

245-945U-E Serial Server/Client

PURPOSE

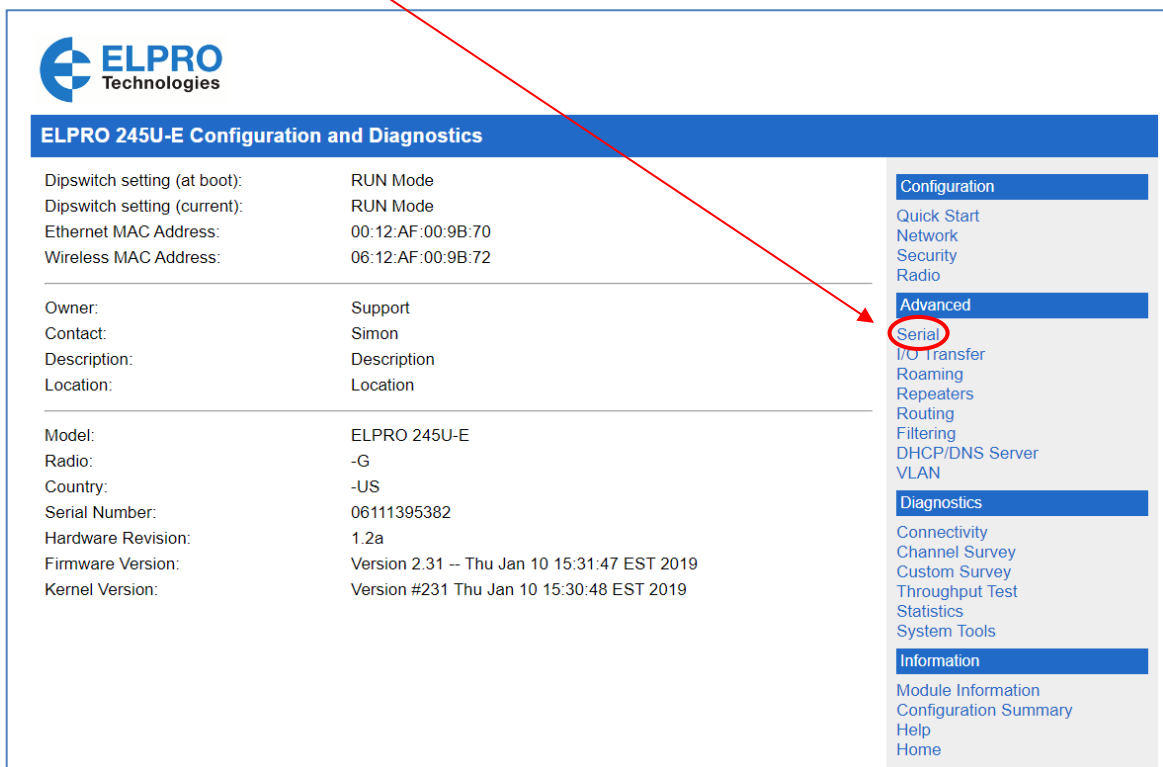
The purpose of this document is to illustrate how to setup the serial server on the 245U-E or a 945U-E Ethernet Modem.

APPLICATION

This application should be read in conjunction with the 245U-E/945U-E User Manuals, this provides extensive details on hardware setup and configuration of the Ethernet Radio's. It is expected the reader have a firm understanding of Ethernet devices and how to communicate over a TCP/IP network.

First get the 245U-E/945U-E's communicating as per the normal setup procedure (See User Manual).

When both 245U-E/945U-E modems can be accessed via Windows internet Explorer select the "Serial" configuration menu



The screenshot shows the ELPRO 245U-E Configuration and Diagnostics web interface. The main content area displays system information in a table format:

Dipswitch setting (at boot):	RUN Mode
Dipswitch setting (current):	RUN Mode
Ethernet MAC Address:	00:12:AF:00:9B:70
Wireless MAC Address:	06:12:AF:00:9B:72
<hr/>	
Owner:	Support
Contact:	Simon
Description:	Description
Location:	Location
<hr/>	
Model:	ELPRO 245U-E
Radio:	-G
Country:	-US
Serial Number:	06111395382
Hardware Revision:	1.2a
Firmware Version:	Version 2.31 -- Thu Jan 10 15:31:47 EST 2019
Kernel Version:	Version #231 Thu Jan 10 15:30:48 EST 2019

The right-hand side of the interface contains a navigation menu with the following sections:

- Configuration**
 - Quick Start
 - Network
 - Security
 - Radio
- Advanced**
 - Serial** (circled in red)
 - I/O Transfer
 - Roaming
 - Repeaters
 - Routing
 - Filtering
 - DHCP/DNS Server
 - VLAN
- Diagnostics**
 - Connectivity
 - Channel Survey
 - Custom Survey
 - Throughput Test
 - Statistics
 - System Tools
- Information**
 - Module Information
 - Configuration Summary
 - Help
 - Home

Then setup one end of the Ethernet link as the serial server and the other as the serial client (It does not matter which way around it is and it has no bearing on whether the module is an Ethernet Access Point or a Station (Client)).

End "A" (Example: IP address 192.168.0.195)

Serial parameters need to setup to match the serial device (baud rate, parity, stop bits, flow control, etc)

Then select either a "Server" (If this one is a server then the other modem will need to be client).

Then select a Listening port "23" is a generic Ethernet port.

Press "Save to Flash and Reset"

<u>RS-232 Serial Port Configuration:</u>	
RS-232 Port Type	Serial Gateway ▾
Data Rate	9600 ▾
Data Format	8N1 ▾
Flow Control	None ▾
<u>RS-232 Serial Gateway:</u>	
Serial Gateway Mode	Server ▾
Character Timeout (msec)	50
Packet Size (bytes)	500
Listen Port	23

End “B” (Example: IP Address 192.168.0.196)

Again setup the serial parameters to match the serial device.

Then select “Client” and make sure the Remote Device Port is “23” (same as the Listen port on the Server).

Lastly the Remote Device IP Address needs to be the IP address of the Serial Server (the other modem), in this case 192.168.0.195

Press “Save to Flash and Reset”

<u>RS-232 Serial Port Configuration:</u>	
RS-232 Port Type	Serial Gateway ▾
Data Rate	9600 ▾
Data Format	8N1 ▾
Flow Control	None ▾
<u>RS-232 Serial Gateway:</u>	
Serial Gateway Mode	Client ▾
Character Timeout (msec)	50
Packet Size (bytes)	500
Remote Device Port	23
Remote Device IP Address	192.168.0.195

After both modems have been reset you should be able to connect “Windows HyperTerminal” to the serial port of each modem, with the serial parameters programmed into the modems and be able to type characters on one terminal and they should appear on the other terminal.

Other Serial options

For Point to Point applications you can use TCP Server & Client (explained above) however there is another selection in the Serial Gateway Mode of “UDP Point to Point”

“UDP Point to Point”

This option is similar to the TCP Server/Client but uses UDP rather than TCP communications. What this means is that the serial communication us broadcast messages which do not send receive acknowledgements and therefore mean no message retries. This can improve busy systems because it reduces the number of messages being sent but also means there are no retries if the message fails to be received at the destination. Depending on the serial protocol, polling speeds and frequency this may not be a major issue, it’s just another communication option that can be explored if need be.

Configuration is very similar in that all radios have a Remote Device Port number (24) which needs to be the same on both radios and the Remote Device IP address needs to point to the other radio, similar to TCP client configuration.

“UDP Multicast”

The UDP Multicast option in the serial menu is used for Point to Multipoint serial communications, similar to what RS485 is to on wired connections but over wireless. Configuration is done by selecting “UDP Multicast “from the dropdown “Serial Gateway Mode” list and as it’s a UDP broadcast communication it requires **all** communicating radios to have the **same** Multicast Group Port number and Multicast Group IP Address. When a serial packet is sent all radios will receive the message and only output to the serial port if the Multicast Group Port and IP address are the same.

Amendment Register:

Issue No.	Date	Details of Amendment
1.0	28/06/07	Draft Issue
1.1	12/02/19	Elpro Branding
1.2	29/05/20	Minor Branding update
1.3	29-2-24	Other Serial Options