

User Guide – Aurawave AW100 AT Configuration Tool

Version 1.3.0

Contents

1. Introduction	4
1.1. Scope of the Document	4
1.2. Supported Firmware	4
1.3. Conventions and Abbreviations	4
2. Installation	6
2.1. System Requirements	6
2.2. Installing on Windows	6
2.3. Installing on macOS	6
2.4. Connecting a Board	6
3. The Application Window	9
3.1. Overview	9
3.2. The Board List	10
3.3. The Device Box	11
3.4. The Role Box	12
3.5. The Status Bar	13
3.6. Advanced Settings	13
3.7. The Connection Light	14
3.8. The State Chip	15
3.9. Menus	16
3.10. The AT Traffic Console	18
3.11. The Stream Explorer Window	20
3.12. Closing the Application	21
4. Step-by-Step Tasks	23
4.1. Broadcast the Computer's Audio, Kept Across Power Cycles	23
4.2. Broadcast from the Analog Input	23
4.3. Receive a Broadcast on a Second Board	24
4.4. A Two-Language Broadcast	25
4.5. An Encrypted Broadcast	27
4.6. A Sink Prepared Before Its Source Is on the Air	28

4.7. Share a Broadcast as a QR Code	29
4.8. Update a Board's Firmware	30
4.9. Recover a Board in DFU Mode	31
4.10. Change the USB ID	32
4.11. Send a Session Record to Cloud2GND	33
5. Source Controls	34
5.1. Role	35
5.2. Bluetooth Device Name	35
5.3. Broadcast Name, Start, Stop and Share	35
5.4. Preset	36
5.5. Quality	36
5.6. Identifier	37
5.7. Encrypted and Passphrase	37
5.8. Language and Stream Name	37
5.9. Audio Input	38
6. Sink Controls	39
6.1. Scan and the Broadcast Field	39
6.2. Exact Name	40
6.3. Passphrase	40
6.4. Explore and the Stream List	40
6.5. Side and Language	40
6.6. Start and Stop	41
6.7. Keeping a Sink Started Across a Power Cycle	41
6.8. Audio Output	42
7. Board Actions	43
7.1. Save Configuration to Board	43
7.2. Refresh	43
7.3. Restart	43
7.4. Factory Defaults	44
7.5. Dismiss	44
8. Troubleshooting	45

8.1. The Board Reads Not Answering or Port in Use	45
8.2. An Operation Failed	45
8.3. A Sink Is Silent	46
Additional Information – Cloud2GND	47
Appendix A: Feature Availability by Firmware Version	48

1. Introduction

This document applies to the following version of the Aurawave AW100 AT Configuration Tool — the AW100 Config Tool, as it is called from here on:

- Version 1.3.0, for Aurawave firmware 1.3.0 and earlier

1.1. Scope of the Document

This document describes the AW100 Config Tool: installing it, connecting Aurawave AW100 boards to it, setting a board up as a broadcast source or as a sink, saving a board's configuration, and updating a board's firmware.

The Aurawave board itself — its radio, its audio hardware and its serial command interface — is described in the board's own documentation from Cloud2GND, which the **Help** menu opens ([Menus](#)). Nothing in this document requires a serial terminal or typed commands.

1.2. Supported Firmware

This application is for Aurawave firmware 1.3.0 and earlier. A board running older firmware works with the application, with the controls that firmware does not support greyed and the reason shown in their tooltips. The controls that depend on the firmware version are listed in [Feature Availability by Firmware Version](#).

1.3. Conventions and Abbreviations

Notation	Meaning
Bold	A control, menu entry or window in the application, named as it appears on screen.
<i>Italic</i>	A state or message shown on screen.
Monospace	A file name, folder path or value typed into a field, or a state word shown exactly as the board returns it.
Warning sign	The yellow triangle the application shows beside a control or a reading. Its tooltip gives the reason.

Every coloured indicator in the application is paired with a word, so nothing depends on telling colours apart.

Term	Meaning
Board	An Aurawave AW100 module, connected to the computer by USB.

Term	Meaning
Broadcast	An Auracast broadcast: audio that any Auracast-capable receiver in range can join by name, with its passphrase if it is encrypted.
Source	A board that broadcasts audio. The board's own documentation calls this role a <i>Broadcast Source</i> .
Sink	A board that receives a broadcast. The board's own documentation calls this role a <i>Broadcast Sink</i> .
Receiver	Any device that joins a broadcast: a phone, earbuds, or an Aurawave sink.
Subgroup, stream	The parts of a broadcast: a subgroup carries one language, and holds one stream per audio channel.
DFU mode	The board's firmware update mode, entered by the application during an update or by hand with the board's button.
USB ID	The vendor and product identifiers the board presents to the computer over USB.

2. Installation

2.1. System Requirements

- A Windows PC, or a Mac with Apple silicon running macOS 15 or later. Macs with an Intel processor are not supported.
- The AW100 Config Tool installer supplied by Cloud2GND: an .msi installer on Windows, a .dmg disk image on macOS.
- An Aurawave AW100 board and a USB cable.

The application uses the serial drivers built into Windows and macOS. No other software, account, licence key or network connection is needed.

2.2. Installing on Windows

1. Run the .msi installer. It installs for your user account alone and asks for no administrator approval.
2. Launch **AW100 Config Tool** from the Start menu.

The installer is not signed with a publisher certificate, so Windows may show a blue **Windows protected your PC** message when it is run. Click **More info**, then **Run anyway**. Some browsers also ask for confirmation when the installer is downloaded; keep the file.

2.3. Installing on macOS

1. Open the .dmg disk image and drag **AW100 Config Tool** into **Applications**. An earlier copy of the application named **Aurawave** is not replaced by this one; move it to the Bin.
2. Launch **AW100 Config Tool** from Applications.

The application is not notarized by Apple, so the first launch is refused with a message that the application could not be verified. Close the message, open **System Settings**, choose **Privacy & Security**, scroll to the **Security** section, and click **Open Anyway** beside the message about AW100 Config Tool; confirm, and launch **AW100 Config Tool** again. This is asked once.

2.4. Connecting a Board

Plug an Aurawave board into any USB port and start the application, in either order. The board appears in the board list within a few seconds. There is no port to choose and nothing to configure first. Every board plugged into the computer is listed, and each one is controlled independently.

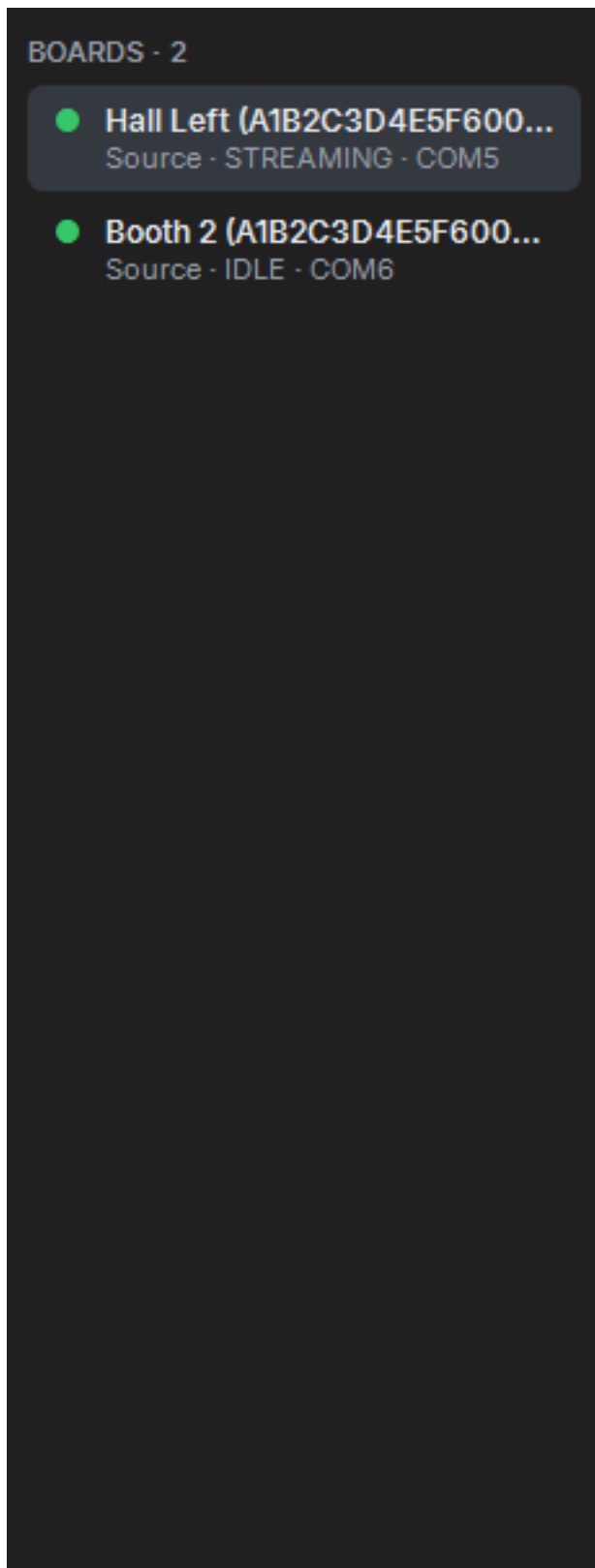


Figure 1. The board list with two boards connected: each entry shows the board's name, its role, state and port, and its connection light.

While a board is being read — about a second — its controls are greyed and the status bar reads *reading the board...* after its name. A board that is unplugged keeps its entry and its page for the rest of the session, with its connection light grey and its page dimmed ([The Board List](#)).

3. The Application Window

3.1. Overview

The application has one screen: the **board list** on the left, the selected board's **page** on the right, and the **status bar** along the foot of the window. The page has two framed boxes — the **device box**, which holds what belongs to the board whatever its role, and the **role box**, which holds the settings of the board's role with **Start** and **Stop**.

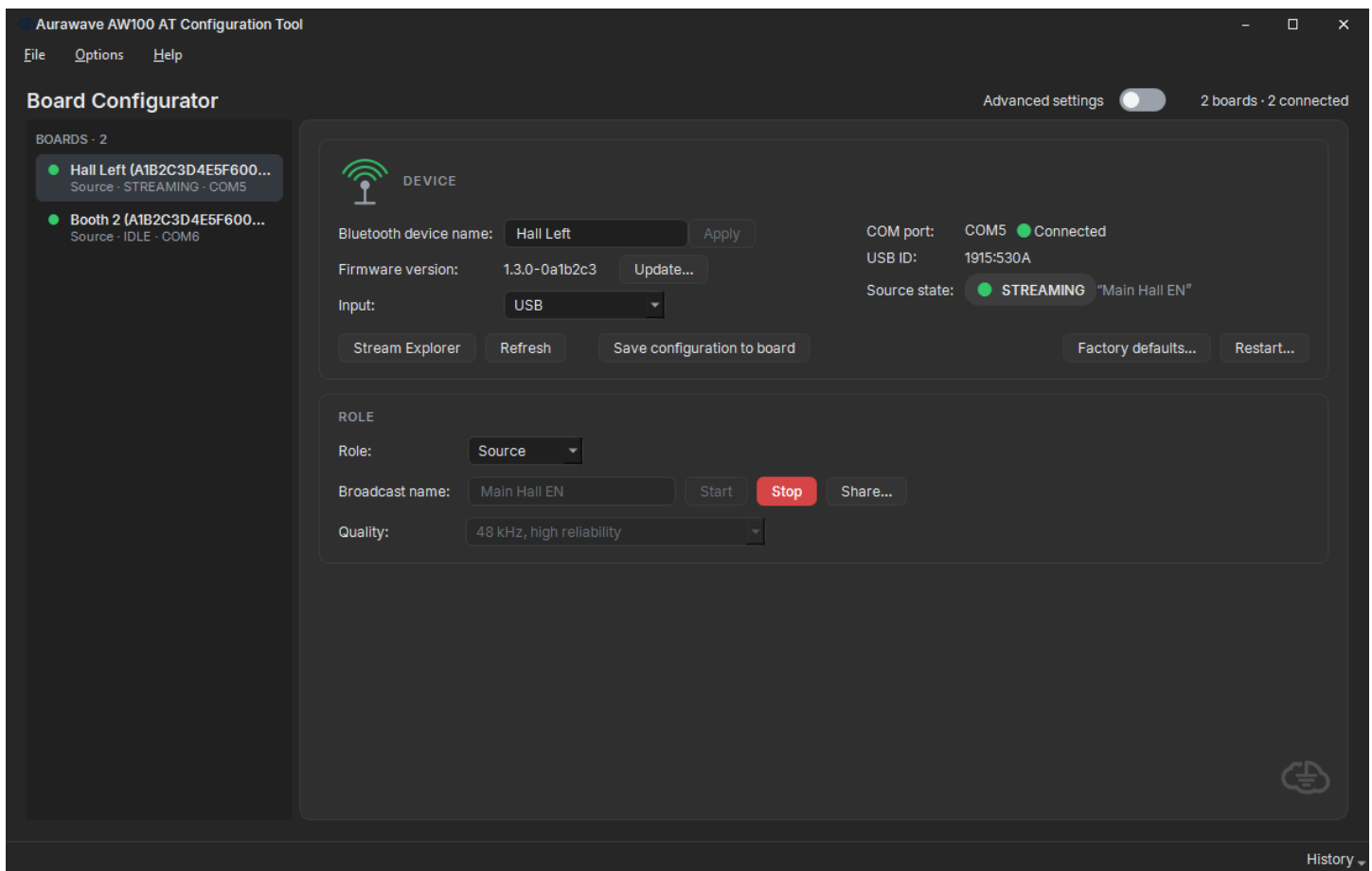


Figure 2. The application window as it opens: the board list, the selected board's page with its device box and role box, and the status bar.

Part	What it holds
Board list	One entry per board plugged into the computer, with its name, a one-line summary and its connection light. Click an entry to open the board's page.
Device box	The board's own name, firmware version, audio device, serial port, USB ID and state, and a row of buttons that act on the whole board.

Part	What it holds
Role box	The Role selector, and the controls of that role: a source's broadcast (Source Controls) or a sink's target (Sink Controls).
Status bar	The newest message about any board, the <i>Unsaved changes</i> mark, and History .
Advanced settings	The switch at the top right, beside the board count: shows or hides the less common settings (Advanced Settings).
Menus	File , Options and Help , for what is not about one board (Menus).

3.2. The Board List

Each entry shows the board's name, a one-line summary and its connection light. The summary gives the board's role, its state and its serial port — for example *Source · STREAMING · COM5* or *Sink · SEARCHING · COM6*; an unplugged board shows *Disconnected* in place of its state. The characters in brackets after a board's name are normally its USB serial number.

A board is read once: when it connects, when you click it in the list, when an operation that changes its configuration finishes, and when you press **Refresh** on its page. After that, only its state keeps being polled. A setting changed from another program is not seen until you press **Refresh** (**Refresh**).

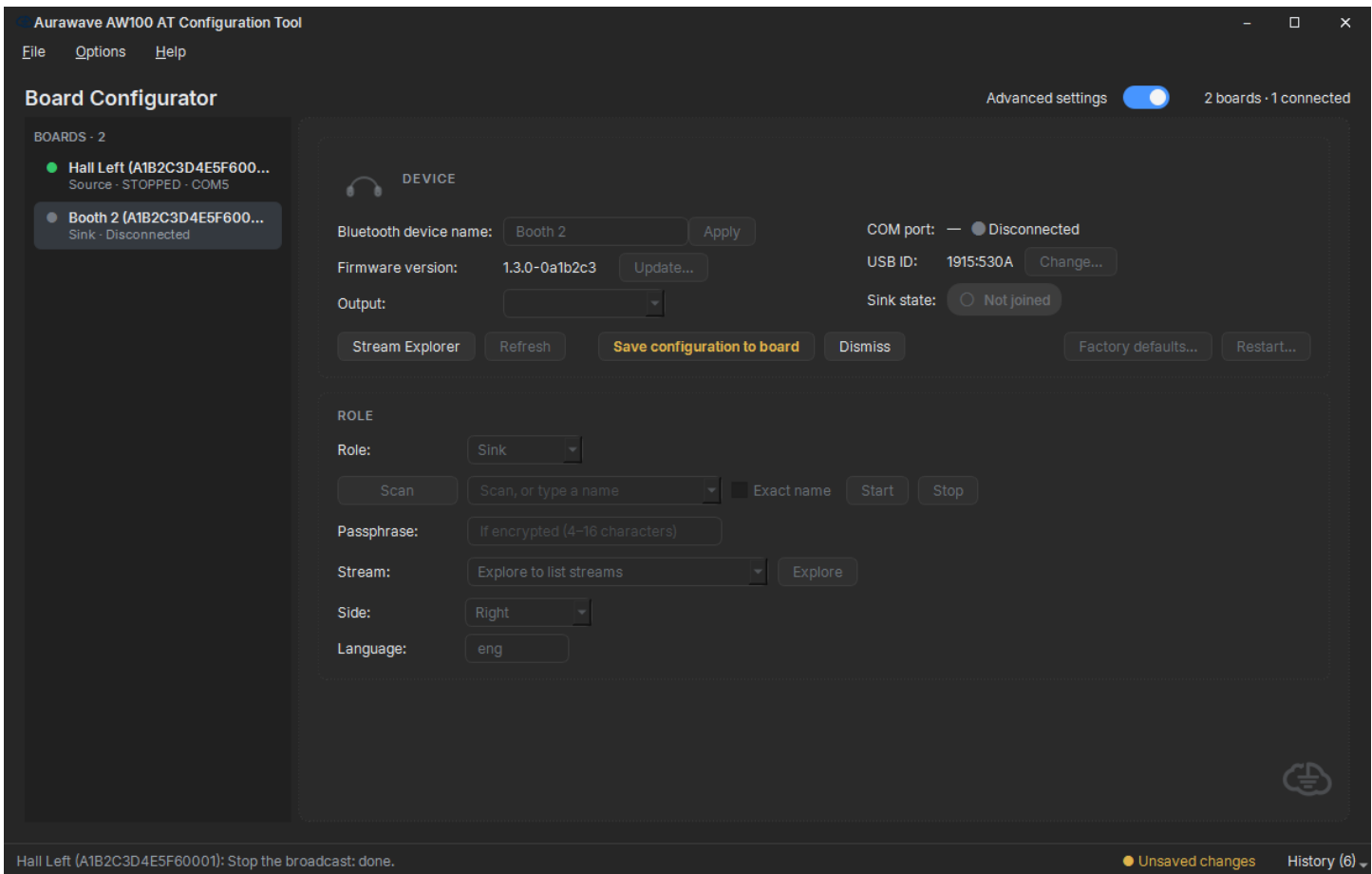


Figure 3. An unplugged board: its entry reads *Disconnected*, its page is dimmed, and **Dismiss** appears in the device box's row of buttons.

A board that is unplugged keeps its entry and its page for the rest of the session. When it is plugged back in, the same entry returns to life. **Dismiss**, which appears in the device box's row of buttons while the board is unplugged, removes it from the list; the board is listed again if it is ever reconnected.

3.3. The Device Box

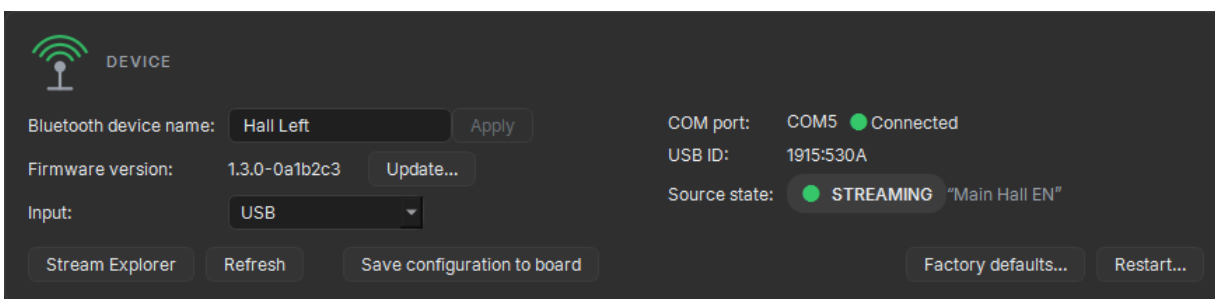


Figure 4. A source's device box.

At the top left is the **role badge**: an antenna for a source, headphones for a sink. Travelling waves on the badge mean the board is live — STREAMING for a source, started for a sink.

Line	What it shows
Bluetooth device name	The board's own name, with Apply beside it (Bluetooth Device Name).
Firmware version	The firmware the board runs, and Update... beside it (Update a Board's Firmware). A warning sign beside the version means the board's firmware is older than the firmware this application was validated against, or that the board reported a version the application cannot interpret; the tooltip gives the detail.
Input (source) or Output (sink)	The board's audio device (Audio Input , Audio Output).
COM port	The board's serial port, then the connection light and its word (The Connection Light). When the application cannot open the board, the reason is shown in place of the port.
USB ID	The identity the board reports on USB, normally 1915:530A, with Change... beside it while Advanced settings is on (Change the USB ID). A board enumerating with a different identity says <i>changed from the Aurawave default</i> ; after a change made from this application, the line shows the new pair with <i>from the next restart</i> until the board is restarted.
Source state or Sink state	The state chip, with the word the board reports (The State Chip), then what that state concerns: a source's broadcast name, or the broadcast a started sink is on. The chip's tooltip holds the board's own answers behind it.

Along the foot of the device box is one row of buttons, each acting on the whole board. On the left are the everyday actions: **Stream Explorer** ([The Stream Explorer Window](#)) and **Refresh** ([Refresh](#)), which only read the board, then **Save configuration to board** ([Save Configuration to Board](#)), and **Dismiss** while the board is unplugged. Set apart on the right are the two recovery actions, **Factory defaults...** ([Factory Defaults](#)) and **Restart...** ([Restart](#)). In a narrow window the device box's second column moves under the first.

3.4. The Role Box

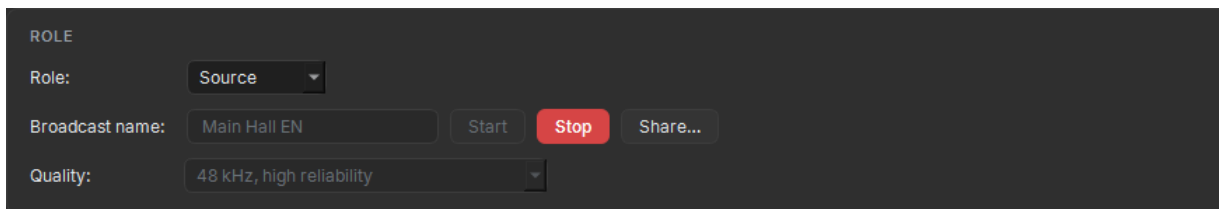


Figure 5. A source's role box with **Advanced settings** off: the role, the broadcast name with **Start**, **Stop** and **Share...**, and the quality. The fields are greyed because the broadcast is on the air.

The role box opens on the **Role** selector: **Source** or **Sink**. The controls below it are the role's own, described in [Source Controls](#) for a source and [Sink Controls](#) for a sink. While the role is started, every setting in the role box is locked and shows what the board is

running; press **Stop** to change them. When **Start** is unavailable because of a value in the role box, the reason shows under the role box.

3.5. The Status Bar

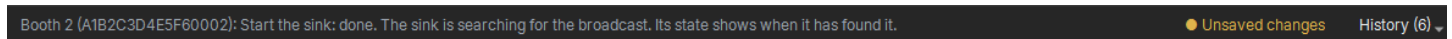


Figure 6. The status bar after an operation: the board's name, what the operation came to, and the Unsaved changes mark.

The status bar, along the foot of the window — under the AT traffic console when that is open — shows the newest message about any board, beginning with the board's name: for example *Hall Left (A1B2...): Start the broadcast: done*. It reports what an operation is doing, how it ended, and why a request was refused.

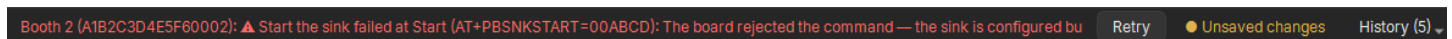


Figure 7. A failed operation: the message in the alert colour, with **Retry** beside it.

Element	Meaning
A message in the alert colour	An operation failed, or a request was refused. The message says what happened and the state the board was left in (An Operation Failed). A message longer than the bar is cut at its width; the whole of it is in the message's tooltip and in History .
Retry	Repeats the failed operation on the board the failure names, whichever board is selected. Offered where repeating makes sense, and only while that failure is the newest message.
<i>Unsaved changes</i>	The selected board has changes not yet saved to it (Save Configuration to Board).
History	The last six messages from every board, newest last: what each operation came to and every refusal, not the steps shown while one runs. Its caption gives the count: History (6) .

3.6. Advanced Settings

The **Advanced settings** switch at the top right of the window shows or hides the less common settings of the role box. It applies to every board's page and is remembered: the application opens the way you left it. A fresh installation opens with the switch off. The device box, the status bar and the menus never change with it, and a warning is never hidden by it.

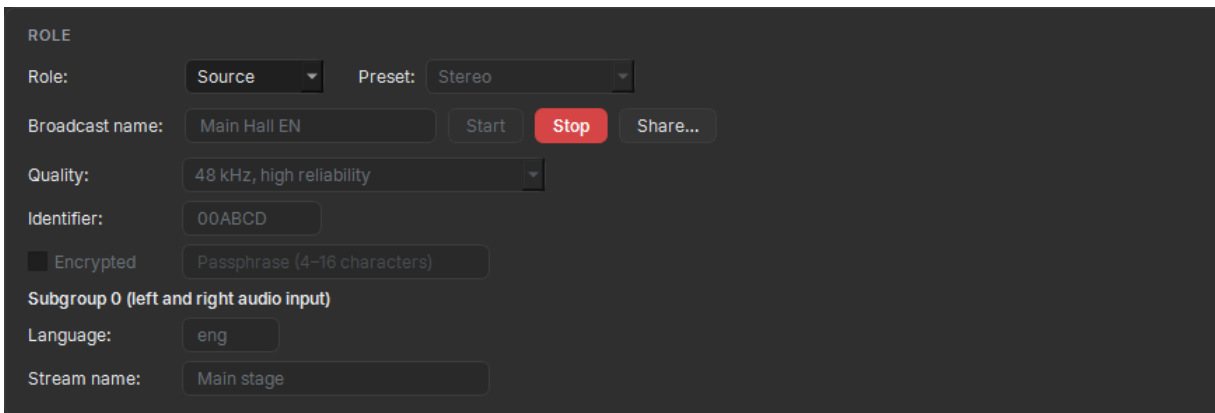


Figure 8. A source's role box with **Advanced settings** on: the preset, the identifier, the encryption line, and each subgroup's language and stream name under its caption.

Role	With the switch off	With the switch on, in addition
Source	Role, Broadcast name with Start, Stop and Share... , Quality	Preset, Identifier, Encrypted with its passphrase, and each subgroup's Language and Stream name
Sink	Role, Scan , the broadcast field with Exact name , Start and Stop , and Passphrase where one applies	The Stream list with Explore, Side and Language
Device box	Everything but one control	Change... beside the USB ID

3.7. The Connection Light

The light beside the COM port, and in the board list, says whether the application is talking to the board.

Light	Meaning
Green, <i>Connected</i>	The board is answering. This is the working state.
Amber, <i>Identifying...</i>	The board was just plugged in and is being read. It is not stuck.
Red, <i>Not answering</i>	The board is plugged in but does not answer (The Board Reads Not Answering or Port in Use).
Red, <i>Port in use</i>	Another program, usually a serial terminal, has the board's port open. Close it.
Grey, <i>Disconnected</i>	The board was unplugged. Its entry and page keep their last known state.
Amber, <i>Updating...</i>	A firmware update is running. Do not touch the USB cable.
Amber, <i>DFU mode</i>	The board is waiting for firmware (Recover a Board in DFU Mode).

A board that stops answering while it stays plugged in moves from *Connected* to *Not answering* within about half a minute, and returns to *Connected* by itself when it answers again.

3.8. The State Chip

The chip beside **Source state** or **Sink state** shows the state word the board returns, and the board-list entry shows the same word. The colour follows the state.

Source state	Meaning
Green, STREAMING	The source is broadcasting.
Grey, IDLE	The source has a broadcast configured but it has not been started.
Grey, STOPPED	The source's broadcast was stopped.
Grey, <i>No broadcast configured</i>	The source has no broadcast. Start creates one with the settings on the page (Start and Stop).

Sink state	Meaning
Grey, IDLE	The sink is not started.
Amber, SEARCHING	The sink was started and is looking for its source, or lost it and is looking again. It keeps looking until it finds it or you press Stop .
Amber, STARTING	The sink found the broadcast and is synchronising to it.
Green, STREAMING	The sink reports that it has a stream.
Grey, STOPPED	The sink can see the broadcast but plays nothing: the source is not sending audio, or the passphrase is wrong (see below).
Amber with a warning sign, NOMATCH	Nothing in the broadcast can be played: no stream fits the sink's side or language (Side and Language), or the broadcast uses a codec setting the sink cannot decode.

A sink on firmware older than 1.3.0 cannot report its state. Its chip shows instead what this application told it to do: blue, *Joined "name"*, when it was started on that broadcast from this application, or grey, *Not joined*.

Two more readings can appear for either role: faint, *Not read*, while the board has not been read yet; and amber with a warning sign, *Created broadcast not polled*, when the board is answering about a different broadcast from the one this application created — read it as unknown and check the board directly. Any other word is shown exactly as the board reported it, in amber. A disconnected board keeps its last state, dimmed.

Note: `STREAMING` on a sink means the board has a stream. It does not mean the passphrase was right: the board does not report a wrong passphrase. A sink started with the wrong one plays nothing, and its state can read `STREAMING` or `STOPPED` while the source is sending, and change from one to the other. The audio at the sink's output is the confirmation, and a silent sink on an encrypted broadcast points at the passphrase. The chip's tooltip says so where it applies: beside `STOPPED`, and beside `STREAMING` on a sink this application started with a passphrase.

3.9. Menus

Three menus hold what is not about one board. None of them changes with the **Advanced settings** switch.

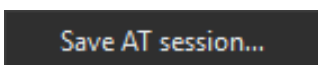


Figure 9. The **File** menu.

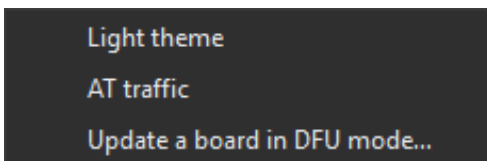


Figure 10. The **Options** menu.

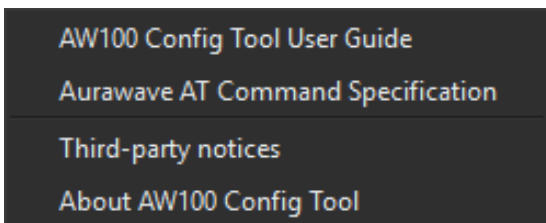


Figure 11. The **Help** menu.

Menu	Entry	What it does
File	Save AT session...	Writes the session's board traffic — every command sent and every answer received — to a text file of your choosing, for your own records, or to send to Cloud2GND with a question about what a board did. A broadcast passphrase is never written to it: the file shows <redacted:16> where a sixteen-character passphrase was.

Menu	Entry	What it does
Options	Light theme	Switches the application to a light background, and back; the choice lasts for the running session.
	AT traffic	Opens a live console along the bottom of the window showing every board's raw serial exchanges (The AT Traffic Console).
	Update a board in DFU mode...	Updates a board in DFU mode that has no entry in the list (Recover a Board in DFU Mode).
Help	AW100 Config Tool User Guide	Opens this guide in your PDF reader.
	Aurawave AT Command Specification	Opens the specification of the board's serial command interface, for the firmware this release supports.
	Third-party notices	Opens the licence notices installed beside the application.
	About AW100 Config Tool	Shows the application's version and copyright, and a Third-party notices button that opens the same notices. On a Mac this entry is in the application menu.

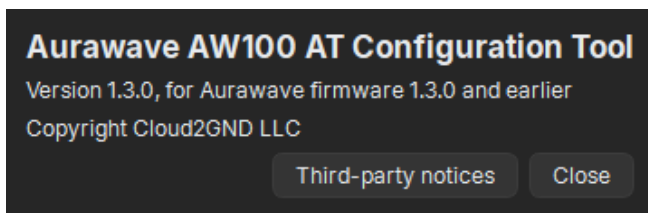


Figure 12. The **About AW100 Config Tool** window. An installed build shows its build code after the version number; quote the whole version line when contacting Cloud2GND, since it says exactly which build you have.

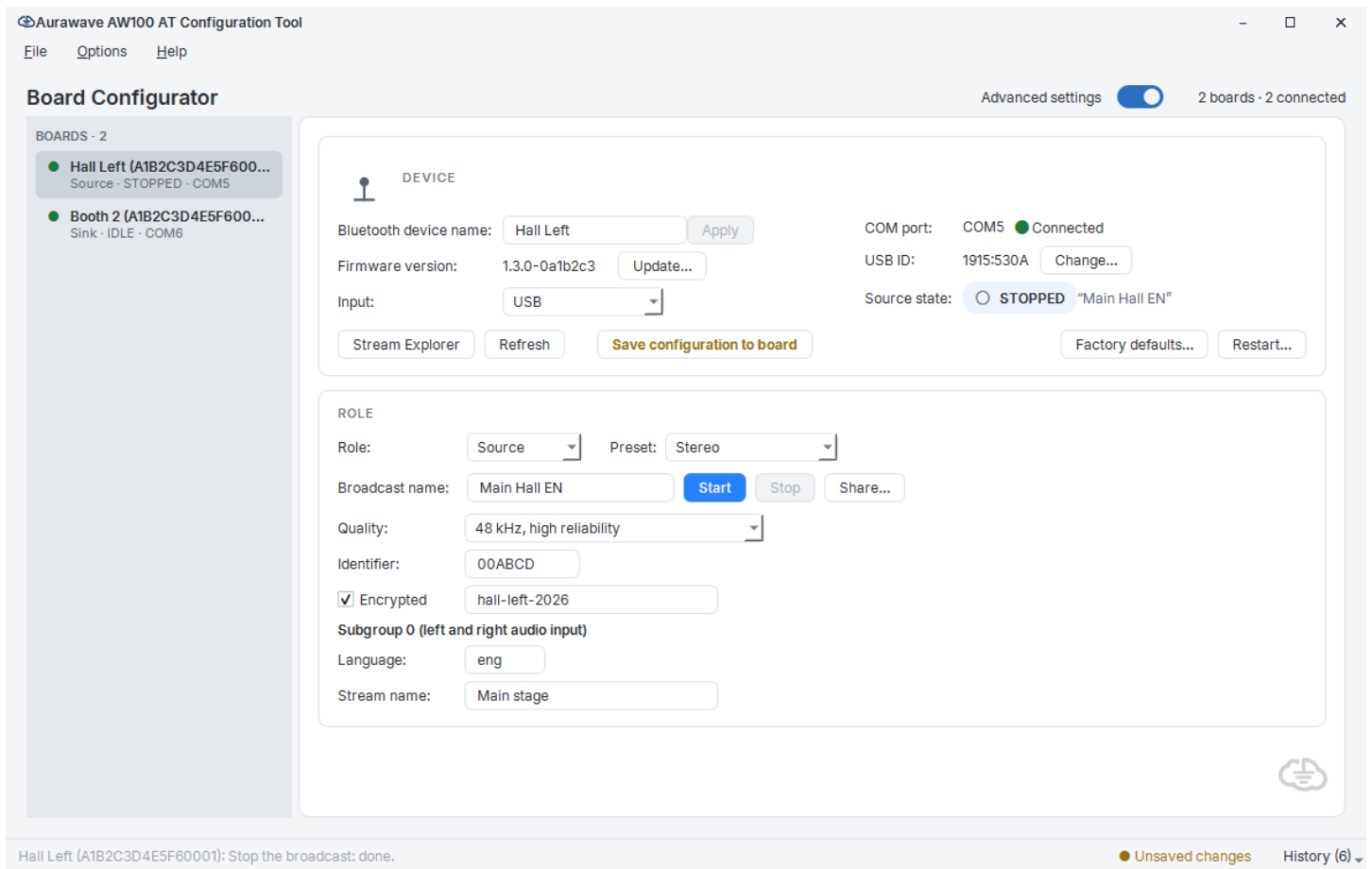


Figure 13. The application with **Light** theme on.

3.10. The AT Traffic Console

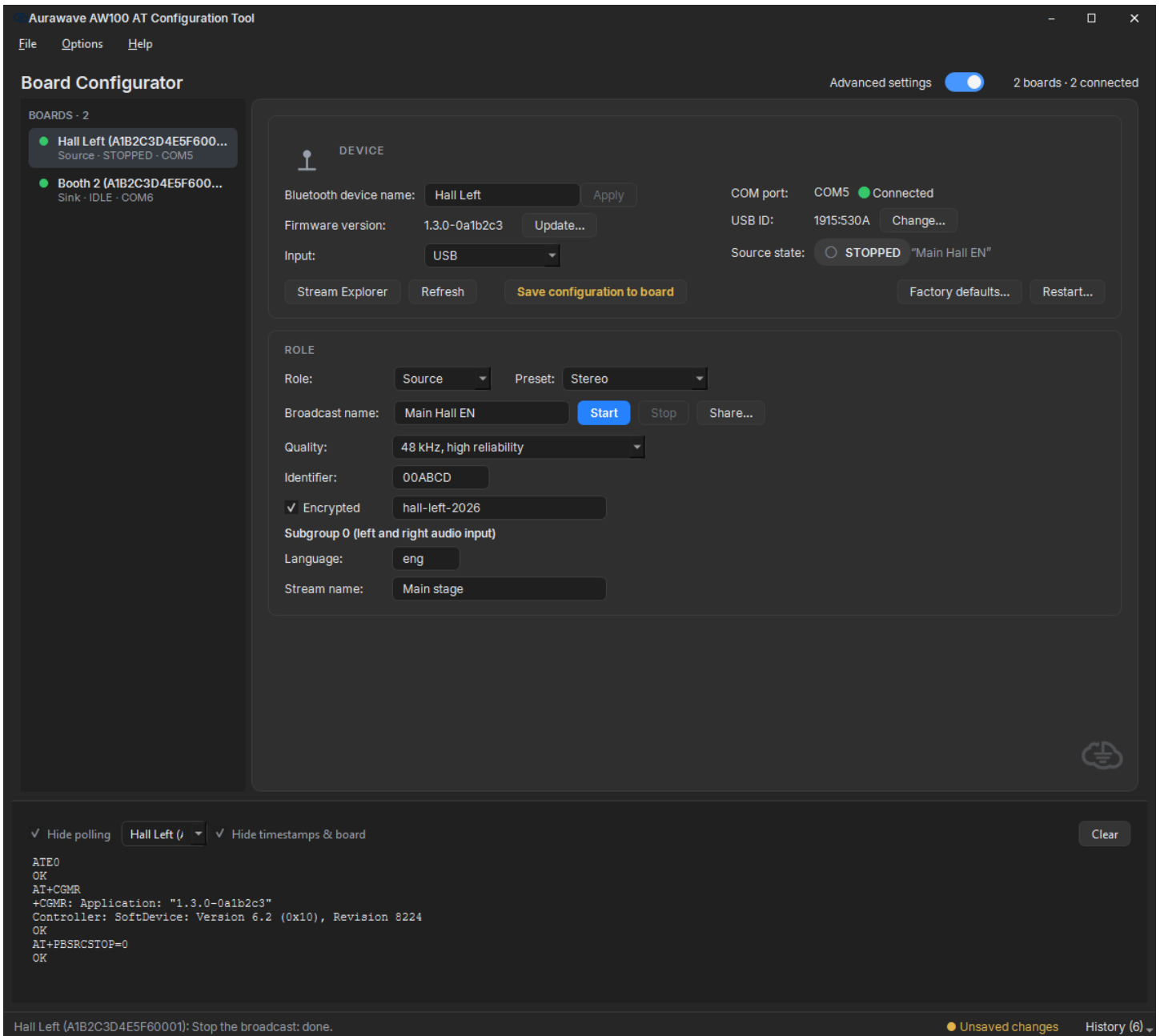


Figure 14. The AT traffic console open under the page: every board's raw serial exchanges, with a board filter, a polling filter, a copy action and **Clear**.

Options, AT traffic opens the console along the bottom of the window. **Clear** empties the console for every board; the traffic it removes stays in the file that **Save AT session...** writes.

Note: The console shows the traffic exactly as sent, passphrases included. Check what a copy from it contains before sharing it.

3.11. The Stream Explorer Window

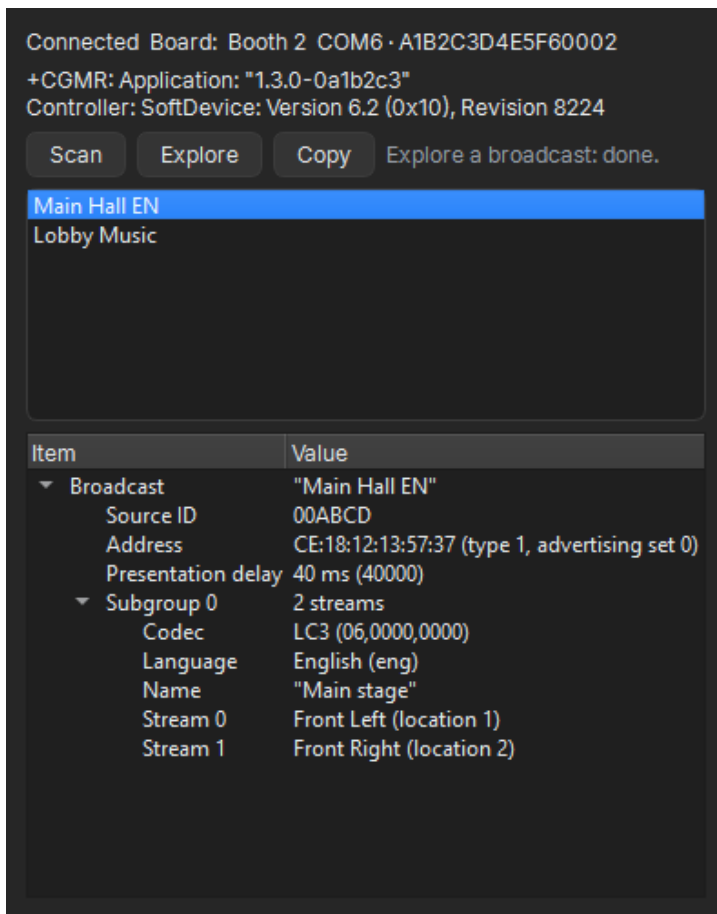


Figure 15. The Stream Explorer window after **Scan** and **Explore**: the board's identity, the broadcasts heard, and the selected broadcast's structure as a tree.

Stream Explorer, in the device box's row of buttons, opens a window with the board's full identity — name, port, serial number and the complete firmware version — and two read-only actions. Nothing in this window changes the board, and the window remembers what it learns for as long as it is open on that board. Its title names the board.

Control	What it does
Scan	Listens for broadcasts in range for a few seconds and adds what it hears to the list. A broadcast heard before is updated, never listed twice; a broadcast the latest scan did not hear stays in the list, greyed and marked <i>not in the last scan</i> . Any board can scan, whatever its role; scanning from a second board is how to confirm that the first is transmitting.

Control	What it does
Explore	Reads the structure of the broadcast selected in the list and shows it as a tree: the broadcast's name, identifier and address first, then its presentation delay, its subgroups with their codec, language and name, and each subgroup's streams with their channel locations. This works for any broadcast in range, including broadcasts from equipment that is not yours. Each broadcast keeps its last answer: select it again later and its tree is shown without another read. Unavailable for a broadcast the last scan did not hear, after the board is plugged back in until it scans again, while the board's own broadcast is on the air, and while the board is started as a sink — press Stop , or explore from another board.
Copy	Appears with the tree. Copies the whole answer as text, for a report or a support request.

Where the Bluetooth specifications give a value a name, the tree shows the name with the value the board sent in brackets beside it: LC3 (06,0000,0000), English (eng), Front Left (location 1), 40 ms (40000). A value with no such name is shown as the board sent it, and an answer the application does not recognise is shown line by line, unchanged. A name is shown in the script it arrives in; a replacement character stands where the board sent something that is not readable text, and a character that would break the line or reverse its direction is shown as a code such as \u202e, here, in the broadcast lists and in the copied text. An **Encrypted** row appears only for a broadcast the list marks as encrypted. The tree reports what is on the air; it does not choose what a sink plays (**Explore and the Stream List**). Both actions require firmware 1.2.0 or newer.

Each board has its own Stream Explorer window with its own list. The list is kept while the window is closed and reopened, and through the board being unplugged and plugged back in; it is emptied when the board is dismissed or the application closes.

3.12. Closing the Application

Closing the window stops everything the application is doing. If a board is part-way through a change, or a firmware update is running, the application asks first, and the question says what closing would leave behind.

Closing over	What the question says, and what to do
A change in progress	The question names the board, the operation, and the likely state of the board if the operation stops at the step it has reached — for example, <i>the broadcast is gone and must be recreated</i> . An operation takes a few seconds and carries on while the question is open: answer No , and it finishes. After closing anyway, a source left reading <i>No broadcast configured</i> gets a broadcast again from Start .
A firmware update in progress	Answer No and let the update finish: closing leaves nothing to complete the update, report the board's state, or say when the USB cable may safely be unplugged, and the board may be left in DFU mode (Recover a Board in DFU Mode). With several updates running, the question has a paragraph for each, naming its board.

Closing over	What the question says, and what to do
A firmware update waiting for the board to be replugged	Both files are written and the mandatory wait is over, so closing interrupts nothing on the board. What is lost is the check: the application does not read the new version back. Unplug the board and plug it back in as instructed; the version it reports is shown the next time the application is open.

A scan in progress changes nothing on the board, and the window closes over one without asking.

4. Step-by-Step Tasks

Each task starts with a board plugged in and selected in the board list. The controls are described in full in the chapters that follow; each task names the entries it uses. Values are examples; substitute your own.

Every task has the same parts: the goal and the equipment, the steps in the order to do them, a check of the result, and whether the configuration has to be saved.

4.1. Broadcast the Computer's Audio, Kept Across Power Cycles

Goal: broadcast the audio playing on this computer, under a name of your choice, and make the board start the broadcast by itself whenever it is powered. **Equipment:** one board, and an Auracast receiver to listen with.

1. In the role box, set **Role** to **Source**.
2. If the **Source state** chip reads STREAMING, press **Stop**: a started source's settings are locked.
3. Type a broadcast name — Television-1 — in the **Broadcast name** field (**Broadcast Name, Start, Stop and Share**).
4. In the device box, set **Input** to USB (**Audio Input**).
5. Play audio on the computer, with the board selected as its audio output device.
6. Press **Start**, beside the name. The status bar reports the start.
7. Press **Save configuration to board** (**Save Configuration to Board**).

Check: the **Source state** chip reads STREAMING with the broadcast's name beside it, and the board's entry in the list reads *Source · STREAMING*. On a receiver — an Auracast-capable phone, earbuds, or a second Aurawave board — join the broadcast named Television-1.

Persist: because the broadcast is running when it is saved, the board starts broadcasting by itself every time it is powered. Without the save, a board that was never saved loses its broadcast at power-off.

4.2. Broadcast from the Analog Input

Goal: broadcast a line-level signal plugged into the board's 3.5 mm input. **Equipment:** one board and an analog audio source.

1. Plug the audio source into the board's 3.5 mm input.
2. In the device box, set **Input** to I2S_MAIN. The change takes effect at once.
3. In the role box, press **Stop** if the broadcast is STREAMING, then set the broadcast name.
4. Press **Start**, then **Save configuration to board**.

Check: the **Source state** chip reads STREAMING. **Persist:** the save keeps the input and the running broadcast across a power cycle.

4.3. Receive a Broadcast on a Second Board

Goal: play one Aurawave board's broadcast at a second Aurawave board's output. **Equipment:** two boards and headphones.

1. Set the first board up as a source, as in [Broadcast the Computer's Audio, Kept Across Power Cycles](#) or [Broadcast from the Analog Input](#).
2. Select the second board. In its role box, set **Role** to **Sink**. If the board is broadcasting, the switch stops it; nothing else is sent until **Start**.
3. Press **Scan**. The broadcasts in range appear in the list beside it ([Scan and the Broadcast Field](#)).
4. Select the first board's broadcast and press **Start**. Confirm: starting the sink ends the second board's own broadcast.
5. Plug headphones into the second board's 3.5 mm output and, in its device box, set **Output** to I2S_MAIN ([Audio Output](#)).
6. Press **Save configuration to board** on the sink.

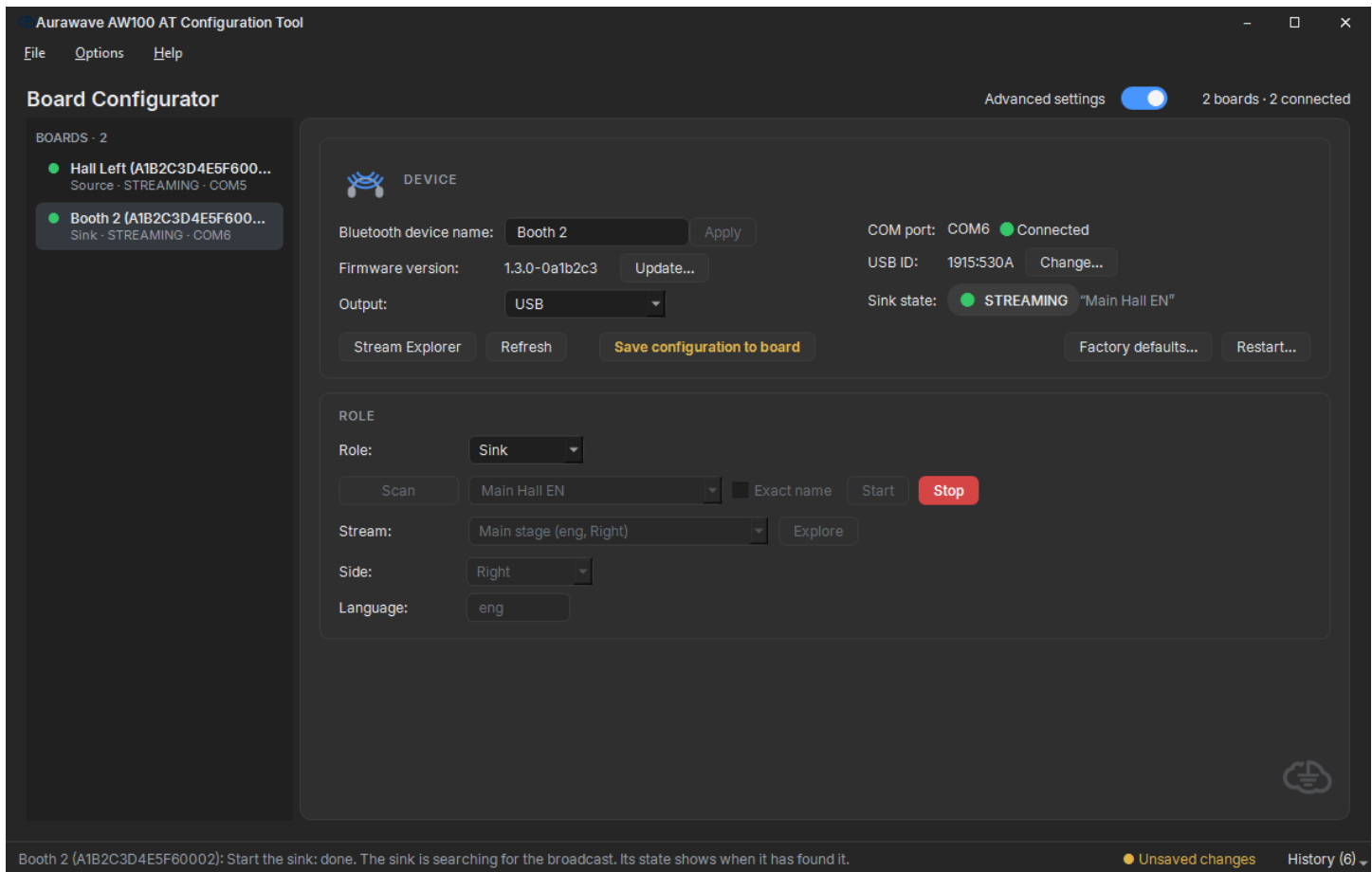


Figure 16. The sink after **Start**: the badge shows waves and the **Sink state** chip reads **STREAMING** with the broadcast's name beside it.

Check: the **Sink state** chip reads **SEARCHING** until the board finds the broadcast, then **STREAMING** (firmware 1.3.0 or newer; older firmware shows *Joined "name"*), and the first board's audio plays at the second board's output.

Persist: saved while started, the board starts again as a sink by itself after a power cycle. Without the save it comes back as a source (**Keeping a Sink Started Across a Power Cycle**).

4.4. A Two-Language Broadcast

Goal: carry two languages in one broadcast, one per audio input, and point each sink at one of them. **Equipment:** one source board fed with one language on its left input and the other on its right, and one sink board per language. Requires firmware 1.3.0 or newer on the source and on each sink.

On the source:

1. Press **Stop** if the broadcast is STREAMING.
2. Turn **Advanced settings** on, and set **Preset**, beside **Role**, to **Dual mono (Preset)**. The fields of two subgroups appear, captioned *Subgroup 0 (left audio input)* and *Subgroup 1 (right audio input)*; nothing is sent yet.
3. Under each caption, set the **Language** — eng for subgroup 0, ara for subgroup 1 — and a **Stream name**, such as English and Arabic (**Language and Stream Name**).
4. Press **Start**, then **Save configuration to board**.

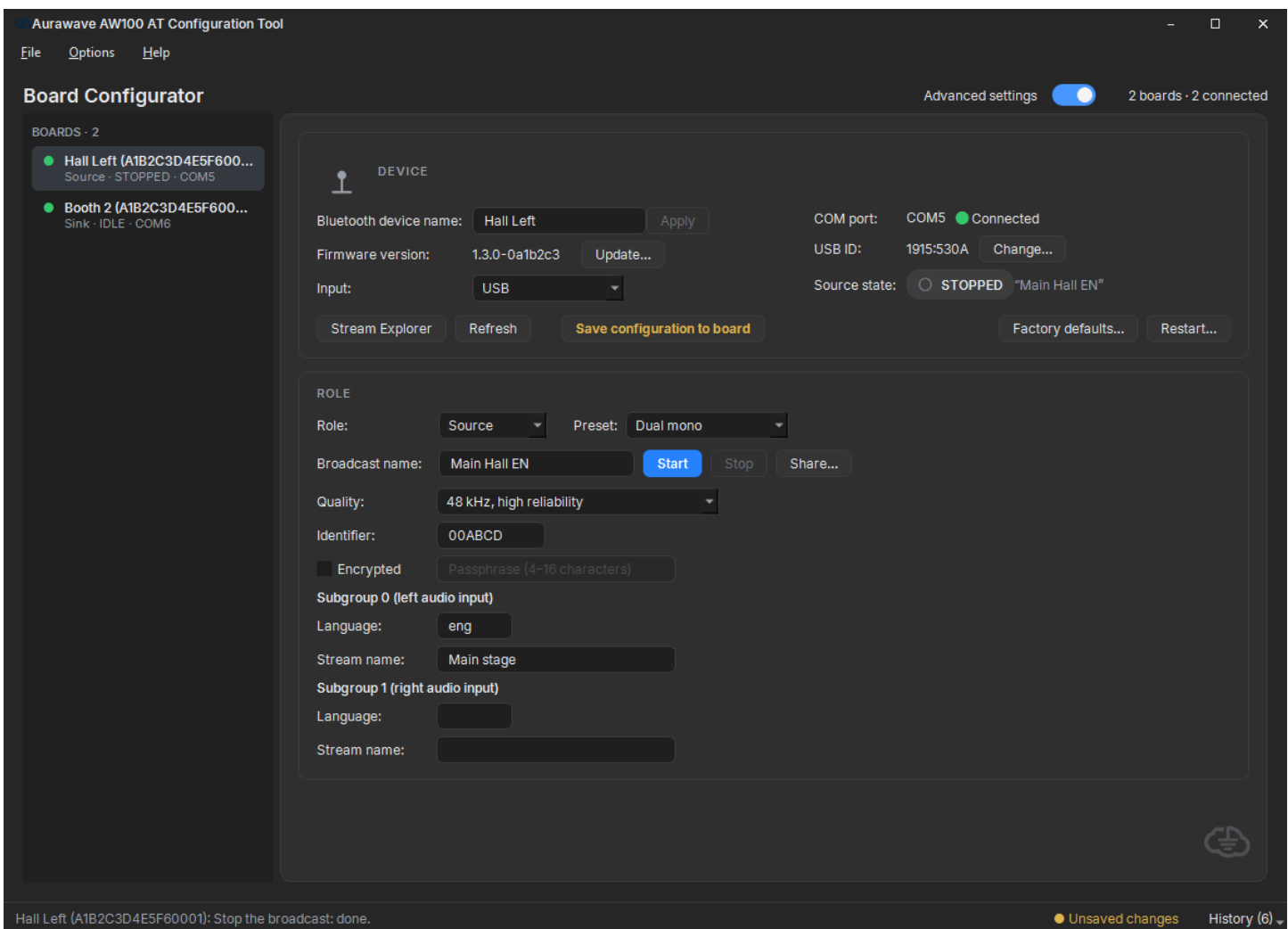


Figure 17. The source's page with **Preset** set to **Dual mono**: one language and stream name per subgroup.

On each sink:

1. Set **Role** to **Sink** and press **Scan**.
2. With **Advanced settings** on, select the broadcast and press **Explore**. The **Stream** list fills with the broadcast's streams, each named

with its language and side ([Explore and the Stream List](#)).

3. Choose a stream. **Side** and **Language** below fill in to match.
4. Press **Start**, then **Save configuration to board**.

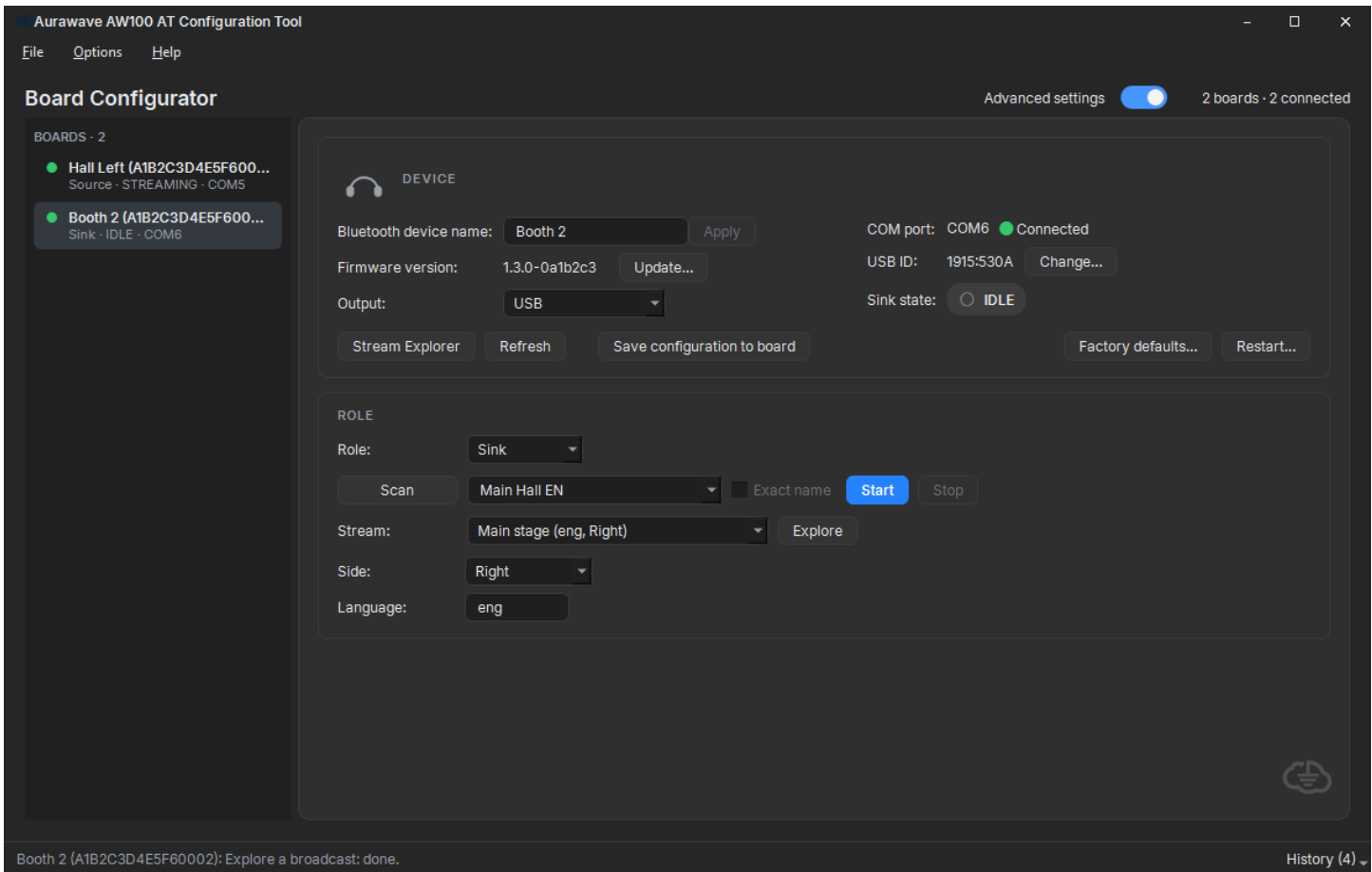


Figure 18. A sink's page before it is started: the scanned broadcast, its explored streams, and the chosen stream's side and language.

Check: each sink reads STREAMING and plays its language on both outputs. A sink plays one stream on both outputs: for each language, use one sink. A sink whose side and language fit nothing in the broadcast reads NOMATCH.

4.5. An Encrypted Broadcast

Goal: restrict a broadcast to receivers that know a passphrase. **Equipment:** a source board and the receivers.

1. Turn **Advanced settings** on. In the source's role box, press **Stop** if the broadcast is STREAMING.
2. Tick **Encrypted** and type a passphrase of 4 to 16 characters (exactly 16 on firmware 1.2.0) in the field beside it ([Encrypted and Passphrase](#)).

3. Press **Start**.
4. Give the passphrase to the people who will listen, or press **Share...** and let them scan the code, which carries it ([Share a Broadcast as a QR Code](#)).
5. On an Aurawave sink, select the broadcast. A **Passphrase** field appears under the broadcast field: type the passphrase there, then press **Start**.

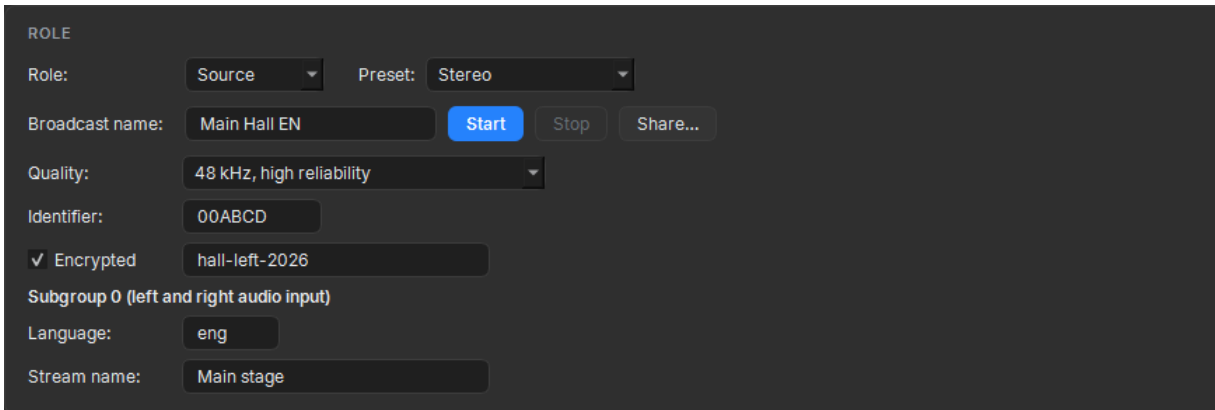


Figure 19. The source's role box with **Encrypted** ticked and a passphrase typed.

Check: a receiver with the passphrase hears the broadcast; one without it hears nothing. A source on firmware 1.2.0 does not announce the broadcast as encrypted, so other receivers list it as an open broadcast.

To turn encryption off, press **Stop**, untick **Encrypted** and press **Start**.

4.6. A Sink Prepared Before Its Source Is on the Air

Goal: prepare a sink for a source that is switched off, out of range or not yet configured. **Equipment:** one sink board. Requires firmware 1.3.0 or newer on the sink.

1. Select the board and set **Role** to **Sink**.
2. Type the source's broadcast name in the broadcast field beside **Scan**, without scanning. To join any board still on its factory name, type Aurawave and leave **Exact name** unticked; to join one broadcast only, type its whole name and tick **Exact name** ([Exact Name](#)). Names are case-sensitive.
3. If the broadcast will be encrypted, type its passphrase in the **Passphrase** field.
4. Press **Start** and confirm.
5. Press **Save configuration to board**.

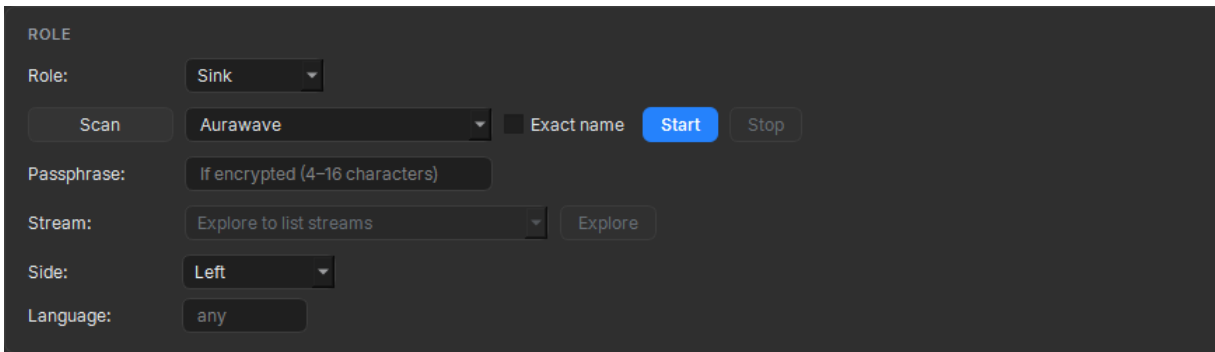


Figure 20. A sink's role box with a name typed into the broadcast field: **Exact name** is live and the **Passphrase** field is shown.

Check: the **Sink state** chip reads SEARCHING, with the typed name beside it. When the source comes on the air the sink joins it without further action, and the chip reads STREAMING.

Persist: saved while it reads SEARCHING, the board resumes the search by itself after a power cycle.

4.7. Share a Broadcast as a QR Code

Goal: let a listener join the broadcast by scanning a code with a phone that supports Auracast, without searching a list of names and without typing a passphrase. **Equipment:** a source board whose broadcast is set up, and a printer or a screen for the code.

1. Press **Share...**, beside **Start** and **Stop**. For an encrypted broadcast the dialog first says that the code contains the passphrase; press **Show code**.
2. Press **Save PNG...** for an image to put in a document or a slide, **Save SVG...** for a vector drawing that stays sharp at any print size, or **Copy link** for the text the code carries.
3. Press **Save configuration to board**, so that the broadcast's name, identifier and passphrase survive a restart.

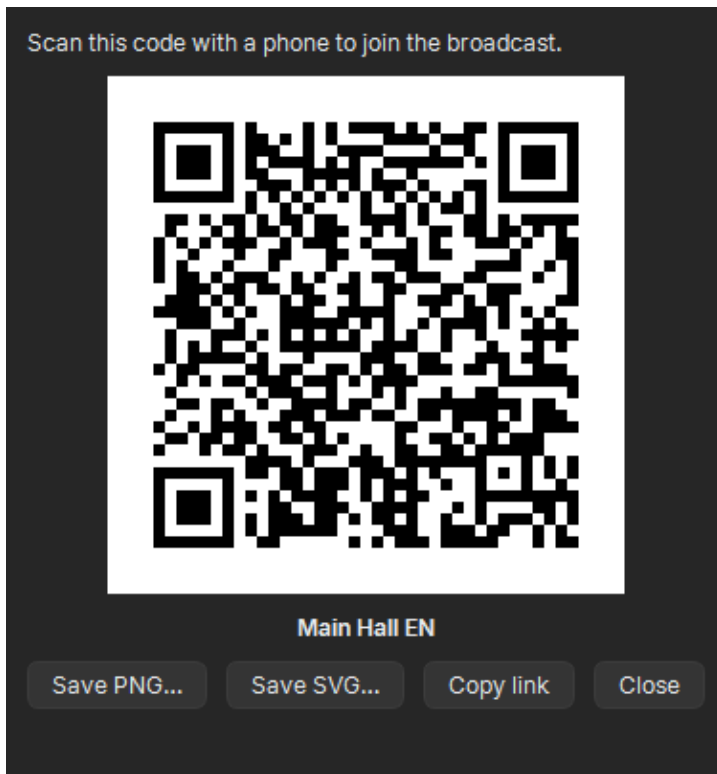


Figure 21. The Share dialog: the code, the broadcast's name under it, and the three ways to take it away.

The code carries a Bluetooth *Broadcast Audio URI*: the broadcast's name and identifier, its quality, each stream's language on a dual-mono broadcast, and the passphrase of an encrypted broadcast.

Check: a phone scanning the code joins the broadcast while it is on the air. The code can be shown or printed while the broadcast is stopped; it is joined from once **Start** is pressed.

Note: An encrypted broadcast's code contains its passphrase. Anyone who sees or photographs the code can read it. Put such a code only where the people who may listen can see it.

The code is of the broadcast the board holds, not of edits that have not been sent with **Start**, and it works for as long as the broadcast's name, identifier and passphrase stay the same: after any of the three is changed, print it again. **Share...** is greyed, with the reason in its tooltip, while an operation is running on the board, while the board is restarting or unplugged, while the board's settings are being read or could not be read, while the board has no broadcast, and when the broadcast name is shorter than four characters. It needs firmware 1.2.0 or newer.

4.8. Update a Board's Firmware

Goal: write new firmware to a connected board over its USB cable. **Equipment:** the board, and the two firmware image files from

Cloud2GND for it — the **application core** file, whose name ends in `-app-core.bin`, and the **network core** file, whose name ends in `-net-core.bin`. The application never downloads firmware; you choose the files.

1. Select the board. The **Firmware version** row of its device box names the firmware the board is running. Press **Update...** beside it.
2. Choose the two files, one at a time: the application core first (1 of 2), then the network core (2 of 2). The file browser is filtered to each core's usual file name; switch the filter to see every file. A file that is missing, empty or larger than 16 MB is refused, and nothing is sent to the board.
3. Read the confirmation. It names the board and both files against the core each will be written to. Check that the files are not swapped; their names differ by one word.
4. Confirm. The board's broadcast stops and the board restarts. The progress is shown in brief beside **Update...** in the device box, in full in the status bar, and the board's list entry reads *Updating....* **Do not touch the USB cable while the update is running.**
5. When the status bar reads *now unplug the USB cable and plug it back in*, do so. The board starts its new firmware only after this power cycle. There is no time limit.

Check: the board returns to its place in the list, and the status bar reports the firmware version the board now states beside the one it ran before. The update is complete when the new version is shown. If the board reports the same version as before, the status bar says so.

Afterwards: an update may return the board's saved source and sink settings to their defaults. Check the broadcast name, passphrase, quality and sink side afterwards. A sink saved as started may come back stopped: start it again and save. The board's Bluetooth address and USB identity are kept.

Note: If the update fails, the status bar reports what happened, the state the board is in, and how to recover. Follow those instructions rather than power-cycling the board. If writing a file makes no progress for one minute, the status bar reports *stopped making progress* and gives the recovery: unplug the board and plug it back in with its button held (Recover a Board in DFU Mode). The technical detail of the failure is kept in the session record (Send a Session Record to Cloud2GND), and a report that a newer message has replaced is still in **History**.

Several boards can be updated in one sitting: start the next board's update from its own page while an earlier one is running. Each board's device box shows its own progress and result beside **Update...**, and the boards can be replugged in any order.

Do not close the application while an update is running (**Closing the Application**).

4.9. Recover a Board in DFU Mode

Goal: finish an interrupted update, or update a board that will not start normally. **Equipment:** the board and its two firmware files.

1. Put the board into its update mode ("DFU mode") by hand: unplug it, hold its button down, and plug the cable back in while holding the button. The board's entry and its connection light then read *DFU mode*, and its other controls are unavailable.
2. Press **Update...** beside the firmware version on that board's page, choose the two files, and the update runs as in **Update a Board's Firmware**: progress and the result appear in the status bar under that board's name.
3. If the board in DFU mode does not appear in the list, use **Options, Update a board in DFU mode...** and choose the board's serial port yourself.

Note: If the board leaves DFU mode while the file or confirmation dialogs are open — it was unplugged, or plugged back in without the button held — the update is refused with *nothing was sent* and the board is left as it is. Put the board back into DFU mode and start again.

4.10. Change the USB ID

Goal: give a product built on the AW100 its maker's own USB vendor and product identifiers, in place of the factory 1915:530A.

Equipment: the board. Requires firmware 1.1.0 or newer.

1. Turn **Advanced settings** on and press **Change...**, beside the USB ID in the device box.
2. Type the vendor ID and the product ID: one to four hexadecimal digits each, without a 0x prefix. **OK** stays unavailable, with the reason under the fields, until both are valid.
3. Read the confirmation and answer it. Nothing is sent before you do.
4. Press **Restart...** when you want the board to start using the new pair.

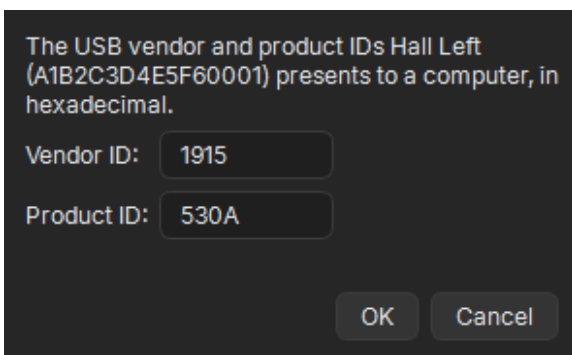


Figure 22. The USB ID dialog, seeded with the pair the board holds.

To undo: Factory defaults... puts 1915:530A back. To cancel a change before the restart, press **Change...** again and enter the pair the board had before the change.

Note: Whether the computer's operating system gives a USB ID other than 1915:530A a serial port has not been tested by Cloud2GND, and other software that looks for the board's previous USB ID no longer finds it. Keep a note of the pair you set.

4.11. Send a Session Record to Cloud2GND

Goal: give Cloud2GND what it needs to answer a question about the application or a board.

Every run of the application writes a record of that run to a file on your computer: what it did, what each board answered, and the detail of anything that went wrong. Nothing is sent anywhere by the application, and a broadcast passphrase is never written to the record.

1. Open the record folder:

- **Windows:** %APPDATA%\C2G\Aurawave\logs. Paste the path into the address bar of a File Explorer window and press Enter.
- **macOS:** ~/Library/Application Support/C2G/Aurawave/logs. In Finder, choose **Go, Go to Folder...**, paste the path and press Return.

2. Take the file of the run in question. Each run is one plain-text file named for its start time: session-20260415-091500.log is the run that began at 09:15 on 15 April 2026. The newest file is the current run. Only the most recent runs are kept.

3. When the question is about what a board did, also take **File, Save AT session...**, which writes the session's board traffic to a file of your choosing.

Send the files with a note of what you were doing. The session record is for a question about the application; the AT session export is for a question about a board.

5. Source Controls

The role box of a board whose **Role** selector reads **Source**.

A source is set up while it is stopped and put on the air with **Start**. While it is stopped, every field of the broadcast — its name, its preset and its settings — can be edited, and editing sends nothing to the board. **Start** checks every field, sends the whole setup to the board and starts the broadcast. While the broadcast is on the air, its fields are greyed and show what the board is running; press **Stop** to change them. **Start** is greyed while a field holds a value the board would refuse, and the line under the role box says which one: *Start is unavailable:*

The fields show the board's own values. When the board is read again — at **Refresh**, or when you click the board in the list — a value the board now holds differently replaces what is in the field.

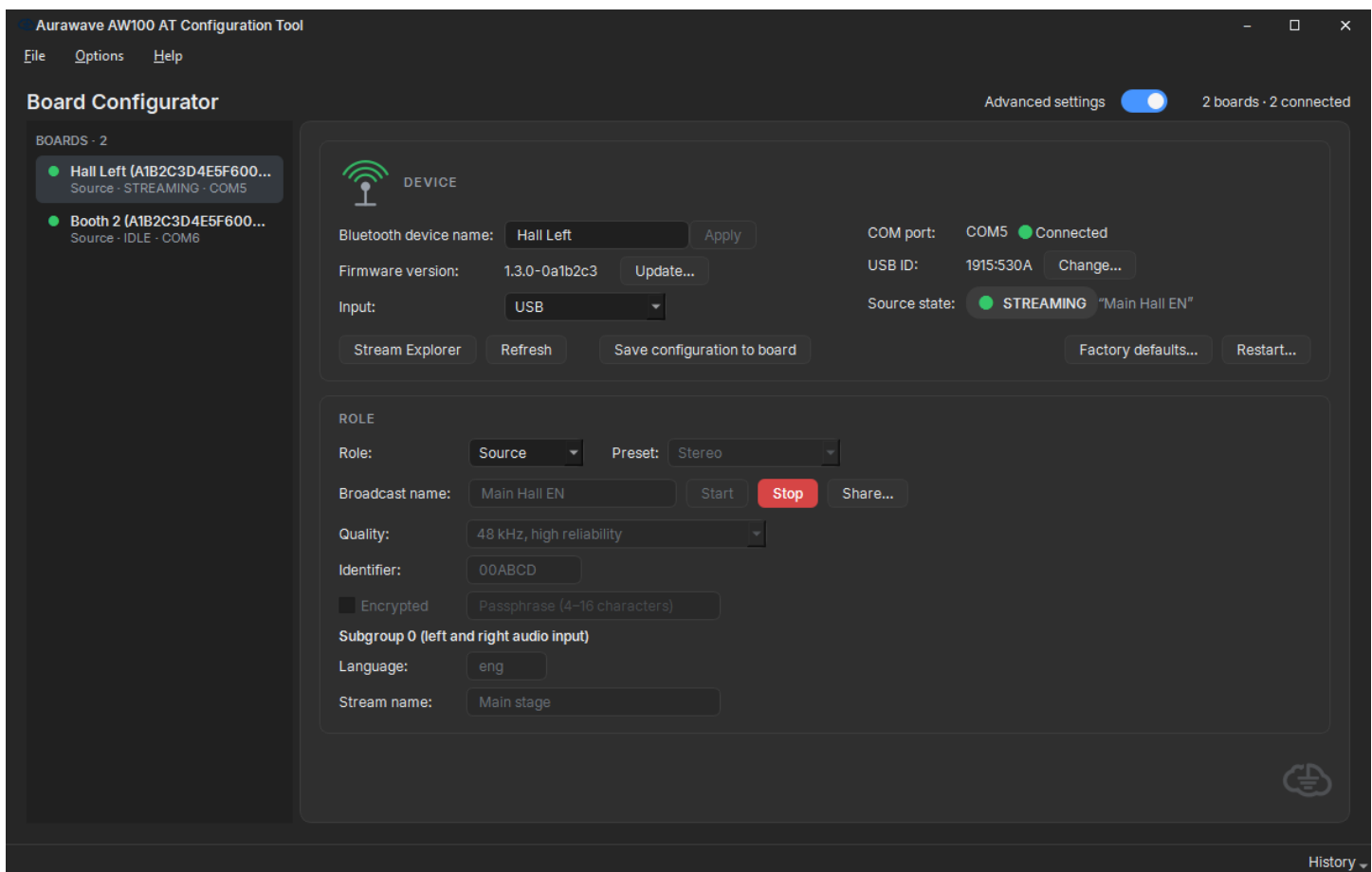


Figure 23. A source's page with **Advanced settings** on: every control of this chapter is on show.

5.1. Role

Control	Role
Where	The first line of the role box.
Does	Chooses what the board is: Source or Sink . A board is one or the other, never both.
To Sink	Stops a broadcast the board is sending, at once and without asking, and the board becomes a sink once it has stopped; nothing else is sent until you press Start . If the board refuses the stop it stays a source, and the status bar says so.
To Source	Gives the board a new, stopped broadcast with the factory configuration: set it up and press Start .
Requires	The sink role requires firmware 1.2.0 or newer.

5.2. Bluetooth Device Name

Control	Bluetooth device name, with Apply
Where	The device box, first line.
Does	Names this board, for telling boards apart. The name is stored on the board, so it is present when the board is plugged into any computer. The application shows a board's serial number beside its name whenever it asks you about one.
Values	Up to 31 characters, sent by Apply . An empty name is allowed; the board is then shown by its serial number. Boards leave the factory named Aurawave followed by the last four characters of their serial number — Aurawave-4F6D — on firmware 1.3.0, and plain Aurawave on older firmware.
On firmware 1.3.0	The device name is also the name the computer shows for the board over USB, after the next restart (on Windows, the name of its audio device in Device Manager; its COM port is listed as <i>USB Serial Device</i> whatever the name), and the name of a broadcast the board is asked to create without a name — the one a switch to Source creates. A device name shorter than 4 characters is kept, but the board then uses its factory name over USB and for a new broadcast; a device name of plain Aurawave becomes the factory name again at the next restart. The board does not advertise its device name as its own Bluetooth name, so a phone's list of Bluetooth devices does not show it.

Note: Windows can keep a name it saw earlier, so a renamed board can still show its old name in Device Manager. Uninstall the board's audio device there and plug the board in again to show the new name.

Changing the device name never changes the name of a broadcast that already exists; **Start** always sends the **Broadcast name** field.

5.3. Broadcast Name, Start, Stop and Share

Control	Broadcast name, with Start , Stop and Share...
---------	---

Where	The role box, under Role .
Does	The name receivers see and join, sent by Start with the rest of the setup. Start puts the broadcast on the air; Stop takes it off and unlocks the fields; Share... shows the broadcast as a QR code (Share a Broadcast as a QR Code).
Values	A name the board would refuse greys Start , and a name another connected board is already using is refused when you press it, before anything is sent. A sink on firmware older than 1.3.0 follows the name it was started on, so after a rename it goes silent until it is started on the new name; a sink on firmware 1.3.0 is started on the broadcast's identifier instead.
Greyed when	Start : while the broadcast is on the air, while a field holds a value the board would refuse, and until the board's settings have been read. Stop : while the board reports nothing running. The tooltip gives the reason.
No broadcast	A source that was never saved loses its broadcast when it is unplugged or restarted, and its state reads <i>No broadcast configured</i> . Start creates the broadcast with the settings on the page. Press Save configuration to board afterwards to keep it.

Note: A broadcast that is stopped, changed and started again can leave its sinks silent. If a sink stays silent afterwards, restart the sink board with **Restart...** in its device box.

5.4. Preset

Control	Preset
Where	Beside Role , while Advanced settings is on.
Does	Chooses the broadcast's shape: Stereo , or Dual mono , which carries the left and right audio inputs as two independent subgroups so that one board can carry two languages (A Two-Language Broadcast). Choosing a preset shows the fields for its subgroups and sends nothing; Start sends it.
Requires	Dual mono requires firmware 1.3.0 or newer; on older firmware the entry is greyed and says so.

5.5. Quality

Control	Quality
Where	The role box, always shown.
Does	Chooses the broadcast's codec setting, sent by Start .
Values	16, 24 or 48 kHz, each with low latency or high reliability. 16 and 24 kHz are the standard-quality settings every Auracast receiver plays, 24 kHz being what phones and hearing aids use; 48 kHz is high quality. The field shows what the board holds. The quality a new broadcast, or a board after Factory defaults... , starts on is the firmware's choice — 48 kHz low latency, or 48 kHz high reliability on the newest 1.3.0 firmware — so read the field after either, and after a firmware update.

Requires	The 24 kHz entries require firmware 1.3.0 or newer and are greyed on older firmware.
----------	--

5.6. Identifier

Control	Identifier
Where	The role box, while Advanced settings is on.
Does	The broadcast's identifier, sent by Start . Boards come with an identifier of their own; a value here overrides it.
Values	Six hexadecimal digits (0–9, A–F).
Save it	Sinks on firmware 1.3.0 are started on the identifier, so save a changed one with Save configuration to board : unsaved, it is lost when the source is powered off, and sinks started on it keep searching.
Requires	Firmware 1.2.0 or newer.

5.7. Encrypted and Passphrase

Control	Encrypted , with the passphrase field beside it
Where	The role box, while Advanced settings is on — and whenever a warning sign is raised beside the passphrase field.
Does	Ticked, the broadcast is encrypted with the passphrase beside it, sent by Start . Unticked, the broadcast is open.
Values	4 to 16 characters (exactly 16 on firmware 1.2.0). It cannot begin or end with a space; a space inside it is allowed. A passphrase already stored on the board is shown and kept unless changed.
Warning sign	If the board holds a stored passphrase of a length that a sink on its firmware cannot be given, a warning sign appears beside the field, with the reason in its tooltip.
Requires	Firmware 1.2.0 or newer for a 16-character passphrase, 1.3.0 for 4 to 16 characters.

5.8. Language and Stream Name

Control	Language and Stream name , one pair per subgroup
Where	The role box, while Advanced settings is on, under each subgroup's caption. The caption names the subgroup and the audio input it carries — <i>Subgroup 0 (left and right audio input)</i> for a stereo broadcast, <i>Subgroup 0 (left audio input)</i> and <i>Subgroup 1 (right audio input)</i> for dual mono.
Language	Three lowercase letters — eng, ara, fra — shown by receivers as the stream's label. Empty writes no language, and the board applies its default. Requires firmware 1.1.0 or newer.

Stream name	Up to 32 characters, listed by receivers beside the language — for example Stage 1 left. Empty clears the name. Requires firmware 1.3.0 or newer.
Sent when	By Start , with the name and the preset. The fields fill in from the board a few seconds after it connects.

5.9. Audio Input

Control	Input
Where	The device box.
Does	Selects where the audio comes from: USB is audio from this computer, I2S_MAIN is the 3.5 mm jack. The list is the board's own list of devices.
Sent when	Choosing an entry changes the board's input at once; it is not part of what Start sends.

6. Sink Controls

The role box of a board whose **Role** selector reads **Sink**.

A sink is set up while it is stopped and started with **Start**, like a source: the broadcast picked or typed in the broadcast field, its passphrase, and the **Side** and **Language** below, are sent by **Start** and locked while the sink runs. **Stop** unlocks them.

Figure 24. A sink's role box with **Advanced settings** on: the scanned broadcast, the explored streams with one chosen, and the side and language that choice filled in.

6.1. Scan and the Broadcast Field

Control	Scan, and the broadcast field beside it
Where	The role box, under Role .
Scan	Listens for broadcasts in range for a few seconds and fills the list of the broadcast field. If it hears nothing it listens once more before reporting that nothing was found, so an empty result takes about ten seconds. Two broadcasts with the same name are listed apart by their source identifier. Encrypted broadcasts are marked when the source is on firmware 1.3.0, or is one of your own boards. Scanning again replaces the list with what is in range now; your selection stays on the same broadcast while it is still listed, and a name you typed stays in the field.
A picked broadcast	Started on its identifier (firmware 1.3.0), so its name does not matter. On older firmware the name is sent too, and a broadcast whose name holds an accented or non-Latin character, or a double quote, is listed but cannot be started on: Start is unavailable with that reason.
A typed name	Matched by the board against the names on the air, and needs no scan: the source does not have to be in range, or switched on, when the sink is started. Any key typed in the field makes its content a typed name, a picked broadcast included. The name is 4 to 128 characters of plain ASCII without a double quote, and it is case-sensitive. It is not added to the list. Requires firmware 1.3.0 or newer; on older firmware the field is a list only.

6.2. Exact Name

Control	Exact name
Where	Beside the broadcast field.
Does	Applies to a typed name. Unticked, the name is the start of the broadcast's name: Aurawave joins the first broadcast found whose name starts with it, which is any board still on its factory name. Ticked, the sink joins only a broadcast whose whole name is the typed name.
Greyed when	A broadcast is picked from the list, which is started on its identifier.

6.3. Passphrase

Control	Passphrase
Where	Under the broadcast field, for a broadcast the list marks encrypted, and whenever the field holds no picked broadcast — a typed name, or nothing yet.
Values	4 to 16 characters (exactly 16 on firmware 1.2.0), not beginning or ending with a space. For a marked broadcast Start is unavailable until the field holds one. For a typed name, leave it empty unless the broadcast is encrypted.
Wrong passphrase	The board accepts a wrong passphrase without complaint, and the sink then plays nothing: silence is the sign, whatever state the sink reads (The State Chip).

6.4. Explore and the Stream List

Control	Explore, and the Stream list
Where	The Stream line below Scan , while Advanced settings is on.
Does	Explore reads the structure of the selected broadcast and fills the Stream list with its streams, each named with its language and side — <i>Stage right (fra, Right)</i> . Choosing a stream fills Side and Language to match; Start sends them.
Greyed when	While the broadcast field holds a typed name, and while the sink is started: press Stop first. A stream that its side and language would not single out is listed greyed as <i>not selectable</i> ; set the fields by hand for such a broadcast. A source whose report describes no streams leaves the list empty, and the list's tooltip says so.
Requires	Firmware 1.3.0 or newer.

6.5. Side and Language

Control	Side and Language
---------	-------------------

Where	The role box, while Advanced settings is on.
Does	A sink plays one stream on both outputs; these two choose which. Side: <i>Any</i> takes the first stream the broadcast offers and never leaves the sink without one; <i>Left</i> or <i>Right</i> takes that channel of a stereo broadcast, or that subgroup of a dual-mono broadcast. A mono broadcast — one stream with no side, such as a phone's voice broadcast — plays whatever Side is set to. Language: a three-letter code such as <i>fra</i> ; the board plays only a stream in that language. Leave it empty for a stereo broadcast.
Sent when	By Start , before it starts the sink; while the sink runs they are greyed and show what the board uses. The settings persist only with Save configuration to board .
No match	A side or language the broadcast does not carry is reported as <i>NOMATCH</i> , and so is a broadcast the sink cannot decode: it plays 16, 24 and 48 kHz broadcasts with 10 ms frames. For a single sink, <i>Any</i> with an empty language is the setting to use.
Requires	Firmware 1.3.0 or newer; older firmware plays the broadcast's first stream.

6.6. Start and Stop

Control	Start and Stop
Where	Beside the broadcast field.
Start	Sends the side and language, then starts the sink, after a confirmation: a board is a source or a sink, never both, so starting it ends the board's own broadcast. The Sink state chip reads <i>SEARCHING</i> until the board finds the broadcast, then <i>STREAMING</i> , or <i>NOMATCH</i> if nothing in the broadcast can be played. It keeps looking until you press Stop (firmware 1.3.0 and newer). Beside the chip is what the sink runs on: the broadcast's name, or, for a typed name, the name with <i>(start of the name)</i> or <i>(exact name)</i> while the sink searches, then the broadcast it found.
Stop	Stops the sink, including looking for a broadcast. It works for any board used as a sink, including one started from another computer. Greyed while the board reports that the sink is not started.
Lost source	A source that is stopped disappears from scans, and a sink started on it goes back to <i>SEARCHING</i> until it is started again.

A board that was already started as a sink when the application started opens as a sink. The board does not report what a sink is searching for, so such a board reads *SEARCHING* with no name beside it — a sink that resumed a saved search included, unless the application has been running since it made that save. Stop it and start it again to choose the broadcast, or switch it to **Source**.

6.7. Keeping a Sink Started Across a Power Cycle

The board keeps the broadcast it is started on only if **Save configuration to board** was pressed while it was started — while it reads *SEARCHING* included, which is how a sink is prepared for a source that is not yet on the air (**A Sink Prepared Before Its Source Is on the Air**). A saved sink starts again by itself when it is powered; an unsaved one comes back as a source. The page follows the board in both

directions: a board remembered as a sink that reconnects broadcasting is shown as the source it is, and a saved sink switched to source without **Save** and then restarted is shown as the sink it comes back as. When a saved sink reconnects, its **Sink state** chip shows what the board reports — SEARCHING, then STREAMING once it has found its broadcast. On firmware older than 1.3.0 the chip shows *Joined "name"* as saved, and the audio is the confirmation.

6.8. Audio Output

Control	Output
Where	The device box of a sink.
Does	Selects where the audio goes: USB plays to the computer, I2S_MAIN to the 3.5 mm jack. The list is the board's own list of devices.
Sent when	Choosing an entry changes the board's output at once; it is not part of what Start sends.

7. Board Actions

The buttons along the foot of the device box act on the whole board, whatever its role and whatever the **Advanced settings** switch says.

7.1. Save Configuration to Board

Control	Save configuration to board
Where	The device box's row of buttons.
Does	Writes the board's current configuration to its flash memory. Every change made from the controls takes effect when it is sent to the board and is lost at power-off until saved.
The mark	When something has changed since the last save, the button turns amber and the status bar reads <i>Unsaved changes</i> . The mark tracks changes made from this application; a change made from another program is not marked. Saving is always allowed.
While running	Saving while the broadcast is running also saves that it is running: the board then starts broadcasting by itself whenever it is powered. The button's tooltip says so when it applies. Saving while a sink is started saves it started (Keeping a Sink Started Across a Power Cycle).

7.2. Refresh

Control	Refresh
Where	The device box's row of buttons.
Does	Reads the board again: its name, its USB identity, its role, and the whole configuration of that role. Use it after changing a setting from another program or another computer, or whenever the page might be out of date.
Shows	The controls grey out for about a second while the board is read, the status bar reads <i>reading the board...</i> , and the values on the page are replaced as the answers arrive.
Greyed when	An operation is running, or the board is already being read.

7.3. Restart

Control	Restart...
Where	The device box's row of buttons, on the right.

Does	Restarts the board without changing anything stored on it, after a confirmation. Use it when a board has stopped behaving, or when a sink is silent after its broadcast was rebuilt.
Costs	The board reloads its saved configuration: unsaved changes are lost — press Save configuration to board first to keep them. A running broadcast stops, and its sinks lose the audio; it restarts by itself only if it was saved while running. A sink stops; a sink saved while started starts again by itself.
Shows	The board drops out of the list and comes back by itself. Do not unplug it. If the board has not dropped out within about ten seconds, the status bar reports that the board was not seen to restart, and the application reads the board again so that the page shows what the board holds now; press Restart... again if the board still needs restarting.

7.4. Factory Defaults

Control	Factory defaults...
Where	The device box's row of buttons, on the right.
Does	Discards every setting stored on the board — the broadcast name, the settings, the USB ID, and a sink saved as started — and restarts it, after a confirmation. The defaults are permanent: there is nothing to save afterwards.
Shows	The page empties while the board restarts and fills in again when it returns. The role is one of the defaults: the board comes back as a source, broadcasting the factory configuration, and its page shows it as one — a board used as a sink is a sink no longer. The same ten-second report as Restart applies if the board is not seen to restart.

7.5. Dismiss

Control	Dismiss
Where	The device box's row of buttons, while the board is unplugged.
Does	Removes the unplugged board's entry from the list, and empties its Stream Explorer list. The board is listed again if it is ever reconnected.

8. Troubleshooting

Symptom	What it means, and what to do
A control is greyed	Every unavailable control gives the reason in its tooltip. The usual reasons: the board is disconnected; it is being read (every control greys for about a second after it connects, when it is clicked in the list, after an operation that changes its configuration, and after Refresh , while the status bar reads <i>reading the board...</i>); the role is started (press Stop to change its settings); or another operation on that board is still running. One operation runs at a time per board; other boards are unaffected.
A field reads <i>Reading...</i>	The value has not been read yet. The board's state is polled continuously; everything else is read once when the board connects, is clicked in the list, or finishes an operation that changes its configuration, and again on Refresh . A board reading <i>No broadcast configured</i> is checked less often: if such a board is configured from another program, allow up to a minute for the state to catch up, then press Refresh for the rest of the page.
A field reads <i>last read failed</i> with a warning sign	The last good value is kept on screen and marked as possibly stale. Press Refresh to read it again. A source's state chip that is dimmed while its board is connected means the state reads are failing; the board's own answers are in the chip's tooltip.
<i>The window could not update</i> , with a warning sign, under the window's heading	The application itself has run into a problem. It keeps running, but what is on screen may be out of date while the line shows. If the line does not clear, close the application and open it again, and send Cloud2GND the session record (Send a Session Record to Cloud2GND) with a note of what you were doing.

8.1. The Board Reads Not Answering or Port in Use

Port in use: another program has the board's serial port open. Close it. *Not answering*: the board is plugged in but silent. Press **Restart...** in its device box if it is available; otherwise, unless a firmware update is running, unplug the board and plug it back in.

8.2. An Operation Failed

The status bar reports what happened and the state the board was left in, in the alert colour and after the board's name, and offers **Retry** beside the message where repeating the operation makes sense. **Retry** stays on offer while that failure is the newest message, and acts on the board the failure names, whichever board is selected. Once a newer message arrives, the failure can still be read in **History**; **Retry** is not offered there. An operation that got part-way leaves the board marked unsaved.

Retry on a failed **Start** is refused if another connected board has been given its broadcast name in the meantime. Nothing is sent. Giving the other board another name is itself a newer message, so either give this board a different name and press **Start**, or lift the conflict on the other board and then press **Start** on this board again. Check the broadcast name field first: if the failed **Start** left the board under another name, the field may now show that name — type the name again if so.

If the board dropped out during the operation and came back, the report says so and names the step reached. There is no Retry; read the page before relying on the board's state, and repeat the operation if needed.

8.3. A Sink Is Silent

Check	What to do
The sink's Output	A sink on USB plays to the computer, not to the 3.5 mm jack. Set Output in its device box.
The passphrase	A sink started with the wrong one plays nothing and its state does not say why: it can read STREAMING or STOPPED while the source is streaming. Stop the sink and start it again with the right one.
A sink stuck on SEARCHING while its source is streaming	It may have been started on an identifier the source no longer has: an identifier changed on the source and not saved is lost when the source is powered off, and the source goes back to its saved one. Stop the sink, scan, and start it again. A sink started on a typed name follows the name instead, whatever identifier the source has — check the name: it is case-sensitive, and with Exact name ticked it must be the broadcast's whole name.
Side and Language	NOMATCH means the broadcast carries nothing for them, or uses a codec setting the sink cannot decode (Side and Language).
A renamed broadcast	If the source's broadcast was renamed and the sink is on firmware older than 1.3.0, stop the sink and start it on the new name.
A rebuilt broadcast	If the source's broadcast was rebuilt under the same name, press Restart... on the sink, then press Start again if the sink was not saved.
A source on firmware 1.2.0	A source on firmware 1.2.0 that is not one of your own boards is listed as an open broadcast and cannot be started on with a passphrase from here; update that board.

Additional Information – Cloud2GND

Headquarters

Cloud2GND
4500 Bowling Blvd #100
Louisville, KY 40207

Website

<https://www.cloud2gnd.com/>

Technical Support

<https://cloud2gnd.com/contact/>

Appendix A: Feature Availability by Firmware Version

The application shows every control; a control the board's firmware does not support is greyed with the reason in its tooltip. The versions are the firmware releases, as their release notes name them: 1.0.0, 1.1.0, 1.2.0 and 1.3.0.

Feature	Firmware required (that release or newer)
Broadcast name, quality, Bluetooth device name, audio input and output, save configuration, restart, factory defaults, firmware update	all versions
Stream language	1.1.0
USB ID shown on the page, and Change...	1.1.0
Broadcast identifier	1.2.0
Share the broadcast as a QR code	1.2.0
The sink role, and Scan and Explore in the Stream Explorer window	1.2.0
Preset shown as the board reports it	1.2.0
Encryption with a passphrase of exactly 16 characters	1.2.0
Encryption with a passphrase of 4 to 16 characters	1.3.0
Sink state reported by the board (STREAMING and the other sink states)	1.3.0
Encrypted broadcasts marked in the Scan list (the source's firmware)	1.3.0
A board already started as a sink opens as a sink	1.3.0
Dual mono	1.3.0
24 kHz quality	1.3.0
A sink started on the broadcast's identifier, whatever its name	1.3.0
A sink started on a typed name, as the start of the name or the exact name	1.3.0
Stream name	1.3.0
Sink side and language, and the Stream list	1.3.0
Subgroup names in Explore	1.3.0