Lab1: Installation of Keil & Driver

OBJECTIVES

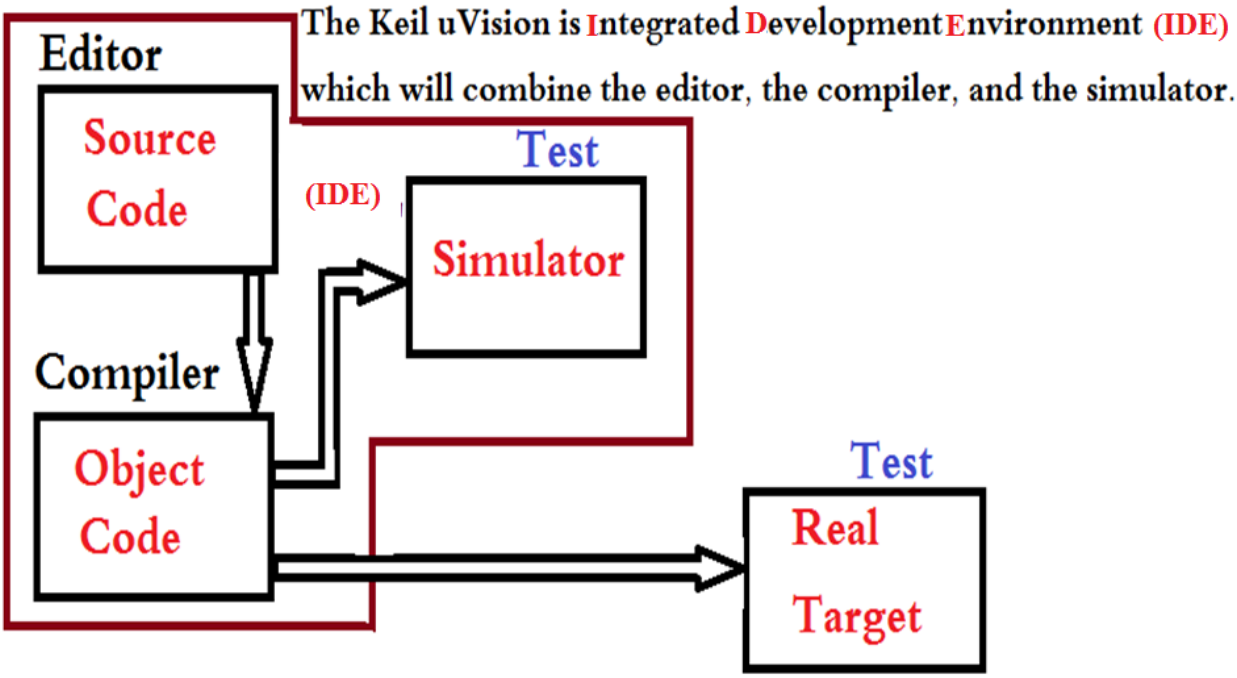
- Part (a) The first step is to install the Keil µVision Integrated Development Environment (IDE) for the ARM. This IDE includes the editor, compiler, simulator, and debugger. The MDK474.exe (590MB) Edition does not require a serial number or license key.

- Part (b) The second step is install Test EXecute and Simulate (TExaS) (60MB) . TExaS is a set of enhancements to Keil that will serve as your helper. This installation will also setup the example projects and starter files for labs.
- Part (c) The third step will be to install the hardware device drivers for your LaunchPad. You will need the LaunchPad hardware to perform this step. you can skip this step and perform the labs in simulation.(Windows 7,8,10).

MATERIALS/EQUIPMENT NEEDED

- Keil µVision Integrated Development Environment (IDE) for the ARM.

INTRODUCTION

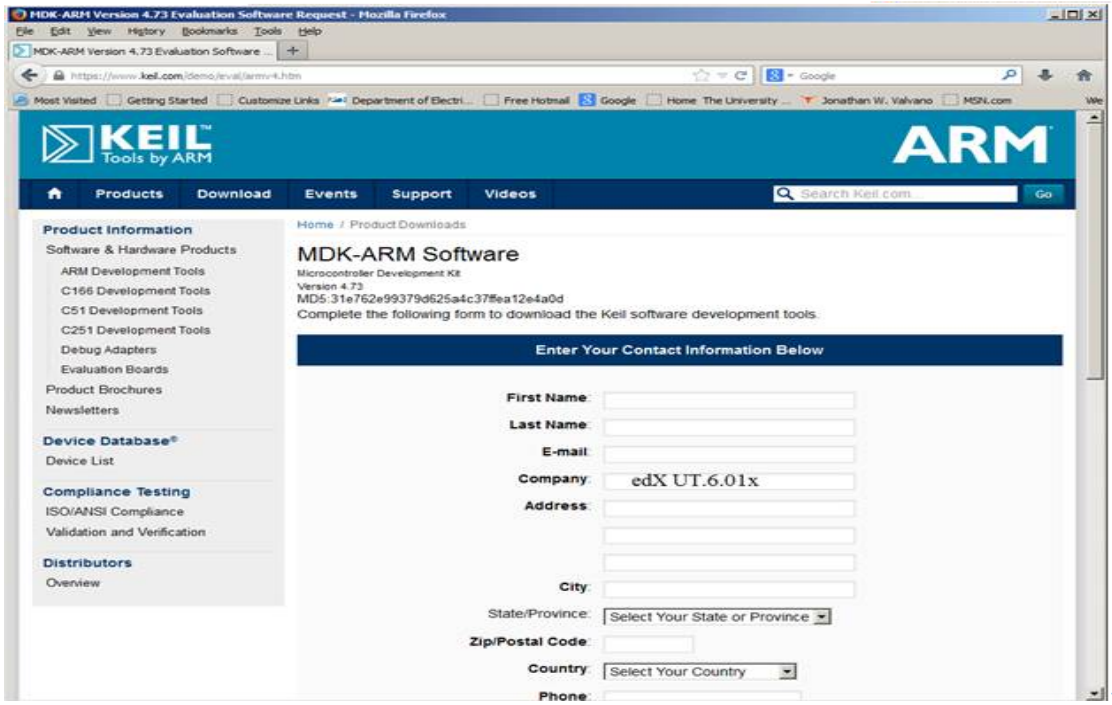


PROCEDURE

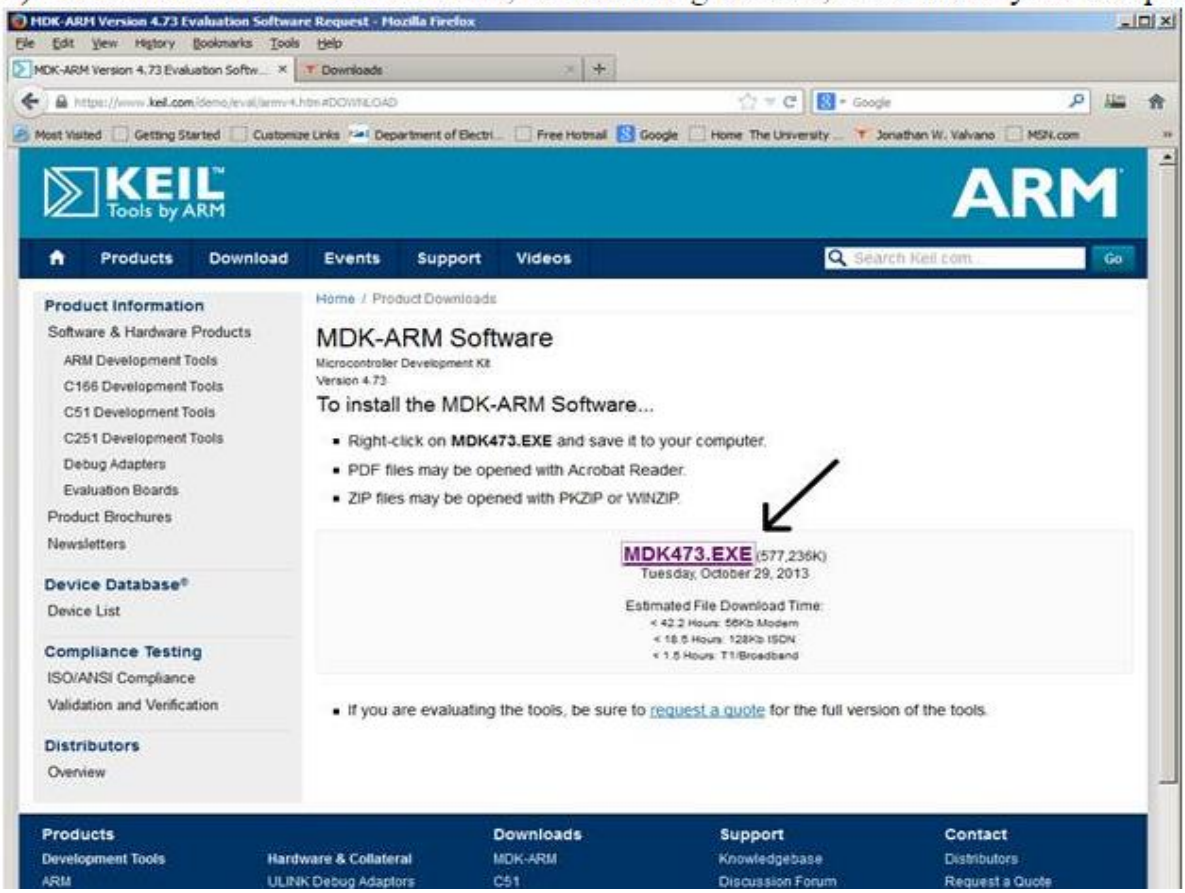
Step 1) How to install Keil µVision for the ARM, MDK474.exe (590MB) Edition

- Go to **https://www.keil.com/demo/eval/armv4.htm**. Enter your contact information with valid address, phone and email. Set your Faculty to your Dept..
- Set your **devices** to the **TM4C123GH6PM**.
- Right-click on **MDK474.exe** and download this 590M file to your computer.
- Execute the **MDK474.exe** file, installing the application some place easy to find, like **C:\Keil** or **D:\Keil**.
- After you have run the **MDK474.exe** installer, you will not need this file. However, you can use this file to install Keil on additional computers.

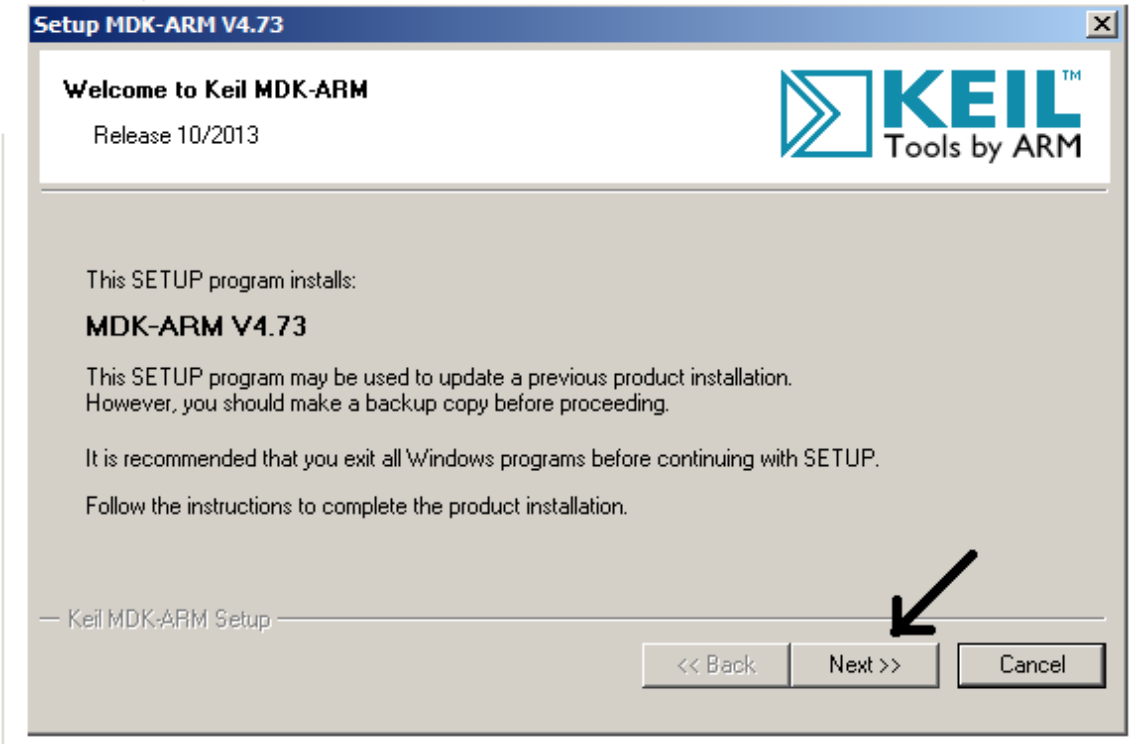
1) Go to https://www.keil.com/demo/eval/armv4.htm . Enter your contact information with valid address, phone and email. Set your Company to your school, your company, or this class **edX UT.6.02x**. Set your devices to **TM4C123GH6PM**. Fill in all fields of this form. and you can select or not select whether you want email from ARM.



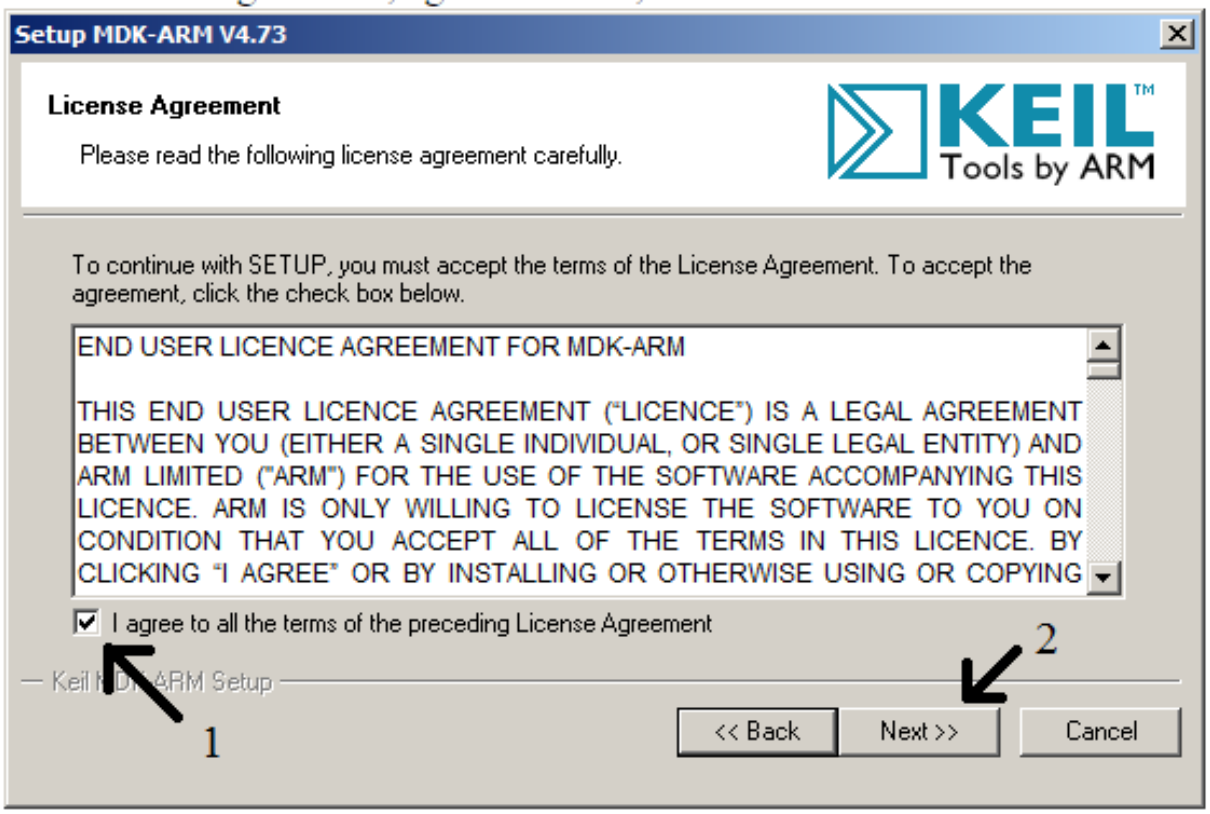
2) Click on the **MDK474.EXE** link, downloading the 590,659K file to your computer.



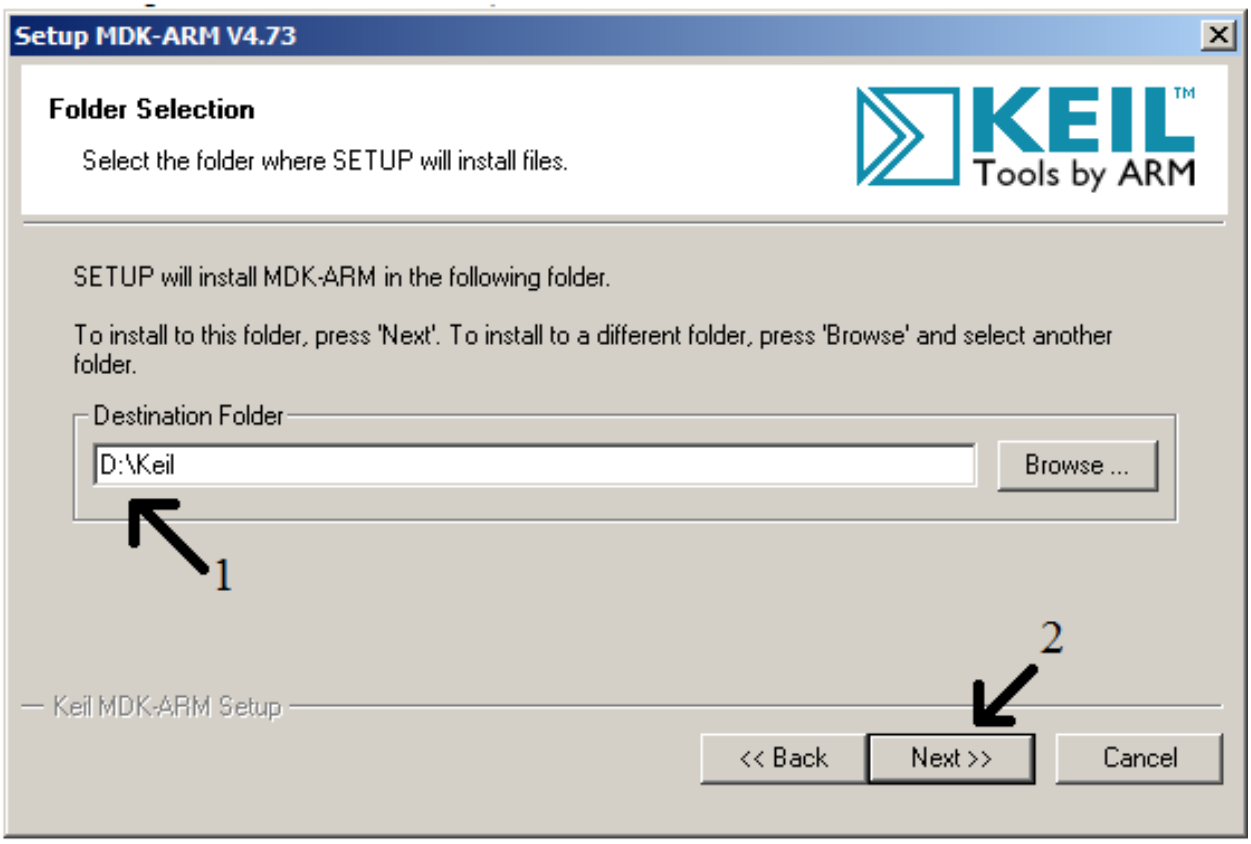
3) Execute the **mdk474.exe** file, installing the application some place easy to find, like C:\Keil or D:\Keil. You will need to find the **Keil** directory because the TExaS example files will be loaded into this same directory. This is the first screen:



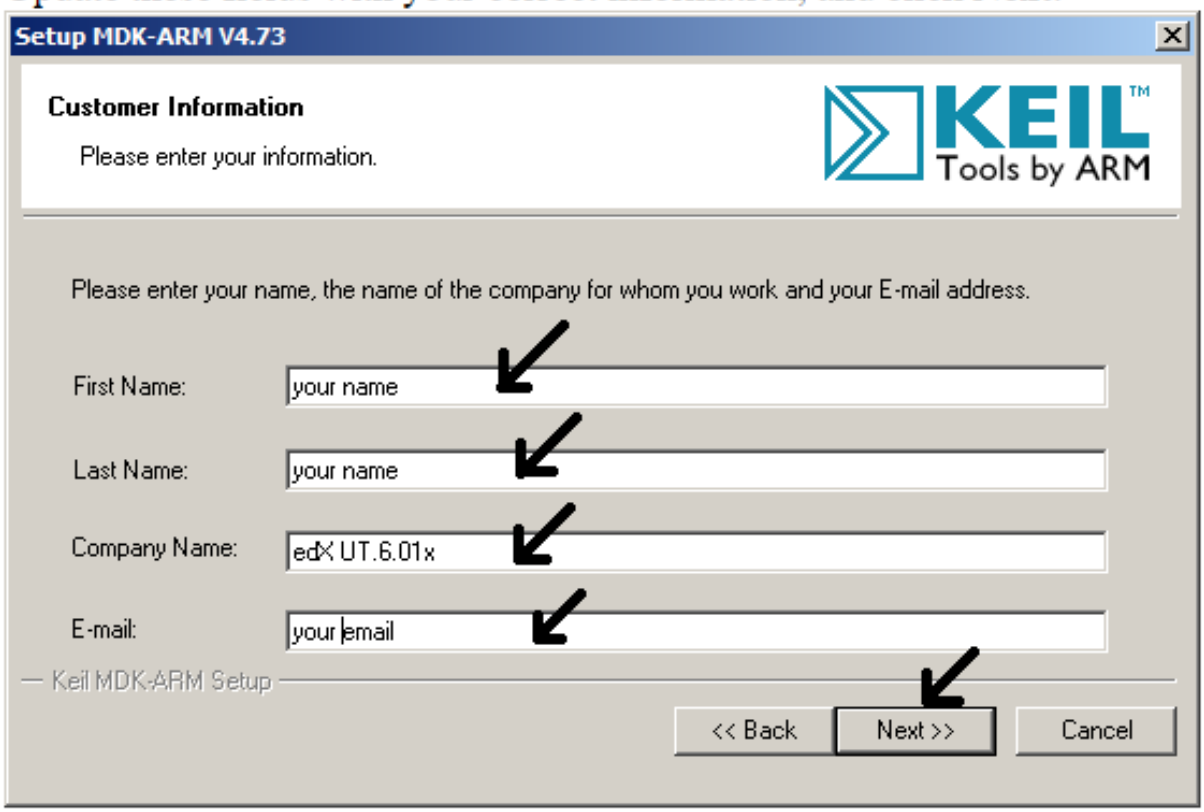
Read license agreement, agree to terms, and click **Next**.



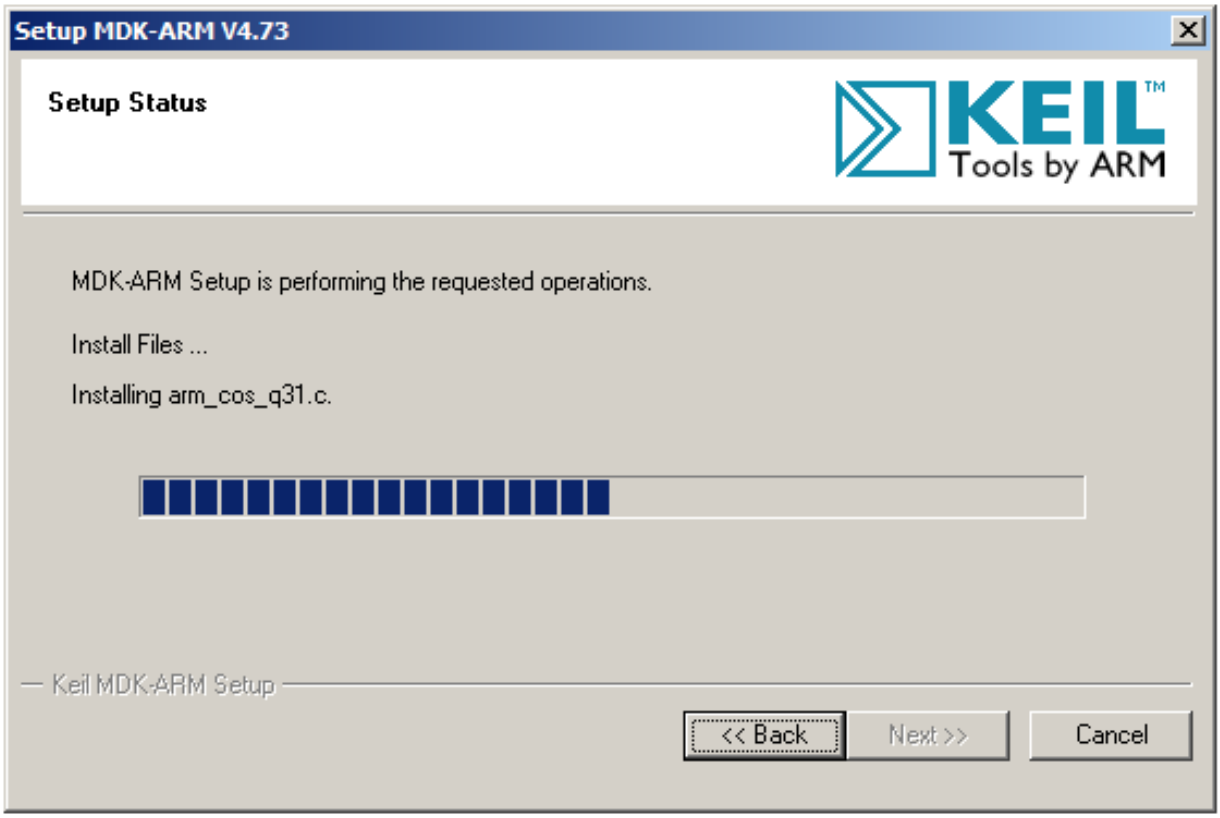
Select a place to install Keil (I choose D: because there was more room on the computer on drive D) , and click **Next**.



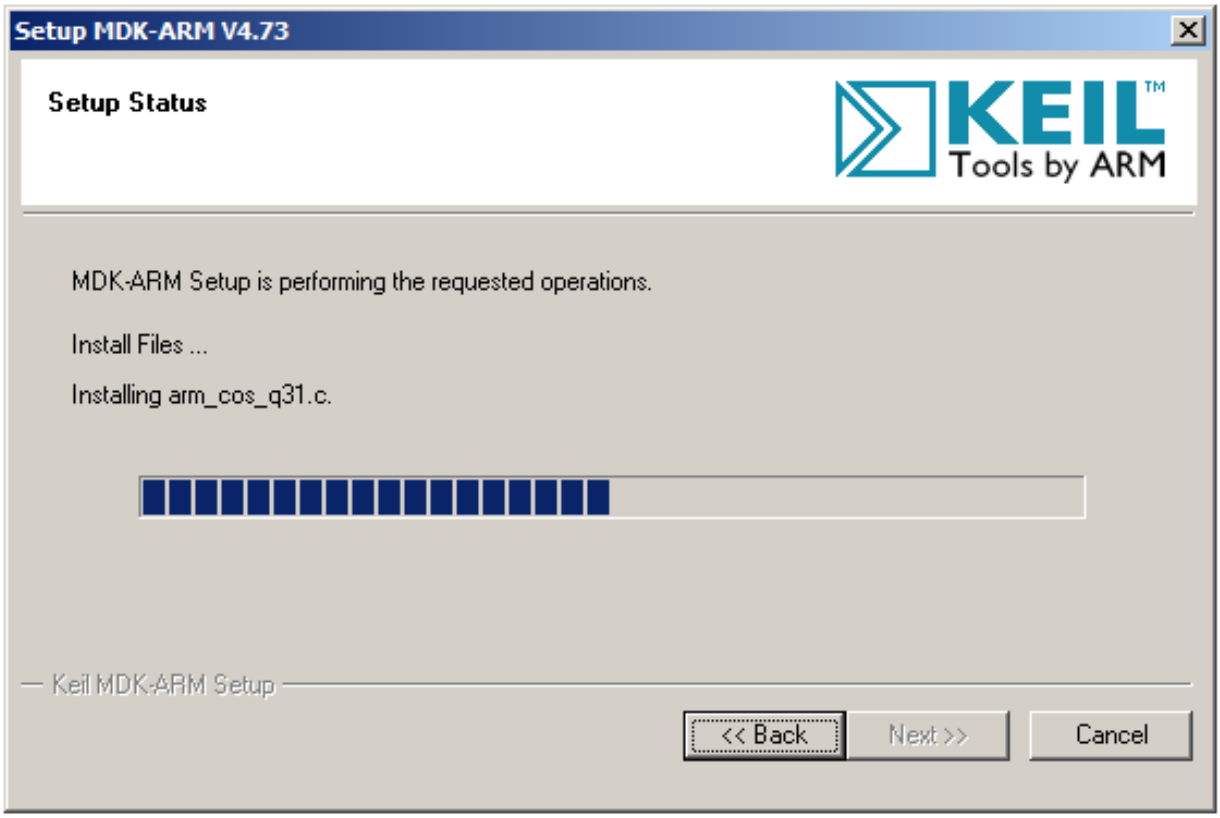
Update these fields with your correct information, and click **Next**.



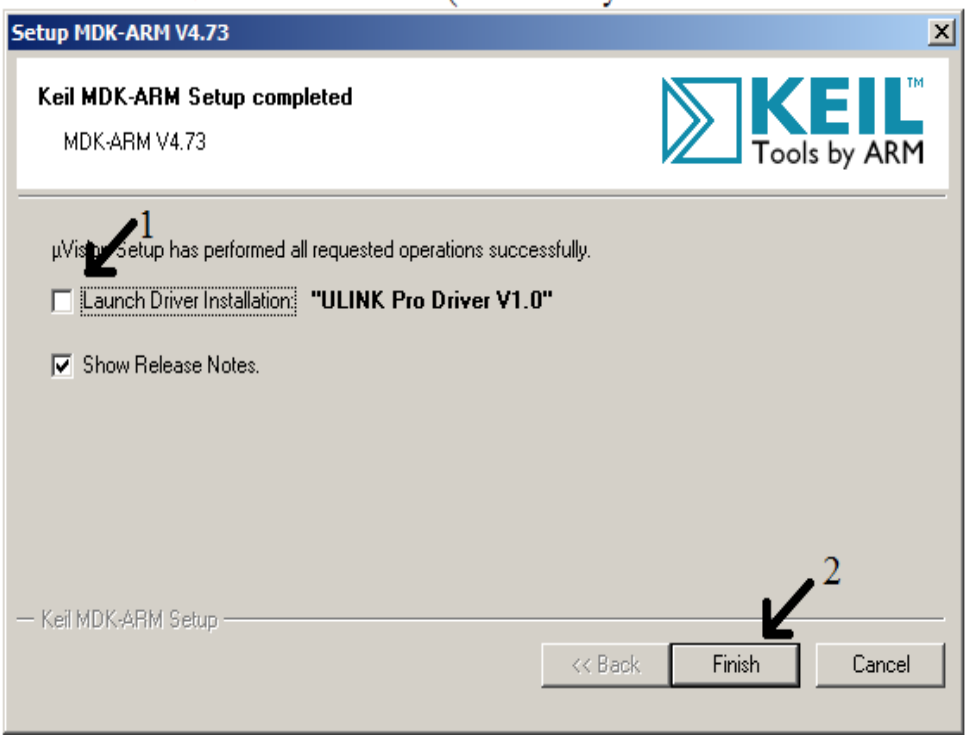
Wait while it installs



Wait while it installs



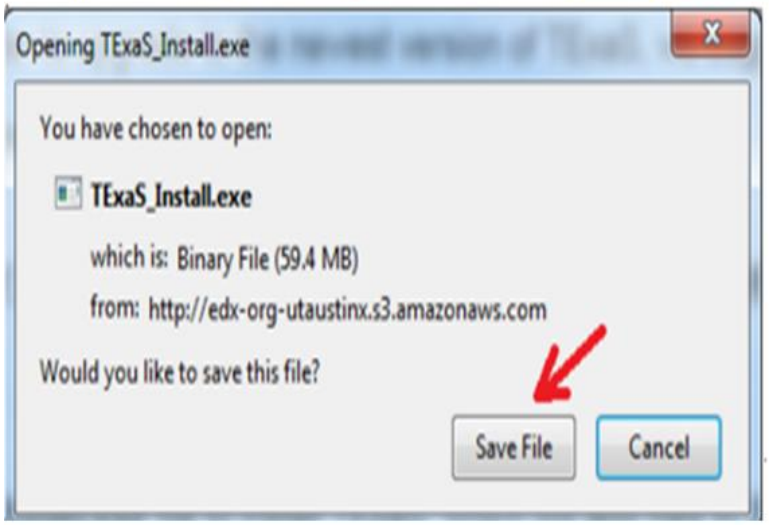
Deselect ULINK Pro Driver V1.0 (the drivers you need will be installed later), and click **Finish**.



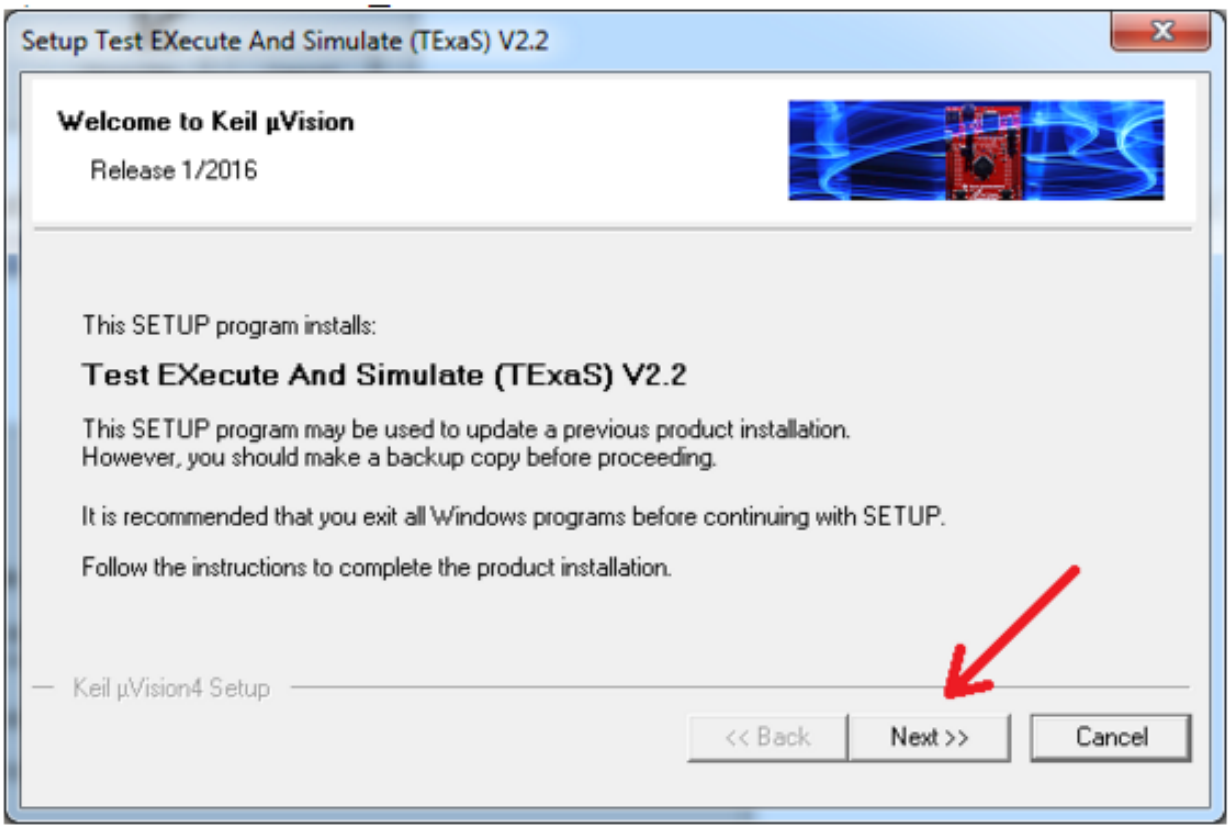
Step 2) TExaS Labs

- **First install Keil before installing TExaS.**
- **Lab starter projects in the Keil\Labware folder, and the example projects in the Keil\TExaSware folder.**
- **1) Download TExaS for Labs 2, 4-16 saving the 59.4M file on your computer.**
- **2) Execute the TExaS_Install.exe file to install TExaS, which will add files to the Keil directory.**

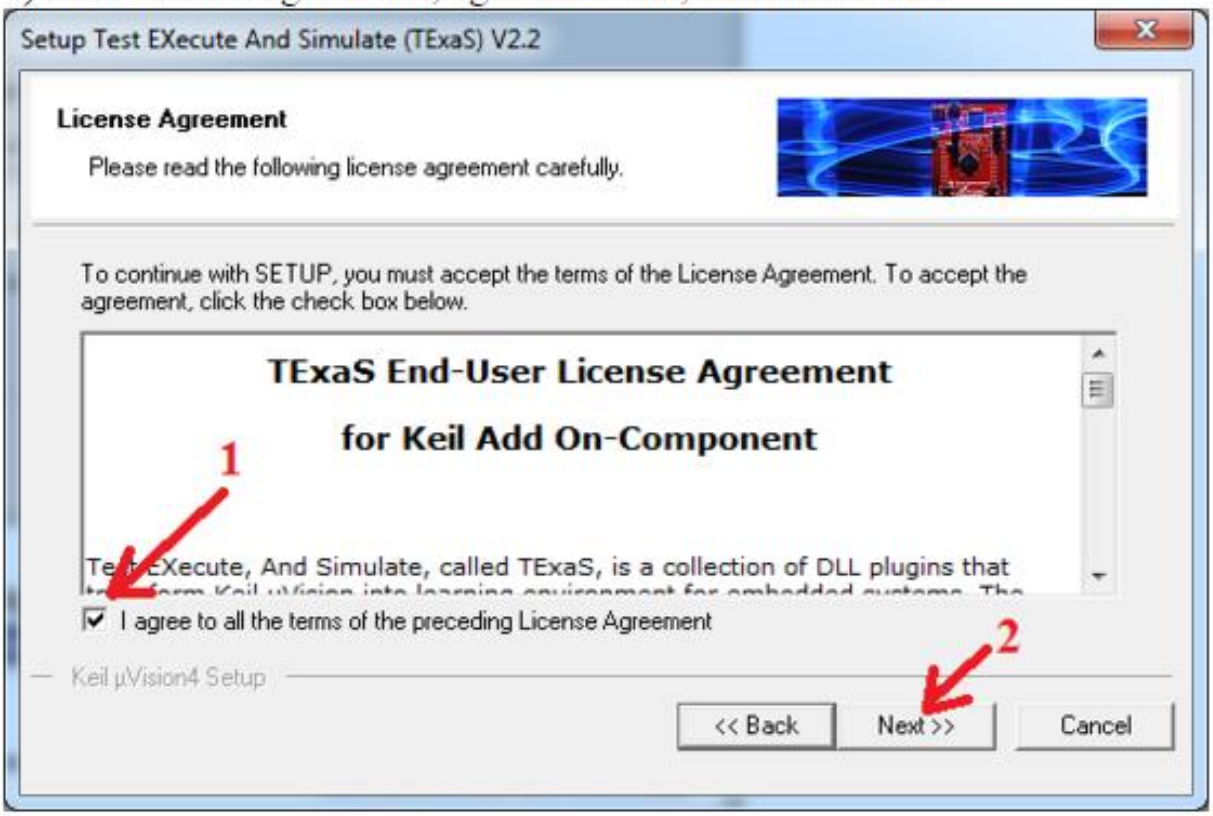
1) Download TExaS for Labs 2. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. and 16 saving the a large file on your computer. Click on TExaS_Install.exe and execute **Save File**.



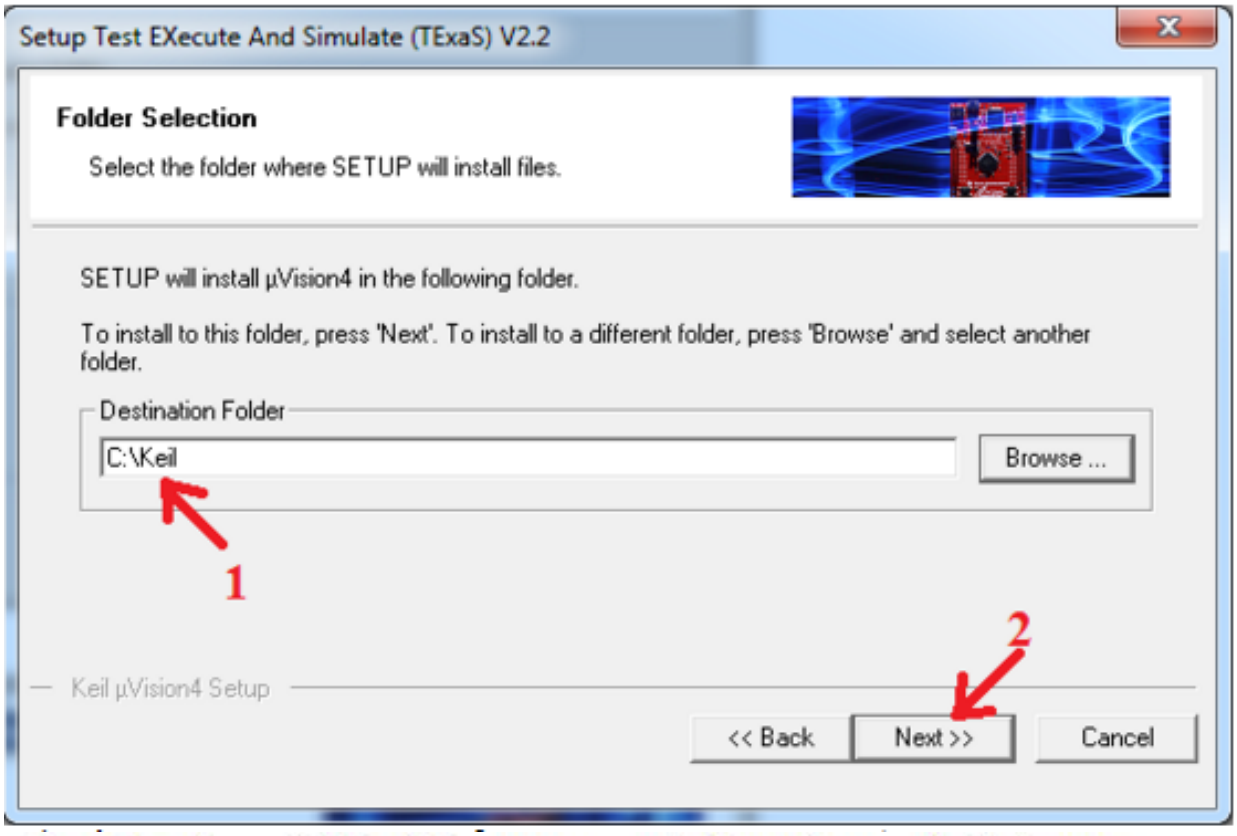
2) Execute the **TExaS Install.exe** file to install TExaS, which will add files to the Keil directory. Click **Next**.



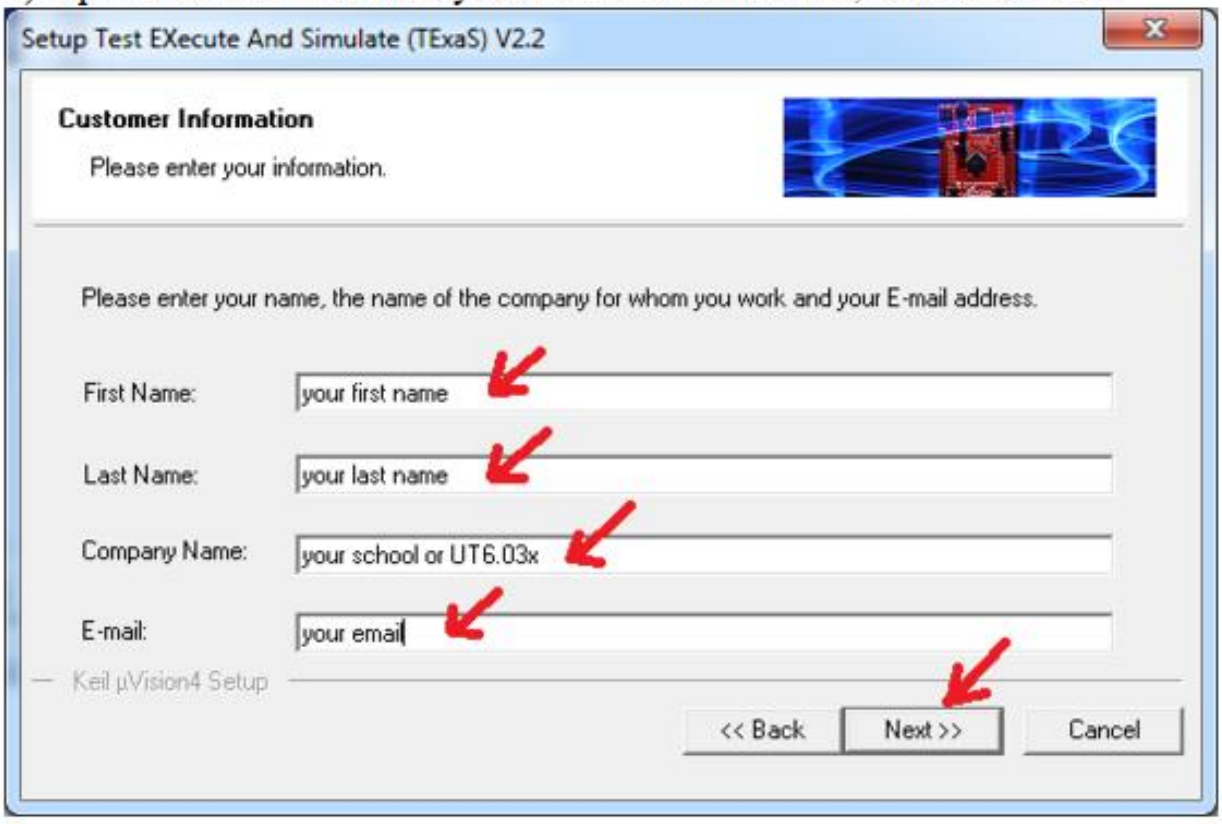
3) Read license agreement, agree to terms, and click Next.



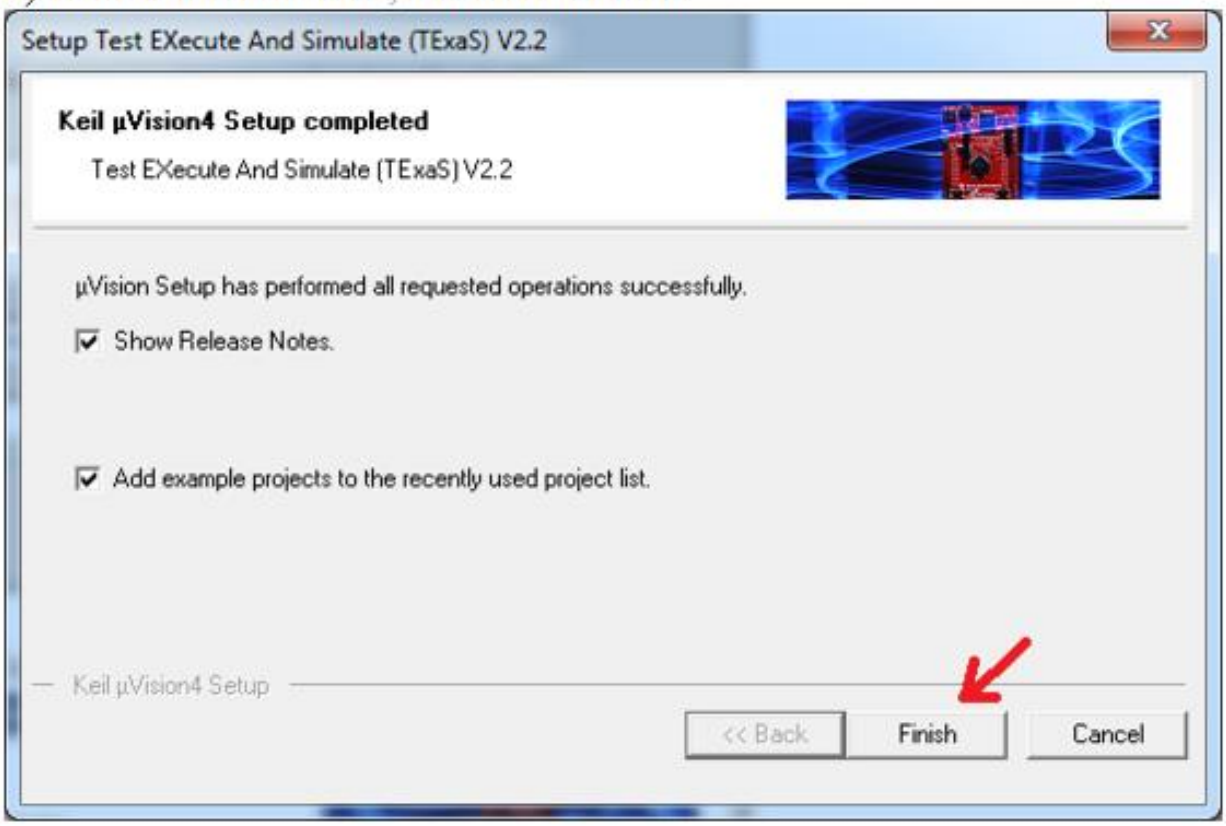
4) Install TExaS into the same directory as Keil (this is important, you cannot install it somewhere else), and click **Next**.



5) Update these fields with your correct information, and click **Next**.



6) Wait while it installs, and click Finish.



Step 3) Windows drivers for the LaunchPad board (wait to finish steps 1 and 2)

Once Keil and TExaS are installed you will need to install the windows drivers for the Texas Instruments microcontroller board. The process is the same for both the LM4F120 and the TM4C123 LaunchPads.

Two alternative methods to installing drivers:

Method 1 uses drivers that were saved on your HD when you installed TExaS in step 2). These slide shows demonstrate the process to install windows drivers for the LaunchPad board specific for your operating system:

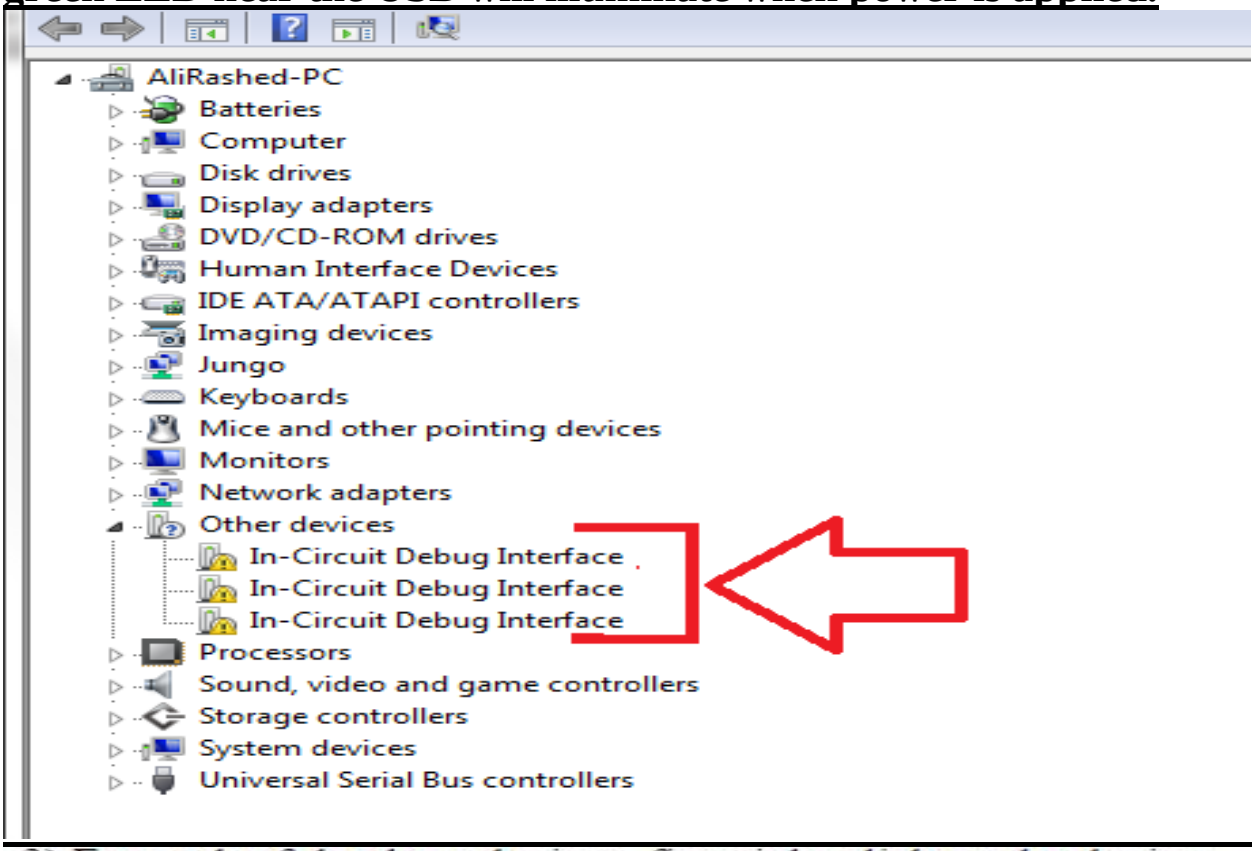
Windows XP, Windows Vista, Windows7 , Windows 8, and Windows 10.

LaunchPad on Windows 7

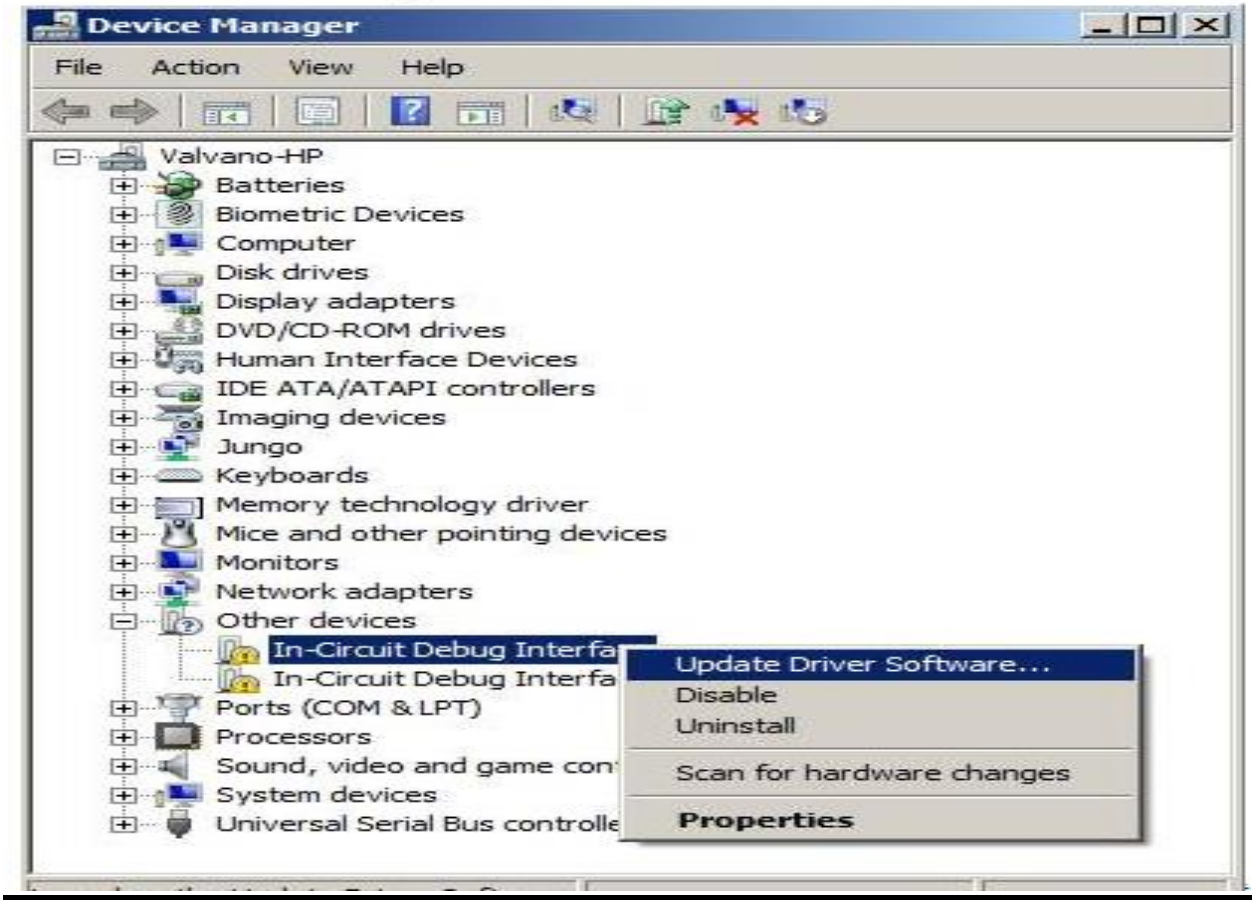
1) **Find the folder named windows_drivers, which includes the drivers.**
2) **If you have installed TExaS then the drivers will be in: C:\Keil\TExaSware\windows_drivers**

Plug in the LaunchPad into a USB port. Pick the USB port you will most likely want to use. Plug the mini-USB into the socket labelled Debug. Make sure the LaunchPad power is on. There is a

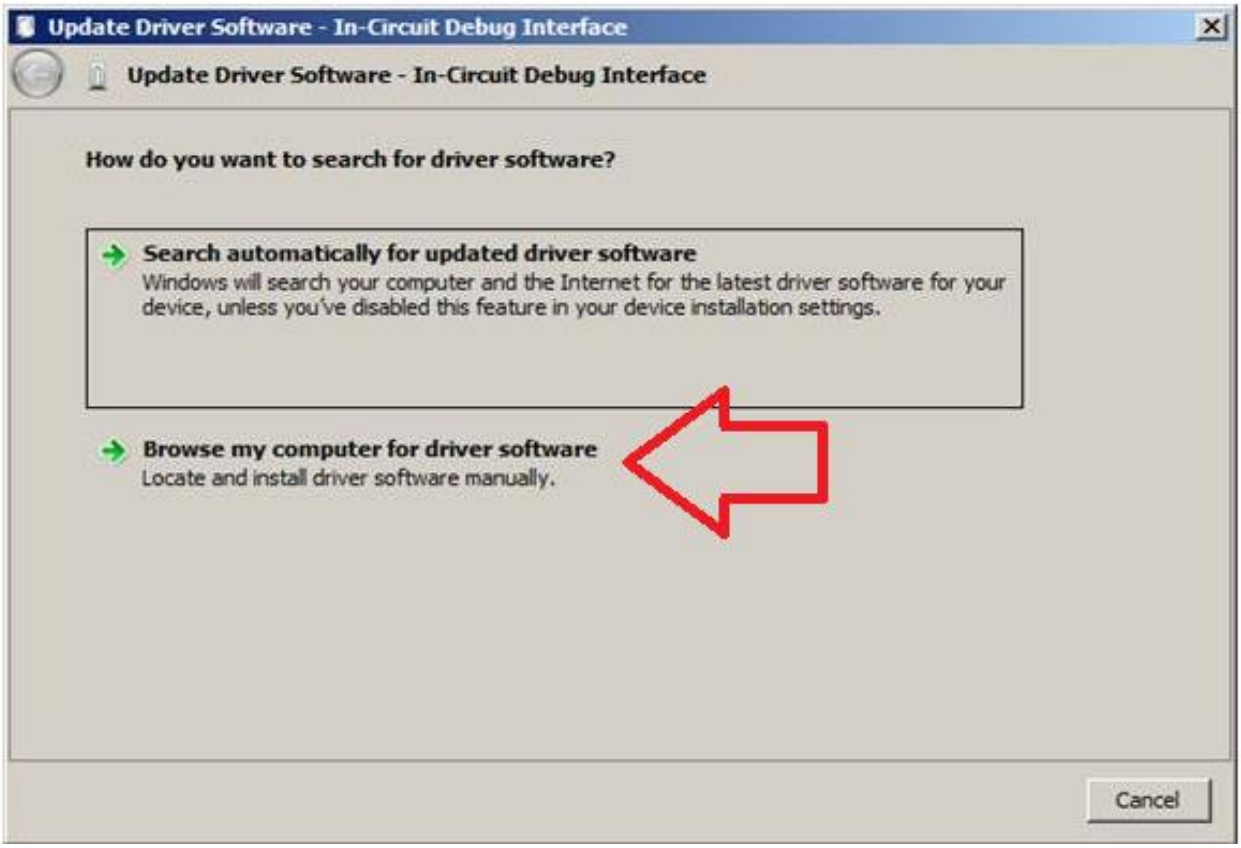
slider switch near the USB that should be in the Debug position. The green LED near the USB will illuminate when power is applied.



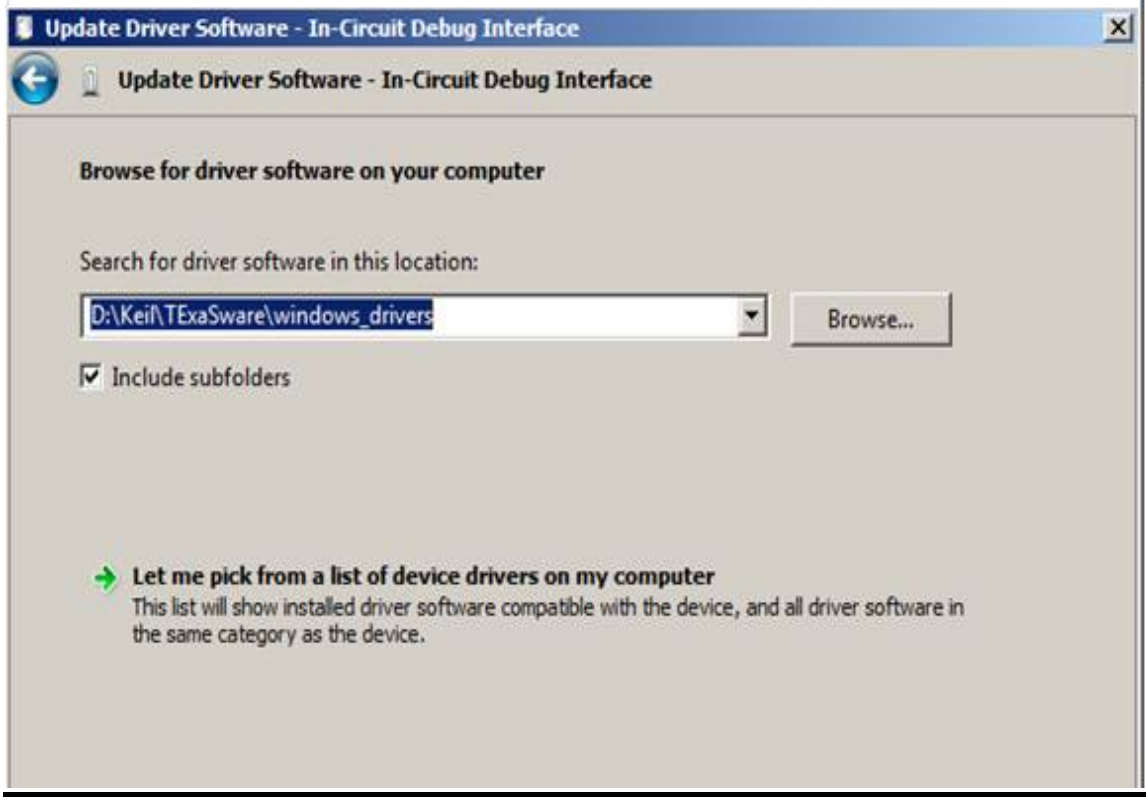
3) For each of the three devices, first right-click on the device and then select **Update Driver Software.**



4) You will be given a choice to "Search automatically..." or to "Browse my computer.. .". Click **Browse my computer for driver software**.

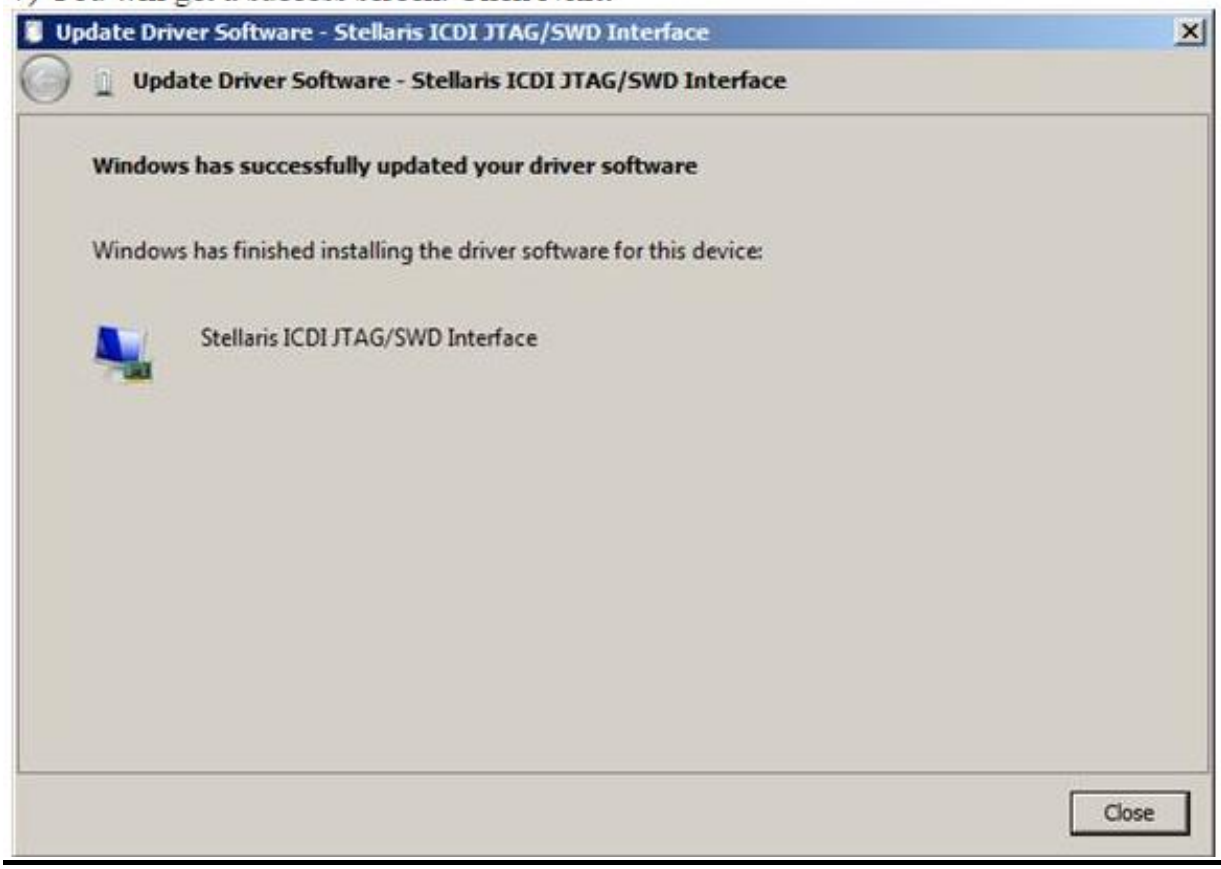


5) Browse your computer and find the location of the windows driver installed with TExaS. On this computer Keil was installed on D:, but on your computer search for Keil then TExaSware and then select the **windows_drivers** folder. Click **Next**.



6) You may get this warning. If so, click **Install this driver anyway**

7) You will get a success screen. Click **Next.**



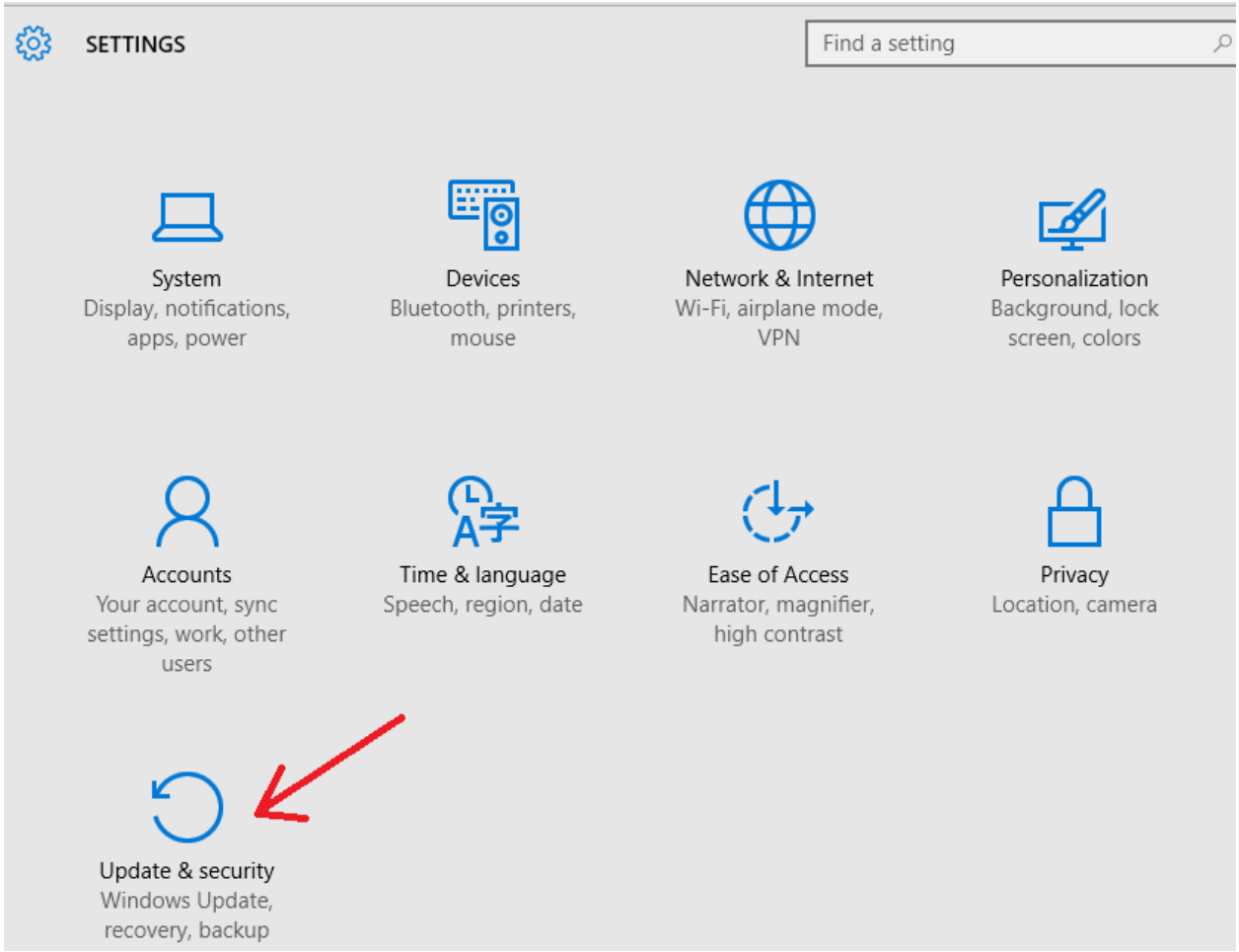
- **Repeat steps 3, 4, 5, 6 and 7 for the other two devices.**
- **After you have repeated the process a total of three times there should be no error flags. I.e., there should be no yellow exclamation points.**
- **However, if you do see one of the three Stellaris devices with a driver error, try right-clicking on the device with error and**

select Update driver software, and try the process again.

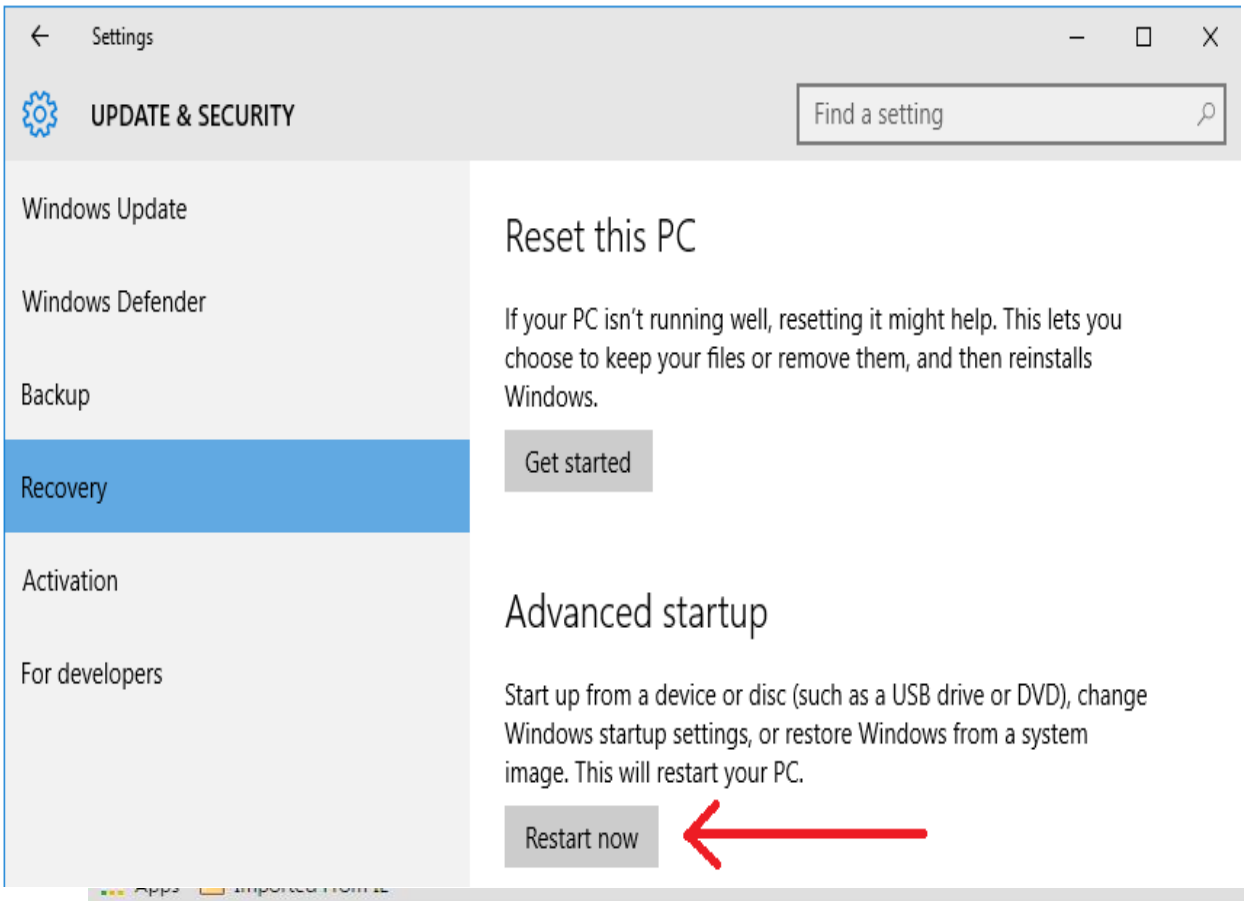
- **Sometimes it doesn't install on the first try, but does install on the second try.**

Windows 10

How to install windows drivers for the LaunchPad on Windows 10. This is the third of three steps. First you install Keil, and then you install TExaS. After these two steps are complete then you follow these directions to install drivers for the LaunchPad. There are a total of three drivers to install, which will be installed separately.

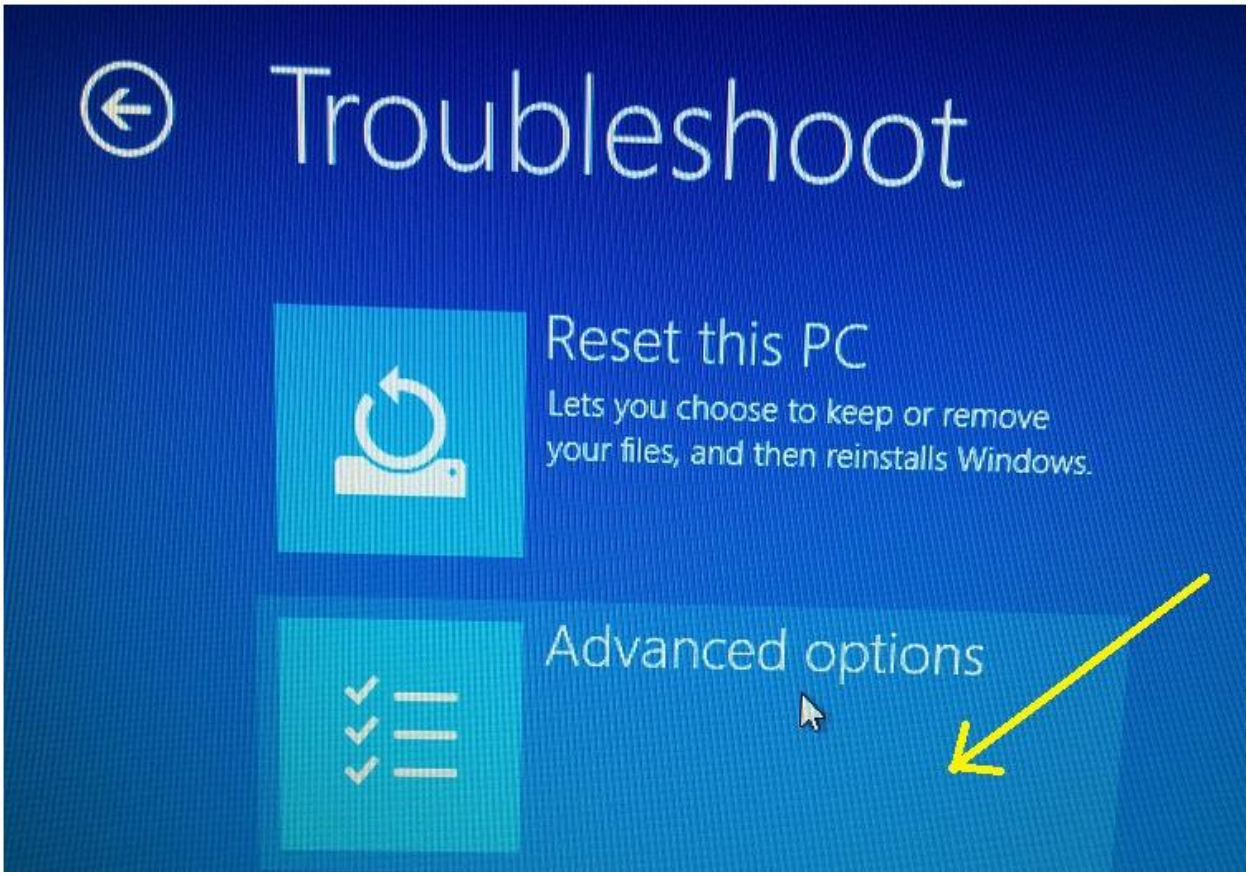


2. Click on **Recovery**, and select **Restart now** under Advanced Startup

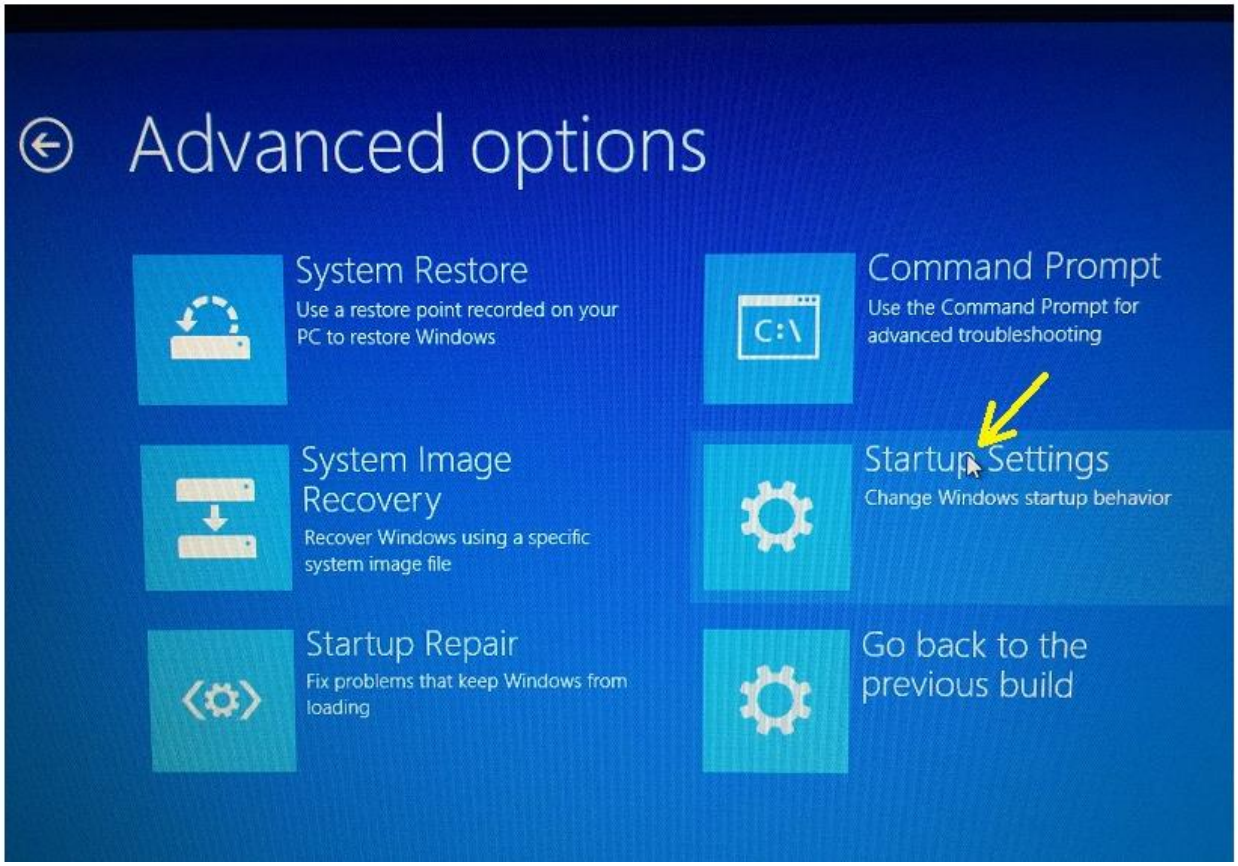


3. The system will restart and might take some minutes to show up the boot menu. Wait for it patiently. After some
...Continue
...Troubleshoot
...Turn off
Click on **Troubleshoot**

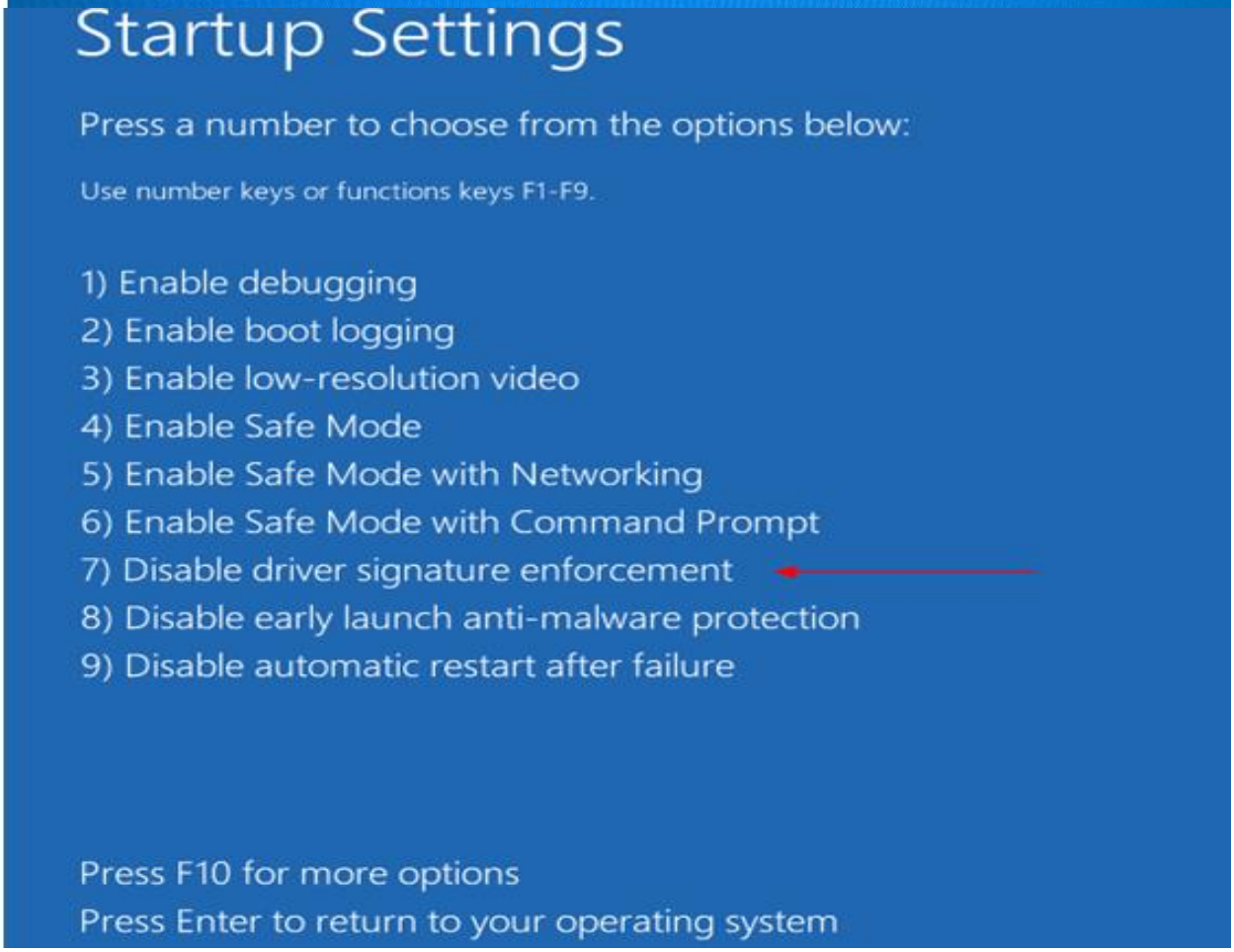
4. Click on **Advanced options**



5. Click on **Startup Settings**



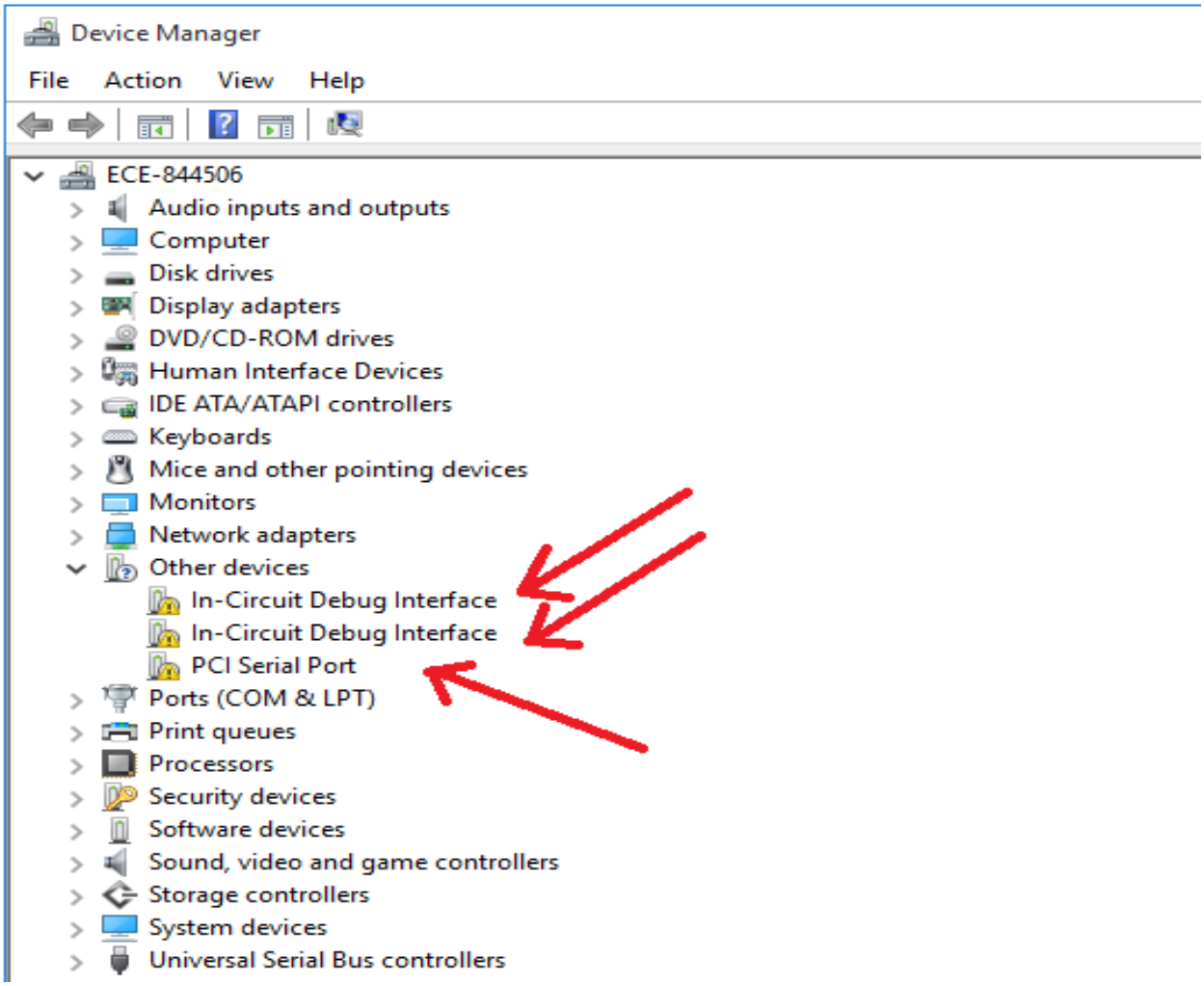
6. Click on **Restart**. Notice **Disable driver signature enforcement** will be an option.



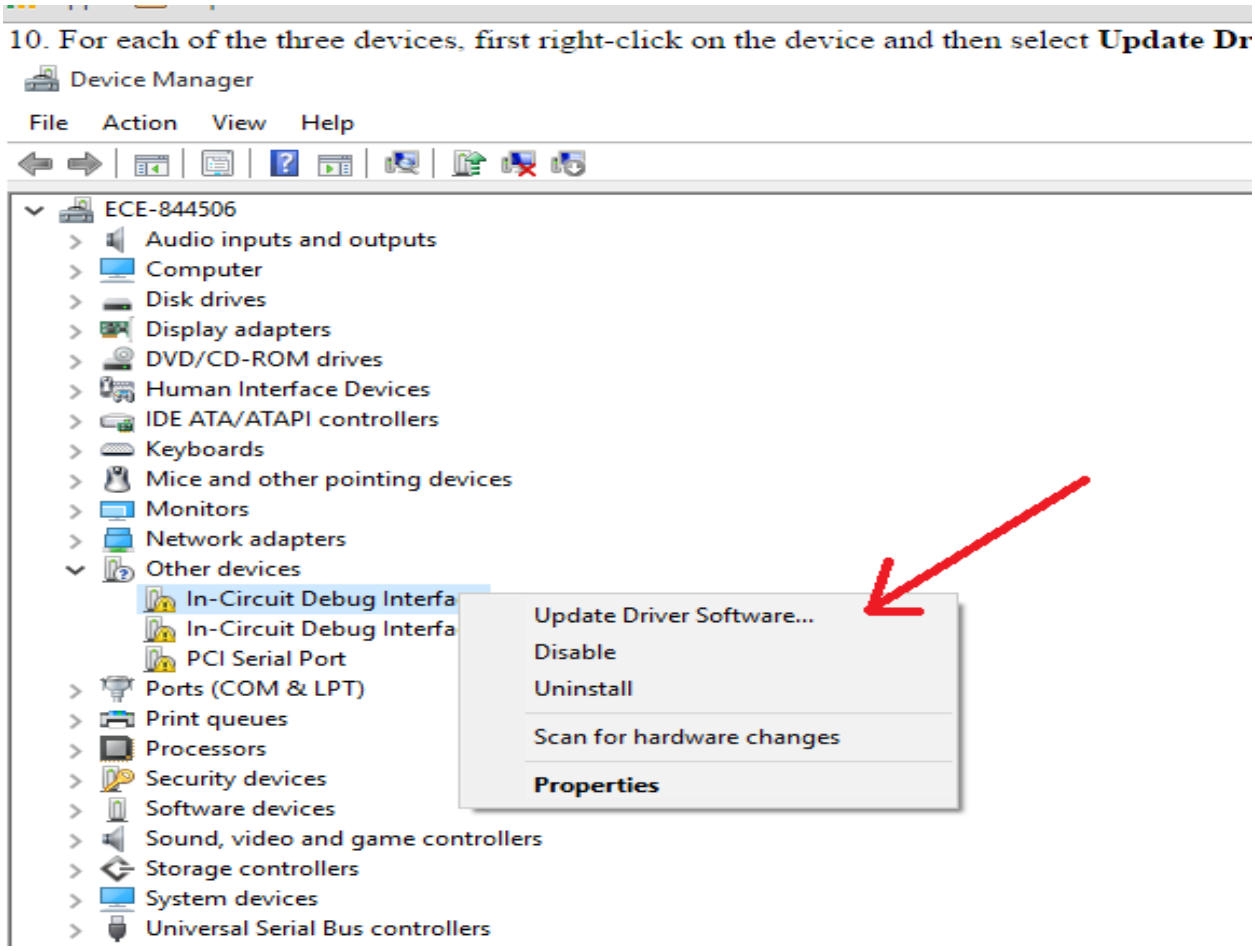
8. Find the folder named **windows_drivers**, which includes the drivers. If you have installed TExaS then the drivers will be in: **../Keil/TExaSware/windows_drivers**

- 9. Plug in the LaunchPad into a USB port. Pick the USB port you will most likely want to

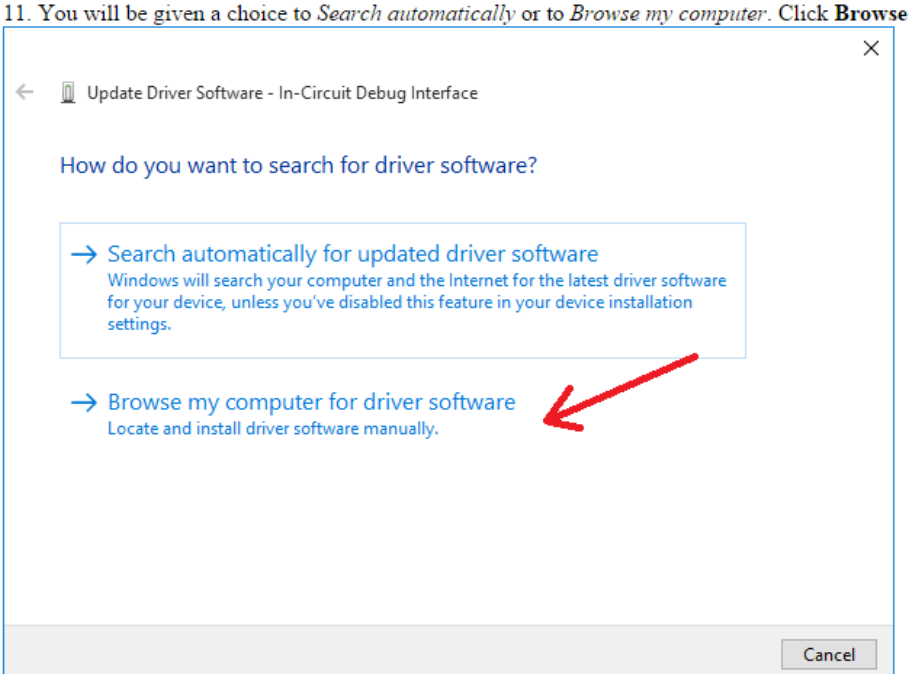
use. Plug the mini-USB into the socket labelled **Debug**. Make sure the LaunchPad power is on. There is a slider switch near the USB that should be in the **Debug** position. The green LED near the USB will illuminate when power is applied. Open the device manager program (click **Start**, and then in the **Search for files and programs** window type **device manager**) and you should see three In-Circuit Debug Interface devices that do not have drivers (yellow exclamation point)

- 

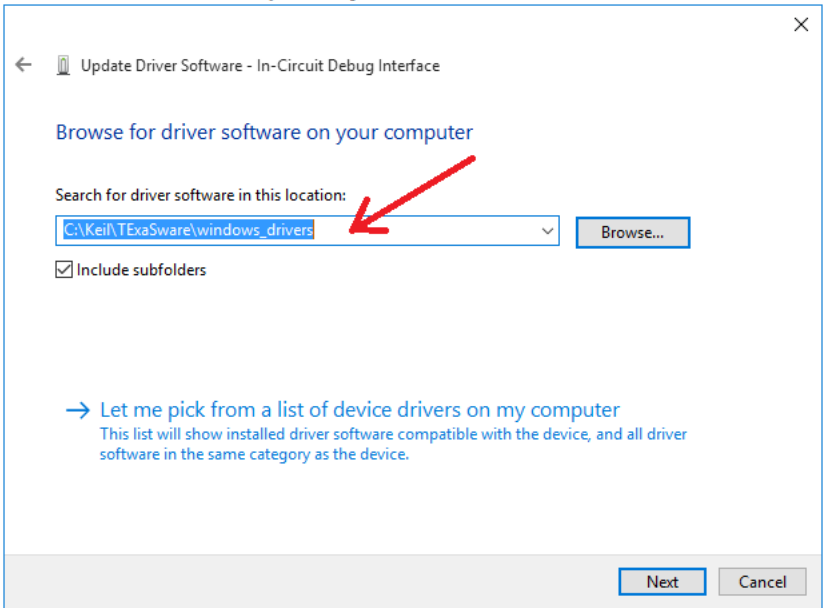
10. For each of the three devices, first right-click on the device and then select **Update Dr**



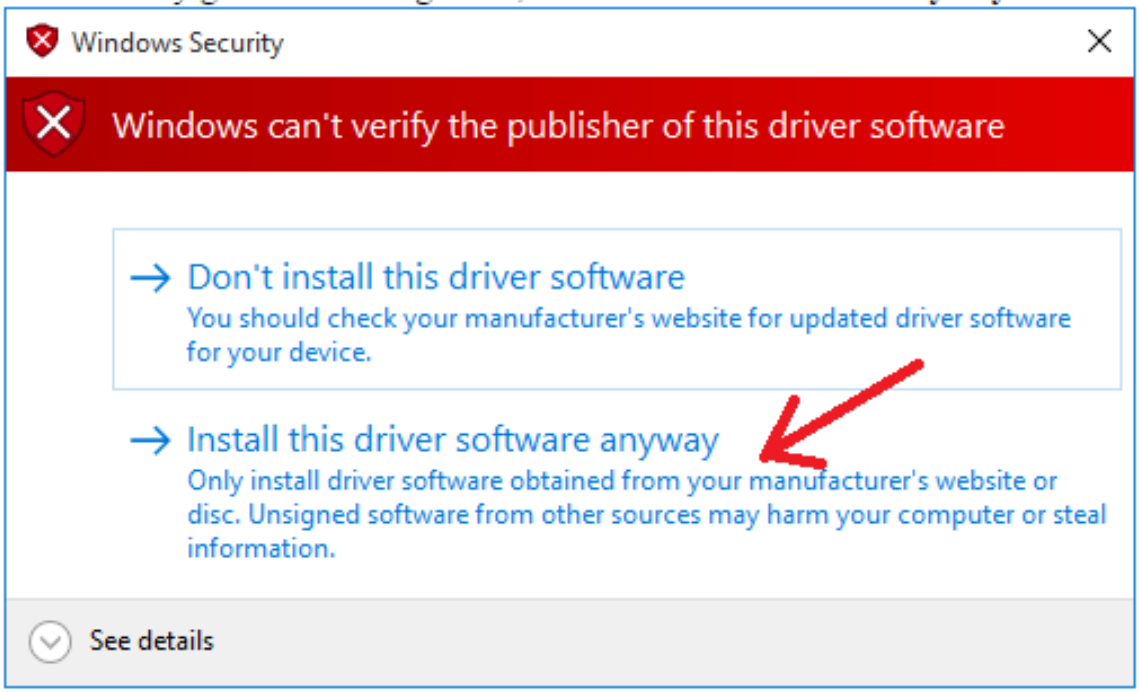
11. You will be given a choice to *Search automatically* or to *Browse my computer*. Click **Browse my computer for driver software**.



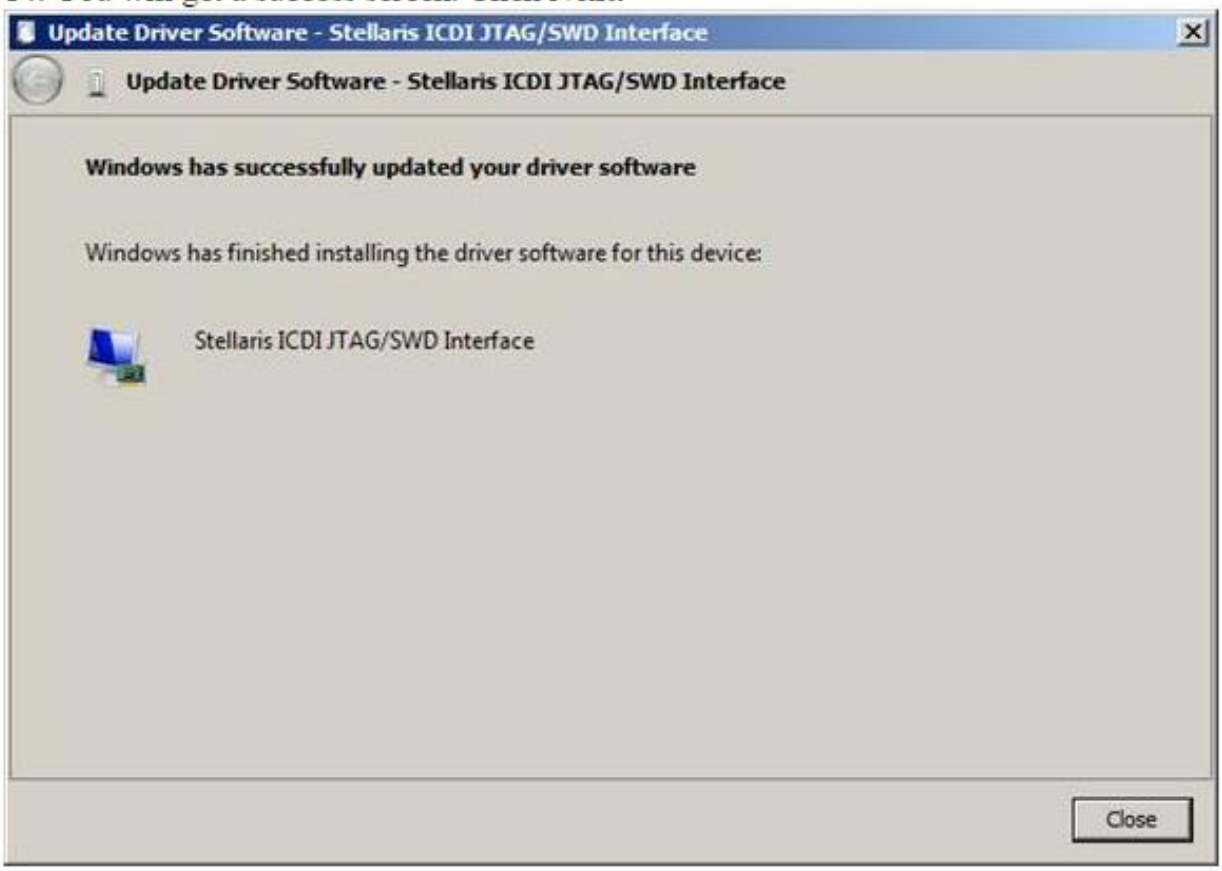
12. Browse your computer and find the location of the **windows-drivers** folder installed with TExaS. On this computer Keil was installed on C:, but on your computer search for Keil then TExaSware and then select the **windows_drivers** folder. Click **Next**.



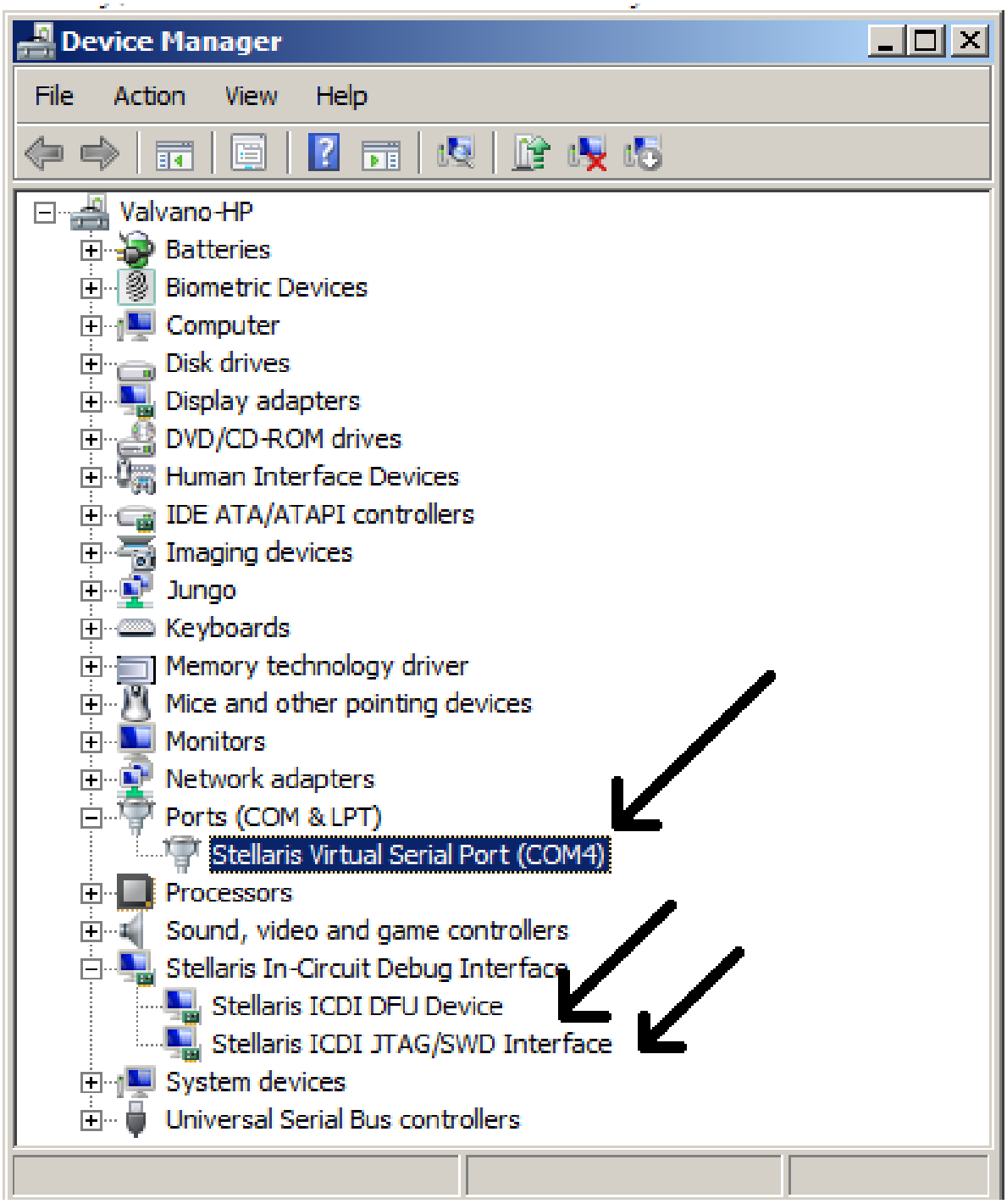
13. You may get this warning. If so, click **Install this driver anyway**



14. You will get a success screen. Click **Next.**



Repeat steps 10, 11, 12, 13 and 14 for the other two devices. After you have repeated the process a total of three times there should be no error flags. I.e., there should be no yellow exclamation points. However, if you do see one of the three Stellaris devices with a driver error, try right-clicking on the device with error and select **update driver**, and try the process again. Sometimes it doesn't install on the first try, but does install on the second try.


Device Manager
File
Action
View
Help
Valvano-HP
Batteries
Biometric Devices
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Human Interface Devices
IDE ATA/ATAPI controllers
Imaging devices
Jungo
Keyboards
Memory technology driver
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Stellaris Virtual Serial Port (COM4)
Processors
Sound, video and game controllers
Stellaris In-Circuit Debug Interface
Stellaris ICDI DFU Device
Stellaris ICDI JTAG/SWD Interface
System devices
Universal Serial Bus controllers