

## Where Automation Connects.



## IH Browser

**PSW-RLX-IHB** Software Utility

May 2, 2025



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IH Browser User Manual For Public Use.

May 2, 2025

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10.1.1

Extracting Serial Logs from RLX2/ELXM Radios

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# 1 Installing the RadioLinx Industrial Hotspot Browser

Use the *RadioLinx Industrial Hotspot Browser* Configuration Tool (hereafter called the *IH Browser*) to set up and configure the RLX2/ELXM series radios. It is designed for personal computers running the Microsoft Windows operating systems.

### **1.1 IH Browser System Requirements**

The IH Browser is designed to run on Microsoft Windows, and is supported on the following versions:

- Microsoft Windows 7 Professional 32- or 64-bit, with Service Pack 1
- Microsoft Windows 10
- Microsoft Windows 11

Other Microsoft Windows operating system versions may work but have not been tested by ProSoft Technology and are not officially supported.

### 1.2 Installing IH Browser Software

Install the RadioLinx Industrial Hotspot Browser (IH Browser) software to discover and connect to the radio as the RLX2/ELXM series radios are not shipped with a default static IP Address.

- 1 Open your web browser and navigate to <u>www.prosoft-technology.com</u>
- 2 Use the search box on the ProSoft Technology page to search for "**IH Browser**" and then click the link for the *RadioLinx IH Browser*.
- 3 Click the *Download* tab and then click **RADIOLINX IH BROWSER** to download the latest version of the IH Browser.
- 4 Choose SAVE or SAVE FILE when prompted.
- **5** Save the file to your Windows Desktop.
- 6 When the download is complete, locate and double-click the zip file to extract the installation file (RadioLinx IH Browser 3.130.msi or a newer version).
- 7 Double-click the **.msi** file to install the IH Browser.

If your computer does not have access to the Internet, you must download the software from the ProSoft Technology website to removable media, and then copy it to your computer.

# 2 Using the IH Browser to Manage your Radios

Start the IH Brower. If the RLX2/ELXM series radio is powered up and connected, it appears in the IH Browser. Note that the *MAC* address is the same address as that of the label on the radio.

The List view displays the radios on the same network as the computer running the IH Browser.

ᇠ RadioLinx Industrial Hotspot Browser							
File Network Actions Info View	w Help	)					
🗛 🔌 🕫 🗠 🗣 🔓 📑	ጼ 旦	Ng 🔒 🛔 🕴	🔍 🖫 🤻 🏈 🖳	📽 🗋 💡			
Name	Mis	IP	MAC	Parent	Но	SSID	Channel/ S
🜉 RHD-5XJDZ23							
Intel(R) Ethernet Connection		10.23.1.109	A4:BB:6D:9C:58:BE				
R RLX2Repeater	0	10.23.1.105	00:0D:8D:F0:E8:C9	00:0D:8D:AA:09:92	2	Network11	44, 20MHz

Note: You can perform many common tasks by right-clicking on the radio and choosing a command.

### 2.1 Refreshing the Display in the IH Browser

If the radio's configuration has been changed, refresh the IH Browser by clearing and scanning the display using the buttons on the toolbar.

The Erase button clears the radios from display (or from the FILE menu choose CLEAR).

The Scan button rescans the network for RLX2/ELXM series radios (or from the **FILE** menu choose **SCAN**).

### 2.2 Defining the Scan Parameters in the IH Browser

Use the *Scan Setup* dialog box to specify how the IH Browser refreshes the display when scanning the network. By default, the program sends a broadcast Scan message to all the radios at the same time, then waits for them to respond. Broadcasts are limited to a local network, and will not be passed through a router.

If there is a router between the PC running the IH Browser and the radio, enter the IP address of a single radio or the range of IP addresses of multiple radios. This adds them to the IP addresses the IH Browser scans.

To define the scan parameters, from the **NETWORK** menu, choose **SCAN SETUP**.

Scan Setup Dialog X						
Network Scan						
Your network will be scanned every 60 seconds. (Enter zero to disable automatic scanning or 5-3600 secs)						
Remote Device Discovery						
Enable Fast Discovery						
Additional IP addresses and ranges to scan:						
10.10.10101 - 10.10.10125						
Remove						
New address / range:						
From · · ·						
To						
Additional named devices to scan						
Name IP Refresh DNS						
TestRadio unresolved						
RHD-C/1RD51 10.12.10.169 Remove						
Name						
Load File Browse Add Name(s)						
Scan Results File						
File Output All Devices Output Revied (Mine) 10						
All Devices AP Only Clients						

Parameter	Description
Network Scan	
Local network scanning	Specifies how often the IH Browser scans the network and updates the display.
interval	Enter <b>0</b> to disable automatic scanning. You can still scan the network manually.
Remote Device	Parameters related to communicating to radios that are on a different subnet
Discovery	than the PC running the IH Browser.
Enable Fast Discovery	The additional addresses or names will be discovered in the background. By
	selecting this option, the discovery will proceed at a faster rate at the expense of network traffic.
Additional IP addresses	Displays the IP addresses the IH Browser scans at the scanning interval.
Remove	Removes the selected IP address or range. Click on an IP address or address
	range to select it.
New Address / Range	Enter the new IP address (in FROM) or range of IP addresses (in FROM and TO)
	and then click ADD IP button.
Additional Named	Displays the Device Names to scan. (Requires that the name of the RLX2 or
Devices	ELXM radio has been registered with a DNS server.)
Name	Adds a new name to the list.
Load File	Adds a list of names from a text file.
Refresh DNS	Updates the results of a DNS query on each name.
Remove	Removes the selected name from the list.
Add Name(s)	Adds the individual name or list of names to the list. A DNS query will be
0	completed for each name.
Scan Results File	Parameters related to writing status of radios discovered by the IH Browser to a
	json formatted output_log.json file in a windows hidden folder.
	To locate the file, enter C:\ProgramData\Prosoft\ in the Windows File Explorer
	Address Bar
File Output	Select box with options to:
The Output	
	<b>Disable</b> : Disable outputting to the file.
	All Devices: Output data on all discovered radios.
	AP Only: Output data only on discovered Access Points.
	Clients: Output data only on discovered Client radios.
Output Period	The interval in minutes which the json formatted file is overwritten with the
	current snapshot of information on radios known to the IH Browser.

### 2.3 Freezing the Display in the IH Browser

Freezing the display in the IH Browser prevents it from updating with new data.

The *Freeze* button on the IH Browser toolbar prevents the display from updating (or from the **FILE** menu choose **FREEZE**).

Click the *Freeze* button again to start updating the display.

### 2.4 Changing IH Browser Columns in List View

You can change the columns that appear in the IH Browser main window in List View.

- 1 From the **VIEW** menu, click **SELECT COLUMNS**.
- 2 In the *Select Columns* dialog box, click the check boxes for the columns you want to appear in the window.

To reset the columns in the IH Browser window to the default, from the **VIEW** menu, click **RESET COLUMNS**.

### 2.5 Switching between List and Topology Views

You can switch between the List and Topology Views in the IH Browser main window.

- The *List View* is the default view, and shows a list of all the connected radios in a grid, similar to a spreadsheet.
- The *Topology View* shows a diagram of the network's wireless connections. If a radio does not appear in the view, it is not connected to the network. The Topology View is display-only.

#### To switch between the List and Topology views

- The List View button switches to the List View (or from the VIEW menu choose LIST VIEW). For a description of the available columns, see section 2.5.1 List View Columns.
- The *Topology View* button switches to the Topology View (or from the **VIEW** menu choose **Topology VIEW**). For a description of the *Topology View*, see section 2.5.2 *Topology View Description*.

#### To change the columns in the List View

- To resize a column, click between column headers and drag left or right.
- To re-order the columns, click a column header and drag it to the left or right.
- To sort the radios, click a column header to change the sort order
- To change the displayed columns, from the VIEW menu choose SELECT COLUMNS.

#### To zoom in and out in the Topology View

- Solution The Zoom In button magnifies the Topology View (or from the VIEW menu choose Zoom IN).
- Some The Zoom Out button shrinks the Topology View (or from the VIEW menu choose ZOOM OUT).
- Solution The *Zoom to Fit* button resizes the *Topology View* to fit the window (or from the **VIEW** menu choose **Zoom To FIT**).

#### To sort radios alphabetically in the Topology View

• The Sort Alphabetically button sorts the radios in the by name Topology View (or from the VIEW menu choose SORT ALPHABETICALLY).

#### To change a radio's configuration in either view

Double-click a radio to launch a web browser to the login page of the radio. See Chapter 6 *Connecting to the Radio Configuration Interface*.

#### 2.5.1 List View Columns

This topic describes the available columns in the *List View*. See section 2.5 *Switching between List and Topology Views* for more information on the *List View* columns.

**Note:** You can display most of the same information for the radio in the *Detailed Information* dialog box the IH Browser. For more information, see chapter 3 Viewing the Radio Properties.

Column Name	Description							
Name	Displays the radios in the IH Browser. Names appear in a nested tree order. The icons on some entries help identify the type of radio.							
	Computer							
	Betwork Interface							
	M Master Radio							
	R Repeater Radio							
	Ethernet Bridge Radio							
	C Client Radio							
	Bridging Client Radio							
	Un-commissioned Radio							
Mode	Displays a text description of the radios in the IH Browser.							
	THIS UTILITY: This instance of the IH Browser.							
	UTILITY: Other instances of IH Browsers running on other systems on the same network.							
	LOCAL INTERFACE: A network interface detected on the computer running this instance of the IH Browser.							
	MASTER: A radio on the network in Master mode.							
	CLIENT: A radio on the network in Client mode.							
	BRIDGING CLIENT: A radio on the network in Bridging Client mode.							
	ETHERNET BRIDGE: A radio on the network in Ethernet Bridge mode.							
	REPEATER: A radio in the network in Repeater mode.							
MAC	Displays the physical Media Access Control (MAC) address of the radios. All ProSoft							
	Technology radios have a MAC address in the form 00:0D:8D:XX:YY:ZZ.							
IP	Displays the IP addresses assigned to the radios.							
Mask	Displays the network mask for the radio.							
Gateway	Displays the IP address of the network gateway for the radio.							

SSID	Displays the Service Set Identifier (SSID). This is a name assigned to a wireless network radio. Repeater and Client radios must be configured with the same SSID to connect. Note that Master radios typically broadcast their SSID. However, you can disable SSID broadcasting so that other wireless radios cannot detect the Master radio. If a Master is not broadcasting its SSID, this field includes the word <b>HIDDEN</b> along with the SSID of the radio; for example, <i>ProSoft/hidden</i> .
Connection	Displays the connection state for a Repeater radio. Scanning: The radio is searching for a Master radio. CONNECTED: The radio is linked to a Master radio.
Signal (dBm)	Displays the signal strength in dBm of a Repeater or Client radio's link to a Master radio. Master radios do not report signal strength.
Hops	Displays the number of wireless connections from the radio to the wired connection of a Master. This value is always <b>1</b> for a Master radio. For Repeater radios, the value is at least <b>2</b> but can be higher if there are more hops to the Master radio. Client radios do not display a hop value.
Parent	Displays the MAC address of the Parent radio to which this Repeater or Client radio is linked. This is blank for Master radios.
Associations	Displays the number of non-bridge wireless connections to this radio. Client or Bridging Client radios that are connected always show <b>1</b> in this column (and <b>0</b> in the <i>Bridges</i> column).
Bridges	Displays the number of non-bridge wireless connections to this radio. Client or Bridging Client radios that are connected always show <b>1</b> in this column (and <b>0</b> in the <i>Bridges</i> column).
Tx (kbits/sec)	Displays a moving average of transmit throughput in kilobits/second. It does not count packet overhead, and only counts payload data. For Repeater radios, this shows the throughput only for the radio link to the Parent radio. For Master radios, this is the throughput sum of all the Master's radio links.
Rx (kbits/sec)	Displays a moving average of receive throughput in kilobits/second. It does not count packet overhead, and only counts payload data. For Repeater radios, this shows the throughput only for the radio link to the Parent radio. For Master radios, this is the throughput sum of all the Master's radio links.
FW Ver	Displays the firmware version number. For IH Browser entries, this is the version of the IH Browser itself. For radios, this is the version of the firmware code in the radio. This is not the version of the image file installed into the radio (for that information see IMAGE VER described below).
Boot Ver	Displays the boot loader code version number. For IH Browser entries, this is the version of the network communication engine in the IH Browser (e.g. WinXP, WinVista). For radios, this is the version of the boot loader code in the radio.
Image	Displays the type of the firmware image that the radio is currently running ( <b>PRIMARY</b> or <b>SECONDARY</b> ). Each radio has two copies of operating firmware installed, and the radio will automatically switch from one to the other if one of them becomes corrupted.
Compression	Displays the compression state of the firmware images in the radio ( <b>Compressed</b> or <b>UNCOMPRESSED</b> ).
Ethernet	Displays the Ethernet status for the radio. ATTACHED: The radio is connected to a wired Ethernet network. DETACHED: The radio is not connected to a wired Ethernet network.
Channel/Width	Displays the operating channel and channel width. The width value can be 20MHz, 40MHz or 80MHz. Example: <b>48, 20 MHz</b> for channel 48 with a 20 MHz channel width.
Security	Displays the encryption type setting for the radio. Some valid settings are <b>AES</b> , <b>TKIP</b> , <b>AES&amp;TKIP</b> , <b>WEP128 TKIP</b> , <b>WEP128</b> , <b>WEP64</b> .
Misses	Displays the number of times the IH Browser has failed to receive a response from the radio after a scan. Ideally this number should always be <b>0</b> .

RSTP	Displays the setting for RSTP in the radio (ENABLED, DISABLED, and STP). The STP state is
	a legacy "non-rapid" Spanning Tree mode that the radio automatically uses if it detects a
	peer wired bridge in STP mode. All radios on a network must have the same RSTP state to
	link properly.
Link Time	Displays the link time of the radio. For example, 24d,13h,10m,32s. This time resets to 0 on
	a Roam, or if the link is dropped and re-established with the same Parent radio.
Tx Rate	Displays the current modulation data rate that the radio is using for transmission. This may
	be slower than the configured nominal rate because of retries or other environmental
	factors.
	For 802.11a/b/g radios, the data rate is expressed in kilobits or megabits per second (for
	example, <b>54Mb/s</b> ).
	For 802.11n/ac/ax radios, the data is expressed in MCS rates from 0 to 15 (for example,
	MCS7).
Retries(%)	Displays the ratio of packet re-transmission to total packet transmissions during the last five-
	second interval for the radio.
Uptime	Displays the amount of time the radio has been running since the last power cycle or reset;
	for example, 1d,4h,13m,25s.
Product	Displays the model number of the RLX2 radio; for example, RLX2-IHA, RLX2-IHG, RLX2-
	IHFN, RLX2-IHFN-W, or RLX2-IHW.
Image Ver	Displays the name of the image file loaded into the radio; for example, RLX2_v0036_R.
Tx Pkts/Sec	Displays a moving average of transmitted data packets/second. For Repeater radios, this
	shows the data packet rate transmitted over the radio link to the Parent radio. For Master
	radios, this is the transmitted data packet rate sum on all the Master's radio links.
Rx Pkts/Sec	Displays a moving average of received data packets/second. For Repeater radios, this
	shows the data packet rate received over the radio link to the Parent radio. For Master
	radios, this is the received data packet rate sum on all the Master's radio links.

#### 2.5.2 Topology View Description

This topic describes the *Topology View*. See section 2.5 *Switching between List and Topology Views* for more information on the *Topology View*.

Topology View	Description
	Indicates the Master radio; always shown at the top.
M Master 169.254.198.250 SSID: Internal	
Radio1 169.254.198.254	Indicates a radio linked to the network.
R Radio1 169.254.198.254	Indicates a radio not linked to a Parent radio, but on the same network as the computer hosting the IH Browser.
	Indicates that an Ethernet connection exists to the radio but does not indicate the number of radios on the connection.
	Indicates that wireless clients (such as laptops and tablet computers) are linked to this radio. The number of clients linked is indicated by the number of boxes and/or a number.
	Indicates signal strength between radios. The width of the line is not calibrated, but a wider line indicates a relatively stronger signal strength.
	Indicates links to alternate Parent radio candidates that could be chosen if the current Parent link drops or degrades.

### 2.6 **Printing the View in the IH Browser**

You can print the current view in the IH Browser.

- To print the current view, from the **FILE** menu choose **PRINT**.
- To define the page orientation, paper source, and size, from the **FILE** menu choose **PRINT SETUP**.
- To preview the printed view, from the **FILE** menu choose **PRINT PREVIEW**. This can help you adjust the view in the IH Browser so it does not break across pages when printed.
- In the *Topology View*, to display a border around the area to be printed, do one of the following:
  - From the VIEW menu, choose **PRINT AREA**.
  - On the IH Browser toolbar click the D Show Page Outline button.

#### 2.7 Importing and Exporting IH Browser Data

You can export data from, and import data into, the IH Browser. Exporting data creates and saves an XML file containing the current configuration and status of all radios discovered by the IH Browser. You can use this command under the direction of ProSoft Technical Support, for troubleshooting purposes. Importing data brings in the data from a previously created IH Browser XML file.

• To export data from the IH Browser, from the **FILE** menu choose **EXPORT**. You can choose to include the data from the current *Wireless Client*, *Ethernet Nodes*, *Scan List*, and *Port Table* tables. See chapter *5 Viewing Additional Data in the IH Browser* for more information.

Export Dialog	×
Export options  Include AP List data (Always)  Include data from the AP's tables (the client, ethernet node, scan, and port tables)?  Include config settings from APs Output Ellename	
c: \apdata.xml     Browse       The output file can be viewed by importing it back into (the same version) of the utility.	
Export Cancel	

• To import data from an export file created in the IH Browser, from the FILE menu choose IMPORT.

#### 2.8 Hiding the Toolbar and Status Bar in the IH Browser

You can hide and display the Toolbar and Status bar in the IH Browser window.

- To hide and show the Toolbar (1 in the image below), from the **VIEW** menu choose **TOOLBAR**.
- To hide and show the Status Bar (2 in the image below), from the VIEW menu choose STATUS BAR.

🚓 RadioLinx Industrial Hotspot Browser									• <b>X</b>
File Network Actions Info View Help									
🛛 🏘 🔌 🕫 🗠 🕾 🗣 🖀 🖉	Az   🏠		🗅 🕴 🚺						
Name	Misses	IP	P	JAC	Parent	Hops	SSID	Channel/Width	Si 🔦
SFDRBARNES									
B VMware Virtual Ethernet Adapter for		192.168.242.1	00:50:56:C0:0	0:08					E
B VMware Virtual Ethernet Adapter for		192.168.44.1	00:50:56:C0:0	0:01					
Broadcom NetLink (TM) Gigabit Eth		192.168.2.200	00:25:64:DA:8	2:34					
R Sapphire	0	192.168.2.199	00:0D:8D:F0:7	9:97		15	Minerals	40, 20MHz	-
۰ ( III ) III / IIII / III / IIII / III /									P .
RadioLinx Industrial Hotspot Browser			0					NUM	а

# **3** Viewing the Radio Properties

The Detailed Information dialog box shows information about the currently selected radio.

- 1 In the IH Browser, select (click) a radio in either the *List View* or *Topology View*.
- 2 From the INFO menu choose **PROPERTIES**, or right-click the radio and choose **PROPERTIES**.

Detailed Information for Sapphire									
MAC	00:0D:8D:F0:79:97	Mode	Master						
IP	192.168.2.199	SSID	Minerals						
Tx Rate		Master							
Rx Rate		Signal							
	ОК		More						

3 Click **More** to display more information.

Detailed Information for RLX2R	epeater		? ×	Detailed Information for RL	(2Repeater			?	×
MAC 00.0D:8D.F0.C IP 10.23.1.102 Tx Rate Rx Rate	E:28 Mode SSID Master Signal	Repeater Network11 RLX2Master		MAC 00:0D:8D: IP 10.23.1.10 Tx Rate Rx Rate	<sup>20</sup> .CE:28	Mode SSID Master Signal	Repeater Network11 RLX2Master	] ] [	
Connection Version Mask Gateway Connection Associations Bridges Hop Count Channel Ethernet Security Missed Responses	255,255,255,0)           10,23,1.1           Connected           0           1           2           8           Detached           AES           0			Connection Version Product Image Version Web Version Override Version Software Kernel Build EIP Version: Supplicant Version	RLX2-JHWF-A  RLX2_V0040B_R RLX2_Dft_Ovrd_V002 05.78.0e.35.58.40 #1Tue Feb 6 14:59:11 ES EIP_1.5.1 WPA_SUPP_1.2.1	5T 2018			

**Note:** You can display most of the same information in the *List View* in the IH Browser. For more information, see section 2.5.1 *List View Columns*.

Parameter	Description
MAC	Displays the MAC address of the selected radio.
IP	Displays the IP address of the selected radio.
Mode Displays the mode of the selected radio (MASTER, REPEATER, BRI	
	BRIDGING CLIENT)
SSID	Displays the SSID of the selected radio.
TX Rate	Displays a green bar when there is transmit activity.
RX Rate	Displays a green bar when there is receive activity.
Master	Displays the MAC address of the radio's current Master radio.

Parameter	Description
Signal	Displays a green bar when there is a signal.
More / Less	Click <b>More</b> to expand the dialog box and display more information.
	Click LESS to reduce the dialog box and display less information.
Connection / Version tabs	Tabs showing information related to the radio's connection and the version of the
	radio's various components.
Connection	
Mask	Displays the network mask for the current radio.
Gateway	Displays the network gateway IP for the current radio.
Connection	Displays the connection state for a Repeater radio.
	SCANNING - The radio is searching for a Master radio.
	CONNECTED - The radio is linked to a Master radio.
Associations	Displays the number of non-bridge wireless connections to this radio. Client or
	Bridging Client radios that are connected always show 1 in this column (and 0 in the
	Bridges column).
Bridges	Displays the number of non-bridge wireless connections to this radio. Client or
	Bridging Client radios that are connected always show 1 in this column (and 0 in the
	Bridges column).
Hop Count	Displays the number of wireless connections from the radio to the wired connection of
	a Master. This value is always 1 for a Master radio. For Repeater radios, the value is
	at least 2 but can be higher if there are more hops to the Master radio. Client radio
	does not display a hop value.
Channel	Displays the operating channel for radio.
Ethernet	Displays the Ethernet status for the radio.
	ATTACHED - The radio is connected to a wired Ethernet network.
	<b>DETACHED</b> - The radio is not connected to a wired Ethernet network.
Security	Displays the encryption type setting for the radio. Some valid settings are <b>AES</b> , <b>TKIP</b> ,
	AES&TKIP, WEP128 TKIP, WEP128, WEP64.
Missed Responses	Displays the number of times the IH Browser has failed to receive a response from the
	radio after a scan. Ideally this number should always be zero.
Version	
Product	Displays the radio's Model Name.
Image Version	Displays the software Image File version that the radio is currently running.
Web Version	Displays the version of the set of web pages used by the radio's web server.
Override Version	Displays the version of a file containing factory defaults that differ from built-in values.
Software	Displays the version of the firmware wireless code in the radio. This is not the Image
	Version of the image file installed into the radio.
Kernel Build	Displays the build time of the Kernel running in the radio
EIP Version	Displays the version of the EtherNet/IP agent running in the radio.
Supplicant Version	Displays the version of the WPA Supplicant running in the radio.

## 4 Setting the Radio IP Address in the IH Browser

If the radio is on a network with a DHCP server, it gets an IP address through DHCP.

If the radio is not on a network with a DHCP server, the radio appears with an IP address of **0.0.0.0**. Assign a temporary IP address to assist with configuring the radio. For more information, see section *4.1 Assigning a Temporary IP Address*.

### 4.1 Assigning a Temporary IP Address

A temporary IP address allows you to access and configure a radio when the radio either does not have an IP Address or it has an IP Address that is on a network subnet different than the PC running the IH Browser.

1 In the IH Browser, right-click the radio and then click ASSIGN IP.

🕮 Intel(R) Ethernet Connection (7) I219-L		10.23.1.109	A4:BB:6D:9C:58:BE	
R RLX2Repeater	Connect Assign IP Update F/W Ping Device Wireless Clients	1023.1.102	00:0D:8D:F0:CE:28	00:0D:8D:F0:E8:DE
	Ethernet Nodes Scan List Port Table Event Log			
	Update Config Properties			

2 This opens the Assign Temporary IP Address dialog.

Assign Tem	porary IP Address 🛛 💦 📧
Radio	Sapphire
MAC Address	00:0D:8D:F0:79:97
Subnet	255.255.255.0
Gateway	192.168.2.1
IP Address	192.168.2.199
Unused IP's Find More	192.168.2.254 192.168.2.253 192.168.2.249
0	K

- 3 The UNUSED IP'S list are the IP addresses that are currently available on the network.
- 4 The IH Browser suggests the network parameters for the temporary IP address. It queries the IP addresses and displays them if it does not receive a response. Click one of the unused IPs, or enter an unused IP address, and click **OK**. The IH Browser warns you that the IP address is temporary.

RadioLinx I	industrial Hotspot Browser
<b></b>	This IP address is temporary and will only be in effect until the next time the AP is reset. To set the IP Address permanently please modify the settings through the Web Management Interface.
	OK Cancel

- 5 Click **OK** and refresh the display in the IH Browser. The radio should now appear in the IH Browser window with the temporary IP address.
- 6 To set a permanent IP address for the radio, see *Configuring a Radio Getting Started* in the *RLX2 User Manual*. It can be downloaded at <u>www.prosoft-technology.com</u>.

# 5 Viewing Additional Data in the IH Browser

Start the IH Brower. If the radio is powered up and connected, it appears in the IH Browser. Note that the *MAC* address is the same address as that of the label on the radio. The *List* view displays the RLX2/ELXM series radios (or previous generation RLXIB radios, except the RLCIB-IHN) on the same network as the computer running the IH Browser.

熬 RadioLinx Industrial Hotspot Brov	vser						
File Network Actions Info Vie	w Help	)					
🐴 🔌 🕫 🗠 🗣 🔓 😭 🔳	& 旦	82 <b>b. s</b>	🔍 🖫 💥 🇳 🖳	🕄 🗋 <b>?</b>			
Name	Mis	IP	MAC	Parent	Но	SSID	Channel/ S
📰 RHD-5XJDZ23							
Intel(R) Ethernet Connection		10.23.1.109	A4:BB:6D:9C:58:BE				
R RLX2Repeater	0	10.23.1.105	00:0D:8D:F0:E8:C9	00:0D:8D:AA:09:92	2	Network11	44, 20MHz

Note: You can perform many common tasks by right-clicking on the radio and choosing a command.

# 6 Connecting to the Radio Configuration Interface

This section describes how to configure a radio using a web browser such as Internet Explorer or Firefox on your PC or other network-enabled device.

Important: Your computer or other device must be connected to the same network as the RLX2/ELXM series radio.

- 1 Log into the radio. You can do this in any of three ways:
  - In the IH Browser *List* view or *Topography* view, right-click the radio and then click **CONNECT**.
  - In the IH Browser *List* view or *Topography* view, double-click the radio.
  - Open a web browser on your PC, and then in the address bar, enter http://, followed by the IP address for the radio, and then press ENTER. For example, http://192.168.6.10.
- 2 The login screen appears in the web browser.

▲ Radio Configuration/Dia × +				-		×
$\leftrightarrow$ $\rightarrow$ O 169.254.255.253		□ ☆	=	Ø	٥	
	Protoff     Rodolin       Login     RLX2 Master       Password					

3 Enter the password and then click **LOGIN**. The default password is *password*.

**Note:** If the radio is using its factory defaults you will need to enter a new password before you can proceed to make changes to the settings.

- 4 If you have lost the password for the radio, you can reset the radio to its default settings. See Resetting a RLX2/ELXM Series Radio in the RLX2 User Manual. It can be downloaded at <u>www.prosoft-technology.com</u>.
- **5** This opens the main webpage for the radio. Note that some parameters may be different from the following image depending on your specific radio model.

<b>ProS</b>	oft <sup>®</sup>			Radio	Linx <sup>®</sup> Inc	lustrial Hot	spot™	
Radio Name: Radio MAC: Radio Type: Update every: Up Time: Link Time:	RLX2 M: 00.0D.80 RLX2-IH 15 se 0 Day 0 n/a	aster 1 D.F0.E5.2A INF-A sc Hr. 1 Min. 6 Se	Signal Strength: Parent MAC: Branch Length: # Radios Linked: Sec. Current Channel: Link Mode:		none 1 1 48 802.11n 20M	Master Availa Add Por IHz channel	able Parents ress Table rt Status	- 
Basic Settings	Advanced Settings	Parent Link	Advanced Network Settings	Serial Settings	QoS	VLAN	NAT	About
Basic	Wireless S	ettings	Wireless	Security Se	ttings	Acce	ess Settin	gs
Radio Name: Network SSID 802.11 Mode: Master Repeater Bridging C Client Client MA	RLX2 Mas           Network1           802.11n           48 (5240           Parent Aut           Xient           ④ Auto           C           00.00.00.	ter 1 1 MHz) V o Select Specify 00.00.00	Security Mode:       WPA/WPA2 Person: ▼         Encryption:       AES         WPA Phrase:       ****         MAC Filter       Edit Filter         Hide Network SSID       Def. Gateway:         10.23.1.1         Alt IP Address:       0.0.0         Alt IP Address:       0.0.0         Download Config				CP dress .114 5.255.0 .1	
Арр	ly Changes		Cancel Chang	es	Facto	ry Defaults	Help	
Kadio Name: "	1 to 31 charac	ters. For user	is identification of rac	aio oniy.				

**Tip:** You can display the help topic for any parameter by clicking the parameter name. The parameter name turns blue when you move the cursor over a parameter with a help topic. There is also a short description of the cursor control at the bottom of the window.

# 7 Updating the Radio Firmware

ProSoft Technology may release new firmware for the RLX2/ELXM series radio that may include new features and corrected anomalies. We recommend that all RLX2/ELXM series radios in a network use the same firmware version. If your network has a mix of RLX2/ELXM series models, you can load the same firmware image file into each of them.

Update RadioLinx F	irmware 🔹 💽 💌
Name	RLX2Repeater
IP	192.168.2.204
Boot Version	4.2
Software Version	05.5e.06.27.58.42
Password	
Image File	
	Browse
U	pdate Close

- 1 Download the radio firmware image from <u>www.prosoft-technology.com</u> and save it to a known location (such as the Windows Desktop).
- 2 Start the IH Browser and click on an RLX2/ELXM series radio to select it.
- 3 From the **ACTIONS** menu choose **UPDATE FIRMWARE**. You can also right-click the radio and choose **UPDATE F/W**.
- 4 Enter the password for the radio. This is the same password that you use to log into the radio web interface.
- 5 Click **BROWSE** to locate the firmware image file to load.
- 6 Click **UPDATE** to begin copying the new firmware to the radio.

**Important:** Do not turn off power to the radio during this operation.

## 7.1 Updating the Radio's Configuration

This feature allows a user to configure the settings of an RLX2/ELXM series radio from a saved configuration file. The user would need to save the settings from an existing unit. This can be done through the radio's webpage.

- **1** Save the configuration file of an RLX2/ELXM series radio via its web interface to a known location (such as the Windows Desktop).
- 2 Start the IH Browser and click on an RLX2/ELXM series radio to select it.
- **3** From the **ACTIONS** menu choose **UPDATE CONFIG**. You can also right-click the radio and choose **UPDATE CONFIG**.



4 In the Update RLX Config dialog, enter the following parameters.

Update RLX Config		?	×
Name	New Device Configuration	]	^
IP	Using DHCP 10.23.1.102		
Maintain Current Ch	nannel 🗌		
Configuration Flag:	\$		
User Defaults	Save only, Don't apply		
Un-Commission	ned 🗌 Name Detection		
Boot Version	4.2		
Software Version	05.78.0e.35.58.40		
Password		]	
Config File			
	Browse		
NetMode			
Include Firmwa	re Image		
	Browse		
U	pdate Close		~

Parameter	Description
New Device	If this checkbox is selected all the parameters in this dialog will be remembered for the
Configuration	next radio that is to be configured.
Name	The name to be assigned to this radio.
Using DHCP	Select this checkbox if radio will use DHCP.
IP address	IP address to assign to this radio.
Maintain Current	(Masters only) If this checkbox is selected the currently configured channel will be
Channel	maintained overriding the channel specified in the configuration file.
Configuration Flags	These flags save configuration options in addition to those in the configuration file.
	<b>USER DEFAULTS</b> : This will save the configuration file to the radio as the User defined Defaults.
	<b>SAVE ONLY; DON'T APPLY</b> : This checkbox is enabled when the <b>USER DEFAULTS</b> checkbox is checked. When checked it will save the configuration file as the user defaults but will preserve the current configuration as the operating configuration.
	<b>UN-COMMISSIONED</b> : This checkbox is enabled when the <b>USER DEFAULTS</b> checkbox is checked. The un-commissioned parameter in the configuration will set to true. When the radio is reset to User Defaults it will then advertise itself as un-commissioned.
	<b>NAME DETECTION</b> : (Clients Only) When checked will add the <i>Learn name number</i> flag to the configuration. When the radio adopts this configuration, it will inspect DHCP Requests from Ethernet devices attached to this radio and extract any trailing number and append that number to the <i>Name</i> parameter in the configuration.
Boot Version	The current version of Boot code in the radio that is being updated.
Software Version	The current version of Software running in the radio that is being updated.
Password	The password for this radio.
Config File	The name/location of the configuration file.
NetMode	This will display the Network Mode (Master/Client) of the selected configuration file.
Include F/W image	Select this checkbox if you would also like to update the firmware of the radio.
Firmware file	The name/location of the firmware file.

**5** Click **UPDATE** to begin copying the new configuration to the radio.

Important: Do not turn off power to the radio during this operation.

## 8 Pinging Radios on the Network

You can use the *Ping* command to test the latency of the network link between the PC running the IH Browser and any other PC that is also running the IH Browser (called *Ping Stations*).

**Note:** Currently there is no location information when a ping station responds to an IH Browser scan. Therefore, all Ping stations are shown connected to the top main network. It is also possible to select an RLX2/ELXM series radio and start a Ping Session with it.

- 1 Start the IH Browser on your computer.
- 2 To start the ping session, do one of the following:
  - From the VIEW menu choose SHOW PING STATIONS.
  - Elick the Show Browsers button on the toolbar.



- 3 Click (highlight) one of the other computers visible in the IH Browser.
- 4 From the **ACTIONS** menu choose **PING DEVICE** to open the *Ping Results Dialog* box.

Ping Results Dialo	g 💌
Show results for	RLX2 Master 👘 🗸 🗸
Session #1: inter	val=1000 ms, buffer=0 bytes
Result period	cumulate (all) 🗸
Packets Tx/Rx	8 / 8 (lost 0 - 0.00%)
Round-trip time	890 / 1312 / 2043 (1413)
(in usec's)	Min / Avg / Max (Last)
Start Session	Show Options Close

5 This dialog box displays statistics on the minimum, maximum and average latency between two points on the network.

6 Click **SHOW OPTIONS** to change the Ping parameters. For more information, see section *8.1 Setting the Ping Parameters*.

**Note:** If there is no PC with an IH Browser behind a remote RLX2/ELXM series radio, you can select and ping the radio itself to test its wireless link.

### 8.1 Setting the Ping Parameters

Use the *Ping Options* dialog box to choose Ping parameters, logging options, and response to other stations.

Ping Options		<b>X</b>
Ping Parameters		
Send Interval	1000 -	ms (minimum 10)
Buffer Size	0 🗸	bytes
Events to Log		
√ Start ar	nd Stop Pinging	
🔽 Every S	end	
📝 Every R	lesponse	
V Missed I	Responses	
Visibility		
Respon	d when another	utility pings you
V Lo	g these reponse	s.
<b>⊘</b> When defau	applied, these l It for all new pin	become the g sessions.
Appl	у	Cancel

Parameter	Description
Ping Parameters	
Send Interval	Specifies the time between ping signals in milliseconds. The minimum
	interval is 10 ms.
Buffer Size	Specifies the buffer size in bytes (the number of bytes sent on the ping).
Events to Log	
Start and Stop Pinging	Logs the beginning and ending of the ping session.
Every Send	Logs every ping signal sent.
Every Receive	Logs every ping response received.
Missed Responses	Logs every missed ping response (when a radio does not respond to a
	ping signal.
Visibility	
Respond when another utility pings you	Select this check box to reply to a ping request from another radio.
Log these responses	Logs each ping response sent to another radio.
When applied, these become the default	Select this check box to use these settings for all future ping sessions
for all new ping sessions	with any radio.

# 9 Viewing Network Data in the IH Browser

The IH Browser **INFO** feature allows you to monitor the network connections for the selected radio in either the List View or Topology View. The feature shows:

- Wireless clients attached to the radio.
- Information about devices detected via the Ethernet interface of the radio.
- The 802.11 Access Points that are detected by this particular radio.
- The active ports on the radio.

#### 9.1 Viewing Wireless Clients in the IH Browser

The *Client List* dialog box can be opened to show information about wireless clients connected to the currently selected radio. Radios with wireless clients are identifiable as shown by the red outline in the List and Topology Views.

- 1 In the IH Browser, select a radio in either the *List View* or *Topology View*.
- 2 From the INFO menu choose WIRELESS CLIENTS, or right-click the radio and choose WIRELESS CLIENTS.



Parameter	Description
Refresh	Data refresh interval in seconds or minutes. Select MANUALLY to prevent the IH Browser from
	automatically updating the data.
Now	Click <b>Now</b> to manually update the data.
IP	Displays the IP addresses of the wireless clients connected to the radio.
MAC	Displays the MAC addresses of the wireless clients connected to the radio.
Signal (dBm)	Displays the signal strength from the wireless clients connected to the radio.
Age (sec)	Displays the age of the connection to the wireless clients connected to the radio (the amount
	of time since a packet has been received from that radio).

### 9.2 Viewing Ethernet Nodes in the IH Browser

The *Ethernet Node List* dialog box shows information about radios detected by the Ethernet interface to the currently selected radio.

- 1 In the IH Browser, select a radio in either the *List View* or *Topology View*.
- 2 From the INFO menu choose ETHERNET NODES, or right-click the radio and choose ETHERNET NODES.



Parameter	Description
Refresh	Specifies the data refresh interval in seconds or minutes. Select MANUALLY to prevent
	the IH Browser from automatically updating the data.
Now	Click <b>Now</b> to manually update the data.
IP	Displays the IP addresses of the wireless clients connected to the selected radio.
MAC	Displays the MAC addresses of the wireless clients connected to the selected radio.
Age (sec)	Displays the age of the connection to the wireless clients connected to the selected
	radio (the amount of time since a packet has been received from that radio).

### 9.3 Viewing the Scan List in the IH Browser

The *Scan List* dialog box shows all 802.11 Access Points known to the selected radio on this channel (through beacons), even if the Access Point is not linked to the radio (has a different SSID or uses different encryption).

**Note:** This list shows some of the same information available in the *Available Parents* table in the web interface. For more information, see section 9.6 Viewing Parent Radios in the IH Browser.

- 1 In the IH Browser, select a radio in either the List View or Topology View.
- 2 From the INFO menu choose SCAN LIST, or right-click the radio and choose SCAN LIST.



List entries marked with an asterisk \* indicate that the entry is an alternate path, which you can also see if you select the **An Parents** button from the toolbar in the *Topology* view (blue lines link the radio to its alternate parents).

Parameter	Description
Refresh	Specifies the data refresh interval in seconds or minutes. Select MANUALLY to prevent the IH
	Browser from automatically updating the data.
Now	Click <b>Now</b> to manually update the data.
BSS ID	Displays the Basic Service Set Identifier. This is the MAC addresses of the wireless clients
	known to the selected radio.
(name)	The name for RLX2/ELXM series radios.
Cost	Displays the calculated parent selection cost. The radio evaluates the link it has to its parent
	once per second to determine if this link is the best parent to use. The radio calculates the
	cost for each entry. The cost calculation is based not only on the strongest signal, but on
	several other factors to provide optimum network communication.
Channel	The radio channel on which the radio is transmitting. The channel list indicates the channel
	number as well as the frequency (2.4 GHz or 5 GHz bands).
	Important: The RLX2/ELXM series radio is supplied with a dual-band antenna that supports
	both frequency ranges. If you use a different antenna with the RLX2/ELXM series radio, you
	must choose a channel and frequency range supported by the antenna.

Parameter	Description
SSID	Displays the network name (Service Set Identifier) of the Ethernet device to which the radio
	is connected. The radio name appears for RLX2/ELXM series radios.
Signal (dBm)	Displays the strength of the signal from the wireless clients connected to the selected radio.
Hop Count	Displays the number of hops to the Master radio. A value of <b>0</b> appears for non-ProSoft
	Technology devices.
Age (sec)	Displays the age of the connection to the wireless clients connected to the selected radio
	(the amount of time since a packet has been received from that radio).

### 9.4 Viewing the Port Table in the IH Browser

The *Port List* dialog box shows all active ports on the selected radio when the Spanning Tree is enabled on the radio.

- 1 In the IH Browser, select a radio in either the List View or Topology View.
- 2 From the INFO menu choose PORT TABLE, or right-click the radio and choose PORT TABLE.



The port table is a list of all the active ports on the radio. Each RLX2/ELXM series radio has up to 252 active ports: one Ethernet wired port, one parent radio frequency link, and up to 250 child radio frequency links.

Parameter	Description
Refresh	Specifies the data refresh interval in seconds or minutes. Select MANUALLY to prevent the IH
	Browser from automatically updating the data.
Now	Click Now to manually update the data.
Port #	Displays the selected radio's port number.
Туре	Displays the type of the port (ETHERNET PORT, PARENT RF LINK, CHILD RF LINK).
Designated Bridge	The next bridge toward the Spanning Tree root for this port.
State	Displays the current Spanning Tree state of the port (BLOCKING, LEARNING, LISTENING, and
	Forwarding). Forwarding packets can be transferred.
Peer Name	Displays the name of the Master radio if the current radio is a Repeater radio.
Peer MAC	Displays the MAC address of the Master radio if the current radio is a Repeater radio.

### 9.5 Viewing the Radio Event Log in the IH Browser

The *Event Log* dialog box displays the history of events that have been recorded by the currently selected radio. This can be useful for troubleshooting problems.

- 1 In the IH Browser, select a radio in either the *List View* or *Topology View*.
- 2 From the INFO menu choose EVENT LOG, or right-click the radio and choose EVENT LOG.

The Event Log shows the history of a particular radio. You can save the Event Log to a text file for troubleshooting purposes.

Padiat inv Industrial Universe Desugar
ie ivetwork Actions into view neip
Ma << ●   ↔ 뉴 뉴 ☆   ≡ 65,00 ☆ 188 &   << <↓ □ □
$\Box \Box $
M RLX2B     BFL-79ZYK32       105.102.0.52     0.0.0       SSID: IH     RRLX2A       105.102.0.142     RRLX2A       R RLX2A     RRLX2D       105.102.0.142     105.102.0.143
# Date hh:mm:ss ms.us Event ID Message ^
46338 2015/12/18 09:40:24 578.569 64 IGMP: Rx'd Membership Report from 50:3f:56:00:c1:14 for Mcast 01:00:5e:00:00:fc
46339 2015/12/18 09:40:24 578.577 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [6]
46340 2015/12/18 09:40:24 578.678 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [12]
46341 2015/12/18 09:40:24 578.796 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [23]
46342 2015/12/18 09:40:27 555.547 64 IGMP: Rx'd Membership Report from 50:3f:56:00:c1:14 for Mcast 01:00:5e:00:00:fb
46343 2015/12/18 09:40:27 555.555 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [6]
46344 2015/12/18 09:40:27 555.668 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [12]
46345 2015/12/18 09:40:27 555.789 66 IGMP: Propagating IGMP v2 Membership Report Frame to Port [23]
46346 2015/12/18 09:40:30 632.723 13 MON: STATS - 005ee2a8 00010f32 00748833 0000008a 000009f9 0000000 00003a21 0(
46347 2015/12/18 09:40:40 585.719 13 MON: STATS - 005ee692 00010f43 00748c8f 0000008a 000009f9 00000000 00003a21 00
dioLinxInd

Description
Specifies the data refresh interval in seconds or minutes. Select MANUALLY to
prevent the IH Browser from automatically updating the data.
Click Now to manually update the data.
Click <b>SAVE</b> to save the Event Log to a file for troubleshooting or sending to ProSoft
Technology Technical Support.
Click FILTER DIALOG to change the Event Log filtering to show or hide certain
events. For more information, see section 9.5.1 Setting the Event Log Filter.

#### 9.5.1 Setting the Event Log Filter

The *Event Filter* dialog box allows you to include or exclude specific event types from the Event Log. The filter conditions that you set in this dialog box affect both the display of events in the *Event Log* dialog box, and the events in the file you create when you click **Save** in the *Event Log* dialog box.

Note: The filter conditions are reset to the default state (include all events) when you close the Event Log dialog box.

- 1 In the IH Browser, click on a radio in either the *List View* or *Topology View*.
- 2 From the INFO menu choose EVENT LOG, or right-click the radio and choose EVENT LOG.
- 3 In the *Event Log* dialog box, click **FILTER DIALOG**.

Even	Log for Sapph	ire (displaying	1672 event	s)	
Close	Refresh m	anually 🔻	Now	Save	Filter Dialog
#	Date	hh:mm:ss	ms.us	Event ID	Message
46338	2015/12/18	09:40:24	578.569	64	IGMP: Rx'd Membership Report from 50:3f:56:00:c1:14 for Mcast 01:00:5e:00:00:fc
46339	2015/12/18	09:40:24	578.577	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [6]
46340	2015/12/18	09:40:24	578.678	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [12]
46341	2015/12/18	09:40:24	578.796	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [23]
46342	2015/12/18	09:40:27	555.547	64	IGMP: Rx'd Membership Report from 50:3f:56:00:c1:14 for Mcast 01:00:5e:00:00:fb
46343	2015/12/18	09:40:27	555.555	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [6]
46344	2015/12/18	09:40:27	555.668	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [12]
46345	2015/12/18	09:40:27	555.789	66	IGMP: Propagating IGMP v2 Membership Report Frame to Port [23]
46346	2015/12/18	09:40:30	632.723	13	MON: STATS - 005ee2a8 00010f32 00748833 0000008a 000009f9 00000000 00003a21 0(
46347	2015/12/18	09:40:40	585.719	13	MON: STATS - 005ee692 00010f43 00748c8f 0000008a 000009f9 00000000 00003a21 00
					· · · · · · · · · · · · · · · · · · ·

4 Double-click on an event in the EVENT LIST to add it to the SELECTED EVENTS list. An asterisk (\*) appears next to the event types in the Selected Events list.

ent	Filter	Dialo	g	<b>—</b> ×		
Eve	ent List			Show all events? 📃		
	ID	#	Sample	*		
× ×	13 32	633 474	MON: STATS - ???? ???? ???? ???? ???? ???? ????			
	55 56	474 35	IGMP: Adding Meast ?? to Ta IGMP: Adding Port [??] to Me	able. cast ??.		
•	57	010	IGMP: Adding Masst 22 to C III	nome )) *		
S	elected	d Event	s	a it to or remove it nom		
	32					
	13		Events should be	Apply		
	13		Events should be <ul> <li>Included</li> <li>Excluded</li> </ul>	Apply Cancel		

Parameter	Description
Event List	<ul> <li>Displays a list of different types of events in the log, sorted by Event ID. By default, this list only includes event types that are in the radio's Event Log.</li> <li>Double-click an event type to add it to the Selected Events list.</li> <li>Double-click the event type again to remove it from the Selected Events list.</li> </ul>

Parameter	Description			
Show all events	Select this check box to show all event types, even if the type is not in the radio's			
	Event Log.			
Selected Events	Displays the list of selected event types.			
Events should be	Specifies whether to include only the selected events, or exclude them.			
	INCLUDED: Show only the selected events in the Event Log.			
	Excluded: Show all events in the Event Log except the selected events.			

- 5 You can double-click on the event in the **EVENT LIST** a second time to remove it from the **SELECTED EVENTS** list.
- **6** Use the **EVENTS SHOULD BE** parameters to include only the selected events, or exclude the selected events.

### 9.6 Viewing Parent Radios in the IH Browser

You can show the current Parent radio or all possible alternate Parent radios for the Repeater radios in the *Topology View*.

• A The Show Selected Parents button (from the VIEW menu choose SHOW PARENTS - ONE) shows the link from Repeater radios to their current Parent radio in red.

RadioLinx Industrial Hotspot Browser	- • ×
File Network Actions Info View Help	
👫 🔌 🕫   🕰 🗣 🔓 🖆 = 🐻 🖳 🔩 🐁 🕄 🔍 🔍 💟 🗋   🎖	
M RLX2B BFL-79ZYK32 M RLX2A TO 105.102.0.52 0.0.0.0 D105.102.0.121 SSID: IH SSID: IH	
R RLX2E 105.102.0.142 R RLX2D 105.102.0.142	
RadioLinx Industrial Hotspot Browser	NUM

• The Show All Parents button (from the VIEW menu choose SHOW PARENTS - ALL) shows links to alternate Parent radios in blue (If the Repeater radios can detect other radios in the network). This gives a graphical representation of the number of alternate paths available to a radio should its parent link go down.

🔉 RadioLinx Industrial Hotspot Browser	- 0 <b>x</b>
File Network Actions Info View Help	
👫 🔌 🕫 🗠 🗣 🖥 🖆 🗏 🖓 🖳 🗞 🖳 🔍 🔍 🖸 🎦	
M RLX2B BFL-79ZYK32 M RLX2A TO 5.102.0.52 0.0.0 0 SSID: IH	
R RLX2E C R RLX2D TO 105.102.0.142 0 105.102.0.143	
RadioLinx Industrial Hotspot Browser	NUM

**Note:** You can also display a detailed list of each of the alternate Parent radios by right-clicking a radio and choosing **SCAN LIST**. This list shows the RLX2/ELXM series radios in the same network and all 802.11 Access Points on other networks. For more information, see section 9.3 *Viewing the Scan List in the IH Browser*.

# 10 Extracting Serial Logs from RLX2/ELXM Radios

This feature allows you to simultaneously retrieve the serial log from multiple RLX2/ELXM series radios, and for an extended period. The serial logs can be used to analyze performance and aid in debugging.

The Serial Logging Dialog window can be opened by clicking on **NETWORK > SERIAL LOGGING**, or by clicking the **LOGGING** icon in the shortcuts bar.



## 10.1 Serial Logging Dialog

When the Serial Logging Dialog window is opened, all detected RLX2/ELXM series radios in the network are listed. By default, all of the radios are selected to be part of the logging session. The *Monitor SSID* parameter is set to **Custom** as shown in the figure below.

**Note:** Only radios that are on the same subnet as the IH Browser PC will be able to participate in the logging session.

Monitor SSID	Custom All Network3 Network1			Auto Indu	sion : OFF	
V Name		MAC	IP	SSID (		Status
RLX2Maste	er	00:0D:8D:F0:E8:C9	10.23.1.119	Network1		Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:AC	10.23.1.11	Network1		Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:D8	10.23.1.116	Network1		Not Logging
RLX2Repe	ater	00:0D:8D:F0:8A:CA	10.23.1.118	Network1		Not Logging
RLX2Repe	ater	00:0D:8D:F0:79:8D	10.23.1.11	Network1		Not Logging
RLX2_B_M	aster	00:0D:8D:F0:8A:C7	10.23.1.11	Network3		Not Logging
RLX2Maste	er	00:0D:8D:F0:E5:2A	10.23.1.114	Network3		Not Logging
RLX2Repe	ater	00:0D:8D:F0:C8:89	10.23.1.85	Network3		Not Logging
*		m				
Output Directo Session Log	yry: P:V	ProSoft Engineering\DH	rowse	Start Log Time : Elapsed Time :		
Starting Log	ging Sessio	n - 04/22/2019-12:48:40				
Select Units 04/22/2019-12	to Log and :48:40- All: I	press start!! nitialize Comm success	ful.			
### 10.1.1 Monitor SSID

The *Monitor SSID* parameter has three options to select which RLX2/ELXM series radios to be included in the logging session.

Monitor SSID option	Description
Custom	Manually selects each RLX2/ELXM series radio from the list to be included in the
	logging session
All	Selects all RLX2/ELXM series radios in the list
Specific SSID	Selects the RLX2/ELXM series radios by SSID

The columns are sortable by clicking on the column header. You can also utilize a group selection by using the standard 'Shift' key method.

The *All* and *Specific SSID* options automatically enable the *Auto Inclusion* feature. This adds an RLX2/ELXM series radio that is discovered by the IH Browser after a logging session has started. For the *Specific SSID* option, it must also have the same SSID that was selected.

The *Custom* option disables the *Auto Inclusion* feature and only the selected RLX2/ELXM series radios will be included.

### **10.1.2 Output Directory**

Select the file location to store the *Serial Logging Dialog* files by clicking on the **BROWSE** button in the *Output Directory* parameter.

Monitor SSID	All Network3 Network1			Auto Inclusion : OFF	
Name		MAC	IP	SSID /	Status
RLX2Mast	er	00:0D:8D:F0:E8:C9	10.23.1.119	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:AC	10.23.1.117	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:D8	10.23.1.116	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:8A:CA	10.23.1.118	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:79:BD	10.23.1.115	Network1	Not Logging
RLX2_B_M	laster	00:0D:8D:F0:8A:C7	10.23.1.112	Network3	Not Logging
RLX2Mast	er	00:0D:8D:F0:E5:2A	10.23.1.114	Network3	Not Logging
RLX2Repe	ater	00:00:8D:F0:CB:B9	10.23.1.85	Network3	Not Logging
•					(A)
Output Direct	pry: p:\	ProSoft Engineering \DH Brow	se	Start Log Time : Elapsed Time :	
Starting Log	ging Sessio	n - 04/22/2019-12:48:40			
Select Units 04/22/2019-12	to Log and ::48:40- All: I	press start!! nitialize Comm successful.			

Bro	owse For Folder	
	🖳 Computer	
	A 💒 OSDisk (C:)	
	🛛 🎍 \$Recycle.Bin	I
	▷ 퉬 \$WINDOWS.~BT	1
	Autodesk	I
	🐌 Config.Msi	I
	Documents and Settings	I
	D 🌗 Intel	I
	MSOCache	I
	DerfLogs	I
	Program Files	I
	Program Files (x86)	I
	🖻 퉬 ProgramData 👻	
	Folder: Computer	
	Make New Folder OK Cancel	

Within the base output directory, a separate subdirectory of active logs for each 24 hour day is created (**mm.dd.yyyy**).

### 10.1.3 Session Log

The Session Log is located at the bottom of the Serial Logging Dialog. It contains a session log of all the events and state changes that took place during logging.

Nonitor SSID	All Networ	k3 k1			Auto Indus	ion : OFF	
V Name		MAC		IP	SSID /	5	Status
RLX2Maste	er	00:0D:8D:F0:E8:	C9	10.23.1.119	Network1	1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:	AC	10.23.1.117	Network1	,	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:	:DB	10.23.1.116	Network1	1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:8A:	CA.	10.23.1.118	Network1	,	Not Logging
RLX2Repe	ater	00:0D:8D:F0:79:	BD	10.23.1.115	Network1	,	Not Logging
RLX2_B_M	laster	00:0D:8D:F0:8A:	:C7	10.23.1.112	Network3	,	Not Logging
RLX2Maste	er	00:0D:8D:F0:E5:	2A	10.23.1.114	Network3	,	Not Logging
RLX2Repe	ater	00:00:8D:F0:C8:	89	10.23.1.85	Network3	,	Not Logging
		m					<u>.</u>
Output Directo	ary :	P:\ProSoft Engineering\DH	Browse .		Start Log Time :		
Session Log							
Starting Logo	ging Ses	sion - 04/22/2019-12:48:40	<b>)</b>				
Select Units )4/22/2019-12	to Log a :48:40- A	nd press start!! II: Initialize Comm succe	essful.				

The *Session Log* is saved to the base *Output Directory* with the following format: session\_mm.dd.yyyy-hh.mm.ss.txt

### Example: session\_03.06.2019-13.56.39.txt

The date and time in the session log name is the time that the Session was started (i.e. the Dialog was opened).

		8=	- 🗆 0
Name	Date modified	Туре	Size
Jacob 04.15.2019	4/15/2019 12:00 PM	File folder	
04.22.2019	4/22/2019 12:53 PM	File folder	
isession_04.15.2019-11.18.22.rtf	4/15/2019 12:03 PM	Rich Text Format	6 KB
🗑 session_04.22.2019-12.28.17.rtf	4/22/2019 12:47 PM	Rich Text Format	1 KB
session_04.22.2019-12.28.17.txt	4/22/2019 12:45 PM	TXT File	1 KB
session_04.22.2019-12.48.40.txt	4/22/2019 12:48 PM	TXT File	0 KB

Within the daily directories the individual hourly logging file will be created with the following format:

APname-IPaddr-mm.dd.yyyy.hh.mm.ss.txt

### Example: RLX2Master-10.23.1.111-03.01.2019.03.00.00.txt

The time in the first file's name will be the time of the oldest print in the backlog, downloaded after a telnet session is started. New files are created on the hour.

			0
Name	▼ Date modified	Туре	Size
RLX2_B_Master-10.23.1.112-04.15.2019.11.25.18.txt	4/15/2019 12:00 PM	TXT File	
RLX2_B_Master-10.23.1.112-04.15.2019.12.00.00.txt	4/15/2019 12:03 PM	TXT File	
RLX2Master-10.23.1.114-04.15.2019.09.28.08.txt	4/15/2019 11:21 AN	TXT File	
RLX2Master-10.23.1.114-04.15.2019.10.00.00.txt	4/15/2019 11:21 AN	1 TXT File	
RLX2Master-10.23.1.114-04.15.2019.11.00.00.txt	4/15/2019 12:00 PM	TXT File	
RLX2Master-10.23.1.114-04.15.2019.12.00.00.txt	4/15/2019 12:03 PM	TXT File	
RLX2Repeater-10.23.1.85-04.15.2019.08.40.04.txt	4/15/2019 11:21 AN	1 TXT File	
RLX2Repeater-10.23.1.85-04.15.2019.09.00.00.txt	4/15/2019 11:21 AN	TXT File	
RLX2Repeater-10.23.1.85-04.15.2019.10.00.00.txt	4/15/2019 11:21 AN	TXT File	
RLX2Repeater-10.23.1.85-04.15.2019.11.00.00.txt	4/15/2019 12:00 PM	TXT File	
RLX2Repeater-10.23.1.85-04.15.2019.12.00.00.txt	4/15/2019 12:03 PM	TXT File	

## 10.2 Starting the Logging Session

In the example below, all RLX2/ELXM series radios that use the **Network1** SSID will be logged.

Monitor SSID	Custom All Network3 Network1			Auto Inclusion : ON	
Name		MAC	IP	SSID 🗡	Status
RLX2Maste	er	00:0D:8D:F0:E8:C9	10.23.1.119	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:AC	10.23.1.117	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:5C:DB	10.23.1.116	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:8A:CA	10.23.1.118	Network1	Not Logging
RLX2Repe	ater	00:0D:8D:F0:79:BD	10.23.1.115	Network1	Not Logging
RLX2_B_M	aster	00:0D:8D:F0:8A:C7	10.23.1.112	Network3	Not Logging
RLX2Maste	er	00:0D:8D:F0:E5:2A	10.23.1.114	Network3	Not Logging
DI V2Dene	ater	00:0D:8D:F0:CB:B9	10,23,1,85	Network3	Not Logging

- 1 Click the **START LOGGING** button at the bottom of the dialog. The **STOP LOGGING** button activates once logging is started.
- 2 While logging, you can hide the *Serial Logging Dialog*. It can be brought forward by clicking on **NETWORK** > **SERIAL LOGGING**, or by clicking the **Logging** icon in the shortcuts bar.
- **3** When logging starts, the *Session Log* window lists all events and actions taken by the Logging Session.

Monitor SSID Cusi All Netv	tom work3 work1		Auto Inclusion : O	N
Name	MAC	IP	SSID /	Status
RLX2Master	00:0D:8D:F0:E8:C9	10.23.1.119	Network1	Waiting for Backlog
RLX2Repeater	00:0D:8D:F0:5C:A0	10.23.1.117	Network1	Waiting for Backlog
RLX2Repeater	00:0D:8D:F0:5C:DE	10.23.1.116	Network1	Connected Waiting Data
RLX2Repeater	00:0D:8D:F0:8A:CA	A 10.23.1.118	Network1	Intializing
RLX2Repeater	00:0D:8D:F0:79:BD	10.23.1.115	Network1	Intializing
RLX2_B_Master	00:0D:8D:F0:8A:C7	7 10.23.1.112	Network3	Not Logging
RLX2Master	00:0D:8D:F0:E5:2A	10.23.1.114	Network3	Not Logging
RLX2Repeater	00:0D:8D:F0:CB:B9	9 10.23.1.85	Network3	Not Logging
•	II	11		4
			Start Log Time L. Map Ap	
Output Directory : Session Log	P:\ProSoft Engineering\IH	Browse	Elapsed Time : 00:00::	r 22 12:51:34 2019 14

Each of the radios in the session indicates one of the following states in the Status column:

State	Description
"Not Logging"	The radio is not selected for logging.
"Initializing"	The radio is selected for logging.
"Connecting"	Attempting to connect to the radio.
"Connected Waiting Data"	Connected to the radio and waiting to receive first data.
"Waiting for Backlog"	Has received data from the radio and now waiting to receive the
	acculmulated backlog.
"Synced"	The backlog has been received and is fully time synced.
"Stopping"	The utility is stopping its logging session to the radio.
"Resyncing"	The time sync is being reestablished (occurs every hour).
"Reconnecting"	Attempting to reconnect to the radio.
"Failed"	The radio experienced some failure, should attempt to reconnect.
"NoRx"	No Data received in the previous 5 sec period (not an error).
"Failed - Stopped"	The logging session to that unit has failed.

By design, the logging of each RLX2/ELXM series radio is staggered. Approximately one radio connects every 10 seconds. When a radio is first connected, there are up to 20,000 lines of historical backlog in the radio that will all be retrieved by the IH Browser.

Once this backlog is fully downloaded, the utility will calculate a time sync so that the log entries can be timestamped accurately:



# **11 Settings Viewer**

This feature allows you to view the current settings of RLX2/ELXM series radios on the network. The RLX2 must be running firmware *RLX2\_v0037F\_R* or later to use this feature and is supported in all ELXM firmware versions.

The Settings Viewer Dialog window can be opened by clicking on **NETWORK > SETTINGS VIEWER**, or by clicking the **SETTINGS VIEWER** icon in the shortcuts bar.



All detected radios on the network are listed in the *Settings Viewer Dialog* window. The view is updated automatically each time the IH Browser detects a new radio on the network.

Celect Type	DI VO		Select SSID	MI ANI OH	Elear			
Select Type	RLXZ		Select SSID	WLAN_00	1_Floor		•	enerate Report
Property				Value				
• Master_	A - 10.23.1.1	14						
<ul> <li>Master_</li> </ul>	B - 10.23.1.1	05						
+ Master_	C - 10.23.1.1	08						
Repeate	r_1 - 10.23.1	.111						
• Repeate	r_2 - 10.23.1	.126						
• Repeate	r_3 - 10.23.1	.123						
• Repeate	r_4 - 10.23.1	.112						
• Repeate	r_5 - 10.23.1	.124						
<ul> <li>Repeate</li> </ul>	r_6 - 10.23.1	.125						
<ul> <li>Repeate</li> </ul>	r_7 - 10.23.1	.127						
Display View						1		
Se	ettings 💿	Auto Compare	Import C	ompare	Save Setting	s		

### 11.1 Select Type

The *Select Type* option filters the available radios of a common network, as identified by their Product Type, **RLX2** or **ELXM**.

### 11.2 Select SSID

The Select SSID option filters the available radios of a common network, as identified by their SSID. The **ALL** option displays all radios detected, regardless of their SSID. The list will be empty for an SSID that does not have any radios of the **Type** selected.

Select Type	RLX2	Select SSID	WLAN_8th	_Floor	-	Generate Report
Property			WLAN Sth	Floor		
Master /	A - 10.23.1.114		ALL			
	B - 10.23.1.105					
+ Master_(	C - 10.23.1.108					
E Repeate	r_1 - 10.23.1.111					
• Repeate	r_2 - 10.23.1.126					
E Repeate	r_3 - 10.23.1.123					
• Repeate	r_4 - 10.23.1.112					
E Repeate	r_5 - 10.23.1.124					
• Repeate	r_6 - 10.23.1.125					
• Repeate	r_7 - 10.23.1.127					
Display View						
Se	ettings 💿 Auto Comp	are 💿 Import Co	mpare	Save Settings		
Se	ettings 💿 Auto Comp	are 💿 Import Co	mpare	Save Settings		
0.00						ОК

### 11.3 Display View

The Settings Viewer Dialog window has three different views:

- The **Settings** view displays the current setting values of any radio.
- The **Auto Compare** view compares the settings of the displayed units by grouping them and highlighting the differences.
- The **Import Compare** view compares the settings of the displayed units against settings that were previously saved using the **SAVE SETTINGS** button. This mode is useful in quickly determining if any unit has been inadvertently changed.

elect Type RLX2		Select SSID	WLAN_8t	h_Floor	-	Generate Report
Property			Value			
+ Master_A - 10.2	3.1.114					
• Master_B - 10.2	3.1.105					
Master_C - 10.2	3.1.108					
E Repeater_1 - 10	.23.1.111					
Hepeater_2 - 10	.23.1.126					
<ul> <li>Repeater_3 - 10</li> </ul>	.23.1.123					
E Repeater_4 - 10	.23.1.112					
E Repeater_5 - 10	.23.1.124					
E Repeater_6 - 10	.23.1.125					
• Repeater_7 - 10	.23.1.127					
Display View					_	
Settings	Auto Compare	Import C	ompare	Save Settings		

### 11.4 Settings Viewer

The Settings Viewer allows you to browse the current settings of a radio. Clicking on the "+" symbol expands the parameter list. The same can be achieved by double-clicking anywhere in a row that has a "+" symbol.

Settings Vi	ewer Dialog					Σ
Select Type	RLX2	Select SSID	WLAN_8th	_Floor	-	Generate Report
Property			Value			
Master_	A - 10.23.1.114					
Master_	B - 10.23.1.105					
Master_	<u>C - 10.23.1.108</u>					
<ul> <li>Basic</li> </ul>	: Settings					
🗄 Adva	nced Settings					
🗄 Adva	nced Network Setting	S				
<ul> <li>E Serial</li> </ul>	I Settings					
± QoS	Settings					
	Settings					
Repeate	er_1 - 10.23.1.111					
Repeate	er_2 - 10.23.1.126					
Repeate	er_3 - 10.23.1.123					
Repeate	er_4 - 10.23.1.112					
Repeate	er_5 - 10.23.1.124					
Repeate	er_6 - 10.23.1.125					
Repeate	er_7 - 10.23.1.127					
Display View						
Se	ettings 💿 Auto Con	npare 💿 Import C	ompare	Save Settings		
						ОК

The revealed sub-groups match the tabs of the radio's web interface.

# 11.4.1 Basic Settings

elect Type	RLX2	Select SSID	WLAN_8th_Floor	▼ Generate Report	
Property			Value		*
• Master_	A - 10.23.1.114				
• Master	B - 10.23.1.105				
<ul> <li>Master_</li> </ul>	C - 10.23.1.108				
Basic	c Settings				
E Ba	asic Wireless Settings	•			
Ra	adio Name		Master_C		
Ne	stwork SSID		WLAN_8th_Floor		
80	2.11 Mode		802.11n		
RL	X2 Mode		Master		Ξ
Ch	annel		165		
- W	ireless Security Settir	ngs			
Se	curity Mode		WPA/WPA2 Personal		
En	cryption		AES		
Hid	de Network SSID		Off		
M/	AC Filter		Off		
E Ac	ccess Settings				
Ob	otain IP Address		DHCP		
🗄 Adva	nced Settings		-		
🗄 Adva	nced Network Setting	S			
🗄 Seria	Settings				
QoS	Settings				
ULAN	l Settings				
E Repeate	er_1 - 10.23.1.111				
E Repeate	er_2 - 10.23.1.126				
<ul> <li>Repeate</li> </ul>	er_3 - 10.23.1.123				
<ul> <li>Repeate</li> </ul>	sr_4 - 10.23.1.112				
• Repeate	sr_5 - 10.23.1.124				
• Repeate	sr_6 - 10.23.1.125				
• Repeate	sr_7 - 10.23.1.127				
					-
Display View					Ť
() Se	ettings 💿 Auto Com	npare 🔘 Import C	Compare Save Settings		

# 11.4.2 Advanced Settings

elect Type	RLX2	Select SSID	WLAN_8th_Floor	<ul> <li>Generate Report</li> </ul>	t
Property			Value		•
• Master_	A - 10.23.1.114				
Haster_	B - 10.23.1.105				
<ul> <li>Master_</li> </ul>	<u>C - 10.23.1.108</u>				
Basic	: Settings				
- Adva	nced Settings				
E Ad	Ivanced Wireless Se	ttings			
Ma	ax Data Rate		MCS7		
Mir	n Data Rate		MCS0		
Ma	ax Basic Rate		24 Mb/s		Ξ
Ор	tmize For		Manual		
Im	mediate Bcasts		On		
lgr	nore Probes		On		
Pro	osoft-only Clients		On		
Ra	inge		Short		
uA	PSD Support		On		
TX	(Attenuation (dBm)		0		
Ac	tive Antennas		ABC		
X	(Stale Time(msec)		60000		
	oam Control				
Dis	sable FT		No		
Dis	sable Blackout		No		
-	Parameters Advertis	ed to Children			
	None		0		
	cation Services		D		
Ae	roScout		Disabled		
- Pe	ersonality Module				
SL	) Mode		Auto Write & Clone Enabled		
± Adva	nced Network Setting	gs			
± Seria	I Settings				
± QoS	Settings				
	i Settings				
Repeate	π_1 - 10.23.1.111				
<ul> <li>Nepeate</li> </ul>	я_z - 10.23.1.126				٣
Display view					
Se	ettings 💿 Auto Co	mpare 🔘 Import (	Save Settings		

### 11.4.3 Advanced Network Settings

lect Type RLX2	Select SSID	WLAN_8th_Floor	<ul> <li>Generate Report</li> </ul>	t
roperty		Value		
Master_A - 10.23.1.114				
Master_B - 10.23.1.105				
Master_C - 10.23.1.108				
Basic Settings				
Advanced Settings				- 11
Advanced Network Settings				4
IGMP Settings				- 11
IGMP Multicast Filtering	E	nabled		-111
Default Propagation Action	F	lood		- 11
IGMP Query Generation		limed Interval		- 11
IGMP Query Interval (s)		50		- 11
Multicast Stale Count (Query fra	mes)	3		- =
E STP Settings		N 11 1		-11
Spanning Tree	I	Disabled		- 11
Ethemet Edge Port	t	Enabled		- 11
Bridge Times				- 11
Path Costs				- 11
SNMP Agent				- 11
SNMP Manager Demoister	t			- 11
Manager Permission	1	Now Any Manager		- 11
Manager IP				- 111
Community String	F			- 11
Access Permission	I	head Only		- 11
	1	Verblad		- 📖
ABB Brown		Disabled		
Cable Break Detection	I	Disabled		-
Cable Break Detection				-
				-
				-
				-
Repeater 1 - 10 23 1 111				
Repeater 2 - 10 23 1 126				
Nenlay View				٣
Cattings Auto Comp				
Settings O Auto Comp	are mport C	Save Settings		

### 11.5 Auto Compare View

The *Auto Compare* view compares the settings of the displayed units by grouping them and highlighting the differences. Repeaters are only compared against other Repeaters, and Masters against other Masters.

The largest group of Repeaters and the largest group of Masters with common settings becomes the **Reference**. The differences between the Repeaters/Masters and their respective References are displayed.

The example below shows that all units have the same settings. All Repeaters are a part of the Reference Repeater group and all Masters are a part of the Master Reference group.

You can browse the settings by expanding (+) the Reference xxx Settings groups.

Select Type	RLX2	Select SSID	WLAN_8th_Floor  Generate R	Report
Presente			Value	
- Masters			value	
Refer	rence Masters - 3			
E Hele	ference Master Settin	as		
Master	r A - 10.23.1.114	.90		
Master	B - 10.23.1.105			
Master	- C - 10.23.1.108			
Repeate	rs/Clients			E
E Refer	ence Repeaters/Clien	ts - 7		
± Re	eference Repeater/Cli	ent Settings		
Repea	ter_1 - 10.23.1.111			
Repea	ter_2 - 10.23.1.126			_
Repea	ter_3 - 10.23.1.123			
Repea	ter_4 - 10.23.1.112			
Repea	ter_5 - 10.23.1.124			
Repea	ter_6 - 10.23.1.125			
Repea	ter_7 - 10.23.1.127			
Display View				
© Se	ettinos	nare 🦳 Import (	Compare Save Settings	
0.50	Auto com		ouve settings	

The example below shows three Repeaters that have setting differences from the **Reference Repeaters**. Two of the Repeaters have the same differences and are displayed in their own group labeled **Group A**. Another Repeater has an additional difference from the **Reference Repeaters** and is labeled **Group B**.

In these difference groups, only the settings that are different are shown and highlighted in red. Where possible, the Reference value for the setting is shown in brackets.

elect Type	RLX2	Select SSID	WLAN_8th_Floor	-	Generate Report
Property			Value		
Masters					
- Refe	rence Masters - 3				
+ R	eference Master Settin	ngs			
Maste	r_A - 10.23.1.114				
Maste	r_B - 10.23.1.105				
Maste	r_C - 10.23.1.108				
Repeate	ers/Clients				
E Refe	rence Repeaters/Clier	nts - 4			
E R	eference Repeater/Cli	ent Settings			
Repea	ater_1 - 10.23.1.111				
Repea	ater_3 - 10.23.1.123				
Repea	ater_5 - 10.23.1.124				
Repea	ater_7 - 10.23.1.127				
🖃 Grou	p A Repeaters/Clients	different from refer	rence units - 2		
🖃 Gr	roup A Repeater/Clier	t settings differenc	es		
-	Parent Link				
	Parent Selection	Method			
	Branch Length		1		
	Repeater Parameter	ers			
	Signal Strength Three	hold (dBm)	-45 - (-35)		
Repea	ater_4 - 10.23.1.112				
Repea	ater_6 - 10.23.1.125				
🖃 Grou	p B Repeater/Client d	ifferent from referer	nce units - 1		
E Gr	roup B Repeater/Clier	t settings differenc	es		
=	Advanced Settings				
	Advanced Wireles	s Settings			
	Active Antennas		A & C - (A only)		
Repea	ater_2 - 10.23.1.126				
Display View					
O Se	ettings 💿 Auto Com	pare 🔘 Import C	Compare Save Settings		

### 11.6 Import Compare

The Import Compare button allows you to select a previously saved .settings file.

elect Type	RLX2	Select SSID	WLAN_8th_	Floor		-	Generate Rep	port
Property			Value					
<ul> <li>Master_</li> </ul>	A - 10.23.1.114							
<ul> <li>Master_</li> </ul>	B - 10.23.1.105			XIML Settings Impo	rt File			
+ Master_	C - 10.23.1.108			$\leftarrow \rightarrow \land \uparrow \square$	> This	s PC > Desktop >	۶	ڻ v
E Repeate	r_1 - 10.23.1.111							
• Repeate	r_2 - 10.23.1.126			Organize 🔻 Nev	v folde	r		
E Repeate	er_3 - 10.23.1.123					Name	^	
E Repeate	er_4 - 10.23.1.112			📌 Quick access				
E Repeate	r_5 - 10.23.1.124			E. Desktop	*	NewProject		
E Repeate	r_6 - 10.23.1.125			Downloads	*			
E Repeate	r_7 - 10.23.1.127			•				
Display View								
() Se	ettings 💿 Auto Comp	are 🖉 💿 Import C	ompare					
			-					

Once the file is selected, the settings of the radio that have been discovered by the IH Browser are compared against the settings of the radio in the imported settings file.

The comparison results are separated into 4 groups:

#### • Units with Differences

- Units that have one or more different settings than the settings previously saved.
- The setting differences are highlighted in red.

#### • Missing units

- Units that were in the import file but not currently discovered by IH Browser.
- No Change in Settings
  - Units whose settings are exactly the same as in the imported settings file.
- New Units
  - Units that are currently present but are not in the imported settings file.

elect Type	RLX2	Select SSID	WLAN_8th_Floor	General	te Report
Property			Value		
- Units wi	th Differences (3)				•
- Repe	eater_6 - 00:0D:8D:	F0:E5:25			
E Pa	arent Link				
=	Parent Selection	Method			
	Automatic		Enabled		
=	Repeater Paramet	ers			
	Signal Strength Thres	hold (dBm)	-45 - (-35)		
Reperiod	eater_4 - 00:0D:8D:	F0:8A:CA			
<b>- P</b>	arent Link				
-	Parent Selection	Method			
	Automatic		Enabled		
=	Repeater Paramet	ers			
	Signal Strength Thres	hold (dBm)	-45 - (-35)		
E Repe	eater_2 - 00:0D:8D:	F0:5C:DB			
- A	dvanced Settings				E
=	Advanced Wireles	s Settings			
	Active Antennas		A & C - (A only)		
<ul> <li>Missing</li> </ul>	Units (0)				
No Char No Char	nge in Settings (9)				
Mast	er_B - 00:0D:8D:F0	):8A:C7			
Mast	er_C - 00:0D:8D:F0	):E8:C9			
± Repe	ater_/ - 00:0D:8D:	F0:5C:C8			
	2nC-/6 - 00:0D:8D:	F0:D6:76			
E Repe	ater_3 - 00:0D:8D:	F0:E5:27			
± Repe	eater_1 - 00:0D:8D:	F0:CB:B9			
Repe	ater_5 - 00:0D:8D:	FU:E7:70			
Mast	er_A - 00:0D:8D:F0	J:E5:2A			
	2ND-19 - 00:00:80:	FU: 79: 19			
	its - Not in import (	2) 20. (No. Continues.)			
	2Master - 10.23.1.1.	20 (No Settings)			
	zrvepeater - 10.23.1	1.121 (No Settings)			
Display View					
© 5	ettings 💿 Auto C	Compare	Compare Save Settings	Reload Import	

### 11.7 Save Settings Button

You can save the settings of all units that are known by the IH Browser so that they can be used as a reference when doing an "Import Compare".

RLX2	Select SSID	WLAN_8th_Floor	▼ Generate Report
		Value	
- 10.23.1.114		1	
- 10.23.1.105			
- 10.23.1.108			
1 - 10.23.1.111			
2 - 10.23.1.126			
_3 - 10.23.1.123			
4 - 10.23.1.112			
5 - 10.23.1.124			
_6 - 10.23.1.125			
_7 - 10.23.1.127			
ings 💿 Auto Compare	e 🔘 Import C	ompare Save Settings	ОК
	RLX2 - 10.23.1.114 - 10.23.1.105 - 10.23.1.108 _1 - 10.23.1.111 _2 - 10.23.1.126 _3 - 10.23.1.123 _4 - 10.23.1.122 _5 - 10.23.1.124 _6 - 10.23.1.125 _7 - 10.23.1.127 ings Auto Compare	RLX2         Select SSID           - 10.23.1.114         -           - 10.23.1.105         -           - 10.23.1.108         -           _1 - 10.23.1.108         -           _2 - 10.23.1.126         -           _3 - 10.23.1.126         -           _5 - 10.23.1.122         -           _5 - 10.23.1.124         -           _6 - 10.23.1.125         -           _7 - 10.23.1.127         -           ings         Auto Compare         Import C	RLX2         Select SSID         WLAN_8th_Floor           - 10.23.1.114         -         Value           - 10.23.1.105         -         -           - 10.23.1.108         -         -           _1 - 10.23.1.111         -         -           _2 - 10.23.1.126         -         -           _3 - 10.23.1.123         -         -           _4 - 10.23.1.112         -         -           _5 - 10.23.1.125         -         -           _7 - 10.23.1.127         -         -

The **SAVE SETTINGS** button allows you to select the folder to save the *.settings* file. The default file name is: "IHB\_Settings\_*dd\_mm\_year*.settings".

🟡 Config Settings Sa	ve File				
← → • ↑ 📘	« Desktop	> New folder	ٽ ~	Search New folder	م
Organize 🔻 Ne	w folder				== - (?
📌 Quick access	^	Name	^	Date	modified
E Desktop	1		No items n	natch your search.	
👆 Downloads	*				
	~	<			
File name:	IHB_Setting	gs_07-30-2019.setti	ngs		
Save as type:	Settings File	es ( <mark>*.setting</mark> s)			
<ul> <li>Hide Folders</li> </ul>				Save	Cancel

### 11.8 Generate Report Button

You can create a Word document that contains an expanded view of all the unit settings by clicking on the **GENERATE REPORT** button.

Settings Vie	ewer Dialog				23
Select Type	RLX2	Select SSID	WLAN_8t	h_Floor	Generate Report
Property			Value		
Master_/	A - 10.23.1.114				
Master_l	B - 10.23.1.105				
+ Master_(	C - 10.23.1.108				
• Repeate	r_1 - 10.23.1.111				
• Repeate	r_2 - 10.23.1.126				
Repeate	r_3 - 10.23.1.123				
Repeate	r_4 - 10.23.1.112				
Repeate	r_5 - 10.23.1.124				
• Repeate	r_6 - 10.23.1.125				
• Repeate	r_7 - 10.23.1.127				
Display View					
Se	ttings 💿 Auto Com	pare 💿 Import C	ompare	Save Settings	
					ОК

The **GENERATE REPORT** button allows you to select the folder to save the *.rtf* file. The default file name is: "IHB\_Report\_Settings\_*mm.dd.year\_hh.mm.ss.*rtf".

port File					×
> This	PC >	Desktop	5 V	Search Desktop	P
w folder				₿== ▼	0
	^	Name	^	Date modified	
				7/30/2019 1:30 PM	1
*					
	v .	< C			>
IHB_Rep	v ort_S	< Settings_07.30.2019_1	3.29.43.rtf		>
	port File This F w folder *	eport File	<pre>sport File &gt; This PC &gt; Desktop w folder</pre>	eport File  This PC > Desktop  To  To  Name  Name Name	eport File

### 11.8.1 Example Report

# **Display Settings Report**

RLX2 - 192.168.2.201	
Basic Settings	
Basic Wireless Settings	
Radio Name	- PLX2
Network SSID	: Network1
802 11 Mode	- 802 11n
RI X2 Mode	Master
Channel	48
Wireless Security Settings	
Security Mode	WPA/WPA2 Personal
Encryption	AES
Hide Network SSID	Off
MAC Filter	Off
Access Settings	000770200
Obtain IP Address	DHCP
Advanced Settings	
Advanced Wireless Settings	
Max Data Rate	: 54 Mb/s
Min Data Rate	: MCS0
Max Basic Rate	: 24 Mb/s
Optmize For	: RLX2 Bridging
Immediate Bcasts	: On
Ignore Probes	: On
Prosoft-only Clients	: Off
Range	: Long
Range (km)	: 25
HAPSD Support	· On

# **12 Foreign AP Detection**

This feature retrieves scan information from radios that have responded to the IH Browser and appear in the main list view. This scan data can be used to detect the presence of rogue foreign Access Points that are operating on the same channel as the radios and can become a source of serious interference.

The IH Browser maintains a whitelist which allows the IH Browser to differentiate between detected APs that are meant to be present on that channel and APs that have come online in the facility either by error, or with malicious intent. A **foreign AP** is therefore defined as any AP that is not in the whitelist.

## 12.1 Navigation

The *Foreign AP Detection* dialog window can be opened by clicking on **NETWORK > FOREIGN AP DETECTION**, or by clicking the **FOREIGN AP DETECTION** icon in the shortcuts bar.



The dialog window initially opens in the disabled state as shown below. Clicking on the **ENABLE** button will enable the feature and the IH Browser will commence pulling scan information from the radios.

MAC	SSID	Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
Foreign APs									
Connected RLX2s									
White List APs									
- Active									
Not Scanned									

When first enabled the dialog populates the **Connected RLX2s** section of the display with all radios (including ELXM radios) that are present in the main view of the IH Browser. These are the radios that will be used as a source of Scan information to populate the other sections of the display.

MAC	SSID	Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
Foreign APs									
Connected RLX2s									
00:0D:8D:F0:5C:DB	line_1	48	-58	Master2 (10.23.1.121)	21:31:24	00:00:00	Yes	R1	
00:0D:8D:F0:E5:2A	line_1	48	-54	R1 (10.23.1.133)	21:31:24	00:00:00	Yes	Master2	
00:0D:8D:F0:E5:27	line_2	149	-3	R3 (10.23.1.119)	21:31:22	00:00:02	Yes	R2	
00:0D:8D:F0:E8:D6	line_2	149	-20	R2 (10.23.1.117)	21:31:24	00:00:00	Yes	Master3	
00:0D:8D:F0:8A:CA	line_2	149	-5	R2 (10.23.1.117)	21:31:24	00:00:00	Yes	R3	
White List APs									
Active									
Not Scanned									

When any Foreign APs are detected the following pop up appears. Clicking the **OK** button will expand the **Foreign APs** section and display all APs that have currently been detected.



MAC	SSID	Channel	RSSI	
🗐 - Foreign APs	15			
24:05:88:38:6C:04	Manrkemesh	149	0	

In the *Foreign AP Detection* dialog shown in the example below, the whitelist is currently empty as we have not yet assigned the known good APs to the whitelist. Therefore all detected APs are initially displayed in the Foreign APs section.

MAC	SSID		Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
Foreign APs		~								
- 26:05:88:38:4C:CD			149	-75	R3 (10.23.1.119)	22:12:08	00:00:00	No		
			149	-70	R3 (10.23.1.119)	22:12:08	00:00:00	No		
26:05:88:38:4B:FD			149	-86	R2 (10.23.1.117)	22:12:08	00:00:00	No		
			149	-6	R3 (10.23.1.119)	22:12:05	00:00:03	Yes		
7C:5A:1C:44:73:21	COE Open		149	-70	Master1 (10.23.1.107)	22:12:07	00:00:01	No		
	COE Open		149	-79	Master1 (10.23.1.107)	22:12:00	00:00:08	No		
	COE_Enterprise		48	-75	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
82:5A:1C:44:73:21	COESecure		149	-80	Master1 (10.23.1.107)	22:12:04	00:00:04	No		
82:5A:1C:44:73:D5	COESecure		149	-71	Master1 (10.23.1.107)	22:12:06	00:00:02	No		
00:0D:8D:F0:5C:C8	line_3		149	-19	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
00:0D:8D:F0:E5:25	line_3		149	-15	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
	line_3		149	-10	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
00:0D:8D:F0:E8:C9	line_3		149	-17	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
00:0D:8D:F0:D6:77	line_3		48	-11	R1 (10.23.1.133)	22:12:08	00:00:00	Yes		
	Manrkemesh		149	-71	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
24:05:88:38:4B:FD	Manrkemesh		149	-79	R3 (10.23.1.119)	22:12:08	00:00:00	No		
24:05:88:38:4C:CE	Manrkemesh		149	-75	R3 (10.23.1.119)	22:12:08	00:00:00	No		
	Manrkemesh		149	-71	R3 (10.23.1.119)	22:12:08	00:00:00	No		
6C:3B:6B:3F:DF:0F	MikroTik-3FDF0F		48	-50	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
Connected RLX2s										
White List APs										
Active										

Column	Description
MAC	MAC address of the AP.
SSID	The SSID that the AP is advertising in its Beacon.
Channel	The channel number on which the AP was detected.
RSSI	The signal strength of the AP as measured by the detecting unit.
	Note: If more than one radio has detected the device the table will display the information
	from the radio that measured the highest RSSI.
Detected By	The name and IP Address of the Connected RLX2 that detected the AP with the strongest
	RSSI.
First Detected	The date/time that the AP was first detected by any Connected RLX2. Only the time is
	shown if the date is the same as the current date.
Last Detected	The elapsed time since information was last received for the AP. Can occur if an AP is
	powered down or moved out of range.
Is ProSoft	Indicates Yes if the AP is a ProSoft Technology RLX2 radio, No otherwise.
RLX2 Name	The name of the radio if it is an RLX2. This column will only contain a value in the
	Connected RLX2s section.
WL Added	The time that an AP was added to the whitelist.

Right-clicking on any AP row in the view will present the following action menu. Only actions allowed or relevant are enabled with the others grayed out.

Add to Whitelist
Remove from Whitelist
Reassign to Whitelist
Clear AP

# 12.2 Adding APs to the Whitelist

The following SSID sorted list shows that there are 4 other systems on the channels of our network plus two single APs. In all cases the actions to take are as follows:

- If an AP or set of AP's belong to your organization and should be operating on the these channels, then they can be whitelisted.
- If an AP or set of AP's belong your organization but should not be operating on these channels, then your IT department should move them to a different channel.
- If an AP or set of AP's does not belong to your organization, then take steps to identify its location. If it's deemed legitimate (e.g. a neighbor's system) then whitelist, otherwise remove the AP.

MAC	SSID	Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
- Foreign APs	13								
26:05:88:38:4C:CD	<b>F</b>	149	-75	R3 (10.23.1.119)	22:12:08	00:00:00	No		
26:05:88:38:6C:01	(1)	149	-70	R3 (10.23.1.119)	22:12:08	00:00:00	No		
26:05:88:38:4B:FD	L	149	-86	R2 (10.23.1.117)	22:12:08	00:00:00	No		
		149	-6	R3 (10.23.1.119)	22:12:05	00:00:03	Yes		
	COE Open	149	-70	Master1 (10.23.1.107)	22:12:07	00:00:01	No		
	COE Open	149	-79	Master1 (10.23.1.107)	22:12:00	00:00:08	No		
86:5A:1C:44:73:21	COE_Enterprise (2)	48	-75	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
82:5A:1C:44:73:21	COESecure	149	-80	Master1 (10.23.1.107)	22:12:04	00:00:04	No		
82:5A:1C:44:73:D5	COESecure	149	-71	Master1 (10.23.1.107)	22:12:06	00:00:02	No		
00:0D:8D:F0:5C:C8	line_3	149	-19	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
	line_3	149	-15	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
	line_3 (3)	149	-10	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
00:0D:8D:F0:E8:C9	line_3	149	-17	Master3 (10.23.1.108)	22:12:08	00:00:00	Yes		
- 00:0D:8D:F0:D6:77	line_3	48	-11	R1 (10.23.1.133)	22:12:08	00:00:00	Yes		
24:05:88:38:6C:04	- Manrkemesh	149	-71	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
- 24:05:88:38:4B:FD	Manrkemesh 🕢	149	-79	R3 (10.23.1.119)	22:12:08	00:00:00	No		
- 24:05:88:38:4C:CE	Manrkemesh 💙	149	-75	R3 (10.23.1.119)	22:12:08	00:00:00	No		
24:05:88:38:6C:00	Manrkemesh	149	-71	R3 (10.23.1.119)	22:12:08	00:00:00	No		
6C:3B:6B:3F:DF:0F	MikroTik-3FDF0F	48	-50	Master1 (10.23.1.107)	22:12:08	00:00:00	No		
- Connected RLX2s									
- White List APs									
Active									
Not Scanned									

In our example there are 6 sets of APs that have to be addressed.

- 1 This set of 3 APs has no SSID displayed which means the APs have 'hidden' their SSID. In this case the only identification that can be used to find these APs are their MAC addresses.
- 2 This "COE" system has 3 related SSIDs but have APs on both of our channels (48 and 149). Its RSSIs indicate that it is not very close to our system.
- 3 This "line\_3" network is made up of ProSoft units. Since it did not appear in the list of "Connected RLX2s" it means that these units' Ethernet network is isolated from the Ethernet of line\_1 and line\_2 but within wireless range. In fact they are probably colocated as their RSSI is very strong.
- **4** The "Manrkemesh" system has 4 APs on channel 149. Given its RSSIs are very low this system is also not close by.

The AP with SSID "------" is an RLX2 unit in Repeater mode but configured to not allow other Repeaters to connect to it (*Allow Children* parameter set to **No**).

To add an AP to the whitelist right-click on the AP (or multiple AP's) and click on the ADD TO WHITELIST option.

MAC	SSID	Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
Foreign APs									
- 26:05:88:38:4C:CD		149	-75	R3 (10.23.1.119)	11:40:51	00:00:00	No		
26:05:88:38:6C:01		149	-70	R3 (10.23.1.119)	11:40:51	00:00:00	No		
26:05:88:38:4B:FD		149	-86	R2 (10.23.1.117)	11:40:51	00:00:00	No		
- 00:0D:8D:F0:CB:B6		149	-6	R3 (10.23.1.119)	11:40:48	00:00:03	Yes		
7C:5A:1C:44:73:21	COE Open	149	-79	Master1 (10.23.1.107)	11:40:50	00:00:01	No		
	COE Open	149	-75	Master1 (10.23.1.107)	11:40:43	00:00:08	No		
86:5A:1C:44:73:21	COE_Enterprise	48	-70	Master1 (10.23.1.107)	11:40:51	00:00:00	No		
82:5A:1C:44:73:21	COESecure	149	-86	Master1 (10.23.1.107)	11:40:47	00:00:04	No		
	COESecure	149	-79	Master1 (10.23.1.107)	11:40:49	00:00:02	No		
00:0D:8D:F0:5C:C8	line_3	149	-19	Master3 (10.23.1.108)	11:40:51	00:00:00	Yes		
00:0D:8D:F0:E5:25				Master3 (10.23.1.108)	11:40:51	00:00:00			
00:0D:8D:F0:E7:70	line_3			Master3 (10.23.1.108)					
	line_3			Master3 (10.23.1.108)					
00:0D:8D:F0:D6:77	line_3			R1 (10.23.1.133)					
				14 1 4 40 22 4 407	11:40:51				
			Ad	to Whitelist	11:40:51				
24:05:88:38:4C:CE			Rei	move from Whitelist	11:40:51				
			Rei	assign to Whitelist	11:40:51				
	MikroTik-3FDF0F	48		2	11:40:51	00:00:00	No		
Connected RLX2s			Cle	ear AP					
White List APs									
Active									
Not Scanned									
inable Disable	Define Neutron 2						Cot		Color Kou

The selected APs now appear in the **White List APs** section as **Active** nodes. The *WL Added* column now shows the time that these APs were added to the whitelist.

MAC	SSID	Channel	RSSI	Detected By	First Detected	Last Detected	Is ProSoft	RLX2 Name	WL Added
Foreign APs									
- 26:05:88:38:4C:CD		149	-75	R3 (10.23.1.119)	11:40:51	00:00:00	No		
26:05:88:38:6C:01		149	-70	R3 (10.23.1.119)	11:40:51	00:00:00	No		
- 26:05:88:38:4B:FD		149	-86	R2 (10.23.1.117)	11:40:51	00:00:00	No		
		149	-6	R3 (10.23.1.119)	11:40:48	00:00:03	Yes		
	COE Open	149	-79	Master1 (10.23.1.107)	11:40:50	00:00:01	No		
7C:5A:1C:44:73:D5	COE Open	149	-75	Master1 (10.23.1.107)	11:40:43	00:00:08	No		
86:5A:1C:44:73:21	COE_Enterprise	48	-70	Master1 (10.23.1.107)	11:40:51	00:00:00	No		
82:5A:1C:44:73:21	COESecure	149	-86	Master1 (10.23.1.107)	11:40:47	00:00:04	No		
82:5A:1C:44:73:D5	COESecure	149	-79	Master1 (10.23.1.107)	11:40:49	00:00:02	No		
6C:3B:6B:3F:DF:0F	MikroTik-3FDF0F			Master1 (10.23.1.107)	11:40:51	00:00:00			
Connected RLX2s									
White List APs									
Active									
00:0D:8D:F0:5C:C8	line_3	149	-19	Master3 (10.23.1.108)	11:40:51	00:00:00	Yes		13:12:4
00:0D:8D:F0:E5:25	line_3	149	-15	Master3 (10.23.1.108)	11:40:51	00:00:00	Yes		13:12:40
00:0D:8D:F0:E7:70	line_3	149	-10	Master3 (10.23.1.108)	11:40:51	00:00:00	Yes		13:12:40
00:0D:8D:F0:E8:C9	line_3	149	-17	Master3 (10.23.1.108)	11:40:51	00:00:00	Yes		13:12:40
00:0D:8D:F0:D6:77	line_3	48	-11	R1 (10.23.1.133)	11:40:51	00:00:00	Yes		13:12:40
24:05:88:38:6C:04	Manrkemesh	149	-70	Master1 (10.23.1.107)	11:40:51	00:00:00	No		13:12:43
24:05:88:38:4B:FD	Manrkemesh	149	-79	R3 (10.23.1.119)	11:40:51	00:00:00	No		13:12:43
24:05:88:38:4C:CE	Manrkemesh	149	-75	R3 (10.23.1.119)	11:40:51	00:00:00	No		13:12:47
24:05:88:38:6C:00	Manrkemesh	149	-71	R3 (10.23.1.119)	11:40:51	00:00:00	No		13:12:43
Not Scanned									
Not Scanned									

# 12.3 Removing APs from the Whitelist

If an AP is mistakenly added to the whitelist it can be removed by right-clicking on the AP's row and selecting the **REMOVE FROM WHITELIST** option.

White List APs						
- Active						
00:0D:8D:F0:5C:C8	line_3	149	-19	Master3 (10.23.1		
00:0D:8D:F0:E5:25	line_3	149	-15	Master3 (10.23.1		
00:0D:8D:F0:E7:70	line_3	149	-10	Master3 (10.23.1		
00:0D:8D:F0:E8:C9	line_3	149	-17	Master3 (10.23.1		
00:0D:8D:F0:D6:77	line_3	48	-11	R1 (10.23.1.1		
24:05:88:38:6C:04	Manrkemesh	149	-70	Master1 (10.23.)		
24:05:88:38:4B:FD	Manrkemesh	149	-79	R3 (10.23.1.1)		
24:05:88:38:4C:CE	Manrkemesh	149	-75	R3 (10.23.1.1)		
24:05:88:38:6C:00	Manrkemesh	149	-71	R3 (10.23.1.1)		
6C:3B:6B:3F:DF:0F	MikroTik-3FDF0F	Add to Whitelist				
Not Scanned		Remove from Whitelist				
Enable Disable	Enable Disable ReScan Next Scan: 54					
Session Log Dir View S	iession Log LogFile : c:\temp\Fore	Clear AP				

## 12.4 Forcing a Scan

The *Foreign AP Detection* window requests new scan data from the Connected radios every 120 seconds by default. This value can changed using the *Settings* dialog (for more information, see section 12.5 Foreign AP Detection Settings.

The time to the next scan event is shown in the display:

Refiçan	Next Scan:	104 secs
v Session Log	LogFile : c:\temp\	ForeignAP_log_

Clicking on the **RESCAN** button will initiate an immediate scan and the timer will reset to the scan interval value.

# 12.5 Foreign AP Detection Settings

Clicking on the **SETTINGS** button opens the Foreign AP Detection Settings dialog.

$\sim$	
Settings	Color Key
$\searrow$	Close

Fore	ign AP Detection Settings	×
	Scan Settings	h
	Masters Repeaters	
	120 Scan Period (secs)	
	Enable Notifications	- -
	Foreign APs New Connected RLX2	
	Communication Settings	
	✓ Pop Up	
	Save Settings	
	Whitelist Operations	
	Delete Import Export	
	Close	

Scan Settings	Description					
Masters	Uses all Connected Masters as a source of scan data.					
Repeaters	Uses all Connected Repeaters as a source of scan data.					
Scan Period	Sets the time interval at which the IH Browser queries enabled Masters and/or					
	Repeaters for their scan information. Enter a value between <b>30</b> and <b>3600</b> seconds.					
Enable Notifications						
Foreign APs	A notification is made when a new Foreign AP is detected.					
New Connected RLX2	A notification is made when a new RLX2 is added to the <b>Connected RLX2s</b> section.					
Communication Settings						
Pop Up	A pop-up is used as means of a notification.					
	Note: At present this is the only communication mechanism for notification events.					
Whitelist Operations						
Delete	Click to delete the current whitelist.					
Import	Click to import a whitelist file.					
	Note: This will overwrite any whitelist currently being maintained by the Foreign AP					
	Detection feature. First perform an export to save the current whitelist if you wish to					
	retain the current whitelist for future use.					
Export	Click to export the whitelist to a file. This file can then be imported by any IH Browser					
	that wishes to use this whitelist.					
Save Settings	Saves any changes made to the settings in this dialog.					

### 12.6 Session Log

The *Foreign AP Detection* window maintains a session log with information on each event that occurs such as detecting a new Foreign AP as well as moving APs from/to the whitelist.

Enable     Disable     ReScan     Next Scan:     Disabled       Session Log Dir     View Session Log     LogFile : c:\temp\ForeignAP_log_04.02.2020-14.09.08.csv	
Session Log Dir View Session Log LogFile : c:\temp\ForeignAP_log_04.02.2020-14.09.08.csv	Enable         Disable         ReScan         Next Scan:         Disabled
	Session Log Dir View Session Log LogFile : c:\temp\ForeignAP_log_04.02.2020-14.09.08.csv

The session log location is shown at the bottom of the *Foreign AP Detection* window. To change the directory the log is written to, click the **SESSION LOG DIR...** button.

Each time Foreign AP Detection is enabled, a new session file is started in the directory. The session file is a CSV and can be opened by any spreadsheet program. The file name used includes the date and time the session file was started.

Image:									? 🗹 — 🗆
	FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW Tom Tsoulogiannis *								
	$\begin{array}{c c c c c c c c c c c c c c c c c c c $								
Ľ	Clipboard is	FORE	la l	Aligr	iment	s Number is	Styles	Cells	Editing
	F11 🔻 i >	$\langle \checkmark \rangle$	$f_{\!X}$ Load Whitelis	t Entry fror	n File				
	А	в	С	D	E	F	G	н	IJ
	1 Time	Msg ID	BSSID	Channel	SSID	Message	RSSI	Detected By	First Detected
	2 2020/04/02-13:26:32	9	00:0D:8D:F0:5C:C8	149	line_3	Load Whitelist Entry from File			
1	3 2020/04/02-13:26:32	9	00:0D:8D:F0:E5:25	149	line_3	Load Whitelist Entry from File			
4	4 2020/04/02-13:26:32	9	00:0D:8D:F0:E7:70	149	line_3	Load Whitelist Entry from File			
1	5 2020/04/02-13:26:32	9	00:0D:8D:F0:E8:C9	149	line_3	Load Whitelist Entry from File			
(	6 2020/04/02-13:26:32	9	00:0D:8D:F0:D6:77	48	line_3	Load Whitelist Entry from File			
	7 2020/04/02-13:26:32	9	24:05:88:38:6C:04	149	Manrkemesh	Load Whitelist Entry from File			
1	8 2020/04/02-13:26:32	9	24:05:88:38:4B:FD	149	Manrkemesh	Load Whitelist Entry from File			
9	9 2020/04/02-13:26:32	9	24:05:88:38:4C:CE	149	Manrkemesh	Load Whitelist Entry from File			
1	0 2020/04/02-13:26:32	9	24:05:88:38:6C:00	149	Manrkemesh	Load Whitelist Entry from File			
1	1 2020/04/02-13:26:32	9	6C:3B:6B:3F:DF:0F	48	MikroTik-3FDF0F	Load Whitelist Entry from File			
1	2 2020/04/02-13:26:38	2	24:05:88:38:6C:04	149	Manrkemesh	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:38
1	3 2020/04/02-13:26:38	2	6C:3B:6B:3F:DF:0F	48	MikroTik-3FDF0F	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:38
1	4 2020/04/02-13:26:38	2	7C:5A:1C:44:73:21	149	COE Open	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:37
1	5 2020/04/02-13:26:38	2	7C:5A:1C:44:73:D5	149	COE Open	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:30
1	l6 2020/04/02-13:26:38	2	82:5A:1C:44:73:21	149	COESecure	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:34
1	7 2020/04/02-13:26:38	2	82:5A:1C:44:73:D5	149	COESecure	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:36
1	8 2020/04/02-13:26:38	2	86:5A:1C:44:73:21	48	COE_Enterprise	Detected New Foreign AP	0	Master1 (10.23.1.107)	13:26:38
1	9 2020/04/02-13:26:38	5	00:0D:8D:F0:5C:DB	48	line_1	Detected New RLX2 attached Unit	-58	Master2 (10.23.1.121)	13:26:38
2	2020/04/02-13:26:38	2	00:0D:8D:F0:5C:C8	149	line_3	Detected New Foreign AP	-19	Master3 (10.23.1.108)	13:26:38
1 -	1 2020/04/02 12:26:20	2	00.00.00.00.00.00.00	140	line 2	Data stad Mary Canalan AD	15	Manta -2 (10 22 1 100)	12,26,20

### **12.7** Hiding the Foreign AP Detection window

When the Foreign AP Detection feature is active, the button at the bottom right of the window changed from **CLOSE** to **HIDE**. Note that the IH Browser cannot be closed if the feature is running. Clicking on the **HIDE** button closes the window but the feature remains active.

No	~
Settings	Color Key
$\searrow$	Hide

The current status of the Foreign AP Detection function can always be viewed from the IH Browser's Toolbar. When the feature is active, the Foreign AP Detection icon is green.

🚔 RadioLinx Industrial Hotspot Browser								
File Network Actions Info View	v Help	$\sim$						
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Name	M	IP V	MAC	Parent				

If a Foreign AP is detected while the window is closed, the icon turns red.

🚔 RadioLinx Industrial H	lotspot Browser				
File Network Action	s Info View Help		<b></b>		
👬 🦄 🌒 🗠 🗛	⊾ 🗗 🗐 🖧 🖳 ∿₂   🍖	A R	i 🔣	2 🗨	907
Name	M	IP		MAC	Parent

# **13 Device Management**

This feature allows for the detection and commissioning of new RLX2/ELXM series radios that are added to the network. An un-commissioned radio is one that has been reset to its Default state.

In addition, it continually monitors operational wireless radios to determine if they are compliant to network administrator rules configured into this feature.

The following are the key capabilities of the *Device Management* feature:

- Uses a CSV file prepared by the network administrator to specify how the radio should be configured.
- Identify un-commissioned RLX2 or ELXM radios.
- Commission the radio with the correct operating firmware and configuration.
- Monitor operational radios whose configuration is non-compliant.
- The following are checked against the content of the CSV file:
  - The radio Name
  - The configuration image signature
  - The firmware image version
  - The User Default configuration image signature
  - $\circ$   $\,$  For radios in AP mode, the channel number and transmit power
  - DHCP is enabled or, the configured IP Address.

### 13.1 CSV File

Device Management is accomplished using a CSV file that contains the list of RLX2/ELXM series radios to be managed. Columns in the CSV file define settings to be used for each radio. The *Device Management* feature is enabled as soon as a CSV file is loaded. Removal of the CSV file disables the *Device Management* feature.

When a CSV file is loaded it will be internally saved. Subsequent changes to the CSV file will not have any effect. To adopt the changes the CSV file must be reloaded.

The CSV file will be validated and checked for errors when it is loaded.

- Firmware or Configuration files referenced in the CSV will be accessed to ensure they are present.
- Version or Signature information will be extracted from the files and stored.
- Ensure that the **Mode** field is specified in each row and verify that the Operating Configuration image in the row matches the specified Mode.
- Any error in a row will prevent the updating of a radio that matches the row until the row is corrected.
- A notification is made in the *Device Management* dialog's *Show CSV File Entries* list view **Notes** column.
- Column order does not matter and all columns do not need to be present. The Column Name in the 1st row indicates the field in the column.

The following examples show a partial view of the CSV file columns as they appear when opened in a spreadsheet program.

Note: This CSV file is loaded into the IH Browser from Device Management dialog. Once loaded it is active.

### 13.1.1 Spreadsheet View

MacAddr	UnitName	SSID	Mode	IPAddr	UsingDCHP	Operation	ConfigFile	FWFile
*	agv	Net1	Client		true	Both	C:\Net1.cfg	C:\RLX2_v040A_R
00.0D.8D.F0.5C.C9	SC-AP4		AP		true	Monitor	C:\Net1.cfg	C:\RLX2_v040A_R
000D8DF07919	SC-AP3		AP		true	Monitor	C:\Net1.cfg	C:\RLX2_v040A_R
00:0D:8D:F0:E8:C4	SC-AP2		AP		true	Monitor	C:\Net1.cfg	C:\RLX2_v040A_R
00.0D.8D.AA.03.CD	SC-AP1		AP	192.168.1.2	false	Commission	C:\Net1.cfg	C:\RLX2_v040A_R

### 13.1.2 Text Editor View

MacAddr, UnitName, SSID, Mode, IPAddr, UsingDHCP, Operation, ConfigFile, FWFile
\*, agv,Net1, , AP, , true, Both, C:\Net1.cfg, C:\RLX2\_v0040A\_R
00.0D.8D.F0.5C.C9, SC-AP4, , AP, , true, Monitor, C:\Net1.cfg, C:\RLX2\_v0040A\_R
000D8DF07919, SC-AP3, , AP, , true, Monitor, C:\Net1.cfg, C:\RLX2\_v0040A\_R
00:0D:8D:F0:E8:C4, SC-AP2, , AP, , true, Monitor, C:\Net1.cfg, C:\RLX2\_v0040A\_R
00.0D.8D.AA.03.CD, SC-AP1, , AP, 192.168.1.2, false, Commission, C:\Net1.cfg, C:\RLX2\_v0040A\_R

### 13.1.3 CSV Column Description

Column/Field Name	Values	Description/Use			
MacAddr	XX.XX.XX.XX.XX OF	The MAC address of the radio to be monitored or commissioned. A wildcard char '*' can be specified instead to match all mac addresses.			
		The Address is in hexadecimal byte format with a '.' or ':' delimiter between bytes.			
UnitName	string	This is the name assigned to the radio. How this field is used when a radio matches a CSV file row depends on what update action is being taken. Up to 32 characters and can be upper- or lower-case letters, numbers, '-', '_' or blanks.			
		If updating the User Defaults Configuration of a radio, this field is ignored and the name in the configuration will be used.			
		<ul> <li>If updating an Operational Configuration:</li> <li>If Name is blank, then preserve unit's current name during the update.</li> <li>If Name is present, set this Name during the update.</li> </ul>			
		<ul> <li>If the Operation column is set to Monitor:</li> <li>And this field is not blank</li> <li>And the matching radio's name is different</li> <li>Then update the radio so it uses this Name.</li> </ul>			

SSID	string	This field is informational and is not used in either matching or monitoring unless the <i>MacAddr</i> field is the wildcard *.
Mode	AP/Client	The mode for this CSV entry. It must be specified on each line. The configuration file specified must be for the specified mode.
		If the <i>Operation</i> column is set to <b>Monitor</b> , only radios that match this mode field will be updated. i.e. the <i>Device Management Monitoring</i> feature cannot be used to change the operating mode of the radio.
		To do so would require the radio to be reset to defaults then re-commissioned with the new mode.
IPAddr	ddd.ddd.ddd	If DHCP is not set, then this IP address will be set into the matching radio.
UsingDCHP	true/false	The DHCP mode - If set to <b>true</b> , any configuration update will force the radio to enable DHCP.
Operation	Monitor/Commission/ Both	This value must be set on each line in the CSV. It will govern the operation of that line.
		<b>Monitor</b> : Operational radios that match the <i>MacAddr</i> and <i>Mode</i> fields in this CSV row will be monitored for field values that differ ( <i>Unit Name</i> , <i>F/W version</i> ). Radios with values that differ will be listed in the <i>Device Management</i> dialog's <i>Units Requiring Updating List View</i> .
		<b>Commission</b> : Un-commissioned radios that match the <i>MacAddr</i> and <i>SSID</i> fields will be commissioned with the field values in this CSV row. (FWFile)
		<b>Both</b> : The information will be used for both Commissioning and Monitoring. Action taken will depend on whether the radio is un-commissioned or operational.
ConfigFile	string - filename with full path	The full path to a configuration file that is used when updating either un-commissioned or operational radios. The signature in this file is compared against the Configuration signature currently in radio. Only if the signatures are different will the configuration file be included when updating a radio.
FWFile	string - filename with full path	The full path to a firmware file. The f/w version in <b>Monitored</b> radios will be compared against the f/w version in this file. Only if the versions are different will the firmware be included when updating a radio.
Channel	int	When managing a channel plan for a set of Access Points, this parameter can be used to specify the channel the AP should use. A Monitored AP's advertised channel being different than this value will trigger an update.
		This value will be set into the radio on any update if the <i>Mode</i> is <b>AP</b> . This field is ignored if the <i>Mode</i> is <b>Client</b> .
TxPower	int	On CSV lines where the <i>Mode</i> is <b>AP</b> this field sets the radio's transmit power level. A Monitored AP's advertised transmit power level being different than this value will trigger an update.
		This value will be set into the radio on any update if the <i>Mode</i> is <b>AP</b> . This field is ignored if the <i>Mode</i> is <b>Client</b> or blank.

		A value of <b>0</b> means the radio will use the max power it is capable of on any channel.
		Valid values are <b>10</b> to <b>29</b> dBm.
CommissionSSID	String	When an un-commissioned radio is detected the MAC Address and this SSID must match to trigger updates to commission the radio.
UserDfltFile	string - filename with full path	If it is desired to reset a radio to a known state different from the radio's Factory Defaults, the radio can be loaded with a special configuration known as "User Defaults" in addition to the existing "Factory Defaults". When the radio is reset to User Defaults it will load the saved User Default configuration.
		Only if the radio's User Defaults signature is different from that in the UserDfltFile will the User Default file be included when updating a radio.
UserDfltFlags	int - bitmask 0x01 - Set Uncommissioned	These are additional flags that can be set along with the User Defaults config file.
	0x02 - Name Detect	<b>Set Un-commissioned</b> : When the radio is reset to its User Defaults, it will cause the radio to advertise itself as <i>un-commissioned</i> . This option is only valid when in <b>Client</b> mode.
		<b>Name Detect:</b> This will enable learning a number to add to the end of the <i>UnitName</i> by inspecting the radio names in DHCP Requests sent by devices on the radio's Ethernet and extracting any trailing numbers. This option is only valid when in <b>Client</b> mode.

## 13.2 The Device Management Dialog

The *Device Management* dialog can be opened by clicking on **NETWORK > DEVICE MANAGEMENT**, or by clicking the **DEVICE MANAGEMENT** icon in the shortcuts bar.

adioLinx Ir	ndustrial H	otspot	Browse	er		
Network	Actions	Info	View	Help		_
Scan	Setup				1 A. A.	🗏 🖫 💐 🗇
Scan	i i		C	Ctrl+S		Mi
Setti	ngs Viewer	r				
Seria	l Logging					
Fore	ig <u>n AP De</u> t	ection				0
Devi	ce Manage	ement				0
	adioLinx Ir Network Scan Scan Setti Seria Fore Devi	dioLinx Industrial H Network Actions Scan Setup Scan Settings Viewer Serial Logging Foreign AP Det Device Manage	dioLinx Industrial Hotspot Network Actions Info Scan Setup Scan Settings Viewer Serial Logging Foreign AP Detection Device Management	dioLinx Industrial Hotspot Browse Network Actions Info View Scan Setup Scan C Settings Viewer Serial Logging Foreign AP Detection Device Management	AdioLinx Industrial Hotspot Browser           Actions         Info         View         Help           Scan         Scan         Ctrl+S           Settings Viewer         Serial Logging         Foreign AP Detection           Device Management         Settings         Setting	AdioLinx Industrial Hotspot Browser          Scan       Ctrl+S         Scatings Viewer       Serial Logging         Foreign AP Detection       Device Management

When the menu item or the Icon is selected the Device Management dialog will appear.

Device Management											
Management CSV File			Browse CSV in Use	Loi 37-IHB-T	ad File 37-Main-Lab-Rad	dio-List Cre	Remove File ate Device List CSV				
Settings											
Admin Password	•••••		Commissioning	•••	•••••						
Display: O Units F	Requiring Updates	O Unmanaged Un	its Ou	Incommissior	ned Units		Ost	now CSV File Entries			
Master306 Master304 Master205 (NewMaster) brg0278 BRG0005	IP         DHCP           10.6         Yes           10.6         Yes           10.6         Yes           10.6         Yes           10.6         Yes	MAC 00:0D:8D:AA:09:9F 00:0D:8D:AA:09:9B 00:0D:8D:F0:5C:D3 00:0D:8D:AA:15:53 00:0D:8D:F1:46:79	Mode Master Master Bridging Client Repeater	RLX2 RLX2 RLX2 RLX2 ELXM RLX2	TestSSID TestSSID TestSSID TestSSID TestSSID	44 165 132 36 36	20 20 20 No Limit No Limit	RLX2_v00408_R RLX2_v00408_R RLX2_v00408_R RLX2_v00408_R ELXM_v0042 RLX2_v00408_R	Conng 0x8633728B (0x0) 0x8633728B (0x0) 0x8633728B (0x0) 0x4E195870 (0x0) 0x0C08074D (0x0)	0x0 0x0 0x0 0xF0CFF34D 0x9D577F28	Notes Individual Match found Individual Match found Mildcard Match found Wildcard Match found
ccess Points : 3 , Clients/Re	epeaters : 2										
ccess Points : 3 , Clients/Re odate Options Monitored Units:	epeaters : 2	cted Only)	) On Next Restart (	All)							
ccess Points : 3 , Clients/Re date Options Montored Units: Uncommissioned Units:	o Manual (Sele	cted Only) C	) On Next Restart ( ) Immediately	All)	C	] Enable LED	Notifications				
coass Points : 3 , Clients/Re date Options Monitored Units: Uncommissioned Units: Update Selected	epeaters : 2 • Manual (Sele • Manual (Sele	cted Only) C	) On Next Restart ( ) Immediately	All)	C	] Enable LED	Notifications				
ccess Points : 3 , Clients/Re ddate Options Monitored Units: Uncommissioned Units: Update Selected Vor/25 12:48:43: Channels V07/25 12:48:43: Country V07/25 12:48:43: Country V07/25 12:48:43: Country V07/25 12:48:56: CSV file s V07/25 12:48:56: File's Last	epeaters : 2 Manual (Sele Manual (Sele Ma	cted Only) ( cted Only) ( ry Code - 3, 4, 5, 6, 7, 8, 9, 10, 11 e! e! e! ufull Browser(JHB_ t/07/2025 11:57)	) On Next Restart ( ) Immediately , 36, 40, 44, 48, 5; 3.4.3.X-Files\37-IH	All) 2, 56, 60, 64, B-T37-Main-	, 100, 104, 108, Lab-Radio-List-R	]Enable LED 112, 116, 13; LX2-v408-EL	Notifications 2, 136, 140, 149, 15 2M-v42-BHB3457.csv	53, 157, 161, 165 ι) - 27 records			
ccess Points : 3 , Clients/Re pdate Options Monitored Units: Uncommissioned Units: Update Selected Vupdate Selected V07/25 12-48-43: Channels V07/25 12-48-43: Country V07/25 12-48-43: Country V07/25 12-48-56: So Viel s V07/25 12-48-56: So Viel s V07/25 12-48-56: Fiel & Las	epeaters : 2 Manual (Sele Manual (Sele Monual (Sele allowed per Coum y Code (A) - 1, 2, saved to Non Volitili saved to Non Volitili saved to Non Volitili saved to Mon Volitili saved to Mon Volitili t Modified Time (0	cted Only) ( cted Only) ( ry Code - 3, 4, 5, 6, 7, 8, 9, 10, 11 ef Soft\IH Browser\IH8_ i/07/2025 11:57)	) On Next Restart ( ) Immediately , 36, 40, 44, 48, 5; 3.4.3.X-Files\37-IH	All) 2, 56, 60, 64, B-T37-Main-	, 100, 104, 108, Lab-Radio-List-R	Enable LED	Notifications 2, 136, 140, 149, 15 (M-v42-12HB3457.cs)	53, 157, 161, 165 /) - 27 records			

The **DEVICE MANAGEMENT** icon background color will give an indication of the current state of the feature.

Icon Background Color	State
None	Feature is disabled.
Green	Feature is set to automatically update radios.
Red	The CSV file has errors in it.
Yellow	The feature is in manual mode and radios require updates.

### 13.2.1 Device Management CSV Controls

Device Mana	gement											
Management	CSV File		<u> </u>	Browse	L	oad File	Rer	move File				
				CSV in Use	37-IHB-1	37-Main-Lab-Radio-List	Create D	evice List CS	/			
Admin Pa	assword	Undator		Commissioning		uned Unite		0	haw CSV Eile Entries			
Name //	IP	DHCP	MAC	Mode	Device	SSID C	han Tx	Pwr Limit	Firmware	Config	UserDflt	Notes
Master306	10.6	Yes	00:0D:8D:AA:09:9F	Master	RLX2	TestSSID 44	20		RLX2_v0040B_R	0x86337288 (0x0)	0x0	Individual Match four
Master304	10.6	Yes	00-00-80-AA-09-98	Master	RIX2	TestSSID 16	5 20		RLY2 V00408 R	0v86337288 (0v0)	0×0	Individual Match foun

Parameter	Description
Management CSV File	The CSV file to be used to manage the radios.
	The CSV file contains a row per radio to be managed, identified by the MAC
	Address, and has columns specifying the files and settings for the radio.
	Note: For Client radios that are identically configured, a single row can be
	used with an * wildcard in the MacAddr column.
Browse	Browse and select the CSV file to be used.
Load File	To activate a new CSV file that has been selected, click the LOAD FILE button.
	Note: The Device Management feature is automatically enabled once a CSV
	file is loaded.
Remove File	Removes the CSV file.
	Note: The Device Management feature can only be disabled by removing the
	CSV file.
CSV in use	Informative display showing the current CSV file name in use.
Create Device List CSV	Creates a CSV device list for all radio Access Points currently detected.
	Note: Each managed Access Point would require its own row in the CSV file.

# 13.2.2 Device Management Common Settings

Device Managen	nent										
Management CS	/ File			Browse	Lo	ad File	Remove File				
				CSV in Use	e 37-IHB-T	37-Main-Lab-Radio-List	Create Device List CS	v			
Settings			c	ommissioning							
Admin Passw					·						
Display:	Units Requiring	Updates	O Unmanaged Uni	its	Uncommissio	ned Units	09	how CSV File Entries			
Admin Passw Display:	Units Requiring	Updates DHCP	Unmanaged Un	its Mode	Uncommissio	ned Units SSID C	o s	how CSV File Entries	Config	UserDfit	Notes
Display:	Units Requiring IP 10.6	Updates DHCP Yes	Unmanaged Un MAC 00:0D:8D:AA:09:9F	its Mode Master	Uncommissio	ned Units SSID C TestSSID 4	nan Tx Pwr Limit 20	ihow CSV File Entries Firmware RLX2_v0040B_R	Config 0x86337288 (0x0)	UserDflt 0x0	Notes Individual Match found

Parameter	Description
Admin Password	The password in use by the RLX2/ELXM series radios. This will be used when updating firmware and configuration.
Commissioning Password	The password to use when an un-commissioned radio is detected. An un-commissioned radio is running either Factory or User Defaults and as such its password is different than an operational radio.

### 13.2.3 Device Management List View Display

A list view window in the *Device Management* dialog displays lists of radios under various categories. A set of radio buttons allows the selection of the category.

There is a column in the list for each parameter used or managed by the CSV file. A mismatch is shown by displaying the CSV value of the parameter followed by the current value in use in brackets.

e.g. 36 (165) for Channel 14 (No Limit) for Tx Power Limit

A Notes column identifies exception conditions that were encountered with the radio.

At the beginning of each row a Check Box is present to allow the user to select one or more radios when performing manual updates.

The checkbox next to the Name label can be used to select or deselect all radios in the list.

### 13.2.3.1 Units Requiring Updates

When the **UNITS REQUIRING UPDATES** radio button is selected the list will display radios whose current state differs from its matching entry in the CSV file.

Device Management											
Management CSV File			Browse	Lo	ad File		Remove File				
			CSV in Use	37-IHB-T	37-Main-Lab-Rad	io-List Crea	ate Device List CSV	/			
Settings											
Admin Password	•••••		Commissioning								
Display: O Units R	equiring Updates	) O Unmanaged Ur	nits 🔿 Ur	ncommissio	ned Units		) si	how CSV File Entries			
Name 7	IP DHCP	MAC	Mode	Device	SSID	Chan	Tx Pwr Limit	Firmware	Config	UserDflt	Notes
Master306	10.6 Yes	00:0D:8D:AA:09:9F	Master	RLX2	TestSSID	44	20	RLX2_v0040B_R	0xB633728B (0x0)	0x0	Individual Match found
Master304	10.6 Yes	00:0D:8D:AA:09:9B	Master	RLX2	TestSSID	165	20	RLX2_v0040B_R	0xB633728B (0x0)	0x0	Individual Match found
Master205 (NewMaster)	10.6 Yes	00:0D:8D:F0:5C:D3	Master	RLX2	TestSSID	132	20	RLX2_v0040B_R	0xB633728B (0x0)	0x0	Individual Match found
brg0278	10.6 Yes	00:0D:8D:AA:15:53	Bridging Client	ELXM	TestSSID	36	No Limit	ELXM_v0042	0x4E195870 (0x0)	0xF0CFF34D	Wildcard Match found
BRG0005	10.0 res	00:00.60.F1.40.75	Repeater	RLAZ	Testaan	20	NO LITTIL	KLAZ_VUU4UB_K	UXDC000/4D (0x0)	01903/7720	Wildcard Match Iound
cess Points : 3 , Clients/Rep Jate Options	peaters : 2										
cess Points : 3 , Clients/Rep Jate Options Monitored Units:	peaters : 2 • Manual (Selec	ted Only) C	) On Next Restart (#	AII)		]Enable LED	Notifications				
cess Points : 3 , Clients/Rep date Options Monitored Units: Uncommissioned Units:	peaters : 2 Manual (Selec Manual (Selec	ted Only) C ted Only) C	) On Next Restart (# ) Immediately	All)		)Enable LED	Notifications				
cess Points : 3 , Clients/Rep Jate Options Monitored Units: Uncommissioned Units: Update Selected	Peaters : 2 Manual (Selec	ted Only) C	) On Next Restart (# ) Immediately	sil)		) Enable LED	Notifications				
ccess Points : 3 , Clients/Rep idate Options Monitored Units: Uncommissioned Units: Update Selected iatus Log	Peaters : 2 Manual (Selec Manual (Selec	ted Only) C	) On Next Restart (# ) Immediately	4II)		]Enable LED	Notifications				
ccess Points : 3 , Clients/Rep idate Options Monitored Units: Uncommissioned Units: Update Selected tatus Log 07/25 12:48:43: Channels a 07/25 12:48:43: Channels a 07/25 12:48:43: Channels a 07/25 12:48:43: Channels a 07/25 12:48:56: Loaded Mg 07/25 12:48:56: File's Loas	Peaters : 2 Manual (Selec Manual (Selec Manual (Selec Selection (Selection) Manual (Selection) Manua	ted Only) ( ted Only) ( y Cade - , 4, 5, 6, 7, 8, 9, 10, 11 ! oSoft\lH Browser\lHB_ 07/2025 11:57)	) On Next Restart (# ) Immediately , 36, 40, 44, 48, 52 3.4.3.X-Files\37-IHE	All) ', 56, 60, 64 }-T37-Main-	, 100, 104, 108, 3	]Enable LED 112, 116, 132 LX2-v408-ELX	Notifications 1, 136, 140, 149, 13 (M-v42-IHB3457.cs	53, 157, 161, 165 ν) - 27 records			
ccess Points : 3 , Clients/Rep idate Options Monitored Units: Uncommissioned Units: Update Selected tatus Log 07/25 12:48:43: Channels e 07/25 12:48:56: Chaded Mg 07/25 12:48:56: Loaded Mg	Peaters : 2 Manual (Selec Manual (Selec Manual (Selec allowed per Countr Code (A) - 1, 2, 3 sved to Non Volitie mt CSV File (C:\P} Modified Time (04,	ted Only) ( ted Only) ( y Code - , 4, 5, 6, 7, 8, 9, 10, 11 ! 'ooft\UH Browser\UHB_' '07/2025 11:57)	) On Next Restart (# ) Immediately ., 36, 40, 44, 48, 52 3.4.3.X-Files\37-IHE	All) :, 56, 60, 64 3-T37-Main-	, 100, 104, 108, 2	) Enable LED 112, 116, 132 X2-v408-ELX	Notifications 1, 136, 140, 149, 11 (M-v42-10483457.cs	53, 157, 161, 165 v) - 27 records			

Fields that do not match are indicated by the desired value followed by the value currently in use on the radio in brackets as shown above in the *Config* column.

#### 13.2.3.2 Unmanaged Units

When the **UNMANAGED UNITS** radio button is selected the list will display any devices discovered on the network for which there was no match in the CSV file. This is also stated in the *Notes* column.

If these radios were unintentionally left out of the CSV file, the user needs to edit the CSV file to add these radios and then re-load it in the *Device Management* dialog. Once reloaded the listed unmanaged radios should disappear once they are re-discovered.

Device Manager	ment											
Management CS	SV File			Brow	se	Load File		Re	emove File			
				CSV	/ in Use	37-IHB-T37-Mair	-Lab-Radio-	List Create	Device List CSV			
Settings												
Admin Passv	word	•••••		Commis	sioning	••••••						
Display:	) Units R	tequiring	Updates 🚺 Unm	anaged Units	Ou	Incommissioned Uni	s		O Show CSV File	Entries		
Name // /////////////////////////////////	IP 10.6 10.6 10.6 10.6	DHCP Yes Yes Yes Yes Yes	MAC 00:0D:8D:F0:71:0A 00:0D:8D:F0:12:36 00:0D:8D:AA:09:82 00:0D:8D:AA:09:8A 00:0D:8D:AA:09:93 00:0D:8D:AA:09:9C	Mode Master Bridging Client Bridging Client Bridging Client Bridging Client	Device RLX2 RLX2 ELXM ELXM RLX2 RLX2	SSID Unmanaged PSFTSSID PSFTSSID PSFTSSID PSFTSSID	Chan 153 165 100 100 165 100	Tx Pwr Limit 20 No Limit No Limit No Limit No Limit No Limit	Firmware RLX2_v0040B_R RLX2_v0040B-DEV69 ELXM_v0042 ELXM_v0042 EthSend2 EthSend2	Config 0x0 0x0 0x0 0x0 0x0 0x0 0x0	UserDflt 0x0 0xACA46E53 0xACA46E53 0xACA46E53 0xE2538A36 0xE2538A36	Notes No matching Monitoring entry in CSV Filet No matching Monitoring entry in CSV Filet
ccess Points : 2 , C pdate Options	IU.6	peaters :	4									
ccess Points : 2 , C pdate Options Monitored Units:	IU.6 Clients/Re	peaters :	4 ual (Selected Only)	On Nez	xt Restart (.	All)		nable LED Noti	ifications			
ccess Points : 2 , C pdate Options Monitored Units: Uncommissioned	lients/Re : d Units:	peaters : Man Man	4 ual (Selected Only) ual (Selected Only)	On Nez	xt Restart (. diately	All)		inable LED Noti	ifications			
cccess Points : 2 , C pdate Options Monitored Units: Uncommissioned Update Se	IU.B Clients/Re : d Units:	peaters : Man Man	4 ual (Selected Only) ual (Selected Only)	On Net	xt Restart (. Jiately	AII)		inable LED Noti	ifications			
cccess Points : 2 , C odate Options Monitored Units: Uncommissioned Update Se tatus Log	Clients/Re : d Units:	peaters : Man Man	4 uual (Selected Only) uual (Selected Only)	On Net	xt Restart (. Jiately	All)		nable LED Noti	ifications			
ccess Points : 2 , C pdate Options Monitored Units: Uncommissioned Update Se itatus Log (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:56: F	Clients/Re d Units: elected Channels Country CSV file s Loaded M File's Last	peaters : Man Man Man allowed p Code (A) aved to N gmt CSV Modified	4 ual (Selected Only) ual (Selected Only) per Country Code - ) - 1, 2, 3, 4, 5, 6, 7, 8 Ion Volitiel File (C:\FroSoft(IJH Bro Time (04/07/2025 111	On Nez Immec , 9, 10, 11, 36, 40 wser\IHB_3.4.3.X- ;57)	xt Restart ( Jiately , 44, 48, 52 Files\37-IH	All) 2, 56, 60, 64, 100, 1 8-T37-Main-Lab-Rai	04, 108, 11: dio-List-RLX:	nable LED Noti 2, 116, 132, 13 2-v408-ELXM-v	ifications 36, 140, 149, 153, 157, x42-DHB3457.csv) - 27 m	161, 165 ecords		
cccess Points : 2 , C pdate Options Monitored Units: Uncommissioned Update Se Status Log (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:43: (07/25 12:48:56: F	Clients/Re : : d Units: : : : : : : : : : : : : : : : : : :	Man Man Man Code (A) aved to N gmt CSV Modified	4 ual (Selected Only) ual (Selected Only) per Country Code - ) - 1, 2, 3, 4, 5, 6, 7, 8 ion Volitile! File (C:\ProSoft\IH Bro Time (04/07/2025 11	On Nez Immec , 9, 10, 11, 36, 40 wser\IHB_3.4.3.X- (57)	xt Restart (. Jiately , 44, 48, 52 Files\37-1H	All) 2, 56, 60, 64, 100, 1 B-T37-Main-Lab-Rai	04, 108, 11: dio-List-RLX:	:nable LED Noti 2, 116, 132, 13 2-v408-ELXM-v	ifications 36, 140, 149, 153, 157, 42-1483457.csv) - 27 n	161, 165 ecords		
#### 13.2.3.3 Uncommissioned Units

When the **UNCOMMISSIONED UNITS** radio button is selected the list will display radios discovered on the network that are currently in an un-commissioned state and an entry in the CSV file matches the radio's MAC Address and SSID.

The current values in the radio are in brackets where they differ from the value specified in the CSV for the matching row, indicating what will be updated during the commissioning process.

Once commissioned the radio will disappear once it is re-discovered and is in its operational state.

Management (	CSV File				Browse		Load File		Remove File			
CSV in Use				Use 37-IHB-T37-Main-Lab-Radio-List			Create Device List CSV					
Settings												
Admin Password			Con	Commissioning								
splay:	OUnits	Requirir	g Updates	) Unmanaged Units	<	OUncomm	nissioned Uni	ts	Show CSV File	Entries		
ame 🕖	IP	DHCP	MAC	Mode	Device	SSID	Chan	Tx Pwr Limit	Firmware	Config	UserDflt	Notes
X2Repeater	10.6	Yes	00:0D:8D:F1:0	Repeater	RLX2	Network1	48	20 (No Limit)	RLX2_v0040B_R	0x86337288 (0x0)	0x58D78828	Individual Commissioning Match
K2Repeater	10.6	Yes	00:0D:8D:F0:E	Repeater	RLX2	Network1	48	20 (No Limit)	RLX2_v0040B_R	0x86337288 (0x0)	0x5F852C57	Individual Commissioning Match
K2Repeater	10.6	Yes	00:0D:8D:F0:A	Repeater	RLX2	Network1	48	20 (No Limit)	RLX2_v00408_R (RLX2_v0040A_R)	0x86337288 (0x0)	0x0	Individual Commissioning Match
K2Repeater	10.6	Yes	00:0D:8D:F0:9	Repeater	RLX2	Network1	48	20 (No Limit)	RLX2_v0040B_R (RLX2_v0040A_R)	0xB633728B (0x0)	0x0	Individual Commissioning Match
K2Repeater	10.6	Yes	00:0D:8D:F1:4	Repeater	RLX2	Network1	48	20 (No Limit)	RLX2_v0040B_R	0x86337288 (0x0)	0x2830DFB8	Individual Commissioning Match
0071	10.6	Yes	00:0D:8D:AA:1	Bridging Client	ELXM	Network5	36	No Limit	ELXM_v0042	0x4E195870 (0xF0CFF34D)	0xF0CFF34D	Wildcard Commissioning Match f
0049	10.6	Yes	00:0D:8D:AA:1	Bridging Client	ELXM	Network5	36	No Limit	ELXM_v0042	0x4E195870 (0xF0CFF34D)	0xF0CFF34D	Wildcard Commissioning Match f
G0010	10.6	Yes	00:0D:8D:AA:0	Bridging Client	RLX2	Network5	36	No Limit	RLX2_v0040B_R	0xDC08074D (0x9D577F28)	0x9D577F28	Wildcard Commissioning Match f
G0009	10.6	Yes	00:0D:8D:F0:E	Bridging Client	RLX2	Network5	36	No Limit	RLX2_v0040B_R	0xDC08074D (0x9D577F28)	0x9D577F28	Wildcard Commissioning Match f
0002	10.6	Yes	00:0D:8D:AA:1	Bridaina Client	ELXM	Network5	36	No Limit	ELXM v0042	0x4E195870 (0xF0CFF34D)	0xF0CFF34D	Wildcard Commissioning Match f
date Options Monitored Units: O Manual (Selected Only) Uncommissioned Units: O Manual (Selected Only)		y) Oo y) OIm	On Next Restart (All)			Enable	e LED Notifications					
Update s	Selected											
us Log												
/25 12:48:43 /25 12:48:43 /25 12:48:43 /25 12:48:43 /25 12:48:56 /25 12:48:56	Channe Count CSV file Loaded	Is allowe ry Code saved to Mgmt CS ast Modifi	d per Country Code (A) - 1, 2, 3, 4, 5, 6 o Non Volitile! SV File (C:\ProSoft\II ed Time (04/07/202	- 5, 7, 8, 9, 10, 11, 36 H Browser\IHB_3.4. 15 11:57)	5, 40, 44, 3.X-Files'	48, 52, 56, 6 \37-1HB-T37-I	0, 64, 100, 1 Main-Lab-Ra	04, 108, 112, 11 dio-List-RLX2-v4i	6, 132, 136, 140, 149, 153, 157, 161, DB-ELXM-v42-IHB3457.csv) - 27 record	165 İs		
25 12:48:56												

#### 13.2.3.4 Show CSV File Entries

When the **SHOW CSV FILE ENTRIES** radio button is selected, the list will display the entries that were loaded from the CSV file. This allows a quick way to review what was in the CSV file. The cells that were blank in the CSV file will also be blank in this list view.

Device Manag	ement												
Management CSV File Browse				se 37-1	Load F HB-T37-1	File Main-Lab-Ra	Remove File						
Settings													
Admin Password Commissioning					g	•••••	•••						
Display:	🔿 Units Requ	uiring Updates	OUnmanage	d Units		OUncomm	nissioned	Units	Show C	SV File Entries			
Name Z IP Master101 Master102 Master103 Master104 Master105 Master106 Master107 Master108 Cccess Points : 25 pdate Options Monitored Unit	Operation Both Both Both Both Both Both Both Both	on DHCP Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	MAC - - 00:00:8D:4A:0 00:00:8D:F1:2 00:00:8D:F0:9 00:00:8D:F1:0 00:00:8D:F1:0 00:00:8D:F1:0 00:00:8D:F1:0	Mode Client AP AP AP AP AP AP AP AP	Device RLX2 ELXM RLX2 RLX2 RLX2 RLX2 RLX2 RLX2 RLX2 RLX2	SSID TestSSID TestSSID TestSSID TestSSID TestSSID TestSSID TestSSID TestSSID TestSSID	Chan 40 36 52 104 149 36 149 112	20 20 20 20 20 20 20 20 20 20 20 20	Firmware Crifiles/RUX2/RUX2_v00488_R.img Crifiles/RUX18UX4_v00482_ebm2, Crifiles/RUX18UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img Crifiles/RUX218UX2_v00488_R.img	Config C:(Ifles)RN(RLX2-Rptr-v40 c:(Ifles)RN(RLX2-Rptr-v42 c:(Ifles)RN(RLX2-Master-v c:(Ifles)RN(RLX2-Master-v c:(Ifles)RN(RLX2-Master-v c:(Ifles)RN(RLX2-Master-v c:(Ifles)RN(RLX2-Master-v c:(Ifles)RN(RLX2-Master-v	UserDft C:\Files\FLX2\RLX2-Aruba-5 C:\Files\FLXM\FLXM-Aruba-5	Commission S N Aruba 501 Aruba 501 Network1 Network1 Network1 Network1 Network1 Network1 Network1 Network1	
Uncommissioned Units:  Manual (Selected Only) Immediatel			nediately	!		l	JEnable LED Notifications						
07/25 12:48:43: 07/25 12:48:43: 07/25 12:48:43: 07/25 12:48:43: 07/25 12:48:45: 07/25 12:48:56: 07/25 12:48:56:	Channels allo Country Co CSV file save Loaded Mgmt File's Last Mo	wed per Coun de (A) - 1, 2, d to Non Voliti t CSV File (C:\ dified Time (0	try Code - 3, 4, 5, 6, 7, 8, 9, 10 le! ProSoft\IH Browser\I 4/07/2025 11:57)	), 11, 36, HB_3.4.3	40, 44, 4 .X-Files\	48, 52, 56, 6 37-1HB-T37-1	0, 64, 10 Main-Lab	0, 104, 108, -Radio-List-F	112, 116, 132, 136, 140, 149, 153, 15 X2-v408-ELXM-v42-BHB3457.csv) - 2;	7, 161, 165 ' records			
													Þ
utput Directory :	C:\temp	,		Browse .									Hide

### 13.2.4 Update Options

This section of the *Device Management* dialog separately configures how updates are handled for Monitored and Un-commissioned radios.

Update Options	Description
Monitored Units	MANUAL (selected only)
	Updates will only be done manually on monitored radios that appear in the
	Units Requiring Updates list.
	The user selects the radios to update in that list and then clicks the UPDATE
	SELECTED button to initiate the updates.
	ON NEXT RESTART (All)
	This option will trigger an automatic update on any radio in the Units Requiring
	Updates list as soon as the Device Management function detects that the radio
	has restarted. This detection must occur within 2 minutes of the radio
	restarting.
	This 2-minute window is implemented primarily for updating the radio in a
	mobile platform on the premise that the platform itself also rebooted and was in
	a safe location. After 2 minutes there is a high probability that the platform has
	been put into service.
Un-commissioned Units	MANUAL (selected only)
	Commissioning will only be done manually on radios that appear in the
	Un-commissioned Units list.
	The user selects the radios to commission in that list and then clicks the
	UPDATE SELECTED button to initiate the commissioning sequence.
	IMMEDIATELY
	Automatically commissions any radio added to the Un-commissioned Units list.
	There is no uptime restriction on starting the commissioning sequence.
Enable LED Notifications	This parameter will send an LED pattern notification to a radio that is in either
	the Un-commissioned Units or Unmanaged Units list to flash its LEDs in a
	distinct pattern depending on which list it is on.
	This allows visual indication that a radio is not yet in an operational state, and if
	it persists some action may need to be taken by a technician.
Status Log	Information on the progress of updates and other events is displayed in this
	window for informational purposes.

## **13.3 Device Management Operation**

A brief description of the operating modes and rules of the *Device Management* feature as related to the CSV file content.

#### 13.3.1 Commissioning Rules

The CSV rows that have the *Operation* field set to **Commission** or to **Both** will be considered when searching the CSV list for a match for a detected un-commissioned radio. To match a row an un-commissioned radio's MAC Address and SSID must be the same as these respective fields in that row.

It is possible to set the *MacAddr* field in the CSV to the Wildcard '\*' which will then match to any radio, in which case if the SSID configured into the un-commissioned radio is the same as the *CommissionSSID* field string then a match is declared.

The search through the CSV will first ensure that a radio's MAC address does not appear in any row before a wildcard row is considered.

Once a match is made to a CSV row, the un-commissioned radio is added to the *Un-commissioned Units List* view in the *Device Management* dialog and if the *Update Options* have been set to **IMMEDIATELY** an update of the radio starts right away based on the settings and files set into fields in the row.

If the *Update Options* for commissioning are set to **MANUAL**, then the user must select the radio from the *Uncommissioned Units* list and click the **UPDATE SELECTED** button to initiate the update.

#### 13.3.2 Monitoring Rules

Rows that have the *Operation* field set to **MONITOR** or **BOTH** will be considered when searching the CSV file to match to a radio that is already commissioned.

To declare a match to a CSV row, the *Mac Address*, *Mode*, and *SSID* fields must be the same as the current state of the radio.

If a MAC Address is specified, then that MAC Address must only appear in the CSV file once.

The *MacAddr* field takes precedence. When populated, a radio matching that MAC Address will only be assessed based on that row of the CSV file and not a wildcard row.

If the radio's MAC address is not found in the CSV file, then the search reverts to looking for the 1<sup>st</sup> matching wildcard row.

The 1st row encountered in the CSV file that has an \* in the MAC Address cell, and the *Mode* and the *SSID* fields match the radio's current state, then this row will be used.

If no match for a radio is found in the CSV file then this radio will appear in the *Unmanaged Units* list in the *Device Management* dialog. This list can be reviewed, and the CSV file updated if these radios need to be managed.

Radios that match a CSV row but differ in firmware version or settings with one or more fields of the CSV row are added to the *Units Requiring Updates* list in the *Device Management* dialog. The action taken by the IH Browser will depend on the state of the *Monitored Units* control in the *Update Options* section of the *Device Management* dialog.

Updates for the radio can be configured to be done manually by the user, or they can be triggered when the IH Browser detects the radio has restarted.

Once a radio is up to date it is no longer visible in the Device Management dialog.

# 14 Support, Service, and Warranty

## 14.1 Contacting Technical Support

ProSoft Technology, Inc. is committed to providing the most efficient and effective support possible. Before calling, please gather the following information to assist in expediting this process:

- 1 Product Version Number
- 2 System architecture
- 3 Network details

If the issue is hardware related, we will also need information regarding:

- 1 Module configuration and associated ladder files, if any
- 2 Module operation and any unusual behavior
- **3** Configuration/Debug status information
- 4 LED patterns
- 5 Details about the interfaced serial, Ethernet or Fieldbus devices

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## 14.2 Warranty Information

For complete details regarding ProSoft Technology's legal terms and conditions, please see:

www.prosoft-technology.com/ProSoft-Technology-Legal-Terms-and-Conditions

For Return Material Authorization information, please see: <a href="http://www.prosoft-technology.com/RMA">www.prosoft-technology.com/RMA</a>