

STEVAL-IDB003V1 evaluation board quick start guide

Introduction

The STEVAL-IDB003V1 is an evaluation board based on BlueNRG, a low power Bluetooth® Smart IC that is compliant with the Bluetooth® v4.0 specification and supports both master and slave roles.

The STEVAL-IDB003V1 platform features an on-board STM32L low power microcontroller. It can be used to explore the BlueNRG features and as a development platform for Bluetooth® Smart applications running on the STM32L microcontroller and interfacing to the BlueNRG network coprocessor.

Figure 1: STEVAL-IDB003V1 Bluetooth® Smart platform



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1 Getting started

The STEVAL-IDB003V1 evaluation board is preprogrammed with a software (BlueNRG_VCOM_x.x.x.hex) allowing users to run the BlueNRG PC GUI (graphical user interface), which can be used to interact and evaluate the capabilities of the BlueNRG network processor.

To configure the STEVAL-IDB003V1 platform and run the preprogrammed software and associated BlueNRG GUI, follow the instructions below.

1.1 Install BlueNRG DK SW package

- Before using the STEVAL-IDB003V1 platform, download the latest BlueNRG GUI software package available on the STEVAL-IDB003V1 web page ([Table 1: "Reference information"](#), STSW-BNRGUI)
- Unzip the file, launch the related installer and follow installation steps (default installation path is C:\\Program Files (x86)\\STMicroelectronics\\BlueNRG GUI x.x.x)
- Wait for the package installation to complete. The following folder will be available on the selected installation path.

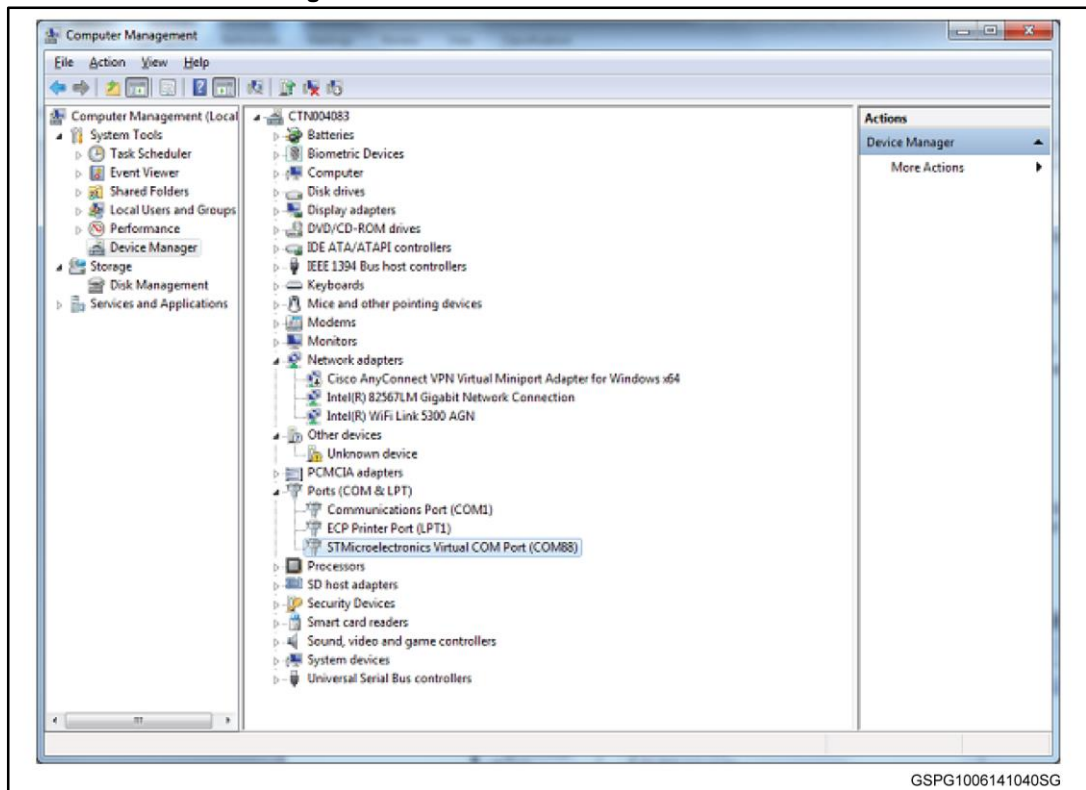
The software package installation procedure will also automatically install the following PC software drivers available in the PCDriver folder:

- USB DFU PC driver required for supporting device firmware upgrade (DFU) through USB
- USB Virtual COM Port driver required for supporting the USB Virtual COM I/O communication channels.

1.2 Insert the STEVAL-IDB003V1 board

- Plug the STEVAL-IDB003V1 into a PC USB port: Windows' new hardware wizard will appear.
- Wait for the device recognition process to complete: in Computer, Manage, Device Manager, Ports (COM & LPT area), a new STMicroelectronics Virtual COM Port will appear.

Figure 2: STEVAL-IDB003V1 Virtual COM Port

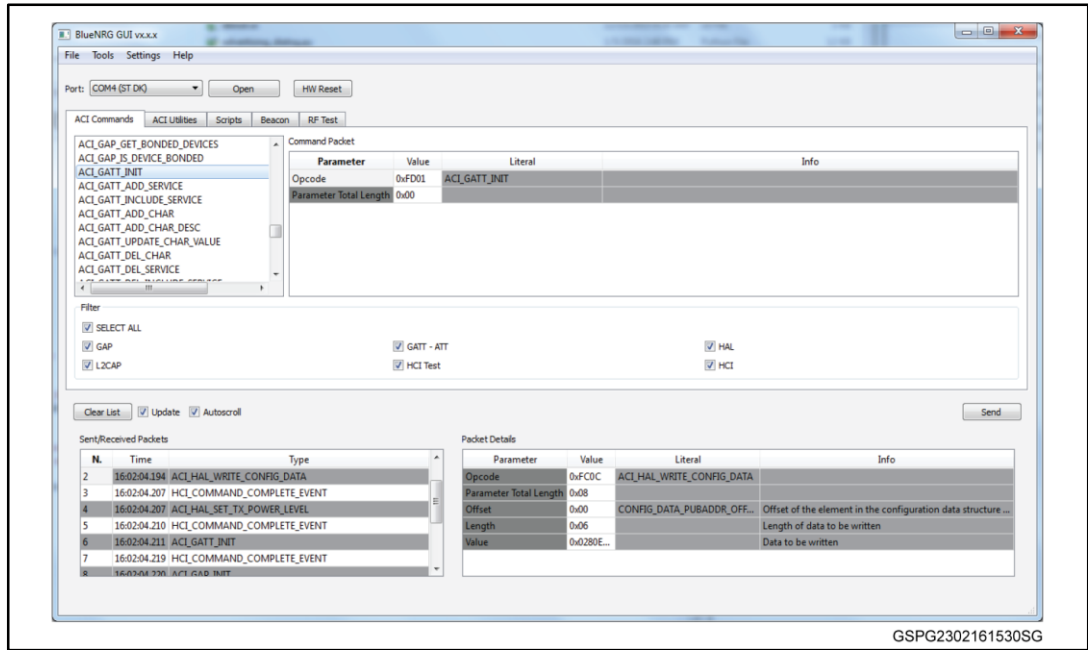


1.3 Open the BlueNRG GUI

The BlueNRG GUI is available in the BlueNRG GUI software package, Application folder:

- Launch the BLUENRG_GUI.exe file
- Select the COMxx port associated to the STEVAL-IDB003V1 platform
- Click on Open tab: the BlueNRG GUI is now ready to use

Figure 3: BlueNRG GUI



The BlueNRG GUI utility can send standard and vendor-specific HCI commands to the BlueNRG network coprocessor and receive events from it. It allows the user to configure each field of the HCI command packets to be sent and analyze all received packets.



For more information on the BlueNRG GUI capabilities and available utilities refer to BlueNRG development kits user manual (UM1686) available on STEVAL-IDB003V1 web page.

2 SW demonstration applications

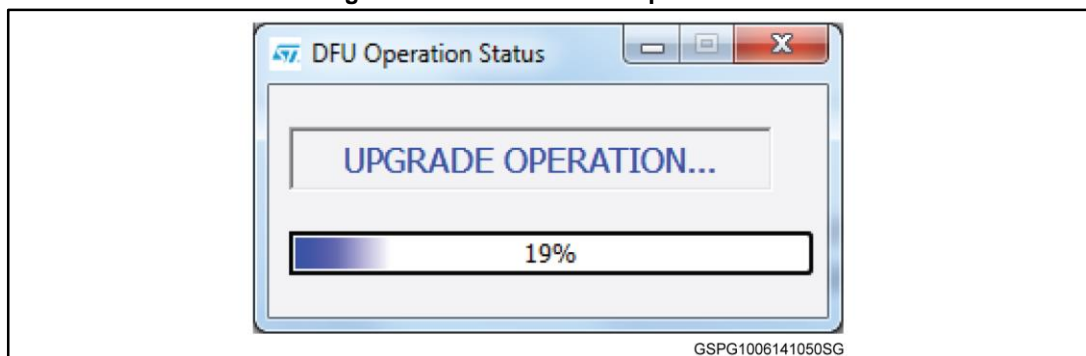
In order to develop a software application for the STEVAL-IDB003V1 platform, it is recommended to start with the reference demonstration applications provided within the BlueNRG DK software package available on STEVAL-IDB003V1 web page, in the Projects folder. The IAR Embedded Workbench for ARM (EWARM) tool V7.40.3 or later is needed to build software applications running on the STM32L microcontroller.

Pre-built STM32L microcontroller binary images for the reference demonstrations are already available in the STSW-BLUENRG-DK, BlueNRG DK software package, in the Firmware folder.

To download an STM32L binary image, apply the following DFU procedure:

- Open the BlueNRG GUI
- Press and hold the STEVAL-IDB003V1 platform SW1 button
- Plug the STEVAL-IDB003V1 board into a PC USB port
 - The orange LED D3 will start to blink: STM32L device is in DFU mode, allowing it to upgrade its Flash image through USB interface.
 - From the BlueNRG GUI, select Tools, Flash Motherboard FW and follow the indications to select the new binary application image to be downloaded into the STM32L Flash.
 - Wait for the DFU download process to complete.

Figure 4: BlueNRG GUI DFU procedure



For a description of the available BlueNRG demonstration applications and supported platforms, refer to [Table 1: "Reference information"](#) (UM1686 user manual).

The BlueNRG_VCOM_x.x.x.hex binary is also provided within the BlueNRG DK software package, in the Firmware folder. The user can reload it through the previously described DFU procedure.

3 References

Table 1: Reference information

What	Where	Description
BlueNRG Bluetooth Low Energy wireless network processor	www.st.com/bluenrg	BlueNRG device web page
STSW-BLUENRG-DK	STEVAL-IDB003V1 web page, Tools and Software section	BlueNRG SW package with reference demonstration applications
Bluetooth Low Energy Specification	https://www.bluetooth.org/en-us/specification/adopted-specifications	Bluetooth Low Energy specification web page
STEVAL-IDB003V1	www.st.com/bluenrg , Evaluation Tools section	STEVAL-IDB003V1 platform web page
UM1686 user manual	STEVAL-IDB003V1 web page, User Manual section	BlueNRG development kit user manual describing the reference demonstration applications
STSW-BNRGUI	BlueNRG GUI SW package web page	BlueNRG GUI SW package

4 List of acronyms

Table 2: List of acronyms used in the document

Term	Meaning
BLE	Bluetooth Low Energy
DFU	Device firmware upgrade
DK	Development kit
GUI	Graphical user interface
HCI	Host controller interface
SW	Software
USB	Universal serial bus

5 Revision history

Table 3: Document revision history

Date	Revision	Changes
29-Sep-2014	1	Initial release.
27-May-2016	2	Removed: Figure 2 BlueNRG DK SW package structure and content.

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