Embedded Systems with ARM Cortex-M Microcontrollers in Assembly Language and C ISBN 978-0982692660

Installation of Keil Microcontroller Development Kit (MDK)

Adapted by Peter Roeser for SENG72005 on January 8, 2018
from materials from Yifeng Zhu January 3, 2017

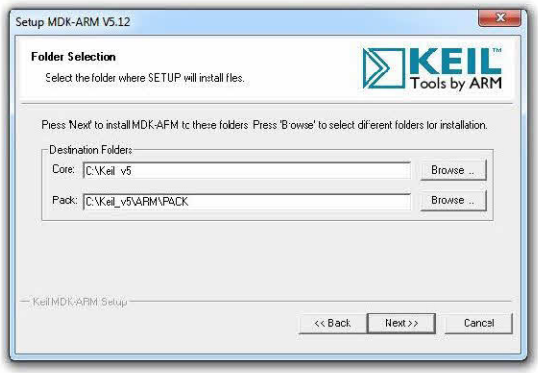
Warning: Do not connect the Discovery Kit into your PC or laptop before the software installation completes. If you connect your kit to PC before installing the USB driver, Windows OS often mistakenly associates a wrong USB driver to the kit. Thus, you will not be able to program the kit. The solution is to go to the control panel and change the USB driver to ST-Link USB driver.

Step 1: Install Keil MDK-ARM

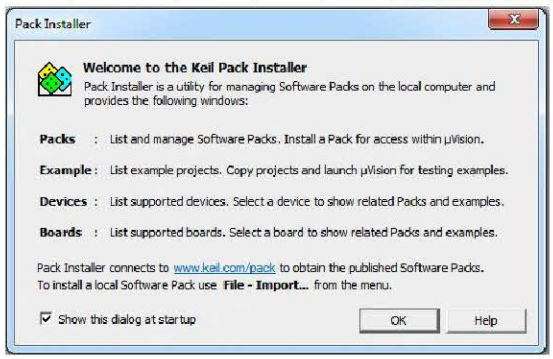
1. Download the latest free evaluation version Keil MDK-ARM from the following link (Current version available as MDK524a.zip on scratch drive or eConestoga):

   https://www.keil.com/demo/eval/arm.htm

   - Keil MDK-ARM contains µVision 4 IDE (Integrated Development Environment) with debugger, flash programmer and the ARM compiler toolchain.
   - The major limitation of the free version is that programs that generate more than 32 Kbytes of code and data will not compile, assemble, or link.
2. Run the downloaded MDK5xx.exe and install to the default path. The installed software takes 2GB disk storage space. You can install it to a different drive, instead of the default C drive, if there is limited space in C drive.



After the core software is installed, a dialog will show up to install Keil Pack. It automatically downloads selected components (called packs) from http://www.keil.com/dd2/pack/



Click OK and then the following window shows up.

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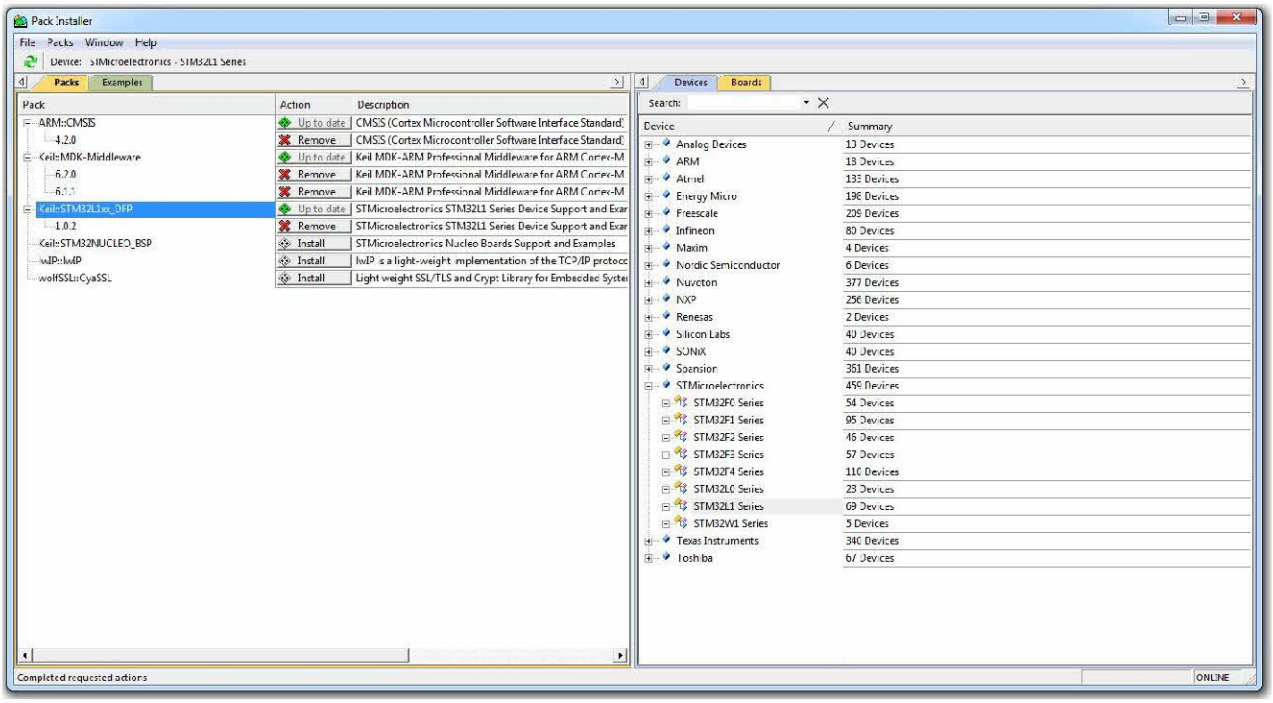
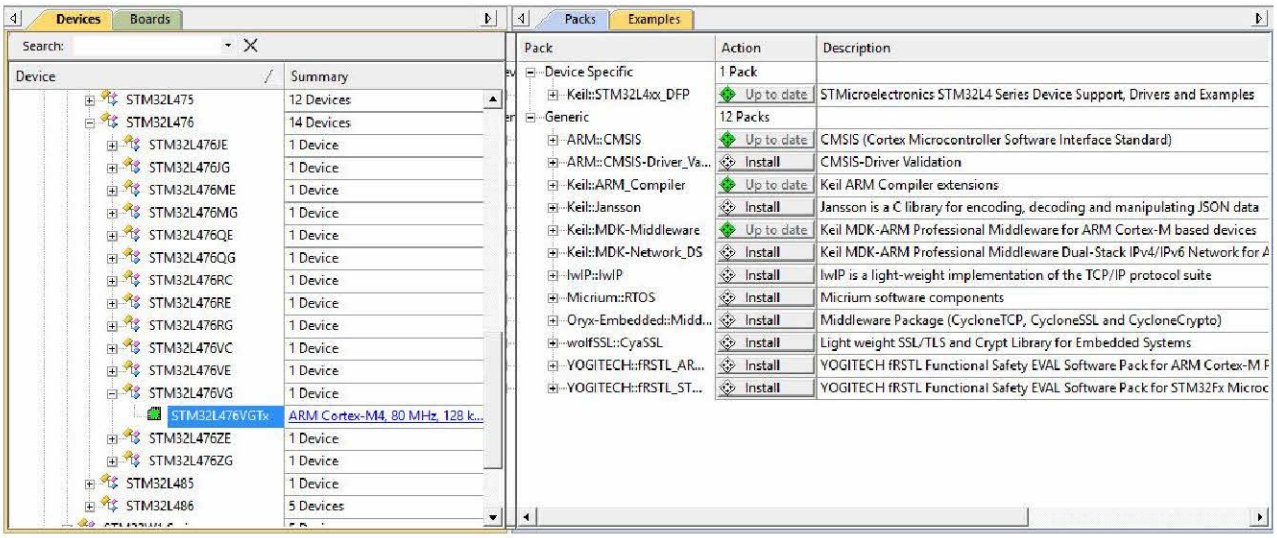
If you use the Discovery kit with STM32L152RCT6 MCU, please select the device **STM32L1 Series** on the right and all its available components will be shown on the left. Then, install or update the following software components:

- **ARM::CMSIS**
- **Keil::MDK-Middleware**
- **Keil::STM32L1xx_DFP**



If you use the Discovery kit with STM32L476VG MCU, please select the device **STM32L4 Series**, install **STM32L4xx_DFP**.



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Step 2: Install ST-Link USB Driver

- Do not connect the discovery kit before you install the USB driver for ST-Link.
- Go to the directory **C:\Keil_v5\ARM\STLink\USBDriver** and run **stlink_winusb_install.bat** in administrator mode.
- Now you can connect the discovery kit to computer via a "Type A to mini-B" USB cable. The discovery kit should be correctly recognized as “STMicroelectronics STLink dongle.”

Step 3: Install STM32 ST-Link Utility

You can download the installation software from the following link (Current version available as en.stsw-link004.zip on scratch drive or eConestoga):

http://www.st.com/web/en/catalog/tools/PF258168

Typically we use Keil to program the discovery kit. However, the ST-Link utility is helpful to re-program the flash memory if you mistakenly program the debug/program pins of the STM32L processor.