

ASSET-TRACKING Workshop prerequisites





Keil installation (1/3)

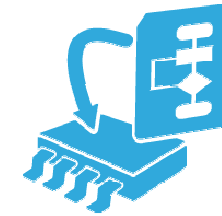
3

- ARM/Keil workbench installation (STM32L0/F0/BlueNRG-1/2) :

1

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

- Free of charge for ST Cortex M0/M0+
- > (BlueNRG-1/2 , STM32L0/F0)



2

Fill the form :

ARMKEIL Microcontroller Tools ARM

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ARM
Microcontroller Development Kit
Version 5.22
Complete the following form to download the Keil software development tools.

Enter Your Contact Information Below

First Name: philippe
Last Name: simonnet
E-mail: philippe.simonnet@st.com
Company: STM
Address: 20 bd romain roland
City: Paris
State/Province: (Select Your State or Prov.)

3

And download ARM Software install :

ARMKEIL Microcontroller Tools ARM

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ARM
Microcontroller Development Kit
Version 5.22
The Keil ARM Evaluation Kit allows you to create programs for ARM7, ARM9, Cortex-M and MCU devices.

- Review the hardware requirements before installing this software.
- Note the limitations of the evaluation tools.
- MDKS Overview and Introduction
- MDKS installation instructions

(MD5: 74d97653d2fe03c650fb0c2d0b3c0f8)

To install the ARM Software...

- Right-click on MDK522.EXE and save it to your computer.
- PDF files may be opened with Acrobat Reader.
- ZIP files may be opened with PKZIP or WINZIP.

MDK522.EXE (696,282K)
Friday, November 11, 2016



Keil installation (2/3)

3

- 4 For S2-LP Hands On - Check for STM32L0 package update :
- <http://www.keil.com/dd2/stmicroelectronics/stm32l053r8/#/eula-container>

- 5 And download device family Pack:

ARMKEIL
Microcontroller Tools

ARM

Home / MDK5 Device List / STM32L053R8

STMicroelectronics STM32L053R8

ARM Cortex-M0+, 32 MHz, 64 kB ROM, 8 kB RAM

The STM32L0 devices provides high power efficiency for a wide range of performance. It is achieved with a large choice of internal and external clock sources, an internal voltage adaptation and several low-power modes. Typical applications include application control and user interfaces, handheld equipment, AV receivers and digital TV, PC peripherals, gaming and GPS platforms, industrial applications, PLCs, inverters, printers, scanners, alarm systems, video intercoms, and HVACs - CRC calculation unit, 96-bit unique ID - USB 2.0 crystal-less, battery charging detection and LPM - True RNG and firewall protection

- Core ARM Cortex-M0+, 32 MHz 7 -channel DMA
- Memory 8 kB RAM, 64 kB ROM
- Clock & Power 1.65 V .. 3.60 V, 32 MHz
- Communication SPI, I2C, UART, USART, USB, Device

Quick Links

- Board List
- Software Packs
- MDK Version 5
- Legacy Support
- Feedback

Silicon Supplier

- STMicroelectronics

Device Family Pack DFP

Support for this device is contained in:
STMicroelectronics STM32L0 Series
Device Support and Examples

[Download](#)

- 6 Import pack installer once downloaded (zip file)

Pack Installer - C:\Keil_v5\ARM\PACK

File Packs Window Help

Refresh electronics - STM32L053

Import...

Exit

Device	Summary
SONIX	43 Devices
STMicroelectronics	724 Devices
STBlueNRG-1 Series	1 Device



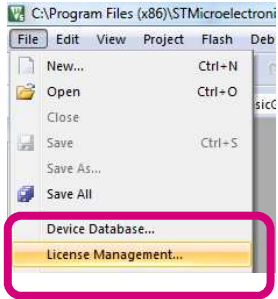
Free license
ST Cortex M0+

Keil installation (3/3)

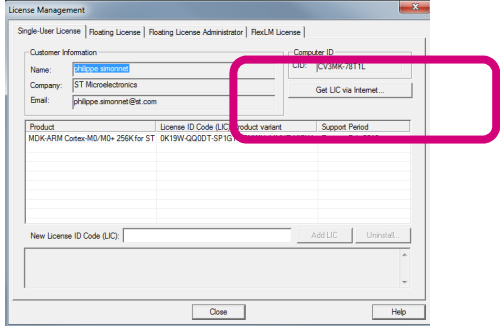
4 Go on keil webpage to get PSN (Product Serial Number) :

- To get PSN (Product Serial Number)
- <http://www2.keil.com/stmicroelectronics-stm32/mdk>

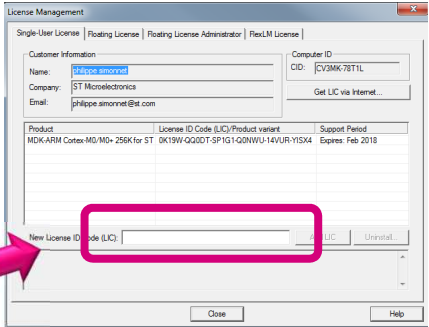
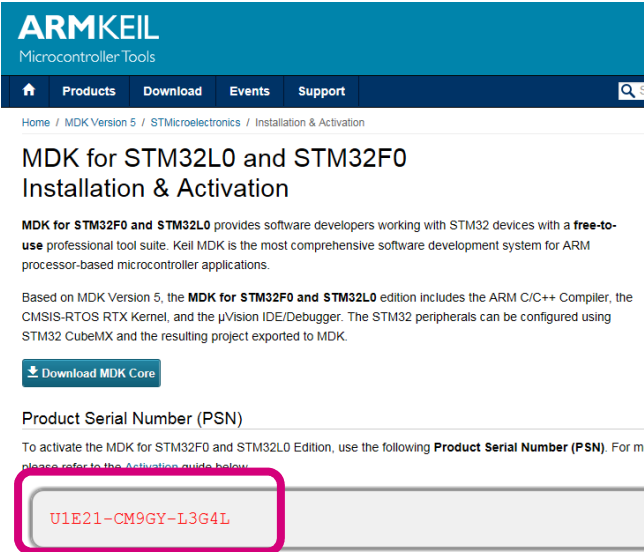
• Go to Keil IDE license management



• Click on 'Get a LIC via Internet' button



• Fill the form and you will receive a mail with new license ID





SW tools prerequisites

ST-Link driver

3

Download these 2 packs

1

ST-Link/V2-1 : <http://www.st.com/en/embedded-software/stsw-link009.html>

- ST-Link embedded in Nucleo board
- ST-Link USB driver required
- Purposes :
 - Flash & debug Nucleo boards
 - Debug S2-LP applications



2

FP-ATR-SIGFOX1 : [Download on this page](#)

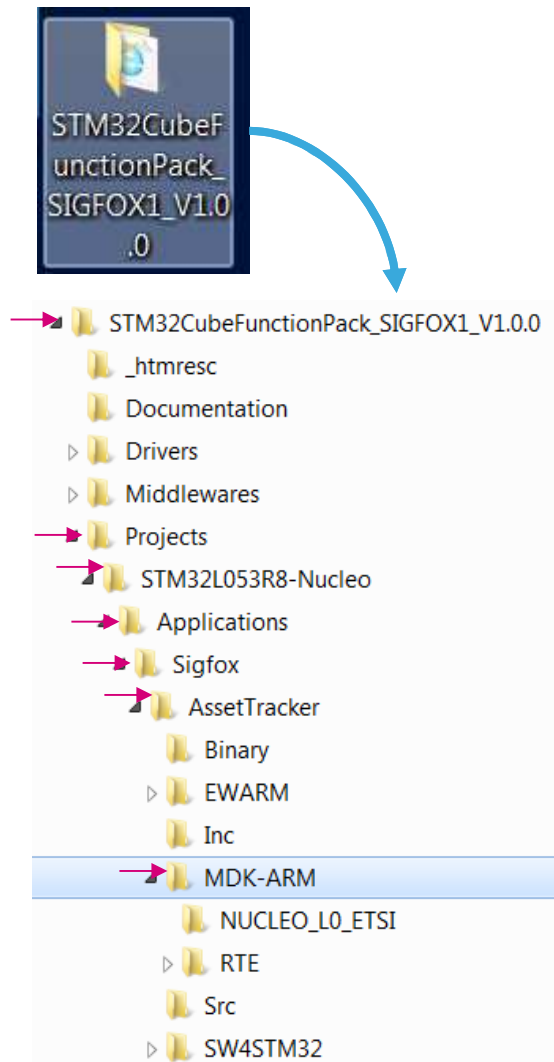
- STM32Cube function pack with MEMS sensor & SigFox connectivity
- Purposes :
 - Show Asset tracking solution
 - Will be used in the workshop.

Unzip the package on the Desktop

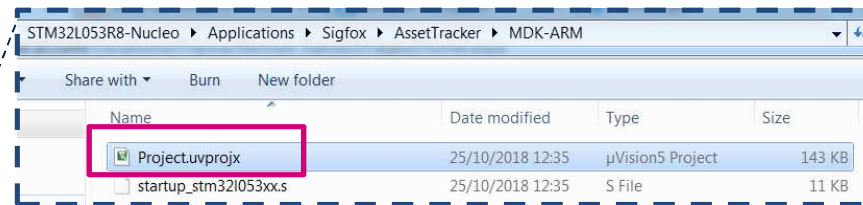
Application	FP-ATR-SIGFOX1
Middleware	Sigfox Library
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion boards X-NUCLEO-S2868A1 (Connect) X-NUCLEO-IKS01A2 (Sense)
	STM32 Nucleo development board

Verify that Keil can build the project

6



- 1 Open the folder and go to the **MDK-ARM** Folder :
STM32CubeFunctionPack_SIGFOX1_V1.0.0\Projects\STM32L053R8-Nucleo\Applications\Sigfox\AssetTracker\MDK-ARM
- 2 Open (double-click) the « **Project.uvprojx** » file, with Keil.



- 3
 - Clean the target : « **Project > Clean Targets...** »
 - Build the project : « **Project > Build Target ...** »
 - *Build Log should display 0 error & 0 warning. => Compil. is OK.*

```
compiling stm32l0xx_hal_msp.c...
linking...
Program Size: Code=44328 RO-data=1076 RW-data=804 ZI-data=3164
FromELF: creating hex file...
After Build - User command #1: fromelf --bin -o .\NUCLEO_L0_ETSI\NUCLEO_L0_ETSI.bin
"NUCLEO_L0_ETSI\NUCLEO_L0_ETSI.axf" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:01:41
```