Installation of Keil Microcontroller Development Kit (MDK)

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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. As a result, 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:

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 software takes 2GB disk storage space. You can install it to a different driver, instead of the default C drive, if there is limited space in C drive.

Select the folder where SETUP will install file	as. Tools by a
Press 'Next' to install MDK-ARM to these fold	iers. Press 'Browse' to select different folders for installat
Destination Folders	
Core: C:\KeiLv5	Browse
Pack: C:\KeiLv5\ARM\PACK	Browse

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



Click OK and then the following window shows up.

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

🚵 Pack Installer					
File Packs Window Help					
Device: STMicroelectronics - STM32L1 Series					
A Packs Examples		4	Devices Boards		<u>•</u>
Pack	Action Des	cription	Search: • ×		
ARM::CMSIS	🚸 Up to date 🛛 CM	SIS (Cortex Microcontroller Software Interface Standard)	Device /	Summary	
4.2.0	💥 Remove 🛛 CM	SIS (Cortex Microcontroller Software Interface Standard)	Analog Devices	13 Devices	
-Keil::MDK-Middleware	🚸 Up to date 🛛 Keil	MDK-ARM Professional Middleware for ARM Cortex-M	ARM	18 Devices	
6.2.0	💥 Remove 🔤 Keil	MDK-ARM Professional Middleware for ARM Cortex-M	🗈 🔗 Atmel	133 Devices	
-6.1.1	💥 Remove 🔤 Keil	MDK-ARM Professional Middleware for ARM Cortex-M	Prergy Micro	198 Devices	
E- Keil::STM32L1xx_DFP	🚸 Up to date STN	licroelectronics STM32L1 Series Device Support and Exar	+ + Freescale	209 Devices	
	💥 Remove 🔤 STN	licroelectronics STM32L1 Series Device Support and Exar	🗄 🏈 Infineon	80 Devices	
Keil::STM32NUCLEO_BSP	Install STN	ficroelectronics Nucleo Boards Support and Examples	🕖 🏈 Maxim	4 Devices	
lwIP::lwIP		is a light-weight implementation of the TCP/IP protoce	Nordic Semiconductor	6 Devices	
wolfSSL::CyaSSL	Install Light	nt weight SSL/TLS and Crypt Library for Embedded Syster	🗄 🔶 Nuvoton	377 Devices	
			I → INXP	256 Devices	
			💿 🔗 Renesas	2 Devices	
			🗉 🔶 Silicon Labs	40 Devices	
			🗄 🔶 SONIX	40 Devices	
			🖅 🔗 Spansion	361 Devices	
			STMicroelectronics	459 Devices	
			STM32F0 Series	54 Devices	
			STM32F1 Series	95 Devices	
			STM32F2 Series	46 Devices	
			STM32F3 Series	57 Devices	
			STM32F4 Series	110 Devices	
			STM32L0 Series	23 Devices	
			STM32L1 Series	69 Devices	
				5 Devices	
			Texas Instruments	340 Devices	
			I I I I I I I I I I I I I I I I I I I	67 Devices	
4		•			
Completed requested actions			t		ONLINE

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

d Devices Boards	4	•	Image: Packs Examples		4
Search: • ×		Π	Pack	Action	Description
Device /	Summary	ev	 Device Specific 	1 Pack	
	12 Devices		Keil::STM32L4xx_DFP	💠 Up to date	STMicroelectronics STM32L4 Series Device Support, Drivers and Examples
	14 Devices	P	⊡⊸Generic	12 Packs	
🗄 🔧 STM32L476JE	1 Device		ARM::CMSIS	💠 Up to date	CMSIS (Cortex Microcontroller Software Interface Standard)
	1 Device		ARM::CMSIS-Driver_Va	🔅 Install	CMSIS-Driver Validation
	1 Device		Keil::ARM_Compiler	💠 Up to date	Keil ARM Compiler extensions
E STM32L476MG	1 Device		± Keil::Jansson	🔅 Install	Jansson is a C library for encoding, decoding and manipulating JSON data
■ 🍕 STM32L476QE	1 Device			💠 Up to date	Keil MDK-ARM Professional Middleware for ARM Cortex-M based devices
■ 🏤 STM32L476QG	1 Device			😔 Install	Keil MDK-ARM Professional Middleware Dual-Stack IPv4/IPv6 Network for A
	1 Device		• IwIP::IwIP	🔅 Install	IwIP is a light-weight implementation of the TCP/IP protocol suite
∎ 🏤 STM32L476RE	1 Device		Micrium::RTOS	🔅 Install	Micrium software components
E STM32L476RG	1 Device		Oryx-Embedded::Midd	🔅 Install	Middleware Package (CycloneTCP, CycloneSSL and CycloneCrypto)
■ 🏤 STM32L476VC	1 Device		wolfSSL::CyaSSL	😔 Install 🔤	Light weight SSL/TLS and Crypt Library for Embedded Systems
■ 🏤 STM32L476VE	1 Device			😔 Install	YOGITECH fRSTL Functional Safety EVAL Software Pack for ARM Cortex-M F
STM32L476VG	1 Device			🔅 Install	YOGITECH fRSTL Functional Safety EVAL Software Pack for STM32Fx Microc
STM32L476VGTx	ARM Cortex-M4, 80 MHz, 128 k				
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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:

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.

遍 STM32 ST-LINK	Utility				— C	- ×	<	
File Edit View	Target ST-LINK External Loader Help							
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Address	Erase Sectors		ASCII				~	
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0x08000010	Program & Verify CTRL+P	00000	222					
0x08000020	Blank Check	001CF	?					
0x08000030	Target memory compare with file	001D5	001D5 ???					
0x08000040	Option Bytes CTRL+B	001D7	???					
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