Development Environment Setup Guide

WISOL

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Development Environment Setup Guide

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"

Development Environment Setup Guide

1. Introduction

1.1 Purpose

Software Development Kits (SDK) are your starting point for software development on the sigfox config2. 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
CONFIG2	SFM20R1

1.3 Setting up the development kit

- nRFgo Studio

Download and install nRFgo Studio (which includes the nRF Tools package; JLinkARM, JLink CDC, nRFjprog, and mergehex) from nRFgo Studio.

- Keil MDK-ARM

Download and install the latest Keil MDK-ARM from Keil MDK-ARM Development Kit.

- nRF5 SDK

Download and extract the latest nRF5 SDK found on developer.nordicsemi.com.

- Keil Device Family Pack

Install the Device Family Pack that is shipped with the SDK, or let Keil install it automatically.

- SDK documentation

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

2. Setup SDK Source

The source is distributed via AWS (git). When you buy product, you can get an AWS account. (http://support.wisol.co.kr) -> Ordering

3. nRFgo Studio

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 nRF5x devices through SEGGER J-Link®.

nRFgo Studio download

URL : https://www.nordicsemi.com/eng/Products/2.4GHz-RF/nRFgo-Studio/

DOWNLOADS Tab – Download tool (nRFgo Studio-Winxx)

	NORD 5 E M I C O N D U Smarter	IC c t o r Things				English ∽ ∣ MyPag	e Docume
About us	Products	Applications	Support & Com	imunity inv	estors Pop	ular Products 🕶	
Home / Produ	cts / 2.4GHz RF /	nRFgo Studio					
PRODUCT	s		nRFgo Studio			Replaceme	nt products
BLUETOO	TH LOW ENERG	зY	PC application for and evaluating Nor Series SoCs, nRF80 pRE51, and pRE52	configuring rdic nRF24L- 000-Series and		Get p	roduct upda
ANT™			Active	-561165 5005			
2.4GHZ RF							
SUB 1-GHZ	RF		<u>PC software</u> To aid your produc and monitor your p	ct development, No product	ordic also offers a r	range of tools enabling you to	interact wi
IEEE 802.1	5.4		SOFTWARE				
NORDIC M	OBILE APPS		Code nRFgo Studio- Win32	Name Software tool f bit (x86) Windo	or nRFgo Starter Ki ws XP, Windows Vi	it and Development Kits for 32 ista, Windows 7, and Windows	Versio 2- 8 1.21.2
3RD PART ENERGY M	Y BLUETOOTH IODULES	LOW	nRFgo Studio- Win64	Software tool f bit (x64) Windo	or nRFgo Starter Ki ws Vista, Windows	it and Development Kits for 64 7, and Windows 8	1.21.2
3RD PART		NT BOARDS, ARDUINO					

nRFgo Studio installation

nRFgo Studio Setup



Read following license agreement

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End-User License Please read the foll	Agreement owing license agreement carefully		RDIC
This text contain	ns two licenses (License #1	and License #2).	_
License #1 appli applies only to .	ies to the whole Licensed Te JLinkARM.dll file.	echnology. License	#2
Both must be re	ad and accepted before pro	oceeding.	
License #1		0	T
License #1	is in the License Agreement		▼

Choose setup type

뤻 nRFgo Studio Setup	_ 🗆 🗙
Choose Setup Type Choose the setup type that best suits your needs	DIC
Typical Installs the most common program features. Recommended for most use	rs.
Custom Allows users to choose which program features will be installed and when they will be installed. Recommended for advanced users.	e
Complete All program features will be installed. Requires the most disk space.	
Back Next C	Cancel

Ready to install nRFgo Studio

뤻 nRFgo Studio Setup	
Ready to install nRFgo Studio	NORDIC
Click Install to begin the installation. Click Back to review or change installation settings. Click Cancel to exit the wizard.	any of your
Back Install	Cancel

Installing nRFgo Studio

		NOR	DIC
nRFgo Studio			
Back	Next		Cancel
	nRFgo Studio.	nRFgo Studio.	nRFgo Studio.

Completed the nRFgo Studio Setup

🙀 nRFgo Studio Setup		
	Completed the nRFgo Studio Setup Wizard Click the Finish button to exit the Setup Wizard.	
SEMICONDUCTOR	Back Finish C	ancel

nRF5x-Command-Line-Tools

nRF5x-Command-Line_Tools Setup - 1

nRF5x-Command-Line-Tools Setup		
nRF5x-Command-Li	ine-Tools	
Iordic Semiconductor ASA		
his license agreement (the "Agreement") is enter	red into by and betwe	een 💻
) Nordic Semiconductor ASA, Otto Nielsens veg 12, lorwegian organization number 966 011 726, ("Nor	, NO-7004 Trondheim, dic Semiconductor")	, Norway.
nd		-
✓ I agree to th	e license terms and c	onditions
	Install	Close

RF5x-Command-Line_Tools Setup - 2

♥nRF5x-Command-Line-Tools Setup	
nRF5x-Command-Line-Tools	
Setup Progress	
Processing: J-Link V5.12f	
	_
	Cancel
-	

SEGGER – J-Link V5.12f Setup

🔜 SEGGER – J-Link V5, 1	2f Setup	
Find SEGGER	Welcome to SEGGER - J-Link V5.12f Setup Setup will guide you through the installation of SEGG J-Link V5.12f. It is recommended that you close all other application before starting Setup. This will make it possible to up relevant system files without having to reboot your computer. Click Next to continue.	ER - Is date
	Next >	Cancel

License Agreement

SEGGER – J-Link V5, 12f Setup	
License Agreement Please review the license terms before installing SEGGER - J-Link V5. 12f.	J Link
Press Page Down to see the rest of the agreement.	
Important - Read carefully:	-
DEFINITIONS: For the purpose of this agreement, the terms shall have the following meaning when entire word is marked bold:	the
The 쪬oftware?means all J-Link related software components included ir J-Link software & documentation pack provided by SEGGER which can downloaded at: <u>http://www.segger.com/jlink-software.html</u>	the be
"Licensor" shall mean SEGGED excent under the following circumstanc	-
If you accept the terms of the agreement, click I Agree to continue. You must accept agreement to install SEGGER - J-Link V5.12f.	t the
< Back I Agree	Cancel
	-

Chose optional components

SEGGER – J-Link V5,12f Setup	
Choose optional components Choose optional components to be install	led.
Choose optional components that should	be installed:
☑ Install USB Driver for J-Link	
Choose options for creating shortcuts:	
Create entry in start menu Add shortcuts to desktop	
	< Back Next > Cancel

Choose Install Location

SEGGER – J-Link V5, 12f Setup	<u> </u>
Choose Install Location Choose the folder in which to install SEGGER - J-Link V5. 12f.	J Link
Setup will install SEGGER - J-Link V5.12f in the following folder. To install in a differen dick Browse and select another folder. Click Install to start the installation.	nt folder,
Destination Folder C:\#Program Files (x86)\#SEGGER\#JLink_V512f Browse.	
Space required: 62.7MB Space available: 14.4GB	
< Back Install	Cancel

Installing

🔜 SEGGER – J-Link V5, 12f Setup		
Installing Please wait while SEGGER - J-Link V5.12f is bein	g installed.	J Link
Extract: MK10DX128xxx10_AllowSecurity.jflash	1	
Extract: MK10DN128xxx5_AllowSecurity.jflas Extract: MK10DN32xxx5.jflash Extract: MK10DN32xxx5_AllowSecurity.jflash Extract: MK10DN512xxx10.jflash Extract: MK10DN512xxx10_AllowSecurity.jflas Extract: MK10DN64xxx5 (allow security).jflas Extract: MK10DN64xxx5_AllowSecurity.jflash Extract: MK10DN64xxx5_AllowSecurity.jflash	h sh h	4
	< Back Next >	Cancel

Completing SEGGER – J-Link V5.12f Setup

🔜 SEGGER – J-Link V5, 1	2f Setup	
	Completing SEGGER - J-Link V5.12f Setup	
in in j-link 1.***	The latest version of the J-Link Software & Documentation pack can be found at the location linked below.	
SEGGER	J-Link Software & Documentation pack	
	< Back Finish Cancel	

	Please read the nRF5x-Command-Line-Tools License Agreement
	Nordic Semiconductor ASA This license agreement (the "Agreement") is entered into by and between
	a) Nordic Semiconductor ASA, Otto Nielsens veg 12, NO-7004 Trondheim, Norway. Norwegian organization number 966 011 726, ("Nordic Semiconductor")
	and b) the legal entity that you represent and which have agreed with Nordic Semiconductor to receive
	I accept the terms in the License Agreement
Prin	t Back Install Cancel

Read nRF5x-Command-Line-Tools License Agreement & Accept

Completed the nRF5x-Command-Line-Tools Setup Wizard

🕼 nRF5x-Command-Line-Tools Setup			
	Completed the nRF5x-Command-Line-Tools Setup Wizard Click the Finish button to exit the Setup Wizard.		
	Back Finish C	ancel	

Setup Successful



4. Keil MDK-ARM

Keil MDK Version 5 is the latest release of our complete software development environment for a wide range of ARM Cortex-M based microcontroller devices. MDK includes the μ Vision IDE/Debugger, ARM C/C++ Compiler, and essential middleware components. It's easy to learn and use.

The Keil ARM Evaluation Kit allows you to create programs for ARM7, ARM9, Cortex-M and MCU devices.

Minimum Hardware Requirements

- 1 GHz 32-bit or 64-bit processor
- 2 GB of system memory (RAM)
- 3 GB of available disk space

Recommended Hardware Requirements

- 2+ GHz 64-bit processor
- 4 GB of system memory (RAM)
- 6 GB of available disk space
- 2 Mpbs or higher Internet connection for software activation, product updates and online services like the PackInstaller

Supported Operating Systems

32-bit and 64-bit variants of Microsoft Windows are supported:

- Windows 10
- Windows 8
- Windows 7
- Windows Vista

URL : https://www.keil.com/download/product/

✓ Keil MDK-ARM



✓ Enter Your Contact Information Below(Enter information & Submit)

Products Do	wnload Events	Support		Q Search Keil	+ G
Product Information	Hom	e / Product Do	ownloads		
Software & Hardware Prode	ucts				
ARM Development Tools	ARM	Λ			
C166 Development Tools	Microco Version	ntroller Develop 5.22	ment Kit		
C251 Development Tools	Comp	ete the follow	ving form to download th	e Keil software development tools.	
Debug Adapters	Ente		tact Information Belo	14	
Evaluation Boards	Ente		act mormation Belo	"	
Product Brochures			First Name		
Newsletters			Lest Name:		
Device Database [®]			Last Name.		
Device List			E-mail:		
Compliance Testing			Company:		
ISO/ANSI Compliance			Address		
Validation and Verification					
Distributors					
Overview			City:		
			State/Province:	Select Your State or Prov	
			Zip/Postal Code:		
			Country	Select Your Country	
			Phone:		
				Send me e-mail when there is a new	update.
				If you select this check box, you will receiv	e an e-mail message from Keil
				whenever a new update is available. If you	don't wish to receive an e-mail

✓ MDK522.EXE download



✓ Install MDK-ARM V5.22

Setup MDK-ARM V5,22	×
Welcome to Keil MDK-ARM Release 11/2016	ARM[®]KEIL[®] Microcontroller Tools
This SETUP program installs: MDK-ARM V5.22	
This SETUP program may be used to update a However, you should make a backup copy be	a previous product installation. fore proceeding.
It is recommended that you exit all Windows pr	ograms before continuing with SETUP.
Follow the instructions to complete the product	installation.
— Keil MDK-ARM Setup ————	
	<< Back Next >> Cancel

✓ License Agreement

etup MDK-ARM V5,22	×
License Agreement Please read the following license agreement carefully.	ARM°KEIL° Microcontroller Tools
To continue with SETUP, you must accept the terms of the License A agreement, click the check box below.	Agreement. To accept the
END USER LICENCE AGREEMENT FOR MDK-ARM THIS END USER LICENCE AGREEMENT ("LICENCE") I BETWEEN YOU (EITHER A SINGLE INDIVIDUAL, OR SIN ARM LIMITED ("ARM") FOR THE USE OF THE SOFTWAR LICENCE. ARM IS ONLY WILLING TO LICENSE THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CLICKING "I AGREE" OR BY INSTALLING OR OTHERW	S A LEGAL AGREEMENT IGLE LEGAL ENTITY) AND RE ACCOMPANYING THIS SOFTWARE TO YOU ON S IN THIS LICENCE. BY ISE USING OR COPYING ▼
✓ I agree to all the terms of the preceding License Agreement	
– Keil MDK-ARM Setup – – – Keil MDK-ARM Setup – – – – – – – – – – – – – – – – – – –	ack Next >> Cancel

✓ Folder Selection

older Selection Select the folder where SETUP will install files.	ARM°KEIL° Microcontroller Tools
Press 'Next' to install MDK-ARM to these folders. Press 'Brov Destination Folders Core: C:\Keil_v5	rse' to select different folders for installation. Browse
Pack: C:\Keil_v5\ARM\PACK	Browse

✓ Enter information

etup MDK-ARM '	√5,22	×	
Customer Information Please enter your information.		ARM °KEIL° Microcontroller Tools	
Please enter your n	ame, the name of the company for wł	hom you work and your E-mail address.	
First Name:	hong		
Last Name:	gildong		
Company Name:	wisol		
E-mail:	gdhong@wisol.co.kr		
Norman Strim Setup		(CRack Next) Cancel	

✓ Installing

jetup Status	ARM Microcontro	*KEIL®
MDK-ARM Setup is performing the requested operations.		
Install Files		
Installing cpprt_tf.l.		
сентилкалат бехир	<< Back Next>>	Cancel

✓ Keil MDK-ARM setup completed

Setup MDK-ARM V5,22	×
Keil MDK-ARM Setup completed MDK-ARM V5.22	ARM°KEIL° Microcontroller Tools
MDK-ARM Core Setup has performed all requested operations successful	ly.
Show Release Notes.	
— Keil MDK-ARM Setup	
<< Back	Finish Cancel

5. nRF SDK

The nRF5 SDK provides a rich developing environment for nRF5 Series devices by including a broad selection of drivers, libraries, examples for peripherals, SoftDevices, and proprietary radio protocols.

The SDK is delivered as a plain .zip-archive, which makes it easy to install as well as giving you the freedom to choose the IDE and compiler of your choice.

All code examples included in the SDK are tailored to compile for and run on Nordic Semiconductor's nRF5 Development Kits.

For documentation, release notes, and licenses, see the nRF5 SDK documentation overview.

Name	Last modified	Siz
Parent Directory		
doc/	06-Dec-2016 12:38	
nRF5_SDK_12.0.0_12f24da.zip	01-Sep-2016 13:45	40
nRF5_SDK_12.1.0_0d23e2a.zip	04-Oct-2016 15:41	431
nRF5_SDK_12.1.0_offline_doc.zip	04-Oct-2016 16:17	22
nRF5_SDK_12.2.0_f012efa.zip	06-Dec-2016 12:38	69
nRF5_SDK_12.2.0_offline_doc.zip	06-Dec-2016 12:38	24

URL : https://developer.nordicsemi.com/

6. Keil Device Family Pack

The **Pack Installer** is a utility for installing, updating, and removing Software Packs, and can be launched from within μ Vision or standalone, outside of μ Vision.

Manage - Pack Installer... starts the Pack Installer...

The Pack Installer window offers the following functionality:

- Installs, updates, or removes Software Packs and thus, Software Components. Refer to Importing Custom Software Packs, which also explains how Software Components relate to Software Packs.
- Lists installed Software Packs and checks for updates on the Internet. A brief release history might be displayed before updating a Software Pack.
- Lists example projects available from installed Software Packs.
- Offers filters to narrow the list of Software Packs or example projects.
- Displays the progress of the executed function in the status bar at the bottom of the window.

😢 Pack Installer - C:\MDK5\ARM\PACK						
File Packs Window Help Device or Board breadcrumbs						
Device: ARM - ARMCM4 Text filter Reset Search						
1 Devices Boards	<u>v</u>	₫ P	acks Examples		▶	
Search:	×	Pack		Action	Description	
Device	Summary	- Devi	ce Specific	1 Pack		
E All Devices	2941 Devices 🔺	Ē	(eil::ARMCortex_DFP	🔅 Install	ARM Cortex-M Profile D	
🗄 🔗 🖉 Ambig Micro	8 Devices		0.0.1	🚸 Install	ARM Cortex-M Profile D	
Analog Devices	13 Devices	Gene	eric	10 Packs		
ARM	18 Devices	<u> </u>	RM::CMSIS	💠 Up to date	CMSIS (Cortex Microcor	
🖃 🎌 ARM Cortex M0	2 Devices		4.3.0 (2015-03-20)	X Remove	CMSIS (Cortex Microcor	
🖃 🏤 ARM Cortex M0 plus	2 Devices		4.2.5	X Remove	CMSIS (Cortex Microcor	-
ARM Cortex M3	2 Devices		4.2.0 (2014-09-24)	X Remove	CMSIS (Cortex Microcor	
ARM Cortex M4	4 Devices		4.1.9 (2014-09-01)	열 Unpack	CMSIS (Cortex Microcor	
	ARM Corte		2 20 V	M Pomovo	Cortey Microcontroller 9	
ARMCM4_FP		Lis	t of Software Pac	ks / Example	Projects	
Device or Board	Link to			-	-	1
Filter Area j	nformation 🖵	•			Þ	
Output					д ;	×
Check for updates						^
Refresh Pack descriptions	DER (installed: 2.0.)) available				=
Update available for Keil::LPC1800 DFP	(installed: 2.2.0. av	ailable: 2.4	.0)	Message O	utput Area	-
Update available for Keil::LPC4300_DFP	(installed: 2.3.0, av	ailable: 2.4	.0)			
Update available for Keil::STM32F1xx_D	FP (installed: 1.0.5,	available:	L.1.0)			_
Undate available for Keil::STM32F2xx_DFP (installed: 1.0.7 _ available: 2.2.0)						
Ready						11.

Filters

Select a device or board to narrow the list of Software Packs or Example projects. Device-specific Software Packs are displayed on the top of the list. Software Components from generic Software Packs can be used with any device.

Search

Enter an Regular Search Expression to narrow the list within the filter area.

Reset Search

Resets the filter for the dialog Device or Boards. Resetting the filter for one dialog does not affect the other dialog. For example, resetting the filter for **Devices** keeps the **Boards** filter unchanged.

Device/Board

Lists devices grouped by the manufacturer or board. Click on an entry to narrow the list of Software Packs or Example projects.

Summary

Provides information about the device group. For devices, the field can provide a link to the Internet with additional information about the device, for example, to the Keil web page www.keil.com/dd2/*vendor*/*device*.

Output Window

Displays messages about executed actions. Messages have different colors.

- **Black** informative message.
- Blue update message.
- **Red** error message.

Install the Device Family Pack that is shipped with the SDK, or let Keil install it automatically.

✓ Pack installer - 1

Pack Installer	×			
Welcome to the Keil Pack Installer Pack Installer is a utility for managing Software Packs on the local computer and provides the following windows:				
Devices : List supported devices. Select a device to show related Packs and examples.				
Boards : List supported boards. Select a board to show related Packs and examples.				
Packs : List and manage Software Packs. Install a Pack for access within µVision.				
Examples : List example projects. Copy projects and launch µVision for testing examples.				
Pack Installer connects to <u>www.keil.com/p</u> to obtain the published Software Packs. To install a local Software Pack use File - Import from the menu.				
Show this dialog at startup				

- ✓ Pack installer (ARM Cortex M4)
 - Install all

			Packs Examples		
earch:	X	Pa	ck	Action	Description
vice ,	Summary		Device Specific	1 Pack	ARM Cortex M4 selected
🔧 All Devices	3754 Devices		Keil::V2M-MPS2_CMx	📀 Install	ARM V2M-MPS2 Board Support PACK for Cortex-M System Design Kit Devices
庄 🏈 ABOV Semiconductor	10 Devices	÷	Generic	16 Packs	
🖭 🔗 Ambiq Micro	10 Devices		ARM::CMSIS	🔶 Up to date	CMSIS (Cortex Microcontroller Software Interface Standard)
🗈 🔗 Analog Devices	20 Devices		ARM::CMSIS-Driver_Va	📀 Install	CMSIS-Driver Validation
🖃 🔗 ARM	35 Devices		ARM::CMSIS-RTOS_Va	📀 Install	CMSIS-RTOS Validation
🗄 🏤 ARM Cortex M0	2 Devices		ARM::mbedClient	📀 Install	ARM mbed Client for Cortex-M devices
😐 🔩 🗛 ARM Cortex M0 plus	2 Devices		ARM::mbedTLS	📀 Install	ARM mbed Cryptographic and SSL/TLS library for Cortex-M devices
😐 🔧 ARM Cortex M3	2 Devices		ARM::minar	📀 Install	mbed OS Scheduler for Cortex-M devices
😑 🔧 ARM Cortex M4	4 Devices		Keil::ARM_Compiler	🔶 Up to date	Keil ARM Compiler extensions
ARMCM4	ARM Cortex-M4, 10 MHz, 12		Keil::Jansson	📀 Install	Jansson is a C library for encoding, decoding and manipulating JSON data
ARMCM4_FP	ARM Cortex-M4, 10 MHz, 12		Keil::MDK-Middleware	🔶 Up to date	Keil MDK-ARM Professional Middleware for ARM Cortex-M based devices
CMSDK_CM4	ARM Cortex-M4, 25 MHz, 4		IwIP::IwIP	📀 Install	IwIP is a light-weight implementation of the TCP/IP protocol suite
CMSDK_CM4_FP	ARM Cortex-M4, 25 MHz, 4		Micrium::RTOS	📀 Install	Micrium software components
🗄 🔧 ARM Cortex M7	6 Devices		Oryx-Embedded::Midd	📀 Install	Middleware Package (CycloneTCP, CycloneSSL and CycloneCrypto)
🗄 🏤 ARM Cortex M23	2 Devices		RealTimeLogic::SharkS	📀 Install	SharkSSL-Lite is a super small and super fast pre-compiled SharkSSL TLS library for Cortex-M3 and up.
🗄 🏤 ARM Cortex M33	4 Devices		RealTimeLogic::SMQ	🚸 Install	Simple Message Queues (SMQ) is an easy to use IoT publish subscribe connectivity protocol designed and optimized for embedde
🗄 🏤 ARM SC000	1 Device		YOGITECH::fRSTL_AR	Deprecated	III DEPRECATED Product III YOGITECH fRSTL Functional Safety EVAL Software Pack for ARM Cortex-M Processors (M0, M0+, M3,
🗄 🏤 ARM SC300	1 Device		YOGITECH::fRSTL_ST	Deprecated	III DEPRECATED Product III YOGITECH fRSTL Functional Safety EVAL Software Pack for STM32Fx Microcontrollers
🗄 🏤 ARMv8-M Baseline	2 Devices				
🗄 🏤 ARMv8-M Mainline	9 Devices				
🗄 🔗 Atmel	263 Devices				
🗄 🔗 Cypress	425 Devices				
🕀 🔗 Holtek	22 Devices				
🗄 🔮 Infineon	166 Devices				
🗄 🔗 Maxim	4 Devices				
🗄 🔗 MediaTek	2 Devices				
🗄 🔗 Microsemi	6 Devices				
1 A 10 11 11	2 Devices				
🗄 🗸 🖌 MindMotion	10.0				

✓ Pack installer – 3 (Nordic nRF52)

- Install all



7. SDK Documentation

The nRF5 SDK documentation includes descriptions and other reference material to help you understand the various components of the SDK. Examples are provided for development purposes only and should always be tested with your design.

See Getting Started for instructions on how to run the provided examples.

This version of the SDK supports the following SoftDevices:

URL : https://developer.nordicsemi.com/nRF5_SDK/doc/

8. SDK Compile

8.1 Extract the SFM20R1 SDK zip file.

Ex) SFM20R1_Delivery_SDK.zip

8.2 Run the **sigfox_cfg2_pca10040_s132.uvprojx** file from the extracted directory.

Path : development\#sigfox_cfg2\#source\#pca10040\#s132\#arm5_no_packs

File : sigfox_cfg2_pca10040_s132.uvprojx

- ⇒ The ARMKEIL tool must already be installed.
- * caution

When downloading from the tool, the bootloader is disabled. Use only during development.

File Edit View Project Flash Debug Peripherals Tools SVCS Window Help	
┃ □ 🌌 🗟 🗿 み 毛 砲 タ ひ タ 想 想 想 選 澤 準 /// //皮 🙆 snek	- 🔜 🕫 🍳 🎍 O 🔗 🚓 🔚 - 🔍
🔹 🖾 😂 😔 🗱 nrf52832 xxaa 🕞 🔊 🛔 🗟 🗇 🕎 🏟	
Project 4 ×	
Project: sigfox_cf j2_pca10040_s132	
🗄 🔂 nrf52832_xxaa	
Download (F8)	
Sooks CF Funct U _a lempl	
Build Output	1 X
DFU HW VER : 52	_
<pre>"._bulld\nrf52832_xxaa.axf" = 0 Error(s), 0 Warning(s). Build Time Elapsed: 00:00:39</pre>	-
Open an existing document	J-LINK / J-TRACE Cortex

8.3 Build Application

Menu : Project - Build Target (F7) or Rebuild all target files

 \Rightarrow Check the build results in the "Build Output window".

8.4 Build bootloader (Use version release)

Path : development\#sigfox_cfg2\#source_bootloader_secure\#pca10040\#arm5_no_packs File : secure_dfu_secure_dfu_ble_s132_pca10040.uvprojx

8.5 Use GCC for uVision

 $Path:development \# sigfox_cfg2 \# source \# pca10040 \# s132 \# arm5_no_packs$

File : sigfox_cfg2_pca10040_s132_gcc.uvprojx

You can use it similar to the Keil environment.

The boot loader is not supported, but you can get the same result by running sigfox_cfg2_make_factory_image.bat

9. output and flash memory map

9.1 binarys (build application -> build bootloader) factory image write cmd for windows

SFM20R1_factory_write.cmd

tools for flash download by j-link

jlinkarm_nrf52_nrfjprog.dll

nrfjprog.dll

nrfjprog.exe

nrfjprog.ini

softdevice

s132_nrf52_3.0.0_softdevice.hex

appication

SFM20R1_app_XXX.hex

bootloader

SFM20R1_bootloader_XXX.hex

* caution

Use SFM20R1_bootloader_merged_XXX.hex when downloading factory image

SFM20R1_factory_XXX.hex

etc

SFM20R1_bl_setting_XXX.hex : bootloader settings (application hash is included) SFM20R1_bootloader_merged_XXX.hex : Image with boot loader and settings merged

9.2 flash memory map

based layout (512 kB nRF52)

https://infocenter.nordicsemi.com/index.jsp?topic=%2Fcom.nordic.infocenter.sdk5.v12.0.0%2Flib_bo otloader.html



10. Flash Download

10.1 Download Jig board



10.2 SEGGER J-Link connection





×

•

10.3 Download flash

Menu : Flash – Download (F8)

If it fails, it prints a failure log and pauses.

```
Build Output

TCK: 0, TDI: 0, TDO: 0, TMS: 1, TRES: 1, TRST: 0

Hardware-Breakpoints: 6

Software-Breakpoints: 8192

Watchpoints: 4

JTAG speed: 4000 kHz

Erase Done.

Programming Done.

Verify OK.

Application running ...

Flash Load finished at 16:42:41

4
```

11. Release version download

- 11.1 Extract the release binary_V10x_UBX.file. ex) Binary_V10x_UBX.zip.
- 11.2 SEGGER J-Link connection

11.3 Download

Run SFM20R1_factory_write.cmd command to start the download. When the download is successful, the following message is displayed and the command window closes automatically.



12. DFU (Device Firmware Upgrade via BLE)

12.1 Prepare

The bootloader must be installed.

Use sigfox_cfg2_make_factory_image.bat to create the binaries,

Download the release version using SFM20R1_factory_write.cmd

Copy Update Package to Android Phone

(eg. development\#sigfox_cfg2\#binary\#SFM20R1_app_dfu_package_109_UBX.zip)

- 12.2 Tag NFC, and run the nRF toolbox (You can download it from PlayStore)
- 12.3 Run DFU



12.4



12.5 Select Package file



12.6 Run Upload



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