

Stellaris® In-Circuit Debug Interface (ICDI) and Virtual COM Port

Stellaris® evaluation and reference design kits provide an integrated Stellaris In-Circuit Debug Interface (ICDI) which allows programming and debugging of the onboard LM4F microcontroller. The Stellaris ICDI can be used with the [Stellaris LM Flash Programmer](#) as well as any of the Stellaris-supported toolchains such as Texas Instruments' [Code Composer Studio](#). Both JTAG and Serial Wire Debug (SWD) are also supported. This document presents the instructions for installing the appropriate drivers on the host computer.

1 Stellaris ICDI Drivers

To debug and download the custom application in the microcontroller's Flash memory and use Virtual COM Port connectivity, install the following drivers on the host computer:

- Stellaris Virtual Serial Port
- Stellaris ICDI JTAG/SWD
- Stellaris ICDI DFU

NOTE: The host PC should be running the Microsoft® Windows® 2000, Windows XP, Windows 7, or Windows 8 operating systems (OSs). This document describes how to install drivers on the Windows XP OS (see the [Driver Installation Using Windows XP](#) section) as well as the Windows 7 and Windows 8 OSs (see the [Driver Installation Using Windows 7/Windows 8](#) section).

These drivers provide the debugger with access to the JTAG/SWD interface and the host PC with access to the Virtual COM Port.

1.1 Validate Installed Drivers

To see which drivers are currently installed on the host computer, check the system hardware properties using the Windows Device Manager.

Windows XP or Windows 7

To perform this action on Windows XP or Windows 7, follow these steps (see [next section](#) for Windows 8 instructions):

1. Right-click the *My Computer* (Windows XP) or *Computer* (Windows 7) menu item from the Windows **Start** button; select *Manage* from the drop-down menu.

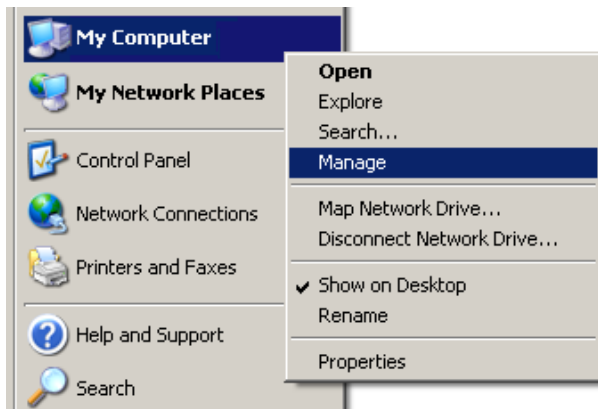


Figure 1. Windows XP

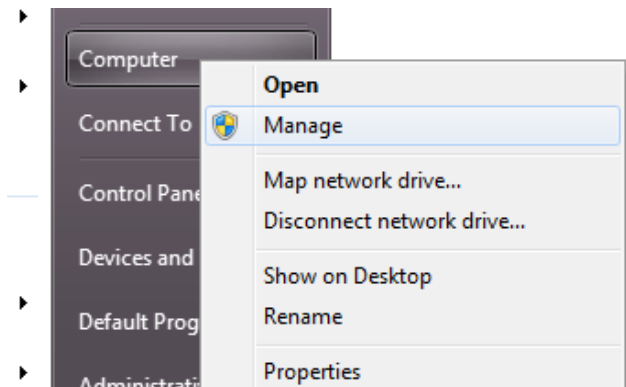


Figure 2. Windows 7

2. Click *Device Manager* under Computer Management→System Tools. The Device Manager window displays a list of hardware devices installed on your computer and allows you to set the properties for each device.



Figure 3. Windows XP

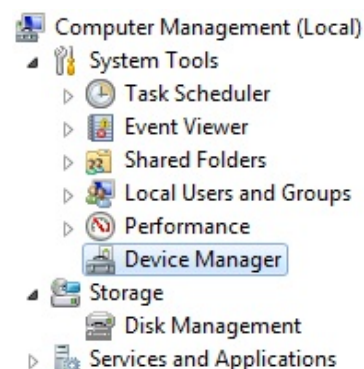


Figure 4. Windows 7

Windows 8

To check the hardware properties using the Windows Device Manager on Windows 8, follow these steps (see [previous section](#) for Windows XP or Windows 7 instructions):

1. Open the Windows Start Screen and click on *Computer Management*.



Figure 5. Windows 8

2. Click Device Manager under Computer Management→System Tools (refer to [Figure 3](#)). The Device Manager window displays a list of hardware devices installed on your computer and allows you to set the properties for each device.

1.2 Update Drivers

When the board is connected to the computer for the first time, the computer detects the onboard ICDI interface and the Stellaris microcontroller. Drivers that are not yet installed display a yellow exclamation mark in the Device Manager window.

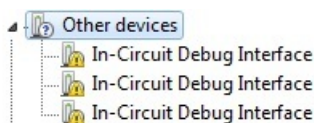


Figure 6.

Download the necessary drivers for your Stellaris evaluation or reference design kit from the [Stellaris ICDI Drivers](#) tool folder on the TI website. Extract the files from the compressed folder to a known location on your Windows-enabled host PC.

Using the included USB cable, connect the Stellaris board to your host PC as specified by the *README First* document for the respective kit.

2 Driver Installation Using Windows XP

Follow these directions to install the drivers on a host PC that is running Windows XP.

When you connect the Stellaris device to the host PC for the first time, Windows starts the *Found New Hardware Wizard* and prompts you to install the drivers for the Stellaris Virtual Serial Port. Select *Install from a list or specific location (Advanced)* and then click **Next**.



Figure 7.

Select *Search for the best driver in these locations*, and check the *Include this location in the search* option. Click **Browse**. Browse to the known location on your host PC of the driver installation files. Click **OK**, then click **Next**.

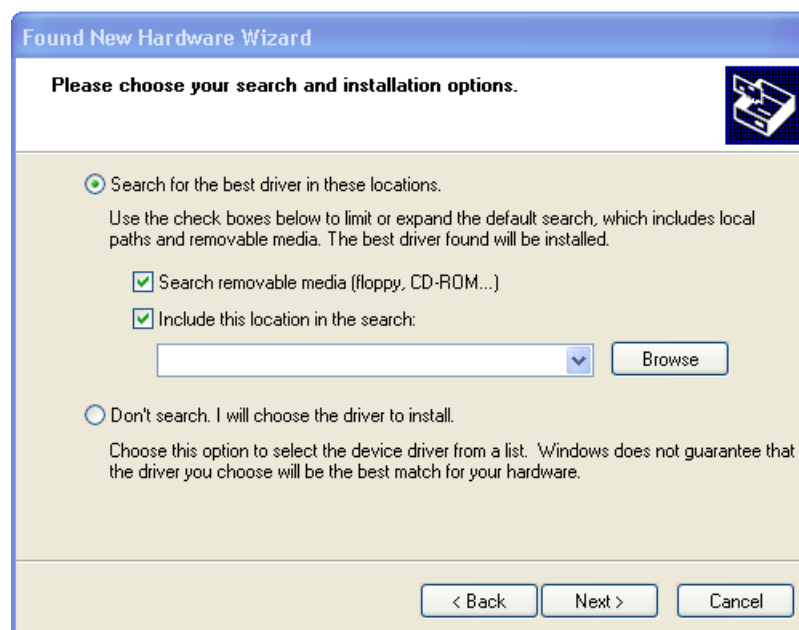


Figure 8.

A warning may pop up during the installation process to caution you that the driver is not signed; click **Continue Anyway** to proceed. The wizard displays a *Please wait while the wizard searches...* status window. No user action is required at this point.

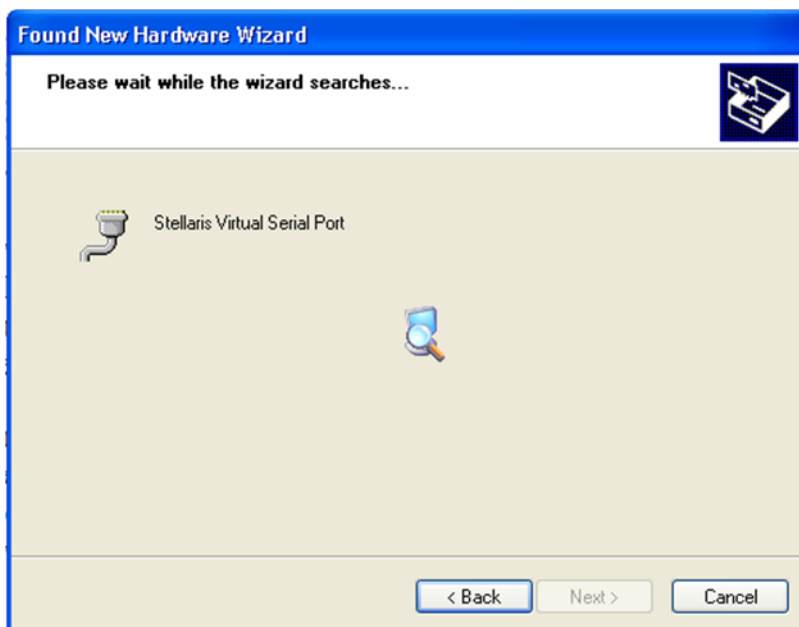


Figure 9.

The wizard then displays a *Please wait while the wizard installs the software...* status window as the software is installed.

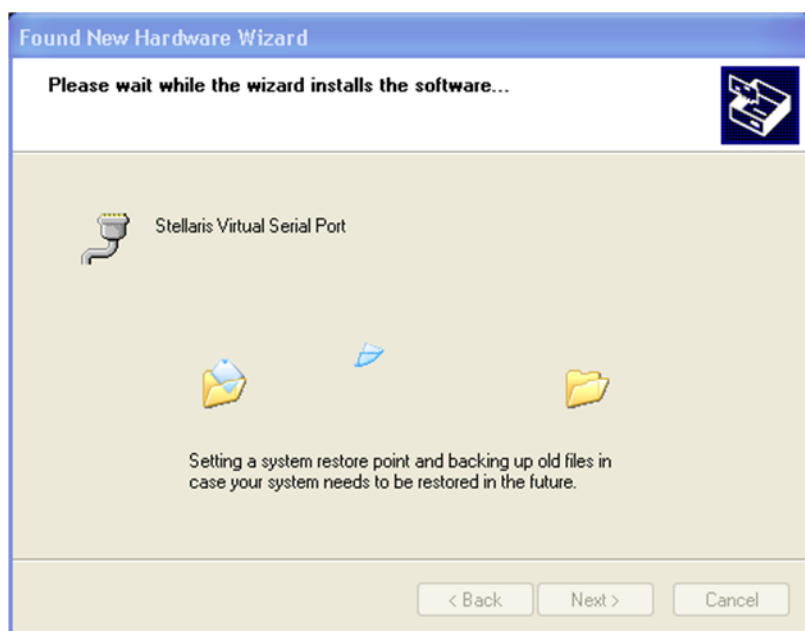


Figure 10.

After the installation of the Stellaris Virtual Serial Port drivers completes, click **Finish** to close the dialog box.

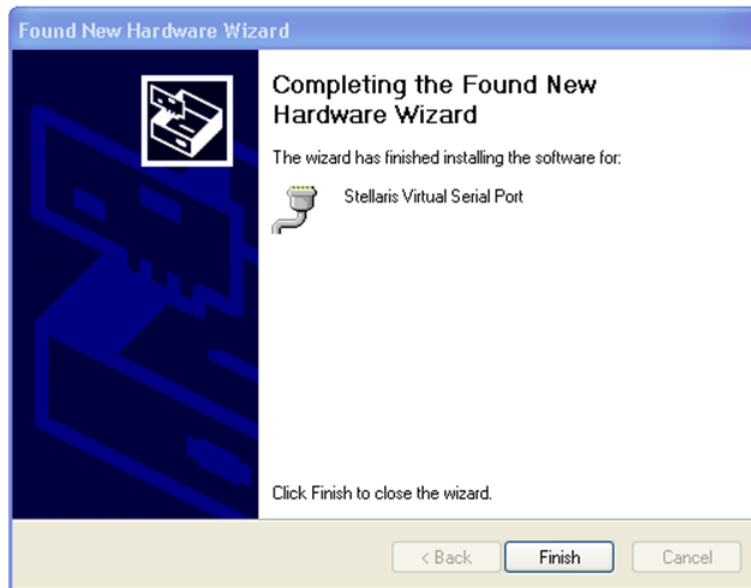


Figure 11.

You have now installed the drivers for the Stellaris Virtual Serial Port.

The *Found New Hardware* Wizard appears a second time for the Stellaris ICDI JTAG/SWD Interface, and then one more time for the Stellaris ICDI DFU Device drivers. Follow the same instructions to install the drivers for these two devices.

You can confirm these device driver installed correctly by launching the Windows Device Manager and right-clicking to select *Scan for Hardware Changes*. This scan updates the Device Manager properties list. Most of the time, the Device Manager refreshes the properties list automatically. The Stellaris Virtual Serial Port, the Stellaris ICDI JTAG/SWD Interface, and the Stellaris ICDI DFU Device should now appear in the list. This action indicates that the drivers have been successfully installed.

When these drivers are properly installed, Windows automatically detects any new Stellaris boards (with a Stellaris-based ICDI) that you connect to the computer, and installs the required drivers for you.

3 Driver Installation Using Windows 7/Windows 8

Follow these directions to install the drivers on a host PC that is running Windows 7 or Windows 8.

When you connect the Stellaris device for the first time, the Windows 7/Windows 8 system immediately searches for signed drivers. Wait until this process times out. The following screen appears:

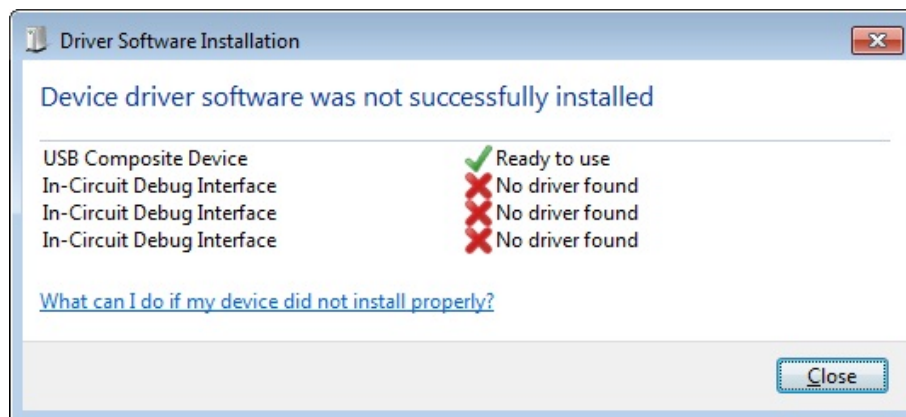


Figure 12.

Open the Windows Device Manager. Under the category *Other devices*, you should see three In-Circuit Debug Interface devices with yellow exclamation marks.



Figure 13.

Right-click one of these device entries and select *Update Driver Software*.

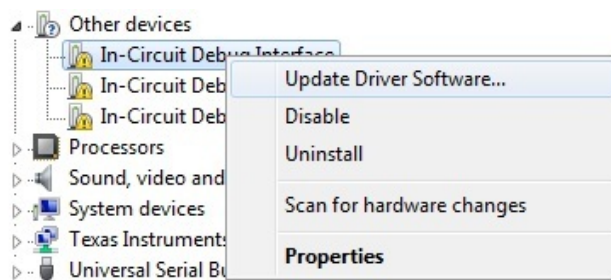


Figure 14.

A Windows prompt asks: *How do you want to search for driver software?* Select *Browse my computer for driver software*.

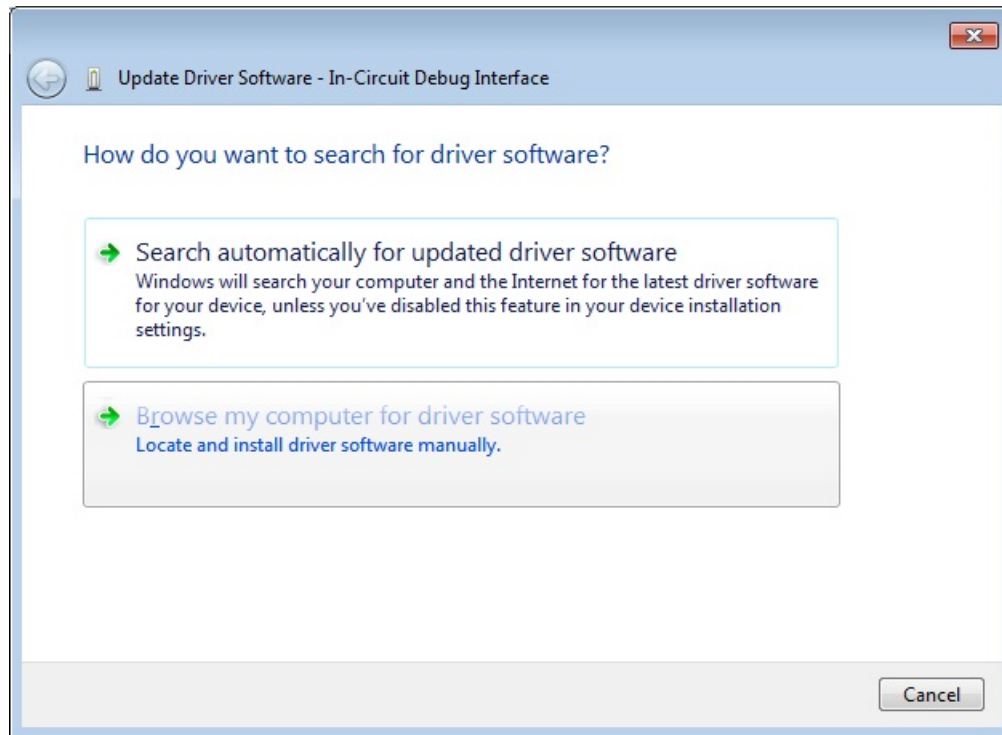


Figure 15.

Under *Search for driver software in this location*, click **Browse**. Browse to the known location on your host PC of the driver installation files. Click **OK**. Check the *Include subfolders* option, and then click **Next**.

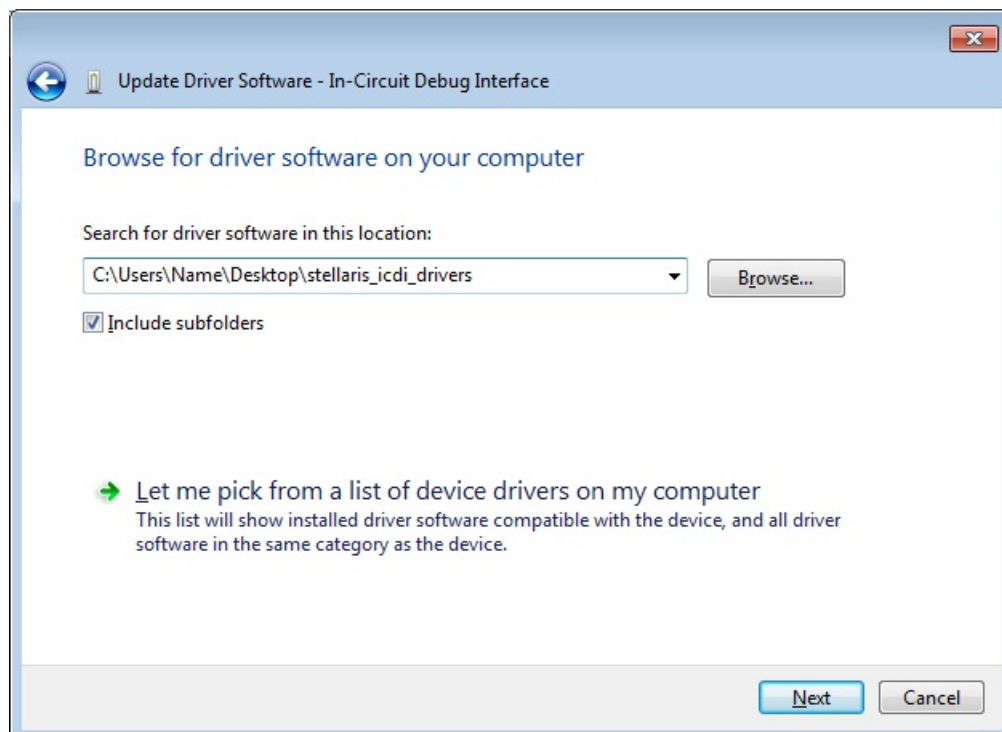


Figure 16.

Windows now displays a status window that shows where it is currently searching for the drivers. No user action is required at this point.

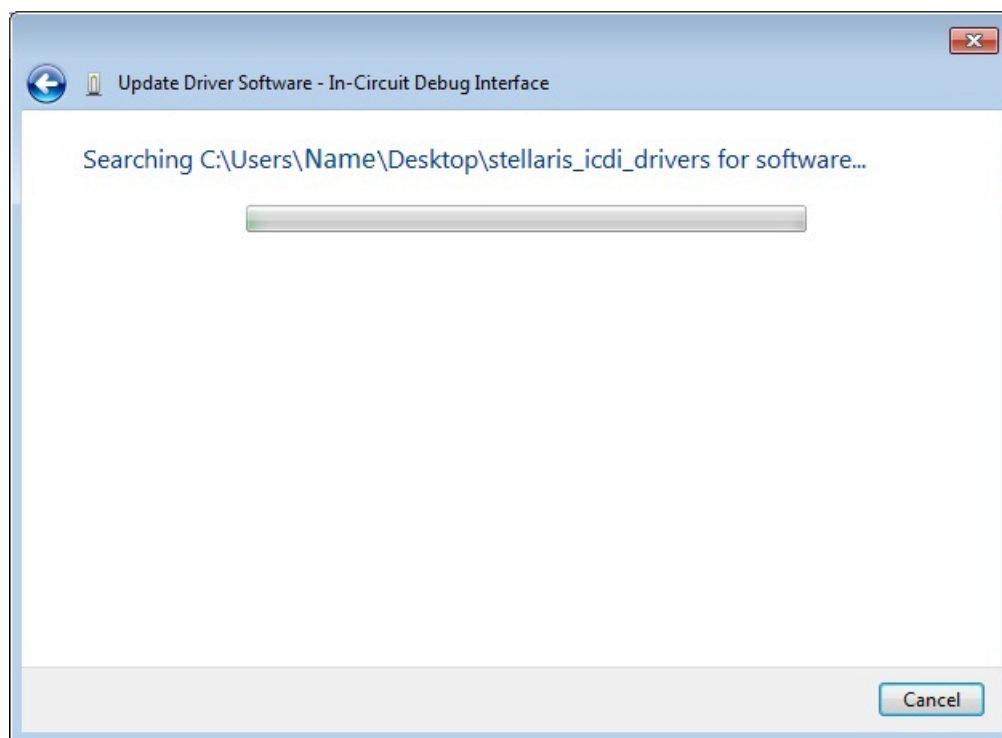


Figure 17.

The system then displays an *Installing driver software...* status window; this message indicates that the drivers were found in the specified location, and that they are being installed.

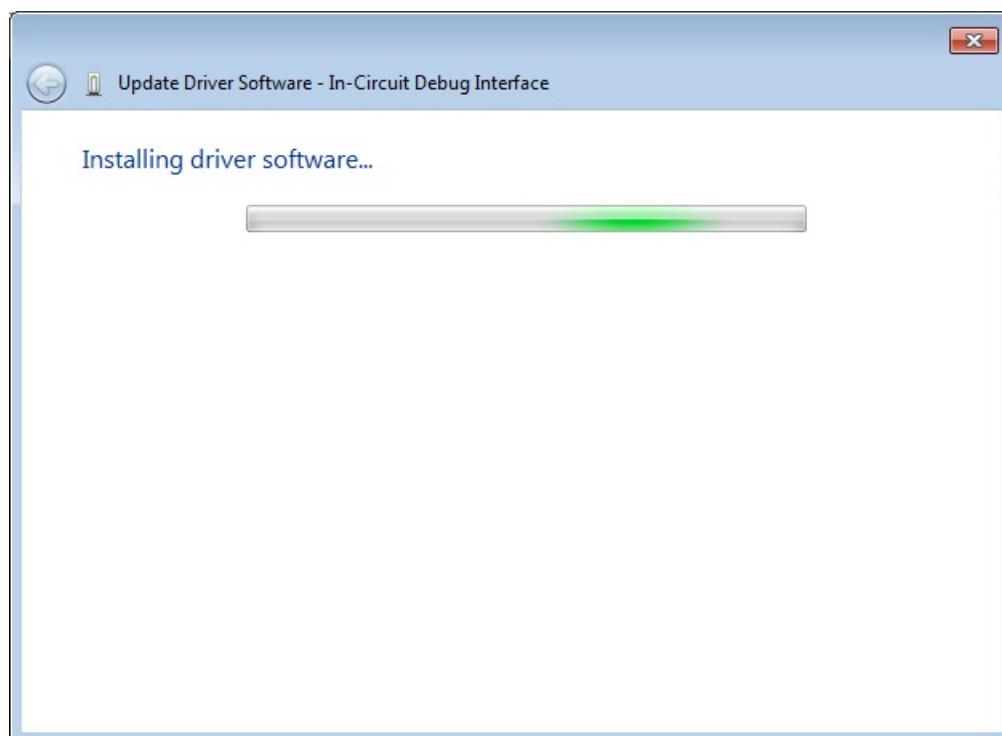


Figure 18.

A warning may appear that says *Windows can't verify the publisher of this driver software*. This message appears because the driver is not signed. Click *Install this driver software anyway* to proceed.

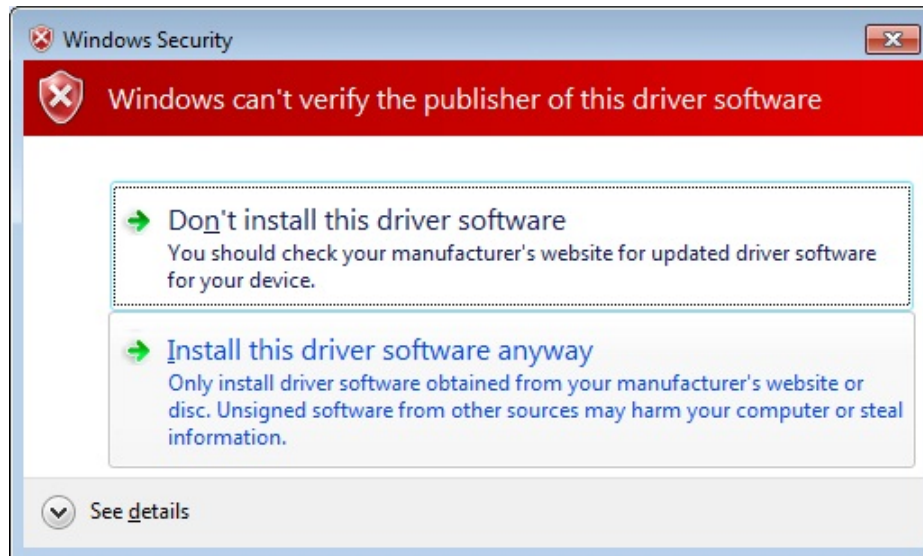


Figure 19.

When the installation is complete, Windows displays a message that says *Windows has successfully updated your driver software*. On the same message window, you should see one of these three devices listed:

- Stellaris Virtual Serial Port
- Stellaris ICDI DFU Device
- Stellaris ICDI JTAG/SWD Interface

For example, [Figure 20](#) shows when the driver for the Stellaris Virtual Serial Port has been successfully installed. Click **Close** to close the dialog box.

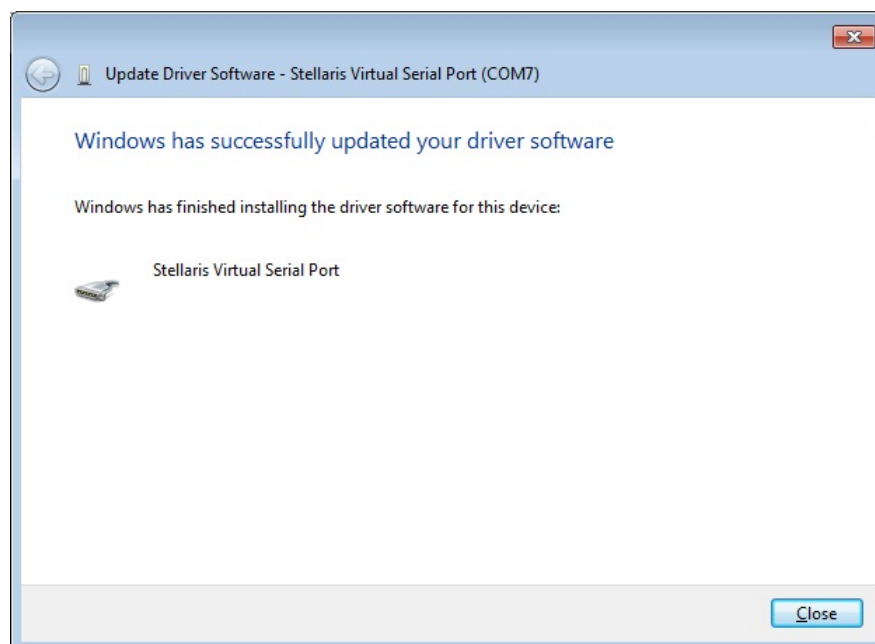


Figure 20.

You can confirm these device drivers installed correctly by launching the Windows Device Manager and right-clicking to select *Scan for Hardware Changes*. This scan updates the Device Manager properties list. Most of the time, the Device Manager refreshes the properties list automatically. This action indicates that the drivers have been successfully installed. You should either see the Stellaris Virtual Serial Port under the *Ports* category (COM & LPT), or else the Stellaris ICDI DFU Device or the Stellaris ICDI JTAG/SWD Interface under the *Stellaris In-Circuit Debug Interface* category.

Repeat the same process to install the drivers for the remaining two devices.

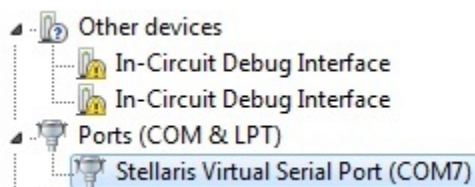


Figure 21.

After all three device drivers have been successfully installed, you should see the Stellaris Virtual Serial Port under the *Ports* (COM & LPT) category and both the Stellaris ICDI DFU Device and the Stellaris ICDI JTAG/SWD Interface under the *Stellaris In-Circuit Debug Interface* category. If installed correctly, none of the drivers shows a yellow exclamation mark.

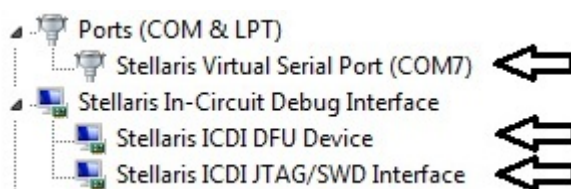


Figure 22.

4 Conclusion

You are now ready to program your Stellaris device with the LM Flash Programmer or any of the Stellaris-supported toolchains.

5 References

In addition to this document, the following references are available for download at www.ti.com/stellaris (click on the *Technical Documents* tab):

- Stellaris Development and Evaluation Kits for Code Composer Studio™ Quickstart Guide (literature number [SPMU132](#)).
- Stellaris LM4F Microcontroller Data Sheet (individual device documents available through [product selection tool](#)).
- Stellaris Evaluation or Reference Design Kit User's Manual (individual kit documents available)
- Stellaris Evaluation Kit README First (individual kit documents available)
- StellarisWare Driver Library. Available for download at www.ti.com/tool/sw-drl.
- StellarisWare Driver Library User's Manual, publication SW-DRL-UG (literature number [SPMU019](#)).

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- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
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