

Getting Started Guide

Kerlink Helium Network Compatible Wirnet iFemtoCell

1. What's in the box

Wirnet™ iFemtoCell/ iFemtoCell-Evolution include the following:

1. Gateway
2. LoRa antenna
3. 110V/220V Power Supply



Wirnet™ iStation include the following:

1. Gateway
2. Power over Ethernet Injector



2. Hardware Setup

Connectivity Options

When a gateway is installed at a site, three configurations are possible regarding WAN technology used:

- Ethernet connection (**preferred and available on all Kerlink devices**)
 - The Ethernet cable **is not** provided with the Wirnet™ iFemtoCell. The maximum Ethernet cable length is 100m.
- Wi-Fi connection (only available on iFemtoCell)
- Cellular 4G with 3G fallback (only available on iFemtoCell Evolution and iStation devices)

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Ethernet cable, power supply and LoRa antenna connections



USIM card inserted

Setting connections for iStation

- Connect Power of Ethernet cable the PoE injector. Two Ethernet cables are required (1) router to POE Injector and (2) POE Injector to iStation



- Connect with LoRa antenna (optional not included). iStation has an antenna because there is one internal
- It is recommend to install an external lightning protection (not provided)
- Attach the SIM card (if necessary)

Installation Location

- For best mining performance, place the device next to a window with a celar view as high as possible. Avoid putting the Hotspot in locations where it can't see the outside world: in basements, in cabinets, behind TVs, metal screens.

3. Powering on

iFemto/iFemto-Evolution Power up

Power On:

- Once the RF antenna, the Ethernet cable and the power supply jack connector are connected the Wirnet™ iFemtoCell can be powered ON. To POWER ON the Wirnet™ iFemtoCell, connect the power supply onto the 110V-230VAC mains supply.

Functional Check:

To ensure the Wirnet™ iFemtoCell is started up, check the behavior of the LED indicators

LED 1: Power

- Red blinking during the kernel boot
- Green blinking during system boot
- Green when boot is finished

LED 2: Backhaul

- Red during boot
- Red if Packet Forwarder is disconnected
- Green blinking during PacketForwarder connection
- Green fix if PacketForwarder is connected

LED 3: LoRa traffic

- Red during boot
- PacketForwarder management
 - Rx: green blinking
 - Tx: red blinking

iStation Power up

Power On:

- The Wirnet iStation gateway is powered with a PoE injector. Connect the PoE output connector to the Ethernet port on the bottom side of the gateway.



- The iStation should power on, showing a solid green LED, accompanied by a red LED starting solid, then blinking during bootup.

Functional check

- A push-button is available on the bottom of enclosure.
- The ON/OFF/RST button must be pressed during 1s to generate a SW reset of the product.
- Note that a long press for 5s turns off the gateway.

Once the power is "On", please check the LED status and start the SW configuration.

The iStation should power on, showing:

- a solid green LED (Power LED, under the power button),
- accompanied by a red LED (Status LED =operations status) starting solid, then blinking during bootup.

Gateway status	«Status LED» behaviour
Boot part 1	Fix on
Boot part 2	Heart beat
Boot part 3	Blink every second
Run time	Off
Power down sequence	Heartbeat
Restore backup	Blink / 2 seconds
Restore stock	Blink / 4 seconds



4a. Ethernet/WiFi setup

Connection via Ethernet (simplest and preferred. Available on all Kerlink devices)

- Plug the Wirnet™ iFemtoCell to the WAN access point with an Ethernet cable. The connection will be established automatically.

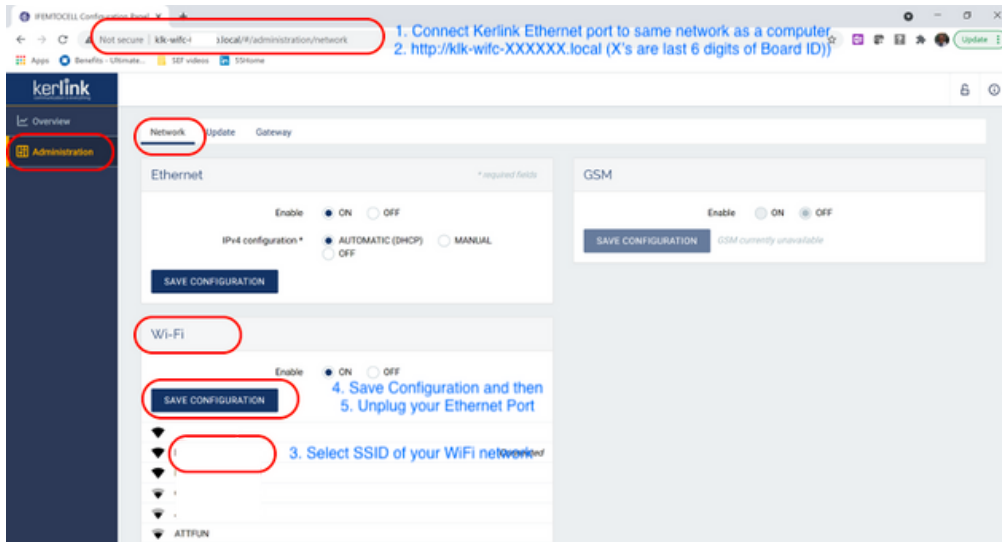
Connection via Wifi (only available on iFemtoCell)

- If you have a WPS-compatible (Wi-Fi Protected Setup) Wi-Fi Access Point, press the WPS button on the Wirnet™ iFemtoCell and then press the WPS button on the Wi-Fi Access Point of the installation. The connection will be established automatically.
- If you do not have a WPS-compatible Wi-Fi Access Point. You have 2 options:
- Wired Ethernet: Connect the Kerlink device via ethernet cable and a computer to the same router (same subnet) .
- Over Wifi: Open wifi settings on your computer/phone and connect to Kerlink access point (look for a wifi network named "klink..."). Use wifi password is the MAC ADDR printed on the back of the device without the ":" For eg MAC ADDR 70:76:FF:02:AB:CD will be entered as "7076FF02ABCD".
- Go to the web interface using <http://klk-wifc-XXXXXX.local> (XXXXXX are last 6 digits of Board ID printed on the gateway).
- Login with admin/pwd4admin

- NOTE: Many users are experiencing the WiFi setup widget taking some time to load. Please wait for the page to fully load... There is a page loading indicator. This sometimes can take up to a minute.
- Go to admin/network, wait for wifi list, select the Home WiFi network that you want the Kerlink device to connect to, enter Home Wifi password, and Save configuration. (See screenshot below).
- The Kerlink device will now connect to your Home Wifi network.

Port Forwarding

Helium requires certain ports to be open on your router to avoid the “Hotspot is being Relayed” error. Please ensure that you read this [article](#) on Helium’s site.

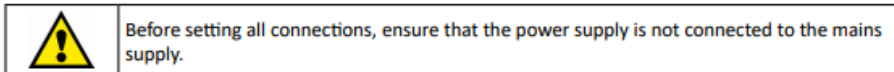


4b. Cellular connectivity is ONLY available on iFemtoCell-Evolution and iStation.

Setup information

1. Insert SIM (per pictures shown below)
2. If configuration does not work out of the box, you may need to configure APN of the SIM card on the web interface.
3. The user has to input the MCC/MNC of their SIM card <http://www.mcc-mnc.com>

Cellular 4G for iFemtoCell iStation



GNSS, 3G/4G and LoRa antenna are integrated. An external optional LoRa antenna can be added by opening the n°3 (please refer on the chart page 3) button and then screw the antenna directly or via a cable.



Once the Wirnet™ iStation is installed, you can select up to 2 technologies to set up the access to Internet for the data backhaul:

- Ethernet connection, requiring an Ethernet access through a dedicated RJ45 cable (not included)
- 3G/4G cellular connection, requiring an USIM (not included) and a data subscription (not included)

Note that both configurations can be used in parallel. For example, RJ45 Ethernet with a 3G / 4G link as a backup.



Ethernet connection

Insert Sim

Regarding the power supply, the following equipments can be used:

- End-Span or Mid-Span at least a 15W PoE (Power over Ethernet) (not included)

Screenshot

Cellular 4G for iFemtoCell-Evolution



Ethernet cable, power supply and LoRa antenna connections



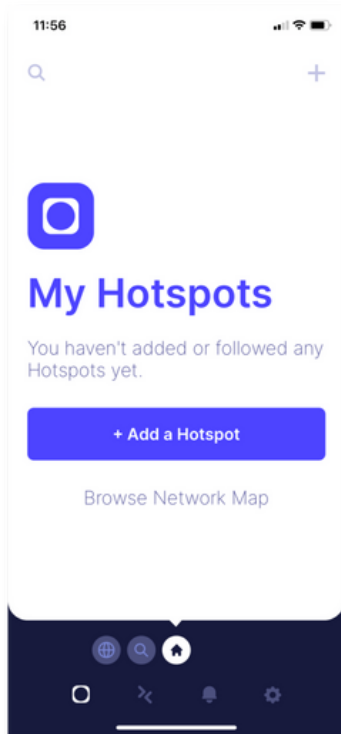
USIM card inserted

5. Setting up Helium Wallet with Helium App

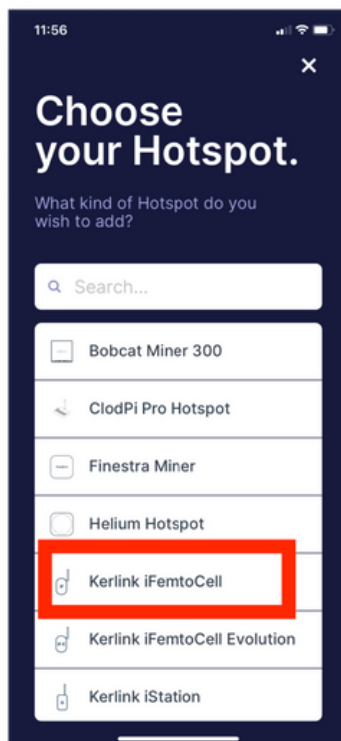
- Download Helium app from [Apple App Store](#) or the [Google Play Store](#) depending on your phone and go through the account setup process. You will be taken step by step to generate a 12 unique word passphrase and set a pin code. ***Kerlink support needs version 3.4.6 or later.***
- As the Helium App says, it is crucial that you write all of the 12 words down in the correct order and store this in a safe location. If you do not you risk not being able to re-gain access to your HNT wallet.
- Make a note of your Helium Wallet address, which will be required in the next step.

6. Configuring the device with Helium App

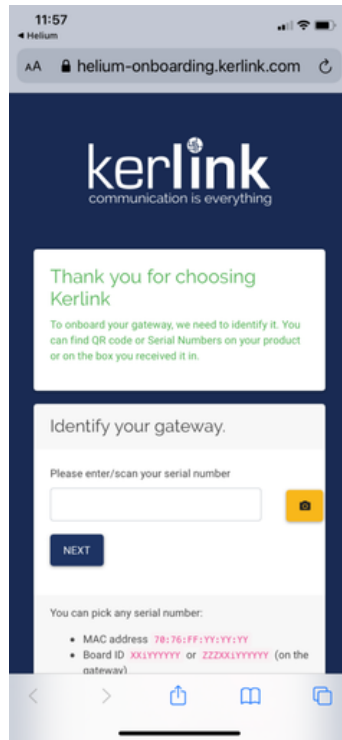
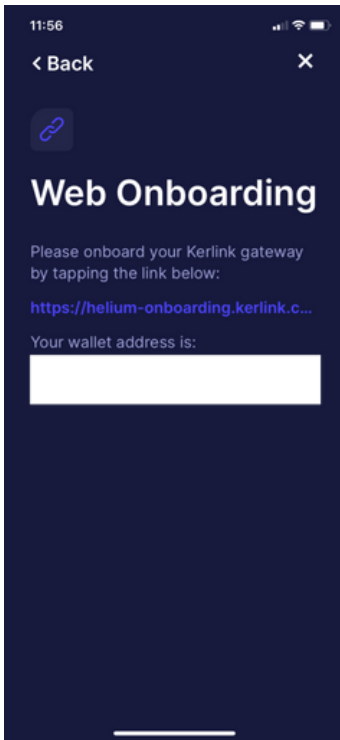
- Open Helium App. Click on Add hotspot



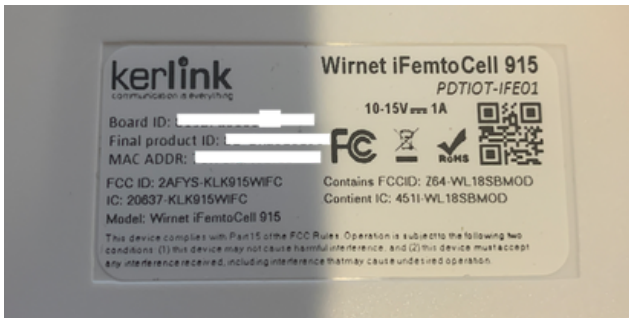
- Select Kerlink iFemto, iFemto evo or iStation



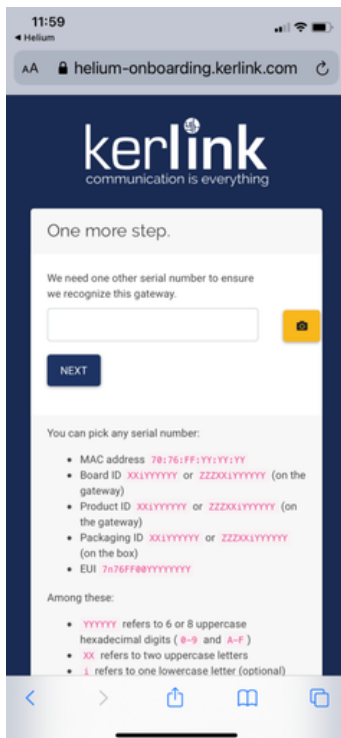
- Web onboarding



- To identify your gateway, you need to enter the serial number on the product label. You can provide the MAC address, Board ID, or Product ID from the product label.



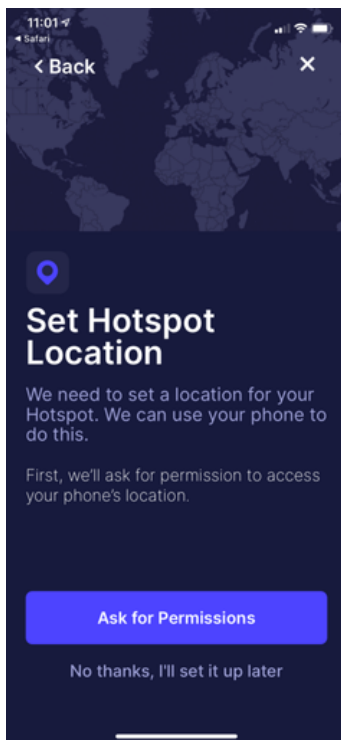
- One more device ID is needed to register the device. You can provide the MAC address, Board ID or Product ID from the product label.



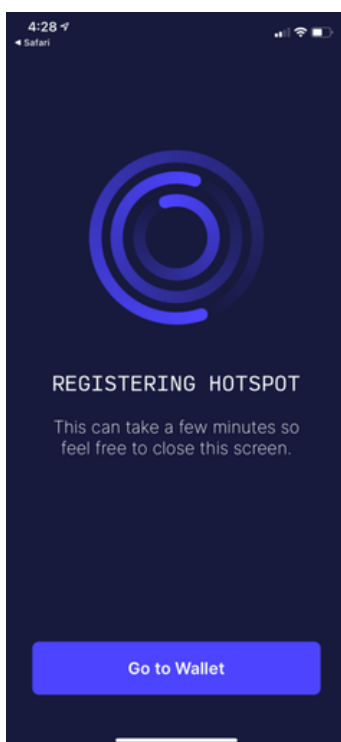
- You will now see a message below showing device onboarding is complete. If on a mobile phone click on the QR code to complete the process



- You will be taken back to Helium app, where you need to set a location for the Hotspot.



- Once the location is set, your hotspot will go into registration. It can take upto 15 min here.



Once this completes, your Hotspot is registered on the Blockchain. Congratulations!

FAQ

Q: Is my previously purchased Kerlink gateway capable of Helium mining? Why do I get the Error “This gateway is not compatible with Helium Proof of Coverage. You can still install the Light Miner to earn HNT from packet forwarding.”

A: Only Kerlink Gateways that have “Helium Network Compatible” in the title of the product on your confirmation email from CalChip Connect will be capable of Helium mining. Unfortunately, previously purchased Kerlink gateways cannot be updated to be Helium miners.

Q: I setup WiFi on device but it is still connecting using Ethernet. How do I fix it ?

A: Kerlink devices prioritized Ethernet even if WiFi is setup. Disconnect device from Ethernet and it will then connect using WiFi.

Q: How do I reset the Kerlink device ?

A: Power cycle the device by disconnecting power for a few seconds and then re-power. Do not attempt to reset Gateway using webserver as it will disable Helium mining capabilities. Submit a ticket if you think your equipment is having trouble booting.