RAK475 Use Guidance
UDP Communication in Transparent Transmission Mode

Shenzhen Rakwireless Technology Co., Ltd.

www.rakwireless.com

info@rakwireless.com

1. Creating UDP Server Communication in AP Mode

1.1 Overview

In the exemplary process in this section, we set the module to AP Mode and create a UDP Server; then we connect the PC(C) to the module's AP and create a UDP Client to communicate with the module.

1.2 Operating instructions

Tips:

1. This demo is done on the RAK475 development board.
2. The module in this demo is under factory settings.
3. When sending command to control the module via MCU, enter "\r\n" to complete the command;
4. When sending command to control the module via the serial port tool, press Enter to complete the command;
5. For ease of viewing, the information returned by the send command is presented in ASCII value. Special characters or Chinese characters in the returned information might result in the information being partially displayed or unreadable. In these cases, please view the returned information in hexadecimal form.

Please keep in mind the abovementioned points, for they will not be mentioned later.

1.3 Creating an AP

1. The module is in AP Mode under the default factory settings.
2. Refer to "**RAK 475 User Guide – Creating an AP Network via Web**" to create an AP.

1.4 Steps

1. Connect the PC to the AP created by the module. The default AP name of the module is the last six digits of the module's MAC address, as shown in Figure 1-1 RAK475_AP_XXXXXX. Once connected, open the browser and enter the module's default IP address "192.168.7.1" into the address bar and press Enter. As shown in Figure 1-2

Figure 1-1 Default AP Name of the Module

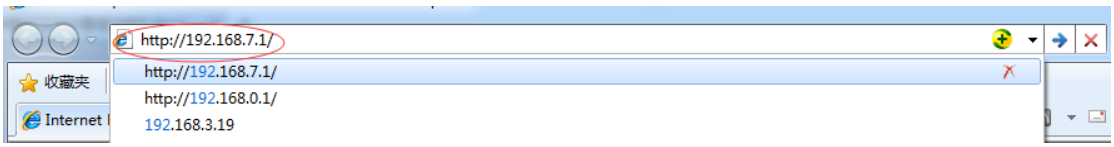

Figure 1-2 Open the Web Settings Page

2. After the web page is loaded, an authentication window will pop up as shown in Figure 1-3. Enter the default authentication information (User name：admin Password：admin) and click **OK**, and the page will jump to the module settings interface.

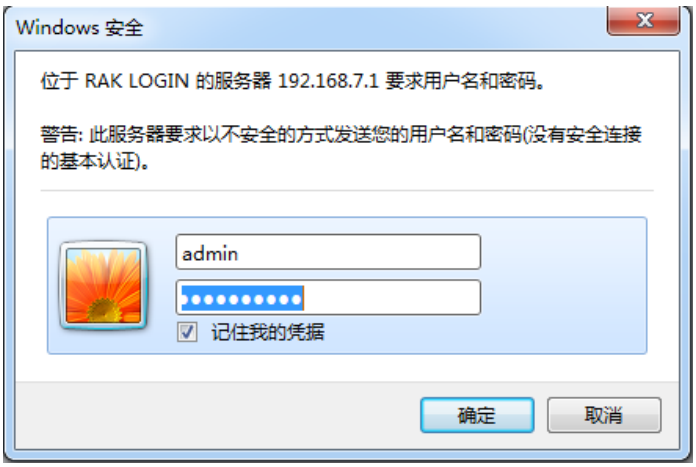

Figure 1-3 Module Authentication Page

3. After opening the **Web Settings** page, click the **IO Set** tab and you will enter the **Socket Settings** page where you can make the following parameter settings:

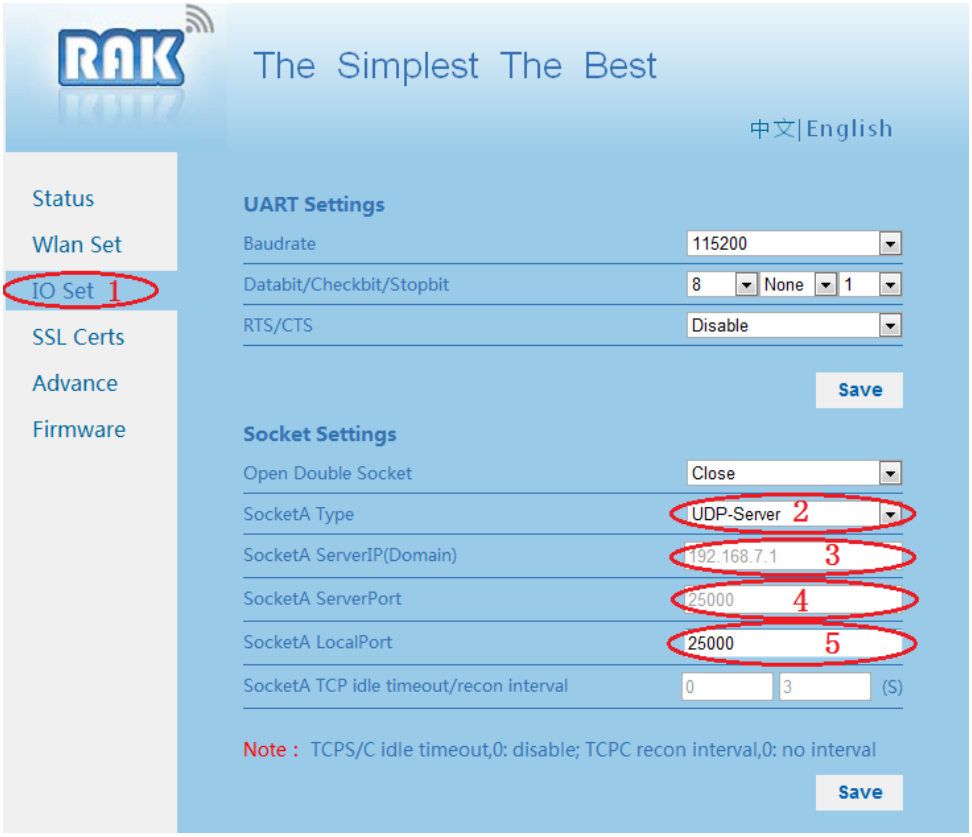

Figure 1-4 IO Set Page

1) Click the **IO Set** tab to enter the **Socket Settings** page
2) Set **Socket A Type** to **UDP-Server**
3) Set the **IP address of Socket A Server**. Since the module acts as the Server, the default IP address here is the module's IP address
4) Set the **port number of Socket A Server**. Since the module is the UPD Server, the default port number is **25000** (in the valid port number range 00000~65535)
5) Set the **local port number of Socket A.** Since the module is the UDP Server, the local port here is the same as that of the server

4. Connect the PC to the AP created by the module. Open the TCP/UDP Test tool and create a UDP Client and connect it to the UDP Server created by the module. The target IP address of the UDP Client is the module's static IP **(192.168.7.1)**，and the target port is the module's local port **(25000).**

5. The UDP Client sends a string to the UDP Server. In other words, send data from the test tool to the module (Figure 1-5)
   Send: abcd
   Return: 61 62 63 64

6. The UDP Server sends a string to the UDP Client. In other words, send data from the module to the TCP/UDP Test tool (Figure 1-6).
   Send: ABCD
   Return: ABCD

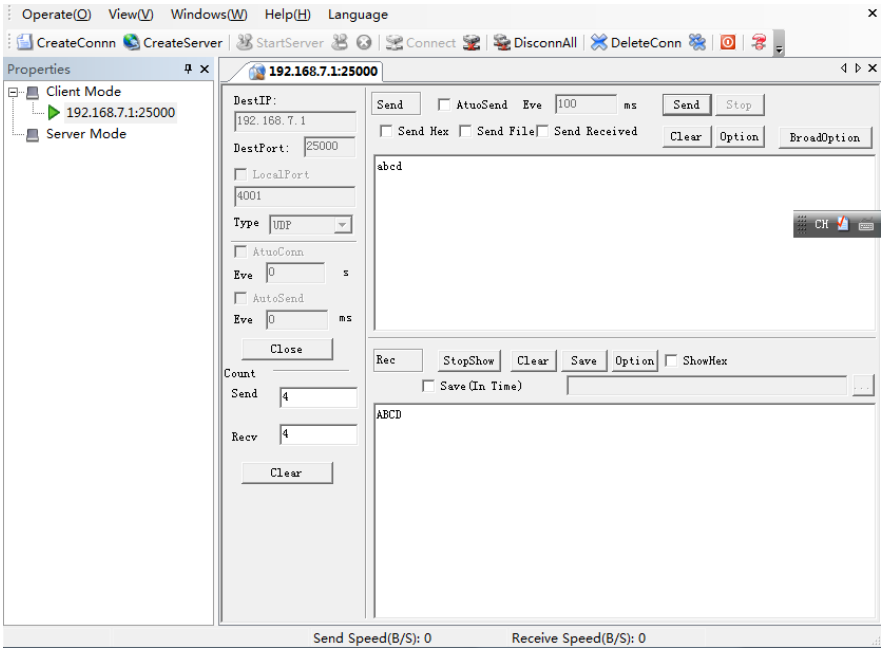

Figure 1-5 TCP/UDP Test Tool Data Sending and Receiving

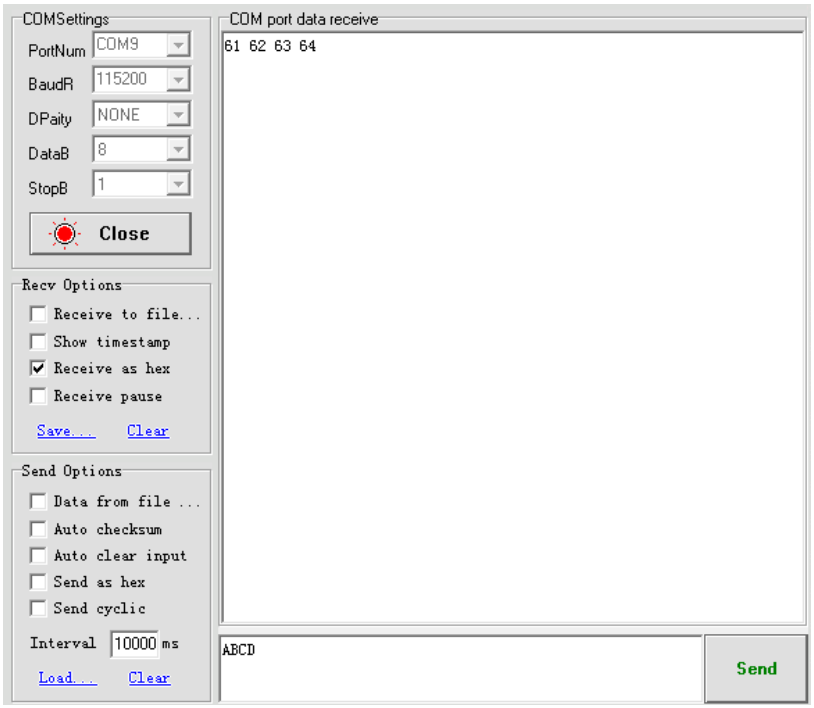

Figure 1-6 Module Data Sending and Receiving

2. Creating UDP Client Communication in STA Mode

2.1 Overview

In the exemplary process in this section, we connect the module to the router and create a UDP Client with the module. Then we create a UDP Server on the PC(C) and use it to transmit data.

2.2 Operating instructions

Tips:

1. This demo is done on the RAK475 development board.
2. The module in this demo is under factory settings.
3. When sending command to control the module via MCU, enter "\r\n" to complete the command;
4. When sending command to control the module via the serial port tool, press Enter to complete the command;
5. For ease of viewing, the information returned by the send command is presented in ASCII value. Special characters or Chinese characters in the returned information might result in the information being partially displayed or unreadable. In these cases, please view the returned information in hexadecimal form.

Please keep in mind the abovementioned points, for they will not be mentioned later.

2.3 Setting Module Parameters

1. Connect the PC to the router that the module will be connected to. Check and record the PC's IP address obtained on that network

2. Refer to the above **UDP Server** setting procedure, go to the **IO Set** page and make the following settings:

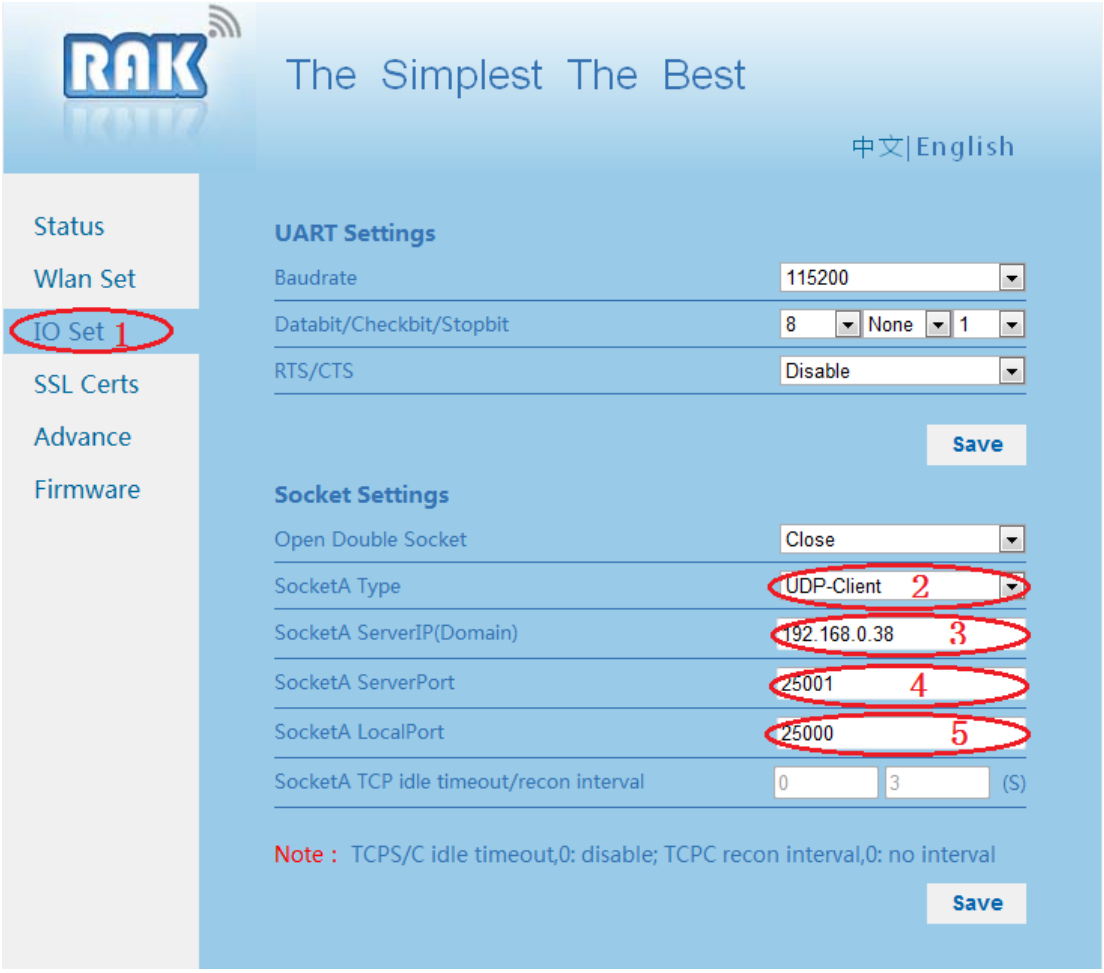

Figure 2-1 Socket Parameter Settings Page

1) Click **IO Set** to enter the **Socket Settings** page
2) Set **Socket A Type** to **UDP-Client**
3) Set the **IP address of Socket A Server** to the PC's IP address recorded above
4) Set the **port number of Socket A Server** to 25001 (or any other legitimate port number)
5) Set the **local port number of Socket A** to 25000 (or any other legitimate port number)

Click **Save** to save your settings after completing the above steps.

3. And then click the **Wlan Set** tab and configure the module to the router it needs to connect to. Refer to "**RAK475 User Guide – Configuring the Router via Web**" on how to do this.

2.4 UDP_Client Communication

1. Now the PC and module are on the same network. If the PC was switched to another network during configuration, switch it back. Make sure that the two are on the same network.

2. Open the TCP/UDP Test tool; create a UDP Server and set the target IP to 192.168.1.123 (the module's IP address, can be inquired by sending the "at+ipconfig" command in Command Assistant Mode). Set the local

port to 25001 (the same as the local port number just set via web) and set the target port to 25000 (the same as the target port just set via web)

3. The UDP Server sends a string to the UDP Client. In other words, send data from the TCP/UDP Test tool to the serial port tool (Figure 2-2).

   Send: abcd

   Return: 61 62 63 64

4. The UDP Client sends a string to the UDP Server. In other words, send data from the serial port tool to the TCP/UDP Test tool (Figure 2-3).

   Send: ABCD

   Return: ABCD

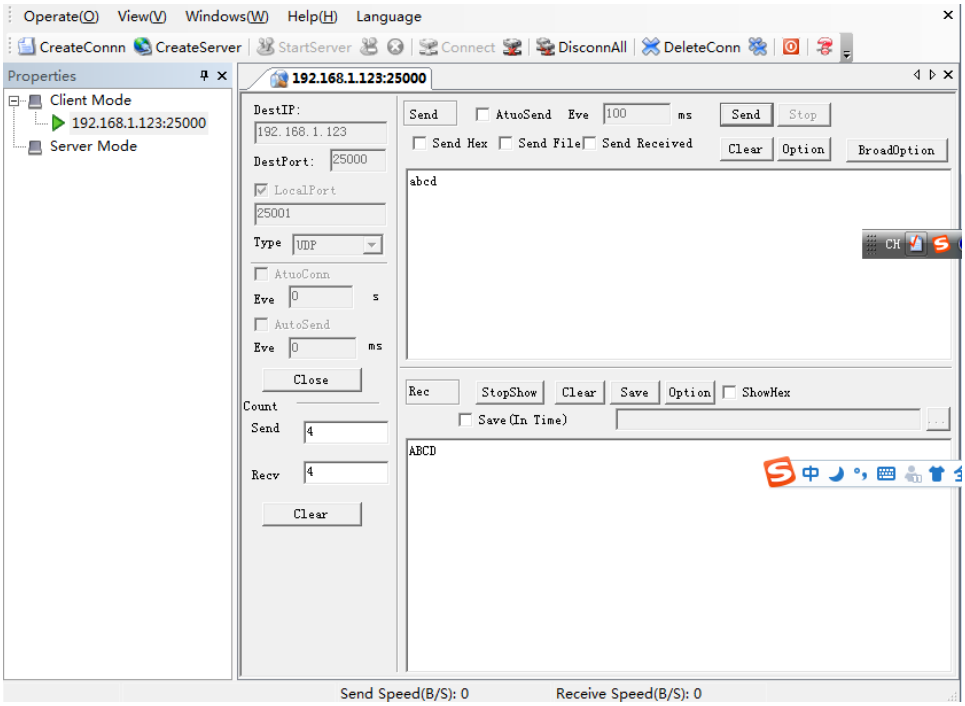

Figure 2-2 TCP/UDP Test Tool Data Sending and Receiving

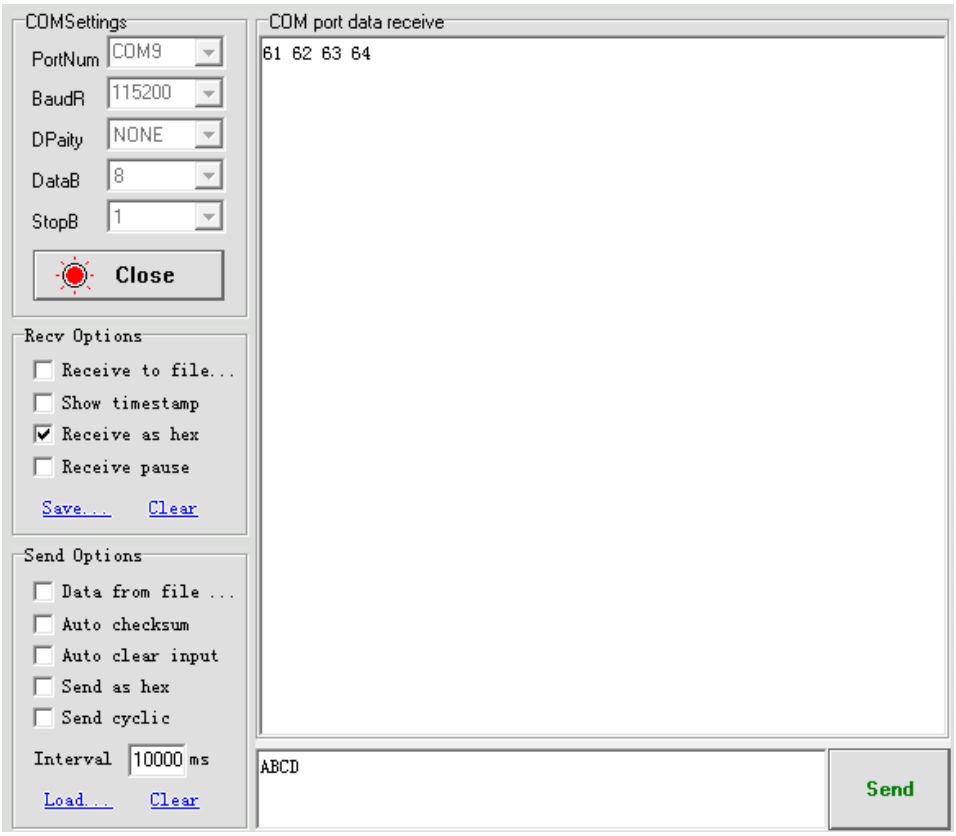

Figure 2-3 Module Data Sending and Receiving

Version

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