



SCOREBOARD USER MANUAL

WiFi Provisioning & Firmware Updates

Everything you need to get a LedsCount scoreboard online and keep it up to date — from the board itself, from the companion app, and from a laptop over USB.

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1. WiFi Provisioning

Before a scoreboard can receive automatic updates, sync scores to the cloud, or be controlled from the companion app over the internet, it needs to know which WiFi network to join. There are two ways to teach it: directly on the board using the menu button, or from the LedsCount companion app over Bluetooth.

Which method should I use? The companion app is faster and easier once your firmware supports it. If the app tells you your scoreboard is too old, or if you've never had this board on WiFi before, use the on-scoreboard menu path first to get it online, then let it update itself.

1.1 From the scoreboard menu

The scoreboard temporarily turns itself into a WiFi hotspot called `LedsCount Electronics`. You join that hotspot from a phone or laptop, a setup page opens automatically, you pick your real WiFi network and enter the password. The scoreboard then reboots into that network.

Step 1 — Enter the WiFi-setup menu on the scoreboard

The button gestures depend on which scoreboard you have:

Pro Long-press the menu button. The display shows `force OTA`. Short-press **5x** until you reach `network`, then long-press to enter. Short-press through the items until you see `reset wifi` and long-press to start.

Go Long-press the menu button. The display shows `LED`. Short-press to advance to `network`, long-press to enter, then short-press through the items until you see `reset wifi` and long-press to start.

Step 2 — Join the scoreboard's hotspot

Once started, the display shows:

`connect
LedsCount Electronics`

1. On your phone or laptop, open WiFi settings and join the network named `LedsCount Electronics`. No password is required.
2. A "sign in to this network" style page should open automatically. If it doesn't, open a browser and go to `http://192.168.4.1`.
3. You'll see the **LedsCount Wifi Tool — Device Setup** page with a list of nearby WiFi networks.

Step 3 — Pick your network and save

1. Tap the network you want the scoreboard to join.
2. Enter the password.
3. Press **Save**.

The scoreboard saves the credentials, drops the hotspot, and reboots into your WiFi network. Within a few seconds the display returns to its normal score view.

Verify it worked. Once WiFi is up, the scoreboard will automatically check for firmware updates on its next boot — see section 2.1.

1.2 From the LedsCount companion app (BLE)

If your scoreboard is running **recent firmware**, you can provision WiFi from your phone without joining any hotspots — the app talks to the scoreboard directly over Bluetooth.

Older firmware doesn't support this. If the app opens the WiFi screen and shows the message *"This scoreboard's firmware is too old to provision over BLE — update firmware first"*, use the on-scoreboard menu path in section 1.1 to get it online first, let it auto-update, and then this BLE method will work.

Before you start

- Bluetooth turned on. On Android the app will offer a one-tap "Turn on" button; on iOS you need to go to Settings.
- On Android: allow the app's Bluetooth Scan and Bluetooth Connect permissions, plus turn on Location and allow the Location permission (Android refuses to enumerate WiFi networks otherwise). The app will spell this out and offer to open the settings for you.
- The scoreboard must be **idle** — not in the middle of a match.

Pair with the scoreboard

1. Open the LedsCount companion app. You land on the **Pair** screen listing nearby scoreboards.
2. Tap your scoreboard.
3. The panel will display . Short-press the scoreboard's menu button to approve. (Long-press rejects.)

First-time only. Firmware 1.1.71 and newer remembers your phone, so from the second pairing onward you skip the button confirmation.

Provision WiFi

1. Once paired, go to the **WiFi** section of the app. It automatically scans in parallel — it asks the scoreboard what it can see, and (on Android only) also runs the phone's own scan.
2. You get one merged list of networks, sorted by strongest signal, with a small badge on each row:
 - Dashboard icon — the **scoreboard** can see this network.
 - Phone icon — only **your phone** can see it.
 - Both icons — both can see it (best pick).

3. Tap the network you want. If only your phone saw it, the app will warn that the scoreboard's placement may be marginal but will let you proceed.
4. Enter the WiFi password. The app deliberately disables autocorrect and auto-capitalisation on this field so your password isn't silently mangled.
5. Tap **Connect**.

The app writes the credentials to the scoreboard, which saves them, cycles its WiFi radio, and pushes the outcome back to the app.

iOS caveat. Apple restricts third-party apps from listing nearby WiFi networks on iOS. On iPhone/iPad you'll only see the scoreboard's own scan, not the phone-side scan.

Rescue: scoreboard stuck on the wrong network

If a scoreboard was configured with a WiFi network that no longer exists, you can force it to skip WiFi at boot so the app can pair without waiting for a WiFi timeout:

1. Power the scoreboard off.
2. Hold the menu button while powering it on.
3. The panel briefly shows . Release the button.
4. The scoreboard skips WiFi and cloud bring-up for this session. BLE is up within a couple of seconds — open the app and provision new credentials as above.

The skip is **not** persisted — a normal power-cycle resumes WiFi with whatever credentials are stored.

1.3 Comparison at a glance

	Menu (hotspot)	Companion app (BLE)
Works on any firmware	Yes	No — needs BLE-provisioning support
You need	A phone or laptop with WiFi	A phone with the LedsCount app + Bluetooth
Roughly how long	2–3 minutes	Under 1 minute
Best for	A brand-new / very old scoreboard	Everyday use, changing networks at events

2. Firmware Updates (OTA)

Firmware — the software that runs on the scoreboard — is updated **over the air (OTA)**. The scoreboard downloads the new firmware from the LedsCount update server over its WiFi connection, installs it, and reboots into the new version automatically. Nothing is lost, no scores are affected, and you don't need to plug anything in.

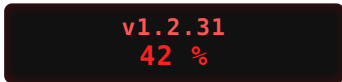
2.1 Automatic update on boot

Every time the scoreboard restarts **on purpose** — via the menu Reboot, the companion app, at the start of a match, or after a network change — it checks the LedsCount server for a newer firmware version. If one is available it downloads and installs it immediately, then reboots into the new version.

What counts as "on purpose"? Only reboots that the scoreboard itself asked for. Unplugging the power, a power cut, or a rare crash all count as *incidental* reboots — the automatic update check is **deliberately skipped** in those cases, so an unlucky power blip during a tournament never triggers a surprise update in the middle of a match.

What you'll see on the display

When an update is downloading, the LED matrix shows the version and the progress:



v1.2.31
42 %

A typical update takes well under a minute. Once complete the scoreboard reboots automatically into the new firmware — you don't need to press anything.

Development boards (used for testing at LedsCount HQ) skip the OTA check entirely.

2.2 Manual "force update" from the scoreboard menu

If you want to trigger the update immediately — for example after being told a new release is available — you can force it from the menu:

Pro Long-press the menu button — the display already shows



force
OTA

as the first menu item. Long-press again to run it.

Go Long-press to enter the menu (shows **LED**), short-press to reach **network**, long-press to enter, then short-press through the items until you see **force OTA** and long-press to run it.

Because Go scoreboards keep WiFi off during play, you'll briefly see **wifi conn** while it associates, then

**OTA
check**

The scoreboard beeps to confirm, then either downloads a new version (same display as section 2.1) or shows:

**OTA
fail**

If you see **OTA / fail**, it means either:

- The scoreboard couldn't reach the update server (check WiFi with section 1),
- Or **you're already on the latest version** — a "force" always tries to install, even when the versions match, so this is a normal outcome when there's nothing new.

2.3 USB update

The USB update is a browser-based flashing tool that talks to the scoreboard directly over its USB cable. It bypasses WiFi entirely, so it works on a scoreboard that has never been online, one whose WiFi network has changed, or one that won't finish an over-the-air update. It's also the standard way we flash new boards for the first time in the lab.

When to use USB update.

- **First-time flashing** of a brand-new or blank board (factory / lab bring-up).
- **Last-resort recovery** when both the automatic (section 2.1) and menu-driven (section 2.2) update paths fail — typically because the board can't reach a WiFi network at all.
- **Serial WiFi setup** when BLE and the on-scoreboard menu are both unavailable (blank board out of the box, dead menu button, etc.).

What you need

- A **desktop** computer — Windows, macOS, Linux or ChromeOS.
- **Google Chrome** (or Microsoft Edge, Opera, or Brave). Firefox and Safari will not work. Mobile browsers will not work.
- A USB data cable that reaches the scoreboard's ESP32 USB port.
- The scoreboard powered on and not in the middle of a match.

Step-by-step

1. Open Chrome and go to <https://app.ledscount.com/update>.
2. Plug the scoreboard into your computer with the USB cable.

3. Click **Connect device** on the page. Chrome will open a small dialog listing the USB device — pick the scoreboard and press *Connect*.
4. Wait for the handshake. The page opens the serial port and asks the scoreboard for its device ID, current firmware version, and current WiFi network. On a cold boot this can take up to a minute — the firmware only starts listening for serial commands once it's finished booting.
5. Two large buttons appear:

A. Flash latest firmware

1. Click **Flash latest firmware**.
2. The page downloads the latest firmware image from the LedsCount server, resets the scoreboard into download mode, and streams the new firmware. A progress bar shows how far along it is. This typically takes about a minute.
3. When it finishes, the page shows a green **Firmware installed** message and the scoreboard resets into the new version.

There is no version picker — USB flashing always installs the latest release. If a newer version has shipped after this flash, the next deliberate reboot's automatic OTA check (section 2.1) will pick it up.

B. Set up WiFi

The same tool doubles as a serial-based WiFi provisioner, useful when the on-scoreboard menu and BLE paths are both unavailable:

1. Click **Set up WiFi**.
2. The page triggers a WiFi scan on the scoreboard and shows a signal-sorted list of networks (with RSSI bars and a lock icon on secured ones).
3. Pick a network, enter the password, click **Connect**.
4. The scoreboard tries to associate and reports back either "*Connected to <SSID>. Scoreboard is rebooting...*" or a specific failure reason (wrong password, network not found, connection lost).

Web Serial is HTTPS-only and desktop-Chromium-only. If you host the update tool anywhere other than `app.ledscount.com`, it must be served over HTTPS (or localhost during development). Chrome refuses to open a USB serial port from a plain HTTP page. Safari and Firefox don't implement Web Serial at all, and mobile browsers — including Chrome on Android and iOS — are out too. Use a desktop machine.