Desert Moon Audio

ECHO THING

ET-01

Lo-Fi Analog Echo Processor

USER MANUAL

VERSION 1.0.8

Contents

Echo Thing is a delay built around the behaviour of a vintage echo chip — one whose clock rate falls as you ask for more time, so long settings darken, grain up and eventually fall apart. That collapse is the instrument, not a defect.

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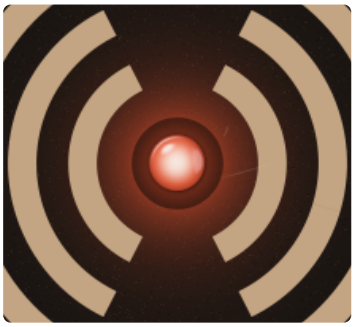
ABOUT THE RED ZONE

Two of the printed scales run into red — the top of **TIME** and the top of **F-BACK**. Those markings are not a warning. They show where the emulated chip starts to lose its grip: above roughly 250 ms the repeats darken and grain up, and above about 93% feedback the delay will sustain on its own indefinitely.



The lamp beats at the delay time — including when following your session tempo — and brightens with the level of the echo.

1 Installation · 2 Quick Start

1.1 What Gets Installed

FORMAT	LOCATION
Audio Unit	`/Library/Audio/Plug-Ins/Components/Echo Thing.component`
VST3	`/Library/Audio/Plug-Ins/VST3/Echo Thing.vst3`
AAX	`/Library/Application Support/Avid/Audio/Plug-Ins/Echo Thing.aaxplugin`
VST3 (Windows)	`C:\Program Files\Common Files\VST3\Echo Thing.vst3`
AAX (Windows)	`C:\Program Files\Common Files\Avid\Audio\Plug-Ins\Echo Thing.aaxplugin`

1.2 First Launch

Most hosts scan for plug-ins only at start-up. If Echo Thing does not appear, quit the host completely and reopen it — it will not be found while the host is already running.

In **LUNA**, the plug-in appears under **Desert Moon Audio** in any insert slot. If it still does not show after a relaunch, delete the host's plug-in cache file (`au.json`, inside its `workspace/plugin_cache` folder under `~/Library/Application Support`) and launch again to force a full rescan.

> **ON A MONO TRACK**
>
> Echo Thing offers mono → stereo as well as mono → mono. Choose the stereo option on mono sources — a vocal, a guitar — or **PING-PONG** has no second channel to bounce into and will do nothing.

2.1 Five Minutes In

Everything below is on the panel in front of you. Nothing is hidden in a menu.

#	DO THIS	WHAT IT GIVES YOU
1	Insert on a vocal, guitar or snare	Starts on *Default* — a usable 320 ms echo
2	Step through presets with ◀ ▶	The fastest tour of what the unit does
3	Tick **SYNC**, choose **1/8**	Repeats lock to your session tempo
4	Raise **F-BACK** past 12 o'clock	Repeats stack up and start to smear
5	Switch **CHARACTER** to *Broken*	The circuit stops behaving itself
6	Pull **HIGH CUT** down to about 4 kHz	Repeats sit behind the dry signal instead of on top

2.2 Typing Exact Values

Right-click the **F-BACK**, **TIME** or **MIX** knob to type a number straight in. Press `Return` to accept, `Esc` or a click anywhere else to cancel.

Frequency fields accept either form: `4200` and `4.2k` land on the same value.

2.3 Resizing

Drag any corner of the window. The panel keeps its proportions and the size is remembered with your session.

1.3 The 14-Day Trial

Echo Thing runs **fully featured for fourteen days** from the first time it loads — every control, every preset, nothing muted and nothing held back. The strip along the bottom edge of the panel — **TRIAL – 14 DAYS** — counts the days down. When the trial ends the plug-in stays in your sessions but passes audio through dry until a license is entered, so a session opened later is never damaged — just dry. Licenses are sold at **desertmoonaudio.com**.

1.4 Entering Your License

Your license key is in the order email: one long line beginning `DMA1-`. Click that strip, paste the key in and press **Activate**. The first activation on a machine takes one quick internet check, which registers this computer against your key; from then on the plug-in runs fully offline, apart from its once-a-day update check. There is no account and no dongle. One key covers every format — Audio Unit, VST3 and AAX — and is kept in `~/Library/Desert Moon Audio/Echo Thing/` on macOS.

1.5 Seats and Moving Machines

One key activates **up to four computers you personally own** — a studio desktop, a laptop and a couple of spares. To move to a new machine, open the preset bar's menu on the old one and choose **Deactivate This Machine…**; that hands the seat back at once and returns that copy to trial mode. If the old machine is gone — sold, wiped or dead — write to **info@desertmoonaudio.com** with your order number and the seat is released by hand.

1.6 Updates and Support

Updates are free for as long as you own the plug-in. Echo Thing checks once a day for a newer version and shows a small notice on the panel when one exists; download the current installer and run it over the top — nothing needs to be uninstalled and your presets stay where they are. Questions, problems or a lost key: **info@desertmoonaudio.com**.

3 The Panel at a Glance

1 **Preset bar** — presets, A/B, undo, save

2 **Power** — bypass; the lamp shows it is running

3 **F-Back** — how many repeats, scaled in seconds of decay

4 **Time** — delay length, 30 to 620 ms

5 **Lamp** — beats at the delay time; click it to bypass

6 **Mix** — dry against echo, up to an even blend

7 **Character** — clean, Tape or Broken

8 **Name plate** — model identification

9 **Sync & division** — lock to session tempo

10 **Tap** — tap the tempo in by hand

11 **Ping-pong & tone** — stereo bounce, low and high cut

12 **Input & output** — drive in, level out, with meters

3.1 How the Signal Runs

Input trim feeds a saturating preamp stage, which runs at four times the host sample rate so that its distortion does not fold back on itself. That feeds the delay lines. **Low Cut** and **High Cut** sit on the repeats *outside* the feedback loop, so they colour the echo without changing how long it takes to decay — turn the tone controls and the number of repeats stays exactly where you set it.

4 The Three Main Controls

TIME

30 – 620 ms · default 320 ms

How long before the first repeat. The printed marks — 30, 50, 80, 110, 200, 300, 450, 620 — are milliseconds, and they are measured, not decorative: each sits on its own notch, and setting the knob to that notch gives you that time.

The scale is deliberately uneven. Most of the travel goes to the short slap-back times where small changes matter, and the long end is compressed.

Above 250 ms the scale turns red. The emulated chip runs its clock more slowly to reach longer times, so the repeats lose top end, gain grain and pick up noise. This is the sound of the circuit working hard, and it is most of why you would reach for this delay rather than a clean one.

F-BACK

0 – 100 % · default 35 %

How much of the echo is fed back in — in short, how many repeats you get.

The printed numbers are **not** percentages. They are *seconds of decay*: how long the echo takes to fall away to silence at that setting. Set the knob to 5 and the tail lasts about five seconds. Each number sits on its own notch, and the decay at that notch was measured off the running engine.

Past the ∞ mark the delay sustains indefinitely. It will not run away into distortion — the loop is limited — but it will hold until you turn it back down. This is a performance control; ride it.

MIX

0 – 100 % · default 40 %

Dry against echo. The scale reads 1:0 at one end and 1:1 at the other.

Fully up is an even blend, not an all-wet one. The unit is voiced so that whatever you put through it stays intelligible however far you turn this — if you need pure echo, use a send.

> **READING THE SCALES**
>
> Every printed number on this panel corresponds to a measured value from the engine, not to a knob angle. Where the two disagreed, the printing was moved.

5 Character

Three voicings of the same circuit. One is always engaged.

Character changes how the emulated chip behaves — its clock speed, its bit depth, its noise floor and how far its filters open. It is a change of circuit, not an effect placed after one.

CLEAN

A well-maintained unit

Clock runs fast, noise floor low, filters open to about 9.5 kHz. Repeats stay close to what you put in and the Red Zone is far milder. Use it where the echo has to sit inside a busy mix without drawing attention.

TAPE

The reference voicing · default

The middle setting, and the one everything else is measured against — the seconds printed around **F-BACK** were calibrated here. Filters at 7 kHz, a small amount of grain, repeats that darken steadily as they fade. Start here.

BROKEN

A unit that has been dropped

Clock roughly halved, two and a half bits thrown away, noise floor well up, filters closed to 4.2 kHz. Repeats fall apart quickly and audibly. On a long **TIME** with high **F-BACK** this collapses into something closer to a texture than an echo.

> **WHY THE F-BACK SECONDS SHIFT A LITTLE**
>
> Each voicing has different losses in its feedback loop, so the printed decay times are exact on *Tape* and drift slightly on the other two — longer on *Clean*, shorter on *Broken*. The printing tells the truth about the setting it was measured on rather than being an average that is wrong everywhere.

6 The Panel Section

Everything a classic tape echo never had, kept together and marked off from the rest.

PING-PONG

0 – 100 % · default 0 %

At zero, the two delay lines are independent and the echo sits where the source sits. As you turn it up, each line feeds the *other* one, so repeats alternate left and right. At maximum they feed each other exclusively and the input collapses to the left line first, which is what makes the bounce read clearly.

Needs two output channels. On a mono → mono instance this control does nothing.

LOW CUT

20 Hz – 2 kHz

Two poles of high-pass on the repeats. Fully anticlockwise it is genuinely off, not merely wide. Use it to keep echoes out of the way of a bass part.

HIGH CUT

500 Hz – 20 kHz

Two poles of low-pass on the repeats. The quickest way to push echoes behind the dry signal. Fully clockwise it is off.

INPUT

-12 to +24 dB

Drive into the preamp stage. Past about +6 dB it saturates audibly and adds harmonics. The meter reads what is being *asked* of the stage, before the saturator's own ceiling, so it shows how hard you are pushing.

OUTPUT

-24 to +12 dB

Level leaving the plug-in. Use it to pull back after driving the input hard. The meter's top two segments are red; a clip latches for two seconds so a brief overshoot is not missed.

> **TONE CONTROLS AND DECAY**
>
> **Low Cut** and **High Cut** act on the repeats but sit outside the feedback loop. This is deliberate: inside the loop, every filter change would also change how much survives each pass, and the seconds printed around **F-BACK** would stop being true. Set the tone however you like — the number of repeats will not move.

7 Tempo Sync and Tap

7.1 Sync

Tick **SYNC** and the delay follows your session tempo instead of the **TIME** knob. The knob greys out, the division menu becomes live, and the read-out below shows the resulting time in milliseconds so you can always see what you are actually getting.

If the host reports no tempo, Echo Thing falls back to 120 BPM rather than going silent.

Divisions

DIVISION	AT 120 BPM	DIVISION	AT 120 BPM
1/32	62.5 ms	1/4T	333.3 ms
1/16T	83.3 ms	1/8.	375 ms
1/16	125 ms	1/4	500 ms
1/8T	166.7 ms	1/2T	666.7 ms
1/16.	187.5 ms	1/4.	750 ms
1/8	250 ms	1/2	1000 ms

T is a triplet, **.** is dotted.

> **SYNC REACHES FURTHER THAN THE KNOB**
>
> The **TIME** knob stops at 620 ms, but tempo sync runs to 2 seconds. At 120 BPM the **1/4.** and **1/2** divisions give you 750 ms and a full second — times the knob cannot reach on its own. They are deep in the Red Zone and sound like it.

7.2 Tap

Tap the **TAP** lens in time, at least twice. Echo Thing averages your last four taps and sets **TIME** to match, so the reading settles as you keep tapping rather than jumping about on every beat.

Taps closer together than 100 ms are treated as a double-click, and gaps longer than 2.5 seconds as you coming back to it later. Either one clears the count and starts fresh instead of dragging the average somewhere silly.

Tapping switches SYNC off automatically. A tap is a manual time, and leaving sync engaged would set the value and then immediately override it with the host tempo.

7.3 The Lamp

The lamp in the centre of the panel beats at whatever delay time is in force — from the knob, from the tap, or from your session tempo. It brightens with the level of the echo passing through, so you can see the repeats decay.

At very short delay times the flash would be faster than the eye can follow. Below about 120 ms it progressively softens, and by around 40 ms it is a steady glow rather than a strobe — with the resting brightness rising as the flash fades out, so the lamp keeps the same average level either way.

Click the lamp to switch the unit in and out of bypass — the same as the power switch.

8 Presets

Left to right: previous, next, name window, A/B, undo, redo, save, revert, menu.

CONTROL	WHAT IT DOES
◀ ▶	Step to the previous or next preset, factory and yours together, wrapping at each end
Name window	Shows what is loaded. Click it to open the full list. A dot appears once you have changed anything
Save	Writes the current settings as a preset of your own. You are asked for a name
Revert	Puts back the loaded preset, discarding your edits. Greyed out when there is nothing to discard
Menu	Factory and user lists, Save As, Delete, and Open Preset Folder
A / B	Two states to flip between while you listen; the key shows which you are on. The first flip changes nothing, and power is not included
Undo / Redo	Steps back and forward through parameter moves; a drag is one step, and so is an A/B flip

8.1 Factory Presets

Default
A usable eighth-note echo. The starting point.
320 MS · 35 % · TAPE

Vocal Slap
Short, bright, out of the way. Thickens a lead without being heard as an effect.
95 MS · 18 % · CLEAN

Quarter-Note Throw
Synced quarters with the top rolled off. For throws on a line ending.
SYNC 1/4 · 52 % · TAPE

Dotted Eighth
The rhythmic one. Dotted eighths with a touch of bounce and drive.
SYNC 1/8. · 46 % · TAPE

Red Zone Wash
Deep in the Red Zone on Broken. Dark, grainy, unstable.
470 MS · 68 % · BROKEN

Ping-Pong Wide
Repeats alternating hard left and right. Clean voicing so the bounce reads.
260 MS · 55 % · CLEAN

Dub Chamber
Long, dark, driven, with the repeats moving across the field.
400 MS · 78 % · TAPE

Runaway
Just under self-oscillation. A performance patch — ride F-Back.
560 MS · 97 % · BROKEN

8.2 Your Own Presets

Saved presets are files, so they are available in every session and every host, not just the one that made them:

`~/Library/Application Support/Desert Moon Audio/Echo Thing/Presets/`

Each is a small `.etpreset` file. Copy them between machines freely, or back them up with the rest of your work.

Bypass is never part of a preset: loading one cannot switch the unit off, and touching the power switch never marks a preset as edited.

9 Getting Sounds

9.1 Vocals

Start with *Vocal Slap*. Keep **MIX** low — 20 to 30% — and bring **LOW CUT** up to around 150 Hz so the repeats do not thicken the low mids. If the echo competes with the words, pull **HIGH CUT** down to 5 kHz before you reach for the mix knob.

9.2 Throws

Put Echo Thing on a send rather than an insert, set **MIX** to maximum, tick **SYNC**, and choose **1/4** or **1/8.** Automate the send up on the last word of a phrase. The *Quarter-Note Throw* preset is set up for exactly this.

9.3 Guitars and Keys

The Red Zone is where this unit earns its keep. Take **TIME** above 300 ms, **CHARACTER** to *Tape*, and **F-BACK** to about the 5-second mark. Add **INPUT** until the repeats start to compress. The tails should darken as they fade.

9.4 Drums

Short times, low mix, *Broken*. Set **TIME** under 80 ms and use **PING-PONG** at 40 to 60% to widen a snare without a stereo reverb. Keep **F-BACK** under 25% or the kit will smear.

9.5 Textures

Take **F-BACK** past the ∞ mark with **MIX** up and *Broken* engaged, then move **TIME** slowly while it sustains. Because the delay line is re-clocked rather than resampled, sweeping the time while the loop is running pitches and mangles what is already in it. Record the result.

> **WATCH THE OUTPUT**
>
> Self-oscillation with the input driven hard will build level. The loop is limited and cannot run away into damage, but the output meter's red segments are worth keeping an eye on — pull **OUTPUT** back rather than letting the next plug-in deal with it.

9.6 A Note on the Dry Path

When the unit is bypassed the dry signal is still delayed by the plug-in's reported latency, so switching bypass on and off does not shift your audio in time against the rest of the session. You can A/B freely without anything sliding.

10 Parameter Reference

Every parameter below is exposed to the host for automation.

PARAMETER	RANGE	DEFAULT	NOTES
Time	30 – 620 ms	320 ms	Skewed toward short times; red above 250 ms
F-Back	0 – 100 %	35 %	Printed in seconds of decay; sustains above ≈93 %
Mix	0 – 100 %	40 %	100 % is an even dry/wet blend
Character	Clean / Tape / Broken	Tape	Changes clock, bit depth, noise and filtering
Ping-Pong	0 – 100 %	0 %	Requires a stereo output
Low Cut	20 Hz – 2 kHz	20 Hz	Off at minimum; two poles, on the repeats
High Cut	500 Hz – 20 kHz	20 kHz	Off at maximum; two poles, on the repeats
Input	-12 – +24 dB	0 dB	Drives the saturating preamp
Output	-24 – +12 dB	0 dB	Final level
Tempo Sync	Off / On	Off	Follows host tempo; 120 BPM if none reported
Division	1/32 – 1/2	1/8	12 steps including triplets and dotted
Bypass	Off / On	Off	Shared with the host's own bypass control

10.1 Printed Scales

Time — milliseconds

MARK	MEANING
30 – 110	Slap-back and doubling
180 – 250	Rhythmic, still clear
290 – 620	Red Zone — dark and grainy

F-Back — seconds of decay

MARK	MEANING
1 – 3	A few distinct repeats
5 – 12	Tails that wash together
25 – ∞	Very long, then self-sustaining

> **AUTOMATION**
> Sweeping **Time** while repeats are in the delay line pitches them, exactly as moving the control on a tape echo would. This is a feature worth automating, not an artefact to avoid.

11 Specifications

ITEM	SPECIFICATION
Formats	Audio Unit, VST3 and AAX on macOS (universal binary, Apple Silicon and Intel); VST3 and AAX on Windows
Platform	macOS 10.13 or later — universal binary, Apple Silicon and Intel
Sample rates	44.1 kHz to 192 kHz
Channel layouts	mono → mono · mono → stereo · stereo → stereo
Latency	3 samples, reported to the host. Bypass is latency-compensated
Tail length	4 seconds reported, so offline bounces capture the decay
Delay range	30 to 620 ms from the knob, to 2 seconds under tempo sync
Oversampling	4× on the preamp stage only, half-band polyphase IIR
Processing	32-bit floating point throughout
Automation	12 host-automatable parameters
Presets	8 factory, unlimited user presets as files
Interface	Freely resizable, aspect locked; size stored with the session

11.1 Why 4× Oversampling on the Preamp Only

The delay chip's aliasing is wanted — it is a large part of what the circuit sounds like, and removing it would remove the character. The preamp's saturation folding back on itself is not wanted: a valve or transformer stage has no Nyquist frequency to fold around, so an emulation that does sounds wrong. The preamp alone therefore runs at four times the host rate, and nothing else does.

11.2 Troubleshooting

SYMPTOM	CAUSE AND REMEDY
Does not appear in the host	Hosts scan at start-up only. Quit fully and reopen
Ping-pong does nothing	The instance is mono → mono. Re-insert choosing the stereo output option
Tap will not hold a tempo	Gaps over 2.5 s clear the count. Tap four beats at a steady rate
Repeats sound dull	Expected above 250 ms, and more so on *Broken*. Shorten the time or switch to *Clean*
Blocked by Gatekeeper	Only on machines other than the one it was built on

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