WisNode-Lora
Quick Start Guide V1.2

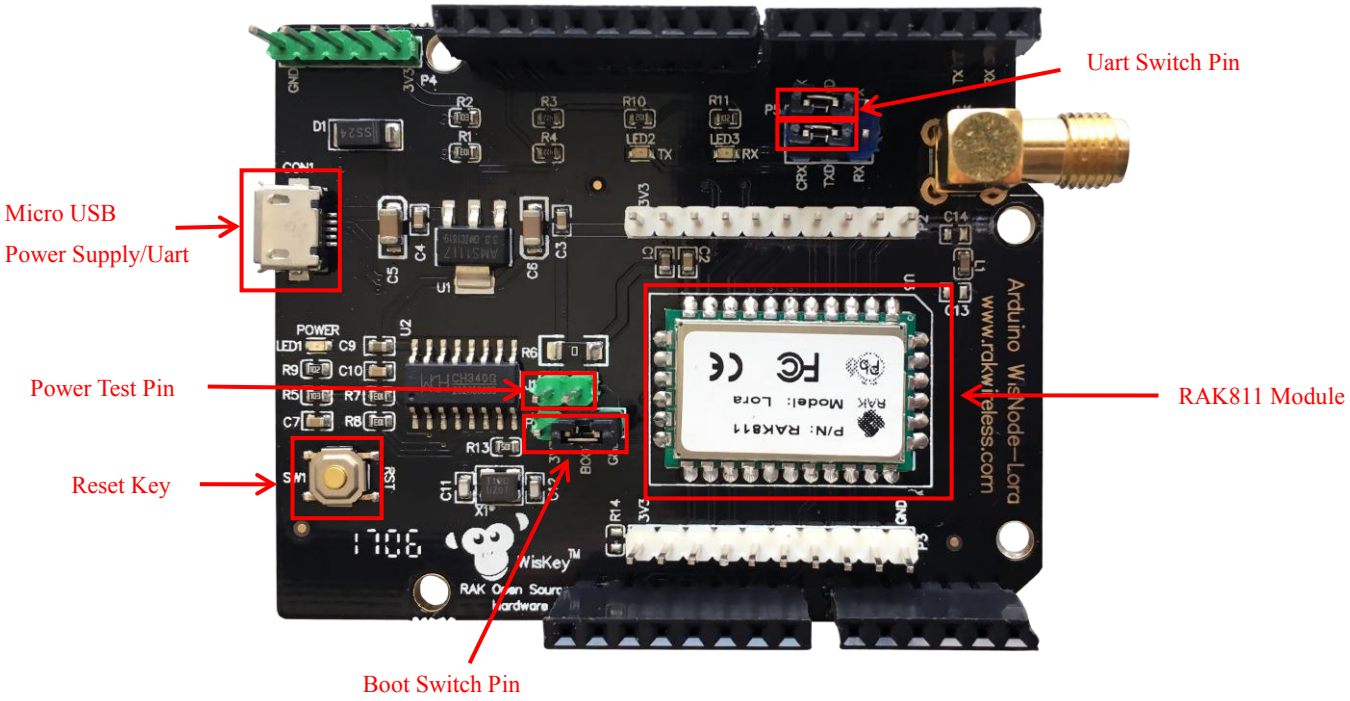
Shenzhen Rakwireless Technology Co., Ltd

www.rakwireless.com

info@rakwireless.com

1. General Description

The following image is RAK WisNode-Lora development board，and it compatible Arduino development board, It also can be used as an extension board development with Arduino. The interface resource are as follow：



Function	Name	Description
Module	U3	RAK811 Lora module
External Interface	Micro USB	Power Supply;DC 5V Input,USB to TTL communication interface
Key	Reset	Module Reset Key
Leading Foot	P1	Boot Switch Pin，When Boot Pin Switch to 3.3VModule will into the Boot Mode
	P4	Debug Pin
	P5	Uart Switch Pin
Power Test	J1	Module Power Test Pin
LED Indicator	LED1（Power）	Power Indicator Light

P5 Uart Switch Pin Switching instructions:In the following instructions are used in the operation of the default EVB Micro USB power supply and serial port functions, We need to connect the CTX and RXD, CRX and TXD short before operation.

2. Quick Start Demonstrate

Use Micro USB interface to the module power supply. One end of the serial line is connected to the module, and one end is connected to the computer. Then open the Uart Assist Tool, send AT command to operate the module.

2.1 Join-Otaa

Welcome to RAK811

Send: at+mode=0 /* SET LoraWAN work mode */
Return: OK

Send: at+get_config=dev_eui /* GET Dev_EUI check */
Return: OK3037343644357402

Send: at+set_config=app_eui:39d7119f920f7952&app_key:a6b08140dae1d795ebfa5a6dee1f4dbd
/* SET LoraGateway app_eui and app_key , big endian*/
Return: OK

Send: at+join=otaa/* Join OTAA type*/
Return: OK
at+recv=3,0,0/* Join status success*/

2.2 Join-Abp

Welcome to RAK811

Send: at+mode=0 /* SET LoraWAN work mode */

Return: OK

Send: at+set_config=dev_addr:00112233&nwks_key:3432567afde4525e7890cfea234a5821
&apps_key:a48adfc393a0de458319236537a11d90
/* SET LoraGateway dev_addr nwks_key and apps_key , big endian*/

Return: OK

Send: at+join=abp /* Join ABP type*/
Return: OK

2.3 LoraWAN send&recv

/*After join gateway success, then can send and receive data*/

Send: at+send=0,2,000000000000007F0000000000000000
/*APP port:2, battery level 50%, unconfirmed message*/
Return: at+recv=2,0,0 /*unconfirmed mean tx success*/

Send: at+send=1,2,000000000000007F0000000000000000

/*APP port :2, battery level 50%, confirmed message*/

Return: at+recv=1,0,0/*confirmed mean receive ack from gateway*/

/*If gateway has data to send module, will receive date meanwhile ack */

Return: at+recv=0,2,10,30313233343536373839

/*APP port :2, receive size 10, hex:30313233343536373839*/

2.4 P2P send&recv

/* Module A Rx Side*/

Welcome to RAK811

Send: at+mode=1 /* SET LoraP2P work mode */

Return: OK

Send: at+rf_config=867700000,10,0,1,8,14

/* SET LoraP2P Frequency:867.7MHz, SF10,Bandwith 125KHz, coding Rate:4/5, Preamlen:8, tx power:14dbm */

Return: OK

Send: at+rxc=1 /* SET LoraP2P Rx continue enable report rx data */

Return: OK

Send: at+rx_stop /* If want stop Rx continue */

/* Module B Tx Side*/

Welcome to RAK811

Send: at+mode=1 /* SET LoraP2P work mode */

Return: OK

Send: at+rf_config=867700000,10,0,1,8,14

/* SET LoraP2P Frequency:867.7MHz, SF10,Bandwith 125KHz, coding Rate:4/5, Preamlen:8, tx power:14dbm */

Return: OK

Send: at+txc=100,1000,800100000600010002da9557e142d9

/* SET LoraP2P Tx continue ,100 packets, 1S interval, hex data */

Return: OK

Send: at+recv=9,0,0 /*When Tx complete */

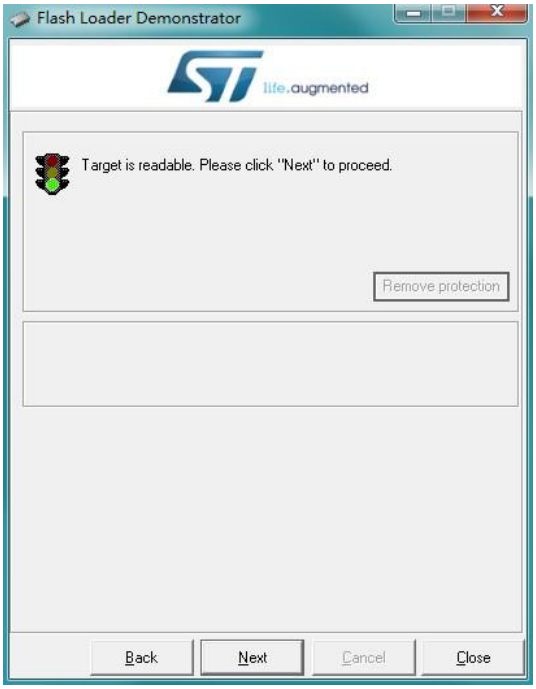
Send: at+tx_stop /* If want stop Tx continue */

3. Upgrade Firmware

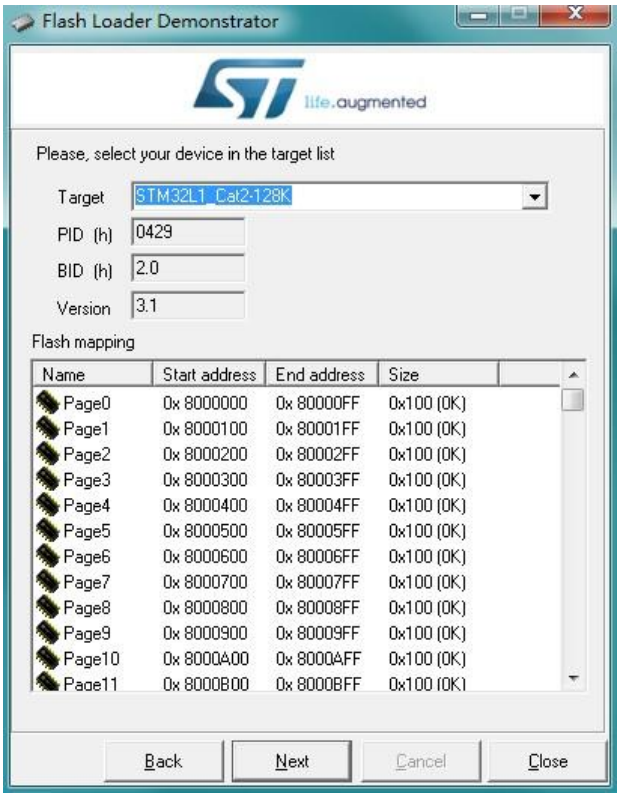
To upgrade the Lora module, First we should make the module get into Boot mode. We should switch the P1 pin make the Boot pin connection with 3.3V Pin. Then reset the module, Operate according to the steps:

1.Open the Flash Loader Demonstrator tool，Set the serial port parameters;

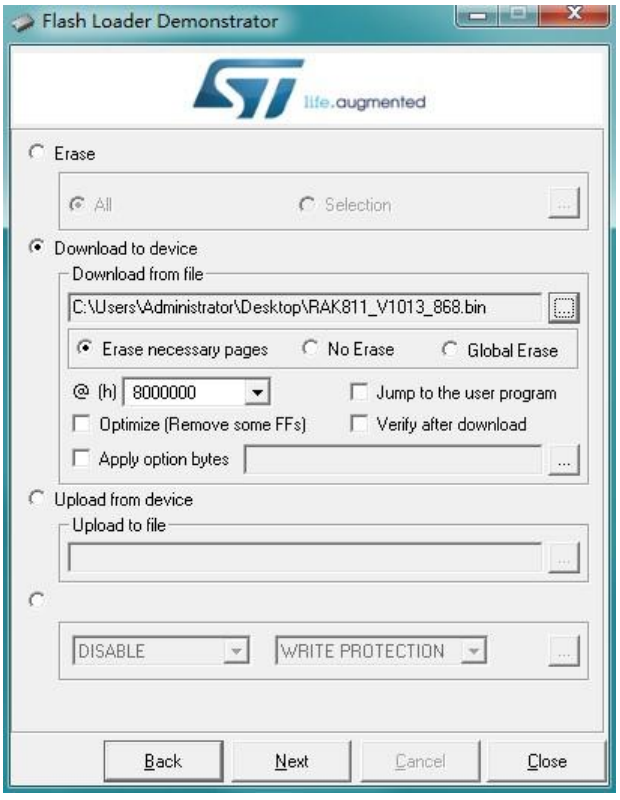
2.Click the “NEXT” button, arrive the following interface;



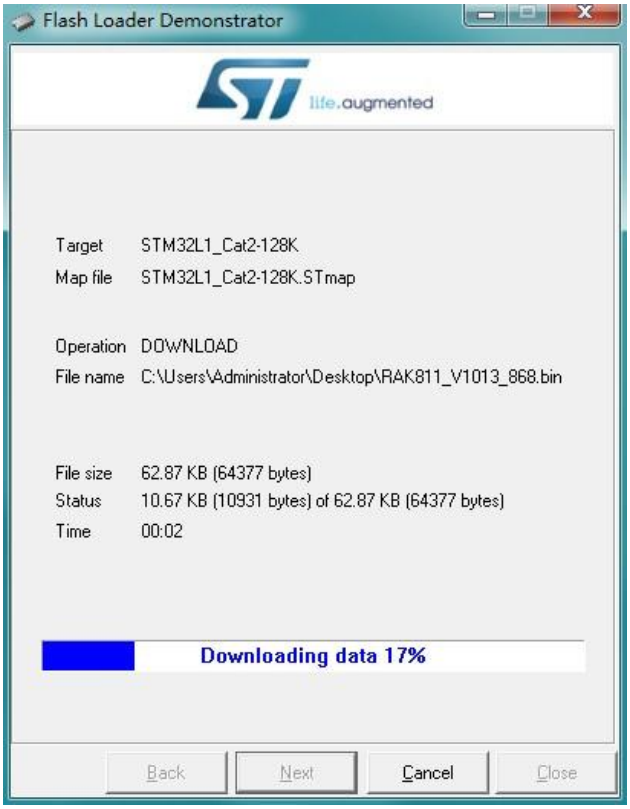
3.The again the “Next” button，Choose STM32L1_Cat2-128K;



4.Choose “Download to device”，Set the path to the new firmware, and click “NEXT” button.

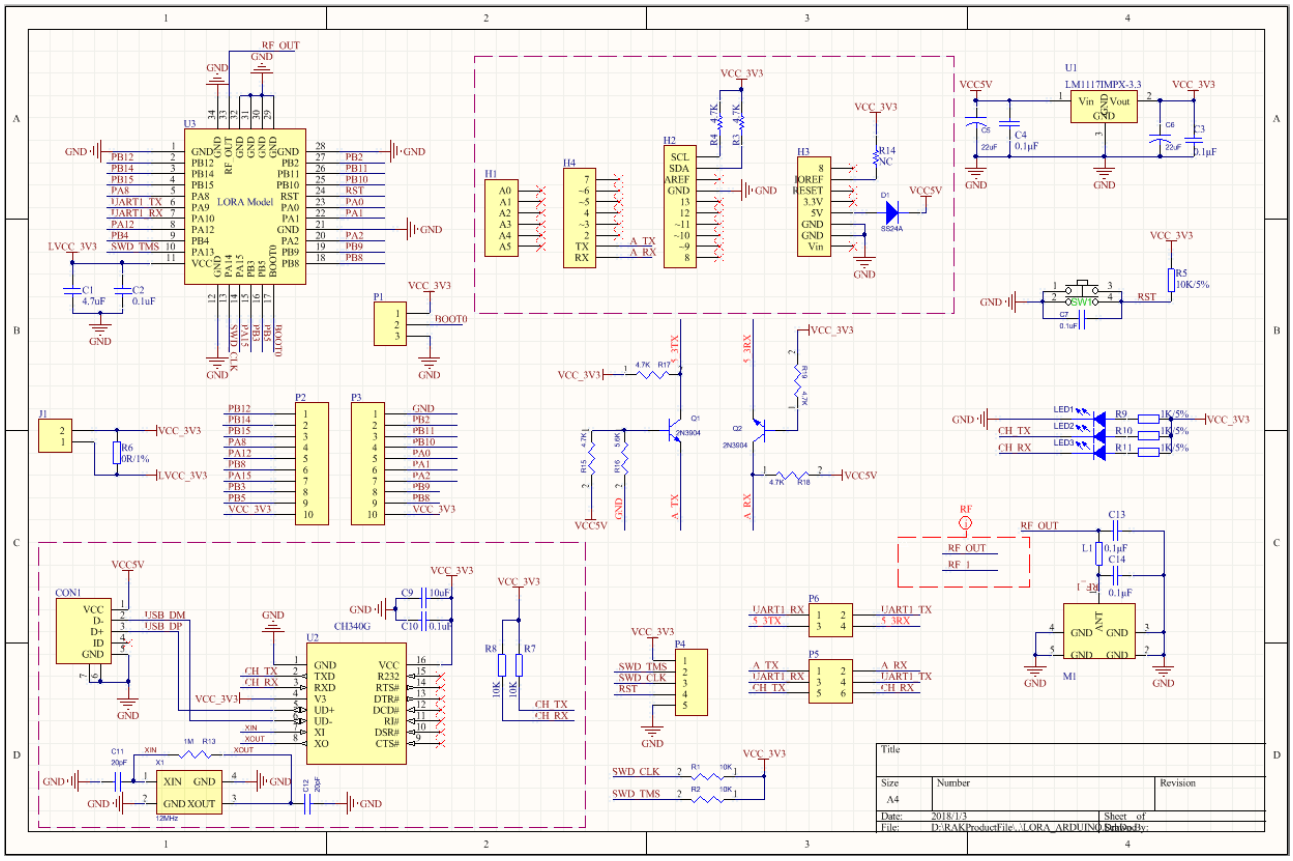


5.Upgrading：



6.Upgrade Successful.

4. Appendix


RF_OUT
GND
VCC_3V3
VCC5V
LORA Model
LM1117IMPX-3.3
CH340G
USB_DM
USB_DP
SWD_TMS
SWD_CLK
RST
A_TX
A_RX
CH_TX
CH_RX
BOOT0
LED1
LED2
LED3
Title
Size
Number
Revision
A4
Date: 2018/1/3
Sheet of
File: D:\RAKProductFile\...\LORA_ARDUINO.SchDoc
Drawn By:

5. Modify Record

Version	Author	Data	Modify content
V1.0	Cao.xiaocheng	2016/12/09	Create Document
V1.1	wenyong.tang	2017/03/01	Modify Document
V1.2	Chace	2017/12/10	Modify the schematic