



Set up your BLE sensor node

It listens for cheap Bluetooth thermometers and sends the readings to a place you own. No wiring, no app, no code.

BEFORE YOU START

Have these on hand:

- A computer with **Chrome** or **Edge** (to flash it the first time).
- A **data** USB cable — not a charge-only one.
- Your **Wi-Fi name and password** — the node uses **2.4 GHz** networks only (it cannot see a 5 GHz-only network).
- Where the readings should go: your own webhook, an MQTT broker — or start with the **free OAT sandbox** below. (You can change this any time.)
- A **Govee** (or other supported) Bluetooth thermometer within about 30 feet — you may already own one.

FLASH IT (FIRST TIME ONLY)

- 1 On the computer, open openagriculturetechnology.com/build/sketches/ble-sensor-listener/, plug in the board, and press **Connect & Install**. It picks the right firmware for your chip automatically. Already flashed? Skip to step 2.

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.

Device name

e.g. GH2-North bench

Farm / user ID

your site or account id

Location

zone the node watches

Wi-Fi name (SSID)

2.4 GHz

Wi-Fi password

Webhook URL

[https:// ...](#) (or the sandbox below)

MQTT host

if using MQTT

MQTT user / password

if your broker requires them

Push interval (sec)

default 60

Hardware id (after setup)

oat-... from the setup page — write it on the board

Delivery method

Webhook or MQTT

Auth header

optional, e.g. Bearer ...

MQTT port

1883 · 8883 with TLS ticked

MQTT topic prefix

default: oat

Readings to average

default 5

NO ENDPOINT YET? USE THE OAT SANDBOX

A public test endpoint the collective runs, so your first reading has somewhere to land — no account, nothing to install.

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

The sandbox is **shared, public, and short-term** — it keeps roughly the last hour and erases anything older. It proves your node works; move to your own endpoint or broker for anything real. The live page's **Gateway** panel shows your node's firmware, chip, hardware id, and its address on your LAN — handy when you come back to it months later.

USING MQTT INSTEAD

Point the node at any MQTT broker you run — Home Assistant's Mosquitto add-on is the common choice. Same data, same 60-second health heartbeat, just a different road.

MQTT host	your broker's address — e.g. the machine running Home Assistant
Port	1883 plain · 8883 with TLS ticked on the setup page
User / password	only if your broker requires them (Mosquitto usually does)
Readings land on	<code>oat/<device name>/<sensor>/<measurement></code> last value retained
Node liveness	<code>oat/<device name>/status</code> online / offline, with a proper MQTT last-will

The sandbox above is **webhook-only** (its broker needs a per-device account — ask the collective if you want one). Everything the node reports is identical on both transports.

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: After setup the node lives on *your* network — open the address it showed when it joined (`http://192.168.x.x` or `http://oat-<name>.local` ; the sandbox’s Gateway panel shows both). The **OAT-Setup-XXXXXX** network is available again after any power-cycle — your saved settings survive reboots and firmware updates.

NO WI-FI AROUND? THE USB CONSOLE DOES EVERYTHING

Plug the node into any computer, open the install page (the QR above) and choose **Console** — the log window is a two-way terminal. Every setting on the setup page can be read and changed there.

<code>help</code>	list every command.
<code>status</code>	address, signal, uptime, memory, push counters — the node’s own health report.
<code>scan</code>	list the Wi-Fi networks the node can actually hear (2.4 GHz).
<code>wifi NAME PASS</code>	set Wi-Fi and join right away. Name has spaces? Use <code>set ssid the full name</code> then <code>set wifi_pw ...</code> then <code>reconnect</code> .
<code>set / get</code>	read or change any field — e.g. <code>set ep_url https://...</code> (secrets are writable, never shown).
<code>push</code>	send a test reading to your endpoint now.
<code>ap on / reboot</code>	bring the setup network back / restart the node.

IF SOMETHING’S NOT WORKING

The board isn’t detected	Use a data cable (many cheap cables only charge). Use Chrome or Edge on a computer — phones, iPads, Safari and Firefox can’t flash.
It won’t join my Wi-Fi	The node hears 2.4 GHz networks only — a 5 GHz-only network is invisible to it. Check the password, and if the network name has spaces, set it over the USB console (see above). <code>scan</code> shows what it can hear.
No OAT-Setup network appears	Give it 15 seconds after power-up, then refresh your Wi-Fi list. It switches itself off a few minutes after a successful setup — power-cycle the node and it’s back (or type <code>ap on</code> in the USB console).
Status shows no data	Check a supported sensor is powered and within ~30 ft, and that your endpoint URL is exact. Press Send a test reading (or type <code>push</code> in the console) to retest.
I forgot the setup password	It’s <code>oatsetup</code> unless you changed it. If you changed it and forgot, re-flash from the install page.

Generated 2026-07-10 · This card and the firmware are open. The full sketch, the supported boards, and the web installer are at openagriculturetechnology.com/build/sketches/ble-sensor-listener/.