STM32LoRa discovery kit Installation

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life.augmented

System Requirement

- 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

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

- STM-STUDIO-STM32: https://www.st.com/en/development-tools/stm-studio-stm32.html

- 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

- 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:
            - ***4PPFW-QBEHZ-M0D5M***

- 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

- Install MDK ARM in folder "LoRa - CAT and ST\Software"
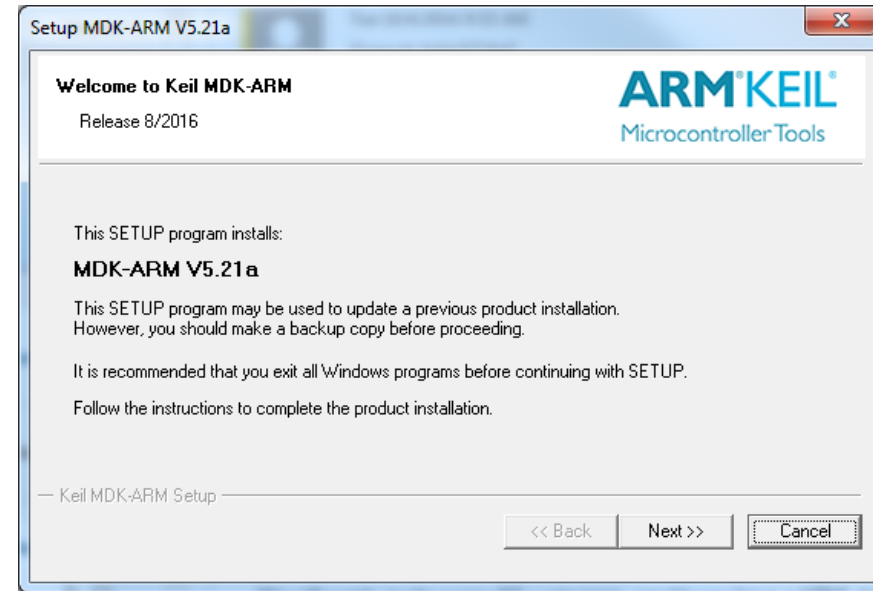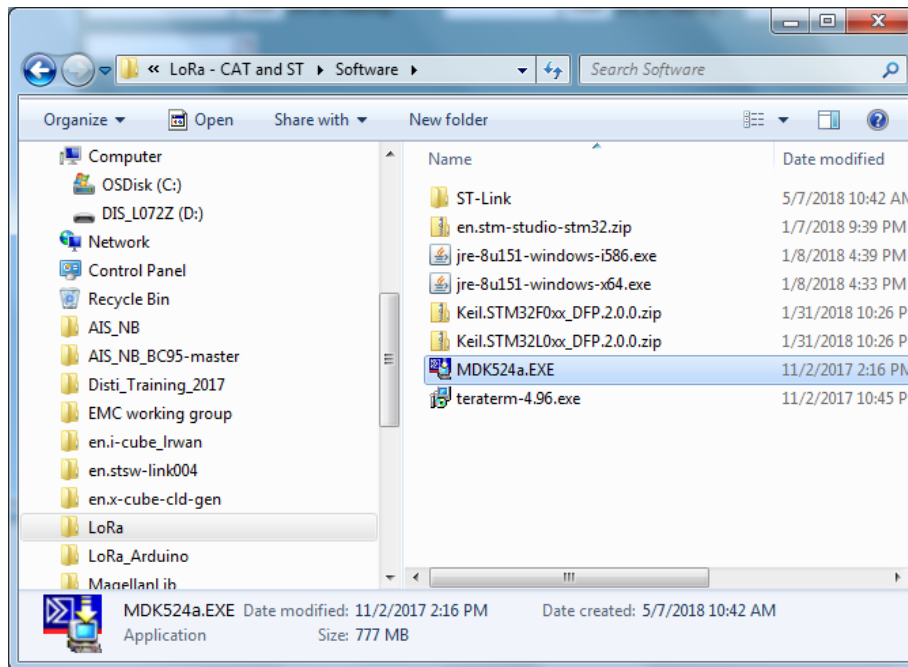
- Double click on **MDK5xx.EXE** to begin installation.

Download Keil MDK-ARM www2.keil.com/stmicroelectronics-stm32/mdk

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

- **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.
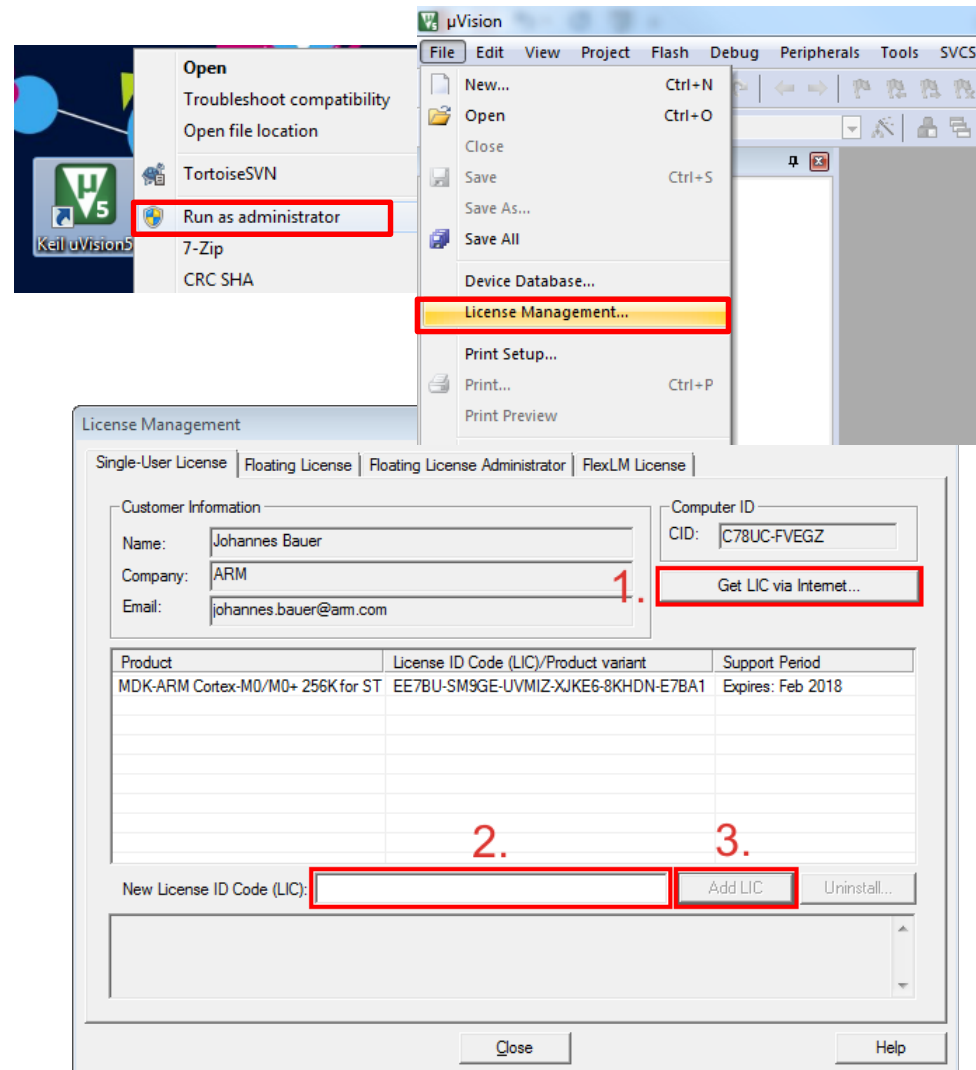
  - If not, launch it manually by clicking *Project menu>Manage>Pack Installer*
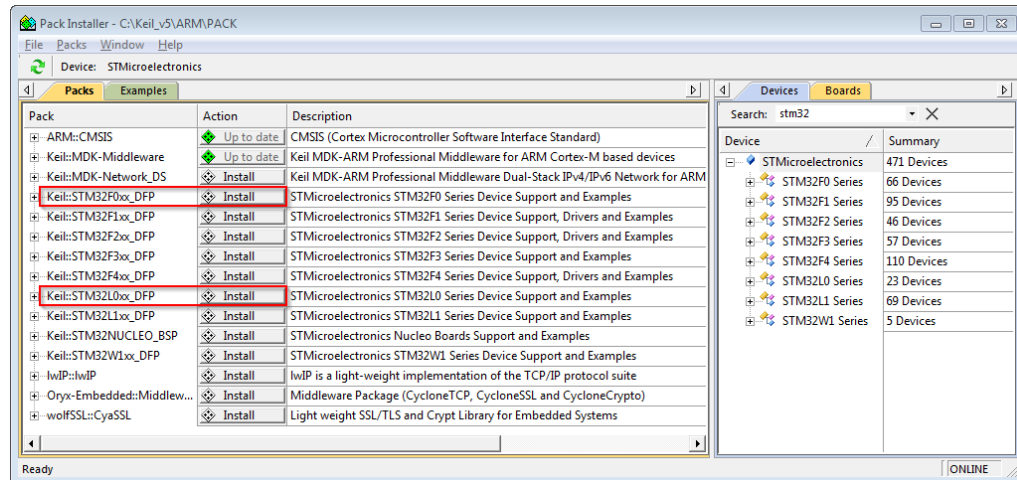
Alternatively,

- 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.2.0.0.zip**) through *File menu>Import*

Desktop\LoRa - CAT and ST\Software "Keil.STM32L0xx_DFP.2.0.0.zip"
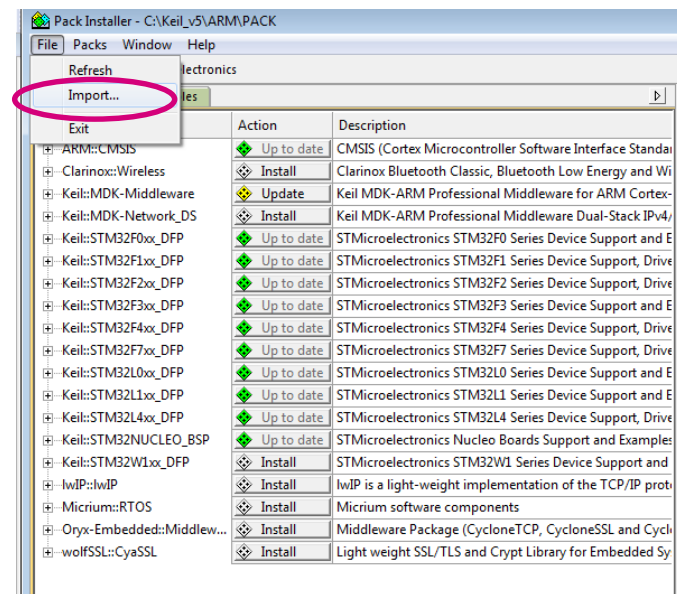
Step 1c: KEIL MDK-ARM License Activation

- Login with an account that has administration rights. **(Run as Administrator)**

- 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** *4PPFW-QBEHZ-M0D5M*

- 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**.

- Copy **4PPFW-QBEHZ-M0D5M** and put in Product Serial #(PSN)

Name of PC/Laptop

Step 1c: KEIL MDK-ARM License Activation

- Wait a few minute for email feedback from Keil

- Copy LIC code and pate into license management (2) and then Click Add LIC (3)
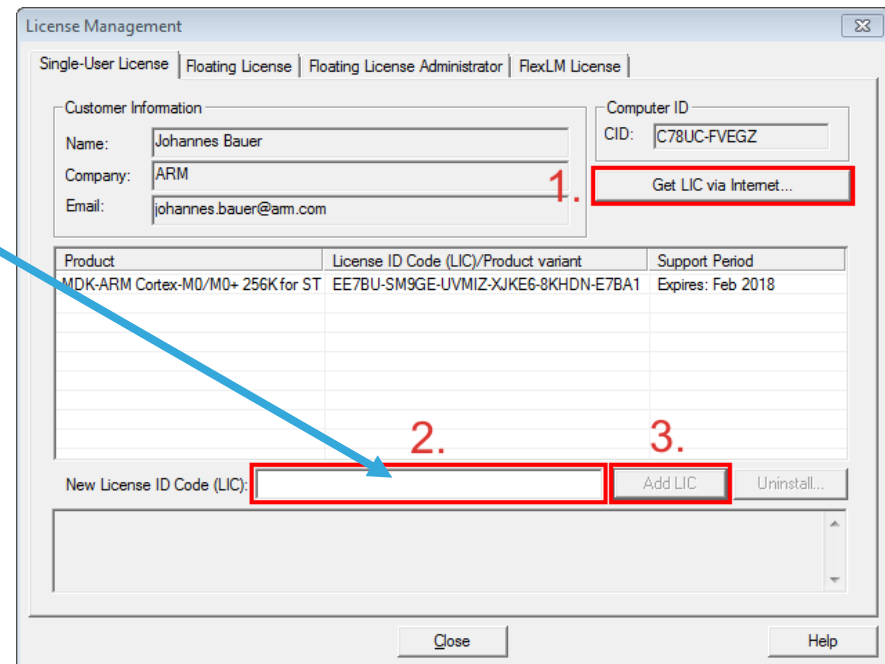
Step 2: ST-Link USB driver And ST-Link Utility

- Install ST Link Driver in folder "\LoRa - CAT and ST\Software\ST-Link\ST-Link USB drivers\en.stsw-link009"

- Righ click on:
  stlink_winusb_install.bat and Click Run as Administrator

- Install ST Link utility infolder "\LoRa - CAT and ST\Software\ST-Link\STM32 ST-Link Utility\en.stsw-link004"
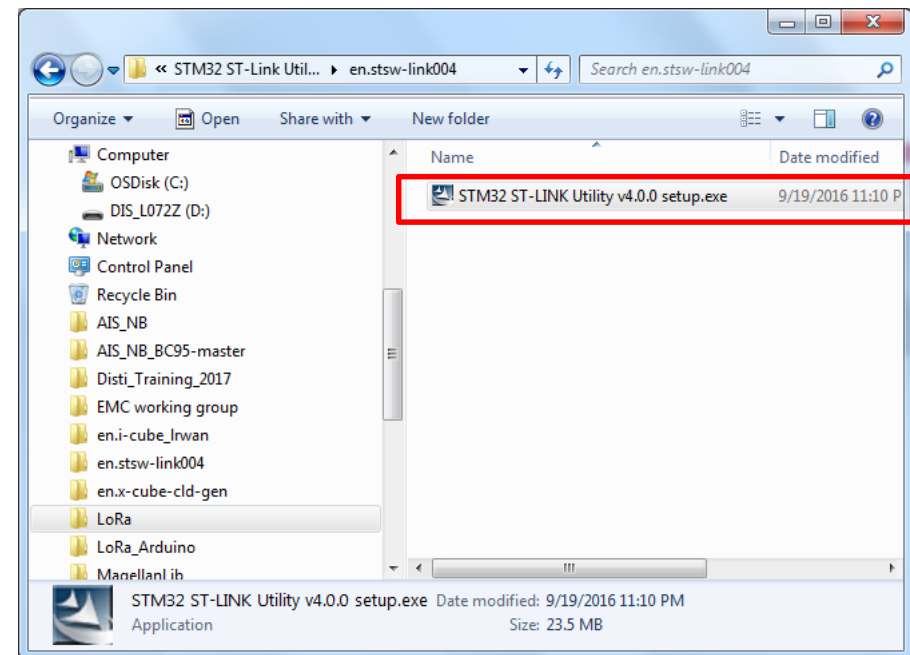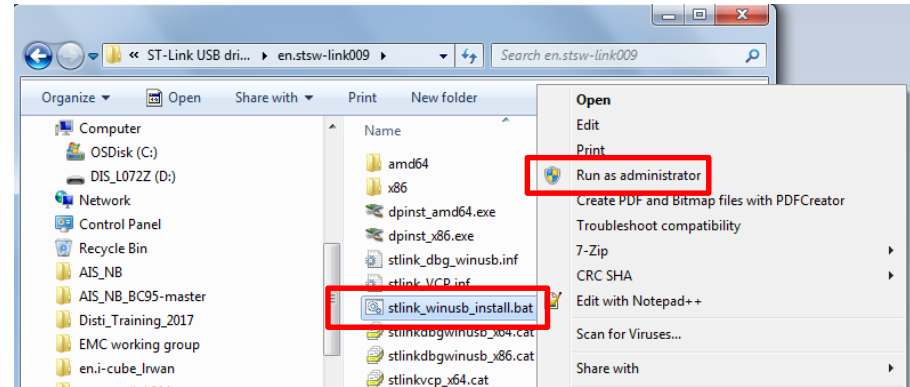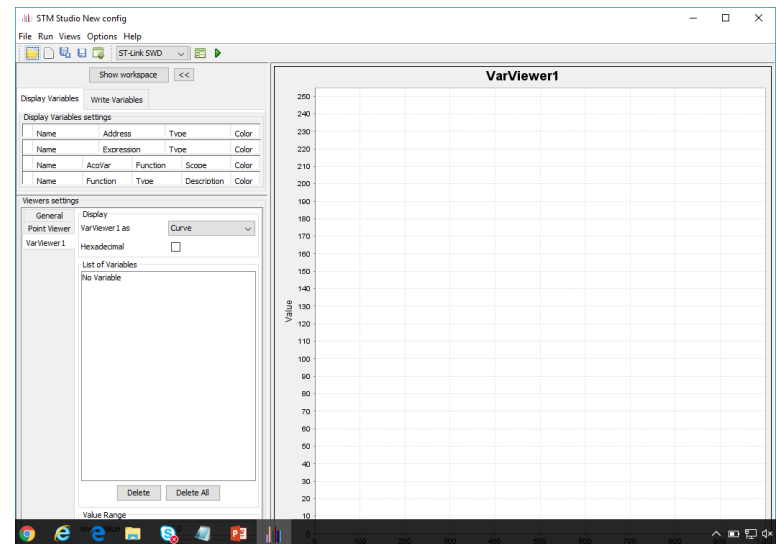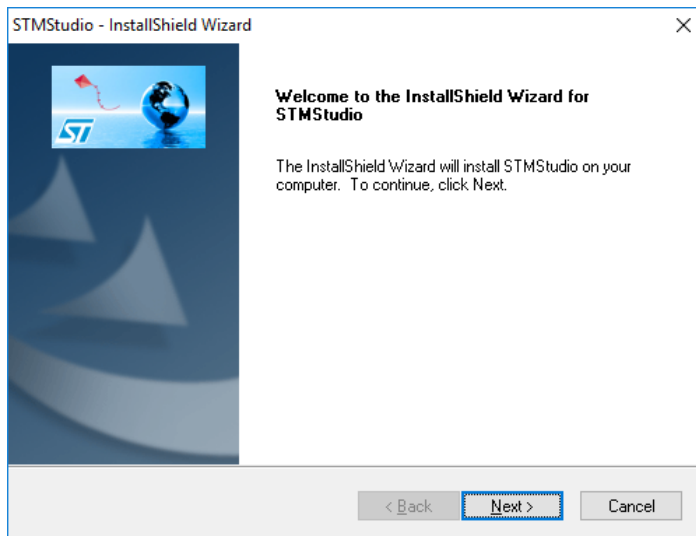

ST-Link USB drivers www.st.com/stlinkv2
STM32 ST-Link Utility www.st.com/stlinkv2

Step3: STM-STUDIO-STM32

- STM Studio run-time variables monitoring and visualization tool for STM32 microcontrollers

- Download and Install STM Studio : https://www.st.com/en/development-tools/stm-studio-stm32.html

Step 4: Teraterm

- 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.
- Install Teraterm in folder "LoRa - CAT and ST\Software"
- Run the teraterm-4.92.exe and follow the installation wizard.

Download Teraterm from https://ttssh2.osdn.jp/