How to Install CH340 Drivers

Introduction

In this tutorial, we'll show you how to install CH340 drivers on multiple operating systems if you need. The driver should automatically install on most operating systems. However, there is a wide range of operating systems out there. You may need to install drivers the first time you connect the chip to your computer's USB port or when there are operating system updates.

Drivers

The CH340 has been tested on:

- Windows 7/10
- Mac OSX
    - v10.10.5 (Yosemite)
    - v10.11.6 (El Capitan)
    - v10.13.0 (High Sierra)
    - v10.14.5 (Mojave)
- Linux
    - Raspbian Stretch (11-13-2018 release) for the Raspberry Pi
    - Raspbian Buster (2019-07-10 release) for the Raspberry Pi
    - Ubuntu v18.04.2, 64-bit

Download:

- Windows (EXE) -- Driver executable
- Windows (ZIP) : Driver v3.4 (2016-09-27)
- Mac (ZIP) : Driver v1.5 (2018-07-04)
- Linux (ZIP) : Driver v1.5 (2018-03-18)

The CH340 is made by WCH. You can find the latest version of their drivers here, but most of their pages are in Mandarin. If you use a Chrome web browser, you should have the option to have the web page translated.

Updating Drivers

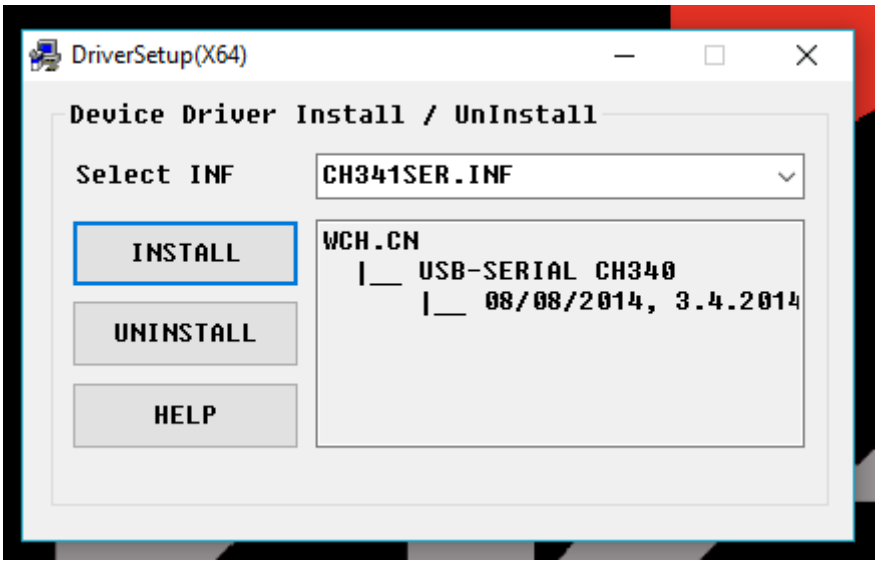
If you have the older CH340 drivers installed, you may need to update them. Below are the instructions for doing so on each of the tested operating systems.

Windows 7/10

Note for Educators: You will need to obtain administrative privileges from your network or IT administrator in order to install these drivers. Make sure to test the drivers before class and set aside some time with students in the classroom when installing the drivers.

Download and run the executable.

Click the "Uninstall" button first. Then click on the "Install" button.



Windows CH340 Driver Installation

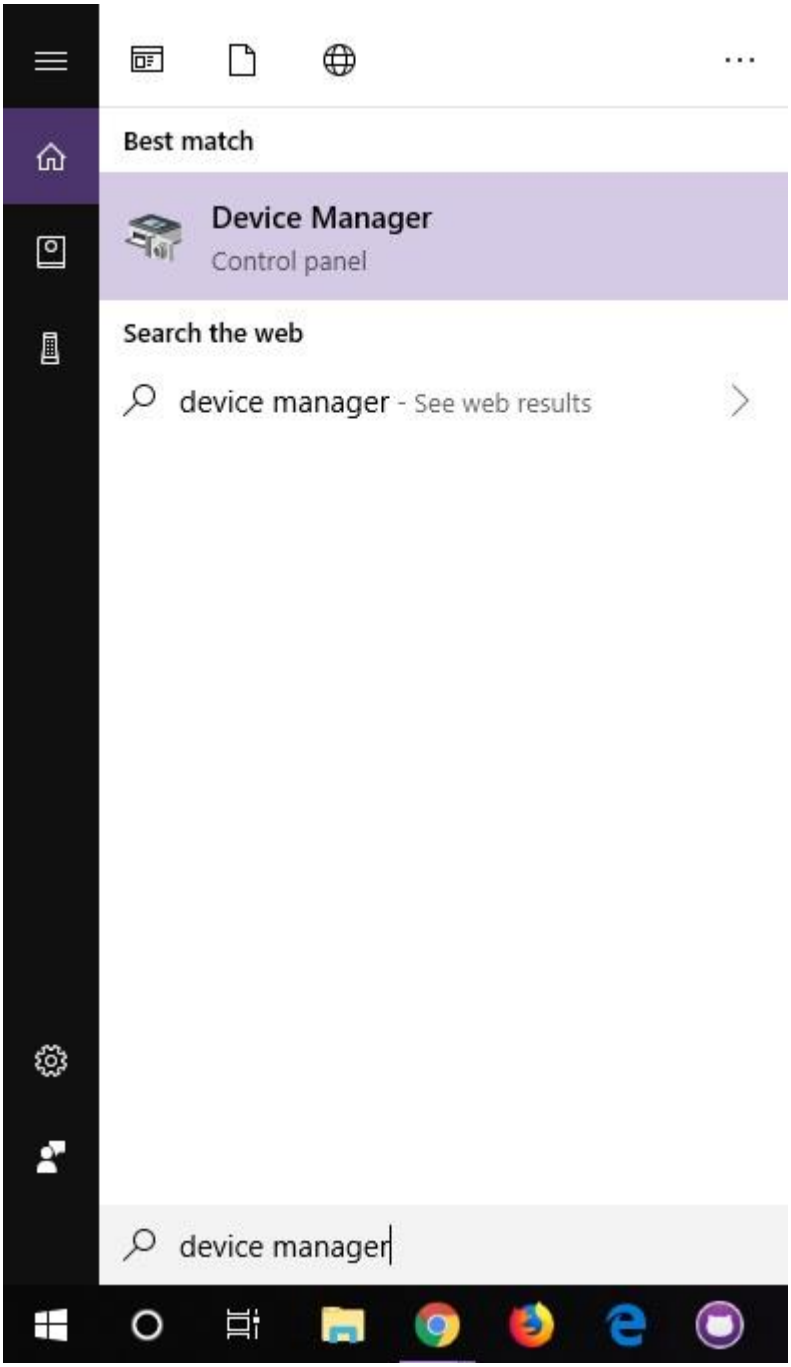
Driver Verification for Windows

To verify that your driver is working, you should see a difference in the following pictures after plugging the CH340 to a USB port.

Device Manager

To check that the CH340 enumerates to a COM port, you can open the device manager.

You can click the **Start** or ⊞ (**Windows**) button and type "*device manager* to quickly search for the application.



Using the search on Windows 10 to look for the device manager.

Note: On Windows 10, the quick search function is picky on the spelling of the application you are searching for. For example, you may get results using "*devi*" and none for "*device*".

After opening the device manager, you will need to open the **Ports (COM & LPT)** tree. The CH340 should show up as **USB-SERIAL CH340 (COM##)**. Depending on your computer, the COM port may show up as a different number.



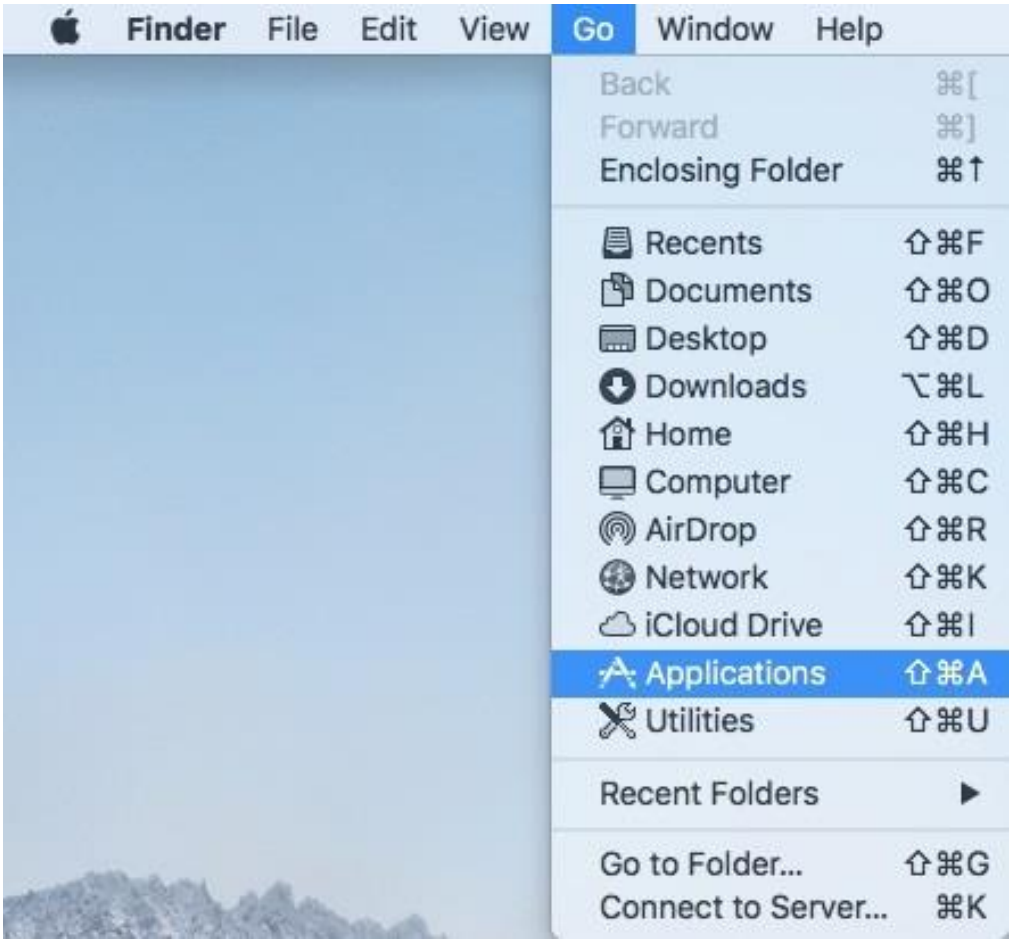
Screenshot of Window 10 Device Manager with a CH340 displayed on COM123. Click to enlarge.

Mac OSX

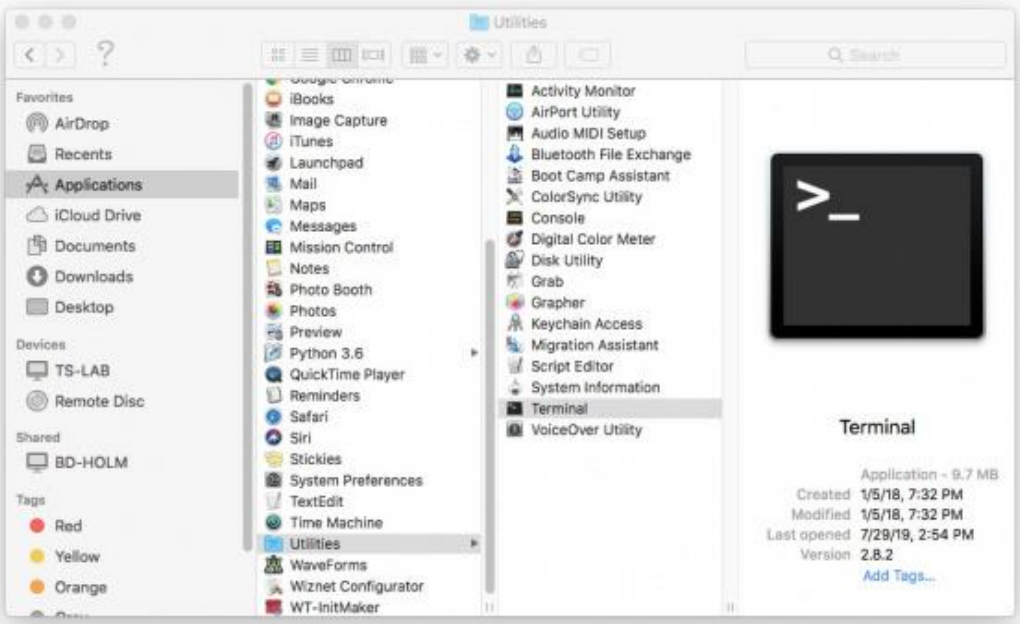
Note for Educators: You will need to obtain administrative privileges from your network or IT administrator in order to install these drivers. Make sure to test the drivers before class and set aside some time with students in the classroom when installing the drivers.

Warning: If you have a **Mac OS X v10.12+ (i.e. High Sierra, Mojave)**, your computer may restart as soon as you insert the CH340 to your computer. We recommend that you uninstall the old drivers first and follow these directions below before connecting the CH340 to your COM port. If you observe this issue, you will need to unplug the CH340 from your USB port, restart the computer, and follow the steps below to reinstall the latest drivers.

Open the Terminal program by selecting **Go** > **Applications**.



Select and open the Terminal program under **Applications** > **Utilities** > **Terminal**.



Note: You can also search with Spotlight by pressing ⌘ (**Command**) + space bar (**Space Bar**). Then type "Terminal" and double-click the search result.

You'll need to move to the directory where the ***.kext** files are stored.

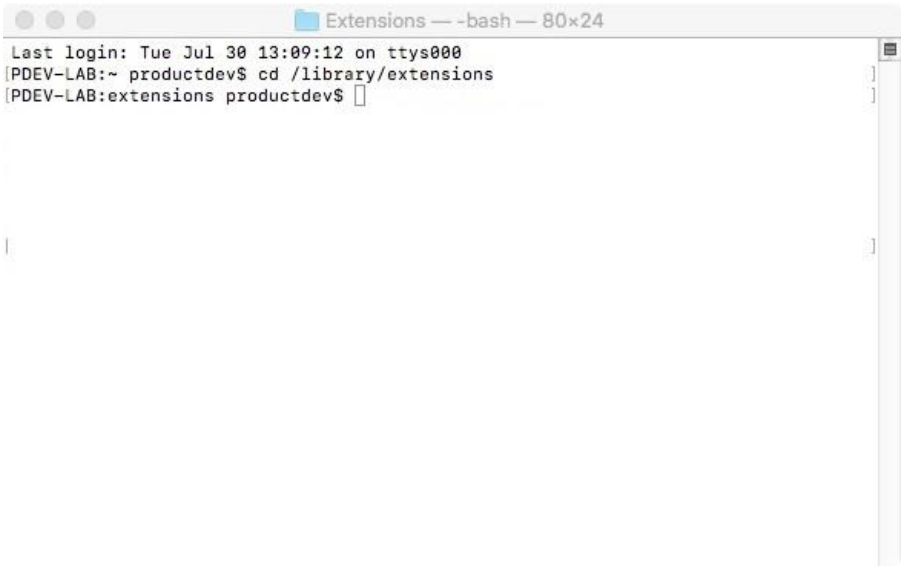
- For Mac OSX v10.9+, you will need to use this command:

```
cd /Library/Extensions
```

- For Mac OSX v10.8 and below, you will need to use this command:

```
cd /System/Library/Extensions
```

In this case, we will be using Mac OSX v10.13, so we will need to use the first command.



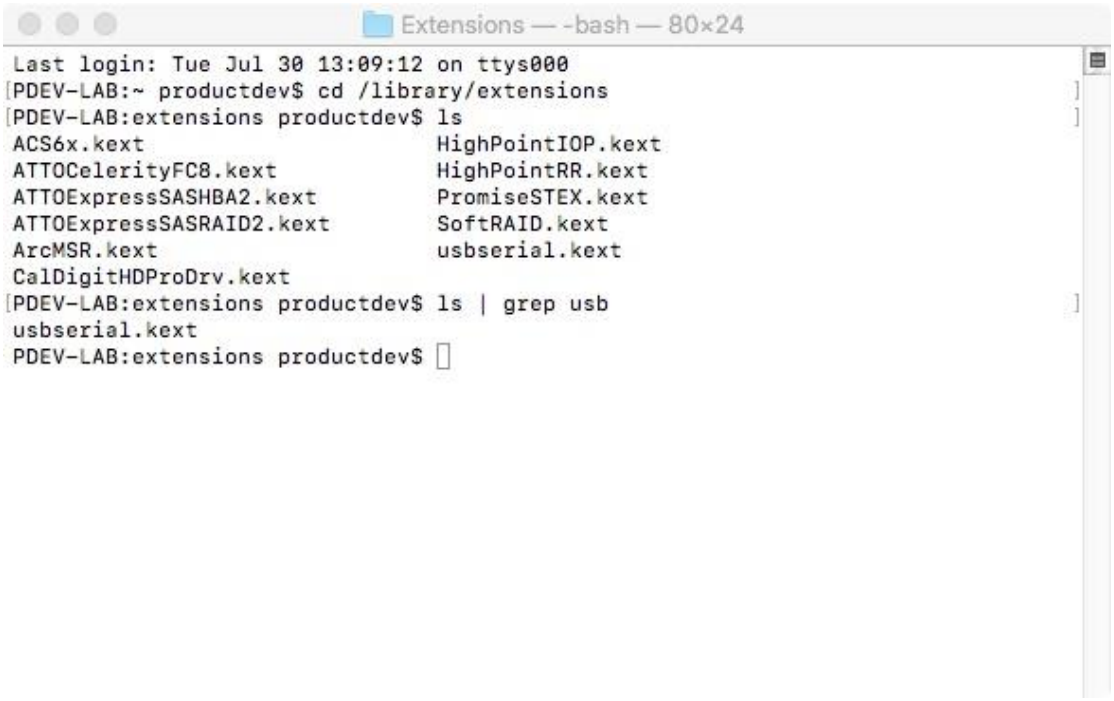
To check to see if the CH340 driver is in the correct path, use the following command to list the contents of the folder.

```
ls
```

To look for CH340 driver files (i.e. **usb.kext** or **usbserial.kext**) in the path, you could use the following command.

```
ls | grep usb
```

You should see something similar to the output below after using the commands.

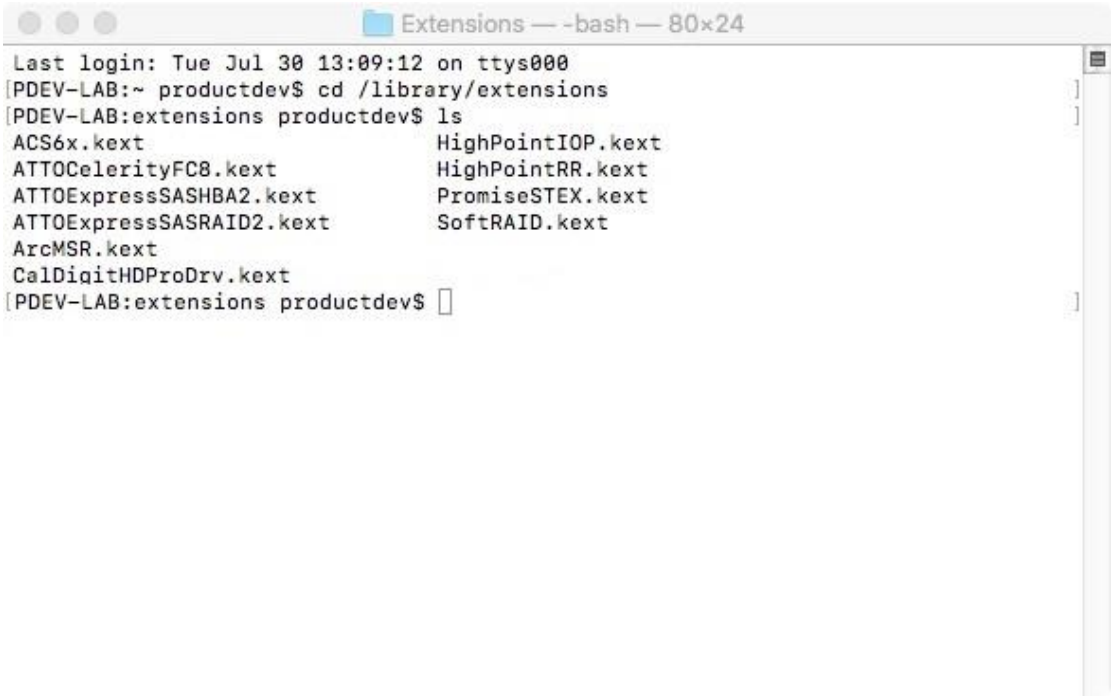


If you have found the file in the path, you will need to run each of the following commands in the CLI/Terminal to remove old CH340 drivers. In this case, there was only the **usbserial.kext** file but it does not hurt to run both commands. Make sure to have administrative privileges to ensure that the drivers are removed.

```
sudo rm -rf /Library/Extensions/usb.kext
sudo rm -rf /Library/Extensions/usbserial.kext
```

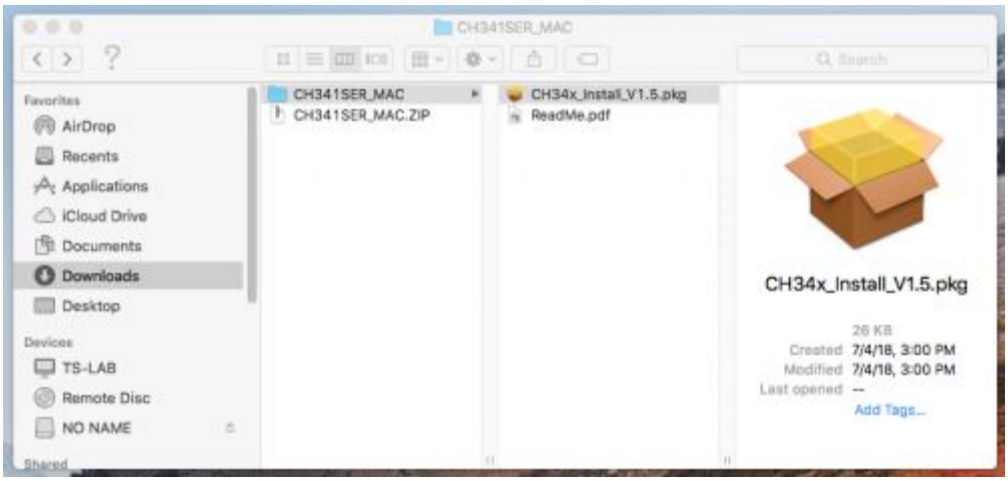
Check if the old drivers were removed in the paths by using the `ls` command with your respective OS version. You will notice that the ***.kext** file is removed from the respective paths. In this case, the **usbserial.kext** was removed from Mac OSX High Sierra.

```
ls
```



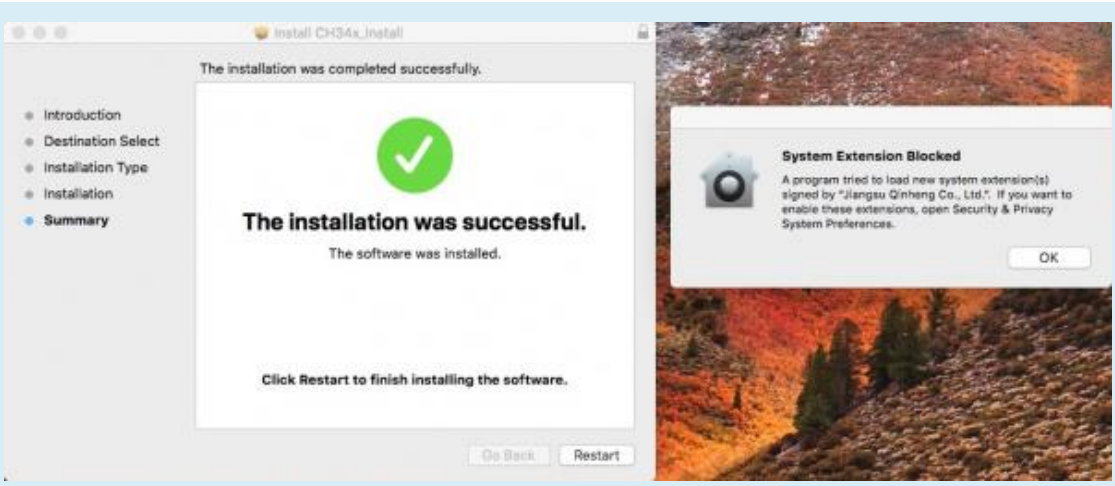
Download and extract the folder.

Then, open the "***.pkg**" file from the unzipped folder and follow the instructions. You'll need to restart your computer for the changes to take effect.

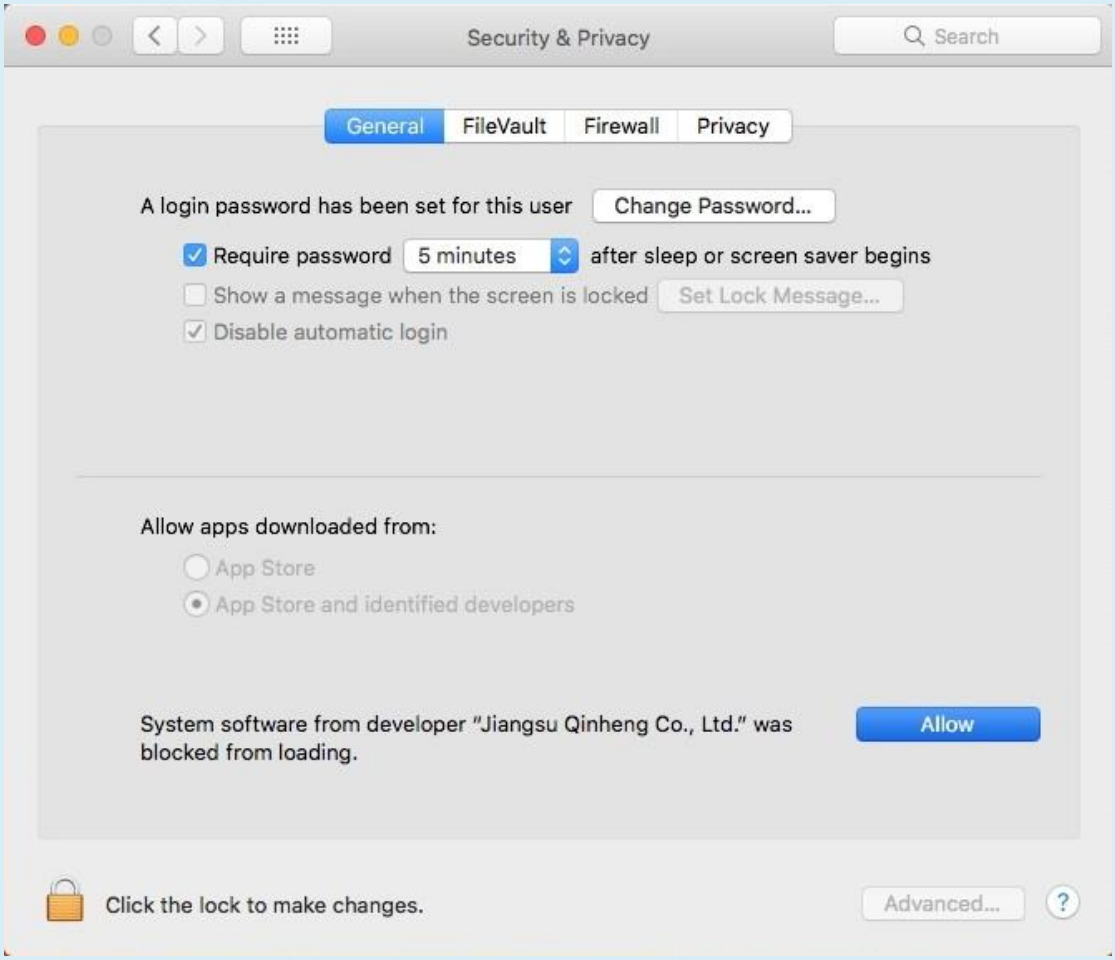


Mac OSX CH340 Driver Installation File

Heads up! Depending on your settings, you may need to adjust your **Security & Privacy** settings to allow the CH340 drivers to function. A window may pop up indicating that the drivers have been block as shown in the image below.



If you receive a window that indicates that the system extension is blocked, you'll need to open a search with Spotlight by pressing ⌘ (**Command**) + space bar (**Space Bar**).
Type **Security & Privacy** and click on the **"Allow"** button to enable the CH340 drivers.

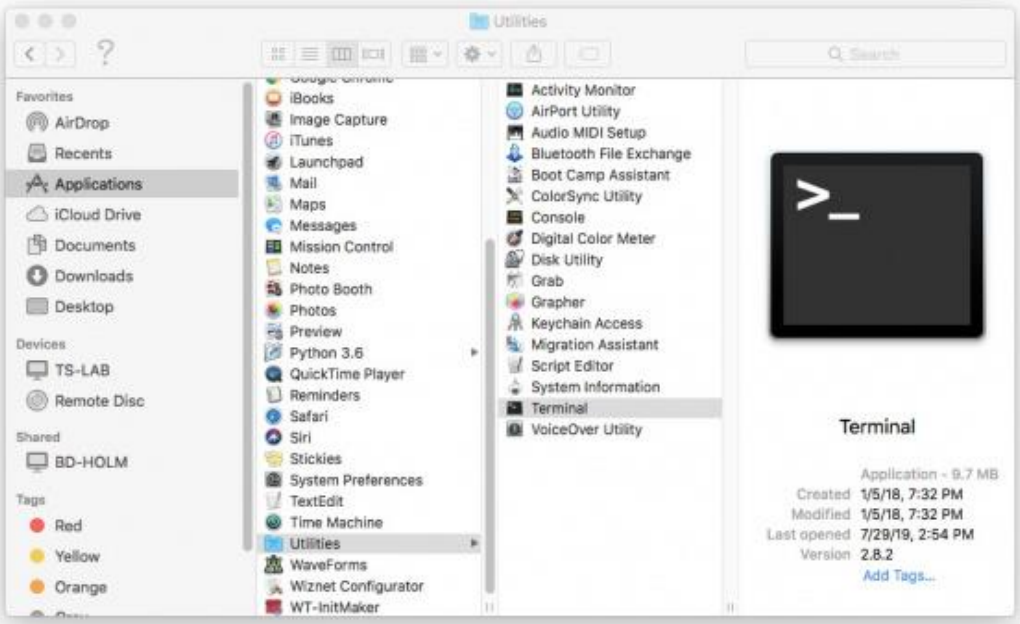


Driver Verification for Macs

To verify that your driver is working, you should see a difference in the following pictures after plugging the CH340 to a USB port.

Command Line

Open the Terminal by heading to **Applications** > **Utilities** > **Terminal** if the program is not open yet.

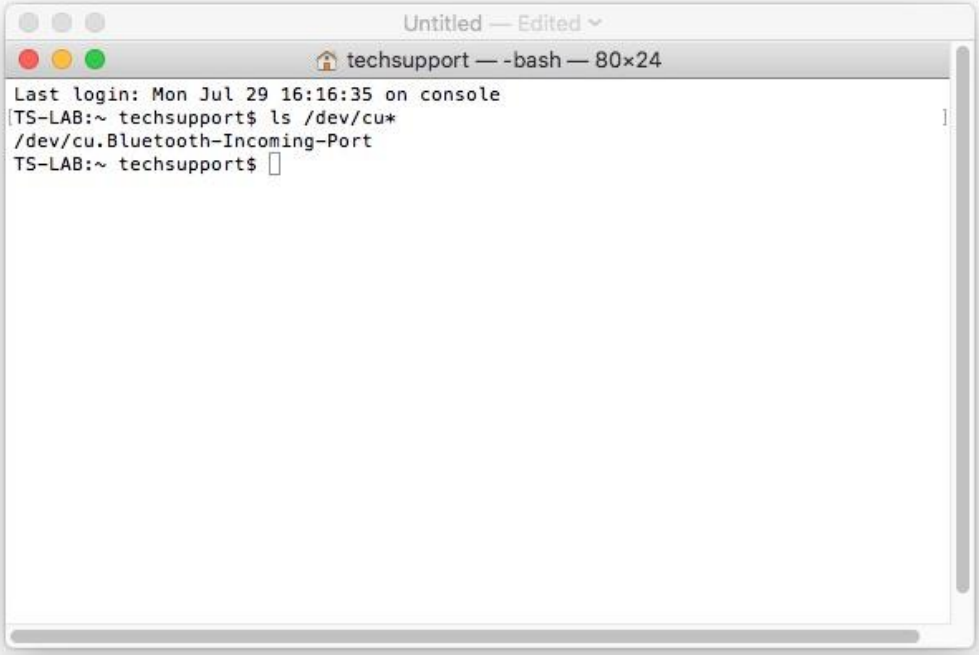


Note: Press ⌘ (**Command**) + `space bar` (**Space Bar**) to launch Spotlight and type "Terminal," then double-click the search result as explained above.

Then run the following command:

```
ls /dev/cu*
```

A list of devices connected to your Mac's COM ports will be displayed as a result. Assuming that the CH340 is not connected to your computer, you should see something similar to the image below.



Connect the CH340 to one of your Mac's COM ports. Check for the following changes (your board may show up under a different device name). The CH340 should show up as /**dev**/**cu.wchusbserial*****. Depending on your computer, the COM port may show up as a different number.



Screenshot of Mac OSX terminal with CH340 on cu.wchusbserialfd1410.

Linux

Note for Educators: You will need to obtain administrative privileges from your network or IT administrator in order to install these drivers. Make sure to test the drivers before class and set aside some time with students in the classroom when installing the drivers.

Raspbian for Raspberry Pi

Run the following commands in the CLI/Terminal when using Raspbian on a Raspberry Pi. After updating, the latest CH340 should be installed!

```
sudo apt-get update
sudo apt-get upgrade
```

Other Linux Distributions

Here is a downloadable ***.ZIP** of standard CH340 drivers for Linux.

There are some reported cases of serial communication failure when using the factory drivers in Linux. If you encounter this problem, you can try installing patched drivers as explained in this forum post. Here are the steps (to run in the command line):

- Plug and unplug your CH340 device from the USB port
- Type `dmesg` to see what has happened
    - The expected output (shows "ch341") should have the following in the recent log:

```
[  xxx] ch341-uart ttyUSB0: ch341-uart converter now disconnected from ttyUS
B0
[  xxx] ch341 3-2:1.0: device disconnected
```

- Download the patched drivers repository and unzip the files
- `cd` into the directory where the files are saved
- `make clean`
- `make`
- `sudo make load`
- `sudo rmmod ch341` to uninstall the broken driver
- `lsmod | grep ch34` to list what modules are currently installed
- Plug and unplug your CH340 device again on the USB port
- `dmesg`
    - Expected output (should show "ch34x" now):

```
[  xxx] ch34x ttyUSB0: ch34x converter now disconnected from ttyUSB0
```

```
[  xxx] ch34x 3-2:1.0: device disconnected
```

Depending on your root permissions, you may need to configure the serial port with the following two commands. Make sure to adjust the `$username` with respect to the user ID that is currently logged in.

```
sudo usermod -a -G dialout $username
sudo chmod a+rw /dev/ttyUSB0
```

Heads up! Depending on how the CH340 enumerated on your computer, the `/dev/ttyUSB0` may be different. Try using `ls` command as explained in the Driver Verification if you have issues configuring the serial port settings and adjusting the port as necessary.

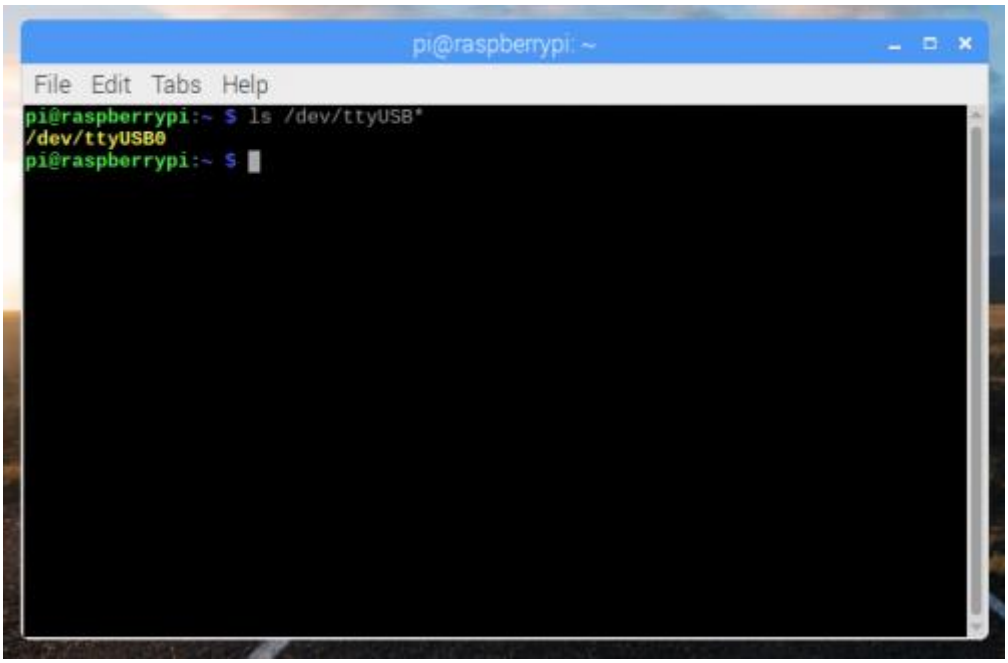
Driver Verification for Linux

Command Line

Plug the CH340 back to your computer's USB port. Then run the following command in the CLI/Terminal on any Linux distribution. Check for the following changes (your board may show up under a different device name).

```
ls /dev/ttyUSB*
```

The serial port that CH340 is connected to should pop up as a result.



Screenshot of Raspberry Pi CLI with the CH340 on ttyUSB0.