

SCAN FOR THE
FULL GUIDE

Set up your LoRa Gateway

It sits where the Wi-Fi is, hears every LoRa Field Node on the property over a private 915 MHz channel, and sends their readings to a place you own.

BEFORE YOU START

Have these on hand:

- A **Heltec WiFi LoRa 32** board — **V4** or **V3** (same chip; pick the right button, the installer cannot tell them apart) — with its **LoRa antenna on the LoRa connector** before power.
- A computer with **Chrome** or **Edge** and a **data** USB cable.
- Your **Wi-Fi name and password** (2.4 GHz only).
- Where the readings should go: your webhook, your MQTT broker, or the **OAT Test Endpoint** below.
- At least one **LoRa Field Node** out where the sensors are (its own card).

FLASH IT (FIRST TIME ONLY)

- 1 Open openagriculturetechnology.com/build/sketches/lora-gateway/, plug the board in, press **your board's button**. Coming from Meshtastic? Hold **PRG** (left of the USB socket), tap **RST** (right), release — the screen goes blank — then connect. After the flash, press **RST** once.

CONNECT TO THE NODE

- 2 **Power the node** with a USB cable (any USB charger or your computer).
- 3 **On your phone or laptop, join its Wi-Fi network**. It appears as **OAT-Setup-XXXXXX** (open, no password). A setup page opens by itself; if not, go to <http://192.168.4.1>.

Setup page address	http://192.168.4.1
Username	admin
Password	oatsetup (change it once the node is online)

FILL IN YOUR SETTINGS

Write yours here first, then type them into the setup page. One card per node.

Gateway name

e.g. house-gw

Farm ID

the same on every node you own

Location

Wi-Fi name (SSID)

where the gateway sits		2.4 GHz	
Wi-Fi password		Delivery method	
Webhook URL		Webhook or MQTT	
https:// ... (or the Test Endpoint below)		MQTT host / port	
Frequency (MHz)		if using MQTT · 1883 or 8883 TLS	
915.0 — must match the nodes		Bandwidth (kHz)	
Spreading factor		125 — must match the nodes	
7 — must match the nodes		Sync word (hex)	
Push interval (sec)		12 — must match the nodes	
default 60		Hardware id (after setup)	
		oat-... from the setup page	

NO ENDPOINT YET? USE THE OAT TEST ENDPOINT

A public test endpoint the collective runs. Your gateway appears under your Farm ID with every field node's sensors listed beneath it.

Delivery method	Webhook
Webhook URL	https://iot-test.openagriculturetechnology.com/ingest
Watch it live	https://iot-test.openagriculturetechnology.com — pick your Farm ID

It keeps roughly the last hour. Prove the chain works, then point the gateway at an endpoint you keep.

USING MQTT INSTEAD (HOME ASSISTANT)

Point the gateway at the broker Home Assistant uses; each reading lands on its own topic, `oat/<name>/<stream>/<measurement>`. Declare each as an MQTT sensor in YAML (value_json.value).

MQTT host	the machine running Home Assistant / Mosquitto
Port	1883 plain · 8883 with TLS ticked
User / password	if your broker requires them
Readings land on	<code>oat/<gateway name>/<sensor id>/<measurement></code>

SAVE & CHECK THE DATA IS FLOWING

- 4 Press Save.** The node joins your Wi-Fi while the setup page waits, then shows its **address on your own network**, like `http://192.168.1.37` and `http://oat-yourname.local`. Bookmark one; that's the node's home page from now on.
- 5 Open Live Status** there and press **Send a test reading**. A green “OK” means a reading just reached your endpoint. That's the whole job done.

Updating later: The gateway's screen shows its name, Wi-Fi address, nodes heard with frame and rejected counts, the last node's id and signal in dBm, the last push, and the radio plan. On a **V4** the dBm is about 17 dB above what is at the antenna (its amplifier): comfortable is around **-75**, the edge around **-105**.

THE USB CONSOLE

Open the install page, choose **Console**. Every setting is there, plus the radio diagnostics.

<code>nodes</code>	every field node heard: sensors, signal, cadence, lost frames, and the radio interrupt count.
<code>rss</code>	the chip's live signal level for 5 s — have a node <code>tx</code> meanwhile. If it never moves, no RF is arriving.
<code>status</code>	Wi-Fi, heap, push counters, radio and front-end type.
<code>set sf 9</code>	change the radio plan (then change every node to match).
<code>push</code>	send what has been heard to your endpoint now.

IF SOMETHING'S NOT WORKING

Screen says nodes 0, nothing heard	Radio plan must match the nodes exactly (915.0 / 125 / 7 / 12). Antenna on the LoRa connector, not the Wi-Fi one. A V4 flashed with the V3 image boots, says radio ok, and hears nothing — flash the V4 button. Type <code>rss</code> while a node sends: the number must jump.
Push FAIL, no sensor data to send	Nothing has been heard yet, or the endpoint URL is empty after a reflash (the installer erases settings). Check the setup page.
A node was heard but its sensors are missing	The gateway files a sensor only after the node's roster (sent at boot and every 5th cycle). Press RST on the node, or wait one roster.
It won't join my Wi-Fi	2.4 GHz only. Check the password; names with spaces are easier over the console: <code>set ssid ...</code> .

Generated 2026-10-10 · This card and the firmware are open. The full sketch, the supported boards, and the web installer are at openagriculturetechnology.com/build/sketches/lora-gateway/.