Installing ARM Keil MDK and Packs

Install ARM Keil Microcontroller Development Kit (MDK)
- **Community Edition (free version for academic use)**

(If installing on a Mac, also review "*Using MDK-ARM on Mac or Linux machines*")

You can download the latest ARM Keil MDK Core installation package from the Keil website: http://www.keil.com/arm/mdk.asp . As illustrated in Figure 1, ARM Keil MDK (Version 5.xx, with ***µVision IDE***) comprises a set of core functions (IDE with editor, compilers, debugger, pack installer) and one or more *Software Packs*, each of which provides resources (device drivers, system/startup code, etc.) for a specific family of microcontrollers. The user must install a software pack for each microcontroller family to be used.

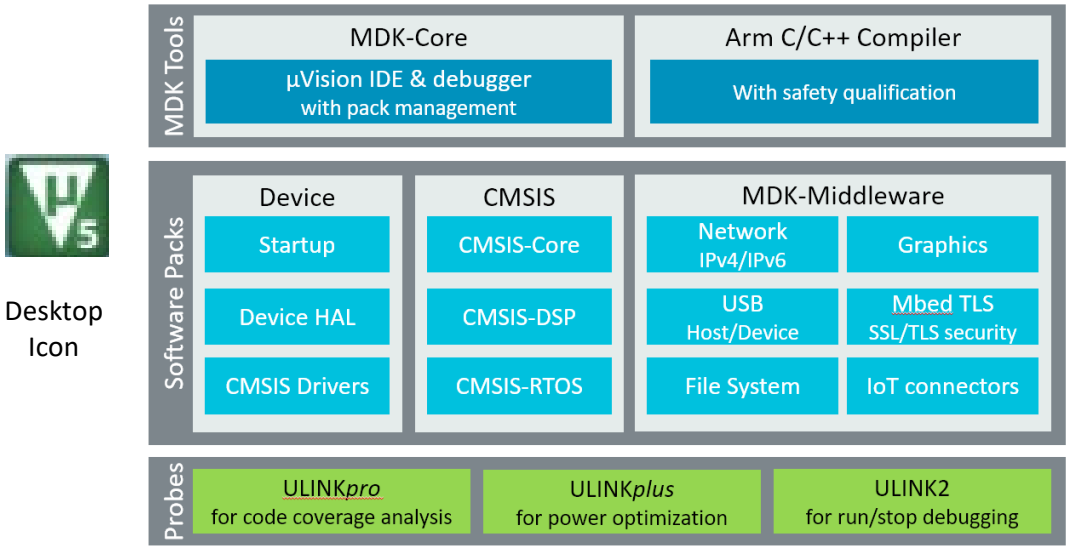

Figure 1. ARM Keil MDK comprises the MDK Core and one or more Software Packs

When installing ARM Keil MDK on your PC, the *Pack Installer* (Figure 2) will prompt you to select one or more Software Packs. Scroll down to the "Device Family Pack" (DFP) for the microcontroller on your board and click the ***Install*** button, which changes to "***Up to date***" when the pack has been installed.

STM32F3348-Discovery board:

Install Keil::STM32F3xx_DFP for STM32F3xx microcontrollers

STM32F411E-Discovery, STM32F4-Discovery, STM32F401/411 Nucleo boards:

Install Keil::STM32F4xx_DFP for STM32F4xx microcontrollers

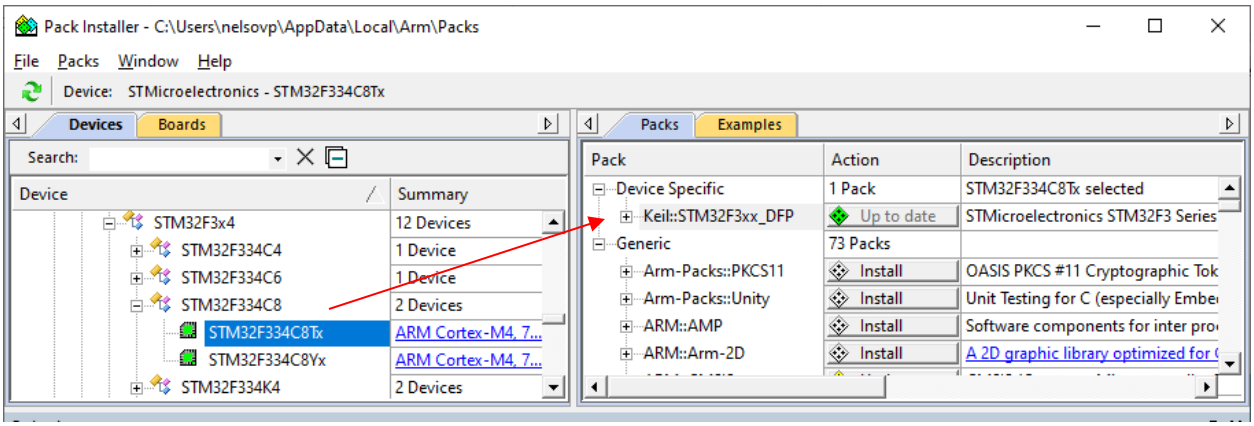

Figure 2. *µVision* Pack Installer with Keil:STM32F3xx_DFP selected for STM32F334C8Tx device.

Installing a New MDK5 Software Pack

After ARM Keil MDK has been installed, use the following procedure to install a new software pack (for example, **STM32F3xx_DFP** to support the **STM32F334C8** or **STM32F4xx_DFP** to support the **STM32F411** and/or other microcontrollers in the STMicroelectronics **STMF4 Series**).

Alternatively, you may obtain the software pack from the Keil web site (http://www.keil.com/dd2/Pack/). Then from the Pack Installer menu bar, select ***File -> Import*** and then locate and select the downloaded pack file.

1. Open the *Pack Installer* from the *µVision* menu bar by selecting: ***Project →Manage →Pack Installer*** or click on the *Pack Installer* icon, as illustrated in Figure 3.

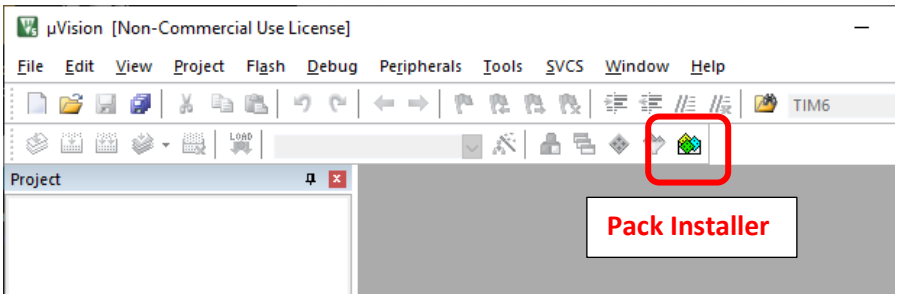

Figure 3. Click on the Pack Installer icon to add or change a device software pack.

2. In the Pack Installer "Devices" tab (Figure 4), navigate to **STMicroelectronics**, click + to expand the list of supported microcontroller families, and select the family whose pack is to be installed – ex. **STM32F4 Series**.

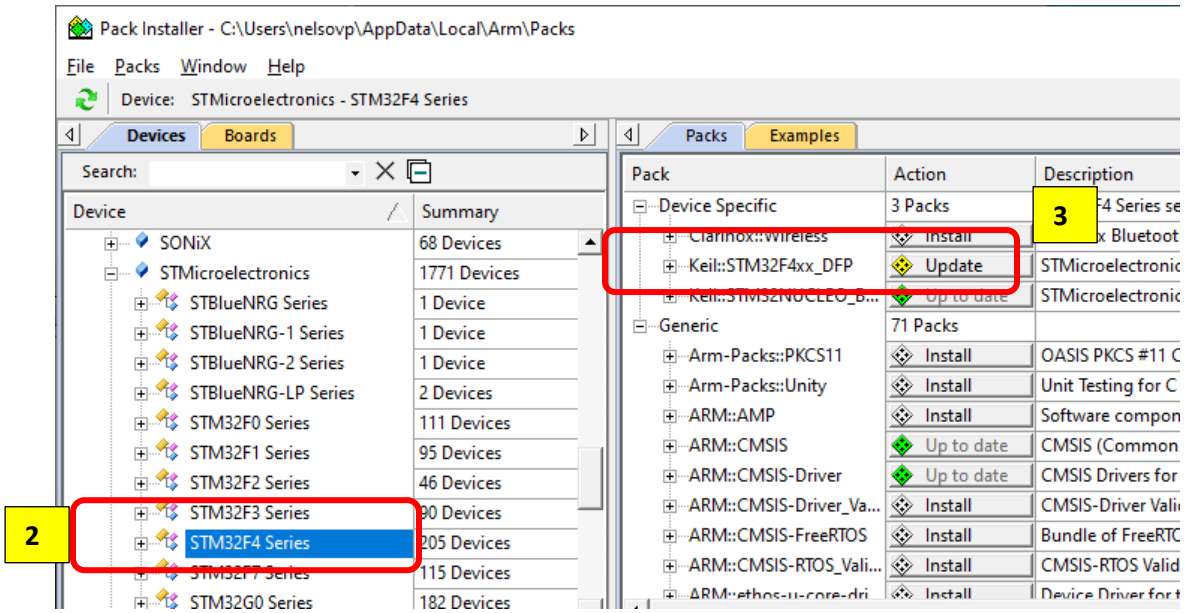

Figure 4. Select microcontroller series and device family pack in the Pack Installer.

3. Under "Device Specific" in the "Packs" tab, locate the device family pack that supports the selected microcontroller family, ex, **Keil::STM32F4x_DFP**. The box next to that family will say one of three things:
    a. **Up to date** – the latest pack is installed; no further action required.
    b. **Update** or **Install** – the pack must be installed/updated. Click on that box to initiate the install/update process. This may take several minutes, as packs are downloaded from Keil and then installed.

4. When the box indicates **Up to date**, installation is complete. Close the Pack Installer window. (You may be asked to "reload packs" – click OK.) The pack will be available when uVision is subsequently opened.

Install the ST-Link USB Driver

For Windows systems, the ST-Link USB driver (needed to communicate with the ST Discovery and Nucleo boards) will need to be installed.

1. Connect the board to your computer with a USB cable.
2. Go to: **Computer → Properties → Device Manager.**
3. In Device Manager, find "STM32 STLink" or "STMicroelectronics STLink dongle", right click, and select ***Update Driver Software → Search automatically for updated driver software.***
4. If the automatic search does not find the driver, select ***Browse my compute for driver software*** and then select directory ***C:\Keil\ARM\STLink\USBDriver.***

For other operating systems, you can find information on the ST website.

STM32CubeProgrammer Software

On the ST web page https://www.st.com/en/development-tools/stm32cubeprog.html is the useful (and free) utility program *STM32CubeProgrammer*. This tool works with all STM32 products, including the STM32F3348-Discovery, STM32F411E-Discovery and similar boards. It allows one to erase, program, view and verify device Flash memory through the debug (ST-LINK) interface, as well as to access other internal microcontroller memories. To obtain this program, go to the above web page, scroll down to "Get Software", and then download and install the STM32CubeProgmmer software for your computing platform (Win32, Win64, Mac, or Linux.) Documentation and videos for the tool are also available on this web page.