

How to setup Wireless Modbus TCP M340 with NOE and Quantum with NOE

RLXIB-IHW Industrial Hotspot 802.11abg



Introduction

This document gives the details of the implementation of Modbus TCP over a wireless connection between two devices (one client device and one Server device).

For the architecture example of this implementation, we use a Schneider Electric M340 PLC with an NOE card as a client device and a Schneider Electric QUANTUM PLC with a NOE card as a server device.

The client device could be another PLC (Quantum, M340, Premium...) or any other device that supports Modbus TCP client communication.

The server device could be another PLC (Quantum, M340, Premium...) or any other device that supports Modbus TCP server communication.

To carry out the wireless communication, two ProSoft Technology modules RLXIB-IHW-E RadioLinx Industrial Hotspot 802.11abg are used.

Note:

RLXIB-IHW-E has AP (Access Point) mode available (See the end of the technical note).

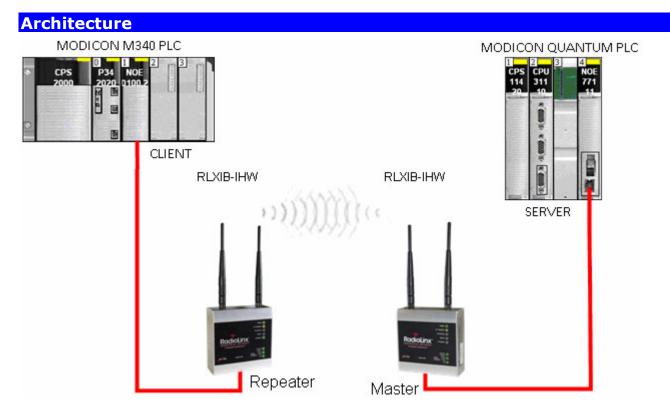


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Software required for this architecture example:

- Unity Pro XL V4.0 From Schneider Electric
- USB Driver for M340 From Schneider Electric
- RadioLinx Industrial Hotspot Browser From ProSoft Technology
- Internet Explorer 7 To browse the RLXIB-IHW settings



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Procedure

Remark:

If your PC is not connected to a DHCP server or is directly connected via Ethernet to the radio module, **DO NOT FORGET TO ASIGN A FIXE IP ADDRESS** to the PC Ethernet card.

Here are the basic steps needed to establish communications:

A. <u>Setting of the master radio</u>

A.1. Install RadioLinx IH browser:

Download RLX-IH Browser from: <u>http://www.prosoft-technology.com/content/download/12739/165690/file</u>

Then install the Browser on your PC.

A.2. Plug the cables to the RLXIB-IHW:



From left to right: Power connector, serial port and Ethernet port.

Plug the power cable.

For Ethernet connection:

- If you are connecting to the radio through an Ethernet hub or switch, use the gray (straight-through) cable.
- If you are connecting to the radio directly from your PC without going through an Ethernet hub or switch, you must use the red (crossover) cable.



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A.3. Launch RadioLinx IH browser:

Click on the "**binocular**":

🝌 RadioLinx Industrial Hotspot Browser							<u>_ ×</u>					
File Operations Dia	alogs View	Help										
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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)		Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
4												۱.
RadioLinx Industrial Ho	tspot Browser									Γ	NUM	

The radio appears:

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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)		Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
R Radio1	Repeater	00.0d.8d.f0.13.01	0.0.0.0	Network1	AES	11	15	-100	0	0		
•												•
RadioLinx Industrial Hot	tspot Browser										NUM	

At this point the setting of the radio is the factory default. If the radio is connected to a network with a DHCP server, the radio may already have an IP address assigned to it.

If no IP address appears (remains 0.0.0.0):

Select the Radio you want to assigned an IP address in the list

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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)		Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
Radio1	Repeater	00.0d.8d.f0.13.01	0.0.0.0	Network1	AES	11	15	-100	0	0		
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RadioLinx Industrial Ho	tspot Browse	r									NUM	



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Then from "Operations" menu, select "Assign IP"

🝌 RadioLinx Industrial Hotspot							
File	Operations	Dialogs	View H				
#	Connect	P					
Nam	Assign IP	Assign IP					
	Update Fi	it-u					
M	Start Ping	j Session	er				

The following window is displayed:

Assign Tempor	Assign Temporary IP Address 🛛 🛛 🎦 🗙					
Radio Name	Radio1					
MAC Address	00.0d.8d.f0.13	3.01				
Subnet	255.255.255.0)				
Gateway	192.168.170.2	254				
IP Address	192.168.170.1	88				
Unused IP's :	192.168.170.2					
Find More	192.168.170.2 192.168.170.2	250				
	<u> </u>					
OK		Cancel				

You can select an unused IP address from the list by double-clicking on it or change it in the IP address edit box.

Note:

The **IP address** of **NOE**, **Radio RLXIB-IHW** and server device must be at the same IP range and depending of your **Subnet mask**.

Click "**OK**" to accept the temporary IP address, subnet mask, and default gateway.

The following message is displayed; click **"OK**" to continue.

1	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 Annuler

Now a temporary IP address is assigned to the RLXIB-IHW-E module.

XI



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A.4. Go online with the RLXIB-IHW-E for configuration:

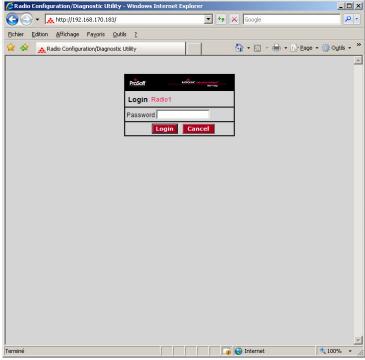
To go online with the RLXIB-IHW for configuration (or diagnostics) from the Browser select the Radio1:

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File Operations Dial	logs View	Help										
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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)		Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
R Radio1	Repeater	00.0d.8d.f0.13.01	192,168,170,183	Network1	AES	11	15	-100	0	0		
•												Þ
RadioLinx Industrial Hot	spot Browser	,									NUM	

Double-click on the radio or select the "**Connect**" option in "**Operations**" menu.



The following window is displayed:



Type your password to log into the radio (default is "password") and then click the "Login" button.



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The RLW-IHW-E configuration is protected by a login password. To prevent unauthorized access to the radio configuration, you should change the default password when you have finished your configuration.

The following window is displayed:

🖉 Radio Configu	ration/Diagnostic Utility - \	Windows Internet Explorer				
@• 	http://192.168.170.183/Conf	ig_Diag.htm%dfbd08289878616 💌 😽	X Google			
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🙀 🏟 🔥 Ra	adio Configuration/Diagnostic Ut	ility	🟠 🔹 🔝 👻 🖶 🔹 📴 Page 🔹 🎯 Outils 🔹 🎽			
ProS	off	RADIOLINX	Industrial Hotspot™			
TECHNOL	O G Y		802.11abg			
Radio Name:	Radio1	Signal Strength:	Scanning			
Radio MAC:	00.0D.8D.F0.26.47	Parent MAC: none	Available Parents			
Firmware:	IB3_430	Branch Length: n/a	Address Table			
Update every:	10 sec	#Radios Linked: 0	Port Status			
Up Time:	0 Day 1 Hr. 57 Min. 4 Sec		1			
Radio N	Network Settings	Security Settings	Radio Access Settings			
Radio Name:	Radio1	Encryption WPA-AES	Obtain IP address - DHCP			
Network SSID:	Network1	WPA phrase ****	C Use the following IP address			
C Master	11 (2462MHz) 💌	WEP key 1 🗾 🔭	IP Address 192.168.170.183			
Repeater	Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0			
	Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254			
C Client	🖲 Auto 🧲 Specify		Primary DNS 192.10.1.10			
Client MAC	00.00.00.00.00		Secondary DNS 50.0.0.0			
IGMP	Spanning Tree		SNMP			
	Advanced Config		Login Password			
	Serial Settings					
Appl	y Changes	Cancel Changes	Factory Defaults Help			
Configuratio	Configuration help Changes not Saved. Will disrupt ~60s					
_	to 31 characters. For user's					
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A.5. Set up the RLXIB-IHW-E – Master mode

The master is the "root" or top-level radio in a network. You must have at least one master radio per network. For redundancy, you can assign more than one master to the network.

From the screen below:		
🖉 Radio Configuration/Diagnostic Utility - ۱	Windows Internet Explorer	
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	<u> </u>	
Prosoft	RADIOLINX	ndustrial Hotspot™
TECHNOLOGY		802.11abg
Radio Name: Radio1	Signal Strength:	Scanning
Radio MAC: 00.0D.8D.F0.26.47	Parent MAC: none	Available Parents
Firmware: IB3_430	Branch Length: n/a	Address Table
Update every: 10 sec	# Radios Linked: 0 c Link Time: n/a	Port Status
Up Time: 0 Day 1 Hr. 59 Min. 55 Se		
Radio Network Settings	Security Settings	Radio Access Settings
Radio Name: Radio1	Encryption WPA-AES	Obtain IP address - DHCP
Network SSID: Network1	WPA phrase ****	C Use the following IP address
C Master 11 (2462MHz)	WEP key 1 💌 ****	IP Address 192.168.170.183
Repeater Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0
Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254
C Client C Auto C Specify		Primary DNS 192.10.1.10
Client MAC 00.00.00.00.00		Secondary DNS 50.0.0.0
IGMP Spanning Tree		SNMP
Advanced Config		Login Password
Serial Settings		
Apply Changes	Cancel Changes	Factory Defaults Help
Configuration help Cha	nges not Saved. Will disrupt ~60s	
Cancel Changes: Press this to undo any ed	dits you may have just done on this page	
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- Change the Radio Name from Radio1 to Quantum_Radio
- Change the Network SSID from Network1 to Modbus
- Select **Master** and select the channel (default channel is 11)
- Select Encryption (WPA-AES for example) and enter your pass phrase
- Enter a valid IP address and Subnet Mask



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IMPORTANT:

The use of Global Data needs the IGMP settings to be "Disabled" in both Master and Repeater RLXIB-IHW-E modules.

Radio N	Network Settings	🔏 Radio Configuration/Diagnostic Utility - Win 💶 🗖 🗙
Radio Name:	Quantum_Radio	Attp://192.168.170.183/igm
Network SSID:	Modbus	
• Master	6 (2437MHz) 💌	IGMP Settings Quantum_Radio
C Repeater	Parent Link	IGMP Multicast Filtering C Disabled © Enabled
	Parent Auto Select	Default Propagation Action © Flood © Filter
C Client	🖲 Auto 💭 Specify	IGMP Query Generation Timed Interval
Client MAC	00.00.00.00.00	IGMP Query Interval 60 seconds
IGMP	Spanning Tree	Multicast Stale Count 3 query frames
	Advanced Config	Save Cancel
	Serial Settings	

These parameters are example; you can set the parameters that fit your needs.

		windows Internet Explorer				
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<i></i>						
ProS/	` ff°	RADIOLINX	[®] Industrial Hotspot™			
TECHNOL	O G Y		802.11abg			
Radio Name:	Quantum_Radio	Signal Strength:	Master			
Radio MAC:	00.0D.8D.F0.26.47	Parent MAC: none	Available Parents			
Firmware:	IB3_430	Branch Length: 1	Address Table			
Update every:	10 sec	# Radios Linked: 1	Port Status			
Up Time:	0 Day 1 Hr. 25 Min. 58 S	ec. Link Time: n/a				
Radio N	letwork Settings	Security Settings	Radio Access Settings			
Radio Name:	Quantum_Radio	Encryption none	C Obtain IP address - DHCP			
Network SSID:	Modbus	WPA phrase ****	Use the following IP address			
Master	6 (2437MHz) 💌	WEP key 1 💌 🔭	IP Address 192.168.170.183			
C Repeater	Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0			
	Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254			
C Client	C Auto C Specify		Primary DNS 192.10.1.10			
Client MAC	00.00.00.00.00		Secondary DNS 50.0.0.0			
IGMP	Spanning Tree		SNMP			
	Advanced Config	1	Login Password			
	Serial Settings					
Apply Changes Cancel Changes Factory Defaults Help						
Configuration help Changes not Saved. Will disrupt ~60s						
Radio Name: 1 to 31 characters. For user's identification of radio only.						

Now the new settings are ready, press "**Apply Changes**" to validate them.



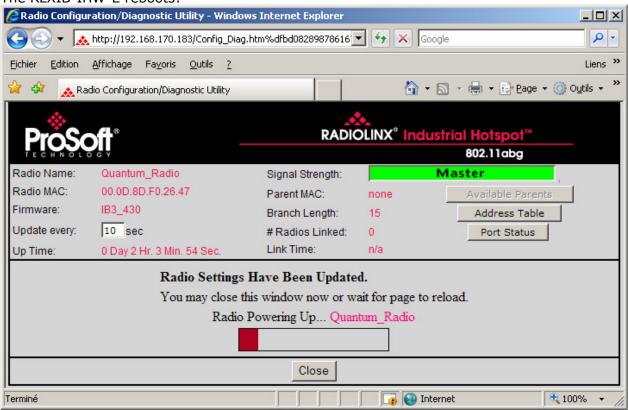
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The following message may appear when pressing "Apply changes", click "OK".



The RLXIB-IHW-E reboots:



You can wait until the update is done or click on "Close", the following window is displayed:

windows	Internet Explorer		\sim
?	La page Web affich Voulez-vous fermer	iée tente de fermer la fenêti r cette fenêtre ?	re.
	Oui	Non	

Click "Yes".



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A.6. Settings verification:

Select ``Clear'' to delete the current radio list

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Name									
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Select the "**binocular**" to refresh the screen and get an update radio list

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Nam	Name							
נ	EROMED630							

When configured the name of the radio is preceded by an M (for Master) in the RLX-IH Browser.

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File Operations Dial	logs View	Help										
🗛 🔌 🕫 🗠 P	le 🔓 😰	ا 🙇 🗟 🗄 🗏	1991	B 🤋								
Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)	Mas	ster
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
M Quantum_Radio	Master	00.0d.8d.f0.13.01	192.168.170.183	Modbus	none	6	1		0	0		
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•												Þ
RadioLinx Industrial Hot	spot Browsei	r								Γ	NUM	

The setting of the Master radio is completed.

Disconnect the Ethernet cable from the radio.





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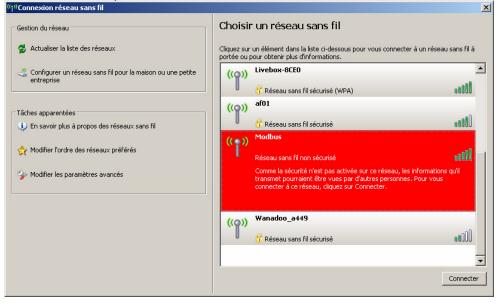
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A.7. RLXIB-IHW-E Access Point checking

Open your PC network connection and select the wireless card.

Connexions réseau					
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Adresse 🔇 Connexions réseau					💌 🄁 ОК
		Résea	u local ou	Internet à ha	ute vitesse
Gestion du réseau	×				
		-1	- Connex	ion réseau sans	filmen
Autres emplacements	×	-	🗶 Non cor	nnecté	
Autres emplacements	•		ဏုံ Intel(R)) Wireless WiFi L	ink 496
Détails	*				
Connexion réseau sans fil					
Non connecté					
Intel(R) Wireless WiFi Link 4965AGN					

Double-click on your Wireless network to View Available Wireless Networks



Within the list of the Wireless network available you should see the Modbus network. This is the **Network SSID** you setup previously within the RLXIB-IHW-E Master. Select the **Modbus** wireless network and click the "**Connect**" button.



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Now you will be able to monitor the radio with your internet browser via your wireless network:

Open your internet browser.

Enter the IP address of the RLXIB-IHW-E you want to access into the navigation bar.

	profer he peac pas amener cette page neb	mindon's internet enplo
O	8 192.168.170.183	▼ → ×

The following window is displayed.

🖉 Radio Configuration/Diagnostic Utility -	- Windows Internet Explorer	
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<u>Fichier Edition Affichage Favoris Outil</u>	s : <u>2</u>	
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		<u> </u>
	ProSoft	
	Login Quantum_Radio	
	Password Login Cancel	
		-
	📑 👘 💽 🕞 Internet	100% 🝷 //.

Type your password to log into the radio (default is "password") and then click the "**Login**" button.



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The follow	ving window is di	splayed:	
🖉 Radio Configu	uration/Diagnostic Utility - '	Windows Internet Explorer	
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		<u>.</u>	
ProS	oft	RADIOLINX	Industrial Hotspot [™]
TECHNOL	OGY		802.11abg
Radio Name:	Quantum_Radio	Signal Strength:	Master
Radio MAC:	00.0D.8D.F0.26.47	Parent MAC: none	Available Parents
Firmware:	IB3_430	Branch Length: 1	Address Table
Update every:	10 sec	# Radios Linked: 0	Port Status
Up Time:	0 Day 0 Hr. 0 Min. 38 Se		
	Network Settings	Security Settings	Radio Access Settings
Radio Name:	Quantum_Radio	Encryption none	C Obtain IP address - DHCP
Network SSID:	Modbus	WPA phrase ****	Use the following IP address
Master	6 (2437MHz) 💌	WEP key 1 💌 👫	IP Address 192.168.170.183
C Repeater	Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0
	Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254
C Client	🕫 Auto C Specify		Primary DNS 192.10.1.10
Client MAC	00.00.00.00.00		Secondary DNS 50.0.0.0
IGMP	Spanning Tree		SNMP
	Advanced Config		Login Password
	Serial Settings		Login Password
	ly Changes	Cancel Changes	Factory Defaults Help
Configuratio		nges not Saved. Will disrupt ~60s	
Hide Network S	SSID: Check to hide SSID in	rf beacons so WLAN card scans can n	ot see this network SSID
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B. Setting of the repeater radio

B.1. Plug the cables to the other RLXIB-IHW



From left to right: Power connector, serial port and Ethernet port.

Plug the power cable.

For Ethernet connection:

- If you are connecting to the radio through an Ethernet hub or switch, use the gray (straight-through) cable.
- If you are connecting to the radio directly from your PC without going through an Ethernet hub or switch, you must use the red (crossover) cable.



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Wireless Modbus TCP - M340 with NOE & Quantum with NOE

B.2. Launch RadioLinx IH browser

Click on the "binocular"

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File Operations Dialogs View Help												
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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)	Ма	aster
JEROMED63	0 This Utility	00.1c.23.4a.85.04	192.168.170.20									
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RadioLinx Industr	rial Hotspot Browse	r									NUM	_ //.

The radio appears:

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Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)	Master]
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
R Radio1	Repeater	00.0d.8d.f0.1d.c3	192.168.170.24	Network1	AES	11	15	-100	0	0		
•											•	I
RadioLinx Industrial H	otspot Browsei	r										1

At this point the setting of the radio is the factory default. If the radio is connected to a network with a DHCP server, the radio may already have an IP address assigned to it.

If no IP address appears (remains 0.0.0.0):

Select the Radio you want to assigned an IP address in the list

	auto ja		accigned e									
🔥 RadioLinx Indus	trial Hotspo	t Browser									_	
File Operations Di	alogs View	Help										
🗛 🔌 🕫 🗠	7e 🔓 😭	🗏 🖧 🖵 🖍 I	999	3 ?								
Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)	P	1aster
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
R Radio1	Repeater	00.0d.8d.f0.13.01	0.0.0.0	Network1	AES	11	15	-100	0	0		
					1							
RadioLinx Industrial Ho	otspot Browsei	r									NUM	//



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Then from "Operations" menu, select "Assign IP"

🚓 RadioLinx Industrial Hotspot								
File	Operations	Dialogs	View H					
#	Connect	P						
Nam	Assign IP	Assign IP						
	Update Fi	Update Firmware						
M	Start Ping	j Session	er					

The following window is displayed:

Assign Temporary IP Address 🛛 🔋 🗙					
Radio Name	Radio1				
MAC Address	00.0d.8d.f0.26.65				
Subnet	255.255.255.0				
Gateway	192.168.170.254				
IP Address	192.168.170.184				
Unused IP's :	192.168.170.253 192.168.170.252				
Find More	192.168.170.249				
ОК	Cancel				

You can select an unused IP address from the list by double-clicking on it or change it in the IP address edit box.

Note:

The **IP address** of **NOE**, **Radio RLXIB-IHW** and server device must be at the same IP range and depending of your **Subnet mask**.

Click "**OK**" to accept the temporary IP address, subnet mask, and default gateway.

The following message is displayed; click **"OK**" to continue.

1	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 Annuler

Now a temporary IP address is assigned to the RLXIB-IHW-E module.

XI



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

B.3. Go online with the RLXIB-IHW-E for configuration

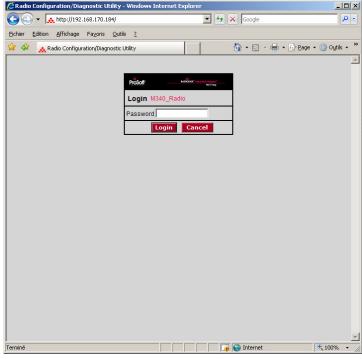
To go online with the RLXIB-IHW for configuration (or diagnostics) from the Browser select the Radio1:

🔥 RadioLinx Industr	rial Hotspo	t Browser										
File Operations Dial	ogs View	Help										
🚧 🔌 🕫 🗠 5	te 🔓 😭	🗏 🖧 🖵 🖍 ।		B 🤋								
Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)		Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20									
R Radio1	Repeater	00.0d.8d.f0.13.01	192.168.170.183	Network1	AES	11	15	-100	0	0		
•												F
RadioLin× Industrial Hot	spot Browser										NUM	

Double-click on the radio or select the "**Connect**" option in "**Operation**s" menu.



The following window is displayed:



Type your password to log into the radio (default is "password") and then click the "**Login**" button.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

The RLW-IHW-E configuration is protected by a login password. To prevent unauthorized access to the radio configuration, you should change the default password when you have finished your configuration.

The following window is displayed:

🖉 Radio Configurat	ion/Diagnostic Utility - \	Windows Internet Explorer					
😋 🕤 👻 http://192.168.170.184/Config_Diag.htm%dfeac0a62d20e1a(🔽 🍫 🗙 Google							
Eichier Edition Af	fichage Fa <u>v</u> oris <u>O</u> utils	2		Liens »			
😭 🏟 👧 Radio	Configuration/Diagnostic Uti	ility	6) 🔹 🔝 👻 🖶 🔹 🔂 Page 🔹 🍥 O <u>u</u> tils 🔹 🎽			
ProSof		RADIO	LINX [®] In	dustrial Hotspot™			
TECHNOLOG				802.11abg			
Radio Name:	Radio1	Signal Strength:		Scanning			
Radio MAC:	00.0D.8D.F0.26.65	Parent MAC:	none	Available Parents			
Firmware:	IB3_430	Branch Length:	n/a	Address Table			
Update every:	10 sec	# Radios Linked:	0	Port Status			
Up Time:	0 Day 0 Hr. 3 Min. 46 Sec	Link Time:	n/a				
Radio Net	work Settings	Security Setting	5	Radio Access Settings			
Radio Name: Ra	adio1	Encryption WPA-AES	-	Obtain IP address - DHCP			
Network SSID: Network	etwork1	WPA phrase ****		C Use the following IP address			
C Master 11	1 (2462MHz) 🔽	WEP key 1 💌 🛛 ****		IP Address 192.168.170.184			
• Repeater	Parent Link	MAC Filter Edit Filter		Subnet Mask 255.255.255.0			
Pa	rent Auto Select	Hide Network SSID		Def: Gateway 192.168.170.254			
C Client @	Auto 🤨 Specify			Primary DNS 192.10.1.10			
Client MAC 00	.00.00.00.00.00			Secondary DNS 50.0.0.0			
IGMP	Spanning Tree			SNMP			
	Advanced Config			Login Password			
	Serial Settings						
Apply Changes Cancel Changes Factory Defaults Help							
Configuration help Changes not Saved. Will disrupt ~60s							
Radio Name: 1 to 31 characters. For user's identification of radio only.							



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

B.4. Set up the RLXIB-IHW-E – Repeater mode

A RLXIB-IHW-E Remote/Repeater connects automatically to the best available parent radio on the network.

	reen below:					
Radio Configui	ration/Diagnostic Utility - '	Windows Internet Explorer				
G 🕤 🗸 🐼	http://192.168.170.183/Conf	ig_Diag.htm%dfbd08289878616 🔽 🐓 🔾	K Google			
<u>F</u> ichier <u>E</u> dition	<u>A</u> ffichage Fa <u>v</u> oris <u>O</u> utils	2	Liens			
🍃 🏟 🔬 Rai	dio Configuration/Diagnostic Ul	ility	🟠 🔹 🔝 👒 🖶 🔹 🔂 Page 🔹 🎯 Outils 🔹			
		*				
Prosc	sft°	RADIOLINX®	Industrial Hotspot™			
TECHNOLO	D G Y		802.11abg			
Radio Name:	Radio1	Signal Strength:	Scanning			
Radio MAC:	00.0D.8D.F0.26.47	Parent MAC: none	Available Parents			
Firmware:	IB3_430	Branch Length: n/a	Address Table			
Update every:	10 sec	#Radios Linked: 0	Port Status			
Up Time:	0 Day 1 Hr. 59 Min. 55 Se	ec. Link Time: n/a				
Radio N	etwork Settings	Security Settings	Radio Access Settings			
Radio Name:	Radio1	Encryption WPA-AES	Obtain IP address - DHCP			
Network SSID:	Network1	WPA phrase ****	C Use the following IP address			
C Master	11 (2462MHz) 🔽	WEP key 1	IP Address 192.168.170.183			
Repeater	Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0			
	Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254			
C Client	🖲 Auto C Specify		Primary DNS 192.10.1.10			
Client MAC	00.00.00.00.00		Secondary DNS 50.0.0.0			
IGMP	Spanning Tree		SNMP			
	Advanced Config		Login Password			
	Serial Settings		Login rassiona			
And	Changes	Cancel Changes	Eactory Defaults			
Apply Changes Cancel Changes Factory Defaults Help						
Configuration help Changes not Saved. Will disrupt ~60s Cancel Changes: Press this to undo any edits you may have just done on this page						
Cancel Change	s. Press this to undo any e	uns you may have just done on this page	3			
erminé			😜 Internet 🛛 🔍 100% 👻			

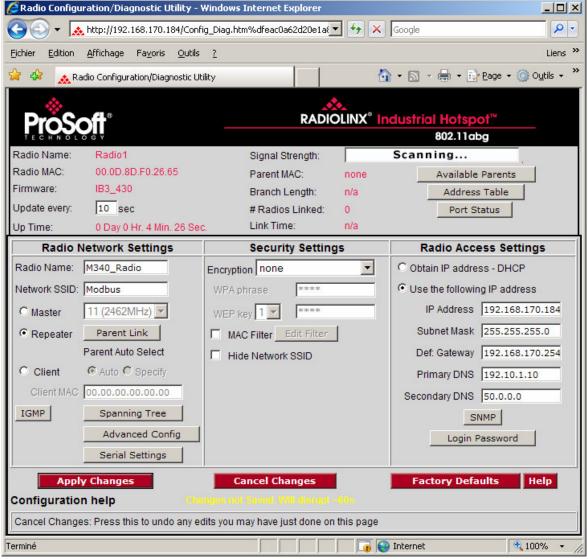
- Change the Radio Name from Radio1 to M340_Radio
- Change the Network SSID from Network1 to Modbus
- Select Repeater
- Select **Encryption** (WPA-AES for example) and enter your pass phrase
- Enter a valid **IP address** and **Subnet Mask**



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

These parameters are example; you can set the parameters that fit your needs.



Important: The Network SSID and WPA phrase are case sensitive.

Use exactly the same combination of upper case and lower case letters you entered for the RLXIB-IHW-E Master mode, otherwise the Repeater radio will not be able to connect to the Master radio.

Now the new settings are ready, click "**Apply Changes**" to validate them.

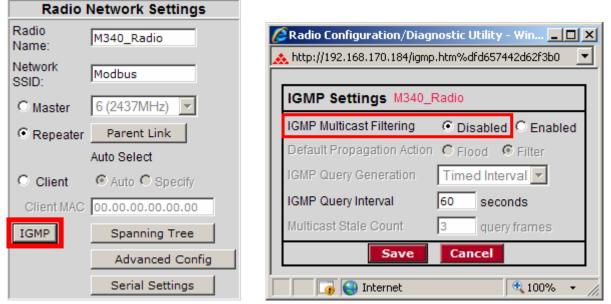


RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

IMPORTANT:

The use of Global Data needs the IGMP settings to be "Disabled" in both Master and Repeater RLXIB-IHW-E modules.



Now the new settings are ready, click "**Apply Changes**" to validate them.



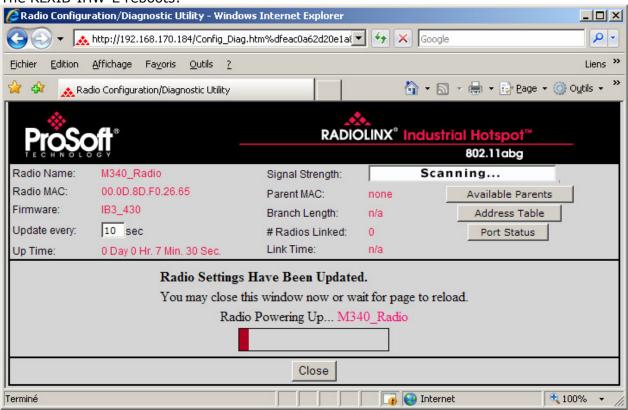
RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

The following message may appear when pressing "Apply changes", click "OK".



The RLXIB-IHW-E reboots:



You can wait until the update is done or click on "Close", the following window is displayed:

windows	Internet Explorer		\sim
?	La page Web affich Voulez-vous fermer	iée tente de fermer la fenêti r cette fenêtre ?	re.
	Oui	Non	

Click "Yes".



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

B.5. Settings verification:

Select Clear to delete the current radio list

🔥 RadioLinx Indu:					
File Operations D					
#	🏘 📉 🗧 🏎				
Name					
JEROMED630					

Select the binocular to refresh the screen and get an update radio list

🔥 RadioLinx Indu:					
File Operations D					
酋	🗞 📻 😣				
Name					
JEROMED630					

When configured the name of the radio is preceded by an ${\bf R}$ (for Repeater) in the RLX-IH Browser.

🔥 RadioLinx Industi	rial Hotspo	t Browser									>
File Operations Dial	ogs View	Help									
👫 🔌 🖪 🗠 5	le 🔓 😰	🗏 🖧 🖵 🍖 I	1991	B 🤋							
Name	Mode	MAC	IP	SSID	Security	Channel	Hops	Signal (dBm)	Tx (KB/s)	Rx (KB/s)	Master
JEROMED630	This Utility	00.1c.23.4a.85.04	192.168.170.20								
M_Quantum_Radio	Master	00.0d.8d.f0.13.01	192.168.170.183	Modbus	none	6	1		0	0	
R M340_Radio	Repeater	00.0d.8d.f0.1d.c3	192.168.170.184	Modbus	none	6	2	-54	0	1	00.0d.8d.f0.13.01
•											
adioLinx Industrial Hot	spot Browser	r									NUM

The setting of the Repeater radio is finished.

Disconnect the Ethernet cable from the radio.



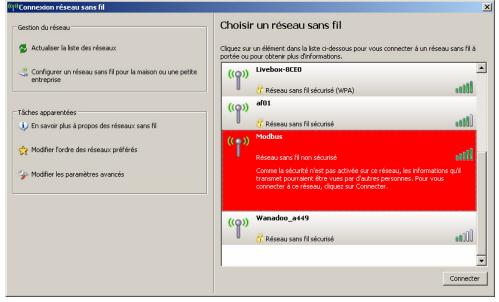


RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

RLXIB-IHW-E Access Point checking

With you PC wireless access enabled and from the Available Wireless Network list



Choose the **Modbus** network.

This is the **Network SSID** you setup previously within the RLXIB-IHW-E Remote/Repeater mode.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Now you will be able to monitor the radio with your internet browser via your wireless network:

Open your internet browser.

Enter the IP address of the RLXIB-IHW-E you want to access into the navigation bar.

	kpiorer ne peut pas anicher cette page web	- windows Internet Exploi
G 🔁 🔻	8 192.168.170.184	• > ×

The following window is displayed.

Radio Configuration/Diagnostic Utility		
😋 🕘 👻 http://192.168.170.184/	🔽 🐓 🗙 Google	P •
<u>Fichier Edition Affichage Favoris O</u> u	itils <u>2</u>	
🙀 🍄 🔥 🚓 Radio Configuration/Diagnosti	c Utility 🏠 🔹 🔂 🔹 🛃 🕹 🛃	• • 🔘 O <u>u</u> tils • *
		<u> </u>
	ProSoft Marita Maria	
	Login M340_Radio	
	Password	
	Login Cancel	
Terminé	📑 👔 🚱 Internet	▼ 100% ▼ //

Type your password to log into the radio (default is "password") and then click the "**Login**" button.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

The following window is displayed:							
🖉 Radio Configu	uration/Diagnostic Utility - '	Windows Internet Explorer					
🚱 🕤 👻 http://192.168.170.184/Config_Diag.htm%df4834b052ad90b, 🔽 🔄 🔀 😡 Google							
<u>Fichier</u> <u>E</u> dition	<u>A</u> ffichage Fa <u>v</u> oris <u>O</u> utils	2	Liens »				
🚖 🏟 🔜 👧	😪 🍄 🔥 Radio Configuration/Diagnostic Utility						
<u></u>		A.					
ProS	off	RADIOLINX [®] In	dustrial Hotspot [™]				
TECHNOL	OGY		802.11abg				
Radio Name:	M340_Radio	Signal Strength:	-51dBm, 42S/N				
Radio MAC:	00.0D.8D.F0.26.65	Parent MAC: 00.0D.8D.F0.2	26.47 Available Parents				
Firmware:	IB3_430	Branch Length: 2	Address Table				
Update every:	10 sec	# Radios Linked: 1	Port Status				
Up Time:	0 Day 0 Hr. 2 Min. 35 Sec		Min. 6 Sec.				
Radio	Network Settings	Security Settings	Radio Access Settings				
Radio Name:	M340_Radio	Encryption none	C Obtain IP address - DHCP				
Network SSID:	Modbus	WPA phrase ****	Use the following IP address				
C Master	6 (2437MHz)	WEP key 1	IP Address 192.168.170.184				
• Repeater	Parent Link	MAC Filter Edit Filter	Subnet Mask 255.255.255.0				
	Parent Auto Select	Hide Network SSID	Def: Gateway 192.168.170.254				
C Client	Auto C Specify		Primary DNS 192.10.1.10				
Client MAC	00.00.00.00.00		Secondary DNS 50.0.0.0				
IGMP	Spanning Tree		SNMP				
	Advanced Config		Login Password				
	Serial Settings						
Apply Changes Cancel Changes Factory Defaults Help							
Configuration help Changes not Saved. Will disrupt ~60s							
Link Time: Ler	Link Time: Length of time the radio has been continuously connected (linked) to a parent.						

Signal quality:

Signal Strength shows you the quality of the signal between the RLXIB-IHW-E Master mode and RLXIB-IHW-E Remote/Repeater mode radios.

Poor Signal	Signal Strength:		-81dBm, 1	16S/N
5				

Note:

Signal quality depends on distance between the antennas, free line of sight and correct antennas mounting.

To have further information about the RLXIB-IHW-E please, download the User Manual from: <u>http://www.prosoft-technology.com/content/download/14036/181543/file</u>



RLXIB-IHW Industrial Hotspot 802.11abg

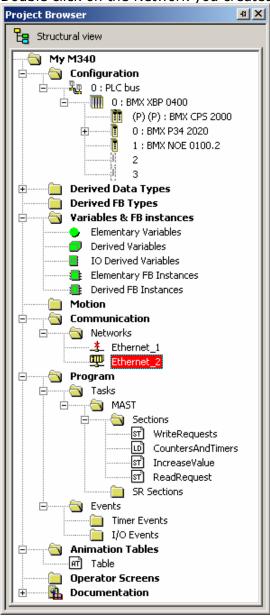
Wireless Modbus TCP - M340 with NOE & Quantum with NOE

C. Setting of the Modbus TCP Client device

C.1. Launch Unity Pro XL

For this application we used a BMX P34 2020 and Ethernet Card BMX NOE 0100.2. Create a new project with your actual hardware configuration and create an Ethernet network.

Double click on the Network you created (Ethernet_2 in my project):





RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

In the displayed screen, enters the IP Address of the NOE Card:

Ethernet_2	
Model Family Module Address NOE 0100.2, NOE 0110.2 Image: Channel of the second secon	Module Utilities YES ID Scanning YES Global Data NO Address Server NO ND ND
IP Configuration Messaging IO Scanning Global Data SNMP Address Server	NTP Bandwidth
IP address configuration Configured IP address 192.168.170.181 Subnetwork mask 255.255.0 Gateway address 192.168.170.254 From a server Device Name	
Ethernet configuration	
C Ethernet II C 802.3	

Note:

The **IP address** of **NOE**, **Radio RLXIB-IHW** and server device must be at the same IP range and depending of your **Subnet mask**.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

C.2. IO Scanning setting:

Enable IO scanning (set to "YES") in the Module's services window:

🏪 Ethernet_2			N					<u>_ </u>
Model Family		- Module Address -	43		- Module	Utilities		
NOE 0100.2, NOE 0110.2		Rack Mo	tule Chan	nel —	YES	-	IO Scanning	
					YES	-	Global Data	
Module IP Address					NO	-	Address Server	
IP Address	Subnetwork Mask	Gateway A		_	NO	-	NTP	
192 . 168 . 170 . 181	255 . 255 . 255 .	0 192 .	68 . 170 . 2	54	1			

Select IO Scanning tab 🏪 Ethernet_2 _ 🗆 🗵 Model Familu IO Scanning NOE 0100.2, N YES • Global Data Module IP Address NO Address Serve • IP Address NTP NO IP Configuration Messaging IO Scanning Global Data SNMP Address Server NTP Bandwidth Master %MW zones Read Ref. Vrite Ref. From 301 to 400 Repetitive rate step: 100 🛨 From 201 to 300 Scanned peripherals Health Timeou (ms) VR Master Object epetitiv rate (ms) RD Master Object VR Slave RD length Last value (Input) VR length IP address Unit ID Description 6 7 8 -

Create IO Scanning exchanges as needed (see example below):

- Server IP Address: Address IP of the server device (192.168.170.193).
- **Unit ID**: Modbus Address of the server (1).
- **Timeout (ms)**: (1500).
- **RD Master Objet**: Client address where the data read are stored (%MW201).
- **RD Slave Index**: Offset for the first data read in slave (200).
- **RD length**: Number of data read (100).
- WR Master Objet: Client address where data written are stored (%MW301).
- WR Slave Index: Offset for the first data read in slave (300).
- WR length: Number of data read (100).



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Create variables which will contain the data exchanged between the client and the server:

🗲 Table					
Modification Eorce	` ₹ ₹ ₹		μî,		
Name 👻	Value	Туре 💌	. (Address 💌	Global data 🛛 🖽
🕀 🕘 DataForIOScanM340ToQuantum		ARRAY[099] OF INT		%MW301	NO
庄 🖷 📒 DataForIOScanQuantumToM340		ARRAY[099] OF INT		%MW201	NO
J					

I personally used a name that allows having the same name in both client and server devices. I mapped these variables to the addresses used for the IO Scanning (%MW201 to %MW399).

Once this is done, compile, download and run the project to the M340 processor.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

C.3. Global Data setting:

Enable Global Data (set to "YES") in the Module's services window:

ļ	🎹 Ethernet_2								- D ×
ſ	- Model Family		– Module Ad	ldress		_ Modu	le Utilities	;	
l	NOE 0100.2, NOE 0110.2		Rack	Module	Channel	YES	•	IO Scanning	
l	140E 0100.2, NOE 0110.2		0	1	0	YES	•	Global Data	
l	Module IP Address					NO	-	Address Serve	er
I	IP Address	Subnetwork Mask		teway Address		NO	-	NTP	
l	192 . 168 . 170 . 181	255 . 255 . 255 . (0	192 . 168 . 1	170 . 254	<u> </u>			
I.									

Select **Global Data** tab:

Ethernet_2			
Model Family NOE 0100.2, NOE 0110.2 Module IP Address IP Address 192 . 168 . 170 . 181	Ra	odule Address ck Module Channel 0 1 0 Gateway Address 192 . 168 . 170 . 254	Module Utilities YES ID Scanning YES Global Data NO Address Server NO NTP
IP Configuration Messaging Global data configuration Health time out 500 Distribution period 50		a SNMP Address Server	NTP Bandwidth

Create Global Data exchange as needed (see example below):

- Validity Timeout (ms): (500).
- Distribution period (*10 ms): (50).
- **Group address**: IP address used by the group (239.255.255.255).
- Group name: (RLX)



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Create variables which will contain the data exchanged between the two devices:

🛃 Table								
Modification Force	L F	× 4	× 🕅 🗴		E			
Name	.	Value	Туре	•	(Address	•	Global data 🛛 🖽
👘 🐤 GlobalDataPUB			INT					PUB
🚽 🕒 GlobalDataSUB			INT					SUB
1								

I personally used a name that allows having the same name in both client and server devices.

Once this is done, compile, download and run the project to the M340 processor.

IMPORTANT:

The use of **Global Data** needs the **IGMP** settings to be "**Disabled**" in both **Master** and **Repeater** RLXIB-IHW-E modules.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

C.4. Modbus messaging setting:

Multiple types of blocks or commands can be used to achieve Modbus TCP communication using messages.

I chose to use the $\ensuremath{\mathsf{DATA_EXCH}}$ function in a Structured Text section.

The application I used is attached to this document

(M340MODBUSTCPOVERRLXWITHNOE.XEF)

Create variables which will contain the data exchanged between the client and the server:

🛃 Table										_	
Modification Eorce	¥ .£	1	F 36		≶ ⊮	N	H				
Name	•	Value		Туре		•	(Address	.	Global data	Œ
🕀 🖳 DataFromM340ToQuantum				ARRAY[()99] OF IN	T		%MW101		NO	
庄 📲 DataFromQuantumToM340				ARRAY[(099] OF IN	Т		%MW1		NO	

I personally used a name that allows having the same name in both client and server devices.

Once this is done, compile, download and run the project to the M340 processor.



RLXIB-IHW Industrial Hotspot 802.11abg

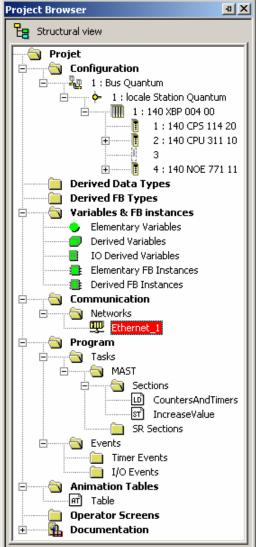
Wireless Modbus TCP - M340 with NOE & Quantum with NOE

D. Setting of the Modbus TCP Server device.

D.1. Launch Unity Pro XL

For this application we use a CPU 311 10 and Ethernet Card NOE 771 11. Create a new project with your actual hardware configuration and create an Ethernet network.

Double click on the Network you created (Ethernet_1 in my project):





RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

In the displayed screen, enters the IP Address of the NOE Card:

🎬 Ethernet_1	<u>_ ×</u>
Model Family Module Address Module TCP/IP 10/100 Regular connection I 4 IO Scanning Module IP Address II 4 IO Scanning Module IP Address Subnetwork Mask Gateway Address IO I 192 168 170 193 255 255 0	r
IP Configuration Messaging IO Scanning Global Data SNMP Address Server NTP Bandwidth	
IP address configuration IP address 192.168.170.193 Subnetwork mask 255.255.0 Gateway address 192.168.170.254 From a server	
Ethernet configuration	

Note:

The **IP address** of **NOE**, **Radio RLXIB-IHW** and server device must be at the same IP range and depending of your **Subnet mask**.

D.2. IO Scanning setting:

It is not necessary here to enable IO scanning.

Create variables which will contain the data exchanged between the client and the server:

🗲 Table										
Modification Force	🛯 🗠	F 🖳 👻	<i>s</i> ×		≯	₽[Na	Ē		
Name	▼ ,	Value	Address 🔹	•	Туре			• ,	Comment	
🖅 🕘 DataForIOScanM340To0	Juantum		%MW301		ARRA'	Y[099) OF IN	IT		
🗄 📃 DataForlOScanQuantum	ToM340		%MW201		ARRA'	Y[099) OF IN	IT		

I personally used a name that allows having the same name in both client and server devices. I mapped these variables to the addresses used for the IO Scanning (%MW201 to %MW399).

Once this is done, compile, download and run the project to the M340 processor.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

D.3. Global Data setting:

Enable Global Data (set to "YES") in the Module's services window:

🕎 Ethernet_1							<u>- 0 ×</u>
- Model Family-		Module Address		loduk	e Utilities		
TCP/IP 10/100 Regular o		Rack Module		NO	•	IO Scanning	
		1 4		/ES	-	Global Data	
Module IP Address			- I T	NO	-	SNMP	
IP Address	Subnetwork Mask	Gateway Address	. [NO	-	Address Serve	·r
192 . 168 . 170 . 1	193 255 . 255 . 255 . 0	192 . 168 . 170 . 254		NO	•	NTP	

Select Global Data tab:

🎬 Ethernet_1	
Model Family Module Address Module TCP/IP 10/100 Regular connection I 4 Module IP Address I 4 Module IP Address Subnetwork Mask Gateway Address IP Address Subnetwork Mask III 192 168 170 255	Utilities ID Scanning Global Data SNMP Address Server NTP
IP Configuration Messaging IO Scanning Global Data SNMP Address Server NTP Bar	ndwidth
Global data configuration Health time out 500 = ms Group address 239, 255, 255, 255 Distribution period 50 = scan Group name RLX	
Multicast filtering Health bit block (%I/%IW/%MW): <u>%MW410</u>	

Create Global Data exchange as needed (see example below):

- Validity Timeout (ms): (500).
- Distribution period (*10 ms): (50).
- **Group address**: IP address used by the group (239.255.255.255).
- Group name: (RLX)

Note:

Group address and Group name must match between the two PLCs.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Create variables which will contain the data exchanged between the two devices:

Modification Force	🛯 🖌	1	F ×		≯ №		ð				
Vame	•	Value		Туре		•	(Address	•	Global data	6
🐤 GlobalDataPUB				INT						PUB	
🐤 GlobalDataSUB				INT						SUB	
(p-											

I personally used a name that allows having the same name in both client and server devices.

Once this is done, compile, download and run the project to the M340 processor.

IMPORTANT:

The use of **Global Data** needs the **IGMP** settings to be "**Disabled**" in both **Master** and **Repeater** RLXIB-IHW-E modules.

D.4. Modbus messaging setting:

Create variables which will contain the data exchanged between the client and the server:

🛃 Table				<u>_ ×</u>
Modification Eorce 🛛 🕹 💉	1258			
Name 👻	Value	Туре 🔻	(Address 🔹	Global data 🛛 🖽
🕀 🖳 DataFromM340ToQuantum		ARRAY[099] OF INT	%MW101	NO
庄 📲 DataFromQuantumToM340		ARRAY[099] OF INT	%MW1	NO

I personally used a name that allows having the same name in both client and server devices.

Once this is done, compile, download and run the project to the M340 processor.

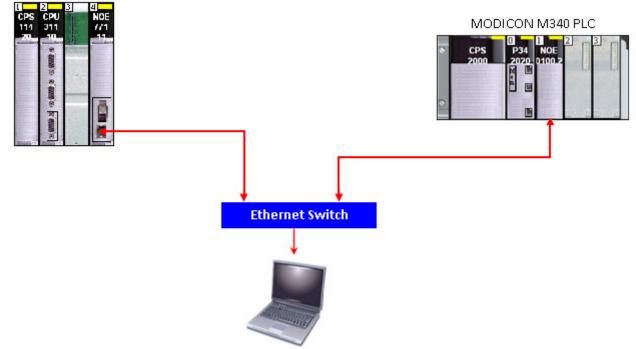


RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

E. Test wired Modbus TCP communication

Connect the Quantum PLC, the M340 PLC and the PC as below: MODICON QUANTUM PLC



Go online with the two PLCs.

To have dynamic data values we created a section that copies the value of a counter in the different data areas:

```
for i := 0 to 99 do
    DataForIOScanQuantumToM340[i] := FBI_1.CV;
    DataFromQuantumToM340[i] := FBI_1.CV;
    GlobalDataPub := FBI_1.CV;
end_for;
```



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Access to the variables in the PLCs. Below is a screenshot of the table of variables in the Quantum PLC and from M340 PLC:

2uantum	22121	S/M/17/1	1~	_	M34		20101	9/6.45 . 74
DataFromQuantumToM340[0]	32121	%MW1	-	Ć		DataFromQuantumToM340[0] DataFromQuantumToM340[1]	32121	%MW1
DataFromQuantumToM340[1]	32121	%MW2	-			DataFromQuantumToM340[1]	32121	%MW2
DataFromQuantumToM340[2]	32121	%MW3	-			DataFromQuantumToM340[2]	32121	%MW3
DataFromQuantumToM340[3]	32121	%MW4	-			DataFromQuantumToM340[3]	32121	%MW4
DataFromQuantumToM340[4]	32121	%MW5		→	(DataFromQuantumToM340[4]	32121	%MW5
DataFromQuantumToM340[5]	32121	%MW6			(DataFromQuantumToM340[5]	32121	%MW6
DataFromQuantumToM340[6]	32121	%MW7			(DataFromQuantumToM340[6]	32121	%MW7
DataFromQuantumToM340[7]	32121	%MW8			(DataFromQuantumToM340[7]	32121	%MW8
DataFromQuantumToM340[8]	32121	%MW9			(DataFromQuantumToM340[8]	32121	%MW9
🗢 🔶 DataFromQuantumToM340[9]	32121	%MW10	ノ		(DataFromQuantumToM340[9]	32121	8MW1
🔶 DataFromM340ToQuantum[0]	25537	%MW101		C	(DataFromM340ToQuantum[0]	25537	8MW1
🔶 DataFromM340ToQuantum[1]	25537	%MW102			(DataFromM340ToQuantum[1]	25537	%MW1
🔶 DataFromM340ToQuantum[2]	25537	%MW103			(DataFromM340ToQuantum[2]	25537	%MW1
🐤 DataFromM340ToQuantum[3]	25537	%MW104			(DataFromM340ToQuantum[3]	25537	%MW1
🐤 DataFromM340ToQuantum[4]	25537	%MW105			(DataFromM340ToQuantum[4]	25537	8/1/2 %
🐤 DataFromM340ToQuantum[5]	25537	%MW106	1	ζ 💶 🤇 Ι	(DataFromM340ToQuantum[5]	25537	8/WW1
DataFromM340ToQuantum[6]	25537	%MW107			(DataFromM340ToQuantum[6]	25537	%MW1
DataFromM340ToQuantum[7]	25537	%MW108	1		(DataFromM340ToQuantum[7]	25537	%MW1
DataFromM340ToQuantum[8]	25537	%MW109			(DataFromM340ToQuantum[8]	25537	%MW1
DataFromM340ToQuantum[9]	25537	%MW110	レ		(DataFromM340ToQuantum[9]	25537	%MW1
🐤 DataForIOScanQuantumToM340[0]	32121	%MW201	1~	C	(DataForIOScanQuantumToM340[0]	32121	8MW2
DataForIOScanQuantumToM340[1]	32121	%MW202	1		(DataForIOScanQuantumToM340[1]	32121	%MW2
DataForIOScanQuantumToM340[2]	32121	%MW203	1		(DataForIOScanQuantumToM340[2]	32121	%MW2
DataForIOScanQuantumToM340[3]	32121	%MW204	1		(DataForIOScanQuantumToM340[3]	32121	%MW2
DataForIOScanQuantumToM340[4]	32121	%MW205	1		(DataForIOScanQuantumToM340[4]	32121	%MW2
DataForIOScanQuantumToM340[5]	32121	%MW206	1	>)	(DataForIOScanQuantumToM340[5]	32121	%MW2
DataForIOScanQuantumToM340[6]	32121	%MW207	1		(DataForIOScanQuantumToM340[6]	32121	%MW2
DataForIOScanQuantumToM340[7]	32121	%MW208	1			DataForIOScanQuantumToM340[7]	32121	%MW2
DataForIOScanQuantumToM340[8]	32121	%MW209	1		(DataForIOScanQuantumToM340[8]	32121	%MW2
DataForIOScanQuantumToM340[9]	32121	%MW210	レ		(DataForIOScanQuantumToM340[9]	32121	%MW2
DataForIOScanM340ToQuantum[0]	25537	%MW301	15	C		DataForIOScanM340ToQuantum[0]	25537	%MW3
DataForIOScanM340ToQuantum[1]	25537	%MW302	1			DataForIOScanM340ToQuantum[1]	25537	%MW3
DataForIOScanM340ToQuantum[7]	25537	%MW303	1			DataForIOScanM340ToQuantum[7]	25537	%MW3
DataForIOScanM340ToQuantum[2]	25537	%MW304	1			DataForIOScanM340ToQuantum[2]	25537	%MW3
 DataForIOScanM340ToQuantum[4] 	25537	%MW305	1			DataForIOScanM340ToQuantum[4]	25537	%MW3
 DataForIOScanM340ToQuantum[5] 	25537	%MW306	1	> 🔫 🔨		DataForIOScanM340ToQuantum[5]	25537	%MW3
 DataForIOScanM340ToQuantum[6] 	25537	%MW307	-			DataForIOScanM340ToQuantum[5]	25537	%MW3
 DataForIOScanM340ToQuantum[7] 	25537	%MW308	1			DataForIOScanM340ToQuantum[7]	25537	%MW3
 DataForIOScanM340ToQuantum[7] DataForIOScanM340ToQuantum[8] 	25537	%MW309	1		-	DataForIOScanM340ToQuantum[8]	25537	28MW3
 DataFonOScanM340ToQuantum[9] DataForIOScanM340ToQuantum[9] 	25537	%MW303	- ۱	L		DataForIOScanM340ToQuantum[9]	25537	%MW3
	32121	7800 00 010	1 -			GlobalDataPUB	25537	Zeimi W D
GlobalDataFUB	25536		-			GlobalDataSUB	32121	
🧿 นเบบสเปลเสอบช	20030		1		1	🖌 นเบปลีเปลเลวบอ	132121	

You can see that all the values xxxFromM340ToQuantum and the GlobalDataSUB are identical in the table above.

Your Modbus TCP communication is up and running.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

F. Test wireless Modbus TCP communication

Note:

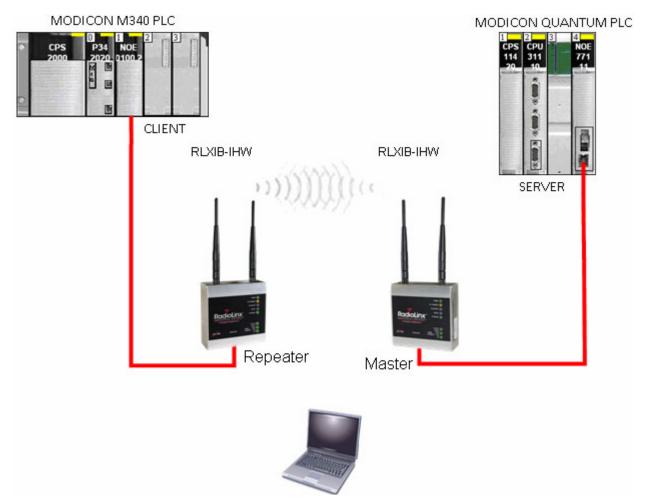
You have to setup a fixed IP address to the PC wireless card and this IP address must be compatible with the RadioLinx IP addresses previously setup.

In this application the PC wireless card IP address must be 192.168.170.20.

Insert the RLXIB-IHW modules as below to create the wireless network.

Using Ethernet crossover cables, connect directly to the RadioLinx modules:

- The M340 Modbus TCP Ethernet port
- The Quantum Modbus TCP Ethernet port





RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

With you PC wireless access enabled and from the Available Wireless Network list

Sestion du réseau	Choisir un réseau sans fil	
🛃 Actualiser la liste des réseaux	Cliquez sur un élément dans la liste ci-dessous pour vous connecter o portée ou pour obtenir plus d'informations.	à un réseau sans fil à
Configurer un réseau sans fil pour la maison ou une petite returneries	((Q)) Livebox-8CE0	
entreprise	🖁 🥂 Réseau sans fil sécurisé (WPA)	0000
	((Q)) af01	
âches apparentées D En savoir plus à propos des réseaux sans fil	🖁 🕴 🥳 Réseau sans fil sécurisé	
	(()) Modbus	
Modifier l'ordre des réseaux préférés	Réseau sans fil non sécurisé	
Modifier les paramètres avancés	Comme la sécurité n'est pas activée sur ce réseau, les ir transmet pourraient être vues par d'autres personnes. connecter à ce réseau, cliquez sur Connecter.	
	((Q)) Wanadoo_a449	
	🕴 👸 Réseau sans fil sécurisé	• 0 00
		-
		Connecter

Choose the **Modbus** network (this is the **Network SSID** you setup previously). You are now connected to the wireless network with your PC using one the RLXIB-IHW-E module as an Access Point, The laptop will establish communication with the best Access Point.



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Go online with the two PLCs.

To have dynamic data values we created a section that copies the value of a counter in the different data areas:

```
for i := 0 to 99 do
    DataForIOScanQuantumToM340[i] := FBI_1.CV;
    DataFromQuantumToM340[i] := FBI_1.CV;
    GlobalDataPub := FBI_1.CV;
end_for;
```

Access to the variables in the PLCs. Below is a screenshot of the table of variables in the Quantum PLC and from M340 PLC:

Quantum					M34(D		
💮 🔶 DataFromQuantumToM340[0]	32121	%MW1		(DataFromQuantumToM340[0]	32121	%MW1
DataFromQuantumToM340[1]	32121	%MW2			🔶	DataFromQuantumToM340[1]	32121	%MW2
DataFromQuantumToM340[2]	32121	%MW3			🔶	DataFromQuantumToM340[2]	32121	%MW3
DataFromQuantumToM340[3]	32121	%MW4			🔷	DataFromQuantumToM340[3]	32121	%MW4
DataFromQuantumToM340[4]	32121	%MW5			🔷	DataFromQuantumToM340[4]	32121	%MW5
DataFromQuantumToM340[5]	32121	%MW6			🔶	DataFromQuantumToM340[5]	32121	%MW6
DataFromQuantumToM340[6]	32121	%MW7			🔷	DataFromQuantumToM340[6]	32121	%MW7
DataFromQuantumToM340[7]	32121	%MW8			🔶	DataFromQuantumToM340[7]	32121	%MW8
DataFromQuantumToM340[8]	32121	%MW9			🔶	DataFromQuantumToM340[8]	32121	%MW9
DataFromQuantumToM340[9]	32121	%MW10	\mathcal{I}		🔶	DataFromQuantumToM340[9]	32121	%MW10
🗢 🐤 DataFromM340ToQuantum[0]	25537	%MW101		C	🔶	DataFromM340ToQuantum[0]	25537	%MW101
DataFromM340ToQuantum[1]	25537	%MW102			🔶	DataFromM340ToQuantum[1]	25537	%MW102
DataFromM340ToQuantum[2]	25537	%MW103			🔶	DataFromM340ToQuantum[2]	25537	%MW103
DataFromM340ToQuantum[3]	25537	%MW104			🐤	DataFromM340ToQuantum[3]	25537	%MW104
DataFromM340ToQuantum[4]	25537	%MW105			🐤	DataFromM340ToQuantum[4]	25537	%MW105
DataFromM340ToQuantum[5]	25537	%MW106			🔶	DataFromM340ToQuantum[5]	25537	%MW106
🗝 🐤 DataFromM340ToQuantum[6]	25537	%MW107			🔶	DataFromM340ToQuantum[6]	25537	%MW107
🐤 DataFromM340ToQuantum[7]	25537	%MW108				DataFromM340ToQuantum[7]	25537	%MW108
🗢 🔶 DataFromM340ToQuantum[8]	25537	%MW109			🔶	DataFromM340ToQuantum[8]	25537	%MW109
🗢 🕒 DataFromM340ToQuantum[9]	25537	%MW110	ノ		🔶	DataFromM340ToQuantum[9]	25537	%MW110
🖳 🐤 DataForlOScanQuantumToM340[0]	32121	%MW201		C		DataForIOScanQuantumToM340[0]	32121	%MW201
🗝 🐤 DataForIOScanQuantumToM340[1]	32121	%MW202			🔶	DataForIOScanQuantumToM340[1]	32121	%MW202
🗝 🐤 DataForIOScanQuantumToM340[2]	32121	%MW203			🗢	DataForIOScanQuantumToM340[2]	32121	%MW203
🐤 DataForIOScanQuantumToM340[3]	32121	%MW204				DataForIOScanQuantumToM340[3]	32121	%MW204
🗝 🐤 DataForIOScanQuantumToM340[4]	32121	%MW205		\sim	🔶	DataForIOScanQuantumToM340[4]	32121	%MW205
🗝 🐤 DataForIOScanQuantumToM340[5]	32121	%MW206			🔶	DataForIOScanQuantumToM340[5]	32121	%MW206
🐤 DataForIOScanQuantumToM340[6]	32121	%MW207				DataForIOScanQuantumToM340[6]	32121	%MW207
🗝 🐤 DataForIOScanQuantumToM340[7]	32121	%MW208			🔶	DataForIOScanQuantumToM340[7]	32121	%MW208
🗝 🐤 DataForIOScanQuantumToM340[8]	32121	%MW209			🗢	DataForIOScanQuantumToM340[8]	32121	%MW209
🗝 🔶 DataForIOScanQuantumToM340[9]	32121	%MW210)		🔶	DataForIOScanQuantumToM340[9]	32121	%MW210
🐤 DataForIOScanM340ToQuantum[0]	25537	%MW301		C	🔶	DataForIOScanM340ToQuantum[0]	25537	%MW301
🐤 DataForIOScanM340ToQuantum[1]	25537	%MW302			🔶	DataForIOScanM340ToQuantum[1]	25537	%MW302
🐤 DataForIOScanM340ToQuantum[2]	25537	%MW303			🔶	DataForIOScanM340ToQuantum[2]	25537	%MW303
🗝 🔶 DataForIOScanM340ToQuantum[3]	25537	%MW304			🔶	DataForIOScanM340ToQuantum[3]	25537	%MW304
🐤 DataForIOScanM340ToQuantum[4]	25537	%MW305			🔶	DataForIOScanM340ToQuantum[4]	25537	%MW305
DataForIOScanM340ToQuantum[5]	25537	%MW306		-)	🐤	DataForIOScanM340ToQuantum[5]	25537	%MW306
DataForIOScanM340ToQuantum[6]	25537	%MW307				DataForIOScanM340ToQuantum[6]	25537	%MW307
DataForIOScanM340ToQuantum[7]	25537	%MW308			🐤	DataForIOScanM340ToQuantum[7]	25537	%MW308
DataForIOScanM340ToQuantum[8]	25537	%MW309			🔶	DataForIOScanM340ToQuantum[8]	25537	%MW309
DataForIOScanM340ToQuantum[9]	25537	%MW310			🔶	DataForIOScanM340ToQuantum[9]	25537	%MW310
	32121					GlobalDataPUB	25537	
🗢 🐤 GlobalDataSUB	25536				🔶	GlobalDataSUB	32121	

You can see that all the values xxxFromM340ToQuantum and the GlobalDataSUB are identical in the table above.



RLXIB-IHW Industrial Hotspot 802.11abg Wireless Modbus TCP - M340 with NOE & Quantum with NOE

Your Modbus TCP communication is up and running using the wireless connection

Congratulations



RLXIB-IHW Industrial Hotspot 802.11abg

Wireless Modbus TCP - M340 with NOE & Quantum with NOE

G. Attachments

G.1. Schneider Electric M340 Unity application

This application includes all communication types that are described in the previous sections as well as short <u>sections</u> to make variables change.



M340MODBUSTCPOVERRLXWITHNOE.XEF

G.2. Schneider Electric Quantum Unity application

This application includes variables and short sections to make variables change.



For further information feel free to contact **ProSoft Technology Technical Support** at one of the following addresses:

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