
The BlueNRG-1, BlueNRG-2 Flasher SW package

Introduction

This document describes the BlueNRG-1, BlueNRG-2 Flasher SW package (STSW-BNRGFLASHER) which provides the Flasher Utility PC application.

The BlueNRG-1, BlueNRG-2 Flasher Utility is a standalone PC application, which allows the BlueNRG-1, BlueNRG-2 Bluetooth low energy systems-on-chip Flash to be read, mass erased, written and programmed.

Besides, it supports interface to the BlueNRG-1, BlueNRG-2 Flash through both UART and SWD modes by using, respectively, the internal device UART bootloader and the standard SWD interface.

Finally, it also allows a MAC address to be stored on a specific Flash location selected by the user, and supports the automatic mode through SWD and UART interfaces which allow user to enter a programming loop by connecting a new device platform to be programmed.

The BlueNRG-1, BlueNRG-2 Flasher SW package also provides a standalone flasher launcher utility which allows the flash programming, reading, mass erase and memory content verification. The flasher launcher utility requires a PC DOS window only.

1 Getting started

This section describes all system requirements to run the BlueNRG-1, BlueNRG-2 Flasher Utility PC application, as well as the relative SW package installation procedure.

1.1 System requirements

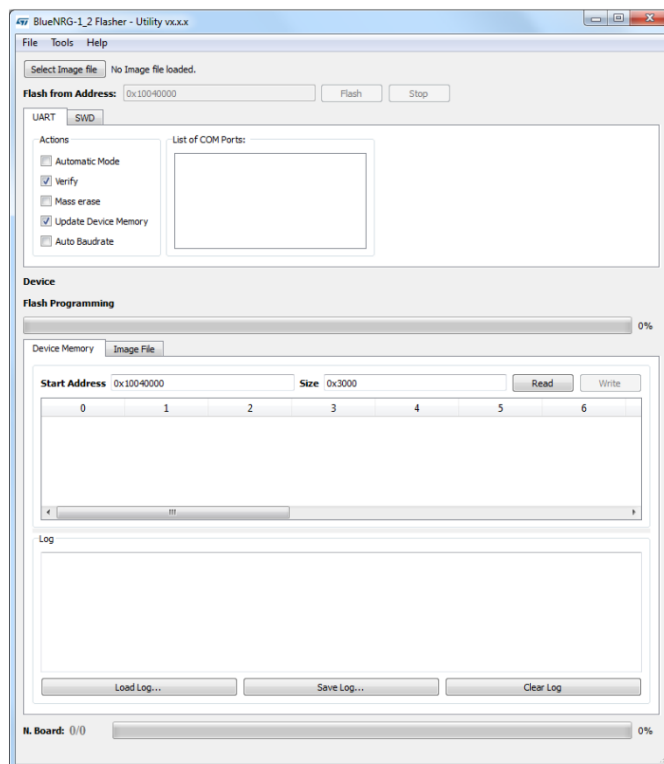
The BlueNRG-1, BlueNRG-2 Flasher Utility has the following minimum requirements:

- PC with Intel® or AMD® processor running one of the following Microsoft® operating systems:
 - Windows 10
 - Windows 7
- At least 128 MB of RAM
- USB ports
- 40 MB of free hard disk space
- Adobe Acrobat Reader 6.0 or later

1.2 SW package setup

User can run this Utility by clicking on the BlueNRG-1_2 Flasher Utility icon under: Start → ST BlueNRG -1_2 Flasher Utility x.x.x → BlueNRG1_2 Flasher Utility.

Figure 1. BlueNRG-1, BlueNRG-2 Flasher Utility



2 Toolbar interface

In the toolbar section of the BlueNRG-1_2 Flasher - Utility main window, user can perform the following operations:

- Load an existing .bin or .hex (Intel extended) file (from file menu: open file.. option)
- Save the current memory image in a .bin file (from file menu: save file as option). The start address and the size of the memory section to be saved to file are selectable from the 'Device Memory' tab
- Close an existing .bin or .hex file (from file menu: close file option)
- Mass erase (from tools menu: mass erase option)
- Verify Flash content (from tools menu: verify flash content option)
- Get application version (from help menu: about option)
- Flash (from tools menu: Flash option)

In the upper section of the BlueNRG-1_2 Flasher – Utility main window, user can select the image file through the 'Select Image File' button.

All these options are available both on UART and SWD modes.

User needs to enable access to the selected mode (UART or SWD), by opening, respectively, the associated COM port for UART mode, or by connecting an ST-Link HW tool to the JTAG connector for SWD mode. ST-LINK/V2 HW tool only is supported in SWD mode.

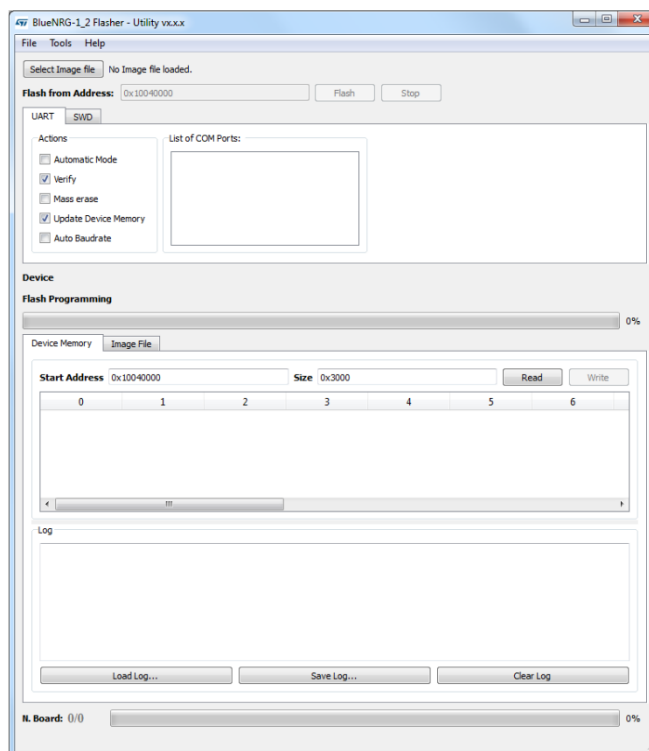
3 UART main window

In the UART main window tab of the BlueNRG-1_2 Flasher – Utility main window, user can select the COM port to be used to interface the device through the 'List of COM Ports' section.

The BlueNRG-1, BlueNRG-2 device memory is read when the associated COM port is opened and displayed on device memory tab.

The serial baudrate used for the BlueNRG-1, BlueNRG-2 evaluation board is 460800 bps.

Figure 2. Flasher Utility UART main window



3.1 UART mode: how to run

Image file selection

Use the 'Select Image File' button on the main page (or the File> Open File... option or clicking on Image File tab) to load an existing .bin or .hex file. The full path of the selected file appears next to the button and the 'Flash' button becomes active at the end of file loading.

The automatic mode option allows all ST DK COM ports to be selected.

By default, the 'Mass erase' option on "Actions" section is not checked, and only the required memory pages are erased and written with the file content. When this option is checked, the memory Flash phase is preceded by a full mass erase.

The 'Verify' option forces a check to ensure that the memory content has been written correctly.

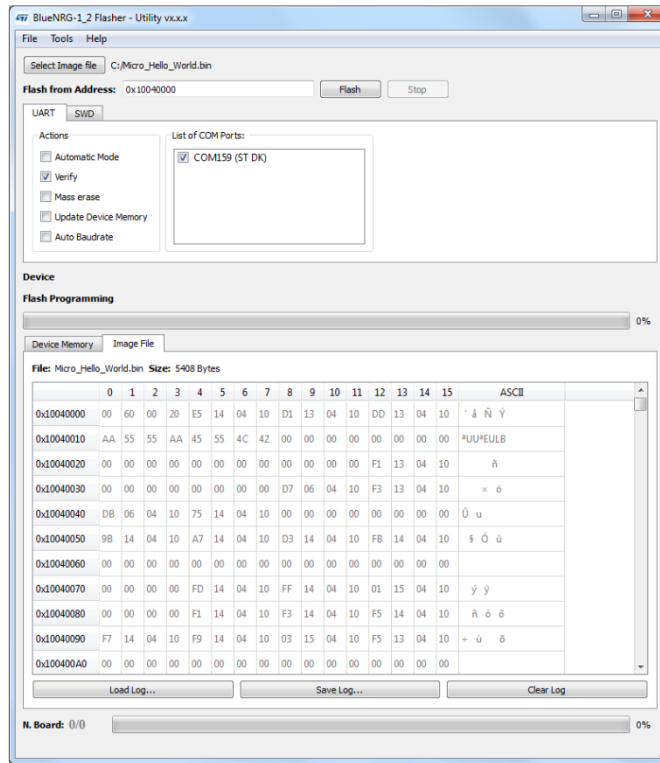
Check the 'Update memory table' option to update the 'Device Memory' table after an operation on Flash memory.

Check the "Auto Baudrate" option only if an HW reset is performed on the board in order to force the 'Auto Baudrate' operation. By default, the 'Auto Baudrate' option is not checked.

'Image File' tab

The selected file name, size and parsed contents to be flashed to the device memory can be viewed in the 'Image File' tab.

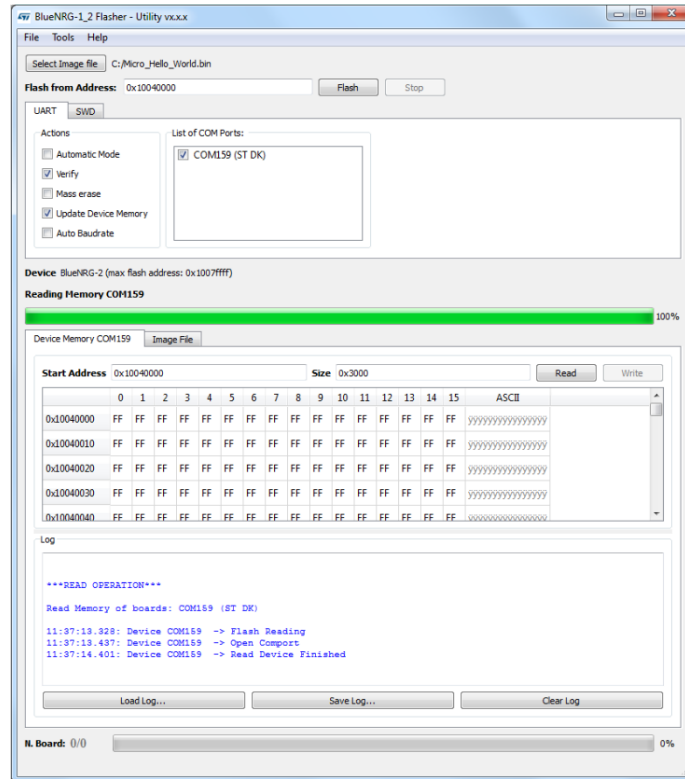
Figure 3. Flasher utility UART mode: image file



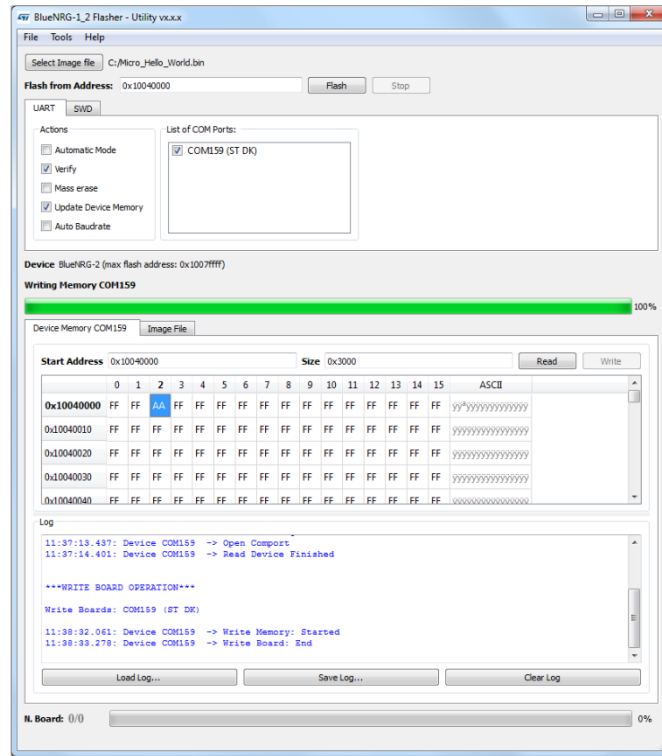
'Device Memory' tab

Select this tab to view the memory contents of a connected device and the log about the performed operations on the selected device.

Figure 4. Flasher utility UART mode: device memory



Click the 'Read' button to transfer the memory segment defined by 'Start Address and Size' into the table. The first column gives the base address of the following 16 bytes in a row (e.g., row 0x10040050, column 4 holds the hexadecimal byte value at 0x10040054. User can change byte values by double-clicking a cell and entering a new hexadecimal value; edited bytes appear in red. Click the 'Write' button to flash the entire page with the new byte values into the device memory.

Figure 5. Flasher utility UART mode: changing memory fields

Using the BlueNRG-1_2 Flasher Utility with other boards

The BlueNRG-1_2 Flasher Utility automatically detects the BlueNRG-1, BlueNRG-2 evaluation boards as the STEVAL-IDB007Vx (x = 1, 1M, 2), STEVAL-IDB008Vx (x = 1,2), STEVAL-IDB009Vx (x = 1) connected to PC USB ports, and uses an auxiliary STM32 (driven by the GUI) to reset the BlueNRG-1, BlueNRG-2 and put it into UART bootloader mode. The application also works with custom boards providing simple UART access to the BlueNRG-1, BlueNRG-2 device, but user must put the device in bootloader mode manually. Upon the selection of any non-STEVAL COM port, the following pop-up appears

Figure 6. Flasher Utility UART mode: UART 'Comport Setting' pop-up


When this pop-up appears, user must set the BlueNRG-1, BlueNRG-2 pin DIO7 high and reset the BlueNRG-1, BlueNRG-2 device (keeping the DIO7 high); the device should now be in bootloader mode.

User can also set a preferred baudrate for the UART in the pop-up window and then press OK to return to the GUI.

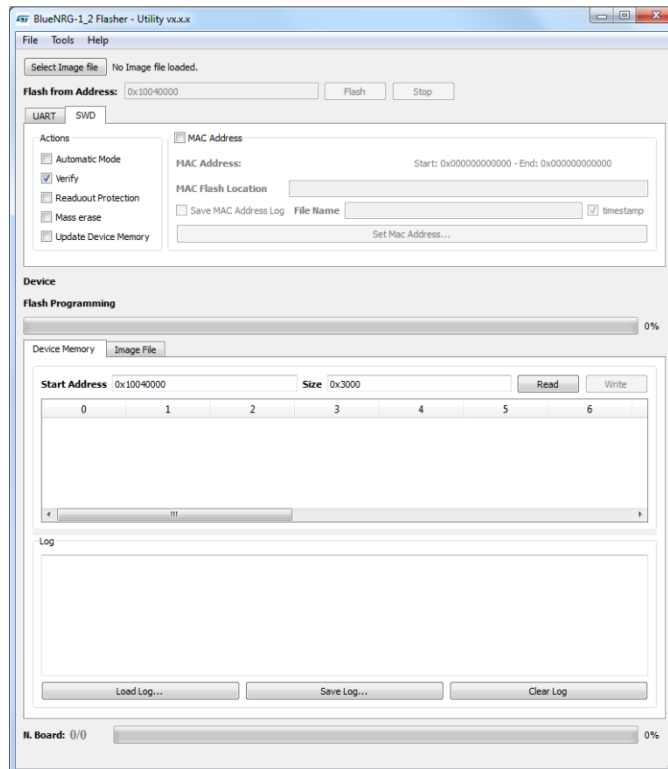
Note: User must avoid resetting the device while using the BlueNRG-1_2 Flasher Utility unless the "ComPort Setting" pop-up is active. If the device is reset, user must toggle the COM port to use the Flasher Utility again.

Note: When custom boards are used by providing UART access to the BlueNRG-1, BlueNRG-2 device through a USB FTDI interface, user should double check the latency associated to the USB FTDI PC driver allowing the connected port as an USB Virtual COM to be recognized. On typical USB-FTDI PC driver, just double check the related device USB driver settings from Properties, Port Settings, Advanced and make sure latency timer value is set to 1 ms. This setting is strongly recommended in order to speed up the Flash operations on custom boards.

4 SWD main window

In order to use the SWD main window tab of the BlueNRG-1_2 Flasher – Utility main window, user must connect ST-Link HW tool to the device JTAG connector.

Figure 7. Flasher Utility: SWD main window



4.1 SWD mode: how to run

Image file selection

Use the 'Select Image File' button on the main page (or the File> Open file... option) to load an existing .bin or .hex file. The full path of the selected file appears next to the button and the 'Flash' becomes active at the end of the file loading.

On Actions tab, user can select the following options:

- Automatic mode: it allows the automatic flash programming mode to be enabled/disabled
- Verify: it allows a check to be forced to ensure that the memory content has been written correctly
- Readout protection: it enables the device readout protection after programming the selected image file
- Mass erase: it allows a device mass erase to be performed before programming the selected image file
- Update Device Memory: it allows the 'Device Memory' table to be updated after a Flash/Read/Write operation

By default, the 'Mass erase' option beside the 'Flash' button is not checked, and only the required memory pages are erased and written with the file content.

'Flash' button allows Flash programming operation to start with the selected option. If the 'MAC address' checkbox is selected user can specify the Flash address where to store the selected MAC address. The MAC address is programmed after image file programming, when the 'Flash' button is selected.

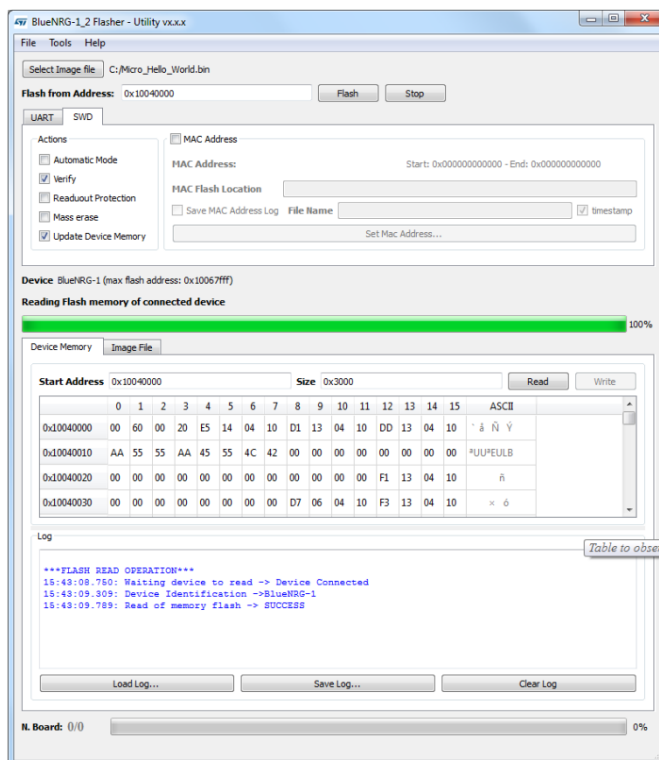
'Image File' tab

The selected file name, size and parsed contents to be flashed to device memory can be viewed in the 'Image File' tab

'Device Memory' tab

Select this tab to view the memory contents of a connected device and the log about the performed operations on the selected device. To view the memory contents of a connected device, it is necessary to select the 'Read' button on the "Device Memory" tab.

Figure 8. Flasher Utility SWD mode: device memory



Click the 'Read' button to transfer the memory segment defined by 'Start Address and 'Size' into the table. The first column gives the base address of the following 16 bytes in a row (e.g., row 0x10040050, column 4 holds the hexadecimal byte value at 0x10040054.

User can change byte values by double-clicking a cell and entering a new hexadecimal value; edited bytes appear in red.

Click the 'Write' button to flash the entire page with the new byte values into device memory.

Figure 9. Flasher Utility SWD mode: changing memory fields

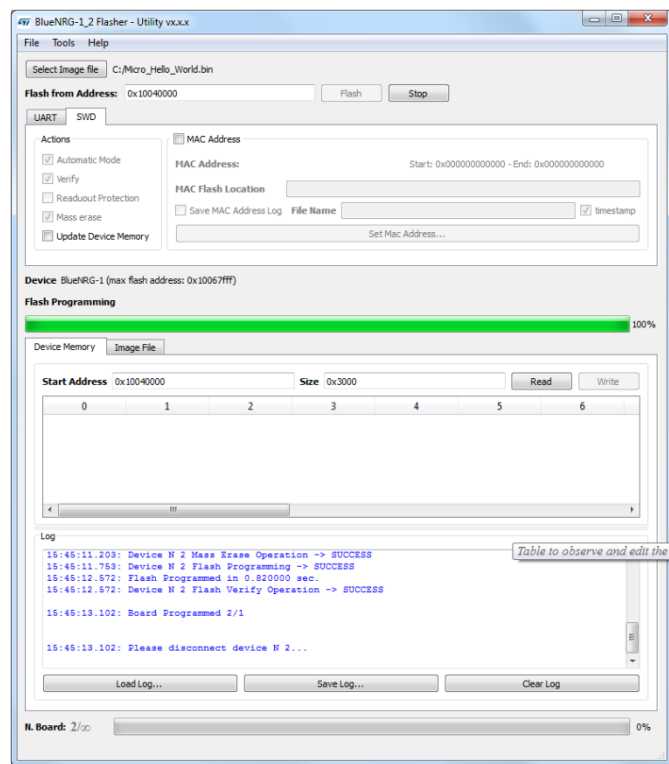
0x10040040	97	E7	04	10	00	00	00	00	00	00	00	00	00	00	00
0x10040050	99	E7	04	14	00	00	00	00	A1	E7	04	10	00	00	00
0x10040060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

5 SWD automatic programming mode

The SWD automatic programming mode allows user to enter a programming loop by connecting a new device platform to be programmed. Once the selected Flash image file and programming actions have been selected, Flasher PC application asks user to connect a device to the SWD interface (“Waiting for Device N. 1” message is displayed).

Once user connects it, “Device N 1 Connected” message is displayed, Flasher starts the device programming with the selected image file and options. Once completed, Flasher displays the message “ Please disconnect device N 1 ...” and, then after user disconnects the device, a new message “Waiting for Device N. 2” is displayed. User can stop the automatic mode by selecting the ‘ Stop’ button.

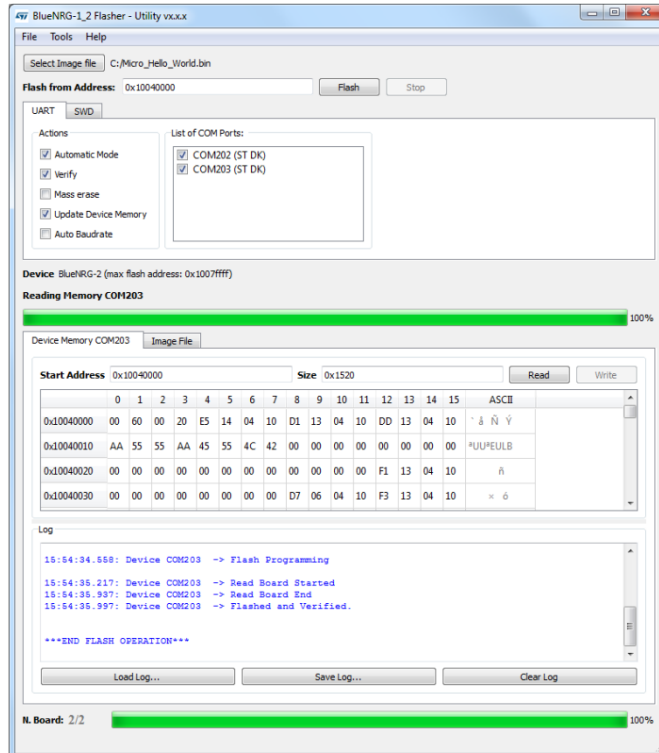
Figure 10. Flasher Utility: SWD automatic mode



6 UART automatic programming mode

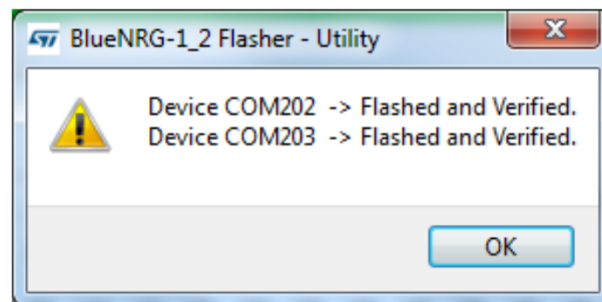
The UART automatic programming mode allows user to enter a programming loop by selecting the connected devices on 'List of COM Ports' and press the Flash button. The selected devices are sequentially loaded with the binary image.

Figure 11. Flasher utility: UART automatic mode



When all the selected devices are loaded, a window is displayed to highlight the end of the UART automatic programming session.

Figure 12. Flasher utility: UART automatic programming is completed



7 MAC address programming

MAC address programming section allows the MAC address and the specific device Flash location to be selected to store MAC address.

User can choose to enable or not the MAC address programming by selecting the 'MAC address' checkbox. Flash location is set through the 'MAC Flash location' tab.

'Set MAC address' button allows to select MAC address as follow:

1. Check 'Range' and provide the 'Start Address' on related field: this is the MAC address to be stored on the first connected device.
 - It is possible to set incremental steps starting from the 'Start address' value, by entering the number of boards to be flashed on Num. Boards tab, or by entering the 'End Address' value:
 - If automatic mode has been selected on Actions tab, the selected MAC address list is used during the automatic programming operations, otherwise only one device is programmed with the 'Start Address' field.
2. User can provide the list of MAC addresses to be used through an input file:
 - Check 'File' and select the input text file through the 'Load File' field
 - If automatic mode has been selected on Actions tab, the selected MAC address list is used during the automatic programming operations, otherwise only the first address is used for a single programming operation.

The 'Save MAC Address log' check box allows the list of used MAC addresses to be stored on a file entered through the 'File Name' field.

As already highlighted, MAC Address programming can be combined with the automatic programming mode. For each connected device, the image file is programmed followed by the MAC address programming. The number of selected MAC addresses (incremental addresses list size or input file size) triggers the automatic programming operations end. Each programmed MAC address is displayed on the Log window.

MAC address programming is supported on SWD mode only.

Figure 13. Flasher Utility: SWD MAC address selection

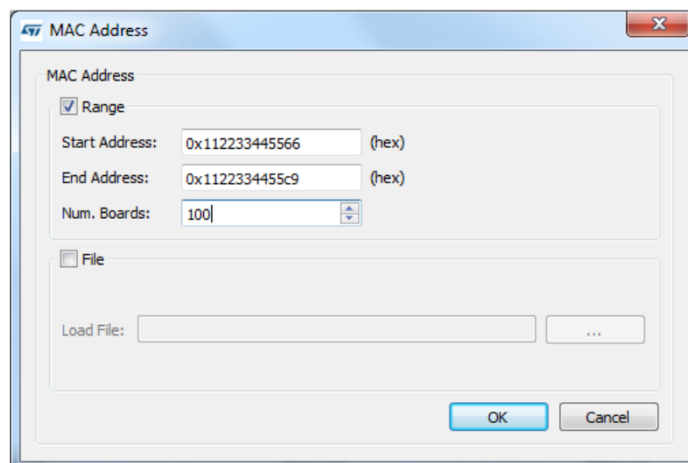
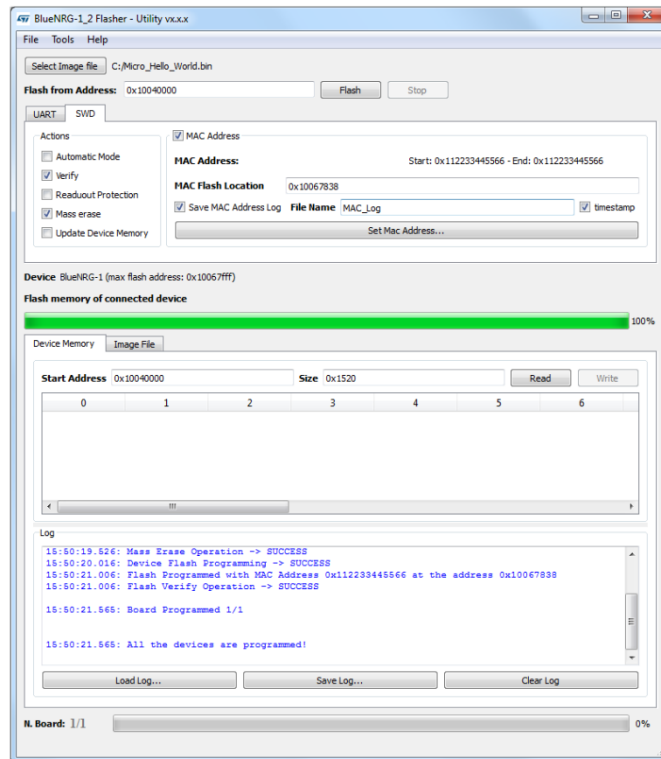


Figure 14. Flasher Utility: SWD MAC address programming



User can select either adding or not the timestamp on the saved MAC address log file name (as suffix). If the timestamp is not added to the name of log file, all log information is saved in the same selected log file name. Otherwise, for each run the log information is saved in a different log file. The name of log file can be specified using 'File Name' field.

8 Flasher launcher utility

The flasher launcher is a standalone utility allowing the BlueNRG-1,2 Flasher Utility commands to be run without using the BlueNRG-1,2 Flasher Utility GUI tool.

A DOS command window is required and both UART and SWD modes are supported (*.bin and *.hex image files).

The flasher launcher utility (`BlueNRG-1_2_Flasher_Launcher.exe`) is included on the BlueNRG-1, 2 Flasher Utility software package within the folder "Application".

8.1 Requirements

In order to use the flasher launcher utility on a specific device, the following prerequisites must be addressed:

- UART mode: the BlueNRG-1, BlueNRG-2 platform must be connected to a PC USB port
- SWD mode: an STLINK HW tool must be connected to the BlueNRG-1, BlueNRG-2 platform. ST-LINK/V2 HW tool only is supported in SWD mode

Note: all the operation logs are automatically stored on "Logs" folder created within the BlueNRG-1, 2 Flasher Utility software package, "Application" folder.

8.2 Flasher launcher utility options

In order to use the flasher launcher utility on a specific device, a Windows DOS shell must be opened and user has to launch the related `BlueNRG-1_2_Flasher_Launcher.exe` with proper command and options (type `-h` to get the list of all supported options):

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application> BlueNRG-1_2_Flasher_Launcher.exe -h:
```

```
usage: BlueNRG-1/2 Flasher Launcher [-h] [-v]
{flash,read,mass_erase,verify_memory,port,stLink}
```

BlueNRG-1/2 Flasher Launcher version 1.0.0.

optional arguments:

`-h, --help` show this help message and exit

`-v, --version` show program's version number and exit

commands:

```
{flash,read,mass_erase,verify_memory,port,stLink}
```

`flash`: Program a flash memory

`read`: Read a flash memory

`mass_erase`: Erase a flash memory

`verify_memory` Verify the content of a BlueNRG-x device with a file

`port`: Show all COM port (UART mode)

`stLink`: Show all ST LINK (SWD mode)

8.3 Flasher launcher utility: UART, SWD modes

The flasher launcher utility supports two operating modes:

- UART mode (just connect the selected device to a PC USB port)
- SWD mode (just connect the selected device to an ST-LINK HW programming tool)

Flasher launcher utility: command `port` for getting the list of all available COMx ports (which devices are connected to the PC USB ports):

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application> BlueNRG_Flasher_Launcher.exe port
```

```
CONNECTED PORT = COM194 (ST DK), COM160 (ST DK)
```

Flasher launcher utility: command `stLink` for getting the list of all available connected ST-LINK HW tools:

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application> BlueNRG_Flasher_Launcher.exe stLink
CONNECTED ST LINK:
1) \x55\x3f\x72\x06\x49\x3f\x55\x57\x30\x53\x19\x3f (U?r?I?UW0S??)
2) \x36\x3f\x6d\x06\x4d\x59\x30\x36\x36\x32\x16\x43 (6?m?MY0662?C)
```

8.4 Flasher launcher utility: flash command

In order to use the flasher launcher utility for programming a specific device flash memory, the `flash` command is available (type `-h` for getting the list of all supported options):

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility
x.x.x\Application>BlueNRG_Flasher_Launcher.exe flash -h
```

flash command usage:

```
BlueNRG-1_2_Flasher_Launcher.exe flash [-h] [-address START_ADDRESS][-f
[FILE_BLUENRG_1,FILE_BLUENRG_2]][-erase] [-verify] [-rp] [-mac] [-m_start MAC_START_ADDRESS][-
mac_address MAC_ADDRESS][-auto | -p PORT] [-verbose] [-l](-UART | -SWD)
```

flash command optional arguments:

- `-h, -help` Show this help message and exit
- `-address START_ADDRESS, -address START_ADDRESS` Start Address
- `-f [FILE_BLUENRG_1,FILE_BLUENRG_2], -fileToFlash [FILE_BLUENRG_1,FILE_BLUENRG2]` File .bin or .hex to flash for BlueNRG_1/BlueNRG_2 device
- `-erase, -erase` Enable Mass Erase option
- `-verify` Enable Verify option
- `-rp, -readout_protection` Enable ReadOut Protection option (only for SWD mode)
- `-mac, -mac` Enable Mac Address option (for SWD mode only)
- `-auto, -auto` Automatic COM port (for UART mode only)
- `-p PORT, -port PORT` List of COM port (for UART mode only)
- `-verbose` Increase output verbosity in log data (for SWD mode and log data only)
- `-l, -log` Log data
- `-UART, -uart` UART mode
- `-SWD, -swd` SWD mode (ST-Link HW tool)
- **MAC ADDRESS options (only for SWD):**
- `-m_start MAC_START_ADDRESS` First MAC address
- `-mac_address MAC_ADDRESS` Flash location where storing the BLE public address

Note:

1. If UART mode is selected, the device must be connected to a PC USB COM port and the `-UART` option must be used. If more than one device is connected to PC USB ports, the `-auto` option must be used or user must specify each COM port with the `-p` option.
2. If SWD mode is selected, an ST-Link HW tool must be connected to the device and the `-SWD` option must be used.
3. The binary file to be loaded is specified with `-f` option. If user must program the BlueNRG-1 and the BlueNRG-2 devices with related different binary files, on same programming session, the user can specify the related binary images following this order: the BlueNRG-1, BlueNRG-2.

```
>C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application>BlueNRG-1_2_Flasher_Launcher.exe flash -UART -auto
-f "C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 DK 3.1.0\Firmware
\BlueNRG1_Periph_Examples\Micro\Hello_World\BlueNRG-1\Micro_Hello_World.bin"
-f "C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 DK 3.1.0\Firmware
\BlueNRG1_Periph_Examples\Micro\Hello_World\BlueNRG-2\Micro_Hello_World.bin" -
l
```

The first file is programmed on connected the BlueNRG-1 devices; the second file is programmed on connected BlueNRG-2 devices

4. If `-f` option is not used, the binary images files specified on `Application/config_file.conf` are used:


```
#Image file for BlueNRG_1 device
BLUENRG_1 = "user_path"/bluenrg_1_binary_file.hex
#Image file for BlueNRG_2 device
BLUENRG_2 = "user_path"/bluenrg_2_binary.hex
```

User must specify the full binary image path for each device.

8.5 Flasher launcher utility: read command

In order to use the flasher launcher utility for reading a specific device flash memory, the read command is available (type `-h` for getting the list of all supported option):

```
>C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application>BlueNRG_Flasher_Launcher.exe read -h
```

read command usage:

```
BlueNRG-1_2_Flasher_Launcher.exe read [-h] [-address START_ADDRESS][--size SIZE] [-s] [-auto | -p PORT] (-UART | -SWD) [-verbose] [-l]
```

read command optional arguments:

- `-h, -help` Show this help message and exit
- `-address START_ADDRESS, --address START_ADDRESS` Start Address
- `-size SIZE, --size SIZE` Size of memory flash to read
- `-s, -show` Show the flash memory after a read operation
- `-auto, auto` Automatic COM port (for UART mode only)
- `-p PORT, -port PORT` List of COM port (for UART mode only)
- `-UART, -uart` UART mode
- `-SWD, -swd` SWD mode (ST-Link HW tool)
- `-verbose` Increase output verbosity (only for SWD mode and log data)
- `-l, -log` Log data

Note:

1. If UART mode is selected, the device must be connected to a PC USB COM port and the `-UART` option must be used. If more than one device is connected to PC USB ports, the `-auto` option must be used or user must specify each COM port with the `-p` option
2. If SWD mode is selected, an ST-Link HW tool must be connected to the device and the `-SWD` option must be used

8.6 Flasher launcher utility: mass erase command

In order to use the flasher launcher utility to perform a specific device flash mass erase, the `mass_erase` command is available (type `-h` to get the list of all supported options):

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application>BlueNRG_Flasher_Launcher.exe mass_erase -h
```

mass_erase command usage:

```
BlueNRG-1_2_Flasher_Launcher.exe mass_erase [-h] [-s] [-auto | -p PORT] (-UART | -SWD) [-verbose] [-l]
```

mass_erase command optional arguments:

- `-h, -help` Show this help message and exit
- `-s, -show` Show memory flash after a mass erase operation
- `-auto, -auto`
- `-p PORT, -port PORT` list of COM port (for UART mode only)
- `-UART, -uart` UART mode
- `-SWD, -swd` SWD mode (ST-Link HW tool)
- `-verbose` Increase output verbosity (for SW mode and log data only)
- `-l, -log` Log data

- Note:**
1. If UART mode is selected, the device must be connected to a PC USB COM port and the `-UART` option must be used. If more than one device is connected to PC USB ports, the `-auto` option must be used or user must specify each COM port with the `-p` option.
 2. If SWD mode is selected, an ST-Link HW tool must be connected to the device and the `-SWD` option must be used

8.7 Flasher launcher utility: verify memory command

In order to use the flasher launcher utility for verify a specific device flash memory content, the `verify_memory` command is available (type `-h` for getting the list of all supported option):

```
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1_2 Flasher Utility x.x.x
\Application>BlueNRG_Flasher_Launcher.exe verify_memory -h
```

verify_memory command usage:

```
BlueNRG-1_2_Flasher_Launcher.exe verify_memory [-h] -f FLASH_VERIFY_FILE[-s] [-address START_ADDRESS] [-auto | -p PORT] [-verbose] [-l] (-UART | -SWD)
```

verify_memory command optional arguments:

- `-h, -help` Show this help message and exit
- `-f FLASH_VERIFY_FILE, -file FLASH_VERIFY_FILE` File to use to verify flash memory
- `-s, -show` Show memory flash after a mass erase operation
- `-address START_ADDRESS, -address START_ADDRESS` Start Address
- `-auto, -auto` Automatic COM port (for UART mode only)
- `-p PORT, -port PORT` List of COM port (only for UART mode)
- `-verbose` Increase output verbosity (only for SWD mode and log data)
- `-l, -log` Log data in a txt file
- `-UART, -uart` UART mode
- `-SWD, -swd` SWD mode (ST-Link HW tool)

- Note:**
1. If UART mode is selected, the device must be connected to a PC USB COM port and the `-UART` option must be used. If more than one device is connected to PC USB ports, the `-auto` option must be used or user must specify each COM port with the `-p` option.
 2. If SWD mode is selected, an ST-Link HW tool must be connected to the device and the `-SWD` option must be used.

8.8 Flasher launcher utility: examples

Flash a binary image on the connected BLE devices with an ST-Link HW tool (SWD mode)

```
>BlueNRG-1_2_Flasher_Launcher.exe flash -SWD -f "User_Application.hex" -l
```

Flash a binary image on the connected BLE devices on USB COM ports (UART mode)

```
>BlueNRG-1_2_Flasher_Launcher.exe flash -UART -auto -f "User_Application.hex" -l
```

Flash a binary image on the connected BlueNRG-2 device on USB COM port with erase, verify and log data options (UART mode)

Figure 15. BlueNRG-1,2 Flasher launcher, flash with -erase, -l, -verify option

```

Administrator: Command Prompt
C:\Program Files (x86)\STMicroelectronics\BlueNRG-1,2 Flasher Utility 3.0.0\Appl
ication>BlueNRG-1,2_Flasher_Launcher.exe flash -UART -auto -f "C:\Program Files
(x86)\STMicroelectronics\BlueNRG-1,2 DR 3.1.0\Firmware\BlueNRG1_Periph_Examples\
MicroHello_World\BlueNRG-2\Micro_Hello_World.bin" -l -erase -verify
Working on ST DK COM port: COM202 <ST DK>.
11:47:11.624: Device COM202 -> Call FlashDevice
11:47:11.624: Device COM202 -> Call InitDevice: Init BlueNRG1/BlueNRG2 Device
11:47:11.834: Device COM202 -> Call bootLoaderInstance
11:47:11.834: Device COM202 -> Call FlashDevice: Start Programming...
11:47:11.834: Device COM202 -> Call BTL_flashBin: startAddress = 0x10040000, doE
rase = True, doGo = False
11:47:11.924: Device COM202 -> BTL_flashBin doErase: cmdErase result = 0
11:47:11.944: Device COM202 -> BTL_flashBin programming... 0 bytes of 5403, r
esult = 0
11:47:11.963: Device COM202 -> BTL_flashBin programming... 256 bytes of 5403, r
esult = 0
11:47:11.983: Device COM202 -> BTL_flashBin programming... 512 bytes of 5403, r
esult = 0
11:47:12.003: Device COM202 -> BTL_flashBin programming... 768 bytes of 5403, r
esult = 0
11:47:12.023: Device COM202 -> BTL_flashBin programming... 1024 bytes of 5403,
result = 0
11:47:12.043: Device COM202 -> BTL_flashBin programming... 1280 bytes of 5403,
result = 0
11:47:12.063: Device COM202 -> BTL_flashBin programming... 1536 bytes of 5403,
result = 0
11:47:12.084: Device COM202 -> BTL_flashBin programming... 1792 bytes of 5403,
result = 0
11:47:12.104: Device COM202 -> BTL_flashBin programming... 2048 bytes of 5403,
result = 0
11:47:12.124: Device COM202 -> BTL_flashBin programming... 2304 bytes of 5403,
result = 0
11:47:12.144: Device COM202 -> BTL_flashBin programming... 2560 bytes of 5403,
result = 0
11:47:12.164: Device COM202 -> BTL_flashBin programming... 2816 bytes of 5403,
result = 0
11:47:12.184: Device COM202 -> BTL_flashBin programming... 3072 bytes of 5403,
result = 0
11:47:12.194: Device COM202 -> BTL_flashBin programming... 3328 bytes of 5403,
result = 0
11:47:12.213: Device COM202 -> BTL_flashBin programming... 3584 bytes of 5403,
result = 0
11:47:12.243: Device COM202 -> BTL_flashBin programming... 3840 bytes of 5403,
result = 0
11:47:12.263: Device COM202 -> BTL_flashBin programming... 4096 bytes of 5403,
result = 0
11:47:12.283: Device COM202 -> BTL_flashBin programming... 4352 bytes of 5403,
result = 0
11:47:12.293: Device COM202 -> BTL_flashBin programming... 4608 bytes of 5403,
result = 0
11:47:12.313: Device COM202 -> BTL_flashBin programming... 4864 bytes of 5403,
result = 0
11:47:12.334: Device COM202 -> BTL_flashBin programming... 5120 bytes of 5403,
result = 0
11:47:12.344: Device COM202 -> BTL_flashBin programming... 5376 bytes of 5403,
result = 0
11:47:12.344: Device COM202 -> Call FlashDevice: End Programming.
11:47:12.344: Device COM202 -> Call closeDevice
11:47:12.364: Device COM202 -> Call readDevice
11:47:12.364: Device COM202 -> Call InitDevice: Init BlueNRG1/BlueNRG2 Device
11:47:12.573: Device COM202 -> Call bootLoaderInstance
11:47:12.573: Device COM202 -> Call readDevice: Start...
11:47:12.854: Device COM202 -> Call closeDevice
11:47:12.854: Device COM202 -> Call resetBlueNRG1: reset BlueNRG1/BlueNRG2 devic
e
11:47:13.063: Device COM202 -> Call readDevice: Finished.
    
```

9 List of acronyms

Table 1. List of acronyms

Term	Meaning
BLE	Bluetooth low energy
HW	Hardware
USB	Universal serial bus
SWD	Serial wire debug UART
UART	Universal asynchronous receiver-transmitter

A References

Table 2. Reference

Name	Title
BlueNRG-1 datasheet	BlueNRG-1 datasheet
BlueNRG-2 datasheet	BlueNRG-2 datasheet
STSW-BNRGFLASHER	Databrief for the BlueNRG-1, BlueNRG-2 Flasher SW package

Revision history

Table 3. Document revision history

Date	Version	Changes
15-May-2018	1	Initial release.
03-Jul-2018	2	<p>Updated Figure 1. BlueNRG-1, BlueNRG-2 Flasher Utility, Figure 2. Flasher Utility UART main window, Figure 3. Flasher utility UART mode: image file , Figure 4. Flasher utility UART mode: device memory , Figure 5. Flasher utility UART mode: changing memory fields, Figure 7. Flasher Utility: SWD main window, Figure 8. Flasher Utility SWD mode: device memory , Figure 10. Flasher Utility: SWD automatic mode, Figure 11. Flasher utility: UART automatic mode, Figure 12. Flasher utility: UART automatic programming is completed and Figure 13. Flasher Utility: SWD MAC address selection.</p> <p>Minor text changes throughout the document.</p>
26-Feb-2019	3	<p>Updated the Section Introduction and Section 3.1 UART mode: how to run.</p> <p>Added Section 8 Flasher launcher utility and all its sub sections.</p>

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