

ZLAN7146/7146-5

Multifunctional serial port to WIFI

Serial Server

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ZLDUI 2017.9.13.1.0



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Table of contents

| | |
|--|--------------|
| 1.Overview..... | 5 |
| 2.Features..... | 7 |
| 1.1 General Software Features..... | 7 |
| 1.2 Advanced Software Features..... | 8 |
| 3.Technical Parameters..... | 8 |
| 4.Hardware Description..... | 10 |
| 5. WIFIFunction..... | 12 |
| 5.1. APmodel..... | 12 |
| STAmode..... | 15 |
| 5.3. 5.8Gusage of..... | 16 |
| 5.4. Wi-FiPair connection..... | 16 |
| 5.5. Antenna Selection..... | 16 |
| 6.Steps for usage..... | 17 |
| 6.1. Usage Overview..... | 17 |
| 6.2. Software Installation..... | 17 |
| 6.3. Parameter Configuration..... | 17 |
| TCPCommunication Test..... | twenty three |
| 6.5. Virtual Serial Port Test..... | 25 |
| Modbus TCPtest..... | 28 |
| 6.7. WebMode Configuration..... | 29 |
| 7.Working Mode and Conversion Protocol..... | 31 |
| 7.1. Virtual Serial Port Mode..... | 32 |
| 7.2. directTCP/IPCommunication Mode..... | 32 |
| 7.3. Equipment pairing method..... | 36 |
| 8.Equipment Debugging..... | 38 |
| 8.1. Network Physical Connections..... | 38 |
| 8.2. networkTCPconnect..... | 38 |
| 8.3. Data transmission and reception..... | 38 |

| | |
|--|----|
| 8.4. ZLVircomRemote Monitoring Data..... | 39 |
| 9. MODBUSAdvanced Features..... | 40 |
| 9.1. EnableModbusGateway..... | 40 |
| 9.2. StorageModbusGateway | 41 |
| 9.3. Disabling the storage feature..... | 42 |
| 9.4. Multi-host capability..... | 43 |
| 9.5. Multi-Host Parameters..... | 44 |
| 9.6. Non-storage multi-host..... | 45 |
| 9.7. Multi-PurposeIPNextModbus..... | 45 |
| 9.8. Slave in client mode..... | 46 |
| 10.Registration Packet and Heartbeat Packet..... | 47 |
| 10.1. Registration Packet..... | 47 |
| 10.2. Heartbeat Packet..... | 49 |
| 11.HTTPDClient Communication Functions..... | 51 |
| 12.WIFIChange parameters..... | 51 |
| 13.Device Management Library..... | 52 |
| 14.Modify parameters via serial port..... | 52 |
| 15.Remote Device Management..... | 52 |
| 16.Firmware upgrade method..... | 54 |
| 17.manyWIFIPParameter Configuration..... | 56 |
| 17.1. scenes to be used..... | 56 |
| 17.2. wifi.txtfile format..... | 57 |
| 17.3. Download method..... | 58 |
| 17.4. wifi.txtexample..... | 59 |
| 17.5. Precautions..... | 60 |
| 18.Ordering Information..... | 61 |
| 19.After-sales service..... | 61 |

1.Overview

ZLAN7146 Shanghai Zhuolan ZLAN7100, ZLAN7142, ZLAN7144 Another model launched later WiFi Serial port server. This serial port server can easily connect serial port devices to WiFi Wireless network, realizing wireless network upgrade of serial port devices. RS232 The interface supports full-duplex, uninterrupted communication; RS485 Embed 485 Lightning protection. WiFi support STA mode to connect to a wireless router, or as AP mode allows the phone to wait WiFi Device connection. For users who use virtual serial ports, you can use ZLAN ZLVircom The software realizes the virtual serial port, the original serial port PC The terminal software does not need to be modified. You can also use the configuration software Modbus TCP The agreement is direct and RTU Device connection, implementation WiFi Networking communications.



picture1 ZLAN7146

7146 Using the latest WiFi Chipset, with stronger WiFi Performance, higher cost performance, lower power consumption. 7146 use ARM M4 Core, main frequency 192MHz, using a real-time operating system. ZLAN7146-5 Support connection 5.8G WiFi Hotspot.

ZLAN7146 supports RS232/485/422 change WIFI, can be used as STA or AP mode. Does not contain an Ethernet interface (RJ45 for subsequent expansion purposes). ZLAN7146 has Modbus TCP, custom registration package, custom protocol conversion and many other advanced functions, which are very suitable for Internet of Things applications.

ZLAN7146 advanced features include: support Modbus change RTU, support multiple hosts to access simultaneously without conflict, support custom heartbeat package and registration package function, support http data submission and distribution functions, support TCP Server and client coexist. Supports the use of ZLWIR.COM The tool searches for devices across network segments and supports remote upgrades and web page custom downloads. AT instructions, no need to switch to AT configuration mode. ZLAN7146 TN supports P2P communication method.

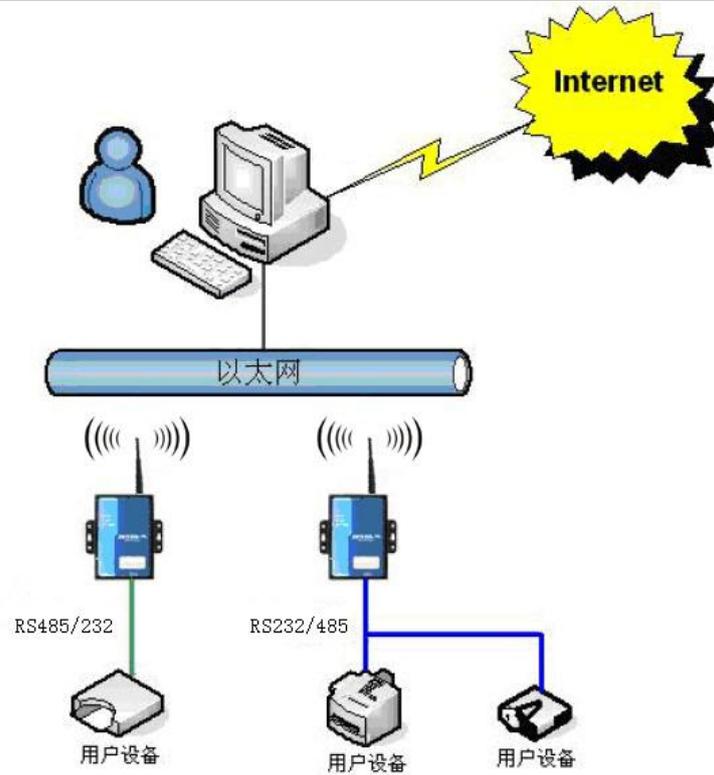
Wi-Fi Mode supports 802.11b/g/n, support WEP64/128, TKIP, AES, WPA, WPA2, WAPI encryption mode. ZLAN7146 Connect to the same computer AP When the computer and the module are connected,

9-24V The high-quality power supply design with wide voltage provides better adaptability to industrial environments; the DIN rail mounting accessories that can be equipped are suitable for DIN rail mounting. It has a variety of indicator lights, including operation indicator lights, data activity indicator lights, TCP Connection indicator, Wi-Fi Working module indicator light, Wi-Fi Connection indicator light, etc.

ZLAN7146 Applicable to:

- Power electronics, smart meters;
- Energy monitoring, building automation;
- Smart lighting, smart buildings, smart homes;
- Industrial automation systems;

Typical application connection is shown in the figure 2A as shown. The original serial port device and ZLAN7146 connect, then pass WIFI. Will ZLAN7146 connect to the wireless network. After that, any data sent by the serial port device will be transparently transmitted to ZLAN7146. Specified PC on board, PC The machine sends it to ZLAN7146. The data is also transparently transmitted to the serial port device.



picture2 ZLAN7146Network structure

2.Features

1.1General software features

7146Main features:

- 1 support802.11b/g/n.
- 2 Wide voltage power supply:9~24VPower supply range. Optional power input mode: industrial terminal block power supply mode or ordinary power adapter plug mode.
- 3 Support hardware flow controlCTS/RTS and software flow controlXON/XOFF.
- 4 supportRS232/RS485/RS422Three serial port types. Support hardware flow controlCTS/RTS and software flow control XON/XOFF.
- 5 Support in the system throughWi-FiNetwork upgrade program.
- 6 Support between modulesWi-FiCouplet.
- 7 supply4kindLINKIndicator light interface:LINKBlue meansTCPConnection establishment,LINKFlashing green indicates that

Ready to run, WIFIBLue indicates AP or STA Establish Wi-Fi connect, WIFIGreen means Wi-Fi Functions work normally. A variety of indicator lights can intuitively show the status of the device.

8 One-click search configuration.

8.1 WIFISearch: When Wi-Fi and PC or after the router establishes a link, ZLVircom The software searches and configures device parameters with one click. IP and PC They do not have to be in the same network segment.

9 support DNS Analysis, support as DHCP Client, as AP mode can also be used as DHCP Server. support TCP Server, TCP Client, UDP,

10 UDP Multicast. Server Supports up to 30 individual TCP Connect and communicate with the networking module; as Client You can connect to 7 Purpose IP. Support sending on device connection MAC Address function, convenient for cloud management of

11 devices. Support remote viewing of devices through software TCP Connection status, serial port data sending and receiving

12 status. Virtual serial port supports data monitoring function.

1.2 Advanced software features

ZLAN7146 middle 4 Indicates support for advanced soft features, including:

1 support Modbus Gateway function, support Modbus RTU change Modbus TCP. Can support storage type Modbus, can automatically collect device data and store it; it also supports non-storage mode Modbus Gateway. Supports multi-host

2 function: in a question-and-answer query mode, supports the same Wi-Fi Multiple computers on the network access the same serial port device at the same time.

3 Supports custom heartbeat package and registration package functions: It can facilitate communication with the cloud and device

4 identification. TCP Establishing a connection requires password authentication to ensure connection security.

5 support http Data submission and distribution functions can be used directly in the cloud http of GET Instructions interact with the serial port data of the device.

3. Technical Parameters

| shape | |
|------------------------|--|
| interface: | 485:Terminals;232:DB9;422:Terminals |
| power supply: | Positive inside and negative outside, standard power socket; two-wire terminal |
| size: | L x W x H =9.4cm×6.5cm×2.5cm |
| Serial port parameters | |
| electric: | TTL×1:RxD,TxD,GND, interface level 3.3V |

| | |
|----------------------------|--|
| Baud rate: | 1200~460800bps |
| Check Digit: | None, Odd, Even, Mark, Space |
| Data bits: | 5~9Bit |
| Flow Control: | RTS/CTS,DSR/DTR,XON/XOFF,NONE |
| wireless | |
| antenna: | Glue stick or suction cup antenna |
| Wireless Standards: | 802.11 b/g/n |
| Frequency Range: | 2.412GHz-2.484GHz |
| Transmit power: | IEEE 802.11n: 15dBm @HT20/40 MCS7 IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm @11MHz |
| Receiving sensitivity: | HT40 MCS7 : -70dBm@10% PER(MCS7) HT20 MCS7 : -73dBm@10% PER(MCS7) 54M: -77dBm@10% PER 11M: -89dBm@ 8% PER |
| hardware | |
| power supply: | 9~24V (24VTime50mA) |
| Power consumption: | Sleep Mode:3.9mA Working at full speed:95mA |
| Operating temperature: | - 20~70°C |
| Storage temperature: | - 45~125°C |
| Software Parameters | |
| Wireless working mode | STA/AP |
| Security Mechanism: | WPA/WPA2, WEP, TKIP and AES, WPS2.0, WAPI |
| Network protocol: | TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP |
| way of communication: | Socket、 Virtual Serial Port |
| User Configuration: | Webserver,WindowsConfiguration Toolzlvir.com |

4.Hardware Description

ZLAN7146 WIFI The front view of the serial port server is shown in the figure3shown.ZLAN7146Black anti-radiation SECC
There are two "ears" on the left and right to facilitate installation.

size:

Length × width × height =9.4cm×6.5cm×2.5cm



picture3 7146Front view

Panel Light:

1. ACT:ACT When the green light is on, it means that the data is normal.WIFIandRS232/485/422Transmission between.
ACT When the light flashes blue, it means data is coming fromRS232/485/422back toWIFIIf the data is short, the blue flashing time will be short, so please pay attention.
2. LINK:LINK A flashing green light indicates the device is operating normally.LINK When the light is blue, it meansTCP Connection established or inUDPmodel.
3. POWER: Indicates that the serial device server has been powered on.
4. WIFI:WIFI When the light is blue, it meansWIFIAsSTAEstablished with the routerWi-FiConnect or as

AP Sometimes Wi-Fi If the green light flashes, it is in AP mode; if it contains a green constant, it means STA The connection has been established; if 3 Destroyed in seconds, 1 Continuous flashing indicates STA The connection was not established.



picture4 7146 Front interface

The front interface of the serial port server is as shown in the figure 4. As shown, from left to right are: 1.

Network port: The network port is empty

2. R-, R+, T+, T-: in T+ for RS485A, T- for RS485B; If needed RS422 Time Connection this 4 Just one wire.

3. Terminal power supply +, -: voltage is 9~24VDC.

4. Power socket: Standard plug can be used 5.5mm (Inner core is positive), voltage 9~24VDC The back panel of the serial port server is as shown in the figure 5. As shown, from left to right are:



picture5 7146 The back

1. WiFi Antenna. You can choose an extended wire antenna, which is convenient for installation on the outside of a metal cabinet.

2. Reset Switch: Toggle Reset mode, it will reset Wi-Fi Working mode AP mode, SSID becomes ZLAN,

Password is empty. IP becomes 192.168.1.254. 3. Serial port adopts

standard DB9 Male connector: Line sequence as shown in the table 1:

surface1

| Serial number | name | Function |
|---------------|------|---|
| 2 | RxD | Serial port server receiving pin |
| 3 | TxD | Serial port server sending pin |
| 5 | GND | Ground |
| 7 | RTS | When flow control is enabled, this pin is0The serial device server will receive data from the serial device. |
| 8 | CTS | When flow control is enabled, this pin is0The serial port server sends data to the serial port device only when |

5. WIFI Function

Install the antenna and power on the module.

5.1. AP model

Factory default7146InAPmode, andSSIDfor"ZLANOn the laptopWi-FiIn the list, seeZLAN, and connect.



picture6searchZLANHot Spots

Once connected, click ZLVircom Click the "Device Management" button in the software, and you can see a line in the device list. 7146 equipment.

| 序 | 类型 | 设备名称 | P. | 设备IP | 本地... | 目的IP | 模式 | TCP连... | 虚拟串口... | 虚拟串口状... | 设备ID | TXD | RXD |
|---|----|-----------|----|---------------|-------|-------------|------------|---------|---------|----------|----------|-----|-----|
| 1 | 内网 | ZLDEV0001 | | 192.168.1.201 | 4196 | 192.168.1.3 | TCP Server | 未建立 | 未设置 | 未联通 | 87528987 | 0 | 0 |

[自动搜索](#)

picture7search7146equipment

Double-click this line to open the device parameter editing dialog box.

设备信息
网络设置
高级选项

虚拟串口

设备型号

设备名称

设备ID

固件版本

该设备支持功能

网页下载

域名系统

REAL_COM协议

Modbus TCP转RTU

串口修改参数

自动获取IP

存储扩展EX功能

多TCP连接

IP模式

IP地址

端口

工作模式

子网掩码

网关

目的IP或域名

目的端口

串口设置

波特率

数据位

校验位

停止位

流控

DNS服务器IP

目的模式

转化协议

保活定时时间 (秒)

断线重连时间 (秒)

网页访问端口

所在组播地址

启用注册包: ASCII

启用无数据重启 每隔 (秒)

启用定时发送参数 每隔 (分钟)

[更多高级选项...](#)

分包规则

数据包长度 (字节)

数据包间隔 (越小越好) (毫秒)

系统默认参数
保存默认参数
加载默认参数
修改密码
升级固件
重启设备
修改设置
取消

picture8Device parameter setting dialog box

You can also configure IP The address and baud rate will be introduced later. Please click "More Advanced Options" to configure this in the dialog box that opens. 7146 of Wi-Fi parameter.

WIFI参数

WIFI工作模

AP或STA SSID

加密类型

AP或STA密码

AP模式信道选择

DHCP服务器

网口WIFI互通

picture9 wifiParameter configuration

WIFIThe parameters have the following meanings:

| name | Optional Values | illustrate |
|---|--|---|
| WIFIwork <small>Operation Mode</small> | <ul style="list-style-type: none"> - wirelessAP:7146Make notes as hotspot Notebooks, mobile phones, etc. can be connected. For first-time configuration. - wirelessStation:AsSTAMode, 7146Will actively connect to a hotspot (such as such as a router). | |
| APor STA SSID | Less than or equal to32Byte string | AsAPWhen, thisSSIDis the name of the hotspot, asSTA mode, this is the pre-connected hotspotSSIDWhen fromSTACHange forAPPlease note that when modifying the modeSSIDOtherwise, it will be someSSIDconflict. |
| Encryption Type | <ul style="list-style-type: none"> - No encryption: No password mode - AES:AESEncryption, Password1~32 byte. - Automatic: Usually routers generally use TKIPandAESOne of the If the user is not sure which one it is, he can choose Dynamic mode. | Generally, when there is no password, select "No encryption", and when there is a password, select Just select "Automatic". |
| APor STApasword | The password length varies depending on the encryption type | When asAPmode, this password is the computer, mobile phone connection catch7146The password is used asSTAMode, this password is |

| | | |
|------------------------------|-----------------------------------|---|
| | | Is pre-connectedAPThe password for |
| APmodel Channel Selection | 1~11 | Only whenAPThis parameter is only valid when in mode.STAWay invalid. |
| DHCPClothes Server | Enable/Disable | Convenient asAPWhen the phone is connected to this hotspot, getIPWhen not in use,Recommended to closeDHPServer, so as not to Router generationDHCP allocation conflict. |
| net WIFI Pass | mouth mutual Enable/Disable | When communicating, work5.8Gmodel. Only for7146-5efficient. |

If7146AsAPThe modes are divided into password-protected and non-password-protected modes. For the non-password-protected mode, just select the "No Encryption" type; for the password-protected mode, it is recommended to useWEP128Encryption method, the password length is13byte.

passWIFI_WORKThe indicator light is1seconds flashing state to confirm the module is inAPstate.

STAmode

When asSTAIN mode, please enter the pre-connected router as shown below.SSID, encryption mode, password. If you don't know the encryption mode of the router, you can select "Auto" mode.

When asSTAMode,7146Automatically after power onAPHotspot connection. After the connection is establishedWIFI_LINKThe lights are on.

STAMode supports automatic reconnection, such asAPAAfter the hotspot restarts,7146Can automatically connect. If you can't connectAPHotspot, please confirm the encryption method, password,SSIDIs it correct, is the antenna installed, and is it within the signal range.

passWIFI_WORKThe indicator light indicates the dialing status (3Wait for seconds1seconds) to determineSTA Unconnected state; if constant thenSTACConnected status.



picture10 ZLAN7146Connecting to the router configuration

5.3. 5.8G Usage of

In the figure9In the "Network Port"WIFIIf you select Enable in "Intercommunication", it will work in5.8GMode. Currently only supports5.8G Connect to a router to supportSTAPattern5.8G.not support5.8GofAPmodel.

5.8GSupport connection5Channels:149,153,157,161,165ofWi-Fi.

5.4. Wi-FiConnect

7146support2Modules passedWi-FiThe configuration parameters for interconnection are as follows:

| parameter name | AsAPModules | AsSTAModules |
|--------------------|-------------------|-------------------|
| WIFIOperating mode | wirelessAP | wirelessStation |
| APorSTA SSID | Both are the same | Both are the same |
| Encryption Type | Both are the same | Both are the same |
| APorSTApasword | Both are the same | Both are the same |

When two7146passWi-FiAfter the connection is established,WIFI_LINKThe lights are on.

5.5.Antenna Selection

If you choose a module with a built-in antenna, you do not need an external antenna. If you need an external antenna, it must meet the following characteristics. ZLAN can provide an external antenna.

| | |
|-------------|-------------|
| impedance | 50ohm |
| Return loss | - 10dB(Max) |

| | |
|-----------------|------------|
| Connector Type | I-PEX |
| Frequency Range | 2.4~2.5GHz |
| VSWR | 2 (Max) |

If an internal antenna is required, IPEX The jumper resistor next to it is shorted to PCB On-board antenna.

6.Steps for usage

The following test suggests modules in STA Test in mode.

6.1.Usage Overview

please use ZLVircom right 7146 To configure. 7146 pass Wi-Fi After accessing the network, computers in the same LAN can zlvir.com The tool searches for and configures devices.

6.2.Software Installation

ZLVircom Available for devices IP Configuration of parameters such as , and creation of virtual serial port. If you do not need the virtual serial port function, you can download the installation-free version. Download address: <http://www.zlmcu.com/download.htm>

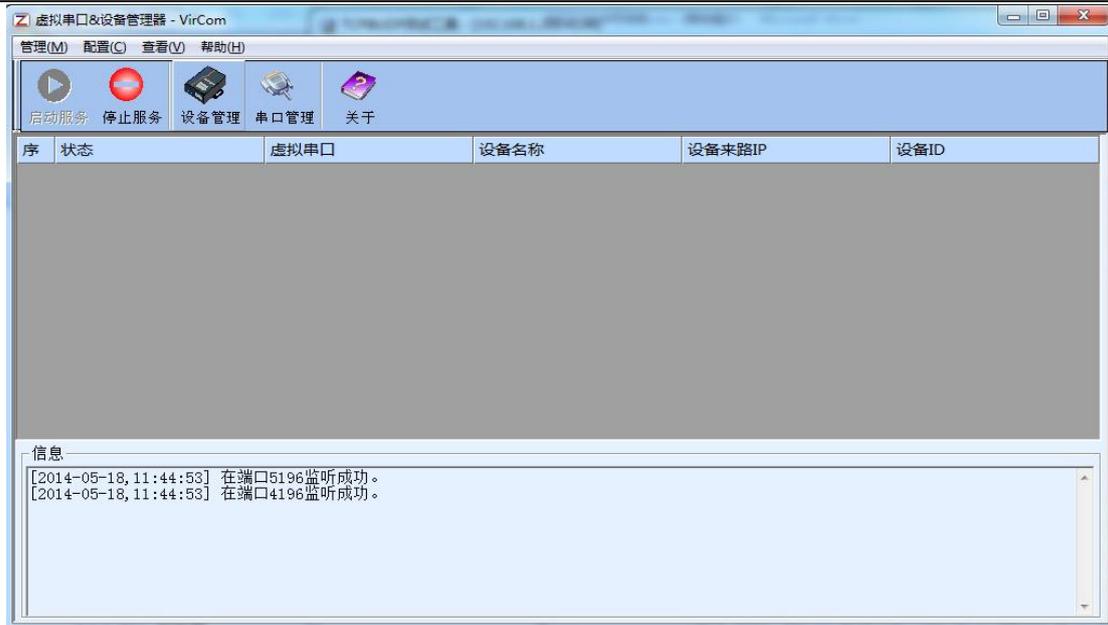
surface2 ZLVircom Version

| name of software | illustrate |
|--|---|
| ZLVircom Device Management Tool (Non-installation version) | The non-installation version does not include the virtual serial port function. |
| ZLVircom-Device Management Tool (Installation Version) | Installation version, which contains ZLVircom_x64.msi and ZLVircom_x86.msi. 64-bit operating system installation x64, 32-bit operating system installation x86 Version. |

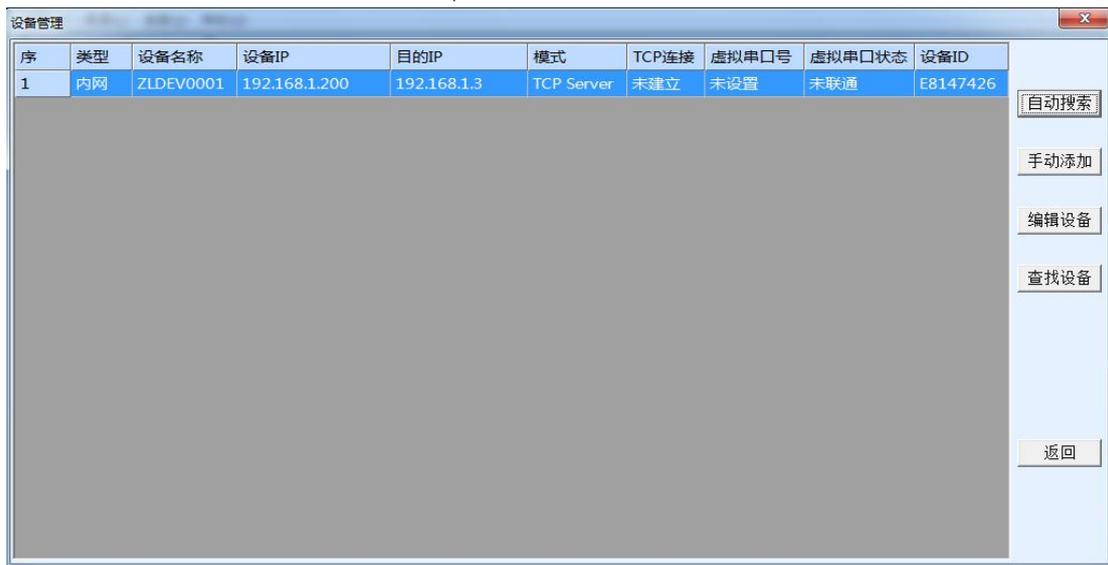
When installing, just follow the default prompts. After installation, it will start every time the computer starts zlvir.com, used to create a virtual serial port when booting.

6.3.Parameter configuration

ZLVircom After the installation is complete and the device hardware is connected, run ZLVircom Software as shown 11 As shown, then click "Device Management" 12 As shown. Use ZLVircom It is very convenient to search and configure device parameters in different network segments. ZLVircom All computers can be connected to the same switch.



picture11 ZLVircomMain interface



picture12Device List

You can see all the currently online devices in the device list. Click "Edit Device" to configure the parameters.



picture13Device parameters

In this interface, users can set the parameters of the device, and then click "Modify Settings" to set the parameters to the device. The data will not be lost when the power is off. The device will automatically restart.

The main configuration parameters here are: baud rate, data bit, check bit in the serial port settings; IP Address, subnet mask, gateway; sometimes, depending on the computer software, it is also necessary to configure the working mode of the serial port server.

The detailed meanings of other parameters are as follows:

surface3Parameter meaning

| parameter name | Ranges | meaning |
|---------------------------------|---|---|
| Virtual Serial Port | Virtual string not used or created mouth | You can bind the current device to a created virtual serial port. Please add it in the "Serial Port Management" on the main interface firstCOMmouth. |
| Device Model | | Only display the core module model |
| Device Name | Any | You can give the device a human-readable name, up to 9 Words Section, support Chinese names. |
| equipmentID | | Factory only ID, Unchangeable. |
| Firmware version | | Core module firmware version |
| The device supports Function | | Reference Table 4 Device supported features |
| IP model | Static, DHCP | The user can select static or DHCP (Dynamic acquisition IP) |

| | | |
|-------------------------|---|---|
| IPaddress | | Serial port serverIPaddress |
| port | 0~65535 | <p>The serial port server is inTCP ServerorUDPMODE monitoring Listen port. When acting as a client, it is best to specify the port as0port, It is helpful to improve the connection speed when using0The system will follow the port The machine is assigned a local port. The difference between this and the non-zero port</p> <p>yes:(1) The local port is0When the module is restarted andPCmachine Re-create a newTCPConnection, oldTCPConnection available</p> <p>The device may not be closed and multiple fake connections may exist.</p> <p>Generally, the host computer hopes to close the old connection when the module restarts; specify A non-zero port will close old connections.2) The local port is0hour, TCPRe-establishing the connection takes less time.</p> <p>The serial port server is inTCPIn client mode, it also acts as TCPThe server listens for connections on port.TCPClient The local port number used to connect to the server is "port +1".</p> |
| Operating mode | TCPServer mode,TCP Client mode,UDPmodel, UDPMulticast | <p>Set asTCPWhen the server is on, the serial port server waits for the computer Connect; Set toTCPWhen the client is Towards the goalIPThe specified network server initiates the connection.</p> |
| Subnet Mask | For example:255.255.255.0 | Must be the same as the subnet mask of the local area network. |
| Gateway | for example:192.168.1.1 | Must be the same as the local LAN gateway. |
| PurposeIPor domain name | | <p>existTCPClient orUDPIn this mode, data will be sent to the destination IPOr the computer indicated by the domain name.</p> |
| Destination Port | | <p>existTCPClient orUDPIn this mode, data will be sent to the destination IPThe destination port of the</p> |
| Baud rate | 1200,2400,4800,7200, 9600,14400,19200, 28800,38400,57600, 76800,115200,230400, 460800 | Serial port baud rate |
| Data bits | 5,6,7,8,9 | |
| Check Digit | None, Even, Odd, Mark, Empty grid | |

| | | |
|---------------------------------|--|--|
| Stop bits | 1,2 | |
| Flow Control | No flow control, hard flow control CTS/RTS、 Hard flow control DTR/DCR、 Soft Fluidics XON/XOFF | Only forRS232Serial port valid |
| DNSserver | | When the purposeIPWhen describing by domain name, you need to fill in thisDNSClothes ServerIP.existIPMode isDHCPNo need to specifyDNS server, it will automaticallyDHCPServer acquisition. |
| Purpose Mode | Static, dynamic | TCPIn client mode: After using static destination mode, the device Connect to server continuously5The device will automatically restart after the first failure. |
| Conversion Protocol | NONE , Modbus TCP<->RTU,Real_COM | NONEIndicates that data forwarding from the serial port to the network is transparent; Modbus TCP<->RTUwillModbus TCPAgreement Direct Convert toRTUAgreement, convenience andModbus TCPprotocol Cooperate;RealCOMFor compatibility with old versionsREAL_COM protocol is designed for virtual serial port mode, but When using a virtual serial port, you do not necessarily need to selectRealCom protocol. |
| Keep-alive time | 0~255 | Heartbeat interval.1) Select1~255If the device is AtTCPIn client working mode, it will automatically Scheduled time"TCPThis ensures the link TCPValidity. Set to0WhenTCPHeartbeat. (2) Set as0~254When the conversion protocol is selected as REAL_COMProtocol, every keep-alive timer, the device A length of1Contents0data, to achieve RealcomThe heartbeat mechanism in the protocol. Set to255There will be no realcomHeartbeat. (3)Set as0~254When the device Work onTCPClient, the device will keep alive every time Will send device parameters to the destination computer. Set to255Time will No parameter sending function, remote device management can be achieved. |
| Disconnection reconnection time | 0~255 | InTCPIn client mode, if the connection is not successful, "Disconnection reconnection time" to re-initiate theTCPeven |

| | | |
|-----------------------------|---------|---|
| | | <p>can be 0~254 seconds, if set 255, then it means Never reconnect. Note the first TCP connection (such as Hardware power on, through zlvir.com Software restarts the device, no data The light is on) will usually be connected immediately, only after the first connection fails It will wait for the "disconnection reconnection time" before trying again, so The "reconnection time" will not affect the normal operation of the network and server. The connection establishment time.</p> |
| Web access port | 1~65535 | The default is 80 |
| Multicast address | | UDP Used for multicast |
| Enable Registration Package | | <p>when TCP When the connection is established, the registration packet is sent to the computer. After enabling the registration package, you must select realcom Protocol. Support TCP Servers and TCP Client mode.</p> |
| Packet length | 1~1400 | <p>One of the serial port framing rules. The serial port server receives the long After receiving the data, the received data is sent to the network as a frame superior.</p> |
| Packet Interval | 0~255 | <p>Serial port framing rule 2. When the serial port of the serial server receives data If a pause occurs and the pause time is greater than this time, the received The received data is sent to the network as a frame.</p> |

The functions supported by the device are explained as follows:

surface4 Device supported features

| name | illustrate |
|--|--|
| Web Download | Supports controlling serial port output commands through web pages, only the suffix is W The products have Function. |
| Domain Name System | Purpose IP It can be a domain name (for example, www server address) . |
| REAL_COM protocol | A non-transparent serial port server protocol suitable for multi-serial port servers Internet Bind the virtual serial port. Because the protocol contains the device MAC So the address is Helps the host computer to identify the device. Generally, it can be ignored. |
| Modbus TCP change RTU | Only model 3 Position 4 This function can be achieved Modbus TCP change RTU. It also supports multi-host functionality. |
| Modify the parameters of the serial port | Support serial port AT Instructions to configure and read device parameters. |

| | |
|-----------------------------|---|
| Automatic acquisitionIP | supportDHCPClient Protocol |
| Storage expansionEXFunction | Subsequent expansion |
| manyTCPconnect | AsTCPThe server supports more than1 individualTCPconnect. |
| IOPort Control | Model No.3Position4Models support any custom instructions to control8 individualIIOOutput. |
| UDPMulticast | UDPMulticast |
| Multi-PurposeIP | AsTCPsupport simultaneous connections when client is connected7PurposeIP. |
| Proxy Server | Supports proxy server functionality (requires specific models). |
| SNMPFunction | supportSNMPchangeModbus RTUProtocol. Only the suffix -SNMPOnly support This function. |
| P2PFunction | Support byP2PThe traversal technology enables access to devices in any network. Suffix:NThe models support this function. |

TCPCommunication test

After configuring the device parameters, you can use the serial port tool,TCPDebugging toolsTCPConnect communication test.

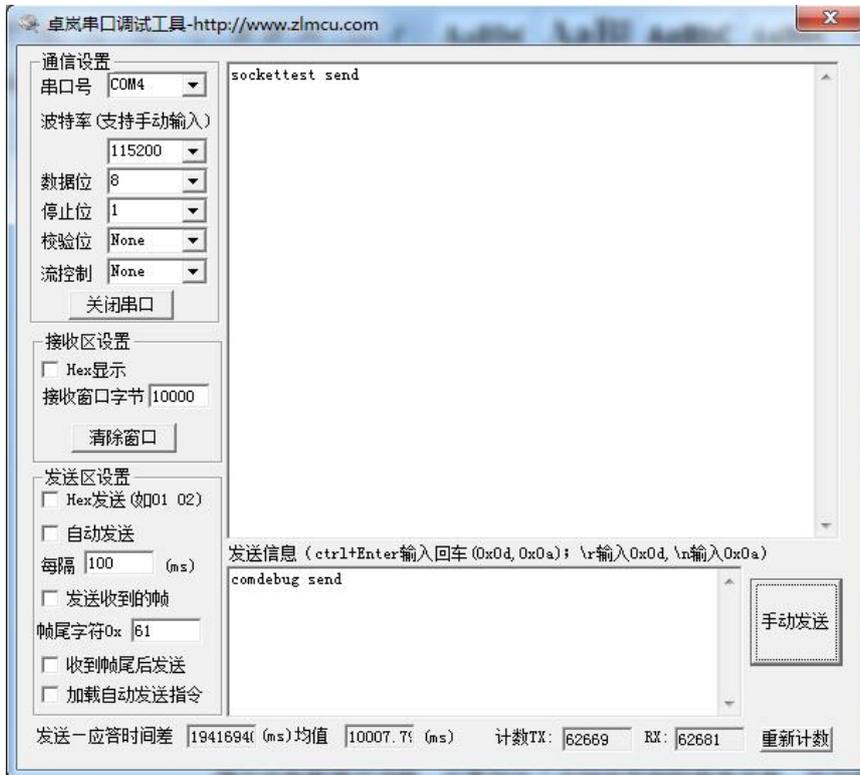


picture14 TCPCommunication diagram

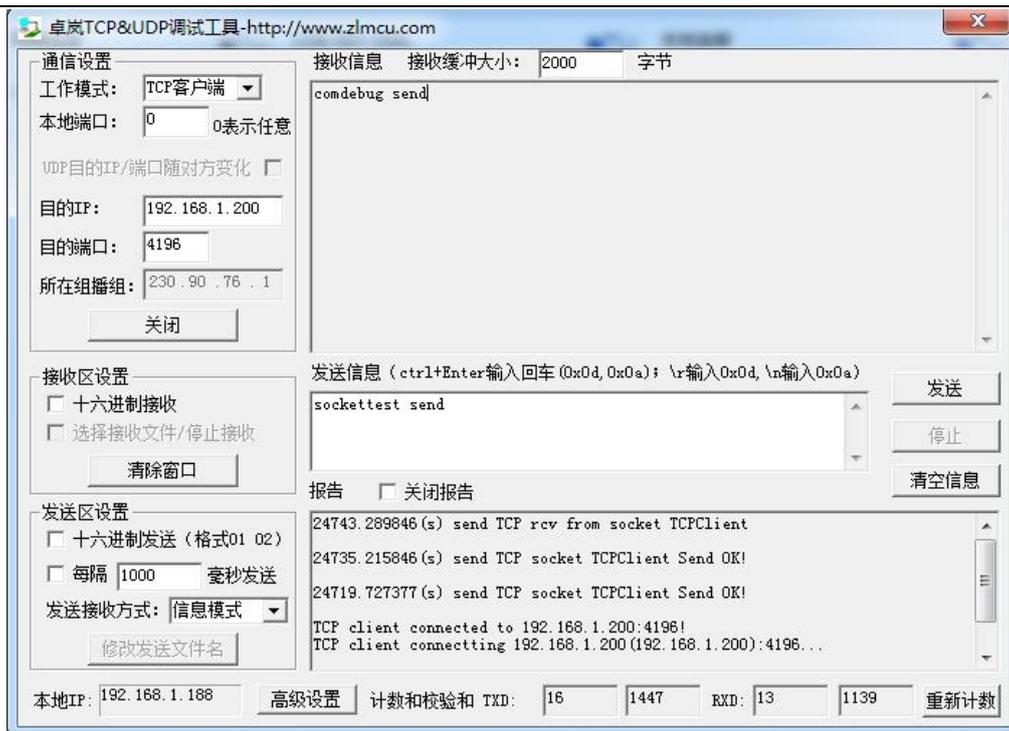
Assume nowPCMachineCOMmouth(USBchangeRS232cable) and the serial port of the serial server, then open ZLComDebug (<http://www.zlmcu.com/download/Comdebug.rar>)Serial port debugging assistant, and open the correspondingCOMMouth map 15; OpenTCP & UDPDebug AssistantSocketTest (<http://www.zlmcu.com/download/SocketTest.rar>), and asTCPClient mode, fill in the purpose IPFor serial port serversIP(Currently192.168.1.200), the destination port is4196, then click the "Open" button 16.existSocketTestEnter "socket send"Click Send, and the data will be sent through the serial server. Wi-Fi Go toRS232interface, and then sent toZLComDebug, then inZLComDebugDisplayed in

Come here,ZLComDebugEnter "Comdebug send", click Send to send tosocket test, and display it.

This demonstration shows the serial port server's serial port conversionWi-Fi,Wi-FiTransparent forwarding function of serial port data.



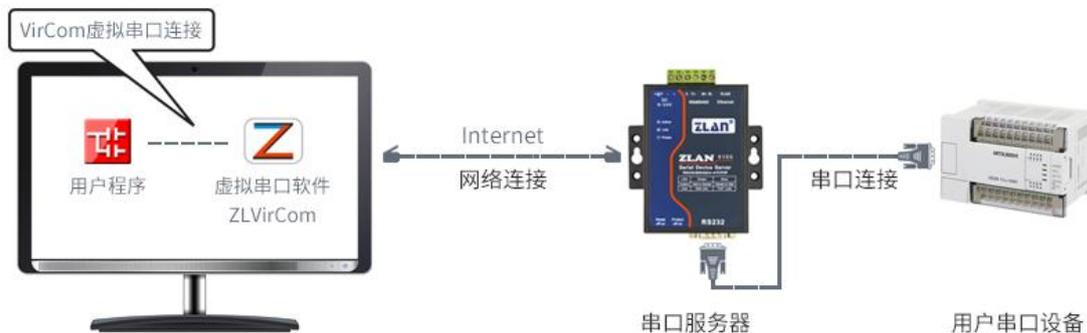
picture15 comdebugSend and receive interface



picture16 sockettestSend and receive interface

6.5.Virtual serial port test

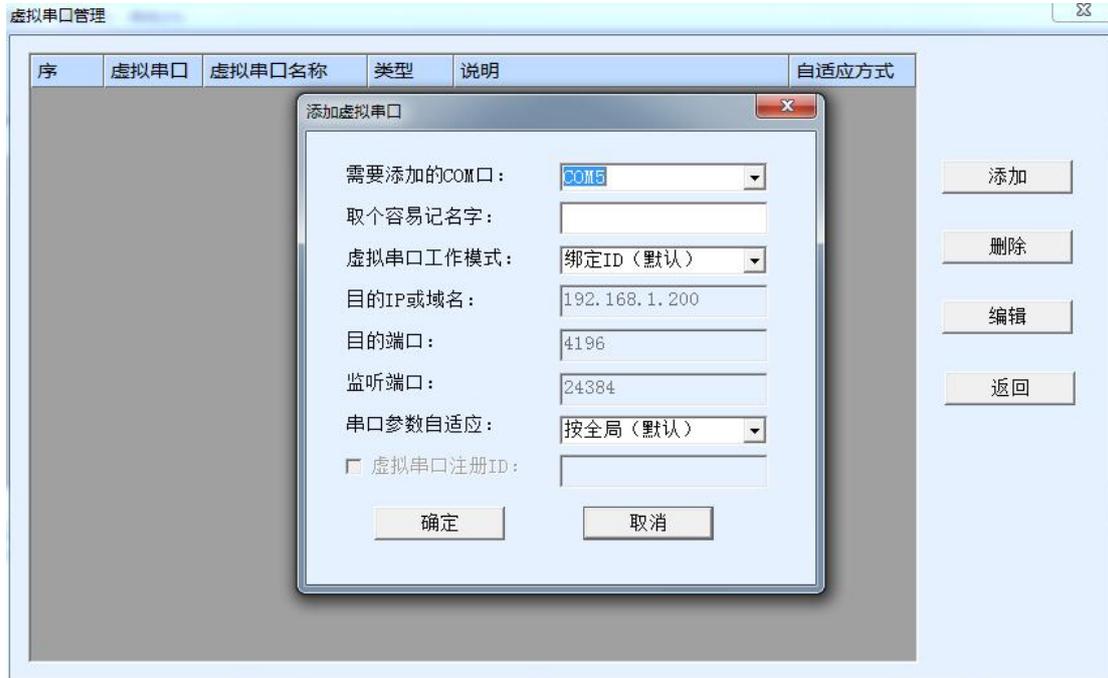
picture14middleSocketTestis throughTCPTo communicate directly with the serial port server, in order to enable the user's already developed serial port software to communicate with the serial port server, it is necessary to add a virtual serial port between the user program and the serial port server.17As shown,ZLVircomand user programs run on one computer,ZLVircomVirtual OneCOMMouth, let thisCOMThe port corresponds to this serial port server. When the user program opensCOMCommunication can be done through ZLVircom-Serial port server - send to the user's serial port device. The following demonstrates the operation steps:



picture17The role of virtual serial port

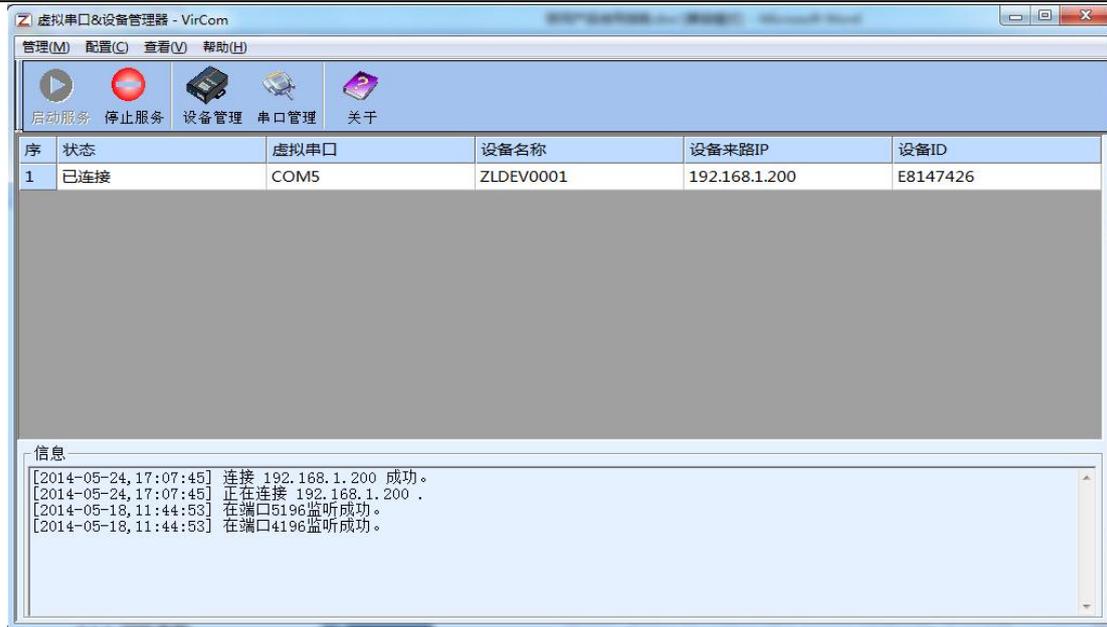
ClickZLVircomClick "Serial Port Management" on the main interface, then click "Add" and select AddCOM5,in

COM5The computer didn't exist.COMmouth.



picture18Add a virtual serial port

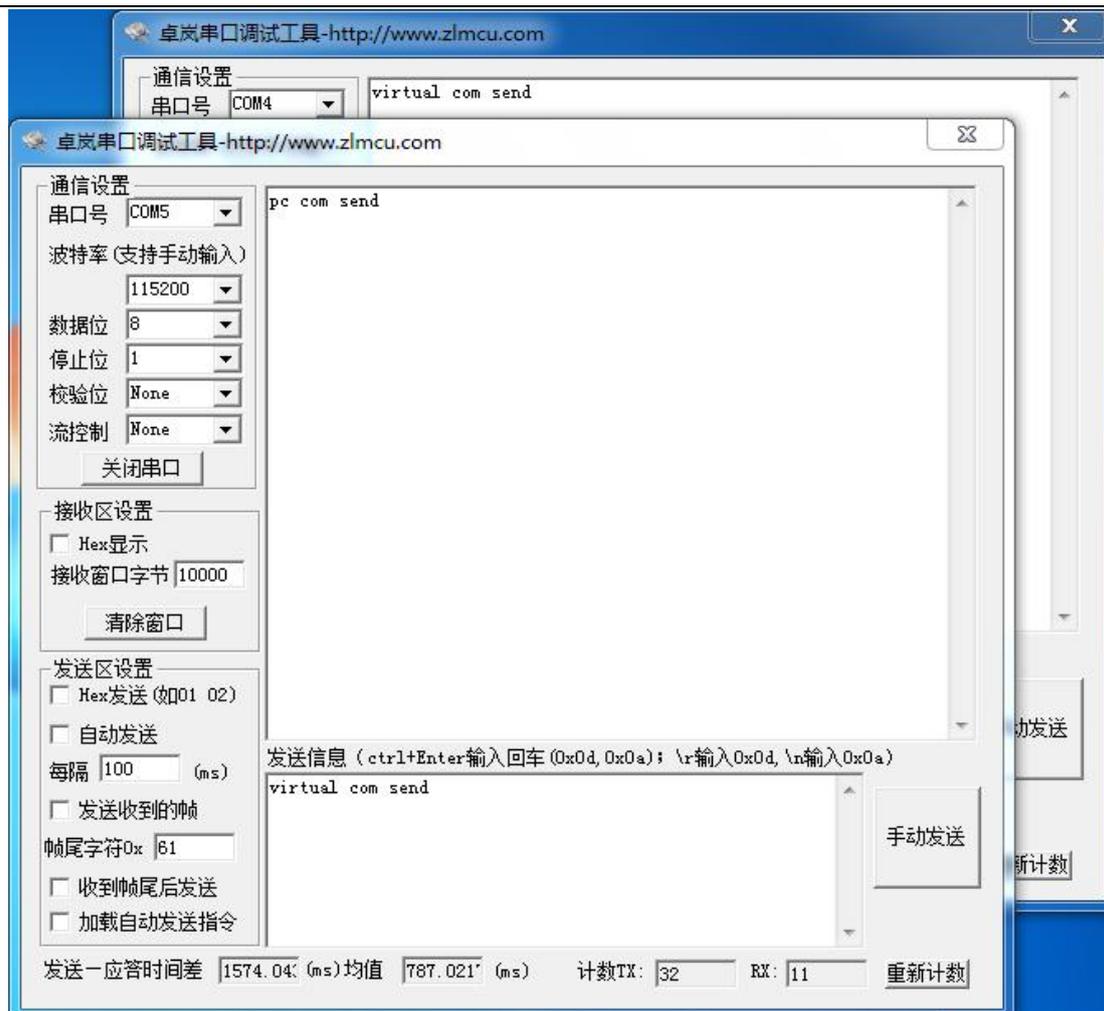
Then go to Device Manager and double-click the requiredCOM5Bound devices.13As shown, select in the "Virtual Serial Port" list in the upper left cornerCOM5. Then click "Edit Settings". and returnZLVircomYou can see the main interface ofCOM5Already andIPfor192.168.1.200The device is connected. You can now useCOM5replace SocketTestto communicate.



picture19The virtual serial port has been connected

OpenZLComdebugTo simulate the user's serial port program, openCOM5(The virtual serial port above), open another ZLComdebugTo simulate a serial port device, openCOM4(Hardware serial port).COM5The link for sending data is as follows:COM5-ZLVircom-Serial Serverwifi-Serial port server serial portCOM4.on the contrary, COM4arriveCOM5It can also transfer data:COM4-Serial Device ServerSerial Port-Serial Device Serverwifi-ZLVircom-COM5As shown in the figure20It shows the data sending and receiving of both parties.

IfCOM4If it is changed to user serial port device,COM5It can realize communication with user equipment.



picture20Communicate via virtual serial port

Modbus TCPtest

By default, the serial port and Wi-Fi Network data is transmitted transparently. Modbus TCP change RTU, you need to select the conversion protocol as "Modbus TCP--RTU, as shown in the figure twenty one. As shown. At this time, the device port automatically changes to 502, at this time the user's Modbus TCP tool is connected to the serial server IP of 502 Port, sending Modbus TCP command will be converted to RTU. The command is output from the serial port. For example, a serial port server Wi-Fi receive 00 00 00 00 00 06 01 03 00 00 00 0a of Modbus TCP command, the serial port outputs 01 03 00 00 00 0a c5 cd. Note: The serial port may send multiple 01 03 00 00 00 0a c5 cd instruction, this is because the default Modbus If the storage mode is used, query commands will be automatically polled. How to switch to the non-storage mode will be explained later.



| | |
|----------|---------------|
| 高级选项 | |
| DNS服务器IP | 8 . 8 . 4 . 4 |
| 目的模式 | 动态 |
| 转化协议 | Modbus_TCP 协议 |
| 保活定时时间 | 60 (秒) |
| 断线重连时间 | 12 (秒) |
| 网页访问端口 | 80 |

picturetwenty oneEnableModbus TCPFunction

If the user Modbus TCP The software is used as a slave (Slave), you need to change the working mode to client based on the conversion protocol. IP Change to Modbus TCP Computer where the software is located IP, the destination port is 502, as shown in the figure twenty two shown.



| | |
|---------|---------------------|
| 网络设置 | |
| IP模式 | 静态 |
| IP地址 | 192 . 168 . 1 . 223 |
| 端口 | 0 |
| 工作模式 | TCP 客户端 |
| 子网掩码 | 255 . 255 . 255 . 0 |
| 网关 | 192 . 168 . 1 . 1 |
| 目的IP或域名 | 192.168.1.189 本地IP |
| 目的端口 | 502 |

picture22 Modbus TCP Be a client.

6.7. WebMode Configuration

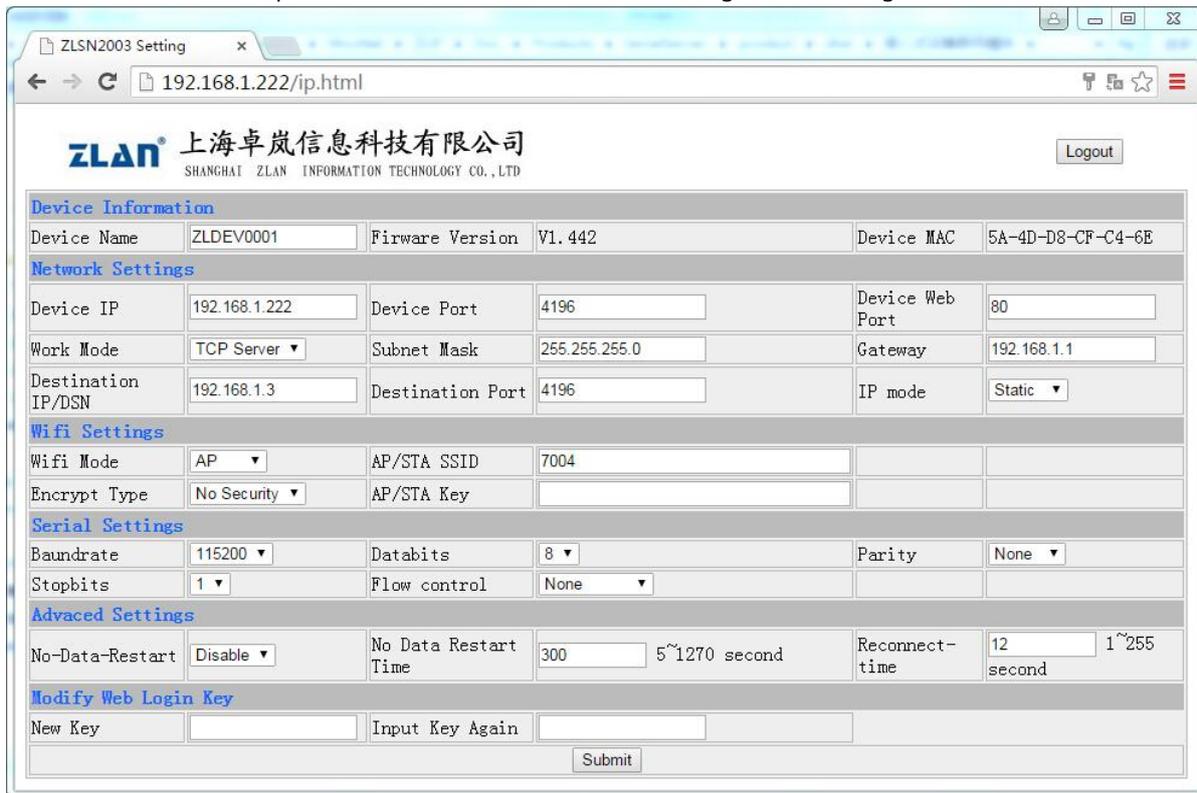
use ZLVircom You can search and configure device parameters in different network segments. Web The configuration mode requires that the computer and the serial port server are in the same IP segment, and the serial port server needs to be known in advance IP address. But Web Configuration can be done on any machine without ZLVircom on a computer.

1. Enter the serial server's IP Address, e.g. <http://192.168.1.200>, open the following web page.



picturetwenty three

2.existPasswordEnter the password in: The default is123456. ClickloginButton to log in.



picture24 WebConfiguration interface

3.The serial port server parameters can be modified in the web page that appears. For related parameters, please refer to the table3Parameter meaning.

4. After modifying the parameters, click the "Submit Changes" button.

7. Working mode and conversion protocol

Different serial port server working modes and conversion protocols can be selected in different application scenarios, so that they can be used more stably and reliably. The following is a detailed introduction.

There are basically two types of serial port servers: with virtual serial port and without virtual serial port, as shown in the figure. 14 TCP Communication diagrams and graphs 17 The function of the virtual serial port is shown in the figure. The user software that needs to be connected with the virtual serial port is the serial port interface (COM port), that is, both the user software and the user device are serial ports; in the case of non-virtual serial ports, the user software is directly TCP/IP Communication but the user device is still serial port.

In non-virtual serial port mode, the "conversion protocol part" is divided into transparent transmission, Modbus TCP change RTU and Realcom protocol 3. If the user software is a fixed protocol Modbus TCP Protocol and the lower machine is Modbus RTU. When you need to select Modbus TCP change RTU Way; Realcom The protocol is currently only used in multi-serial port servers as TCP. Used when the client connects to a server and the server uses a virtual serial port.

The usage is summarized as follows:

surface5 Network Configuration Mode

| serial number | Virtual serial port use | Device working mode | Conversion Protocol | illustrate |
|---------------|-------------------------|---------------------|-----------------------|--|
| 1 | use | TCPserver | none | Suitable for user software to open COM or active. The occasion for collecting data. |
| 2 | use | TCPClient | none | Suitable for occasions where the device actively sends data. If you select TCP The server may. The device cannot reconnect after being disconnected. |
| 3 | Do not use | TCPserver | Modbus TCP change RTU | Applicable to user software is Modbus TCP, The user device is Modbus RTU. and Modbus TCP The situation of being the main station. |
| 4 | Do not use | TCPClient | Modbus TCP change RTU | Applicable to user software is Modbus TCP, The user device is Modbus RTU. and Modbus RTU The situation of being the main station. |
| 5 | use | TCPClient | Realcom protocol | Multi-port serial server as TCPClient, When using a virtual serial port, it is best to use |

| | | | | |
|---|------------|-----------|------|--|
| | | | | Realcomprotocol. |
| 6 | Do not use | TCPClient | none | Suitable for a large number of devices connected to one cloud In general, the cloud is InternetA public networkIPServices device. |
| 7 | Do not use | TCPserver | none | Applicable to both devices and computers in one Local network, local monitoring, no need CrossInternetcommunication. |

7.1.Virtual serial port mode

If the user software is usingCOMIf you want to communicate with the port, you must use the virtual serial port mode.PLCSoftware, configuration software, instrument software, etc.

Check whether the monitoring computer and device are in the local network:

- a)If the computer is inInternetA public networkIPIf the device is using a server, then it must use TCPClient mode allows the device to connect to the server.5If it is a multi-serial port server, you must select ⑤.
- b)All in the local network (canpingIf the device sends data actively, you must use the device to doTCPThe client can choose method ②, otherwise you can choose method ①).

7.2.directTCP/IPCommunication Mode

If not neededModbus TCPProtocol conversion does not require a virtual serial port. In this case, the user software may communicate directly with the serial port server.Wi-FiconductTCP/IPCommunication, the serial port server willTCP/IPThe data is converted into serial port data and sent to the serial port device.

Generally, users of this type of usage develop their own host computer network communication software, which integrates the analysis of the device's serial port communication protocol. This method is more flexible and efficient than the virtual serial port.5⑥ and ⑦ in it.

exist"6.4 TCPThe section "Communication Test" briefly describes the serial port server as aTCPHere we will describe how to communicate with the server.TCPClient,UDPMode, multipleTCPHow to connect and communicate with computer software.SocketTest(Imitate userTCP/IPcommunication software) as an example.

ZLAN serial port server complies with the standardTCP/IPprotocol, so any network terminal that complies with this protocol can

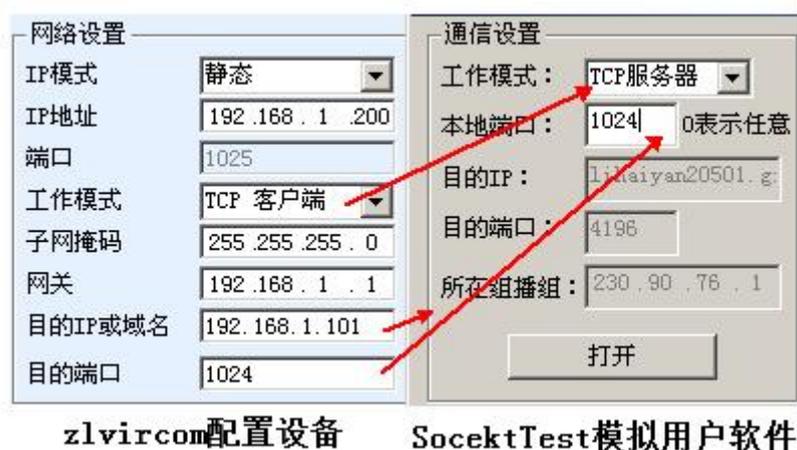
To communicate with the serial server, ZLAN Technology provides a network debugging tool (SocketDlgTestProgram) to simulate a network terminal to communicate with the serial port server.

In order for two network terminals (here the network debugging tool and the serial port server) to communicate, their parameter configurations must be paired.

TCPClient Mode

There are two working modes in this mode: TCP Server and TCP Client. No matter which mode is adopted, one party must be the server and the other party must be the client. Only then can the client access the server. If both parties are the client or the server, communication cannot be achieved.

When the serial device server acts as a client, it must have the corresponding relationship, Figure 25A as shown. (1) Working mode correspondence: The working mode of the serial port server is the server mode of the client corresponding to the network tool. (2) IP Address correspondence: the purpose of the serial port server IP must be the computer where the network tool is located IP address, (3) Port correspondence: The destination port of the serial port server must be the local port of the network tool. After this setting, the serial port server can automatically connect to the network tool and send and receive data after the connection is established.



picture25 Serial Device Server as Client

7.2.2. Client connects to multiple servers

When the ZLAN serial device server is used as TCP Clients can connect simultaneously. Purpose IP address, the data sent by the serial port will be sent to Purpose IP. If there are not so many servers, the remaining purposes will be vacant. IP usage is as follows:

网络设置

IP模式: 静态

IP地址: 192 . 168 . 1 . 200

端口: 0

工作模式: TCP 客户端

子网掩码: 255 . 255 . 255 . 0

网关: 192 . 168 . 1 . 1

目的IP或域名: 192.168.1.189 本地IP

目的端口: 1024

picture26The first purposeIPand Port

多目的IP和端口

| | | |
|---------------|------|-------|
| 192.168.1.100 | 1024 | 客户端目的 |
| 192.168.1.101 | 1025 | 客户端目的 |
| 192.168.1.102 | 1026 | |
| 192.168.1.103 | 1027 | |
| 192.168.1.104 | 1028 | |
| 192.168.1.105 | 1029 | |

picture27Remaining2~7individualIPand Port

FirstIPAs shown in the figure26The device settings interface shown in the figure shows the firstIPCan be a domain name. The remaining 2~7PurposeIPClick the "More advanced options" button in the device settings interface to open more advanced options for settings.

all7PurposeIPAAfter the settings are completed, you can connect automatically. If you cannot connect, you will wait for the "disconnection and reconnection" time and reconnect repeatedly.

Note that if you setWi-FiParameters, then multi-purposeIPThe number ofWi-FiParameters temporarily use the parameter configuration table), if multiple purposes are still requiredIPAnd need to configureWi-FiParameters, please use17.2wifi.txt File formatWi-FiParameter configuration, leave the parameter table empty.

TCPServer Mode

When the serial device server is used as a server, there are also3The corresponding relationship is shown in Figure28After setting up, click the open button of the network tool to establish a connection with the serial port server.TCPConnection, after the connection is established, data can be sent and received.



picture28Serial port server as server

When the serial port server is used as a server, it can accept individual TCP connections. The data received by the serial port will be forwarded to all established TCP connections. If you need to send data only to the most recent network packet recipient, TCP, you need to enable the multi-host function, please refer to 9.4 Multi-host capability.

7.2.4. Acting as both client and server

ZLAN serial port server supports TCP connections. The client side can also accept TCP connections, that is, also has TCP Server functionality.



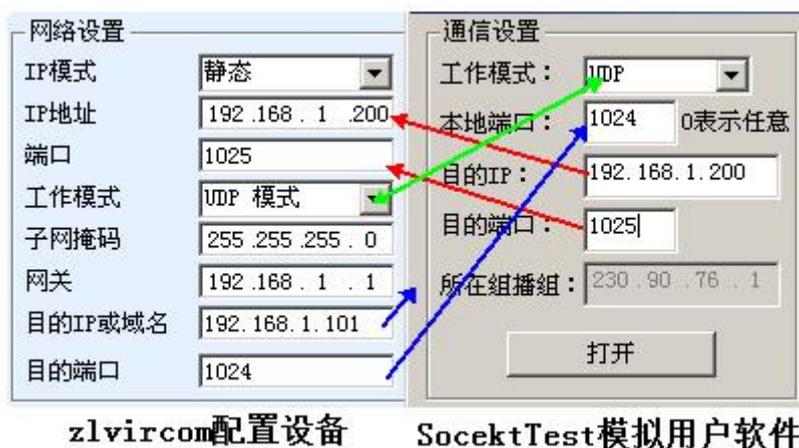
picture29Acting as both client and server

By default, it is used ZLVircom. When configuring, if you change the working mode to "TCP Client mode", the port (that is, the local port) will automatically become 0. In order to support TCP connections in server mode, the computer software must know the local port of the device, so a value needs to be specified here, as shown in the figure 29. As shown, the computer software can now connect 192.168.1.200 of 1024 port.

Communicate, and the device will also connect as a client 192.168.1.189 of 1024 Port. Required **Notice**
The local port 1024 is occupied by the server, so when acting as a client, the local port uses the "port + 1", that is 192.168.1.189. The software on the device sees that the port is 1024+1=1025.

UDP mode

exist UDP. In this mode, the parameter configuration is shown in the figure 30. As shown, on the left is ZLVircom (The configuration of the serial port server in the middle), and the network debugging tool on the right (SocketDlgTestFirst, both must be UDP Working mode. Also indicated by the red arrow is the purpose of the network tool IP. The destination port must point to the local port of the serial server. IP and local port. The purpose of the serial port server is indicated by the blue arrow. IP must be the computer where the network tool is located. IP. The destination port of the serial port server must be the local port of the network debugging tool. Only after these network parameters are configured can bidirectional communication be guaranteed. UDP data communication.



picture30 UDP Mode parameter configuration

7.3. Equipment couplet method

If the host computer is not Socket program (SocketDlgTest) is not a virtual serial port, but two devices through Wi-Fi. The configuration method is similar for the pair connection. First, the user needs to 2. The devices and computers are connected to the same LAN. ZLVircom. The purpose of connecting the computer is only for configuration. After the configuration is completed, the computer does not need to be connected.

Click ZLVircom Device Management, find this 2 Equipment, as shown in Figure 32. Then click "Device Edit" to configure the device. Device couplets can be divided into TCP Couplets and UDP Couplet. If it is TCP Couplet mode, the parameters of the two devices are as shown in the figure 31. The parameters indicated by the arrows must correspond, just like PC. The corresponding method of connecting the two machines is the same. TCP. After the connection is successful, you can return to the "Device Management" dialog box to view the connection status, as shown in the figure 32. If the status of both devices is "connected", it means that the two devices are TCP Link has been established.

stand.



picture31 TCPDevice couplet parameter configuration

| 序 | 网络 | 设备名称 | 设备IP | 目的IP | 模式 | TCP连接 | 虚拟串口号 |
|---|----|-----------|---------------|---------------|------------|-------|-------|
| 1 | 内网 | ZLDEV0001 | 192.168.1.201 | 192.168.1.200 | TCP Client | 已建立 | 未设置 |
| 2 | 内网 | ZLDEV0001 | 192.168.1.200 | 192.168.1.1 | TCP Server | 已建立 | 未设置 |

picture32 TCPDevice pairing success check

in the case of UDP the configuration parameters are shown in the figure.33As shown, the parameters corresponding to the arrows must be one-to-one. UDPAs long as the parameters are configured correctly, there is no need to check the connection status, and the data to be sent will be automatically sent to the specified device.



picture33 UDPDevice couplet parameter configuration

Finally, I need to remind you that if the equipment is coupled, in addition to Wi-Fi in addition to the above settings, the correct serial port parameters must also be set. The main thing is that the baud rate of the serial port server needs to be consistent with the baud rate of the user's device. After this setting, the user's device can send data to each other through the serial ports of the two serial port servers.

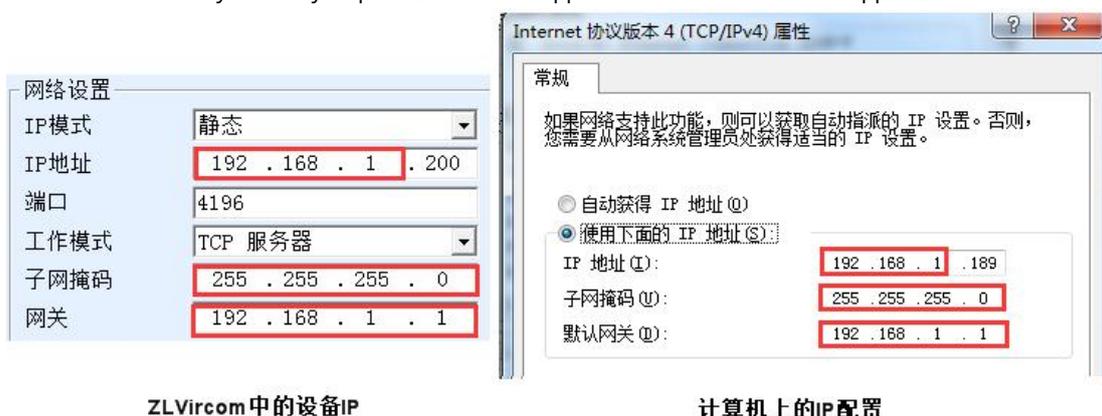
8. Equipment debugging

8.1. Network physical connection

passwifi_workandwifi_linkIndicator light confirmationWi-FiThe connection is OK.

8.2. networkTCPconnect

When the device is dynamically acquiredIPWhen the upperWi-FiThe network must supportDHCPFunction.



ZLVircom 中的设备IP

计算机上的IP配置

picture34Configured in the same network segment

becauseZLVircomSupports cross-segment search and configuration, so the ones that can be searched but cannot communicate are generally IPThe address is not configured, you can useZLVircomConfigure the devices in the same network segment.

Use after configuration6.4 TCPCommunication test or6.5The steps for virtual serial port testing can be seen in the establishmentTCP When connectingLinkThe light turns blue.LinkLight blue can also be passedZLVircomIf you see the device management list,TCPIf the connection column is "established", it meansLinkThe light is blue, as shown in the picture35This can facilitate remote diagnostics.

| 序 | 类型 | 设备名称 | P. | 设备IP | 本地... | 目的IP | 模式 | TCP连... | 虚拟串口... | 虚拟串口状... | 设备ID | TXD | RXD |
|---|----|-----------|----|---------------|-------|---------------|------------|---------|---------|----------|----------|-----|-----|
| 1 | 内网 | ZLDEV0001 | | 192.168.1.200 | 1024 | 192.168.1.189 | TCP Client | 已建立 | 未设置 | 未联通 | B25ED458 | 88 | 44 |

picture35Connection status and data sending and receiving status

8.3. Data sending and receiving

whenLinkAfter the light turns blue, data can be sent and received between the software and the serial port server. ActiveThe light will turn green and will generally last for at least1The data will also be output from the serial port of the serial server, but whether the output data is correct depends on whether the correct serial port parameters (baud rate, data bit, stop bit, check bit) are configured.

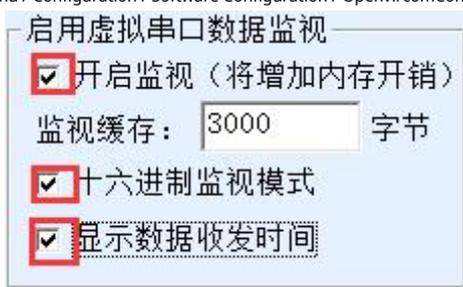
The serial port device will generally respond to the correct command. Once there is a response (the serial port sends data to the network),ActiveIt will turn blue, otherwise please check the serial port parameters or whether there is a problem with the serial port cable connection.

To facilitate remote debuggingZLVircomIt also supports remote viewing of data transmission and reception, as shown in the figure 35As shown, TXDIt is the amount of data sent by the serial port of the serial server. When refreshing the device list, if this value changes, it means that data has been sent.ActiveThe light will also be green; if you seeRxDIIf this value changes, it means that the serial port device has returned data.Activeis blue.

8.4. ZLVircomRemote monitoring data

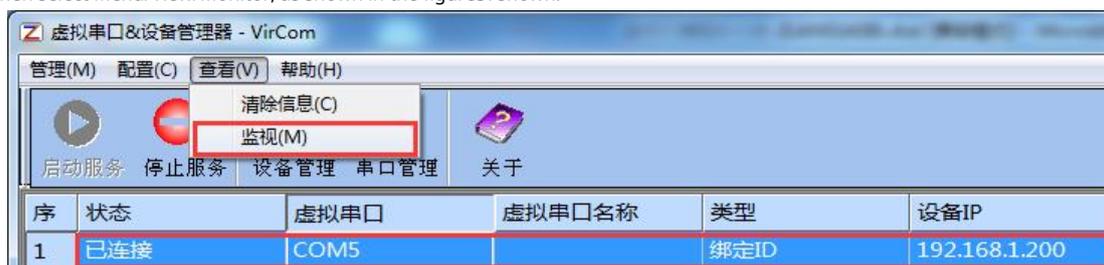
When using a virtual serial port,ZLVircomSupports real-time capture of data sent and received by the virtual serial port. It is convenient for users to debug the system. The usage is as follows:

Assuming that now6.5The virtual serial port test method establishes the communication of the virtual serial port. Now you need to monitor the data passing through the virtual serial port. OpenZLVircomMenu / Configuration / Software Configuration / OpenvircomConfiguration dialog box.



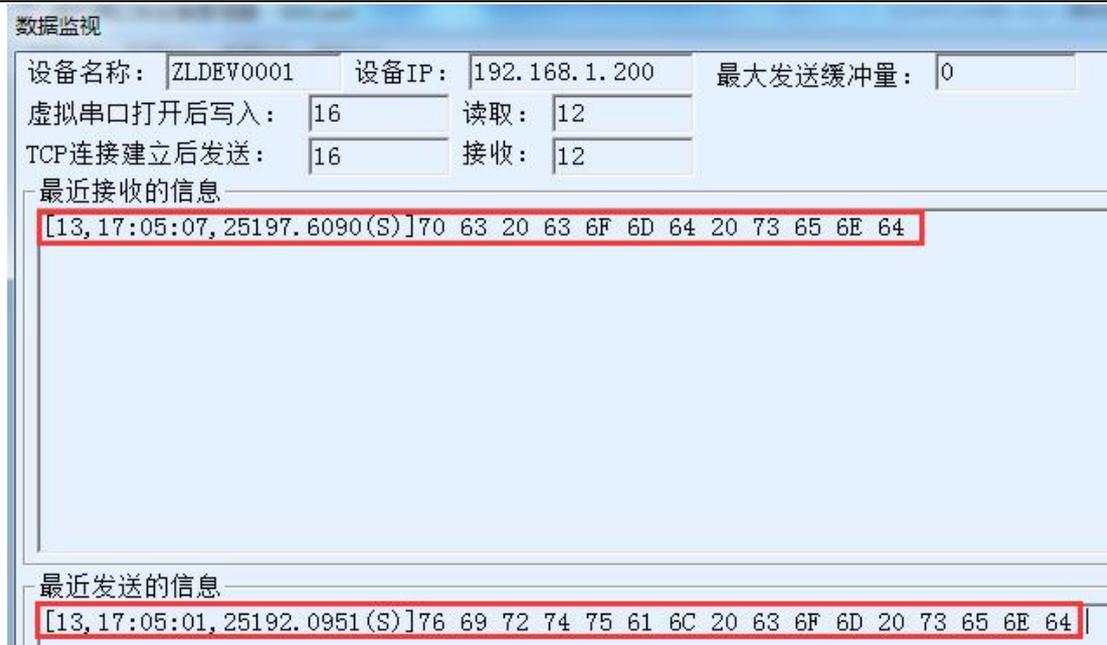
picture36EnableZL VirocmMonitoring

In the monitoring mode, display the data transmission and reception time.3Check the options in front of it, as shown in the figure36 Then click OK. Assuming that data has been sent and received before, now select a virtual serial port to be monitored in the main interface, and then select Menu/View/Monitor, as shown in the figure37shown.



picture37OpenZL VirocmMonitoring

From the opened dialog box, you can see the instructions sent by the host computer and the instructions returned by the device, as shown in the figure38This function can facilitate on-site communication debugging.



picture38Monitor sent and received data

9. ModbusAdvanced Features

bringModbusThe serial port server with gateway function does not have station address and register. It is a communication bridge.ModbusGatewayModbus TCPInstructionsSalve ID, function code, register number, register quantity generationModbus RTUSpecify and output from the serial port. It can be regarded as a protocol "translator".

9.1.EnableModbusGateway

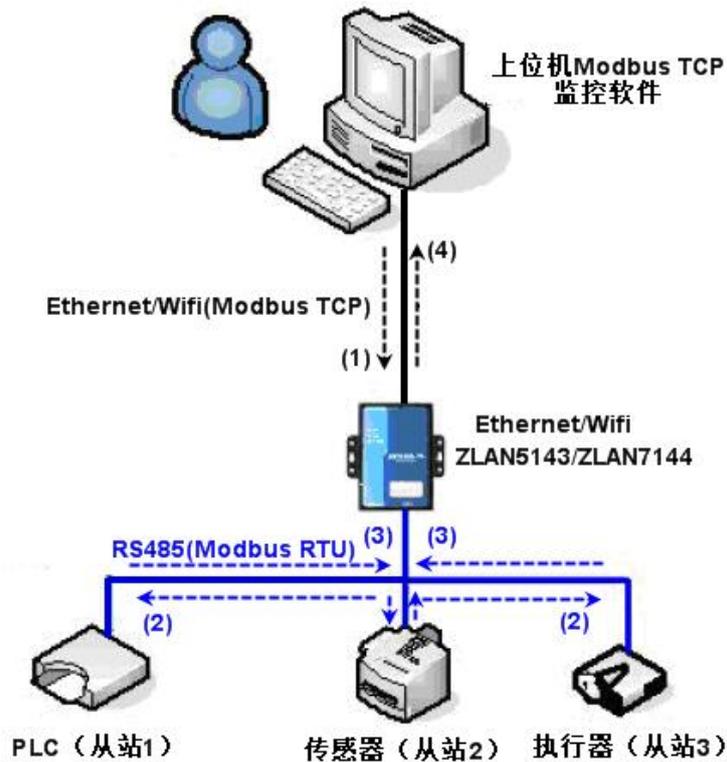
First of all, the serial port server should supportModbusThe gateway is the device settings dialog box.4Device Support The function ofModbus TCPchangeRTU"The feature should be ticked.

By default, the serial port server is in normal transparent transmission mode. If you need to convert to ModbusGateway mode, please select "Modbus TCP--RTUThis option. After that, the device automatically changes the "Port" parameter to502 (Modbusserver's port).ModbusThe gateway is enabled.

Serial PortRTUIf the device is a slave, the host computerModbus TCPSoftware ConnectionModbusGateway502Port, at this timeModbusThe gateway needs to work onTCPClient mode; if the serial portRTUAs the master station,Modbus The gateway works onTCPClient, and purposeIPfillModbus TCPThe computer where the software is locatedIP, the destination port is usually502.

9.2.StorageModbusGateway

7146Register-saving typeModbusGateway, with ordinaryZLAN5142(The end is2or0are all non-storage type) compared to 7146The contents of the read register can be saved inside the gateway, soModbus TCP The query speed can be greatly improved, and the performance is even better when supporting multi-host access.



picture39StorageModbusGateway Working Mode

As shown39Shown: NormalModbus TCPThe data flow direction is (1)-(2)-(3)-(4). That is, firstModbus TCPThe command is converted toModbus RTUThe corresponding command, and then the device respondsModbus RTUInstructions toModbus Gateway, thenModbusThe gateway is again transformed intoModbus TCPSend to the monitoring host computer.

we knowModbus TCPIt is network communication with very fast transmission speed, usually3msYou can answer within Modbus RTUyesRS485, usually only9600bps speed, generally sending and returning a command takes at least 30ms. Such ordinary non-storage methodModbusThe query response time of the gateway is relatively long. In addition, if there are many host computers querying data at the same time, the serial port will be congested. If the network is compared to a highway and the serial port is compared to a single-plank bridge, then the original method is to pass the traffic of the highway on the single-plank bridge.

Register-savingModbusGateway (7146) solves the above problems. It can temporarily save the register data obtained by queryingModbusInside the gateway,Modbus TCPWhen the query comes,ModbusThe gateway can return the command immediately,Modbus TCPOn the other hand,7146Can

Actively send instructions from the serial port to automatically update the content of the currently saved register data and save the latest register value.

in addition, it is a fully automatic configuration-free Modbus Gateway, users do not need to configure the required register addresses, function codes, slave addresses, etc. It will be sent according to the network Modbus TCP instructions, automatically identify and dynamically add these registers.

When monitoring multiple computers, it can show good response speed, no matter what the baud rate of the serial port is, it can generally respond to the data within 3ms. And it shows a good speed of real-time update of serial port data.

Register-saving Modbus: The gateway is truly Modbus TCP, change Modbus RTU, it really worked Modbus TCP. The advantages are fast speed and simultaneous query of multiple hosts.

Note that when the serial port server is used as TCP, when the client is not equipped with storage type function, it will automatically switch to non-storage type. Modbus Features:

1. Article 1: Modbus TCP. The query command is a non-storage type. Because it must wait for the device to reply the register contents to the network only after returning data slowly.

2. If a particular instruction is in 5s, if there is no more query from the host computer on the network within seconds, the command will be automatically deleted and will no longer be sent from the serial port to RTU equipment.

3. Currently can store 10K of Modbus. The cache, for a normal single register query, stores approximately 500 instructions.

4. When multiple commands are being queried at the same time, they are sent in order, first command sent - first command response - wait 485ms anti-collision time (refer to the multi-host section) - the second command is sent... After the last command is responded to, it returns to the first command.

9.3. Disable storage feature

Although storage type Modbus has a faster response speed, but some users do not want the device to receive a large number of query instructions, which will affect the internal processing speed of the instrument. In this case, the storage function can be turned off.

To disable the storage type, click the "More Advanced Options" button in the "Parameter Configuration" dialog box and remove the 40. Click OK after selecting one that is supported and one that is enabled. Then go back to the device settings and click Modify settings.

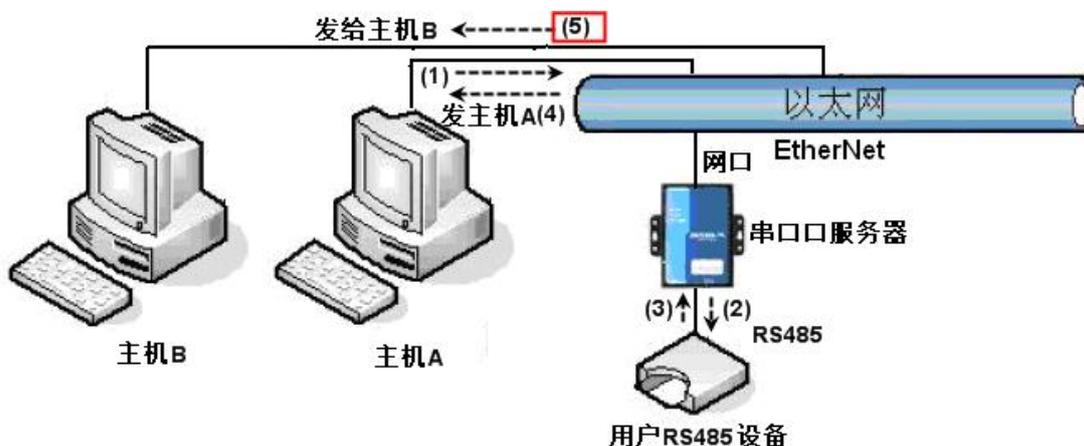
Note on use Web: When configuring the conversion protocol, the default is non-storage type Modbus Gateway.



picture40Disable storage feature

9.4.Multi-host capability

As shown in Figure 40, the "RS485 Multi-host support" and "RS485 The bus conflict detection function" are the multi-host functions of ZLAN. They are generally enabled and disabled at the same time. After enabling, the conversion protocol is Modbus TCP. The device has storage type Modbus Gateway function, otherwise non-storage type Modbus Gateway; if the conversion protocol is None, it can usually be customized by the user. RS485 The protocol also has the function of multiple hosts accessing serial devices at the same time, which is not possible in a network, because multiple masters sending at the same time will cause RS485 The multiple hosts of ZLAN serial port server can RS485 The bus is "coordinated" to achieve multi-host access.



picture41Multi-host function demonstration

As shown in Figure 41, in normal mode, when two hosts, A and B, connect to the serial port server at the same time, Host A sends instruction (1), RS485 The device receives instruction (2), RS485 Equipment Returns command (3), but the serial port server will send the same command (4) to Host A and (5) Send to Host B. Because Host B did not send a query, but it also received a reply command (5), so Host B communication errors may occur. In multi-host mode,

There will only be instructions (4)There will be no instructions (5)Because the serial port server will automatically remember the host to be returned, it will only return the command to the host with the most recent communication. AInquiries are only replied to A, host BQuery reply to host B.

Another function is that in normal mode, the host A and host B at the same time, sending data will RS485The command merge on the bus cannot be recognized normally; the serial port server can schedule in multi-host mode A, BThe order of using the bus can effectively solve the conflict problem of multiple machines accessing at the same time.

When the conversion protocol is "None", the multi-host function is not enabled by default. To enable multi-host, click "More Advanced Options" in the device configuration dialog box, and then check "RS485Multi-host support".

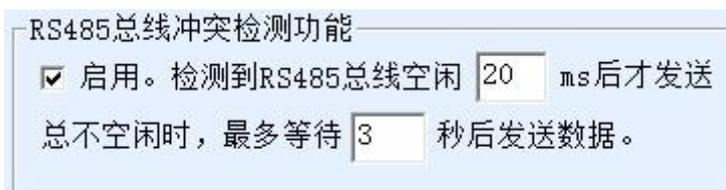
9.5. Multi-host parameters

RS485Multi-host support" and "RS485The meaning of "bus conflict detection function" is introduced as follows.



picture42 RS485Multi-host support

inRS485The command response timeout is the maximum time interval from the serial port server sending this command to receiving the response. The time filled in should be greater than the actual maximum time interval, because if it is judged as a timeout, the next command will be sent.



picture43 RS485Anti-collision idle time

RS485Bus conflict time: Indicates how many milliseconds the serial port server waits after receiving the reply of the first command before sending the second command. This parameter actually defines the speed of command polling. 20msabove. "At most

Waiting time3The parameter "seconds" generally does not need to be modified.

When the user uses ZLVircomSelect the conversion protocol as "Modbus TCPchangeRTUafter"ZLVricomThe above two enable boxes will be automatically checked (unless the user manually enters the advanced options to remove them), and the above two times will be automatically configured according to the baud rate. ModusThe command is long or the conversion protocol is "None"

In this case, you need to manually configure these parameters.

The following are recommended values for the above parameters:

1. picture 43 Shown as "RS485" The bus anti-collision time can generally be set to twice the "packet interval" in the lower right corner of the parameter configuration interface, but the minimum cannot be less than 20.

2. picture 42 Shown as "RS485" The command response timeout is generally determined by the length of the back-and-forth response command. N Bytes, the response is M bytes, the recommended setting value is: "Packet Interval" × (N+M+5) + 100.

9.6. Non-storage multi-host

Some places must use non-storage type Modbus. This is because when an event occurs PLC to read the data in the register, but the data read is the previous data collected by the storage type, which is logically incorrect, so it must also support non-storage Modbus. But on the other hand, it is also necessary to support multiple hosts at the same time. In order to cooperate with this method, Modbus Gateway based RS485 The maximum bus waiting time is changed to "2" (You can use 1.565 and above firmware). 2 is a special value that lets the module know that storage-type functionality needs to be disabled.

The screenshot shows the configuration interface for RS485 multi-host non-storage setup. Key settings include:

- IP Address: 0 . 0 . 0 . 0
- Port: 0
- Authentication: 是否需要验证
- Advanced Functions:
 - IO端口控制
 - UDP组播
 - 多目的IP
 - 代理服务器功能
 - SNMP功能
 - P2P功能
- RS485多主机支持: 支持
- RS485指令应答超时时间: 224 ms (0~8191)
- RS485总线冲突检测功能: 启用。检测到RS485总线空闲 20 ms后才发送。总不空闲时，最多等待 2 秒后发送数据。

picture44Multi-host non-storage setup

Note that each setting is Modbus TCP mode, you must set this value again, because reselect Modbus The method will automatically become 3.

After setting this Model Modbus Function will be ZLAN5142 This is similar to having multiple hosts without storage capabilities.

9.7. Multi-Purpose IP Next Modbus

As shown 41 As shown, if the serial device (RTU Device) as the master station, and the network device (Modbus TCP

Device) as a slave station, and there are multiple network slave devices at the same time.7.2.2The method introduced by the client connecting to multiple servers allows the serial device server to connect to multiple network devices at the same time as a client.

The function that needs to be implemented at this time is:RTUAfter sending the command, it can be sent to multiple network devices.Slave ID The field identifies whether it is sent to yourself.Slave IDThe corresponding network device responds. The network device response is sent to the serial port server and converted intoRTUThe command is sent from the serial port toRTUEquipment.

At this time, it should be noted that the image43Shown as "RS485Bus Anti-Conflict Time" and Figure42Shown RS485Remove the two ticks of "Command response timeout". Otherwise, the above forwarding function cannot be realized.

Another application method is: although the serial port server is used asClientConnect multiple network devices, butRTU The device is not the master station, and the network device still sends first.RTUThe device responds (as a slave). Then,RS485 Bus Anti-Conflict Time" and "RS485The two check boxes "Command response timeout" still need to be checked, so that multiple hosts can access oneRTUFunctionality of the device.

9.8.Slave in client mode

sometimes7146As a client, connect to a cloud server.7146As a slave, the cloud actively initiates queries.7146The mode of answering.

| 网络设置 | | 高级选项 | |
|---------|---------------------|---------------------------------|--------------------------------|
| IP模式 | 静态 | DNS服务器IP | 8 . 8 . 4 . 4 |
| IP地址 | 192 . 168 . 1 . 201 | 目的模式 | 动态 |
| 端口 | 0 | 转化协议 | Modbus_TCP 协议 |
| 工作模式 | TCP 客户端 | 保活定时时间 | 60 (秒) |
| 子网掩码 | 255 . 255 . 255 . 0 | 断线重连时间 | 12 (秒) |
| 网关 | 192 . 168 . 1 . 1 | 网页访问端口 | 80 |
| 目的IP或域名 | 192.168.1.106 本地IP | 所在组播地址 | 230 . 90 . 76 . 1 |
| 目的端口 | 1024 | <input type="checkbox"/> 启用注册包: | <input type="checkbox"/> ASCII |

picture45Client-sideModbus TCPProtocol conversion

At this time, special settings are required to keep the sequence numbers of sending and replying consistent.

| | | |
|---|---|---|
| <input type="text" value="0 . 0 . 0 . 0"/> 端口 <input type="text" value="0"/> <input type="checkbox"/> 是否需要验证 用户名 <input type="text"/> 密码 <input type="text"/> | 该设备支持的高级功能 <input type="checkbox"/> IO端口控制 <input checked="" type="checkbox"/> UDP组播 <input checked="" type="checkbox"/> 多目的IP <input type="checkbox"/> 代理服务器功能 <input type="checkbox"/> SNMP功能 <input checked="" type="checkbox"/> P2P功能 | RS485多主机支持 <input checked="" type="checkbox"/> 支持 RS485指令应答超时时间 <input type="text" value="320"/> ms (0~8191) |
| RS485总线冲突检测功能 <input checked="" type="checkbox"/> 启用。检测到RS485总线空闲 <input type="text" value="20"/> ms后才发送 总不空闲时，最多等待 <input type="text" value="4"/> 秒后发送数据。 | | |

picture46Client-sideModbus TCPProtocol conversion

Here you need to set the total non-idle time to 4, set up 4 is a special value, 7146 Know that you can switch to the response number TCPClient/cloud first model.

10.Registration packet and heartbeat packet

Registration packets and heartbeat packets are a function suitable for communication between devices and cloud software.

10.1.Registration Package

The definition of a registration package is that when the computer software and the serial port server module (hereinafter referred to as the module) establish TCP. When connecting, the module will first send a string of codes to the software so that the software can know which module is communicating with it. This string of codes is the registration packet.

The registration package is very suitable for IoT monitoring because cloud software generally runs on Internet. The modules are scattered in various collection and monitoring points. It is very important to make the cloud software recognize the modules, which is necessary to realize the communication of the Internet of Things.

Shanghai ZLAN's serial device server provides the following multiple registration package methods.

10.1.1.Send on connection MAC address

Send on connection MAC address: This method is not only for 4 Model (e.g. 5143), ordinary models are also supported. Its method is to connect its own Mac. The address is sent to the cloud. MAC The address is unique, so the device can be uniquely identified. This method is simple and does not require the preparation of a registration package for each device, so it is simple and effective. To use it: click "More Advanced Options" in the device settings dialog box, find "TCP Send when created MAC address", tick the front, then return to the settings interface and click

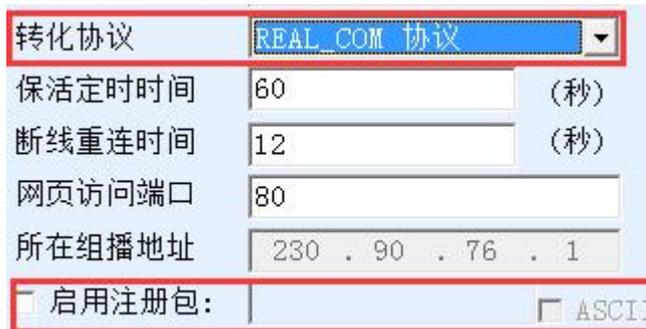
Modify settings.



picture47Send on connectionMACAddress

10.1.2. Realcomprotocol

RealcomThe protocol is a mature protocol that contains registration packets and heartbeat packets. Users can use this protocol to implement the registration packet and heartbeat packet functions.RealcomThe protocol method is: in the "Device Settings" dialog box, select "Conversion Protocol" as "REAL_COMProtocol", note that the Enable Registration Package part needs to be blank and unchecked.



picture48Enablerealcomprotocol

EnableRealcomThe protocol will no longer be a transparent transmission communication, it has the following characteristics:

1.When the device and the cloud are establishedTCPAfter connecting, the device automatically sends a hexadecimal registration packetFA 07 13 02 FA 02 MAC[5] MAC[4] MAC[3] MAC[2] MAC[1] MAC[0] FAFF.one of themMAC[5]~MAC[0] It is equipment MACAddress.

2.When the device sends data to the network, it will automatically increaseFA01 01of3Bytes header prefix.

3.Every time the keep-alive timer expires, the device sends a00of1Bytes of heartbeat packet. REAL_COMThe protocol containsMAC

The address can be used as a registration package for the device. However, due to its fixed format, it can only be designed by cloud software.REALCOMThe protocol is compatible with this approach.

10.1.3. Custom Registration Package

The custom registration package method allows users to fill in an arbitrary registration package format. The method is: in the device settings interface, configure as follows:

| | |
|--|--------------------------------|
| 转化协议 | REAL_COM 协议 |
| 保活定时时间 | 60 (秒) |
| 断线重连时间 | 12 (秒) |
| 网页访问端口 | 80 |
| 所在组播地址 | 230 . 90 . 76 . 1 |
| <input checked="" type="checkbox"/> 启用注册包: | 31323334 |
| | <input type="checkbox"/> ASCII |

picture49Setting up the registration package

andREAL_COMThe difference between the protocols is that the registration package is enabled here and filled in31 32 33 34Such registration package information. Note that this is in hexadecimal, which means that the data actually sent is a string1234If you need to display the string, click the "ASCII"options.

When the device and cloud software are connected, it can automatically send31 32 33 34This registration package is more flexible and allows the device to adapt to the existing cloud registration package format; however, the registration package does not containMACSuch wildcards require configuring different registration packages for each device, which is cumbersome.MACAddress andREALCOMThe configuration of each device is the same in both methods, but due toMACDifferent registration packages are naturally different.

The maximum registration packet length is33Bytes. This method supportsUDPMode registration packet and heartbeat packet. Note that if you setWi-FiParameter or multi-purposeIPParameters, it will conflict with the custom registration package and heartbeat package. In this case, it is recommended to use the configuration file introduced in the next section to implement the heartbeat package.

10.1.4. Configuration Files

Zhuo Lan's5143The series supports the serial port server to write a configuration file, so as to realize the user's fully customized registration package, and can useMACAddress wildcards can solve the trouble of writing custom registration packages for each device, and there is no limit on the length of the registration package.

10.2. Heartbeat Packet

Heartbeat packets are mainly used to detect whether the communication link is disconnected. The implementation method is that the device sends a heartbeat packet data to the server software at regular intervals. After receiving this data, the server will discard it and will not treat it as valid communication data.

The heartbeat packet has two main functions: first, it can let the host computer software know that the device is active; second, if the device fails to send a heartbeat, it is inTCPThe client device will automatically re-establishTCPConnection,

It is a means to restore network communication.

| | | |
|----------|---------------|-----|
| 高级选项 | | |
| DNS服务器IP | 8 . 8 . 4 . 4 | |
| 目的模式 | 动态 | ▼ |
| 转化协议 | REAL.COM 协议 | ▼ |
| 保活定时时间 | 60 | (秒) |
| 断线重连时间 | 12 | (秒) |
| 网页访问端口 | 80 | |

picture50Keep-alive time

As shown in the figure, the sending time of the heartbeat packet is set by the "keep-alive timer".

10.2.1. Hidden Heartbeat

Even if no heartbeat packet is set, the ZLAN device is in TCP. The implicit heartbeat function is also enabled when the client is connected.

Therefore, the implicit heartbeat function means that the device sends data, but the server does not actually receive the heartbeat data. Therefore, it cannot play the first function of the heartbeat packet, that is, the server detects whether the device is active or not; but because the device actually sends data, it can play the second function of the heartbeat packet, that is, the device detects TCP. Check if the connection is normal. Once disconnection is detected, it can be automatically reestablished. TCP connect.

10.2.2. REALCOM protocol

like 10.1.2 Realcom, the agreement states, REALCOM. The protocol can send a 00 of 1 Byte data, this data is realcom heartbeat packet of the protocol.

10.2.3. Custom heartbeat packet

First follow 10.1.3. Fill in the registration package by customizing the registration package. Then add the heartbeat package as follows:

Click the "More Advanced Options" button in the device settings. IP and the second line of the port, write 16 Binary heartbeat packet, and change the option on the right to "Parameter Packet Purpose".

| | | |
|----------|---|---------|
| 多目的IP和端口 | | |
| 313233 | 0 | 参数包目的 ▼ |
| 616263 | 0 | 参数包目的 ▼ |
| | 0 | |

picture51Custom Registration Package

Note that the total of registration packets and heartbeat packets should be less than 33 Bytes. The first line is actually the registration packet.

11. httpdClient communication function

This function is used to send the serial port server's uploaded data directly to the web server program of the architecture can simplify the software development workload in the cloud.

When IoT collection terminals and web server (httpd) when interacting with programs, if the data can be http of GET and POST. The standard format of the instruction is submitted to web server, then web server can use the existing php/asp. The language processes and stores the data. This saves the user from having to develop web application program interface workload.

In order to support this function, you need to download a httpd.txt. Download the configuration file using zlvir.com. This is achieved through the firmware upgrade function.

Zhuo Lan httpd Features of the client communication function include:

1. Device: Supports GET/POST. Directly convert serial port data into http format that can be directly recognized by the server.
2. Web server sends: Web server can also GET/POST. The command sends the required data to the serial port server, and the valid data content can be output from the serial port of the serial port server. When the serial port server receives the data, it can also give web a specific response from the server indicating that the data was received.
3. Supports arbitrary conversion between hexadecimal and string input and output data, convenient web server sends data in character format, and the serial port outputs hexadecimal data to control the serial port device.

For more information, please refer to "Zhuo Lan httpd Client Communication Methods" document.

12. Wifi Change parameters

Wi-Fi Modifying parameters is to achieve zlvir.com. The function of searching devices and modifying device parameters is similar to that of software, that is, through the serial port server Wi-Fi. It is suitable for users who want to integrate the search and configuration functions into the user software.

Wi-Fi To modify the parameters, use the UDP. This is achieved through the "Management Port Protocol", for example:

1. The computer software sends the destination port in the network as 1092 of UDP Broadcast data packet. When the device receives the data packet, it will return its information to the computer software to achieve the purpose of searching for the device.
2. Computer software to the device 1092 Port forwarding UDP. Modify the parameter command to achieve the purpose of modifying device parameters.

Wi-Fi For a detailed introduction to modifying parameters, please refer to "ZL Networking Products UDP Management Port Protocol" document.

For direct use¹³This is implemented by the device management function library of the device management function library.

13. Device management library

This function is suitable for users who need to integrate device management functions into their own software. UDPThe management port protocol has been integrated into the device management function library ZLDevManageInside. This is a DLL of windowsThe platform's development library can be used VC, VB, Delphi and other development tools call.

Provide detailed API Interface introduction document and VC transfer Demo Case. It can realize device search, parameter modification, P2P Function calls, etc.

You can get the development library from the ZLAN official website: <http://zlmcu.com/download.htm> Search for "Device Management Function Library" on the page. For details, please refer to "ZOLAN WinP2p and Device Management Development Library»

14. Modify the parameters of the serial port

Users can read and set parameters by sending commands to the serial port of the serial server. It is suitable for users who choose chip or module-level products to be controlled and configured through the serial port. The parameters that can be set include: IP Address, baud rate, device name, working mode, etc. After the new parameters are set, the serial server can be restarted through the serial port command.

ZLAN serial port commands have the following characteristics:

1. Serial port command uses 10T There are 1 byte of data preamble code, so there is no need to distinguish whether it is communication data or command by pulling down or raising another configuration pin, and there is no need to switch between command mode and communication mode, which makes it more flexible and convenient to use.
2. The command set includes multiple command formats such as saving parameters, not saving parameters, and restarting the device.
3. Can realize a variety of applications, such as reading the serial port server MAC For example, to change the serial port server working mode, TCP The server switches to TCP In client mode, you can actively connect to the server; TCP The client switches to TCP You can disconnect from the server when you log in to the server.

For detailed operation methods of serial port parameter modification, please refer to: "Serial port parameter modification and hardware TCP/IP Protocol Stack

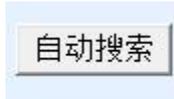
15. Remote device management

Remote device management refers to ZLVircom The software can maintain and manage the device, including restarting it

device, modify parameters, and upgrade firmware. This function is suitable for ZLVircomUser who manages the device.

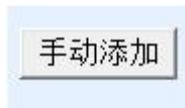
for ZLVircomSoftware, as long as the device can be found in the device list, remote management can be performed. Remote management of devices can be divided into the following situations:

1. Automatic search: The device and the computer are on the same switch. In this case, whether they are in the same network segment or not, the computer ZLVircomThe way to search for devices is: ZLVircomSend a broadcast query - all devices will reply with their own parameters after receiving the query ZLVircomTool. This method searches all devices at once.



picture52Auto Search

2. Manual adding: There are two cases:



picture53add manually

a) Large routers divide the network: In some large networks, broadcast packets are divided by routers, so that broadcast packets cannot reach the device end, but ping equipment IP All are connected. In this case, you generally need to add it manually to solve the problem. The manual adding method is to click "Manual Add" in the "Device Management" dialog box to add the head and tail IP You can query the devices one by one.

b) Public network server queries internal network devices: The serial port server is in the internal network and acts as TCP Server mode, zlvir.com On the public network IP At this time, you need to make a 1092 of UDP The port mapping is mapped to the device IP, Then zlvir.com Manually add this device. IP It is the public network on the device side IP.

3. TCP Client: Device as TCP When the client is IP (116.15.2.3) of 4196 Port Initiation TCP Once the connection is established, it will automatically send a message to the destination port (here 4196) of UDP Port (note not TCP port) to send its own parameter system, so that zlvir.com On this computer (116.15.2.3) can search for the device. If the destination port is not 4196 You need to modify zlvir.com The default parameter receiving port is to modify the menu/configuration/software configuration/default listening port, and then start zlvir.com If pop-up TCP If there is a port conflict, ignore it and continue executing.

| | |
|---------|---------------------|
| 工作模式 | TCP 客户端 |
| 子网掩码 | 255 . 255 . 255 . 0 |
| 网关 | 192 . 168 . 1 . 1 |
| 目的IP或域名 | 116. 15. 2. 3 本地IP |
| 目的端口 | 4196 |

picture54Client

4.Scheduled sending parameters: Even inTCPFor a serial port server in server mode, you can also check the "Send parameters regularly" function to set the5Minutes to send parameters to the destinationIP(he it is116.15.2.3) destination port. The port on this server receives the parameterzlvir.comThese devices can be managed.

| | | | |
|---------|---------------------|---|--------------------------------|
| 工作模式 | TCP 服务器 | 保活定时时间 | 60 (秒) |
| 子网掩码 | 255 . 255 . 255 . 0 | 断线重连时间 | 12 (秒) |
| 网关 | 192 . 168 . 1 . 1 | 网页访问端口 | 80 |
| 目的IP或域名 | 116. 15. 2. 3 本地IP | 所在组播地址 | 230 . 90 . 76 . 1 |
| 目的端口 | 1024 | <input type="checkbox"/> 启用注册包: | <input type="checkbox"/> ASCII |
| 串口设置 | | <input type="checkbox"/> 启用无数据重启 每隔 | 300 (秒) |
| 波特率 | 115200 | <input checked="" type="checkbox"/> 启用定时发送参数 每隔 | 5 (分钟) |

picture55Scheduled sending parameters

To facilitate device identification, if remote management is required, please give the device an easy-to-remember name.

16.Firmware upgrade method

ZLAN7146You can upgrade each other's programs, but you cannot upgrade each other's programs.P2PThis method can be used to upgrade the firmware of devices found in the device list through search or other methods. 1

Obtained from ZhuolanZLAN7146Firmware files such as1.539(7146).BIN.

2 existZLVircomIn the tool, search for the device that needs to be upgraded, and then enter the device parameter editing dialog box. First click "Restart Device" once.

| | |
|--------------|-----------|
| 分包规则 | |
| 数据包长度 | 1300 (字节) |
| 数据包间隔 (越小越好) | 3 (毫秒) |
| 升级固件 | 重启设备 |
| 修改设置 | 取消 |

picture56Upgrade button

After the device restarts, search for the device again in the same way and enter the dialog box again. Click the "Upgrade Firmware" button in the lower right corner of the dialog box.



picture57Upgrade button

- 3 As shown in the figure, select the "Program File Download" radio option. In the program file, select the firmware file. IP The address part has been automatically filled in, no need to write it again, the module type/model has been automatically selected. Then click Download.



picture58 LAN2003Firmware upgrade method

- 4 At this point the download progress bar starts to move, and the download time is approximately 30. During the download process, you will see the device ACT. The light flashes, and at the end of the download, you can see LINK. The light flashes a few times. Then the program pops up "Transfer Completed". LINK. Do not power off the device when the light is blinking. **Notice:** Here is just the transfer completed, write flash. Process Requirement 3 Seconds or so, at this time LINK. The light will flash. Please do not turn off the power during this period. After downloading is completed, the program will restart automatically. Generally, there is no need to turn off the power. If you see the running indicator flashing, if it does not restart automatically, please LINK. Light flashing stops 30. If the power is on for more than 1 second, re-energize.
- 6 Web Configuration interface update: After the firmware upgrade, the module's internal configuration webpage also needs to be updated, otherwise it will no longer be accessible.

WebConfiguration, but does not affect communication.webIt is also possible not to download web pages.WebThe method is: as shown in the figure, change the "Program File" download mode to "Web Directory Download". And select the root directory of the local web page as the directory where the web page files to be downloaded are located (this directory can be obtained from ZLAN), click Download, and download all the files in the local web directory to the file system inside the device.

7 Notice:

7.1 if AP Download

7.2 If the download fails, it will not damage the device, so just restart the download. LINK When the light is flashing, please do not cut off the power, otherwise the device will be damaged.

7.3 pass ZLVircom Check the firmware version number to know the new firmware Whether the download has been successful.



picture59 Check the firmware version after upgrading

17. many WIFI Parameter configuration

17.1. scenes to be used

many WIFI The parameter configuration function is to allow ZLAN7146 Can have multiple WIFI Parameters, such as 3, which can be applied to: STA Way to restore to AP, multi-router backup, etc.

1.1.1. STA Way to restore to AP

when STA When the mode parameter configuration is wrong, you can switch to AP way, so that the laptop can be used again Wi-Fi. Connect the module and reconfigure it.

By default, if the module is STA If the configuration SSID If the password is incorrect, you will not be able to connect to the router. You must use the reset switch to reset AP method, and then use ZLVircom Tool reconfiguration WIFI. In some cases, it is inconvenient to toggle the module's reset switch, so WIFI Parameters in STA-AP-STA-AP Cycle between WIFI Parameters are AP mode, the user can connect to this module to reconfigure. WIFI After the connection is established WIFI Parameter switching will stop.

existSTAandAPThe duration of stay can be set.

1.1.2. Multiple router backup

SelectSTA1-STA2-STA3...-STA1-...Switch among multiple routers.STA1Connect to the first router. If you cannot connect, switch toSTA2mode, connect a second router. This allows for multi-router backup. If one of the routers fails and cannot be establishedWIFIconnection, you can switch to the second router.

This approach allows for on-site placement2routers, when the first router cannot establishWIFIWhen connected, you can immediately switch to the second router to achieve hot standby.

17.2. wifi.txtfile format

wifi.txtis a configuration file, an example of its content is as follows:

DEFAULT_WIFI_TIME=10

WIFI_CONFIG_COUNT=2

WIFI_MODE1=STA

WIFI_SSID1=TP-LINK_2312

WIFI_CRYPT1=AUTO

WIFI_KEY1=12345678

WIFI_BRIDGE1=0

WIFI_DHCP1=0

WIFI_TIME1=10

WIFI_MODE2=AP

WIFI_SSID2=TEMP_AP

WIFI_CRYPT2=NONE

WIFI_IP2=192.168.1.200

WIFI_TIME2=10

We assume that we use ZLVircom Configured WIFI. The parameters are DEFAULT_WIFI Parameters, this wifi.txt. In the configuration file there is WIFI1 parameter, WIFI2 parameter.....WIFI N Parameters, etc. Download this wifi.txt arrive ZLAN7146. Will be in later DEFAULT_WIFI-WIFI1-WIFI2-...WIFI N-DEFAULT_WIFI-...Cycle between them.

DEFAULT_WIFI_TIME=10 Indicates staying at DEFAULT_WIFI. The time in seconds is 10 seconds.
WIFI_CONFIG_COUNT=2 express wifi.txt How many CCPs are there? WIFI Parameters (excluding DEFAULT_WIFI).

WIFI_MODE1=STA express WIFI1. The working mode is STA or AP. WIFI_SSID1=TP-LINK_2312 Indicates the connected router SSID, if AP. The way is your own SSID name.

WIFI_CRYPT1=AUTO Indicates the encryption method. If there is no password, NONE, other password methods. AUTO. Other options include WEP64, WEP128, AES, TKIP. Generally not commonly used.

WIFI_KEY1=12345678 Indicates the router Wi-Fi password.

WIFI_BRIDGE1=0 Indicates network port and Wi-Fi. Whether they are interoperable, 0 Indicates no intercommunication. If you don't care, you can omit this line. The default is no intercommunication.

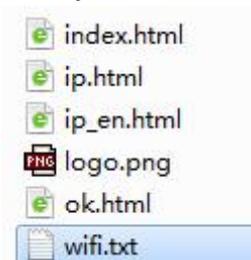
WIFI_DHCP1=0 Indicates whether it is enabled DHCP Server functions, 0 Indicates that it is not enabled. By default, when this line is not written, AP Way DHCP. The server is turned on. STA Way DHCP. The server is not turned on.

WIFI_TIME1=10 This line cannot be omitted, indicating WIFI1. If the mode cannot be established, WIFI Connect, stay for how long, here is 10 seconds.

WIFI_IP2=192.168.1.200, indicating that it is forced to be set to static IP Mode and IP. The address is 192.168.1.200. This is because if STA. The method is dynamic acquisition IP. When switching to AP. In this case, you may not be able to get the IP, so it must be static IP exist.

17.3. Download Method

Will wifi.txt Download to ZLAN7146. The steps in are, web. Create a new one in the web directory wifi.txt. If the user does not have web Directory, you can create a new web Directory, and then create a new one wifi.txt document.



picture60 webTable of contents

Now click the "Upgrade Firmware" button in "Device Configuration" and a pop-up webAnd the firmware download page:



picture61 wifi.txtDownloads

As shown in the figure above, select the web directory to download, and then select the one you just created.webdirectory, then click the "Download" button towifi.txtDownload to the device.IP, model, space size, and port will be automatically filled in without configuration.

Notice: Updated at any timewifi.txtThe device needs to be powered on again.

17.4. wifi.txtexample

1.1.3. STAWay to restore toAP

DEFAULT_WIFI_TIME=120

WIFI_CONFIG_COUNT=1

WIFI_MODE1=AP

WIFI_SSID1=TEMP_AP

WIFI_IP1=192.168.1.200

WIFI_TIME1=300

zlvir.comConfiguredWi-FiThe parameters areSTAWhen the method2If the connection fails for a few minutes, it will switch toAPMode, Hot

Point name is TEMP_AP, residence time 5. If no laptop is connected, try again. STA way to connect.

1.1.4. Multiple router backup

DEFAULT_WIFI_TIME=60

WIFI_CONFIG_COUNT=1

WIFI_MODE1=STA

WIFI_SSID1=TP-LINK_2312

WIFI_CRYPT1=AUTO

WIFI_KEY1=12345678

WIFI_TIME1=60

ZLVircomConfiguredWi-Fi parameter 1. If you cannot connect for minutes, try to connect TP-LINK_2312. This router cannot connect to the ZLVircom. The configuration parameters are repeated until there is an established Wi-Fi until connected.

17.5. Precautions

1. If not present wifi.txt, then only ZLVircomConfiguredWi-FiParameter exists, followed by nowifi.txt. The usage is the same. wifi.txt

The content is empty, which is the same as not existing.

2. When the reset switch DEF is in open state, wifi.txt will not be loaded. If you debug, wifi.txt format abnormality causes module abnormality. DEF switch to the reset position and download again wifi.txt.

3. If Wi-Fi connection is established, but TCP connection cannot be established, the second Wi-FiParameter switching.

4. Note: Download completed wifi.txt. The module needs to be restarted to take effect.

5. After upgrading the firmware, wifi.txt will be lost and will need to be re-downloaded.

6. Failed to download the firmware:

a) When there is wifi.txt, it exists when it exists. Wi-Fi switch, if you need to upgrade the firmware, you need to establish Wi-Fi. Otherwise, the module will reset continuously and the firmware upgrade will not be possible.

b) When in each Wi-Fi, when switching between parameters, the device IP address may be set in the device's main interface

IP,WIFI_IP1Switch between the download interface, so when the download fails, it may beIPIt is no longer correct. You need to return to the device search interface and search for the device again to get the current realIPAfter that you can download it.

7.ifSTAThe method is to automatically obtainIPof(IPMode isDHCP), then it is necessary to appropriately reduce DEFAULT_WIFI_TIMEtime. The reason isWi-FiNo connection, no accessIP, but getIP Will continue to try1Minutes or so, then the timing starts, soDEFAULT_WIFI_TIMEShould be less than usual60, but not for0.

8. STAWay to restore toAPIIn the usage ofZLAN7146From the defaultDEFAULT_WIFIofSTAParameters switch toWIFI1ofAP Parameters, at this timewebWhat you see on the interfaceWi-FiThe parameters areWIFI1 (Although fromzlvir.com What I saw wasDEFAULT_WIFIParameters). At this time, if you need towebRevise Wi-FiAll parameters need to be modifiedWi-FiParameters, includingSTA/AP,SSID, password, encryption method.

18.Ordering Information

| model | Function |
|-------------|--------------|
| ZLAN7146 | 2.4G |
| ZLAN7146-5 | 2.4G/5G |
| ZLAN7146N | 2.4G P2P |
| ZLAN7146N-5 | 2.4G/5G, P2P |

19.After-sales service

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