

arLCD/ezLCD Start Guide

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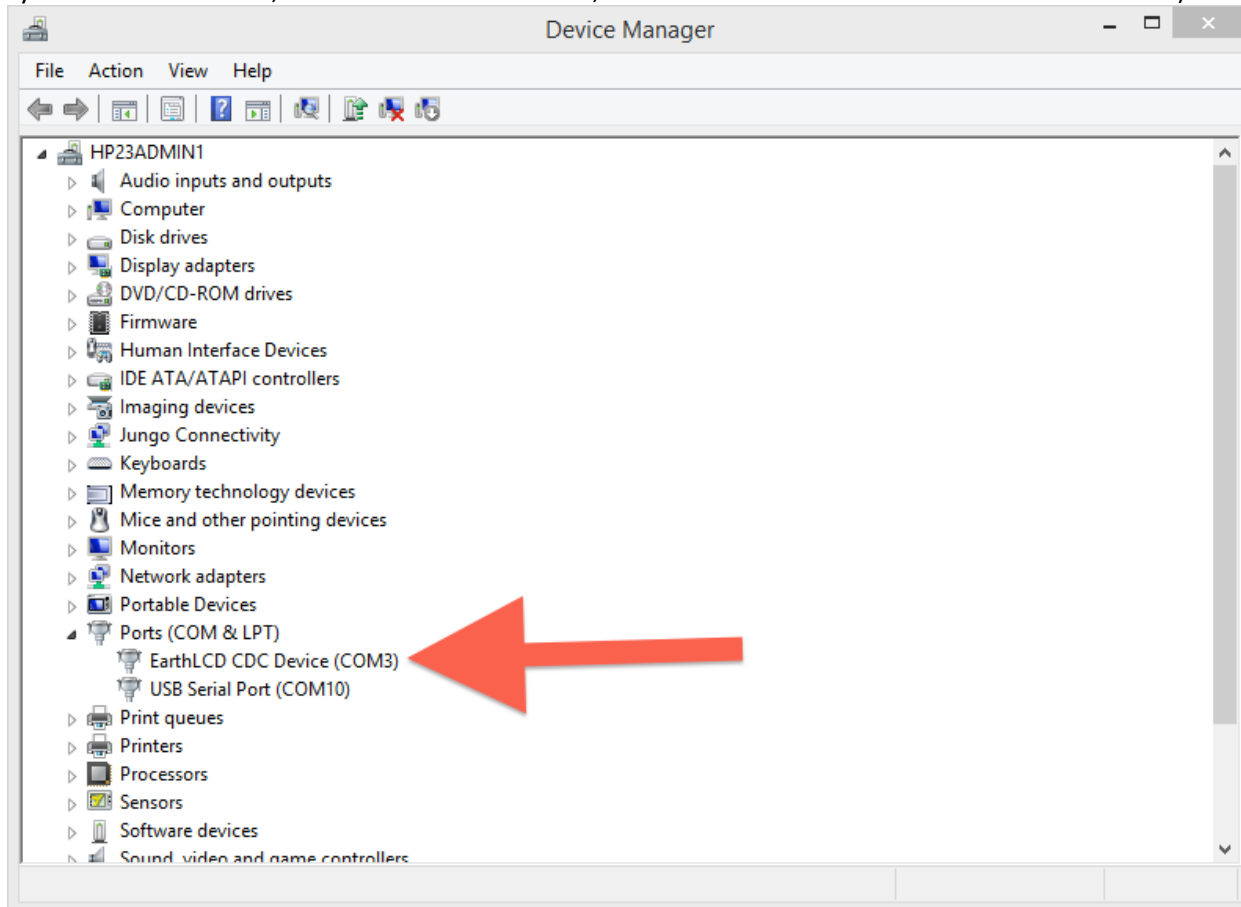
Quick Start Guide

Download and Install the Arduino Integrated Development Environment (IDE) (arLCD Only)

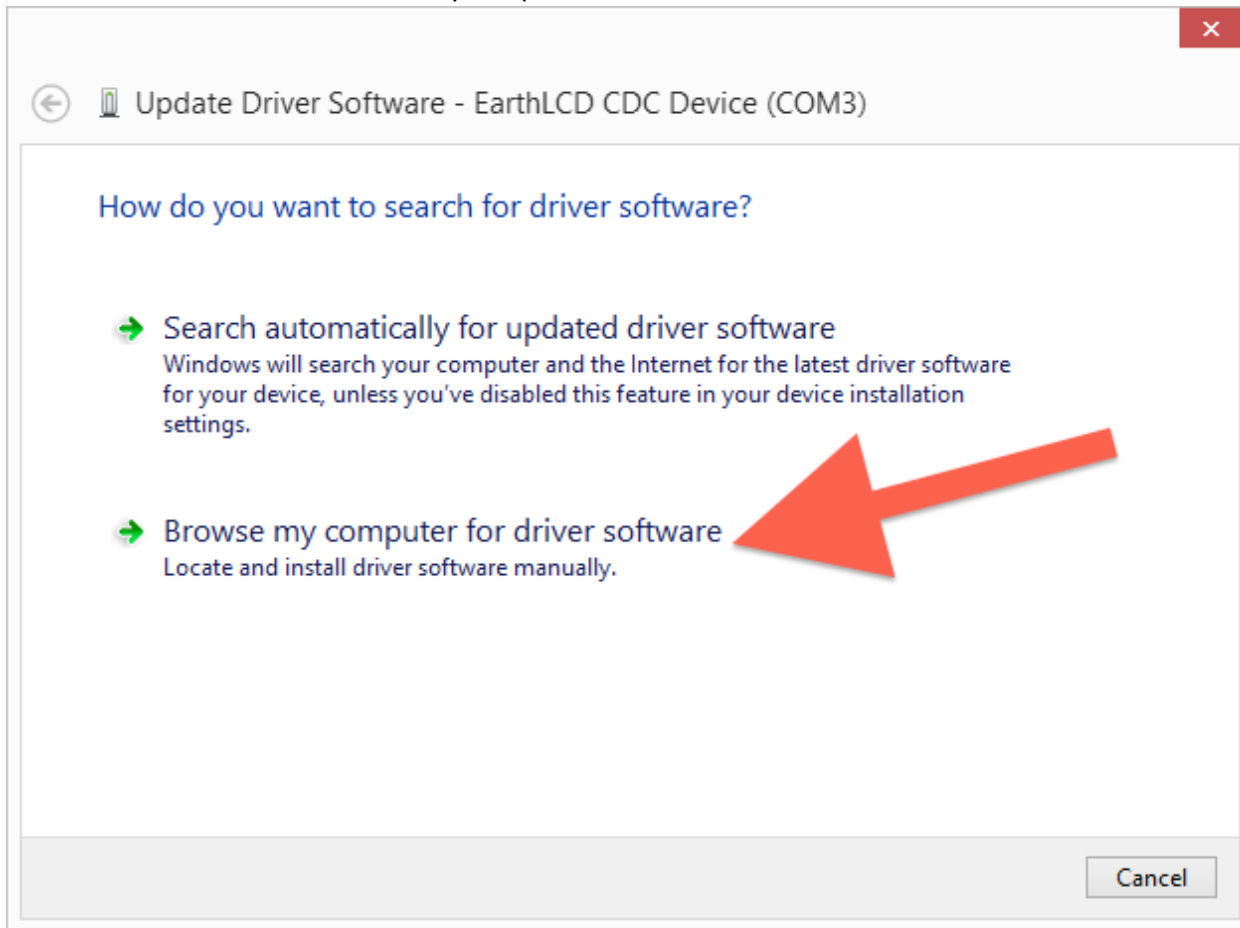
To use your arLCD you must have the Arduino IDE installed on your computer. It is available on the [Downloads](#) page of the Arduino website.

Install Driver (Windows Only)

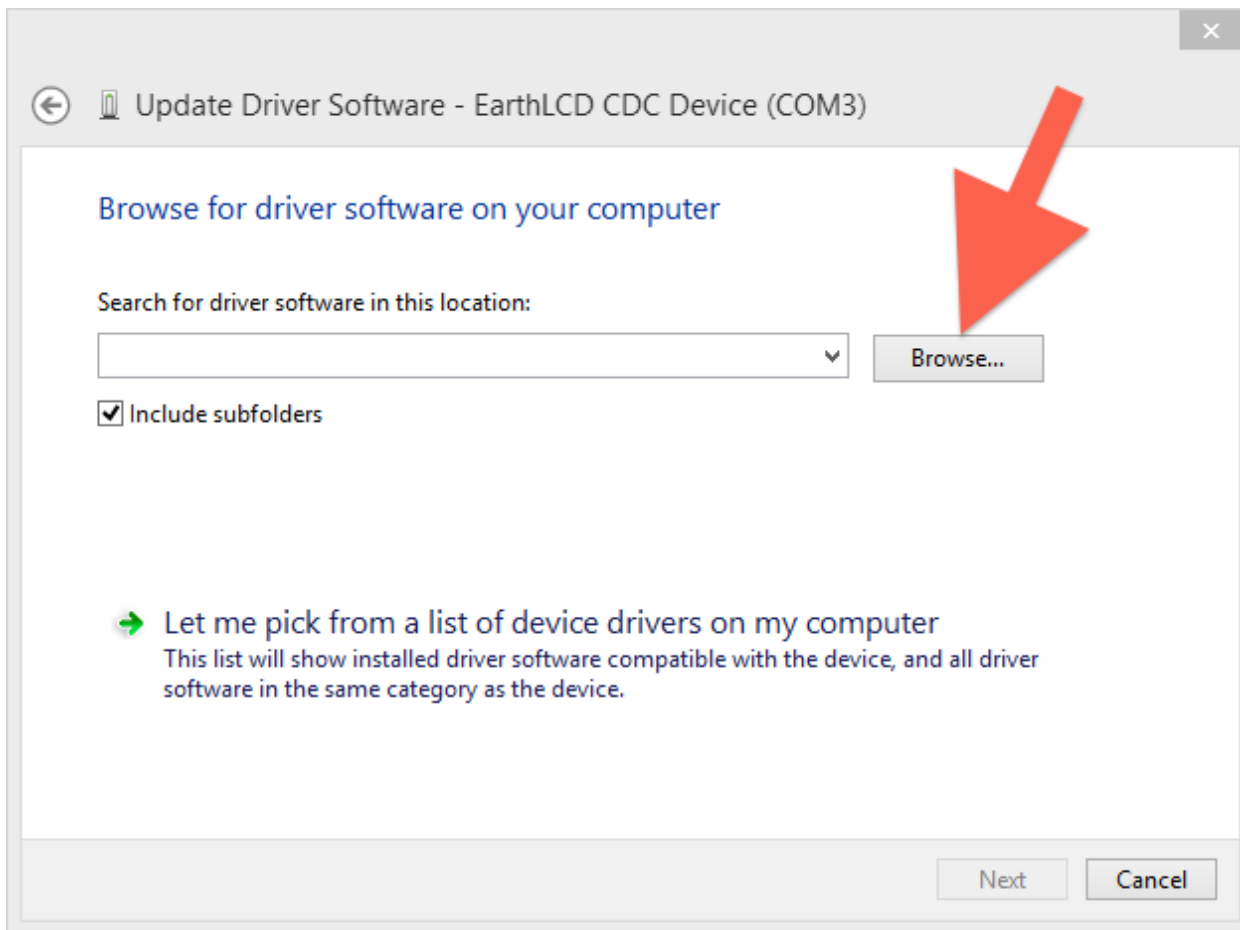
Plug your arLCD/ezLCD into your computer and open the *Device Manager*. Right-click on your arLCD/ezLCD and select “Update Driver Software....” (Note: if this is your first time plugging in an EarthLCD product, the icon will have a warning symbol next to it. Also, shown below is the arLCD, but the instructions are the same for the ezLCD.)



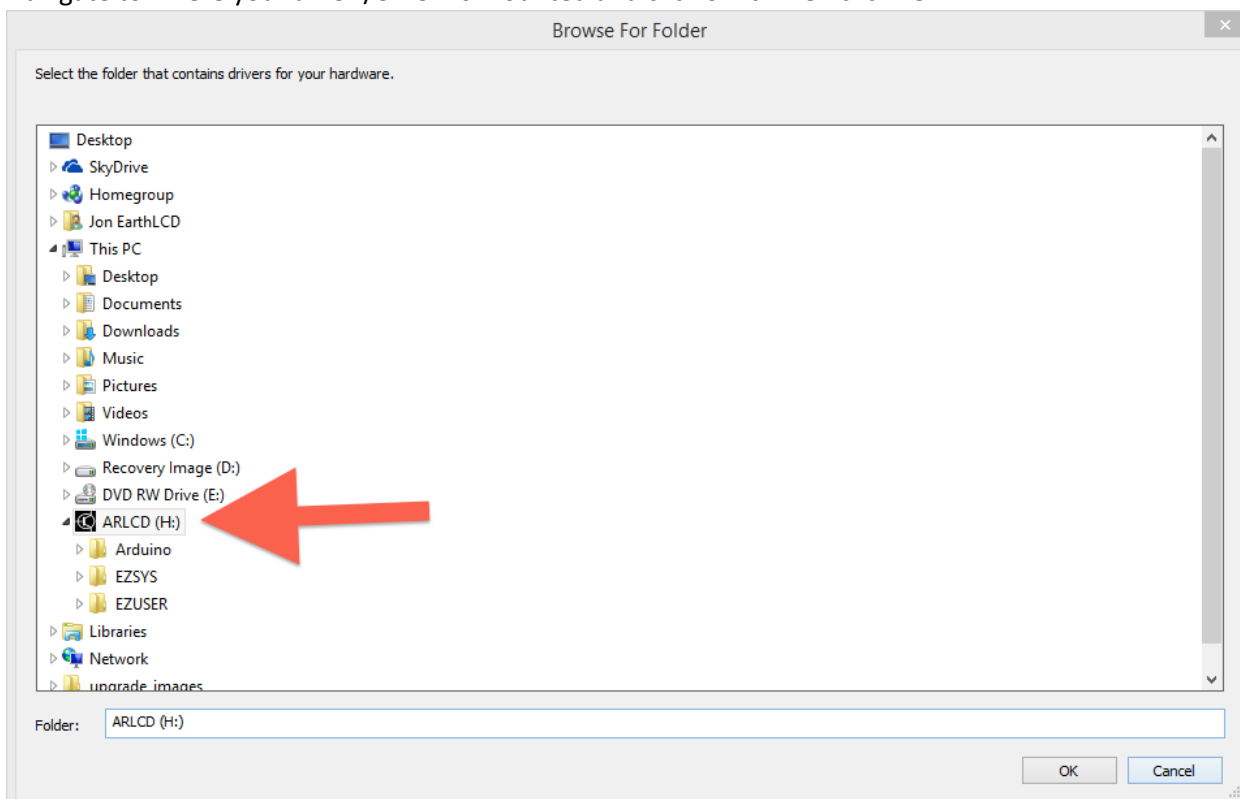
In the next window select “Browse my computer for driver software.”



On the next screen click the “Browse” button.

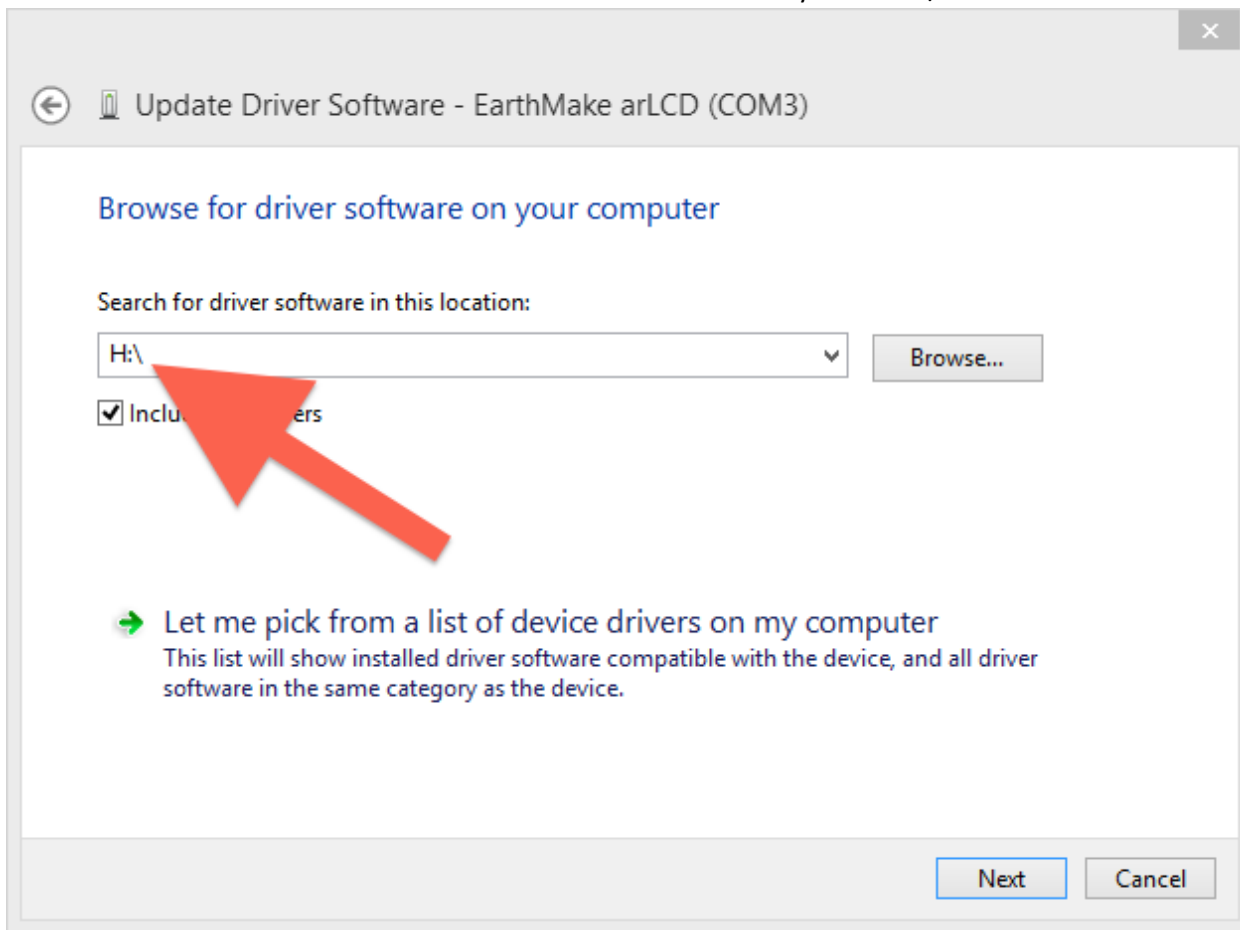


Navigate to where your arLCD/ezLCD is mounted and click on it. Then click “OK.”

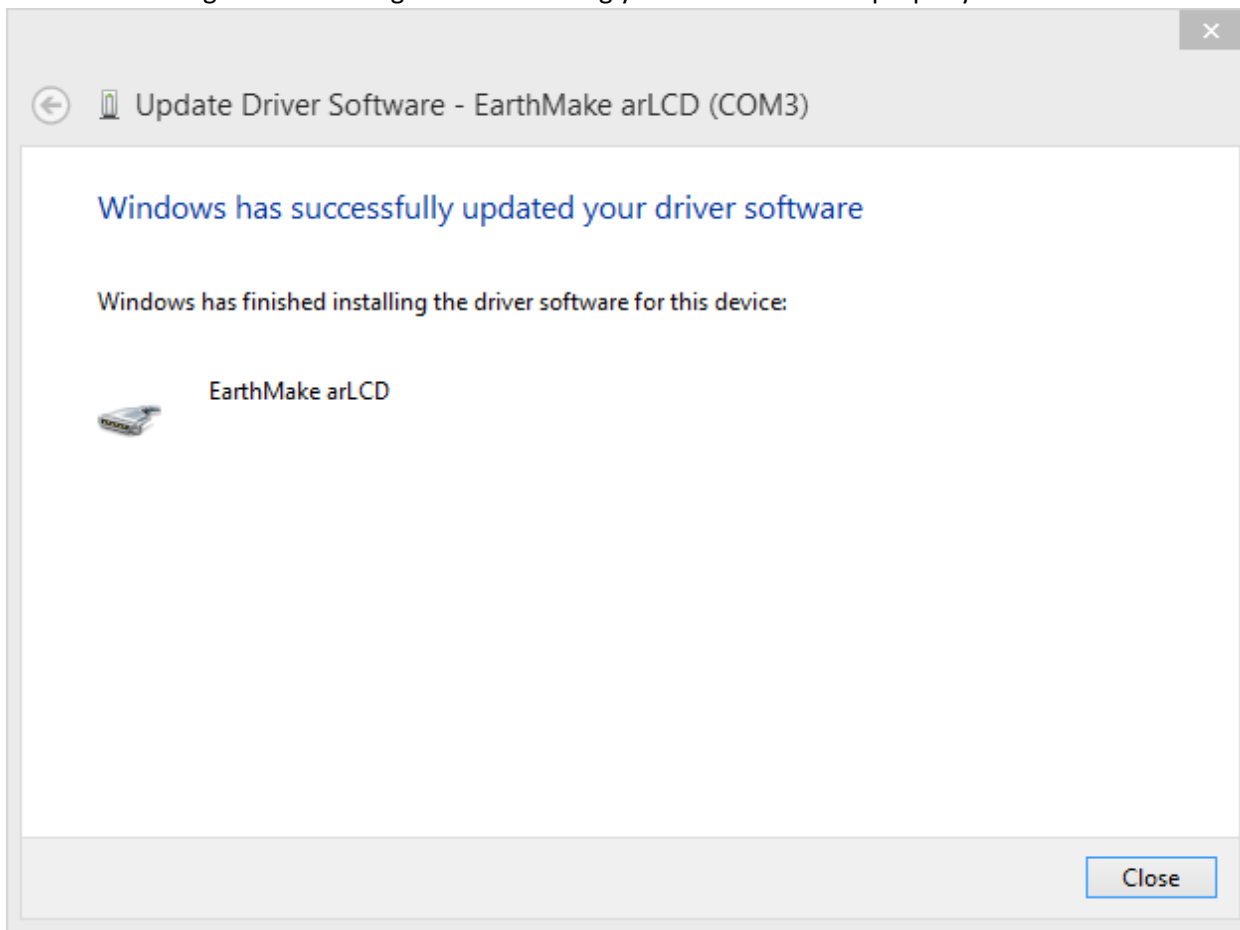


You should now see the address of where your arLCD/ezLCD is mounted at. (Note: the letter of your arLCD/ezLCD may be different depending on where Windows mounted it.)

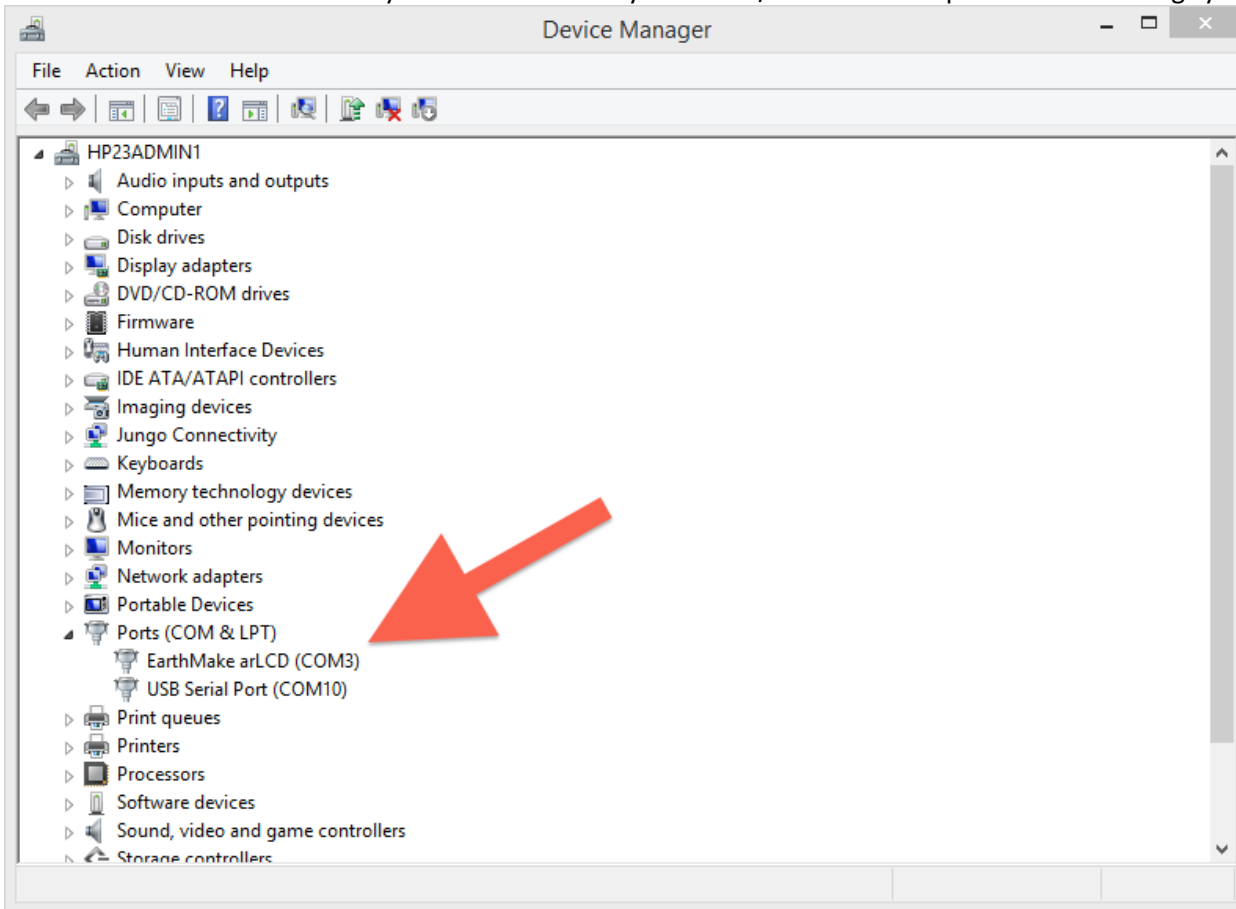
Click on the “Next” button and Windows should find the driver on your arLCD/ezLCD then install it automatically.



You should now get the following screen indicating your driver has been properly installed.



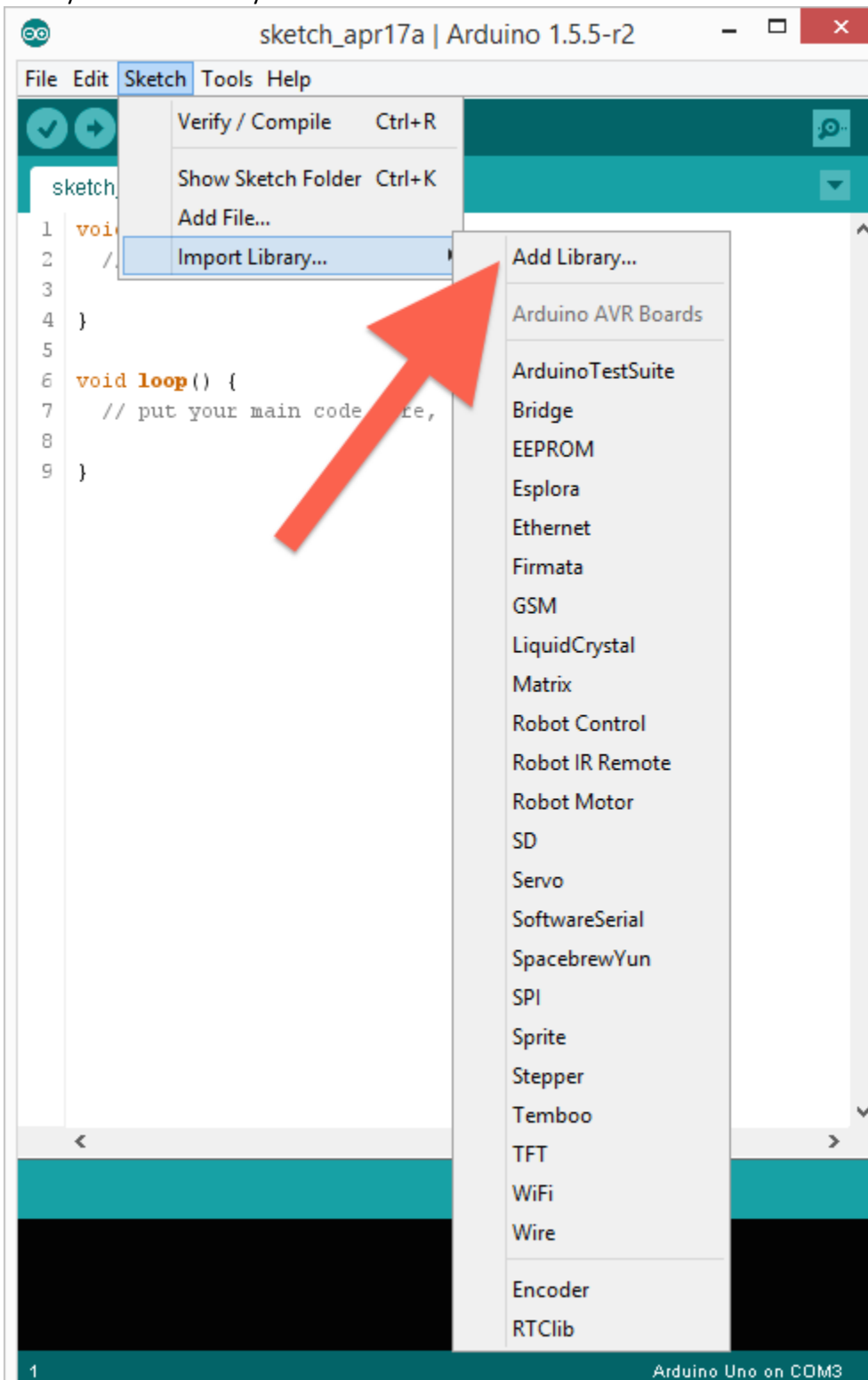
Click on the “Close” button and you should now see your arLCD/ezLCD shows up without a warning symbol.



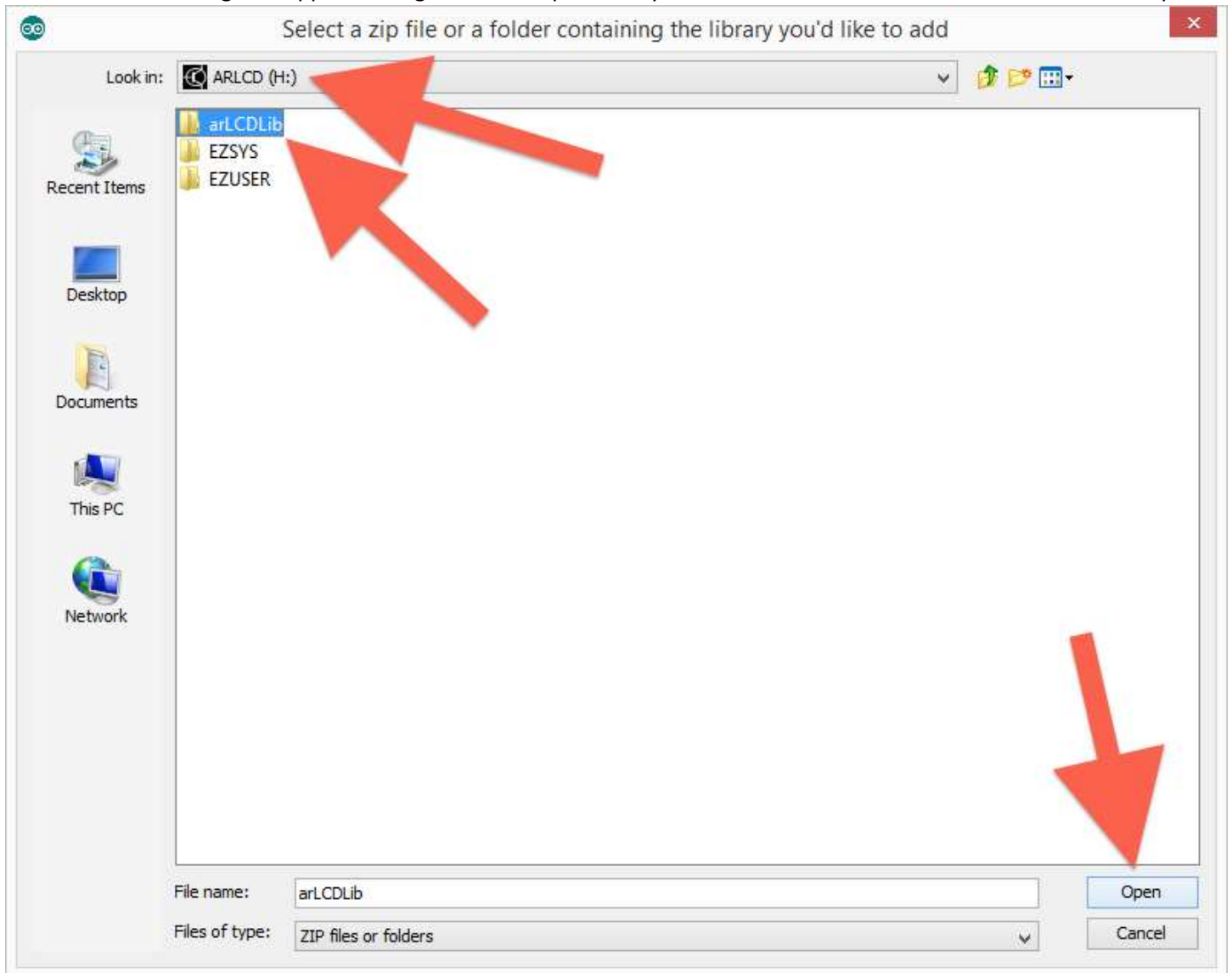
Install arLCD Arduino Library (arLCD Only)

For you to be able to program your arLCD you must install the arLCD library in the Arduino IDE. The easiest way to do this is to use the automatic library installation feature in the Arduino IDE.

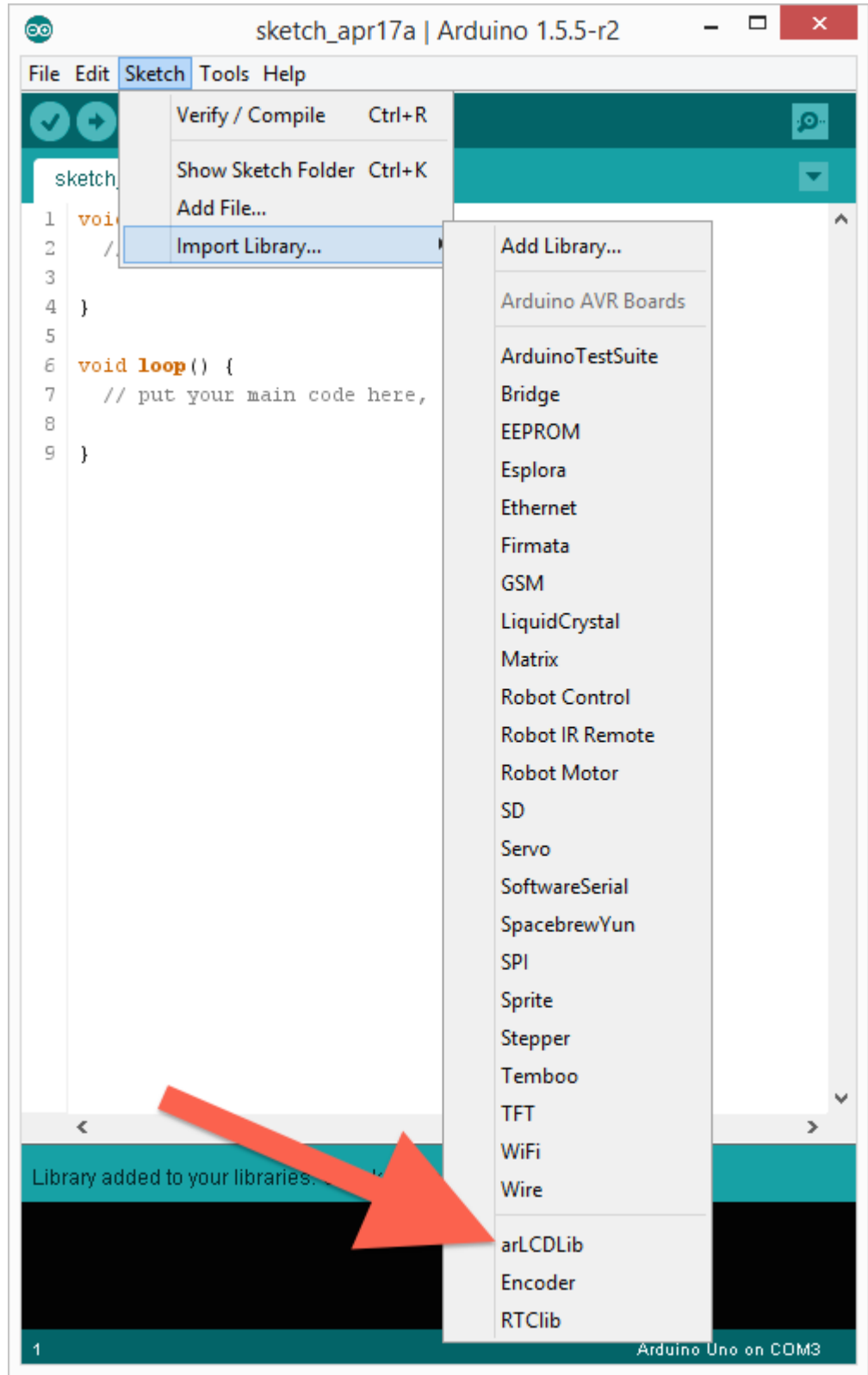
Ensure your arLCD is plugged into your computer. Open the Arduino IDE and in the menu bar select “Sketch” > “Import Library...” > “Add Library...”



In the file select dialog that appears navigate to the top level of your arLCD. Select the arLCDLib folder and click “Open.”



The Arduino IDE will now install the arLCDLib and you should now be able to navigate to “Sketch” > “Import Library...” and see the arLCDLib in the menu.



You should now be able to write sketches in the Arduino IDE and load them onto your arLCD.

Upgrading the arLCD/ezLCD

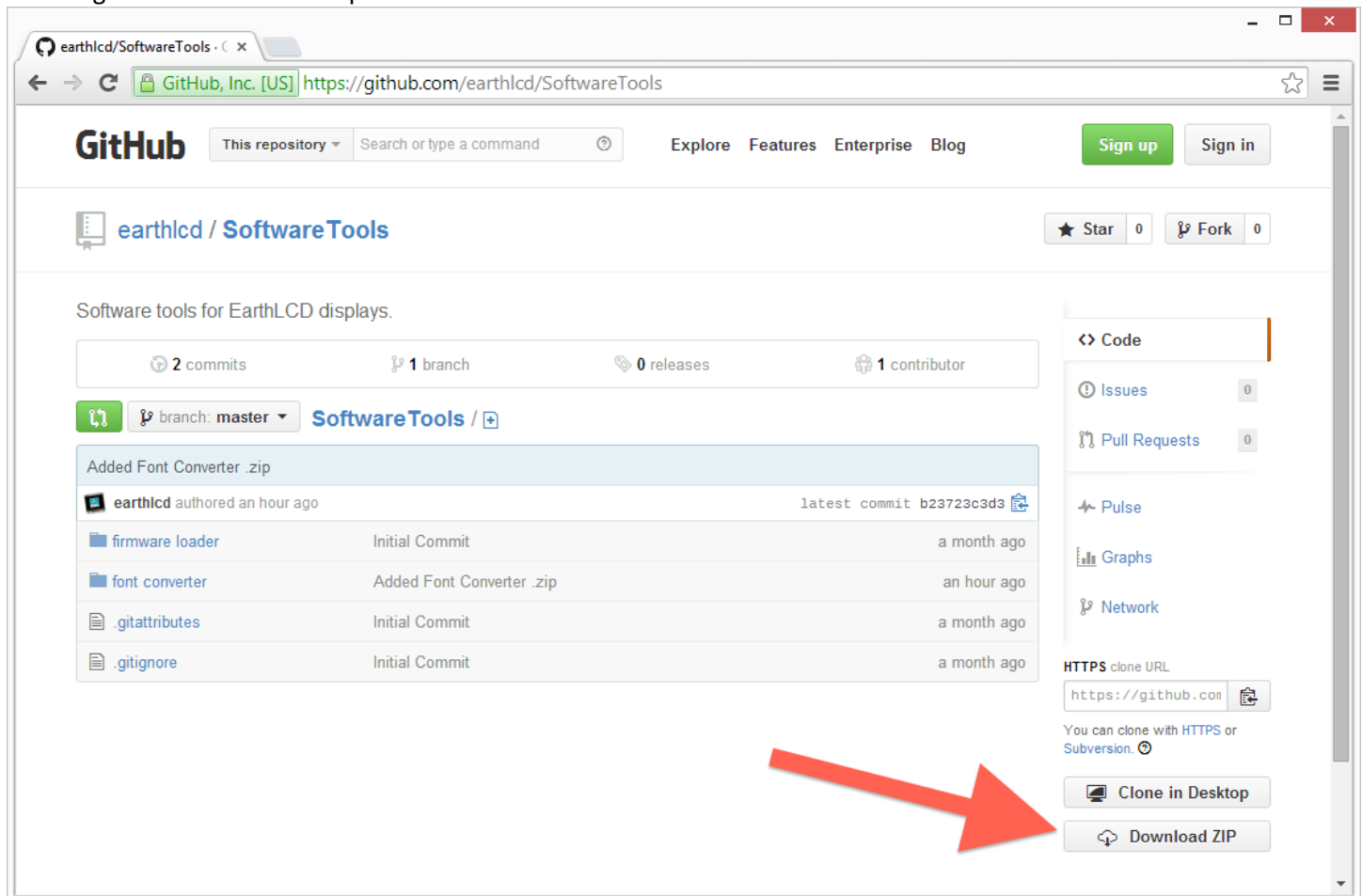
Upgrading your arLCD/ezLCD to a new firmware is a two part process. The first being to upgrade the arLCD/ezLCD file system. The second being to upgrade the firmware. It is important to upgrade the file system before the firmware so the new firmware uses the proper files in the file system to boot. For the arLCD you must also update the library in your Arduino installation.

Backup

Before beginning to upgrade your arLCD/ezLCD, backup any files and sketches you currently have on your arLCD/ezLCD. The upgrade process will clear your device of any user files and sketches.

Install Firmware Loader

Download the firmware loader from the EarthLCD GitHub [SoftwareTools repository](https://github.com/earthlcd/SoftwareTools) by clicking “Download ZIP” in the lower right corner. Save the .zip to a known location.

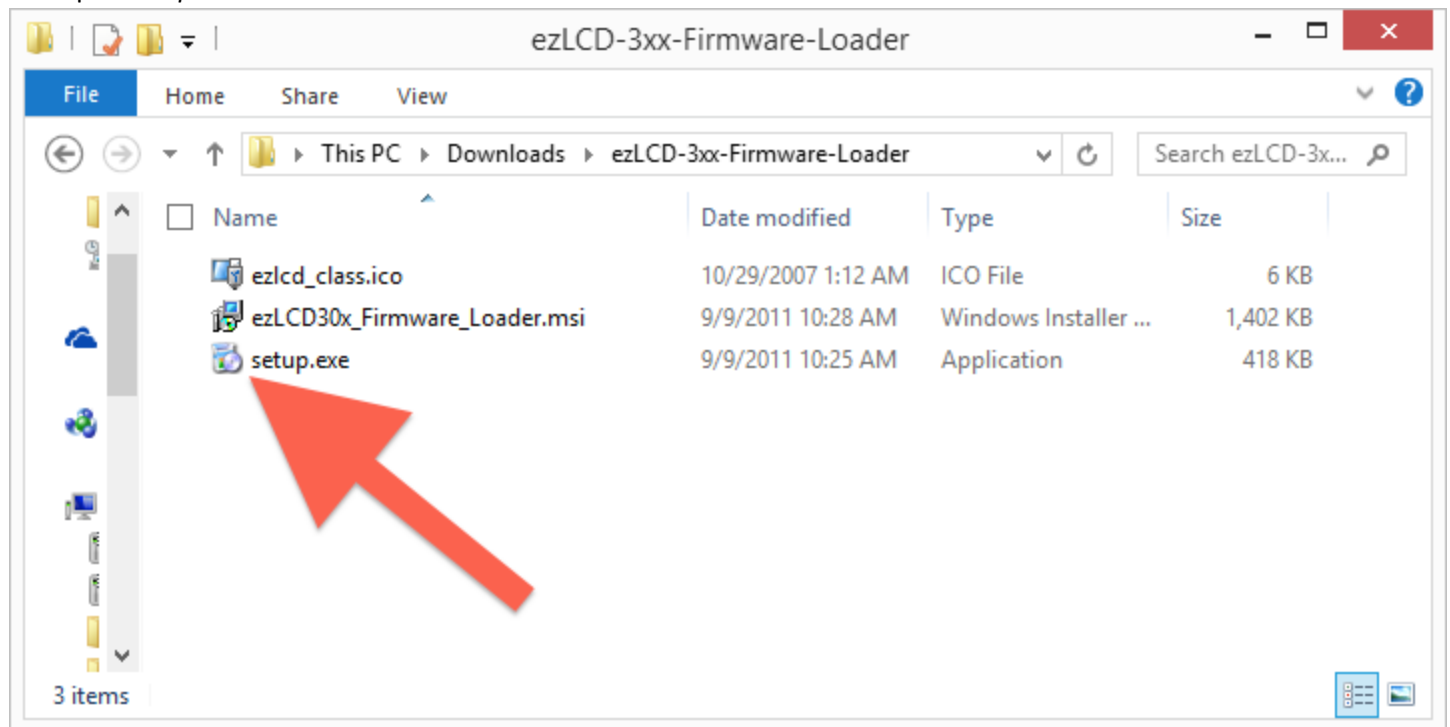


The screenshot shows the GitHub repository page for `earthlcd / SoftwareTools`. The page includes the GitHub logo, search bar, and navigation links. The repository name is `earthlcd / SoftwareTools` with 0 stars and 0 forks. The description is "Software tools for EarthLCD displays." The repository has 2 commits, 1 branch, 0 releases, and 1 contributor. The current branch is `master`. The file list shows:

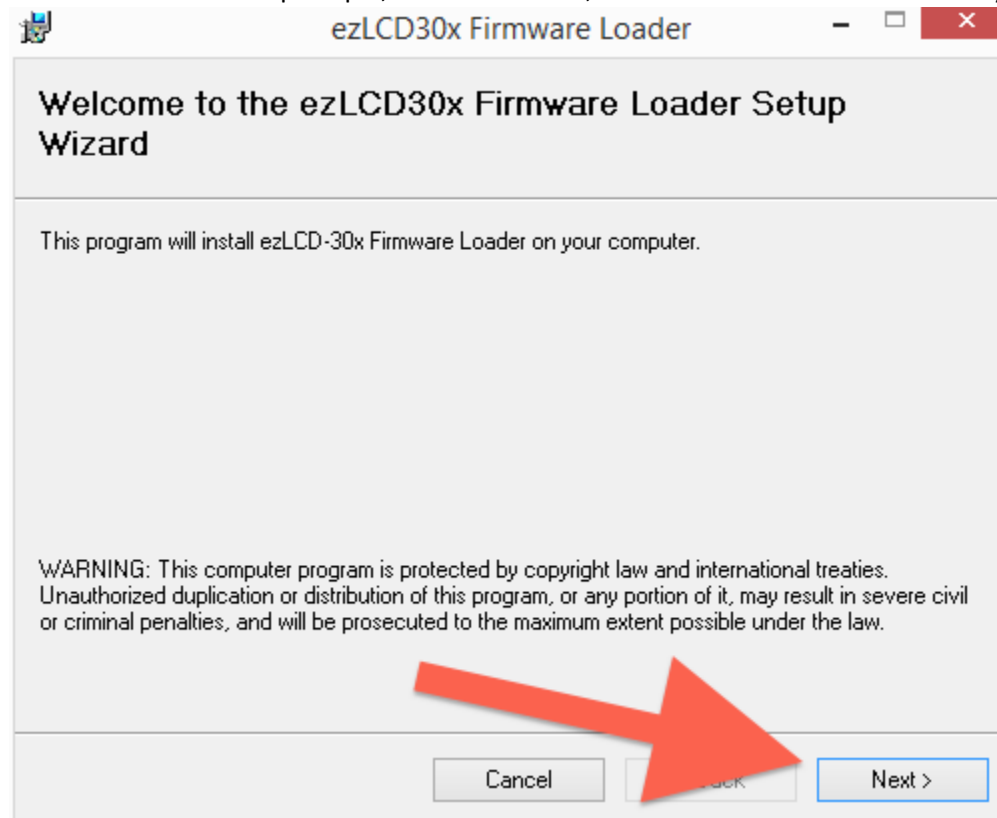
File	Commit	Time
Added Font Converter .zip	latest commit b23723c3d3	
firmware loader	Initial Commit	a month ago
font converter	Added Font Converter .zip	an hour ago
.gitattributes	Initial Commit	a month ago
.gitignore	Initial Commit	a month ago

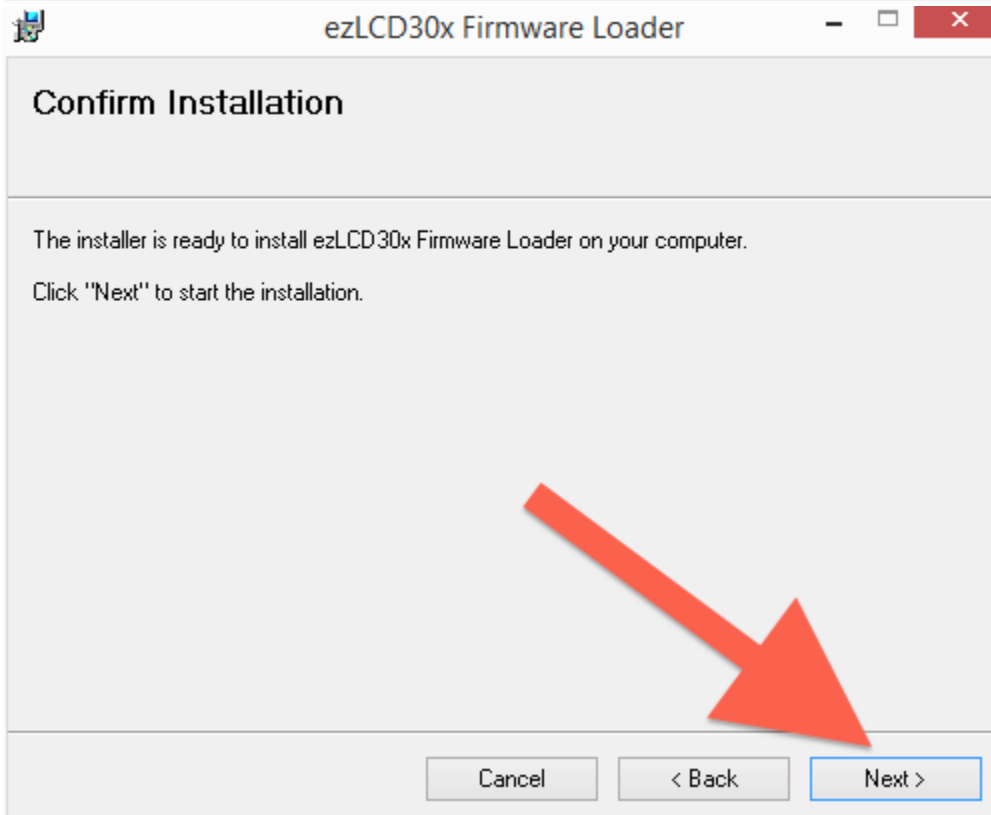
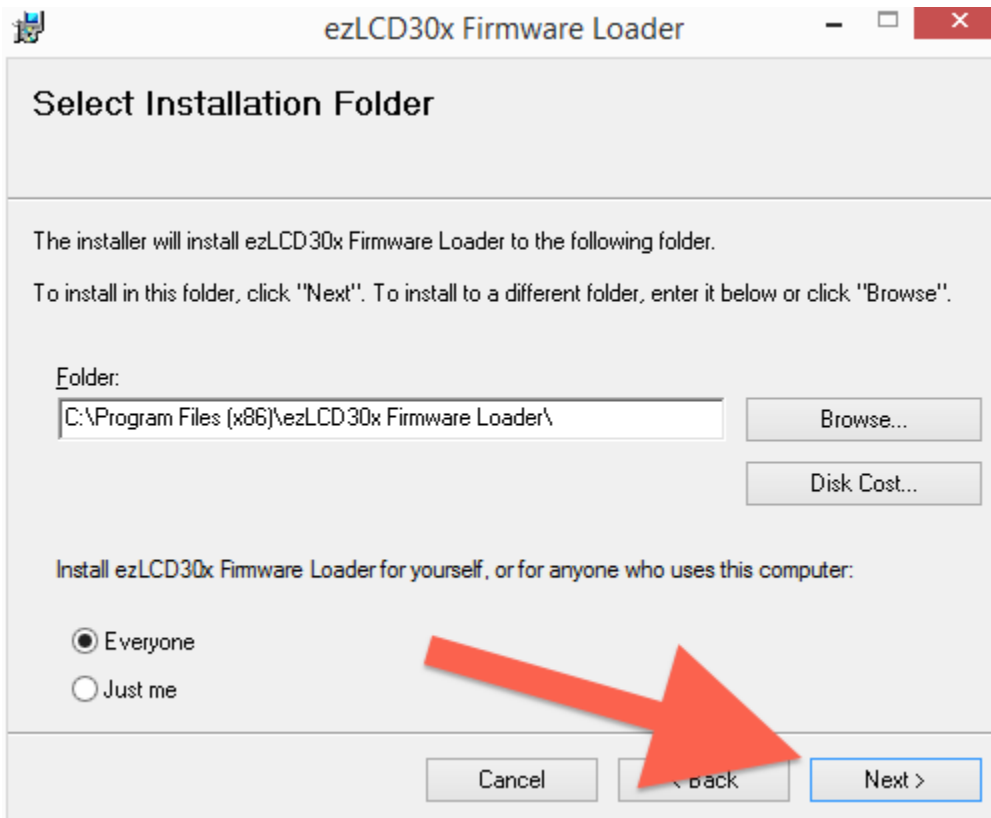
On the right side, there are links for `Code`, `Issues`, `Pull Requests`, `Pulse`, `Graphs`, and `Network`. At the bottom right, there is a section for cloning the repository with the `HTTPS clone URL` `https://github.com`. Below this, there are two buttons: `Clone in Desktop` and `Download ZIP`. A red arrow points to the `Download ZIP` button.

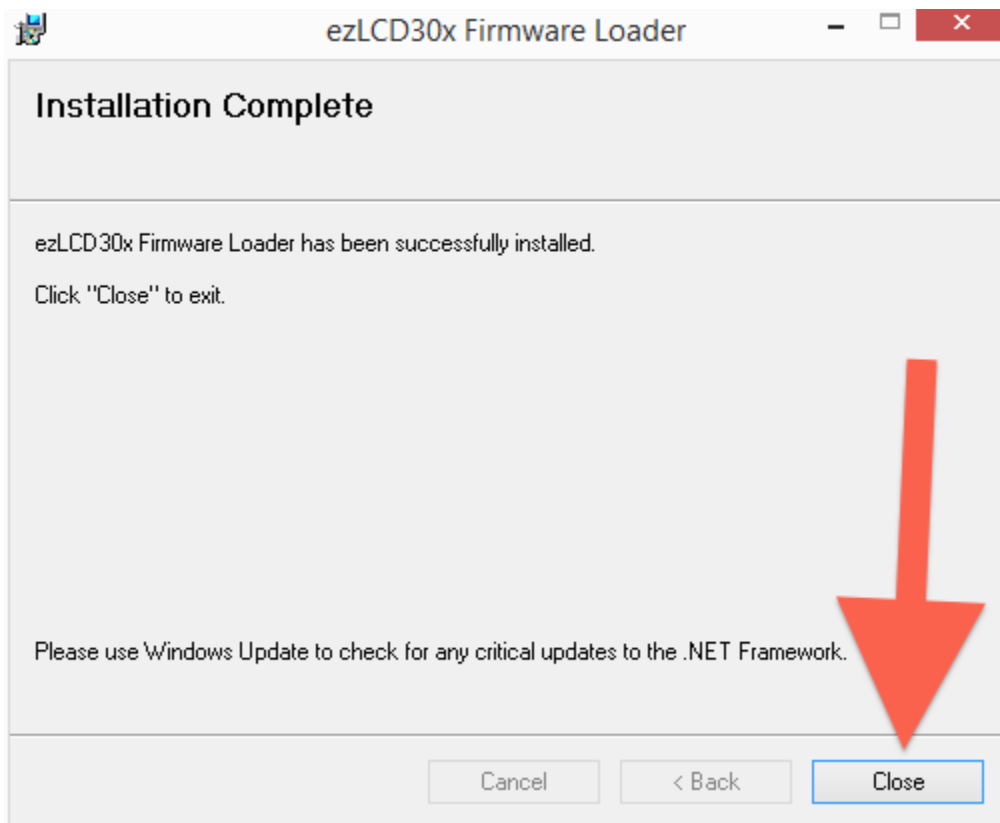
Once your download has completed. *Unzip* the file you just downloaded. Then *unzip* the ezLCD-3xx-Firmware-Loader.zip and open *setup.exe*.



Follow the installation prompts, as shown below, to install the firmware loader on your computer.







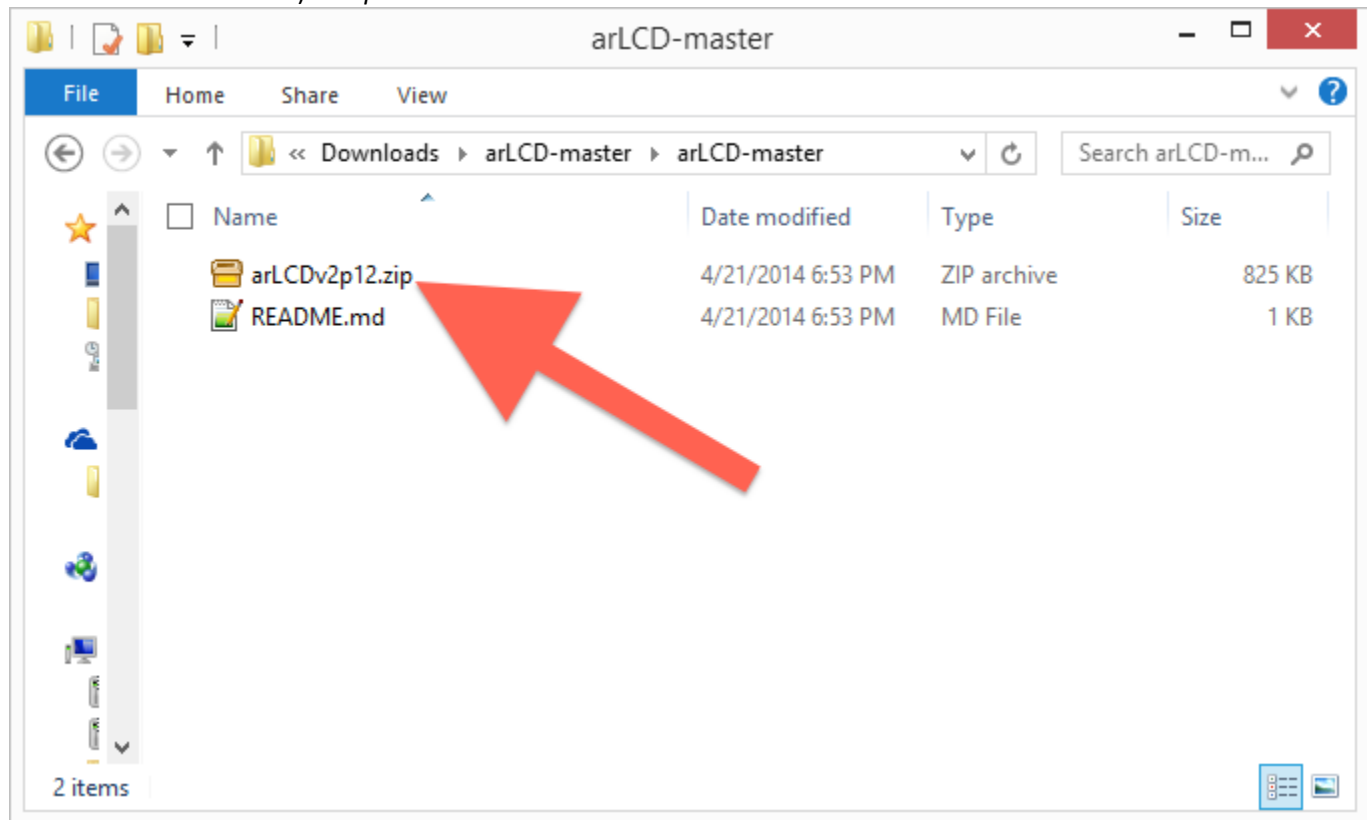
Download File System and Firmware (arLCD)

All of the files needed to upgrade both the file system and the firmware for your arLCD are found at our [GitHub](#).

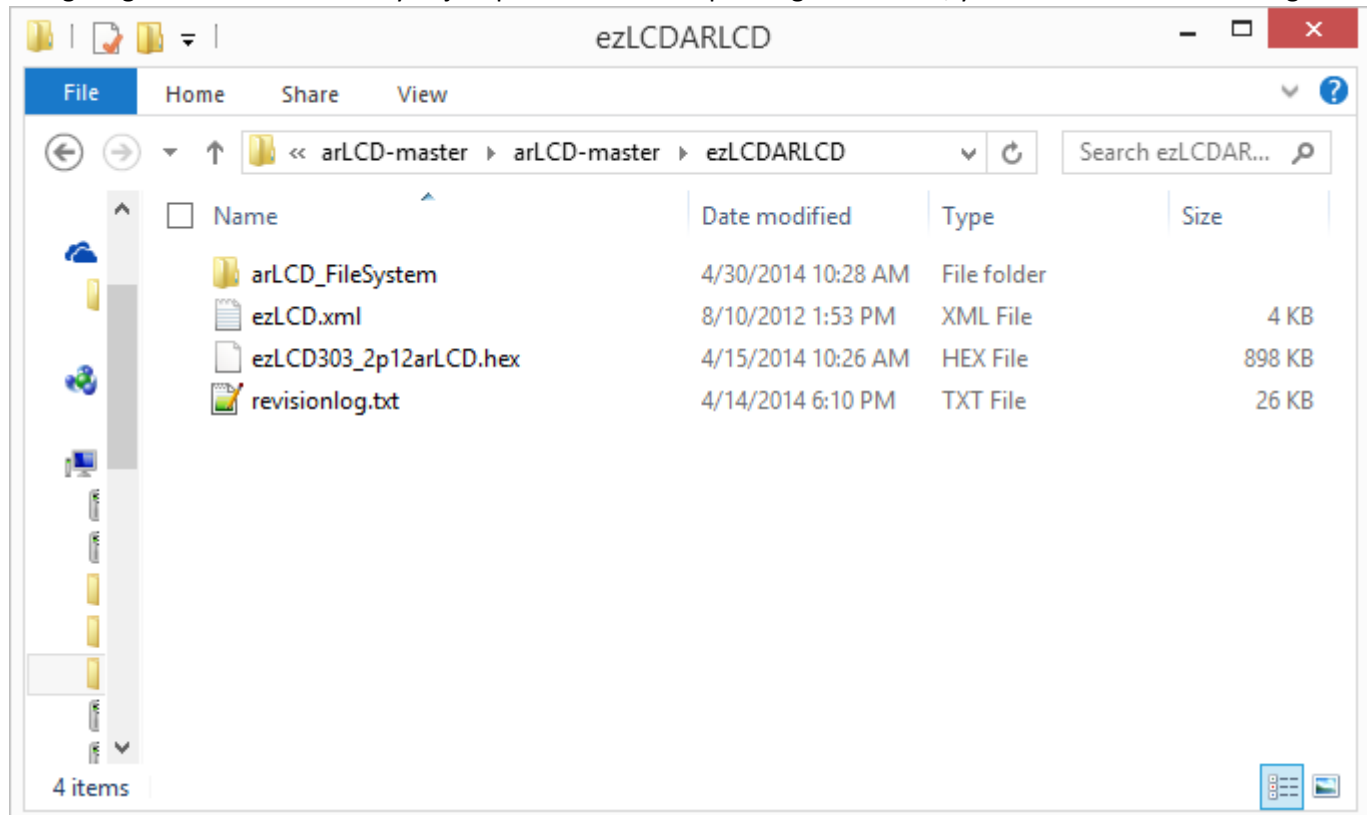
Click on the link above and go to the [arLCD repository](#) on GitHub. Once there click on the “Download ZIP” button in the lower right of the screen as shown below. Save the file to a known location.

The screenshot shows the GitHub repository page for **earthmake / arLCD**. The repository has 21 commits, 1 branch, 0 releases, and 2 contributors. The latest commit is `e533595605` by **earthmake**, 6 days ago. The commit history shows two files: `README.md` (updated 7 days ago) and `arLCD2p11.zip` (updated 6 days ago). The README file is displayed, showing the title **arLCD** and the description "arLCD firmware and filesystem." In the right sidebar, the "Code" section is expanded, showing the "HTTPS clone URL" as `https://github.com/earthmake/arLCD`. Below the URL, there are two buttons: "Clone in Desktop" and "Download ZIP". A red arrow points to the "Download ZIP" button.

Once the file is fully downloaded, *unzip* the file to access the contents of the archive. Navigate down into the expanded archive until you see the arLCDvXpXX.zip. (NOTE: the 'X' will be numbers that will change depending on the current version of the firmware.) *Unzip* this archive.



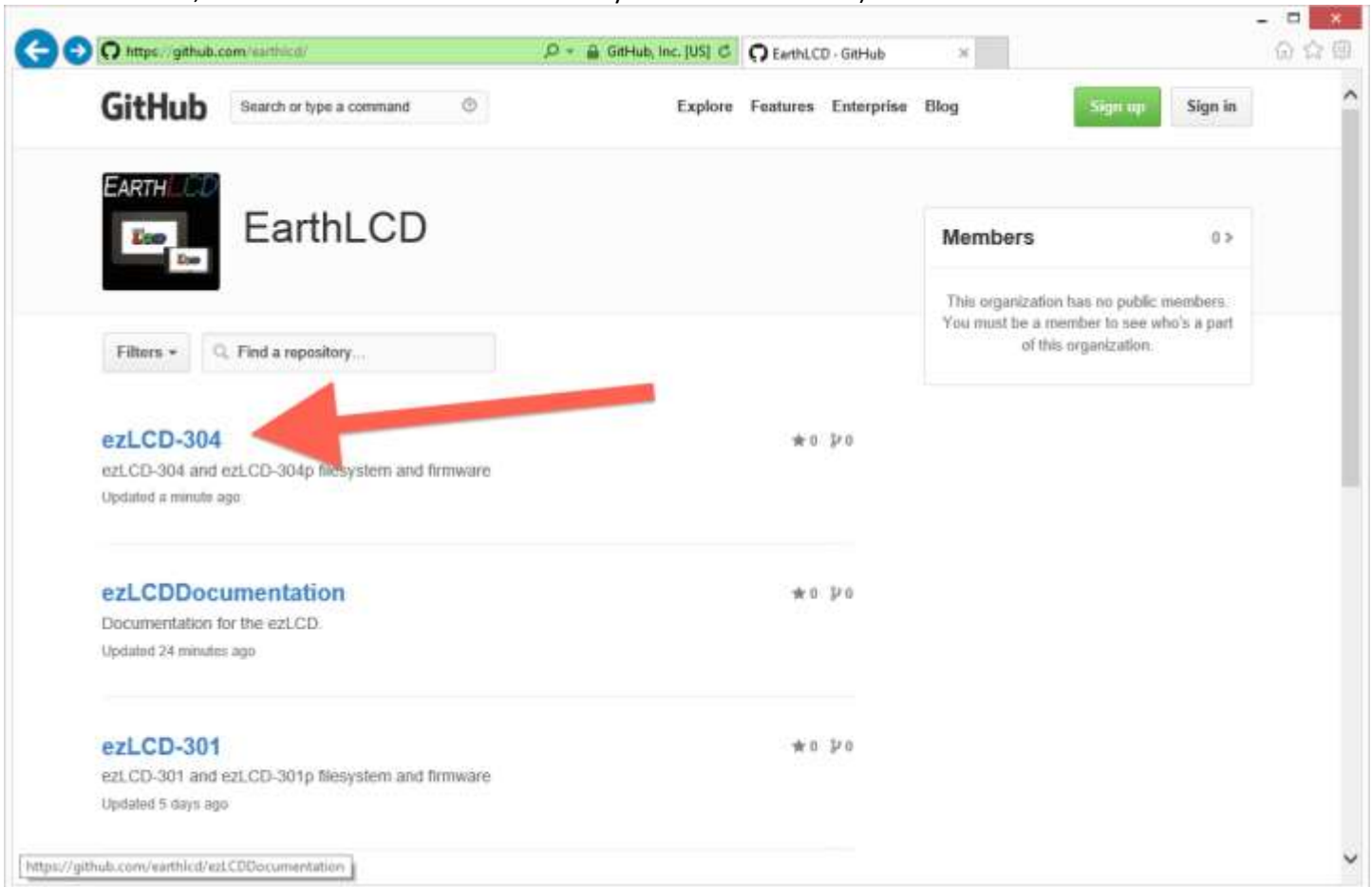
Navigating down into the folder you just produced from expanding the archive, you should see the following:



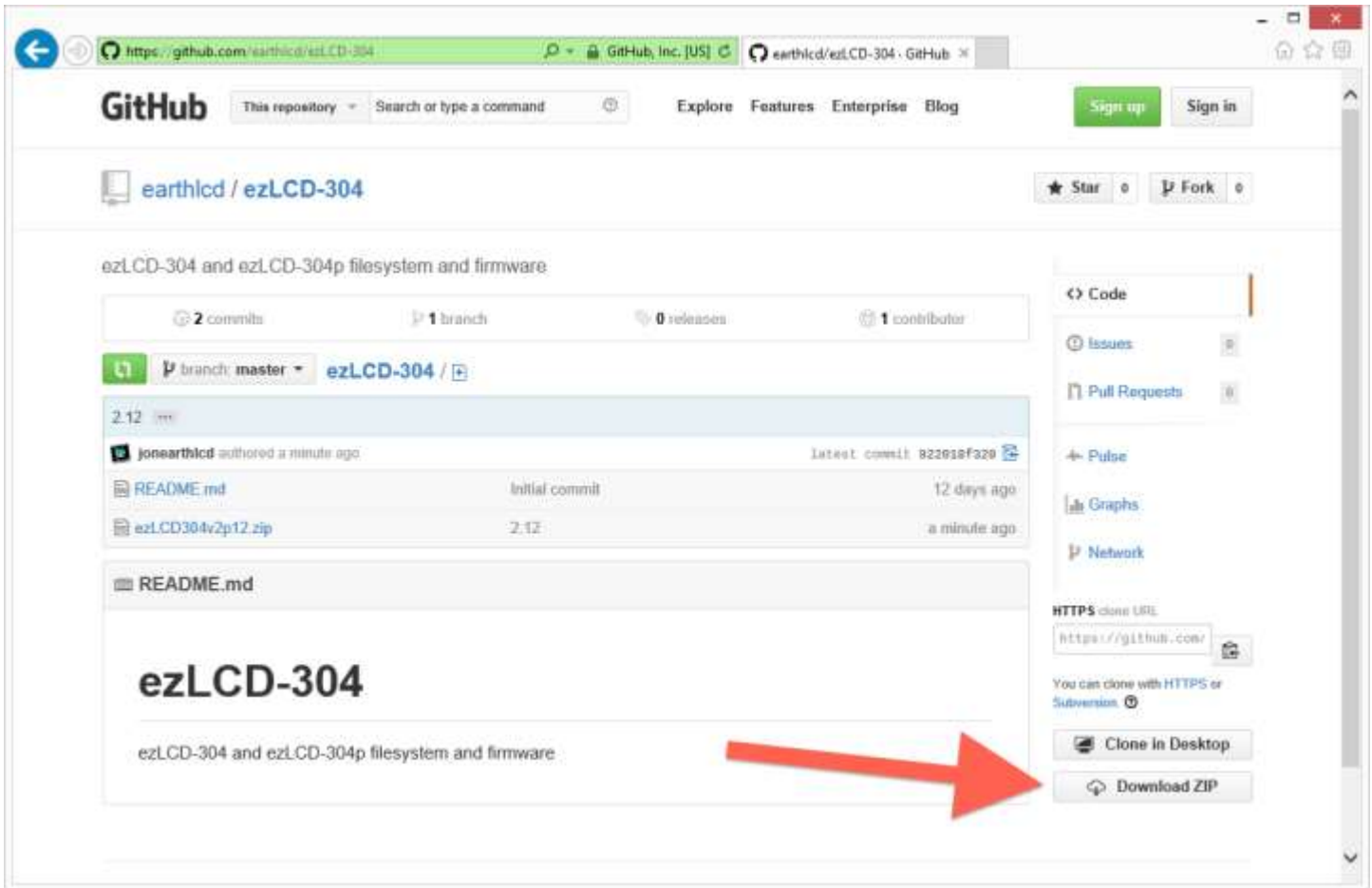
Download File System and Firmware (ezLCD)

The file system and firmware for each version of our ezLCD can be found at the [EarthLCD GitHub](#).

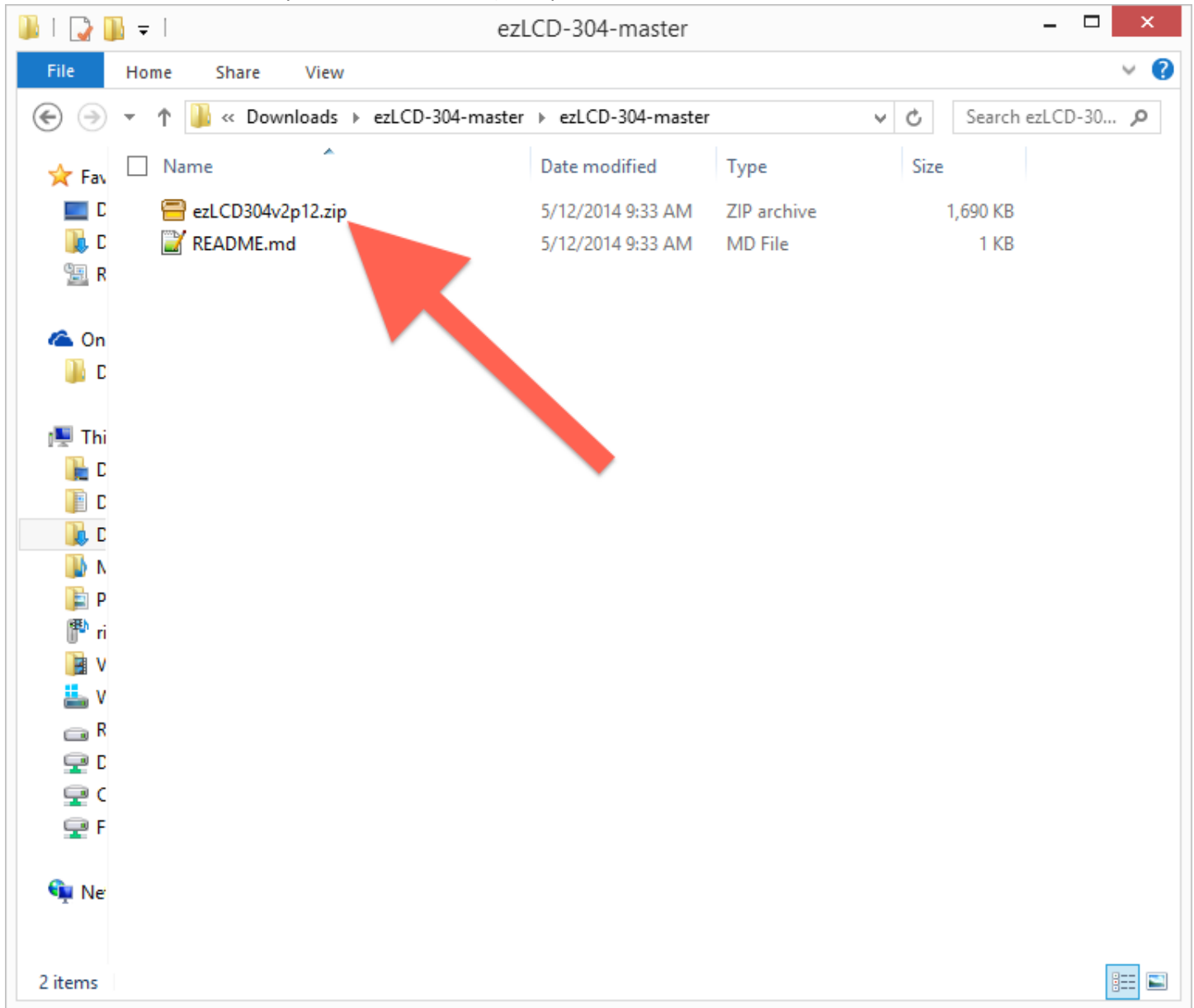
Click on the link above and go to the repository of your ezLCD model. (Note: in the pictures below the ezLCD-304 is shown. However, the instructions are the same for any model of the ezLCD.)



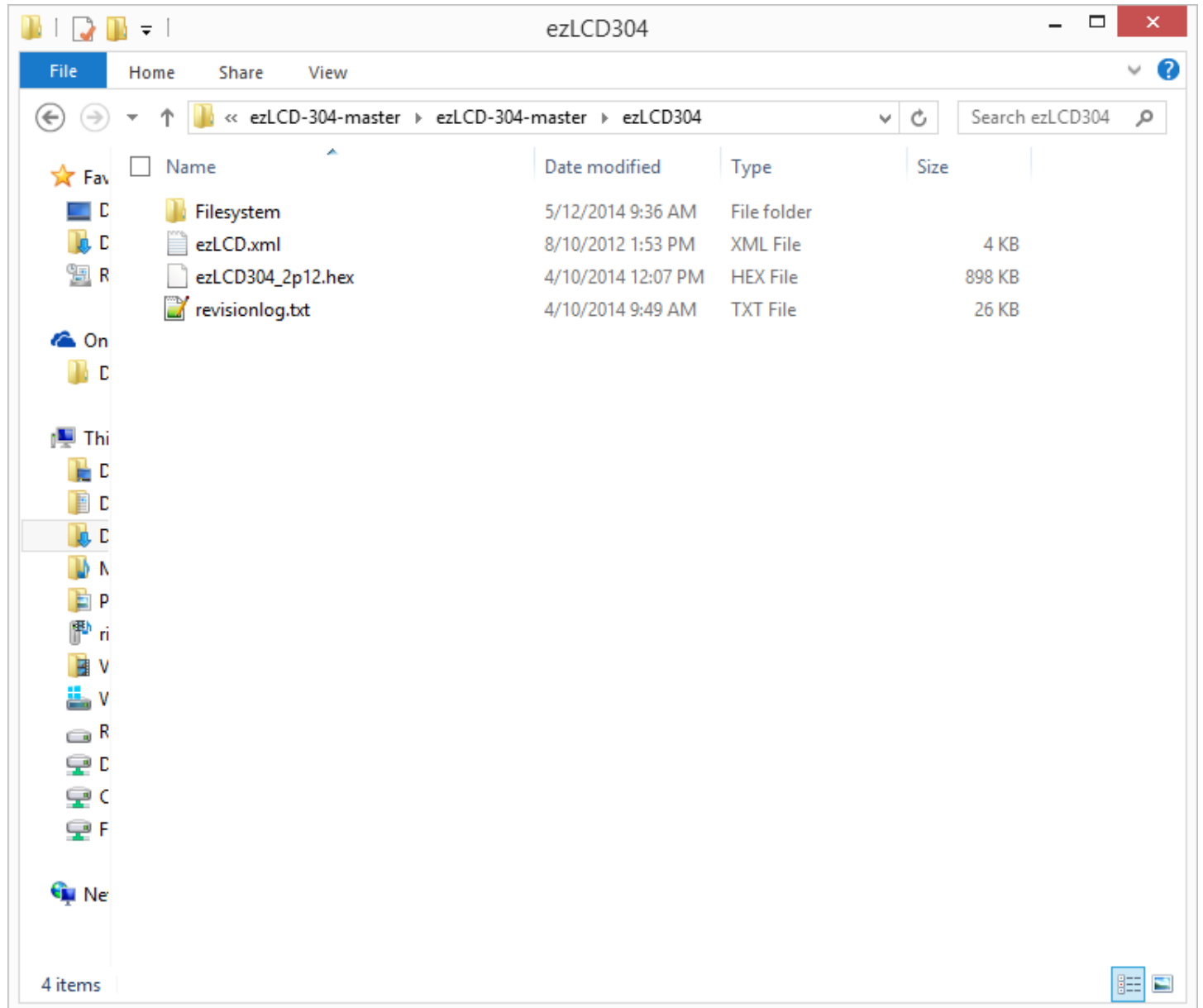
Once there click on the “Download ZIP” button in the lower right of the screen as shown below. Save the file to a known location.



Once the file is fully downloaded unzip the file to access the contents of the archive. Navigate down into the expanded archive until you see the ezLCD3XXvXpXX.zip. (NOTE: the 'X' will be numbers that will change depending on the current version of the firmware and your model of ezLCD.) Unzip this archive.

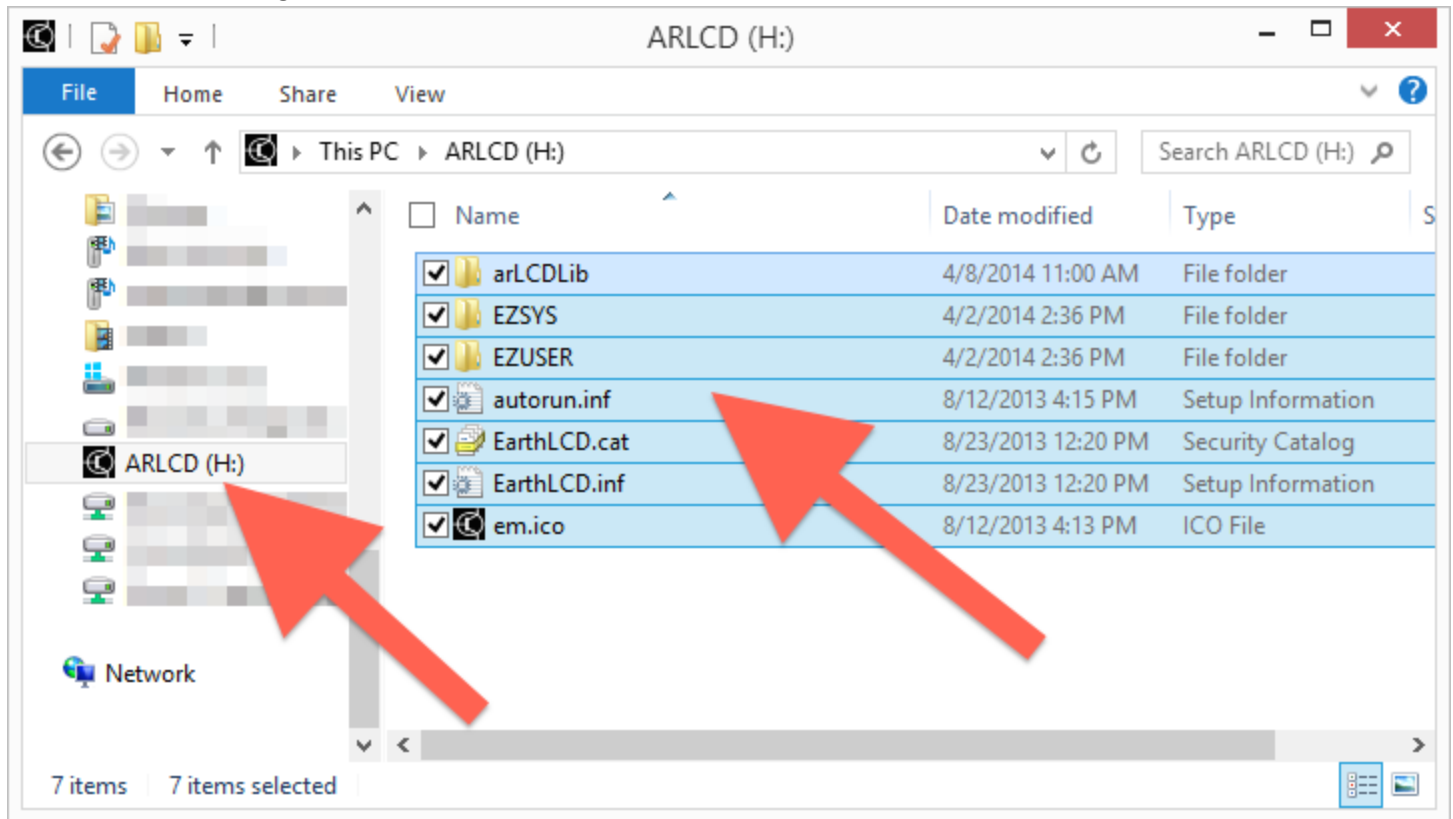


Navigating down into the folder you just produced from expanding the archive, you should see something similar to the following:

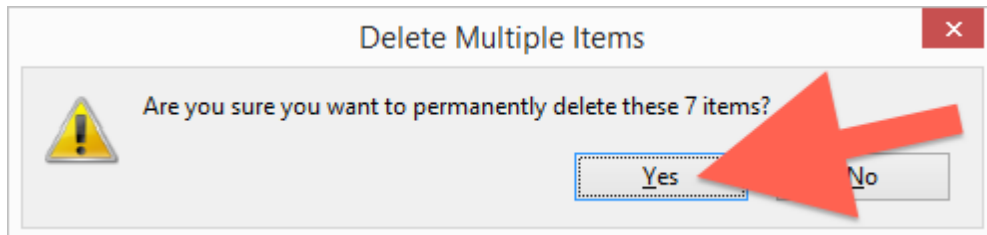


Upgrade the File System

To upgrade your file system you must first delete the file system you currently have on your arLCD/ezLCD. (Note: shown below is upgrading the arLCD but the instructions are the same for the ezLCD.) If you have not backed up your files on the display, do that now. Open a file explorer window and navigate to the top level directory of your arLCD/ezLCD. Select all of the files, right-click on the selection of files and click "Delete."



Confirm the file deletion.



[illegible]

The image consists of two side-by-side screenshots of a Windows 10 desktop environment, showing File Explorer windows.

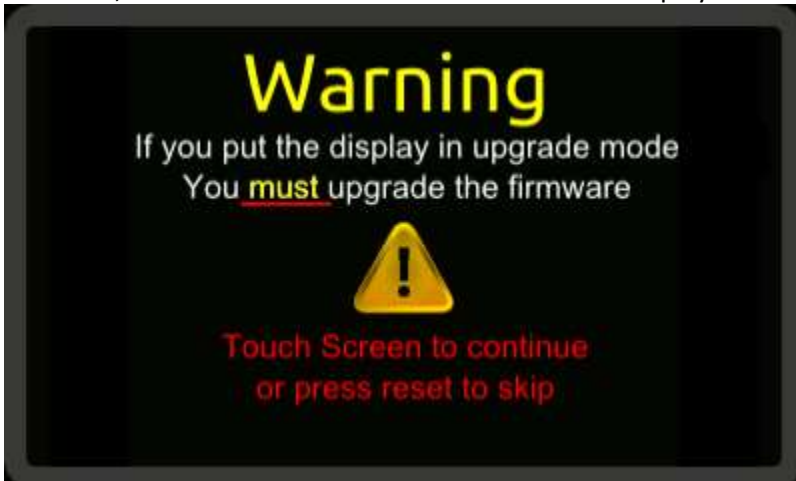
Left Window: The title bar reads "arLCD (H)". The address bar shows "This PC > arLCD (H)". The left sidebar is expanded to "This PC", and the "arLCD (H)" drive is highlighted. A large red arrow points from the "arLCD (H)" drive in the sidebar towards the right window.

Right Window: The title bar reads "arLCD_SysSystem". The address bar shows "This PC > Downloads > arLCD-master > arLCD-master > arLCD_SysSystem". The left sidebar is expanded to "This PC", and the "arLCD (H)" drive is highlighted. The main pane displays a list of files and folders within the drive:

Name	Date modified	Type	Size
arLCD.sys	6/11/2019 4:13 PM	Setup Information	1 KB
arLCD.inf	6/11/2019 10:10 PM	Security Catalog	2 KB
arLCD.cat	6/11/2019 10:10 PM	Setup Information	2 KB
arLCD.sys	6/11/2019 4:13 PM	File	1 KB
arLCD.sys	6/11/2019 10:10 AM	File	1 KB
arLCD.inf	6/11/2019 10:10 AM	File	2 KB
arLCD.cat	6/11/2019 10:10 AM	File	2 KB

Enter Firmware Upgrade Mode (arLCD/ezLCD except ezLCD-302)

To upgrade the firmware you must first put your arLCD/ezLCD into upgrade mode. Do this by holding down the top right corner of the display and performing a reset. Either by pressing the reset button, found on the arLCD and engineering development kit (EDK) board, or unplugging and plugging back in the USB cable. You should now see a screen like, or similar to, this. The current firmware version will be displayed in the lower left of the screen.



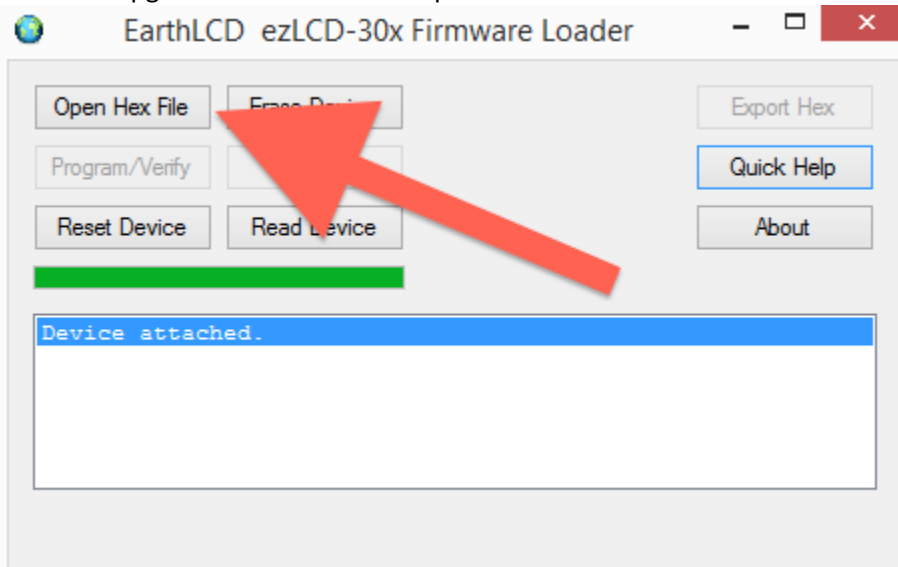
Touch the screen to enter firmware upgrade mode. The display should now read “Firmware Upgrade Mode.”

Enter Firmware Upgrade Mode (ezLCD-302)

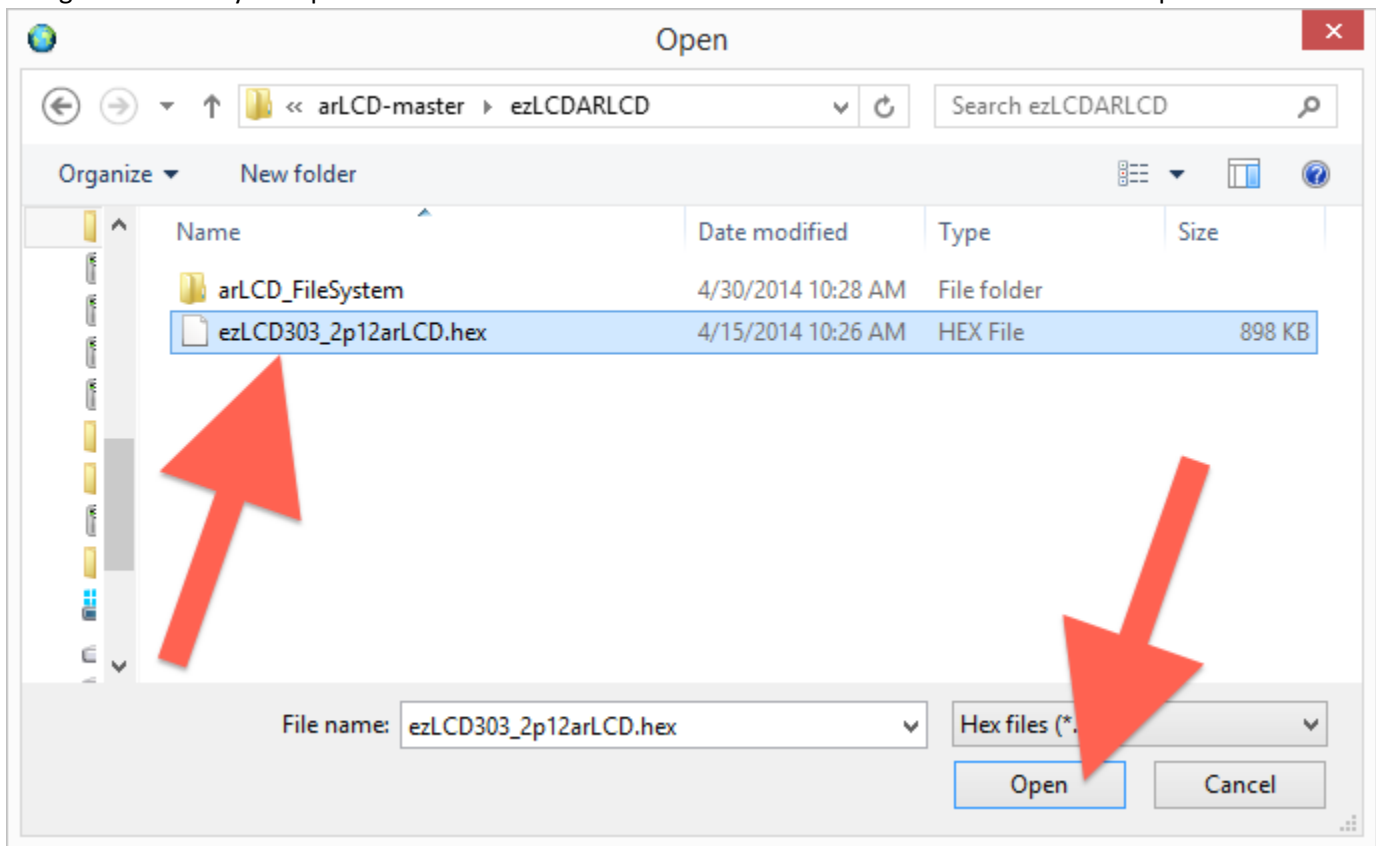
Since the ezLCD-302 does not have touch capabilities you must enter upgrade mode manually. Connect your ezLCD-302 to your computer. Using a serial terminal, like *Termie*, send the command “upgrade ezLCD” to your ezLCD-302. You should now read “Firmware Upgrade Mode” on your ezLCD-302 display.

Load New Firmware

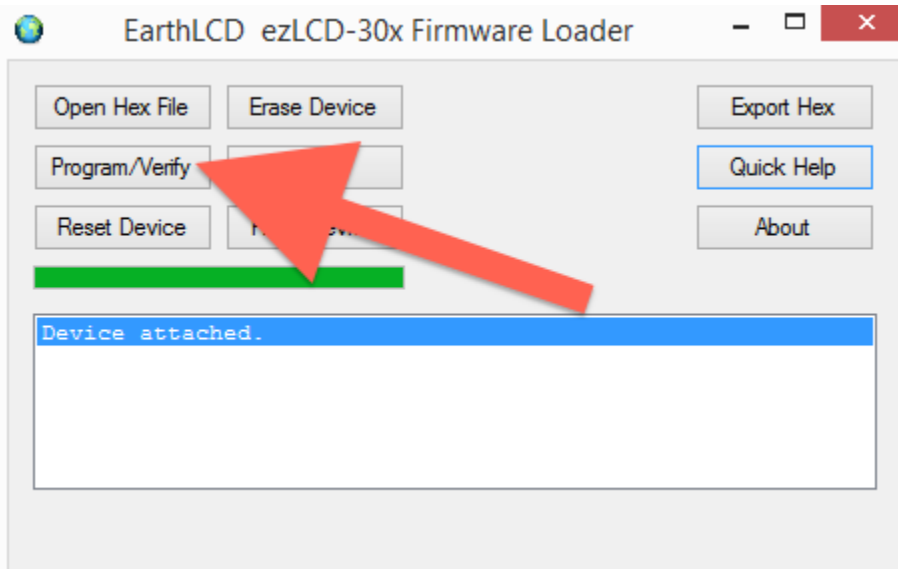
Open the *ezLCD-30x_Firmware_Loader*. You should see the following. If you do not see this ensure that your display is in firmware upgrade mode. Click on “Open Hex File” to select new firmware.



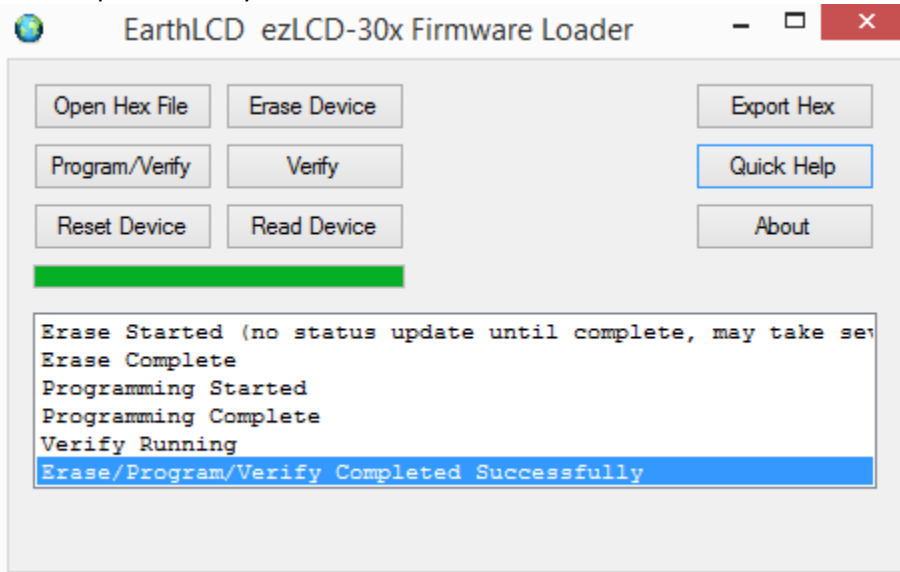
Navigate to where you expanded the archive and select the relevant *.hex firmware file. Click “Open.”



You are now ready to flash new firmware onto your arLCD/ezLCD. Click “Program/Verify” to do this.



The program will now flash the new firmware to your arLCD/ezLCD. This process should take less than three minutes. At the completion of it you should see this.

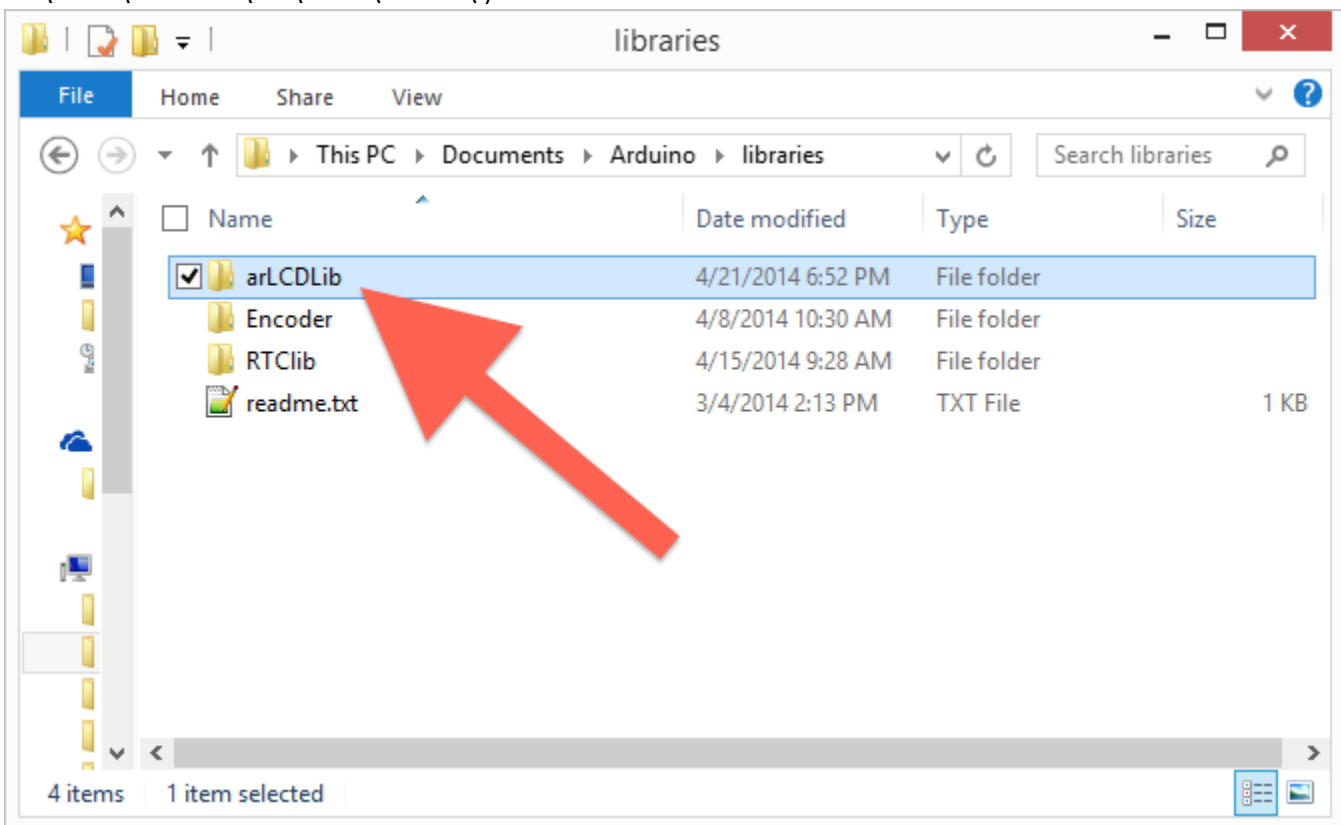


You have now successfully updated the firmware on your arLCD/ezLCD.

[Update arLCD Arduino Library](#)

To fully make use of any firmware updates you must update the arLCD Arduino library.

Ensure all instances of Arduino are closed. Navigate to where your Arduino libraries are located. For most installations this will be ~\Documents\Arduino\libraries\. (Note: ~\ represents your home user directory. An example of this would be \Users\JohnUser\ or \Users\JillUser\.) Select the arLCDLib folder and delete it.



You can then follow the same instructions as found in the *Install arLCD Arduino Library (arLCD Only)* section.