Realcom Agreement

Embedded device networking solutions

ZL DUI 20100402.1.0

Version

Revised record

record

Date	Version	Document No.	Content
2010-4-2	Rev.1	ZL DUI 20100402.1.0	Published
2018-5-6	Rev.1.1	ZL DUI 20100402.1.0	Added the realcom adaptive command

Ownership

CATALOGUE

1. Overview

This paper describes the details of the realcom protocol, and helps users realize the software that can communicate with the Realcom protocol equipment.

1.1. What is the realcom Protocol

Realcom protocol is an application layer protocol used in serial port networking system, similar to HTTP protocol used to achieve TCP based web page transmission, realcom protocol can solve the special problems encountered in serial port networking. After the user selects Realcom as the conversion protocol of the network device, the communication between the device and the PC will not be a transparent transmission protocol. The realcom protocol can be used to easily identify the device ID, keep alive time, and set serial port parameters (such as baud rate), which are not available in the transparent transmission protocol. It is also a function often used in serial port networking applications.

1.2. How do I set the realcom protocol

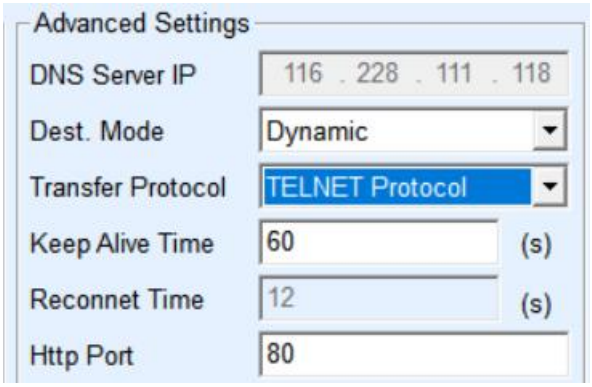

Figure 1 ID package format

In ZLVircom's device management, double-click the device to be set and find "conversion protocol" in the advanced options of the device setup dialog box. By default, the value is "none", which is the transparent transfer protocol, select it as the Realcom protocol and click the "Modify Settings" button.

2. RealcomAgreement content

2.1. Connection

The way to establish a TCP connection with a realcom device is exactly the same as the way to establish a common TCP connection, except that after the connection is established, the realcom device will immediately send its ID and other information to the computer, which is called the ID packet, as shown in Figure 2. Except for the 6-byte device ID, everything else is fixed.

Figure 2 ID package format

The user can uniquely identify which device the TCP connection comes from based on the device ID, because the device ID is unique and invariable.

2.2. Communication

The data sent by the computer to the device is transmitted transparently, that is, there is no need to add frame headers and tails, as shown in Figure 3.

Figure 3 Data format sent by the PC to the device

The data sent by the device to the computer will increase the frame header of FA0101.

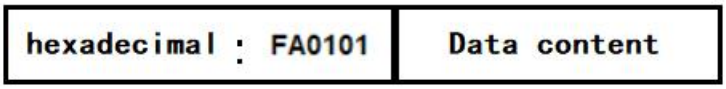

Figure 4 Data format sent by the device to the PC

2.3. Keepalive timing

When the device stops sending data to the computer, the device of the realcom protocol will send a keepalive timing packet to the computer at every keepalive timing time (which can be set by ZLVircom), as shown in Figure 5.

Figure 5 Keepalive timing data format

When the user's PC program receives a single byte of TCP data, and the content is 0, it should recognize it as keepalive timing data, rather than abnormal useful data, and should be discarded.

If the device is in TCP Server mode and the ZLVircom program is in TCP Client mode, ZLVircom also sends 2-byte data 0xfb 0xfa as a heartbeat packet within the keepalive time after the communication stops.

2.4. Serial port parameter self-adaptation

Realcom has the function of serial parameter self-adaptation, that is, the host computer sends some instructions to the device through the realcom protocol, so that the baud rate, data bit, check bit, flow control and stop bit of the device can be set.

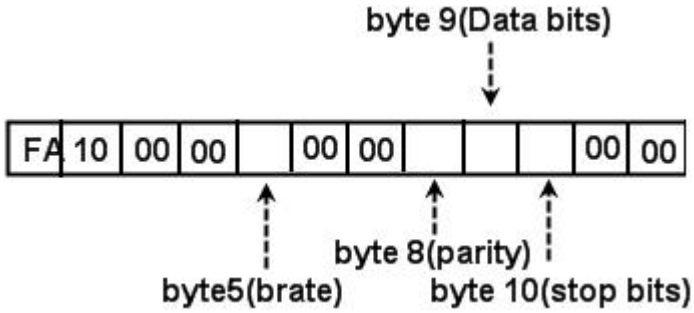

Figure 6 Serial port parameters set packet

The first two bytes are hexadecimal FA 10. The following bytes are set to 00 except for the fifth, eighth, ninth, and tenth bytes. 5, 8, 9, 10 are defined as follows:

The number of bytes	implication	content
5	Baud rate	Baud rate: Set the value table： 1200:0x04 2400:0x09 4800:0x12 9600:0x25 19200:0x4b 38400:0x96 57600:0xe1 115200:0xc2 230400:0x84 460800:0x08
8	Check bit	Check bit: Set value table: None :0x4e Parity :0x4f Odd check :0x45 Mark :0x4d Space :0x53
9	Data bit	Data bits: Set values table: 8 bits :0x08 7 bits :0x07 6 bits :0x06 5 bits :0x05

10	Stop bit	Stop bit: Set value table: 1 bit :0x00 2 bit :0x02

For example, send: fa 10 00 00 25 00 00 4e 08 00 00 00 00 00, set to 9600,8, N, 1; Send: fa 10 00 00 c2 00 00 53 08 00 00 00 00 00 00 00 00 00, set to 115200, 8, space, 1; Send: fa 10 00 00 c2 00 00 4e 07 02 00 00 Set 115200,7, N, and 2 stop bits.

Since TCP is a reliable transmission, the sent command is sure to be set successfully, and there is no need to check whether the setting is complete.

3. Practical implementation

3.1. Use the device ID

The device ID from the Realcom protocol or is unique, but using the realcom protocol alone, the user cannot match the ID to a specific device. In this case, the user can use the device management tool to find the ID of the specified device and map the ID to the device name.

Run the Start menu of widnows - "program -" ZLVircom. After you click the Device Management button, you can search for all devices on the LAN. For devices on the WAN, it may take more than 12 seconds to search. As shown in Figure 7, the user can match the ID to the device name.

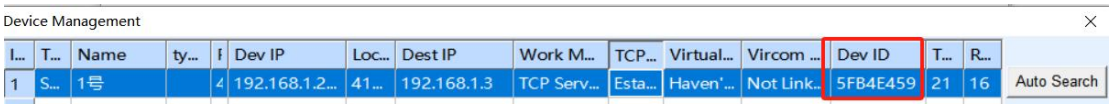

Figure 7 Data format sent by the device to the PC

4. After-sales service and technical support

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