



Communication for Device Discovery and Configuration of the Ethernet Interface

iDTRONIC GmbH
Ludwig-Reichling-Straße 4
67059 Ludwigshafen
Germany/Deutschland

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Phone: +49 621 6690094-0
Fax: +49 621 6690094-9
E-Mail: info@idtronic.de
Web: idtronic.de

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1 Discovery

1.1 PC/PLC to RFID Device

The PC/PLC sends a broadcast UDP message to destination port 1524 with the command code "SERH".

SERH Discover Ethernet Interface

CNFG Set Ethernet Interface Configuration

UPDT Update Ethernet Interface Firmware

FACT Do a Factory Reset

RSTT Reset the Ethernet Interface

Raw Data

```
0000  ff ff ff ff ff ff 00 e0 4c 21 80 8c 08 00 45 00  ....L!....E.
0010  00 20 37 10 00 00 80 11 00 00 c0 a8 01 33 ff ff  . 7.....3..
0020  ff ff f2 9e 05 f4 00 0c 9f da 53 45 52 48  ....SERH
```

Part 1

ff ff ff ff ff ff 00 e0 4c 21 80 8c 08 00 = Ethernet II

In Detail

Destination: ff ff ff ff ff ff (Broadcast),
Source: 00 e0 4c 21 80 8c (RealtekS_S21:80:8c = MAC),
IPv4 (0x0800)

Part 2

45 00 00 20 37 10 00 00 80 11 00 00 c0 a8 01 33 ff ff ff ff = IPV4

In Detail

4 = Version Nibble
5 = Internet Header Length = $0x5 \times 32 \text{ bit} = 160 \text{ bit} = 20 \text{ Bytes}$
00 = Type of Service
00 20 = Total Packet Length
37 10 = Packet Number
00 00 = Flags + Fragment-Offset
80 = Time to Life
11 = Protocol
00 00 = Header Checksum
c0 a8 01 33 = Source IP, 192.168.1.51
ff ff ff ff = Target IP, 255.255.255.255

Part 3, the UDP Message

f2 9e 05 f4 00 0c 9f da 53 45 52 48

In Detail

f2 9e 05 f4 00 0c 9f da = User Datagram Protocol, Src Port: 62110, Dst Port: 1524, Data Length: 12,
Checksum
53 45 52 48 = Data, „SERH"

1.2 Reply from RFID Device

```

0000  ff ff ff ff ff ff ec 9f 0d 40 2f f3 08 00 45 00  ....@/...E.
0010  00 bd 00 05 40 00 80 11 38 79 c0 a8 01 0a ff ff  ....@...8y.....
0020  ff ff 05 f4 f2 9e 00 a9 55 14 53 45 52 48 46 53  ....U.SERHFS
0030  31 30 30 53 00 00 00 00 00 00 00 00 00 32 30  100S.....20
0040  32 32 30 33 32 34 2d ec 9f 0d 40 2f f3 00 ec 9f  220324-...@/....
0050  0d 40 2f f3 01 c0 a8 01 0a ff ff ff 00 c0 a8 01  .@/.....
0060  01 5b a6 01 08 46 53 31 30 30 53 00 00 00 00 00  .[...FS100S.....
0070  00 00 00 00 00 61 64 6d 69 6e 00 61 64 6d 69 6e  ....admin.admin
0080  00 00 d0 43 de de 00 00 01 50 00 05 01 00 00 00  ...C.....P.....
0090  00 00 40 1f c0 a8 01 c9 2a 20 00 00 00 00 00 00  ..@.....* .....
00a0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
00b0  00 00 00 00 00 00 00 00 00 00 00 00 00 e8 03 0a  .....
00c0  00 00 00 01 00 01 00 00 00 fa 4e  ....N

```

Value (hex)	Length	Description	Designation
53 45 52 48	4	Command Code "SERH"	Command Code
46 53 31 30 30 53 00 00 00 00 00 00 00 00 00 00	16	"FS100S", ASCII, with closing NULL, filled with padding 0x00	Device Type, fixed
32 30 32 32 30 33 32 34 2D EC 9F 0D 40 2F F3 00	16	ASCII, with closing NULL, filled with padding 0x00 Byte 1...8: Manufacturing Date Byte 9: "-" Byte 10...15: MAC address Byte 16: NULL	Serial number including MAC
EC 9F 0D 40 2F F3	6		MAC
01	1	0: error state 1: normal state 2: firmware upload state	Status
C0 A8 01 0A	4	192.168.1.10	Local IP Address
FF FF FF 00	4	255.255.255.0	Subnet Mask
C0 A8 01 01	4	192.168.1.1	Gateway IP Address
5B A6	2	CRC16 check sum over "device type" to "Gateway IP Address"	CRC-16/X-25 (crccalc.com)
01 08	2	Byte 1 is MSB, byte 2 is LSB	Bytes Firmware Version
46 53 31 30 30 53 00 00 00 00 00 00 00 00 00 00	16	"FS100S", ASCII, with closing NULL, filled with padding 0x00	Device Name
61 64 6D 69 6E 00	6	"admin", ASCII, with closing NULL	User Name
61 64 6D 69 6E 00	6	"admin", ASCII, with closing NULL	Password
00	1	0: disable DHCP 1: enable DHCP	DHCP Flag
D0 43 DE DE	4	208.67.222.222	DNS Server
00	1	0: no Debug messages 1: display Debug message	Debug Flag
00	1	0: disable AT command echo display 1: enable AT command echo display	AT Command Echo
01	1	0: AT command mode 1: data SerialNet	Power on running mode
50 00	2	80 00	Web Port Number

05	1	0: 300 1: 600 2: 1200 3: 2400 4: 4800 5: 9600 6: 14400 7: 19200 8: 38400 9: 56000 10: 57600 11: 115200 12: 128000 13: 230400 14: 256000 15: 460800	Baudrate
01	1	0: 7 data bit 1: 8 data bit	Data Bits
00	1	0: none 1: odd parity check 2: even parity check	Parity
00	1	0: 1 stop bit 1: 2 stop bit	Stop Bit
00	1	0: no flow control 1: RTS/CTS 2: RS485 control	Flow Control
00	1	Modbus functional options 0: NONE 1: Modbus RTU 2: Modbus ASCII	Modbus Mode
00	2	0: TCP Server 1: TCP Client 2: UDP Server 3: UDP Client	Socket Type
40 1F	2	0...65535, when be set as 0, it is random from 5005...65535 r	Local Port
C0 A8 01 C9	4	192.168.1.201	Remote IP
2A 20	2	0...65535	Remote Port
00	1	DNS enable flag	DNS Flag
00 00	32	Target domain	Target Domain
00 00	2	0...60000 ms	Inactivity
E8 03	2	0...60000 ms	Reconnection
0A 00	2	0...60000 ms	Data Packing Time

00 00	2	0...2048 Bytes	Data Packing Size
01 00	2	0...255 s	Keepalive Time
01	1	Whether to clear serial port buffer after connect 0: not clear 1: clear	clrBufFlag
00	1	Whether to request password after connect 0: not check 1: check	reqPwdFlag
00	1	Send msg option after connect 0: not send msg 1: send device name 2: send MAC address 3: send device IP address	helloMSG
00	1	Connection condition, valid when using TCP Client 0: connect immediately after powerup 1: connect after serial port received data	tcpConnCondition
FA 4E	2	Check sum from "Firmware Version" to "tcpConnCondition"	CRC-16/X-25 (crccalc.com)