Meshlium

User Manual

libelium

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1. Introduction

The aim of this manual is to introduce the user to Meshlium in a practical way.

This document applies to the following Meshlium model, approved for FCC and IC:

Model	FCC ID	IC
Meshlium 4G 802.15.4 AP 900 US	XKM-MESHLIUM-V1	8472A-MESHLIUMV1

2. Meshlium general and safety information

The following list shows just some of the actions that produce the most common failures and warranty-voiding cases.

Failure to comply with the recommendations of use will entail the guarantee cancellation.

Software:

1. Use the Meshlium Manager web application in order to configure and setup Meshlium.

2. If you use the Manager System, you can always go to the default configuration by clicking the "Presets" button.

3. Do not interrupt the power supply before shutting down Meshlium properly through the "Shutdown" or "Restart" buttons in the Manager System. If you do not do so you may take the system corrupted.

Hardware:

1. Do not open the Meshlium enclosure in any case. This will automatically make the warranty void.

2. Do not handle the numbered metallic seals in the screws of Meshlium: their integrity is the proof that the Meshlium enclosure has not been opened. If they have been handled, opened or broken, the warranty is void.

3. Do not submerge Meshlium in liquids.

4. Do not place Meshlium on places or equipment where the device could be exposed to shocks and/or vibrations.

5. Do not expose Meshlium to temperatures below -20 ºC or above 50ºC.

6. Meshlium's microprocessor must not overpass 70 ºC. The user must make sure that this temperature is never reached.

7. Do not power Meshlium with other power sources than the original provided by Libelium.

3. Meshlium's Hardware Setup

This is the easiest hardware setup for Meshlium. Make sure you know how to do this setup.

1. Take the Meshlium casing and unscrew the Ethernet connector cap shown in the drawing.
2. Join the end that has the IP65 protection of the IP65 Ethernet cable to said connector and screw the cap on to fix it.

** In the case you want to use the 4G radio, unscrew the other connector cap, and insert your micro-SIM card in the External SIM socket with care.*

3. Connect the other end of the cable to the PoE input marked "PoE". Make sure that the PoE is indoors.
4. Take the supplied PoE power adapter and plug it into the corresponding PoE connector.
5. Plug the other end of the adapter into the 220V socket and your Meshlium is now ready to operate.

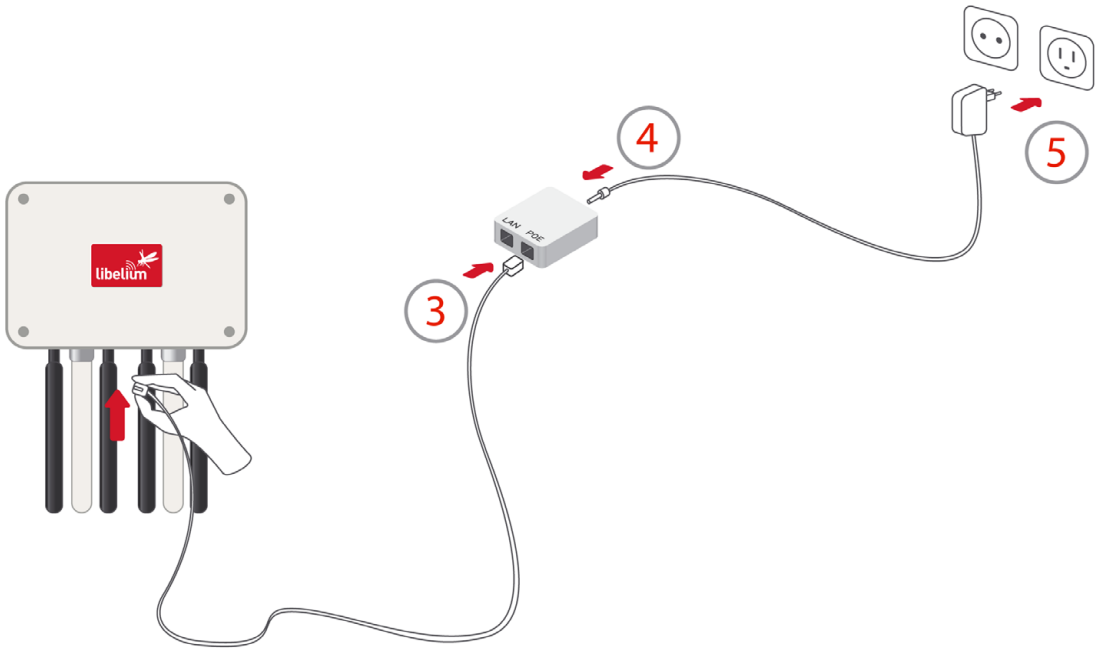

Figure : How to connect Meshlium to 220V

At Libelium we offer equipment for operating at 12V, do not use other power supplies.

Figure : Inserting a SIM card with care in the External SIM socket

4. Turning on Meshlium

Meshlium includes an internal speaker which will emit *"beep!"* sounds when initializing, rebooting and shutting down in order to inform about the state of the process.

Initialization beeps:

- 1 short beep when Meshlium is powered
- 2 long beeps when Meshlium has finished starting and it is ready to be used

Reboot and Shutting down beeps:

- 1 long beep when the reboot order is executed
- 2 long beeps when the system has been completely closed and Meshlium can be powered off.

Note: *The "beep!" sound is not really loud so you will have to take attention and be close to the Meshlium box in order to hear them clearly.*

Note: *It is highly important to wait for the 2 long beeps to power Meshlium off (do not remove the power cable from Meshlium until you heard the 2 beeps). Otherwise, the system could be corrupted. Warranty does not consider this kind of failures.*

5. Accessing Meshlium

5.1. Manager System

Meshlium comes with all the radios ready to be used. Just "plug & mesh!". All the Meshlium nodes come with the WiFi AP ready so that users can connect using their WiFi devices. Connect the Ethernet cable to your network hub, restart Meshlium and it will automatically get an IP address from your network using DHCP *.

Then access Meshlium through the WiFi connection. First of all, look in your PC for the available access points and connect to the one called "meshlium".

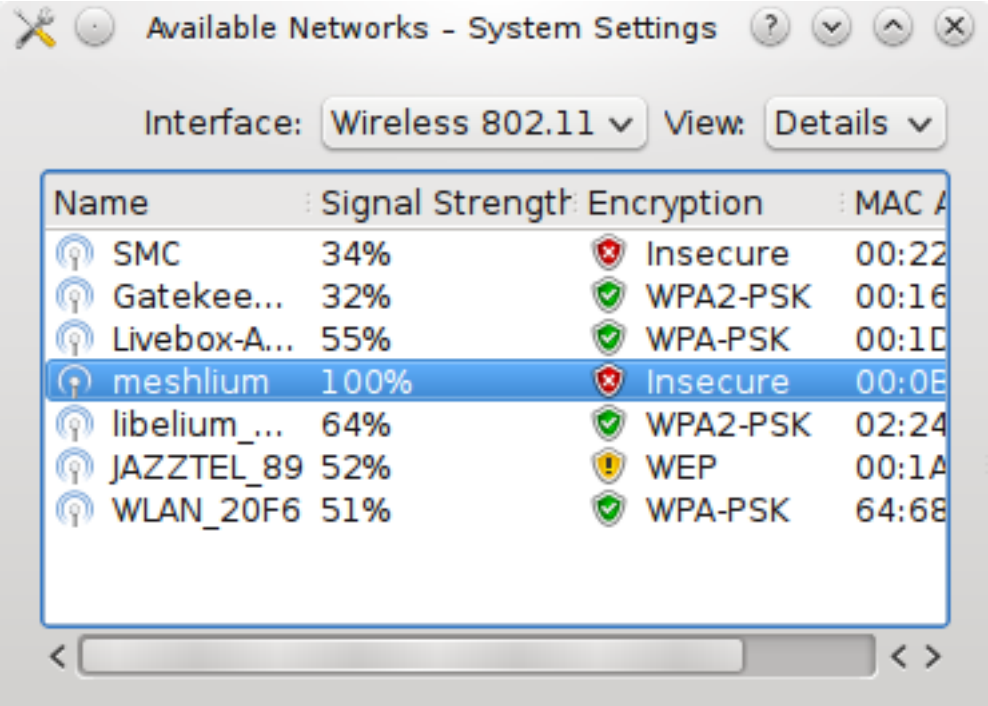

Figure : Access Meshlium through the WiFi connection

No password is needed as the network is public (you can change it later in the WiFi AP Interface options). When you select it, Meshlium will give an IP address from the range 10.10.10.10 to 10.10.10.250.

Now you can open your browser and access to the Meshlium Manager System:

- **URL:** http://10.10.10.1/ManagerSystem
- **user:** root
- **password:** libelium

Figure : Login Form Manager System

Figure : ManagerSystem

You are now inside the Manager System, the tool for controlling all the features of Meshlium in an easy way. You can just browse the tabs to explore the possibilities of Meshlium.

Further step for you could be to configure Ethernet or WiFi in a different way, if you have solid knowledge about computer networks. Please be careful since you could leave Meshlium inaccessible.

6. Certifications information

This document applies to the following Meshlium model, approved for FCC and IC:

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6.1. USA and Canada certification

Modification statement

Libelium has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the equipment.

Interference statement

This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Wireless notice

This device complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the ISED radio frequency (RF) Exposure rules. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device needs to be installed and used on distance greater than 20 cm from human body.

For FCC Part 15 – Class B device: digital device or peripheral

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modification statement

Libelium n'approuve aucune modification apportée à l'appareil par l'utilisateur, quelle qu'en soit la nature. Tout changement ou modification peuvent annuler le droit d'utilisation de l'appareil par l'utilisateur.

Interference statement

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Wireless notice

Le présent appareil est conforme à l'exposition aux radiations FCC / ISED définies pour un environnement non contrôlé et répond aux directives d'exposition de la fréquence de la FCC radiofréquence (RF) et RSS-102 de la fréquence radio (RF) ISED règles d'exposition. L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur.

Cet appareil doit être installé et utilisé à une distance supérieure à 20 cm du corps humain.

CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.