WisNode-UART WIFI EVB Quick Start Guide

Shenzhen Rakwireless Technology Co., Ltd

www.rakwireless.com

info@rakwireless.com

1. Product introduction

1.1 Overview

Arduino WisNode-UART WIFI EVB is based on the RAK473(476) module design of an Arduino-compatible development board,Can be plugged into the Arduino EVB,it also can be used as a base plate plug other Arduino series peripherals.This document will be through a detailed description make developers to quickly grasp RAK473(476) WiFi module. For example, through the PC(C) serial debugging assistant test module's AT command function, Establishment of Socket communications, Use the web or mobile phone APP to configure the module to the designated router and so on.

1.2 Evaluation Kit Introduction

After buying the Evaluation Kit on Taobao, We will use the following items box send to you,As shown in Figure 1-1. Article in the box as shown in Figure 1-2: A WisNode-UART WIFI EVB,A Micro USB line.If you buy an external antenna EVB, there will be an antenna in the box.

Figure 1-1

Figure 1-2

1.3 Hardware Introduction

As the following Figure1-3， 1-4 shown is the Arduino WisNode-UART WIFI EVB hardware and hardware distribution.Because the RAK473 module and the RAK476 module are very similar in operation and procedure, Therefore, this document is mainly based on the case of RAK473 WiFi module. However, there are differences between the tow modules in the peripheral hardware circuit, So when you use this EVB you should pay attention to the hardware version switch. If you uses the RAK473 module, you should welded a 0Ω resistor at R3, As the Figure 1-3 show. If you uses the RAK473 module, you should welded a 0Ω resistor at R6. Besides, different modules need different external circuit. At the bottom of the EVB, you should welded 0Ω resistor follow the instructions. Use this EVB, Users only need a Micro USB line, one end connected to the EVB, one end connected to the computer, and pay attention to the use of serial jump cap jump mode.

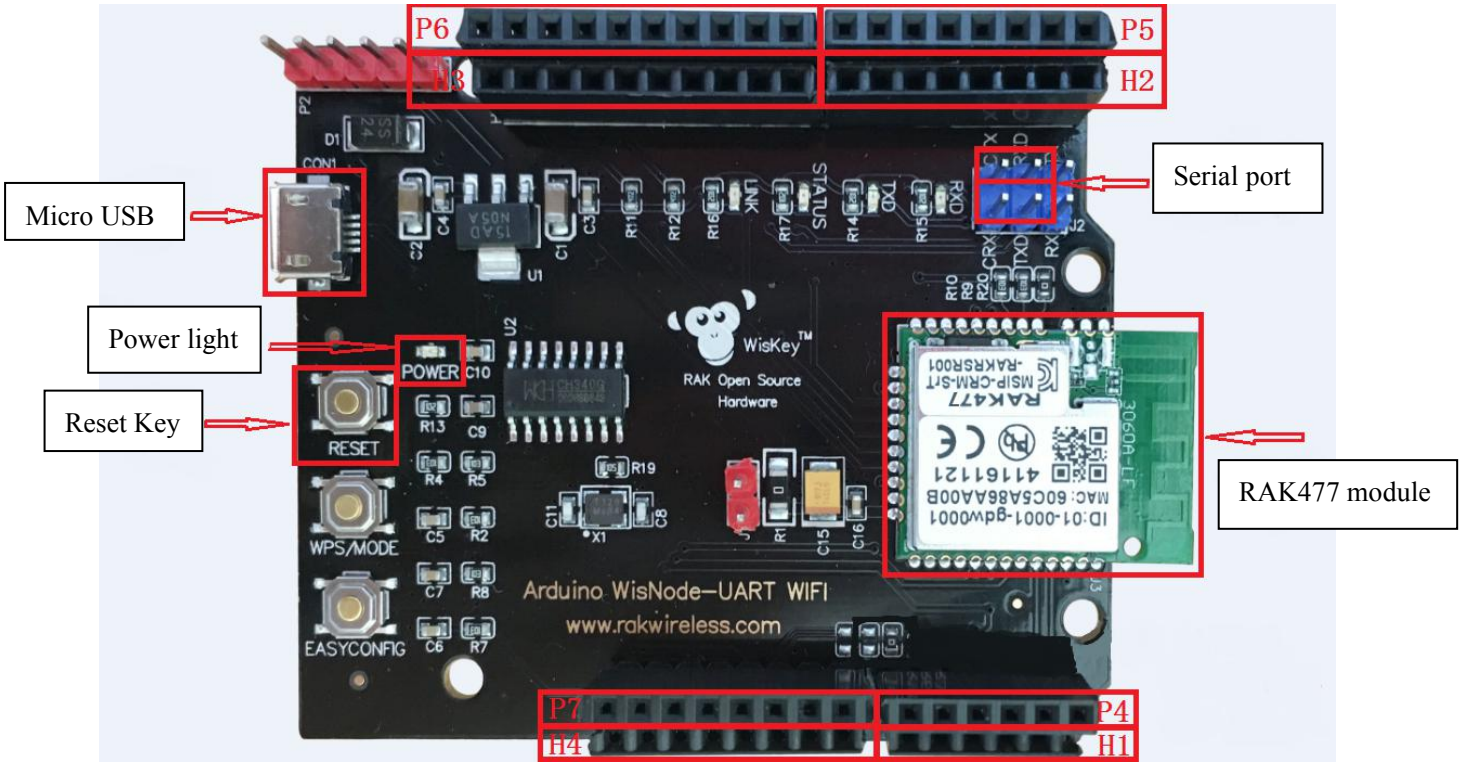


Figure 1-3 Arduino WisNode-UART WIFI Top Diagram

Slots Usage:

(1) When WisNode-UART WIFI EVB used independently or as a host: Using H1, H2, H3, H4;

(2) When WisNode-UART WIFI EVB as a slave or plugged into other Arduino board: Using P4, P5, P6, P7

Serial Port connect methods:

(2) When WisNode-UART WIFI EVB used independently or as a host: RXD connect to CTX, TXD connect to CRX;

(2) When WisNode-UART WIFI EVB as a slave or plugged into other Arduino board: RXD connect to TX, TXD connect to RX;

WPS/MODE button: by default, mode_pin does not enable, short press the button can make the module into the WPS function, can be configured to have WPS function on the router;
Set the mode_pin enabled, then long press the key to maintain a low level state by the transparent transmission mode module will enter the AT command mode, let go restore high level, module exit AT command mode in transmission mode;

EASYCONFIG/DEFAULT button: press the button to enter a key configuration function, with our APP can configure the module to the designated router;
Long press the button is greater than 3S, the module will restore the factory settings;

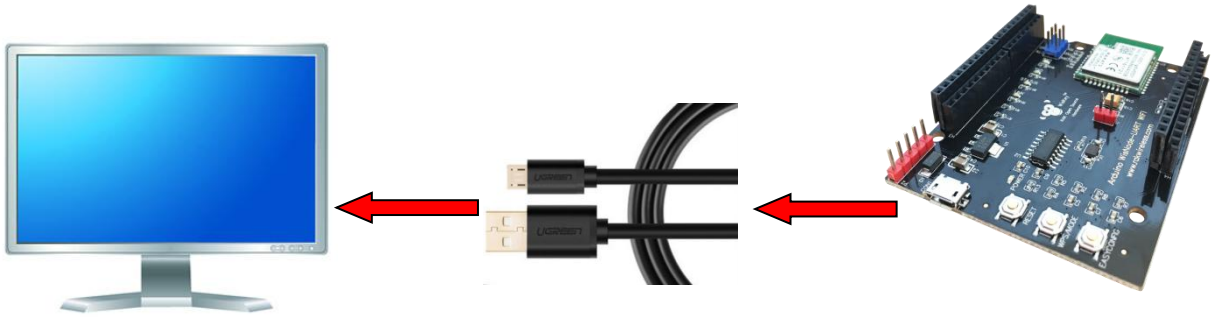


图 1-4 Arduino WisNode-UART WIFI EVB Linking Methods

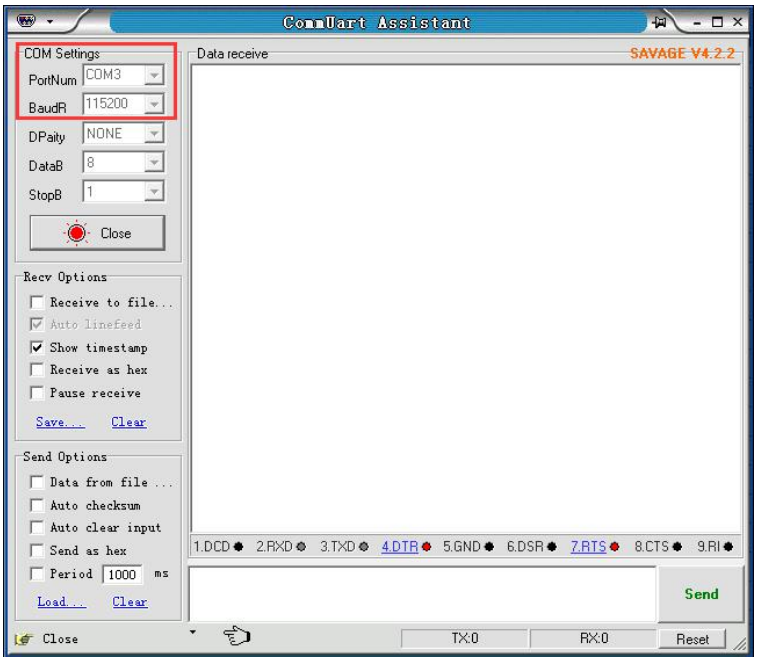
2. Use introduction

2.1 Transmission function test in AP mode

1.Connect the WisNode-Uart EVB to computer with the Micro USB line;

2.Open the serial debugging assistant，choose corresponding serial number and set the baud rate,as shown in figure 2-1;

3.After power module,automatically generated WiFi hotspots called RAK477_AP_XXXXXX(“XXXXXX”is the WiFi module MAC address after six bit),Use computer search and connect to the AP,as shown in figure 2-1-2;

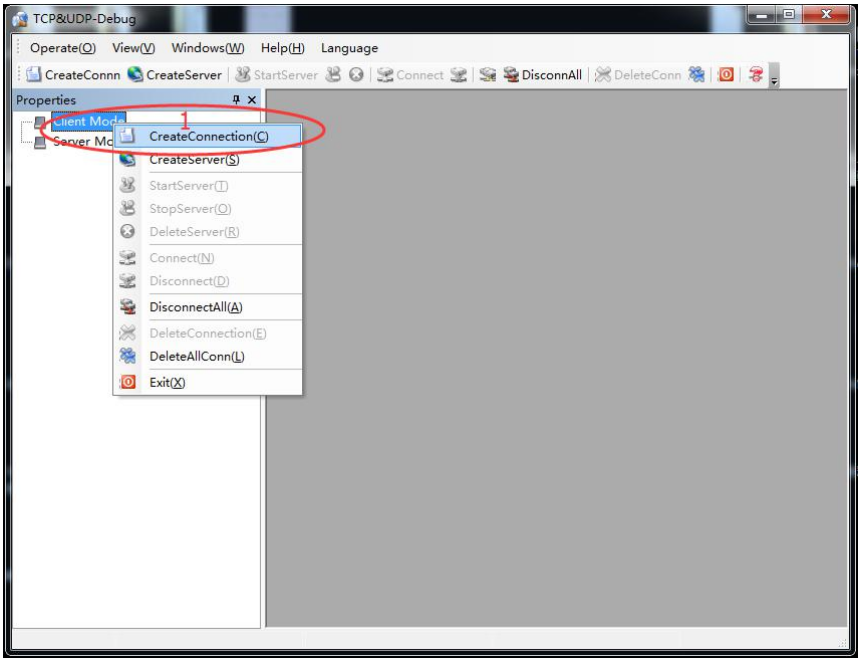


2-1-1 Serial debugging assistant interface diagram

2-1-2 Search module hotspot and connect

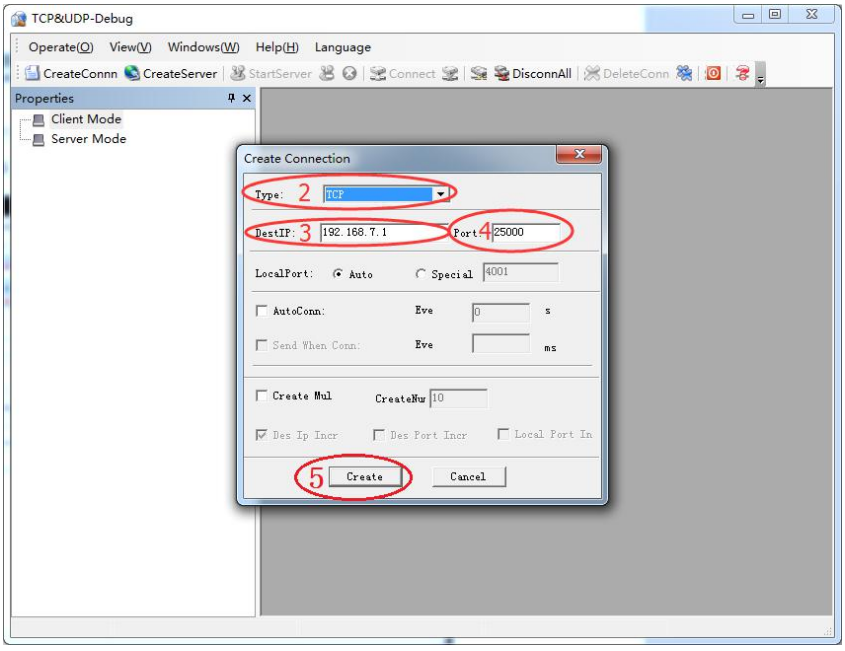
4.Open the TCP&UDP test tool,according to the following steps to create a TCP-Client,and complete the Socket two-way transmission experiment;

<1>Step 1：Right mouse click“Client Mode”，choose“CreateConnection”；



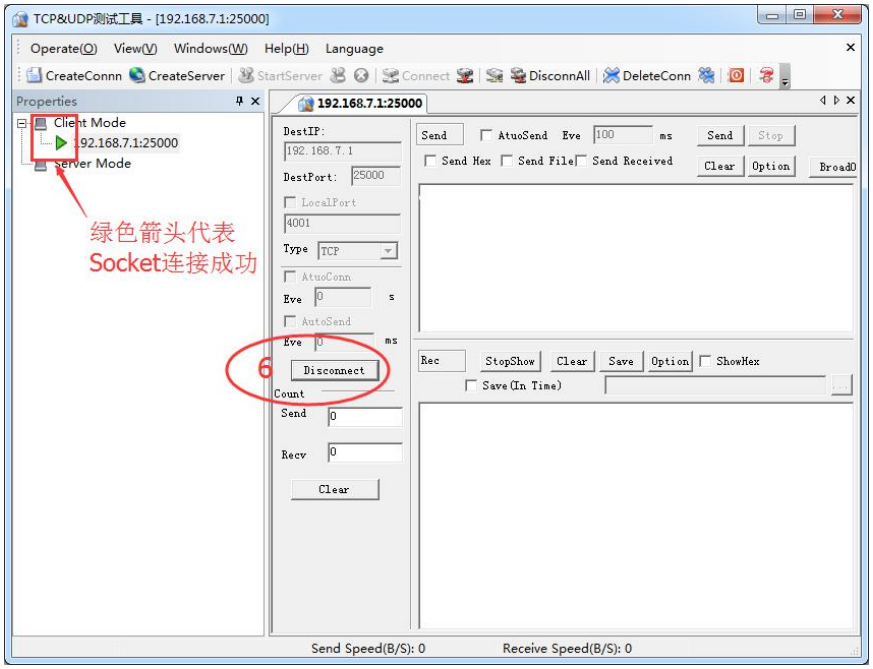
2-1-3

<2>Parameter setting：Step 2：Set the communication type“TCP”;Step 3：DestIP is set to “192.168.7.1”,this is RAK477 WiFi module IP address；Step 4：Port is set to 25000；Step 5：Click the“Create”，finished creating Client（Note： the reason for this is because the module in the factory default TCP-Server,the default IP address:192.168.7.1,port number default:25000）；



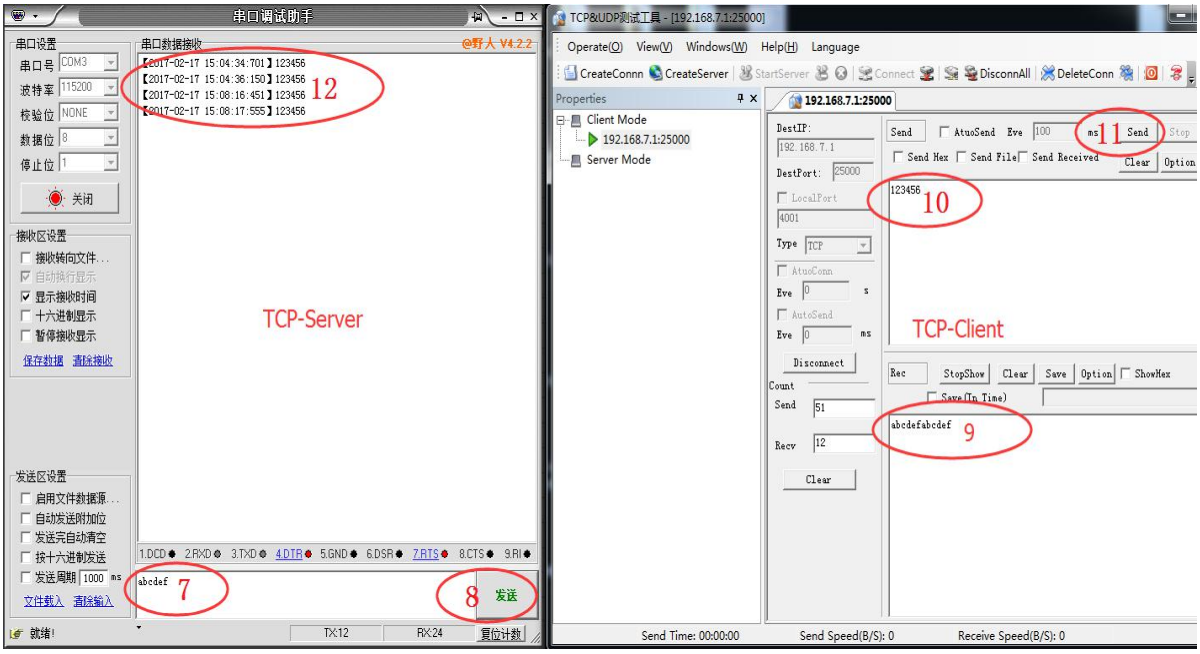
2-1-4

<3>Step 6： Click “Connect”， This icon state changed from 192.168.7.1:25000 to 192.168.7.1:25000 ， this indicates that the Socket connection is successful；



2-1-5

<4>Enter the character to be send at the TCP-Server end： Step 7： Enter what you want to send， like “abcdef”;Step 8：Click “Send”;Step 9：You can see that the TCP-Client receives the “abcdef”;Similarly，Enter the character to be send at the TCP-Client end;Step 10：Enter what you want to send,like“123456”；Step 11：Click “Send”； Step 12： You can see the “123456” character received at the TCP-Server.



2-1-5

2.2 Transmission function test in STA mode

2.2.1 Configure RAK477 module to router in AP mode

This part mainly introduces the parameter setting and network configuration of RAK477 module on WisNode-UART EVB by RAK IOT_V1.0 mobile phone

（Android APP Download address https://www.pgyer.com/rakiot）;

1.Download and install RAK IOT_V1.0 APP,And power up WisNode-Uart EVB;

2. Mobile phone search module AP hot and connected to confirm that the phone connected to the module hot after the installation of the installation of the APP, according to the following steps to start the configuration：

Step 1: mobile phone search module AP hot and connected to confirm the phone connected to the module after the hot open the installed APP;

Step 2: this example is the RAK477 module as an example to demonstrate, so the module type select "RAK477";

Step 3: click OK to complete the module selection;

Step 4: after entering the APP, you can see that APP has been searching for the MAC address as "60C5A8679318" RAK477 module;

Step 5: click “add device";

Step 6: click "next" to enter the AP configuration interface;

Step 7: fill in the router's name and password, and click the button of to search for the wireless network in the current environment;

Step 8: click "configure";

Step 9: I will connect the module to the wireless network name "link" router, you can see the interface prompts me to switch to the just configured "link" wireless network, click";

Step 10: connect the phone to the "link" network on which the module is configured;

Step 11: connect a wireless network, open APP again, see APP has searched the MAC address for the RAK477 module of 60C5A8679318 link wireless network, that we have just put the module to the designated router configuration;

2.2.2 Transmission test in STA mode

This part mainly introduced through RAK IOT_V1.0 mobile phone APP and STA mode of the RAK477 module through the transmission test;

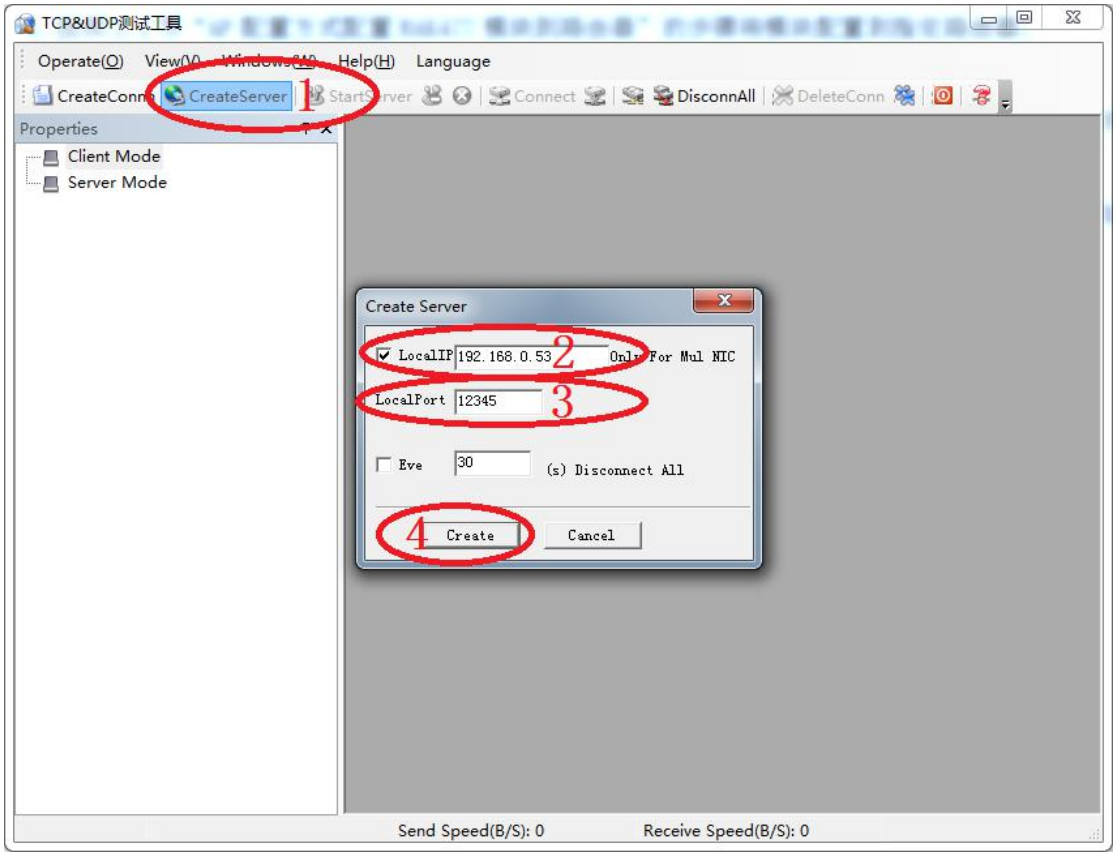
1.Configure the RAK477 module to the specified router in accordance with the 2.2 "AP configuration method for configuring the router to router".

2.Connect the WisNode-Uart EVB to a computer with Micro USB line.

3.The computer is also connected to the same router as the module, I previously demonstrated that the module will be configured to the wireless network called link router, so the computer is also connected to the link router;

4.Check the IP address of the computer at this time in the wireless network,and write down. I have a computer connected to the link network, IP address is 192.168.0.53;

5.To open the TCP&UDP test tool, follow the steps below to create a TCP Server:



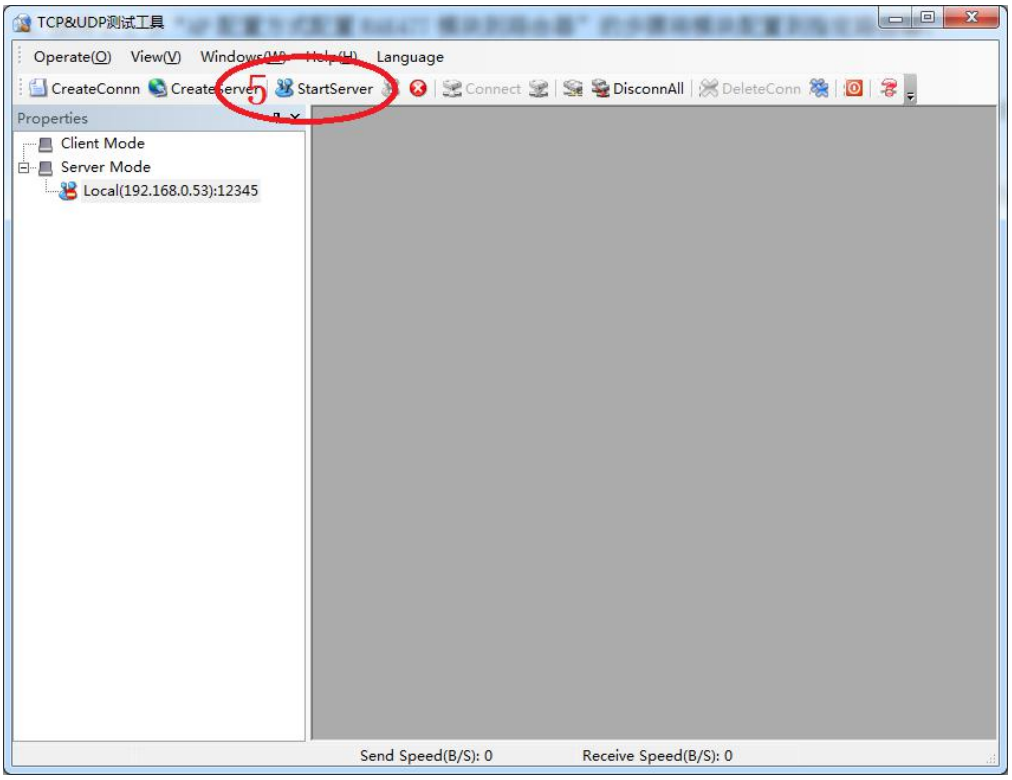
（1）Click “CreateServer”；

（2）“Tick” LocalIP，And modify the IP address for the current network IP address of the computer, I fill in the 192.168.0.53;

（3）I am here to set LocalPort as: 12345 (port number range 1024~65535);

（4）Click “Create”；

（5）Click "StartServer" to start the server so that the computer is ready to do the job;



6.Open the RAK IoT.V1.0 APP, follow the steps below to start the operation:

（6）After opening APP, you can see that APP has been scanned into our RAK477 device; click on this device Icon ;

（7）After entering the module parameter settings page, click the "transparent communication" option;

（7）Set the destination address, destination port, local port, because the mobile phone's goal is to create the TCP Server computer terminal, so the target address is: 192.168.0.53; target port: 12345; I am here to set the local port number: 2222 (port 1024~65535);

（8）Click on "connect"

（9）You can see that the TCP&UDP tool interface is changed from 

to 

，it indicate the Socket connection successful;

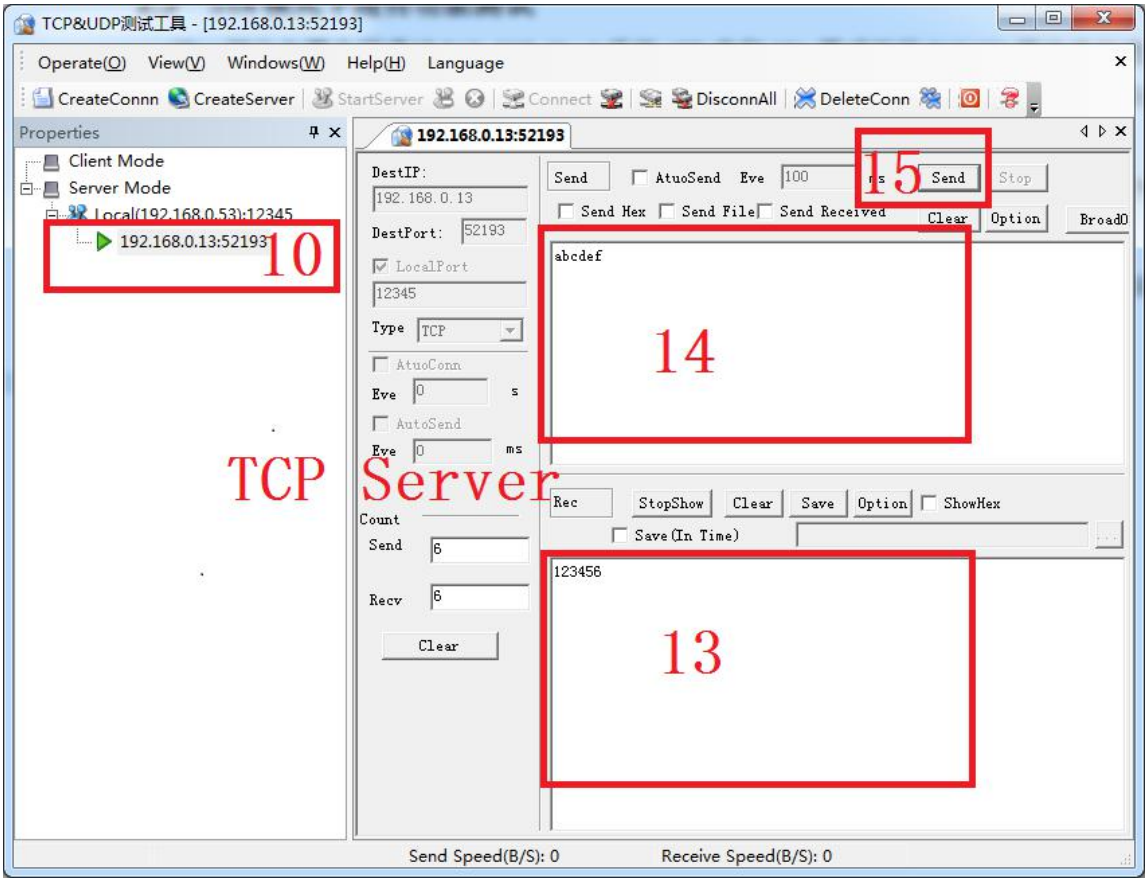
（10）Send character at APP sender: 123456;

（11）Click "send";

（12）you can see the computer side of the TCP&UDP tool to receive the phone to send the "123456";

（13）Click "Send" to send data;

（14）You can see the receiving end of the phone APP received a computer terminal sent “abcdef”;



Want to know more information about RAK477, please visit the official website to download Ruike Huilian details(**Official Website** http://www.rakwireless.com/en/download)

3. Modification Records

Edition	Author	Date	Modification content
V1.0	Wenyong.tang	2017/01/06	Creating document