

How to Download Keil MDK-ARM Version 5 with Device Family Packs

Update for MSP432 July 24, 2016

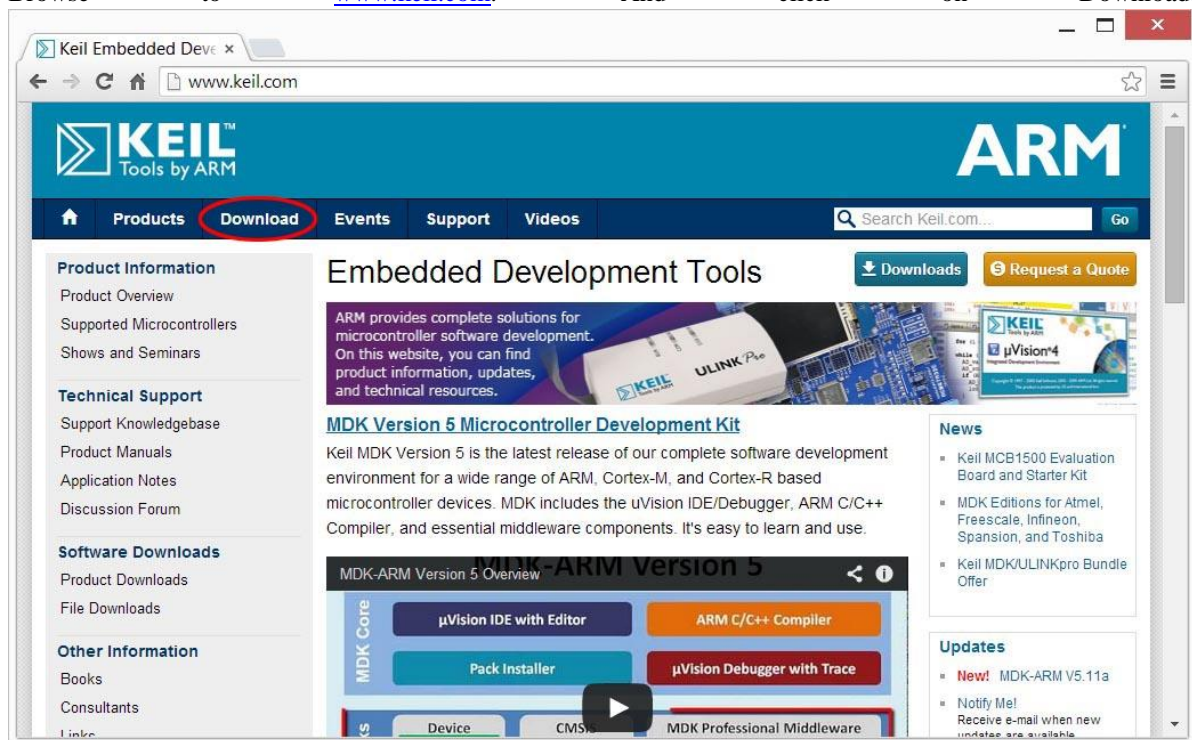
This tutorial is intended for downloading Keil Microcontroller Development Kit for ARM (MDK-ARM) version 5 with Device Family Packs.

Starting version 5 the device support software component is separated from the MDK software and called Device Family Packs. As release v5.11a, many ARM microcontroller Device Family Packs are available. Software development with Device Family Packs is slightly different from software development in MDK v4.

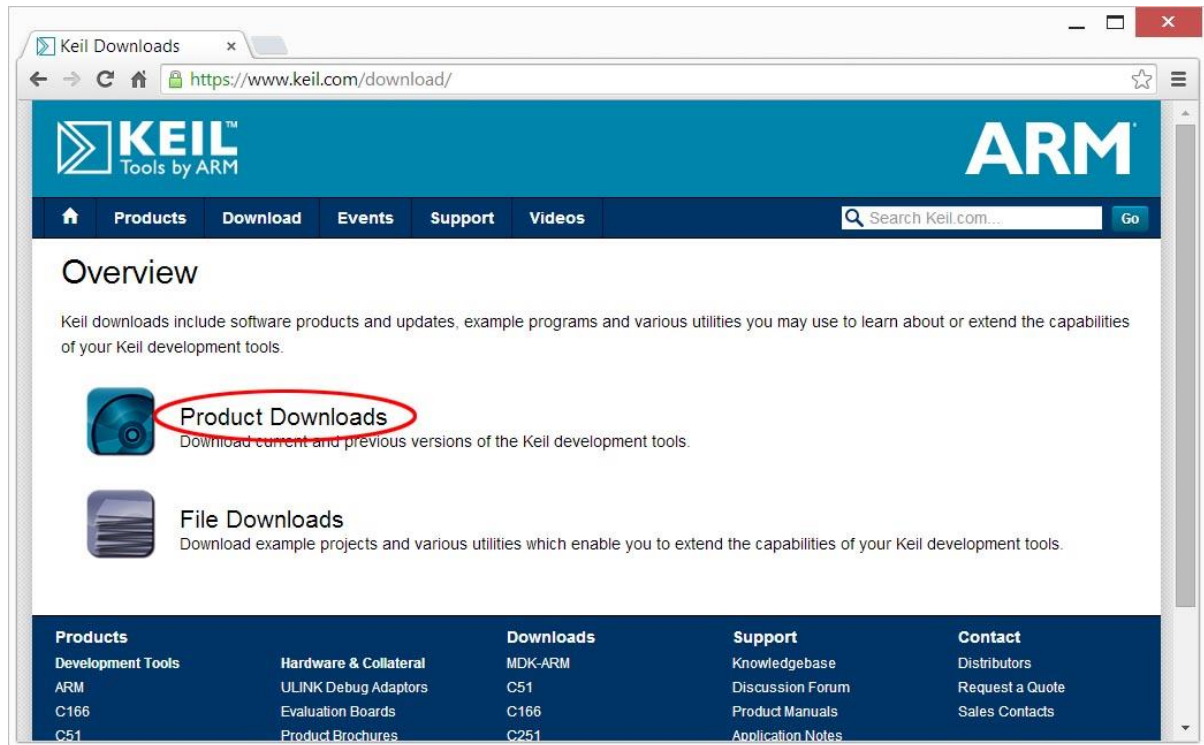
This tutorial was written with v5.11a. As the time of revision, v5.17 was released and the procedure in the tutorial has been verified to work with v5.17. Also the MSP432 CMSIS Update is added.

Downloads

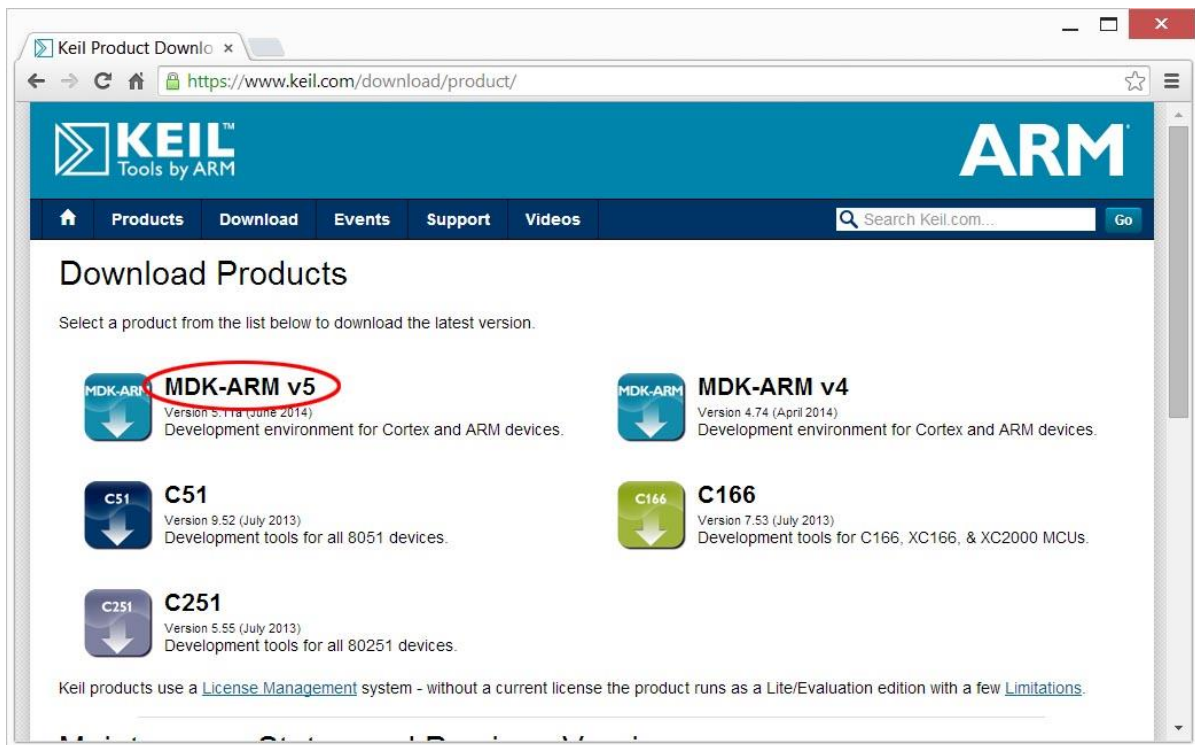
1. Browse to www.keil.com. And click on Download.



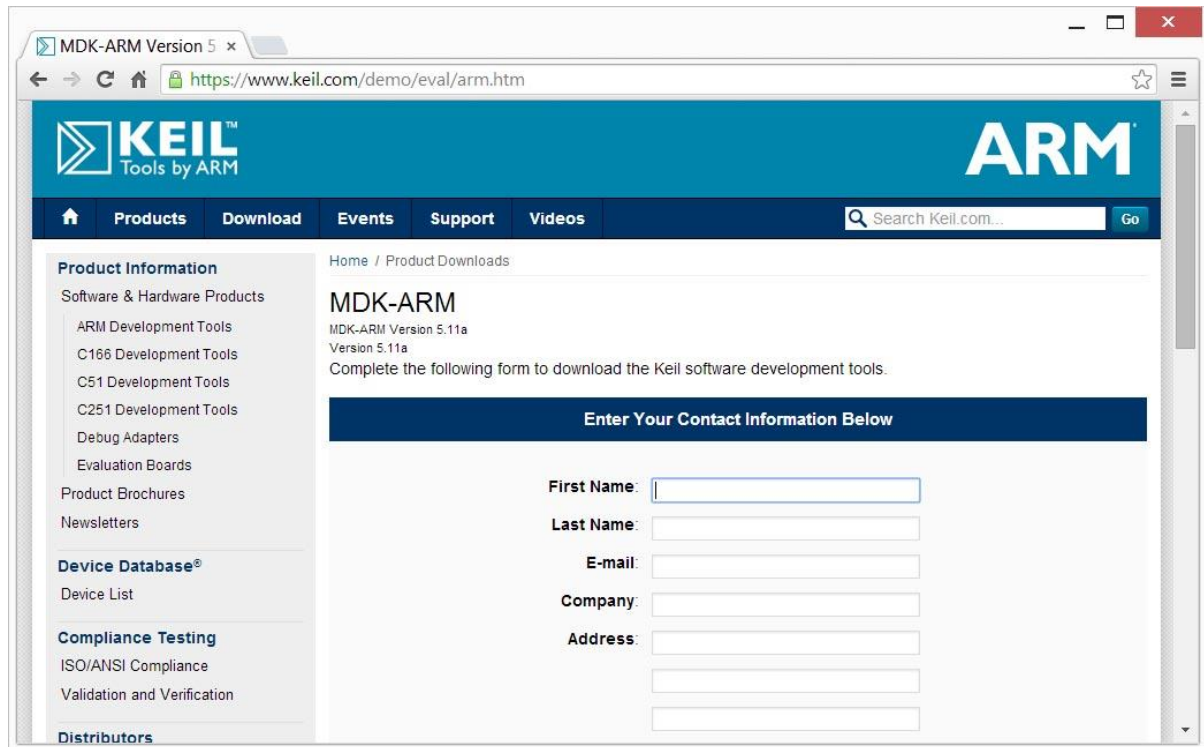
2. In the next page, click on "Product Downloads."



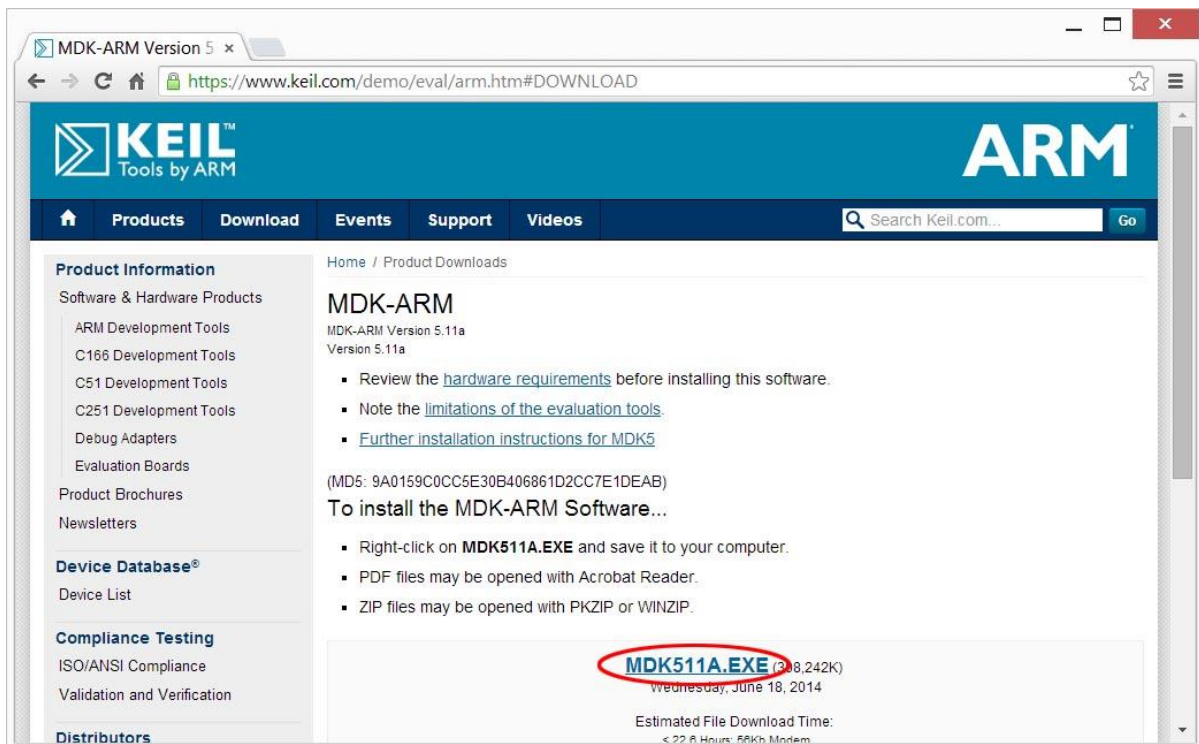
3. In the next page, click on “MDK-ARM v5”



4. Fill up the form in the page and click “Submit.”



5. In the next page, click “MDK511A.EXE” to download the development software kit. The file is over 300 MB and will take a while to download.

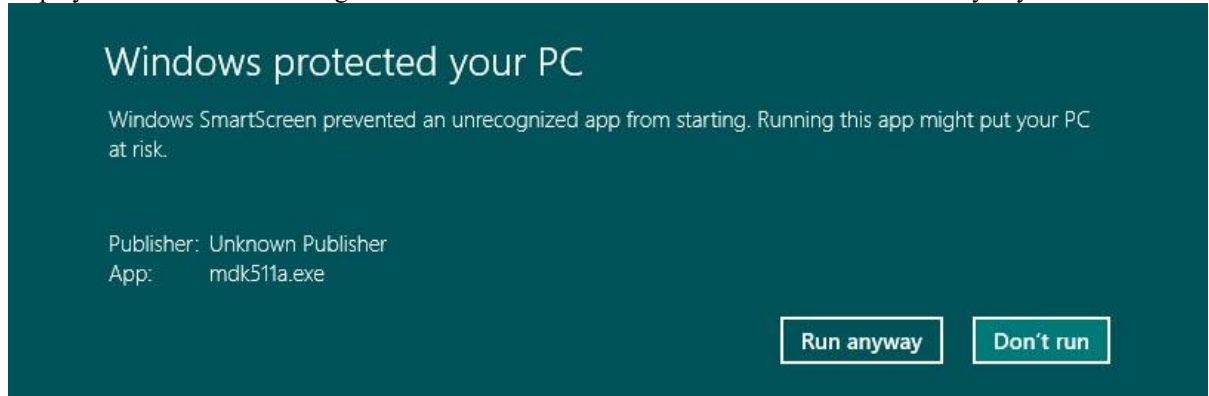


- After downloads are complete, you should see the file in your download folder.

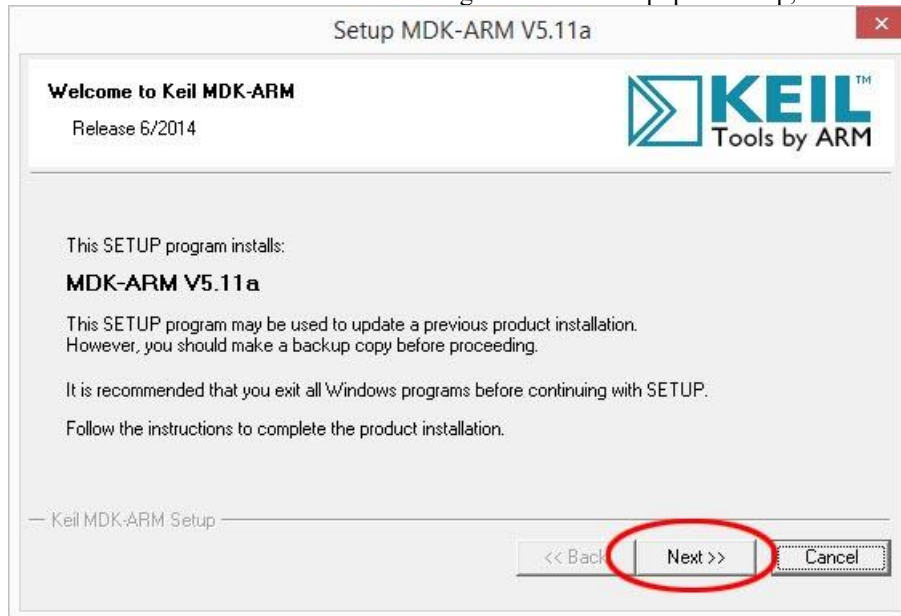
 mdk511a.exe	6/26/2014 1:47 PM	Application	308,243 KB
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Installation

- Double click on the icon of **mdk511a.exe** in the download folder. Windows may block the execution and display a warning screen. Click “Run anyway” button.



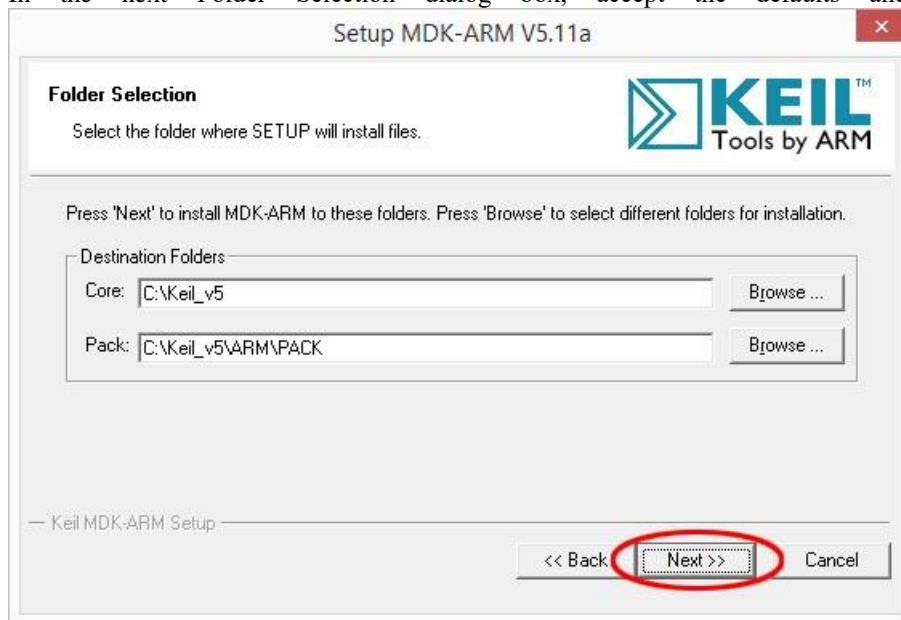
- When the Welcome dialog box pops up, click “Next” button.



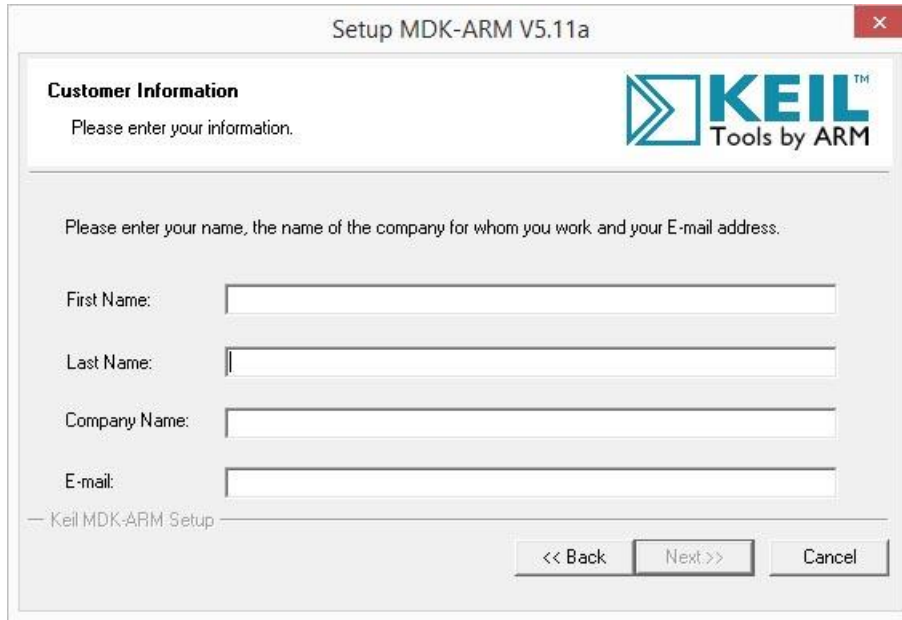
- In the next License Agreement dialog box, check “I agree ...” and click “Next” button.



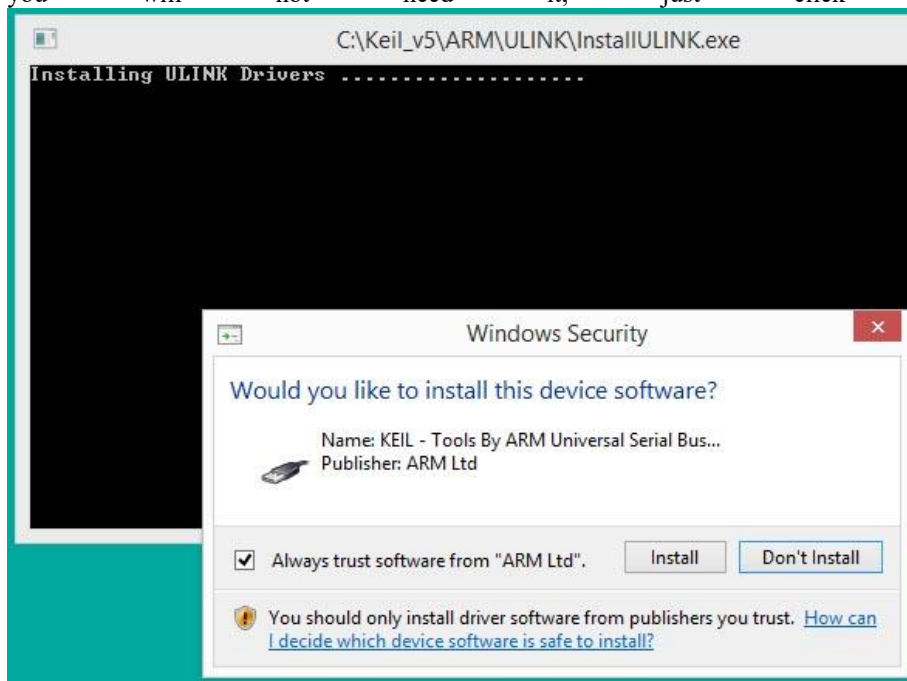
10. In the next Folder Selection dialog box, accept the defaults and click “Next” button.



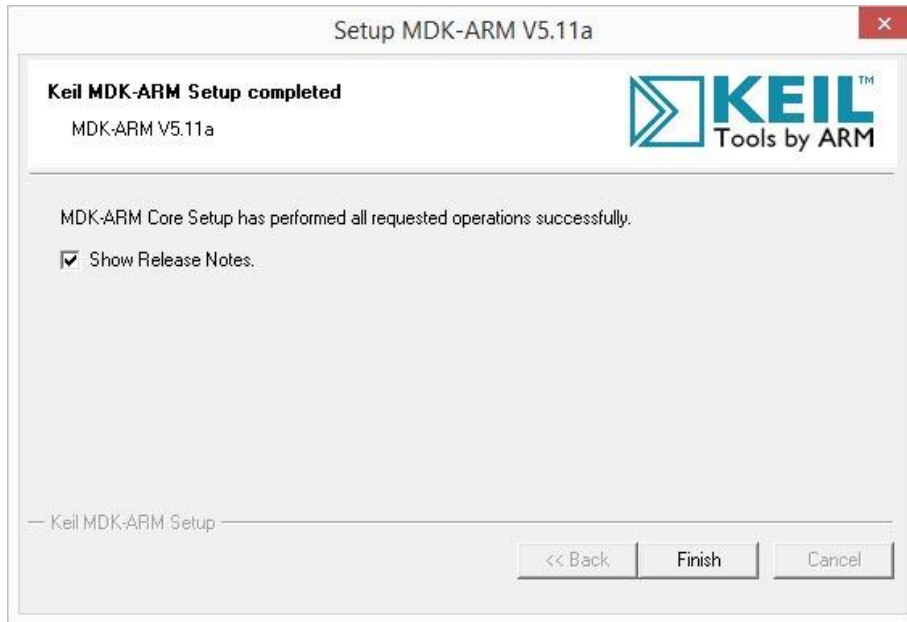
11. In the next Customer Information dialog box, fill the information and click “Next” button. The installation of MDK and several software packs will start.



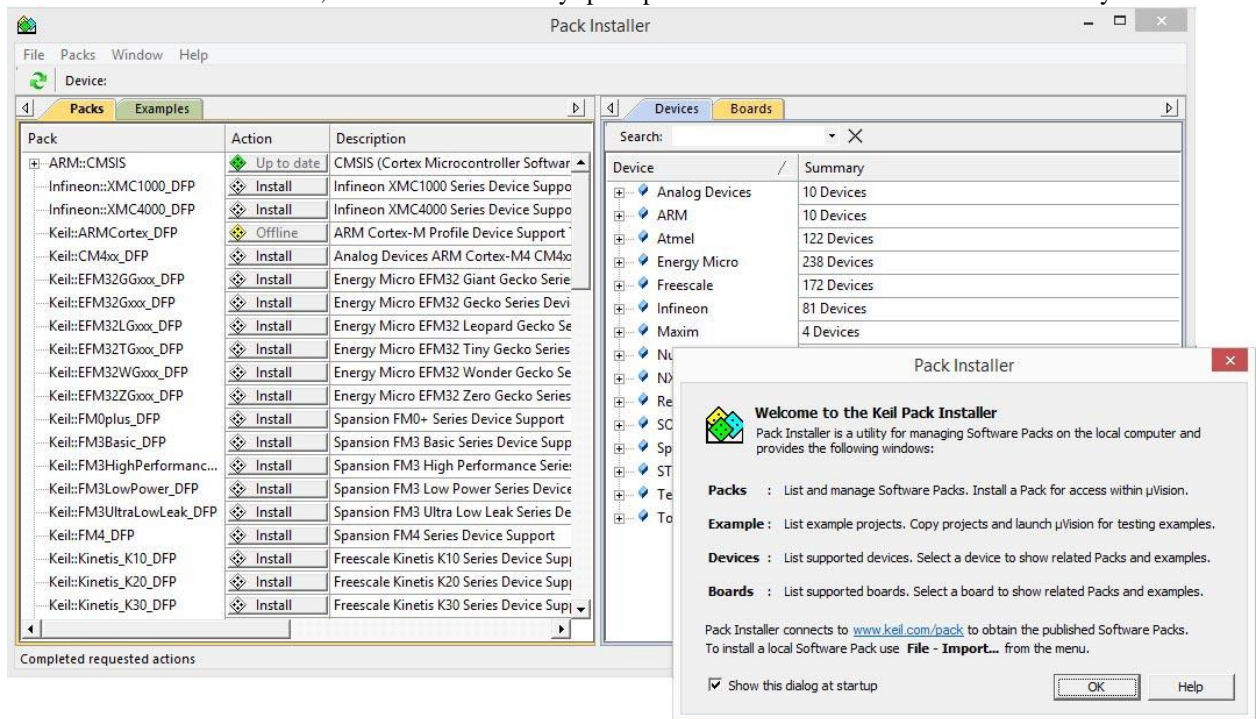
12. When installing ULINK device drivers, Windows will block it and asks for confirmation. If you are not sure you will not need it, just click “Install” button.



13. When the installation is complete, this dialog box will appear. Click “Finish” button.

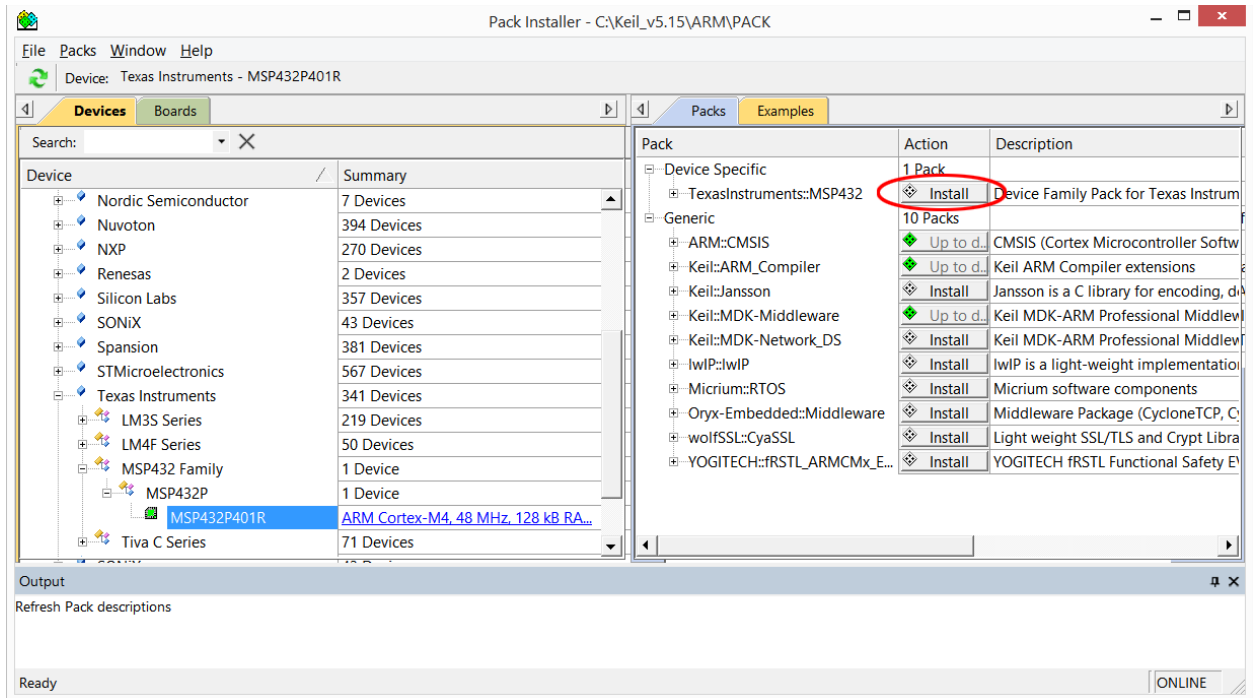


14. After MDK v5 is installed, it will automatically prompt the user to install the Device Family Packs.

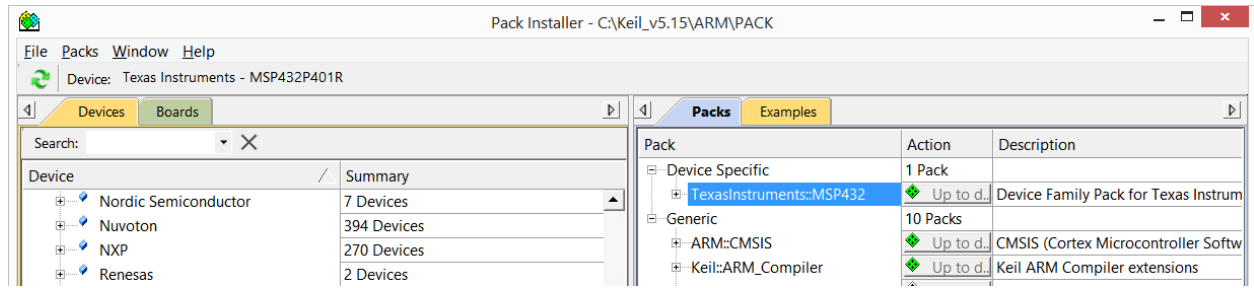


15. After reading the descriptions, click “OK” button in the smaller dialog box to close it. It will take few minutes to download and populate the most current packs information and verify whether there are any updates available.

16. To install a Device Family Pack, you need to select one of the devices or boards on the left panel of the Pack Installer. The required pack(s) to support your device/board selection will appear on the right panel. For example, if you plan to use Texas Instruments MSP432P401R LaunchPad, drill down the Devices list to Texas Instruments->MSP432 Family->MSP432P-> MSP432P401R. The required and optional packs appear on the right panel Packs tab.



17. A yellow diamond in Action column (such as ARM::CMSIS) indicates the pack is installed but an update is available. A green diamond (Keil::MDK-Middleware) indicates the pack is current. A grey diamond (TexasInstruments::MSP432) shows that the device pack is available for download. The light-weight IP and light-weight SSL are optional. Click on the Update button for CMSIS and Install button for MSP432 to download and install these packs. The packs are downloaded from Keil website and built locally. It may take several minutes depending on the computer and Internet speed. When the pack installations are complete, the diamond in the button will turn green. You may click several Install buttons and the installations will be queued.
18. When the installations are complete, the diamonds in the buttons will turn green.



19. If for some reasons, such as download errors, the installation was not completed, a message will appear at the bottom of the window to state the error. You may try to install it again.

Install TI Debug Drivers

20. The MSP432 LaunchPad has a built-in XDS110 debugger that allows you do download and debug the target MSP432 device. In order for the Keil IDE to communicate with the XDS110 debugger, drivers need to be installed on the PC.

XDS110 drivers

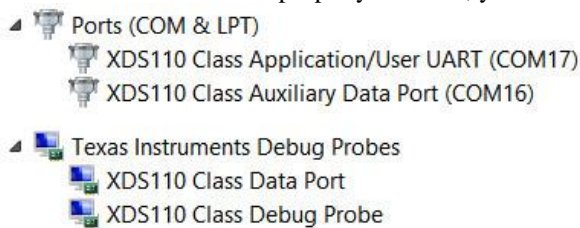
The XDS110 drivers maintain the communication between the host PC and the XDS110 debugger on the MSP432 LaunchPad.

21. Download XDS110 drivers from http://energia.nu/files/xds110_drivers.zip.

If you are installing the drivers on a Windows 8 or newer operating system, please refer to the next section to enable installation of drivers without signature.

After the drivers zip file is downloaded, unzip the folder to a location that you will find easily such as the Desktop. To install them, you need to connect the MSP432 LaunchPad to the PC with the USB cable. When Windows found the new hardware device, it will attempt to install the device drivers and failed. You need to go into Device Manager and do update driver then browse to the drivers folder (where you unzipped the drivers earlier) to find the files for installation.

When the devices drivers are properly installed, you should see these three devices at the Device Manager:



Windows 8 Driver Signature

Windows 8 or 8.1 may block driver update if the driver is not properly signed. To allow installation of drivers not properly signed, Professor Valvano of UT posted this procedure:

<http://users.ece.utexas.edu/~valvano/edX/InstallDrivers8.htm>

MSP432 CMSIS Update

Texas Instruments is bringing the software development package to conform to the CMSIS. The release is scheduled in March 2016 and a beta release is available now. For all the new software developments, the beta release should be used so that comes March 2016, there is no need to modify the programs.

Install MSP432 CMSIS Update

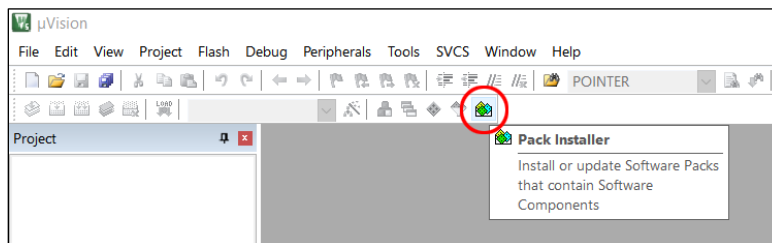
The register naming in the text follows the CMSIS convention. You need to perform MSP432 CMSIS update of the Keil uVision to use the same syntax.

The details of MSP432 CMSIS Update are described in

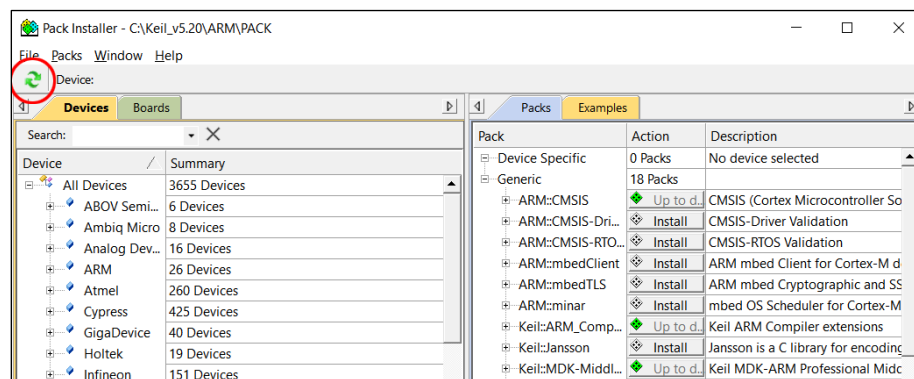
http://processors.wiki.ti.com/index.php/MSP432_CMSIS_Update?DCMP=epd-mcu-msp-gen&HQS=MSP432CMSIS

22. Launch Keil uVision.

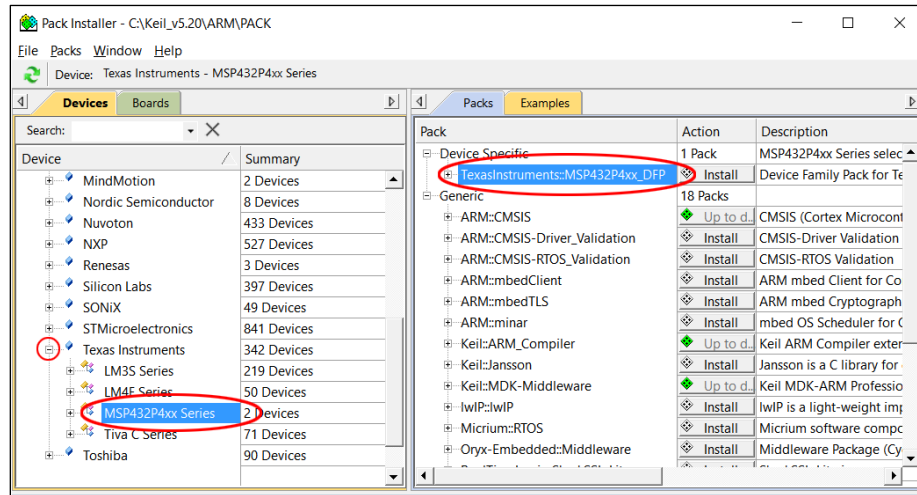
23. Click Pack Installer button and the Pack installer window will open.



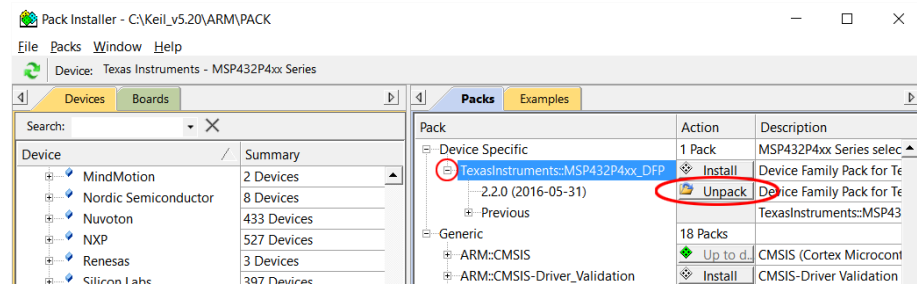
24. Click refresh button to reload the latest catalog of all the device software packs. This may take a few minutes.



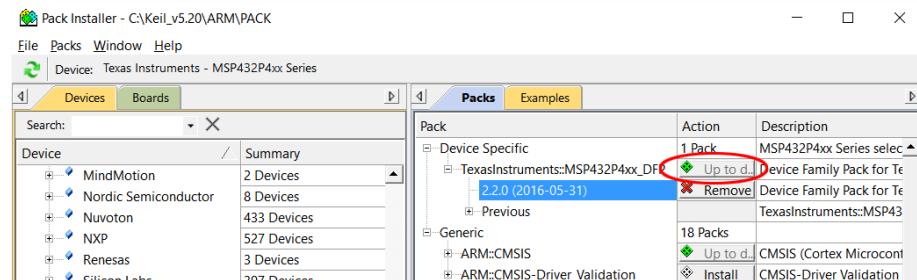
- After the pack catalog is refreshed, click on the + sign in front of Texas Instruments in Devices tab to open it then click on MSP432P4xx Series. Under the Packs tab in the other half of the window, the TexasInstruments::MSP432P4xx_DFP will be added.



- Click the + sign before it to expand it and click Unpack button of the latest version. It should be 2.1.0 or later.



- When the update is done, the word Unpack will change to Remove and the word Install above also will change to Up to date.



Congratulations

Now you have completed the installation of the development tools. You are ready to write your first program for the MSP432 LaunchPad.