

Simple procedure for installing ADALM1000 Software:

These steps assume the use of a 64 bit Windows 10 computer. It is also assumed that the user will not be writing (or developing) their own software applications for the ADALM1000. It is suggested that you read through this entire document before installing any software.

The first thing that needs to be installed to use the ADALM1000 on a Windows computer is to install the USB drivers. **Do not plug the ADALM1000 into a USB port until you have installed the device USB drivers.**

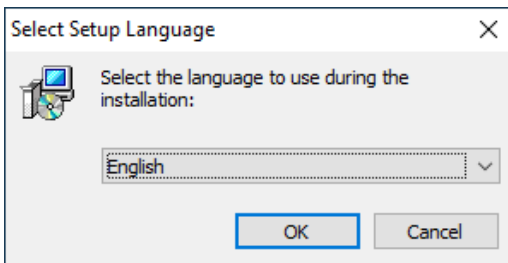
There are two ways to obtain the proper drivers.

Option 1: Pixepulse2

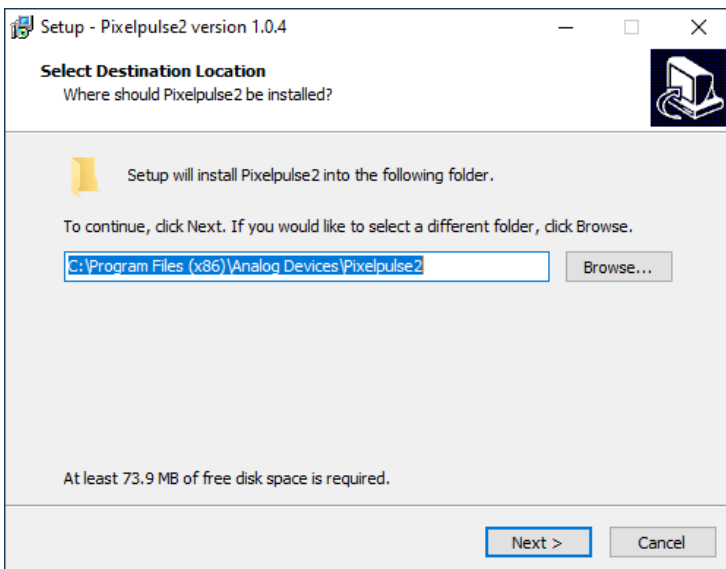
Download this link for the Pixepulse2 installer that contains the 64 Bit USB drivers for the ALM1000:

https://github.com/analogdevicesinc/Pixepulse2/releases/download/v1.0.4/Pixepulse2_win_setup.exe

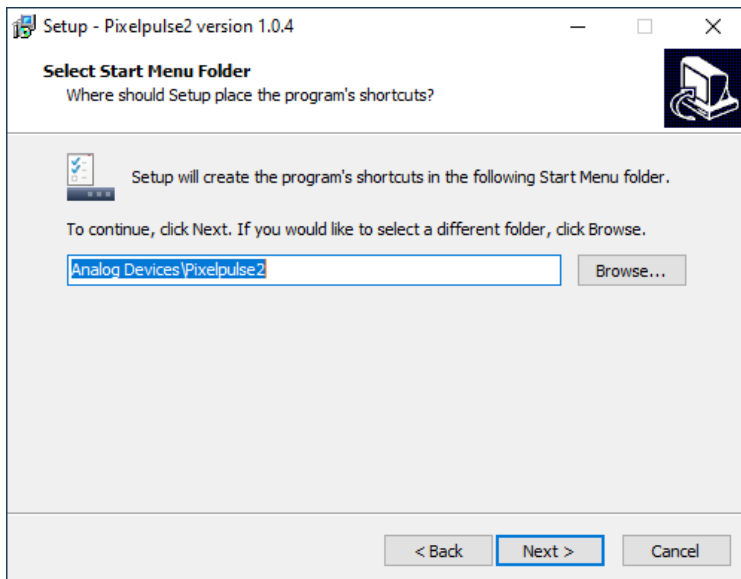
Run the Pixepulse2 setup program.



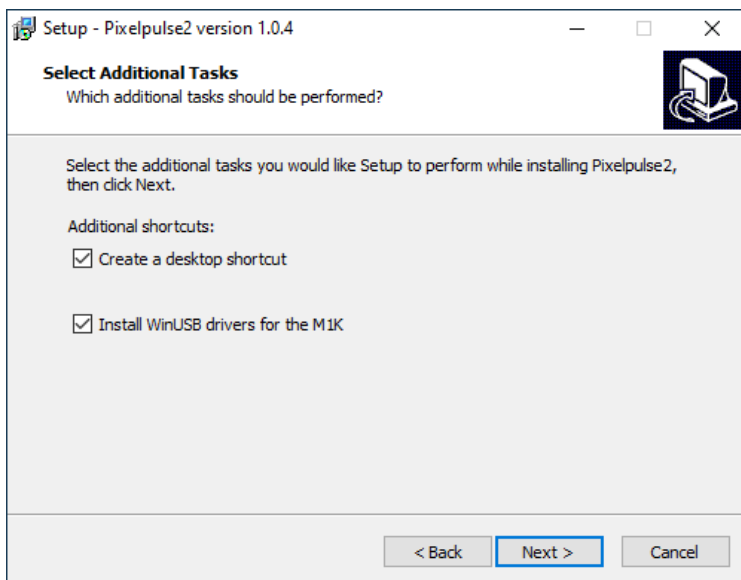
Click on OK.



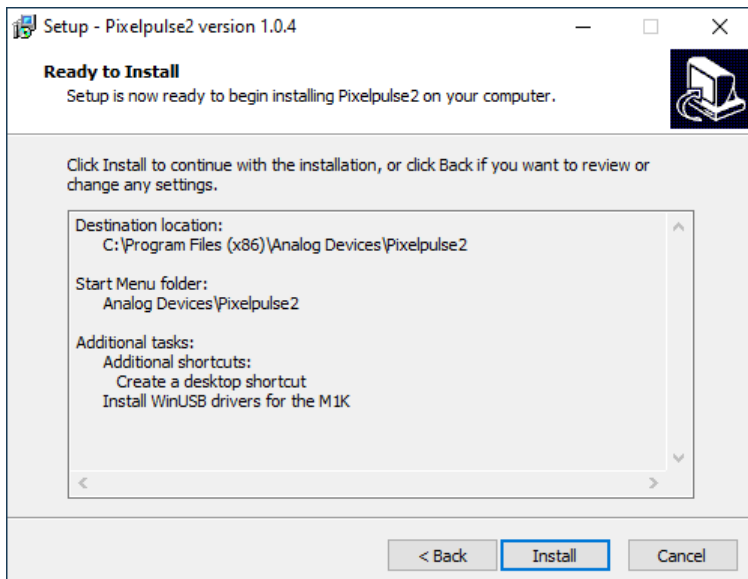
Default location is generally OK if you have enough space on that drive. Click Next.



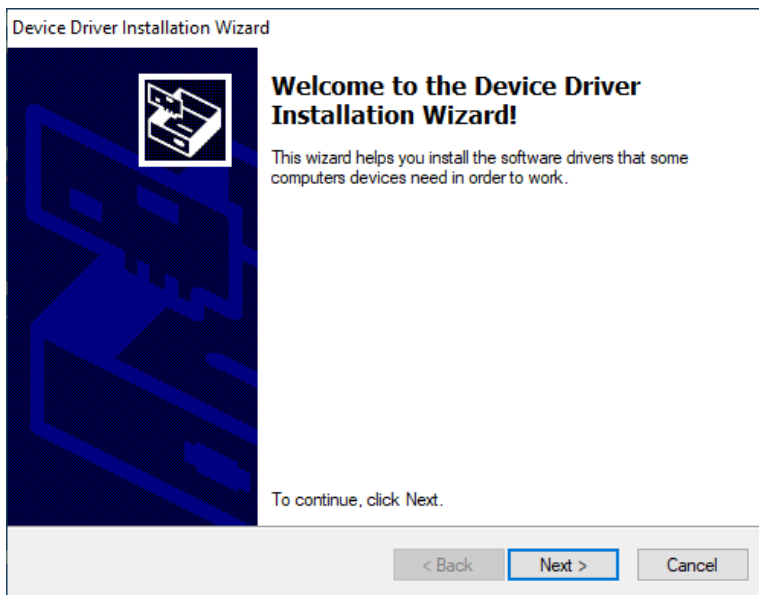
Default shortcut name is OK. Click Next.



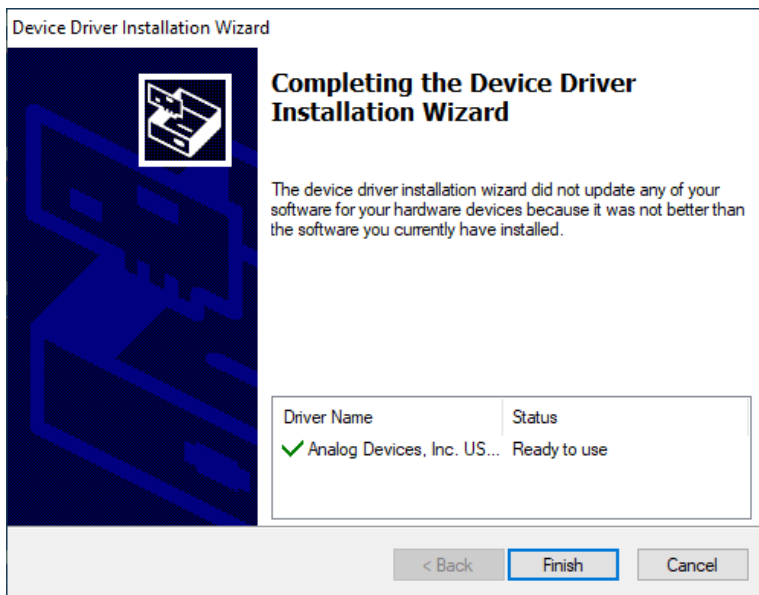
Be sure the Install WinUSB drivers option is selected. Click Next



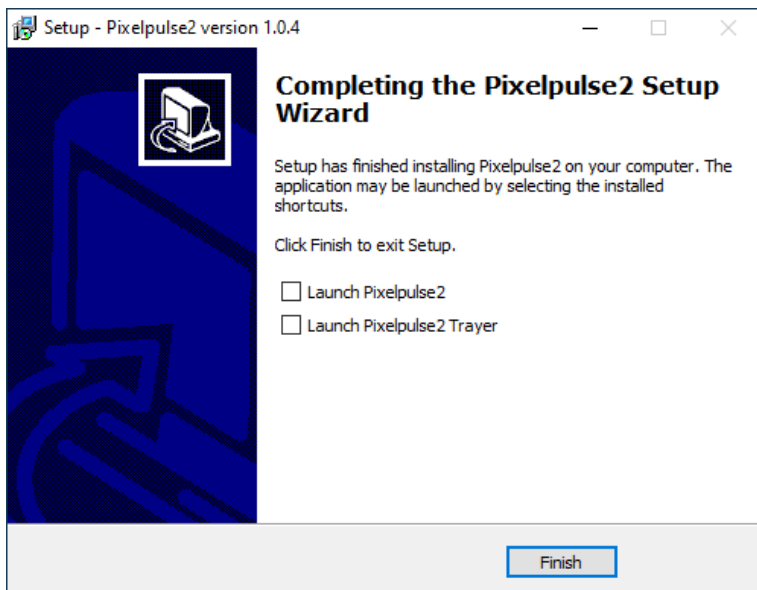
Click Install.



Click Next.



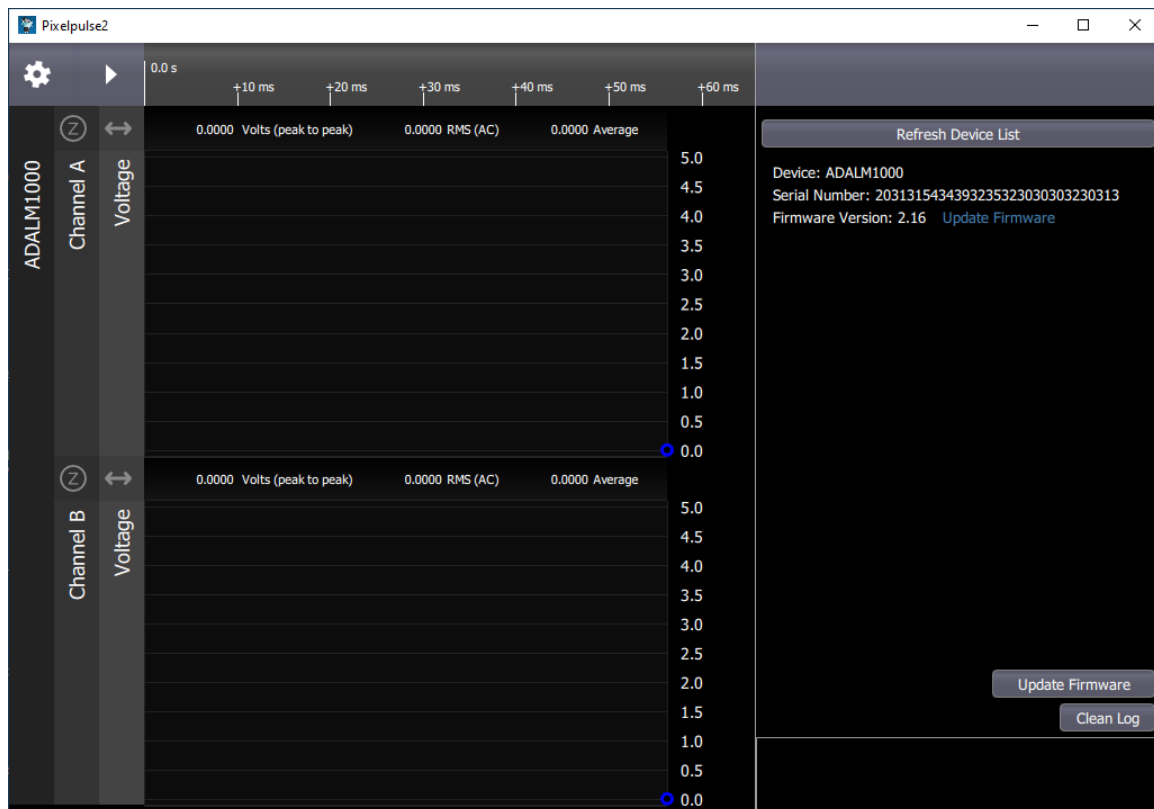
Click Finish.



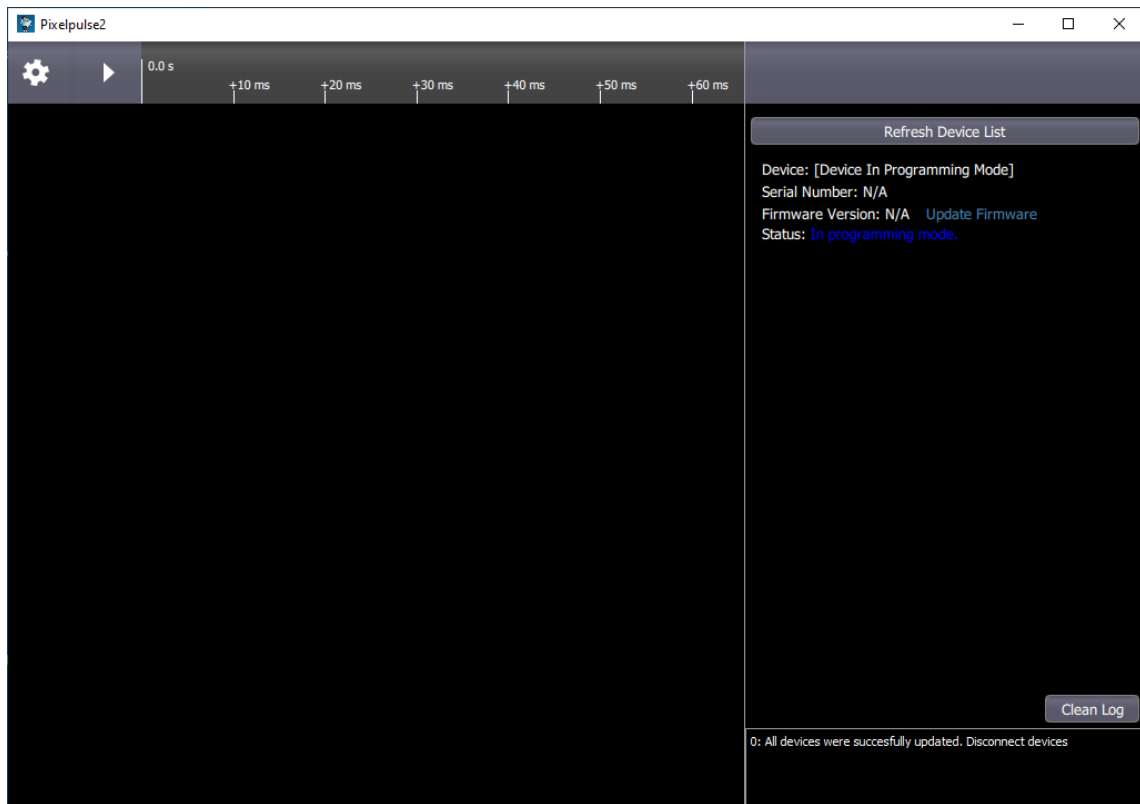
Un check Launch Pixelpulse2 Trayer. Click Finish.

With the ADALM1000 plugged into a USB port Run Pixelpulse2. It may take Windows a few seconds to recognize the board the first time and load the driver. The Pixelpulse2 Trayer may launch Pixelpulse2 automatically whenever the board is plugged in.

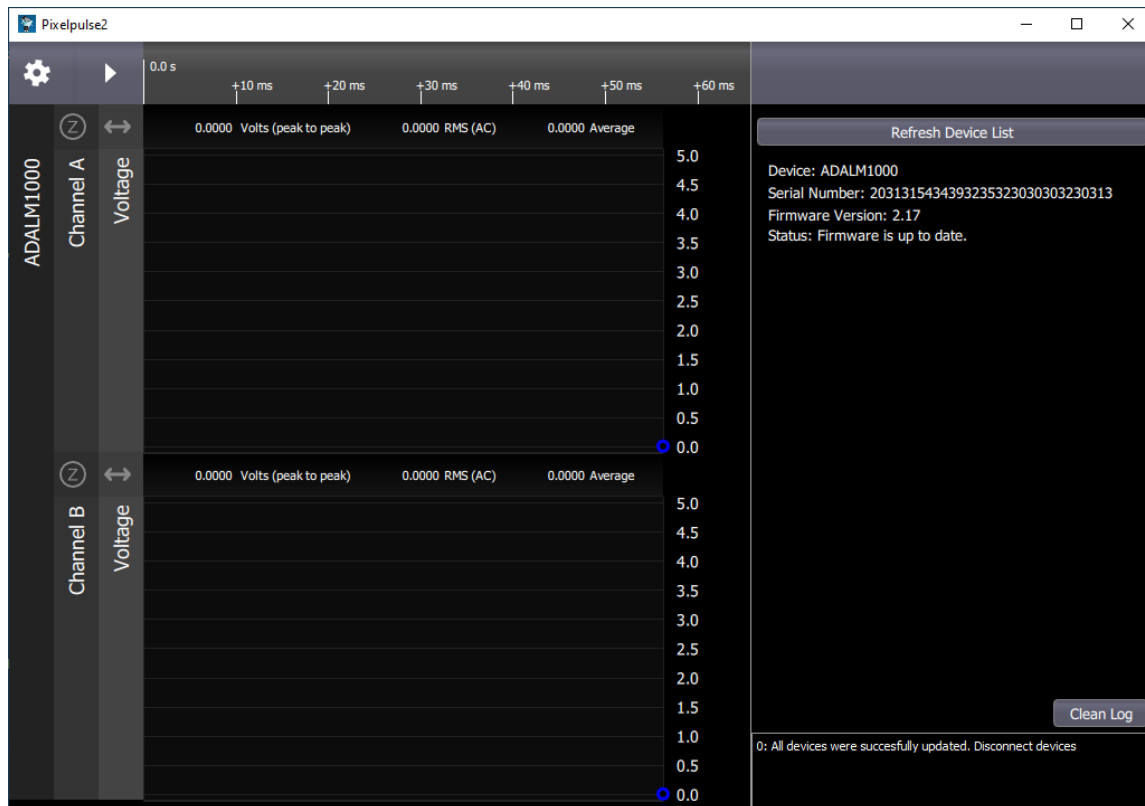
Most likely the firmware on the board is one revision behind the newest version. The screen below should pop up with the device listed on the right side reminding you that the version is 2.16 and asking you to update the firmware. Click on the Update Firmware button in the lower right corner. It may take a few seconds to complete (as the software downloads the binary file over the Web).



When it completes you will need to cycle the power to the board by un plugging from the USB port and plugging it back in to complete the process (note in lower right corner to disconnect device).



After cycling power the screen should look like this:



Now showing firmware version 2.17 (newest) and up to date.

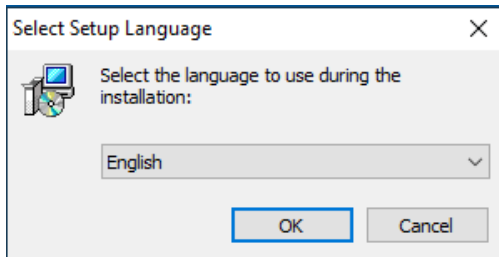
Option 2:

Download the 64 Bit Libsmu software library installer package that contains the 64 Bit USB drivers for the ALM1000:

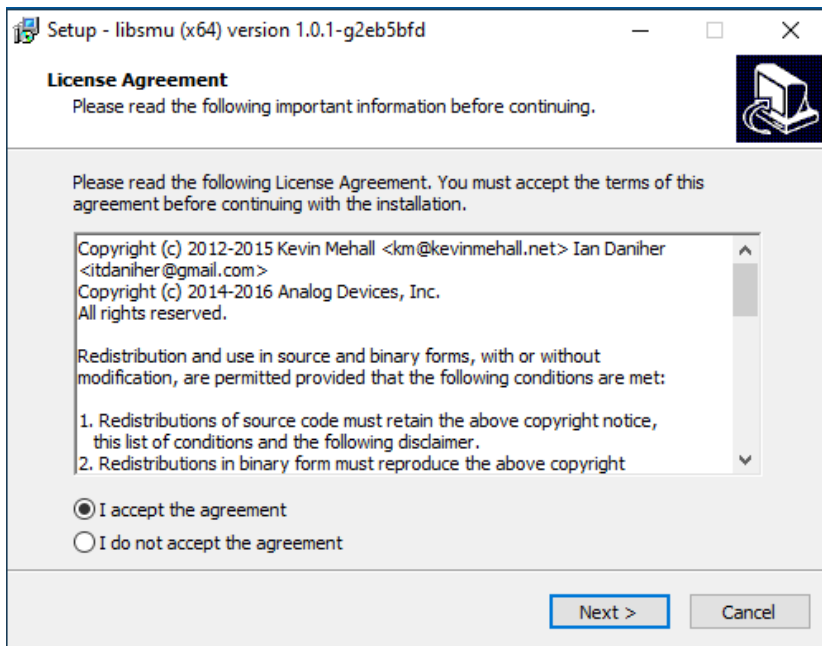
<https://github.com/analogdevicesinc/libsmu/releases/download/v1.0.2/libsmu-1.0.2-setup-x64.exe>

Now we will install the USB drivers.

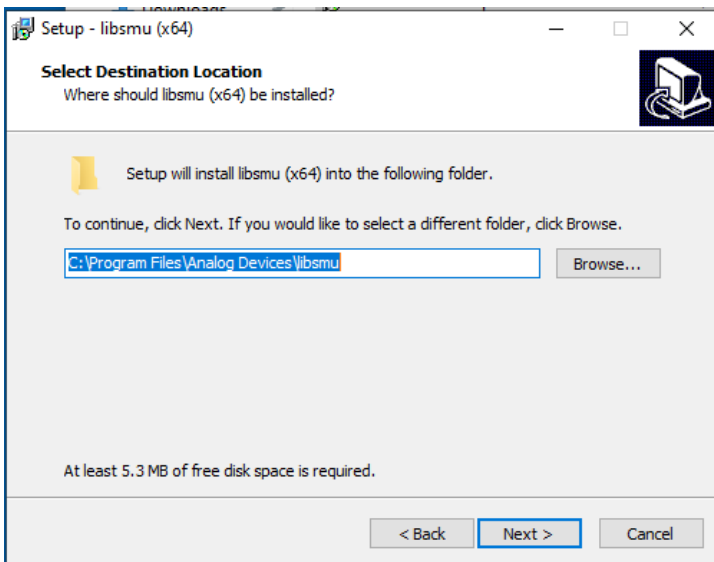
Run the libsmu-1.0.2-setup-x64.exe program you just downloaded. Windows will warn you that the software is from an unknown publisher. Say Yes anyway. You will first be prompted to select a Setup Language:



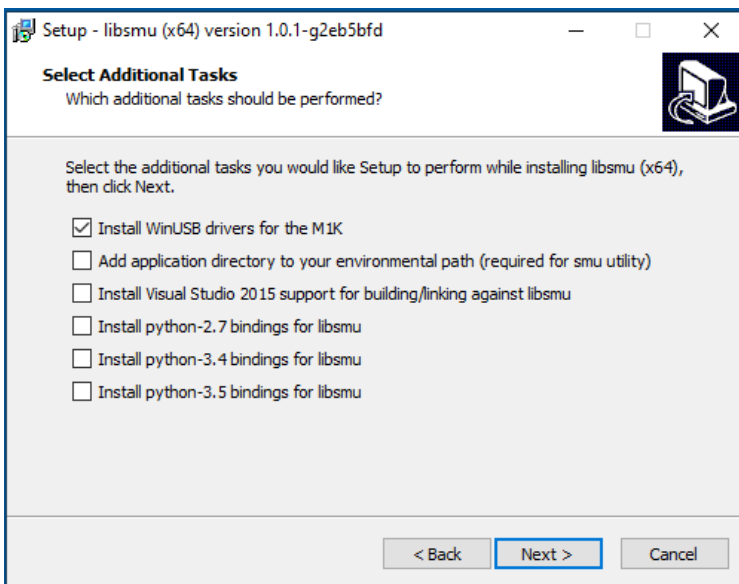
Next you will be asked to accept the License Agreement. Click on I Accept and Next:



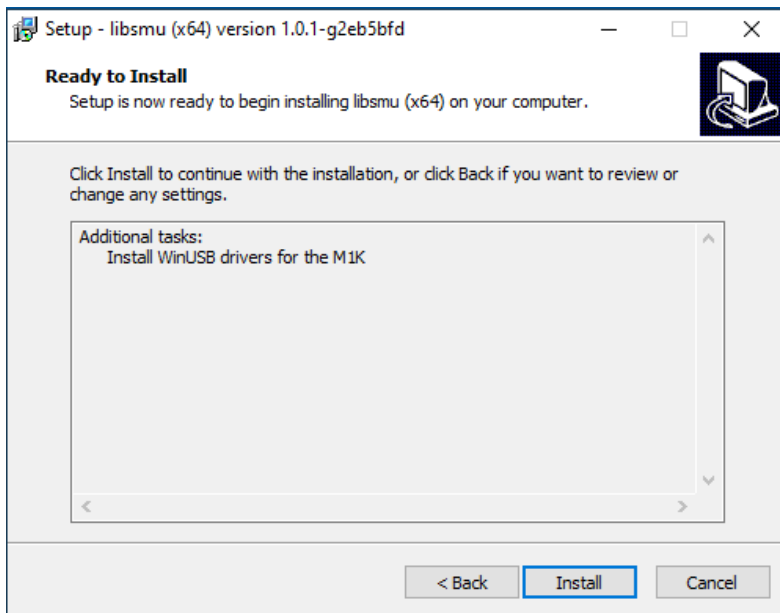
Next you will be asked to select a Destination Location. The default is fine. Click on Next.



Next you will be asked to select what you want to install. By default just the install WinUSB drivers will be selected. If you are not intending to develop your own software applications for the ALM1000 then that will be all you need to select. If you are planning on writing or modifying any Python programs then you would select the appropriate box as well. Click on Next.

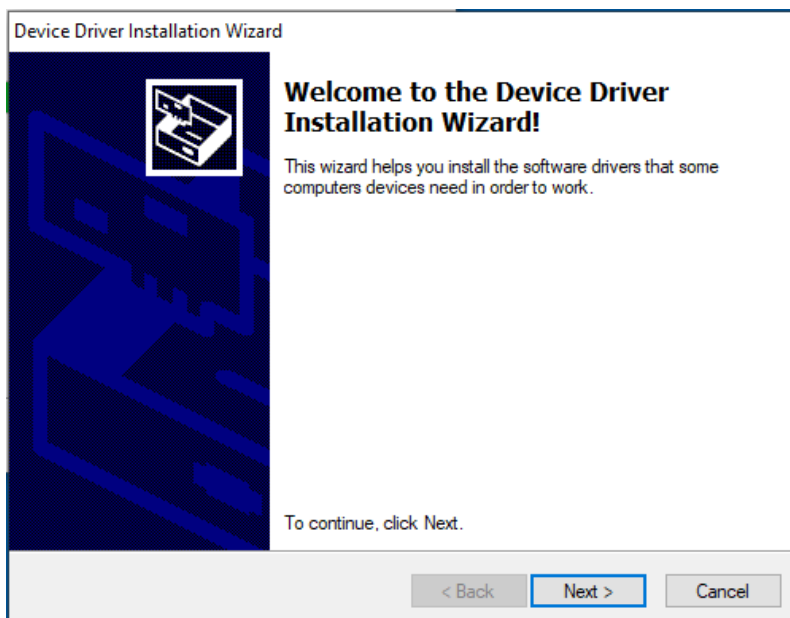


The next thing to pop up is just to confirm that you wish to install the software:

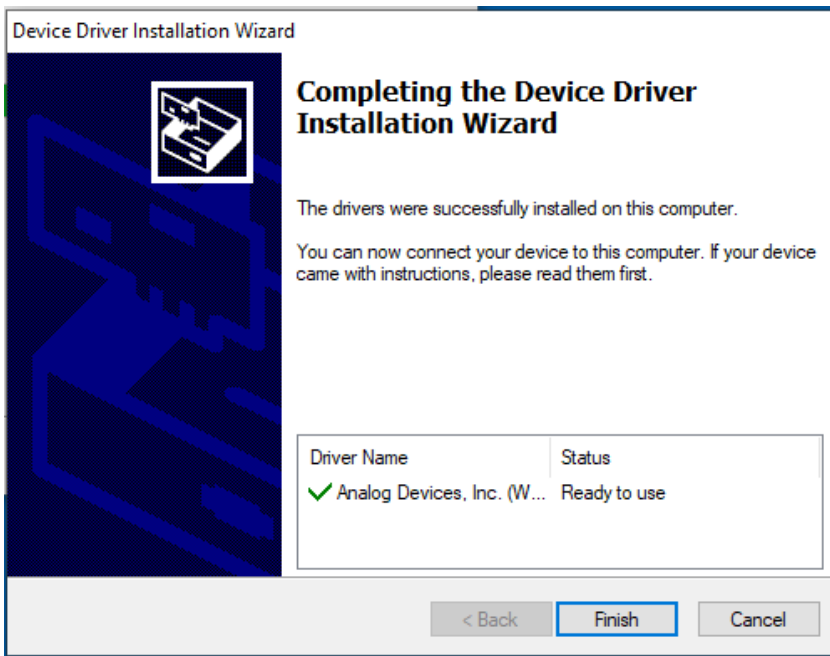


Click on Install.

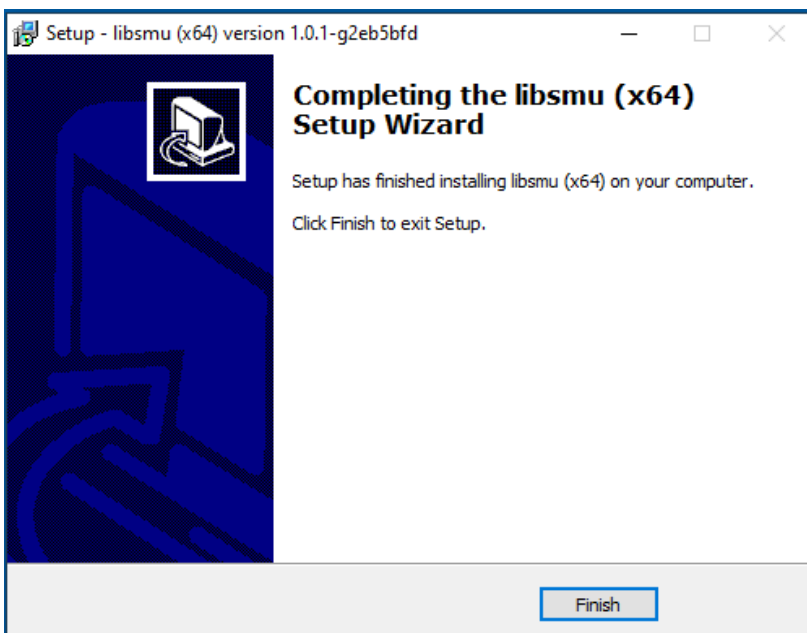
The Windows Driver install dialog box will now pop up. Click Next.



If the USB driver Install completes you will get the last pop up screen:



Click on Finish. The final pop-up should appear.



Click on Finish.

The software required to run ALICE for ADALM1000 on Windows.

Next since ALICE is built using a 32 bit version of Python the 32 bit version of libsmu must be installed.

Download this link for the 32 bit libsmu library required to run ALICE1.3 for Windows:

<https://github.com/analogdevicesinc/libsmu/releases/download/v1.0.2/libsmu-1.0.2-setup-x86.exe>

(Note that there are two different lib smu installers different by x64 vs x86 in the file names!)

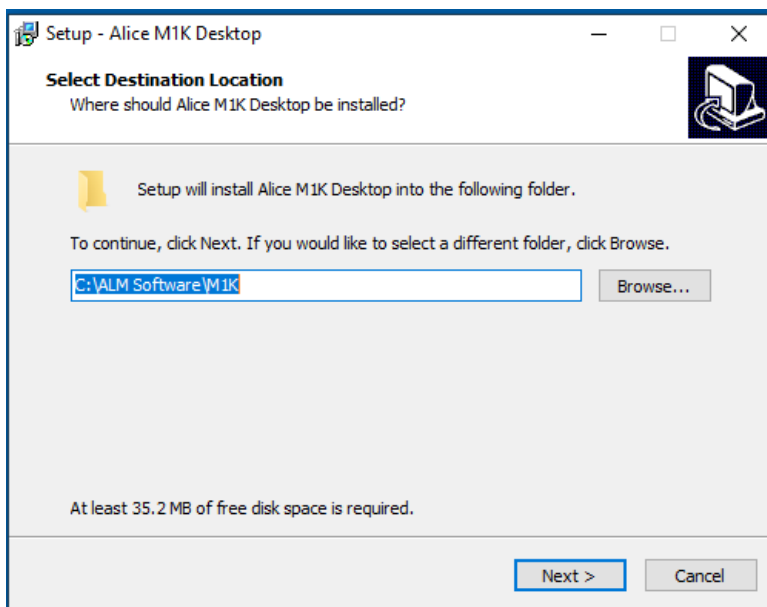
Run the libsmu-1.0.2-setup-x86.exe program you just downloaded. Use the same procedure you just did installing the WinUSB driver. By default just the install WinUSB drivers will be selected, but this time un-check that box and check the one below it to Add application directory to your environment path. If you have Python installed and are planning on writing or modifying any Python programs then you would select the appropriate box for your installed Python as well.

Complete the installation by clicking the various next boxes as before. This should now have installed the required libsmu for ALICE to run.

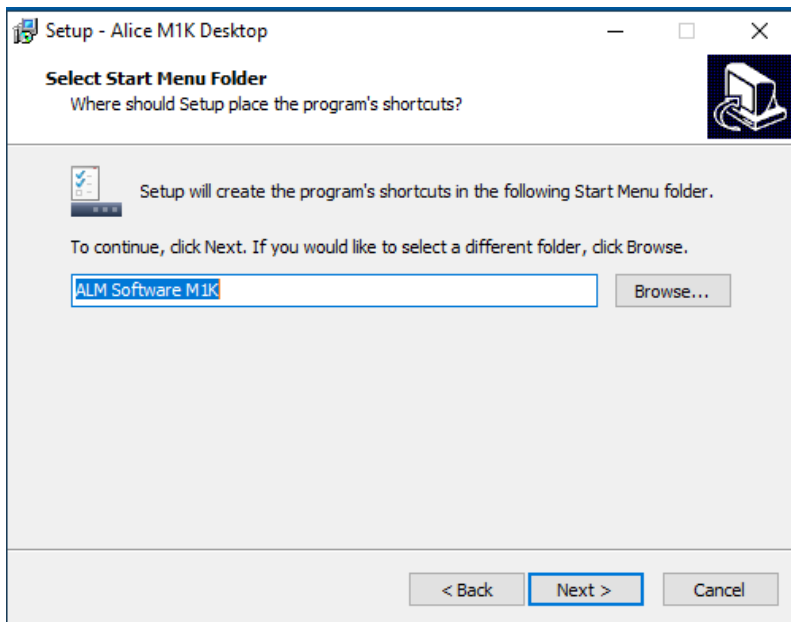
From this link download the latest version of the Windows executable installer, alice-desktop-1.3-setup.exe, for ALICE 1.3 for the ALM1000:

<https://github.com/analogdevicesinc/alice/releases>

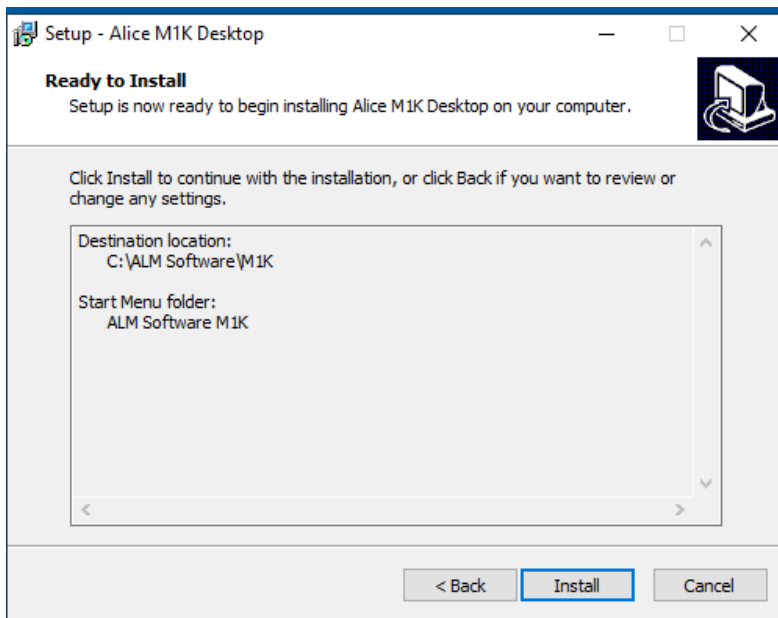
Next we will run the ALICE 1.3 Windows executable installer. Run the alice-desktop-1.3-setup.exe program you just down loaded. The first dialog to pop up asks you to select where you want to install the software. The default location is C:\ALM Software\M1K. This is the best choice because the software writes certain files to the location where it runs so it needs to be somewhere that is not write protected. Click on Next.



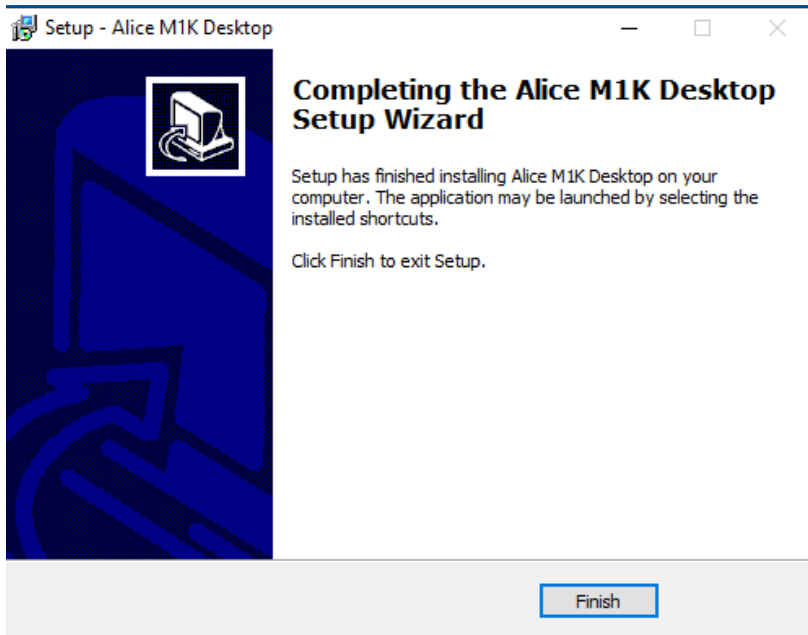
The next pop-up asks you to select the Start Menu Folder. The default location is fine. Click on Next.



The next pop-up just asks you to confirm that you want to install the software. Click on Next.



When the installation completes this final dialog should appear. Click on Finish.

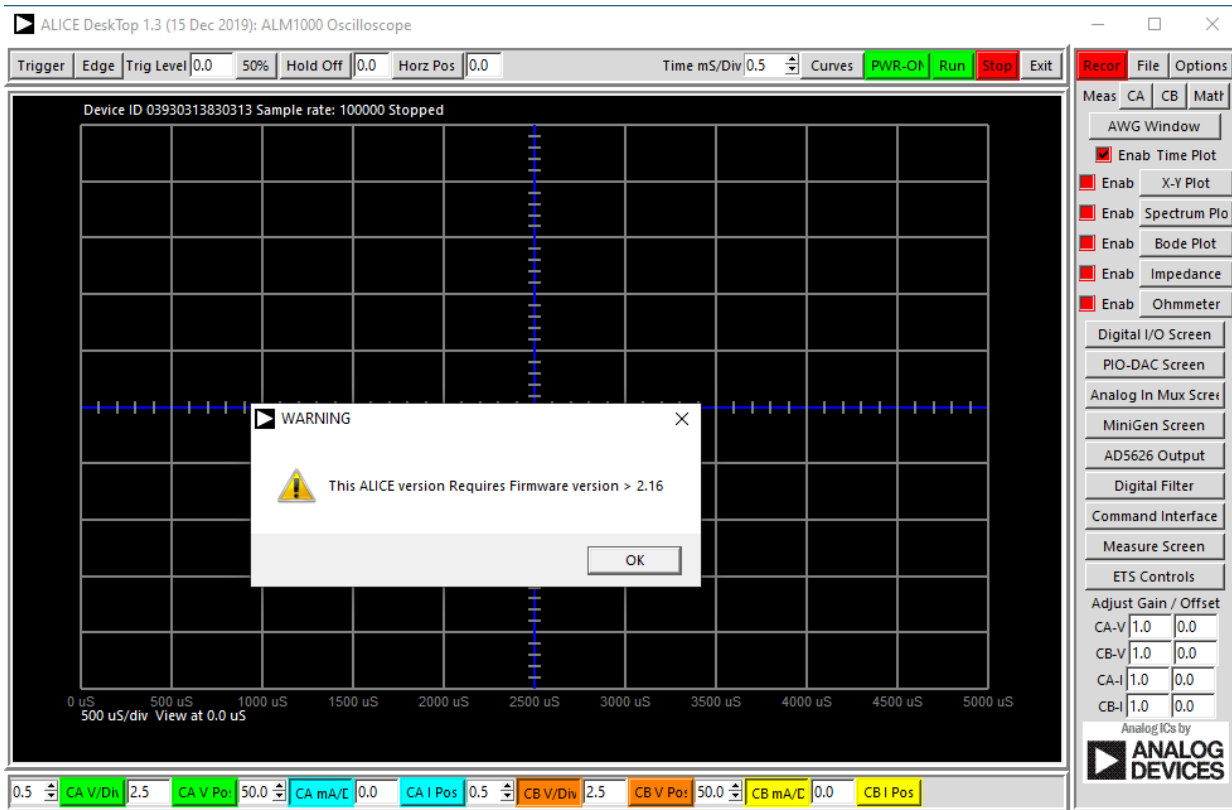


After the software is installed a number of desktop icons should appear. You should now be able to plug-in your ADALM1000 to a USB port. Windows should recognize the new hardware and find the appropriate driver.

You are now ready to run ALICE 1.3. Start ALICE by double clicking on the desktop Icon.

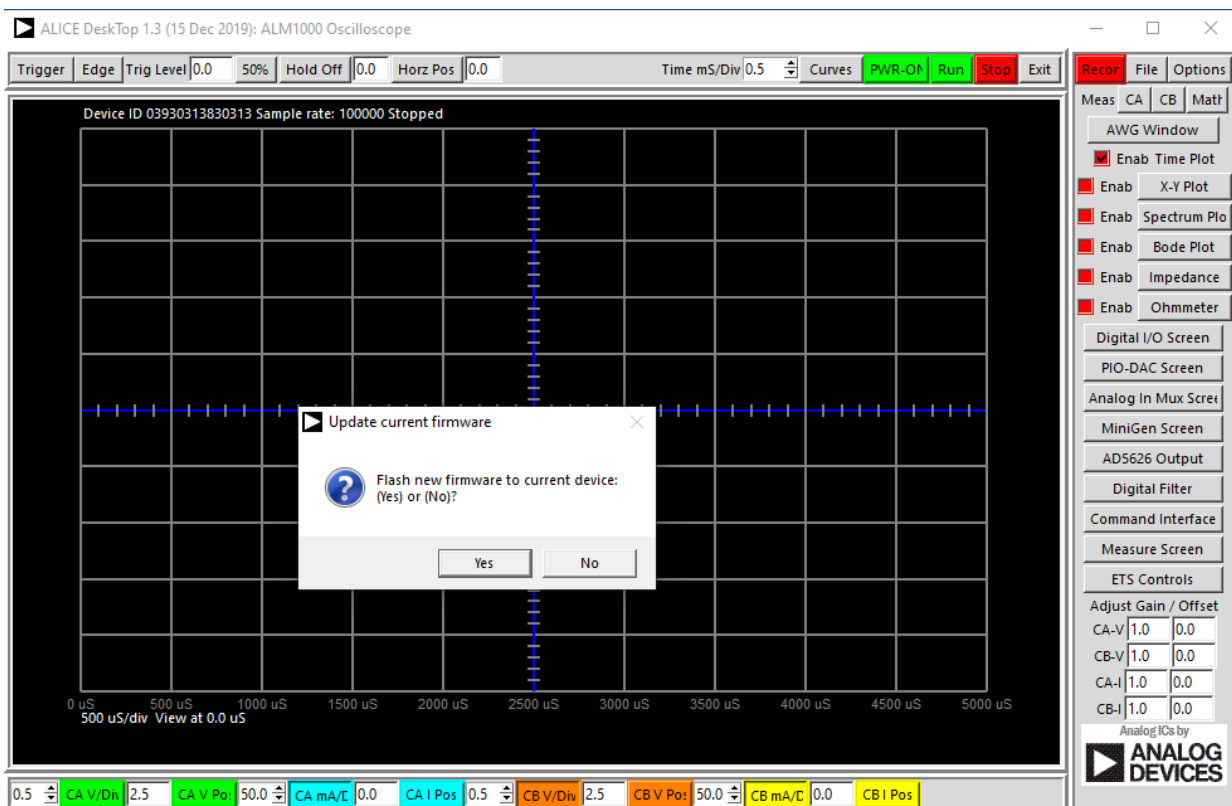


Most likely your ADALM1000 has firmware version 2.16 installed from the factory (unless you used Pixelpulse2 to update the firmware already). ALICE will run with this version of the firmware but a couple of advanced capabilities of the hardware will not be available. Starting ALICE 1.3 with 2.16 firmware will give you this screen at start-up:

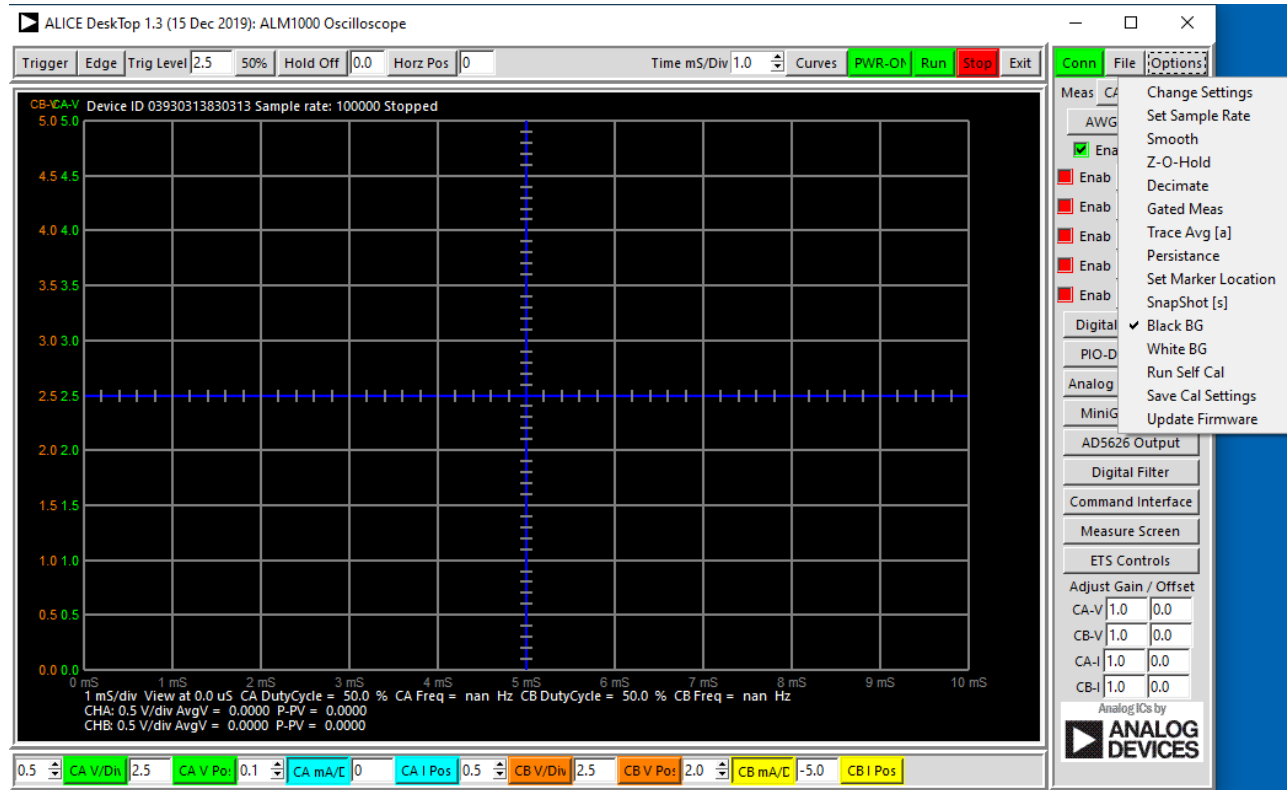


You can press OK to continue. This will happen each time ALICE starts until the new version 2.17 or higher of the firmware is flashed to the hardware. ALICE will then ask if you want to update the current firmware. Again you can skip this by saying No to use as is. This will happen each time ALICE starts until newer firmware is loaded. This firmware checking can be set to ignore by changing this line in the `alice_init.ini` file:

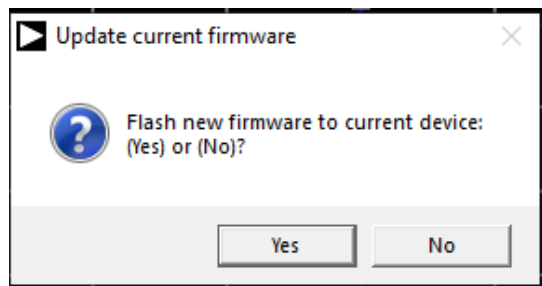
`global IgnoreFirmwareCheck; IgnoreFirmwareCheck = 0 # change 0 to 1 to ignore firmware rev level.`



To update your board to the newest firmware click on the Options drop down menu. At the bottom of the list of options click on the Update Firmware button.

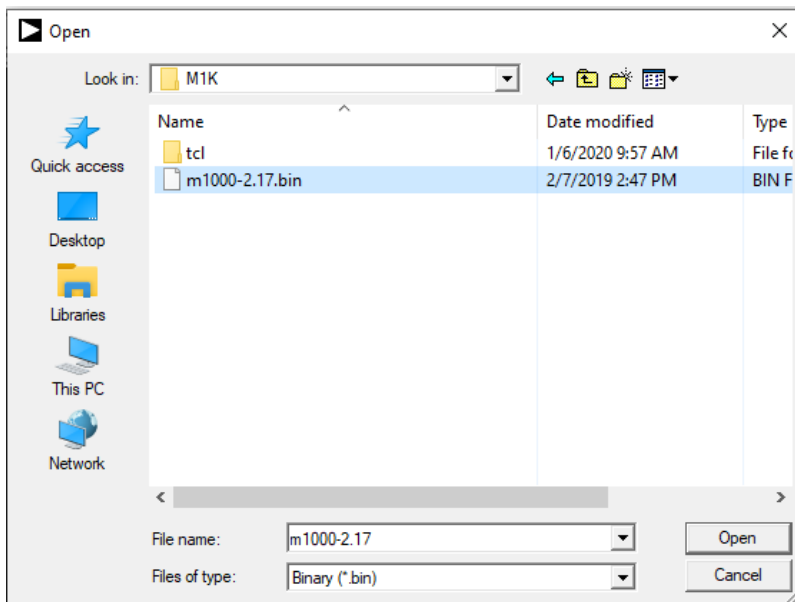


The following pop up dialog will appear:

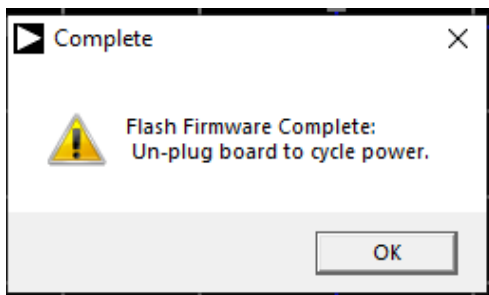


Click on yes:

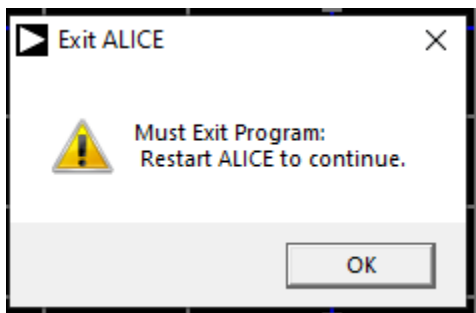
A file selection dialog will appear. You may need to navigate to where the software was installed C:\ALM Software\M1K. Select the m1000-2.17.bin file and click on Open.



The program will pause for a few seconds while the board is being flashed. When it finishes this pop-up should appear:



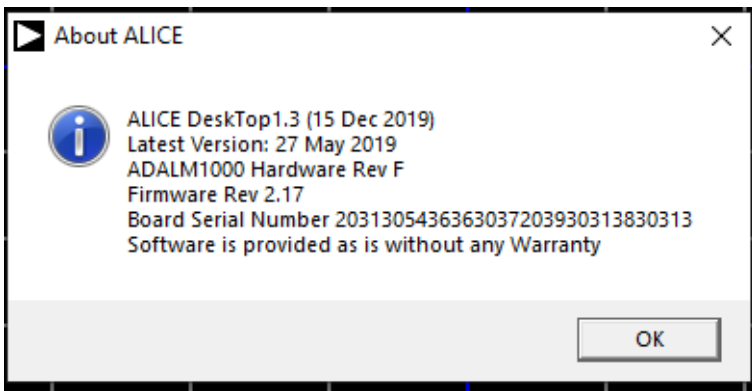
Click on OK. You now need to unplug the board from the USB port to cycle the power. You also need to exit (close) ALICE.



Click on OK and ALICE will close down.

Plug the ADALM1000 back into the USB port.

Re Start ALICE by double clicking on the desktop Icon. ALICE should start normally now. You can check the current state of the board firmware by clicking on the About button under the File drop down menu.



If for some reason the flashing of the firmware fails to happen properly you can try again by clicking on the Update Firmware button again. If all else fails you will either need to install Pixelpulse2 and flash the firmware with that program or go back and fully install the libsmu library that includes the smu command line utility (selecting the Add application directory to path variable option).

Using the Windows command prompt screen navigate to the directory where ALICE was installed C:\ALM Software\M1K and type smu. If the library was properly installed this should appear:

```
Command Prompt
C:\ALM Software\M1K>smu
smu: utility for managing M1K devices

-h, --help                print this help message and exit
--version                show libsmu version
-l, --list-devices        list supported devices currently attached to the system
-p, --hotplug-devices     simple session device hotplug testing
-s, --stream-samples      stream samples to stdout from a single attached device
-d, --display-calibration display calibration data from all attached devices
-r, --reset-calibration   reset calibration data to the defaults on all attached devices
-w, --write-calibration <cal file> write calibration data to a single attached device
-f, --flash <firmware image> flash firmware image to a single attached device

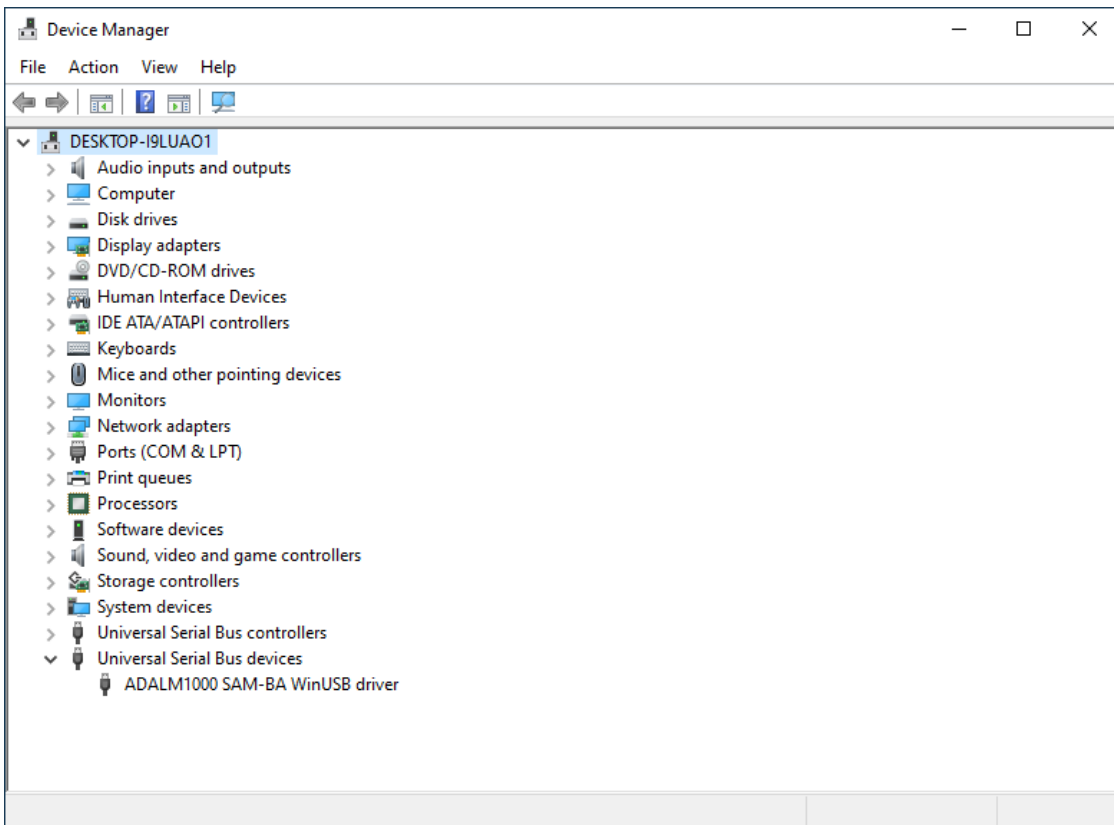
C:\ALM Software\M1K>smu -f m1000-2.17.bin
smu: successfully updated firmware
Please unplug and replug the device(s) to finish the process.

C:\ALM Software\M1K>
```

Using the -f command line option for smu should flash the new firmware onto the board in all cases. You may need to cycle the power to the board before it can be recognized and in be in the right mode to be flashed.

Further Trouble Shooting:

If for some reason things go terribly wrong the LED on the ALM1000 board does not light up when plugged into the USB port it is likely still stuck in the Bootloader mode. Open the Device Manager in Windows and look under Universal Serial Bus devices as below. There should be a device listed as ADALM1000 SAM-BA WinUSB driver.



If there, then either Pixelpulse2 or the smu command line utility should be able to flash the new firmware binary. If you do not have the ADALM1000 SAM-BA WinUSB driver device in the list then you probably have the wrong or a corrupted device driver installed. Go back and try to reinstall only the drivers from:

<https://github.com/analogdevicesinc/libsmu/releases/download/v1.0.2/libsmu-1.0.2-setup-x64.exe>

or the Pixelpulse2 installer.

(Links good as of Spring 2020, always best to look for latest releases at:

<https://github.com/analogdevicesinc/libsmu/releases> and

<https://github.com/analogdevicesinc/alice/releases>)