



STM32LoRa discovery kit Installation

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System Requirement 2

- 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
- 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

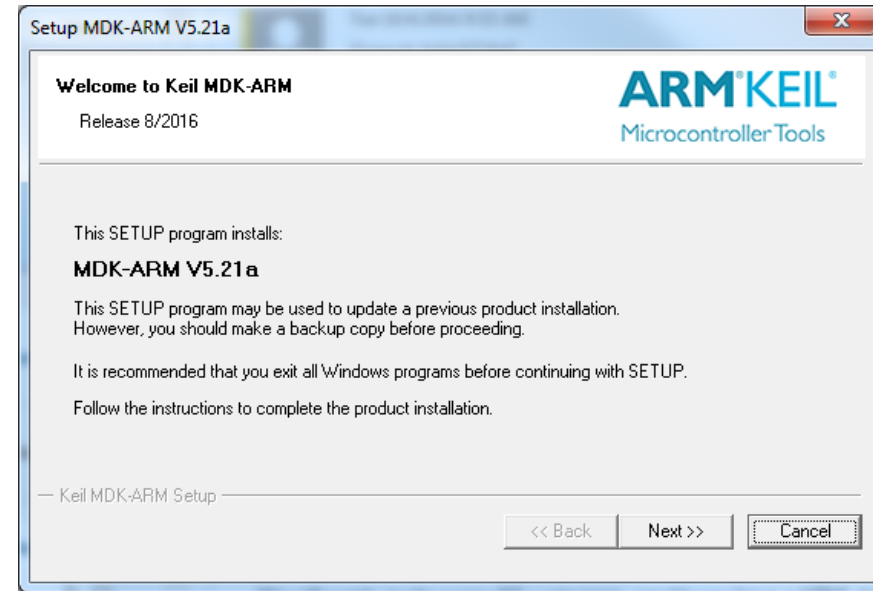
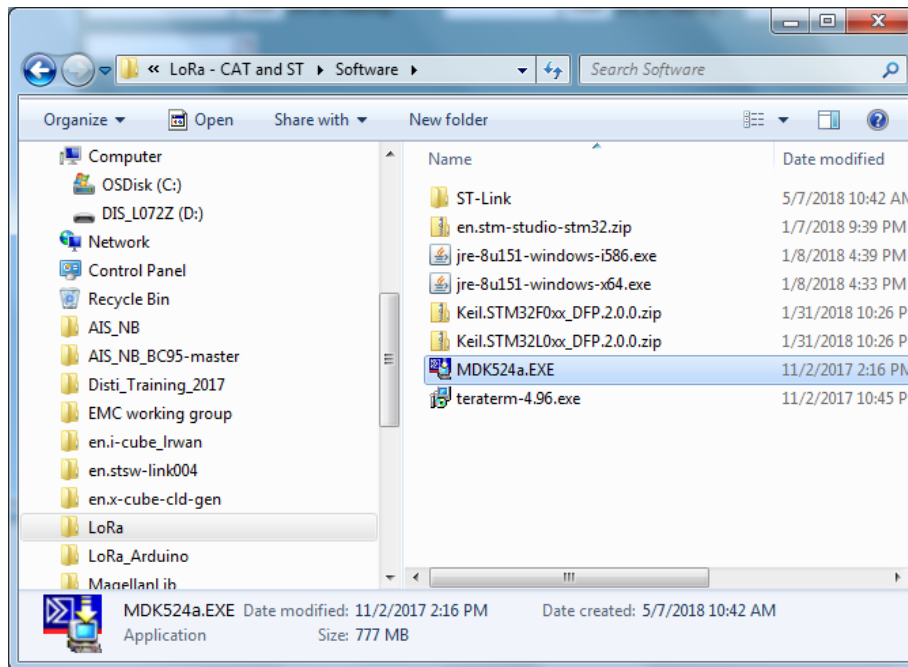
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- We will be using KEIL MDK-ARM v5 in this session.
- **MDK for STMicroelectronics STM32F0 and STM32L0**
 - Keil MDK-ARM for STM32F0 and STM32L0 provides software developers working with STM32 devices based on the ARM Cortex-M0 and ARM Cortex-M0+ cores with a **FREE-TO-USE** professional tool suite.
 - Product Serial Number (PSN) to activate the MDK for STM32F0 and STM32L0:
• 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

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- Install MDK ARM in folder “LoRa - CAT and ST\Software”

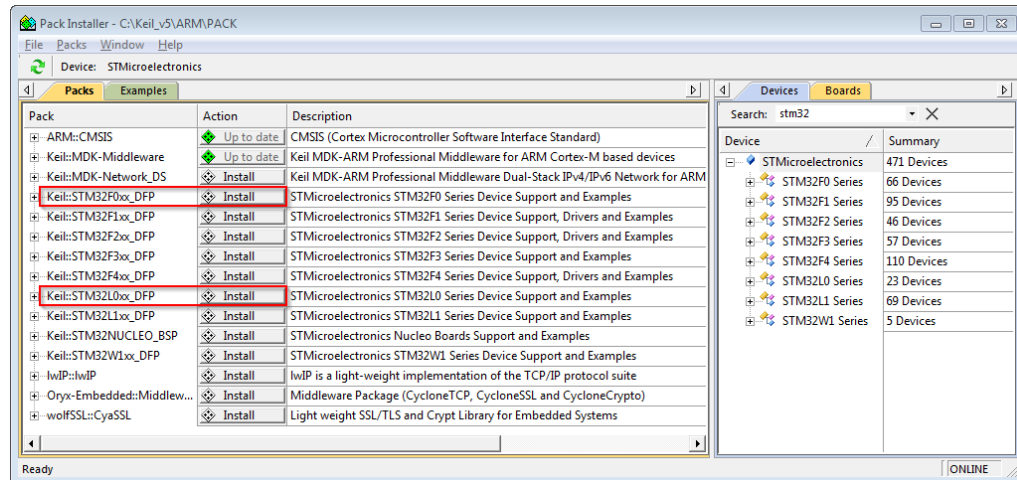


- Double click on **MDK5xx.EXE** to begin installation.

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

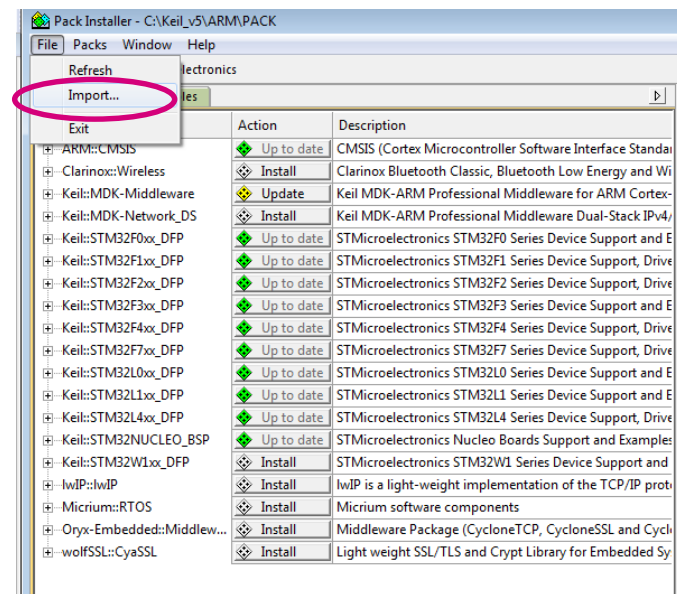
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- **Device Family Pack (DFP)** contains CMSIS system/startup files, drivers, and flash algorithms for a microcontroller device family.
- The STM32L0 DFP is required to be able to compile STM32L0 Keil projects.
- After installation, KEIL Pack Installer 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,

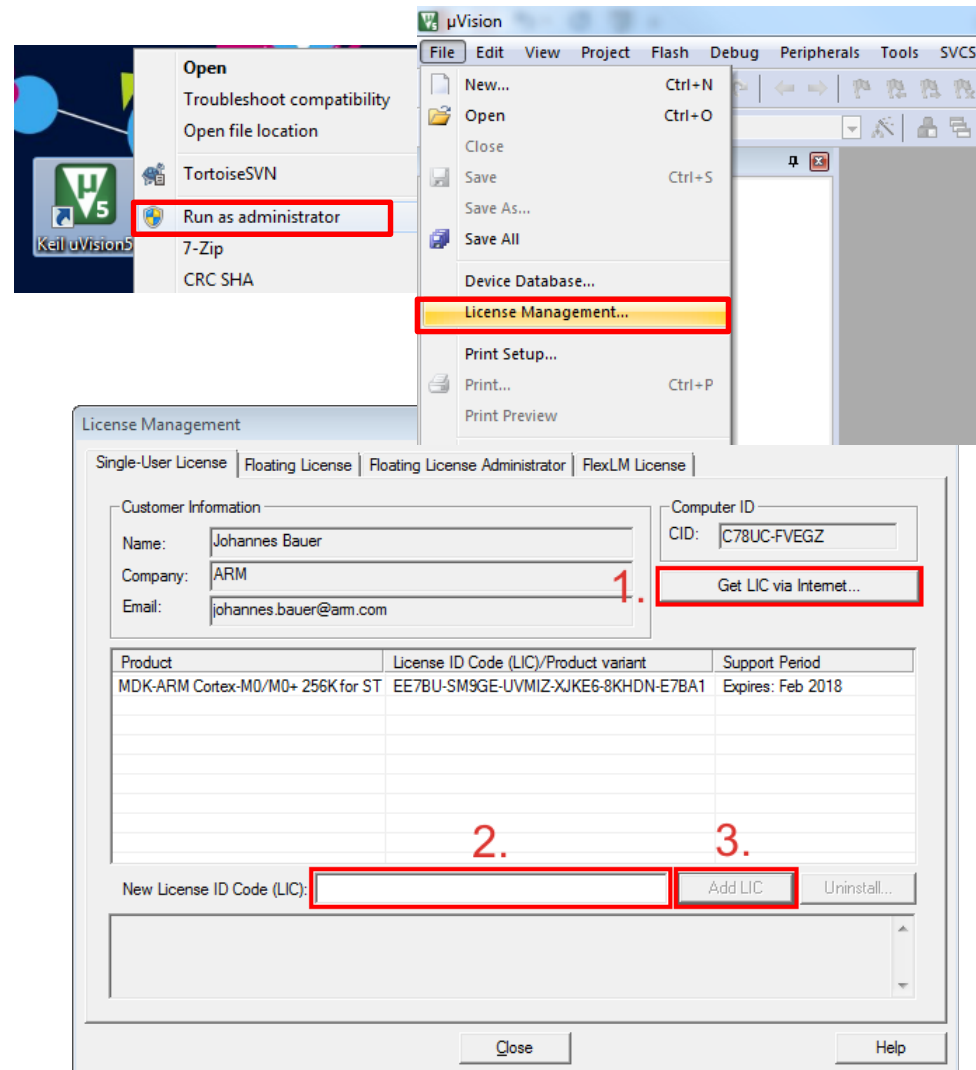
- An alternative way to install the STM32L0 DFP, is to manually import it.
- Download the STM32L0 DFP www.keil.com/dd2/Pack/
- Import the downloaded file (**Keil.STM32L0xx_DFP.2.0.0.zip**) through **File menu>Import**



Step 1c: KEIL MDK-ARM License Activation

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- Login with an account that has administration rights. (**Run as Administrator**)
- Right-click the μ Vision 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**.



Step 1c: KEIL MDK-ARM License Activation

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

The screenshot shows the 'Single-User License' page on the KEIL website. A red arrow points from the text '4PPFW-QBEHZ-M0D5M' in the list above to the 'Product Serial # (PSN)' input field. Another red arrow points from a green box labeled 'Name of PC/Laptop' to the 'PC Description' input field. The page includes a navigation bar with 'Products', 'Download', 'Events', and 'Support'. A sidebar on the left lists 'Product Licensing' options. The main content area contains instructions and a form with fields for 'Computer ID (CID)', 'Product Serial # (PSN)', 'PC Description', and 'First Name'.

armKEIL

Home / Product Licensing

Single-User License

Enter your Product Serial Number (PSN) and contact information using the following form to license your Keil product. **Be sure to include dashes.**

Please make certain your e-mail address is valid. After verifying your Product Serial Number and Computer ID (CID), **we will send you a License ID Code (LIC) via e-mail.** E-mail is sent from licmgr@keil.com so make sure any spam blocker you use is configured to allow this address.

Enter Your Contact Information Below

Computer ID (CID):

Product Serial # (PSN):

PC Description:

Enter a description of the PC on which this license is registered.
For example: LAB PC, Office Computer, Laptop, John's PC, etc.

First Name:

Step 1c: KEIL MDK-ARM License Activation

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- Wait a few minute for email feedback from Keil



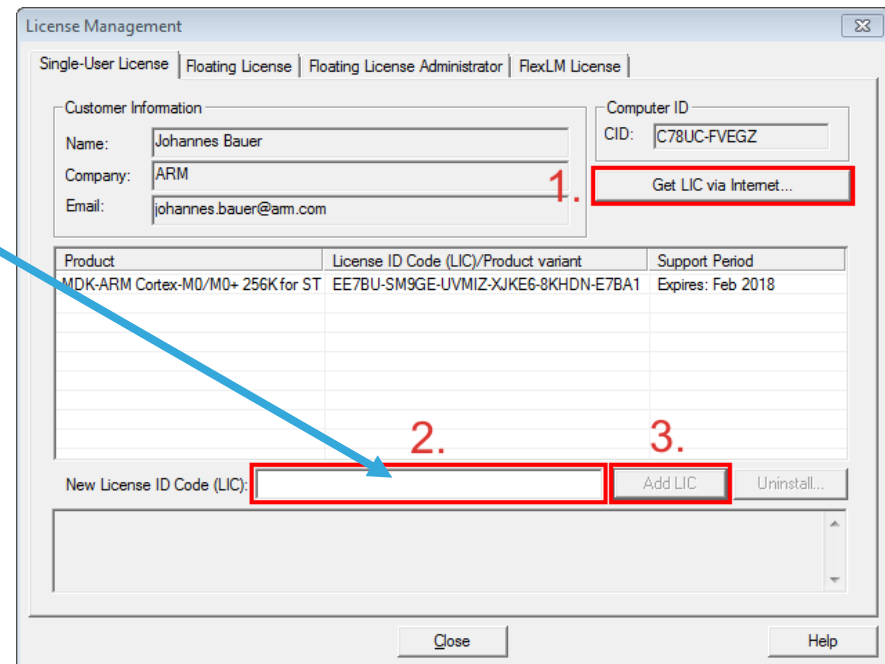
Thank you for licensing your Keil product. Your License ID Code (LIC) is printed below. Print a copy of this e-mail to keep for your records.

MDK-ARM Cortex-M0/M0+ 256K
For ST Only
Support Ends 31 Jan 2020

PC Description [redacted]
Computer ID (CID): [redacted]

License ID Code (LIC): 1L22Z-J2LA1-WTQK5-U9075-95MI8-36T11V1

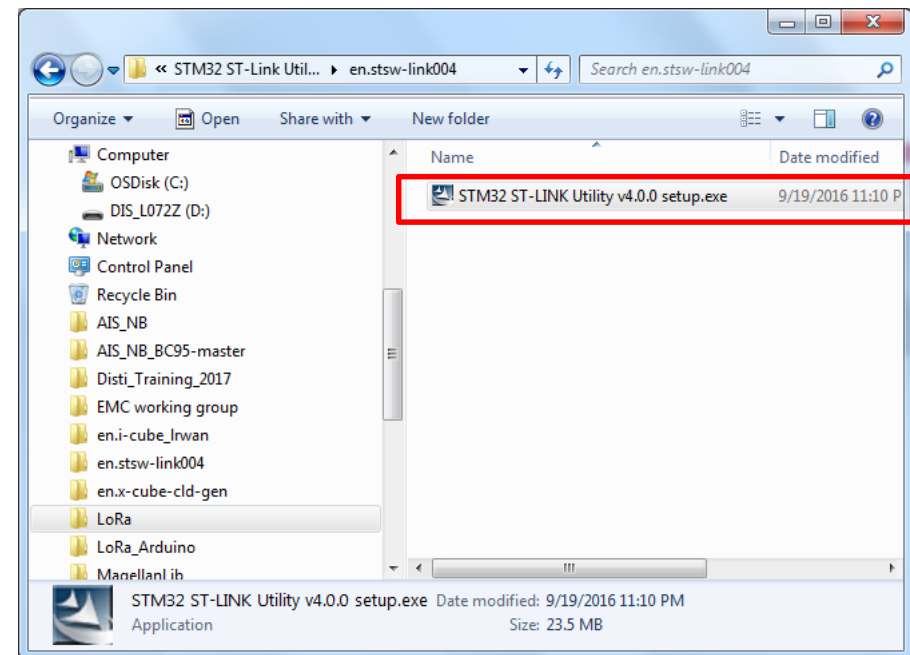
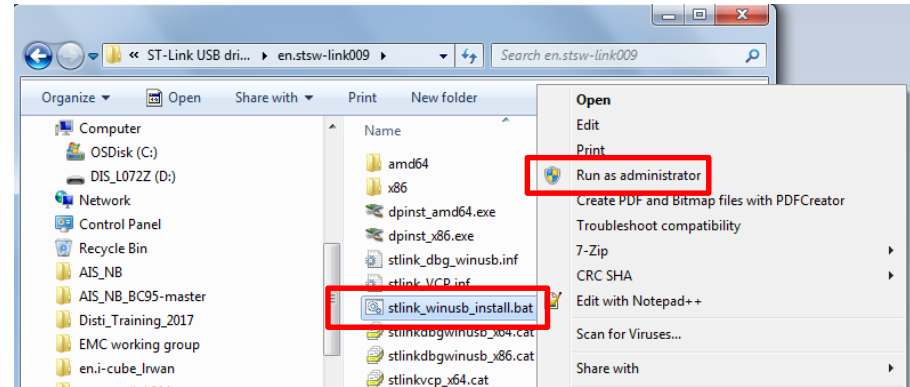
- Copy LIC code and paste into license management (2) and then Click Add LIC (3)



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

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- Install ST Link Driver in folder “\LoRa - CAT and ST\Software\ST-Link\ST-Link USB drivers\en.stsw-link009”
- Right click on:
stlink_winusb_install.bat and Click
Run as Administrator
- Install ST Link utility in folder “\LoRa - CAT and ST\Software\ST-Link\STM32 ST-Link Utility\en.stsw-link004”

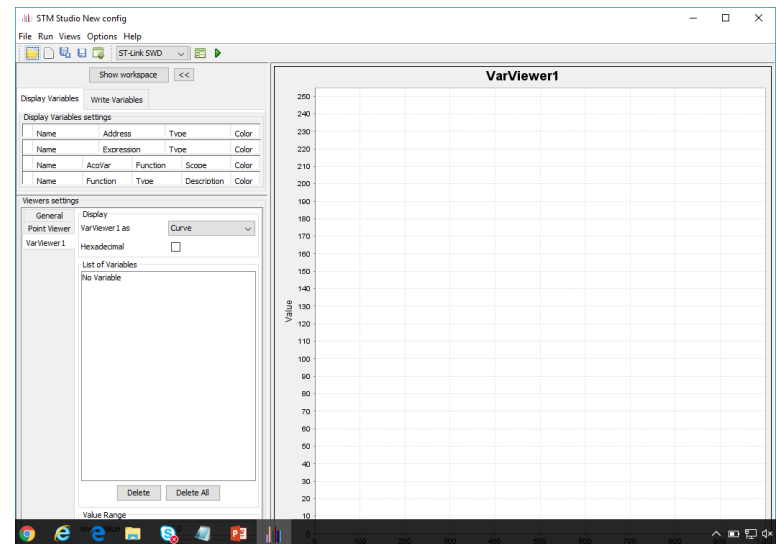
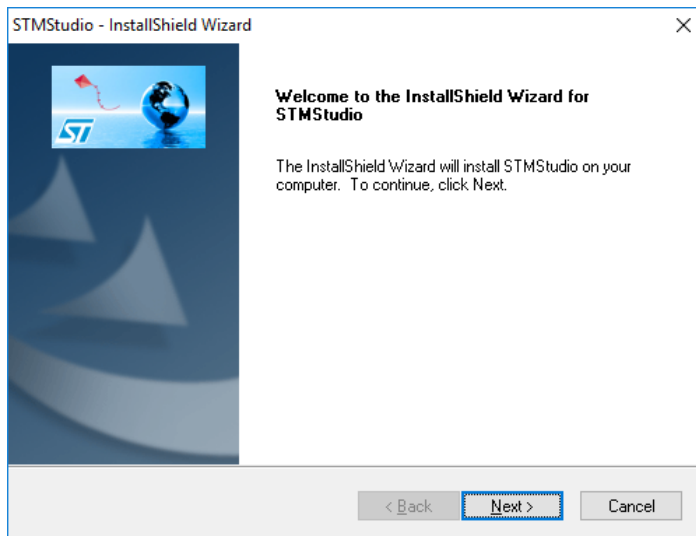


ST-Link USB drivers www.st.com/stlinkv2
STM32 ST-Link Utility www.st.com/stlinkv2

Step3: STM-STUDIO-STM32

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- 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

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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.
- Install TeraTerm in folder “LoRa - CAT and ST\Software”
- Run the teraterm-4.92.exe and follow the installation wizard.

