1 355, 2450, 8450 Ethernet Versions

Ethernet Setup

The UNIT ID key allows configuring the following options on the Model 355, 2450, and 8450.

SCL? - The IP Address identifies the client on the network. The IP Address is a unique number consisting of four parts separated by periods. (Ex: 146.207.40.1)

GW? – Gateway IP address is used if the server is on a different network.

Use the following key sequence to set the client IP address and Gateway address. The example shows setting the IP address to 146.208.104.015.

Press: SETUP
Press: ENTER
Press: UNIT ID
Display: **SCL 255.255.255.255**
Press: ENTER
Display: **SCL? 255.255.255.255** (SCL is this scale's IP.)
Key In: **146 208 104 015** (no spaces or .'s needed)
Press: ENTER
Display: **Port 0**
Press ENTER
Display: **Port ? 0**
Key In: **2305** (always set to this number)
Press: ENTER
Display: **GW 255.255.255.255** (GW is the Gateway's IP.)
Press: ENTER
Display: **GW? 255.255.255.255**
Key In: 146 208 104 100 (no spaces or .'s needed)
Press: ENTER
Display: **SCL 146.208.104.015** (where xxx shows the new number entered)
Press: CLEAR to exit setup mode.

Turn power off and back on to reset the scale with the new data.

Note: This is a supplement to the Connectivity Guide and Service manuals for the individual products. Refer to the Connectivity Guide and the product Service Manuals for additional information.

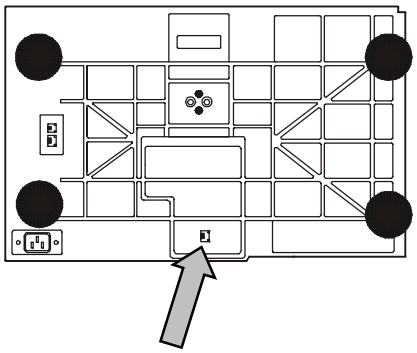
Ethernet Wiring 355, 2450, 8450

The Ethernet jacks on all METTLER TOLEDO® Clients use standard Ethernet Wiring configurations. This wiring configuration allows the use of standard Ethernet straight-through patch cables from a hub to the client. The Ethernet connection jack is shown below.

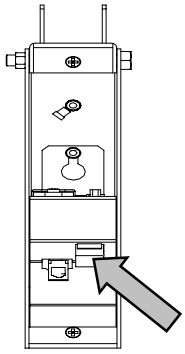
Model 8450 Client Bottom View

Ethernet RJ45
10 Base-T Connector

Pin 1 - TD+
Pin 2 - TD-
Pin 3 - RD+
Pin 6 - RD-

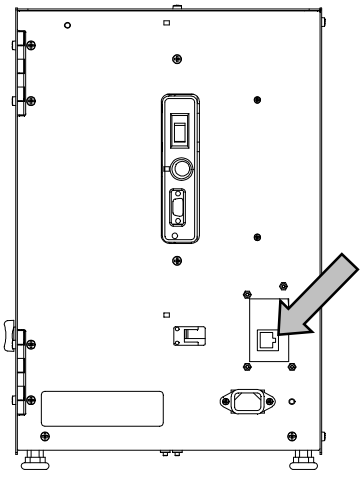


Client Ethernet Connectors



Model 2450 Column
(Cover removed)

355 Rear View



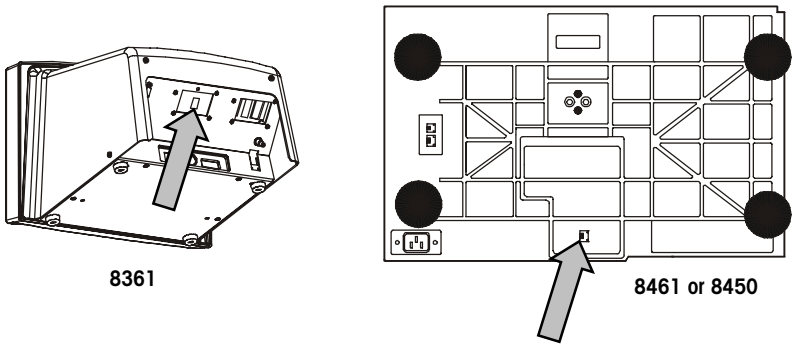
2 8361, 8461 Ethernet Versions

Ethernet Wiring 8361/8461

The Ethernet jacks on all METTLER TOLEDO® Clients use the industry standard Ethernet Wiring configuration allowing the use of 10BASE-T straight-through patch cables from a hub to the client (node). The Ethernet connection jacks on the Model 8450 or 8461 Client is located on the bottom of the unit, as shown below.

Ethernet RJ45
10 Base-T Connector

Pin 1 - TD+
Pin 2 - TD-
Pin 3 - RD+
Pin 6 - RD-



Client 10BASE-T RJ-45 Ethernet Connectors

Ethernet Setup 8361/8461

Touch the SETUP key to access the Unit Setup Screen.

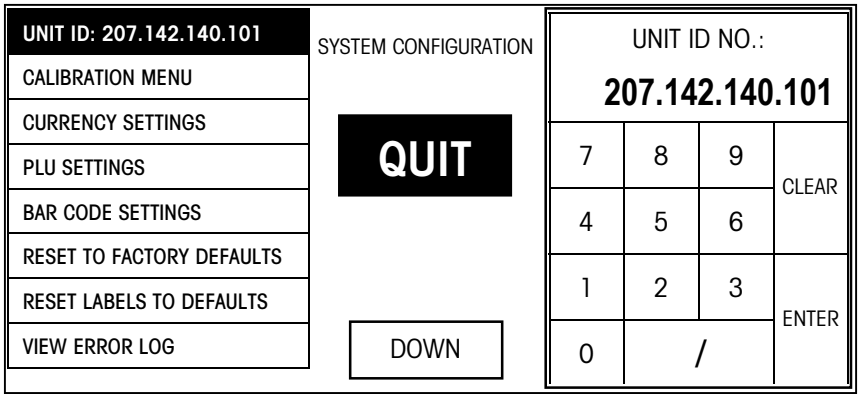
Ethernet Client

The Client Unit ID Number is a unique IP number (Internet Protocol) that identifies the Client on the Ethernet network. After entering the Client Unit ID number, you must enter the Server IP number, Router (Gateway), and Subnet Mask (below). The figure below shows an example of how the IP address works.

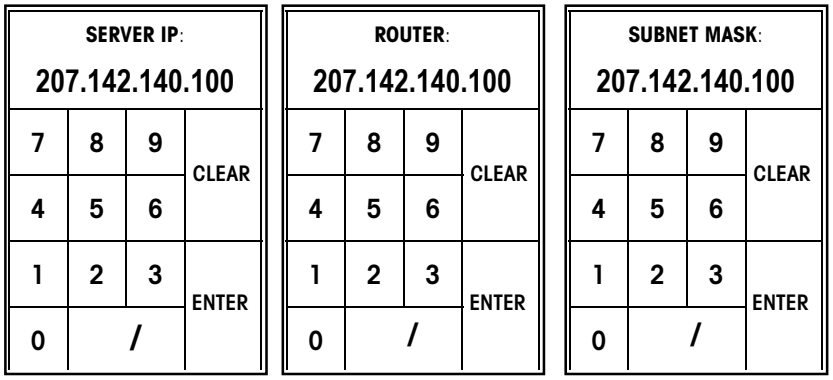
If the client/server network is local, arbitrary numbers can be selected for the IP Address. An IP Address consists of a group of four numbers from 0 to 255, separated by periods, for example: 207.142.140.101. Do not duplicate numbers on the network. To enter the numbers in the Model 8361/8461, key in the numbers starting at the MSD (left Most Significant Digit) number. The periods are not entered in this procedure. Enter numbers lower than 100 with preceding zeros (Example: 10 is entered as 010). To exit without saving, touch CLEAR.

Power the unit down after changing the IP address for the new changes to take effect.

To find the Windows NT Server IP address, type IPCONFIG at the DOS prompt. The IP address of the server will be displayed.



Unit ID Number, Client



Server IP, Router (Gateway), and Subnet Mask Numbers, Client

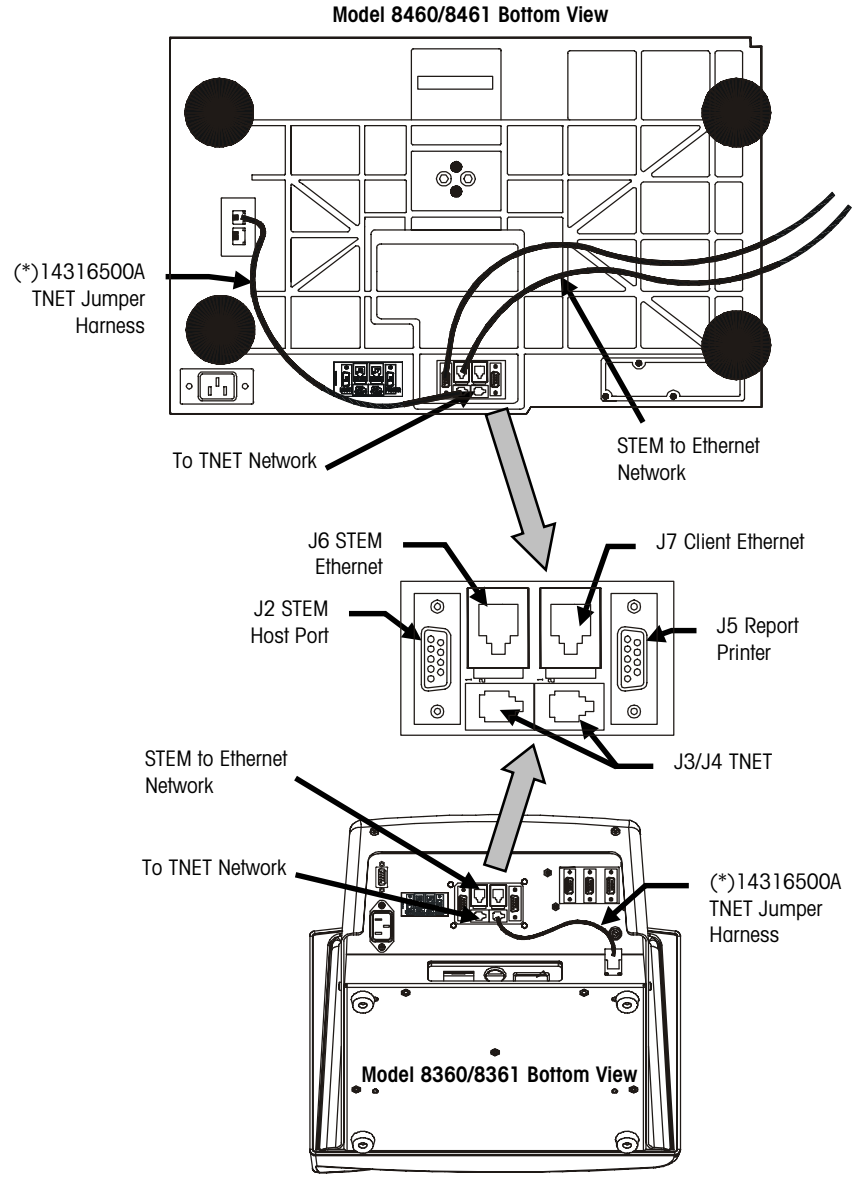
3 STEM (SmartTouch Ethernet Master)

STEM Connector PCB Layout

Standard Ethernet straight-through 10BASE-T patch cables are used to connect the STEM to an Ethernet hub. The Ethernet connection jack on the STEM is located on the Connector PCB, as shown in Figure 4-2. When connecting a STEM and Client to the network, two patch cables will be required. Figure 4-2 also shows the TNET, host, and report printer connectors on the Connector PCB.

Ethernet RJ45
10 BASE-T Connector

Pin 1 - TD+
Pin 2 - TD-
Pin 3 - RD+
Pin 6 - RD-



STEM Connector PCB Layout

STEM IP Address

This section describes how to set the STEM IP address using the PC or through the Master Editor.

LOAD_IP.EXE

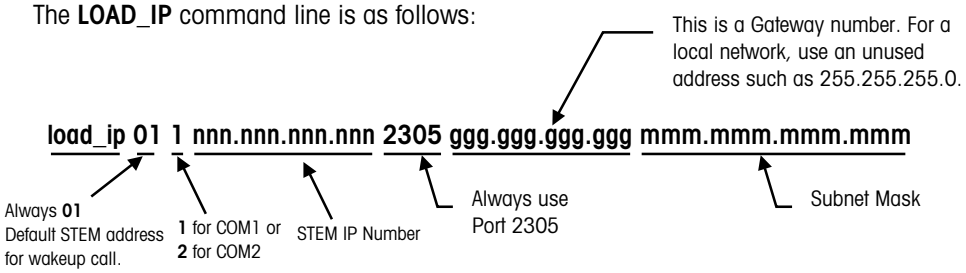
If the STEM is installed in a TNET satellite, the IP address can be set through the master editor.

After the STEM is flashed with new software, the IP address and TCP port number must be set. Ethernet communications between the STEM and an Ethernet Client will not be possible until the IP address and port number are set. The IP address is set with a PC connected to the STEM RS232 Host Port using a METTLER TOLEDO® program called **LOAD_IP.EXE**, which can be run right after flashing new software.

To change the IP address or TCP port number (or both), simply run LOAD_IP again. Power must be cycled on the STEM for the new settings to take effect.

To set the STEM IP, first connect an RS232 Serial cable to COM1 or COM2 on the PC and to the STEM Host Port (see Figure 4-3).

The **LOAD_IP** command line is as follows:



The gateway number may be required to access a host PC on another network. Check with your IS department for details on a gateway and submask number.

An example command to set the STEM IP number to **207.142.140.100** would be as follows:

load_ip 01 1 207.142.140.100 2305 255.255.255.0 255.255.255.0

A batch file is recommended to do this automatically. *Always wait at least 30 seconds after powering the STEM up before using LOAD_IP*. When the IP number is sent successfully, the PC screen should be similar to the following example.

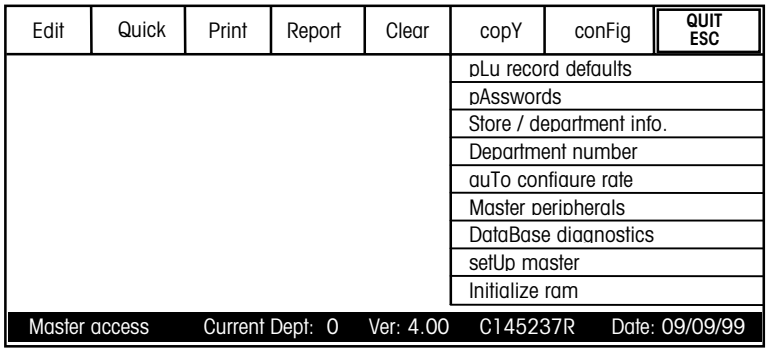
```
C:\STEM\>load_ip 01 1 207.142.140.100 2305 255.255.255.0255.255.255.0
Scale address [01]; Local port [COM1]; ip address [207.142.140.100] port [2305]

      default gateway [255.255.255.0] subnet mask [255.255.255.0]
Scale returned ACK to wake-up call
Scale returned ACK to IP command.

C:\Flash\STEM\LoadIP>
```

If LOAD_IP reports **ACK**, the IP was set successfully. If LOAD_IP reports **NACK**, an error occurred. In this case power down the unit, then retry LOAD_IP. If you get a blinking cursor after running the LOAD_IP command, cycle power to the scale and wait at least 30 seconds before attempting to run LOAD_IP.

Set IP through the Master Editor

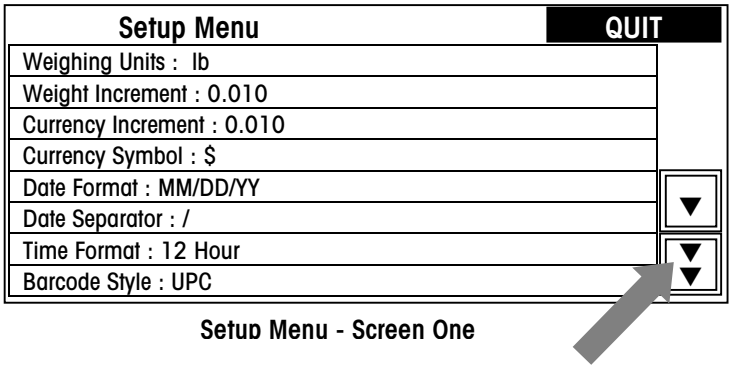
The STEM IP Address can be set using the Master Editor on a TNET Satellite or Ethernet Client. However, if the STEM is installed in a Client, and the STEM software has just been flashed, you will need to use LOAD_IP or use a TNET Satellite to initially set the IP Address. After the STEM IP Address has been set once, it can be changed by a client through the Master Editor.

To change the STEM IP Address, touch SETUP, MASTER EDITOR, enter the password or touch ENTER. The Master Editor screen will display.



STEM Master Editor

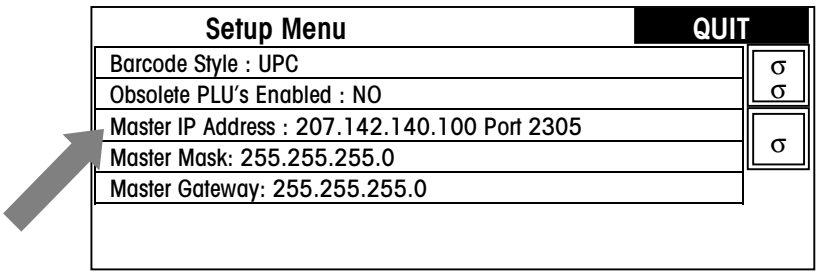
Next, touch CONFIG, then SETUP MASTER to display the following screen.



Setup Menu - Screen One

Touch the Page Down key to display page two of the setup menu. The current STEM IP Address will be displayed. Touch the box to change the address. You will be prompted to enter the address then the port address. Always use 2305 for the port on the STEM. After the new address has been entered, you will be prompted enter the Master Mask and Master Gateway. For a Gateway address and Subnet Mask on a local network, use an unused address such as 255.255.255.0. You will then be prompted to touch YES to set the new addresses and restart the master, or NO to exit without saving.

Remember to change the Server IP on the client if the STEM IP Address is changed. (SETUP, UNIT, CALIBRATE/INSTALL, UNIT ID).



Setup Menu - Screen Two

4 General Ethernet Information

Scale Ethernet Connections

The Ethernet jacks on all METTLER TOLEDO® Clients use standard Ethernet Wiring configurations. This wiring configuration allows the use of standard Ethernet straight-through patch cables from a hub to the client.

Ethernet RJ45
10 Base-T Connector

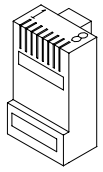
Pin 1 - TD+
Pin 2 - TD-
Pin 3 - RD+
Pin 6 - RD-

Patch Cables

10BASE-T Straight-Through Patch Cable
Patch cables connect devices to hubs. METTLER TOLEDO® Ethernet Clients require a CAT5 (Category 5) 10BASE-T UTP Straight-Through Patch Cable conforming to the EIA standard 568A or 568B. The only difference between 568A and 568B is the color code positions (green and orange wires are swapped). It is best not to mix 568A and 568B cables in a system to avoid confusion with the color codes (however, complete cables of both types will interchange). 10BASE-T segments are limited to 328 feet (100 m). The CAT5 Straight-Through Patch Cable has four pairs of wires connecting to the same pins on both ends of an RJ-45 connector. Pairs 2 and 3 are used for the 10BASE-T signals, as shown below.

Pin connections for 568A and 568B cables.

	Plug A	Color Code 568A	Color Code 568B	Plug B
Pair 3	1 - TD+	White/Green	White/Orange	1 - TD+
	2 - TD-	Green	Orange	2 - TD-
Pair 2	3 - RD+	White/Orange	White/Green	3 - RD+
Pair 1	4 - Not Used	Blue	Blue	4 - Not Used
	5 - Not Used	White/Blue	White/Blue	5 - Not Used
Pair 2	6 - RD-	Orange	Green	6 - RD-
Pair 4	7 - Not Used	White/Brown	White/Brown	7 - Not Used
	8 - Not Used	Brown	Brown	8 - Not Used



RJ-45 Plug

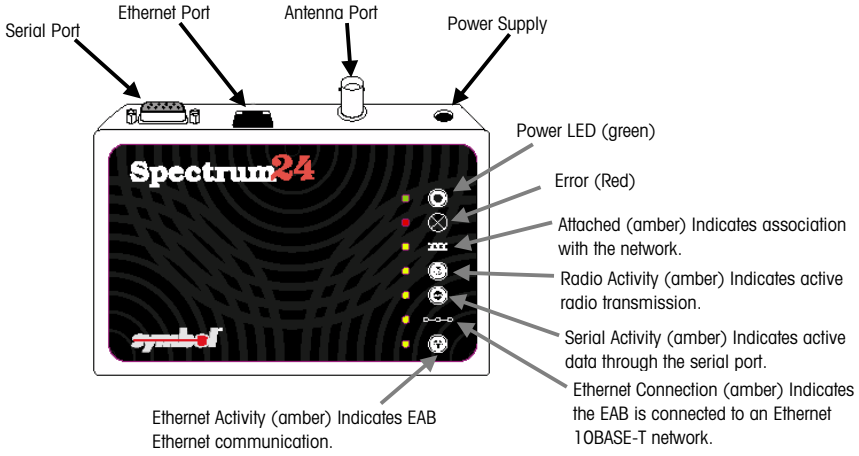
Straight Through 10BASE-T Patch Cables 568A and 568B Color Codes

5 Ethernet RF

Ethernet RF (Symbol®)

For more information on Symbol® RF, see www.symbol.com on the world wide web.

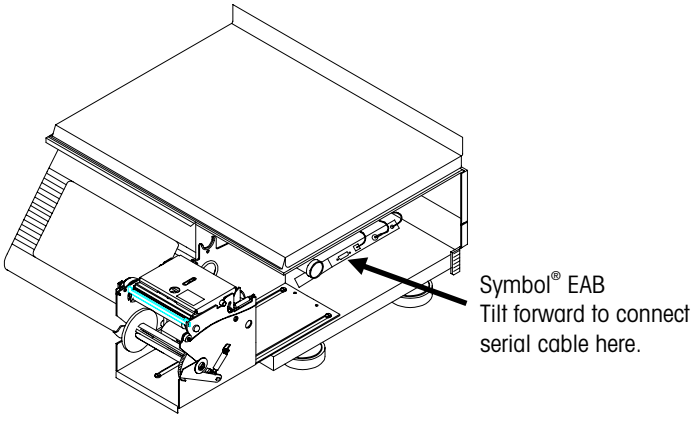
Certain **METTLER TOLEDO®** Ethernet scales are available with the Symbol® Ethernet Access Bridge (EAB). When installing a Symbol® RF scale, you will set up the unit's Ethernet, then set up the Symbol® EAB (Ethernet Access Bridge). The Symbol® EAB is a radio frequency receiver/transmitter than communicates through the store's Access Point via radio waves. The EAB connects to the scale's Ethernet jack and converts the Ethernet signals to radio signals. The store Access point then converts the radio signals back into standard Ethernet signals for transmission on the wired network.



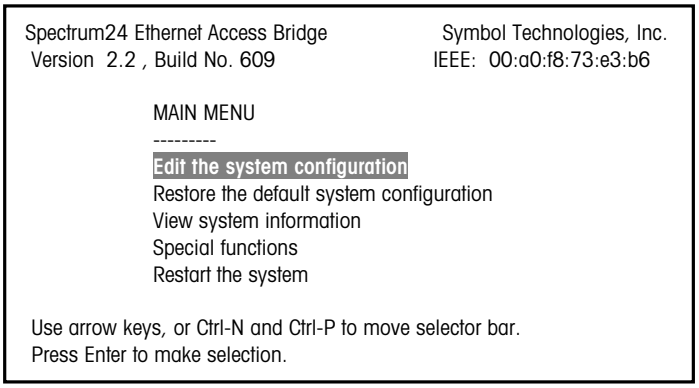
Symbol® Spectrum24 EAB

Symbol® Spectrum24 EAB Setup

You will need a PC and a serial cable to set up the Symbol® EAB. The Symbol® EAB is installed in the Model 8461 or 8450 behind the printer. To access the EAB, remove the printer door, press down on the release lever, and slide the printer forward. The Symbol® EAB is mounted on the vertical frame behind the printer using a Velcro® fastener. The EAB must be tilted outward to plug the serial cable into it.



Start Windows® Hyperterminal or Procomm®. Power up the scale. Press the ESC key three times. The Spectrum24® EAB Set up Main Menu will display.



Symbol® Setup Screen

The most common parameters that will require changing are the local IP address, the subnet mask, and the Net ID of the wireless network. You must get the parameters from your network administrator. The following section is a small portion from the Symbol® Spectrum24® Ethernet Access Bridge User's Guide. Select "Edit the system configuration" from the Main Menu. Edit the parameters to match the determined specifications. Press CTRL+W to save the changes and close the configuration file. Select "Restart the system". The program will respond "Do you really want to reboot.[y/n]". Type "Y" to continue and then press ENTER. The program will respond "OK" and the new configuration will take effect.

Radio Parameters

mode	Assigns the operational mode. Allowed values are *mobile unit* and *microap*. Default is *mode = mobile unit*.
access point id	Assigns an access point identifier. MUs use access point Ids to associate with the EAB. The range allowed is 0x01 – 0x79. Default is *access point id = 0x02*.
network id	Assigns a logical network to the EAB. Allowed range of value is 0x001 – 0x1FE. Default is *network id = 0x101*.
protocol	Assigns a networking protocol for the Spectrum24® radio to use in sending and receiving data. Allowed values are *tcp, udp, telnet, lpd,* and *raw*. The default is *protocol = telnet*. *tcp* (Transmission Control Protocol) supports peer-to-peer connections for local and wide area networks. *udp* (User Datagram Protocol) provides bi-directional network communications that emphasize speed, but does not guarantee packet delivery. *telnet* (Telnet Protocol) provides bi-directional network communications that allows one network computer to operate another network computer. *lpd* (Line Printer Daemon) provides bi-directional network communications for operating a remote printer attached to an EAB. The protocol works for Window® NT and UNIX computers. *raw* (Raw Protocol) provides a low level access network data stream for use by experienced programmers.

IP Parameters

IP assigns Internet Protocol addresses for use by socket-based network protocols. The EAB ignores these parameters when the radio operates in raw mode.

local ip	Assigns an IP address to the local EAB.
remote ip	Declares the destination host IP address.
netmask	Declares the destination host network mask.
router	Declares the router IP for the EAB to pass messages. The default is *router = none*.