



fDelay

Multi-Mode Delay

Plugin

Product Manual

Build 1.0

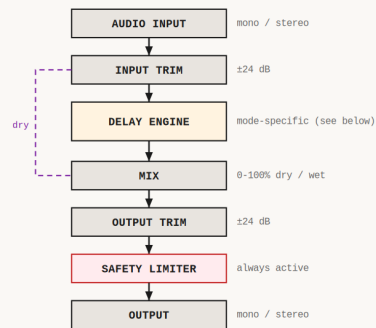
by flakebelly
fboxaudio.com

fDelay - SIGNAL FLOW

TAPE ECHO · TAPE LOOP · BBD · DIGITAL · OIL CAN · LO-FI · MULTI-TAP · PING-PONG

COMMON SIGNAL PATH

All eight modes share this structure

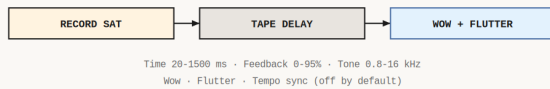


MODE-SPECIFIC DELAY ENGINES

Each mode replaces the delay engine in the common path above. All other stages are shared.

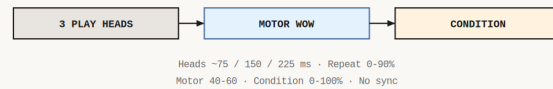
TAPE ECHO

Warm reel-to-reel echo



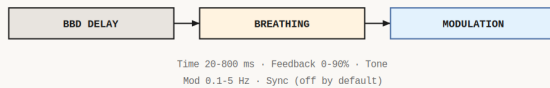
TAPE LOOP

Three-head tape loop



BBD

Bucket-brigade delay



DIGITAL

Clean digital delay



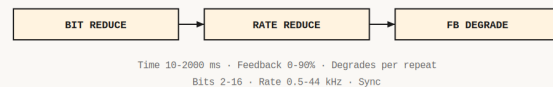
OIL CAN

Electrostatic disc



LO-FI

Degraded digital delay



MULTI-TAP

Four rhythmic taps



PING-PONG

Stereo bouncing delay



LEGEND

-  Main signal path / delay line
-  Non-linear stage (saturation / degradation)
-  Modulation / movement
-  Safety limiter (always active)
-  Dry path to the mix blend

NOTES

1. Each mode replaces the delay engine in the common path. All other stages are shared.
2. Most modes run free (ms) or synced to host tempo; Tape Loop and Oil Can have no sync.
3. Bypass mutes the delay so only the dry signal passes; the Output Trim stays in circuit.
4. The safety limiter is always active in every mode.
5. Every fDelay instance has its own subtle analogue character.

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 fDelay Is

fDelay is an eight-mode delay plugin from the fBox ecosystem. Each mode is a different delay technology with its own controls and its own voice, from warm analogue tape echo to crystal-clean digital, from murky bucket-brigade to degrading lo-fi repeats. It is not eight plugins sharing a GUI: it is one integrated delay processor with eight deeply modelled signal paths, each with its own feedback character, saturation behaviour and modulation feel. You pick a mode from the Mode selector in the header and the interface changes to show only that mode's controls.

The eight modes are **Tape Echo** (warm reel-to-reel studio delay), **Tape Loop** (characterful three-head tape loop), **BBD** (dark bucket-brigade with breathing and clock noise), **Digital** (crystal-clean studio reference), **Oil Can** (band-limited electrostatic delay with an organic wobble), **Lo-Fi** (degraded digital with accumulating bit-crush), **Multi-Tap** (four independent taps with rhythmic patterns) and **Ping-Pong** (stereo bouncing delay).

Every instance of fDelay generates a unique serial number that defines its hardware character. The analogue modes each carry their own manufacturing tolerances - one unit's repeats darken at a different rate, another's motor has its own pitch character, the feedback path breaks up at its own threshold. No two fDelay instances sound exactly alike, just like no two real delay units do. The serial is shown in the top-left watermark and is saved with your session.

fDelay works the same everywhere in the fBox ecosystem: as a plugin in your DAW, as an insert in the fBox Console (both the plugin and the dawless Standalone application), and in a slot of the fBox Rack. It registers as an effect and runs in mono or stereo - on a mono track it delays in mono, on a stereo track it delays in stereo. Ping-Pong and the stereo panning in Multi-Tap need a stereo track to be heard in full.

Getting Started

Sound working in a minute

1. Insert fDelay on a track in your DAW - or on a channel or bus in the fBox Console, the dawless Console Standalone, or a slot in the fBox Rack.
2. Pick a mode from the Mode selector. Tape Echo is a warm, forgiving place to start.
3. Pull up **Mix** so you can hear the delayed repeats against your dry signal - around 30 to 40% suits most mixes.
4. Set **Time** for the delay length, or turn **Sync** on to lock it to your host tempo, and bring up **Feedback** for more repeats.

If you hear no repeats, check that Mix is above 0%, Bypass is off, and Feedback is above 0%.

Tip: Start with Tape Echo, Mix around 40%, Feedback near 40% and Time around 375 ms. That is a classic studio delay that works on almost everything. Once you are comfortable with the controls, explore the other seven modes - each is a completely different instrument.

New to delay?

The short version: **Mix** sets how loud the echoes are, **Time** sets how far apart they are, and **Feedback** sets how many you get. Get those three right and everything else is flavour you add slowly. High feedback can build into self-oscillation, where the repeats feed into themselves and grow instead of dying away - musical, but keep an eye on your levels.

Activation

The first time you load fDelay it asks you to activate. Enter your email and click Send Verification Code for a 14-day free trial, or paste a licence key (it looks like FBOX-XXXX-XXXX-XXXX). Activation needs an internet connection once; after that fDelay opens straight up.

Interface

The main panel shows the controls for the current mode. The unit's serial number and watermark sit at the top-left, with the Unit button beside them and the plugin name centred, and switching mode changes the panel to match. The window opens at Medium; the size button in the bottom-right corner offers Small (75%), Medium (100%) and Large (150%).

Across the header

Control	What it does
Mode	Choose one of the eight delay modes. The panel changes to match.
Quality	Eco, Studio or Master (see Quality).
Unit	The unit menu - roll a new unit, save or recall one, and pin a default (see Units and Patch Cards).
FAULT	Hidden unless invalid audio is detected. Click Reset Engine to clear it.
Reset Engine	Clears all internal DSP state and any fault. Your settings are kept.
Help	Opens the built-in help window.

Action buttons

Beside the mode controls is a group of action buttons:

Button	What it does
Reset	Returns the current mode's controls to their defaults. The mode selector, the Quality tier and the serial number do not change - and the other modes' settings are untouched.
Save Patch Card	Saves the whole plugin to a patch card file.
Load Patch Card	Loads a patch card (see Units and Patch Cards).

Signal Flow

Understanding the signal order helps explain why certain combinations of controls interact the way they do. Every mode shares the same common path and drops its own delay engine into the middle of it. The signal passes through these stages in this order:

#	Stage	Notes
1	Audio Input	Mono or stereo accepted
2	Input Trim	Clean gain, -24 to +24 dB; drives the delay engine harder
3	Mode-Specific Engine	See the table below - this is where the modes differ
4	Mix	Dry/wet blend, 0 to 100%
5	Bypass	Soft: mutes the wet delay so you hear the dry signal at a matched level (Output Trim stays in circuit)
6	Output Trim	Clean gain, -24 to +24 dB
7	Safety Limiter	Always active; catches runaway peaks so feedback can never damage your output
8	Output	Mono or stereo, matching the track

Each delay mode replaces stage 3 with its own engine. The engines and their key signal-path elements are:

Mode	Engine	Key elements
Tape Echo	Reel-to-reel tape	Record-head saturation, wow and flutter, feedback tone filter, tape noise
Tape Loop	Three-head tape loop	Three fixed heads, per-head HF rolloff, motor wow, periodic splice dip
BBD	Bucket-brigade	Breathing dynamics, clock noise, feedback HF loss, modulation
Digital	Clean digital	Feedback HP and LP filters, diffusion, modulation
Oil Can	Electrostatic disc	Narrow-band voicing, non-periodic wobble
Lo-Fi	Degraded digital	Bit reduction, rate reduction, accumulating degradation
Multi-Tap	Four taps	Per-tap time, level and pan, selectable feedback source
Ping-Pong	Stereo cross-feedback	Mono-summed input, L/R cross-feedback, width, tone, offset

The Eight Modes

fDelay is eight delays in one, chosen from the Mode selector. Each keeps its own independent settings, so switching mode never disturbs another mode's setup.

Mode	In a nutshell
Tape Echo	Warm, saturated reel-to-reel echo. The lush all-rounder.
Tape Loop	Lo-fi three-head loop with motor wow and a periodic splice dip. The widest character of the eight.
BBD	Dark, murky bucket-brigade with breathing and clock noise.
Digital	Crystal-clean reference delay. No saturation, no noise.
Oil Can	Band-limited electrostatic delay with an organic, non-periodic wobble.
Lo-Fi	Degraded digital that falls apart a little more with every repeat.
Multi-Tap	Four independent taps for rhythmic patterns and wide stereo.
Ping-Pong	Stereo bouncing delay with width and offset controls.

Common Controls

Every mode shares these four controls, in the same place regardless of which mode is selected. Each mode's own controls are covered in its section.

Input

Range: -24 to +24 dB. Default: 0 dB. Input level trim, applied before the delay engine. Drive it up to push harder into the saturation of the analogue modes, or to match levels when you switch mode.

Bypass

On/Off. Default: Off. Bypass mutes this mode's delay so you hear only your dry signal. It is a soft bypass, not a hard one: the Output Trim and the unit's small analogue noise floor stay in circuit, so your gain staging holds and the level does not jump when you toggle it - you are comparing the effect against the dry signal at matched levels. For a fully clean bypass, use your host's own bypass. Each mode keeps its own bypass state.

Mix

Range: 0 to 100%. Default: varies by mode. Dry/wet balance. At 0% you hear only the dry signal; at 100% only the wet (delayed) signal. For send/return or parallel setups, set Mix to 100% and control the blend from the send or slot level.

Output

Range: -24 to +24 dB. Default: 0 dB. Output level trim, applied after the mix and before the safety limiter. Use it to match the delayed signal to the rest of your mix.

Most modes also share **Time** (delay length), **Feedback** (how much of the output is fed back for more repeats) and **Tone** (darkens the repeats). Their ranges and defaults differ per mode and are listed with each mode.

Tempo Sync

Most modes have a **Sync** toggle that locks the delay time to your host tempo. With Sync on, the Time knob no longer sets milliseconds - it selects a note division across its travel. Turn it from one end to the other to move through the list:

1/1, 1/2, 1/2D, 1/2T, 1/4, 1/4D, 1/4T, 1/8, 1/8D, 1/8T, 1/16, 1/16D, 1/16T (D = dotted, T = triplet). Sync needs a running host that reports tempo; with none, the knob falls back to milliseconds.

A plain division (1/4, 1/8) is a straight beat - a 1/4 repeats once per beat, a 1/8 twice per beat. A **dotted** division is half again as long, so its repeats land just off the beat for a bouncing, syncopated feel. A **triplet** fits three repeats into the space of two, for a rolling, galloping motion.

Sync is available in Tape Echo, BBD, Digital, Lo-Fi, Multi-Tap and Ping-Pong. Tape Loop and Oil Can have no sync - their timing comes from the motor and the mechanism. Sync is on by default in Digital, Lo-Fi, Multi-Tap and Ping-Pong, and off in Tape Echo and BBD.

Tip: Not sure where to start? 1/8 dotted is the classic rhythmic-delay division. It locks to the tempo but lands between the beats, so the echoes weave through your part instead of doubling it. Try it with Feedback around 30 to 40%. For a lush half-time feel on a ballad, reach for 1/4 or even 1/2; for fast, driving parts, an 1/8 or 1/16 keeps out of the way.

Meters

Stereo input meters sit on the left (IL, IR) and stereo output meters on the right (OL, OR), showing the levels in real time. The input meters read after the Input trim, so they show the level actually going into the delay. 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. Aim to keep the input meter around the middle, peaks short of the top; if it is pinned, pull Input down, and if it is barely moving, bring it up.

Tape Echo

Classic studio reel-to-reel tape delay. Warm, saturated repeats that darken and thicken with each pass through the virtual tape machine. This is the flagship delay - lush, musical and full of character, and a forgiving place to start.

Controls

Time - Range: 20 to 1500 ms, or a note division with Sync. Default: 375 ms. Delay time; with Sync engaged, locks to musical note divisions at your host's tempo.

Feedback - Range: 0 to 95%. Default: 40%. Repeat amount. Each repeat passes through the full tape saturation and filtering chain again, so higher feedback produces increasingly dark, compressed and saturated tails. At extreme settings the delay self-oscillates into a wash of sound.

Tone - Range: 800 to 16000 Hz. Default: 4000 Hz. Feedback low-pass filter; controls how quickly the repeats darken. Lower values give a darker, more vintage sound, higher values keep the repeats bright for longer.

Wow - Range: 0 to 100%. Default: 30%. Slow pitch drift from the capstan, for organic movement on the repeats. **Flutter** - Range: 0 to 100%. Default: 20%. Faster pitch shimmer from the tape transport. **Sync** - Off by default. **Mix** default 50%.

Character

The signal passes through record-head saturation on the way in, then through a playback stage that adds a gentle low-end bump and rolls off the highs. Each feedback pass adds another helping of saturation and filtering, so the first repeat is barely coloured and the tail grows steadily darker, smoother and more compressed as it recirculates. That cumulative warmth is the defining sound of tape echo.

Tip: New to it? This is the one to start on. Leave everything at its defaults, set Mix to about 35%, and just play. Then turn Feedback up slowly and listen to the repeats getting darker and warmer as they go round - that cumulative colouring is the whole point of tape echo. For a lush ambient wash on pads and vocals, push Input to around +6 dB, Feedback to 60% and Tone down to about 3 kHz. Wow around 30% adds a lovely drift to sustained sounds.

Tape Loop

A characterful three-head tape loop inspired by classic British designs. Lo-fi, mid-focused, with irregular motor wow and a gentle periodic dip as the tape splice passes the head. This mode has the widest unit-to-unit variation of the eight, because the original hardware was built to a budget and no two units sounded the same. There is no arbitrary time control - the delay comes from three fixed heads and the motor speed - and no tempo sync.

A loop of tape runs past three playback heads spaced along its path. Each head reads the same recorded sound at a different moment, so one loop of tape gives you three delay times at once - and because they come from one moving tape, they always stay in proportion to each other. Switching heads on and off is how you build the rhythm; the Motor knob speeds the tape up or slows it down and moves all three together.

Controls

Repeat - Range: 0 to 90%. Default: 35%. Feedback amount.

Tone - Range: 1500 to 10000 Hz. Default: 4000 Hz. Output tone filter.

Motor - Range: 40 to 60. Default: 50 (nominal speed). Scales all three head times together and shifts their pitch with them, a little either side of nominal. The Motor knob is about character, not precision - there is no arbitrary time control because the original hardware did not have one.

Condition - Range: 0 to 100%. Default: 20%. The age and wear of the unit. This single knob scales several things at once: the top end rolls off darker, the motor wow deepens, the splice dip grows - a gentle dip in level each time the join in the tape loop passes the head - and the noise floor rises. At 0% the unit sounds new and relatively clean; at 100% it sounds like a well-loved piece of vintage equipment.

Head 1, Head 2, Head 3 - On/Off toggles that light amber when active. Default: Head 2 only. At nominal motor speed Head 1 is about 75 ms, Head 2 about 150 ms and Head 3 about 225 ms, all scaling with the Motor setting. Combining heads builds rhythmic multi-tap patterns from the one tape loop. At least one head stays on - turn the last one off and Head 2 switches back on. **Mix** default 60%.

Tip: Head 2 alone is a classic slapback; all three heads together build a complex rhythmic pattern. Condition at 80 to 100% gives a wonderfully broken, lo-fi sound that sits beautifully under vocals and guitars. Automate the Motor knob for tape-stop and speed-up effects.

BBD

Analogue bucket-brigade delay. The original hardware passed your signal along a chain of tiny storage cells, handing it from one to the next like a bucket down a line - and every hand-off lost a little. To get a longer delay you had to pass it more slowly, so the sound had further to fall apart on the way. That is why short delays here stay relatively clean while long ones grow dark, noisy and murky, and why leaning on the Time knob is how you dial between clean and gritty. Dark and murky, with a gentle breathing and a touch of clock noise. The mode for classic analogue pedal-style delay, topping out at 800 ms.

Controls

Time - Range: 20 to 800 ms, or a note division with Sync. Default: 300 ms. **Feedback** - Range: 0 to 90%. Default: 40%. Each repeat loses a little top end through the feedback path. **Tone** - Range: 1000 to 12000 Hz. Default: 3000 Hz. Feedback low-pass filter.

Mod Rate - Range: 0.1 to 5.0 Hz. Default: 0.8 Hz. Modulation speed. **Mod Depth** - Range: 0 to 100%. Default: 25%. Modulation amount. **Sync** - Off by default. **Mix** default 50%.

Character

Quiet, trailing signals breathe and pump gently - that is the classic bucket-brigade sound, and it shows up most as a phrase dies away.

Tip: Short Time with high Mod Depth gives classic chorus and flange tones. Longer Time exposes the authentic BBD grit and noise texture. It is lovely on guitar, keys and vocals - try it as a subtle doubler with Mix around 25% and short feedback.

Digital

Crystal-clean studio digital delay. No saturation, no noise - the reference the analogue modes play against, for when you want the repeats to be an exact copy of the input shaped only by the feedback filters.

Controls

Time - Range: 1 to 2000 ms, or a note division with Sync (on by default). Default: 500 ms. **Feedback** - Range: 0 to 95%. Default: 35%.

HP - Range: 20 to 1000 Hz. Default: 20 Hz. High-pass in the feedback path; thins the low end of each repeat. **LP** - Range: 1000 to 20000 Hz. Default: 16000 Hz. Low-pass in the feedback path; darkens the repeats as they recirculate. Both shape only the feedback path - the first repeat is unfiltered, and each following repeat is filtered a little more.

Mod - Range: 0 to 100%. Default: 0%. Chorus-like movement on the repeats. **Diffusion** - Range: 0 to 100%. Default: 0%. Smears the repeats: 0 is sharp and precise, 100 is a washy, reverb-like tail. **Sync** - On by default. **Mix** default 45%.

Tip: New to it? Leave Diffusion and Mod at 0 for a clean, simple echo, and add them only once the basic delay sounds right. Set Feedback to 50 to 70% and Diffusion to 30 to 50% for a reverb-like ambient wash that cleans up faster than a real reverb. Use HP and LP together to sculpt how the tail decays in frequency.

Oil Can

An electrostatic oil-can delay: the signal is recorded to a rotating disc and read back by a pickup as the disc turns. The result is a delay with a slow, non-periodic wobble, a distinctive band-limited tone, and an organic movement no other delay type can replicate. Only six controls, and no sync - the disc spins at its own pace.

Controls

Time - Range: 40 to 500 ms. Default: 200 ms. Delay time. **Feedback** - Range: 0 to 85%. Default: 30%. **Wobble** - Range: 0 to 100%. Default: 30%. The depth of the non-periodic pitch drift - not a regular LFO, but an unpredictable, organic movement. **Mix** default 50%.

Everything passes through the mechanism's narrow bandwidth, giving the repeats a haunting, telephone-like quality that is the whole point of the mode.

Tip: New to it? Turn Wobble up to about 50% and play something sustained - a pad, a held vocal note. The seasick drift is the character of the mode and it shows up best on long notes. The narrow, telephone-like tone is deliberate; lean into it rather than trying to EQ it back, and try a reverb after it for a washed-out, faraway sound.

Lo-Fi

Degraded digital delay. Bit reduction and sample-rate reduction accumulate with each feedback pass, so the first repeat is relatively clean and later repeats fall apart into crunch, aliasing and digital artefacts. This is not a clean delay with a bitcrusher on the output - the degradation lives inside the feedback loop, so it builds with every repeat.

Controls

Time - Range: 10 to 2000 ms, or a note division with Sync (on by default). Default: 400 ms. **Feedback** - Range: 0 to 90%. Default: 45%.

Bits - Range: 2 to 16. Default: 8. Resolution of the delay: 16 is full quality, 8 is a classic digital crunch, 4 is heavily crushed, 2 is extreme and jagged on purpose. **Rate** - Range: 500 to 44100 Hz. Default: 8000 Hz. Sample-rate reduction; lower values give grittier, more aliased repeats.

Degrade - Range: 0 to 100%. Default: 40%. How much quality is lost per repeat. At 0% the degradation is static - every repeat has the same bit depth and rate. Higher values fall apart faster with each pass. **Sync** - On by default. **Mix** default 50%.

Character

The first repeat is relatively clean, and each following repeat loses a little more resolution and clarity - that is the point. The build-up resets once the delay falls silent between phrases, so each new phrase starts fresh rather than carrying the last one's damage.

Tip: Set Degrade to 0% for a fixed lo-fi character that never worsens. Low Bits, low Rate and high Degrade is glitch territory. Automate Degrade for a transition from clean to destroyed across a build-up, and pair high Feedback with Degrade to slowly bury the repeats.

Multi-Tap

Four independent delay taps, each with its own time, level and pan, for rhythmic patterns, polyrhythms and wide stereo from a single delay. The interface grows to show all four taps.

Controls

Time 1-4 - Range: 1 to 2000 ms each, or note divisions with Sync. Defaults: 125, 250, 375, 500 ms. **Level 1-4** - Range: 0 to 100% each. Defaults: 100, 80, 60, 40%. **Pan 1-4** - Range: -100 (left) to +100 (right). Defaults: -50, 50, -25, 25.

Feedback - Range: 0 to 90%. Default: 25%. How much of the delay is sent back round to repeat again.

Feedback Source - which one of the four taps gets sent back. Default: Tap 4. All four taps always sound; this only decides which one regenerates. Because each tap sits at a different time, the choice sets how often the whole pattern comes back round: with the default times, choosing Tap 4 sends it round every 500 ms, while Tap 1 sends it round every 125 ms and the pattern piles up four times as densely. Same four taps, quite different behaviour.

Tone - Range: 1000 to 16000 Hz. Default: 6000 Hz. Feedback low-pass filter. **Sync** - On by default. **Mix** default 60%.

Pattern - a rhythmic preset: Custom, Quarters, Eighths, Dotted, Triplet, Gallop, Cascade or Golden. Choosing a preset other than Custom sets all four taps and greys out the tap knobs - the pattern is driving them. Switch Pattern to Custom to unlock the knobs; they keep the last preset's values as a starting point to edit from.

Tip: New to it? Set Pattern to Quarters, Feedback to about 60%, then switch Feedback Source between Tap 1 and Tap 4 and listen to how the spacing of the repeats changes. At the default 25% Feedback there is barely any regeneration to hear, which is why it can seem to do nothing. Once you have the feel of it: start from a preset, switch to Custom, and fine-tune the taps. Pan them alternately left and right for a wide stereo rhythm, set Feedback Source to the longest tap for a natural decay that carries the full pattern, and drop the distant taps in Level so it fades away.

Ping-Pong

Stereo bouncing delay. The delay is fed a mono sum of your input; the first repeat lands on one side and each following repeat bounces to the other, for a wide stereo effect. Your dry signal stays untouched in stereo.

Controls

Time - Range: 10 to 2000 ms, or a note division with Sync (on by default). Default: 375 ms. **Feedback** - Range: 0 to 90%. Default: 40%. Cross-feedback amount. **Tone** - Range: 1000 to 16000 Hz. Default: 8000 Hz. Low-pass in the cross-feedback path; darkens the bouncing repeats.

Width - Range: 0 to 100%. Default: 100%. How far apart the two sides of the bounce sit. At 100% the repeats alternate hard left and hard right - the classic effect. Wind it down and the two sides move toward each other, until at 50% they meet in the middle and the bounce disappears into mono. Keep it between 50 and 100% for a stereo image; below 50% the sides swap over, which is there if you want it but is rarely what you are after.

Offset - Range: -50 to +50%. Default: 0%. Makes one side's delay time longer than the other for lopsided, polyrhythmic bounces. At 0% both sides are symmetric; positive values lengthen the right side, negative values shorten it. **Sync** - On by default. **Mix** default 50%.

Tip: New to it? Put it on a stereo track, Sync on, Time at 1/4, Width at 100% and Feedback around 40%. You should hear the repeats jumping left, right, left, right. If it sounds mono, check Width is not near 50%. Use Offset with Sync for polyrhythmic stereo patterns.

Automation

Every on-screen control in every mode is exposed to your host and can be written and read through its automation lanes like any other parameter, including the Mode selector itself. fDelay's complete state, including all eight modes, the active mode and the serial, is saved with your session (DAW, Console, Standalone or Rack).

Units and Patch Cards

fDelay's character lives in its serial number. There are two ways to keep and move your work: units (the character) and patch cards (the whole setup).

The unit menu

A unit is this delay's character on its own - its serial and the analogue voice that serial produces, with no settings attached. The Unit button in the header opens the menu:

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

Patch cards

A patch card is a portable copy of the whole plugin - the serial and every setting across all eight modes - written to a single file, so one card carries your entire fDelay setup.

Save Patch Card writes the current plugin to a card (a .json file) you choose the home for. **Load Patch Card** reads one back in, and if the card was saved on a different unit it asks how to bring it in:

Option	What it does
Recall Unit	Bring back the exact unit the card was saved on - its character and all its settings.
Apply Settings Only	Keep your current unit'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. The Reset button, by contrast, clears only the current mode's controls back to their defaults and never touches a card.

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.*

Quality

The Quality selector sets the processing quality of the analogue stages:

Tier	Use
Eco	Lowest CPU. Sounds great for tracking and dense sessions.
Studio	The sweet spot for mixing. Richer saturation and enhanced quality on the analogue path. The default.
Master	Maximum quality. 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.*

Performance and CPU

The quality of the analogue stages costs CPU. fDelay gives you the same Eco / Studio / Master control the rest of the range uses, so you can mix light and render heavy.

Mix light, render heavy

Mix at Studio, or drop to Eco if your machine struggles - the sound 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. Close editor windows you are not using, and freeze or bounce the track when you want the heavy processing to run offline.

What fDelay Writes To Your Computer

For transparency, here is everything fDelay writes and where. It writes nowhere else, and sends nothing anywhere unless you choose to.

Folder	Contents
Documents/fBox/Diagnostics	Plain-text diagnostic logs, kept so a crash can be worked out afterwards. There is a folder per product; an fDelay running inside the Console or Rack logs into that host's folder, alongside the rest of the session.
Documents/ fBox Units	Your saved units, so you can find, back up and share them.
AppData/Roaming/fBoxAudio (Windows)	Your licence, and a small settings file recording which unit you have pinned.

Patch cards go wherever you save them. The plugin's own state lives in your session, not in a file of its own. Nothing is filed away somewhere you did not pick, and nothing is written to your Desktop.

When something goes wrong

Diagnostics are written automatically as fDelay 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 - send the entire folder, since what else was running alongside fDelay 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.

If you hear clicks or dropouts, raise your host's buffer size (Master quality at a small buffer is the most demanding). If a fault ever appears, the FAULT light and the Reset Engine button clear it without a reload; if it keeps returning, switch the Quality tier and back, or reload the plugin. If you cannot hear any delay, check that Mix is above 0%, Bypass is off, and Feedback is above 0%.

Analogue Character

Every instance of fDelay generates a unique serial number, shown in the top-left watermark. It defines the unit's hardware character across the whole delay path, and it shapes every mode - most audibly the analogue ones: the tape, bucket-brigade, oil-can and lo-fi modes.

On real analogue delays, no two units from the same line sound identical. The repeats darken at their own rate. One tape head breaks up a touch sooner. The motor has its own pitch character. The wobble drifts to its own timing. Even the noise floor has a different colour. Push two units to the same settings and one sings where the other growls.

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

Tip: *You cannot dial a unit's character to order any more than you can a real one - but you can learn it, and you can keep it. Find one you love, pin it, and it is the delay you open every time. If you want two identical delays, save a patch card from one and load it on the other with Recall Unit - the serial and all its character transfer with the card.*

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