



ORRA AUDIO · PRODUCT MANUAL

Version 1.0.0

COLLIDER

SPECTRAL COLLISION SYNTHESISER

*Two sound sources, collided inside a spectral chamber.
You don't build patches here. You roll them, then dial them in.*

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Welcome

Orra Collider is a **spectral collision synthesiser**. Two oscillator sources — **A** and **B** — are not mixed. They are analysed into their individual partials and then **collided bin for bin** inside a spectral chamber, by one of eight collision modes, before the result is resynthesised into audio. Sum-and-difference clangour, one source eating holes in the other, two spectra fused into a single voice, or a spectrum torn into fragments and re-ordered — none of it is available from a mixer.

The second idea is just as important: **you do not build patches here, you roll them**. The console across the top is a generator. You pick an **IDEA** — the kind of sound you want, PLUCK, PAD, 808, TEXTURE — press **GENERATE**, and Collider writes a complete patch: sources, collision mode, filter, effects, envelopes, modulation routing, voicing. Then you keep what you like. Padlock the sections that are already right, pull **DRIFT** down so the next roll is a variation rather than a stranger, and press **GENERATE** again. Six **BIAS** dials steer the odds — darker, harder, longer, busier, wetter — so the generator rolls in your direction rather than at random.

Everything you would expect from a full synthesiser is underneath and fully editable: two sources with twelve oscillator types including a 256-frame wavetable engine with its own editor, a sub oscillator, per-source envelopes, a filter, wavefolder, distortion, delay, plate reverb, stereo width, output EQ, a limiter, a note-level arpeggiator, and a modulation system of eighteen sources you drag straight onto any control. But the fastest way to a sound you would not have thought of is still **GENERATE**.

The **collision chamber** is the centre of the window, and the display in it is the honest picture: source **A** in red, source **B** in cyan, and the collided output over the top. Hold a legend chip and it solos that layer, so you can hear exactly what each source is bringing before the collision and exactly what the collision made of it.

This manual runs front to back. Start with *Quick Start* for a sound in sixty seconds, read *The Generator Console* because it is the workflow the whole instrument is built around, then dip into the chapters for whichever part you are editing. The *Parameter Reference* at the back lists every control with its range.

SYSTEM REQUIREMENTS

Formats	VST3, Audio Unit (AU) and AAX. AU is macOS only; AAX is for Pro Tools. 64-bit only — there is no 32-bit build.
macOS	10.13 or later (Universal 2: Apple Silicon and Intel).
Windows	Windows 10 or later, 64-bit.
Type	Instrument (synthesiser). Stereo out, MIDI in. MPE-capable.
Voices	Up to 8, chosen per patch: Mono, Poly 4 or Poly 8.
Latency	Collider is a spectral instrument and reports its analysis latency to the host, so your DAW compensates automatically. The figure is fixed : it never changes while the plugin is loaded, whatever you set FFT SIZE or HQ OVERSAMPLING to.

Installation

Run the installer and let it put each format in its standard location. Every DAW looks there. If you prefer to place the files yourself, the destinations are below.

MACOS

FORMAT	LOCATION
VST3	/Library/Audio/Plug-Ins/VST3/Orra Collider.vst3
Audio Unit	/Library/Audio/Plug-Ins/Components/Orra Collider.component
AAX	/Library/Application Support/Avid/Audio/Plug-Ins/Orra Collider.aaxplugin

The installer requires an administrator password because those folders are system-wide. Audio Unit is a macOS-only format — there is no AU on Windows.

WINDOWS

FORMAT	LOCATION
VST3	C:\Program Files\Common Files\VST3\Orra Collider.vst3
AAX	C:\Program Files\Common Files\Avid\Audio\Plug-Ins\Orra Collider.aaxplugin

FINDING IT IN YOUR DAW

Collider is an **instrument**, not an effect — load it on an instrument or MIDI track, not an audio insert. If it does not appear in the list after installing, ask your DAW to rescan its plug-ins: most hosts have a *Rescan* or *Reset & rescan* button in their plug-in manager preferences, and some only scan on launch, so quitting and reopening the DAW does the same job. Pro Tools users need the AAX build and a full application restart.

On macOS the first launch may take a few seconds while the system verifies the plug-in. If your host offers a plug-in "sandbox" or "safe mode" for new plug-ins, Collider works in either.

WHERE YOUR PRESETS AND SETTINGS LIVE

Collider keeps its factory presets, your saved presets and its default-patch file in a single folder in your user application data. You never have to go looking for it — **MENU ▶ Open Presets Folder** opens it — but it is an ordinary folder, and preset files are plain, shareable JSON. Copying one to another machine, or emailing one to a collaborator, is all it takes.

UNINSTALLING

Delete the plug-in files from the locations above. Your presets folder is deliberately left alone, so reinstalling — or updating — never costs you a patch you saved.

Quick Start

Your first sound in about sixty seconds. Everything here happens on the console strip across the top of the window — you do not need to open a single drawer.

1. Say what kind of sound you want

Click the **IDEA** button at the far left. It reads **IDEA · ANY** to start with. Pick something you actually need — **PLUCK**, **BASS**, **PAD**, **808**. This does not load a patch; it tells the generator which way to lean.

2. Press GENERATE

You get a complete, playable patch — sources, collision, filter, effects, envelopes, modulation, voicing — built from scratch. Play it. Do not like it? Press GENERATE again. Each press is a fresh roll, and the header shows a generated name like *PLUCK · Glass Comb #A4F1*. Keep pressing until something catches.

3. Audition what it is actually made of

The big display in the middle is the collision chamber. Press and hold the legend chips under it — **A**, **B**, **OUT**, **COLLISION** — while a note sounds. They are momentary solos: you hear source A alone, source B alone, the finished output, or the collision without the dry sources under it. Release and you are back to normal.

4. Lock what you love

Found a collision mode you want to keep but a filter you do not? Click the small **padlock** on the Collision Chamber to close it. The five padlocks — on Source A, the Collision Chamber, the SIGNAL PATH row, the MOD drawer page and the VOICE card — freeze those parts of the patch. Anything locked survives every future GENERATE untouched.

5. Drift the rest

Turn the **DRIFT** dial down from 100% to somewhere around 25–40%. Now GENERATE stops starting over and starts *varying*: every unlocked control moves part of the way toward a new random value instead of jumping to it. Press GENERATE a few more times and you are auditioning cousins of the sound you liked, not strangers. Use « and » in the header to step back and forward through generations if you drift past the good one.

6. Save it

Press **SAVE** in the header. Give it a name; the category is already filled in from the IDEA you rolled. It lands in your user presets and is yours forever.

THE ONE HABIT WORTH FORMING

Lock, then drift. Locks decide *what* the generator may touch; DRIFT decides *how hard* it touches it. Between them you can go from a blank page to a finished patch without ever choosing an oscillator waveform — and you can still open every drawer and edit it by hand when you want to.

Interface Tour

The window is one fixed layout — nothing reflows, so everything is always where you left it. A brushed slate faceplate carries five dark modules; the drawer slides up from the bottom over all of it.

1. Header

The **ORRA COLLIDER** lockup on the left. In the centre, the preset capsule: ◀ and ▶ step through presets, the name in the middle opens the full **preset browser**, and **SAVE** stores the current patch. On the right, a cluster of small controls: « and » (undo and redo a generation), the **A** and **B** compare slots with the ⇌ swap between them, **ARP** ▶ and **MOD** ▶ (jump to those drawer pages), a zoom button, and **MENU**. **ARP** ▶ carries a small lamp that reports whether the arpeggiator is running — see *The Arpeggiator*.

2. The console — GENERATOR · BIAS · PERFORM

The full-width card under the header. **GENERATOR** holds **IDEA**, **GENERATE** and **TUNE LOCK**. **BIAS** holds six dials — **DRIFT**, **SPACE**, **DARKNESS**, **AGGRESSION**, **DECAY**, **MOVEMENT** — that steer what **GENERATE** rolls. **PERFORM** holds **MACRO 1** to **MACRO 4**, your four hands-on performance controls. See *The Generator Console*.

3. Source wings A and B

Left and right of the chamber. Each wing is a source: a type selector, six control rows, and a live waveform preview well. **A is red**, **B is cyan** — the same colours the spectrum display uses, so you can always tell whose partials are whose. The **ENV · SUB · VOICE** ▶ button at the bottom of a wing opens the OSC & VOICE drawer page.

4. The Collision Chamber

The centre and the hero. Eight mode tabs across the top, a one-line description of the selected mode, the big spectrum display, then the collision controls: **MIX**, **DRIVE**, **TILT**, **STEREO** and whichever knobs the current mode adds. See *The Collision Chamber*.

5. SIGNAL PATH

A row of nine tiles along the bottom of the faceplate, in the order the audio actually passes through them: **FILTER** · **FOLDER** · **DRIVE** · **ENSEMBLE** · **DELAY** · **REVERB** · **WIDTH** · **OUTPUT EQ** · **MASTER**. Each shows its headline value and carries a **power dot**; click the dot to bypass that module, click anywhere else on the tile to open its full card in the FX drawer. **ENSEMBLE** is the exception: its three **MODE** keys are its whole control set, so it has no card.

6. The drawer

Slides up over the lower half of the window with five pages: **OSC & VOICE** (per-source envelopes, the sub, and all the voicing controls), **MOD** (the modulator editors and the modulation matrix), **ARP** (the arpeggiator and its pattern display), **FX** (every signal-path module in full) and **WAVETABLE** (the wavetable editor). The ✕ at its corner closes it. The mod source chips down the side of the window can be dragged onto knobs *inside* the drawer as well as outside it.

Collider's window is a fixed size. Use the **zoom** button in the header to scale the whole interface between 75% and 200% — the setting is remembered with your session.

The Generator Console

Collider's patches are rolled, not built. The console is where you tell the generator what to aim for, how hard to throw, and what it is forbidden to touch. Nothing on it is a sound parameter — these are the odds, not the patch.

IDEA — the kind of sound you want

The **IDEA** button reads **IDEA · ANY** and opens a list of eleven archetypes. An archetype does not pick a preset; it re-weights every decision the generator is about to make — envelope shapes, which oscillator types and wavetables are likely, which collision modes suit it, how wide the stereo image gets, whether there is a sub, how much reverb, whether the patch is mono or polyphonic.

IDEA	WHAT IT ROLLS TOWARD
ANY	No bias at all — the widest possible spread. Use it when you want to be surprised, or before you know what the track needs.
PLUCK	Instant attack, short decay, little or no sustain, tight stereo and a bright filter that tracks the keyboard. Bells, mallets, karplus-ish stabs. Favours Impact, Fuse and Ring Mod.
KEYS	Fast but not clicky, a real sustain, a longer tail and mostly polyphonic. Electric pianos, bells, organs, clavs. Leans on Fuse and Ring Mod with modest width.
BASS	Low cutoff, 24 dB filters, a hot sub, mostly mono with glide, and a deliberately narrow image so it stays mono-safe. Interval-locked source B — octaves and fifths under the root.
808	Always mono. A hard knock, a long booming decay, a very hot sub, near-dry, and the pitch drop that makes an 808 an 808 — Env 3 fires a short downward bend at every attack.
LEAD	Cuts. Mostly mono with glide, wide open filter, unison stacks and a longer delay throw. Favours Shear and Annihilate for edge.
PAD	Slow attack, long release, full polyphony, big unison, and the widest reverb of any archetype. Favours Smear, Fuse and Absorb — the modes that blur rather than bite.
BRASS	Renamed from STRINGS — it always rolled brass. Saw and supersaw, a medium attack, and a filter envelope you hear open on the hit and close as you hold. Low unison, vibrato LFO.
STRINGS	An ensemble, not a soloist. Supersaw on both sources, a bowed swell into a long hold, wide unison — and, unlike BRASS, a filter that stays put. Fuse and Absorb, no sub.
TEXTURE	The strangest row. Very slow attacks, five-second releases, noise allowed unconditionally, the widest stereo in the instrument, and heavy weighting toward Smear and Fracture.
HIT	A one-shot: near-zero attack, no sustain, and a decay that ends the sound whether you hold the key or not. Stabs, impacts, risers' landings.

The IDEA you rolled also becomes the suggested **category** when you save, so a library built by generating sorts itself.

GENERATE

GENERATE rolls a patch. Each press draws a fresh random seed, so no two presses agree. **Right-click GENERATE** to *re-roll the same seed* — the same dice, thrown again through whatever you have changed since. Use it after nudging a BIAS dial or closing a padlock: it shows exactly what that one change did, with everything else held still.

The generated patch is named for the idea, the recipe and the seed — *BASS · Wobble Bass #3C7A*, or *Free Roll #91E2* for ANY. The same seed with the same console settings reproduces the identical patch.

DRIFT — how far a roll travels

DRIFT is the single most useful dial on the console, and the one people leave at 100% for too long.

At **100%**, GENERATE is a clean sheet: every unlocked control jumps straight to its new rolled value and every switch, mode and oscillator type is re-chosen. Below 100%, each continuous control moves only *part of the way* from where it is now toward where the roll wanted it, and each categorical choice — collision mode, filter type, oscillator type — is only re-rolled with that probability, otherwise it is left alone. So:

- **100%** — a brand new patch. What you press when you have nothing.
- **40–70%** — a relative. Recognisably the same family, different in the details.
- **10–30%** — a variation. The patch you have, nudged. Press it repeatedly to walk a sound somewhere.
- **0%** — nothing moves.

DRIFT is also a threshold for the generator's hand-written *recipes* — the named starting points like *Wobble Bass* or *Glass Comb* that appear in generated patch names. Recipes only enter at high drift, because they rewrite a patch wholesale rather than nudging it.

The BIAS dials

Six dials that bend the odds. None of them changes the current sound — they change what the *next* GENERATE is likely to produce. All six read as a percentage; 50% is neutral for the four DNA dials, and the generator's behaviour at 50% is exactly its unbiased behaviour.

DIAL	WHAT IT BIASES
DRIFT	How far a generation moves from the current patch. See above. Defaults to 100%.
SPACE	How wet generated patches are — the average reverb and delay amount. At 0% every roll comes out dry , which is what you want when the track already has its own reverb bus. Turn it up for patches that arrive with their own room. Defaults low, and it dims when the SIGNAL PATH section is locked, because a locked FX section is what it would have written into.
DARKNESS	Tone. Low is open and bright; high pulls filter cutoffs down, tilts the collision spectrum toward the low end, shelves the output EQ's top off, and damps the reverb harder so tails lose their highs faster.
AGGRESSION	How hard the patch is driven. High opens up the collision depth ranges, the filter drive, the wavefolder and the distortion, and unlocks noise oscillators and the more violent source types. Low keeps rolls clean and polite.
DECAY	Length. It stretches or compresses every decay and release window in the patch at once — amp envelopes, per-source envelopes, the sub — and nudges sustains and delay feedback with them. Low is short and percussive whatever the idea; high rings on.
MOVEMENT	How alive the patch is. High fills the modulation matrix with more routes at greater depth, speeds the LFOs up, makes wavetable-position sweeps and delay more likely. Low leaves a still, static patch that does exactly what you play.

READING THE DICE

Set a BIAS dial, then **right-click GENERATE** to re-roll the same seed. Because the seed is held, the only thing that changed is the bias — and you hear precisely what that dial does, on this patch, instead of guessing across two unrelated rolls.

Section locks

Five padlocks around the interface carve the patch into sections. A closed padlock means **GENERATE may not touch this**; everything inside it survives every future roll exactly as it is. Locks are how you keep the one thing that worked while you hunt for the rest.

PADLOCK	WHAT IT HOLDS
Source A wing (holds both wings)	Both sources — type, tuning, wavetable position, FM, gain — and the sub oscillator.
Collision Chamber	The collision mode and every one of its settings, plus MIX, DRIVE, TILT and STEREO. There is no separate "lock the mode" control: locking this section is how you keep a mode.
SIGNAL PATH	The filter and the whole post chain — folder, drive, ensemble, delay, reverb, width, output EQ.
MOD drawer page	All four envelopes, all four LFOs, the step sequencer, and every route in the modulation matrix.
VOICE card (OSC & VOICE drawer)	Voice mode, glide, unison, analog drift, pitch-bend range and the mod retrigger mode.
TUNE LOCK (on the console)	Pitch and fine tuning for both sources and the sub. On by default — so generated patches stay in tune with your track unless you deliberately ask for detuning. Everything else about the sources still rolls.

A locked section is genuinely skipped, so locking one changes the sequence of dice the generator throws for everything after it. Two rolls of the same seed with different locks will not agree beyond the locked part — that is expected, and it is why re-rolling the same seed is most useful for judging a *bias* change.

There is a sixth padlock in the instrument, on the **ARP** drawer page, and it is a different species: it has nothing to do with GENERATE — the generator never touches an arp control anyway — and holds the arpeggiator through *preset changes* instead. Same glyph, different machine. See *The Arpeggiator*.

History — « and »

Every GENERATE pushes the patch you had onto a 32-deep history stack before it overwrites it. The « and » buttons in the header walk back and forward through that stack, so generating past a keeper costs you nothing. Going back and then generating again discards the forward history, exactly like an undo stack in any other application.

History holds every parameter and every modulation route. It deliberately does *not* touch your hand-drawn LFO curves or a wavetable you loaded or edited yourself — those are your work, not a roll of the dice, and they stay put through undo, redo and A/B.

A / B compare

Two slots in the header, **A** and **B**, plus a ⇌ between them.

- **Click** a slot to store the current patch in it if it is empty, or recall it if it is full.
- **Right-click** a slot to store into it, overwriting whatever was there.
- ⇌ swaps the two slots.

The usual workflow: generate something promising, store it in **A**, keep rolling, store the next candidate in **B**, then click between them while the part plays. The slots survive as long as the plug-in instance does, so you can leave a comparison open across a whole session.

The Sources

Two wings flank the chamber: **SOURCE A** on the left in red, **SOURCE B** on the right in cyan. They are identical in capability and identically laid out. What they produce is never heard directly — it is analysed and thrown into the collision.

Source types

The unlabelled selector at the top of each wing chooses the oscillator. Twelve types:

TYPE	SOUND
Saw	The full harmonic series. Bright, dense, the classic starting point — and the richest thing to throw into a collision, because there is a partial at every harmonic for the other source to act on.
Square	Odd harmonics only. Hollow, woody, clarinet-like. Collides very differently from a saw because half the harmonics simply are not there.
Triangle	Odd harmonics, falling away fast. Soft and flute-like — a gentle partner that lets the other source dominate.
Sine	One partial. As a collision <i>modulator</i> this is the cleanest possible tool: whatever the other source does, it does it once.
Wavetable	The 256-frame wavetable engine. Plays a factory table, an audio file you imported, or a table you drew. WT POS scans across the frames. See <i>Wavetables</i> .
Noise White	Energy in every bin, evenly. Devastating in Absorb and Annihilate — it gives the other source something to carve.
Noise Pink	Noise weighted toward the low end. Warmer, less hissy, and better behaved under a collision that emphasises highs.
Noise Metallic	Tuned, resonant noise. Between a pitch and a texture — cymbals, air, machine rooms.
FM	Two-operator FM inside the source itself. FM RATIO sets the modulator's frequency against the carrier; FM DEPTH is the index. Whole-number ratios stay harmonic; fractional ratios go bell-like and metallic.
Supersaw	Seven detuned saws in one source. DETUNE spreads them. Huge on its own — and enormous once it collides.
Sync	Hard-sync oscillator. SYNC sets the slave-to-master ratio; sweep it (or modulate it) for the classic tearing sync lead.
Additive	A stack of harmonic partials whose brightness is one control. BRIGHT adds and removes partials from the top down — the most predictable spectrum in the instrument, and therefore the most controllable collision partner.

The six rows

Every wing has the same six horizontal control rows. Some of them change name and some go dark depending on the source type — a greyed row is not broken, it is *honest*: that control genuinely does nothing for the type you have chosen, so Collider dims it rather than letting you turn a knob with no effect.

ROW	RELABELS TO	FUNCTION
PITCH	—	Coarse tuning, ± 48 semitones. Dark for the three noise types, which have no pitch.
FINE	—	Fine tuning, ± 100 cents. Also dark for noise.
WT POS	BRIGHT for Additive	Wavetable position — scans the table's frames. On Additive the same control becomes harmonic brightness. Dark for every other type.
FM RATIO	SYNC for Sync	FM modulator/carrier ratio, or the sync slave/master ratio. Dark for every other type.
FM DEPTH	DETUNE for Supersaw	FM modulation index, or the supersaw's detune spread. Dark for every other type.
GAIN	—	How loud this source enters the collision. Always live, and one of the most musical controls in the instrument — the balance between A and B changes what most collision modes <i>do</i> , not just how loud they are.

If Supersaw's DETUNE seems to stop working, check UNISON in the OSC & VOICE drawer: with unison at 2 voices or more, the supersaw hands its detuning over to the global unison spread instead.

The waveform well

Under the rows, each wing shows a live single-cycle preview of what that source is currently producing, tinted in the wing's colour with the type name in the corner. On a Wavetable source it draws the real frame data and follows WT POS as it moves — so a modulated wavetable sweep is visible as well as audible.

ENV · SUB · VOICE

The button at the bottom of either wing opens the **OSC & VOICE** drawer page. Three cards along the top, one across the bottom.

SOURCE A ENV and SOURCE B ENV

A dedicated **ATK · DEC · SUS · REL** envelope for each source, with a live shape display. These sit *on top of* the main amp envelope (ENV 1) rather than replacing it, and they ship fully open, so an untouched patch sounds exactly as if they were not there.

They are the fastest way to make a collision *move*. Give source A an instant attack and a short decay and source B a slow swell, and the collision starts as one sound and becomes another while the note is still held — with no modulation routing at all.

SUB

A clean sub oscillator that **bypasses the collision entirely** and is added to the output afterward, time-aligned so it sits exactly under the collided signal. Nothing the chamber does can eat it, thin it or detune it — which is precisely why it is there. **SHAPE** chooses Sine or Triangle; **PITCH** sets it up to two octaves below the note (0 is unison, -12 is the usual octave); **GAIN** sets the level; and it has its own **ATK · DEC · SUS · REL**. The power dot in the card header switches it off.

VOICE

Global to the patch, and the card carrying the VOICE padlock. Four groups:

GROUP	CONTROLS
VOICING	Mono / Poly 4 / Poly 8 — how many notes at once. Below it, the mod retrigger mode, which decides when the modulators re-fire: Phrase — only when you start from silence. Hold a chord and add notes to it and the envelopes, LFOs and sequencer keep running from where they were. The smoothest choice for pads. Legato — every note-on except a slide inside a held mono line. Percussive patches want this: the attack fires on every hit, but a legato slide does not re-trigger it. Note — every single note-on, slides included. The most aggressive, and the right choice when you want the modulation to punctuate every key you press. In Mono it does one more thing: it hard-restarts the voice envelopes as well, on every press, overlapped notes included. A mono voice has no fresh voice to hand a new note to, so the transient has to be made — the envelope drops to silence in about 1.5 ms and then attacks from a true zero. That is what lets a fast run articulate in Mono the way it does in Poly. Phrase and Legato keep the softer analog behaviour, where a new attack simply continues from wherever the envelope had got to. Generated HIT patches already choose Note, because a one-shot row has no legato at all.
GLIDE	GLIDE is the portamento time and GLIDE CURVE its shape — Linear (a constant slide), Exponential (fast off the mark, easing in — the natural-sounding default) or S-Curve. Glide is a mono behaviour: it slides between overlapping notes in a single line.
UNISON	UNISON VOICES stacks 1 to 7 detuned copies of each source. DETUNE is the spread in cents; SPREAD pans them across the stereo field. Unison multiplies your voice count, so a Poly 8 patch with 7-voice unison is a lot of oscillators — use it deliberately.
CHARACTER	DRIFT is analog instability: a slow random wander of a few cents plus a small static detune per voice. At 0 the oscillators are perfectly, digitally stable; turn it up and the patch breathes. (Nothing to do with the console's DRIFT dial, which is a generator setting.) BEND RNG sets how many semitones your pitch wheel covers.

Wavetables

Set a source to **Wavetable** and a load slot appears in its wing. Each of the two sources has its own independent wavetable slot, so you can collide two completely different tables.

Loading a table

Click the slot — it reads **LOAD WAVETABLE** when empty, or the table's name when full. The menu offers the factory bank in three submenus, then **Load File...**, **Init (blank 16 frames)** and **Clear**. You can also **drag an audio file straight onto the wing** — WAV, AIFF or FLAC. Collider slices it into single-cycle frames automatically. Switching a source into Wavetable mode with an empty slot loads *Essential Shapes* so the preview is never blank.

The factory bank — 26 tables

GROUP	TABLES
Basic	Essential Shapes · PWM Sweep · Saw Rolloff · Triangle Fold · Sine Octaves The bread and butter: a frame per classic waveform, and simple one-axis sweeps.
Morph	Sine → Saw · Tri → Square · Shape Cycle · Pulse → Saw · Fold Sweep · Odd/Even Tilt Continuous journeys between two shapes. Modulate WT POS across one and the harmonic content changes smoothly instead of stepping.
Complex	Vowel Morph · Vocal Growl · Bell Strike · Metallic Sweep · Drawbar Morph · Bit Ramp · Sample Hold · Spectral Sweep · Comb Crawl · Resonant Peak · FM Growl · FM Clang · Harmonic Cloud · Sync Sweep · Breath Morph Character tables — formants, inharmonic bells, comb structures, digital artefacts. These are the ones that make a collision sound like nothing else.

The wavetable editor

The **EDIT** key beside a loaded table opens the **WAVETABLE** drawer page. At the top, **SOURCE A** and **SOURCE B** choose which slot you are editing, with a frame counter beside them. The waterfall on the left shows every frame in the table — click one to select it — with a gold marker riding the live WT POS and a cyan marker on the frame you are editing. The panel on the right shows that frame full size.

TOOL	WHAT IT DOES
UNDO · REDO	Full edit history, kept per slot.
DUP · DEL INSERT	Duplicate, delete or insert a frame at the selection. This is how you change a table's length.
MOVE < · MOVE >	Slide the selected frame earlier or later in the table.
REVERSE	Reverses the frame order, so a WT POS sweep runs the other way.
NORM · NORM ALL	Normalise the selected frame, or every frame, to full level. NORM ALL is the fix for an imported file whose loudness lurches as you sweep.
SMOOTH	Rounds off the selected frame — tames the harshest top end of a hand-drawn or sliced waveform.
GENERATE	Builds waveforms for you. Frame replaces the selected frame with a Sine, Saw, Square, Triangle, Random Harmonics or Silence. Table creates a new table of 1 to 64 blank frames, or loads any factory table. Morph is the one to know: pick two frames, and Morph fills everything between them with a smooth interpolation — draw two shapes, morph the gap, and you have a table.
RE-SLICE	Re-cuts imported audio at a different frame length — 256, 512, 1024 or 2048 samples. If a dragged-in file came out as noise, it was almost certainly sliced at the wrong length; 2048 is the Serum convention and the usual answer.
DRAW	Toggles drawing. With DRAW on, drag inside the frame panel to redraw the waveform by hand.
SPECTRUM	Switches the frame panel from waveform to spectrum. With DRAW also on you are drawing <i>harmonics</i> directly — often far easier than shaping a waveform to get the harmonic content you want.

A table you have edited becomes **yours**: it is stored in full inside the preset, it survives every GENERATE, and undo/redo and A/B never take it away from you. Untouched factory tables are stored by name instead, which keeps preset files small.

The Collision Chamber

This is the part of Collider that is not a subtractive synth. It is worth a minute on how it works, because everything in this chapter follows from it.

Both sources are broken down continuously into their individual frequency components — a few hundred *bins*, each with a level and a phase. The collision mode then works on those bins **in pairs**: bin 40 of source A against bin 40 of source B, all the way up. What comes out is turned back into audio.

That is why a collision is not a mix and not a filter. Source B is not being added to source A; it is being used as a *map* of what to do to source A, frequency by frequency. Change B's waveform and you change the shape of the operation, not just the tone underneath it. Hence the two habits worth forming: **a rich source A gives the collision something to work on**, and **a simple source B gives it a clean instruction**.

The display

The big well is a live spectrum with three curves overlaid: **source A in red**, **source B in cyan**, and the collided output over the top. Hover it for a readout at the cursor. The chips in the legend are not just a key — they are **momentary audition solos**. Press and hold one and the chamber changes what it sends to the output for as long as you hold it:

HOLD	YOU HEAR
A	Source A alone, straight through the chamber — no collision, no tilt, no dry/wet. What A really sounds like.
B	Source B alone, the same way.
COLLISION	The collision result on its own, with nothing of the original sources mixed under it — regardless of where MIX is set.
OUT	The finished chamber output as the rest of the instrument receives it.

Release the chip and you are instantly back to normal. Solos are for listening only — they change nothing about the patch, and they are not automatable.

The four global controls

CONTROL	PURPOSE
MIX	How much of the collision you hear against the two untouched sources. At 100% you hear only the collision; pull it back to blend the raw sources underneath, which is how you keep the fundamental of a bass or the body of a pad while the collision does its work on top.
DRIVE	Level into the collision, up to 24 dB. Most modes get more violent the harder they are hit, so this is a character control as much as a gain — and Collider re-matches the output level afterwards, so turning it up does not simply make things louder.
TILT	A spectral tilt across the collided signal, ± 12 dB per octave, centred at zero. Left darkens, right brightens. Some modes naturally pile energy into the top or the bottom; TILT is the corrective.
STEREO	The width of the collision itself. At 0 the collision happens once and both channels get the same result — perfectly mono-compatible. Above 0, the collision is run <i>twice</i> with subtly different settings per channel, so the two sides diverge and the sound opens out. This is real stereo generated by the physics of the collision, not a widener bolted on afterwards — which is why it sounds so different from the WIDTH module later in the chain. Bass patches usually want it near zero; pads and textures live at the top.

The Eight Modes

Eight tabs across the top of the chamber. Each brings its own controls into the row beside MIX / DRIVE / TILT / STEREO, and prints its own one-line description under the tabs. They are eight genuinely different operations, not one operation with presets — switching mode is the biggest single change you can make to a patch.

Impact

Bin-for-bin intermodulation — sum/difference energy, from gentle blend to metallic clash.

The workhorse and the default. Impact generates sum and difference energy between the two spectra, so new partials appear that were in neither source. At low depth it reads as a thickening — the two sources bonding into one. Push it and the intermodulation products take over, and you get the clangorous, metallic edge that is Collider's signature.

IMPACT DEPTH — how hard the two spectra hit each other. Below about 1.0 it blends; above it, it clashes.

Shear

Shifts A's spectrum by an amount driven from B — inharmonic, bell-like motion.

Shear slides source A's partials up or down the spectrum, and the size of the slide is driven by source B. A frequency shift is not a transposition — the harmonic ratios break, so the sound goes inharmonic and bell-like almost immediately, and with B driving the shift the detuning *moves* with the sound.

- **SHEAR AMOUNT** — the base shift, ± 128 bins, bipolar. Zero is no shift; small values detune, large values relocate the whole sound.
- **INTENSITY** — how much source B is allowed to drive the shift.
- **HARMONIC** — the pill that changes everything. With it on the shift snaps to whole harmonic multiples, so the sound stays *in tune* while it moves. Off is bells and metal; on is octaves and fifths.

Absorb

One source carves holes in the other wherever its spectrum is loud.

Spectral ducking, per bin. Wherever the absorbing source has energy, it removes energy from the other. Point a vowel-morph wavetable at a saw and the saw comes out speaking. This is the mode for making two sounds fit together instead of fighting.

- **DIRECTION** — **A absorbs B**, **B absorbs A**, or **Mutual** (each carves the other, which hollows both and is the most extreme setting).
- **ABSORB DEPTH** — how deep the holes go.
- **THRESHOLD** — how loud the absorber must be before it carves at all. Low means almost everything gets carved; raise it and only the absorber's strongest partials cut through, which keeps the result musical.

Fuse

Coherently merges the two spectra into a single fused tone.

The gentlest mode, and the one for sounds that need to read as a single instrument. Fuse aligns the two spectra and merges them into one coherent tone rather than layering them — the seam disappears. Keys, strings and pads all lean on it.

COHERENCE — at low settings the two sources stay recognisably separate and the result shimmers with their disagreement; wind it up and they lock into one voice.

Annihilate

Cancels the bins the two sources share, leaving only what makes each unique.

The inverse of Fuse. Anything the two sources have in common is cancelled, and only their differences survive. Two similar sources leave almost nothing — a thin, ghostly residue; two very different sources leave most of themselves. Unbeatable for risers, transitions and anything that needs to feel hollowed out.

- **SELECTIVITY** — how closely two partials must agree before they are cancelled. Low is broad and brutal; high is surgical, cancelling only near-exact matches.
- **DEPTH** — how completely the matched partials are removed.

Ring Mod

Every partial of A multiplies against every partial of B — dense, glassy sidebands.

Not a classic ring modulator — this is *every partial against every partial*, so the number of sidebands explodes. The result is glassy, dense and inharmonic in a way that is instantly recognisable: bells, gongs, prepared piano, machinery. With a sine on one side it behaves and stays tuneable; with two complex sources it becomes a texture generator.

RING DEPTH — the strength of the multiplication.

Smear

Blurs the spectrum across neighbouring bins with feedback — washed-out clouds.

Energy is spread sideways into neighbouring frequencies and fed back into itself, so the spectrum loses its edges and the sound loses its pitch definition. Low settings add air and a soft haze; high settings turn a note into a cloud that hangs in the air. The generator reaches for it constantly on PAD and TEXTURE.

- **SMEAR WIDTH** — how far the blur reaches, 1 to 16 bins. Small is a gentle softening; large dissolves the harmonic structure entirely.
- **FEEDBACK** — how much of the blurred spectrum is fed back in. This is the sustain of the cloud: at high settings the smear keeps building after the note has been released.

Fracture

Fragments the spectrum and re-orders chunks, held and crossfaded — glitchy textures.

The spectrum is cut into blocks, the blocks are shuffled into new positions, and the arrangement is held for a moment before it is re-shuffled. Formants land in the wrong place and stay there; the sound stutters and re-forms. Unmistakably digital, and the fastest route in the instrument to something no one has heard before.

- **FRAGMENT** — the size of the blocks, 4 to 96 bins. Small fragments scramble the fine detail and keep the overall tone; large fragments move whole regions of the sound around.
- **CHAOS** — how far the blocks are allowed to travel. Low keeps a recognisable sound with something wrong in it; high is complete destruction.
- **HOLD** — how long each arrangement lasts before it re-shuffles. Short is a fast, nervous stutter; long holds each mangled shape long enough to hear it as a pitch.

WORKING THE CHAMBER

Set MIX to 100% and hold the **COLLISION** chip while you audition modes — you are then hearing only what the mode does, with nothing of the sources hiding it. Once you have chosen, release the chip and pull MIX back until the raw sources come far enough forward to keep the note's identity.

The Signal Path

Everything that happens after the chamber, in the order it happens. The row of tiles along the bottom of the faceplate is not a menu — it is the actual chain, left to right, and the promise it makes is kept.

FILTER 1	FOLDER 2	DRIVE 3	ENSEMBLE 4	DELAY 5	REVERB 6	WIDTH 7	OUTPUT EQ 8	MASTER 9
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Each tile shows its headline value. The small dot on a tile is its **power**: click it to bypass that module entirely (the tile name stays lit, its value dims), and click anywhere else on the tile to open that module's full card in the **FX** drawer page. MASTER has no power dot — you cannot bypass the output.

Bypass always beats modulation. If you have a modulator opening up the delay and you switch the delay off, it stays off.

1 · FILTER

Eight filter types: **LP12** and **LP24** (12 and 24 dB per octave low-pass — 24 is the darker, more classic one), **HP12** and **HP24**, **BP** (band-pass), **Notch**, and **Comb+** / **Comb-**, which are not really filters at all but tuned resonators that add a metallic ring and pair beautifully with the chamber's inharmonic modes.

CUTOFF and **RESO** are what you expect. **DRIVE** pushes the filter into saturation — this is the filter's own overdrive, and it is where the growl in a generated bass usually comes from. **KEY TRK** makes the cutoff follow the note you play, so a patch stays equally bright across the keyboard instead of going dull in the top octave.

The filter, the folder and the drive all run **oversampled** — see MASTER, below.

2 · FOLDER (the WAVEFOLDER card)

A wavefolder does not clip a signal that gets too loud — it folds it back on itself, generating a dense stack of new harmonics that shift as the level changes. Three characters: **Sine** (smooth and musical), **Triangle** (harder edges, more aggressive), and **Orra** (our own curve — asymmetric, with more even harmonics, and the warmest of the three).

DRIVE sets how far into the fold the signal goes; **MIX** blends the folded signal against the clean one. Because folding is level-dependent, it responds hugely to what the envelopes are doing — a folded patch changes harmonic content as it decays, all on its own.

3 · DRIVE (the DISTORTION card)

Five flavours: **Soft Clip** (warm, gradual, tube-ish), **Hard Clip** (immediate and square — the loudest and rudest), **Bitcrush** (reduces resolution for digital grit), **Downsample** (reduces sample rate for aliased, lo-fi ring) and **Rectify** (folds the waveform's negative half up, doubling the perceived pitch and hollowing the tone).

DRIVE goes to 36 dB — considerably more than any other drive control here — and **MIX** blends it in parallel, so you can add a wall of grit underneath a clean signal rather than replacing it.

4 · ENSEMBLE

A three-phase bucket-brigade chorus — the string-machine kind, not the pedal kind. Three delay lines modulated at slightly different rates and summed, which is what turns a pair of detuned saws into a Solina. It is the one module with no knobs: the tile carries a **MODE** key for each of **I**, **II** and **I+II**, and that is all.

I is one slow, shallow phase pair — the classic wash. **II** is deeper and a little faster. **I+II** runs both at once, beating the two rates against each other for the seasick swirl string machines are loved for. There is deliberately no MIX: a real ensemble is fixed half dry, half wet, and that ratio *is* the effect.

5 · DELAY

A stereo delay with a tone-shaped feedback path. **MIX** is the send amount, **TIME** the delay length (1 ms to 2 s) and **FBK** the number of repeats. Turn **SYNC** on and the division combo takes over from TIME, locking the repeats to your session tempo from 1/2 down to 1/16, dotted and triplet values included.

PING-PONG bounces the repeats between left and right instead of keeping them centred. **TONE** is a tilt applied *inside* the feedback loop, so it compounds: turn it left and each repeat is darker than the last until the tail dissolves; turn it right and the repeats get thinner and more brittle as they fade.

6 · REVERB

A true plate reverb — dense and immediate, with no early reflections. **MIX**, **SIZE** (tight ambience to enormous hall), **DAMP** (how fast the highs leave the tail — bright chamber against soft dark room), **WIDTH** (the tail's stereo spread, all the way down to mono) and **PRE-DLY** (up to 200 ms of gap before the reverb starts, which keeps the attack clear and makes the space feel larger).

GATE chops the tail in time, and **HOLD** is how long it stays *open* at each hit — it then closes for the same again, so the grid is twice the hold. On a short sound that reads as one burst per hit, the 1980s gated-drum sound; on a held chord it becomes a rhythmic chop with the room filling the gaps. Your dry signal is never gated, only the plate's own output, and HOLD follows your session tempo.

The console's **SPACE** bias dial decides how much reverb and delay a generated patch arrives with. Set SPACE to 0 if you mix reverb on a bus and want every roll to come out dry.

7 · WIDTH (the STEREO WIDTH card)

- **HAAS** — a delay of up to 30 ms between the channels. Tiny amounts read as width rather than echo. The **PHASE INV** pill flips the polarity of the delayed side for an even more extreme, more hollow image.
- **M/S BAL** — bipolar. Left pushes toward the centre (mono), right toward the sides. It can never null the centre entirely, so the sound cannot disappear on a mono system.
- **LOW W** and **XOVER** — bipolar around a true centre detent. Turn it *left* and the stereo content below the crossover folds progressively to mono — the standard fix for a wide pad whose bass end is smearing the low mid; turn it *right* and the lows widen instead. **XOVER** (40–500 Hz) sets where that happens. At centre it is bit-exactly off, and the mono sum never changes at any setting.

8 · OUTPUT EQ

Three bands: a **low shelf** (gain and frequency), a fully parametric **mid bell** (gain, frequency and **MID Q** for its width) and a **high shelf**. ± 12 dB each. The card draws a live response curve, and the SIGNAL PATH tile shows a miniature of it.

9 · MASTER

MASTER is the output level, bipolar around 0 dB. **LIMITER** is a lookahead brickwall, on by default — a collision can produce far more energy than either source put in, and this catches it. Leave it on; there is also a permanent, gentle safety ceiling underneath it that is never audible on a well-levelled patch.

HQ OVERSAMPLING — **Off**, **2x** or **4x** — runs the filter, folder and drive at a multiple of the sample rate so the harmonics they generate above hearing do not fold back down as aliasing. **2x** is the default and almost always right. Push to **4x** for heavily driven or bitcrushed patches on a final bounce; drop to **Off** if you need the CPU back.

FFT SIZE lives with the parameters rather than on the panel and sets the resolution of the spectral analysis: **1024** reacts fastest and is kindest to transients, **2048** resolves finer detail and suits pads and drones. Neither this nor HQ changes the latency Collider reports: that figure is fixed the moment your DAW opens the plugin and never moves again.

Modulation

Eighteen modulation sources, and one gesture to use them: **drag the source's chip onto the control you want it to move**. That is the whole system. There is no matrix to fill in first, no destination list to hunt through, and it works on any knob or slider in the instrument — including the ones inside the drawer.

The sources

CHIP	WHAT IT IS
ENV 1 – ENV 4	Four full ADSR envelopes with a curve control. ENV 1 is the patch's amp envelope — it is what makes a note start and stop, it is tagged AMP , and it is the one claim of hardwiring in the list that is actually true. ENV 2 is a free envelope like the other two, but every generated patch routes it to the filter cutoff, and its editor well carries a watermark saying so. ENV 3 is where a generated 808's pitch knock lives, and says that in its own well. Both are conventions of the generator's, not wiring: delete the route or re-point it and nothing objects.
LFO 1 – LFO 4	Four low-frequency oscillators, free-running from 0.05 to 20 Hz or synced to the host tempo — and each one can play a curve you draw yourself. See the next page.
SEQ	The step sequencer's current step. A 32-step pattern you can point at any parameter — a rhythmic filter pattern, a stepped pitch line, a gated tremolo. It sits with the envelopes and LFOs on the rail because it is one of them: a generator, not something your hands are doing.
MACRO 1 – MACRO 4	The four knobs in the console's PERFORM zone. They do nothing until you route them, and then they do whatever you routed them to — one knob moving five parameters at once. Fully automatable from your DAW, which makes them Collider's performance controls. GENERATE never touches a macro : they are your hands, not the generator's.
VEL	How hard you played the note.
NOTE	Which note you played — low keys give a low value, high keys a high one. Route it to anything you want to change across the keyboard.
A.TOUCH	Aftertouch — pressure on a held key. Also carries per-note pressure from an MPE controller.
WHEEL	The modulation wheel.
SLIDE	MPE's third dimension: sliding your finger up and down a key. Silent on a normal keyboard. See <i>MPE</i> .

Making a route

- **Drag a chip onto a knob or slider.** The control outlines in cyan as you hover it. Let go and the route is made at 30% depth, with a small amount slider popping up so you can set the depth immediately.
- **Or right-click the control** and choose **Add modulation** ►, then a source. Same result.
- The nine tabs in the MOD drawer page are chips too — you can drag *from* the ENV 2 tab straight onto a knob without going back to the rail.
- A greyed-out control refuses the drop, because it genuinely has nothing to modulate.

A modulated control tells you so: small coloured dots appear beside it, one per source in that source's colour, and a bright arc shows the live modulation moving in real time. Right-click again to **Remove** a single source or **Clear all modulation** on that control.

Depth is bipolar, -1 to +1. Negative depth inverts the source — an envelope that closes the filter instead of opening it. Up to four sources can share one destination, and they add together.

The editors

The **MOD** drawer page has nine tabs — **ENV 1–4**, **LFO 1–4** and **SEQ** — and shows the selected modulator's editor above the modulation matrix.

Envelopes

The display is the envelope, and you can shape it directly: drag the three breakpoints to set attack, decay and sustain and release, or **drag vertically on a segment** to bend its curve from concave through linear to convex. The knobs — **ATK · DEC · SUS · REL · CURVE** — do the same job numerically, and the readout strip under the display gives you the exact times.

LFOs

Seven shapes as icon buttons: sine, triangle, saw up, saw down, square, sample & hold and smooth random. **RATE** sets the free-running speed; turn **SYNC** on and the **DIVISION** combo takes over, locking the LFO to the tempo from four bars down to 1/32. **PHASE** offsets where in its cycle the LFO starts, and **RETRIG** decides whether it restarts on each note or free-runs across the whole performance. Exactly one of RATE and DIVISION is ever active; the other stays visible but dimmed, so you always know which one is in charge.

Drawing your own shape. Draw straight in the LFO display and the LFO switches to your curve — the well is tagged **CUSTOM** and no shape icon is lit. **Drag** a point to move it, **double-click** empty space to add one, **double-click or right-click** a point to delete it, and **drag vertically on a segment** to bend it. Points snap lightly to the grid and to the top, centre and bottom lines. Click any shape icon to go back to a preset shape — your drawing is kept, not destroyed, and is still there if you turn custom back on. The two random shapes cannot be drawn, and will tell you so if you try.

Step sequencer

Click or drag in the bar display to set each step's value; the playing step lights up as it goes. **ENABLE** switches it on (generated patches leave it off, so it is waiting rather than running), **STEPS** sets the pattern length — 4, 8, 12, 16, 24 or 32 — and **SYNC** plus **DIVISION** lock it to the tempo, or **RATE** runs it free. Then drag the **SEQ** chip onto whatever you want it to drive.

SNAP turns the freehand well into a grid. A drag then lands on one of **24 equal levels** — two octaves of semitones, the bottom of the bar at +0 — with faint guides at the octave and the fifths either side. Drag or hover and a readout names the bar and its value: *ST 5 · +7 st snapped*, *ST 5 · 63% free*.

Those levels only *become* semitones at the route: drop **SEQ** on a source **PITCH** at a depth of **0.25** and each level is exactly one semitone, because a quarter of pitch's ± 48 st span is 24 st of travel. SNAP never requantises a pattern already drawn, and turning it off leaves the snapped values where they are.

The modulation matrix

Under the editor, every route in the patch as a list: source, an arrow, destination, a bipolar depth slider and an **x** to remove it. It is the place to audit and rebalance a patch — especially a generated one, where the generator may have written half a dozen routes you did not choose. Typing an exact depth here is often faster than dragging.

Every control that accepts a route honours it, the **OUTPUT EQ** included — and its curve animates with the modulation on the FX card and on the SIGNAL PATH tile, so what you see is what you hear. The four **MACRO** knobs are the one deliberate exception: they are *sources*, and a macro modulating itself would only chase its own tail.

BUILDING A MACRO THAT EARNS ITS PLACE

Drag **MACRO 1** onto the filter cutoff at +0.4, onto the collision MIX at +0.25, and onto the reverb MIX at +0.2. One knob now takes the patch from closed and dry to open and huge. Write it into your DAW's automation and you have a filter sweep that is doing three jobs at once.

The Arpeggiator

A real arpeggiator, at the note level. It takes the keys you are holding and plays them as **actual notes** — so envelopes retrigger, glide glides, velocity carries and the retrigger scope applies, exactly as if you had played every step yourself. There is no second sound path underneath it and no second set of rules. The arp is a keyboard, not an engine.

It starts when you do, as well. The first step fires the instant you press a key rather than waiting for the next grid line, and the pattern anchors to your playing rather than to the transport. That is why an offline bounce matches what you auditioned, and why a loop point cannot shift the phrase out from under you.

Where it lives

Its own **ARP** tab in the drawer — the tab row reads **OSC & VOICE · MOD · ARP · FX · WAVETABLE** — and an **ARP ▶** key on the footer beside **MOD ▶** that takes you there. That key carries a small lamp: lit gold while the arp is on, pulsing gently on each step, and wearing a thin gold collar when the arp is *locked*. The switch itself is the **power dot** on the ARP page's card header. The footer key only reports — a key that both reported and toggled would be two controls wearing one cap.

The page is two cards. Everything you *set* is on the left, in four captioned groups: **PATTERN**, **HOLD**, **TIMING** and **CHANCE**. Everything you *see* is on the right — one large pattern display, which in one mode is also the surface you draw on.

MODE — the order the notes come out in

MODE	WHAT IT PLAYS
Up	Lowest held note to highest, then round again. The default, and what most people mean by the word.
Down	Highest to lowest.
Up-Down	Up and back down, without striking either end note twice.
As Played	The order you actually pressed the keys. The only mode that does not sort them.
Random	A fresh pick from the held notes at every step. Seeded — see <i>The same dice every time</i> , overleaf.
Converge	Outside in: bottom, top, next-from-bottom, next-from-top, meeting in the middle.
Diverge	Converge read backwards — inside out, starting in the middle and finishing on the two extremes.
Chord	Not a walk at all: the whole stack strikes on every step, up to eight notes, which is the instrument's polyphony ceiling. In Mono it collapses into a rhythm on one note — which is a usable thing to have asked for.
Custom	Plays a pattern you paint on the display yourself. See <i>Custom</i> , two pages on.

Every mode takes its notes from what your hands are doing and from nothing else. Change the chord and the pattern re-forms around the new one at the very next step.

TIMING

CONTROL	WHAT IT DOES
OCTAVES	1 to 4. Each layer stacks another copy of the <i>whole</i> held chord an octave above the last — hold C3 and C5 over two octaves and you get C3 C5 C4 C6, which is what a hardware arp does and what your hands expect, rather than the chromatic-sounding C3 C4 C5 C6 you would get by sorting the lot.
DIVISION	One step per this note value, locked to your session tempo: $\frac{1}{4} \cdot \frac{1}{8} \cdot \frac{1}{8T} \cdot \frac{1}{16} \cdot \frac{1}{16T} \cdot \frac{1}{32}$, plus the dotted $\frac{1}{8}$, and $\frac{1}{16}$. — a dot is one and a half of the plain value. A tempo ramp is followed as it happens.
GATE	How much of a step the note sounds for, 5% to 100%. Wide open is a <i>tie</i> rather than a 100% gate: the release happens at the next step's attack instead of before it, so in Mono with GLIDE up the pitch slides from one step into the next. The amp still re-attacks — that is the 303 move, and it is deliberate.
SWING	50% is straight. Above it the on-beat steps stretch and the off-beats lag by exactly as much, so every second step still lands on the grid — the MPC convention, in the MPC's own units. 66.7% is a true triplet shuffle; 75% is the hardest shuffle anybody means by the word, which is where the hardware stops too.

CHANCE

CONTROL	WHAT IT DOES
RATCHET	The probability that a step <i>bounces</i> — the same note struck again halfway through it. A probability, not a depth: at 0.5 about half the steps double.
REST	The probability that a step falls silent instead. The pattern keeps counting through the hole, so the shape survives and only the rhythm changes — which is the whole difference between a rest and a shorter pattern.
ACCENT	Not a chance control at all. It reads the pattern's own cycle, lifts the step that begins each pass and eases every other step off, so the phrase acquires a downbeat. It pushes both ways on purpose: a lift alone does nothing to a chord you already struck at full velocity.

RATCHET and REST are turned a long way with a very small hand. At 1/16 and 120 bpm a step is 125 ms, so eight dice are thrown every second — everything that reads as an *ornament* rather than as a new rhythm lives below about 0.15, and both dials are tapered so that zone gets the bottom half of the rotation instead of the first sliver of it. All five knobs on this page are modulation destinations, too: an LFO on GATE is a phrase that breathes, an envelope on REST thins a pattern out as a section decays.

THE SAME DICE EVERY TIME

Random, RATCHET and REST each run on their own seeded random stream, and that buys two things you would miss at once if they were missing. Riding one of those knobs never reshuffles what another one chose — turn REST up and the same steps still bounce. And a bounce always matches the audition, because the dice depend on the MIDI you played rather than on the clock. A random arp that rendered differently on every pass could not be checked, recalled or compared, so this one does not.

HOLD

CONTROL	WHAT IT DOES
LATCH	The chord keeps playing after you let go. With every key up, the next key you press <i>replaces</i> the latched chord rather than adding to it, so there is always a way back to a single note. The sustain pedal does the same job for as long as you hold it down.
RETRIG	On , every fresh chord restarts the pattern from step 1. Off , the pattern keeps its place through chord changes, so a long pattern loops while the harmony moves underneath it. The first note sounds immediately either way — RETRIG changes <i>where</i> in the pattern it falls, never <i>when</i> it arrives.

LATCH with RETRIG off is the pair worth knowing: tap chords to re-harmonise a loop that never stops running.

Custom — painting your own pattern

Set MODE to **Custom** and the pattern display becomes an editor. What you paint is **chord degrees**, not notes: row 1 is the lowest note of whatever you are holding, row 2 the next one up, and the octave layers continue above that. Paint 1 3 5 8 5 3 and it is that contour on a minor triad, on a dominant ninth, on two notes — the shape is yours and the harmony stays yours as well. Nothing in this mode ever names a pitch.

Click or drag to paint; clicking a cell that is already lit clears that column to a rest. **LENGTH** sets how many columns are in one pass, 1 to 32 — and an odd length walks against the swing pairs, which is where a polymetric drift comes from. A painted rest is a hole rather than a shorter pattern: the clock walks straight on through it. RATCHET, REST and ACCENT still roll on top of the drawing, so a pattern you wrote never has to sound written.

Paint a degree higher than the notes you are holding and it wraps back into the chord instead of flattening against a ceiling — a wrong register beats no contour. **OCTAVES** is therefore Custom's range control: three notes over one octave wrap at 3, the same three over four octaves do not wrap until 12. Custom ships with an ascending ramp, so it plays something the moment you select it.

The display

A live ladder — one column per step of a pass, one cell per note at its own pitch height. The playhead column lights as it goes by, a Chord step draws as a stack, a ratchet as a cell split in two, a rest as a dash on the floor, and the downbeat carries a faint wash whenever ACCENT is up. Swing is drawn rather than described: the columns actually lean. **Random** is the one mode with no order to draw, so rather than invent one it shows the whole *pool* faintly and lights the note the die really picked. Let go of the keys and the well ghosts the last pattern instead of blanking.

ARP LOCK

The **padlock** beside the power dot pins the entire arpeggiator — the pattern, the feel, whether it is on at all — through *preset changes*. Load a preset, step the browser's ◀ and ▶, press **Init Preset**, recall an A/B slot, walk back through the history: every arp control stays exactly where you left it. Said as the gesture rather than the rule: **hold a groove, and audition sounds under it**.

It never fights your hands. Every direct tweak of an arp control still lands, locked or not, and saving still writes exactly what you hear — a lock that wrote the previous preset's pattern into the file would be a way of saving something you never played. The footer lamp's gold collar tells you the lock is on without your having to open the page.

Two boundaries, plainly. **GENERATE never touches the arp**: it is performance state, like the pitch wheel, and a painted pattern especially is something a person drew. And with **MPE** on the arp stands down entirely — an MPE controller gives every finger its own channel, bend and pressure, and an arp that collapses a chord into one note at a time would have to invent whose expression that note inherits. There is no honest answer, so it does not offer one.

MPE

MPE — MIDI Polyphonic Expression — lets a controller send bend, pressure and slide *per note* instead of for the whole keyboard at once. Collider supports it, and it is off until you ask for it.

Turning it on

MENU ▶ MPE Enabled. The item carries a tick when it is on. This is a preference for this instance of the plug-in, not part of a patch: it is remembered with your DAW session, and it is deliberately *not* saved into preset files. Sharing a preset never changes anyone's MPE setting.

What you get

GESTURE	RESULT
Per-note pitch bend	Each note bends independently, over a range of ±48 semitones — the MPE standard, and what your controller expects. Bend one note of a held chord and the others stay put. This is the whole point of MPE on a synth like Collider, because the two sources move together in pitch and the collision changes as they do.
Pressure	Per-note pressure arrives at the A.TOUCH modulation source. Route it to collision depth, filter cutoff or a source gain to lean into a note.
Slide (CC 74)	Moving your finger up and down a key drives the SLIDE source. On a non-MPE keyboard SLIDE simply never moves, so a patch that uses it still works — it just sits still.

Setting up your controller

Put your MPE controller — ROLI Seaboard, LinnStrument, Osmose, Haken Continuum, an MPE-capable pad grid — into its normal MPE mode and route it to Collider's track. Collider follows the standard convention: channel 1 carries global messages, channels 2 and up carry individual notes. There is nothing to configure inside the plug-in beyond the MENU tick.

Set your controller's **pitch bend range to 48 semitones**, which is the MPE default and what Collider expects. If bends come out as a fraction of what you played, that setting is almost always the reason.

Collider is up to 8 voices, so an MPE performance is limited to eight simultaneous notes. Set **VOICING** to **Poly 8** in the OSC & VOICE drawer for MPE work — a Mono or Poly 4 patch will not give MPE room to breathe.

GENERATED PATCHES NEVER DEPEND ON MPE

The generator never writes a route from SLIDE, and never assumes per-note bend. Every patch Collider rolls plays identically on an ordinary keyboard. MPE only ever adds — turning it on cannot change how an existing patch sounds under ordinary MIDI.

Presets

Collider's preset library is a **keeper shelf**, not a catalogue. The instrument's supply of sounds is GENERATE; the browser is where the ones you liked go to live. It is built for a library that grows from your own rolls.

The browser

Click the preset name in the header to open it. It fills the window, and clicking outside the card — or **Esc**, or the **x** — dismisses it.

- **Search** — the field at the top filters as you type. You do not have to click into it: just start typing and the first letter lands there. The space bar is left alone until you do, so your DAW's transport still works with the browser open. The count beside it reads *100 PRESETS*, or *6 OF 100* once you have filtered.
- **The shelves** down the left — **ALL**, **FAVORITES**, then a row per category you actually have presets in, then **FACTORY**. Each shows its count. The selected shelf is marked with a gold bar.
- **Single click** a row to load it with the panel still open — that is the audition flow. Keep clicking down the list while the part plays. **Double-click** to load and close. **Up** and **Down** step through and load as they go; **Enter** closes.
- **The heart** at the right of a row toggles a favourite. Favourites are hoisted to the top of the list and get their own shelf, and you can favourite a factory preset as well as your own.
- On your own presets, two more keys appear on hover: a **pencil** to edit the preset's name, category, author and description, and a **X** to delete it. Delete is two-step — the first click arms it and turns it red, the second confirms. Moving the mouse away cancels. Factory presets show only the heart.

◀ and ▶ follow what the browser is showing

The chevrons either side of the preset name in the header step through the library, and they step through *exactly the list the browser last displayed*. Select the **PAD** shelf and close the panel and the header chevrons have become a pad stepper; type a search term and they walk the results. That is what makes them useful mid-arrangement: filter once, then audition through the filtered set from the keyboard without opening anything.

With no filter, the order is favourites first, then your presets grouped by category, then the factory set. Opening the browser always resets to the unfiltered ALL shelf, so a filter you forgot about a week ago can never quietly narrow your stepping. Stepping a shelf is also when the **ARP LOCK** earns its keep: it holds the groove through every load.

Saving

SAVE in the header (or in the browser) opens a small form.

FIELD	NOTES
Name	Pre-filled with the current patch or generation name, selected so you can just type over it. Required.
Category	Pre-filled from the IDEA you rolled — save a run of PLUCK generations and they file themselves onto a PLUCK shelf. Pick from the list or type your own.
Author	Remembered from your last save, so you only ever type it once.
Description	Optional. Shown along the bottom of the browser when the preset is loaded.

Saving over one of your own presets turns the button into a red **REPLACE?** — press it again to confirm. Typing in the name field cancels the arming. Factory presets cannot be overwritten or deleted.

Two deliberate opposites, both of which you want. In the **SAVE** form, a field you leave blank *keeps* whatever the file already had — a quick save never silently erases a description you wrote last week. In the **pencil / EDIT** form, which opens pre-filled with the real values, clearing a field *clears* it. Save when you mean "store this"; edit when you mean "change this".

Sharing presets

A Collider preset is a single plain **.json** file — one per preset, human-readable and self-contained. A wavetable you imported or edited travels inside it, so a preset you send to a collaborator sounds identical on their machine with nothing to install. Mail one, drop one in a shared folder, zip a pack.

The MENU

The **MENU** key at the right of the header.

ITEM	WHAT IT DOES
License & Info...	Your license state, who it is registered to and the activations used; a Deactivate key for this machine, a purchase link on the demo, the version and copyright, and the links rail. See <i>Licensing and the Demo</i> .
Visit Website	Opens www.orraaudio.com in your browser.
Init Preset	A blank slate — every parameter back to its default and every modulation route cleared. Useful as a starting point for building by hand, and as a way to hear what a control does with nothing else in the way.
Init Modulations	Clears every modulation route but leaves the sound alone. The fastest way to tame a generated patch that is moving more than you want — you keep the tone and lose the animation.
Load Preset File...	Loads a .json preset from anywhere on disk, without adding it to your library.
Export Preset File...	Writes the current patch out to a .json file anywhere you like — for sending to someone, or for backup.
Import Presets...	Copies one or more .json files into your user library. Existing presets with the same filename are never overwritten, so importing a pack twice is harmless.
Save as Default Preset	Makes the current patch what every new instance of Collider opens with. Set this to a patch you like starting from — or to an Init if you prefer a blank page.
Clear Default Preset	Removes it. Only appears when you have one set.
Open Presets Folder	Opens your user presets folder in Finder or Explorer.
Rescan Presets	Re-reads the library from disk. Use it after you have added or removed files in that folder by hand.
MPE Enabled	The MPE toggle — ticked when on. See <i>MPE</i> .
Show Tooltips	Ticked when on. Turns the hover tips on and off everywhere at once — it is a preference kept with your library, not part of a patch, so every instance follows it.

Factory and user presets

The factory shelf ships **100 hand-curated presets** across the ten IDEA categories. It is read-only from the browser — load one, favourite it, save your own version, but never overwrite or delete it, and an update refreshes the set without touching anything you saved. Your presets live alongside it, in the folder **Open Presets Folder** reveals.

BUILDING A LIBRARY THAT IS ACTUALLY YOURS

The 100 are a starting point, not the supply. Set an IDEA, generate a dozen patches without stopping to edit, and save the two or three that made you look up. Do that weekly and the library becomes yours.

Licensing and the Demo

Collider is licensed per person, activated per machine, and — once it is activated — it does not need the internet again. What follows is the whole of it.

The first time you open it

A fresh install has no license on it, so the window opens behind a panel offering you three ways forward:

- **Enter License Key** — paste the key you were sent and activate this machine.
- **Start 14-Day Demo** — begin the trial, right now, with nothing to fill in.
- **Purchase Orra Collider** — opens the store page in your browser.

Until one of those resolves, Collider passes silence. Nothing is broken and nothing is lost — the panel is covering a working instrument, and the moment it clears you are looking at your patch.

The demo

The demo runs for **14 days** and it is the *whole* instrument. No noise bursts, no silent periods, no disabled modes, no watermark on your bounces. Presets you save during the demo are ordinary preset files and they are still there afterwards. The only thing the demo does not do is last.

It can be started once per machine. Once those 14 days are gone, starting it again is not offered — that is what makes it a fair trial rather than a rolling one. **MENU ▶ License & Info...** shows the days remaining while it is running.

Activating

Your license key arrives in the purchase email from Orra Audio. Open **MENU ▶ License & Info...**, press **Activate License**, and paste it in. Activation registers this machine against the key; the panel then shows your name, your email, and the activations you have used out of the number your license carries. Buying while the demo is still running is fine — activating simply retires the demo.

Once it is activated, it stays activated

This is worth stating plainly, because a lot of plugins are not like this. After a successful activation Collider works **offline, indefinitely**. It checks in with the server when it happens to be able to, and that check-in can only ever *revoke* a license, never withhold one: no connection, a dropped Wi-Fi, a studio machine that has never been online, a server of ours that is down — none of it touches you. The only things that stop a live license are an explicit refund, chargeback or disabling on our side. Play a show on a laptop in aeroplane mode; it is designed for exactly that.

Moving to another machine

Deactivate in the license panel hands this machine's seat back so you can use it somewhere else. It asks you to confirm, and afterwards Collider is unlicensed *here* until you enter the key again — which you can do at any time, as often as you like, as long as a seat is free.

OLD SESSIONS STILL BOUNCE

The license check applies to **realtime** playback only. An offline bounce is deliberately exempt, so a project you opened on a machine that has since gone unlicensed will still render down correctly instead of printing twenty minutes of silence you do not discover until later. You will hear nothing while you work on it — but the file you deliver is right.

Parameter Reference

Every parameter, grouped by the part of the instrument it belongs to. Ranges are the values shown on the control. Almost all are automatable and accept modulation; the exceptions are flagged in their rows.

Source A & Source B

Both wings carry the same seven controls; only the default type differs (**A = Saw**, **B = Sine**).

CONTROL	RANGE	DEFAULT	NOTES
Type	Saw · Square · Triangle · Sine · Wavetable · Noise White · Noise Pink · Noise Metallic · FM · Supersaw · Sync · Additive	Saw / Sine	Chooses the oscillator, and which of the rows below are live.
Pitch	−48 ... +48 st	0	Coarse tuning. Inert on noise types.
Fine	−100 ... +100 ct	0	Fine tuning. Inert on noise types.
WT Pos / Bright	0 ... 1	0	Wavetable frame position. Becomes BRIGHT (harmonic brightness) on Additive. Inert on all other types.
FM Ratio / Sync	0.25 ... 16	1.00	FM modulator-to-carrier ratio, or the Sync slave/master ratio. Inert on all other types.
FM Depth / Detune	0 ... 1	0	FM modulation index, or Supersaw detune spread. Inert on all other types.
Gain	−60 ... +12 dB	0 dB	Level into the collision. Always live.

Sub oscillator

CONTROL	RANGE	DEFAULT	NOTES
Enabled	on / off	on	The power dot on the SUB card.
Shape	Sine · Triangle	Sine	Triangle carries a little more harmonic content.
Pitch	−24 ... 0 st	−12 st	Cannot go above the played note.
Gain	−60 ... +6 dB	−6 dB	The sub bypasses the collision and is added afterwards, time-aligned.
Atk / Dec / Sus / Rel	0.001–2 s / 0.005–3 s / 0–1 / 0.005–5 s	0.001 s / 0.3 s / 1.0 / 5.0 s	The sub's own envelope, on top of ENV 1. Defaults are fully open, i.e. transparent.

Voice & character

CONTROL	RANGE	DEFAULT	NOTES
Voice Mode	Mono · Poly 4 · Poly 8	Poly 4	Maximum simultaneous notes.
Glide Time	0 ... 2000 ms	50 ms	Portamento between overlapping notes in a mono line.
Glide Curve	Linear · Exponential · S-Curve	Exponential	The shape of the slide.
Mod Retrigger	Phrase · Legato · Note	Phrase	When modulators re-fire, Note additionally hard-restarts the voice envelopes in Mono, on every press. See <i>The Sources</i> .
Unison Voices	1 ... 7	1	Detuned copies of each source per note.
Unison Detune	0 ... 100 ct	20 ct	Total spread across the unison stack.
Unison Spread	0 ... 1	0.70	Stereo placement of the unison voices.
Analog Drift	0 ... 1	0.18	Slow random detuning per voice. 0 is perfectly stable.
Pitch Bend Range	1 ... 48 st	2 st	The global pitch wheel's range. MPE per-note bend is always ±48 st.

Collision — always present

CONTROL	RANGE	DEFAULT	NOTES
Collision Mode	Impact · Shear · Absorb · Fuse · Annihilate · Ring Mod · Smear · Fracture	Impact	The operation performed on the two spectra.
Mix	0 ... 1	1.00	Collision against the untouched sources.
Drive	0 ... 24 dB	0 dB	Level into the collision. Output level is re-matched afterwards.
Tilt	-12 ... +12 dB/oct	0	Spectral tilt across the collided signal. Bipolar.
Stereo	0 ... 1	0	0 = one mono collision, both channels identical. Above 0 the collision runs independently per channel.

Collision — per mode

Only the selected mode's controls are shown in the chamber, but all of them exist at all times and are automatable.

MODE	CONTROL	RANGE	DEFAULT	NOTES
Impact	Impact Depth	0 ... 2	1.00	Below 1 blends the two spectra; above 1 clashes them.
Shear	Shear Amount	-128 ... +128 bins	0	Base spectral shift. Bipolar.
	Intensity	0 ... 1	0.50	How much source B drives the shift.
	Harmonic	on / off	off	Snap the shift to whole harmonic multiples so the result stays in tune.
Absorb	Direction	A absorbs B · B absorbs A · Mutual	A absorbs B	Which source carves which.
	Absorb Depth	0 ... 1	0.50	How deeply the holes are cut.
	Threshold	0.001 ... 1	0.10	How loud the absorber must be before it carves at all.
Fuse	Coherence	0 ... 1	0.50	How completely the two spectra lock into one voice.
Annihilate	Selectivity	0.1 ... 10	2.00	How closely partials must match before they cancel. Low is broad, high is surgical.
	Depth	0 ... 1	0.50	How completely matched partials are removed.
Ring Mod	Ring Depth	0 ... 2	1.00	Strength of the all-partial multiplication.
Smear	Smear Width	1 ... 16 bins	1	How far energy is blurred sideways. Whole bins.
	Feedback	0 ... 0.90	0.40	How much of the blur re-enters itself. High settings keep building after release.
Fracture	Fragment	4 ... 96 bins	16	Size of the spectral blocks. Whole bins.
	Chaos	0 ... 1	0.50	How far blocks are allowed to move.
	Hold	1 ... 32 hops	8	How long each arrangement is held before it re-shuffles. Whole hops.

Macros

CONTROL	RANGE	DEFAULT	NOTES
Macro 1 – 4	0 ... 1	0	Performance controls. Automatable, and never written by GENERATE. They are modulation <i>sources</i> , and the one thing in the instrument you cannot route <i>onto</i> .

Envelopes 1 – 4

Four identical envelopes. **ENV 1** is the amp envelope and opens with a faster, shorter shape than the others; ENV 2–4 share one set of defaults.

CONTROL	RANGE	DEFAULT (ENV 1)	DEFAULT (2–4)	NOTES
Attack	0.001 ... 2 s	0.005 s	0.1 s	Time from key-down to full level.
Decay	0.005 ... 3 s	0.3 s	0.5 s	Fall from full level to the sustain level.
Sustain	0 ... 1	0.80	0.50	Level held while the key is down.
Release	0.005 ... 5 s	0.2 s	0.5 s	Fall to silence after key-up.
Curve	–1 ... +1	0	0	Bends every stage from concave through linear to convex. Bipolar.

Per-source envelopes

Three more ADSRs — **Source A**, **Source B** and **Sub** — which multiply on top of ENV 1. Their defaults are deliberately transparent, so an untouched patch is unaffected.

CONTROL	RANGE	DEFAULT	NOTES
Attack	0.001 ... 2 s	0.001 s	Instant, i.e. no effect until you move it.
Decay	0.005 ... 3 s	0.3 s	Only audible once Sustain is below 1.
Sustain	0 ... 1	1.00	Full, i.e. transparent.
Release	0.005 ... 5 s	5.00 s	Longer than the amp envelope, so it never cuts a note short.

LFOs 1 – 4

CONTROL	RANGE	DEFAULT	NOTES
Shape	Sine · Triangle · Saw Up · Saw Down · Square · S&H · Smooth · Random	Sine	The plug-in's own tooltip calls S&H "Sample & Hold"; they are the same shape.
Rate	0.05 ... 20 Hz	1.00 Hz	Free-running speed. Inactive while Sync is on.
Sync	on / off	off	Locks the LFO to host tempo; Division takes over from Rate.
Division	4 bars · 2 bars · 1 bar · 1/2 · 1/4 · 1/4 · 1/4T · 1/8 · 1/8 · 1/8T · 1/16 · 1/16T · 1/32	1/4	Tempo-synced rate. A dot is dotted, a T is triplet.
Phase	0 ... 360°	0°	Where in the cycle the LFO starts.
Retrigger	on / off	on	On restarts the LFO with each note; off free-runs.
Custom	on / off	off	Plays your drawn curve instead of Shape. Turns itself on the moment you draw.

Step sequencer

CONTROL	RANGE	DEFAULT	NOTES
Enable	on / off	on	Generated patches always leave the sequencer switched off.
Steps	4 · 8 · 12 · 16 · 24 · 32	16	Pattern length.
Rate	0 ... 1	0.50	Free-running speed. Inactive while Sync is on.
Sync	on / off	on	Locks the pattern to host tempo.
Division	1/2 · 1/4 · 1/8 · 1/8T · 1/16 · 1/16T · 1/32	1/16	One step per this note value.
Snap	on / off	off	Draw the bars in 24 equal levels instead of freehand. Applied as you draw, so it never requantises a pattern already there. Not automatable — it is a drawing preference, not a control, and it touches no sample.
Step 1 – 32	0 ... 1	0.50	Each step's value. Individually automatable.

Arpeggiator

All of these are automatable — riding GATE through a build, or switching the arp on at a section boundary, is a written gesture rather than a setting. **GENERATE never writes any of them**, and the **ARP LOCK** (a session setting, not a parameter) holds all of them through preset changes.

CONTROL	RANGE	DEFAULT	NOTES
Enabled	on / off	off	The power dot on the ARP card header. Inert while MPE is on.
Mode	Up · Down · Up-Down · As Played · Random · Converge · Diverge · Chord · Custom	Up	The order held notes come out in. Chord fires the whole stack, capped at 8 notes; Custom plays the painted pattern.
Octaves	1 · 2 · 3 · 4	1	Octave layers above the held chord. In Custom it is also how high a painted degree can reach before it wraps.
Division	1/4 · 1/8 · 1/8T · 1/16 · 1/16T · 1/32 · 1/8. · 1/16.	1/16	One step per this note value, host-synced. The two dotted values sit at the end of the list because it only ever grows from the end.
Gate	0.05 ... 1.00	0.60	Fraction of a step the note sounds. At 0.99 and above the steps tie together instead of gating.
Swing	50 ... 75 %	50 %	50 is straight, 66.7 is triplet, 75 is the hardest shuffle. The number is the on-beat's share of the pair.
Ratchet	0 ... 1	0	Probability that a step doubles. Tapered travel: half the rotation covers 0–0.15, which is the whole ornament range.
Rest	0 ... 1	0	Probability that a step falls silent. Same taper as Ratchet, and its own seeded stream.
Accent	0 ... 1	0	Lift on the pass's first step, duck on every other. Not a probability.
Latch	on / off	off	Hold the chord after key-up. The sustain pedal does the same momentarily.
Retrigger	on / off	on	On restarts the pattern at step 1 for every fresh chord; off keeps its place. On is the behaviour the arp has always had.
Pattern Length	1 ... 32	8	Columns in one pass of a Custom pattern. Dimmed in the other eight modes, which take their length from the chord.
Step 1 – 32	0 ... 16	ascending ramp	The painted pattern, one <i>chord degree</i> per column: 0 is a rest, 1 the lowest held note, upward from there. Whole numbers only, and each column is its own automatable parameter. The factory ramp is 1 2 3 4 5 6 7 8 repeating, so Custom starts life sounding exactly like Up.

Filter · Folder · Drive · Ensemble

MODULE	CONTROL	RANGE	DEFAULT	NOTES
Filter	Type	LP12 · LP24 · HP12 · HP24 · BP · Notch · Comb+ · Comb-	LP12	The two combs are tuned resonators rather than filters.
	Cutoff	20 Hz ... 20 kHz	8.00 kHz	Corner frequency.
	Reso	0 ... 1	0	Emphasis at the corner.
	Drive	0 ... 24 dB	0 dB	Saturation inside the filter.
	Key Trk	0 ... 1	0	How far the cutoff follows the played note.
Folder	Enabled	on / off	on	The tile's power dot.
	Type	Sine · Triangle · Orra	Sine	Orra is our own asymmetric curve — warmer, more even harmonics.
	Drive	0 ... 24 dB	0 dB	How far into the fold the signal is pushed.
	Mix	0 ... 1	0	Folded against clean.
Drive	Enabled	on / off	on	—
	Type	Soft Clip · Hard Clip · Bitcrush · Downsample · Rectify	Soft Clip	Bitcrush and Downsample are the lo-fi pair.
	Drive	0 ... 36 dB	0 dB	The largest drive range in the instrument.
	Mix	0 ... 1	0	Parallel blend against clean.
Ensemble	Enabled	on / off	on	—
	Mode	I · II · I+II	I	Three-phase BBD chorus. No mix — it is fixed at 50/50.
	Enabled	on / off	off	The one FX module off by default.

Delay · Reverb

MODULE	CONTROL	RANGE	DEFAULT	NOTES
Delay	Mix	0 ... 1	0	Send amount.
	Time	1 ... 2000 ms	350 ms	Free-run delay length. Inactive while Sync is on.
	Sync	on / off	off	Locks to host tempo.
	Division	1/2 · 1/4 · 1/4 · 1/4T · 1/8 · 1/8 · 1/8T · 1/16	1/8	Tempo-synced delay time.
	Fbk	0 ... 0.95	0.40	Number of repeats.
	Ping-Pong	on / off	on	Bounces repeats between the channels.
	Tone	-1 ... +1	0	Tilt inside the feedback path, so it compounds with each repeat. Bipolar.
	Enabled	on / off	on	—
Reverb	Mix	0 ... 1	0	Send amount.
	Size	0 ... 1	0.50	Plate size and decay length.
	Damp	0 ... 1	0.50	How fast highs leave the tail.
	Width	0 ... 1	1.00	Stereo spread of the tail; 0 is mono.
	Pre-Dly	0 ... 200 ms	10 ms	Gap between the note and the reverb onset.
	Gate	on / off	off	Chops the tail in time. The dry signal is never gated.
	Hold	1/2 · 1/4 · 1/8 · 1/16 · 1/32	1/16	How long the gate holds open; it then closes for the same again.
	Enabled	on / off	on	—

Width · Output EQ · Master

MODULE	CONTROL	RANGE	DEFAULT	NOTES
Width	Haas	0 ... 30 ms	0 ms	Inter-channel delay. Small amounts read as width.
	Phase Inv	on / off	off	Flips the polarity of the delayed side.
	M/S Bal	-1 ... +1	0	Centre against sides. Cannot null the centre. Bipolar.
	Low W	-1 ... +1	0	Below the crossover: negative folds toward mono, positive widens. Exactly off at centre, and the mono sum never changes. Bipolar.
	Xover	40 ... 500 Hz	150 Hz	Where Low W acts.
	Enabled	on / off	on	—
Output EQ	Low Gain	-12 ... +12 dB	0 dB	Low shelf. Bipolar.
	Low Freq	20 ... 500 Hz	100 Hz	Shelf corner.
	Mid Gain	-12 ... +12 dB	0 dB	Parametric bell. Bipolar.
	Mid Freq	200 Hz ... 8 kHz	1.00 kHz	Bell centre.
	Mid Q	0.1 ... 10	1.00	Bell width. High is narrow and surgical.
	High Gain	-12 ... +12 dB	0 dB	High shelf. Bipolar.
	High Freq	2 ... 20 kHz	8.00 kHz	Shelf corner.
	Enabled	on / off	on	—
Master	Master	-60 ... +12 dB	0 dB	Output level. Bipolar around 0.
	Limiter	on / off	on	Lookahead brickwall. Leave it on.
	HQ Oversampling	Off · 2x · 4x	2x	Anti-aliasing for the filter, folder and drive. Reported latency is fixed and does not change with this. Not automatable : changing it rebuilds the engine, which is not something a host may be invited to do per block.

Global

CONTROL	RANGE	DEFAULT	NOTES
FFT Size	1024 · 2048	2048	Resolution of the spectral analysis. Smaller reacts faster and keeps transients; larger resolves finer frequency detail. Reported latency is fixed and does not change with this. Not automatable , for the same reason as HQ above: changing it briefly re-initialises the engine, so set it before you record.

Not parameters

Three parts of a patch are stored with it but are not automatable and will not appear in your DAW's parameter list: the **modulation routes** (they are a list, not a fixed set of controls — automate a macro instead), the **LFO curves** you draw, and the **wavetables** you load or edit. The console's IDEA, DRIFT and BIAS settings are also not parameters — they are generator settings, remembered with your session.

Mouse & Keyboard

Everything you can do with a control, in one place.

Knobs and sliders

GESTURE	RESULT
Drag	Change the value. Drags are absolute, not velocity-based, so a slow drag and a fast one over the same distance land in the same place.
Double-click	Reset to default. Works on every knob and slider in the instrument.
Click the value (sliders)	Type an exact number. Slider read-outs are editable text — one click and you are typing. Frequencies accept <i>8k</i> or <i>8 kHz</i> as well as <i>8000</i> .
Right-click	The modulation menu: Add modulation ►, then Remove for each existing route and Clear all modulation .
Drop a mod chip	Creates a route at 30% depth and opens a depth slider. The control outlines in cyan while a chip is over it.

Buttons and displays

GESTURE	RESULT
Right-click GENERATE	Re-roll the same seed, plus a read-out of the last generation's name.
Click a SIGNAL PATH tile	Opens that module's card in the FX drawer.
Click a tile's power dot	Bypasses the module without opening anything.
Hold a legend chip	Momentary audition solo of A, B, COLLISION or OUT.
Hover the SEQ bars	Reads out the bar under the cursor and its value — in semitones with SNAP on, as a percentage of travel with it off.
Click or drag the ARP display (Custom mode)	Paints the pattern. A drag draws; clicking a cell that is already lit clears that column to a rest. The display edits nothing in the other eight modes — there it is a readout.
Right-click an A / B slot	Always stores, never recalls.
Drag an audio file onto a wing	Imports it as that source's wavetable (WAV, AIFF, FLAC).

In the preset browser

KEY OR CLICK	RESULT
Type	Filters the list — the first letter jumps into the search field for you.
Up / Down	Step through and load as you go.
Click	Load, panel stays open.
Double-click	Load and close.
Enter	Close, keeping what is loaded.
Esc, x, or click outside	Close.

In the LFO and envelope editors

GESTURE	RESULT
Drag a point	Move it. Envelope breakpoints set the ADSR stages; LFO points move freely and snap lightly to the grid.
Drag a segment vertically	Bend that segment's curve.
Double-click empty space	Add an LFO point.
Double-click or right-click a point	Delete it. The two end points cannot be deleted.

The window

Collider's layout is a fixed size and does not reflow. The **zoom** button in the header scales the whole interface: **75%** · **100%** · **125%** · **150%** · **175%** · **200%**. The setting is per-instance and is saved with your session.

Ten Things Worth Knowing

Lock, then drift

Locks decide what GENERATE may touch; DRIFT decides how hard it touches it. Together they turn a random patch generator into a directed search.

Rich into A, simple into B

Most collision modes use source B as an instruction and source A as the material. A saw or a wavetable in A and a sine or an additive in B is the most controllable starting point in the instrument.

Source GAIN is a collision control

The balance between A and B changes what the mode *does*, not just how loud it is. Reach for the two GAIN rows before you reach for the mode's own knobs.

The solo chips are the fastest debugging tool you have

If a patch is not doing what you expect, hold **A**, then **B**, then **COLLISION**. In three seconds you know whether the problem is a source, the mode, or the chain after it.

Turn SPACE to zero if you mix on buses

Every generated patch then arrives dry, and your own reverb send stays in charge.

STEREO in the chamber is not the WIDTH module

One is stereo generated by running the collision twice; the other is a stereo tool applied to the finished signal. Pads want both. Bass wants neither.

Init Modulations tames a busy generated patch

It clears every route and leaves the tone alone — the fastest way to keep a sound you like but stop it moving so much.

Harmonic rescues Shear

If Shear is too strange for the track, turn **HARMONIC** on. The same motion, now in tune.

2048 samples is the right re-slice

If a wavetable you dragged in came out as noise, it was sliced at the wrong frame length. 2048 is the convention almost every wavetable file follows.

Generate more than you think you should

The instrument is designed around the assumption that you will press GENERATE fifty times in a session, not five.

Presses are free. Save the two that surprised you.

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