



VERDALIS

Natural sound synthesis

VerdaliScene

Every Verdalis instrument, one place

Version 0.6.0

CLAP instrument for Linux and Windows

Part of the Verdalis Plugin Suite

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Introduction

VerdaliScene is a CLAP instrument that builds a whole place out of the Verdalis suite. It layers the nine nature instruments — RainyDay’s rain, ThunderClap’s thunder, ShoreBreak’s waves, SkyHowl’s wind, ChirpParade’s birds, RiverFlow’s water, CrackleBlaze’s fire, InsectSwarm’s insects and NightLife’s night — and mixes them into one scene. Every sound is computed while the plugin plays; nothing is played back, and no two playbacks are the same.

A layer is the plugin itself. VerdaliScene contains no copy of any of them. A rain layer is RainyDay’s own engine, with RainyDay’s parameters, RainyDay’s preset library and RainyDay’s panels. Whatever a plugin can do, its layer can do, and a preset you made in the plugin loads straight into a layer.

A scene is a drone you hold. Press a key and the whole place fades in; let go and it fades out. While the key is down nothing else is asked of you: every layer plays on its own, the thunder flashes when it flashes and the birds sing when they sing. Which key does not matter, and no key ever plays a single event.

VerdaliScene 0.6.0 has effects. Every layer, and the scene as a whole, has its own reverb, delay, chorus, flanger, phaser, stereo widener and auto-pan, saved with the scene. Since 0.2.0 a key starts a scene and letting go ends it, every layer fades in and out on its own envelope as well as the scene’s, the mixer’s strips carry each layer’s envelope and filter, and every envelope’s stages can be bent. Projects and scenes saved with an earlier version sound as they did: they carry their own *Gate*, and every effect starts switched off.

What is in this manual

Installing is the boring part. *A first scene* is five minutes. *How it works* is what a layer is, how a held key plays a whole scene, and what the scene adds on top. *The plugin window* is the tabs and the mixer. *The parameter reference* lists the scene’s own controls and is generated from the plugin’s own table; a layer’s controls are its plugin’s and are documented in that plugin’s manual. *The preset library* lists the factory scenes.

Installing

VerdaliScene is one self-contained `.clap` file plus its `presets` folder, and a `.vst3` bundle beside it. It does not need the other plugins installed: the nine instruments are built into it. There is nothing to register and no runtime to install.

Linux

Copy the plugin folder into your CLAP directory:

```
~/clap/VerdaliScene/VerdaliScene.clap
~/clap/VerdaliScene/presets/
```

and, for the VST3, `~/vst3/VerdaliScene.vst3`. A system-wide install goes in `/usr/lib/clap` and `/usr/lib/vst3`.

Windows

```
C:\Program Files\Common Files\CLAP\VerdaliScene\
C:\Program Files\Common Files\VST3\VerdaliScene.vst3
```

Copy the whole `VerdaliScene` folder so that `VerdaliScene.clap` and `presets\` sit inside it, and rescan.

Hosts

Any CLAP host: Bitwig Studio, Reaper, Qtractor, or the reference `clap-host`. VerdaliScene appears as an instrument under the vendor **Ravetracer**. In a VST3 host it appears the same way; the plugin's own preset browser lists the factory scenes there too, though the host's own browser will not.

A host lists every layer's parameters, whether the layer is in the scene or not, because a plugin's parameter list cannot change while it runs. They are named by layer — *Rain 1 Density*, *Rain 2 Density* — and grouped the same way, so the ones in use are easy to find for automation.

Your own scenes

SAVE in the bar at the bottom writes the scene to your user preset folder:

```
| Linux | $XDG_CONFIG_HOME/VerdaliScene/presets, or ~/.config/VerdaliScene/presets | | Windows |
%APPDATA%\VerdaliScene\presets |
```

The browser files the library in **collections**, exactly as in every other Verdalis plugin: **NEW**, **RENAME** and **DELETE** under its list of collections, a preset dragged onto one moves there, and a right-click on one of your own renames it, describes it or deletes it. **SAVE** asks which collection a scene goes into, with a name and a description for whoever loads it next. A whole collection — only the scenes in it — exports as one **preset pack** and imports again as a collection of its own. The same goes for every layer's library.

Your own layer presets

The *SAVE* in a layer's own bar writes a preset **of that layer's plugin**, into that plugin's own user folder — a rain layer saves a `.rainyday` preset to `~/config/RainyDay/presets`. It then shows up in RainyDay as well, and every RainyDay preset you have shows up in a rain layer's browser.

Building from source

```
./install.sh          # configure, build, self-test, install to ~/.clap
./install.sh --vst3    # and the VST3
```

VerdaliScene is built from the nine plugin folders beside its own, so the suite has to be checked out whole.

A first scene

1. Load VerdaliScene on an instrument track. It is silent: an empty scene.
2. Choose **Forest River** in the scene bar at the bottom, and hold any key. The scene fades in over a couple of seconds; let go and it fades out again. The *GATE* light on the scene's strip is lit while the key is down.
3. Open the **BIRDS 1** tab. These are ChirpParade's controls; try another ChirpParade preset in the layer's bar at the top of the page.
4. Back on **SCENE**, pull the river's fader down and the birds come forward.

Four things to try first

- **Add a layer.** + at the end of the tabs, then **Thunder**. The storm comes in with the first flash some seconds later, not at once; *Storm Rate* on its page sets how often.
- **Place a sound.** On a layer's strip, switch *STEREO* to *MONO* and move its pan: the layer becomes one point in the field, the way a single bird or a stream off to one side is.
- **Close the scene in.** On the scene page, a lowpass around 1 kHz is the scene heard from indoors; *Width* at 50 % pulls it narrow.
- **Shape how it comes and goes.** Drag the release in a strip's envelope graph upwards and the layer hangs on after the key before it goes; drag it down and it drops away at once. The scene's own graph, on the strip at the right, does the same for everything together.
- **Put a sound in a place.** Click the row of letters on the birds' strip to open their effects, switch on the **Reverb** and give it a long *Decay*: the birds are now singing in a large, open space while everything else stays where it was. Load **Canyon Echo** or **Cave Mouth** to hear what the effects were built for.
- **Tie it to the song.** Set *Gate* to *Transport* and the scene fades in when the host plays and out when it stops, on the *Attack* and *Release* you set. On *Always* it plays from the moment the plugin runs, with no key and no transport at all.

How it works

A layer is its plugin

Each of the nine plugins keeps the step that turns its parameters into its engine's settings in a file of its own, and VerdaliScene calls that same file. So a parameter in a layer is not an imitation of the plugin's parameter: it is the plugin's parameter, read by the plugin's code, driving the plugin's engine.

That is why a layer has every control its plugin has, and why its presets move both ways. Loading a preset into a layer and saving the layer straight back gives the preset you started with, value for value; the self-test checks that for all 163 factory presets of the nine plugins.

Up to four layers of a kind run side by side — rain on a roof, rain on leaves and a distant wall of rain at once. Each is a whole instance of its engine with its own randomness, so two layers of the same preset are two different rains, not one rain twice as loud.

The drone note

The plugins are instruments: a held note is what makes them sound. In a scene every layer is played by one note of its own, held for as long as the scene's gate is open — middle C, at velocity 0.9, whatever key opened the gate. Middle C is the pitch every plugin's note tracking treats as neutral, so *Note Tracking*, *Filter Key Track* and the like change nothing.

Velocity is less tidy: the plugins do not share a neutral one. Five of them reference their velocity controls to full velocity, four to half. What they do share is how their presets were made — every preset in the suite was fitted and rendered at 0.9 — so 0.9 is the velocity at which a layer sounds the way its preset does in its own plugin. The *Velocity to ...* controls still act, as they would on a note played at 0.9.

The note also gives every layer its own envelope back. Opening the gate strikes every layer's note, so each fades in on its plugin's *Attack*; closing it lets every note go, so each fades out on its own *Release* — inside the scene's envelope, which shapes the sum. A slow layer under a quick scene release is cut short by the scene; a quick layer under a slow one is gone before the scene is. Adding a layer while the gate is open fades it in, and removing one lets it fade out before the engine is put away.

Thunder flashes at random

ThunderClap has three modes, and a scene has use for one of them: *Storm*, which keeps flashing for as long as its note is held. A thunder layer is held in Storm, and its *Mode* control is left off the page. Flashes arrive as a Poisson process at *Storm Rate*, never on a grid, and every one is grown afresh at its own distance, height and bearing around *Distance*.

A real storm overhead flashes several times a minute; one passing at a distance, heard and not seen, rumbles every half minute or so. The factory scenes use two or three a minute. The first flash comes at a random moment within the storm's first average interval — never the instant the layer starts, so a scene does not open on a thunderclap, and never so late that a new storm seems to do nothing. What you hear of it can come a good deal later than the flash itself: thunder travels at the speed of sound, and a strike five kilometres off takes fifteen seconds to arrive.

Birds and the night sing by themselves

ChirpParade and NightLife have two halves. The flock — or the pack, or the chorus — sings unprompted while a note is held, and that half needs nothing from a scene. The other half is the phrase a note fires: one bird, one call, where you asked for it.

A scene fires that phrase at random instead, at the layer's **Shot Rate**, and at the plugin's own *Shot Level*. So a preset built around one deliberate bird — *Nightingale Song*, *Robin Whistle*, *Blackbird Song* — has its bird in a scene too, singing now and then. With *Shot Level* off nothing fires, whatever the rate.

The mixer

One strip per layer, in the order of the tabs, and the scene's own strip at the end. More layers than fit side by side scroll, with the arrows beside *MIXER* or the wheel over a layer's name.

A strip is a channel strip. Under the layer's name is its **envelope**, drawn as it will play, with the plugin's *Attack*, *Decay*, *Sustain* and *Release* as small knobs beneath it; then the plugin's **filter** — its type, *Highpass*, *Cutoff* and *Resonance*. These are the plugin's own controls, the same ones on the layer's page: turn one on the strip and the page has moved too. Thunder's envelope has no decay or sustain, so those two are left blank on its strip. A knob's value shows in the help line while it is under the pointer.

The strip's fader is the layer's **Level**, on top of its plugin's own *Output Gain*; the bars beside it are the layer's level after the fader.

Pan works two ways. With the strip on *STEREO* it is a balance: the far side comes down and the layer keeps its own stereo image. On *MONO* the layer is folded to one point and pan places that point, with the same power wherever it is — a stream off to the left, an owl in one particular tree.

Mute and solo are not saved, in the scene or in the project. They are for listening while you build a scene. A scene that remembered a mute would bring a layer back silent and look as if it were broken.

The scene's own strip, on the right, has the same shape: the scene's envelope and filter, *Output Gain* on the fader, *Width* under it, and the **GATE** light.

Bending an envelope

Every envelope here — the scene's and each layer's — has three stages that move: the fade-in, the fall to the sustain level, and the fade-out. Each can be bent on its own, by **Attack Curve**, **Decay Curve** and **Release Curve**.

At 0 % a stage has its natural shape, the analogue one every Verdalis plugin has always had: the fade-in rises quickly and eases into full level, and the decay and the release fall quickly and trail off. Towards -100 % a stage first straightens into a line and then holds back — a fade-in that swells in late, a release that hangs on and then goes. Towards +100 % it moves at once and then settles. The length of a stage never changes, only the path it takes; and a curve of exactly 0 % is the plugin's own envelope, sample for sample.

The quickest way to bend one is in an envelope graph: drag a stage up or down and it follows the hand, and double-click it for its natural shape again. The flat stretch in the middle is the sustain level, and dragging it sets that. The graph spreads its stages over a logarithmic time scale, so a 2 ms attack and a 20 s release can both be seen and grabbed; within each stage the shape is drawn true.

A layer's curves are the scene's, like its level and pan: they are saved in the scene and stay when another preset is loaded into the layer, but a layer saved as a preset of its plugin does not carry them, because the plugin has no such control. The scene's three are on the *ENVELOPE* panel under the mixer; a layer's are in the *SHAPE* graph in its bar and on its strip.

Effects

Every layer has a chain of effects of its own, and so does the scene as a whole:

phaser → chorus → flanger → **delay** → **reverb** → widener → auto-pan

Modulation first, then the echoes, then the space they happen in, then where the result sits — echoes into a reverb, the way a producer would patch them by hand. Each effect is switched on and off on its own; a switched-off effect costs nothing, and its settings stay where they were. Switching one fades it in or out over a few milliseconds, and an effect switched back on starts clean rather than bringing back the tail it had.

Where they sit. A layer's effects come after its placement and before its fader: a bird folded to *MONO* and panned left goes into its reverb from the left, and the reverb spreads it into the room the way a real one would. The scene's effects come after the layers are summed and filtered.

Tails. *FX Tails*, on the scene's OUTPUT panel, decides what the scene's release does to the effects:

- **Ring Out**, the default: the scene's envelope fades what goes *into* every chain, the layers' and the scene's. When the key is let go the scene fades on its release, and every reverb and delay rings on after it, for as long as its own tail lasts.

A cave stays a cave after the drips have stopped.

- **Release:** the envelope fades what comes *out* of them, after every effect. The tails fade with the rest of the scene and are gone when its release has run out; the next key starts in silence, whatever the effects were doing.

Before 0.4.0 it was neither: the layers' tails were cut by the scene's release and the scene's own rang on.

Opening them. On every mixer strip, under the filter, is a row of letters — **P C F D R W A**, one per effect in chain order, lit when that effect is on. Click the row, or *FX* in a layer's bar, and the page shows that channel's effects: the chain along the top as switches, and a panel per effect with its switch in the title. Switched-off effects are drawn faded and can still be set up. *BACK* returns to where you came from. Every knob drags, types and resets exactly as on any other page.

The effects are the scene's, not the plugin's, like a layer's level and pan: they are saved in the scene, they stay when another preset is loaded into the layer, and a layer saved as a preset of its plugin does not carry them.

REVERB

A sixteen-line feedback delay network, the design Jot described and both Pirkle and Zölzer's *DAFX* recommend for smooth, long tails. Every line loses exactly as much as its length calls for, so every mode decays at the same rate and no single one rings on metallic; and every line drifts slowly, which keeps even a two-minute tail from settling into fixed resonances.

- **Decay** is the time to fall by 60 dB, from 0.2 s to two minutes, and holds at every *Size*. **Freeze** holds the tail as it is, indefinitely, and lets nothing new in — a pad made of whatever was playing.
- **Size** is the space's dimension: the spacing of the echoes, not their length. **Pre-Delay** is the gap before the tail, up to a second.
- **Diffusion** is how quickly the first echoes melt into a wash.
- **Damping** and **Damp Freq** make the top end die faster than the rest above a frequency — soft surfaces, or air over a long distance.
- **Mod Depth** and **Mod Rate** set the drift. More depth is lush; at the top it starts to chorus.
- **Low Cut** and **High Cut** carve the reverb alone, 12 dB/oct each, without touching the dry sound: a cave without its rumble, a hall without its hiss.
- **Width** runs from a mono tail to a fully decorrelated one. **Mix** is equal power. A long tail carries far more energy than a short one, so the wet level comes down a little as *Decay* goes up.

DELAY

- **Mode:** *Mono* is one line heard in both ears; *Stereo* is a line per side; *Ping-Pong* starts the repeats on the left and bounces them across. **Offset** makes the right side up to half again longer or shorter, which turns a ping-pong into a skipping pattern and a stereo delay into a spread.
- **Time** runs from 1 ms to 8 s. With **Sync** on, **Note** sets it as a note value at the host's tempo, triplets and dotted values included.
- **Feedback** goes to 150 %. Up to 100 % the repeats die away; beyond, they build into a held, slowly darkening wall, the way a tape echo pushed past self-oscillation does. The loop saturates rather than running away, and **Saturation** drives it harder.
- **Low Cut** and **High Cut** sit in the loop, so every repeat is thinner or darker than the one before.
- **Wow** and **Wow Rate** make the time waver like tape, by a slow swing and a slower random drift.
- **Diffusion** smears each repeat a little further into a cloud while keeping the time between them.
- **Ducking** pulls the repeats down while the layer is loud and lets them up as it falls quiet.
- **Glide** says how a time change arrives: *Tape* slides to it and bends the pitch of the repeats on the way; *Fade* crossfades to it with no pitch sweep, which suits jumping between note values.
- **Width** and **Mix** as for the reverb.

CHORUS, FLANGER AND PHASER

The **chorus** is up to four drifting copies a few to forty milliseconds behind the original, each running a little faster than the last so the pattern never repeats; **Width** moves the right side's copies a quarter cycle on. The **flanger** sweeps a very short delay against the original and feeds it back — positive for the bright jet, negative for the hollow one; *Mix* at 50 % gives the

deepest notches. The **phaser** sweeps four, six or eight allpass stages around **Centre**, with feedback for a more vocal sound.

WIDENER AND AUTO-PAN

The **widener** works on the difference between left and right. **Width** scales it, from mono to double. **Spread** makes a narrow sound wide by sending different frequencies to different places; it sums back to the original in mono, so it cannot make a mix collapse. **Bass Mono** centres everything below a frequency.

The **auto-pan** moves the whole channel across the field — a flock passing, wind moving down a valley. *Sine* and *Triangle* swing evenly; *Drift* wanders to a new random place each cycle and never stops.

The scene's envelope, filter and output

Everything the layers make is summed and then passes through the scene's own processing, in this order: the **highpass**, the **filter**, the scene's **effects**, **Width**, and **Output Gain**, ending in the suite's soft clip. The **envelope** sits where *FX Tails* puts it: in front of every effect on *Ring Out*, so the tails ring on past it, or after the scene's effects on *Release*, so they fade with it (see *Effects*).

Gate is what starts and ends the scene. *Notes*, the default, holds it open while any key is held — any key at all; the key only opens and closes the scene and never plays a single event in a layer. *Transport* follows the host's play and stop. *Always* opens it when the plugin starts and never closes it, which is the 0.1.0 behaviour. Opening the gate starts the scene's envelope and every layer's note; closing it releases all of them. Once the gate is closed and the scene's release has run out, the layers are stopped rather than run unheard — all but what their effects still hold on *Ring Out* — and the next opening starts them afresh.

Scene files

A scene is a text file in the suite's preset format with layers in it. Each `layer =` line opens a section for one layer, named by its plugin, and what follows is that plugin's own preset keys in its own units — a section copied out of a scene is a working preset of that plugin. A section may also start from one of the plugin's presets by name, which is the short way to write one by hand — the factory scenes, saved from the plugin, carry every value in full instead:

```
layer = ThunderClap
layer_from = Rolling Thunder
layer_level = -1
storm_rate = 3
```

The `layer_` keys are the layer's place in the scene: level, pan, stereo, the three envelope curves and, for birds and night, shot rate. The `fx_` keys are effects: among the scene's own keys for the scene's chain, in a layer's section for that layer's. An effect is only written when it is on or has been changed, so a scene without effects reads as it always did. A scene saved from the window writes every value out in full — every layer's every parameter, the curves and the scene's own — so it does not change if a factory preset it started from is ever refitted. Only mute and solo are left out.

The plugin window

VerdaliScene draws the suite's own window with X11 and Cairo on Linux, and Cairo on the Win32 backend on Windows. There is no toolkit.

Along the top is a tab for the scene and a tab for each layer, and *+* to add one. The **scene page** is the mixer and the scene's own panels. A **layer's page** is its plugin's own panel layout, in the plugin's own colour, under a bar with the layer's preset — browse, step through, save — its envelope graph (*SHAPE*), *FX* for its effects, its level, pan, stereo switch, mute, solo and *REMOVE*. The **effects view** takes the place of a page: one channel's effects, opened from a strip's row of letters or a layer's *FX*. The open tab can also be closed with its cross; a tab that is not open never removes anything when clicked.

The bar at the bottom is always the scene's. Drag a knob to edit it, double-click to reset it, shift-drag for fine control, and click a value to type one.

The header draws a ribbon for every layer of the scene, in the layer's colour and swaying as hard as it is loud. On a layer's page it draws that plugin's own ornament instead.

The parameter reference

What follows are VerdaliScene's own controls: the scene's, the ones that place a layer in it and bend its envelope, which every layer has — the *Layer* table's keys are the ones a scene file uses in a layer's section — and the effects, which the scene and every layer have one set each of. Everything else a layer has is its plugin's, exactly as that plugin's own manual describes it. In the host all of it is one list of 4,484 parameters, named by layer: *Rain 1 Reverb Decay*, *Scene Delay Time*.

There are 83 parameters, grouped the way the plugin window groups them. Every one is automatable and modulatable from the host, and every one can be typed in directly by clicking its value in the window. The name in `code` is the key used in preset files.

ENVELOPE

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Gate <code>gate</code>	Always, Transport, Notes	Notes	What starts and ends the scene. Notes plays while any key is held, Transport follows the host's play and stop, Always plays from the moment the plugin runs. Opening the gate starts every layer, closing it lets every layer and the scene fade out on their own releases. A key never plays a single event in a layer.
Attack <code>attack</code>	1.00 ms ... 30.00 s	1.50 s	How long the whole scene takes to fade in when the gate opens.
Decay <code>decay</code>	1.00 ms ... 30.00 s	1.00 s	Fall from full level to the sustain level after the fade-in.
Sustain <code>sustain</code>	0.0 % ... 100.0 %	100.0 %	Level the scene holds while the gate is open.
Release <code>release</code>	1.00 ms ... 30.00 s	3.00 s	How long the scene takes to fade out when the gate closes.
Attack Curve <code>attack_curve</code>	-100.0 % ... 100.0 %	0.0 %	Bends the scene's fade-in. At 0 % it has its natural shape, rising quickly and easing into full level; lower values straighten it and then hold it back so the scene swells in late, higher values bring it in at once. The length stays the same.
Decay Curve <code>decay_curve</code>	-100.0 % ... 100.0 %	0.0 %	Bends the fall from full level to Sustain. At 0 % it drops quickly and eases out; lower values straighten it and then hold the level up before it falls, higher values drop it at once. The length stays the same.
Release Curve <code>release_curve</code>	-100.0 % ... 100.0 %	0.0 %	Bends the scene's fade-out when the gate closes. At 0 % it falls quickly and trails off; lower values straighten it and then hold the scene up before it goes, higher values let it go at once. The length stays the same.

FILTER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Filter Type <code>filter_type</code>	Lowpass, Bandpass, Highpass, Notch	Lowpass	Response of the filter over the whole scene.
Highpass <code>highpass</code>	20.0 Hz ... 2.00 kHz	20.0 Hz	Rolls off the bottom of the whole scene at 12 dB/oct. Off at the far left.
Filter Cutoff <code>filter_cutoff</code>	20.0 Hz ... 20.00 kHz	20.00 kHz	Corner of the scene filter. A lowpass here is the scene heard through a wall.
Filter Resonance <code>filter_reso</code>	0.0 % ... 100.0 %	10.0 %	Emphasis at the cutoff frequency.

OUTPUT

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Width <code>width</code>	0.0 % ... 200.0 %	100.0 %	Stereo width of the whole scene: mono at the left, as recorded at 100 %, wider beyond.

Output Gain gain	-inf dB ... 12.00 dB	0.00 dB	Final level of the whole scene, after the envelope and the filter.
FX Tails tails	Ring Out, Release	Ring Out	What the scene's release does to the effects. Ring Out fades what goes into every layer's effects and the scene's own, so a reverb or a delay rings on by itself after the gate closes, for as long as it lasts. Release fades what comes out of them, so the tails fade with the rest of the scene and are gone when its release has run out.

LAYER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
Level layer_level	-inf dB ... 12.00 dB	0.00 dB	The layer's fader in the scene mixer, on top of the layer's own output gain.
Pan layer_pan	-100.0 % ... 100.0 %	0.0 %	Where the layer sits. A stereo layer is balanced, a mono one is placed.
Stereo layer_stereo	Stereo, Mono	Stereo	Stereo keeps the layer's own image. Mono folds it to one point that Pan then places, for a source that should come from one direction.
Shot Rate layer_shot_rate	0.00 /min ... 30.00 /min	2.00 /min	Bird and night layers only. How often, at random, the phrase a played note would fire sings on its own, at the layer's Shot Level. Nothing fires while Shot Level is off, and zero stops it.
Attack Curve layer_attack_curve	-100.0 % ... 100.0 %	0.0 %	Bends the layer's own fade-in, the one its Attack sets. At 0 % it has the plugin's natural shape; lower values straighten it and then make the layer swell in late, higher values bring it in at once. The length stays the same.
Decay Curve layer_decay_curve	-100.0 % ... 100.0 %	0.0 %	Bends the layer's own fall from full level to its Sustain. At 0 % it has the plugin's natural shape; lower values hold the level up before it falls, higher values drop it at once. Not on thunder, whose envelope has no decay.
Release Curve layer_release_curve	-100.0 % ... 100.0 %	0.0 %	Bends the layer's own fade-out when the gate closes, the one its Release sets. At 0 % it has the plugin's natural shape; lower values hold the layer up before it goes, higher values let it go at once. The length stays the same.

REVERB

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx_reverb_on	Off, On	Off	Switches the reverb in. Its buffers are made the first time it is.
Mix fx_reverb_mix	0.0 % ... 100.0 %	30.0 %	Dry against wet, equal power: 0 % is untouched, 100 % is the reverb alone.
Pre-Delay fx_reverb_predelay	0.50 ms ... 1.00 s	20.0 ms	Time before the tail begins: the distance to the nearest walls.
Size fx_reverb_size	0.0 % ... 100.0 %	55.0 %	The space's dimension, from a small room to a vast hall. Sets the spacing of the echoes, not how long they last.
Decay fx_reverb_decay	200 ms ... 120.00 s	5.00 s	How long the tail takes to fall by 60 dB, up to two minutes. Exact at every Size.
Diffusion fx_reverb_diffusion	0.0 % ... 100.0 %	75.0 %	How quickly the first echoes melt into a smooth wash. Low keeps discrete reflections.
Damping fx_reverb_damping	0.0 % ... 100.0 %	45.0 %	How much faster the top end dies than the rest: soft surfaces, air over a long distance. 0 % keeps the highs as long as everything else.
Damp Freq fx_reverb_damp_freq	500 Hz ... 16.00 kHz	4.00 kHz	Where Damping starts to act.
Mod Depth fx_reverb_mod_depth	0.0 % ... 100.0 %	35.0 %	Slow drift inside the tail, which keeps a long decay from ringing metallic. Higher is lush and, at the top, gently chorused.
Mod Rate	0.05 Hz ...	0.50 Hz	How fast the tail drifts.

Mod Rate fx_reverb_mod_rate	5.00 Hz	5.00 Hz	How fast the tail enters.
Low Cut fx_reverb_low_cut	20.0 Hz ... 2.00 kHz	20.0 Hz	Takes the bottom out of the reverb only, 12 dB/oct. Off at the far left.
High Cut fx_reverb_high_cut	500 Hz ... 20.00 kHz	20.00 kHz	Takes the top out of the reverb only, 12 dB/oct. Off at the far right.
Width fx_reverb_width	0.0 % ... 100.0 %	100.0 %	Stereo width of the tail, from mono to fully decorrelated.
Freeze fx_reverb_freeze	Off, On	Off	Holds the tail as it is, indefinitely, and stops anything new entering it.

DELAY

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx_delay_on	Off, On	Off	Switches the delay in. Its buffers are made the first time it is.
Mode fx_delay_mode	Mono, Stereo, Ping-Pong	Stereo	Mono: one line, heard in both ears. Stereo: a line per side. Ping-Pong: the repeats start on the left and bounce from side to side.
Sync fx_delay_sync	Off, On	Off	Off sets the time in milliseconds, On as a note value at the host's tempo (120 BPM when the host gives none).
Time fx_delay_time	1.00 ms ... 8.00 s	375 ms	Time between repeats, up to eight seconds, while Sync is off.
Note fx_delay_note	1/64, 1/32 T, 1/32, 1/16 T, 1/32 D, 1/16, 1/8 T, 1/16 D, 1/8, 1/4 T, 1/8 D, 1/4, 1/2 T, 1/4 D, 1/2, 1/1 T, 1/2 D, 1/1, 1/1 D, 2/1	1/8 D	Time between repeats as a note value, while Sync is on. T is a triplet, D dotted.
Offset fx_delay_offset	-100.0 % ... 100.0 %	0.0 %	The right side's time against the left's, up to half again longer or shorter. Unequal sides make a ping-pong skip and a stereo delay spread.
Feedback fx_delay_feedback	0.0 % ... 150.0 %	45.0 %	How much of each repeat comes round again. Past 100 % the repeats build into a held, saturating wall instead of dying away.
Low Cut fx_delay_low_cut	20.0 Hz ... 2.00 kHz	80.0 Hz	Thins every repeat a little more, 12 dB/oct in the loop. Off at the far left.
High Cut fx_delay_high_cut	500 Hz ... 20.00 kHz	8.00 kHz	Darkens every repeat a little more, 12 dB/oct in the loop. Off at the far right.
Saturation fx_delay_saturation	0.0 % ... 100.0 %	20.0 %	Tape-like drive in the loop: rounds the repeats off and sets how loud a run-away feedback settles.
Wow fx_delay_wow	0.0 % ... 100.0 %	10.0 %	Wavers the time like a tape echo, by a slow swing and a slower random drift.
Wow Rate fx_delay_wow_rate	0.05 Hz ... 8.00 Hz	0.60 Hz	How fast the time wavers.
Diffusion fx_delay_diffusion	0.0 % ... 100.0 %	0.0 %	Smears each repeat further than the last, so the echoes dissolve into a cloud. The time between them stays the same.
Ducking fx_delay_ducking	0.0 % ... 100.0 %	0.0 %	Pulls the repeats down while the layer is loud and lets them up as it falls quiet.
Glide fx_delay_glide	Tape, Fade	Tape	How a time change arrives. Tape slides to it and bends the pitch of the repeats on the way, Fade crossfades to it without a pitch sweep.
Width fx_delay_width	0.0 % ... 100.0 %	100.0 %	Stereo width of the repeats, from mono to as wide as the mode makes them.
Mix	0.0 % ... 100.0 %	30.0 %	Dry against wet, equal power: 0 % is untouched, 100 %

fx_delay_mix

is the repeats alone.

CHORUS

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx_chorus_on	Off, On	Off	Switches the chorus in.
Rate fx_chorus_rate	0.02 Hz ... 5.00 Hz	0.40 Hz	How fast the voices drift. Each voice runs a little faster than the one before.
Depth fx_chorus_depth	0.0 % ... 100.0 %	50.0 %	How far the voices drift around their delay.
Delay fx_chorus_delay	2.00 ms ... 40.0 ms	12.0 ms	How far behind the original the voices sit. Short is a shimmer, long a doubling.
Voices fx_chorus_voices	1 ... 4	2	How many drifting copies, spread evenly around the cycle.
Width fx_chorus_width	0.0 % ... 100.0 %	100.0 %	Moves the right side's voices a quarter cycle on, for a wide chorus.
Mix fx_chorus_mix	0.0 % ... 100.0 %	50.0 %	Dry against the voices.

FLANGER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx_flanger_on	Off, On	Off	Switches the flanger in.
Rate fx_flanger_rate	0.02 Hz ... 5.00 Hz	0.15 Hz	How fast the sweep goes up and down.
Depth fx_flanger_depth	0.0 % ... 100.0 %	60.0 %	How far the sweep goes, up to three octaves.
Manual fx_flanger_manual	0.10 ms ... 10.0 ms	1.50 ms	Where the sweep starts. Short is a high, airy jet, long a low, hollow one.
Feedback fx_flanger_feedback	-100.0 % ... 100.0 %	50.0 %	Sharpens the notches into resonances; negative gives the hollow, odd-harmonic sound.
Width fx_flanger_width	0.0 % ... 100.0 %	50.0 %	Offsets the right side's sweep by up to a quarter cycle.
Mix fx_flanger_mix	0.0 % ... 100.0 %	50.0 %	Dry against swept. 50 % gives the deepest notches.

PHASER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx Phaser_on	Off, On	Off	Switches the phaser in.
Rate fx Phaser_rate	0.02 Hz ... 5.00 Hz	0.20 Hz	How fast the notches sweep.
Depth fx Phaser_depth	0.0 % ... 100.0 %	70.0 %	How far they sweep, up to two octaves either side of Centre.
Centre fx Phaser_centre	100 Hz ... 4.00 kHz	800 Hz	The middle of the sweep.
Feedback fx Phaser_feedback	0.0 % ... 100.0 %	50.0 %	Deepens the notches into a vocal resonance.

Stages fx Phaser Stages	4, 6, 8	6	Allpass stages: two notches for four, three for six, four for eight.
Width fx Phaser Width	0.0 % ... 100.0 %	50.0 %	Offsets the right side's sweep by up to a quarter cycle.
Mix fx Phaser Mix	0.0 % ... 100.0 %	50.0 %	Dry against phased. 50 % gives the deepest notches.

WIDENER

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx Widener On	Off, On	Off	Switches the stereo widener in.
Width fx Widener Width	0.0 % ... 200.0 %	130.0 %	The side signal: 0 % folds to mono, 100 % leaves it, 200 % doubles it.
Spread fx Widener Decorrelation	0.0 % ... 100.0 %	30.0 %	Spreads a narrow sound across the field by sending different frequencies to different places. Sums back to the original in mono.
Bass Mono fx Widener Bass Mono	20.0 Hz ... 500 Hz	20.0 Hz	Everything below this is centred. Off at the far left.

AUTO PAN

PARAMETER	RANGE	DEFAULT	WHAT IT DOES
On fx Autopan On	Off, On	Off	Switches the auto-pan in.
Rate fx Autopan Rate	0.01 Hz ... 4.00 Hz	0.10 Hz	How fast the layer moves. 0.1 Hz is once across and back in ten seconds.
Depth fx Autopan Depth	0.0 % ... 100.0 %	50.0 %	How far it moves, up to hard left and right.
Shape fx Autopan Shape	Sine, Triangle, Drift	Drift	Sine and Triangle swing evenly; Drift wanders to a new random place each cycle, like something moving about.

The preset library

19 factory presets ship with the plugin. They are installed beside the binary and exposed through CLAP preset discovery, so they appear in the host's own browser as well as in the plugin window's.

Beach Bonfire

A bonfire on the sand on a warm night: small waves breaking on the beach, crickets in the dunes and a soft wind off the sea. *(ambient, nature, fire, sea, night, insects)*

Campfire Night

A fire burning down in a clearing at night: crickets in the grass, an owl somewhere in the trees and the faintest breath of wind. *(ambient, nature, fire, night, owls, insects)*

Canyon Echo

A bird calling across a desert canyon and its song coming back off the far wall, a cuckoo somewhere along it, wind wandering along the rim, and a river far below. *(ambient, nature, canyon, birds, wind, water, delay, reverb, cuckoo)*

Cave Mouth

Just inside the mouth of a cave: water dripping into pools in the dark, a trickle running down the rock, and the wind outside moaning across the entrance. *(ambient, nature, cave, water, wind, reverb)*

Cuckoo Wood

A beech wood in late spring: a cuckoo calling from the trees close by, two more answering from across the valley, small birds in the canopy, and wind in the birches and stirring the leaves. *(ambient, nature, birds, forest, spring, cuckoo, reverb)*

Dawn Chorus

The hour before sunrise in a wood: the chorus building, a blackbird and a robin singing close by, a woodpecker drumming further off, and leaves stirring in the first breeze. *(ambient, nature, birds, forest, morning)*

Distant Storm

A storm passing far off across open country: a wall of rain on the horizon, thunder rolling in from kilometres away and wind off the plain. *(ambient, nature, rain, thunder, wind, distant)*

Forest River

A stream running through a summer wood: a cuckoo and a robin in the trees, wind moving the leaves overhead, and bees working the bank. *(ambient, nature, forest, water, birds, day, cuckoo)*

Frog Pond

A pond at dusk: a chorus of frogs, spring peepers in the reeds, a little water bubbling in at one end and mosquitoes over the surface. *(ambient, nature, night, frogs, water, insects, dusk)*

Harbour Drizzle

A small harbour on a grey morning: water lapping at the stones, a fine drizzle, and the wind in the grass along the quay. *(ambient, nature, sea, rain, wind, morning)*

Monsoon Jungle

A tropical forest under a monsoon downpour: thunder overhead, screeching birds in the canopy and cicadas that never stop. *(ambient, nature, rain, thunder, jungle, birds, insects)*

Mountain Stream

High up, where a cold stream drops between boulders: wind along the ridge and a few birds on the tree line far below. *(ambient, nature, mountain, water, wind, birds)*

Rain in the Woods

Steady rain on the forest canopy, a swollen creek running between the trees, wind in the wet leaves, a robin and a cuckoo calling through it and thunder now and then. *(ambient, nature, rain, forest, water, birds, thunder, cuckoo)*

Rain on the Cabin

Rain drumming on a tin roof while the stove ticks over inside, wind worrying at the corners and a storm grumbling somewhere beyond the valley. *(ambient, nature, rain, fire, indoor, thunder)*

Stormy Shore

An ocean shore in a thunderstorm: heavy surf, rain sweeping in off the sea, wind tearing along the beach and thunder rolling out over the water. *(ambient, nature, sea, rain, storm, thunder, wind)*

Summer Meadow

Midday in open grassland: crickets and bees in the grass, sparrows in the hedge and a warm breeze moving through it all. *(ambient, nature, meadow, insects, birds, wind, day)*

Waterfall Clearing

A clearing beside a waterfall on a spring morning: the roar of the fall, a dawn chorus in the trees around it and dragonflies over the pool. *(ambient, nature, water, birds, insects, morning)*

Winter Cabin

A gale and driving snow outside, a hearth glowing in the room, and the river below the cabin slowed to a murmur under the ice. *(ambient, nature, winter, wind, fire, indoor)*

Wolf Valley

Moonlight over a valley: wolves answering each other from slope to slope, a river far below and a cold wind coming down off the tops. *(ambient, nature, night, wolves, water, wind)*