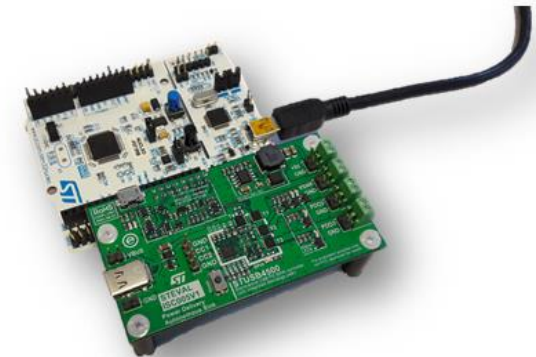


# STSW-STUSB004 QUICK START

Programming STUSB  
default parameters (NVM)  
with an STM32



STEVAL-ISC004V1  
STUSB4710  
Eval BOARD



STEVAL-ISC005V1  
STUSB4500  
Eval BOARD

This document describes how to seamlessly configure STUSB default parameters. A Graphical User Interface (GUI) is used to manually customize STUSB parameters. Once frozen, the Non-Volatile-Memory settings can be then dumped by the GUI into an output file. The STSW-STUSB004 provide all the necessary Software structures and functions to load automatically the file into the NVM.

Main components	
<b>NUCLEO-F072RB</b>	STM32 Nucleo-64 development board with AMR Cortex M0
<b>Mini-B USB cable</b>	with USB data support
<b>STSW-STUSB004</b>	STUSB4500 Graphical User Interface
<b>STEVAL-ISC004V1 STEVAL-ISC005V1</b>	Compatible evaluation boards
<b>IAR 8.x</b>	C code compiler

## Main files

Main components	
USB_PD_defines.h	Contains Registers definition from STUSB ICs
STUSB_NVM.h	File automatically generated by the GUI. Contains the NVM configuration
Main.c	Illustrates how to use the functions and build applications

## C-compiler

In our example, an STM32F072RB MCU is used to run the code. Compiler is IAR.

Please note that the STUSB NVM library can runs equally with other MCU and/or using other Code compilers.

# GENERATING the custom NVM setting file

## (1/2)

### STEVAL\_ISC004V1

The GUI can be downloaded by searching STSW-STUSB001 tool from [www.st.com](http://www.st.com) or from the STUSB4710 product pages in the TOOLS AND SOFTWARE tab.

#### TOOLS AND SOFTWARE

Embedded Software		
EVALUATION TOOL SOFTWARE		
Part Number	Manufacturer	Description
<a href="#">STSW-STUSB001</a>	ST	Graphical User Interface for STUSB type-C and PD interfaces

Running the GUI on a Windows Laptop requires an USB to I<sup>2</sup>C interface in order to connect the USB port from the PC to STUSB I<sup>2</sup>C port. A simple NUCLEO-F072RB can act as an USB-to-I<sup>2</sup>C bridge. Please download quick installation guide from STSW-STUSB001 product page.

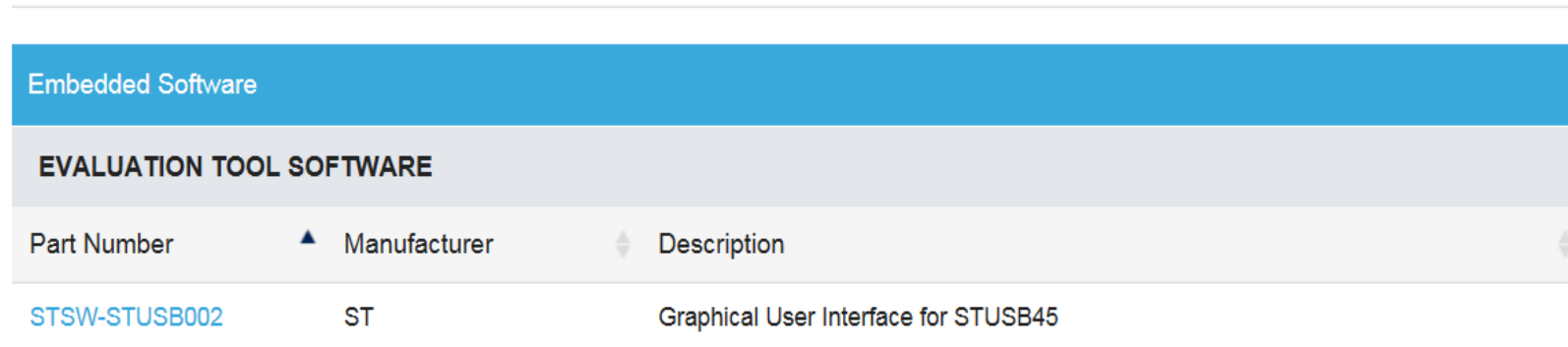
For full installation process, please check UM2254 – “STSW-STUSB001 Quick Installation Guide”.

# GENERATING the custom NVM setting file (2/2)

## STEVAL\_ISC005V1

The GUI can be downloaded by searching STSW-STUSB002 tool from [www.st.com](http://www.st.com) or from the STUSB4500 product pages in the TOOLS AND SOFTWARE tab.

### TOOLS AND SOFTWARE



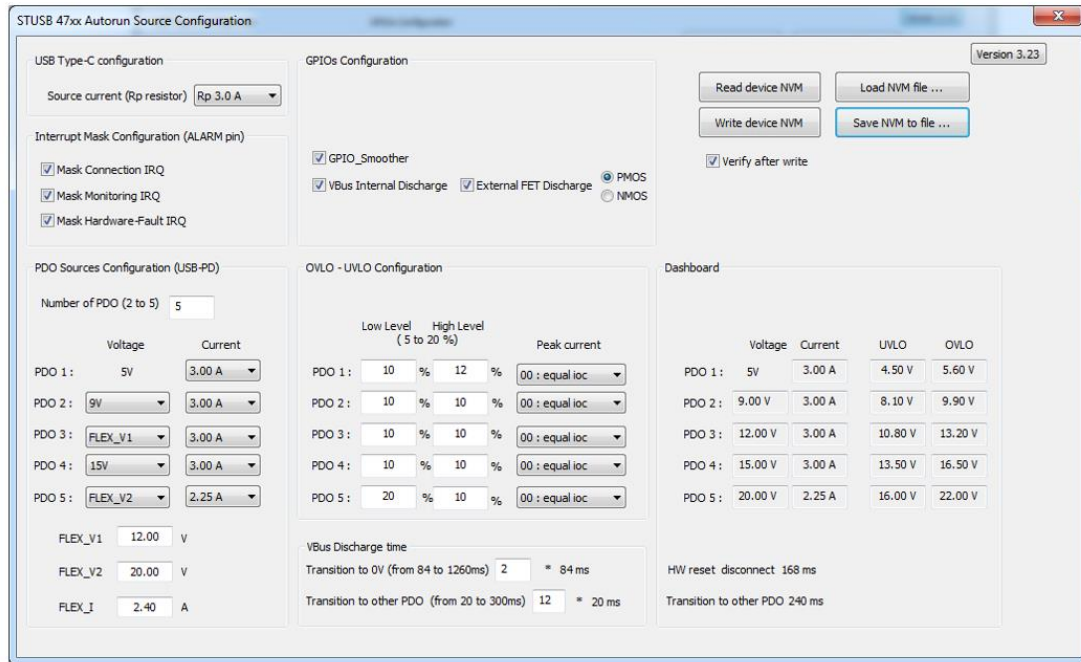
Embedded Software		
EVALUATION TOOL SOFTWARE		
Part Number	Manufacturer	Description
<a href="#">STSW-STUSB002</a>	ST	Graphical User Interface for STUSB45

Running the GUI on a Windows Laptop requires an USB to I<sup>2</sup>C interface in order to connect the USB port from the PC to STUSB I<sup>2</sup>C port. A simple NUCLEO-F072RB can act as an USB-to-I<sup>2</sup>C bridge.

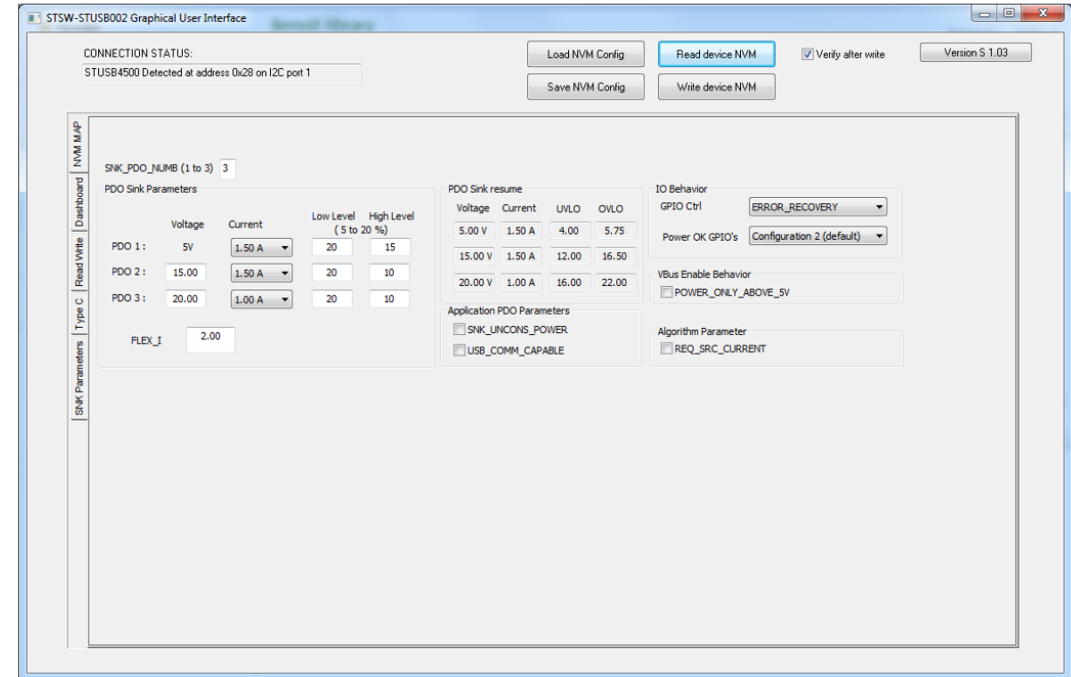
For full installation process, please check “STSW-STUSB002 Quick start Guide from the “Presentation & Training Material tab”

# EXPORTING the NVM\_config.h file

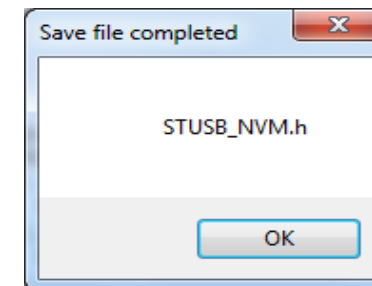
## GUI for STEVAL-ISC004V1



## GUI for STEVAL-ISC005V1



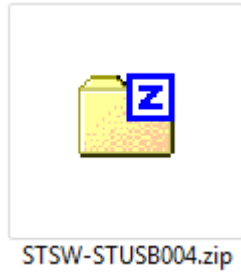
From the above configuration window, press the “Save NVM to file” (or “Save NVM config”) button. The configuration is saved into a .txt file for further re-use or debug. In parallel, a “STUSB\_NVM.h” file is generated in the GUI directory.



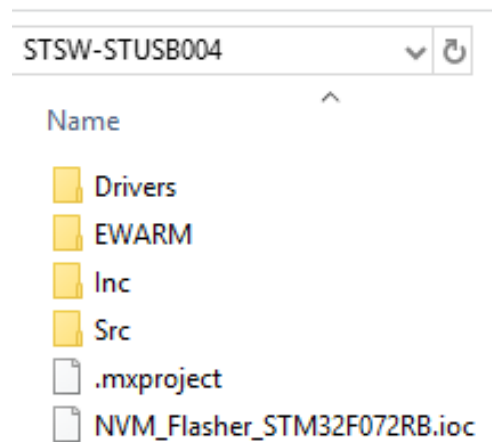
# COMPILING the NVM\_config.h file

(1/3)

1) Unzip the STSW-STUSB004 library



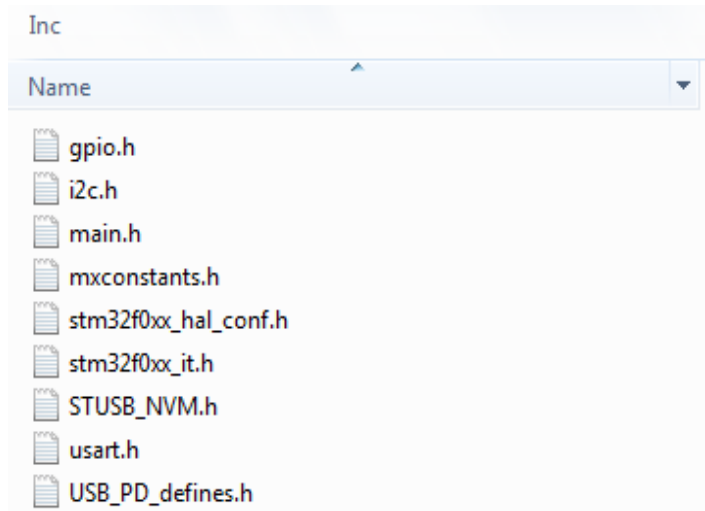
2) The following folder tree is installed locally



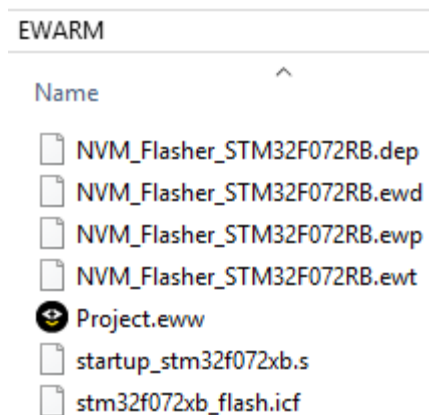
# COMPILING the NVM\_config.h file

## (2/3)

3) Copy and replace the “STUSB\_NVM.h” generated by the GUI into the “Inc” directory.



4) Open the “Project.eww” file from EWARM directory into IAR

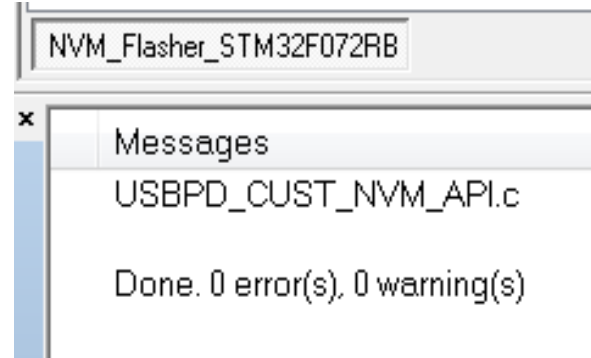




# COMPILING the NVM\_config.h file

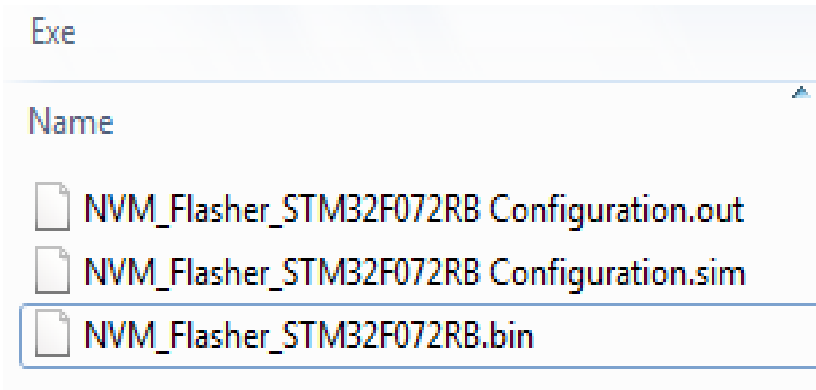
## (3/3)

5) Compile the project

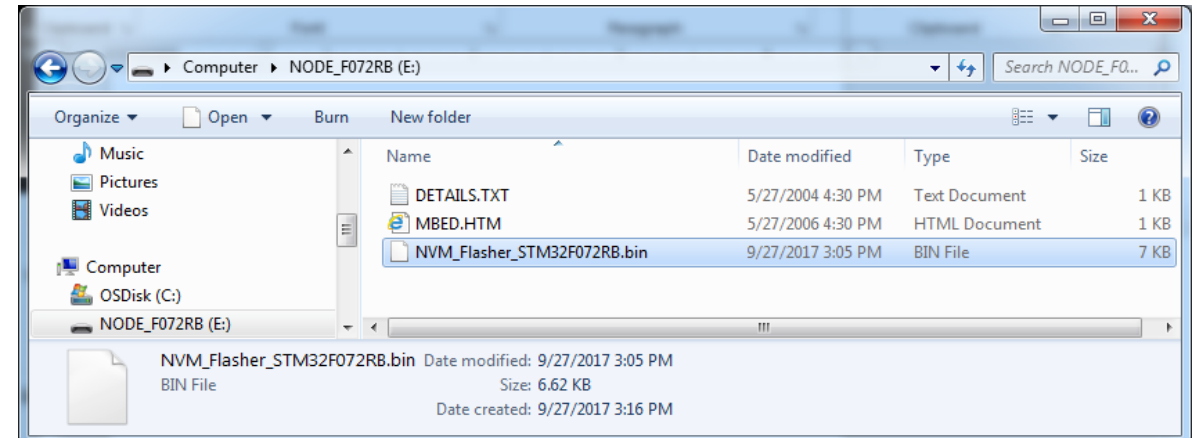


6) From the “Exe” directory, drag & drop the “NVM\_Flasher\_STM32F072RB.bin” file to the NUCLEO-F072RB nucleo board.

### SOURCE



### DESTINATION



# PROGRAMMING the NVM using the .bin



STEVAL-ISC004V1

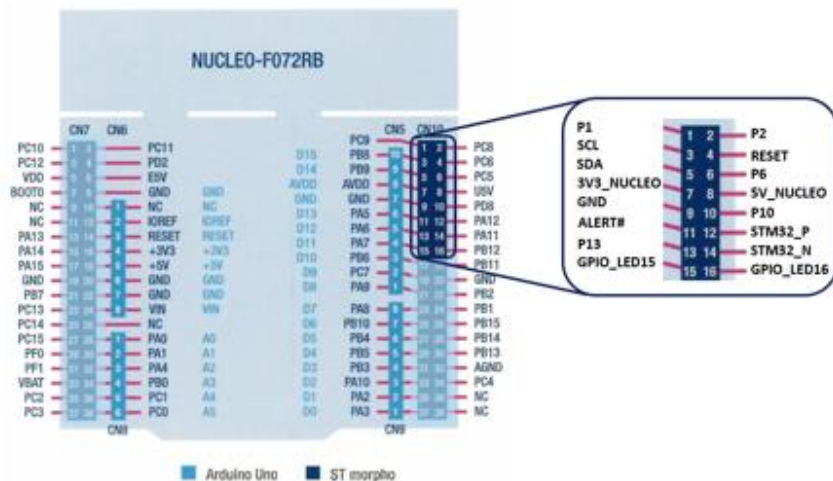


STEVAL-ISC005V1

Connect the STEVAL-ISC004V1 or STEVAL-CCC005V1 to the NUCLEO-F072RB NUCLEO board according to the picture. Programming of the NVM is done automatically by the MCU at power-up or when pressing the black reset button.

## IMPORTANT NOTICE

In order to have new NVM settings loaded into the STUSB registers, it is mandatory to power-off or reset the STEVAL-ISC004V1 or STEVAL-CCC005V1 eval boards.



more information at:

[www.st.com/stusb4500-pr](http://www.st.com/stusb4500-pr)

