

# LA66 USB LoRaWAN Adapter User Manual

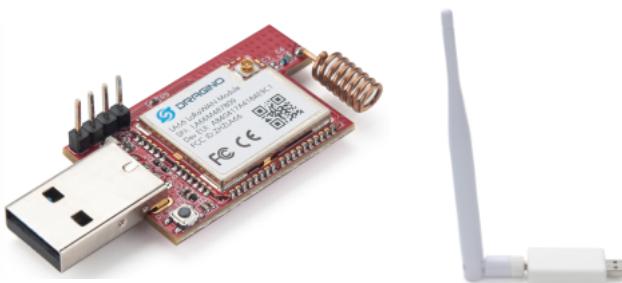
Last modified by Xiaoling (/xwiki/bin/view/XWiki/Xiaoling) on 2025/02/07 16:37

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## 1. LA66 USB LoRaWAN Adapter

### 1.1 Overview



**LA66 USB LoRaWAN Adapter** is designed to fast turn USB devices to support LoRaWAN wireless features. It combines a CP2101 USB TTL Chip and LA66 LoRaWAN mc LoRaWAN wireless feature to PC / Mobile phone or an embedded device that has USB Interface.

LA66 is a ready-to-use module that includes the **LoRaWAN v1.0.3 protocol**. The LoRaWAN stack used in LA66 is used in more than 1 million LoRaWAN End Devices deployed. This mature LoRaWAN stack greatly reduces the risk to make stable LoRaWAN Sensors to support different LoRaWAN servers and different countries' standards. External MCU LA66 and start to transmit data via the LoRaWAN protocol.

Each LA66 module includes a **world-unique OTAA key** for LoRaWAN registration.

Besides the support of the LoRaWAN protocol, LA66 also supports **open-source peer-to-peer LoRa Protocol** for the none-LoRaWAN application.

LA66 is equipped with **TCXO crystal** which ensures the module can achieve stable performance in extreme temperatures.

### 1.2 Features

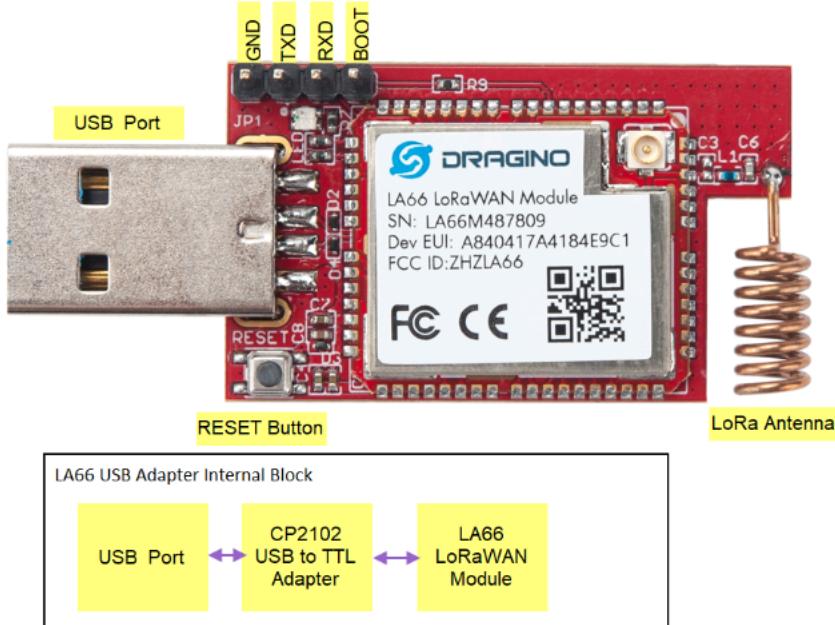
- LoRaWAN USB adapter base on LA66 LoRaWAN module
- Ultra-long RF range

- Support LoRaWAN v1.0.3 protocol
- Support peer-to-peer protocol
- TCXO crystal to ensure RF performance on low temperature
- Spring RF antenna
- Available in different frequency LoRaWAN frequency bands.
- World-wide unique OTAA keys.
- AT Command via UART-TTL interface
- Firmware upgradable via UART interface
- Open Source Mobile App for LoRaWAN signal detect and GPS tracking.

## 1.3 Specification

- CPU: 32-bit 48 MHz
- Flash: 256KB
- RAM: 64KB
- Input Power Range: 5v
- Frequency Range: 150 MHz ~ 960 MHz
- Maximum Power +22 dBm constant RF output
- High sensitivity: -148 dBm
- Temperature:
  - Storage: -55 ~ +125°C
  - Operating: -40 ~ +85°C
- Humidity:
  - Storage: 5 ~ 95% (Non-Condensing)
  - Operating: 10 ~ 95% (Non-Condensing)
- LoRa Tx Current: <90 mA at +17 dBm, 108 mA at +22 dBm
- LoRa Rx current: <9 mA

## 1.4 Pin Mapping & LED



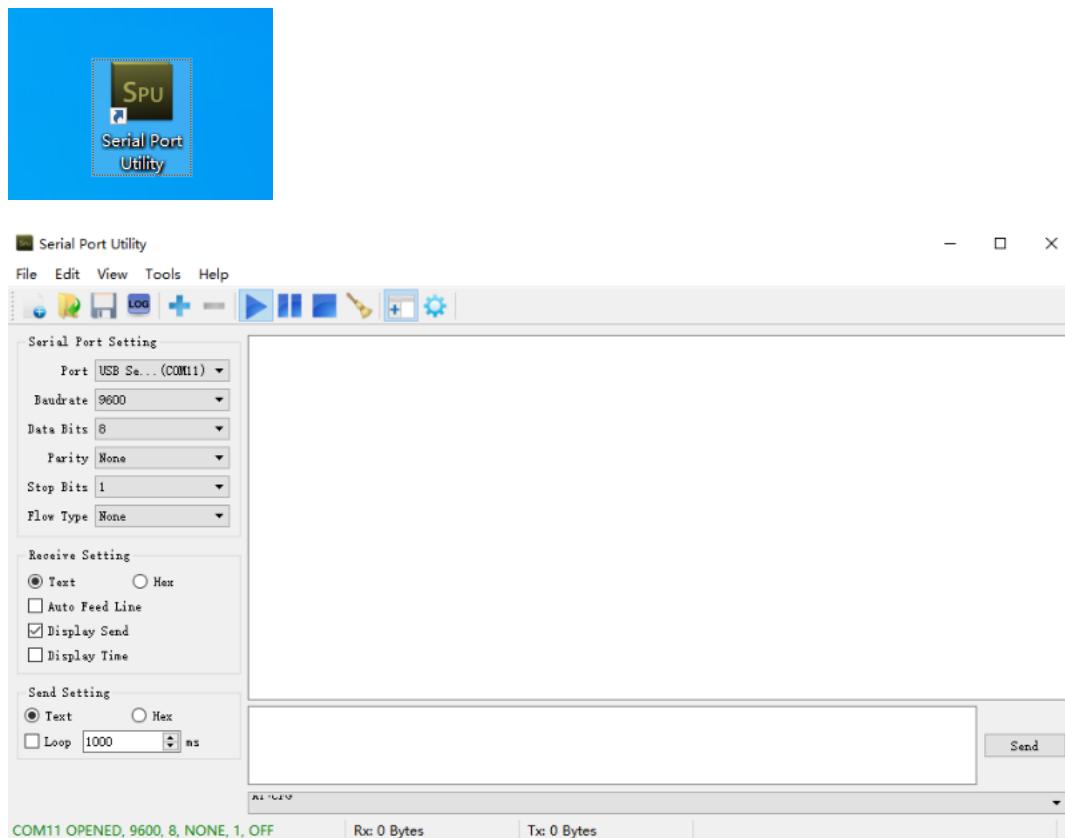
## 1.5 Example: Send & Get Messages via LoRaWAN in PC

Assume user already input the LA66 USB LoRaWAN Adapter OTAA Keys in TTN and there is already TTN network coverage.

### 1. Connect the LA66 USB LoRaWAN adapter to PC

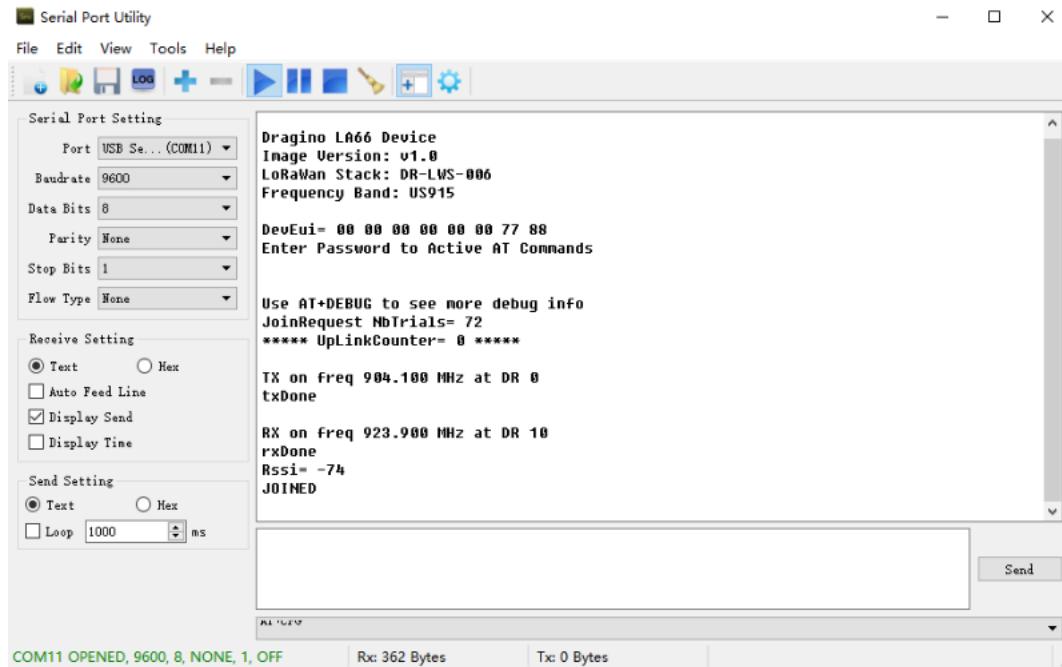


Open the serial port tool



**2. Press the reset switch RST on the LA66\_V1 USB LoRaWAN Adapter to reset it. (You do not need to reset the LA66 V2 USB LoRaWAN Adapter.)**

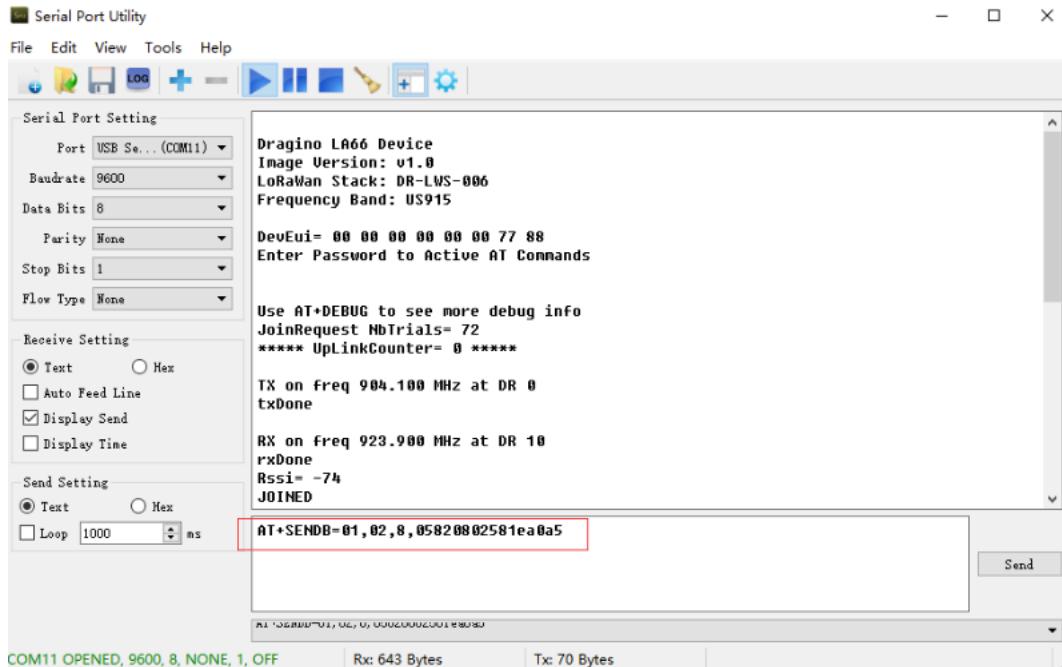
The following picture appears to prove that the LA66 USB LoRaWAN Adapter successfully Join the LoRaWAN network



### 3. See Uplink Command

Command format: **AT+SENDB=<confirm\_status>,<Fport>,<data\_len>,<data>**

example: AT+SENDB=01,02,8,05820802581ea0a5



### 5. Check to see if TTN received the message

The screenshot shows the 'Live data' tab selected for the 'LA66\_example' device. The Serial Port Utility window is overlaid on the main interface, showing a log of serial port activity. The log includes messages like 'TX on freq 904.100 MHz at DR 0 txdone', 'RX on freq 923.900 MHz at DR 10 rxdone', and 'JOINED AT+SENDB=01,02,8,05820802581ea0a5 \*\*\*\* UplinkCounter= 0 \*\*\*\*\*'. Red arrows highlight the 'Live data' tab and the Serial Port Utility window.

## 1.6 Example: How to join helium

### 1. Create a new device.

The screenshot shows the 'My Devices' page with the 'Add New Device' button highlighted by a red box. The table below lists various devices, including LHT65-EU868, LHT65-US915-2, LSN50-US915, LT2222-CN470, TEST-65-001, TEST-65-002, and US915-LHT65-002. The table has columns for Device Name, Device EUI, Labels, Frame Up, Frame Down, Packets Transferred, DC Used, Date Activated, and Last Connected.

	Device Name	Device EUI	Labels	Frame Up	Frame Down	Packets Transferred	DC Used	Date Activated	Last Connected
<input type="checkbox"/>	LHT65-EU868	0000000000000000	868 X	2	4	680	680	Aug 31, 2021 8:55 AM	Sep 1, 2022 3:32 PM
<input type="checkbox"/>	LHT65-US915-2	A940410000181A75	US915 X	7	0	33917	33917	Jun 28, 2021 9:23 AM	Sep 7, 2022 4:49 PM
<input type="checkbox"/>	LSN50-US915	25CE83H65C5A62F	None	0	0	3005	3005	Feb 21, 2022 2:03 PM	Sep 11, 2022 3:46 PM
<input type="checkbox"/>	LT2222-CN470	67815D06AFE83548	CN470 X	709	10	400	400	Aug 31, 2022 9:07 AM	Sep 1, 2022 3:58 PM
<input type="checkbox"/>	TEST-65-001	0000000000000077	test X	0	0	172	172	Aug 27, 2021 2:54 PM	Sep 14, 2022 5:40 PM
<input type="checkbox"/>	TEST-65-002	0000000000000099	test X	1	0	2836	2836	Aug 27, 2021 4:23 PM	Sep 5, 2022 10:16 AM
<input type="checkbox"/>	US915-LHT65-002	983407FFFFFFFFFF	US915 X	0	0	1851	1851	Aug 30, 2021 8:00 PM	Sep 18, 2022 11:50 AM

### 2. Save the device after filling in the necessary information.

**Add New Device**

Important: The first time a device joins the Network could take up to 20 mins. [Learn more about adding devices](#)

ENTER DEVICE DETAILS

Name	Device Name	0/50
Dev EUI	E2DF9B9D1E6039AB	8 / 8 Bytes
App EUI	9974737EC661D549	8 / 8 Bytes
App Key @	F2FDEDDFB6D812145D519A48DBB8A654	16 / 16 Bytes

Profile (Optional)  
Select a profile ▾

Attach a Label (Optional)  
Search or Add Label...

**Import Devices**

You can import your devices directly from the Things Network, or in bulk via .csv upload.

[Import from Things Network](#)

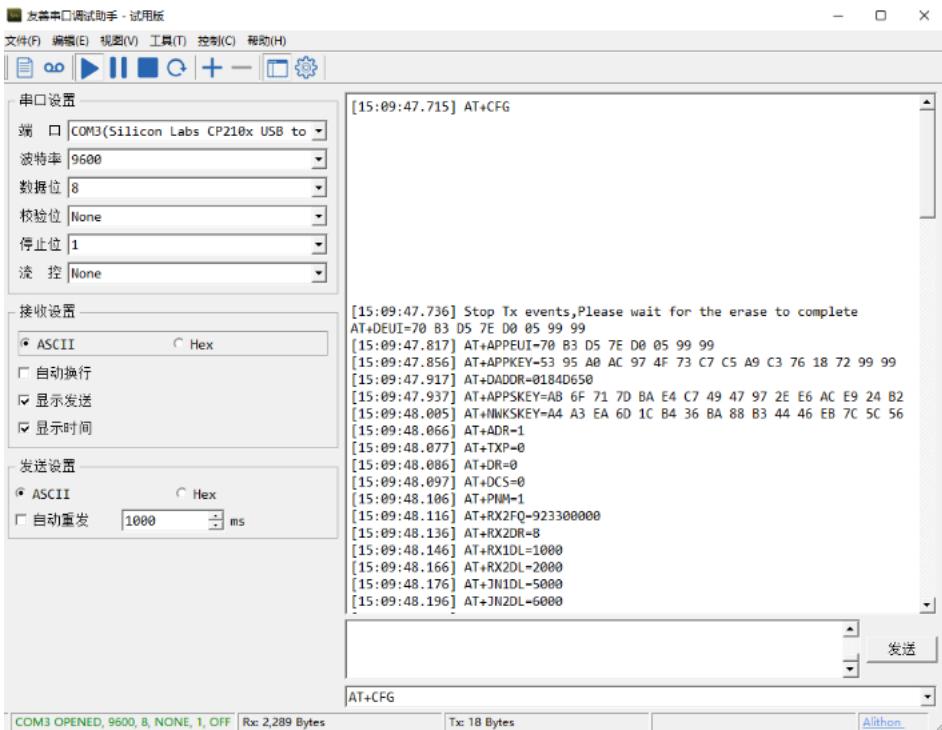
[Import via CSV](#)

Importing THINGS Network

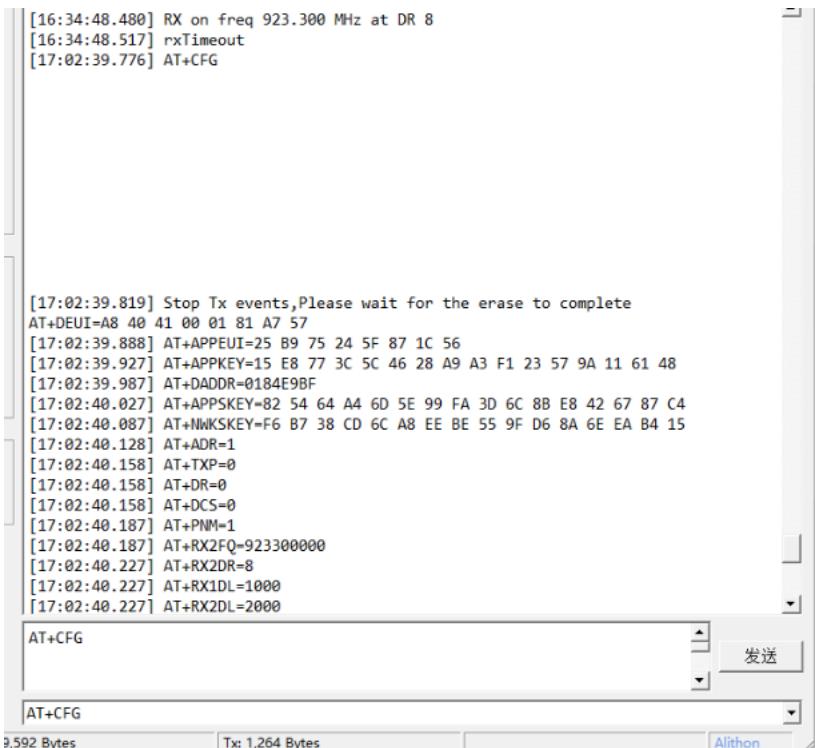
Drag .csv file here or click to choose file

search of command AT+CFG

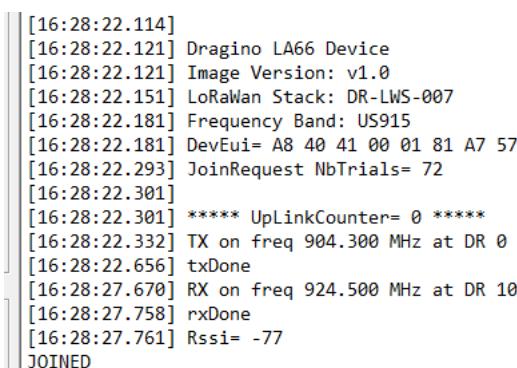
**3. Use AT commands.****4. Use the serial port tool**



## 5. Use command AT+CFG to get device configuration



## 6. Network successfully.



## 7. Send uplink using command

```
16:34:11.017] AT+SENDB=1,1,4,12345678
```

```

16:34:11.079] ***** UpLinkCounter= 0 *****
16:34:11.088] TX on freq 904.500 MHz at DR 0
16:34:11.117]
16:34:11.118] OK
16:34:11.395] txDone
16:34:12.407] RX on freq 925.100 MHz at DR 10
16:34:12.410]
16:34:12.422] rxTimeout
16:34:13.418] RX on freq 923.300 MHz at DR 8
16:34:13.454] rxTimeout
16:34:17.085] ***** UpLinkCounter= 0 *****
16:34:17.088] TX on freq 904.900 MHz at DR 0
16:34:17.400] txDone
16:34:18.415] RX on freq 926.300 MHz at DR 10
16:34:18.428] rxTimeout
16:34:19.423] RX on freq 923.300 MHz at DR 8
16:34:19.459] rxTimeout
16:34:21.093] ***** UpLinkCounter= 0 *****

```

Event Log	<input type="checkbox"/> Expand All	<input type="checkbox"/> Filter Events w/ Commands	Show Dropped Uplinks:	<input type="checkbox"/> Late	<input type="checkbox"/> Inactive Device	<input type="button" value="Exp"/>
Event	Type	No. of Hotspots	Time			
+	Uplink ↗	1	Sep 7, 2022 4:49:51.361 PM			
+	Uplink ↗	1	Sep 7, 2022 4:29:52.778 PM			
+	Downlink	1	Sep 7, 2022 4:29:51.758 PM			
+	Uplink ↗	1	Sep 7, 2022 4:29:51.358 PM			
+	Join Accept	1	Sep 7, 2022 4:28:24.445 PM			
+	Join Request	1	Sep 7, 2022 4:28:22.444 PM			

## 1.7 Example: Send PC's CPU/RAM usage to TTN via python

Use python as an example: [https://github.com/dragino/LA66/blob/main/Send\\_information\\_to\\_TTN\\_WindowsPC.py](https://github.com/dragino/LA66/blob/main/Send_information_to_TTN_WindowsPC.py).  
[\(https://github.com/dragino/LA66/blob/main/Send\\_information\\_to\\_TTN\\_WindowsPC.py\)](https://github.com/dragino/LA66/blob/main/Send_information_to_TTN_WindowsPC.py).

(Raspberry Pi example: [https://github.com/dragino/LA66/blob/main/Send\\_information\\_to\\_TTN\\_Raspberry%20Pi.py](https://github.com/dragino/LA66/blob/main/Send_information_to_TTN_Raspberry%20Pi.py).  
[\(https://github.com/dragino/LA66/blob/main/Send\\_information\\_to\\_TTN\\_Raspberry%20Pi.py\)](https://github.com/dragino/LA66/blob/main/Send_information_to_TTN_Raspberry%20Pi.py).)

### Preconditions:

1. LA66 USB LoRaWAN Adapter works fine
2. LA66 USB LoRaWAN Adapter is registered with TTN

### Steps for usage:

1. Press the reset switch RESET on the LA66 USB LoRaWAN Adapter
2. Add [decoder](https://github.com/dragino/dragino-end-node-decoder/tree/main/LA66%20USB).(<https://github.com/dragino/dragino-end-node-decoder/tree/main/LA66%20USB>) on TTN
3. Run the python script in PC and see the TTN

The screenshot shows the TTN web interface with the following details:

- Left sidebar:** LA66, Overview, End devices, Live data, Payload formatters, Integrations, Collaborators, API keys, General settings.
- Top navigation:** Applications > LA66 > End devices > LA66\_example > Live data.
- Device Overview:** LA66\_example, ID: eui-0000000000007788, Last activity 22 seconds ago.
- Live data tab:** Overview, Live data (selected), Messaging, Location, Payload formatters, Claiming, General settings.
- Log Entries:**
  - 11:58:00 Schedule data downlink for transmission. Rx1 Delay: 5
  - 11:58:00 Forward uplink data message
  - 11:58:00 Successfully processed data message
  - 11:56:57 Schedule data downlink for transmission. Rx1 Delay: 5
  - 11:56:57 Forward uplink data message
  - 11:56:57 Successfully processed data message
  - 11:53:55 Forward join-accept message
  - 11:53:13 Accept join-request
  - 11:48:58 Console: Events cleared
- Terminal Window:**

```

命令提示符 - python Send_information_to_TTN.py
Microsoft Windows [版本 10.0, 版权所有 © Microsoft Corporation. 禁用所有权利。
C:\Users\45955>cd F:\PyCharm Community Edition 2021.2.3
F:\PyCharm Community Edition 2021.2.3>python Send_information_to_TTN.py
b AT+SEMDD=01,02,8,19e60802631efaa9\r\n
b AT+SEMDD=01,02,8,1e8d0802621edc9a\r\n

```

## 1.8 Example: Send & Get Messages via LoRaWAN in RPI

Assume user already input the LA66 USB LoRaWAN Adapter OTAA Keys in TTN and there is already TTN network coverage.

### 1. Connect the LA66 USB LoRaWAN Adapter to the Raspberry Pi



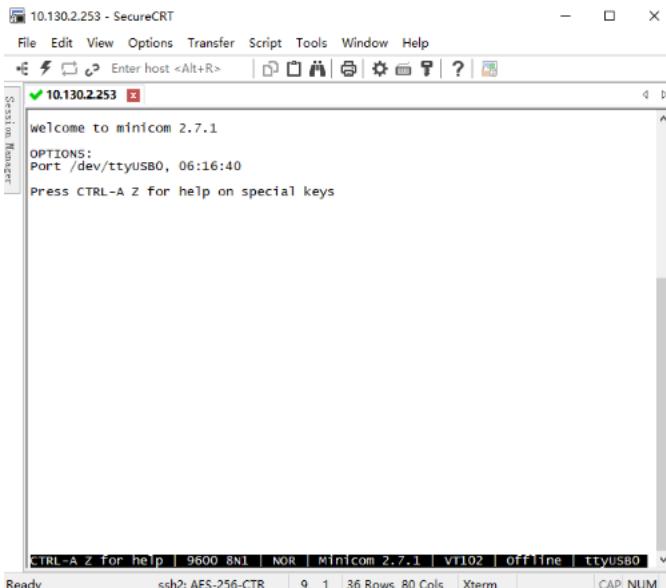
### 2. Install Minicom in RPi.

Enter the following command in the RPi terminal

```
apt update
```

```
apt install minicom
```

Use minicom to connect to the RPi's terminal



### 3. Press the reset switch RST on the LA66 USB LoRaWAN Adapter.

The following picture appears to prove that the LA66 USB LoRaWAN Adapter successfully entered the network.

```
10.130.2.253 - SecureCRT
File Edit View Options Transfer Script Tools Window Help
Enter host <Alt+R> | [ ] ? | [ ] CAP NUM
10.130.2.253 x

Welcome to minicom 2.7.1

OPTIONS:
Port /dev/ttyUSB0, 06:16:40
Press CTRL-A Z for help on special keys

Dragino LA66 Device
Image Version: v1.0
LoRaWAN Version: DR-LWS-006
Frequency Band: US915
DevEui=00 00 00 00 00 00 77 88
Enter Password to Active AT Commands

Use AT+DEBUG to see more debug info
JoinRequest NbrTrials= 72

***** UpLinkCounter= 0 *****
TX on freq 905.100 MHz at DR 0
txDone
RX on freq 926.900 MHz at DR 10
rxDone
JOINED=73
[ ]

CTRL-A Z For help | 9600 8NL | NOR | minicom 2.7.1 | vt102 | offline | ttyUSB0
```

#### **4. Send Uplink message**

Format: AT+SENDB=<confirm\_status>,<Fport>,<data\_len>,<data>

example: AT+SENDB=01,02,8,05820802581ea0a5

10.130.2.253 - SecureCRT

File Edit View Options Transfer Script Tools Window Help

Enter host <Alt+R>

10.130.2.253

Port /dev/ttyUSB0, 07:56:02

Press CTRL-A Z for help on special keys

Dragino LA66 Device  
Image Version: v1.0  
LoRaWan Stack: DR-LWS-006  
Frequency Band: US915  
DevEui= 00 00 00 00 00 00 77 88  
Enter Password to Active AT Commands

Use AT+DEBUG to see more debug info  
JoinRequest NbTrials= 72

\*\*\*\*\* UplinkCounter= 0 \*\*\*\*\*  
TX on freq 904.700 MHz at DR 0  
txDone  
RX on freq 925.700 MHz at DR 10  
rxDone  
JOINED-72  
\*\*\*\*\* UplinkCounter= 0 \*\*\*\*\*ea0a5  
TX on freq 904.900 MHz at DR 0

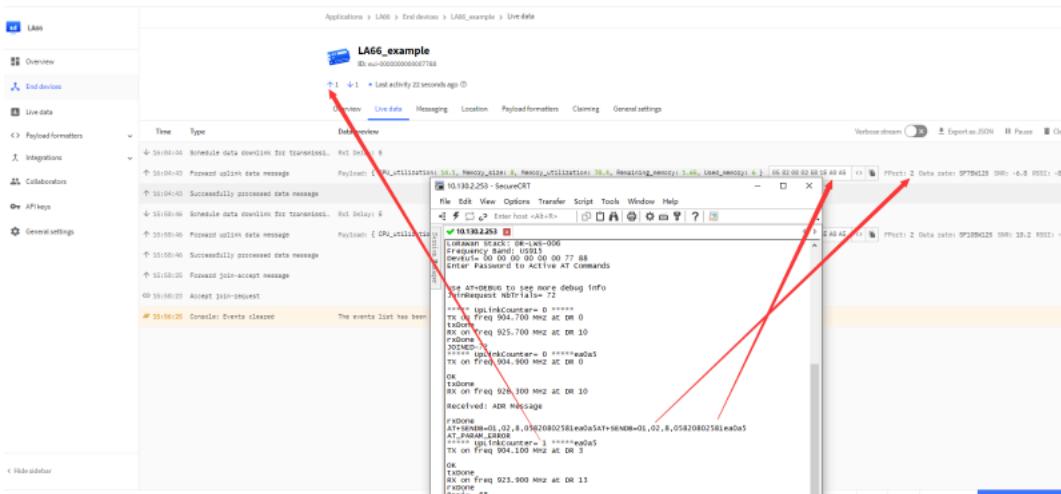
OK  
txDone  
RX on freq 926.300 MHz at DR 10

Received: ADR Message

rxDone  
AT+SENDB=01,02,8,05820802581ea0a5SAT+SENDB=01,02,8,05820802581ea0a5  
AT\_PARAM\_ERROR  
AT+SENDB=01,02,8,05820802581ea0a5  
CTRL-A Z for help | 9600 BNI | NOR | Minicom 2.7.1 | VT102 | offline | ttyUSB0

Ready	ssh2: AES-256-CTR	35, 34	36 Rows, 80 Cols	Xterm	CAP NUM
-------	-------------------	--------	------------------	-------	---------

Check to see if TTN received the message



## 1.9 Example: Use of LA66 USB LoRaWAN Adapter and mobile APP

### 1.9.1 Hardware and Software Connection

#### Overview:

DRAGINO-LA66-APP is an Open Source mobile APP for LA66 USB LoRaWAN Adapter. DRAGINO-LA66-APP has below features:

- Send real-time location information of mobile phone to LoRaWAN network.
- Check LoRaWAN network signal strength.
- Manually send messages to LoRaWAN network.

#### Hardware Connection:

A USB to Type-C adapter is needed to connect to a Mobile phone.

**Note: The package of LA66 USB adapter already includes this USB Type-C adapter.**



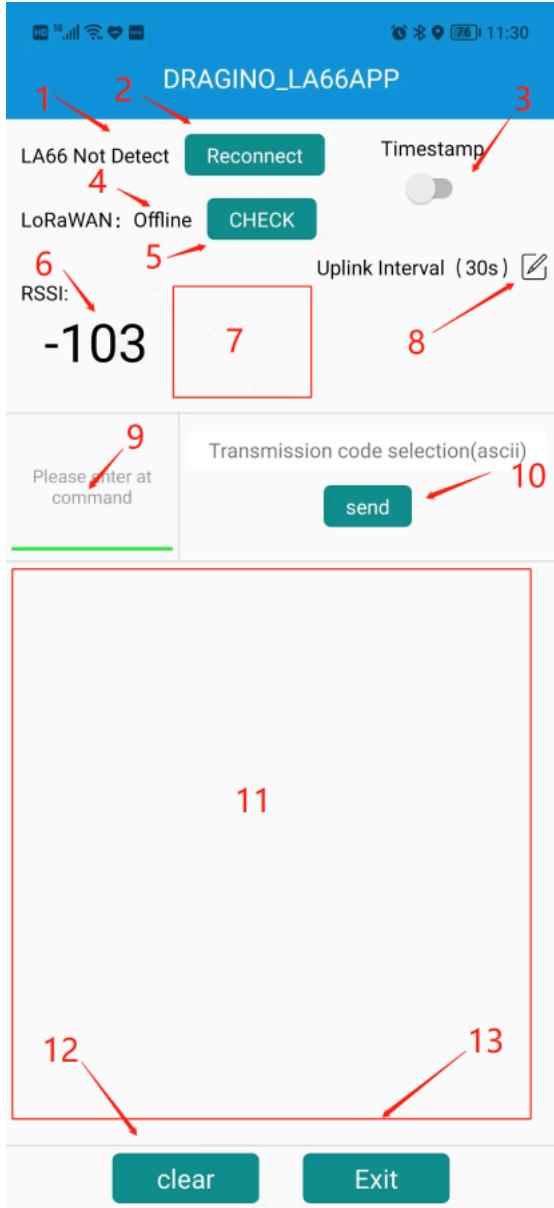
#### Download and Install App:

[Download Link for Android apk](https://www.dropbox.com/sh/zxwx16qb777uvkz/AABEP8coGCQ4DAC8enH4bUya?dl=0) (<https://www.dropbox.com/sh/zxwx16qb777uvkz/AABEP8coGCQ4DAC8enH4bUya?dl=0>) . . (Android Version Only)



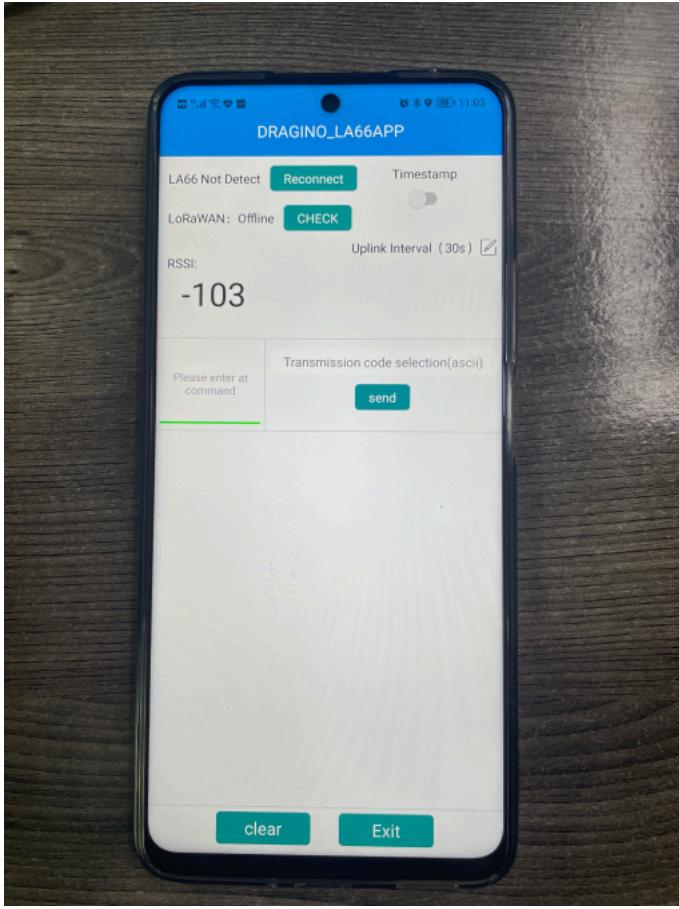
#### Use of APP:

Function and page introduction:

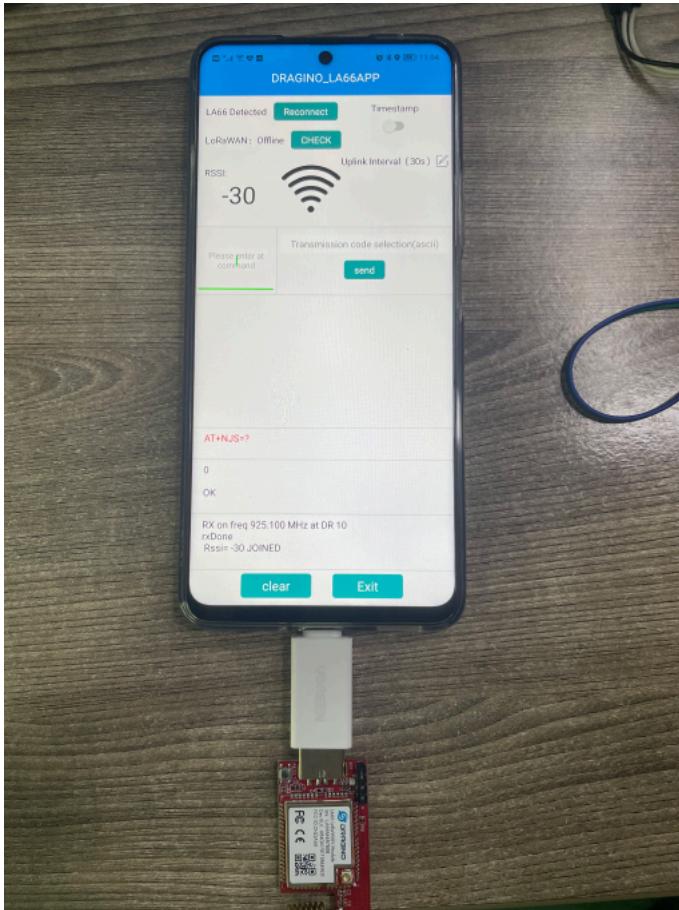
**Block Explain:**

1. Display LA66 USB LoRaWAN Module connection status
2. Check and reconnect
3. Turn send timestamps on or off
4. Display LoRaWan connection status
5. Check LoRaWan connection status
6. The RSSI value of the node when the ACK is received
7. Node's Signal Strength Icon
8. Configure Location Uplink Interval
9. AT command input box
10. Send Button: Send input box info to LA66 USB Adapter
11. Output Log from LA66 USB adapter
12. clear log button
13. exit button

LA66 USB LoRaWAN Module not connected:



Connect LA66 USB LoRaWAN Module:



### 1.9.2 Send data to TTNv3 and plot location info in Node-Red

#### 1. Register LA66 USB LoRaWAN Module to TTNV3

**eui-a840415e7184e9c0**

ID: eui-a840415e7184e9c0

[↑ 3](#) [↓ 3](#) • Last activity 2 hours ago
[Overview](#) [Live data](#) [Messaging](#) [Location](#) [Payload formatters](#) [Claiming](#) [General settings](#)
**General information**

End device ID	eui-a840415e7184e9c0	
Frequency plan	United States 902-928 MHz, FSB 2 (used by ...)	
LoRaWAN version	LoRaWAN Specification 1.0.3	
Regional Parameters version	RP001 Regional Parameters 1.0.3 revision A	
Created at	Jul 15, 2022 09:40:08	

**Live data**[See all activity →](#)

<a href="#">↑ 11:26:27</a>	Forward join-accept message
<a href="#">↓ 11:26:26</a>	Accept join-request
<a href="#">↓ 11:24:44</a>	Schedule data downlink for transmission on Gateway Server
<a href="#">↑ 11:24:43</a>	Forward location solved message
<a href="#">↓ 11:24:43</a>	Update end device
<a href="#">↑ 11:24:43</a>	Forward uplink data message

**Activation information**

AppEUI	A8 40 41 00 00 00 01 01	
DevEUI	A8 40 41 5E 71 84 E9 C0	
AppKey	.....	

**Location****Session information**

Session start	Jul 23, 2022 11:23:13	
Device address	26 0B A6 4F	
NwkSKey	.....	
SNwkSIntKey	.....	
NwkSEncKey	.....	
AppSKey	.....	

**2. Open Node-RED, And import the JSON file to generate the flow**

Sample JSON file please go to [this link \(https://www.dropbox.com/sh/zxwx16qb777uvkz/AABE\\_P8coGCQ4DAC8enH4bUya?dl=0\)](https://www.dropbox.com/sh/zxwx16qb777uvkz/AABE_P8coGCQ4DAC8enH4bUya?dl=0) to download.

For the usage of Node-RED, please refer to: <http://wiki.dragino.com/xwiki/bin/view/Main/Node-RED/> (<http://wiki.dragino.com/xwiki/bin/view/Main/Node-RED/>)

After see LoRaWAN Online, walk around and the APP will keep sending location info to LoRaWAN server and then to the Node Red.

LA66--node-red--decoder:dragino-end-node-decoder/Node-RED at main · dragino/dragino-end-node-decoder · GitHub (<https://github.com/dragino/dragino-end-node-decoder>)

Example output in NodeRed is as below:



## 1.10 Upgrade Firmware of LA66 USB LoRaWAN Adapter

### 1.10.1 Update method: For LA66 with bootloader

- We ship the LA66 USB LoRaWAN Adapter with a boot loader by default, and the latest boot loader is V1.4. Users can download the new version of the boot loader by ([https://www.dropbox.com/scl/fo/ztlw35a9xbkomu71u31im/AFhmjtEOaipfBAFrpmCoWrl/LoRaWAN%20End%20Node/LA66%20LoRaWAN%20module/Firmware/OTA\\_dl=0&rlkey=oijcsrw927eaow01dgooldq3nu&subfolder\\_nav\\_tracking=1](https://www.dropbox.com/scl/fo/ztlw35a9xbkomu71u31im/AFhmjtEOaipfBAFrpmCoWrl/LoRaWAN%20End%20Node/LA66%20LoRaWAN%20module/Firmware/OTA_dl=0&rlkey=oijcsrw927eaow01dgooldq3nu&subfolder_nav_tracking=1)) .

... / LoRaWAN End Node / LA66 LoRaWAN module / Firmware / OTA\_Firmware  
来自Dragino

名称 ↑	最后修改时间	大小
OTA Tool	--	--
LA66 OTA DONGLE v1.1.bin	6 天前	26.07 KB
LoRaOTA_Bootloader_v1.4.bin	上个月	36.07 KB
OTA_Firmware v1.0.bin	2023年1月14日	25.7 KB

**Note:** Upgrading the boot loader requires using the upgrade method described in section 1.10.2.

- For the bootloader V1.4, compared to V1.3, his role is to support OTA configuration for T68DL (D let Gino product model).

So if your LA66 doesn't need this feature, you can also just follow the below to upgrade the firmware instead of the bootloader:

#### Firmware download (Please select withbootloader version):

[Firmware - Dropbox](https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-sly/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder_nav_tracking=1) ([https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-sly/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder\\_nav\\_tracking=1](https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-sly/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder_nav_tracking=1))

#### Firmware update method:

Please refer to this link

<http://wiki.dragino.com/xwiki/bin/view/Main/UART%20Access%20for%20LoRa%20ST%20v4%20base%20model/#H3.2.1UpdatefirmwareviaDraginoSensorManagerUtility>  
<http://wiki.dragino.com/xwiki/bin/view/Main/UART%20Access%20for%20LoRa%20ST%20v4%20base%20model/#H3.2.1UpdatefirmwareviaDraginoSensorManagerUtility>

### 1.10.2 Update method: For LA66 without bootloader

- Explanation:

For LA66 without a bootloader, we can only burn a bootloader for it in the following way. Because using OTA\_Tool to upgrade the firmware of LA66 this address is **0x08000D1** bootloader needs to be burned at address .

Therefore, you can use this method to download the firmware with the boot loader directly or upgrade your boot loader (address from **0x08000000**).

#### Firmware download (Download firmware with bootloader) :

[Firmware - Dropbox \(\[https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-slya/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder\\\_nav\\\_tracking=1\]\(https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-slya/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder\_nav\_tracking=1\)\)](https://www.dropbox.com/sh/g99v0fxcltn9r1y/AABJQUWNgt61Z567OcUf-slya/LA66%20LoRaWAN%20module/Firmware?dl=0&subfolder_nav_tracking=1)

... / LA66 LoRaWAN module / Firmware / LoRaWAN Firmware / LA66 v1.3 firmware  
来自Dragino

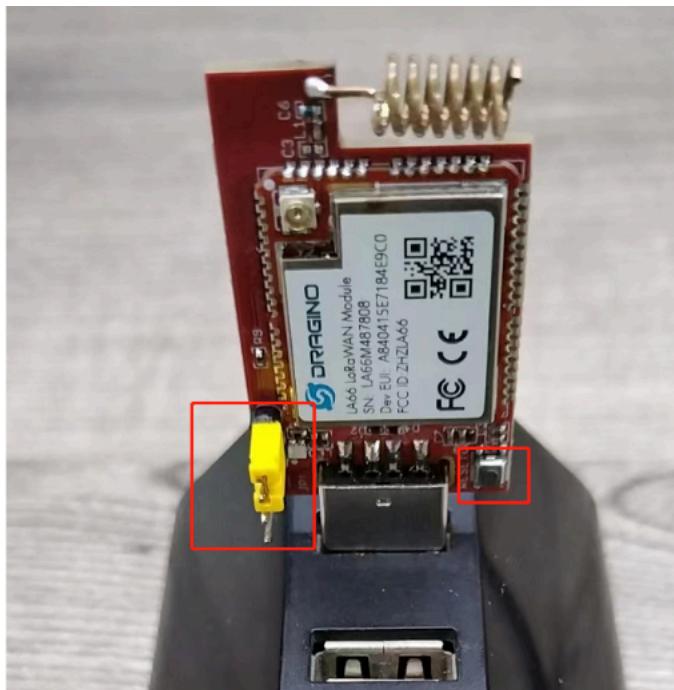
名称	最后修改时间	大小
LA66_Firmware_v1.3.with_bootloader	--	--
LA66_Firmware_v1.3.without_bootloader	--	--

- Upgrade Details:

The LA66 USB LoRaWAN Adapter is the same as the LA66 LoRaWAN Shield update method.

Just use the yellow jumper cap to short the BOOT corner and the RX corner, and then press the RESET button (without the jumper cap, you can directly short the BOOT corner with a wire to achieve the same effect).

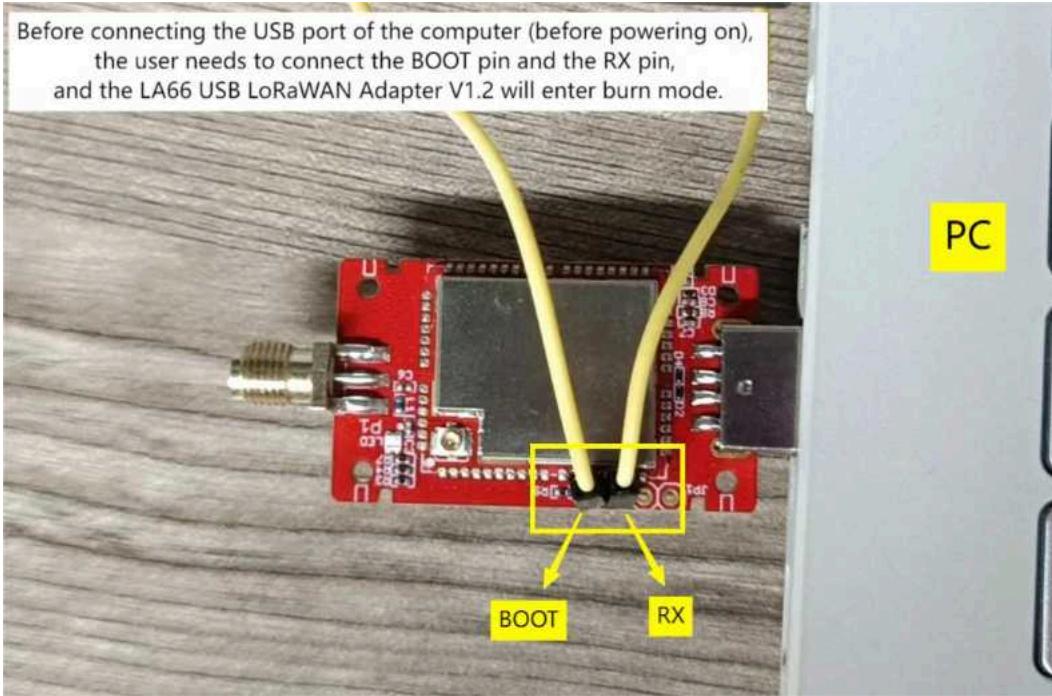
**Notice: If upgrade via USB hub is not sucessful. try to connect to PC directly.**



For the LA66 USB LoRaWAN Adapter v1.2, the hardware design has eliminated the reset button, so the first step we need to use the DuPont wire to connect the BOOT pin to ground.

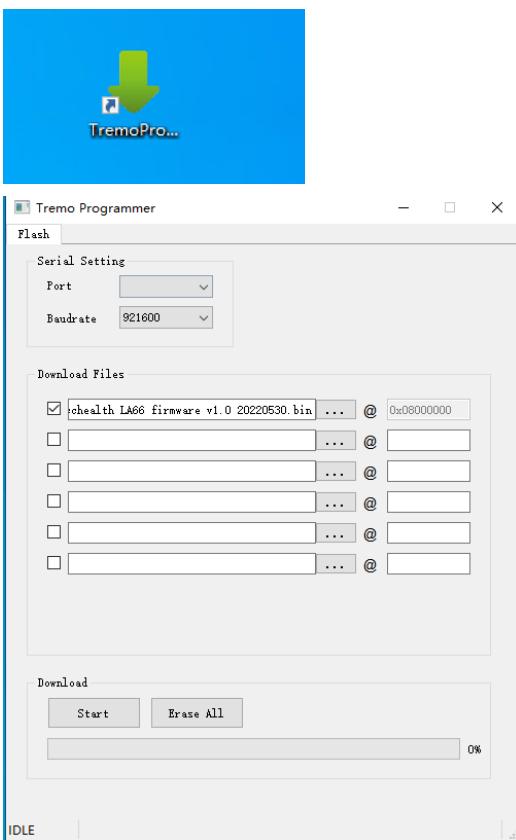
Second, connect the LA66 USB LoRaWAN Adapter v1.2 to a USB hub or computer USB port so that it will enter burn mode. Then follow the steps below to burn the firmware.

Note: After the successful burning need to unplug the LA66 USB LoRaWAN Adapter v1.2, and then reconnect the computer interface, so that it will exit the burn mode.

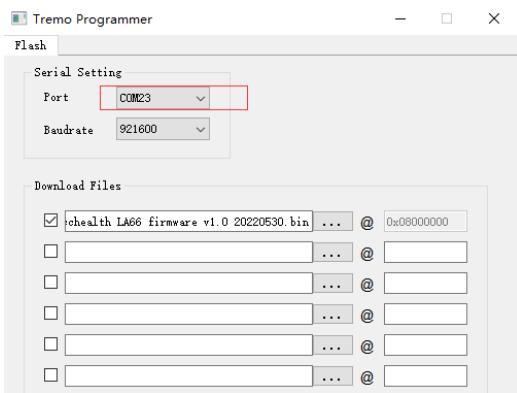


#### Open the Upgrade tool (Tremo Programmer) in PC and Upgrade

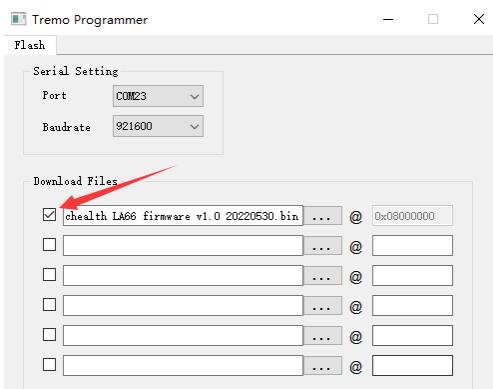
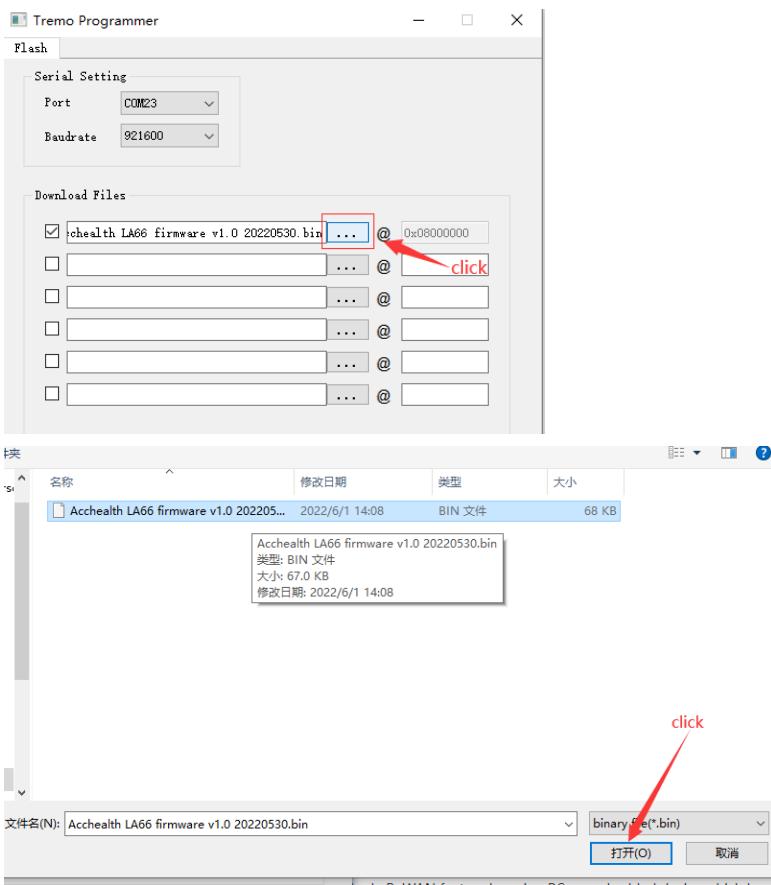
1. Software download link: <https://www.dropbox.com/sh/j0qyc7a9ejit7jk/AACtx2tK4gEv6YFXMIVUM4dLa?dl=0>  
[\(https://www.dropbox.com/sh/j0qyc7a9ejit7jk/AACtx2tK4gEv6YFXMIVUM4dLa?dl=0\)](https://www.dropbox.com/sh/j0qyc7a9ejit7jk/AACtx2tK4gEv6YFXMIVUM4dLa?dl=0)



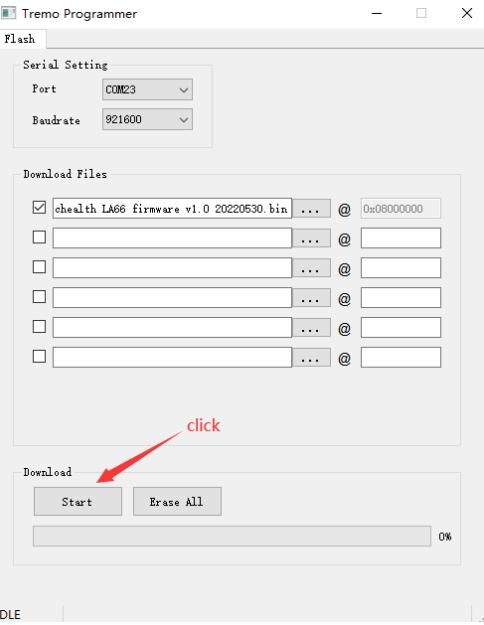
2. Select the COM port corresponding to USB TTL



### 3. Select the bin file to burn



### 4. Click to start the download



## 5. Check update process



**The following picture shows that the burning is successful**



## 2. FAQ

### 2.1 How to Compile Source Code for LA66?

Compile and Upload Code to ASR6601 Platform : [Instruction](#)  
[\(/xwiki/bin/view/Main/User%20Manual%20for%20LoRaWAN%20End%20Nodes/LA66%20LoRaWAN%20Module/Compile%20and%20Upload%20Code%20to%20ASR6601\)](#)

### 2.2 Where to find Peer-to-Peer firmware of LA66?

Instruction for LA66 Peer to Peer firmware : [Instruction](#)  
[\(/xwiki/bin/view/Main/User%20Manual%20for%20LoRaWAN%20End%20Nodes/LA66%20LoRaWAN%20Shield%20User%20Manual/Instruction%20for%20LA66%20Peer%\)](#)

### 2.3 My device keeps showing invalid credentials, the device goes into low power mode

Set the AT+COMMAND: **AT+UUID=666666666666**

### 2.4 How to use external antenna via ipex connector?

You need to remove the spring antenna first, and also remove the resistor and capacitor.  
 Connect external antenna.



## 3. Order Info

**Part Number:** LA66-USB-LoRaWAN-Adapter-XXX

**XXX:** The default frequency band

- **AS923:** LoRaWAN AS923 band
- **AU915:** LoRaWAN AU915 band
- **EU433:** LoRaWAN EU433 band
- **EU868:** LoRaWAN EU868 band
- **KR920:** LoRaWAN KR920 band
- **US915:** LoRaWAN US915 band
- **IN865:** LoRaWAN IN865 band
- **CN470:** LoRaWAN CN470 band
- **PP:** Peer to Peer LoRa Protocol

## 4. Reference

- Hardware Design File for LA66 USB LoRaWAN Adapter : [Download](https://www.dropbox.com/sh/a3wbnmdcvqjxaqw5/AADZfvAiykJTK624RgMquH86a?dl=0) (<https://www.dropbox.com/sh/a3wbnmdcvqjxaqw5/AADZfvAiykJTK624RgMquH86a?dl=0>)
- Mobile Phone App Source Code: [Download](https://github.com/dragino/LA66_Mobile_App) ([https://github.com/dragino/LA66\\_Mobile\\_App](https://github.com/dragino/LA66_Mobile_App)) .

## 5. FCC Statement

**FCC Caution:**

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

**IMPORTANT NOTE:**

**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 a particular installation. If this equipment does cause interference to 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:

- 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.

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance between radiator & your body.



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