

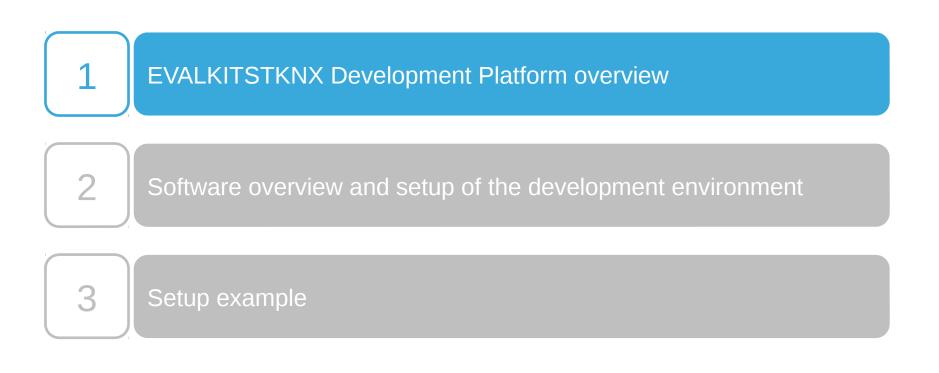
Quick Start Guide STKNX evaluation board (EVALKITSTKNX)





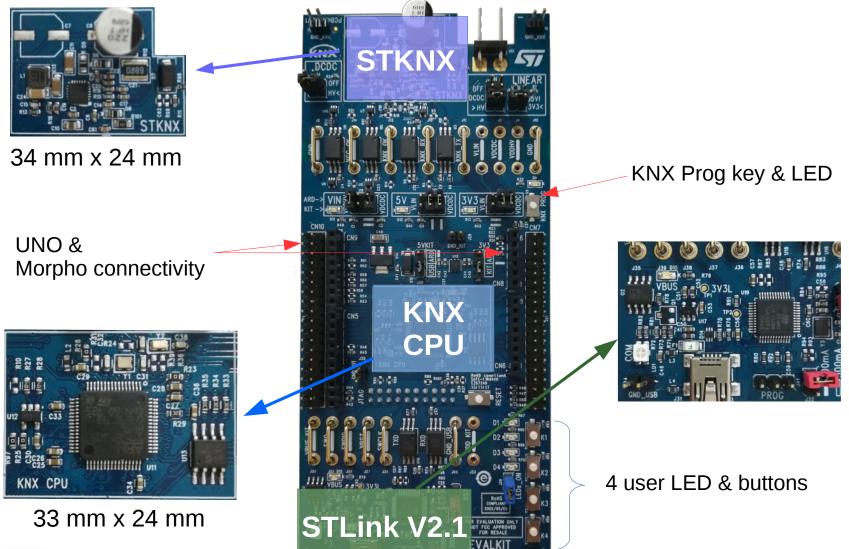








EVALKITSTKNX Development Platform overview Board description

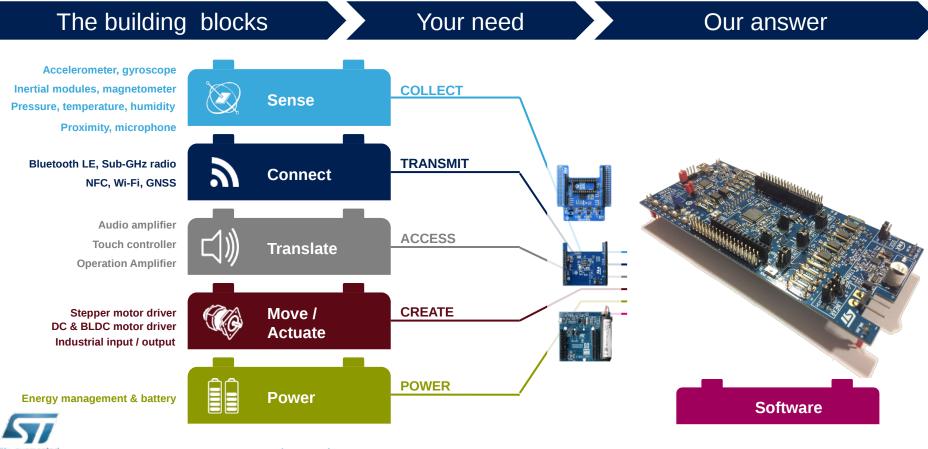


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70 mm x 155 mm

EVALKITSTKNX Development Platform overview Development platform spirit

- EVALKITSTKNX has been developed in the spirit of the STM32 Nucleo boards.
- Expansion boards with additional functionality can be **plugged directly on top of the Eval Kit** development board or stacked on another expansion board.



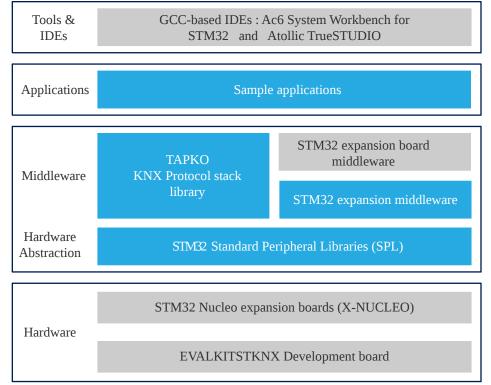
www.st.com/x-nucleo





Software Overview and Setup Software components

- EVALKITSTKNX comes with a complete software package. A sample application is provided.
- Access to hardware features is simplified with the utilisation of the STM32 Standard Peripheral Libraries (SPL)
- A demonstration version of the TAPKO's KNX Protocol stack is provided as a binary file.
- The software package is compatible with two free GCC-based IDEs : Ac6 System Workbench for STM32 and Atollic TrueSTUDIO. Versions of thes two IDE exist for Linux and Windows OS.

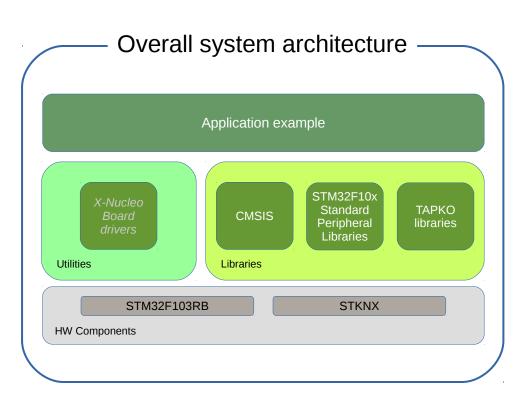




Software Overview and Setup Software overview

STM32F103RB-STKNX software description

- This software, running on the STM32F103, demonstrate the STKNX capabilities.
- It is built on top of the STM32 Standard Peripheral Libraries (SPL) that eases access to STM32 features.
- It uses a demonstration version of the TAPKO KNX protocol stack.
- Example to demonstrate actuator and sensor.





Software Overview and Setup Software prerequisites

- A Linux computer or a Windows computer with one of the supported development toolchains:
 - Atollic: TrueSTUDIO (Link)
 - AC6 System Workbench for STM32 : SW4STM32 (Link)

or a Mac OSX computer with AC6 System Workbench for STM32

- EVALKITSTKNX firmware example
- ST-LINK/V2-1 USB driver (Link)
- ST-LINK/V2-1 firmware upgrade (Link)
- KNX ETS5 (Engineering Tool Software) Application (Link)

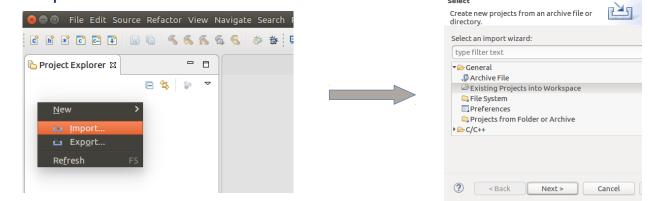


Download the STM32F103RB-STKNX package and extract it in your file system.

Open Atollic TrueSTUDIO and when requested to select a directory as workspace, browse t0 : <your path>/STM32F103RB-STKNX/Project/STM32F10x_STKNX_LedLevel/Attolic

8 Eclipse Launcher
Select a directory as workspace Atollic TrueSTUDIO for STM32 uses the workspace directory to store its preferences and development artifacts.
Workspace: STKNX/Project/STM32F10x_STKNX_LedLevel/Attolic Browse
Use this as the default and do not ask again
▶ Recent Workspaces
Cancel OK

2 In the **ProjectExplorer** panel, right click and select Import → General → "Existing Projects into Workspace"





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In the Import windows, click on Browse and on OK in the next window.

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Select root directory:	▼ B <u>r</u> owse	Documents		
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	Select All	 Videos ide 		
		Select root directory of the projects	s to import	Cancel

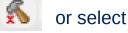
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The project to import has been automatically selected. You can now click on Finish. The project is imported.

😣 💷 Import	
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EvalKitSTKNX_LedLevel (/local/home	Select All
Options Search for nested projects Copy projects into workspace Hide projects that already exist in the workspace	
Working sets Add project to working sets Working sets:	Ne <u>w</u> S <u>e</u> lect
? < Back Next > Cancel	Finish



Select the project name in the **Project Explorer**, and click on Clean icon Clean Project in the contextual menu.



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Click on build icon

or select Clean Project in the contextual menu.

```
🖹 Problems 🧔 Tasks 📮 Console 🛿 🔲 Properties
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arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32t10x_rtc.c -mthumb -mcpu=cortex
arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32f10x_spi.c -mthumb -mcpu=cortey
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arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32f10x_flash.c -mthumb -mcpu=cort
arm-atollic-eabi-gcc -c ../../../../../Libraries/Tapko/dev_mod/07B0/knx07B0_if.c -mthumb -mcpu=cortex-m3 -std=qnull
arm-atollic-eabi-gcc -c ../../../../Libraries/CMSIS/CM3/CoreSupport/core cm3.c -mthumb -mcpu=cortex-m3 -std=gnul1
arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x StdPeriph Driver/src/stm32f10x iwdg.c -mthumb -mcpu=corte
arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32f10x_rcc.c -mthumb -mcpu=cortey
arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32f10x_exti.c -mthumb -mcpu=corte
arm-atollic-eabi-gcc -c ../../../../Libraries/STM32F10x_StdPeriph_Driver/src/stm32f10x_usart.c -mthumb -mcpu=cort
arm-atollic-eabi-gcc -c -mthumb -mcpu=cortex-m3 -g -Wa,--warn -x assembler-with-cpp -o startup/startup stm32f10x md.
arm-atollic-eabi-gcc -o EvalKitSTKNX LedLevel.elf Examples/Src/app data.o Examples/Src/demo dimmer.o Examples/Src/ma
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Print size information
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          data
                   bss
                           dec
                                   hex filename
  65100
          1750
                  2432
                         69282
                                 10ea2 EvalKitSTKNX LedLevel.elf
Print size information done
Generate listing file
Output sent to: EvalKitSTKNX LedLevel.list
Generate listing file done
Generate build reports done
arm-atollic-eabi-objcopy -0 binary EvalKitSTKNX LedLevel.elf EvalKitSTKNX LedLevel.bin
arm-atollic-eabi-size EvalKitSTKNX LedLevel.elf
17:25:31 Build Finished (took 18s.320ms)
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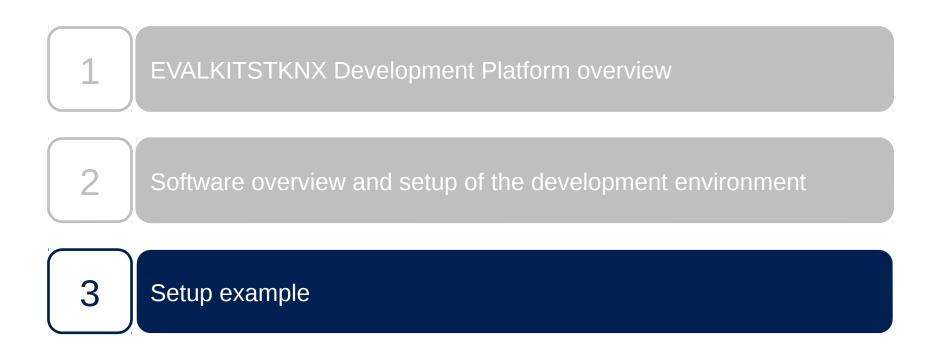
or

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Once build is finished, you can start debugging the project : click on Clean icon select Debug As \rightarrow Embedded C/C++ Application in the contextual menu.

Or you can drag and drop the binary (*EvalKitSTKNX_LedLevel.bin*), available in **Debug**, to the virtual drive that is mounted when you connect the EVALKITSTKNX board to your computer. Name of this virtual drive is STKNX.







Setup & demo examples Hardware prerequisites

- One EvalKitSTKNX board
- One KNX sensor : Apricum TAI-KNX 4
- One KNX Power Supply



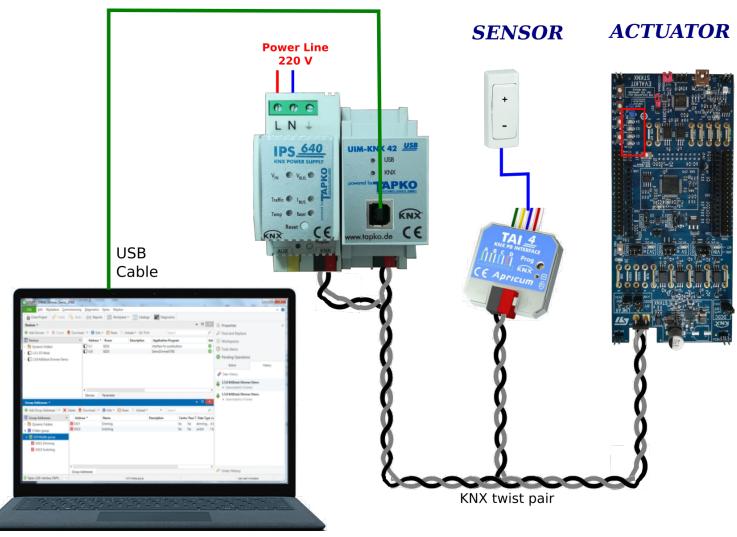
- One KNX TP interface (USB-KNX interface)
- A type A to type B USB cable



• KNX cable







Setup the KNX network according as described by the picture



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ETS 5 application

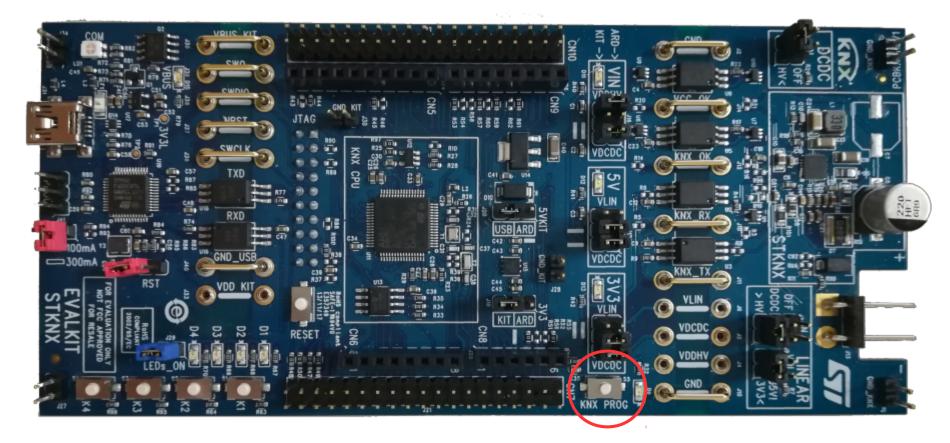
In the ETS5 application, import the project STKNX_LED_Level_Demo.knxproj available in STM32F103RB-STKNX/Project/STM32F10x_STKNX_LedLevel/ETS5_ProjectFile

Download the full configuration in both STI and EVALKITSTKNX devices

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When asked in the ETS5 application, press the "KNX PROG" button of the EVALKITSTKNX board.





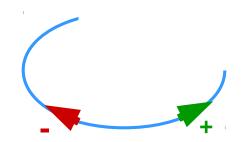
Tests :

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- ON button of the sensor is used to increase the number of led switched on
- OFF button of the sensor is used to decrease the number of led switched on





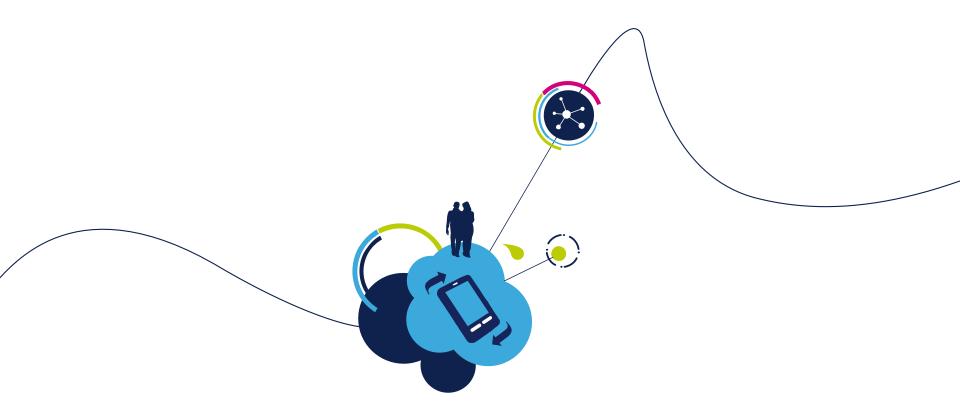












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