

IP LAN Communication Protocol

1. Format of Commands

Definition format:

Query syntax

:SYST:<X>+ ? + CR(0xA)

Settings

:SYST:<X>+ SPACE(0x20) + < PARAM> + CR(0xA)

Comments:

<X>: Secondary subcommands

1). Set up IP address

:SYSTem: IPADdress 192.168.1.199

Sets the IP address to 192.168.1.199.

Query syntax

:SYSTem: IPADdress?

192.168.1.199

2). Set up subnet mask

:SYSTem: SMASK 255.255.255.0

Sets the subnet mask to 255.255.255.0

Query syntax

:SYSTem: SMASK?

255.255.255.0

3).Set up the gateway

:SYSTem: GATEway 192.168.1.1

Sets the Gateway to 192.168.1.1.

Query syntax

:SYSTem: GATEway?

Return

192.168.1.1

4) Set up DHCP

:SYSTem:DHCP {0|1|ON|OFF}

:SYSTem: DHCP ON

Set DHCP enable

Query syntax

:SYSTem: DHCP?

Returns

1

5). Obtaining MAC

:SYSTem:MAC?

Returns

93-47-df-48-48-48

6). Set up Port

Port : 1~65535, The port can not set to 18191 ;

:SYSTem: PORT 6325

Sets the port to 6325

Query syntax

:SYSTem: PORT?

returns

6325

7). Set up BAUDrate

Baudrate:9600,19200,38400,57600,115200

:SYSTem:BAUDrate 9600

Query syntax

:SYSTem:BAUDrate?

Returns 9600

8). Query device information (auxiliary debugging commands)

:SYST: DEVINFO?

Returns

DHCP:0

IP:192.168.1.198

NETMASK:255.255.255.0

GW:192.168.1.1

MAC:93-47-df-48-48-48

PORT:18190

BAUDRATE:115200

9). Restore factory default of the interface

:SYST: FACTRESET

Factory interface status:

DHCP: 0

IP: 192.168.1.198

NETMASK: 255.255.255.0

GW: 192.168.1.1

PORT: 18190

BAUDRATE: 115200

2. Connection mode setting

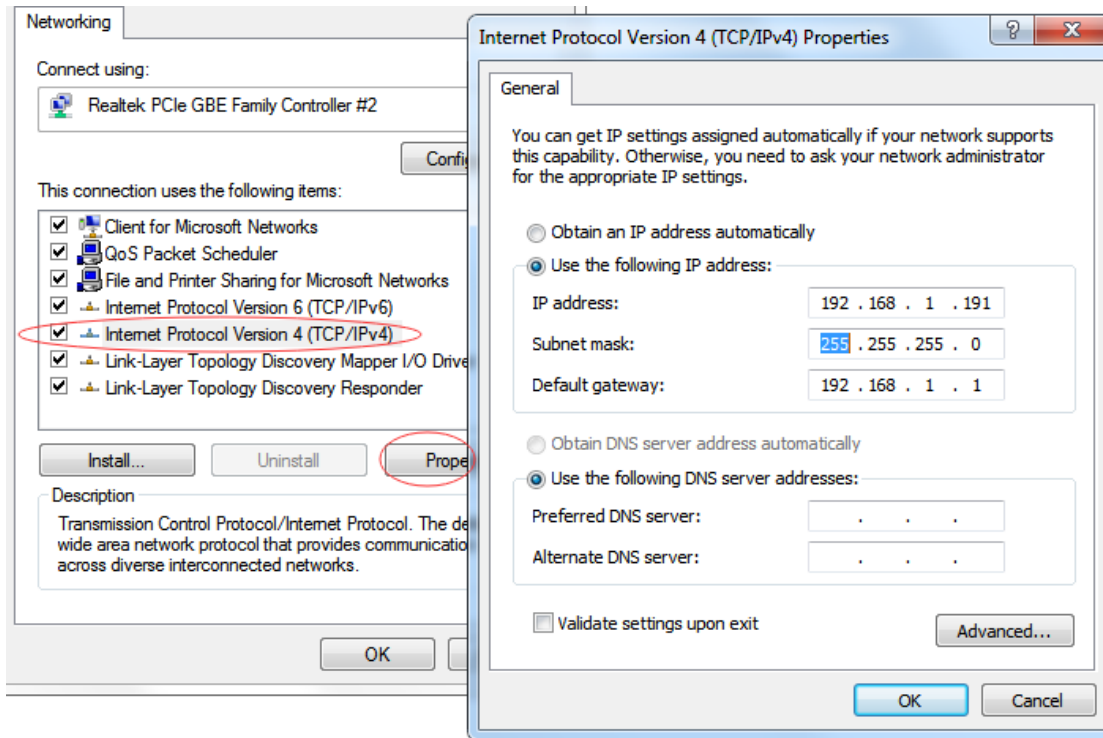
Device default static IP address:

IP: 192.168.1.198
NETMASK: 255.255.255.0
GW : 192.168.1.1

<1> Direct access

1). Plug the device through one end of the network cable, and connect the PC to the other end to make the IP address of the PC and the device address on the same network segment.

Such as: 192.168.1.xx



2). Connected with a switch or router

There are 2 ways to choose:

<1> Route Allocation Method (DHCP)

<2> Access through a network device (router)

It can be connected in the following 2 ways:

1. DHCP: the route dynamically allocates an address, and the IP address of the device after each boot is allocated.

2. Use this method to enable DHCP ,

Command format ":SYSTem:DHCP 1",

2. Manual setting: manually fixing the IP address, you must set the IP and routing devices on the same network segment, and can't conflict with other network addresses (Routing device network segment can be viewed through the local network, or ask the network administrator).

For example, the current LAN segment IP is as follows:

IP: 10.10.1.32
 Subnet MASK: 255.0.0.0
 GW : 10..10.1.1

Then you need to modify the IP 10.10.1.67 range (2~255), the gateway and subnet mask don't need to be modified.

IP: 10.10.1.67 (2~255)
 Subnet MASK: 255.0.0.0
 GW : 10..10.1.1

3. Debugging assistant use

1. Click network debug, the local IP address will be displayed, and the device uses the UDP protocol port number 18190.
2. "Find device", automatically search for devices in the current LAN, and display the current online device in the list box, Figure 3.1
3. To communicate with a device, click the control in the list box.

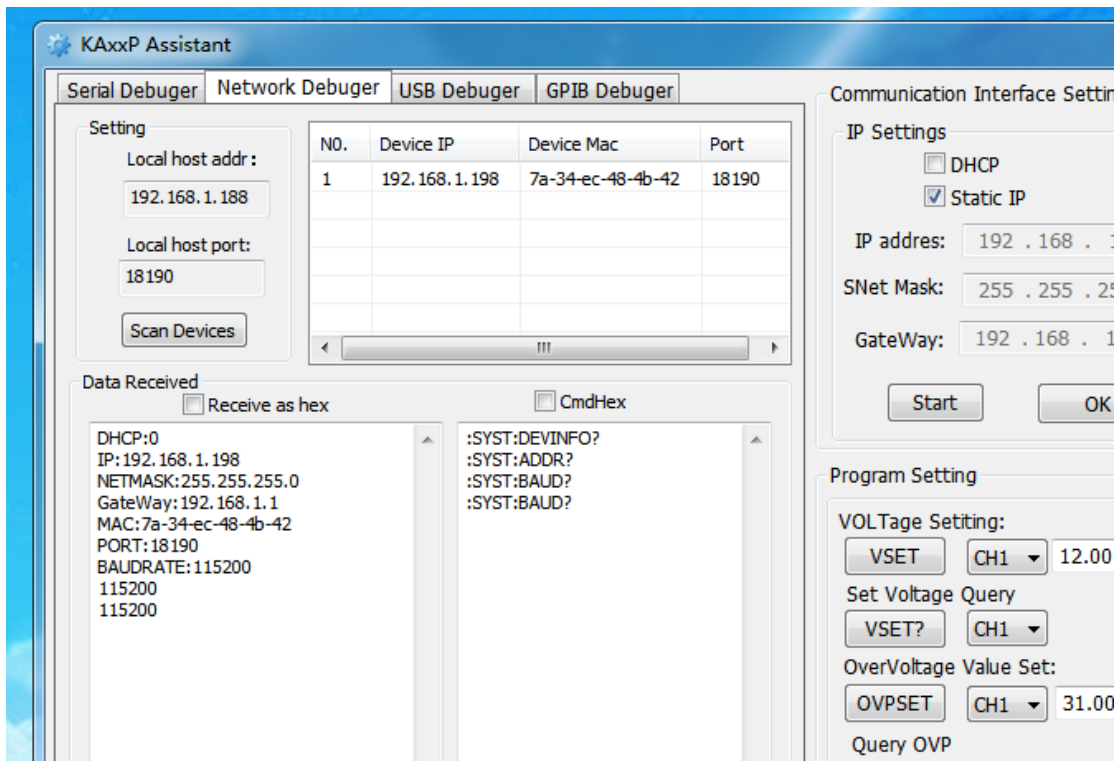


Figure 3.1

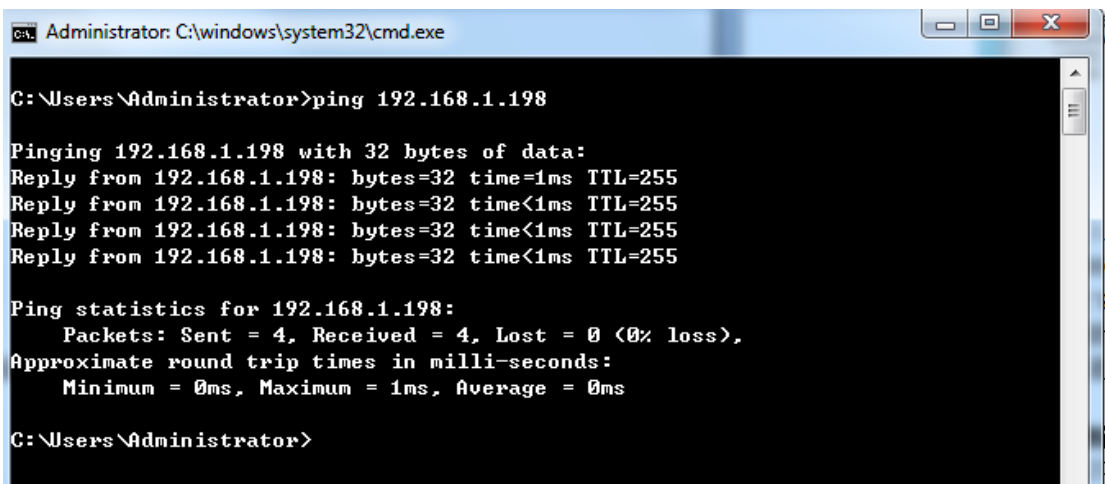
4. Set the DHCP function, check "DHCP", then click "OK" below to set the static IP. Then check "static IP" and press "OK". Finally, you need to restart the

device to make the current network configuration take effect.

5. If the setting is wrong, click “Restore Parma” to restore the factory parameters configuration.
6. Note: setting a static IP over the LAN interface requires a reboot to take effect.

4. Common troubleshooting

1. If the communication is not normal, first use the command to ping the device IP, as shown below:



```
Administrator: C:\windows\system32\cmd.exe
C:\Users\Administrator>ping 192.168.1.198

Pinging 192.168.1.198 with 32 bytes of data:
Reply from 192.168.1.198: bytes=32 time=1ms TTL=255
Reply from 192.168.1.198: bytes=32 time<1ms TTL=255
Reply from 192.168.1.198: bytes=32 time<1ms TTL=255
Reply from 192.168.1.198: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.198:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\Administrator>
```

2. Whether the IP address is different from the current LAN setting.

The current LAN IP is 192.168.10.133, the network segment is 192.168.10.xx and the device IP is 192.168.5.12.

3. Whether the IP conflicts with other IPs in the LAN.
4. Whether the port number is set incorrectly.
5. The firewall blocked the device port.

5. Programming steps

Connect to the device via a computer network cable (refer to the communication protocol command)

1. Select the network protocol type as: UDP
2. Local host IP; such as the current computer IP (192.168.1.3)
3. Local host port number: 18190
4. Device IP: (192.168.1.198)

5. Device port number: 18190

As shown in Figure 5-1 below:

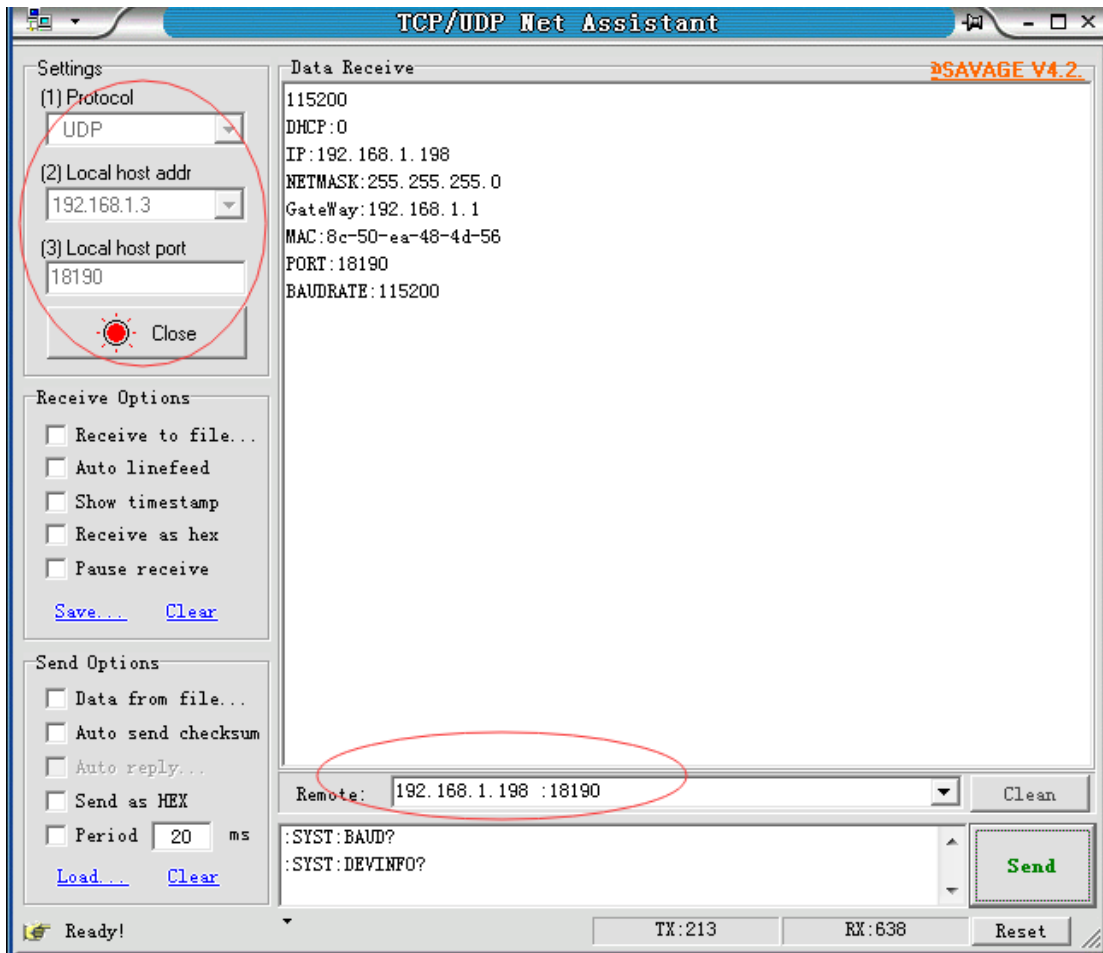


Figure 5-1 Network debugging assistant and device communication

Precautions:

1. The device port number and computer port number must be the same. The device port number is changed to 35876, then the computer configuration port must also be 35876;
2. Modify the IP and subnet mask through the network configuration. The gateway will take effect only after the device is restarted. If it is another interface (such as serial port or USB), it will take effect immediately;
3. If the parameter configuration is wrong, the network can't communicate, need to reset the parameters, and you can reset through RS232 serial port or USB, or use the restore factory command directly.