WisNodeV1.1-LoRa-Arduino Library Use Guide V1.1

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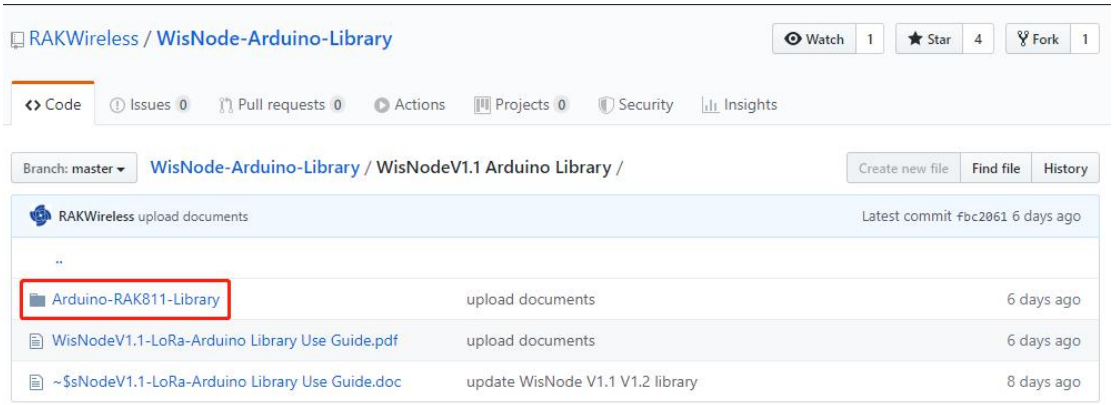
CONTENTS

1. RAK811 Arduino Library Use Guide

(1) Download

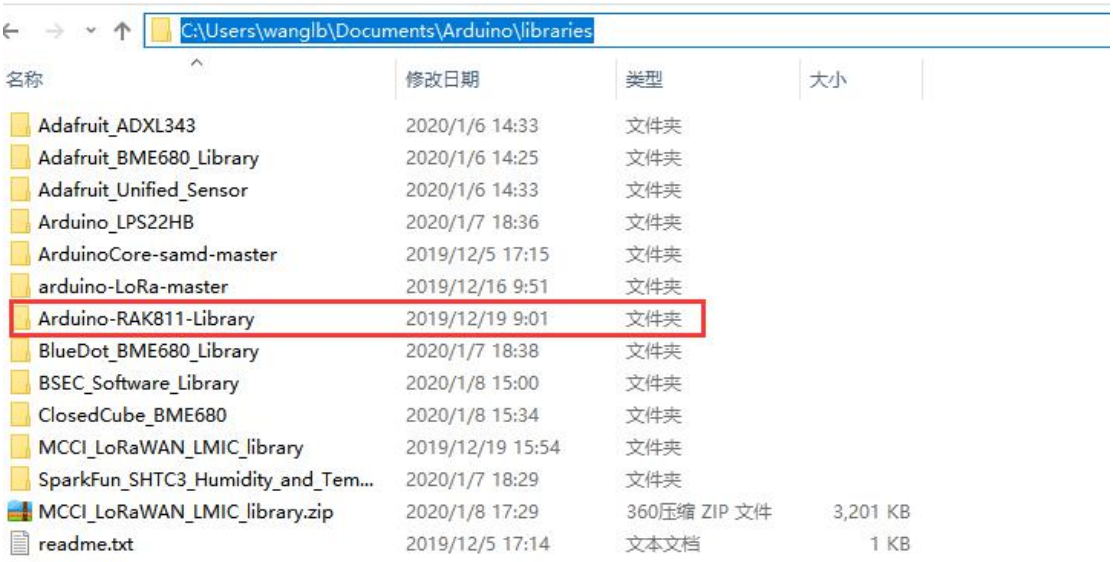
We upload the RAK811 Arduino library code to the official github. You can find this library at github:https://github.com/RAKWireless/WisNode-Arduino-Library



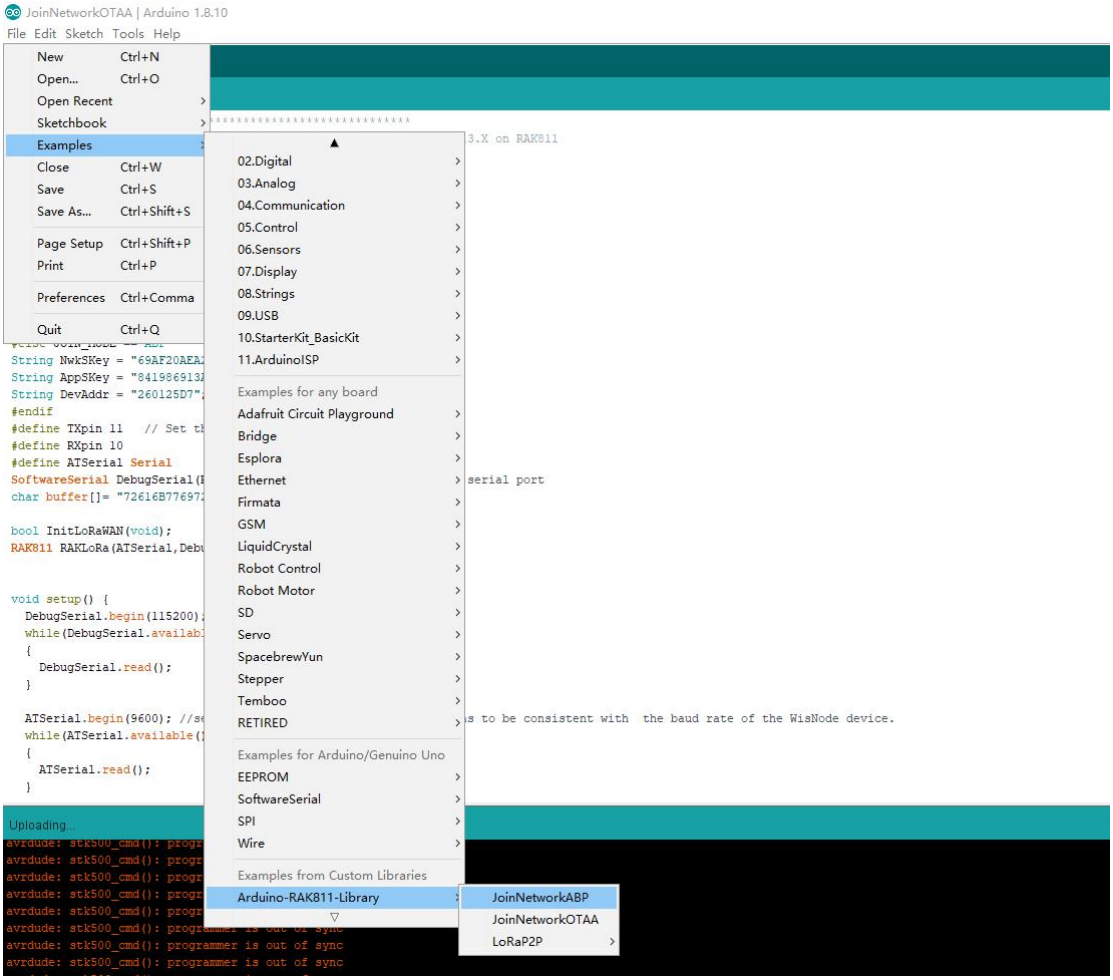
Download the library folder "Arduino-RAK811-Library".

(2) Add to Arduino IDE

①Copy the "Arduino-RAK811-Library" folder to the Arduino library folder.



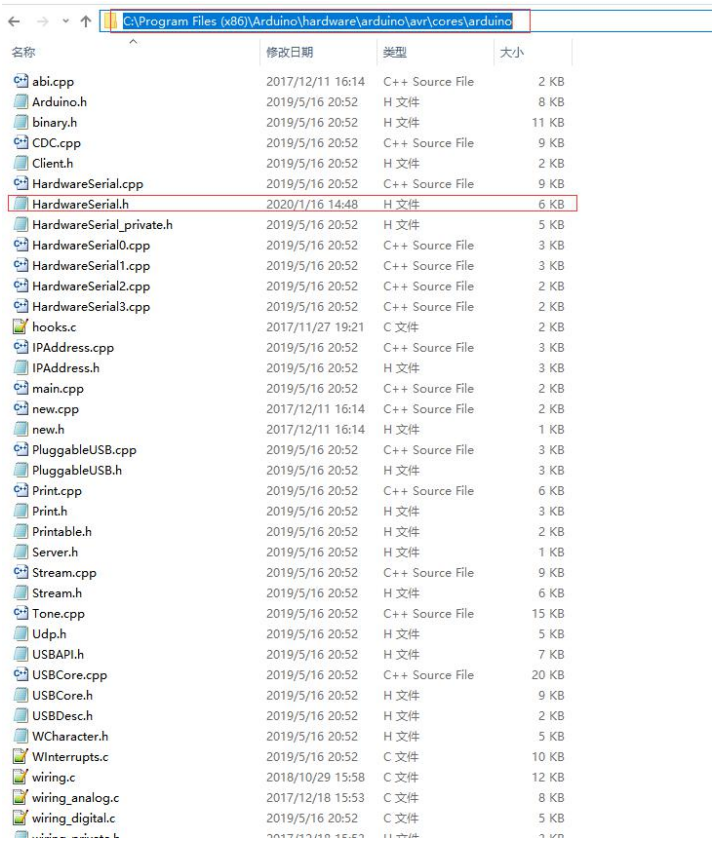
②And then open the Arduino IDE, you can see the RAK811 sample code in the Arduino example.

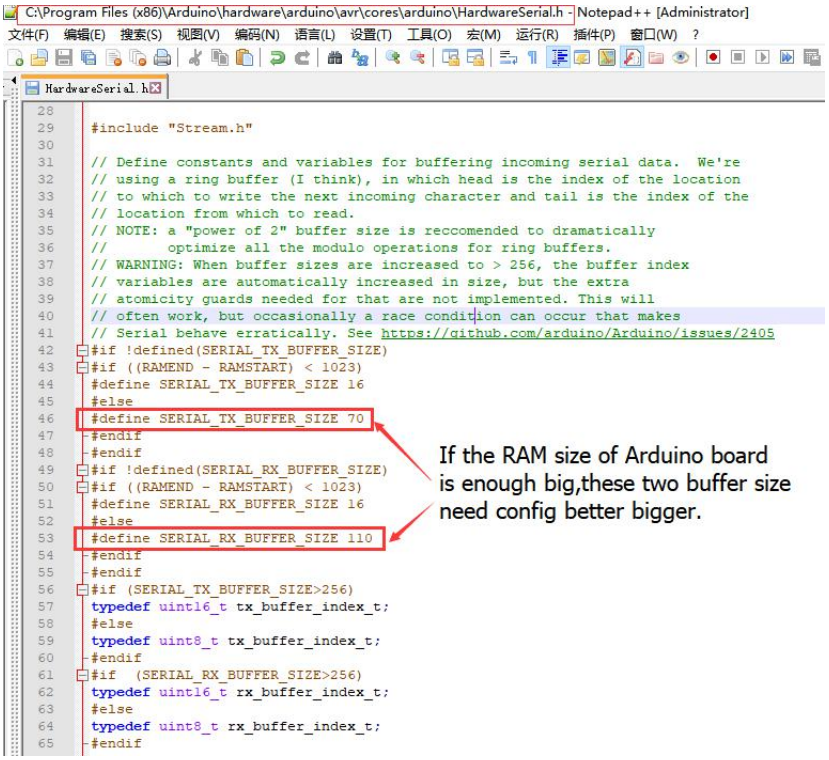


(3)Code introduction

On the library contains the available functions, the user can refer to WisNode_Arduino_Library API Manual V1.1.pdf,which has a detailed note on the use of each function.

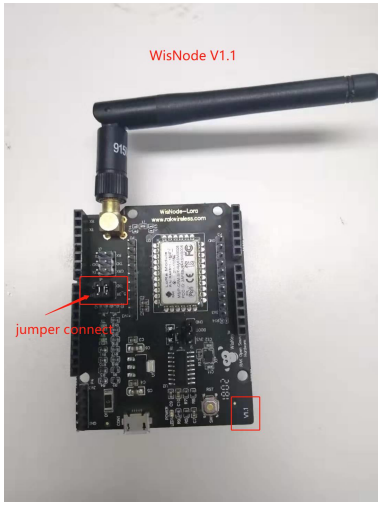
Note:Before compile by Arduino IDE,user should better configure Serial RX and TX buffer size.This must be configured manually in Arduino installation directory.
The following are the minimum recommended sizes.

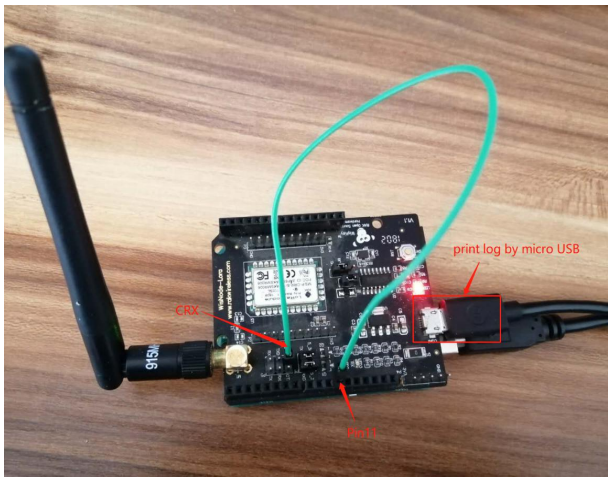

C:\Program Files (x86)\Arduino\hardware\arduino\avr\cores\arduino
名称 修改日期 类型 大小
abi.cpp 2017/12/11 16:14 C++ Source File 2 KB
Arduino.h 2019/5/16 20:52 H 文件 8 KB
binary.h 2019/5/16 20:52 H 文件 11 KB
CDC.cpp 2019/5/16 20:52 C++ Source File 9 KB
Client.h 2019/5/16 20:52 H 文件 2 KB
HardwareSerial.cpp 2019/5/16 20:52 C++ Source File 9 KB
HardwareSerial.h 2020/1/16 14:48 H 文件 6 KB
HardwareSerial_private.h 2019/5/16 20:52 H 文件 5 KB
HardwareSerial0.cpp 2019/5/16 20:52 C++ Source File 3 KB
HardwareSerial1.cpp 2019/5/16 20:52 C++ Source File 3 KB
HardwareSerial2.cpp 2019/5/16 20:52 C++ Source File 2 KB
HardwareSerial3.cpp 2019/5/16 20:52 C++ Source File 2 KB
hooks.c 2017/11/27 19:21 C 文件 2 KB
IPAddress.cpp 2019/5/16 20:52 C++ Source File 3 KB
IPAddress.h 2019/5/16 20:52 H 文件 3 KB
main.cpp 2019/5/16 20:52 C++ Source File 2 KB
new.cpp 2017/12/11 16:14 C++ Source File 2 KB
new.h 2017/12/11 16:14 H 文件 1 KB
PluggableUSB.cpp 2019/5/16 20:52 C++ Source File 3 KB
PluggableUSB.h 2019/5/16 20:52 H 文件 3 KB
Print.cpp 2019/5/16 20:52 C++ Source File 6 KB
Print.h 2019/5/16 20:52 H 文件 3 KB
Printable.h 2019/5/16 20:52 H 文件 2 KB
Server.h 2019/5/16 20:52 H 文件 1 KB
Stream.cpp 2019/5/16 20:52 C++ Source File 9 KB
Stream.h 2019/5/16 20:52 H 文件 6 KB
Tone.cpp 2019/5/16 20:52 C++ Source File 15 KB
Udp.h 2019/5/16 20:52 H 文件 5 KB
USBAPI.h 2019/5/16 20:52 H 文件 7 KB
USBCore.cpp 2019/5/16 20:52 C++ Source File 20 KB
USBCore.h 2019/5/16 20:52 H 文件 9 KB
USBDesc.h 2019/5/16 20:52 H 文件 2 KB
WCharacter.h 2019/5/16 20:52 H 文件 5 KB
WInterrupts.c 2019/5/16 20:52 C 文件 10 KB
wiring.c 2018/10/29 15:58 C 文件 12 KB
wiring_analog.c 2017/12/18 15:53 C 文件 8 KB
wiring_digital.c 2019/5/16 20:52 C 文件 5 KB

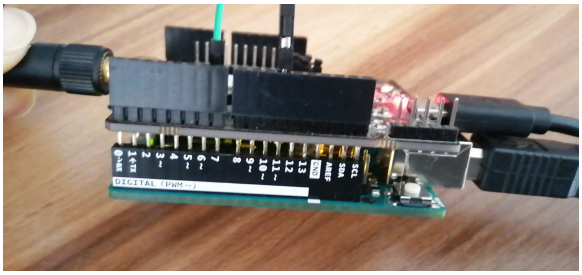

C:\Program Files (x86)\Arduino\hardware\arduino\avr\cores\arduino\HardwareSerial.h - Notepad++ [Administrator]
文件(F) 编辑(E) 搜索(S) 视图(V) 编码(N) 语言(L) 设置(T) 工具(O) 宏(M) 运行(R) 插件(P) 窗口(W) ?
HardwareSerial.h
#include "Stream.h"
// Define constants and variables for buffering incoming serial data. We're
// using a ring buffer (I think), in which head is the index of the location
// to which to write the next incoming character and tail is the index of the
// location from which to read.
// NOTE: a "power of 2" buffer size is reccomended to dramatically
// optimize all the modulo operations for ring buffers.
// WARNING: When buffer sizes are increased to > 256, the buffer index
// variables are automatically increased in size, but the extra
// atomicity guards needed for that are not implemented. This will
// often work, but occasionally a race condition can occur that makes
// Serial behave erratically. See https://github.com/arduino/Arduino/issues/2405
#if !defined(SERIAL_TX_BUFFER_SIZE)
#if ((RAMEND - RAMSTART) < 1023)
#define SERIAL_TX_BUFFER_SIZE 16
#else
#define SERIAL_TX_BUFFER_SIZE 70
#endif
#endif
#if !defined(SERIAL_RX_BUFFER_SIZE)
#if ((RAMEND - RAMSTART) < 1023)
#define SERIAL_RX_BUFFER_SIZE 16
#else
#define SERIAL_RX_BUFFER_SIZE 110
#endif
#endif
#if (SERIAL_TX_BUFFER_SIZE>256)
typedef uint16_t tx_buffer_index_t;
#else
typedef uint8_t tx_buffer_index_t;
#endif
#if (SERIAL_RX_BUFFER_SIZE>256)
typedef uint16_t rx_buffer_index_t;
#else
typedef uint8_t rx_buffer_index_t;
#endif
If the RAM size of Arduino board is enough big,these two buffer size need config better bigger.

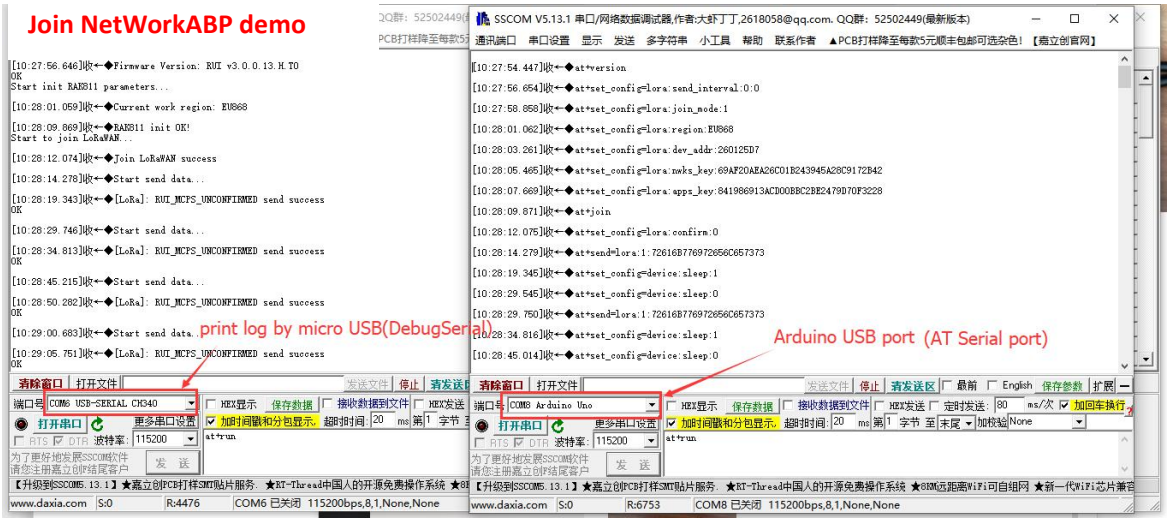
2. Hardware connect

This document will use **Arduino Uno + WisNode-LoRa** as an example.







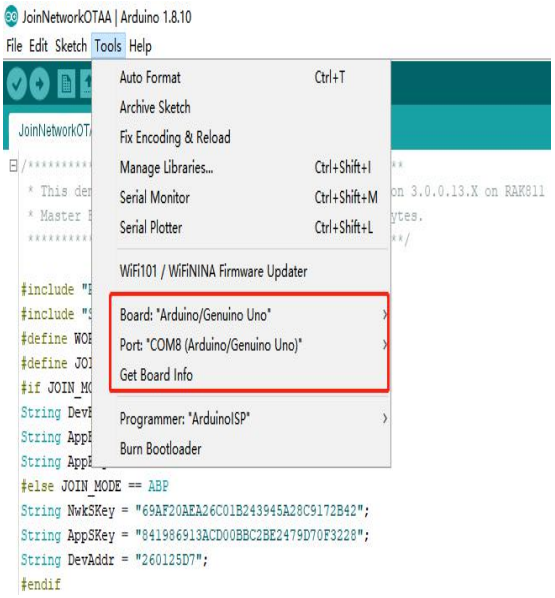


3. Flash firmware

①Flash firmware for RAK811 ,refer to :Get_Start_with_RAK811_WisNode-LoRa.pdf

RAK811-Firmware:https://github.com/RAKWireless/WisNode-Arduino-Library/tree/master/Documents%20and%20tools/RAK811-Firmware

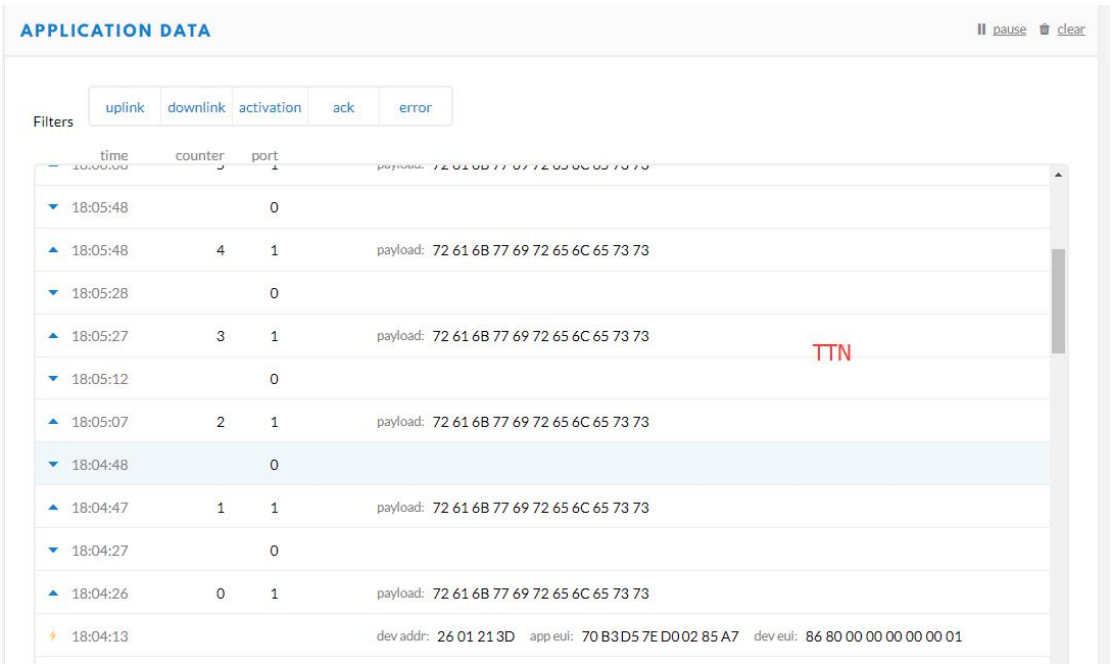
②Complie and Flash app demo JoinNetworkOTAA.ino through Arduino IDE(disconnect WisNode board before flash).



4. Test LoRa Node with LoRaWAN

Serial console log:

TTN log:



If you have any questions, welcome to our forum to ask your question:

http://support.rakwireless.com/.

You can also send your question to this email: ken.yu@rakwireless.com