SETTING UP

WELCOME TO ARDUINO! BEFORE YOU START CONTROLLING THE WORLD AROUND YOU, YOU'LL NEED TO DOWNLOAD THE IDE TO PROGRAM YOUR BOARD

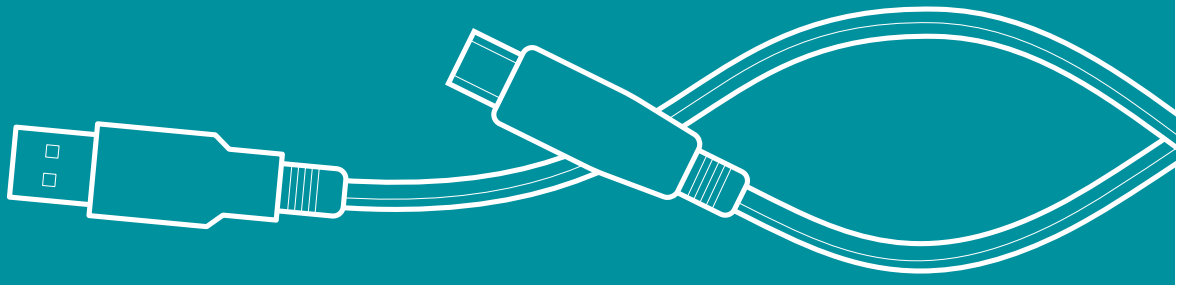
The Arduino IDE allows you to write programs and upload them to your Arduino.

Download the latest version of the IDE from:
arduino.cc/download

Have your Arduino board and USB cable near your computer. Don't plug them in just yet.

Follow the appropriate procedures in the next pages for Windows, Mac OS X or Linux.

The online version of this guide is available at:
arduino.cc/guide



WINDOWS INSTALLATION

Online version
arduino.cc/windows

INSTRUCTION FOR: WINDOWS 7, VISTA, AND XP

1. When the download of the IDE finishes, unzip the downloaded file. Make sure to preserve the folder structure. Double-click the folder to open it. There should be a few files and sub-folders inside.

2. Connect the Arduino to your computer with the USB cable. Your Arduino will automatically draw power from either the USB connection to the computer or an external power supply.
The green power light (labeled PWR) should turn on.

3. Windows should initiate its driver installation process when the board is plugged in. Your computer won't be able to find the drivers by itself, so you'll need to tell it where they are located.

— Click on the Start Menu and open the Control Panel.
— Navigate to "System and Security". Open the Device Manager.
— In Windows XP, look for the listing named "Ports (COM & LPT)" and right click on the "USB device" port; in Vista and Windows 7, right click on "Unknown device" under "Other devices".
— Choose "Update Driver Software".
— On Windows XP and Windows 7, you will be asked whether to install automatically or "with a path". Chose the second option, "with a path". On Windows Vista proceed directly to the next step.
— Select the "Browse my computer for Driver software" option.
— Navigate to the folder you unzipped in the earlier step. Locate and select the "Drivers" folder in the main Arduino folder (not the "FTDI USB Drivers" sub-directory). Press "OK" and "Next" to proceed.
— If you are prompted with a warning dialog about not passing Windows Logo testing, click "Continue Anyway".
— Windows now will take over the driver installation.

In the Device Manager, you should now see a port listing similar to "Arduino UNO (COM4)".

Congratulations! You've installed the Arduino IDE on your computer.

MAC OS X INSTALLATION

Online version
arduino.cc/mac

INSTRUCTION FOR:
OS X 10.5 AND LATER

1. When the download of the IDE finished, double-click the .zip fle. This will expand the Arduino application.
2. Copy the Arduino application into the Applications folder, or wherever else you wish to install the software.
3. Connect the board to the computer with the USB cable. The green power LED (labeled PWR) should turn on.
4. You do not need to install any drivers to work with the board. Depending on the version of OS X that you are running, you might get a dialog box asking if you wish to open the "Network Preferences". Click the "Network Preferences..." button, and then click "Apply".
5. The Uno will show up as "Not Configured", but it is still working. You can quit the System Preferences.

Congratulations! You have Arduino all set up and you're ready to start making projects.

LINUX INSTALLATION

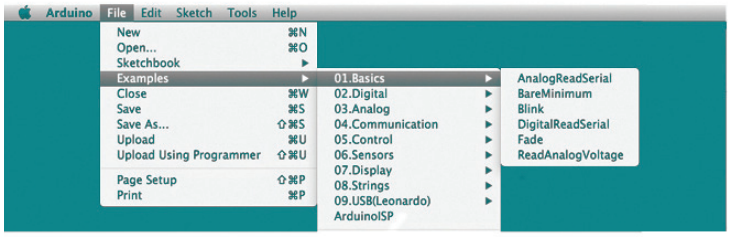
If you're using Linux, please visit the website for instructions:
arduino.cc/linux

COMMUNICATING WITH THE ARDUINO

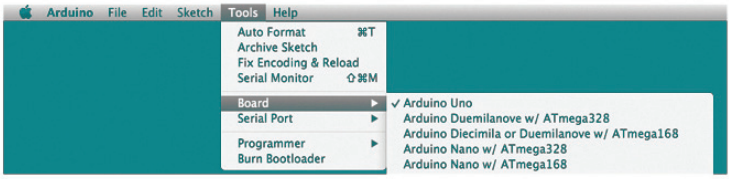
Now that you've installed the Arduino IDE and made sure your computer can talk to the board, it's time to make sure you can upload a program.

1. Double-click the Arduino application to open it. If the IDE loads in the wrong language, you can change this in the application preferences. Look for "Language Support" on this page for details: ***arduino.cc/ide***

2. Navigate to the LED blink example sketch ('sketch' is what Arduino programs are called). It's located under:
FILE > EXAMPLES > 01.BASICS > BLINK



3. A window with some text in it should have opened. Leave the window be for now, and select your board under:
TOOLS > BOARD menu



4. Choose the serial port your Arduino is connected to from the ***TOOLS > SERIAL PORT*** menu.

— *On Windows.* This is likely to be the COM with the highest number. There is no harm in guessing wrong, and if it doesn't work, try the next one. To find out, you can disconnect your Arduino board and re-open the menu; the entry that disappears should be the Arduino board. Reconnect the board and select that serial port.
— *On Mac*. This should be something with /dev/tty.usbmodem in it. There are usually two of these; select either one.

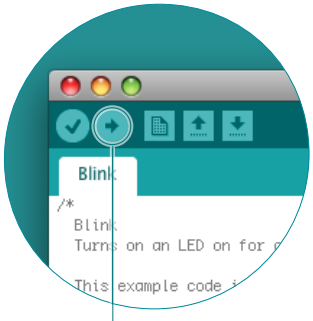


Fig. 1

5. To upload the Blink sketch to your Arduino, press the ***UPLOAD*** toggle in the top left corner of the window. See Fig. 1.

6 You should see a bar indicating the progress of the upload near the lower left corner of the Arduino IDE, and the lights labeled TX and RX on the Arduino board will be blinking. If the upload is successful, the IDE will display the message ***DONE UPLOADING***.

7 A few seconds after the upload has completed, you should see the yellow LED with an ***L*** next to it start blinking. See Fig. 2.
If this is the case, congratulations! You've successfully programmed the Arduino to blink its onboard LED!

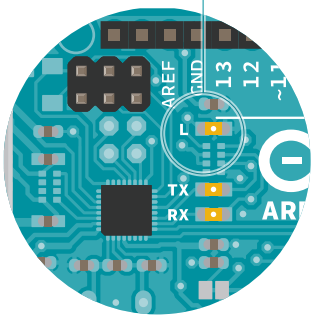


Fig. 2

Sometimes your brand new Arduino is already programmed with the Blink sketch, so you can't tell if you are truly in control. If this is the case, change the `delay` time by changing the number in the parenthesis to 100, and upload the Blink sketch again. Now the LED should blink much faster.
Congratulations! You really are in control! Now it's time to move on to Project 1. (You needn't save any changes you have made.)

ADDITIONAL INFORMATION

If you have problems with any of the steps outlined above, please see the troubleshooting suggestions:
arduino.cc/trouble

While you're getting ready to build your projects, you can look at the following page for additional information about the Arduino's programming environment:
arduino.cc/ide

You might also want to look at:

— the examples for using various sensors and actuators
arduino.cc/tutorial

— the reference for the Arduino language
arduino.cc/examples