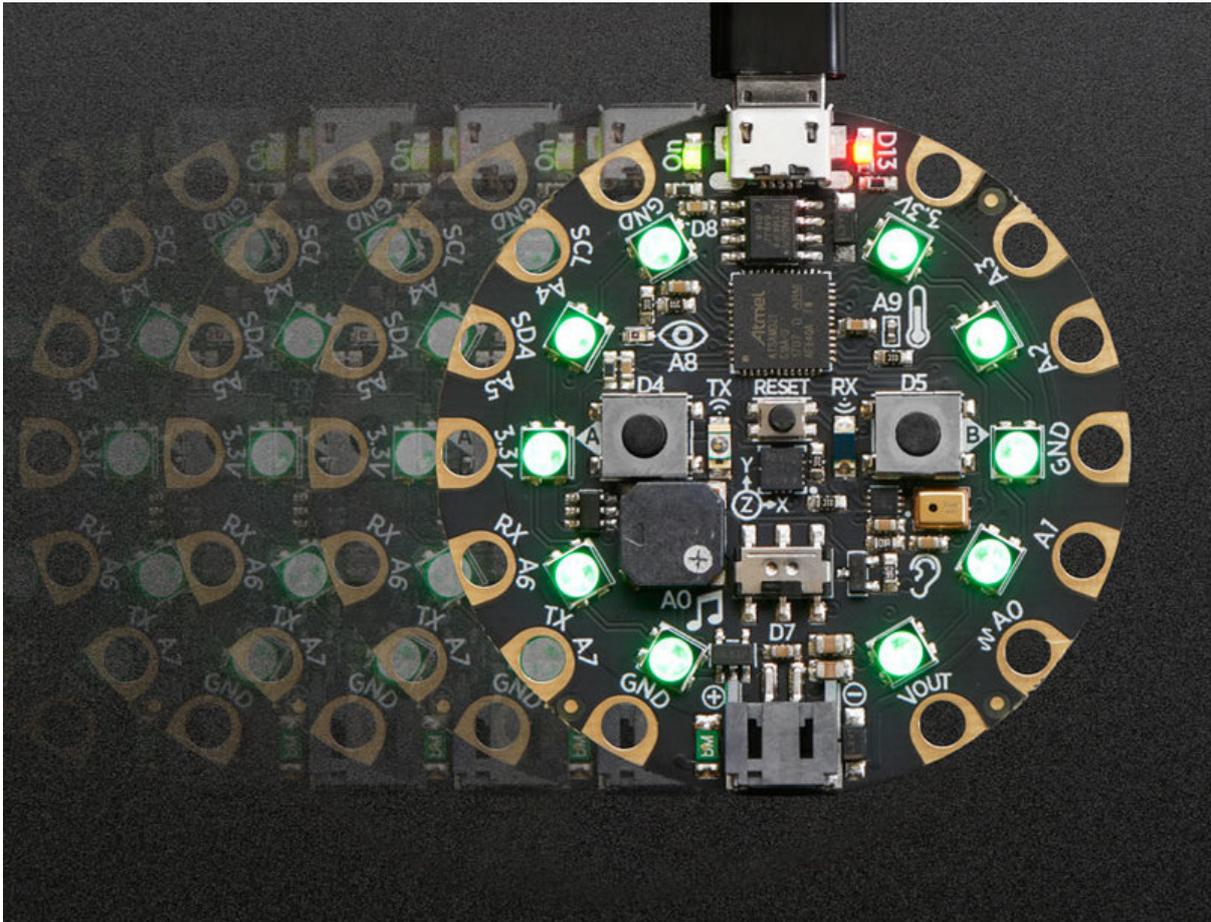




# Circuit Playground + CircuitPython Quickstart Guide

Created by Collin Cunningham



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

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# Table of Contents

<b>Overview</b>	<b>3</b>
<ul style="list-style-type: none"><li>• <a href="#">What you'll need</a></li><li>• <a href="#">Your computer</a></li></ul>	
<b>Install Drivers (Windows)</b>	<b>4</b>
<ul style="list-style-type: none"><li>• <a href="#">Download</a></li><li>• <a href="#">Install</a></li></ul>	
<b>Install CircuitPython</b>	<b>5</b>
<ul style="list-style-type: none"><li>• <a href="#">Download CircuitPython UF2</a></li><li>• <a href="#">Connect via USB</a></li><li>• <a href="#">Enter boot mode</a></li><li>• <a href="#">Copy UF2 File</a></li></ul>	
<b>Upload Code</b>	<b>8</b>
<ul style="list-style-type: none"><li>• <a href="#">Download Examples</a></li><li>• <a href="#">Upload Code</a></li><li>• <a href="#">What did it do?</a></li><li>• <a href="#">Goal!</a></li></ul>	
<b>Download Libraries</b>	<b>10</b>
<ul style="list-style-type: none"><li>• <a href="#">Download Bundle</a></li><li>• <a href="#">View Libraries</a></li></ul>	
<b>Learn More</b>	<b>11</b>
<ul style="list-style-type: none"><li>• <a href="#">Write code for Circuit Playground Express</a></li><li>• <a href="#">So Many Projects</a></li></ul>	
<b>Troubleshooting</b>	<b>12</b>
<ul style="list-style-type: none"><li>• <a href="#">Circuit Playground powers up, but CIRCUITPY drive doesn't show on computer</a></li><li>• <a href="#">Where can I download the demo code that came with my board?</a></li><li>• <a href="#">CPLAYBOOT drive not showing up on your computer</a></li><li>• <a href="#">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</a></li><li>• <a href="#">I accidentally installed the driver on my Windows 10 machine, now it does not recognize the board</a></li><li>• <a href="#">I have Windows XP, can I use it with a Circuit Playground Express?</a></li></ul>	





### 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.

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## Install Drivers (Windows)

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

## Download

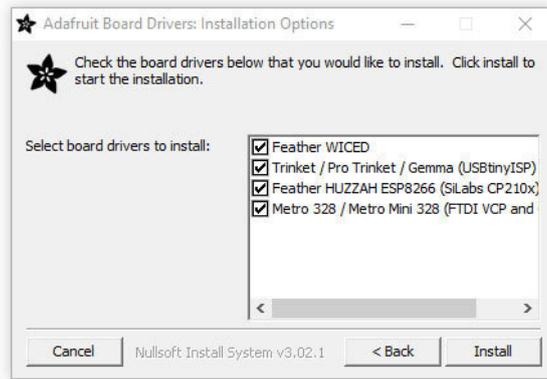
If your computer runs **Windows 7** or **8**, click the green button below to **download** the **Adafruit Driver Installer**.

[Download Adafruit Windows Driver Installer](https://adafru.it/ECO)

<https://adafru.it/ECO>

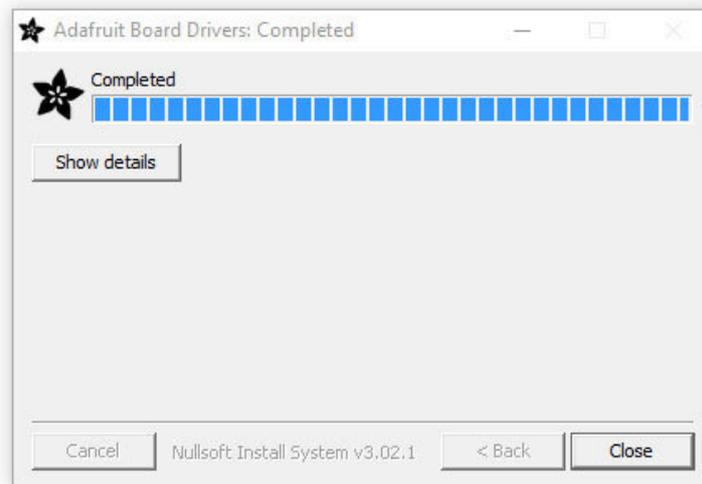
## Install

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.

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## 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.



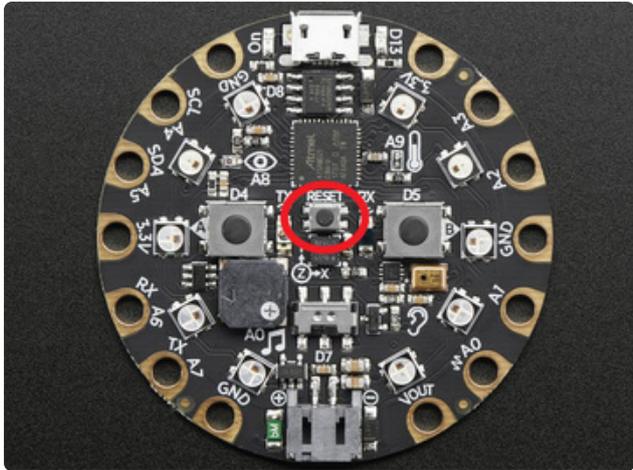
## Connect via USB

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

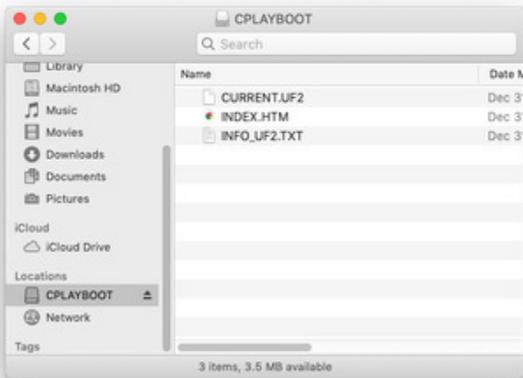
Once connected, **Circuit Playground Express** will begin running its **default code**. You should see the built-in **neopixel LEDs light up** and start animating. Pressing the **large button** on the **left side** of the board will **play** a simple melody.

## 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.

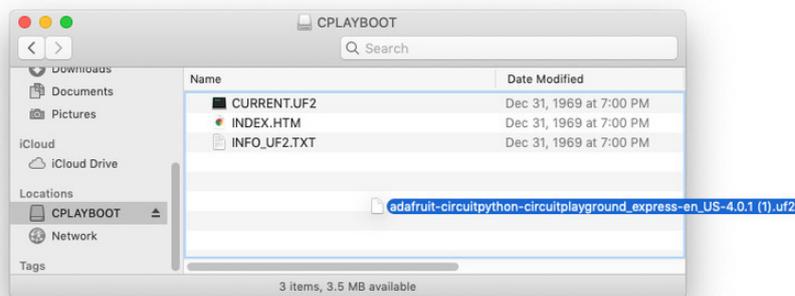


Press the small **Reset** button in the **middle** of the board once. You should see all of the **LEDs** turn green.

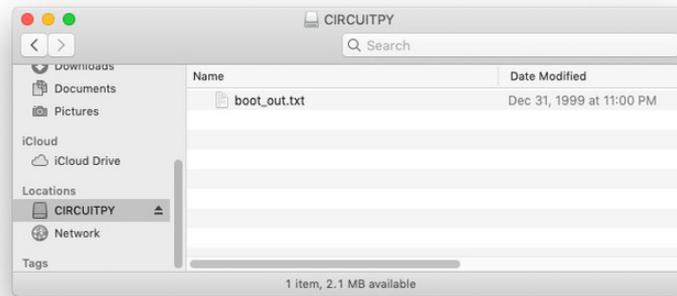


A new drive will appear on your computer named **CPLAYBOOT**.

## 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.

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## Upload Code

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

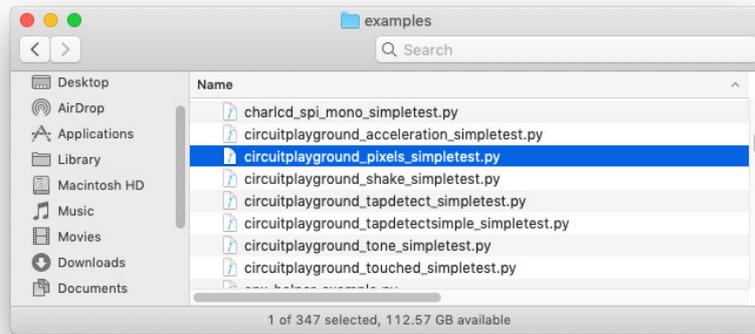
## Download Examples

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>

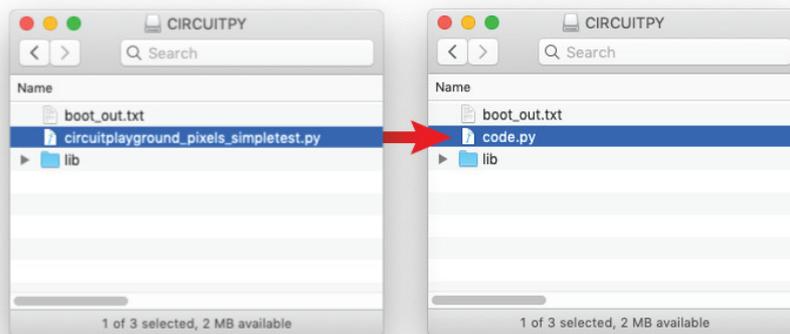
Once downloaded, **unzip the file**. It should create a folder named **examples**.



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**.

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## 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:

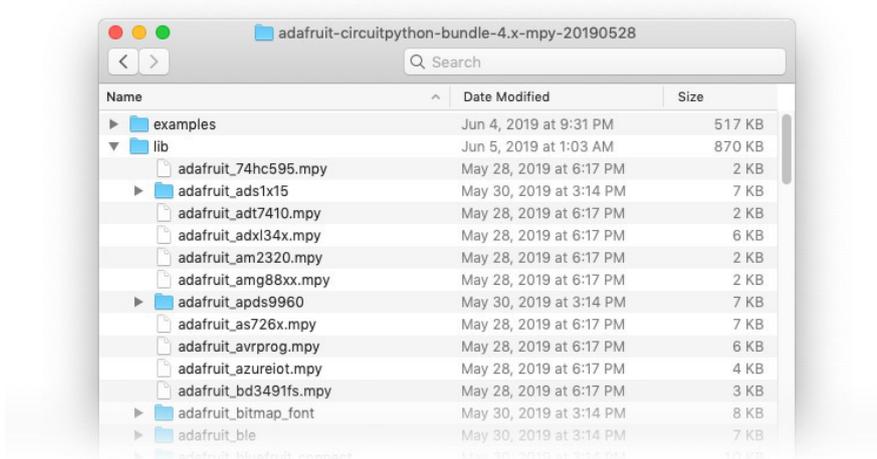
`adafruit-circuitpython-circuitplayground_express-en_US-4.0.1.uf2`

Then you would **download** the **library bundle** named:

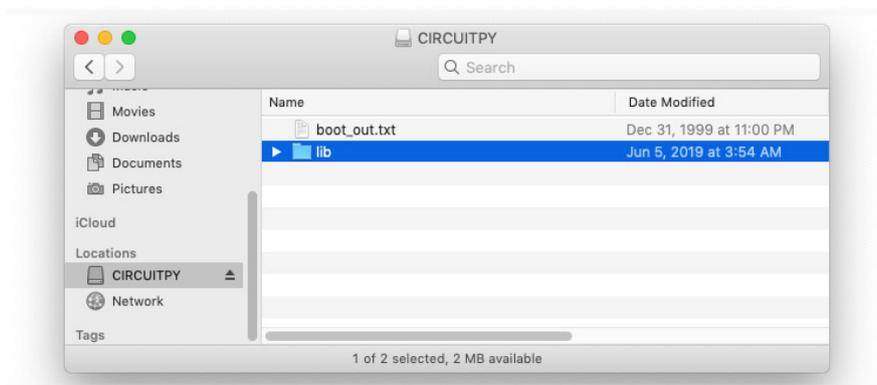
`adafruit-circuitpython-bundle-4.x-mpy-20190603.zip`

## View Libraries

Once downloaded, **unzip** the **library bundle** and **open** it.

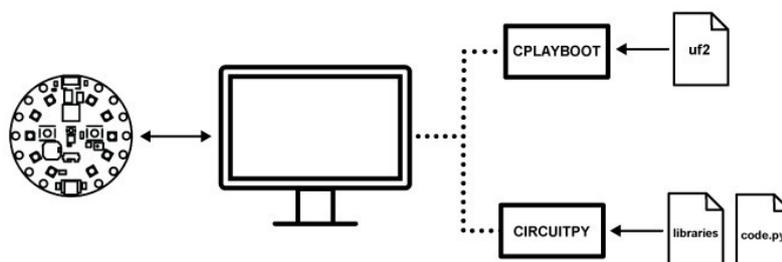


Inside of the **library bundle**, you'll see a folder named **lib** which contains a long list of code libraries you can use in your projects.



Libraries can be installed on the **Circuit Playground Express** by copying them to a folder named **lib** on the **CIRCUITPY** 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>).

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## 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.