



# **fBox Rack**

*Plugin Host & Console Channel*

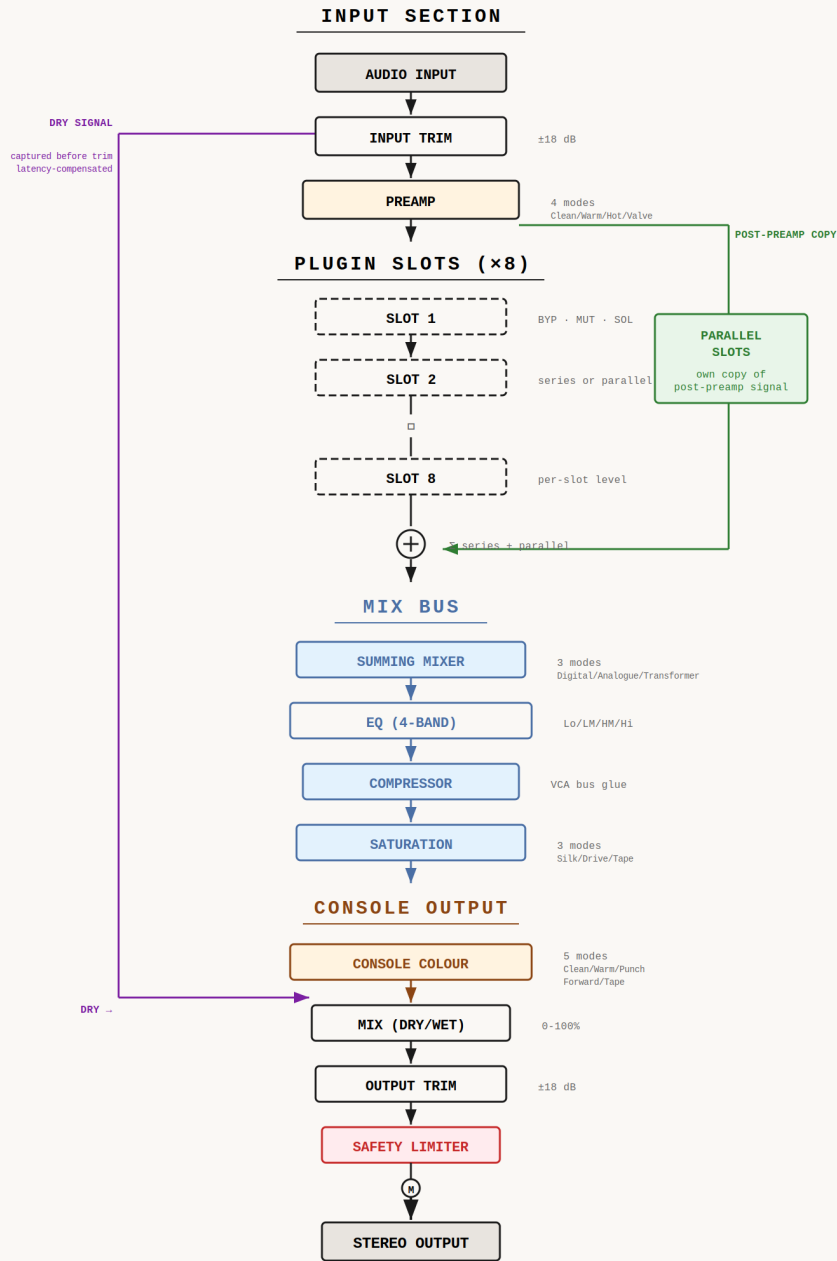
## **Product Manual**

Build 1.0

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## fBox RACK - SIGNAL FLOW

PREAMP · 8 PLUGIN SLOTS · MIX BUS · CONSOLE OUTPUT · STEREO



### LEGEND

- Main signal path
- Mix bus path
- Console output path
- Parallel slot routing
- Dry signal (for Mix control)
- Non-linear stage
- Plugin insert slot
- I/O · routing point
- Non-linear (bus section)
- Summing node

### NOTES:

1. Input trim drives preamp saturation. Higher levels = more harmonic content.
2. Parallel slots get their own copy of the post-preamp signal, summed back after.
3. Mix bus stages default to bypassed (off).
4. Dry signal is captured before input trim. Latency-matched for phase coherence.
5. Each instance has serial-seeded tolerances.
6. Safety limiter is always active (0 dBFS).

## What fBox Is

fBox is a complete analogue mixing ecosystem - individual plugins, a universal rack processor, and a full 32-channel mixing console with built-in tape machine - built around a single idea: every piece of hardware that ever left a factory floor had its own personality, and your plugins should too.

Most plugin companies model hardware. They pick one unit, capture it as accurately as they can, and sell that one model to everyone. Your copy is identical to mine. The compressor on your kick is the same compressor on your vocal. It has always worked this way - and it is the reason in-the-box mixes sound in the box.

fBox is built on the opposite principle. Every plugin instance carries a unique serial-seeded analogue character, generated the moment it is created. Load three fComps in one session and you have three different compressors, each with its own voice. That serial is fixed to the instance forever - it never resets, and it travels with the session.

The choice is yours. Open a fresh instance whenever you like and it is a different unit with its own voice - or find one you love and keep it. Save it, recall it, and mix through it for as long as you like: the same character, every time. Learn how it sounds and it becomes an instrument you know. And a unit you keep is yours alone - its serial exists on no one else's machine, the same way a piece of hardware you buy is one specific unit and no other. Bought once, owned permanently, no subscription.

This is not emulation. This is character at the instance level.

## What fBox Rack Is

fBox Rack is a modular VST3 plugin rack that hosts up to 8 VST3 plugins in series or parallel, with a built-in preamp stage at the input, a full mix bus section (summing, EQ, compressor, saturation), and a console output stage. Your signal enters through a coloured preamp, passes through your plugin chain and mix bus processing, then exits through a virtual console output - as if your plugins were sitting inside a real hardware rack wired through a mixing desk.

It is not just a plugin host. It is a complete console channel. The preamp colours the input. Your plugins do the processing. The mix bus shapes the combined signal with analogue-modelled summing, EQ, compression and saturation. The console stage colours the output. Each slot can be set to Series or Parallel, so your whole chain sits inside a virtual analogue signal path.

fBox Rack is a stereo effect: it takes stereo in and produces stereo out, and you load one instance per track or bus rather than one per session. Every instance generates its own unique serial number that defines its hardware character - the small manufacturing tolerances that make this unit sound like this unit and no other. No two instances sound exactly alike, just as no two real racks do. The serial shows in the bottom-right corner of the interface, and you can keep a rack you like, pin it, and carry it between projects (see Units and Patch Cards).

**Note:** *Mono sources: because the rack is stereo only, putting it on a mono track makes your DAW feed it as stereo - the mono signal on both channels. The rack processes that in stereo and the output is stereo, so a mono source is never lost; it simply comes out stereo. How your DAW gets there varies - some convert the track to stereo, some duplicate the mono to both sides.*

**Note:** *Because fBox Rack is a plugin, everything it does is saved inside your DAW project - all settings, the serial, and every hosted plugin with its own state. There is no separate session file to manage.*

# Getting Started

## Sound working in five minutes

1. Insert fBox Rack on a track in your DAW.
2. Click Scan Plugins and choose the folder where your plugins are installed. The rack lists what it finds.
3. Click the + button on any slot to load a plugin from the list.
4. Click the plugin name to open its own editor in a floating window.
5. Choose a preamp mode and a console colour to taste.

Start with both the preamp and the console set to Clean. Load your plugins, get your sound working, then try switching the preamp to Warm and the console to Warm. You will hear the difference immediately - the sound becomes fuller and rounder, as if it has been recorded through expensive studio equipment.

**Tip:** *The rack starts transparent: Clean preamp and Clean console pass audio with no colour. Add stages one at a time and A/B them with the bypass buttons, so you always know what each stage is doing. Every hosted plugin's state is saved with your DAW project automatically.*

## New to mixing?

The short version: Input Trim sets how hard the signal drives the rack, and the slot Level and Output Trim knobs set how loud it sits. Get the level roughly right before you start adding character. Everything else is flavour you add slowly once the sound is working.

Keep every move small. The rack's sound comes from many gentle stages adding up, not from one big move - a touch of preamp, a little summing character, a couple of dB of bus compression, a hint of console colour. Each is barely there on its own; together they are the difference between a stack of plugins and something that sounds like it went through a desk.

## **Interface Overview**

### **Header row**

Left to right: Save Patch and Load Patch (top left), Scan Plugins, the Rack menu, the fBox Rack title, the Quality selector, Reset Engine and Help. A FAULT indicator appears if the plugin detects invalid audio.

### **Left panel**

The Input Trim knob above a divider, then the Preamp section below it: mode selector, Preamp Bypass, Preamp Drive, and a small post-preamp meter.

### **Centre panel**

Eight plugin slots in a vertical list, each with a name button, load and remove buttons, bypass/mute/solo buttons, a routing selector, a level knob and a horizontal meter. Four slots are shown by default; click Show All 8 Slots to reveal all eight.

### **Bottom strip - the Mix Bus**

Summing mode selector, Bus EQ with four gain knobs, Bus Compressor (threshold, ratio, attack, release, makeup and a gain-reduction meter), and Bus Saturation (mode, drive, mix) - side by side in four columns.

### **Right panel**

The Console section at the top (mode selector, Console Bypass, Console Colour), then the Output section below it (Output Trim, Global Mix). The serial number and watermark sit at the bottom right.

## Signal Flow

Understanding the order the signal passes through the rack helps explain why certain combinations of controls interact the way they do. The signal passes through these stages in this order:

| #  | Stage          | Notes                                                     |
|----|----------------|-----------------------------------------------------------|
| 1  | Input Trim     | Clean gain, -18 to +18 dB                                 |
| 2  | Preamp         | Non-linear; mode + drive + signal level set the character |
| 3  | Slots 1-8      | Hosted plugins, series or parallel                        |
| 4  | Summing Mixer  | Digital, Analogue, or Transformer character               |
| 5  | Bus EQ         | 4-band: Low, Lo-Mid, Hi-Mid, High (fixed frequencies)     |
| 6  | Bus Compressor | VCA, classic glue style                                   |
| 7  | Bus Saturation | Silk, Drive, or Tape, with mix control                    |
| 8  | Console Output | Clean, Warm, Punch, Forward, or Tape                      |
| 9  | Global Mix     | Latency-compensated wet/dry blend of the whole rack       |
| 10 | Output Trim    | Final gain control                                        |
| 11 | Safety Limiter | Brickwall at 0 dBFS, always active                        |

**Important:** *The preamp responds to the signal level reaching it, set by Input Trim and Drive. The console output stage responds to the level hitting it from the mix bus. Higher levels produce more colour at each stage - this is how the rack develops its character.*

Slots set to Series pass audio one after another. Slots set to Parallel receive their own fresh copy of the post-preamp signal and are summed back in after the chain.

## Controls - Input and Preamp

### Input Trim

Range: -18 dB to +18 dB. Default: 0 dB. Double-click to reset. Sets the level of audio entering the rack, before the preamp or any plugins.

**Tip:** Think of Input Trim as the volume knob at the entrance to the rack - it sets the working level for everything that follows. With the preamp on Warm, Hot or Valve, higher input levels push the preamp harder and increase harmonic content, so use Input Trim as a creative drive control, not just a level utility. Set it so peaks land somewhere sensible, then use it to decide how hard you lean into the preamp.

### Preamp Mode

A selector with four positions:

| Mode  | Character                                                                                                                                                                     |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clean | Transparent. No colouration - the signal passes through unchanged.                                                                                                            |
| Warm  | Gentle transformer-style saturation with low-frequency fullness and smooth even harmonics. Thickens and rounds the signal, making everything sound bigger and more expensive. |
| Hot   | Aggressive transistor-style clipping with mid presence and odd harmonics. Grit and edge - a solid-state preamp pushed into overdrive.                                         |
| Valve | Tube-style saturation with even harmonics, gentle compression and power supply sag. Rounds and fattens the sound, and breathes under load as a real valve amp does.           |

Each mode has its own tonal character that varies subtly between instances - one Warm preamp might have a slightly different low-end emphasis to another, and the saturation onset sits at a slightly different point. This is by design.

**Tip:** Set Warm and bring Input Trim up until you hear the tone thicken. Hot and Valve are stronger and suit drums, guitars and sound design. At low drive with a quiet signal, even Valve is subtle; push harder and the character comes forward. And remember it stacks with everything downstream - a little here goes a long way once the mix bus and console have had their turn.

### Preamp Drive

Range: 0 to 100%. Default: 0%. Double-click to reset. Controls how hard the preamp is pushed. At zero, all modes are effectively clean whichever is selected. As you raise Drive, the character becomes more prominent.

**Tip:** This is a 'more colour' knob. Start at zero and turn it up slowly while you listen; small moves make a difference. Drive interacts with input level - a hot input with moderate drive sounds different to a quiet input with high drive, because the preamp responds to the dynamics of your material, not just static level.

## Preamp Bypass

Skips the preamp entirely - the signal passes straight to the plugin slots. Use it to A/B the preamp's effect on your sound.

## Controls - Plugin Slots

fBox Rack provides eight plugin slots in the centre panel, each hosting one plugin. Four are shown by default; click Show All 8 Slots to reveal all eight. All eight are always live regardless of how many you can see.

### Each slot

| Control | What it does                                                                                                                                    |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Name    | Shows the loaded plugin, or blank if empty. Click it to open the plugin's own editor in a floating window. Several editors can be open at once. |
| + / X   | The + opens a menu of scanned plugins to load; X removes the plugin and closes its editor.                                                      |
| BYP     | Bypass the plugin - audio passes through the slot unchanged.                                                                                    |
| MUT     | Mute this slot: its plugin is dropped from the chain and the signal carries on. It does not silence the slots after it, in Series or Parallel.  |
| SOL     | Solo this slot - all others are muted. Solo several and you hear them together.                                                                 |
| Routing | Series or Parallel (see below).                                                                                                                 |
| Level   | Post-plugin gain for gain staging between slots. Double-click to reset.                                                                         |
| Meter   | A compact horizontal output-level meter.                                                                                                        |

### Series and parallel

Series slots pass audio one after another - slot 1 into slot 2 into slot 3 - so each plugin works on the last one's output. This is the natural order for processing that should stack: EQ, then compression, then saturation.

Parallel slots each get their own fresh copy of the post-preamp signal, processed independently and summed back in after the chain. The parallel slot's output sits alongside the dry signal instead of replacing it - exactly like an aux send on a desk. This is the natural home for reverbs and delays: put a reverb on a parallel slot and the dry signal stays untouched while the reverb tail is blended in beside it.

**Tip:** For a parallel reverb or delay, set the effect plugin's own mix to 100% wet and control the amount with the slot Level - the slot becomes your send/return. Two delays on two parallel slots, timed differently, build a wide space without washing out the source. A good split is dry processing (EQ, compression, saturation) on series slots and time-based effects (reverb, delay) on parallel slots.

## **fDrone**

When fDrone is loaded, the rack sets it to Mix mode with a dry output, so its generated sound does not replace your track audio. Raise fDrone's own mix knob to blend in the drone texture to taste.

## **What you cannot load**

fTape is not available as a Rack insert. For tape character, use the Bus Saturation stage set to Tape, or the Console Output stage set to Tape - both give tape-style warmth, HF rolloff and soft compression with per-instance character.

You cannot load fBox Rack or fBox Console into a Rack slot, and - just as important - fBox Rack cannot be loaded as an insert inside the fBox Console either. A rack hosts up to eight plugins, so nesting one inside the console would multiply into a never-ending cycle of fractal Russian dolls, racks all the way down, until the universe quietly implodes.

## Controls - Mix Bus Section

The mix bus section sits between the plugin slots and the console output stage - the same processing you would find on the mix bus of a large-format console: analogue-modelled summing, EQ, bus compression and saturation. Every stage defaults to bypassed (off), and each can be bypassed independently.

### Summing Mixer

| Mode        | Character                                                                                                                                                                                                                                       |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital     | Clean pass-through. Mathematically perfect summing, no colour.                                                                                                                                                                                  |
| Analogue    | A discrete solid-state summing bus: subtle crosstalk, gentle soft-clipping on peaks, a very low noise floor. Barely perceptible on its own, but it adds cohesion and width. Each instance has its own crosstalk and saturation feel.            |
| Transformer | A transformer-coupled stage: heavier crosstalk, asymmetric even-order harmonics, low-frequency warmth and gentle HF rounding. The big console sound - fuller, wider, slightly coloured. Each instance has its own resonance and iron character. |

**Tip:** Build your sound on Digital, then switch to Analogue or Transformer and listen for the change in width and cohesion. The difference is subtle but cumulative, and Transformer is especially effective on dense mixes and bus groups.

### Bus EQ

A 4-band EQ for tonal shaping after summing: Low Shelf, Lo-Mid, Hi-Mid and High Shelf, each with a gain knob from -12 to +12 dB. The band frequencies and Q are fixed and voiced for broad, musical moves (roughly 100 Hz shelf, 500 Hz and 3 kHz bells, 8 kHz shelf) - only the four gains are adjustable. Click EQ ON/OFF to bypass; it defaults to off.

The EQ is musical and precise - it sounds the same at every frequency, right to the top - and it is the same quality as the bus EQs in fBox Console. Small moves have a big impact because they land on the whole signal at once. Each instance's bands sit at slightly different centre frequencies, just as real capacitor and inductor tolerances shift an analogue EQ.

**Tip:** Use it for gentle shaping, not surgery. A 2 dB high-shelf boost adds air across the whole chain; a small low-shelf lift adds weight; a touch off the low mids clears mud. Match the EQ to the material, not to a target curve. For surgical work, load a dedicated EQ plugin on a slot.

## Bus Compressor

A VCA bus compressor for glue - the same architecture as the bus compressors in fBox Console - placed after the bus EQ.

| Control   | Range                             |
|-----------|-----------------------------------|
| Threshold | -40 to 0 dB (default -20 dB)      |
| Ratio     | 2:1, 4:1, 10:1, 20:1              |
| Attack    | 0.1, 0.3, 1, 3, 10, 30 ms         |
| Release   | 100, 300, 600, 1200 ms, or Auto   |
| Makeup    | -12 to +24 dB                     |
| GR Meter  | Shows real-time compression depth |

Click COMP ON/OFF to bypass; it defaults to off. It is not a clean compressor - it has its own feel, and each instance compresses slightly differently, one grabbing transients a touch faster, another breathing a little more on the release.

**Tip:** Start with a 4:1 ratio and pull the threshold down until the meter shows 2-4 dB of gain reduction, then bring the level back with makeup. A slow attack lets transients through; Auto release breathes with the material. The compressor's job here is to glue the plugin chain into one instrument rather than a stack of separate processors.

## Bus Saturation

Three saturation modes after the bus compressor, each colouring the signal differently:

| Mode  | Character                                                                                                                                                                              |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Silk  | Even-order transformer warmth. Gentle HF smoothing, a subtle LF lift. The most transparent mode - warmth without obvious distortion.                                                   |
| Drive | Odd-order transistor push. Thicker, denser, more assertive. For when you want the saturation felt, not just heard.                                                                     |
| Tape  | Tape machine emulation: progressive HF rolloff, low-end warmth, soft compression and subtle flutter. The most obviously coloured mode, and it tames harsh digital sources beautifully. |

Drive (0 to 100%) sets how hard the stage is pushed. Mix (0 to 100%) blends dry and saturated for parallel saturation. Click SAT ON/OFF to bypass; it defaults to off. Each instance has its own saturation onset - below it they sound the same, above it each has its own voice.

**Tip:** Try Silk at 20-40% drive with Mix at 100% for subtle analogue warmth. For parallel saturation, push Drive higher and pull Mix to 30-50% - density and harmonics without squashing the dynamics. Tape at low drive is excellent on harsh digital sources.

## Controls - Output Section

### Console Mode

A selector with five positions. The console output stage models the sound of passing your signal through different console output paths - it is what makes fBox Rack a console channel rather than just a plugin host.

| Mode    | Character                                                                                                  |
|---------|------------------------------------------------------------------------------------------------------------|
| Clean   | Transparent output. No colouration.                                                                        |
| Warm    | Rich and full: transformer-style even harmonics, LF warmth, gentle HF rounding. Bigger and more expensive. |
| Punch   | Tight and controlled: sub-bass tightening, a presence push, clean transients. Modern impact.               |
| Forward | Mid-forward with dense harmonics. Pushes vocals and guitars to the front of the mix.                       |
| Tape    | Gentle compression, HF rolloff, low-end warmth. Smooths harsh digital sources.                             |

Each mode's tonal filters sit at slightly different frequencies per instance - the character is always there, always unique.

**Tip:** Warm flatters acoustic sources and vocals, Punch tightens drums and full mixes, Forward pushes mid-range sources forward, and Tape calms harsh digital material. Match the mode to what you are working on.

### Console Colour

Range: 0 to 100%. Default: 0%. Double-click to reset. Sets how much console character is applied. At zero all modes are effectively clean; higher settings push the console harder.

**Tip:** Start at zero and turn it up slowly - a little goes a long way, so try 20-50% first. Colour interacts with the level hitting the stage: a louder signal with moderate colour produces more character than a quiet signal with high colour, just like a real console.

### Console Bypass

Bypasses the console stage entirely. Use it to A/B the console colour on your output.

## Output Trim

Range: -18 dB to +18 dB. Default: 0 dB. Double-click to reset. Final gain after the console and before the safety limiter, for managing the level hitting the next plugin or your DAW's mix bus. It does not change the character - only the volume.

## Global Mix

Range: 0 to 100%. Default: 100%. Double-click to reset. Blends the dry signal (captured before Input Trim) with the fully processed wet signal (after preamp, plugins, mix bus and console). At 100% you hear only the processed signal; at 0% only the dry.

**Tip:** *The dry path is internally latency-matched, so the blend is always phase-coherent. That means you can run aggressive preamp, compression and console settings, then blend them in gently for parallel processing of the whole chain. Try 40-60% for punch and density without losing dynamics.*

## Quality

A selector with three positions, setting the DSP quality of the preamp and console path:

| Tier   | Use                                                                                                                      |
|--------|--------------------------------------------------------------------------------------------------------------------------|
| Eco    | Lowest CPU while still sounding great. Good for tracking and dense sessions.                                             |
| Studio | The sweet spot for mixing - the full saturation model with enhanced quality on the preamp and console path. The default. |
| Master | Highest quality for maximum fidelity, at higher CPU. For final mixes and mastering.                                      |

**Tip:** *Studio is the right choice for normal use. Drop to Eco if your computer is struggling; switch to Master for a final mix or master (see Performance and CPU for the workflow).*

## Safety Limiter

Always active. A brickwall limiter at 0 dBFS that stops the rack's output ever exceeding digital full scale. You do not need to think about it - it is always protecting your output. For creative limiting, load a dedicated limiter on a slot.

## Units and Patch Cards

Your rack's character lives in its serial number. There are two ways to keep and move your work: units, which are the character on its own, and patch cards, which are the whole setup.

### The Rack menu - units

A unit is the rack's character with no settings attached - its serial and the analogue voice that serial produces. The Rack button in the header opens the unit menu:

| Menu item                        | What it does                                                                                     |
|----------------------------------|--------------------------------------------------------------------------------------------------|
| New Rack                         | Roll a fresh rack with a new serial and a new voice.                                             |
| Save Rack...                     | Save the current unit so you can recall it later. Saved units live in Documents/fBox Units/Rack. |
| Load saved rack                  | Recall a unit you saved, or browse for a unit file.                                              |
| Recall my pinned rack            | Jump back to your pinned default.                                                                |
| Pin this rack as my default      | Make this unit the one every new instance opens with - this is how you keep one rack for good.   |
| Use a new rack for new instances | Go back to a fresh unit on each new instance.                                                    |

### Patch cards - the whole setup

A patch card is a portable copy of the entire rack - the serial, every setting, and every hosted plugin with its own internal state - written to a single file. Save Patch writes the current rack to a patch card (a .json file) you choose the home for. Load Patch reads one back in. If the card was saved on a different unit, loading asks how to bring it in:

| Option              | What it does                                                                          |
|---------------------|---------------------------------------------------------------------------------------|
| Recall Unit         | Bring back the exact rack the card was saved on - its character and all its settings. |
| Apply Settings Only | Keep your current rack's character and drop the saved settings on top.                |

A patch card carries its identity, so a card saved for a different fBox product is refused with a note telling you which one it belongs to.

**Important:** *A unit is the character; a patch card is the character plus everything you set on top of it. Both save the serial, so the exact voice comes back with them.*

**Tip:** *You cannot dial a rack's character to order any more than you can a real one - but you can learn it, and you can keep it. Mix on a unit until you know how it responds, then pin it. Your ear adapts to a rack you stay with.*

## DAW Integration

### Automation

Almost all of the rack's on-screen controls are exposed to your DAW and can be written and read through its automation lanes like any other parameter: Input Trim, Output Trim, Global Mix, the preamp (mode, drive, bypass), the console (mode, colour, bypass), every per-slot control (bypass, mute, solo, level, routing), and the mix bus controls (summing mode, the four Bus EQ gains, the bus compressor's threshold, ratio, attack, release and makeup, and the bus saturation mode, drive and mix), plus every stage's bypass. The one exception is the Quality selector, which cannot be automated.

### Session recall

Your DAW saves and restores the entire rack when you save and reopen a project - all knob positions, which plugins are loaded in each slot, the internal state of each hosted plugin, and the serial. Nothing to manage by hand.

### Latency compensation

At Studio and Master quality the enhanced processing introduces a small delay, and hosted plugins can add their own. fBox Rack reports the total latency to your DAW automatically so it can compensate, and the Global Mix dry path is internally delay-matched so the blend stays phase-coherent at any quality setting.

## Header Bar Reference

| Control      | What it does                                                                                             |
|--------------|----------------------------------------------------------------------------------------------------------|
| Scan Plugins | Choose your plugin folder and scan it. A blocking overlay shows during the scan - wait for it to finish. |
| Save Patch   | Save the whole rack (serial, settings and hosted plugins) to a patch card.                               |
| Load Patch   | Load a patch card, choosing Recall Unit or Apply Settings Only.                                          |
| Rack         | The unit menu: new, save, load, pin and recall.                                                          |
| Quality      | Eco, Studio or Master.                                                                                   |
| Reset Engine | Clears faulted plugin states and resets the internal DSP. Your plugins stay loaded.                      |
| Help         | Opens the built-in help window.                                                                          |
| FAULT        | Appears when invalid audio is detected. Click it, or Reset Engine, to clear.                             |
| Watermark    | Bottom right: the flakebelly credit, the website, and this rack's unique serial number.                  |

## Fault isolation

If a hosted plugin repeatedly produces invalid audio, the rack faults it to protect the mix - the FAULT indicator appears and the plugin is bypassed for you. Click Reset Engine to clear it. If the slot menu is empty, run Scan Plugins first.

## Diagnostics

Diagnostics are written automatically as the rack runs and survive a crash or freeze. If you hit a problem, zip the whole Documents/fBox/Diagnostics folder and email it to [support@fboxaudio.com](mailto:support@fboxaudio.com) - send the entire folder, since what else was running alongside the rack often explains the problem. Tell us what you were doing, what you expected, and what happened. The logs are plain text; you are welcome to read them, but you do not need to.

## Meters

### Input and output meters

Vertical meters down the far left (input) and far right (output) edges show the left and right levels in real time, with a green-to-red gradient. Click a meter to switch it between Peak and RMS - the label reads PK or RMS to show which mode it is in.

Peak follows the instantaneous highest sample level, so it jumps with every transient and shows the true maximum the signal reaches. RMS shows the average energy over a short window, so it sits steadier and reads much closer to how loud the signal actually sounds - the classic VU-style reading.

**Tip:** Use Peak to watch headroom and make sure nothing is clipping - keep the peaks below 0 dBFS. Use RMS to judge loudness and to balance one part against another by how loud they actually sound, since two sounds can share the same peak but sit at very different loudness. Peak for safety, RMS for balance.

### Post-preamp meter

A compact meter beside the Preamp Drive knob, showing the level after the preamp - useful for checking how hard the preamp is driving the signal before it enters the plugin chain.

### Per-slot meters

Each slot has a compact horizontal meter showing its output level. Use these to watch your gain staging through the chain.

### Bus compressor GR meter

A horizontal gain-reduction meter in the mix bus section showing the bus compressor's real-time compression depth.

## Tips

### Getting started

Start clean. Set both preamp and console to Clean, load your plugins, get the mix working. Then add preamp and console colour one step at a time, and enable the mix bus stages incrementally - summing first, then Bus EQ, then compression, then saturation. A/B each with its bypass so you always know what it is adding.

### Series and parallel - the big one

Series is a straight chain; use it for processing that should stack. Parallel gives a slot its own copy of the signal and sums it back at the mix bus, so its output sits beside the dry signal rather than replacing it - which is exactly how an aux send works on a desk.

That makes parallel the home for reverbs and delays. Put a reverb on a parallel slot, set the reverb plugin's own mix to 100% wet, and control how much you hear with the slot Level - the dry signal stays clean and present while the tail is blended in beside it. A delay on a parallel slot, timed to the track, opens up space without smearing the source. Keep the dry processing (EQ, compression, saturation) on series slots and the time-based effects on parallel slots, and the rack behaves like a proper channel with its own sends.

### Starting settings

If you are not sure where to begin on a stage, these get you into the right area:

| Stage          | Start here                                                                                                                                                                                     |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus Compressor | 4:1 ratio, 30 ms attack, Auto release; threshold down until you see 2-4 dB of gain reduction, then makeup to match. Slow attack keeps the transients, Auto release breathes with the material. |
| Bus EQ         | Small moves. A 1-2 dB high shelf for air, a gentle low shelf for weight. It is a broad tone tool, not a surgical one.                                                                          |
| Bus Saturation | Silk at 20-40% drive for gentle glue, or Drive higher for obvious grit. Reach for the Mix control when you want it parallel.                                                                   |
| Console Colour | Start at 20-30% and raise until you hear it, then back off a touch.                                                                                                                            |
| Global Mix     | Leave at 100% for normal use; pull to 40-60% to run the whole rack as a parallel processor.                                                                                                    |

## Classic recipes

| Sound              | Recipe                                                                                                                   |
|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| Vintage warmth     | Valve preamp, Transformer summing, Bus Comp for glue, Warm console at low colour. Big, rounded, expensive.               |
| Modern punch       | Clean preamp, Punch console, Bus Comp with a faster attack. Tight and forward - ideal for electronic and modern pop.     |
| Full tape chain    | Warm preamp, Silk saturation, Tape console at low colour. Warmth in, gentle harmonics in the middle, tape at the output. |
| Aggressive edge    | Hot preamp into Drive saturation. Grit for drums and guitars.                                                            |
| Vocal presence     | Forward console. Cuts a vocal or guitar through a busy mix without extra EQ.                                             |
| Smooth a harsh mix | Tape console at low colour. Calms harsh, digital-sounding sources naturally.                                             |

## Gain staging

Set Input Trim to drive the preamp to the colour you want, then use the slot Level knobs to manage levels between plugins - a compressor that adds 4 dB of makeup will push the next plugin harder, so mind the level through the chain. Hotter signal into the mix bus means more summing character; quieter signal stays cleaner. The rack rewards good gain staging above everything else.

## Remember the rack adds up

Every stage adds a little colour and it stacks. Go gently across many stages rather than hard on one. If the finished sound is hotter or more coloured than you meant, you are in good company - pull it back at the end. Push into the rack and it pushes back.

## Performance and CPU

The quality of the preamp and console path, and of any fBox plugins you host in the slots, costs CPU. fBox Rack gives you the same Eco / Studio / Master control the rest of the range uses, so you can mix light and render heavy.

### Keeping CPU down

Leave the mix bus stages off until you need them (they default off). Close plugin editor windows you are not using. Raise your DAW's buffer if you hear dropouts - 256 to 512 for mixing, 1024 for a final render. And use the Quality tier: Studio if your system can handle it, Eco if it cannot.

### Mix at Eco, render at Master

Quality costs CPU. Mix at Studio, or drop everything to Eco if your machine struggles - the mix still plays, just at lighter quality. Then, when you bounce, switch to Master and let your DAW render. The render is offline, so it takes as long as it needs and comes out at full Master quality however much the live playback stuttered.

This is exactly how I work, on a genuinely ancient PC: mix at Studio or Eco, flip to Master at the very end, and let the DAW's offline render take its time. The playback might stutter on Master; the render comes out perfect. You get a smooth mix and a full-quality file, with no need for a fast machine. Freeze or bounce the rack track in your DAW when you want the heavy processing to run offline.

## What fBox Writes To Your Computer

For transparency, here is every folder fBox creates and what goes in it. fBox writes nowhere else, and sends nothing anywhere unless you choose to.

| Folder                                   | Contents                                                                                                                                       |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Documents/fBox/<br>Diagnostics/          | Diagnostic logs, a folder per product. Small plain-text files recording what the rack was doing, kept so a crash can be worked out afterwards. |
| Documents/ fBox Units/                   | Your saved racks, a folder per product. Kept in Documents on purpose, so you can find, back up and share them.                                 |
| AppData/Roaming/<br>fBoxAudio/ (Windows) | Your licence, and a small settings file recording which rack you have pinned.                                                                  |

Patch cards go wherever you save them - Save Patch opens a normal dialog and the file goes where you choose. The rack's own state lives in your DAW project, not in a file of its own. Nothing is filed away somewhere you did not pick, and nothing is written to your Desktop.

## Rack Character

Every fBox Rack instance generates a unique serial number, shown in the bottom-right watermark. It defines the rack's hardware character throughout the entire signal path - the preamp, mix bus EQ, bus compressor, bus saturation, summing mixer and console output stage.

On real analogue hardware, no two units from the same production line sound identical. One preamp breaks up a touch sooner. The EQ's centre frequencies sit slightly differently. The compressor grabs transients at a different threshold and breathes with its own timing. The saturation has a subtly different warmth. The summing bus has its own resonance and crosstalk. Even the noise floor has a different colour - one unit hisses slightly brighter, another has more of a low hum.

fBox Rack models these variations across every stage. No single one is obvious in isolation; the cumulative effect is what gives each rack its voice. The same serial always produces the same rack, different serials produce different units, and the serial is saved with your DAW project and with any unit or patch card you keep.

**Tip:** *You cannot choose your rack's character any more than you can choose the character of a real piece of hardware. But you can learn it. Get to know how your rack responds and your instincts will adapt - just as engineers do with real gear. Find one you love, pin it, and it is the rack you open every time.*

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