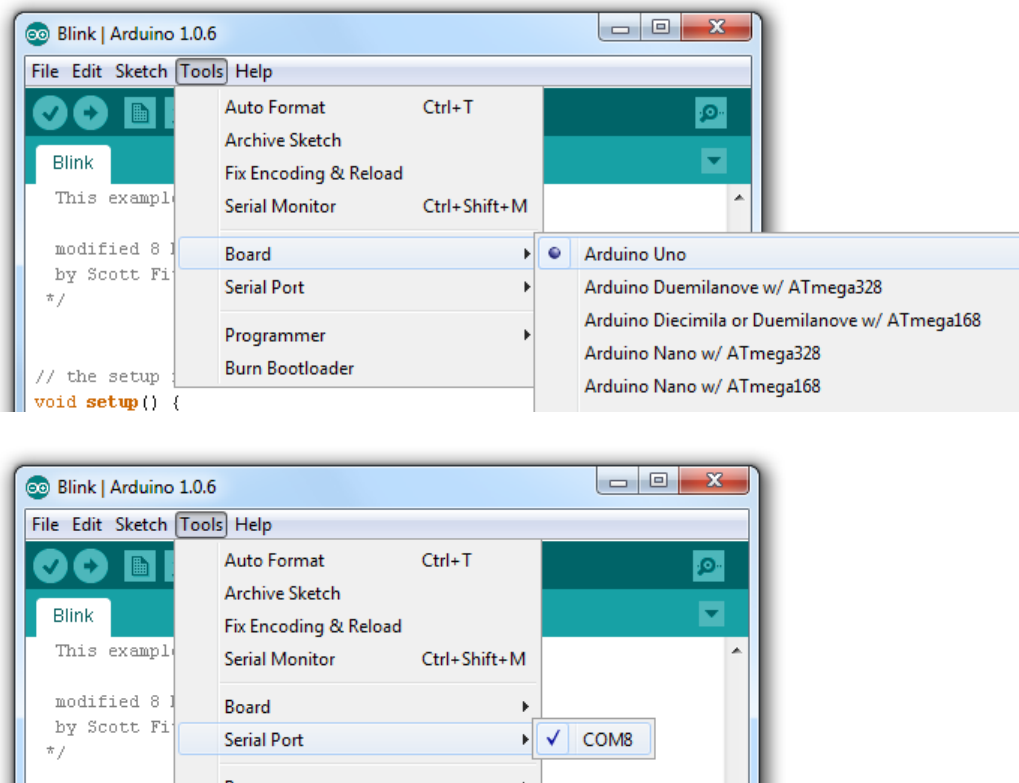

Figure 4-1 Board and Port selection

Step 5 - Upload the program

Click the upload button shown in Figure 4-2. The program will be compiled and then loaded onto the RIOduino.

<p style="text-align:center">**Figure 4-2 Loading a program**</p>

For the Blink example, observe LED - 13 blinking. The RIOduino is now programmed and can run any Arduino code written for an Arduino Uno.