

Instructions

The following are the instructions to program a BlueBits board

To program a BlueBits board, the following items will be required:

1. A programmed and setup Snoopy 3 board with USB cable to power the Snoopy3 board
2. J-Link programmer with USB device cable
3. 20-pin to 9-pin adapter
4. 9-pin to Flat Flex Cable adapter
5. Flat Flex Cable
6. The BlueBits board that is to be programmed

Necessary Tools

First item required is the J-Link programming module

This module will require a USB device cable in order to connect to a PC.



Necessary Tools

Second item required is the 20-pin to 9-pin adapter

The module will insert into the one side of the J-Link programming module

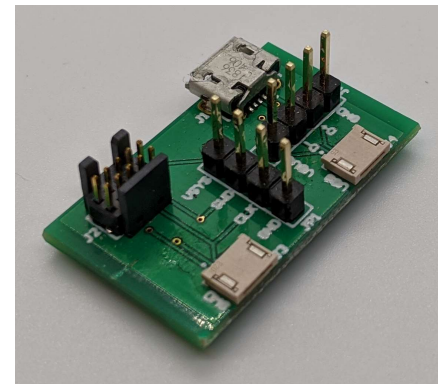
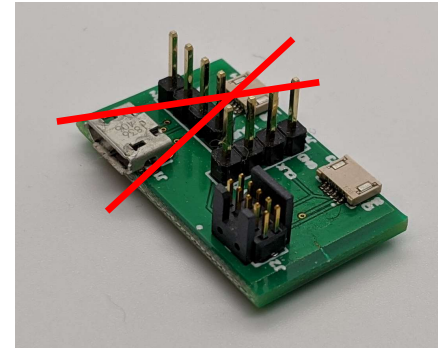


Necessary Tools

The third module will be the 9-pin to Flat Flex Cable adapter

Only the one side will be used – the one with the 10-pin side

The USB to Flat Flex cable side is not used during this programming operation



Necessary Tools

Flat Flex cables will be required to connect to the BlueBits board

One cable will be needed for the connection to the Snoopy 3 and a second cable will be needed for the connection from the Snoopy 3 to the BlueBits board



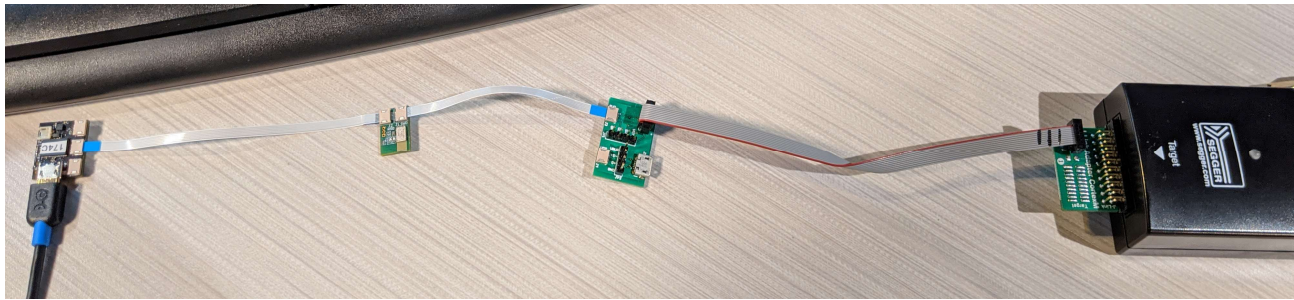
Setup

Snoopy 3

BlueBits

FFC Adapter

J-Link Programmer with 20-pin adapter



The overall setup is shown above.

From left to right:

- Snoopy 3 board, programmed and operating, connected from the middle port to the J2 / RSB side of the BlueBits
- BlueBits board with both connections – one to the Snoopy 3 and one to the 9-pin adapter
- The 9-pin to Flat Flex Cable adapter
- J-Link programmer
- (Not pictured) J-Link connection via USB to a PC

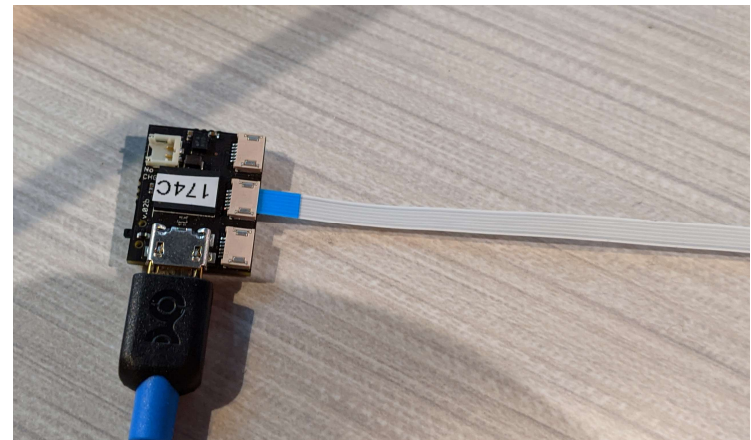
Setup

Snoopy 3 – Connection

- The connection from the Snoopy 3 to the BlueBits board is required in order to provide the 3V operating power the BlueBits will need during programming
- If this connection is not present, the BlueBits board will be able to be programmed

Troubleshooting Tip:

- If during programming, the BlueBits board is not able to be found, this connection may be inserted incorrectly.
- The Flat Flex Cable can be inserted as shown as well as rotated 180° around
- If no connection to the BlueBits is possible, always check that the orientation of the cable for possible errors



Setup

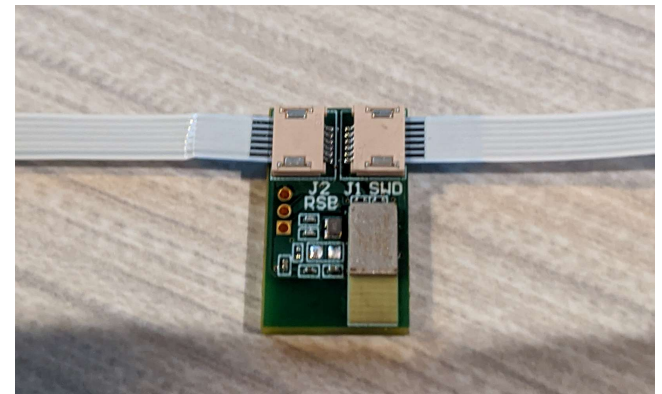
BlueBits – Connection

- The BlueBits board receives its power from the Snoopy 3 board.
- The J1 / SWD connection is the programming port for the BlueBits board. This side is connected to the J-Link programmer

Troubleshooting Tip:

- If during programming, the BlueBits board is not able to be found, this connection may be inserted incorrectly.
- The Flat Flex Cable can be inserted as shown as well as rotated 180° around
- If no connection to the BlueBits is possible, always check that the orientation of the cable for possible errors

← To Snoopy 3 To 9-pin adapter →



Setup

9-pin to Flat Flex Connection

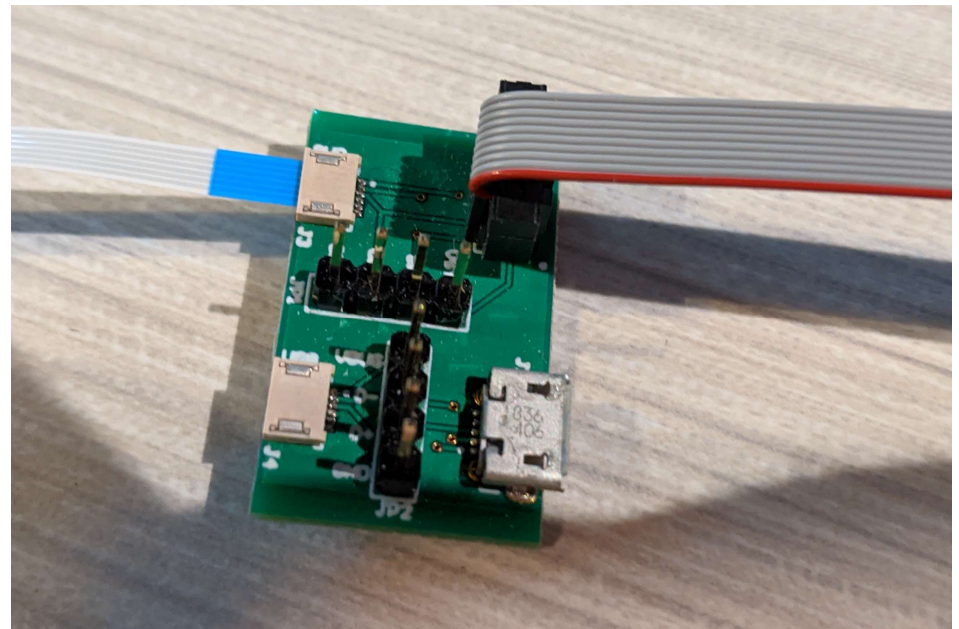
This is a fairly simple and straightforward connection.

The 10-pin header is keyed along with the grey ribbon cable to prevent this from being inserted incorrectly.

To repeat: The USB side of this connection is not used during any step of this process

← To BlueBits

To 20-pin adapter →



Setup

J-Link programmer with 20-pin adapter

This device connects to the PC via USB and should be recognized immediately when first connected.

← To 9-pin adapter

To PC via USB→





Setup

Programming the BlueBits

Two files will be required when programming a BlueBits

1. The Softdevice file
(s132_nrf52_7.0.1_softdevice.hex)
2. The run-time code (BlueBits_0_700.hex)

Please note there is no bootloader file that is used during this operation

Name	Date modified	Type	Size
 BlueBits_0_700.hex	9/2/2020 10:53 AM	HEX File	229 KB
 s132_nrf52_7.0.1_softdevice.hex	8/18/2020 2:09 PM	HEX File	419 KB

Setup

Programming the BlueBits

On a Windows PC, the following program will be required in order to flash the BlueBits.

See download link to the right



nRFgo Studio

Obsolete - use only with legacy products

Test and programming tool

nRFgo Studio is a Desktop application for configuring and evaluating Nordic nRF24L-Series SoCs, nRF8000-Series and nRF51- and nRF52-Series SoCs.

The Nordic nRFgo Studio is a Windows® application that enables engineers to quickly explore and evaluate radio performance and functionality. The application supports a range of radio testing, including output power and sensitivity. Engineers can also easily configure and set-up the tests to match their own specific application requirements.

nRFgo Studio is designed to be used in conjunction with the Nordic nRFgo Starter Kit and Nordic nRFgo-compatible development kits. It supports auto detection of Nordic nRFgo motherboard and radio modules. It also support the nRF51 and nRF52 evaluation kits and programming nRF51 and nRF52 series devices through SEGGER J-Link®.

<https://www.nordicsemi.com/Software-and-tools/Development-Tools/nRFgo-Studio/Download>

Setup

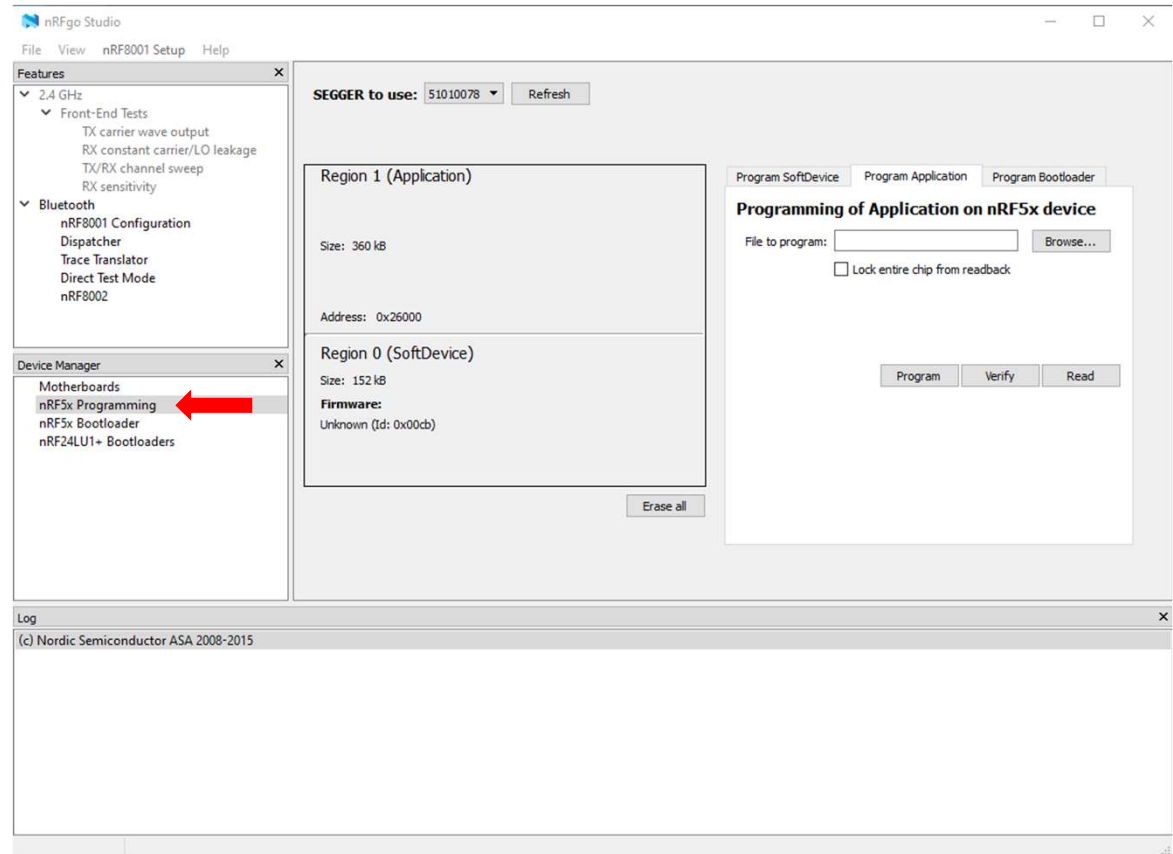
Running the NRFGO Programming Suite

Ensure that all the pieces of hardware are connected as previously described – from the Snoopy 3 all the way to the J-Link Programmer

When first running the program, no options will be required to be configured.

On the left hand side of the screen, click on the nRF5x Programming option

Once clicked, the program will then look for our programmer and also check to see if there are any NRF chipsets attached.



Setup

Running the NRFGO Programming Suite

IF the device is able to successfully connect to the chipset, it will display what is current programmed .

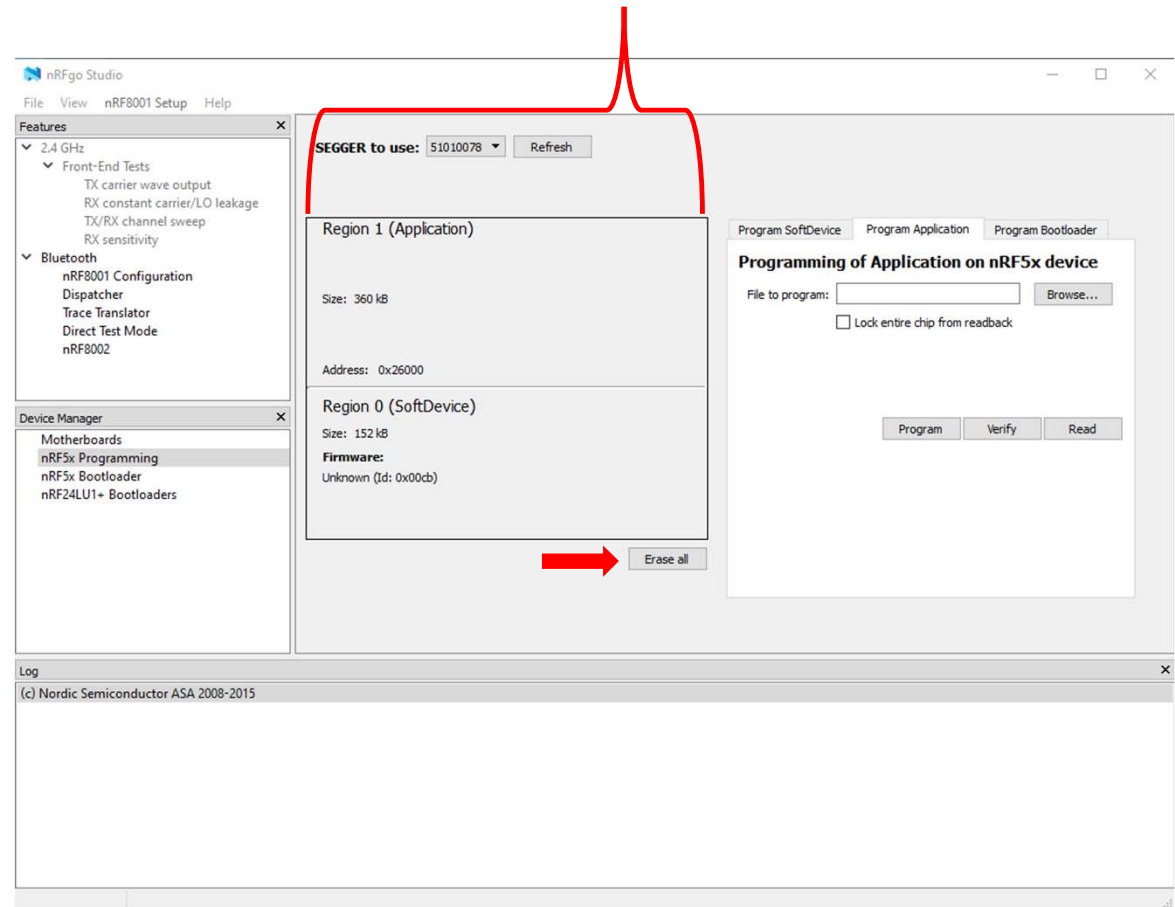
The chipset has three regions:

- Region 0: Softdevice
- Region 1: Application
- Region 2: Bootloader (not shown)

The NRF chipset will likely come with some default program. This needs to be erased.

Click on the erase option and wait until the log (bottom) says that the erase was successful

What is already on the chip



Setup

Running the NRFGO Programming Suite

Once the erase is successful, programming the chip can begin

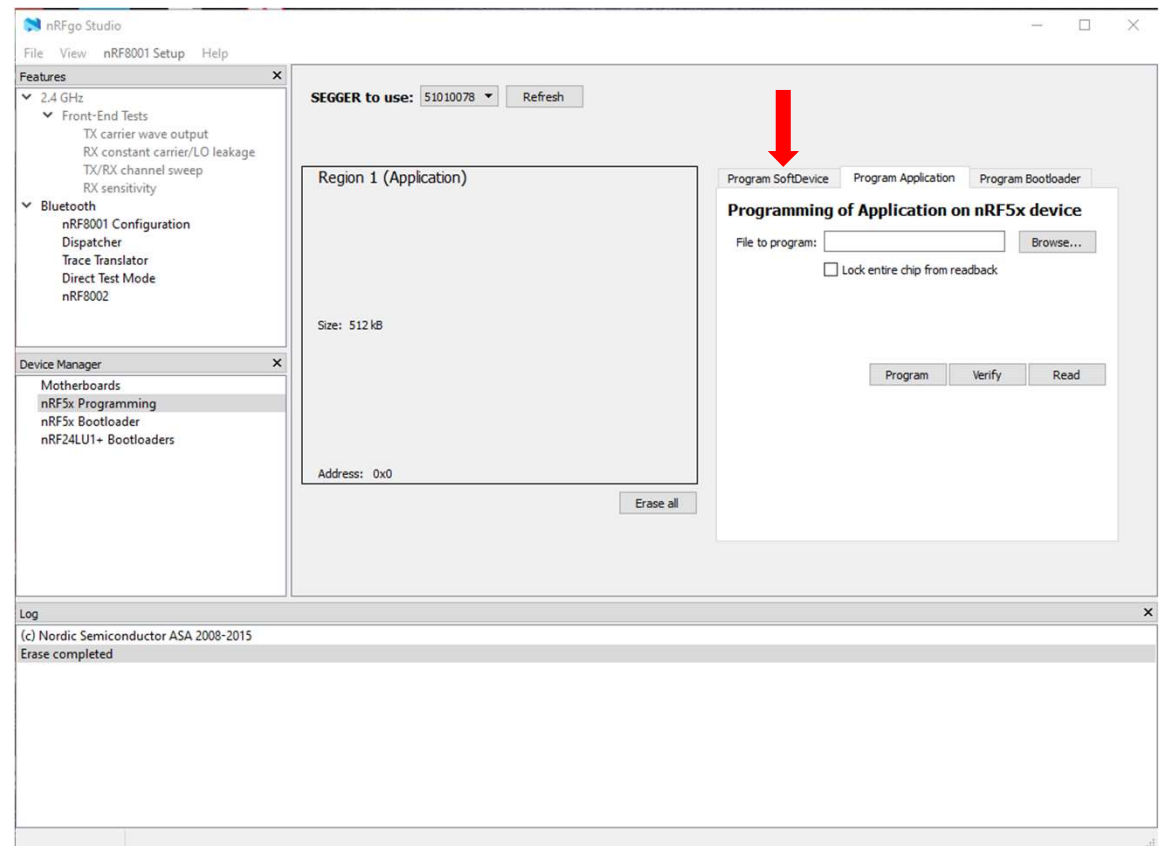
Start with the SoftDevice first

Click on that tab

Click on the browse button and select the SoftDevice file:

s132_nrf532_7.0.1_softdevice.hex

Then, with that file selected, press the program button

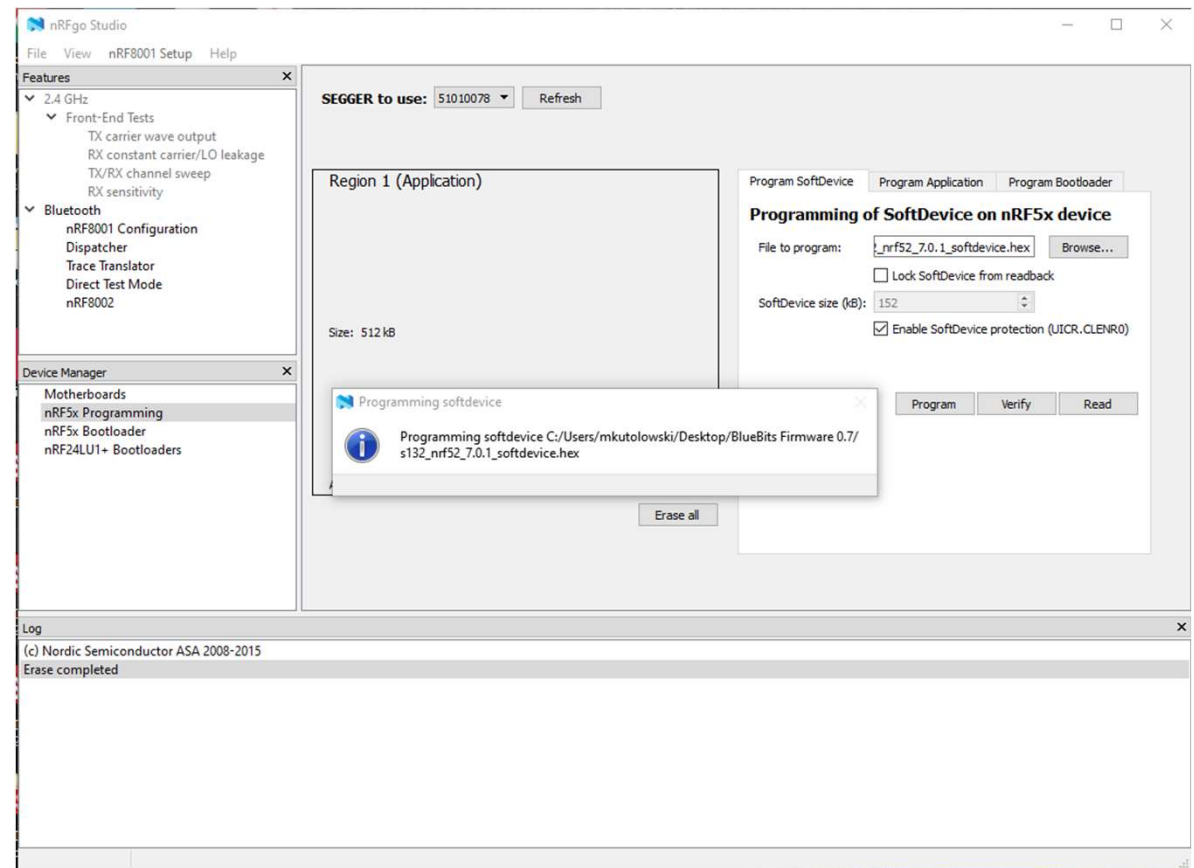


Setup

Running the NRFGO Programming Suite

Wait while the program downloads the SoftDevice file to the BlueBits device

Once successful, it will display a line in the log box (bottom) saying that it completed the programming successfully.



Setup

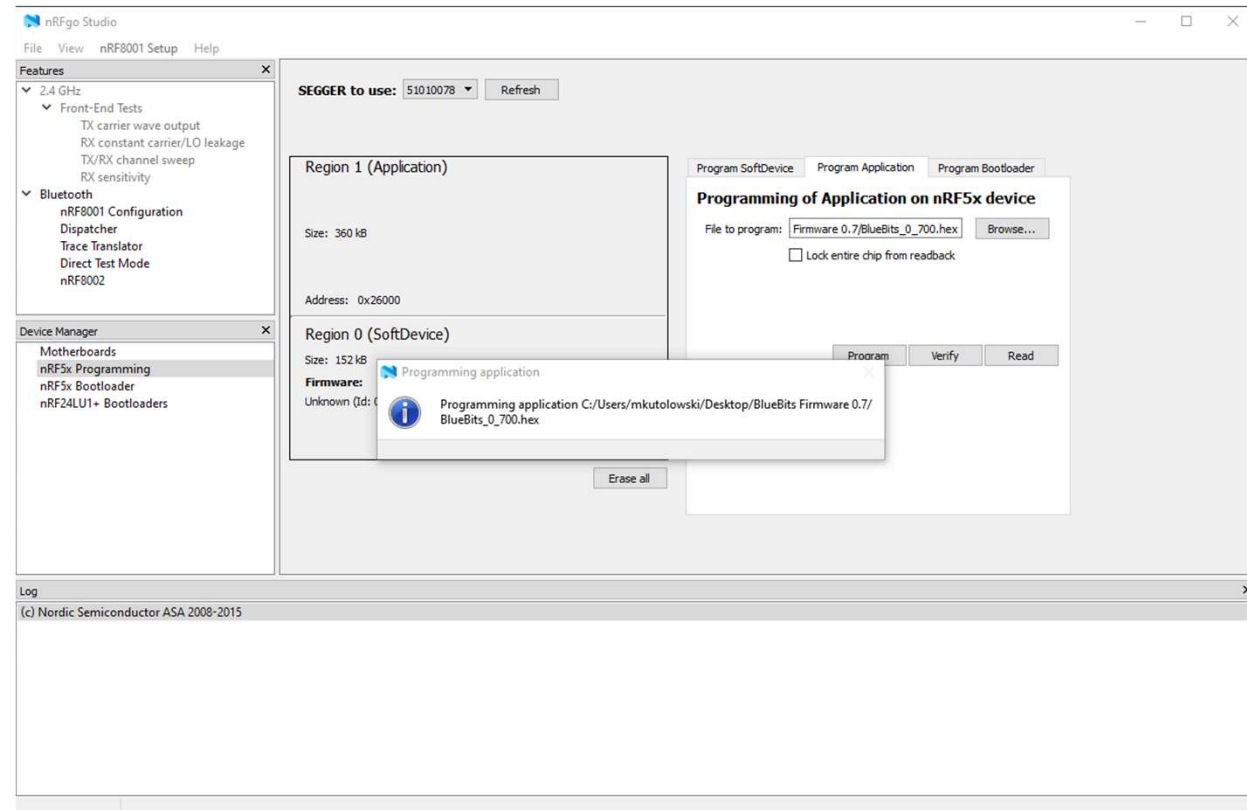
Running the NRFGO Programming Suite

With the SoftDevice successfully programmed, time to move on to the Application.

Repeat the steps from before (clicking on the tab, selecting the file, programming, etc)

Once the application has been successfully programmed, the programming is complete and the BlueBits can be removed.

Note: Remove power from the Snoopy 3 board (usb connection) first before removing the J-link connection to the BlueBits



Common Issues

Common points of issues:

1. Device unable to be located by the NRFGO programming software
 1. Always check to make sure that the flat flex connection cables are inserted completely and in the right direction.
 2. You can always try rotating the cables 180° to see if that helps the issue.
2. NRFGO software crashes
 1. This can occur from time to time. If this does, simply restart the program and try to program again
3. Device does not operate
 1. If the device does operate correctly after programming, the procedure can be repeated to see if that clears up the issue (erase → soft device → application)
 2. Erasing the chip does not harm its performance