



STM32-Murata LoRaWAN Pre-Training TESA Top Gun Rally 2017 KMUTNB

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System Requirement

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- Laptop
 - **Administrative privileges** (Admin rights) needed for driver/software install and for compiling codes.
- Windows Operating System
 - XP/Vista/Win7/Win8
- **Please bring the following:**
 - 1x USB 2.0 A - MICRO B MALE CABLE



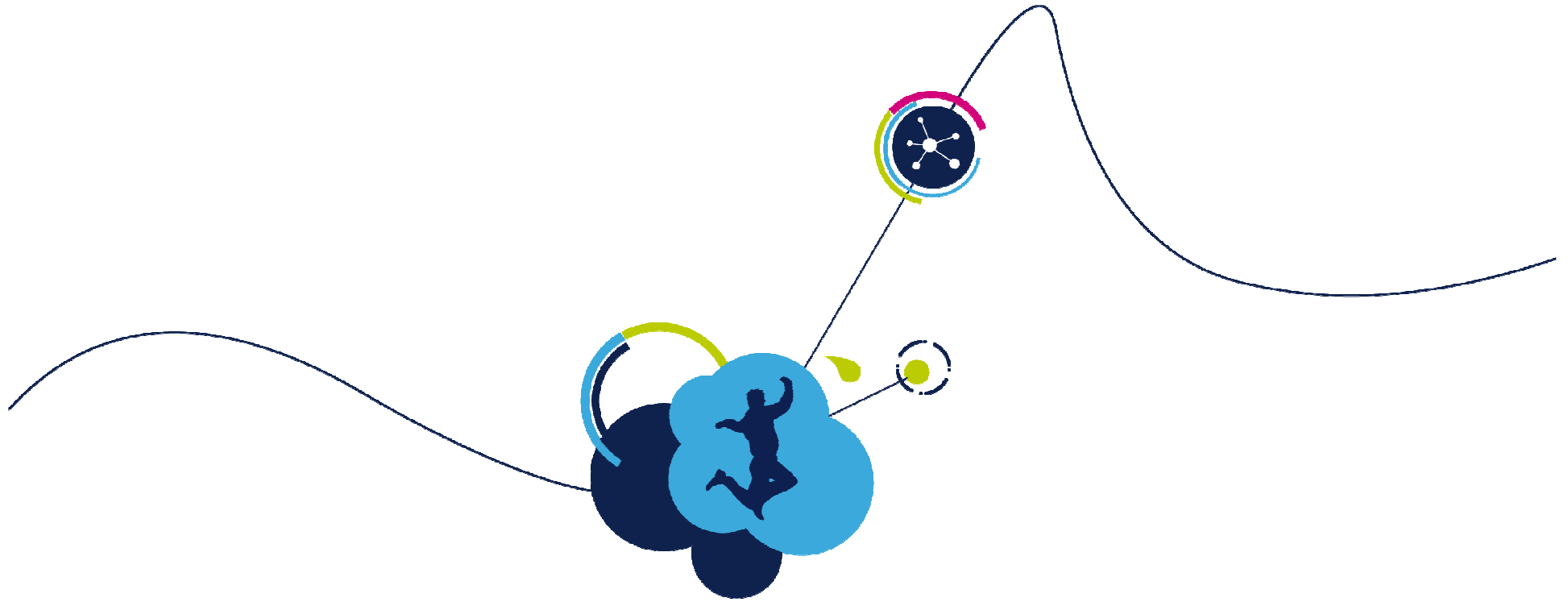
Installations before the workshop:

Download the following files

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Download the following software from the links provided. Refer to the installation procedures in the next pages.

- Software Development Environment:
 - KEIL MDK-ARM for STM32F0 and STM32L0: www2.keil.com/stmicroelectronics-stm32/mdk
 - **Important:** Requires internet access to activate the free license.
 - STMicroelectronics STM32L0 Series Device Support and Examples (Device Family Pack) from www.keil.com/dd2/Pack/
- ST-Link USB driver: www.st.com/stlinkv2
- STM32 ST-Link Utility: www.st.com/stlinkv2
- Terminal emulator software: Teraterm <https://ttssh2.osdn.jp/>
- LoRaWAN firmware library I-CUBE-LRWAN
 - www.st.com/i-cube-lrwan



Software Installation Steps

Step 1: KEIL MDK-ARM Installation

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- We will be using KEIL MDK-ARM v5 in this session.
- **MDK for STMicroelectronics STM32F0 and STM32L0**
 - Keil MDK-ARM for STM32F0 and STM32L0 provides software developers working with STM32 devices based on the ARM Cortex-M0 and ARM Cortex-M0+ cores with a **FREE-TO-USE** professional tool suite.
 - Product Serial Number (PSN) to activate the MDK for STM32F0 and STM32L0:
 - **U1E21-CM9GY-L3G4L**
- Keil MDK is the most comprehensive software development system for ARM processor-based microcontroller applications. Keil MDK includes the ARM C/C++ Compiler, the CMSIS-RTOS RTX Kernel, and the µVision IDE/Debugger.

Step 1a: KEIL MDK-ARM Installation

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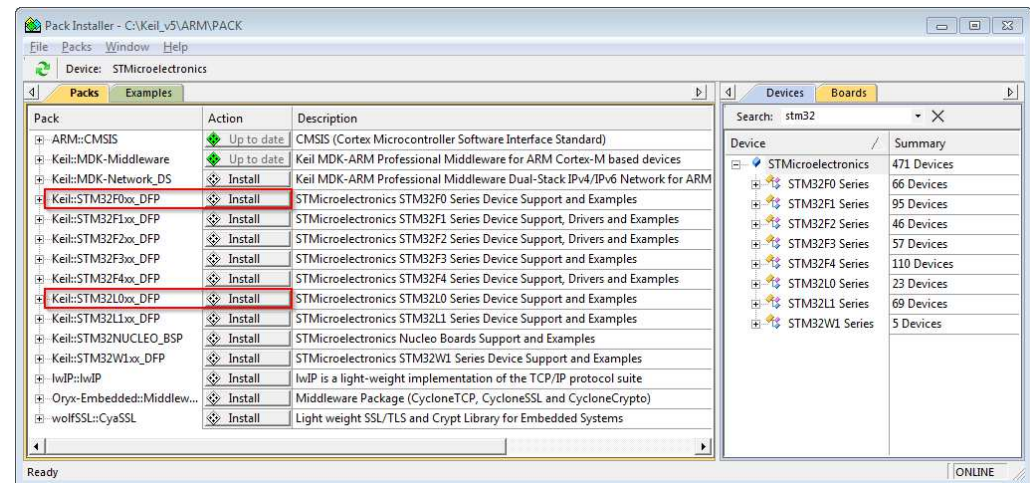
- Download Keil MDK-ARM www2.keil.com/stmicroelectronics-stm32/mdk
 - Take note of the **Product Serial Number (PSN)** as you will use this later to activate the License.
- Double click on **MDK5xx.EXE** to begin installation.



Step 1b: STM32L0 Device Family Pack (DFP) Installation

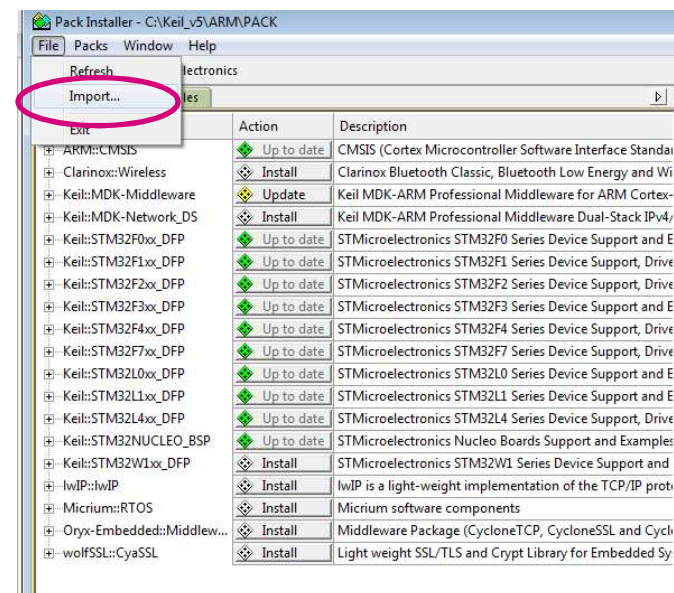
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- **Device Family Pack (DFP)** contains CMSIS system/startup files, drivers, and flash algorithms for a microcontroller device family.
- The STM32L0 DFP is required to be able to compile STM32L0 Keil projects.
- After installation, KEIL Pack Installer should automatically launch. Click Install to download and install the STM32L0 Device Family Packs supplied by KEIL.
 - If not, launch it manually by clicking **Project menu>Manage>Pack Installer**



Alternatively,

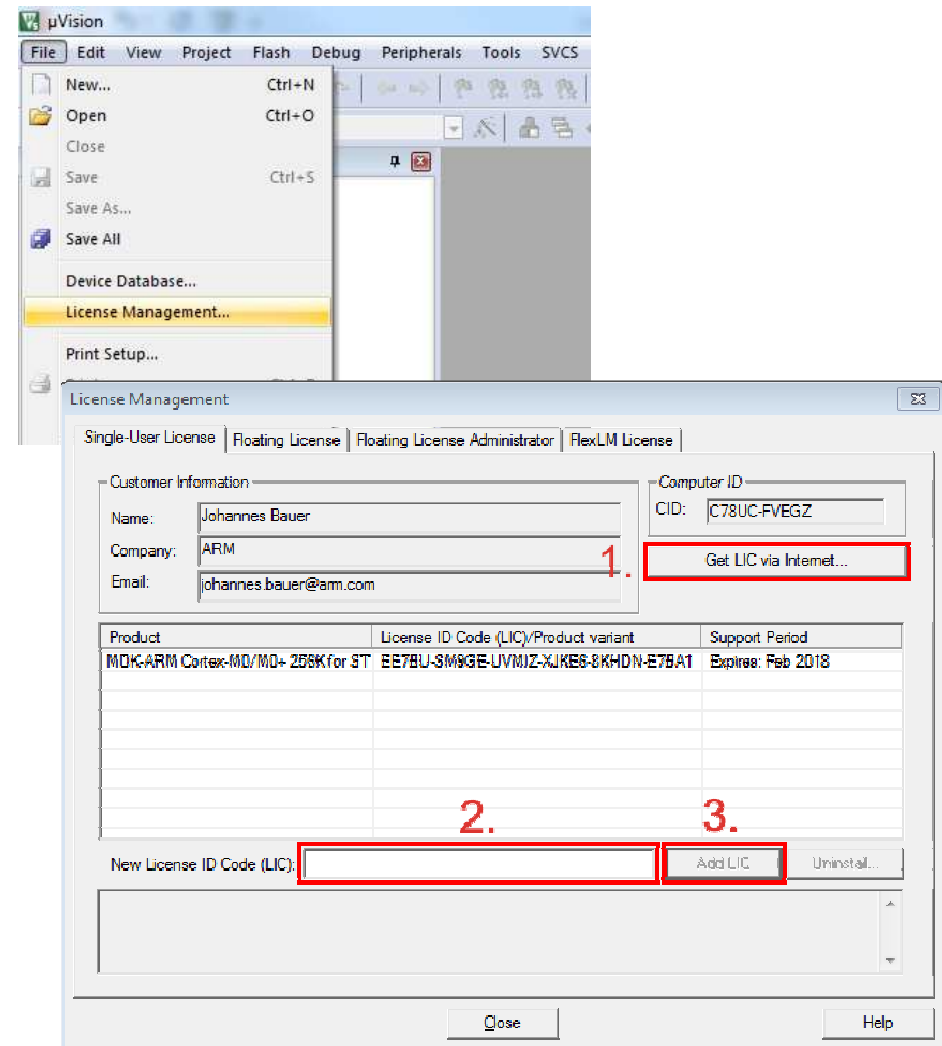
- An alternative way to install the STM32L0 DFP, is to manually import it.
- Download the STM32L0 DFP www.keil.com/dd2/Pack/
- Import the downloaded file (Keil.STM32L0xx_DFP.1.6.0.zip) through **File menu>Import**



Step 1c: KEIL MDK-ARM License Activation

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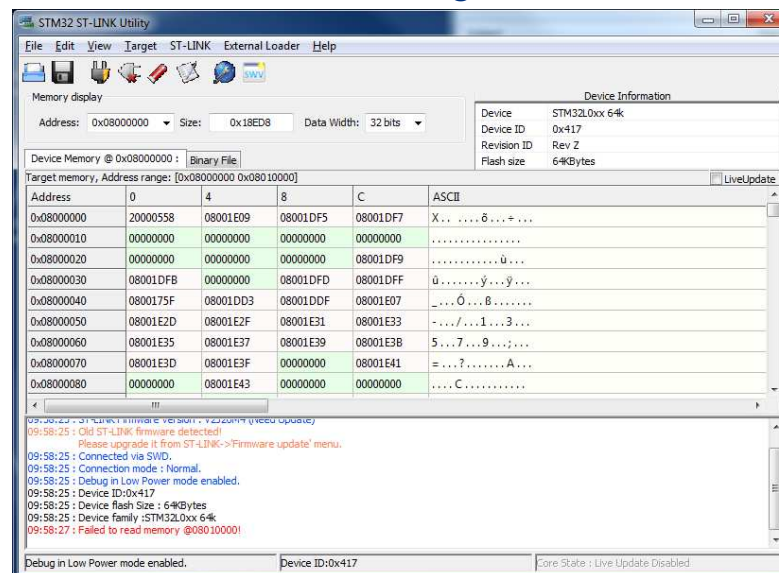
- Login with an account that has administration rights.
- Right-click the µVision icon and select **Run as Administrator...** from the context menu.
- Open the dialog **File — License Management...** and select the **Single-User License** tab.
- Click the button **Get LIC via Internet...**, then click the button **OK** to register the product. This action opens the License Management page on the Keil web site.
- Enter the **Product Serial Number U1E21-CM9GY-L3G4L** along with your contact information and click the button **Submit**. An e-mail is sent back with the **License ID Code (LIC)** within a few minutes.
- To activate the Software Product, enter the **LIC** in the field **New License ID Code (LIC)** of the dialog **License Management...** and click **Add LIC**.



Step 2: ST-Link USB driver And ST-Link Utility

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- Download the ST-Link USB drivers from www.st.com/stlinkv2 and install the drivers.
- Also download the STM32 ST-Link Utility from www.st.com/stlinkv2 and install the utility.
 - The STM32 ST-Link Utility is an STM32 programming software using the ST-Link programmer/debugger tool.
 - Besides programming capability, the tool can also be used to verify the ST-Link driver installation and connection to the target MCU.



Step 3: TeraTerm

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- Tera Term is a free software terminal emulator (communication program) which supports multiple communication including Serial port connections which will be used during this workshop.
- Download TeraTerm from <https://ttssh2.osdn.jp/>
- Run the teraterm-4.92.exe and follow the installation wizard.

