Gateway Quick Start Guide



Revision: 21.02 Date: 2021-02-23



©2021 IQHome Kft.

www.iqhome.org

Contents

1 Overview	3
2 Basic setup	3
3 Configure MQTT settings	3
4 Configure MQTT subscribe settings	6
5 Configure scheduler	7
6 Configure WWAN configuration	8
7 Advanced configurations	9
7.1 IQRF IDE	9
7.2 Modify TR configuration of IQRF coordinator	11

1 Overview

In this guide you will learn about the first steps on how to use IQ Home gateways.

2 Basic setup

You can find video tutorials for at the following link: <u>https://www.youtube.com/playlist?list=PLN9Mt98EPzN30TyGCDs-M0s0zSJRZdNpY</u>

3 Connect with IP address on LAN

The LinkIt! software can discover gateways in the same local network automatically. In case the gateway is not in the same network with the computer running LinkIt! or have any IT infrastructure restrictions the gateway can be added with its IP address.

Connecting to a gateway on LAN the following ports have to enabled:

- 1313 UDP
- 13013 TCP
- 1. Select LAN network

C	IQ Home Link It!	Networks				:
	Network Profiles				+	
	LAN Type: Ethernet	USB Term Type: USB	ninal	IQ Home MQTT Broker Type: MQTT		
2	. Click on the +	button				
Ĉ	IQ Home Link It!	Networks > LAN				:
	Gateways				+ 2	
	GW-3E70009 IP: 192.168.6.87 Type: GW-IND-01-4G					

3. Set the IP address of the gateway and click on ADD button

d new gateway			
IP/Hostname	192.168.6.64		1
		CANCEL	ADD

4. The new gateway should appear in the list of the gateways

IQ Home Link It!	Networks 🗲 LAN		
Gateways			+ 2
GW-3E70009 IP: 192.168.6.87 Type: GW-IND-01-4G		GW-3F00005 IP: 192.168.6.64 Type: GW-IND-01-4G	

4 Configure MQTT settings

- 1. At first connect to the gateway as describe in <u>2 Basic setup</u>
- 2. Click on the Settings menu.

	Dashboard RF Network Settings Web Viewer Files Terminal	
Gateway Information		U II 2
Serial	GW-3E70009	
Hostname	GW-3E70009	
Model	GW-IND-01-4G	
Interface	eth0	
MAC	B8:27:EB:A7:97:2B	
IPv4	192.168.6.87	
IPv6	fe80::4334:dad9:3f3e:c844	
RF MID	81111CF0	
Uptime	31 days 19 hours 47 minutes	
Firmware	Updates available	
CPU Temperature	43.31 °C	
Board Temperature	34.88 °C	
Supply Source	On	
Supply Voltage	13.67 V	
System 5V	4.99 V	
System 3V3	3.30 V	
System 1V8	1.82 V	

3. Modify MQTT Settings.

	E	ashboard RF Network	Settings	Web Viewer	Files	Terminal			
Gateway Settings							Advanced mod	e 🗩	8
Main MQTT Subscribe	MQTT Settings								
Scheduler		Enable MQTT 🚱	-						
wwan		Hostname 😧	mqtt.iqhome	e.org					
		Port 😢	8883						
		Username 🚱	cbee754a11a	a792cb9eaa0fa8a66a	68d3				
		Password 😧							
		Client ID source select 💡	Auto		~	/			
		Client ID 🚱	Serial numbe	er	~	/			
	MQTT TLS Settings								
		Enable MOTT TLS 👔	-						
		TLS type @	CA signed se	erver certificates	~	/			
		CA path 📀	/etc/ssl/certs	S					
		Verify hostname	-						
	mathing of Charlog Lower	y noscialité 🗸							

To setup MQTT TLS settings *Enable MQTT TLS* in the configuration.
 In case you need CA signed or self signed certificate can be uploaded by click on the *UPLOAD* button.

🥜 IQ Home	Link It! Networks > LAN > GW-3E70009		:
	Dashboard RF Network	Settings Web Viewer Files Terminal	
Gateway Settings		Advanced mode	8
Main	Client ID 🥥	Serial number	
MQTT Subscribe	MQTT TLS Settings		
Scheduler		-	
WWAN	TLS type @	Self-signed certificates	
		UPLOAD Upload new configuration files.	
	CA file 🥹	/etc/unid/conf.k0/rootCA.pema	
	Certificate file 🥑	/etc/unid/conf.k0/certificate.pem.crt	
	Key file 🥹	/etc/unid/conf.k0/private.pem.key	
	Verify hostname 🥑	-	
	Scheduler		
	Enable Scheduler 💡	-	
	Application Interface		
	Enable 💡	-	
	Port listen 📀	55001	

5. Open or Drag and Drop certificate and/or key files in the *Add New TLS Files* popup window and click on the *UPLOAD* button.

🧭 IQ Home Lir	nk It! Networks	> LAN > GW-3E7000	9				:
		Dashboard RF Netw	ork Settings	Web Viewer	Files	Terminal	
Gateway Settings						×	Advanced mode 🔵 🖬
Main MQTT Subscribe Scheduler	MQTT TLS Settings	Add New TLS File	2 5 pen or drop files here	·	ദ്		
		file C	pen or drop files here		c' C'		
		100 y 11	c 😈 Teto unitari	CANCEL		ADD	
		Verify hostnam	e 🛛 🛑				
	Scheduler	Eachla Eachadal					
	Application Interfac	Enable Scheduk					
		Enab Port liste	e 🛛 👘				

6. After modified the configuration scroll down to the end of the screen and click on the *SAVE* button.

The saving process:

Main MQTT Subscribe Scheduler WWAN	MQTT S Service configuration will be modified! The device can become inoperable cause the improper configuration! Do you want to uplaod modifications? NO YES
MQTT Subscribe Scheduler WWAN	MQTT S The service configuration changed on the gateway. You have to restart the service to apply new configuration! CANCEL RESTART
Main MQTT Subscribe Scheduler WWAN	MQTT Settings Do you really want to restart the service on the selected gateway? NO YES Port @ 8883
Main MQTT Subscribe Scheduler WWAN	MQTT Settines Service restarting Port 8883

5 Configure MQTT subscribe settings

The MQTT subscribe configuration can be done in the *Files* menu.

- 1. Click on the Settings menu.
- 2. Click on the MQTT Subscribe on the left sidebar.
- 3. Modify the configuration and click on the SAVE button in the toolbar.

	Dashb	ooard RF Network Settings	Node-RE	D Files Terminal	
ateway Settings					Advanced mode 🕥 🗷
MQTT Subscribe WWAN Ethernet	Subscribe topic Subscribe topic Subscribe QoS Message topic Broadcast request topic Broadcast response topic	iqhome/gateway/%c/network/request 1 - at least once \$GW/iqhome	~	Publish Topic Publish topic Publish QoS Retain	Iqhome/gateway/%c/network/response 1 - at least once A dd Publish TOPI
	Subscribe topic Subscribe topic @	lqhome/gateway/%c/network/request		Publish Topic	ī

The documentation of the subscribe configuration can be found in the *Reference Manual* on the IQ Home website: <u>https://www.iqhome.org/gateway-reference-manual</u>

6 Configure scheduler

To configuring the automatic gateway scheduler with the Scheduler Wizard please follow the video tutorial:

https://www.youtube.com/watch?v=TztJF3jg__A&list=PLN9Mt98EPzN30TyGCDs-M0s0zSJRZdNpY &index=5

7 Configure Ethernet interface

7.1 DHCP configuration

As a default configuration the gateway uses DHCP settings and can be selected in DHCP mode in Ethernet settings.

7.2 Static/Fixed IP address

The gateway supports setting up a static IP address or as known as fixed IP address.

- 1. Click on the Settings tab
- 2. Click on the "Ethernet" tab on the left sidebar
- 3. Select Fixed option from the drop down menu and set IP properties
- 4. Save the configuration

	Dashboard RF Network S	ettings Web Viewer Files Terminal		
teway Settings		1	Advanced mode	0
lain	Mode 📀	Fixed 🗸 3		
IQTT Subscribe	IP address 😨	192.168.0.100		
cheduler	Subnet mask 📀	255.255.255.0		
WAN	Default gateway 🥑	192.168.0.1		
hernet 2	DNS Name Servers 🥑	192.168.0.1,8.8.8,8.8.8.4.4		

5. Confirm configuration upload

🥜 IQ Home Link It! 🛛 🛛	etworks > LAN > GW-3E-dev-gw	:
	Dashboard RF Network Settings Web Viewer Files Terminal	
Gateway Settings	Advanced mode	0
Main MQTT Subscribe Scheduler WWAN Ethernet	Warning × Service configuration will be modified! The device can become inoperable in case of improper configuration! Do you want to uplaod modifications? NO	

6. Confirm to reboot the gateway

🧭 IQ Home Link It!	Networks > LAN > GW-3E-dev-gw	:
	Dashboard RF Network Settings Web Viewer Files Terminal	
Gateway Settings	Advanced mode 🖉 🗩	8
Main MQTT Subscribe Scheduler WWAN Ethernet	Warning * Image: Construction of the system configuration changed on the gateway. You have to reboot the gateway to apply new configuration. Cancel CANCEL REBOOT	

8 Configure WLAN interface

Power on the gateway and connect with LinkIt! and follow the instructions how to connect to the gateway:

https://www.youtube.com/playlist?list=PLN9Mt98EPzN30TyGCDs-M0s0zSJRZdNpY

CAUTION!

The **GW-IOT** series gateways can connect to the LinkIt! via USB terminal or have to setup a temporary hotspot for the predefined factory settings: SSID: IQHome PSK: iqhomesetup

8.1 Connect to WiFi hotspot

- 1. Click on the Settings menu in Link It!
- 2. Select WLAN settings
- 3. Select the preferred hotspot SSID and type the password (PSK) for the selected SSID.

If the SSID not appear on the list try to reload the settings

4. Save new settings

IQ Home Link It! Networks > LAN > GW-3E00002								
	Dashboard	RF Network	Settings	Web Viewer	Files	Terminal		
Gateway Settings			1				Advanced mode	2
Main MQTT Subscribe		SSID WPA-PSK	 Flying-01 ••••••• 	3 •••••	(Excellent) ~	3	4
Scheduler WWAN		Mode	OHCP			~	-	
WLAN 2								

5. Upload new configuration settings

IQ Home Link It! Networks > LAN > GW-3E00002								
	Dashboard RF Network Settings Web Viewer Files Terminal							
Gateway Settings	Advanced mode 🖉 🖉	8						
Main MQTT Subscribe Scheduler WWAN Ethernet WLAN	SSID @ Flying-013 (Excellent) V Warning X Service configuration will be modified! The device can become inoperable in case of improper configuration! Do you want to uplaod modifications? NO UPLOAD V							

6. Reboot the gateway

C IQ Home Link It! Networks > LAN > GW-3E00002									:
	Dashboard	RF Network	Settings	Web Viewer	Files	Terminal			
Gateway Settings							Advanced mode 🕥 🗩	0	8
Main MQTT Subscribe Scheduler WWAN Ethernet WLAN	Warning	SSID WPB_PCG The system c You have to n CA	onfiguration eboot the g	n changed on the ateway to apply REBOOT	(Excellent	/. /. /iguration!			

9 Configure WWAN/LTE interface

The 4G/LTE capable gateways can be configured by Link It!.

- 7. Insert the SIM card into the slot of the gateway
- 8. Click on the Settings menu in Link It!
- 9. Click on the WWAN menu on the left sidebar
- 1. Modify the configuration
 - a. Set the APN of your service provider
 - b. Set PIN code or leave it blank if it is disabled in the SIm card
 - c. To further configuration enable Advanced mode in the header
- 2. Click on the SAVE button in the toolbar
- 3. Reboot the gateway to apply WWAN configuration

🥜 IQ Home Link It!	Networks > LAN > GW-3E70006									
	Dashboard Settings RF Network Node-RED Files Terminal									
Gateway Settings	Advanced mode RELOAD ALL SAVE									
Main MQTT Subscribe	APN 🕢 internet									
Scheduler WWAN	Pin 😔									

7. Confirm to reboot the gateway

IQ Home Link It! Networks > LAN > GW-3E-dev-gw								
	Dashboard	RF Network	Settings	Web Viewer	Files	Terminal		
Gateway Settings							Advanced mode	2 a
Main MQTT Subscribe Scheduler WWAN Ethernet	Warning	The system c You have to r CA	onfiguration reboot the g	n changed on the ateway to apply REBOOT	e gateway new conf	x i. Iguration!		

10 Advanced configurations

10.1 IQRF IDE

The configuration of the gateway's IQRF coordinator and the IQRF network with IQRF IDE is possible via the Link It! management tool. The IQRF IDE can connect to the gateways via Link It!. At first you should connect to the gateway with Link It! Described in section <u>2.2</u>. After that you can connect to the IQRF coordinator with IQRF IDE as described in section <u>2.3</u>.



System architecture of how can connect and configure IQ Home gateways

CAUTION!

The IQRF IDE can connect to the gateway only via the Link It! by default for security reasons! For development and/or debugging you can enable in gateway configuration but it is not recommended in production use!

Follow the few steps below to connect to the IQ Home Gateway:

- 1. Open the IQRF IDE, open a project and choose "IQRF Device Manager" from the "Tools" menu or press F9
- 2. Select Add UDP device icon
- in "IQRF Device Manager" (or press Shift+Ctrl+D)
- 3. Select Mode: IQRF gateway
- 4. Click on the *"Search"* button
- 5. Select your gateway from the list. If the list still empty check your network settings
- 6. Click on the Add button

QRF Device Man	ager	_2.		
-	🛯 🏖 🗋 💿) 🔮 👱 剩		
lQRF devices				
E- USB				
E- CK-USB				UDP UDP
	050001E3	CK-USB-04	v1.04	
	0E0000A6	CK-USB-04A	v1.14	
	0E000329	CK-USB-04A	v1.14	⊘ <u>w</u> an
GW-USB				IORF DNS MAC: f0-76-1c-a6-0b-08 -
GW-GSN	Λ			
GW-ETH				
GW-WIFI				192.168.6.52 LINKIT LINK-NETMNG 5.
IQRF Clo	ud			
E- COM	10000			Search 4.
- None	- None			O BROADCAST
				Local host: 10.0.2.15
				Barrata hasta 102 169 6 52 Borrata port: 55200
				Mode: TORE gateway - 2
				Add 6.
				Close

7. After add gateway click on the *Connect* button and close the "IQRF Device Manager" window.

IQRF Device Ma	nager				X
🍃 🗫 🗖	🗧 🏖 🗋 🧕) 🔮 🔮 剩			
IQRF devices	5				
🖻 🖷 🖉 USB					
CK-USE	3				UDP
	050001E3	CK-USB-04	v1.04		
	0E0000A6	CK-USB-04A	v1.14	ID: 20A60B08	
	0E000329	CK-USB-04A	v1.14	FW version: 0.4.0	
GW-US	B			- f0.76.1c.36.0b.09	
GW-GS	SM			10-70-10-00-00	
GW-ETH	н			Hostname: LINKIT	
GW-WI	FI			IP: <u>192.168.6.52</u>	
	oud			<u>Public IP: 0.0.0.0</u>	
	20A60B08	LINK-NETMNG	v0.4.0	Connection: LAN	
🖃 🐙 сом				IQRF DNS: -	
L None	e – None			IQRF <u>O</u> S version:	Local IP: 10.0.2.15 -
				Mode: IQRF gateway	Local port: 55000
				Alias:	Remote host: 192.168.6.52
				Quick access: 👩 👩 🕅	Remote port: 55300
					Remote port. 55555
				<u>Connect</u> <u>Disconnect</u>	Reset
2					Close

8. The connection indicator displays the status in the left bottom corner.



9. In the bottom status bar of the Link It! now you can see the IQRF IDE status. If you connected to a selected gateway the *IQRF IDE Forwarding* status should be *Active*.

```
IQRF IDE Network Management Mode IQRF IDE Forwarding Active
```

10. Now you can use IQRF IDE to configure the IQRF coordinator and the IQRF network.

10.2 Modify TR configuration of IQRF coordinator

The TR configuration of IQRF coordinator module in the IQ Home gateways can be modified with IQRF IDE.

- 1. Connect to the gateway in IQRF IDE as described in 2.3. IQRF IDE.
- 2. Open IQMESH Network Manager in Tools>QMESH Network Manager.



3. In the *IQHMESH Network manager* window update the network information by click on the *Update Data* icon in the *Map View* tab.



- 4. After the network information updated:
 - 1. Click on the *Control* tab
 - 2. Click on TR Config
 - 3. Select Coordinator
 - 4. Open TR configuration by click on the *Configure TR* button

IQMESH Network Manager		• 4 ×
Coordinator <u>A</u> ddre	ess: 🛛 🖶 🤔 🥕 🔍 🍳 🔍 🔯 🛃 👹 🗸	ï
🔺 Control 🛛 🗱	Map View 🔯 Table View	
IQMESH 1.	Source File Selected XML file from project	
Backup	File File	Brow
Upload	Coordinator 3. Node Adress: 1	
TR Config	○ All Nodes HWPID: 0xFFFF ▼	
2.	Configure TR Reset TR Restart TR 4.	E
×	m	Þ
Terminal Transition	Network Manager 📑 Documents	

5. When the TR configuration window opens the coordinator TR configuration will be downloaded. Modify configuration and upload to the coordinator by click on the *Upload* button.



6. Close the TR configuration window and reset the coordinator module by click on the *Reset TR* button. The RX and TX LEDs on the gateway blinking after the TR reset.

