Development Environment Setup Guide

Seongji

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Contents

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Revision history

Revision	Date	Description
1.0	2017.01.10	Initial release
1.2	2017.01.31	Add to SDK compile & download guide
1.3	2017.02.08	Add bootloader build and flash map
1.4	2017.03.07	Add GCC compile
1.5	2017.03.10	Removed CSR
2.0	2017.03.21	Add DFU
2.01	2017.04.18	Add Setup SDK Source
2.02	2017.07.10	update " Setup SDK Source"
3.00	2019.09.10	Update "Setup SDK Source", Just Support SES

Development Environment Setup Guide

1. Introduction

1.1 Purpose

Software Development Kits (SDK) are your starting point for software development on the sigfox module. Setting up the nRF52 Development Kit is as easy as connecting it by a USB cable to a computer.

Development environment for Cortex and ARM devices.

1.2 Model & Firmware Version

Model	Firmware
SFM20R	SFM20R_EVB_AV300
SRM200A	SRM200_EVB_AV300

1.3 How to Change for Model/Board/Version

Modify cfg_config_defines.h

	SFM20R	SFM60R	SRM200A
#define CDEV_MODEL_NAME	"SFM20R"	"SFM60R"	"SRM200"
#define CDEV_MODULE_TYPE	CDEV_MODULE_SFM20R	CDEV_MODULE_SFM60R	CDEV_MODULE_SRM200
#define CDEV_BOARD_TYPE	CDEV_BOARD_EVB	CDEV_BOARD_EVB	CDEV_BOARD_EVB
#define CDEV_SW_VER_MAJOR	"3"	"3"	"3"
#define CDEV_SW_VER_MINOR	"00"	"00"	"00"
#define CDEV_FS_VER	0x0030	0x0030	0x0030

1.4 Setting up the development kit

- nRFgo Studio and nRF5x-Command-Line-Tools

Test and programming tools

- SES (SEGGER Embedded Studio)

A powerful and easy to use toolbox for developers - FREE for Nordic customers

- nRF5 SDK

Software development kit for the nRF52 series and the nRF51 series SoC.

See the following file for the base version : sdk_version.txt

- SDK documentation

Read the information in the SDK Release Notes, and check the nRF5 SDK documentation.
documentation/index.html

2. Setup SDK Source

github url : https://github.com/seongji-SFM/SFM_15x.git
(eg. git clone https://github.com/seongji-SFM/SFM_15x.git)
(http://support.seongji.co.kr) -> Ordering and technical support

3. Install nRF tools

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®

nRFgo studio provides a visual editor for creating GATT clients (Profiles) and GATT Services for the nRF8001 and generating the nRF8001 Setup as a header file. The nRFgo studio is used to visually configure the nRF8002 and generate the configuration for the nRF8002. The nRFgo Studio features for nRF8001 and nRF8002 are standalone and do not require the Nordic nRFgo Starter kit.

nRFgo Studio download and install

Keyword : nRFgo Studio
URL : https://www.nordicsemi.com/?sc_itemid=%7B23B6FAAE-0B1B-415A-B891-5B916E854AC4%7D

nRF5x-Command-Line-Tools

Keyword : nRF52-Command-Line-Tools
URL : https://www.nordicsemi.com/?sc_itemid=%7B56868165-9553-444D-AA57-15BDE1BF6B49%7D

4. SES (SEGGER Embedded Studio)

Keyword : nRF52 Segger Embeedded Studio

URL : https://www.nordicsemi.com/?sc_itemid=%7B48E11346-206B-45FD-860D-637E4588990B%7D

Documents : https://infocenter.nordicsemi.com/pdf/getting_started_ses.pdf

License Activation for nRF52 : https://license.segger.com/Nordic.cgi

Integrated Development Environment / IDE

A powerful and easy to use toolbox for developers - FREE for Nordic customers

Valuable development tools

Segger Embedded Studio is an easy-to-use integrated development environment with project management tools, editor and debugger supporting ARM Cortex devices. Full debug support including Real Time Terminal (RTT) output is also available.

5. nRF52 SDK

Keyword : nRF5 SDK

URL : https://www.nordicsemi.com/?sc_itemid=%7B21C26716-5F2C-4E2D-9514-C9B87B711114%7D

Software development kit for the nRF52 series and the nRF51 series SoC

The nRF5 SDK is your first stop for building fully featured, reliable and secure applications with the nRF52 and nRF51 Series. It offers developers a wealth of varied modules and examples right across the spectrum including numerous Bluetooth Low Energy profiles, Device Firmware Upgrade (DFU), GATT serializer and driver support for all peripherals on all nRF5 Series devices. The nRF5 SDK will almost certainly have something for your needs in developing exciting yet robust wireless products.

6. nRF52 SDK Documentation

URL : https://developer.nordicsemi.com/nRF5_SDK/nRF5_SDK_v15.x.x/doc/15.3.0/

See the documentation folder at the top of this project.

7. Git for Windows

Keyword : git for windows

URL : https://gitforwindows.org/

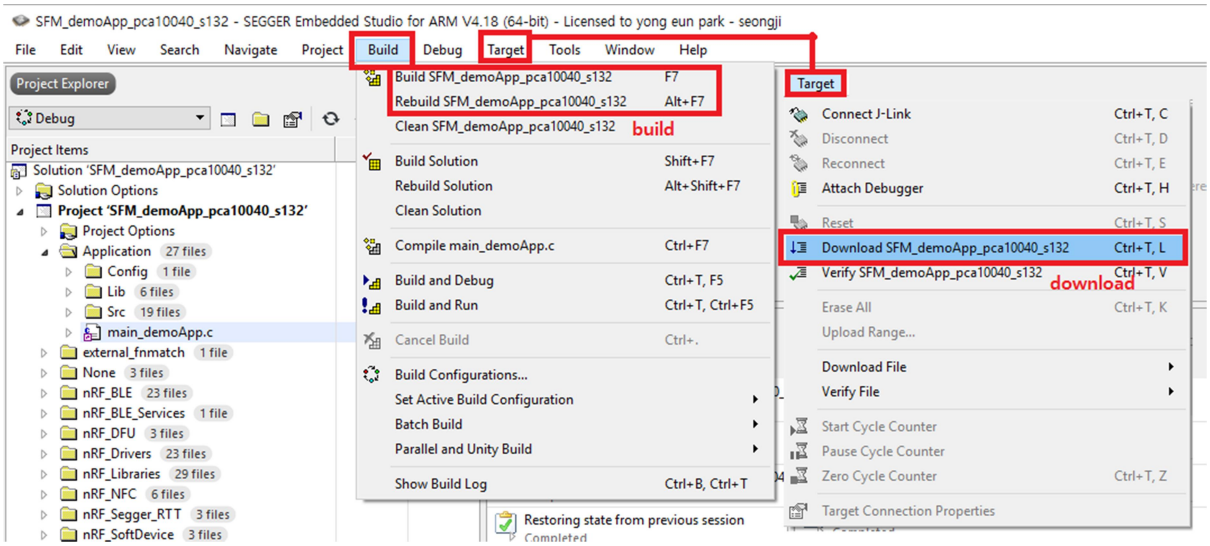
8. SDK Compile

8.1 Get SDK Source

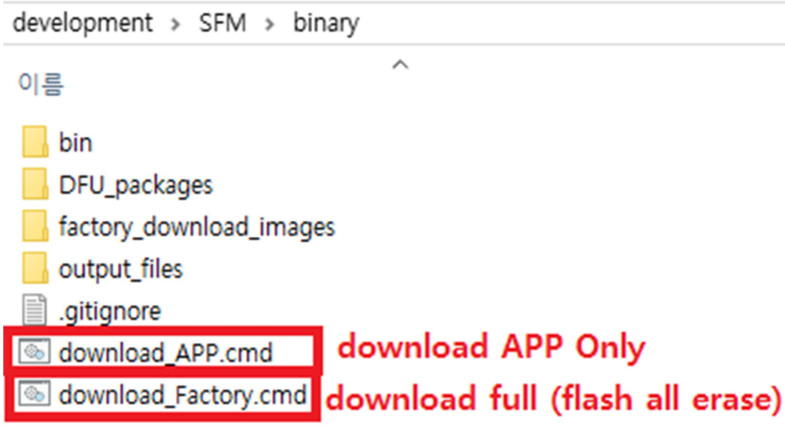
Ex) https://github.com/seongji-SFM/SFM_15x

git clone https://github.com/seongji-SFM/SFM_15x.git in Git Bash

8.2 Run the ***.emProject** file from the extracted directory with SES



* download cmd with windows



8.3 Build Application

Path : development₩SFM₩demoApp₩pca10040₩s132₩ses

emProject : SFM_demoApp_pca10040_s132.emProject

8.4 Build bootloader

Path : development₩SFM₩demoBootloader₩pca10040₩ses

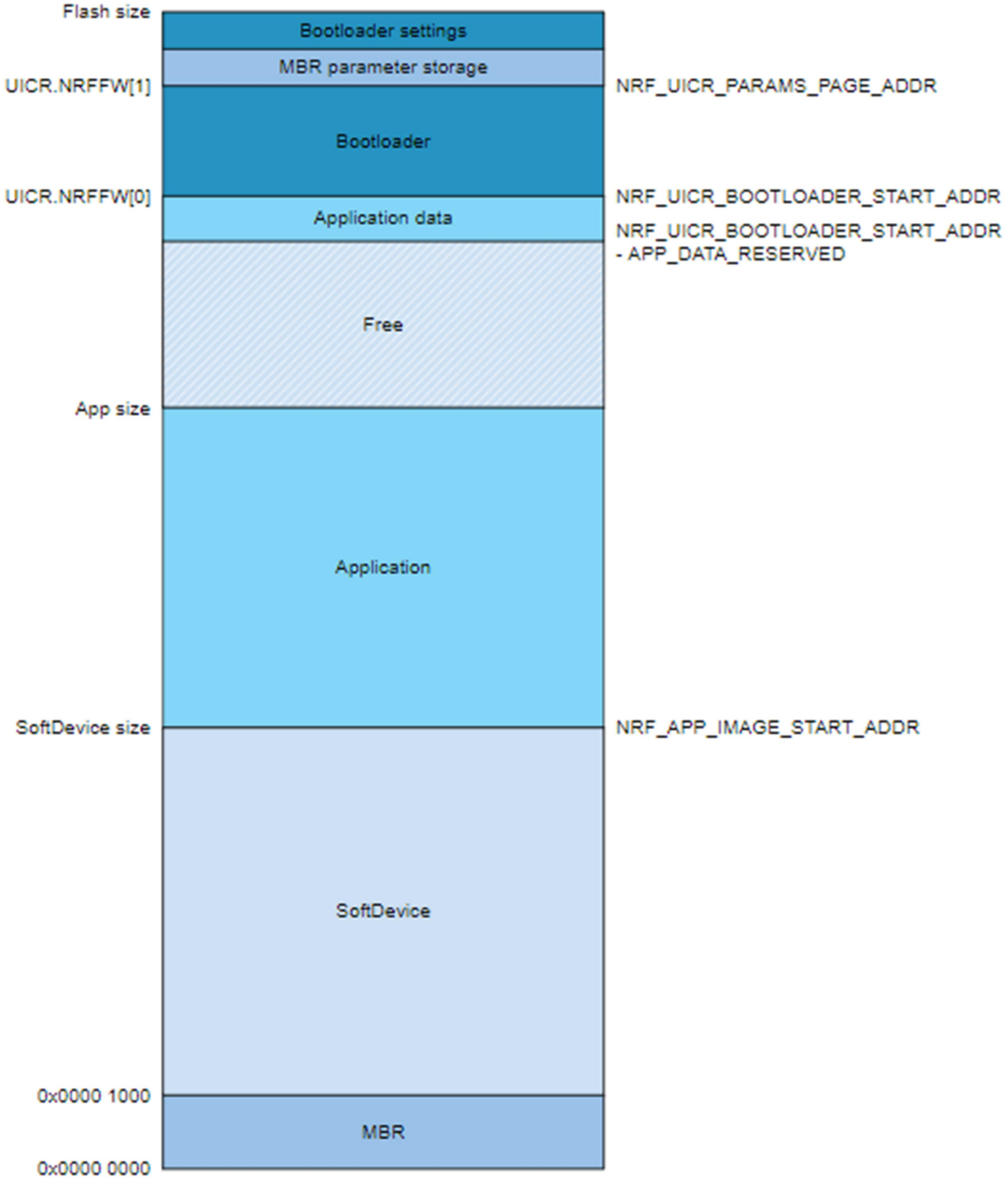
File : SFM_demoBL_s132_pca10040.emProject

Prepared Bootloader hex image : development₩SFM₩demoBootloader₩hex

➔ It is updated when post_build_cmd_BL_Win.cmd is run

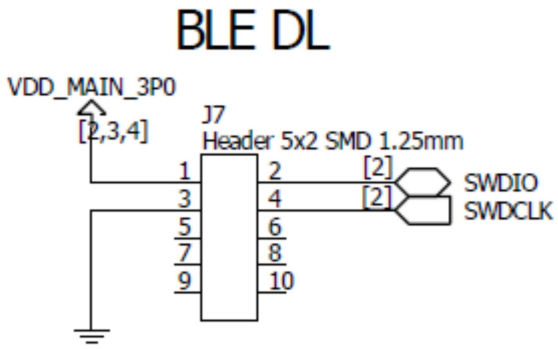
9. Output and flash memory map

* Modified Bootloader address : 0x75000



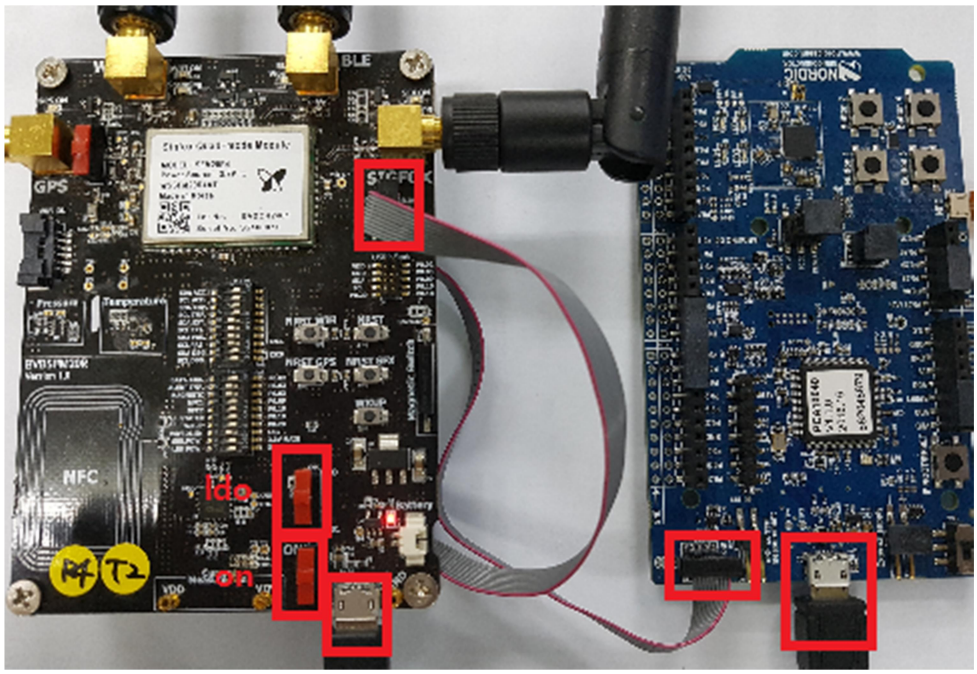
10. Flash Download

10.1 BLE DL PinMap

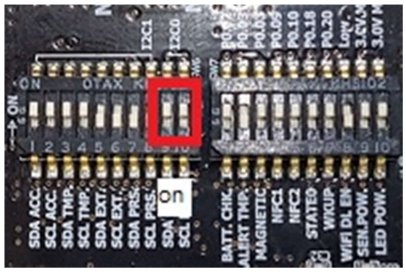


10.2 Connection diagram

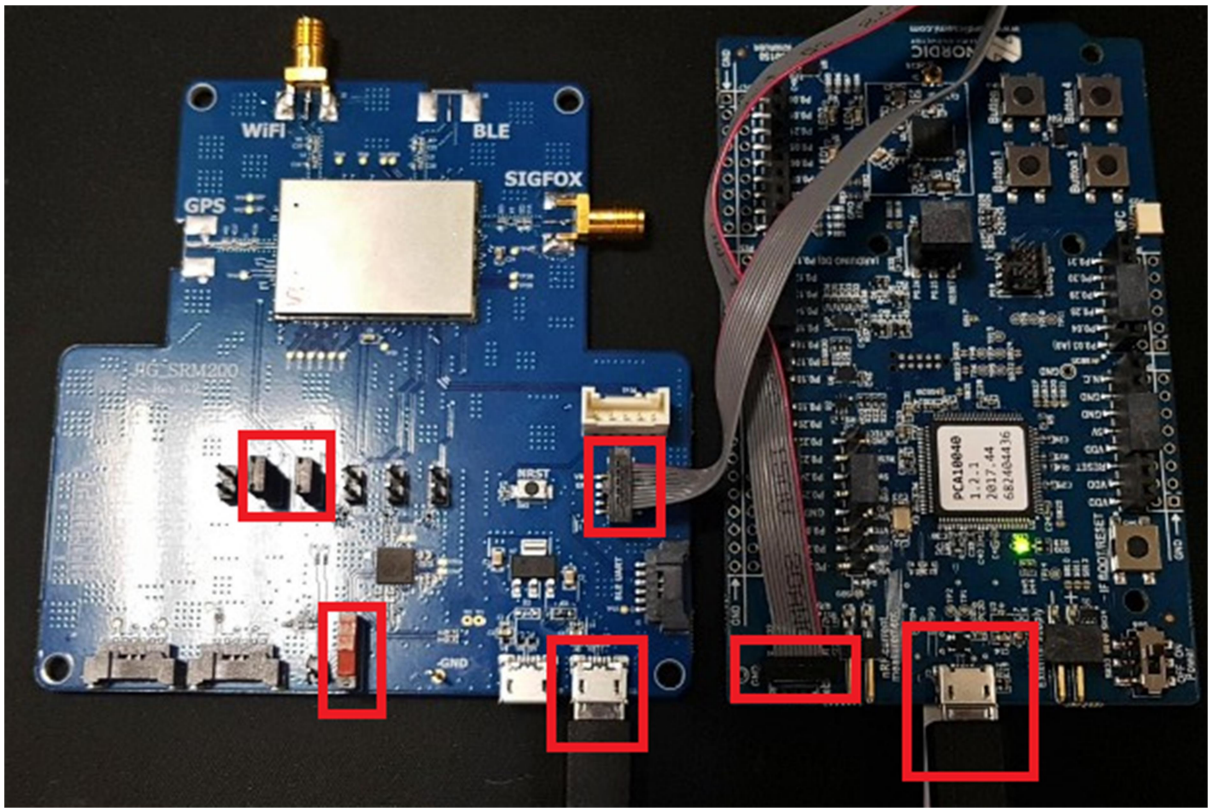
1) SFM20R EVB



* Jumper Setting for Use PC Tools

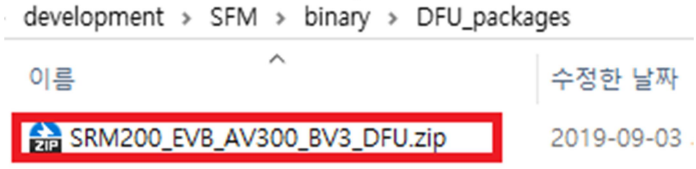


2) SRM200A EVB



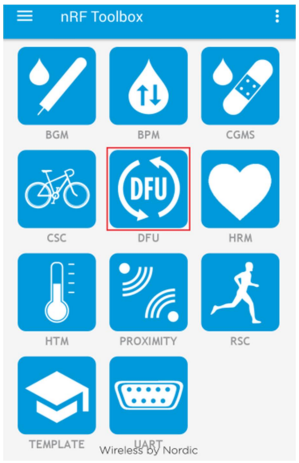
11. DFU (Device Firmware Upgrade via BLE)

11.1 Prepare DFU Packages

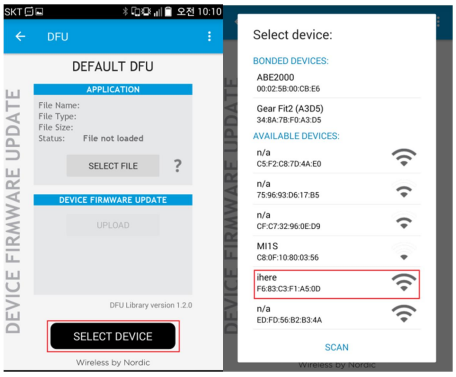


11.2 Run the nRF toolbox (You can download it from PlayStore)

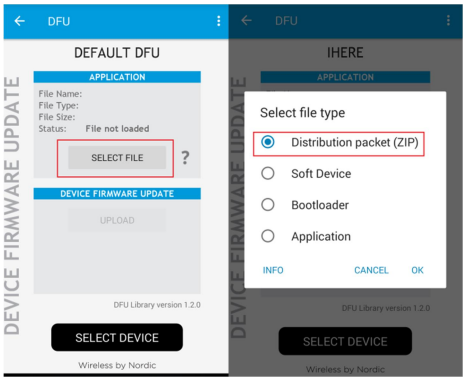
11.3 Run DFU



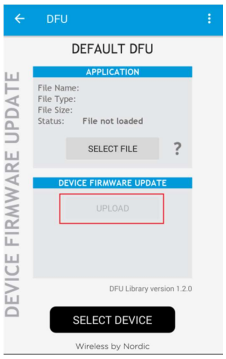
11.4 Select Device



11.5 Select Package file



11.6 Run Upload



11.7 Be sure to turn on the power while downloading (LED blinks)