

RAK47X UART-WiFi Module

Firmware Upgrade Manual V1.0

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1. Introduction

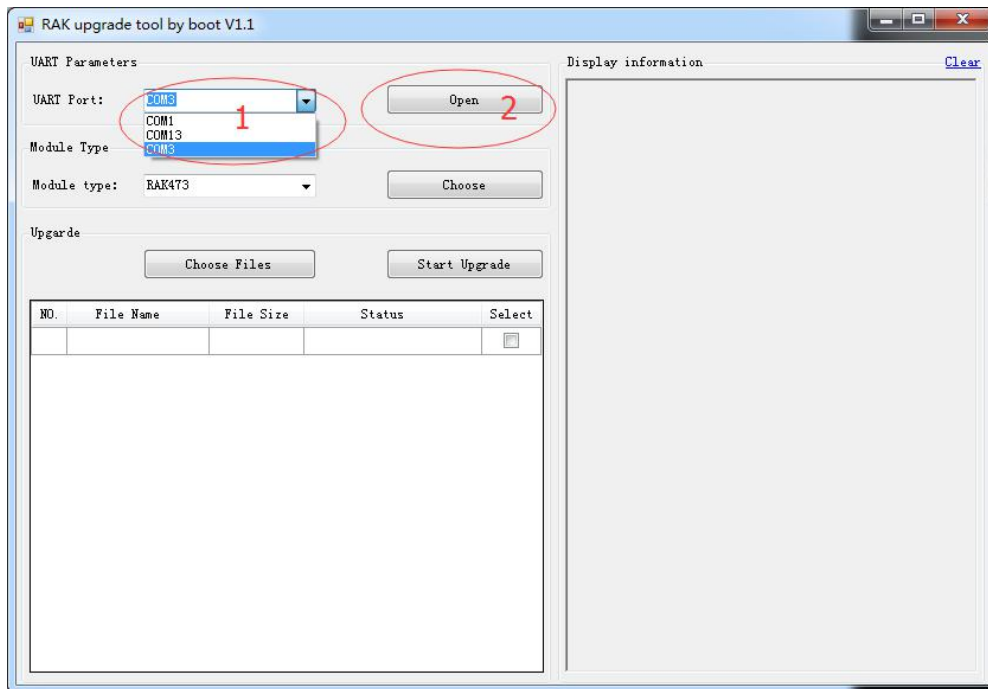
This document mainly introduces the detailed upgrade methods and steps for serial port and wireless of four types of module firmwares which are RAK473, RAK475, RAK476, RAK477, and provides the users with simple, fast and efficient application methods for independent completion of upgrade of WiFi module firmware.

The serial port upgrade methods and steps for RAK473, RAK475, RAK476, and RAK477 are the same and they all use the same serial port upgrade tool. Thus, we only provide the detailed serial port upgrade methods and steps for RAK473 module. During the process of wireless upgrade of RAK473 and RAK476, because the tools page which will be used in the upgrade operation steps is totally the same but just different in the upgrade tools, only detailed wireless upgrade steps for RAK473 will be provided herein; considering RAK475 and RAK477 both use the same scanning configuration tool, only the wireless upgrade methods and steps of RAK475 will be provided below.

2. The Upgrade Steps of RAK47X Serial Port

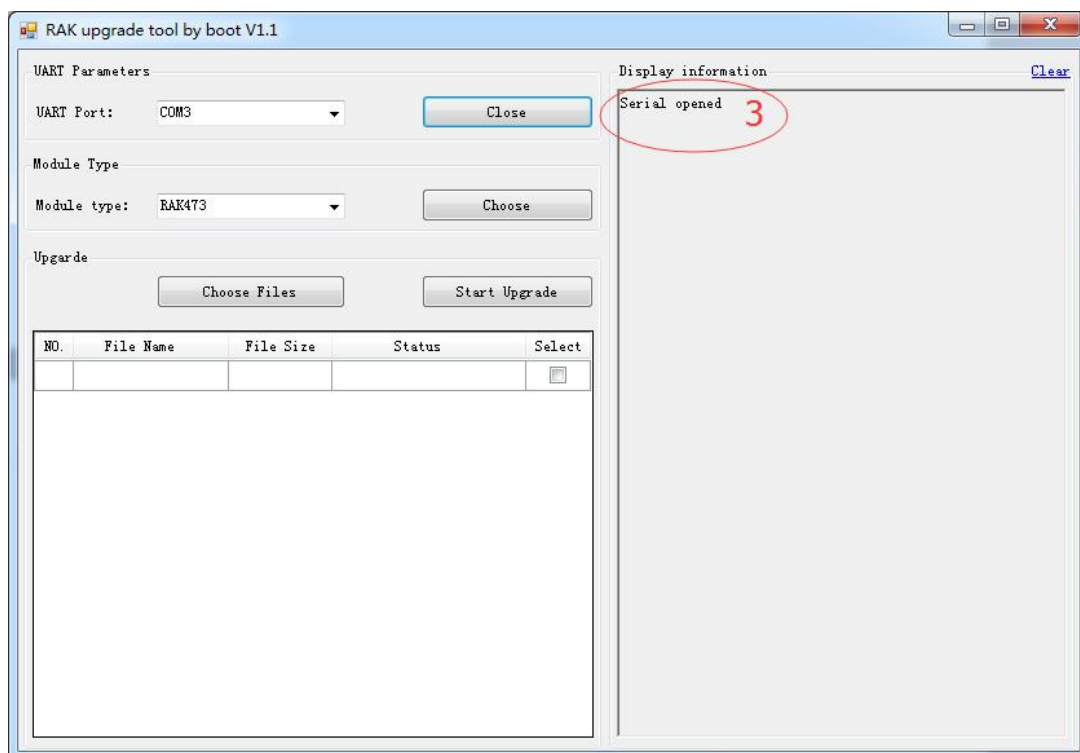
(1) Connect the development board of RAK47X to the computer with a serial port line. If the Power light of development board is normally on, it shows that the power supply of the development board is under normal working condition. Open the device manager of the computer and search the port number where RAK47X module is located. The port number of RAK473 module which demonstrates herein is COM3. Because the serial port upgrade steps of four types of products RAK473, RAK475, RAK476, RAK477 are all the same, only the detailed introduction of serial port upgrade steps of RAK473 module will be provided. During the process of serial port upgrade of these four types of products, operation steps are the same except the choice of type;

(2) Open the tools of RAK upgrade tool by boot as shown in Picture 2-1. According to the sequence, firstly choose the corresponding port number for RAK47X module, and then click “Open” button to open the port;



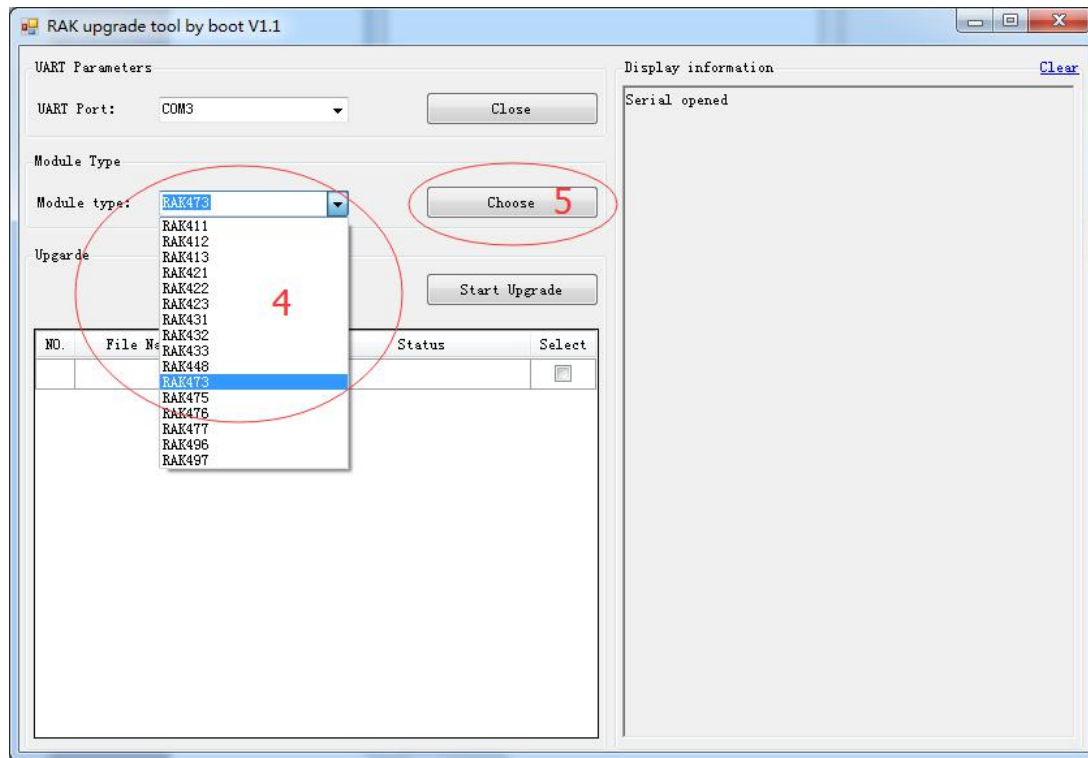
Picture 2-1

(3) If it appears “Serial opened” as “3” shown in Picture 2-2, it means that the port has been opened correctly;



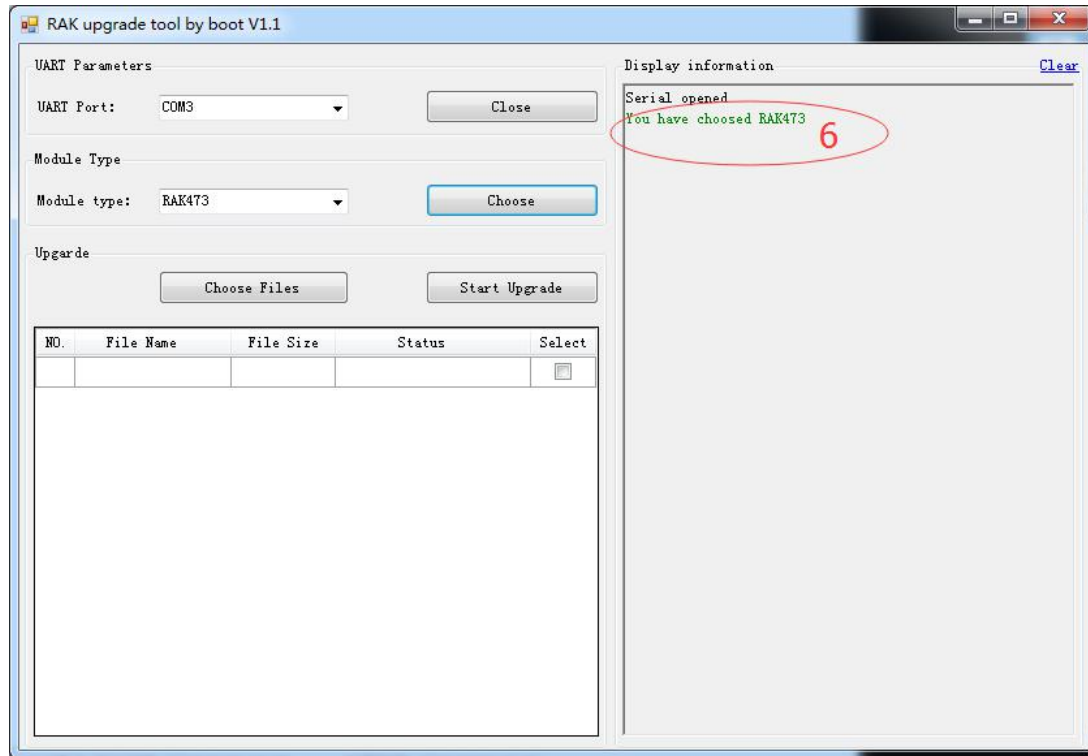
Picture 2-2

(4) Then follow the sequence of “Step 4” to choose module type. Here is RAK473 as a demonstration. “Step 5”: click the “Choose” button to confirm the choice;



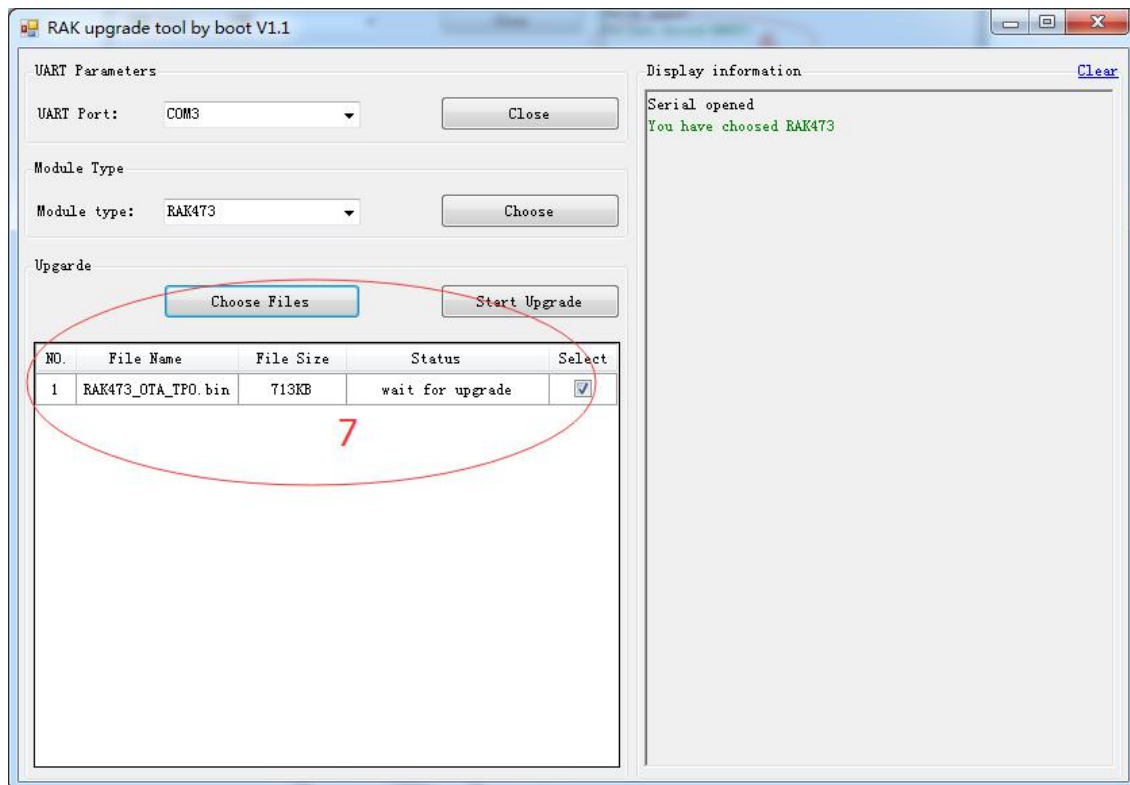
Picture 2-3

(5) If it appears “You have choosed RAK473” as “Step 6” shown in Picture 2-4, it means that the choice of module type has been done correctly;



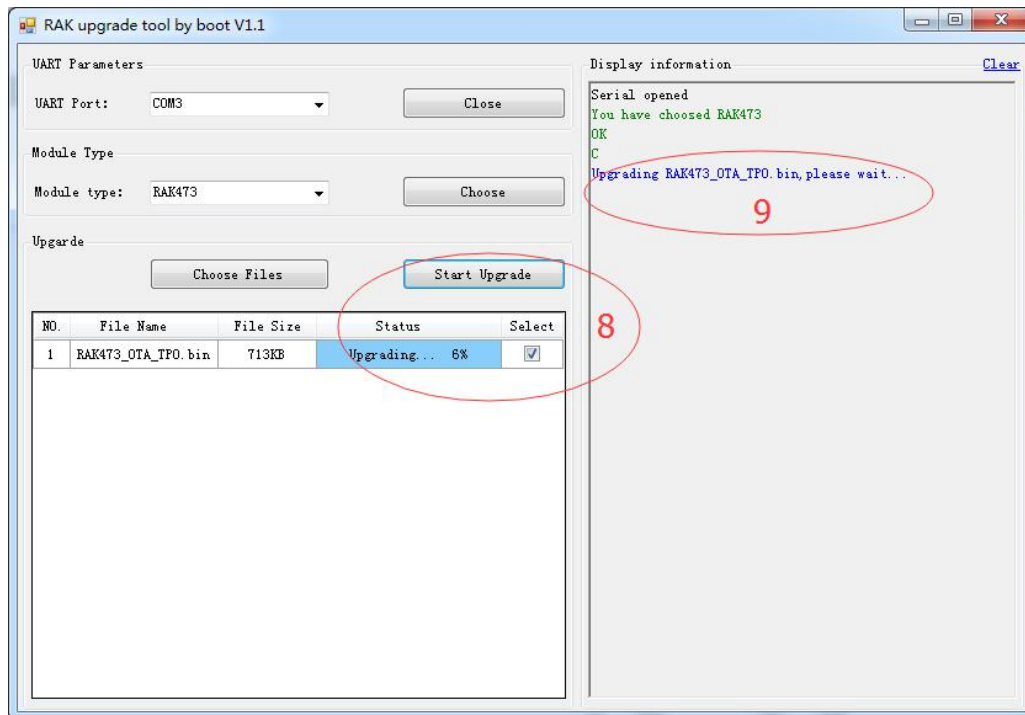
Picture 2-4

(6) “Step 7”: click the “Choose File” button to choose the new firmware which need to be upgraded, and then the page as shown in below Picture 2-5 will appear;



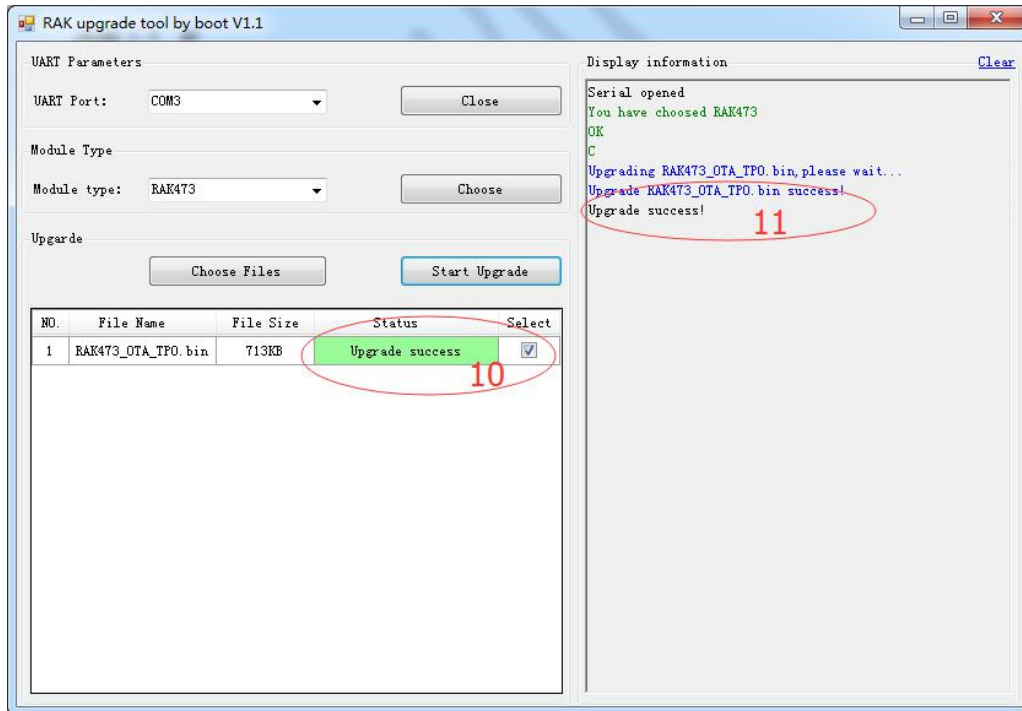
Picture 2-5

(7) “Step 8” : click “Start Upgrade” button, now the upgrade progress bar and the prompt as shown in “Step 9” will appear to indicate that the module is being upgraded;



Picture 2-6

(8) If it appears as “Step 10” and “Step 11” show, it means that the firmware upgrade of serial port mode of the module has been successfully upgraded.

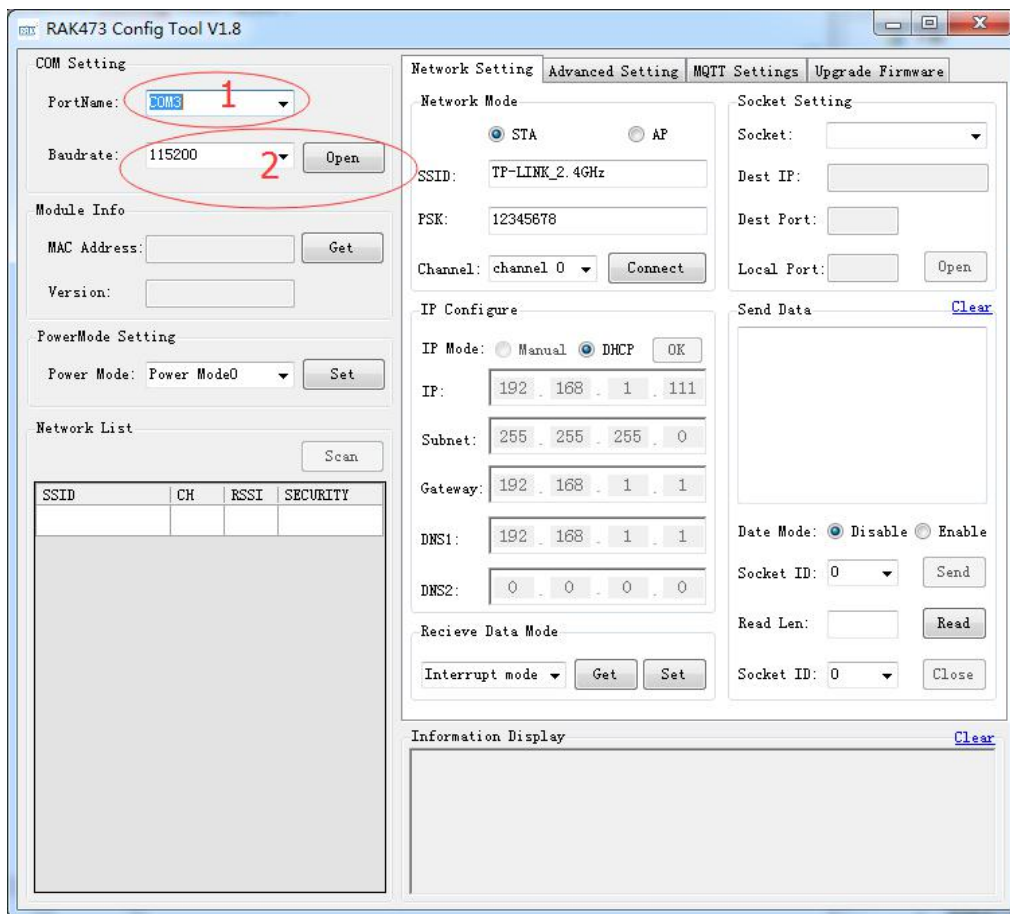


Picture 2-7

3. The Wireless Upgrade Steps of RAK473/476

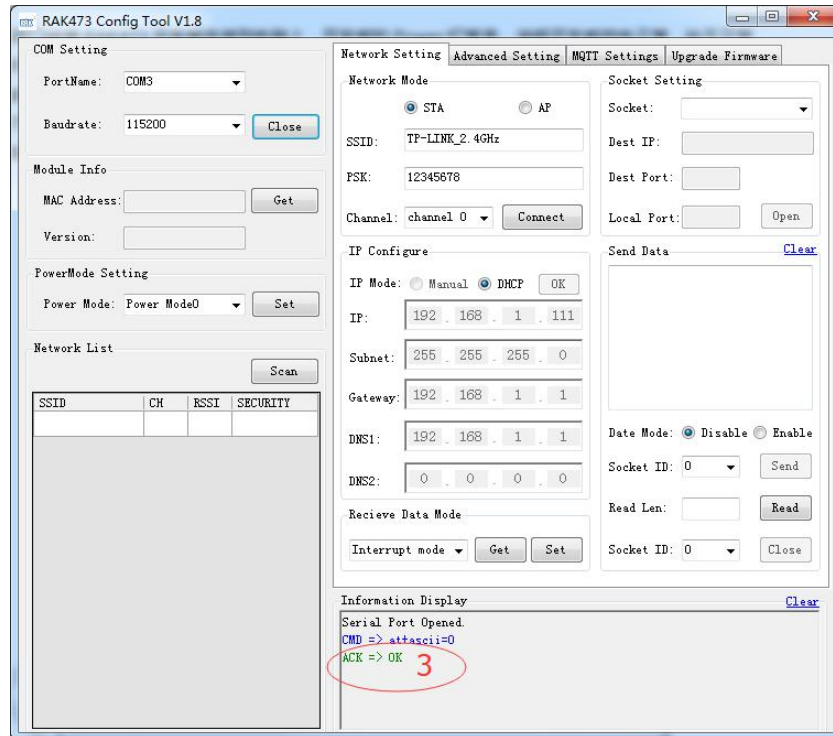
(1) Connect the development board of RAK473/476 to the computer with a serial port line. If the Power light of development board is normally on, it shows that the power supply of the development board is under normal working condition. Open the device manager of the computer and search the port number where the RAK473/476 is located. The port number of RAK473 module which demonstrates herein is COM3 (note: the difference of wireless upgrade between RAK473 and RAK476 is described as follows: command configuration tools RAK473 Config Tool should be opened when RAK473 is being upgraded while command configuration tools RAK4736ConfigTool shall be opened when RAK476 is being upgraded).

(2) Open command configuration tools RAK473 Config Tool. As shown in below Picture 3-1, firstly choose the corresponding port number. Then, choose the Baud rate as 115200 and then click “Open” button to open the port.



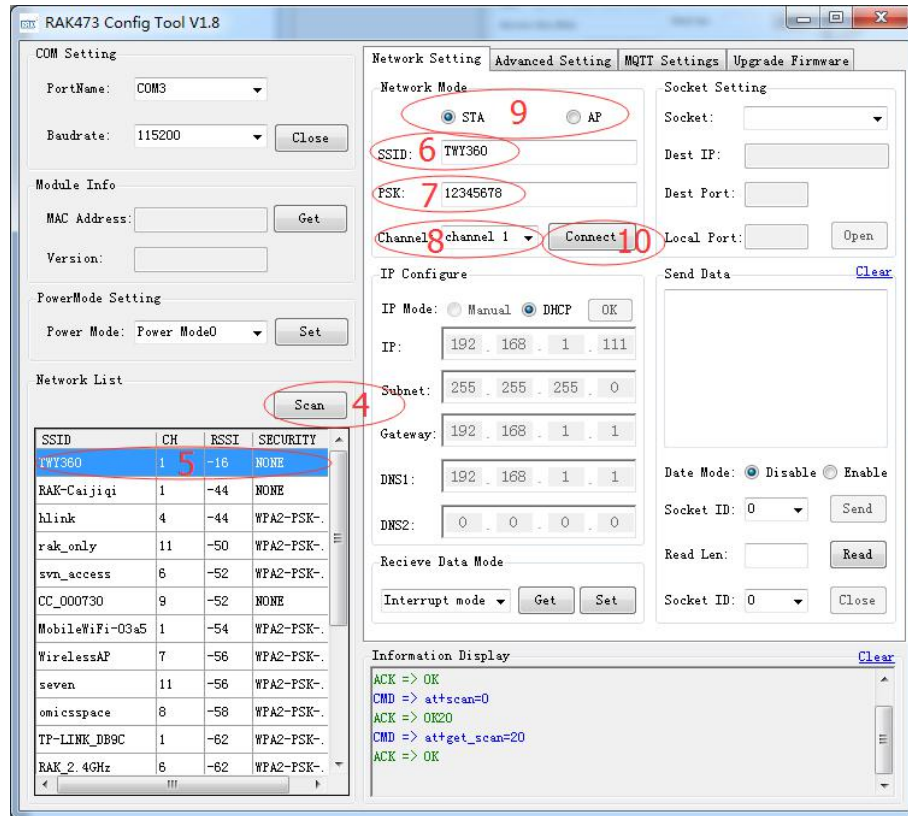
Picture 3-1

(3) If it outputs “ACK=>OK” as “Step 3” shows, it means that the port has been opened correctly.

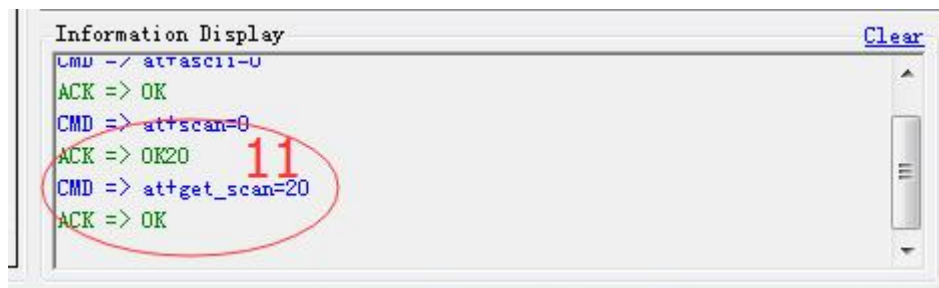


Picture 3-2

(4) As Picture 3-3 shows, follow steps from Step 4 to Step 10. “Step 4”: click “Scan” button, and then the module will auto scan the wireless network within the environment scope where it is located and auto present the scanned network in a form of list. If the messages obtained are correct, the “Information Display” bar of the tools will return the messages as “Step 11” shows in Picture 3-4. “Step 5”: choose the wireless network which you want to connect to the module. The SSID connected here is “TWY360”. After choosing the network, the SSID will auto fill as “Step 6” shows, and the channel information will auto fill as “Step 8” shows. “Step 7”: fill the password of the wireless network which the module needs in “PSK”, and it is no need to fill if without a password. “Step 9”: set the module as STA Mode(*note: if RAK473 is set as STA mode, the PC should be connected to the same network with the module; if RAK473 is set as AP, then the PC should be connected to the AP of the module. That is to say, the module and the PC should be in the same network, otherwise the firmware will fail to upgrade*). “Step 10”, click the “Connect” button to enable the module to connect to the network “TWY360”.



Picture 3-3



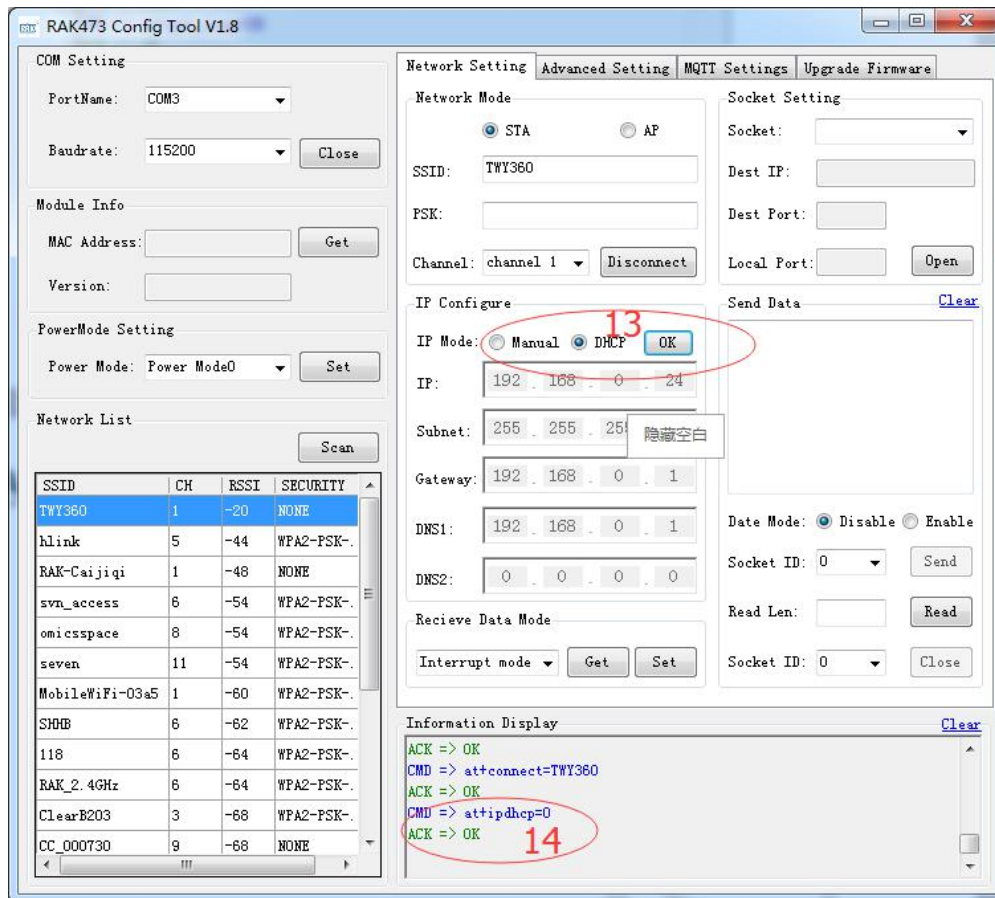
Picture 3-4

(5)After the module connect to the network successfully, the “Information Display” bar of tools will return the message as “Step 12”shows in Picture 3-5, and the Link light of development board will change from a slow flash state to a normally on state.



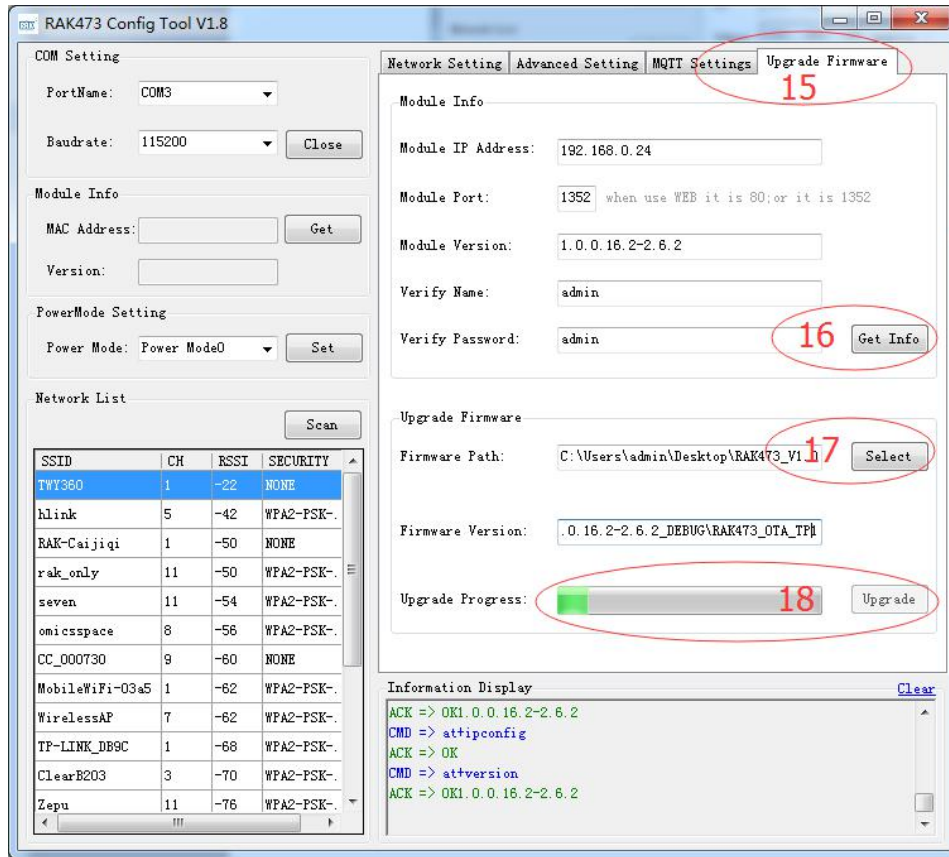
Picture 3-5

(6) “Step 13”: click “OK” button to distribute IP to the module, and it will return a message as “Step 14” shows if successful.



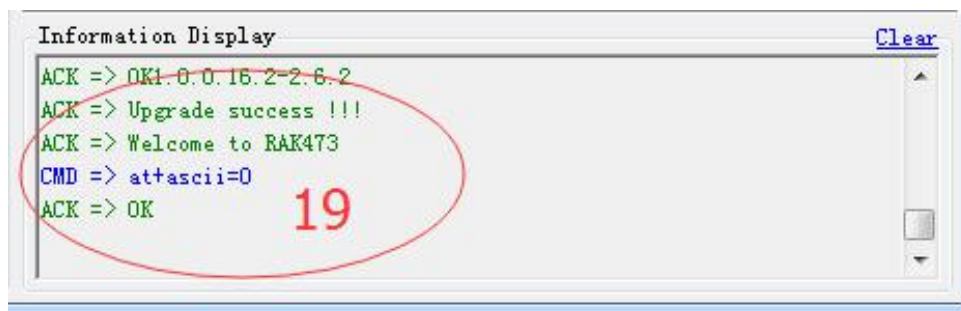
Picture 3-6

(7) “Step 15” : choose the “Upgrade Firmware” page of the scanning tools. “Step 16” : click “Get Info” button to get module information. “Step 17” : click “Select” button to choose the route where the needed new version is located. “Step 18” : click the “Upgrade” button, and the module begin to upgrade with a green progress bar. At this time the Link light of the module change from normally on state to quick flash state;



Picture 3-7

(8) After the upgrade success, the “Information Display” bar of the tools will return the message as “Step 19” shows in below Picture 3-8 to indicate the success of the upgrade. At this time, the Link light of the module will change from quick on-off state to slow flash state.



Picture 3-8

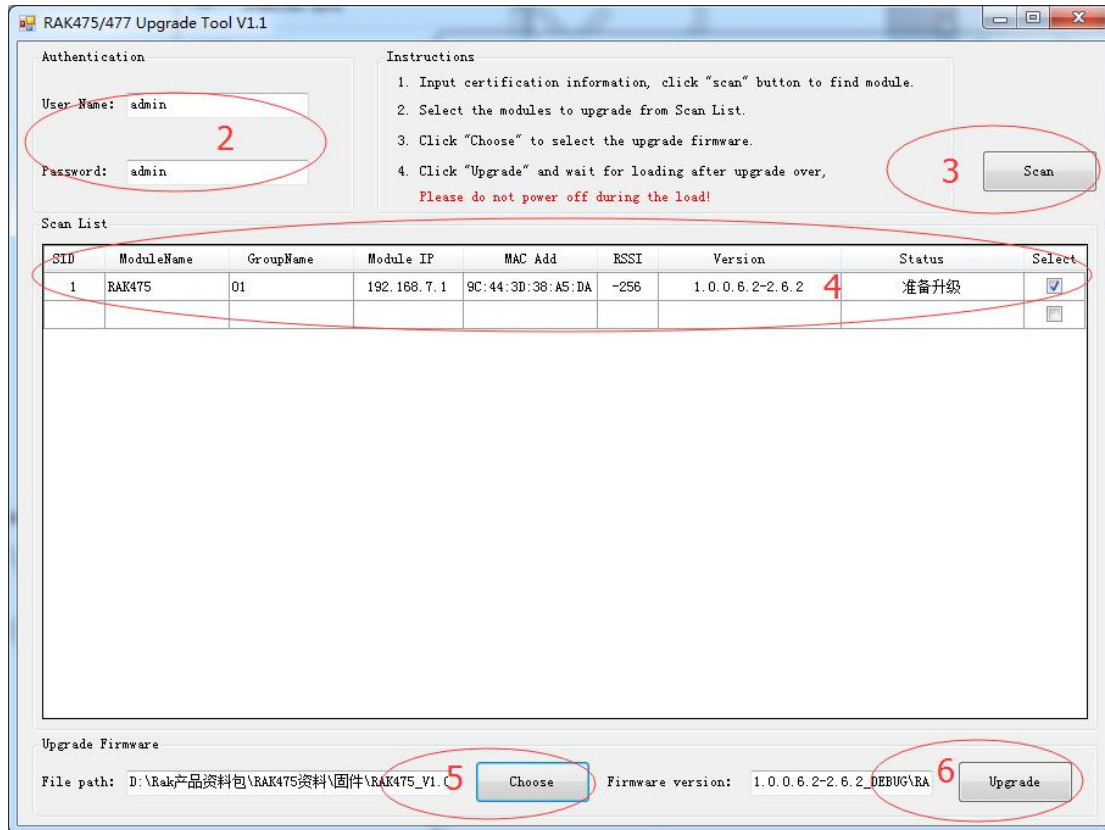
4. Wireless Upgrade Steps of RAK475/477

(1) Connect the development board of RAK475/477 to the computer with a serial port line. If the Power light of development board is normally on, it shows that the power supply of the development board is under normal working condition. Open the device manager of the computer and search the port number where RAK475/47 is located. The RAK475 module which demonstrates herein is in AP mode. Under generally original conditions, the module is in AP mode, then the computer need to be connected to the AP of the module, as “ Step 1” shown in Picture 4-1, AP of the module is named “RAK475_AP_XXXXXX” and among them “XXXXXX” is the back six-digit MAC address of your module. If the module works in STA mode, then the computer needs to be connected to the network which the module connects, *that is to say, the module and PC should be in the same network, otherwise the firmware will fail to upgrade.*



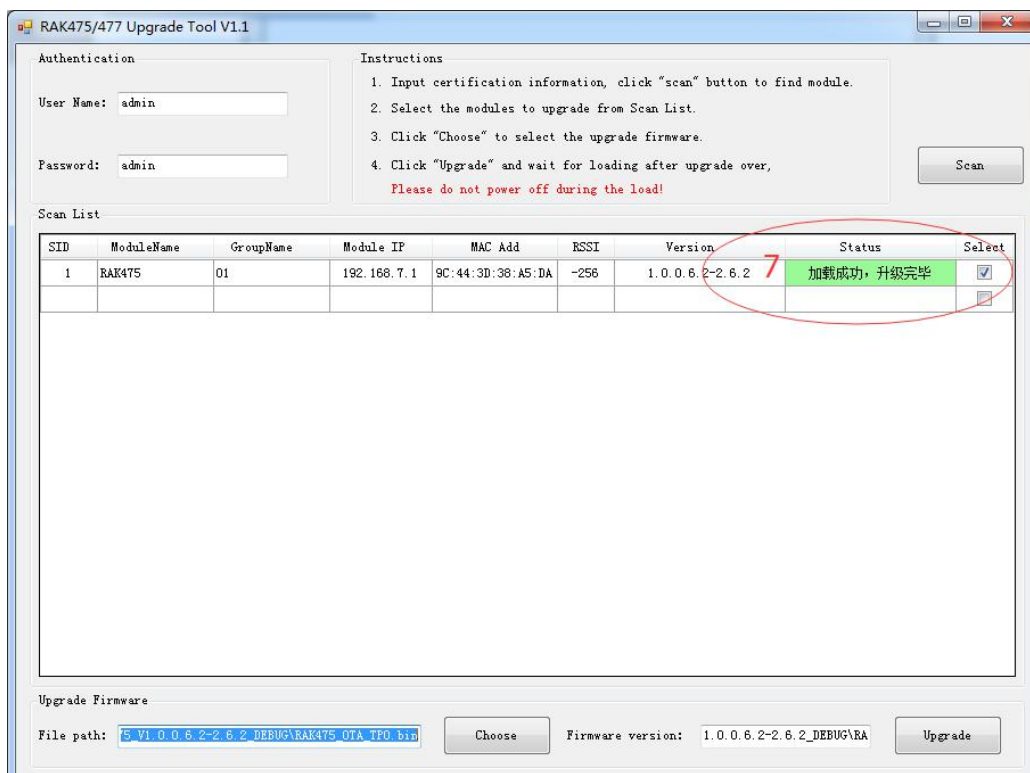
Picture 4-1

(2) Open the scanning upgrade tools of RAK475, RAK477 Upgrade Tool. Following the steps as shown in Picture 4-2, “Step 2”, fill “User Name” and “Password” of the module with “admin” as default. “Step 3”: click “Scan” button to scan the RAK475 module of the same network and present in a form of list. As shown in “Step 4”, check the module at “Select” bar. “Step 5” : click “Choose” button to choose the route where the needed new version of firmware is located; “Step 6” : click “Upgrade” button to begin the firmware upgrade.



Picture 4-2

(3)After the completion of upgrade, a notice of “loaded successful, upgraded completely” as shown in the “Step 7” will appear to indicate the success of the upgrade.



Picture 4-3

5. Version

Version	Content modification	Date
V1.0	Create a document	2016.06.28