### HOLYIOT-21017-nRF52840-USB Manual

The following figure shows the block diagram of the development and use of Holyiot-21017.



Holyiot-21017 control diagram

among them:

①: Developers can import the files to be upgraded into "nRF-Connect".

②: Developers can use "Holyiot-21017" as a USB device with Bluetooth host function to interact with "nRF-Connect".

③: "Holyiot-21017" as a Bluetooth host can display the received data of other Bluetooth devices on "nRF-Connect" via USB.

(4): "nRF-Connect" can upload and issue commands to "Holyiot-21017" via USB to realize the visual operation of Bluetooth data exchange with other Bluetooth slaves. "nRF-Connect" can also quickly upgrade the firmware of "Holyiot-21017" via USB without other emulators.

(5): Developers can implement the "Holyiot-21017" hardware reset operation by approaching the magnet.

6: Reserved.

# 1. The normal use of Holyiot-21017:

we will explain in detail the normal use of "Holyiot-21017" as a USB device with Bluetooth host function.

Developers need to download and correctly install the newer Nordic official PC version software, "nRF-Connect", the link is as follows:

https://www.nordicsemi.com/Software-and-tools/Development-Tools/nRF-Connect-for-desktop.

After opening "nRF-Connect", the interface is as follows:

APPS		N
珒 Filt	er Search	Update all apps
8	Bluetooth Low Energy General tool for development and testing with Bluetooth Low Energy official, v2.5.0 (v2.5.1 available)	Update Open -
1	Programmer Tool for flash programming of nRF SoCs official, v1.4.8	Open 👻
<b>W</b>	Direct Test Mode RF PHY testing of Bluetooth Low Energy devices official	Install
£	Getting Started Assistant Guide to set up the nRF Connect SDK official	Install -
«۸	LTE Link Monitor Link monitor and AT command terminal official	Install 🗸 👻
Œ	App for use with Nordic Power Profiler Kits official	Install

The interface after "nRF-Connect" is opened

Open "Bluetooth Low Energy", then insert "Holyiot-21017", after the driver installation is complete, select the USB device "USB: Nordic Semiconductor nRF52 Connectivity":

RF Connect v3.6.1 - Bluetooth Low Energy			
E Select device 👻 🍨 🚠 Conne	ection Map 🔄 Server Setup		
CF7D693830E8 US8: Nordic Semiconductor nBE52 Conne	ciuitz		Discovered devices
			► Start scan
			Options
g		5 8 V	
:19:08.943 Application data folder: C:\U	Jsers\sam\AppData\Roaming\nrfconnect\pc-nrfconnect-ble		
:19:56.328 TypeError: Failed to fetch. Fa	alling back to stored data		
		Þ	
	Click to calcot U	SP dovice	

Then there will be a pop-up prompt to upgrade to the official default firmware of no signal enhancement function, we choose "NO", (of course, if you choose "YES", the operation will fail and the previous interface will be restored):

Confirm	×
Device must be programmed, do you want to proceed?	
	Yes No

Whether to upgrade to the official default firmware

After waiting for a few seconds, the following operation interface will be entered:

CF7D6	93830EB 👻 🌸 🧥 Connection Map 🛛 Server Setup		
nRF5x     CF7D69	Alier C		Discovered devices           Start scan         Clear           • Options         • Options
Generic Acces     Generic Attribu	e		
Log		8 8 +	
Log (9:29:20:407	uence nas no senar port, cannot open cence.	88+	
Log 19:29:20:407 19:29:25:740	verwe real no acros you , vanimu vych verwe. Denice setup completed	B B +	
Log 19:29:25.740 19:29:25.741	Orence rate to store per Losens oper usine. Device setup completed Connectinity firmware version: bie-connectivity 4.1.2+Jul-14-2020-05-48-48. SoftDevice API version. 5. Baud rate: 1000000.	• •	
Log 19:29:20:407 19:29:25:740 19:29:25:741 19:29:25:757	Verve ream year. Verse vyen verse. Device setup completed Connectivity firmware version: ble-connectivity 4.1.2+Jul-14.2020-05-48-48. SoftDevice API version: 5. Baud rate: 1000000. Opening adapter connected to COM09	<b>₽ ₽</b> +	
Log 19:29:25.740 19:29:25.741 19:29:25.757 19:29:27.630	Letine real to active your, Letiner, open uncluce. Device setup completed Connectivity firmware version: ble-connectivity 4.1.2+Jul-14-2020-05-48-48. SoftDevice API version: 5. Baud rate: 1000000. Opening adapter connected to COM69 Successfully opened COM69 Baud rate: 1000000. Flow control: none. Parity: none.	■ ■ ↓	
Log 19:29:25.740 19:29:25.741 19:29:25.757 19:29:27.630 19:29:27.826	Verxic real invascing yas L. General vypti versic. Device setup completed Connectivity firmware version: ble-connectivity 4.1.2+Jul-14.2020-05-48-48. SoftDevice API version: 5. Baud rate: 1000000. Opening adapter connected to CoMo9 Successfully opened COM049 Baud rate: 1000000. Flow control: none. Reset performed on adapter COM049		

Enter the visual operation interface of the Bluetooth host

Next, developers can operate "Holyiot-21017" according to their needs:



Operate according to needs

This point, the introduction of the conventional usage of "Holyiot-21017" has been completed.

2. The firmware upgrade of Holyiot-21017 (USB-DFU)

First, insert "Holyiot-21017" into the computer through the USB port. After the computer recognizes the USB device normally, reset the "Holyiot-21017" hardware by approaching the magnet. If the reset is successful, the red indicator light of "Holyiot-21017" will be the breathing effect. After the reset is successful, the magnet needs to be moved a little farther (>0.3m) to avoid continuous resetting.



Place the magnet close to "Holyiot-21017" to reset it



The reset is successful, remove the magnet and the red light is on

Then open "Programmer" for firmware upgrade interface:

🕺 nRF Connect v	3.6.1	
APPS	SETTINGS	
ः Filter	Search	
8	Bluetooth Low Energy General tool for development and testing with Bluetooth Low Energy official, v2.5.1	Open 👻
	Programmer Tool for flash programming of nRF SoCs official, v1.4.8	Open 👻
2	Direct Test Mode RF PHY testing of Bluetooth Low Energy devices official	Install
	Getting Started Assistant	

Open the "Programmer"

Then select the USB device that can be upgraded:

IF Connect v3.6.1 - Programmer		
Select device 👻 •		
CF7D693830E8 · Serial port: COM70		File
Device memory layout	File memory layout	
		🖿 Add HEX file
		C Reload files
		Clear files
		Device
Connect a device to display memory contents	Drag & drop one or more HEX files here	◆ Erase all
		✓ Erase & write
		💾 Save as file
1	8	Reset
50:42.168         Application data folder: C:\Users\sam\AppData\Roaming\nrfcon           50:42.361         Using nrfjprog library 10.12.1, pc-nrfjprog-js 1.7.6	nect\pc-nrfconnect-programmer	✓ Write
		C Read
		<ul> <li>Auto read memory</li> </ul>
Choose a USB devic	e that can be upgraded with firmwa	are

Click "Auto read memory", you can see the firmware stack information of "Holyiot-21017":

nRF Connect v3.6.	1 - Programmer		
≡ CF7D6	93830E8 <b>*</b> •		
			File
nRF5284	0 •	File memory layout	
			🖿 Add HEX file
			C Reload files
			<ul> <li>Clear files</li> </ul>
			Device
		Drag & drop one or more HEX files here	
			💾 Save as file
Log		8	■
19.30.42.301	Using http://www.communicate.communicate.com		· · · · · · · · · · · · · · · · · · ·
19:53:19:245	Protocol Version: 1 found		Nrite
19:53:19.402	Hardware: 52840 found		
19:53:19.416	Firmware: Bootloader found		C Read
19:53:19.417	Firmware: SoftDevice found		
19:53:19.417	Firmware: Application found		Auto read memory

You can read the current MCU firmware stack information

Then click "Add HEX file" to load the firmware to be upgraded:

nRF Connect v3.6.	1 - Programmer		
≡ CF7D6	93830E8 👻 单		0
nRF5284	0 0	Select a HEX file	File
		组织 ▼ 新建文件夹 日 20	🖿 Add HEX file
		★ 收藤共 各称 修改日期 供型 下式 2021/2/24 17:04 UltraEdit Docum	C Reload files
			Clear files
	_	<ul> <li>□</li> <li>□</li></ul>	Device
			♦ Erase all
		eð 家庭旧	✓ Erase & write
		文件名(N): app+sd 2to1.hex	💾 Save as file
og		打开(O) 取満 🗐	■ ✓ • Reset
1.JJ.19.40Z	Haluware, 52040 IOuliu		▲
9:53:19.416	Firmware: Bootloader four	d	✓ Write
:53:19.417	Firmware: SoftDevice four	d	
9:53:19.417	Firmware: Application four		C Read
0:00:09.132	Parsing HEX file: G:\Works	2020-11-1 /\NRF52840 Dongle\固件升级 2021-03-10\%录文件\compiled_file\app+sd 2to1.hex	
0:00:09.891	File was last modified at 2	221/2/24 ト午5/04/39	Auto read memory
0:00:10.343	SottDevice detected, id 0x	)D (\$132 v5.0.0)	· · · · · · · · · · · · · · · · · · ·

## (Note that this upgrade can only upgrade application and softdevice)

Load the firmware to be upgraded

If the developer wants to stop the firmware upgrade at this time, you can directly click "Reset" to reset to the normal working state. If you continue to upgrade, please click "Write" to write the firmware to "Holyiot-21017":

nRF Connect v3.	6.1 - Programmer		
≡ CF7D	1693830E8 • •		N
			File
nRF528	40 © ()	File memory layout	 <ul> <li>Add HEX file</li> <li>C Reload files</li> <li>C Clear files</li> </ul>
			Device
			🖍 Erase & write
			💾 Save as file
Log			• Reset
20:00:09 132	Parsing HEX file: G:\Works 2020-11-17\NRE52840 Dongle\固性升级	2021-03-10\烧录文件\compiled file\app+sd 2to1 hex	
20:00:09.102	File was last modified at 2021/2/24 下午5:04:39		<ul> <li>Write</li> </ul>
20:00:10.343	SoftDevice detected, id 0x9D (S132 v5 0 0)		 
20:01:02 860	Parsing HEX file: G:\Works 2020-11-17\NRE52840 Dongle\固体升级	2021-03-10\熔寻文件\compiled_file\ann+sd_2to1_hex	C Read
20:01:02.861	File was last modified at 2021/2/24 下午5:04:39		
20:01:03.191	SoftDevice detected, id 0x9D (\$132 v5 0.0)		<ul> <li>Auto read memory</li> </ul>
4			



Attach the successful upgrade interface:

nRF Connect v3.6.	1 - Programmer		
≡ Selec	t device 👻 🔹		N
			File
Device m	emory layout	File memory layout	
			Add HEX file
			G Reload files
			<ul> <li>Clear files</li> </ul>
			Device
	Connect a device to display memory contents		Erase all
			✓ Erase & write
			💾 Save as file
Log		5 U V	Reset
20.03.09.700	DI O IOI Application completed successiony:		
20:03:09.700	0 dfu package(s) left.		✓ Write
20:03:09.700	Waiting for device		
20:03:11.083	All dfu images have been written to the target device.		C Read
20:03:11.084	DFU trigger interface found, changing to bootloader		
20:03:16.085	USB detach request sent, timeout while waiting for device reboot		Auto read memory
20:03:16.086	Target device closed.		a nato read memory

Firmware upgrade (USB-DFU) successful

After the firmware upgrade is successful, "Holyiot-21017" will directly run the upgraded firmware program.

The above steps can be used to repeatedly upgrade the firmware. At this point, the firmware upgrade demonstration is over.

### FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Radiation Exposure Statement

This device complies with RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.