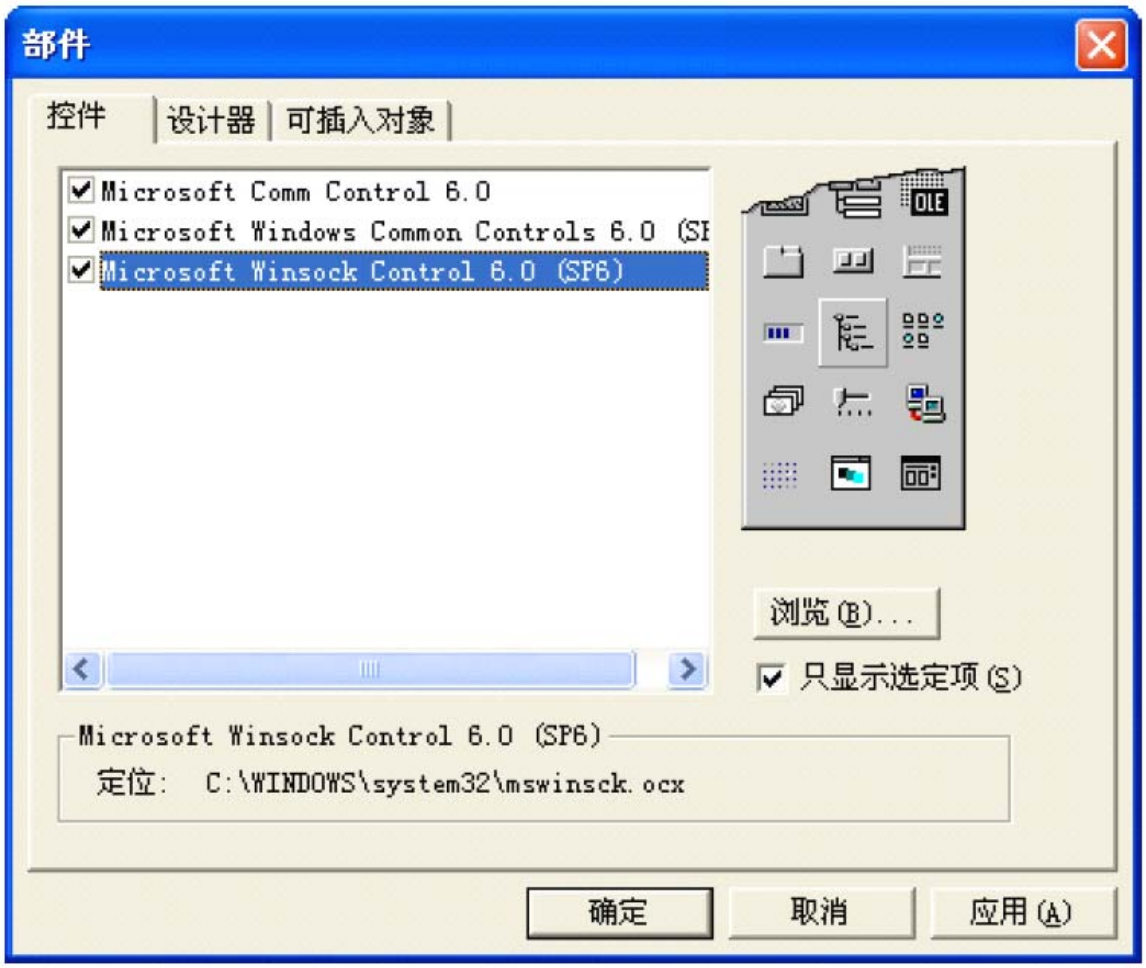
Network configuration protocol

Network configuration is done by UDP broadcast packets.

Here with the VB as an example, assume that has joined the Microsoft Winsock Control named as Winsock.



UDP setting: UDP broadcast destination IP 255.255.255.255, UDP local port 1501, UDP remote port 1501. Can use following code in Vb:

```
Winsock.Close
Winsock.RemoteHost = "255.255.255.255"
Winsock.RemotePort = "1501"
Winsock.LocalPort = "1501"
Winsock.Protocol = sckUDPProtocol
```

Searching device:

Broadcast a data package to internet through UDP. Physically, modules in the same LAN(module IP and pc IP can in different network segment) will respond.

Step 1: PC issued a broadcast packet data is:

"Read Parameter-12345678901234567890123456789012."

Example: IdUDPServer1-> Send("255.255.255.255 ", 1501, "Read Parameter-12345678901234567890123456789012.");

Step 2: Module returns information in the following table

Data bit meaning as listed below

Name	length	Instruction	Example
MAC 0-5	6	The MAC address of Network module	E0 98 F4 35 21 34
Module IP 6-9	4	Module IP	c0 a8 01 03 (192.168.1.3)
Module Port 10-11	2	Module port	27 16 (10006)
Destination IP 12-15	4	Connected target IP	c0 a8 01 02 (192.168.1.2)
Destination port 16-17	2	Connected target Port	27 16 (10006)
Gateway 18-21	4	The IP address of gateway	c0 a8 01 01 (192.168.1.1)
Subnet Mask 22-25	4	Subnet mask	ff ff ff 00(255.255.255.0)
Work Mode 26	1	1-TCP client, 0-UOP 2-UDP Server, 3-TCP Server	0(UDP) 1(TCP) 2(UDPSERVER) 3(TCPSERVER)
Baud Rate 27-29	3	serial port working baud rate	01 C2 00 (115200)
Serial Data bit 30	1	Data bit	0(8bit) 1(7bit)
Serial parity bit 31	1	parity bit	0(none) 1(even) 2(odd)
Serial Stop bit 32	1	Stop bit	0(1bit) 1(2bit) 2(1.5bit)
Delay send 33	1	Serial port Delay send time	0—250(ms)
ID 34-36	3	00 00 00	00 00 00
Reserved 37-38	2	00	00
Version 39	1	V2.0 = 0X20	0X20
CMD Type 40	1	0XB1	0XB1
Reserved 41	1	00	00

Configurate module:

through the broadcast packet which is with specific module MAC address

Step 1: PC issued a broadcast packet data is:

Data bit meaning as listed below

Name	length	Instruction	Example
MAC 0-5	6	The module MAC address which need configurate	E0 98 F4 35 21 34
New MAC 6-11	6	The new module MAC address	E0 98 F4 45 67 33
Module IP 12-15	4	Module IP	c0 a8 01 03 (192.168.1.3)
Module Port 16-17	2	Module port	27 16 (10006)
Destination IP 18-21	4	Connected target IP	c0 a8 01 02 (192.168.1.2)
Destination port 22-23	2	Connected target Port	27 16 (10006)
Gateway 24-27	4	The IP address of gateway	c0 a8 01 01 (192.168.1.1)
Subnet Mask 28-31	4	Subnet mask	ff ff ff 00(255.255.255.0)
Work Mode 32	1	1-TCP client, 0-UOP 2-UDP Server, 3-TCP Server	0(UDP) 1(TCP) 2(UDPSERVER) 3(TCPSERVER)
Baud Rate 33-35	3	serial port working baud rate	01 C2 00 (115200)
Serial Data bit 36	1	Data bit	0(8bit) 1(7bit)
Serial parity bit 37	1	parity bit	0(none) 1(even) 2(odd)
Serial Stop bit 38	1	Stop bit	0(1bit) 1(2bit) 2(1.5bit)
Delay send 39	1	Serial port Delay send time	0—250(ms)
ID 40-42	3	00 00 00	00 00 00

Function selection 43-44
 	
If 43, 44 bytes are 0, no information is updated, the module will automatically restart
	2	Function Description of The Byte 43
		bit0 update "New MAC."
		bit1 update "Module IP"
		bit2 update "Module Port"
		bit3 update "Destination IP"
		bit4 update "Destination Port"
		bit5 update "Gateway"
		bit6 update "Subnet Mask"
		bit7 update "Work Mode"
		Function Description of The Byte 44
		bit0 update "Baud Rate"
		bit1 update "Data bit/ Stop bit/ parity bit"
		bit2 update "Delay send"
		bit3 update "ID"
		bi4 should be 0
		bit5 should be 0
		bit6 should be 0
			if(arr[43]&0x01)New MAC
			If(arr[43]&0X02)Module IP
			if(arr[43]&0X04)Module Port
			if(arr[43]&0X08)Destination IP
			if(arr[43]&0X10)Destination port
			if(arr[43]&0X20)Gateway
			if(arr[43]&0X40)Subnet Mask
			if(arr[43]&0X80)Work Mode
			
			if(arr[44]&0X01)Baud Rate
			if(arr[44]&0X02)Data bit/ Stop bit/ parity bit
			if(arr[44]&0x04)Delay send
			if(arr[44]&0x08)ID

		bit7 should be 0 1 indicates the update, 0 means no updated.	
Version 45	1	00	0x00
CMD Type 46	1	0XB0	0XB0
Reserved 47	1	00	00

Step 2: Return messages

If the configuration is successful, the module will returns information in the following table:

Name	length	Instruction	Example
MAC 0-5	6	The MAC address of Network module	E0 98 F4 35 21 34
Module IP 6-9	4	Module IP	c0 a8 01 03 (192.168.1.3)
Module Port 10-11	2	Module port	27 16 (10006)
Destination IP 12-15	4	Connected target IP	c0 a8 01 02 (192.168.1.2)
Destination port 16-17	2	Connected target Port	27 16 (10006)
Gateway 18-21	4	The IP address of gateway	c0 a8 01 01 (192.168.1.1)
Subnet Mask 22-25	4	Subnet mask	ff ff ff 00(255.255.255.0)
Work Mode 26	1	1-TCP client, 0-UOP 2-UDP Server, 3-TCP Server	0(UDP) 1(TCP) 2(UDPSERVER) 3(TCPSERVER)
Baud Rate 27-29	3	serial port working baud rate	01 C2 00 (115200)
Serial Data bit 30	1	Data bit	0(8bit) 1(7bit)
Serial parity bit 31	1	parity bit	0(none) 1(even) 2(odd)
Serial Stop bit 32	1	Stop bit	0(1bit) 1(2bit) 2(1.5bit)
Delay send 33	1	Serial port Delay send time	0—250(ms)
ID 34-36	3	00 00 00	00 00 00
Reserved 37-38	2	00	00
Version 39	1	V2.0 = 0X20	0X20
CMD Type 40	1	0XB0	0XB0
Reserved 41	1	00	00

Serial Configuration Protocol

Within 1.5 seconds after power on, the serial port settings are fixed 9600 N 8 1 (9600 baud, no parity, 8 data bits, 1 stop bit), More than 1.5 seconds, the serial port working mode is the user's last setting mode.

Read parameter command

Step 1: PC issued a packet data is:

EA 9B 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F 20 21 22 23 24 25 26 27 B1 BD

Step 2: Module returns information in the following table

Data bit meaning as listed below

Name	length	Instruction	Example
Header 0-1	2	Packet header	EA 9B
MAC 2-7	1	The module MAC address	E0 98 F4 35 21 34
Module IP 8-11	4	Module IP	c0 a8 01 03 (192.168.1.3)
Module Port 12-13	2	Module port	27 16 (10006)
Destination IP 14-17	4	Connected target IP	c0 a8 01 02 (192.168.1.2)
Destination port 18-19	2	Connected target Port	27 16 (10006)
Gateway 20-23	4	The IP address of gateway	c0 a8 01 01 (192.168.1.1)
Subnet Mask 24-27	4	Subnet mask	ff ff ff 00 (255.255.255.0)
Work Mode 28	1	1-TCP client, 0-UOP 2-UDP Server, 3-TCP Server	0(UDP) 1(TCP) 2(UDPSERVER) 3(TCPSERVER)
Baud Rate 29-31	3	serial port working baud rate	01 C2 00 (115200)
Serial Data bit 32	1	Data bit	0(8bit) 1(7bit)
Serial parity bit 33	1	parity bit	0(none) 1(even) 2(odd)
Serial Stop bit 34	1	Stop bit	0(1bit) 1(2bit) 2(1.5bit)
Delay send 35	1	Serial port Delay send time	0—250(ms)
ID 36-38	3	00 00 00	00 00 00
Reserved 39-40	2	00 00	00 00
Version 41	1	V2.0 = 0X20	0X20
CMD Type 42	1	0XB1	0XB1
Checksum 43	1	Accumulation from 2-42 bytes	0Xee

Set parameter command

Step 1: PC issued a packet data is:

Data bit meaning as listed below

Name	length	Instruction	Example
Header 0-1	2	Packet header	EA 9B
New MAC 2-7	6	The new module MAC address	E0 98 F4 45 67 33
Module IP 8-11	4	Module IP	c0 a8 01 03 (192.168.1.3)
Module Port 12-13	2	Module port	27 16 (10006)
Destination IP 14-17	4	Connected target IP	c0 a8 01 02 (192.168.1.2)
Destination port 18-19	2	Connected target Port	27 16 (10006)
Gateway 20-23	4	The IP address of gateway	c0 a8 01 01 (192.168.1.1)
Subnet Mask 24-27	4	Subnet mask	ff ff ff 00(255.255.255.0)
Work Mode 28	1	1-TCP client, 0-UOP 2-UDP Server, 3-TCP Server	0(UDP) 1(TCP) 2(UDPSERVER) 3(TCPSERVER)
Baud Rate 29-31	3	serial port working baud rate	01 C2 00 (115200)
Serial Data bit 32	1	Data bit	0(8bit) 1(7bit)
Serial parity bit 33	1	parity bit	0(none) 1(even) 2(odd)
Serial Stop bit 34	1	Stop bit	0(1bit) 1(2bit) 2(1.5bit)
Delay send 35	1	Serial port Delay send time	0—250(ms)
ID 36-38	3	00 00 00	00 00 00

Function selection 39-40
 	
If 39, 40 bytes are 0, no information is updated, the module will automatically restart
	2	Function Description of The Byte 39
		bit0 update "New MAC."
		bit1 update "Module IP"
		bit2 update "Module Port"
		bit3 update "Destination IP"
		bit4 update "Destination Port"
		bit5 update "Gateway"
		bit6 update "Subnet Mask"
		bit7 update "Work Mode"
		Function Description of The Byte 40
		bit0 update "Baud Rate"
		bit1 update "Data bit/ Stop bit/ parity bit"
		bit2 update "Delay send"
		bit3 update "ID"
		bi4 should be 0
			if(arr[39]&0x01)New MAC
			If(arr[39]&0X02)Module IP
			if(arr[39]&0X04)Module Port
			if(arr[39]&0X08)Destination IP
			if(arr[39]&0X10)Destination port
			if(arr[39]&0X20)Gateway
			if(arr[39]&0X40)Subnet Mask
			if(arr[39]&0X80)Work Mode
			
			if(arr[40]&0X01)Baud Rate
			if(arr[40]&0X02)Data bit/ Stop bit/ parity bit
			if(arr[40]&0x04)Delay send
			if(arr[40]&0x08)ID

		bit5 should be 0 bit6 should be 0 bit7 should be 0 1 indicates the update, 0 means no updated.	
Version 41	1	00	0x00
CMD Type 42	1	0XB0	0XB0
Checksum 43	1	Accumulation from 2-42 bytes	0Xee

Step 2: Return messages

If the configuration is successful, the module will return a fixed data packet： EA 9B 00 00 45