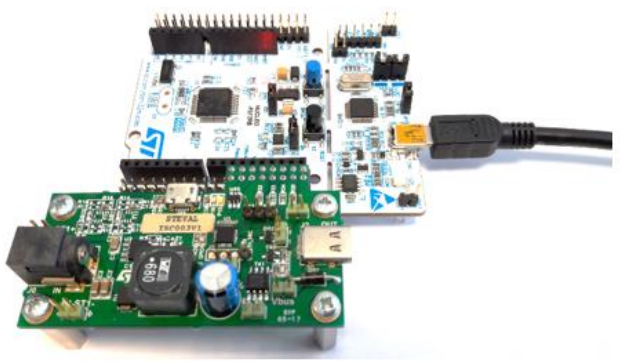
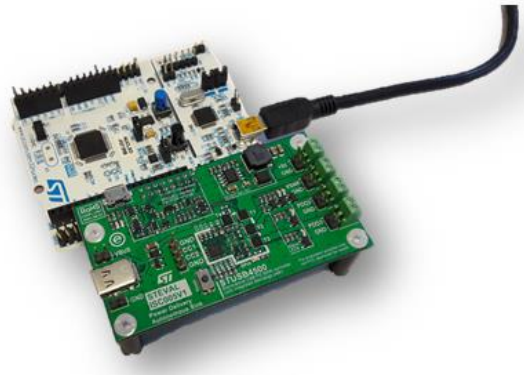
STSW-STUSB004
QUICK START

Programming STUSB default parameters (NVM) with an STM32



STEVAL-ISC004V1
STUSB4710
Eval BOARD



STEVAL-ISC005V1
STUSB4500
Eval BOARD

life.augmented

Introduction

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

SOFTWARE CONFIGURATION

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 or from the STUSB4710 product pages in the TOOLS AND SOFTWARE tab.

TOOLS AND SOFTWARE

Embedded Software		
EVALUATION TOOL SOFTWARE		
Part Number ▲	Manufacturer	Description
STSW-STUSB001	ST	Graphical User Interface for STUSB type-C and PD interfaces

Running the GUI on a Windows Laptop requires an USB to I²C interface in order to connect the USB port from the PC to STUSB I²C port. A simple NUCLEO-F072RB can act as an USB-to-I²C 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 or from the STUSB4500 product pages in the TOOLS AND SOFTWARE tab.

TOOLS AND SOFTWARE

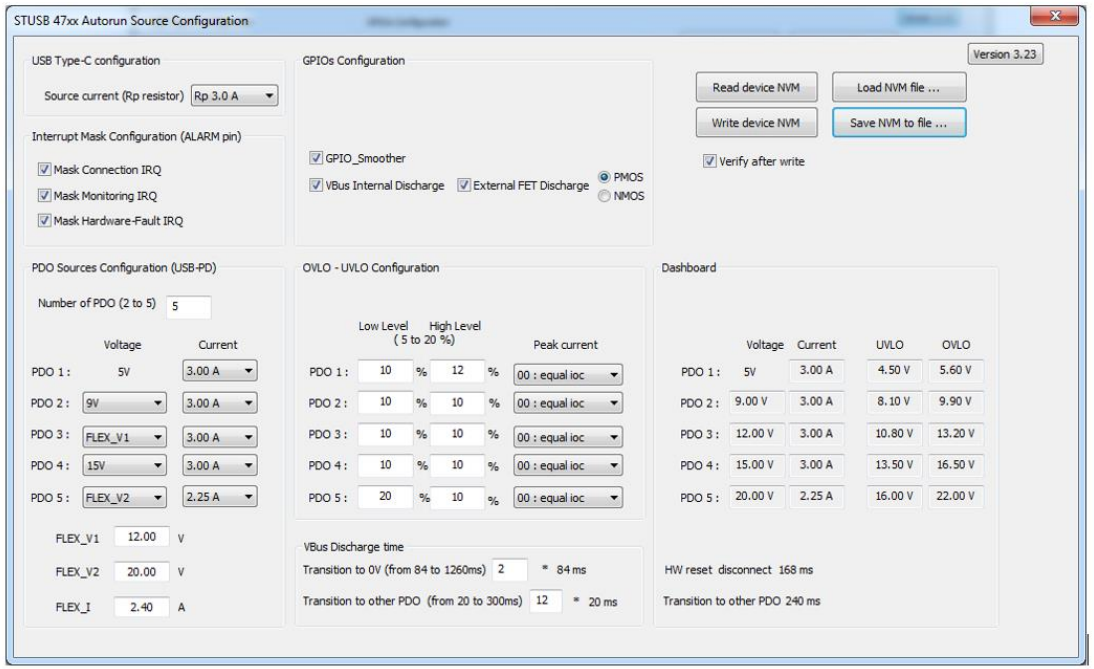
Embedded Software		
EVALUATION TOOL SOFTWARE		
Part Number ▲	Manufacturer	Description
STSW-STUSB002	ST	Graphical User Interface for STUSB45

Running the GUI on a Windows Laptop requires an USB to I²C interface in order to connect the USB port from the PC to STUSB I²C port. A simple NUCLEO-F072RB can act as an USB-to-I²C bridge.

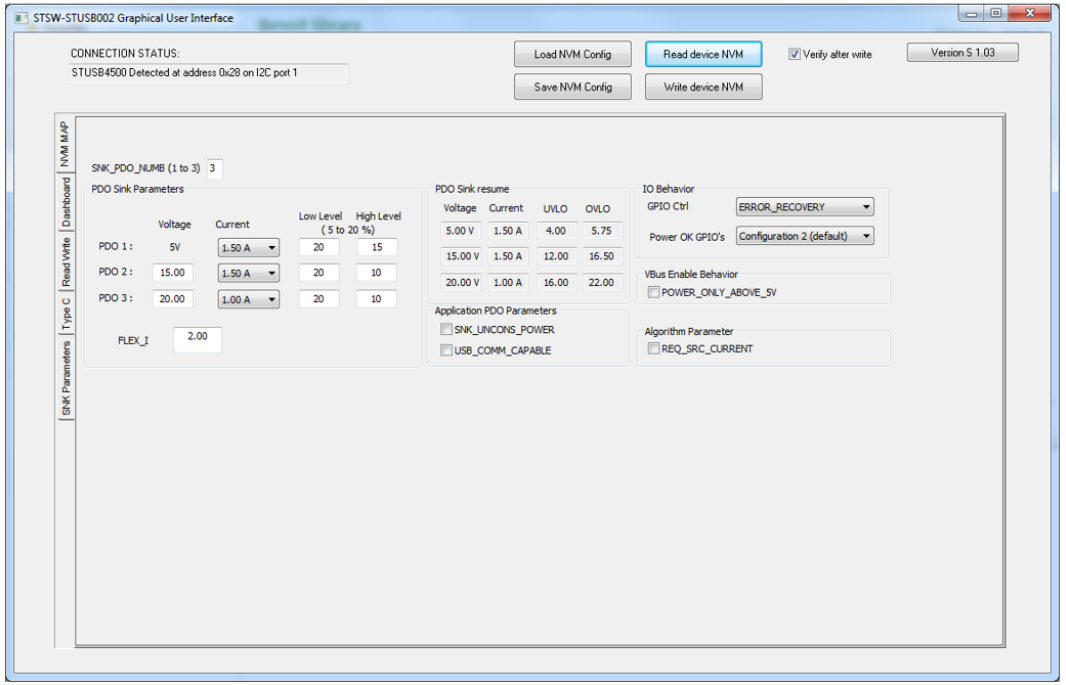
For full installation process, please check “STSW-STUSB002 Quick start Guide from the “Presentation & Training Material tab”

EXPORTING the NVM_config.h file

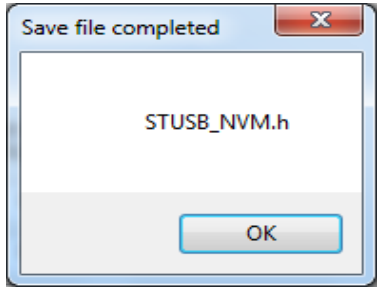
GUI for STEVAL-ISC004V1



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.



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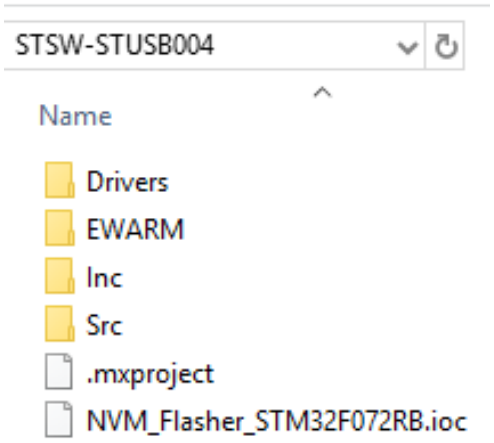
COMPILING the NVM_config.h file (1/3)

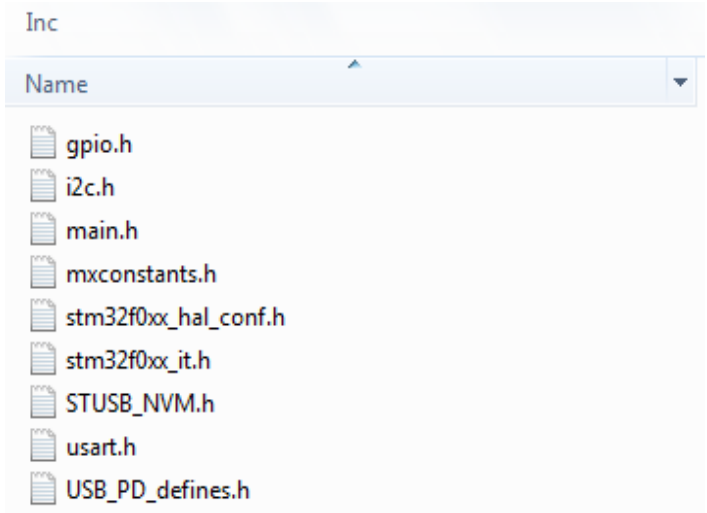
1) Unzip the STSW-STUSB004 library

2) The following folder tree is installed locally

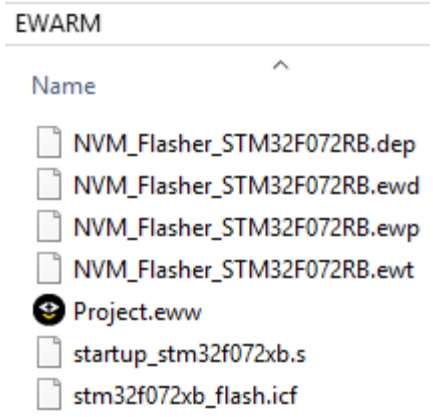


COMPILING the NVM_config.h file (2/3)

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

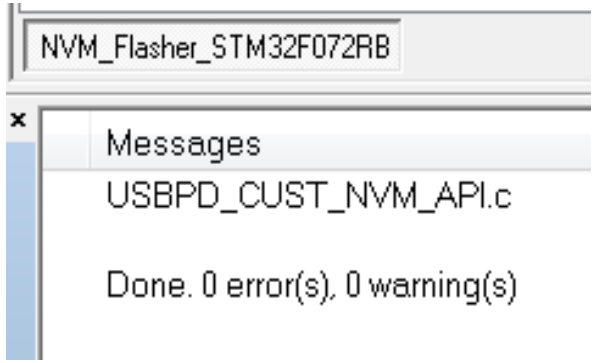


4) Open the “Project.eww” file from EWARM directory into IAR



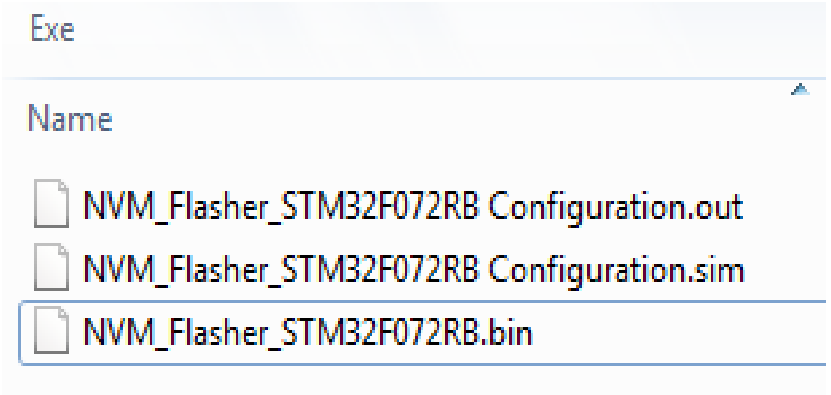
COMPILING the NVM_config.h file (3/3)

5) Compile the project

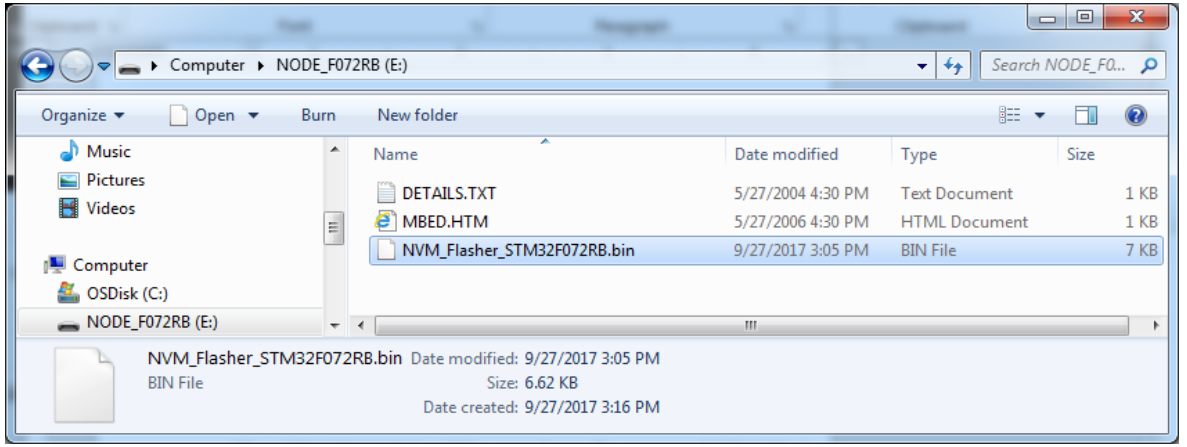


6) From the “Exe” directory, drag & drop the “NVM_Flasher_STM32F072RB.bin” file to the NUCLEO-F072RB nucleo board.

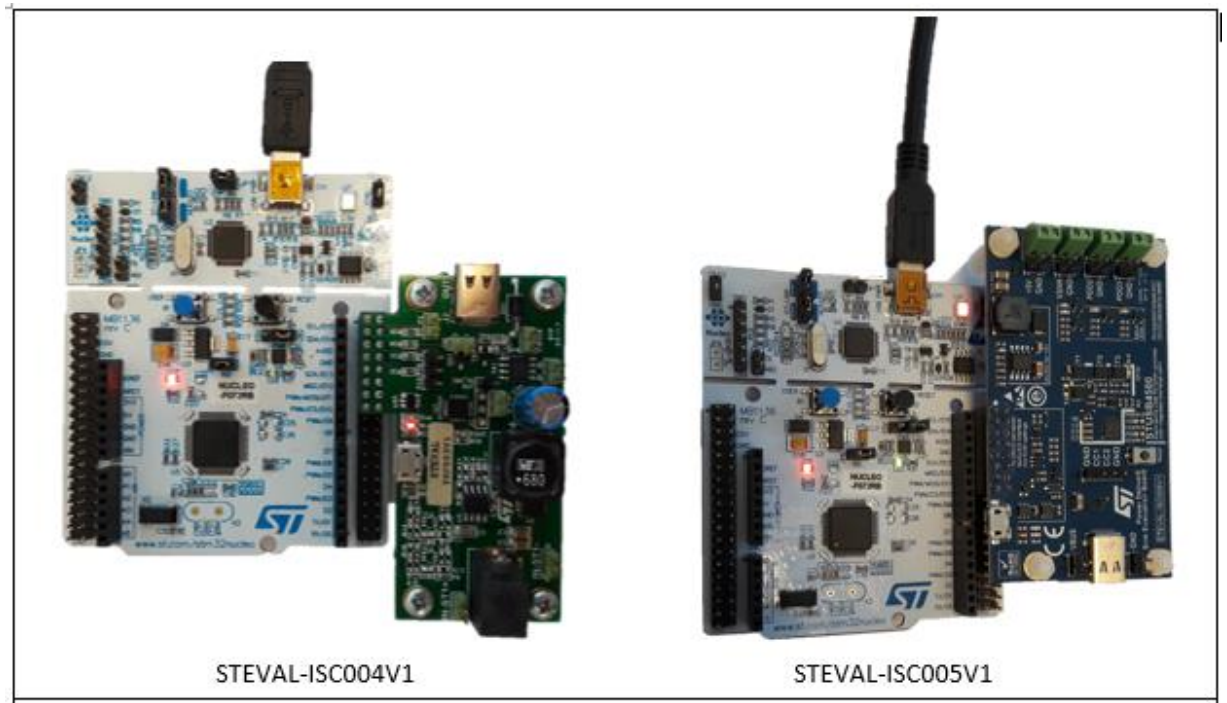
SOURCE

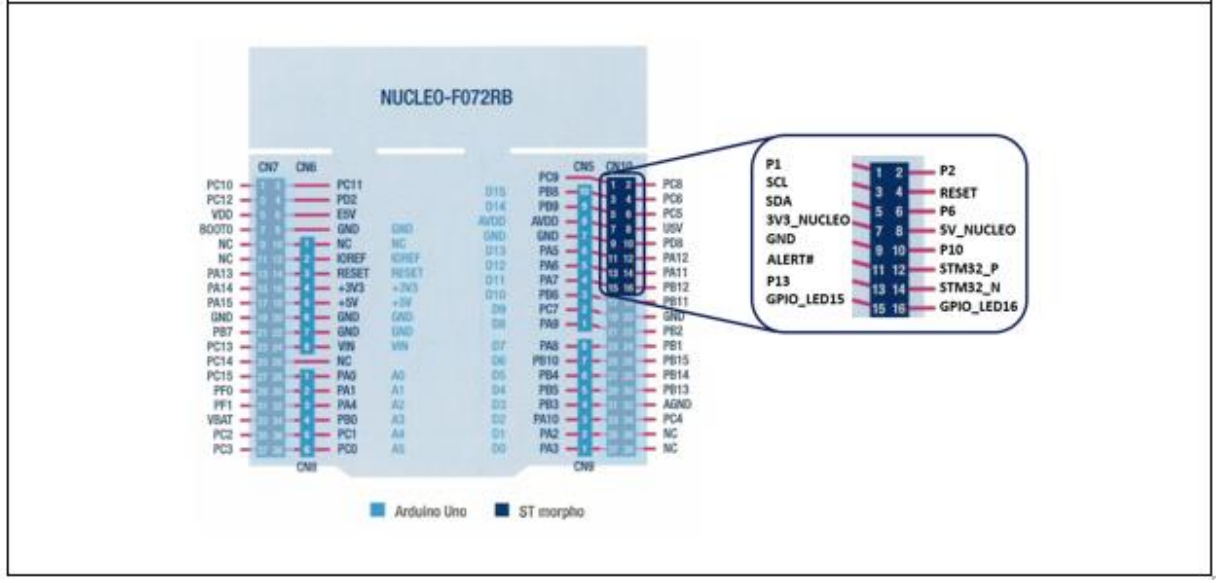


DESTINATION



PROGRAMING the NVM using the .bin





Connect the STEVAL-ISC004V1 or STEVAL-CCC005V1 to the NUCLEO-F072RB NUCLEO board according to the picture. Programing 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