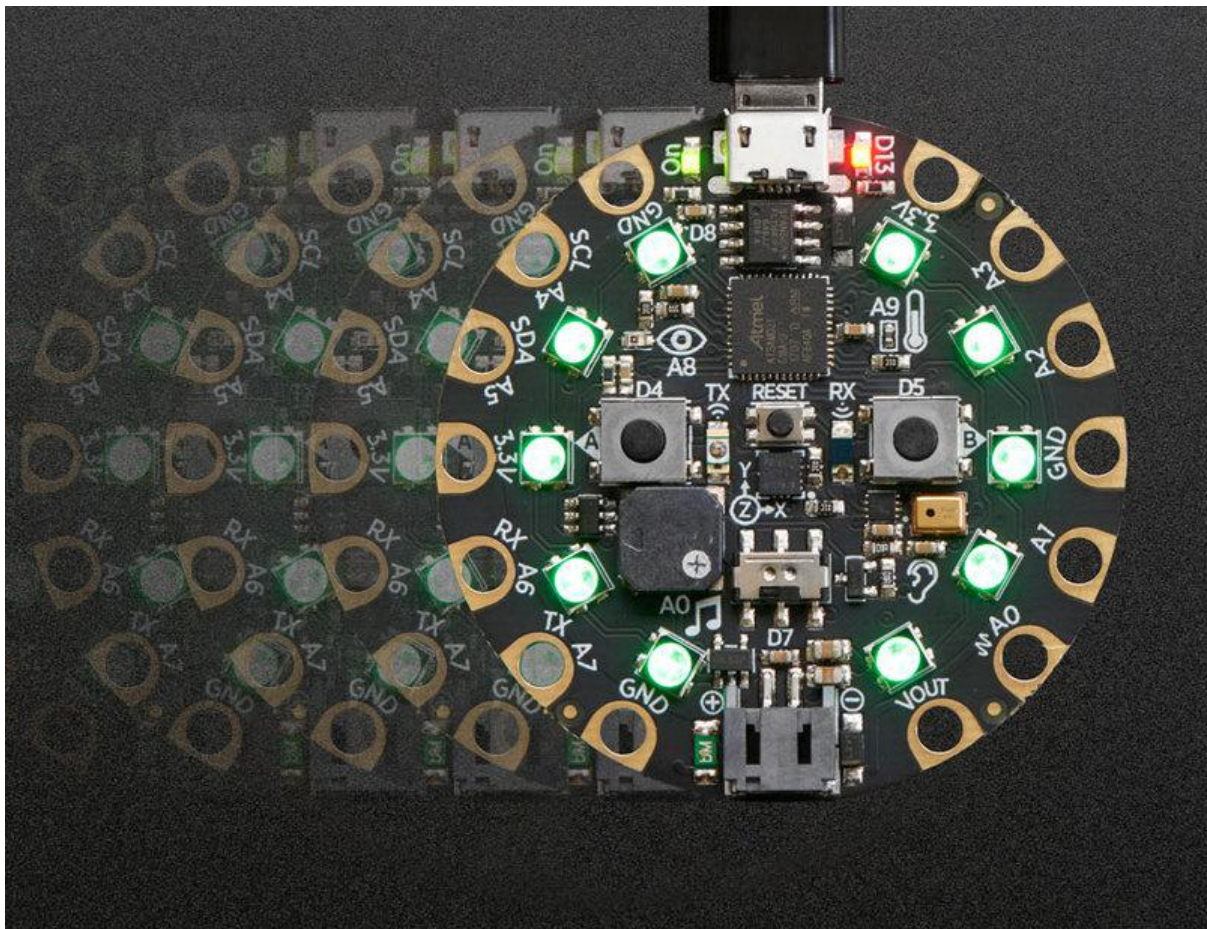




Circuit Playground + CircuitPython Quickstart Guide

Created by Collin Cunningham



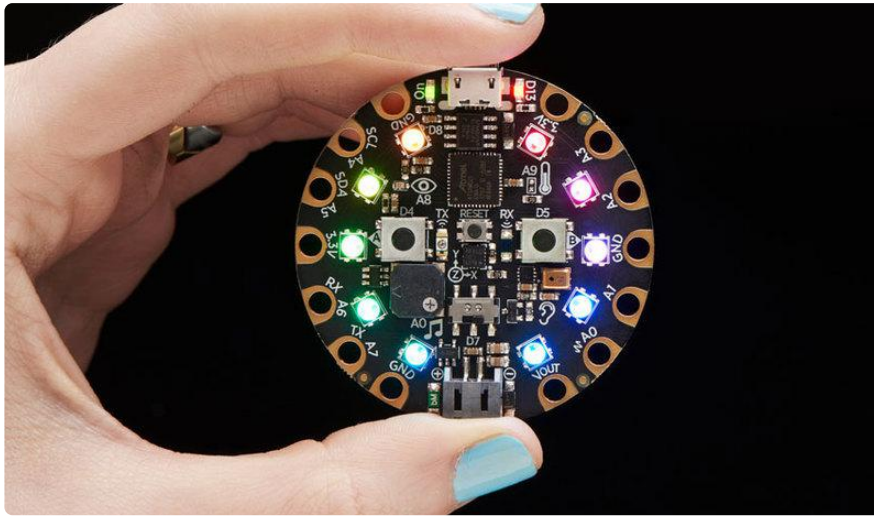
<https://learn.adafruit.com/circuit-playground-express-circuitpython-5-minute-guide>

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Overview

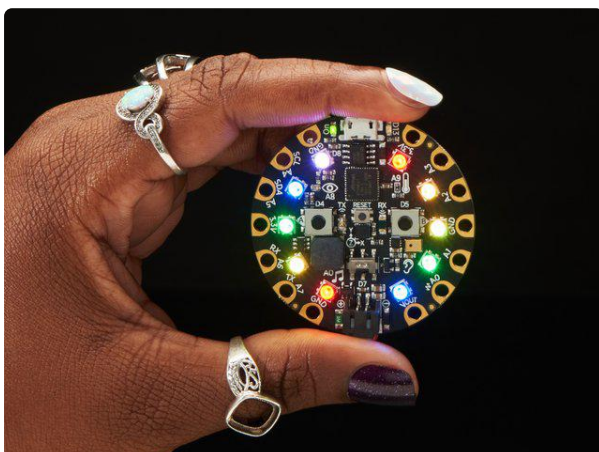


This guide is designed to get you up and running quickly with Circuit Playground Express and CircuitPython. You'll learn how to:

- Install drivers on Windows (for Windows 7 or 8, not needed on Windows 10, Mac or Linux)
- Install CircuitPython
- Upload new code
- Install libraries

This guide is intended for use with a brand new Circuit Playground Express in its default configuration. For a more thorough guide that covers all the relevant details, check out the full [Circuit Playground Express guide \(https://adafruit.it/adafruit-cpx\)](https://adafruit.it/adafruit-cpx).

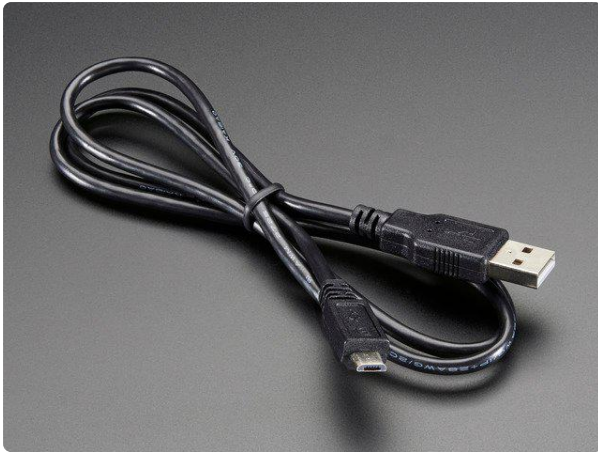
What you'll need



[Circuit Playground Express](#)

Circuit Playground Express is the next step towards a perfect introduction to electronics and programming. We've taken the original Circuit Playground Classic and...

<https://www.adafruit.com/product/3333>



USB cable - USB A to Micro-B

This here is your standard A to micro-B USB cable, for USB 1.1 or 2.0. Perfect for connecting a PC to your Metro, Feather, Raspberry Pi or other dev-board or...

<https://www.adafruit.com/product/592>

Your computer

You'll need a computer running Windows, Linux, or MacOS to upload software to your Circuit Playground Express.

Circuit Playground Express shows up on your computer as an external drive. You'll run new code by saving or copying files directly to this drive.

Install Drivers (Windows)

This step is only required for Windows 7 or 8 users. Windows 10, MacOS & Linux users should skip it.

Download

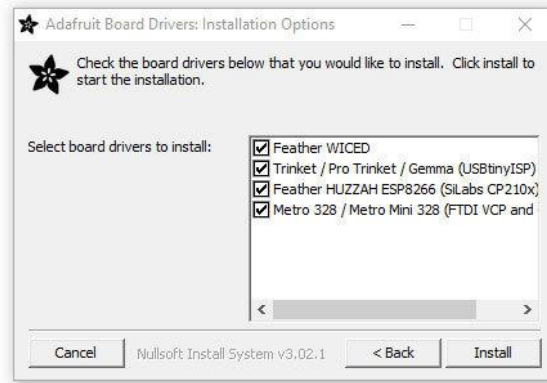
If your computer runs Windows 7 or 8, click the green button below to download the Adafruit Driver Installer.

Download Adafruit Windows Driver
Installer

<https://adafru.it/ECO>

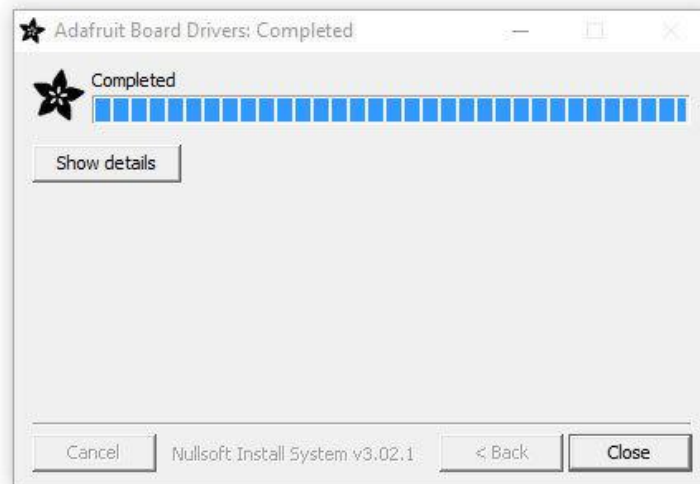
Install

Once the installer is downloaded, double-click the file to open and run it.



After confirming the license agreement, you'll see a list of possible drivers to install. Items on this list will vary depending on what version of Windows you have.

Click the checkbox next to each driver name and then click the Install button.



Once the driver has finished installing, you can move on to the next step.

Install CircuitPython

Installing CircuitPython is easy and it allows you to write code in the language designed specifically to work with Circuit Playground Express.

Download CircuitPython UF2

Click the button below to open the [Circuit Playground Express page on CircuitPython.org](https://adafru.it/cp-cpx) (<https://adafru.it/cp-cpx>).

Download CircuitPython .UF2 file

<https://adafru.it/cp-cpx>

Click the DOWNLOAD .UF2 NOW button near the top of the page. Save the UF2 file to a convenient location on your computer.



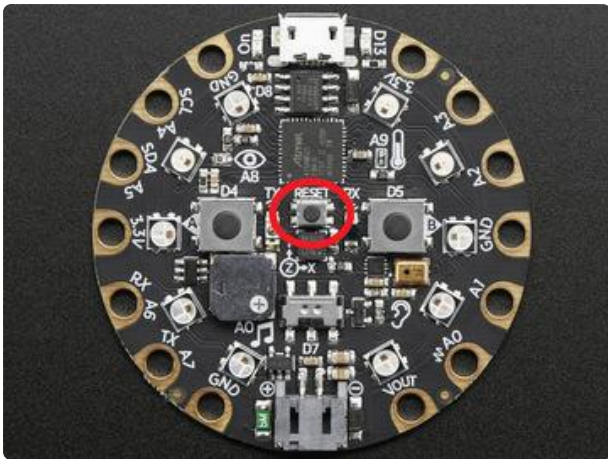
Connect via USB

Use the micro USB cable to connect Circuit Playground Express to a free USB port on your computer.

Once connected, Circuit Playground Express will begin running its default code. You should see the built-in neopixel LEDs light up and start animating. Pressing the large button on the left side of the board will play a simple melody.

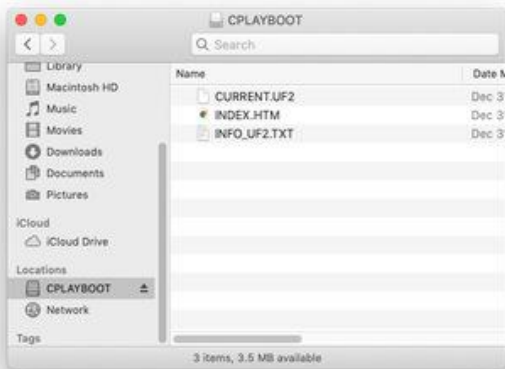
Enter boot mode

When resetting your Circuit Playground, your computer may warn you that a drive was unexpectedly disconnected. This is normal and safe to ignore.

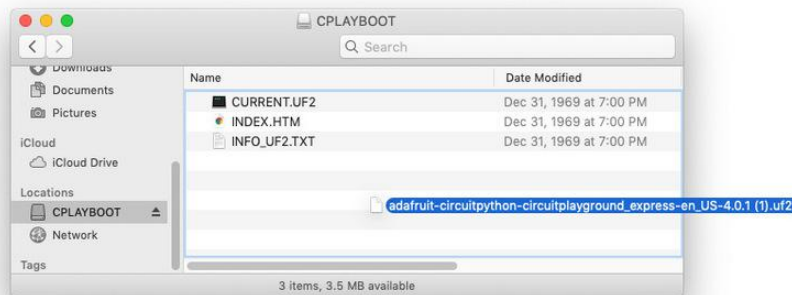


Press the small Reset button in the middle of the board once. You should see all of the LEDs turn green.

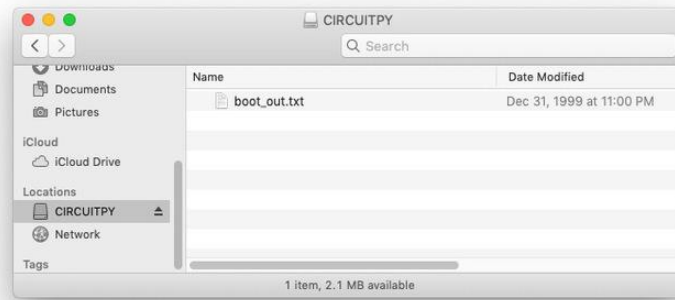
A new drive will appear on your computer named CPLAYBOOT.



Copy UF2 File



Copy the CircuitPython .uf2 file to your Circuit Playground Express by dragging and dropping it onto the CPLAYBOOT drive.



After the file is copied, the CPLAYBOOT drive will disappear and a CIRCUITPY drive will appear in its place.

That's all - you've successfully installed CircuitPython on your Circuit Playground Express!

After Installing CircuitPython, boot mode can be accessed by double-clicking the RESET button.

Upload Code

Now that you've got CircuitPython installed, it's time to try uploading your first new piece of code.

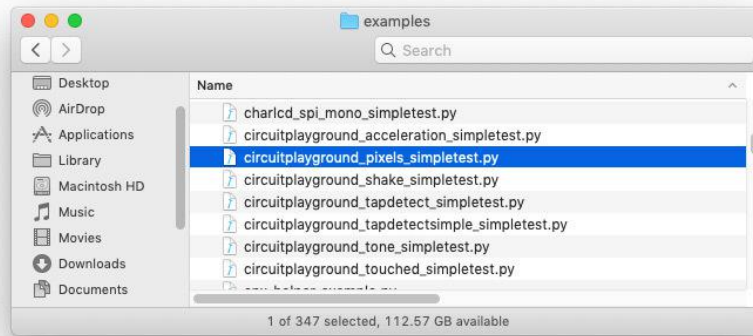
Download Examples

Click the button below to download a zip file containing a collection of sample code for the Circuit Playground Express.

Download Examples

<https://adafru.it/Gey>

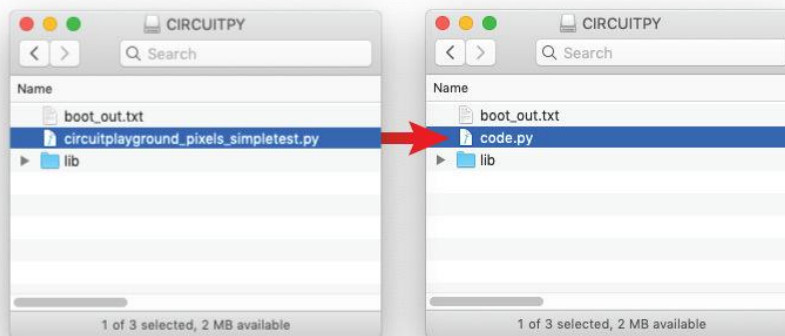
Once downloaded, unzip the file. It should create a folder named examples.



Inside the examples folder, find the file named `circuitplayground_pixels_simpletest.py`.

Upload Code

Copy the `circuitplayground_pixels_simpletest.py` file onto the CIRCUITPY drive.



Once it's copied over to the CIRCUITPY drive, rename the `circuitplayground_pixels_simpletest.py` file to `code.py`.

What did it do?

The Circuit Playground Express will now restart and the LEDs will display a slowly changing rainbow of color. Congrats - you've just uploaded your first new piece of code!

To see the actual code that's controlling the LEDs, you can open up `CIRCUITPY/code.py` in a text editor. Learn more about editing CircuitPython files [here \(https://adafruit.it/Biw\)](https://adafruit.it/Biw).

Goal!

You've now installed CircuitPython and uploaded and run your first new piece of code. This is the essential basics of working with Circuit Playground Express & CircuitPython.

Next, we'll look at libraries - which aren't always required, but will definitely be helpful as you learn to write code and interface with hardware.

Download Libraries

CircuitPython code uses libraries to simplify the programming process. Most code will only use a few specific libraries, but it's a good idea to download all of the them just in case.

Completing this step will equip you with the tools you need to build new projects going forward.

Download Bundle

Click the button below to open the CircuitPython Libraries page.

CircuitPython Libraries

<https://adafru.it/ENC>

On the CircuitPython Libraries page, click the file name that matches the version number of the CircuitPython file you downloaded earlier.

For example - If your CircuitPython file was named:

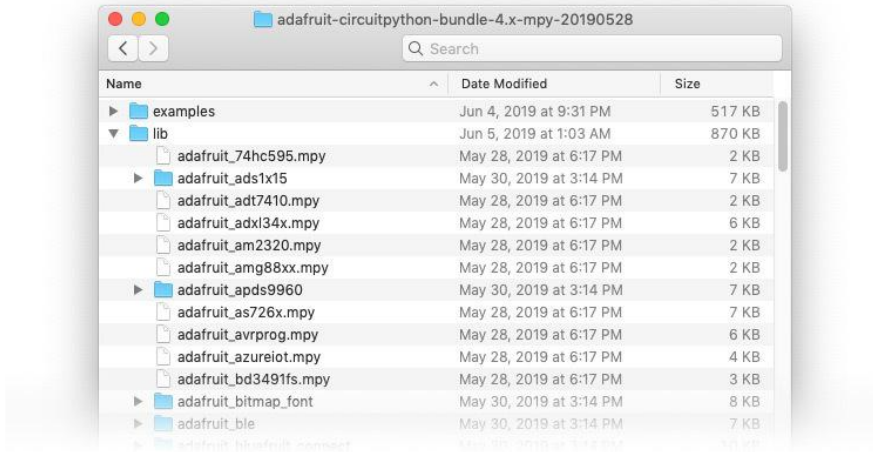
`adafruit-circuitpython-circuitplayground_express-en_US-4.0.1.uf2`

Then you would download the library bundle named:

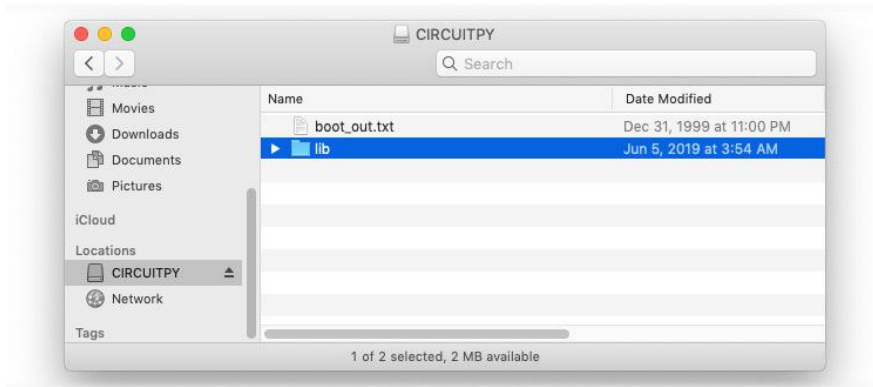
`adafruit-circuitpython-bundle-4.x-mpy-20190603.zip`

View Libraries

Once downloaded, unzip the library bundle and open it.

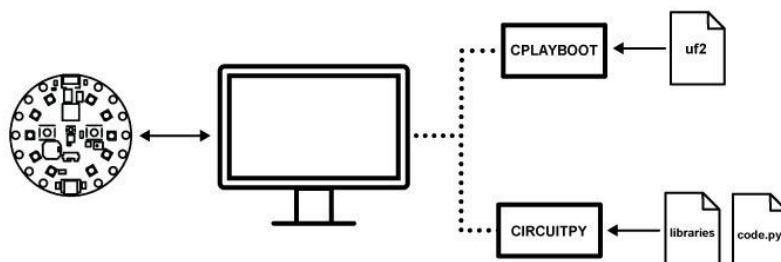


Inside of the library bundle, you'll see a folder named lib which contains a long list of code libraries you can use in your projects.



Libraries can be installed on the Circuit Playground Express by copying them to a folder named lib on the CIRCUIPTY drive.

Learn More



Now that you know how to update and upload code to your board, you can move on to learning how to write code and more. For everything you could ever want to know about Circuit Playground Express, be sure to check out the [comprehensive guide here \(https://adafru.it/adafruit-cpx\)](https://adafru.it/adafruit-cpx).

Write code for Circuit Playground Express

Circuit Playground Express can be programmed using a variety of different methods, including:

- [CircuitPython \(https://adafru.it/cpy-welcome\)](https://adafru.it/cpy-welcome)
- [MakeCode \(https://adafru.it/wWd\)](https://adafru.it/wWd)
- [Arduino IDE \(https://adafru.it/C3t\)](https://adafru.it/C3t)
- [Codecademy \(https://adafru.it/F1m\)](https://adafru.it/F1m)

So Many Projects



Adafruit Learning System has a ton of great projects built using Circuit Playground Express!

Check out the [full list to start exploring \(https://adafru.it/F1n\)](https://adafru.it/F1n).

Troubleshooting

Circuit Playground powers up, but CIRCUITPY drive doesn't show on computer

Make sure you're using a data-capable USB cable. A surprising number of USB cables are designed to only handle power and not data.

Where can I download the demo code that came with my board?

To return your Circuit Playground Express to its original state:

- Download this [uf2 file \(https://adafru.it/AGk\)](https://adafru.it/AGk)
- Put your board into boot mode by double-clicking the RESET button
- Copy the uf2 file onto the CPLAYBOOT drive

CPLAYBOOT drive not showing up on your computer

If you've already installed CircuitPython, boot mode can be accessed by double-clicking the reset button.

If CircuitPython has not been installed and pressing the reset button once does not cause CPLAYBOOT to appear, try using a different USB cable or USB port on your computer.

I have a Windows 7 or 8 computer and the board does not show up when plugged in via a known good data cable over USB

For Windows 7 and 8, you need a Windows Driver for the operating system to see the Circuit Playground Express. See the [Install Drivers \(Windows\)](#) page on how to do that. NOTE: Windows 10 does not need these drivers (it's built into Windows 10) so do not install the driver package as it most likely will interfere with the built-in drivers and make the board not show up.

I accidentally installed the driver on my Windows 10 machine, now it does not recognize the board

You will need to uninstall the driver package to have Windows 10 use the built-in drivers.

I have Windows XP, can I use it with a Circuit Playground Express?

No, Windows XP reached end of life long ago. Please use a newer version of Windows. Adafruit suggests Windows 10, if possible, but Windows 7 and 8 work with an installed driver. Windows 10 has that driver built-in so no additional software is required.