NeuralOutboard

VERSION 3.3 · USER MANUAL

Analog color & saturation, powered by Neural Amp Modeler captures of real hardware.

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1 Overview

NeuralOutboard is an analog-coloring and saturation processor for mixing and mastering. Instead of modeling one fixed circuit, it loads NAM captures: neural models of real outboard hardware (preamps, compressors, tape machines, EQs, console channels) trained with Neural Amp Modeler. Drop a capture in, drive it to taste, and you get that unit's harmonic character, compression and EQ on whatever you run through it, whether that is a full mix, a drum bus, or a single track.

Read the panel top to bottom and the signal flow follows. Trim the input and pick the routing, drive the loaded model or models, oversample to keep the saturation clean, rebalance mid and side, blend dry and wet, and set the final output, with DC-blocking and full input and output metering along the way.

Input trim › Routing › Drive › Model › Oversample › Mid/Side › Dry/Wet › Output

The NeuralOutboard interface, with an A2+ capture in both slots and the gain reduction meter open.

2 Installation & Activation

2.1 Installing on macOS

Open the downloaded disk image and run the installer. It installs every plug-in format system-wide, plus the free factory packs and the manual and license documents:

Item	Location
Audio Unit	/Library/Audio/Plug-Ins/Components/NeuralOutboard.component
VST3	/Library/Audio/Plug-Ins/VST3/NeuralOutboard.vst3
AAX	/Library/Application Support/Avid/Audio/Plug-Ins/NeuralOutboard.aaxplugin
Free factory packs	/Library/Application Support/dbdsp audio/NeuralOutboard/Factory/
Documents	/Library/Application Support/dbdsp audio/NeuralOutboard/

The installer includes the free factory library. On the **Installation Type** step, **Free Factory Packs** lists every pack, all ticked; untick any you do not want. Factory packs you already have are updated to their latest versions.

NeuralOutboard is a universal binary and runs natively on Apple Silicon and Intel Macs.

2.2 Installing on Windows

Run the downloaded installer. It installs both plug-in formats, plus the free factory packs and the manual and license documents:

Item	Location
VST3	C:\Program Files\Common Files\VST3\NeuralOutboard.vst3
AAX	C:\Program Files\Common Files\Avid\Audio\Plug-Ins\NeuralOutboard.aaxplugin
Free factory packs	C:\ProgramData\dbdsp audio\NeuralOutboard\Factory\
Documents	C:\Program Files\dbdsp audio\NeuralOutboard\

The installer includes the free factory library. On the **Select Components** page, **Free Factory Packs** lists every pack, all ticked; untick any you do not want. Factory packs you already have are updated to their latest versions.

The manual, license agreement and third-party notices also appear in the Start Menu under dbdsp audio. Windows 10 or later, 64-bit.

After installing, restart your DAW (or rescan plug-ins) so it picks up the new plug-in.

2.3 Trial and activation

Open the preset menu (click the preset field) and choose **License...** to open the license panel. From there:

- **Start a free 14-day trial.** One press, no key needed. The trial is the complete, unrestricted plug-in, one computer per trial. When it lapses, the plug-in locks until a license key is entered.
- **Activate.** Paste the license key from your purchase receipt and press Activate. A purchased license covers up to three computers at a time.
- **Manage Licenses.** Once activated, the panel's left button becomes Manage Licenses and opens your customer portal, where you can view orders, download the latest version, and deactivate machines.
- **Moving to a new machine.** Deactivate an old computer through Manage Licenses to free an activation, then activate on the new one.
- **Reset this machine.** A local escape hatch (tap twice to confirm) that clears this computer's activation state, for example after a machine was deactivated remotely. It does not consume or release seats by itself.

Internet. Activation and periodic license re-verification need an internet connection. When you activate, NeuralOutboard also receives a signed license from the dbdsp audio license server and renews it in the background every few months. If the plug-in cannot reach the license server, check your connection and firewall settings. Once activated, the plug-in tolerates being offline for a reasonable grace period and keeps working. Section 9 says exactly what the plug-in does and does not send.

3 Quick Start

Five steps to a colored, level-matched sound:

- Load a capture into Slot A (and Slot B for stereo or mid-side work), or pick a preset from an installed pack. NAM **.nam** captures and GuitarML **.json** captures both work.
- Press **Auto Input** to land in the ballpark, then ride Input and Drive to taste for the source.
- Press **Auto Gain** so your A/B is loudness-matched, then toggle **Bypass** to judge tone honestly.
- Use **Delta** to hear exactly what the plug-in is adding or removing.
- Want more grit? Reach for a more colorful capture. The knobs can only deliver what the model was captured with.

New in 3.3: GPU acceleration now covers A1 captures as well as A2. Two buttons in the header run the neural model on your graphics card instead of the CPU: **GPU** for mixing, which adds one buffer of latency and buys the most headroom, and **GPU +0ms** for tracking, which adds no latency at all. See section 4.10.

Also new in 3.3: GuitarML captures. NeuralOutboard now loads the open **.json** models used by Proteus and the GuitarML tone library, alongside NAM captures. See section 6.4.

NAM Sets. A single preset can hold a whole series of captures that you sweep between with one Morph knob, for example a drive rig captured at several input levels, morphed smoothly from clean to slammed. Load one from a pack's Factory NAM Sets menu, or build your own. See section 5.

4 The Interface

4.1 Top bar

Presets · Info · ‹ › · Save · Save As

The preset field shows the current patch; click it to open the full preset menu (section 6). The ‹ › arrows step through presets. **Save** updates the current preset. **Save As** stores the full plug-in state (knobs, routing, oversampling and loaded captures) as a new preset. **Info** opens the about panel. A preset references its captures by file, so keep your capture files in place.

The SAVE button flashes whenever the loaded preset has unsaved edits. Audition controls, Bypass and Delta, deliberately do not count as edits, and neither do the GPU buttons; everything else does, including a committed Auto Input or Auto Gain result. The pulse can be switched off in the preset menu under **Options** (section 6.1).

Bypass

True bypass: it passes the untouched dry signal for comparison. The plug-in reports its latency to the host, so bypass stays time-aligned, and the switch itself is a short crossfade of about 5 ms, so toggling is click-free even on loud program material. Bypass always has the last word: engaging it while Delta is active gives you the clean dry signal.

4.2 Session helpers

Auto Input · one-press · target –21.1 dBFS RMS

One-press input calibration. It measures the broadband RMS of your incoming signal over the analysis window and sets the Input trim so the signal sits at the reference level NAM models are characterized at (–21.1 dBFS RMS). While it measures, the trims preview live; the result commits when the window completes. Press the button a second time to lock the measurement early. Treat it as a “get me in the ballpark” starting point, not a fixed truth.

Window knob · 3–30 s

The small knob beside the button sets the analysis window. A longer window averages more material for a steadier reading on dynamic sources.

Delta

Outputs only the difference between the processed and dry signals, precisely what the plug-in is adding or removing: harmonics, EQ shift, compression artifacts. The fastest way to hear what your coloration is actually doing.

HQ · full model vs. light model

Red (on, default): the capture runs at its full network size, for best quality. Off: the model runs slimmed, trading a little fidelity for a lighter CPU load, useful when tracking with many instances. Toggling produces a deliberate, brief dip of about 8 ms while the engine switches network size. That is the click-free handover, not a glitch. HQ is the plug-in face of the automatable Slim parameter; the engine

treats it as a two-state switch, so automation flips cleanly at the halfway point.

HQ acts only on captures that carry a light model. When none of the loaded captures does, as with A2+ captures, the button is grayed out and has no effect.

Auto Gain · K-weighted (LUFS) match
One-press output level-matching. It compares the K-weighted loudness (ITU-R BS.1770 / LUFS) of the input versus the processed output and sets Output so the two match in perceived loudness, for an honest, level-matched A/B: toggle Bypass and you compare tone, not volume.

4.3 Gain and saturation

These are the controls you will live on. On captured gear, input level is the instrument, exactly as on the real hardware.

Input L / Input R · primary drive · link
Trim the level going into the model, per channel. Because a NAM model is nonlinear, input level sets how hard you drive the captured gear, and therefore how much saturation and compression you get, within the range the gear was captured at. The chain icon links L and R so they move as one, the normal choice for stereo material; unlink to balance channels independently.

M-S Pre · Stereo and Mid-Side modes
A mid/side balance applied before the model: tilt the drive between the mid (center) and side (stereo-difference) components, for example to push the sides harder than the center.

Drive · global · "–" = unity
The red macro, a global push into the model or models on top of the Input trims. Up hits the gear harder for more saturation and compression; down stays clean. Remember the ceiling: a capture can only deliver the saturation baked into it.

2× Drive · small red tab, top-left of Drive
Off (default) keeps Drive's range at ±24 dB. On, it doubles the effective drive range to ±48 dB, for captures that want to be pushed much harder, or backed off much further, than the standard range allows. Reach for it only when the normal range runs out of room; most sources never need it.

Morph · NAM Sets only · small knob below Drive
The small knob just below and right of Drive sweeps through the members of a loaded NAM Set, for example a rig captured at several drive levels, morphed continuously from the cleanest member to the most saturated. It has no effect until a set is loaded. Below the knob sits a small round set-offload toggle: red means the whole set is resident and the Morph knob is live; gray collapses the set to just the single model at the current Morph position, freeing CPU and memory. Full detail in section 5.

M-S Post · Stereo and Mid-Side modes
Mid/side balance applied after the model: rebalance center versus sides in the processed signal. Pairs with M-S Pre for full mid-side control of the color. The chain icon between the M-S Pre and M-S Post

knobs links them as mirror images, so moving one makes the other track inversely, for quick symmetric mid/side tilts.

D/W Mix · 0–100% · parallel blend

The dry/wet blend, set after the model and the mid/side post stage. Pull it back from 100% to mix the clean signal in underneath for parallel saturation, keeping dry transients and clarity while the wet path adds harmonic density and glue. The blend works with every anti-alias filter at every oversampling factor.

Output · makeup gain

Final makeup gain at the end of the chain. Match the processed level back to your dry level, or let Auto Gain set it. Saturation usually adds level, so this typically trims down.

4.4 Hardware view

The panel between the knobs and the capture slots shows a photo of the hardware behind each loaded capture: Slot A on the left, Slot B on the right. The small chevron at the far left of the knob row collapses or reveals the view (the window resizes with it), and the choice is remembered.

- Expansion packs carry their images built in, so pack presets show their hardware automatically.
- Your own captures show a photo when an image sits beside the capture file. The name can match the capture exactly, or cover a whole family of captures, or a whole folder. See section 6.2.

Gain reduction meter

When a compressor capture loads, the hardware view opens by itself and shows a gain reduction meter in place of the photos: the VU meter above Slot A, its controls above Slot B.

- **IN / GR / OUT** choose what the needles show: the level going in, the gain reduction, or the level coming out, before the Output knob. GR is the default.
- **0 VU =** sets the level that reads 0 on the meter, from -30 to -6 dBFS (default -18).
- The blue needle and bar read the left channel, the red ones the right. In Mid-Side they read Mid and Side, and in Mono the blue alone. The fast bars show the attacks the needles smooth over.
- **STEREO LINK** gives both channels the deeper of the two reductions, the way a linked hardware unit holds a stereo image. It is on by default in Stereo and Mid-Side, and saved with the preset. Linked, one black needle reads both.

The meter appears for captures that carry a gain reduction measurement, which includes every A2+ capture. Other captures show their photos as before.

Bias, Depth and SC HPF (A2+ captures)

- **Bias** (-12 to +12 dB, default 0) moves where the compression starts. The output level is matched as it moves, so it changes the character, not the loudness.
- **Depth** (0.5x to 2x, default 1x) makes the compression deeper or lighter while keeping the shape of its curve.

- **SC HPF** (off to 250 Hz) keeps low frequencies from driving the slower part of the compression, so bass pumps less. Its effect depends on the unit: strongest on the G-Bus, subtle on the 1176LN.

At their defaults the capture plays exactly as it was captured. Captures the knobs cannot steer, including standard NAM captures, show them grayed out.

SC HPF buttons 1, 2 and 3 (A2+ captures)
Three small buttons above the SC HPF knob choose how the knob works. With none lit, the default, it works as described above. Click a button to light it and click it again to turn it off. A lit button acts once the SC HPF knob is above 0 Hz, so you can choose a position first and then raise the knob into it.

- **No button lit**: the SC HPF filters only what the capture's detector hears. The whole signal goes through the capture.
- **1, dry lows**: below the SC HPF frequency the audio goes around the capture, dry, at the capture's quiet level. The lows are not compressed and take none of the unit's color.
- **2, dry lows that follow the compression**: as 1, and the lows follow the gain reduction the capture applies to the highs, like a classic sidechain filter.
- **3, full band, compressed by the highs**: the whole signal goes through the capture with all of its color, compressed only as much as the highs alone would cause. It uses about twice the CPU of the other positions, which matters most at high oversampling factors.

Every change between positions fades over 20 ms, so you can switch while the track plays. With 1 or 2 lit, the D/W Mix knob's dry signal is phase matched to the split, so the low end stays full at any blend. The buttons gray out with the knobs. In your host's automation list they are one parameter, GR S/C Mode. Section 4.13 draws the signal path of each position.

4.5 Capture slots

Two independent capture slots. Click a slot to browse and load a capture, either a NAM **.nam** file or a GuitarML **.json** file (section 6.4). The small square button beside it clears the slot.

Each loaded slot shows an architecture chip (the model's network type, for example A2, A1 or LSTM) and, when the capture carries loudness metadata, its output level, a reliable readout of how hot the capture runs and handy for judging makeup gain. **The chip is gold when the capture can be run on the graphics card and gray when it cannot**; hover it for the reason. See section 4.10.

When the slot holds a NAM Set, the field also names the member the Morph knob is currently on. See section 5.1.

Slot labels follow the processing mode: Slot A reads Mono / Left / Mid and Slot B reads Right / Side. In Stereo, A processes Left and B Right; in Mid-Side, A processes Mid and B Side, so you can run different gear on center versus stereo content. Load the same capture in both for uniform processing.

Model swap · AA / AB / BA / BB · under the Slot B field

A four-way selector beneath the Slot B field decides which loaded model feeds which processing channel, without you having to reload anything. AB (default) is the natural mapping. BA swaps them; AA runs model A on both channels; BB runs model B on both. Handy for auditioning your two captures against each other on the same content.

4.6 Channel routing

Left / Right / Mid / Side · solo · monitoring

Solo a single component to audition it in isolation: solo Side to hear only what is happening to your stereo content, Mid to focus on the center. A monitoring aid; it does not change the printed output.

Mono · Stereo · Mid-Side

Mono: single-path processing. **Stereo**: dual-mono, model A on Left and model B on Right. **Mid-Side**: encodes to Mid and Side, processes each independently (A = Mid, B = Side), then decodes back, so you can saturate the center differently from the stereo ambience.

4.7 Oversampling

Saturation creates harmonics above the audio band; without oversampling they fold back as aliasing, which sounds harsh and inharmonic. Oversampling runs the nonlinear stage at a higher internal rate so those harmonics are filtered out cleanly before downsampling.

Real Time vs Offline · two independent settings

Real Time applies during playback and tracking, so you can balance quality against CPU. **Offline** applies during bounce and render, so you can print with a higher, more expensive factor without bogging down live playback. Each pane's status bar reads back the active factor and filter, plus the DC Block corner and its added latency for that engine.

Link · chain between the two panes

The chain icon between the Real Time and Offline panes links the two sections (on by default) so the oversampling factor, filter, and DC Block settings you dial for playback are mirrored to the render engine automatically. Set it once and print matches what you hear. Unlink whenever you want a heavier configuration for the final bounce than you run live.

Factor · Off / 2× / 4× / 8× / 16× / 32×

How many times the capture's internal rate is multiplied. Higher means less aliasing but more CPU. 2× to 4× is plenty for gentle color; 8× and up for heavy drive. If your machine has a capable graphics card, section 4.10 makes the higher factors far cheaper in real time.

What “Off” really means. At OS Off the model runs at its native rate, which for nearly all NAM captures is 48 kHz. If your session runs at the same rate, the signal passes straight through with no conversion and no filter in the path. If your session runs at a different rate (44.1, 88.2, 96 kHz and so on), the plug-in converts sample rate around the model, and your selected anti-alias filter governs that conversion, so the filter choice audibly matters even at “Off”.

Filter · IIR / Min FIR / Poly / Linear

The anti-alias filter used at the rate conversion. **IIR** (minimum-phase) and **Min FIR** are low-latency with minimal pre-ringing, good for tracking. **Poly** (polyphase FIR) and **Linear** (linear-phase) are phase-coherent and steeper, at the cost of latency and possible pre-ringing, better for mixing and mastering.

4.8 DC Block

A clean-up high-pass that removes DC offset and the subsonic build-up saturation can introduce. The strip below the oversampling section has two selectors, the left one for the Real Time engine and the right one for the Offline (bounce) engine, sharing one cutoff knob:

- **Off** bypasses the filter for that engine.
- **Min** (minimum-phase) is a gentle, low-latency high-pass that keeps transient timing intact, the everyday choice.
- **Linear** (linear-phase) is phase-coherent with no low-end smearing, at the cost of latency and possible pre-ringing, best for mastering or mid-side work.

The cutoff knob sets the corner frequency (2 to 200 Hz; you can also click a readout and type a value). Keep it low to strip only DC and subsonics; raise it to clear unwanted low end. Each oversampling pane's status bar shows the corner and that engine's added filter latency, for example 2 Hz · 0.0 ms.

4.9 Metering

Each bar overlays average and peak level; the two numbers read RMS first, then peak, for example –11.4 / –7.6. The gap between them is the crest factor, transient versus body, which lets you set input drive and output makeup without clipping. Click a meter to reset its held peak.

4.10 GPU acceleration

Two buttons in the header hand the neural model to your graphics card instead of the CPU. On a machine with a capable GPU this is dramatically cheaper, enough to change what is practical at high oversampling, where a single instance can saturate a CPU core.

New in 3.3: A1 captures run on the GPU too. Both of the WaveNet architectures NAM produces are now accelerated, so most of the capture libraries in circulation, including older captures, can be offloaded. A1 captures are also considerably lighter on the CPU in 3.3 than they were in 3.2, whether or not you use the graphics card.

GPU

The model runs on the graphics card and the plug-in reports one extra buffer of latency to your host. Delay compensation handles it, so nothing drifts out of time; you simply have one buffer more round-trip delay than the CPU path. This is the mode for mixing and mastering, where a buffer of latency costs you nothing and the extra headroom lets you stack instances or run heavy oversampling that would otherwise be out of reach.

GPU +0ms

The same processing with no added latency at all. The plug-in waits for the graphics card within the same processing block rather than returning the previous one. That costs capacity, so you get considerably fewer instances than the GPU button gives, but it adds nothing to your monitoring path. This is the mode for tracking and live monitoring, and it still runs comfortably more instances than the CPU can at the same zero latency.

The two are mutually exclusive: clicking one turns the other off, and clicking the lit one returns to CPU. The change takes effect immediately.

The setting follows the machine, not the preset. Whether a model runs on the GPU is a property of the computer you are working on, not of the sound. So changing presets, loading a factory pack or opening a NAM Set never changes it, and a preset you share never forces GPU mode on someone whose machine cannot support it. The plug-in remembers your last choice and opens new instances that way, while a saved project restores whatever that project was using.

If the graphics card stops responding

A driver reset, a device removed, some other fault: the plug-in switches every instance back to the CPU, tells you it has done so, and carries on. You lose the offload, not the audio.

Is it the same sound?

Yes. The GPU path is verified against the CPU path to the limit of 32-bit floating point, a difference far below anything audible, and far below the difference between two takes of the same performance.

When it will not help

Laptops with graphics built into the processor share memory bandwidth with the CPU, so offloading may gain little.

How to tell whether a capture can be offloaded at all

Each loaded slot shows an architecture chip: the model's network type, such as A2, A1 or LSTM. **The chip is gold when that capture can run on the graphics card and gray when it cannot.** Hover it for the reason. LSTM captures, including GuitarML models (section 6.4), are CPU only. Requirements are in section 9.

4.11 Bottom bar

The bottom line shows the running version and format, for example v3.3.4 (VST3). When a newer version of NeuralOutboard is available, a yellow tab appears below the wordmark; click it to open the download page. See section 7.

4.12 Resizing the window

The plug-in window is resizable. The grip is the small triangle in the bottom-right corner of the plug-in panel: gray at rest, red when you hover it, lighter red while you drag. Drag it to any size you like and the whole interface scales with it.

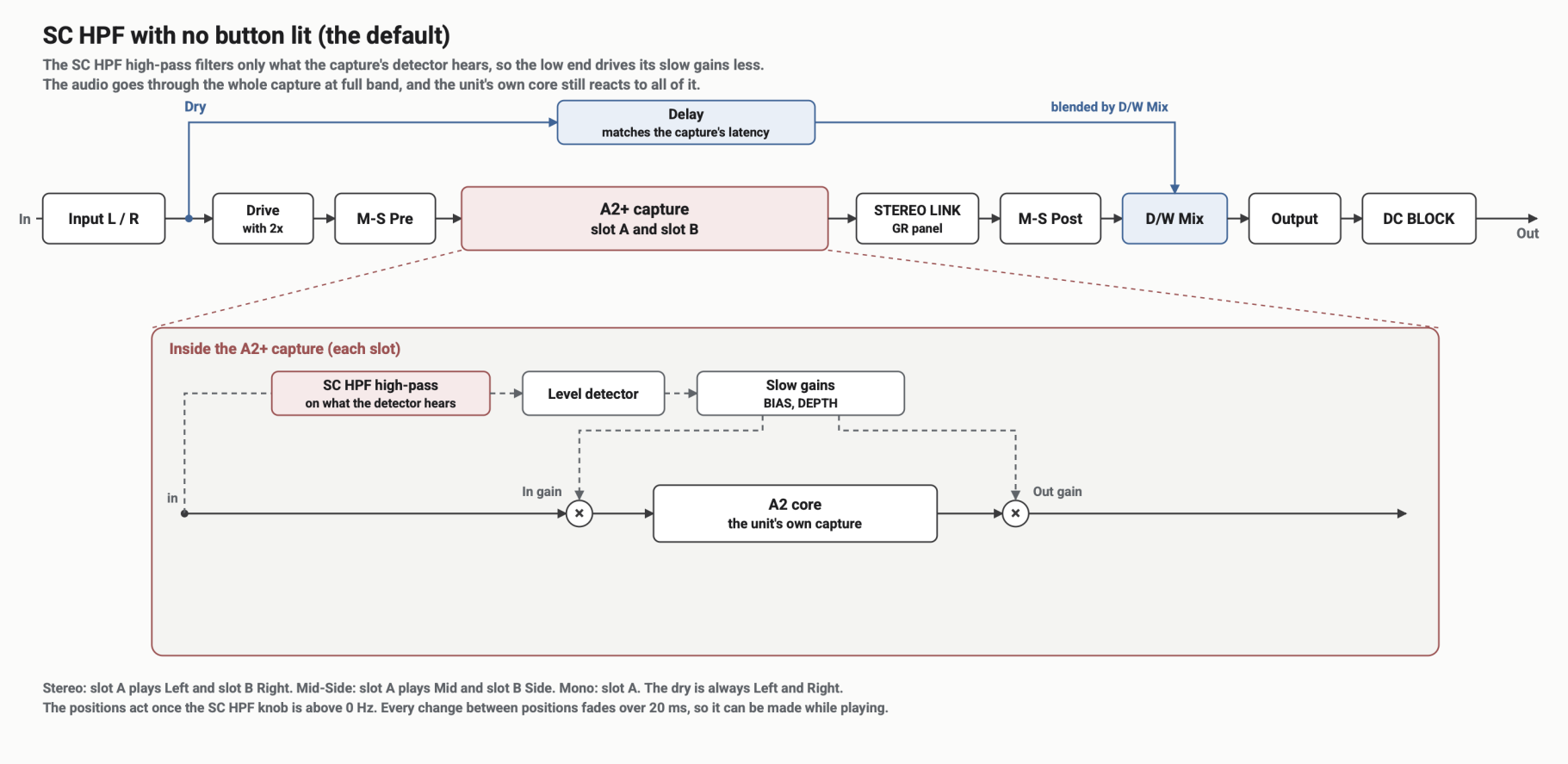
Double-click the grip to return to the size set in Options > Window size.

The window opens at the size set in **Options > Window size**. With **Remember window size** on, it opens at the size you last dragged it to instead.

> **In Logic Pro, look for the grip at the corner of the plug-in panel, not the corner of the window.** Logic adds its own footer strip below the plug-in, so the bottom-right corner of what you see on screen belongs to Logic. The grip sits a little above it.

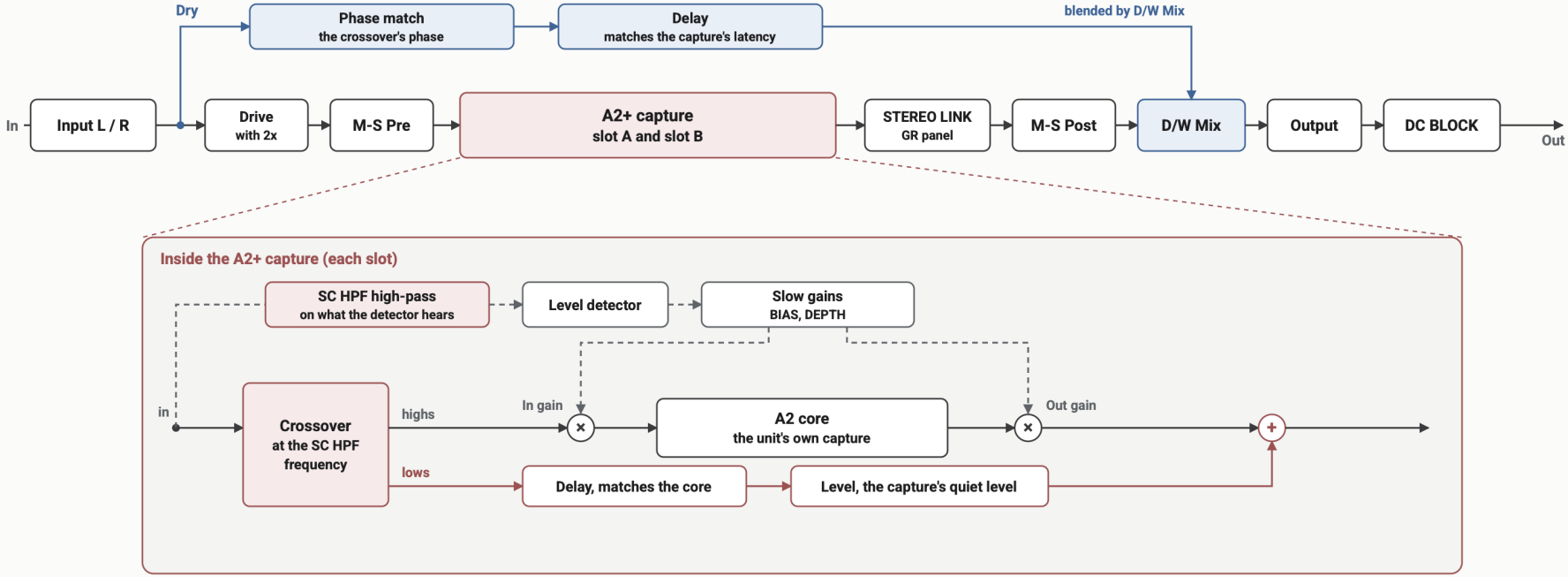
4.13 SC HPF signal paths

One page per SC HPF position. Across the top is NeuralOutboard's chain, with the D/W Mix knob's dry signal in blue; below it the A2+ capture is opened up. Inside the capture, dashed lines steer the gain and carry no audio you hear.



SC HPF button 1: dry lows

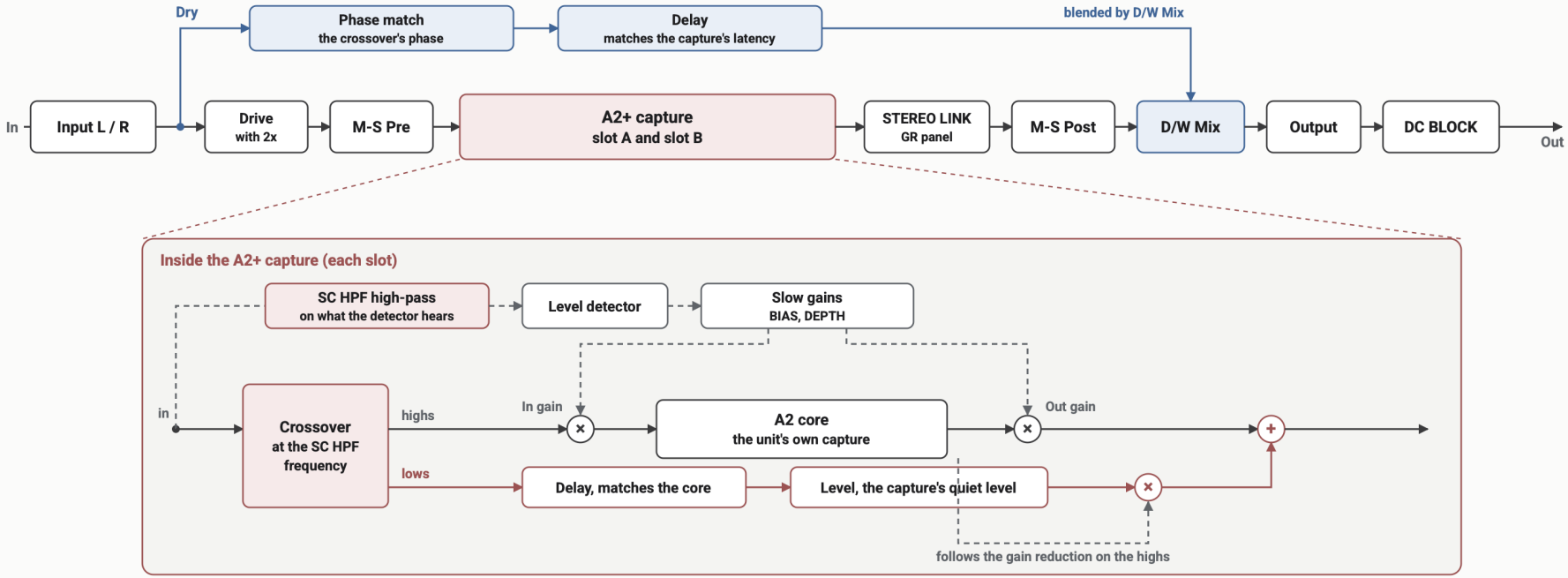
Below the SC HPF frequency the audio goes around the capture, dry, at the capture's quiet level.
The lows are not compressed and take none of the unit's color. The dry of the D/W Mix is phase matched.



Stereo: slot A plays Left and slot B Right. Mid-Side: slot A plays Mid and slot B Side. Mono: slot A. The dry is always Left and Right.
The positions act once the SC HPF knob is above 0 Hz. Every change between positions fades over 20 ms, so it can be made while playing.

SC HPF button 2: dry lows that follow the compression

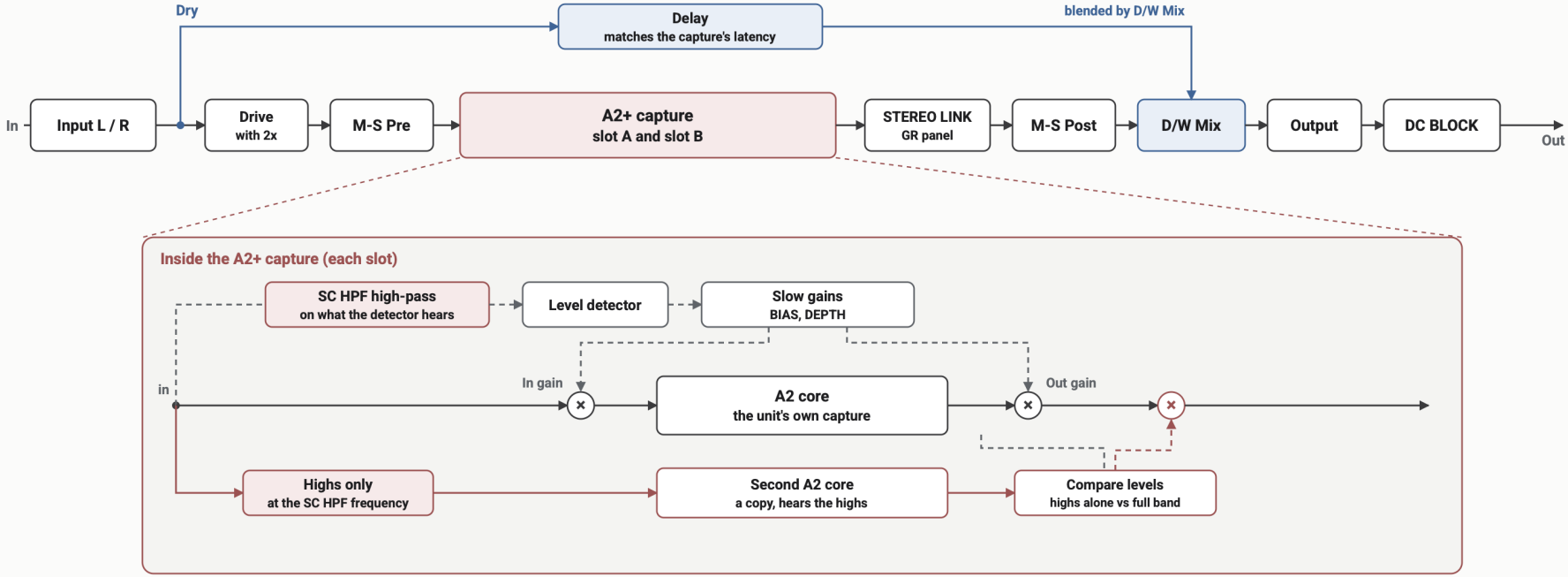
As button 1, and the lows follow the gain reduction the capture applies to the highs, like a classic sidechain filter.
The lows take none of the unit's color. The dry of the D/W Mix is phase matched.



Stereo: slot A plays Left and slot B Right. Mid-Side: slot A plays Mid and slot B Side. Mono: slot A. The dry is always Left and Right.
The positions act once the SC HPF knob is above 0 Hz. Every change between positions fades over 20 ms, so it can be made while playing.

SC HPF button 3: full band, compressed by the highs

The whole signal goes through the capture with all of its color. A second copy of the capture hears only the highs, and the result is compressed only as much as the highs alone would cause. It uses more CPU than the other positions.



Stereo: slot A plays Left and slot B Right. Mid-Side: slot A plays Mid and slot B Side. Mono: slot A. The dry is always Left and Right.
The positions act once the SC HPF knob is above 0 Hz. Every change between positions fades over 20 ms, so it can be made while playing.

5 NAM Sets

A NAM Set is a single preset that contains a series of related captures instead of just one, and one Morph knob to sweep between them. Think of a drive pedal captured at five input settings, or a compressor captured at several ratios: a set bundles those snapshots into one slot so you can move smoothly across the range with a single control, and automate it, rather than swapping presets.

5.1 Loading and morphing a set

Sets load like any other content. A factory pack's sets live in the **Factory NAM Sets** menu; your own live in **User NAM Sets** (section 6). Load one and the slot behaves as a single capture, with two additions:

- The **Morph** knob (below Drive) sweeps continuously through the set's members. At the far left you are on the first member; at the far right, the last; in between, the plug-in blends across them so the transition is smooth rather than stepped.
- The **set-offload toggle** (the small round button under the Morph knob) controls how much of the set is held in memory. Red means the full set is resident and Morph is live. Gray means the set collapses to just the single model at the current Morph position, releasing the CPU and memory the rest of the set was using.

The slot field names the member you are on
As you turn Morph, the capture slot reads out which member of the set is playing, so the sweep is never guesswork.

A set you built yourself names the member, because its members are your own files: **02 UREI 1176 comp · SET (3) MyRig** means member “02 UREI 1176 comp”, in a three-member set called MyRig. The member name comes first because the field clips at the right, and the member is the part that moves.

A factory set gives the position instead: **3/8 · SET (8) Eisen** is the third of eight in the Eisen set. Factory sets carry their members as internal references rather than file names, so a position is the useful answer.

The name and the hardware photo are always read from the same point in the sweep, so they agree with each other. If a set has one photo for all its members, the field is what tells you where you are.

> **Morph is automatable.** Because the sweep is one continuous parameter, you can automate a move across the set from your DAW, riding from a clean capture into a driven one across a section, for instance. Keep the set expanded (toggle red) wherever the automation is moving.

5.2 Loading a set from a folder

The preset menu's **Load NAM Set...** item builds a set on the fly from a folder of captures. Point it at a folder whose captures are the members you want to morph between, and it loads them into the slot as a set. This is the quick way to audition a series of captures as a set without packaging anything.

5.3 Saving your own sets

When a set is loaded and you press **Save As**, NeuralOutboard stores it as a user set, a single **.no3set** file, and it appears under **User NAM Sets** in the menu, kept separate from your ordinary single-capture presets.

6 Presets, Your Own Content & Expansion Packs

6.1 The preset menu

Click the preset field to open the menu. From top to bottom:

Item	What it does
Default	The clean starting state.
A2+	Compressor captures in the A2+ format, in their own menu by category, for example A2+ › Compressors › FreePack 01.
Factory Packs	One submenu per installed pack of single-capture presets, organized by category. Locked packs show a lock glyph. See 6.3.
Factory NAM Sets	Installed packs whose presets are NAM Sets (section 5), kept in their own menu so sets and single presets do not mix.
User Presets	The single-capture presets you have saved with Save As.
User NAM Sets	The NAM Sets you have saved, your .no3set files.
Delete current	Removes the loaded user preset or set.
Reveal folder	Opens your preset folder in Finder or File Explorer.
Load NAM Set...	Builds a set from a folder of captures on the fly (5.2).
User Manual	Opens this manual.
Update available...	Appears only when a newer version exists.
Options	Preferences: Save Button Flash, Hold engine settings, Window size, Remember window size.
License...	Opens the license panel: trial, activation, Manage Licenses.

Where presets live. Your presets are stored at **~/Library/Application Support/NeuralOutboard/Presets/** on macOS, and **%LOCALAPPDATA%\NeuralOutboard\Presets** on Windows, which is C:\Users\<you>\AppData\Local\NeuralOutboard\Presets\. A preset references its captures by file path, so if you move or delete a capture, presets that use it cannot load it. Keep your capture library in a stable location.

Options

Near the bottom of the preset menu, just above **License...**, an **Options** submenu holds the plug-in's preferences. Each setting opens its own submenu with a check mark against the current choice.

Save Button Flash: On / Off. The SAVE button pulses when the loaded preset has unsaved edits. Set this to Off and it stops pulsing. Turning it off takes effect immediately, including on a pulse already running.

SAVE itself is unchanged either way. It still lights when there are unsaved edits and it still saves; only the pulsing stops. The setting follows the machine rather than the preset, so it stays put whatever you load.

Hold engine settings: On / Off. On, a new instance opens with the engine settings you last used on this computer: oversampling, the anti-alias filter, DC Block, the CPU or GPU engine, the Auto Input window and the meter speed. Off, a new instance opens at the plug-in's defaults. Either way, a saved project reopens with the settings it was saved with. Changing this setting leaves the open instance as it is; it applies to the next one you open.

Window size: 80% / 100% / 120%. The size the plug-in window opens at. Choosing one also resizes the open window, and double-clicking the resize grip returns to it. Until you choose a size, the window opens at 100%, or at 80% on a screen too small for 100%.

Remember window size: On / Off. On, the window opens at the size you last dragged it to. Off, it always opens at the Window size. Like Save Button Flash, both settings follow the machine rather than the preset.

6.2 Your own presets, with hardware photos

Any capture you load can show its hardware in the photo view. Place an image beside the capture file and NeuralOutboard finds it. Images can be **.png**, **.jpg** or **.jpeg**.

When a capture loaded from a file has no photo, a small dot appears in the top-left corner of its photo view. Hover it for a short reminder of how to add one.

There are three ways to name that image, and NeuralOutboard tries them in order. The first one that exists wins.

1. The same name as the capture

MyPreamp.nam and **MyPreamp.png** in the same folder. This is the most specific rule and it always wins, so a capture with its own photo always shows that photo.

2. A shorter name, cut at a word boundary

If there is no exact match, NeuralOutboard shortens the capture's name one word at a time and looks for each. **Marshall JCM800 Crunch.nam** looks for **Marshall JCM800.png**, then **Marshall.png**. Longer names are tried first, so the most specific photo available is the one you get.

This is what lets one photo serve a whole amp. Capture the same head at four settings, name them Marshall JCM800 Clean, Marshall JCM800 Crunch, Marshall JCM800 Lead and Marshall JCM800 Solo, and a single **Marshall JCM800.png** covers all four.

You can mix the two levels freely. Keep **Marshall JCM800.png** for the family and add **Marshall JCM800 Lead.png** for the one capture that deserves its own photo; the specific file wins for that capture and the general one still covers the rest.

> **A shorter name only matches at a word boundary.** A space, a hyphen or an underscore. **Marsh.png** will never serve Marshall JCM800 Crunch, because “Marsh” does not end at a boundary in that name. This is deliberate: without it, a short file name would start claiming captures it has nothing to do with.

3. One image for the whole folder

If neither of the above finds anything, NeuralOutboard looks for **set.png**, **cover.png** or **folder.png** in the same folder and uses that for every capture in it. The simplest option when a folder is all one piece of gear, and it needs no naming discipline at all.

That is the whole workflow for personal content: keep each capture beside its photo, load it into a slot, dial the sound, and Save As. The preset remembers the capture; the capture's photo follows it automatically, including when the preset is recalled in a saved session.

6.3 Expansion packs

Packs are collections of captures, with photos and categories built in. The free packs come with NeuralOutboard's installer (2.1, 2.2); other packs are installed by their own installer: a .pkg inside a disk image on macOS, an .exe on Windows. Installed packs appear in the preset menu automatically; no restart of the plug-in is needed beyond reopening its window. A pack of single captures lands under **Factory Packs**; a pack of sets under **Factory NAM Sets**; A2+ captures under **A2+** (6.1).

Unlocking a paid pack

A paid pack shows a lock glyph in the menu. Selecting one of its presets opens the unlock panel: paste the pack's key from your receipt and press **Unlock**. The preset you clicked loads the moment the key validates. Unlocking needs an internet connection. An unlocked pack stays unlocked, including across

reinstalls.

Pack trials and upgrades

Packs may offer time-limited trial keys. A trial unlocks the full pack until it lapses, after which the lock returns. Entering a purchased key at any time, including over an expired trial, unlocks the pack permanently.

Removing packs

The **dbdsp Preset Packs** uninstaller is installed with NeuralOutboard on macOS, in /Library/Application Support/dbdsp audio/NeuralOutboard/: run it, tick the packs to remove, and it takes care of the rest. Your unlocks are kept by default, so reinstalling a pack later does not ask for the key again.

6.4 GuitarML captures

NeuralOutboard also loads GuitarML models: the open **.json** captures used by Proteus and shared through the GuitarML tone library. Load one exactly as you would a NAM capture, by clicking a capture slot and browsing to it. Everything else in the plug-in works normally: drive, routing, mid-side, dry/wet, presets and NAM Sets all treat it as any other capture.

The architecture chip reads **LSTM** for these models.

Three things are worth knowing.

- **They run on the CPU.** LSTM is a different kind of network from the WaveNet captures NAM produces, and it has no GPU path. The GPU buttons have no effect on a slot holding one.
- **They are 44.1 kHz models.** They are at their most efficient in a session running at 44.1 kHz or a multiple of it. At other session rates the plug-in converts around the model, which costs noticeably more CPU.
- **Keep oversampling at 16× or below.** These models are heavier than a comparable NAM capture, and 32× is beyond what they can sustain in real time.

Parametric captures are not supported. Some GuitarML models take a second input for a knob position baked into the capture. NeuralOutboard has no control to drive it, so it declines those and tells you why rather than loading them and sounding wrong. Single-input captures, which are the large majority of the library, load normally.

7 Updates

NeuralOutboard tells you when a newer version exists, quietly. At most once per day it fetches a small version file from dbdspaudio.com; when the published version is newer than the one you are running, two indicators appear: a yellow tab below the wordmark at the bottom of the plug-in, and an “Update available” entry in the preset menu. Click either to open the download page. Nothing updates itself; you stay in control.

Installing an update

Download the new version and run its installer. It installs directly over the old one. Your license activation, pack unlocks, user presets, and installed packs are all untouched by updates, and the update notice clears itself once the new version is running. Some hosts revalidate plug-ins after an update; if the new version does not appear, rescan plug-ins or restart the DAW.

Privacy. The update check is a plain web request. Like any web request it discloses your IP address and a generic software identifier to the web server, and nothing else: no account, usage, audio, or personal data. Offline, the check fails silently and the plug-in simply carries on. Full details in the Privacy Policy at dbdspaudio.com.

8 Troubleshooting

Symptom	What to check
Plug-in does not appear in the DAW	Rescan plug-ins or restart the host. In Logic, run a plug-in rescan; in other hosts check the AU, VST3 and AAX lists. Windows has no Audio Unit; it is VST3 and AAX there.
“Demo Expired” panel	The 14-day trial has lapsed. Enter a purchased key to activate, or use Manage Licenses if you already own one.
Key will not activate, “no seats left”	All three activations are in use. Open Manage Licenses and deactivate a machine you no longer use, then try again.
“Can't reach the license server”	Activation and pack unlocks need internet. Check your connection and firewall settings; some studio machines block plug-in network access.
Pack shows locked again after its trial	That is the trial lapsing as designed. Enter the purchased key to unlock permanently.
Morph knob does nothing	Morph only acts on a loaded NAM Set. If a set is loaded, make sure the set-offload toggle is red (expanded); gray collapses the set and freezes the sweep.
A saved set landed in the wrong menu	Sets you save appear under User NAM Sets, single presets under User Presets. The plug-in sorts by what the slot holds when you Save As.
No hardware photo for my capture	Check the image is in the same folder as the capture, and that its name is either identical to the capture's or a shortened version of it cut at a space, hyphen or underscore. A set.png in the folder covers everything in it. See section 6.2.
Preset loads but a slot is empty	Presets reference captures by file path, so the capture was moved or deleted. Restore it, or re-load and re-save.

Symptom	What to check
Cannot find the resize grip	It is the small triangle at the bottom-right of the plug-in panel. In Logic, that is above Logic's own footer strip, not at the corner of the window. Double-click it to return to the size set in Options > Window size. See section 4.12.
GPU button lights but nothing sounds different	It should not sound different. GPU processing is verified identical to the CPU path. What changes is how much you can run.
GPU button will not stay on	Check the architecture chip on the loaded slot. Gray means that capture has no GPU path and runs on the CPU whatever the button says; hover the chip for the reason. Otherwise the plug-in switches back to the CPU when the graphics card cannot be used and tells you why. Integrated graphics may simply not be worth using.
A GuitarML .json will not load	Parametric captures, which carry a baked-in knob as a second input, are not supported, and the plug-in says so when you try. Single-input captures load normally. See section 6.4.
A GuitarML capture is heavy on the CPU	These are 44.1 kHz models and cost the least in a 44.1 kHz session. Keep oversampling at 16× or below; 32× is beyond real time for them. See section 6.4.
Extra latency after enabling GPU	Expected. The GPU button adds one buffer, compensated by your host. Use GPU +0ms if you need none.
Brief level dip when toggling HQ	Intentional. The engine ducks for about 8 ms to switch model size without a click.
Meters hold an old peak	Click the meter to reset its peak hold.

Anything else: **info@dbdspaudio.com**. Include your operating system and version, DAW and version, and what you were doing.

9 Specifications

Plug-in name	NeuralOutboard, analog color and saturation processor
Version	3.3.4
Manufacturer	dbdsp audio · dbdspaudio.com
Formats	macOS: Audio Unit (AU) · VST3 · AAX Windows: VST3 · AAX
Platform	macOS · universal binary (Apple Silicon and Intel) Windows 10 or later, 64-bit
Engine	Neural Amp Modeler inference core with oversampled nonlinear processing; selectable full/slim network size (HQ)
GPU acceleration	Optional, per instance, for NAM WaveNet captures (A1 and A2). Two modes: standard (one buffer of added latency, maximum capacity) and zero-latency. Automatic fallback to the CPU if the graphics card cannot be used. Verified against the CPU path to 32-bit float precision. Windows: requires a graphics card supporting Direct3D 12. macOS: requires Metal, which every supported Mac provides.
Capture format	.nam (Neural Amp Modeler) and .json (GuitarML SimpleRNN, single input); optional same-name, shortened-name or per-folder .png / .jpg / .jpeg hardware photo
NAM Sets	Multi-capture presets with a continuous Morph sweep and CPU-saving set-offload; user sets saved as .no3set
Reference level	–21.1 dBFS RMS (NAM model characterization level)
Processing modes	Mono · Stereo · Mid-Side · AA/AB/BA/BB model swap
Drive range	±24 dB, or ±48 dB with 2× Drive engaged
Oversampling	Independent (optionally linked) Real-Time and Offline engines · Off to 32× · IIR / Min FIR / Poly / Linear filters

DC Block	Independent Real-Time and Offline modes · Off / Min / Linear · 2 to 200 Hz shared cutoff
Latency	Measured per configuration and reported to the host. GPU mode adds exactly one buffer; GPU +0ms adds none.
Licensing	Free 14-day full-feature trial (one computer) · purchased license covers up to 3 computers · sold via Lemon Squeezy
Network use	License validation and re-verification · once-daily update check (no telemetry; see Privacy Policy)
Expansion content	Installable preset and NAM-Set packs with built-in hardware photos; per-pack unlock keys and optional trials

10 Credits & Legal

NeuralOutboard is built on **Neural Amp Modeler** by Steven Atkinson (model format and inference core). Oversampling follows the method developed by DLC86 (NAM-Oversampler).

GuitarML **.json** capture support reads the open model format published by the **GuitarML** project.

Third-party open-source components and their licenses are listed in the “Third-Party Software Notices and Licenses” file installed alongside the End User License Agreement that governs your use of the software, in /Library/Application Support/dbdsp audio/NeuralOutboard/ on macOS, and C:\Program Files\dbdsp audio\NeuralOutboard\ on Windows.

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