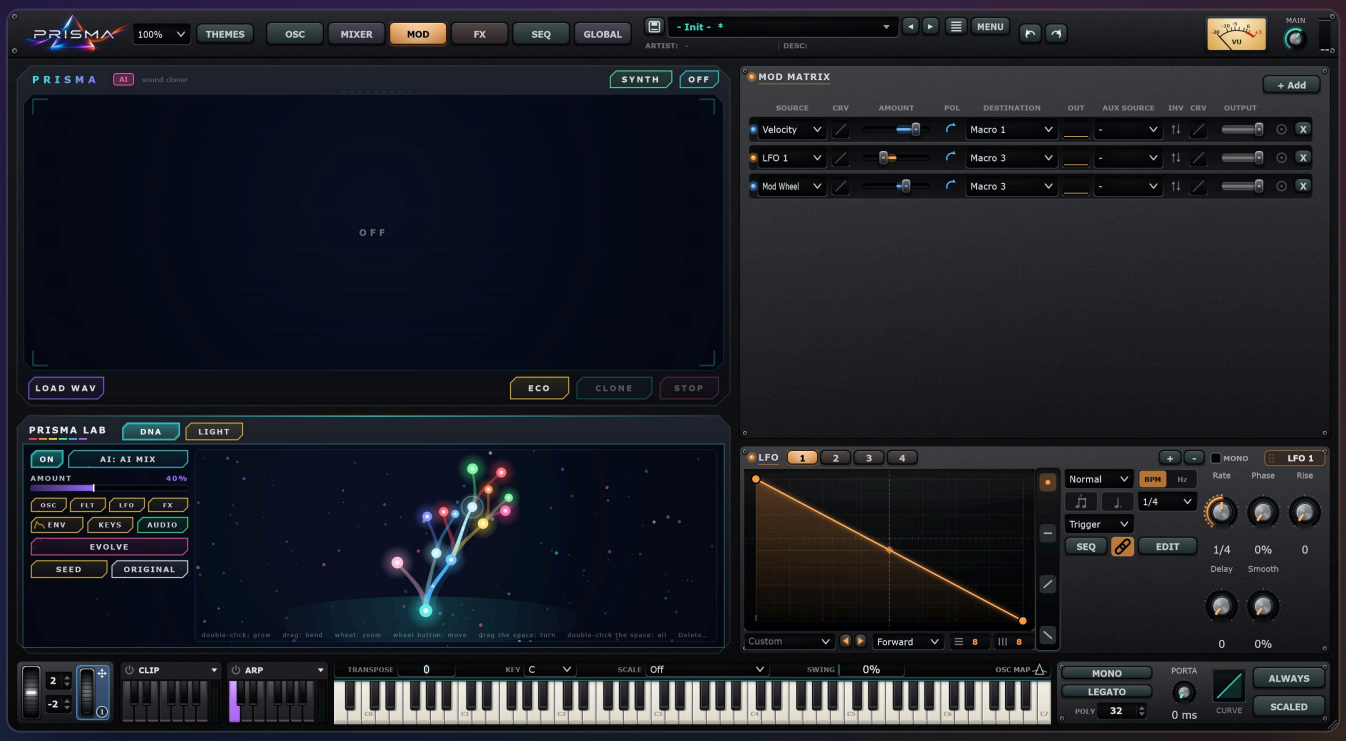
PRISMA

HYBRID SYNTHESIZER

User Manual



Version 0.5 · VST3 · 64-bit · Windows

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CHAPTER 1

Welcome to Prisma

Prisma is a hybrid synthesizer: wavetables, samples, grains and spectra meet analogue-style filters, a deep modulation system, three effect racks, an arpeggiator, a clip player and two AI tools that help you find and grow sounds. Everything you hear is drawn on screen, and almost everything can be moved by a modulation source.

What is inside

Section	What it gives you
3 main oscillators	OSC A, B and C. Each one has five engines: **Wavetable**, **Sample**, **Multisample**, **Granular** and **Spectral**, two warp slots and up to 16 unison voices.
Sub and Noise	A sub oscillator for weight, and a noise oscillator with colours, samples and the **Geiger** click generator.
Filters	Two advanced filters (dozens of types in five families) plus a global filter with its own envelope.
Modulation	4 envelopes, 4 LFOs (drawn shapes, paths, chaos attractors, sample & hold), 8 macros, velocity and note curves, wheels, MPE, and a full modulation matrix. Drag a source onto any knob.
Mixer	Every source on its own channel strip with sends, two buses, a main channel with limiter and a direct output.
Effects	Three racks (MAIN, BUS 1, BUS 2) with 14 effects and three band splitters.
Performance	Arpeggiator / step sequencer, ARP ADV pattern player, a 12-slot clip player, scales, swing and OSC MAP key splits.
PRISMA AI	A sound cloner that rebuilds a WAV with Prisma's own engines, and PRISMA LAB, a living tree that grows variations of your sound.

How Prisma is made

A few words about what happens under the hood, so you know why Prisma behaves the way it does:

- **Engine.** Prisma is written in C++ with the JUCE framework. Every note is its own voice with its own oscillators, filters, envelopes and LFOs, so modulation is truly per note.
- **Clean highs.** Wavetables are stored as band-limited copies (mip-maps), and the oscillators and their warps run oversampled (2x in *High*, 4x in *Ultra*), so bright sounds stay clean instead of aliasing.
- **A light interface.** The window is drawn by the graphics card. All animations share one 60 FPS clock, and every display redraws only when something on it really moves, so Prisma stays light in your project.

- **AI on the side.** The cloner and PRISMA LAB do their thinking away from the audio, so the sound never waits for them. With *ECO* the cloner uses one core and you can keep producing while it searches.

Requirements

- Windows 10 or 11, 64-bit.
- A VST3 host (Prisma is tested in FL Studio).
- A screen of at least 1600 x 864 pixels for the 100 % size (the interface scales from 50 % to 200 %).

CHAPTER 2

Getting started

Installation

Copy **Prisma.vst3** into the standard VST3 folder: `C:\Program Files\Common Files\VST3`. In FL Studio open **Options › Manage plugins**, click **Find installed plugins**, and Prisma appears in the plugin database under *Generators*.

> **NOTE** If an update cannot be installed, the host is still running and holds the old file. Close FL Studio, install, open it again.

Your first sound

- Load Prisma on a channel and play a key: the **Init** preset is a plain, bright saw wave - the clean start for your own sounds.
- Click the preset name at the top to open the **browser**, pick a sound, and play.
- Use the arrows next to the preset name to step through presets.
- Every knob shows its value while you drag it. **Double-click** a knob to type a value, **Ctrl + click** resets it.

Size and themes

The size menu next to the logo sets the interface size; you can also drag the bottom-right corner of the window. **THEMES** changes the look: *Modern Blue*, *Studio Hardware*, *Retro Red* and *Studio Hardware 2.0* (used in this manual). Every window of Prisma follows the theme.

CHAPTER 3

The interface at a glance

Prisma is one window. The top bar and the bottom area are always there; the large middle area shows one of six pages.



The OSC page, with the parts that are always visible.

1. Prisma logo
2. Interface size (50 % - 200 %)
3. THEMES: the look of the whole synth
4. The six pages: OSC, MIXER, MOD, FX, SEQ, GLOBAL
5. Preset bar: save, name (opens the browser), previous / next, browser, MENU
6. Undo / Redo
7. View: SIMPLE or ADV (advanced) oscillator controls
8. VU meter
9. MAIN volume
10. The page area (here: OSC page)
11. Global filter, Filter envelope, Amp envelope
12. Drag-to-knob strip: modulation sources
13. Macros
14. Envelopes
15. LFOs
16. VELO / NOTE curves
17. Pitch bend and mod wheel
18. CLIP and ARP players
19. Keyboard bar: transpose, key, scale, swing
20. OSC MAP
21. On-screen keyboard
22. Voicing: mono, legato, portamento, polyphony

Working with the controls

Gesture	What it does
Drag a knob up / down	Changes the value. Hold **Shift** for fine steps.

Mouse wheel	Changes the value (can be switched off on the GLOBAL page).
Double-click	Type an exact value (*440*, *2.5 kHz*, *-6 dB*, *1/8* ...) or reset it - your choice on the GLOBAL page.
Ctrl + click	Back to the default value.
Right-click a knob	The modulation menu: add or remove a source, bypass, reset, MIDI Learn.
Drag a source onto a knob	Modulates that knob (see Chapter 7).
Drag a menu box up / down	Steps through its items without opening it; click opens the list.

> **TIP** Hover over anything and a help tooltip tells you what it does. Tooltips can be switched off on the GLOBAL page.

CHAPTER 4

Oscillators

Prisma has six sound sources: three main oscillators (OSC A, B and C), a SUB oscillator, a NOISE oscillator and a ring modulator in the mixer. This chapter covers the main oscillators: their five engines, unison, and the warps that bend the sound. Then come SUB and NOISE.



The OSC page: the sound sources, left to right.

1. SUB
2. OSC A
3. OSC B
4. OSC C
5. NOISE

OSC A, B and C are the same; only their colour differs (teal, violet, pink). OSC A is on in a new sound. Switch the others on with their power buttons.

The oscillator panel



OSC A with a wavetable, two warps (Bend + and Sine Fold) and five unison voices.

1. Power: switches the oscillator on / off
2. Engine: Wavetable, Sample, Multisample, Granular, Spectral
3. Output: where the sound goes
4. The table or sound. The arrows step to the previous / next one
5. Pencil: opens the wavetable editor
6. Load...: load a file
7. The display: the wave as it sounds now
8. 2D / 3D view and Bright Wave
9. Phase and random phase
10. UNISON: voices; the gear opens the options
11. WT Pos: the position in the wavetable
12. Unison Detune and Blend
13. Octave, Semi, Fine, Coarse, Pan, Level
14. Warp 1: type, arrows, amount
15. Warp 2: type, arrows, amount

Pitch and level

Control	What it does
Octave	Moves the oscillator up or down by octaves (-4 to +4).
Semi	Semitones, -12 to +12.

Fine	Fine tuning in cents (-100 to +100). A few cents between two oscillators makes them beat and sound wider.
Coarse	Smooth pitch in semitones (-48 to +48). Unlike Semi it glides between notes, so it is the knob to modulate for pitch sweeps (an envelope on Coarse makes a drum or a laser zap).
Pan	Left / right.
Level	Volume of the oscillator. It is also on the oscillator's mixer strip.
φ (Phase)	Where in the cycle each note starts. The default, 180°, starts a saw at zero: a clean attack with no click.
RAND	How much the start point changes on every note. OSC A starts at 0 (the same attack on every note); B and C start at 100, so cross-modulation between oscillators sounds slightly different each time, like analog synths.

The output

The small button at the top right of the panel (**GF**, **M**, **B1** ...) says where the oscillator goes. It is the same choice as the output button on the oscillator's mixer strip:

Output	Where the sound goes
Global Filter	Through the global filter, then to MAIN.
Main	Straight to MAIN and its effect rack, without the filter.
Bus 1 / Bus 2	To a bus with its own effect rack.
Direct	Straight to the output, without any effects.
None	Nowhere. The oscillator is silent but still feeds the warps of the others (FM, AM ...).

Filters 1 and 2 have their own inputs: the **S A B C N** buttons on the filter panel choose which sources go through them.

SIMPLE and ADV

The **SIMPLE / ADV** buttons at the top right of the window switch every oscillator between two views. SIMPLE keeps only the essentials: the table or sound, WT Pos, Detune, the unison voices and the pitch and level knobs. Nothing is switched off: hidden warps and settings keep working.



OSC A in the SIMPLE view.

The five engines

The engine menu at the top of the panel chooses how the oscillator makes its sound. Each engine shows its own controls under the display. The pitch knobs, unison and the two warps are there for every engine.

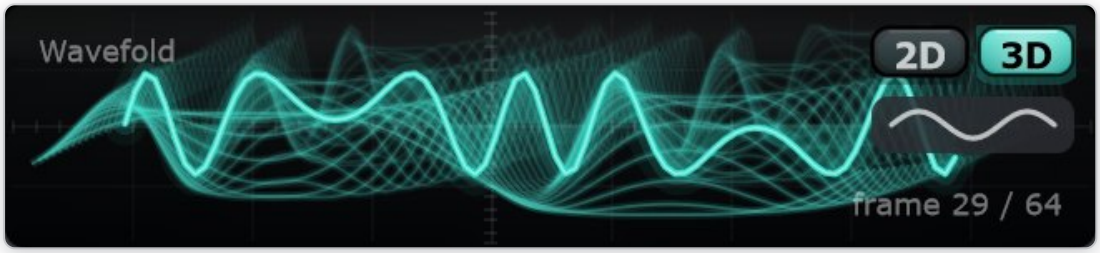
Engine	What it plays	Good for
Wavetable	A table of single-cycle waves. WT Pos moves through it.	Basses, leads, pads, anything that moves.
Sample	An audio file, with loop points.	Real instruments, one-shots, drums, vocals.
Multisample	An instrument made of many samples spread over the keyboard.	Pianos, plucks, organs, drum kits.
Granular	Tiny pieces (grains) of a sample, played as a cloud.	Textures, pads, frozen sounds.
Spectral	The harmonics of a sample, analysed and rebuilt.	Morphing, talking and metallic sounds.

Wavetable

A wavetable is a list of single-cycle waves, called frames. **WT Pos** picks the frame: the number on the knob goes from 1 to the number of frames in the table. Between frames Prisma blends smoothly, so turning WT Pos morphs

the sound. Modulate it with an envelope or an LFO and the sound comes alive.

- **The table menu** has 46 tables in five groups: **Analog** (basic shapes, pulse widths, organ, warm saws), **Digital** (sync sweeps, folds, steps, chip and growl tables), **FM**, **Spectral** (harmonic series, combs, bands) and **Vowel**. The last item is the table you imported or edited.
- **The arrows** next to the menu step through the tables in menu order.
- **The pencil** opens the wavetable editor: harmonics, drawing, formulas and morphing (see the Wavetable Editor chapter).
- **Load...** or dropping an audio file on the oscillator opens WAVETABLE IMPORT: choose how the file is cut into frames, or load it as a Sample, Granular or Spectral oscillator.
- **2D / 3D** switch the display. 3D shows every frame of the table, with the active one lit.
- **Bright Wave** (the small wave icon): while a note plays, the wave changes colour with the sequencer steps and the LFOs. Off, it keeps the oscillator's colour.



The 3D view: every frame of the table (here Wavefold), the one at WT Pos lit.

Sample



OSC A playing a sample (Vocal Ah).

1. The sound: click for the factory sounds and your own files
2. The waveform: the playhead, the start and the loop
3. Loop mode (click for the menu)
4. LS / LE / XF: loop start, loop end, loop X-fade
5. Scan, Start, Start Rnd

Control	What it does
Scan	Playback speed and direction: 1x as recorded, 2x twice as fast, below 0 backwards (-4x to +4x). The pitch still follows the keys.
Start	Where in the sample each note starts.
Start Rnd	Every note starts a little later, at random. Good against the "machine gun" effect on repeated notes.
LS / LE	Loop start and loop end, in % of the sample. You can also drag the markers on the display.
XF	Loop crossfade: fades into the audio before the loop start, so the jump at the loop point is smooth.

The loop menu sets how the sample plays:

Loop option	What it does
One-shot	Plays once, to the end, and stops.
Fwd Loop	Plays to the loop end, then repeats the loop forwards.
Rev Loop	Loops backwards.
Fwd/Rev Loop	Loops forwards and backwards in turn (ping-pong).
Tailed	Loops while the key is held; when you let go it plays on to the end of the sample.
Relative Loop	The loop moves with the start point (handy when Start is modulated).
Link Loop Length	The loop end follows the loop start, so the loop keeps its length when you move it.
Exit Loop on Release	When the key is released the playback leaves the loop and goes on to the end.

Right-click the waveform for more tools:

- **Show Marker Animation**, **Zoom to Start and End**. The mouse wheel zooms, shift + wheel scrolls.
- **Snap**: the markers snap to zero crossings, beats, the loop or the slices.
- **Fade Edges**, **Normalize**, **Reverse**, **Trim**: edits saved as a new WAV file next to the original.
- **Slicing**: **Slice Auto** cuts the sample at its hits, **Slice Manual** lets you place the cuts. Each slice goes on its own key from the **Root Note** up. Choose **Play Slice To End** or **Play Single Slice**. **Send to Selected Clip** writes the slices as notes into the CLIP player, ready to play.

> **EXAMPLE** **Chop a loop.** Load a drum loop in Sample, right-click › Slice Auto, then Send to Selected Clip: the loop plays from the clip, and you can move, mute or repeat each hit.

Multisample



OSC A playing a multisample (Tine Keys).

1. The instrument: factory or your own SFZ / WAV files
2. The zones: they light up while they play
3. The view tabs: zones (wave icon) / ENV (envelope icon)

A multisample is an instrument made of many recordings: each key range (zone) plays its own sample, so the instrument sounds natural all over the keyboard. Prisma ships instruments like Tine Keys, Glass Bell, Nylon Pluck, Drawbar Organ, Warm Pad, Synth Bass and Marimba. **Load your own** reads SFZ files, or a set of WAV files.

The **ENV** tab (the envelope icon under the display) gives this oscillator its own envelope and velocity response:



The ENV tab of a multisample: its own envelope and velocity tracking.

1. ENV tab: shows the zone envelope
2. The envelope shape, drawn from the knobs below
3. OVERRIDE: this oscillator uses its own envelope
4. Velocity track on / off
5. VEL TRACK amount (drag up / down)
6. Delay, Attack, Hold, Decay, Sustain, Release

Control	What it does
OVERRIDE	On: the oscillator follows its own envelope (the knobs below) instead of the main amp envelope (Env 1). Off: the knobs are kept but not used.
Delay	Time before the envelope starts.
Attack	How long the sound takes to reach full level.
Hold	How long it stays at full level before the decay.
Decay	How long it takes to fall to the sustain level.
Sustain	The level while the key is held.

Release	How long the sound fades after the key is released.
Velocity track (button)	On: softer notes play this oscillator quieter, as on a real instrument. Off: every note plays at the same level.
VEL TRACK	How much the velocity changes the level: 0 = not at all, 100 = soft notes are much quieter than hard ones.

EXAMPLE **Piano and pad in one sound.** OSC A: Tine Keys with OVERRIDE on, a short Decay and Sustain 0, velocity track 100. OSC B: a slow pad on the main amp envelope. The keys stay percussive and dynamic while the pad swells behind them.

Granular



OSC A in Granular (Glass Cloud).

1. The sample and the grains playing from it
2. The view tabs: sample (wave icon) / WINDOW (bell icon)
3. Scan, Position, Size, Density, Spray, Pitch Rnd

The granular engine plays tiny pieces of the sample, called grains, many at a time. Each grain has its own fade-in and fade-out, so together they make a smooth cloud. The grains can stay in one place and freeze the sound, or

move slowly through the sample and stretch it.

Control	What it does
Scan	How fast the grains move through the sample (-4x to +4x). 0 = they stay where Position puts them.
Position	Where in the sample the grains come from.
Size	How long each grain is (5 ms to 500 ms). Short grains buzz, long grains sound like the original.
Density	How many grains start each second (1 to 200). Few: a rhythmic stutter. Many: a dense cloud.
Spray	Each grain starts at a random place around Position: the cloud gets blurred.
Pitch Rnd	Each grain is detuned at random, up to 12 semitones. A little makes a chorus; a lot a shimmer.

In the loop menu, **Manual** stops the scanning: only Position moves the grains (modulate it, or move it by hand). **Loop Grains** makes the grains themselves loop between the loop markers.

The **WINDOW** tab (the bell icon under the display) shapes the volume of every grain:



The grain window: its shape, amount and skew.

Control	What it does
Shape	Hann, Triangle, Sine, Gauss, Blackman, Welch: from soft (Gauss, Blackman) to fuller (Welch, Sine).

Amount	How much of the shape is used. Lower = flatter grains, with more of the sample in each one.
Skew	Moves the peak of the window earlier (a sharp attack) or later (a reverse swell).
Amount Rand / Skew Rand	Each grain gets a slightly different amount or skew.

EXAMPLE **A pad from any sound.** Load a vocal or a guitar note in Granular, Scan 0, Size 200 ms, Density 60, Spray 20 %. Modulate Position with a slow LFO: the sound becomes an endless, slowly changing pad.

Spectral



OSC A in Spectral (Harmonic Bloom).

1. The spectrum of the sound as it plays
2. Scan, Start
3. Cut and Mix with the spectral FILTER between them
4. Tilt, Shift, Stretch

The spectral engine analyses the sample into its harmonics (partials) and rebuilds it note by note. Because the sound is rebuilt, it can be reshaped in ways a sample cannot: tilted brighter or darker, stretched into a bell, shifted out of tune, filtered with a curve you draw, and warped with the spectral warps.

Control	What it does
Scan	How fast the sound moves through the sample (-4x to +4x). 1x plays it as recorded; 0 freezes it.
Start	Where the playback starts.
Cut / Mix	The spectral filter: double-click the small FILTER picture to draw any curve over the harmonics. CUT slides the curve up and down the spectrum; MIX blends it in.
Tilt	Brighter (up) or darker (down): the highs and lows are tipped against each other.
Shift	Moves every partial by the same number of Hz (-2000 to +2000). The harmonics stop being harmonic: metallic, inharmonic tones.
Stretch	Spreads the partials apart (above 1x) or squeezes them together (below): from a string to a bell.

Click the sound name for the source menu: factory sounds, **Wavetables** (any built-in table as a spectral source), **Import PNG...** (a picture read as a spectrogram) and **Switch to Wavetable**, which turns the sample into a wavetable in several ways. **Manual** in the loop menu works as in Granular.

Unison

Unison plays several copies (voices) of the oscillator at once, each slightly detuned and spread across the stereo field: one saw becomes a wide, thick wall of saws. Set the number of voices (1 to 16) with the field next to **UNISON**: drag it or use the arrows.

Control	What it does
Detune	How far the voices drift apart.
Blend	The level of the outer voices against the centre one. Low keeps the sound focused; high makes it wide.
Mode (gear)	How the voices are spread: **Linear** (even steps), **Super** (the classic supersaw), **Exp**, **Inv**, **Random**.
Stack (gear)	Puts some voices up or down by octaves: **12**, **12 + 24**, **-12**, **-12 - 24**, or an octave and a fifth (**12 + 19**).
Width (gear)	Stereo width of the voices: 0 = mono.
Range (gear)	How many semitones Detune 100 % covers (up to 48).
WT Pos / Warp 1 / Warp 2 (gear)	Wavetable: each voice reads a slightly different position or warp amount. Very wide, moving sounds.
Start (gear)	Sample, Multisample and Spectral: each voice starts at a different point.
Span (gear)	Granular: each voice takes its grains from a different place. Spectral: each scans at a slightly different speed.

> **EXAMPLE** **Supersaw.** Basic Shapes at the saw, UNISON 7, Mode Super, Detune 30 %, Blend 75 %. Add Stack 12 for a brighter, bigger lead.

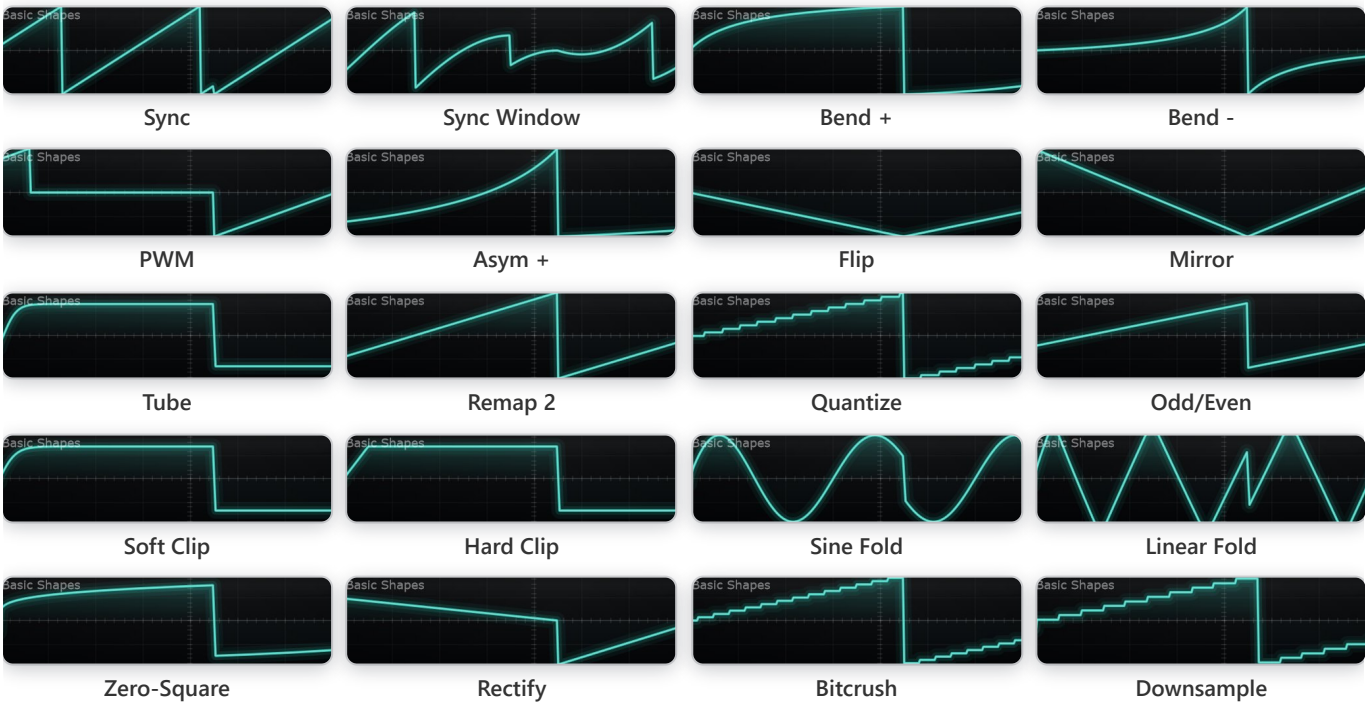
Warps

Each oscillator has two warp slots, **WARP 1** and **WARP 2**. A warp reshapes the wave as it is played: it can squeeze it, fold it, distort it, filter it, or let another source modulate it. The **Amount** knob under each slot sets how strong the warp is. At 0 % most warps leave the sound unchanged, so modulating Amount brings a warp in and out.

- Click the box for the menu, or drag it up / down to step through the warps; the arrows do the same.
- Warps change the shape of the wave, and so the harmonics. The display always shows the wave as you hear it.
- **Swap Warps** at the bottom of the menu exchanges the two slots.
- The menu groups the warps: **Sync**, **Alt Warp** (shape bends), **Filter**, **Distortion**, **FM**, **PD**, **AM** and **RM**. A Spectral oscillator shows its own **Spectral** group instead of Sync and Alt Warp.

What the warps look like

A saw wave with one warp each, at a medium amount:



Sync and Alt Warp: bending the shape

Warp	What it does
Sync	Hard sync: the wave is read faster and restarts at every cycle, like an oscillator synced to a slower one. Sweep it for the classic screaming sync lead.
Sync Window	Sync with a soft window over each cycle: smoother, more vocal, without the hard edge.
Bend +	Pinches each half of the cycle in towards the middle.
Bend -	Pulls each half out towards the edges.

Bend +/-	Below 50 % Bend +, above 50 % Bend -; 50 % is the dry wave.
PWM	Squeezes the wave into the first part of the cycle and leaves the rest silent: pulse-width modulation for any wave.
Asym + / Asym -	Bends the whole cycle to the right or to the left.
Asym +/-	Left below 50 %, right above 50 %.
Flip	Turns the end of the cycle upside down; the amount sets where the flip starts.
Mirror	Plays the wave forwards in the first half of the cycle and backwards in the second: an octave-up, mirrored sound. The amount bends both halves.
Mirror INV	Like Mirror, with the mirrored half also upside down.
Remap 1-4	Reads the wave through a curve you draw (the **REMAP** button opens the graph). Remap 2, 3 and 4 repeat the curve 2, 3 or 4 times per cycle. The amount blends from the dry wave to the remapped one.
Quantize	Reads the wave in steps: a stair-step, lo-fi version of the wave.
Odd/Even	Fades out the odd harmonics and keeps the even ones: the sound gets thinner and climbs towards the octave (a sine shrinks to nothing).

Filter

Warp	What it does
LPF	A low-pass filter inside the oscillator: higher amounts make it darker.
HPF	A high-pass filter: higher amounts thin it out.

They are simple filters, useful before a distortion warp in the other slot, or to darken a single oscillator.

Distortion

Warp	What it does
Tube	Warm, slightly uneven saturation, like a valve.
Soft Clip	Rounds the peaks off smoothly.
Hard Clip	Cuts the peaks flat: brighter and harder.
Diode 1 / Diode 2	Two diode clippers: gritty, uneven.
Linear Fold	Folds the wave back each time it goes too high: bright, glassy, many folds at the top.
Sine Fold	Folds through a sine: the classic West Coast wavefolder sound.
Zero-Square	Pushes the wave towards a square, keeping the zero crossings.
Asym	Distorts the top and bottom of the wave differently: adds even harmonics.

Rectify	Folds the bottom half of the wave up: an octave higher and buzzier.
Sine Shaper	Runs the wave through a sine curve: soft, then ringing.
Stomp Box	A guitar pedal kind of drive.
Tape Sat.	Soft tape saturation.
Soft Sat.	Very gentle saturation, for a little warmth.
Bitcrush	Fewer bits: grainy, digital steps in the level.
Downsample	A lower sample rate: digital aliasing, metallic overtones.

TIP Distortion warps act on each voice before the filter, so they sound different from a distortion effect at the end: every note keeps its own clean edges, and chords stay clear.

FM, PD, AM and RM: modulation from other sources

These warps use another sound to modulate the oscillator. Each comes in several versions, one for each source: the two other oscillators (for OSC A: **B** and **C**), **Noise**, **Sub**, **Filter 1** and **Filter 2**. The amount sets the depth.

Warp	What it does
FM	Frequency modulation: the source speeds up and slows down the oscillator. From soft bells and electric pianos to screaming basses. At the bottom of the FM menu choose its flavour: **Thru-Zero** (the cleanest, it can run backwards), **Exp** (in octaves, more analog) or **Linear**.
PD	Phase distortion: the source pushes the read position of the wave. Similar to FM, brighter and more stable. **PD (Self)** uses the oscillator itself: a single oscillator that bites.
AM	Amplitude modulation: the source changes the volume of the oscillator, adding side tones above and below it.
RM	Ring modulation: the oscillator is multiplied by the source: metallic, bell-like, often out of tune on purpose.

NOTE A source can be silent and still modulate: set an oscillator's output to **None** (or its level to 0) and use it only as an FM source. In OSC MAP, an oscillator outside its key range keeps feeding the warps if **WARP** is on.

EXAMPLE **FM bell.** OSC B: Basic Shapes at the sine, Octave +2, output None. OSC A: sine, Warp 1 **FM (B)** at 30 %. Put a short envelope on the warp amount: the bell rings bright and fades to a pure tone.

Spectral warps

When the engine is Spectral, the warp menu shows the warps that reshape the partials:

Warp	What it does

Detune +/-	Each partial gets its own small detune: a chorus of harmonics.
Smear	Blurs the spectrum over time: a softer, washed sound.
Spread +/-	Pushes the partials apart from the note (above 50 %) or squeezes them together (below).
Harmonics	Pulls every partial onto the harmonics of the note you play: noisy sounds become pitched.
Subharm	Adds a copy of every partial an octave down.
Gate	Keeps only the loudest partials: a clean, sparse version of the sound.
Robotize	Locks the partials to the note: a robot voice.
Shift	Moves every partial by the same number of Hz: inharmonic, metallic.
Mirror	Flips the spectrum around a point that climbs with the amount.
Peak Follow	Keeps the peaks and fades the rest.
Peak Oct +12 / -12	Adds an octave above or below each peak.
Peak Hmx +12 / -12	Adds several harmonics above or below each peak.
Harm Sweep	Groups of partials move up and down in turn, the louder ones further: a phasing, sweeping sound.
Shepard / Shepard W	An endless rise: the partials climb an octave and fade in from below. W is wider.
Comb	Notches across the spectrum, closer together as the amount goes up.
Pitch Blend	Blends from the played pitch towards the sample's own pitch.
Pitch Shift	Shifts the pitch up to 12 semitones up or down.
Phase Twist	Twists the phases of the partials: the same harmonics, a different texture.
Formant	Moves the formants (the vowel colour) up or down while the pitch stays the same.
Mask (source)	The spectrum of another source cuts holes in this one: only what both share remains.
Voc (source)	A vocoder: another source is shaped by this oscillator's spectral envelope. With a voice sample in Spectral and a saw in OSC B, OSC A **Voc (B)** makes the saw talk.

SUB



The SUB oscillator: power and output, Shape, the wave, Octave, Coarse, Pan, Level.

SUB is a simple oscillator to add weight under the main sound. Its **Shape** is **Sine**, **Triangle**, **Saw**, **Square**, **Pulse 25%** or **Pulse 12%**. **Octave** goes from -3 to +1 (one octave down by default), **Coarse** tunes it by up to 24 semitones.

> **TIP** Keep the sub in one low octave whatever you play: in OSC MAP set its range and switch on **FOLD**.

NOISE



The NOISE oscillator: the Noise / Geiger tabs, the noise menu, STEREO, the noise as it plays, Pitch, Fine, Color, Level, Pan, Low Pass and KEY.

The noise menu has three kinds of sound:

- **Color**: endless noises: White, Pink, Brown, Blue, Violet, Velvet.
- **Types**: noises with a character: Crackle, Digital, Vinyl, Wind, Rain, Metallic.
- **Factory samples and your own files** (**Load Sample...**): breaths, hits, textures. A sample can loop or play once. **Embed in Preset** stores the file inside the preset, so it loads on any computer.

Control	What it does
STEREO	0 = the same noise in both ears, 100 = a different noise in each.
Pitch / Fine	Tune a noise sample.
Color	Darker or brighter.
Low Pass	A low-pass filter on the noise.

KEY	A loaded sample follows the notes (it plays at its own pitch on C3).

The **Geiger** tab turns the noise oscillator into a click generator, like a radiation counter. **Count** goes from a few loose clicks to so many that they become a crackle; there are level, pan and stereo too.

> **EXAMPLE** **Air on a pad.** A little Pink noise with Low Pass at half, routed to the same filter as the pad: the sound breathes. Put the amp envelope on the noise level for a breathy attack.

CHAPTER 5

The wavetable editor

A wavetable is a row of single-cycle waves - its frames. The oscillator plays one frame at a time, and WT Pos morphs through them. In the editor you draw the frames, paint their harmonics, compute them from formulas, morph between them, and build complete tables of your own.

Opening the editor

- Click the **pencil** next to the table menu of OSC A, B or C. The editor opens in its own window.
- The **A / B / C** buttons in the editor switch between the three oscillators without closing the window.
- Every change reaches the oscillator by itself a moment after you edit, so you hear it while you work. The table is saved inside your preset / project (its name gets *(edited)*).



The wavetable editor (the "Odd Harmonics" table, frame 21).

1. ZOOM: how many harmonics the bars show
2. UPDATE FFT: drawing updates the harmonics live
3. A / B / C: which oscillator's table you edit
4. Harmonics: the amplitude of each harmonic
5. Phases of the harmonics
6. BRUSH: pencil and 11 shapes
7. Mirror: off / mirror / mirror + invert
8. The frame you are drawing
9. The table: factory tables, import, export
10. IMPORT / EXPORT a WAV
11. PROCESS: SINGLE (this frame)
12. PROCESS: ALL (every frame)
13. MORPH between key frames
14. GRID: columns and rows
15. Move the frame by one grid step
16. The frames of the table (the selected one framed)
17. WT POS: remove / add a frame, the frame number
18. COPY / PASTE a frame
19. REMOVE: frames, ranges, reduce the table
20. SORT the frames
21. FORMULA: type a wave as a formula
22. Formula examples
23. APPLY the formula

The frames

The strip at the bottom shows every frame of the table, up to 256. The oscillator's **WT Pos** knob runs through them from left to right.

Action	What it does
Click a frame	Shows it in the drawing area: you now edit that frame.
Ctrl + click	Adds the frame to a selection (or takes it out).
Shift + click	Selects a range of frames.
Double-click	Marks the frame as a **key frame** (a small mark appears): MORPH builds the frames between keys.
Mouse wheel	Scrolls the strip.
- / +	**-** removes the current frame, **+** adds a copy of it after it.
COPY / PASTE	Copies the current frame and pastes it onto another one.

REMOVE

- **Init All (Default)**: back to one plain frame.
- **Remove: (Current Index)**, **Multiselection**, **Beginning->Selected**, **Selected->End**, **Remove All (Except Selected)**.
- **Reduce to** 128, 64, 32, 16, 8 or 4 frames (keeping every 2nd, 4th ... frame).

SORT

Reorders the frames: **by Spectrum** (peak, average, peak amount, number of partials, highest partial, fundamental amount), **Randomize**, or **Reverse Entire Table Order**. Sorting by spectrum turns a random set of waves into a smooth sweep from dark to bright.

Drawing a frame

Choose a brush and drag in the drawing area. The **Pencil** draws freely; every other brush paints one grid cell with its shape, as high as the mouse - so a few clicks build a clean wave.

Brush	What it paints in a cell
Pencil	Free drawing, point by point.
Flat	A level line: square and pulse waves, steps.
Sine	Half a sine bump.
Ramp up / Ramp down	A straight rise or fall: saws and triangles.
S-curve up / down	A smooth rise or fall.
Hump / Dip	A rounded peak or valley.
Steps up / down	A staircase.
Noise	Random values: grit and air.

- **GRID**: the columns (**|||**) set how many cells the cycle has - the width of a brush stroke, and also the size used by the edge fades and filters; the rows (**=**) are the heights the brushes snap to. Drag the numbers up / down.
- **< > ^ v** move the whole frame one grid step left, right, up or down.
- **Mirror** (<|>): whatever you draw on one half is mirrored on the other - or mirrored and turned upside down (*INVERT*), which gives perfectly symmetrical waves.
- **UPDATE FFT**: while it is on, the harmonic bars follow your drawing in real time, and so does the sound.

> **TIP** Draw with the brushes at a grid of 8 or 16, then use **SINGLE › X-Fade Edges**: the ends of the cycle meet smoothly and the wave stops clicking.

Harmonics

Every frame is also a set of harmonics: the fundamental (1) and its multiples (2, 3, 4 ... up to 256). The upper bars are their **amplitudes**, the lower bars their **phases**. Change either one and the wave is rebuilt.

- Drag across the amplitude bars to draw them; drag along the bottom to clear them. Right-click a bar to silence it.
- The phase bars move a harmonic in time without changing its level: the wave changes shape but sounds almost the same - until it is distorted, filtered or modulated, where phases matter a lot.
- **ZOOM** 1x shows all 256 harmonics, 16x only 16 (wide bars for precise work); the mouse wheel scrolls.



A noisy table at ZOOM 1x: every harmonic at once.

1. All 256 harmonics at ZOOM 1x **2.** ZOOM

EXAMPLE **Hollow sounds**: remove every even harmonic (SINGLE or ALL › process menus) - only odd harmonics remain, like a clarinet or a square wave.

PROCESS: SINGLE and ALL

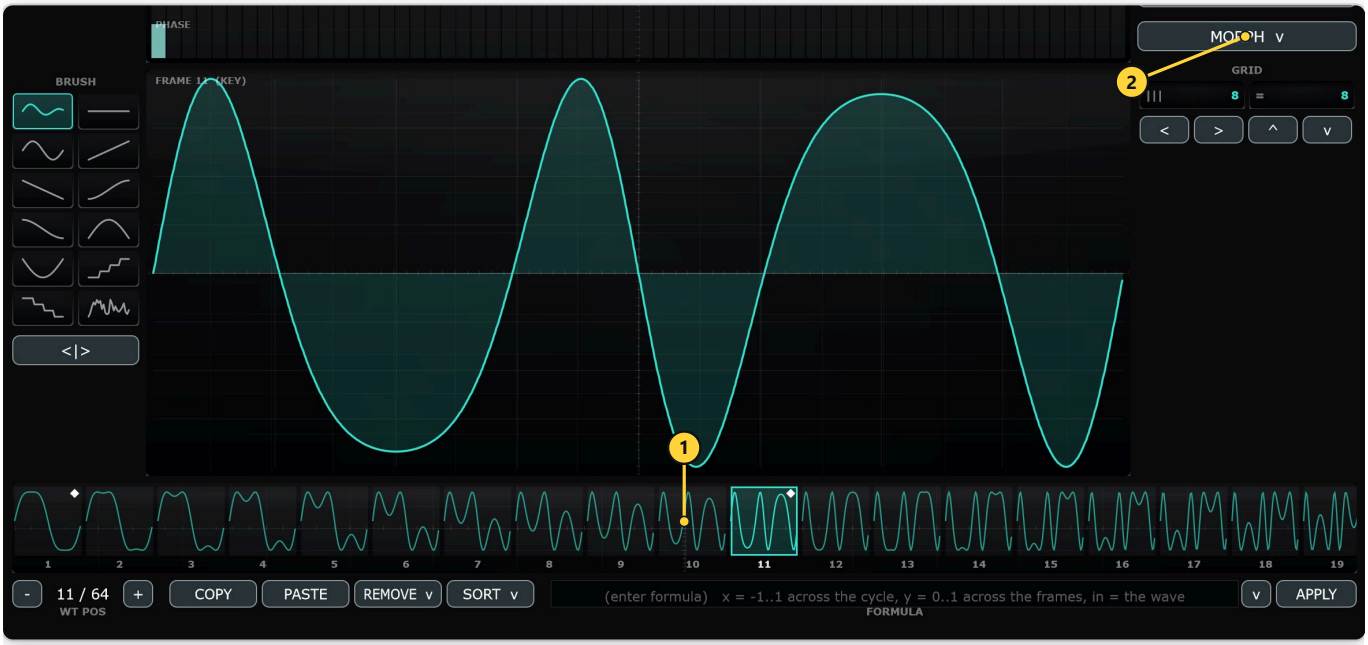
SINGLE changes the current frame, **ALL** changes every frame of the table. "Grid Size" in a name means the process uses the GRID columns (for example, the length of a fade).

SINGLE (this frame)	What it does
Normalize	As loud as possible without clipping.
Remove DC Offset	Centres the wave on the zero line (cleaner low end).
Flip Vertical (Polarity Invert)	Upside down.
Flip Horizontal (Reverse)	Backwards.
Shift Horizontal to Zero-Crossing	Moves the cycle so it starts where the wave crosses zero.
Init (Silence)	An empty frame.
Fade Edges / X-Fade Edges (Grid Size)	Fades the ends of the cycle, or crossfades them into each other: no clicks.
Filter (Grid Size)	Removes the harmonics above the grid size: a smoother, darker wave.
Sample Redux at Grid Size	Lowers the resolution: a stepped, lo-fi wave.
Send to Noise Oscillator	Uses this frame as the noise oscillator's sound.

ALL (every frame)	What it does
Normalize Each / Normalize Same	Each frame on its own, or all by the loudest frame (keeps the level changes).
Remove DC, Flip, Fades, Filter, Redux	The same as SINGLE, on every frame. X-Fade Edges also exists with a fixed 16 samples.
Remove Fundamental (HPF)	Takes harmonic 1 out of every frame: thin, nasal sounds.
Remove Low Spectra / Low Phases	Clears the lowest harmonics (or their phases) up to the grid size.

Resize Tables to be Half / Double	Twice as many frames (each half as long in WT Pos), or half as many.
Create PWM from This Table to All	A pulse-width sweep built from the current frame.
Nudge All Phases for Fundamental to 50%	Lines up the fundamental of every frame: smoother scanning.
Set Spectra / Set Phases (This Frame to All)	Copies this frame's harmonics (or phases) to every frame.
Set / Subtract Spectra, Set Phases from Other Osc	Takes the harmonics or phases of another oscillator's table.
Blur Spectra / Phases - Adjacent Bins	Smears each frame's harmonics into their neighbours.
Blur Spectra / Phases - Adjacent Frames	Smooths the change from frame to frame: softer WT Pos sweeps.
Shift Horizontal to Zero-Crossing	Every frame starts at a zero crossing.

MORPH: building a table from a few waves



Four key frames marked on the "Wavefold" table.

1. Key frames: double-click a frame to mark it **2.** MORPH

Draw or load a few waves, double-click each one to make it a **key frame**, then choose a MORPH type. Prisma fills the table up to 256 frames with the steps between the keys:

Morph	How the frames between two keys are made
Morph - Crossfade	The two waves are blended sample by sample: simple, can sound hollow in the middle.
Morph - Spectral	The harmonics glide from one key to the next: a smooth, natural timbre change.
Morph - Spectral (Zero Fund. Phase)	Spectral, with the fundamental's phase held at zero: no phase drift in the low end.

Morph - Spectral (Zero All Phases)	Spectral, with every phase at zero: the cleanest sweep, the most "synthetic" waves.
Remove Morph Tables	Takes the morphed frames out again, keeping the keys.

FORMULA: waves from math

Type a formula in the field and press **APPLY** (or Enter). It is computed for every sample of every frame:

Variable	Meaning
x	The position in the cycle, from -1 to 1.
y	The position in the table, from 0 (first frame) to 1 (last frame): use it to make the wave change across WT Pos.
in	The wave that is there now, so a formula can change an existing table.

Functions: `sin cos tan asin acos atan sinh cosh tanh exp ln log log10 sqrt sqr pow abs sign sgn floor ceil round frac min max clamp sinc saw tri rand noise`, and the constants `pi` and `e`.

Example (the v menu)	What it makes
sin(pi*x)	A sine.
x	A saw.
sign(x)	A square.
1-2*abs(x)	A triangle.
sin(pi*x + y*6*sin(2*pi*x))	Phase modulation that grows across the table: a classic FM sweep.
saw(x*(1+y*7))	A saw that gets more and more cycles: a hard-sync sweep.
tanh(sin(pi*x)*(1+y*20))	A sine driven into saturation: soft to square.
sin(pi*x)*cos(pi*x*(1+y*15))	Ring modulation with a rising partner: bells and metal.
sign(x)*abs(x)^(0.2+y*3)	A shape that bends from fat to thin.
in*(1-y) + sin(pi*x)*y	Fades the current table into a sine across WT Pos.
rand()*0.3*y + sin(pi*x)	A sine that gets noisier frame by frame.

Importing and exporting

- **The table menu** (the name at the top right): *Oscillator's current table*, every factory table by category, and **Import WAV...** / **Export WAV...**.
- **IMPORT** loads a WAV as a wavetable: each 2048 samples become one frame.
- **EXPORT** saves the table as a WAV with 2048 samples per frame - the common format other wavetable synths read.

- You can also drop an audio file on a wavetable oscillator: Prisma asks how to cut it into frames (zero crossings, pitch, FFT ...).

A first table in five steps

EXAMPLE **1.** In the editor, **REMOVE › Init All**. **2.** Draw a soft wave with the Sine brush; double-click its frame (key). **3.** Press **+** until you are at frame 2, draw a bright, edgy wave with Ramp and Steps; double-click it (key). **4.** **MORPH › Morph - Spectral**: 256 frames from soft to bright. **5.** Close the editor and drop LFO 1 on **WT Pos**: your sound now breathes between the two waves.

CHAPTER 6

Filters

A filter takes frequencies away - or lifts them - and is the fastest way to change the colour of a sound. Prisma has two advanced filters with 126 types in five families, a global filter with its own envelope, and a filter you draw yourself.

The FILTER 1 / FILTER 2 panel



The FILTER 1 / FILTER 2 panel on the OSC page (here with a sound playing through it).

1. Power: the filter on / off
2. FILTER 1 / FILTER 2: which one you see
3. Filter type: 126 types in five families
4. Key track: the cutoff follows the note
5. IN: S (sub), A, B, C, N (noise)
6. OUT: where the filtered sound goes
7. The display: drag left / right = cutoff, up / down = resonance
8. Cutoff, Res, Drive, Fat / Var
9. Pan, Mix, Level

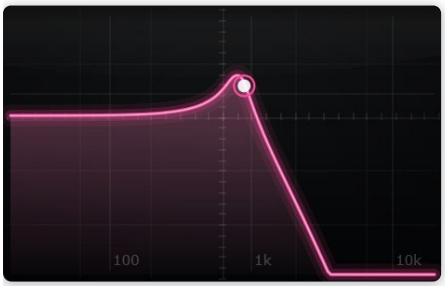
Control	What it does

IN: S A B C N	Which sources go through this filter: the sub, the three oscillators, the noise. A lit button = that source is filtered here instead of going its own way.
OUT	Where the filtered sound goes: **Main**, the **Global Filter**, **Bus 1** / **Bus 2**, **Direct** - and FILTER 1 can feed **Filter 2** (two filters in a row).
Cutoff	The frequency where the filter works. Drag the point on the display left / right.
Res	Resonance: a peak at the cutoff. High values ring and sing. Drag the point up / down.
Drive	Saturation inside the filter: warmer, louder, grittier.
Fat / Var	The type's own extra control. Its name changes with the type: Fat, Morph, Spread, Damp, Vowel, Bits, Size, Gain ... (see the table below).
Pan	Moves the filtered sound left / right.
Mix	Dry / wet: how much of the filtered sound you hear.
Level	The filter's output level in dB.
Key (piano)	Key track: play higher, the cutoff goes up with the note, so every note keeps the same brightness.

> **TIP** Double-click the display to send the cutoff and resonance back to their defaults. Every knob can be modulated: drop an envelope on Cutoff for a classic "pluck", an LFO for a "wobble".

What the display shows

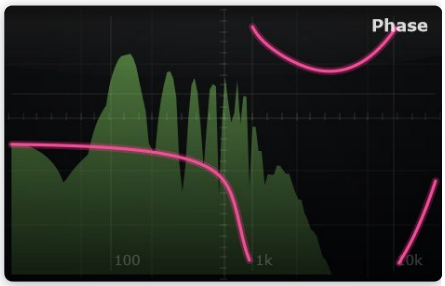
Right-click the display to choose its view:



Frequency Response
The curve: how much of each frequency passes.



Frequency Response & FFT
The curve over the live spectrum of what the filter puts out (green).



Phase Response & FFT
How the filter shifts the phase of each frequency.

The curve follows the modulation live, and it leaves a short trail when the cutoff moves; a glow behind it shows how loud the filter is playing.

The five families

Family	What is in it

Normal	The classic filters: **MG Low 6 / 12 / 18 / 24** (warm, analogue-style low passes), **Low**, **High**, **Band**, **Peak** and **Notch** at 6 to 24 dB per octave, and three morphing types (**Low <> High**, **Low <> Band**, **Band <> High**).
Multi	Two or three filters in one. Two letters morph from one to the other with VAR (**LH** = low to high, **BN** = band to notch ...); the same letter twice is two of them spread apart (**PP**, **NN**); three letters morph through all three (**L/B/H**, **L/P/H**, **L/N/H**, **B/P/N**). Plus **Dual Band**, **Dual Notch**, **Low + Notch**, **High + Notch**, **Low + High**.
Flanges	Combs, flangers and phasers as filters, with + or - feedback, and a 6 dB low (L6), high (H6) or both (HL6) in the loop: metallic, hollow, jet-plane colours. **Phase 12** to **48** are phasers with 12 to 48 stages.
Misc	Character and effects: **shelves** and a **Band EQ**, **Ring Mod**, **Sample Hold** (bit reduction), **Combs**, **Allpasses**, a filter **Reverb**, **Paris** and **Berlin** low passes, **Bass Boost**, **Formant I / II / III** (vowels), **Drive Combs**, **Shriek**, **Diffusor**, **Acid**, **Distort LP**.
PF Filters	Prisma's own: **Buzz SVF**, **DJ Mixer** (one knob from low cut to high cut), **Diffusor II**, four ladders (**PF Ladder**, **Acid Ladder**, **Diode Ladder**, **Dirty Ladder**), **Draw SVF** (you draw it), **Comb II**, and **Exp Multi** / **Exp Band** with exponential FM of the cutoff.

A gallery of curves



MG Low 24
Normal: the warm 24 dB low pass.



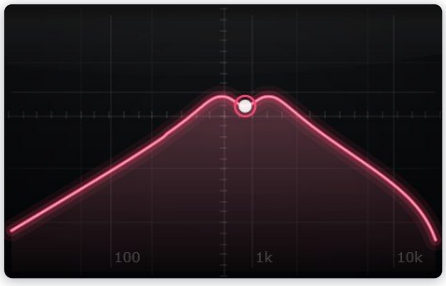
Band 12
Normal: only a band passes.



Notch 24
Normal: a band taken out.



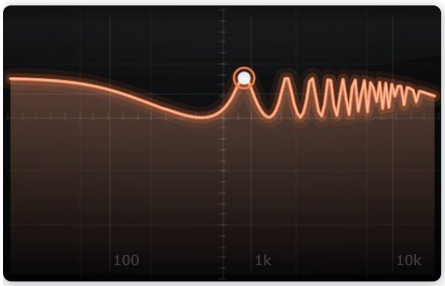
Low <> High
Normal: VAR morphs low pass into high pass.



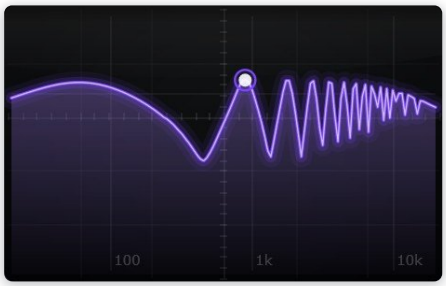
Dual Band
Multi: two bands, VAR spreads them.



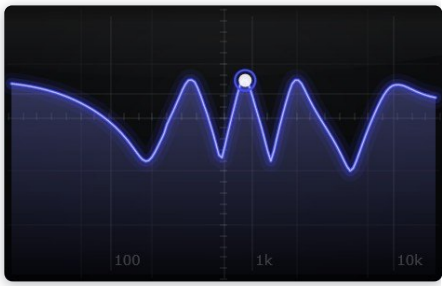
L/B/H 12
Multi: low, band, high in one sweep.



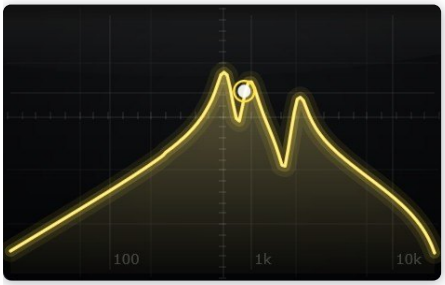
Comb +
Flanges: a comb of peaks - metallic.



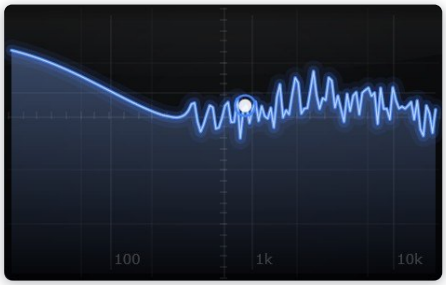
Flange HL6+
Flanges: a flanger with low and high cuts.



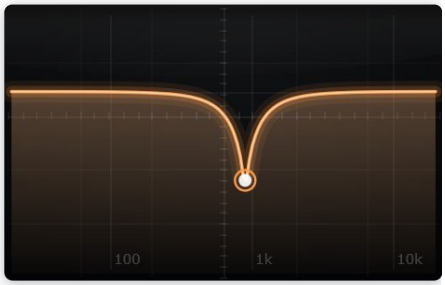
Phase 48+
Flanges: a 48-stage phaser.



Formant-I
Misc: vowels - VAR moves from vowel to vowel.



Reverb
Misc: a resonant, reverb-like filter.



Band EQ 12
Misc: a bell boost or cut (VAR = gain).



Berlin LP
Misc: a characterful low pass.



Shriek LP
Misc: a screaming resonance.



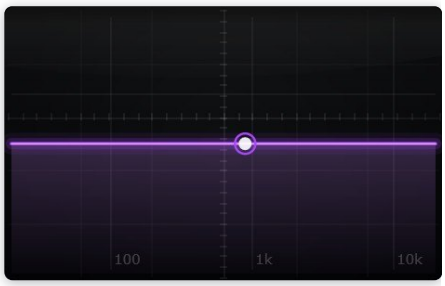
PF Ladder
PF Filters: Prisma's ladder.



Acid Ladder
PF Filters: for squelchy acid lines.



Exp Band
PF Filters: VAR = exponential FM of the cutoff.



Ring Mod
Misc: not a curve but an effect (VAR = fold).

What VAR does

VAR is called	For these types	What it does
Fat	most Normal types, ladders	Thickens the filter: more body and bass under the resonance.
Morph	the morph and Multi types, Buzz SVF, Draw SVF	Moves from the first response to the second (and third).
Spread	Dual types, PP / NN, Combs, Band Reject, phasers	Pushes the two bands / notches / stages apart.
Damp	combs, flangers, Reverb, Drive Combs	Softens the highs inside the feedback: darker, smoother rings.
Stages	Phaser	How many phaser stages.
Vowel	Formant I / II / III	Glides through the vowels: a - e - i - o - u.
Fold / Ratio	Ring Mod / Ring Mod x2	How hard the ring modulation folds, or the ratio of the second one.
Bits	Sample Hold types	The resolution: fewer bits, more crunch.
Size	Diffusors, Allpasses	The size of the smear.
Gain	shelves, Band EQ	The boost or cut in dB.
Bass	Bass Boost	How much low end is added.
Exp FM	Exp Multi / Exp Band	Exponential FM of the cutoff: growls and bites.

DRAW SVF: a filter you draw



EDIT NF, the band editor of Draw SVF (the EDIT button appears next to the type).

1. Bands 1 - 8: drag for frequency and gain
2. Mouse wheel on a band: its width
3. Snapshots 1 - 4: VAR morphs through them
4. COPY TO ALL
5. FLAT: back to 0 dB
6. Close

- Choose **Draw SVF** in the PF Filters family, then open its editor.
- Eight bands: drag a band left / right for its frequency, up / down for its gain; the mouse wheel sets its width. Right-click a band for its shape - **Peak**, **Low Shelf**, **High Shelf**, **Low Pass**, **High Pass**, **Band Pass**, **Notch** - or to switch it off. Double-click: back to 0 dB.
- Four **snapshots**: draw four different curves, and the filter's **VAR** knob morphs 1 → 2 → 3 → 4. Put an LFO on VAR and the whole curve moves.

The global filter and the envelopes



1. Global filter on / off
2. Type: Low Pass, High Pass, Band Pass, Notch
3. Cutoff, Reso, Drive, Env Amt, Key Trk
4. FILTER ENV: the global filter's envelope



The strip under the oscillators.

5. AMP ENV: the volume envelope (ENV 1)

Channels whose output is **GLOBAL FLT** (the GF button of each oscillator, or the mixer) pass through the global filter. It is a simple, musical filter with its own **FILTER ENV**: **Env Amt** sets how far the envelope opens the cutoff on each note, **Key Trk** how much the cutoff follows the keys. Switched off, the channels routed to it pass untouched.

Recipes

EXAMPLE **Pluck.** MG Low 24, Cutoff low, Res 20 %. Drag ENV 2 onto Cutoff, ENV 2 with Attack 0, Decay 250 ms, Sustain 0: every note opens bright and closes fast.

EXAMPLE **Wobble.** Low 24, Res 40 %. LFO 1 on Cutoff, BPM on, 1/8. Change the LFO rate on the drop for different wobbles.

EXAMPLE **Talking bass.** Formant-I, drop an LFO or a macro on VAR: the bass says "a - e - i - o - u".

EXAMPLE **Two filters in a row.** FILTER 1 Low 12 with OUT = Filter 2; FILTER 2 Comb + with a little Mix: a smooth sound with a metallic shimmer on top.

CHAPTER 7

Modulation

Modulation is what makes a sound move: a knob turned for you, note by note, beat by beat. In Prisma you drag a source onto a knob - a coloured ring appears, and the knob now moves by itself. Almost every knob of the synth and of its effects can be modulated: more than 1,700 destinations.

The sources

Source	What it gives
Env 1 - 4	Envelopes: a shape that starts on every note (Env 1 is the volume of each note).
Amp Env / Filter Env	The amp envelope and the global filter's envelope.
LFO 1 - 4	Low frequency oscillators: shapes that repeat. Path and chaos LFOs also give an **X** and a **Y** output.
Velocity / Rel Velocity	How hard you play a key - and how fast you let it go.
Note	Which key you play (shaped by the NOTE curve).
Mod Wheel / Pitch Bend / Aftertouch	The controllers of your keyboard.
Macro 1 - 8	The eight macro knobs: one turn, many things.
Random	A new random value on every note.
Seq Mod	The MOD lane of the step sequencer: a value per step.
Expr X / Y / Z	MPE note expressions: per-note slide, pressure and pitch.
Voice Mod 1 / 2	Voice Control: a value per voice slot (see below).
Fixed	A constant value: offsets a knob in the matrix, or scales another modulation.

Connecting a source to a knob



Sources you can drag (the strip and the tabs).

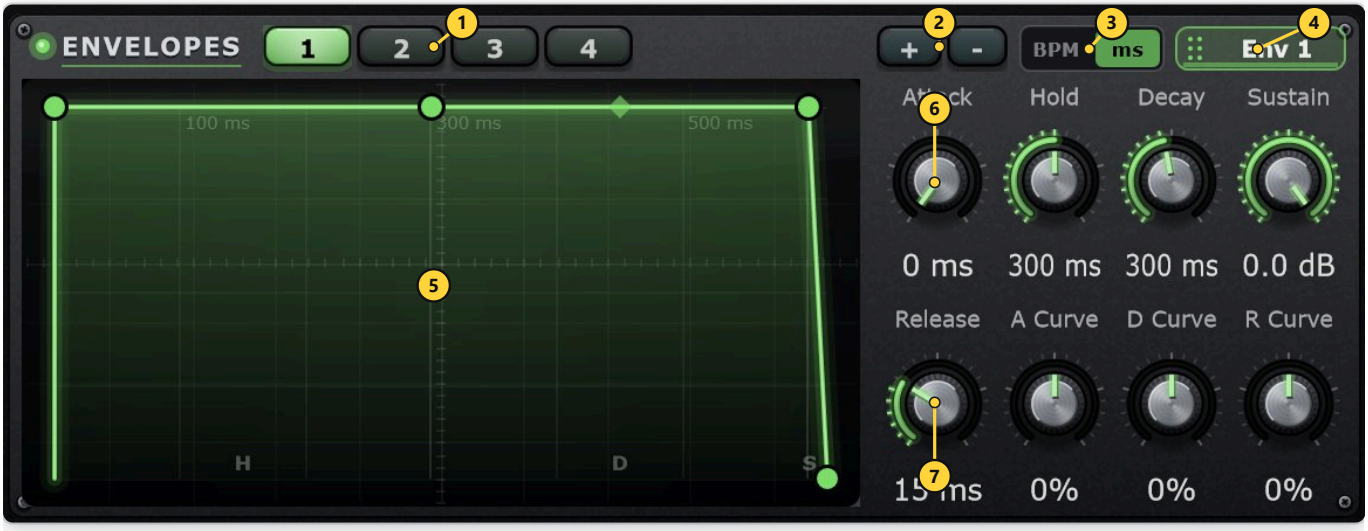
1. The drag-to-knob strip: every source as a chip
2. M1 - M8: the macros' chips
3. The envelope tabs can be dragged too
4. and the LFO tabs

- **Drag** a source - a chip from the strip, an envelope tab, an LFO tab, a macro chip - and **drop** it on a knob.
- The knob gets a **ring** in the source's colour. Drag the ring (or the small bar under the knob) up or down to set **how much** it moves; while a note plays, a dot on the ring shows where the knob is right now.
- Drop more sources on the same knob: each is its own connection (the knob shows the newest).
- Every connection is also a row in the **MOD MATRIX**, where you can fine-tune it.

The knob's right-click menu

Item	What it does
Mod Source	Add a source from the full list (envelopes, LFOs, note, macros, expressions, wheels, Fixed) - or take one away.
Aux Source	A second source that scales the modulation (see the matrix).
Edit Custom Curve	Bend the response of this modulation.
Bypass Modulator	Silences the modulation without removing it.
Remove Modulator / Remove All	Takes the modulation(s) off this knob.
Reset Control	The knob back to its default value.
MIDI Learn	Move a knob or fader on your controller: it now moves this knob.

Envelopes



The envelope section (with a note playing: the white dot runs along the shape).

1. ENV 1 - 4 tabs (drag a tab onto a knob)
2. + / -: more or fewer envelopes
3. BPM / ms
4. The chip: drag it onto a knob
5. The shape: drag the points, the diamonds bend the curves
6. Attack, Hold, Decay, Sustain
7. Release, A / D / R Curve

Stage	What it does
Attack	How long the envelope takes to rise from 0 to the top.

Hold	How long it stays at the top.
Decay	How long it takes to fall to the sustain level.
Sustain	The level it holds while you keep the key down.
Release	How long it takes to fall to 0 after you let go.
A / D / R Curve	Bends each stage: fast-then-slow (punchy) or slow-then-fast (swelling).

- **BPM**: Attack, Hold, Decay and Release become note lengths (1/4, 1/8 T, 1/16 D ...) that follow the song.
- Right-click the display: the time grid in milliseconds or in beats, **Legato Inverse**, and **Steal: Current** (a note that takes over a voice starts from the level the envelope is at, not from 0).
- **ENV 1** is the volume of every note - the same as the AMP ENV under the oscillators.

LFOs



An LFO with a Normal shape, a note playing.

1. LFO 1 - 4 tabs
2. + / -
3. MONO: one LFO for all voices
4. The chip: drag onto a knob
5. The shape (the dot: where the newest note is)
6. Tools: points, steps, ramps
7. Shape presets, previous / next
8. Direction: Forward, Reverse, Ping-Pong
9. Grid rows / columns
10. Type: Normal, Path, Lorenz, Rossler, S&H
11. BPM / Hz
12. Mode: Trigger, Free, Envelope
13. SEQ
14. HOST: follows the song position
15. EDIT: the big LFO editor
16. Rate
17. Phase
18. Rise
19. Delay
20. Smooth

Control	What it does
Rate	How fast it repeats: Hz, or with **BPM** a note length that follows the song (**TRIP** and **DOT** add triplet and dotted lengths).
Phase	Where in the shape it starts.

Rise	Fades the LFO in after the note starts (a vibrato that grows).
Delay	Waits before the LFO starts.
Smooth	Rounds the corners of the shape (a grey line previews it).
Mode	**Trigger**: restarts on every note. **Free**: runs on, the same for every note. **Envelope**: plays once and stops.
MONO	One LFO shared by all voices (every note moves together) instead of one per voice.
SEQ	With the arpeggiator / sequencer running, Trigger and Envelope LFOs restart on every step.
HOST	While the song plays, a Free LFO follows the song position, so it always lines up with the bars.

The four kinds of LFO



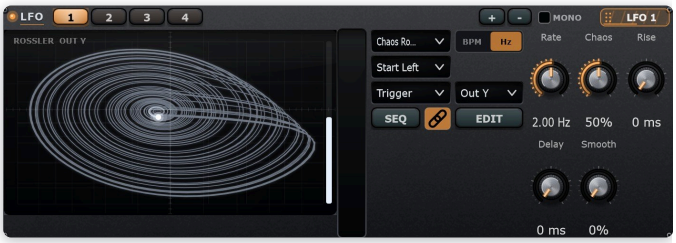
Normal
A shape you draw: points, curves, steps and ramps on a grid, with a loop point.



Path
A ball travels a loop you draw. Its X and Y are two outputs: one LFO moves two things in a circle.



Chaos Lorenz
A chaotic attractor: it never repeats exactly. CHAOS sets how wild, Out X / Y / Z the output.



Chaos Rossler
Another attractor: smoother spirals with sudden jumps.



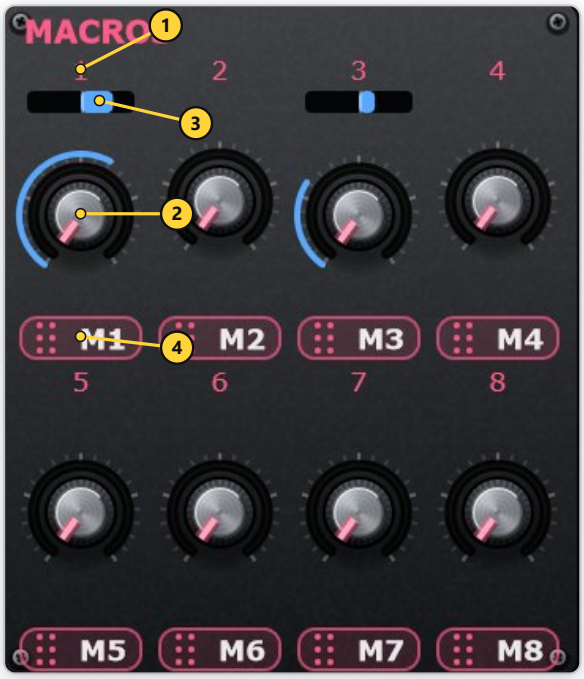
S&H
Sample & Hold: a new random value every cycle, held until the next. SMOOTH rounds the steps; VIEW zooms out.

- **Drawing a Normal shape**: double-click to add or remove a point, drag points, drag the diamonds between them to bend the curve. With **Shift** you paint with the selected tool (steps, rising or falling ramps) on the grid.

- **Loop point**: right-click a point and make it the loop: in Trigger and Envelope modes the LFO plays the start once, then loops from that point to the end.
- **Point modulation**: right-click a point to let an LFO bus move it - the shape itself changes while it plays.
- **Path** has three tools: a closed loop, an open path, and pieces with gaps.
- **EDIT** opens a large editor window with the same tools, presets, direction and grid.

> **TIP** Put a Lorenz LFO on WT Pos and a Rossler on the filter cutoff: the sound evolves for minutes without ever looping.

Macros



The macros (here 1 and 3 are modulated: their rings move).

1. Macro number (double-click the name to rename)
2. The macro knob
3. The small bar: something modulates the macro itself
4. M1: drag onto knobs

A macro is a knob that turns other knobs. Drag M1 onto the cutoff, the reverb mix and the drive: one turn makes the sound bigger. Macros can be modulated themselves, recorded into CLIP lanes, driven by PRISMA LAB's LIGHT, and their names are saved with the preset.

VELO and NOTE



The VELO / NOTE curves.

1. VELO
2. NOTE
3. The curve

VELO draws how your playing strength becomes the Velocity source (soft keys louder or quieter); **NOTE** draws how the key becomes the Note source (for example: only the top octave opens the filter). Double-click adds or removes a point; drag points; drag the diamonds to bend.

The MOD MATRIX



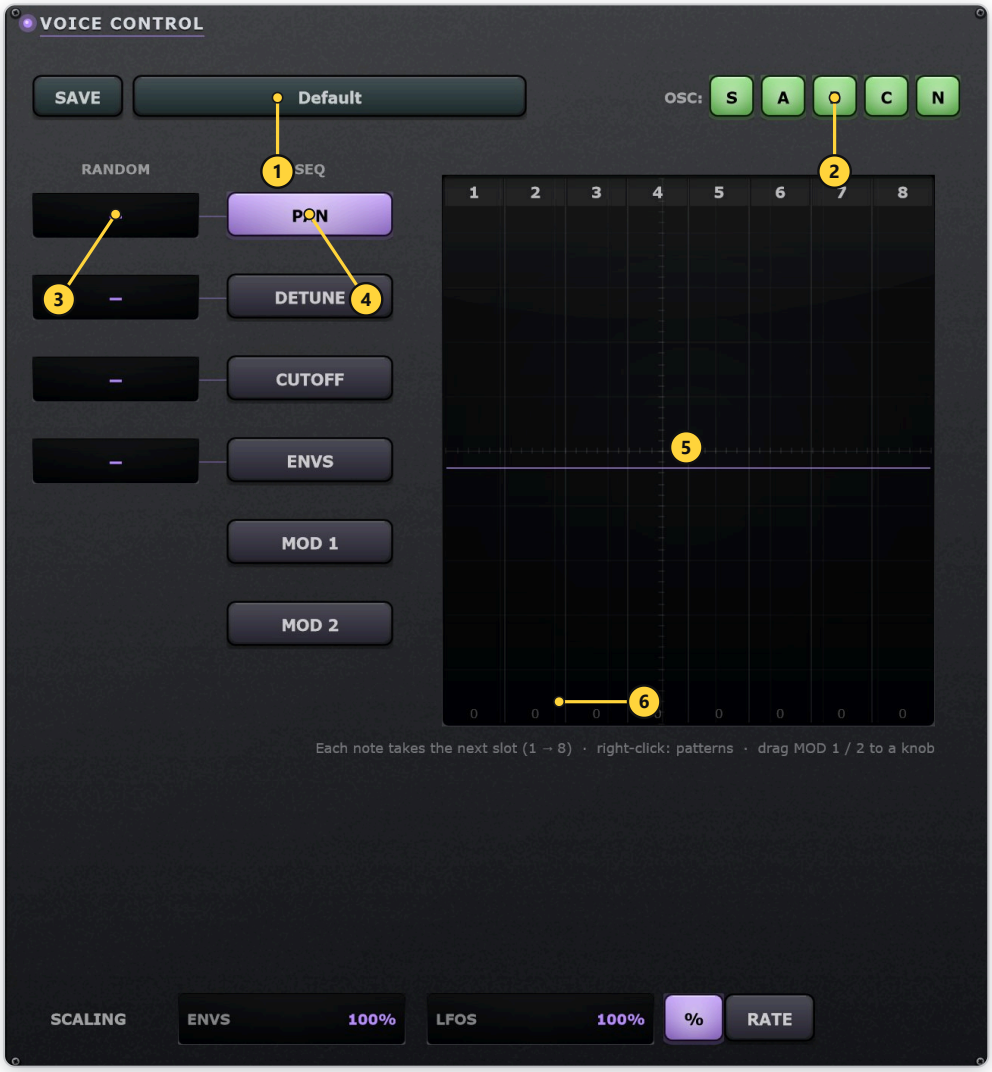
The matrix on the MOD page.

1. SOURCE
2. CRV: bends the source
3. AMOUNT
4. POL: unipolar / bipolar
5. DESTINATION
6. OUT: the live result
7. AUX SOURCE
8. INV
9. CRV (aux)
10. OUTPUT: final scaling
11. Bypass
12. Remove
13. + Add a row

Column	What it does
SOURCE / DESTINATION	What moves what. Both are menus: change them at any time.

CRV	Bends the source's response: grey and straight = no curve; drag up / down, double-click = straight.
AMOUNT	How much. Negative values move the knob the other way.
POL	**Unipolar**: from the knob's value upwards. **Bipolar**: around it, both ways.
OUT	A small scope of the result, live.
AUX SOURCE / INV / CRV	A second source that scales the modulation: with the mod wheel as aux, an LFO only wobbles when you push the wheel. INV turns the aux upside down.
OUTPUT	A final level for fine tuning.
Bypass / Remove	Silence the row, or delete it.

Voice Control



Voice Control on the GLOBAL page.

1. SAVE / presets
2. Which sources follow it: S A B C N
3. RANDOM per note
4. SEQ: a value per slot
5. The 8 voice slots
6. MOD 1 / 2: drag onto knobs

Real analogue polysynths never play two notes exactly alike. Voice Control gives each new note the next of 8 **slots**, and each slot its own **pan**, **detune**, **cutoff** and **envelope times** - as a pattern (SEQ) or at random per note. **MOD 1** and **MOD 2** are two more values per slot that you drag onto any knob (the Voice Mod sources). Right-click the slots for ready-made patterns.

Recipes

EXAMPLE **Vibrato that grows.** LFO 2, sine shape, 5 Hz, Rise 1 s. Drag it onto OSC A Fine with a small amount.

EXAMPLE **Sidechain pump.** LFO 1, a ramp down shape, BPM 1/4, Mode Free + HOST. Drag it onto the MAIN volume (or the macro that controls it) with a negative amount: the sound ducks on every beat.

EXAMPLE **Expression.** Velocity on Cutoff and on Warp amount: soft notes dark and simple, hard notes bright and dirty.

EXAMPLE **Movement for minutes.** A Path LFO: X on WT Pos, Y on the filter cutoff - the sound circles through two dimensions at once.

CHAPTER 8

The mixer

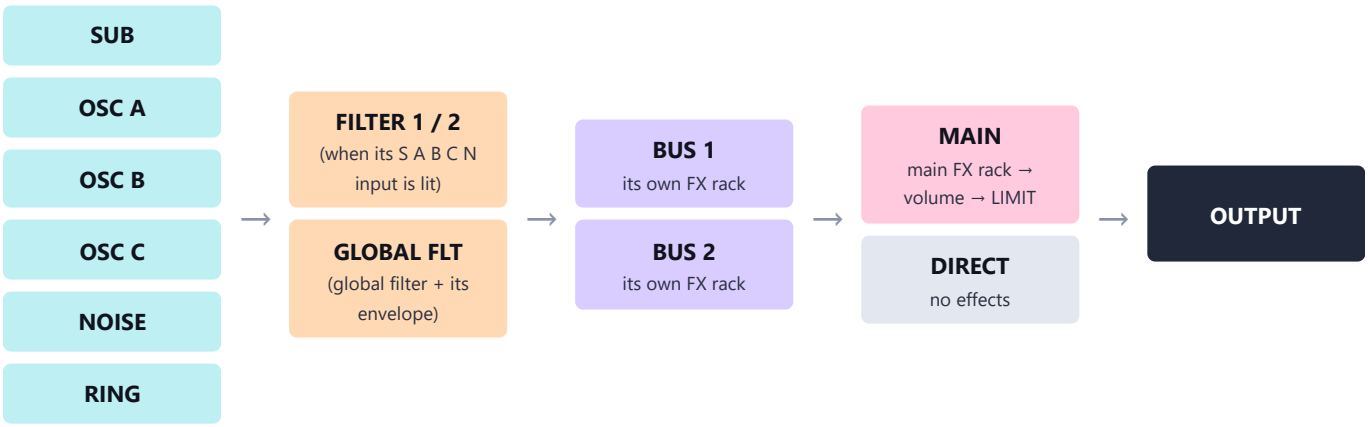
The MIXER page is where every sound source becomes a channel: its level, its pan, where it goes and how much of it is sent to the effect buses. It is also where the filters, the two buses and the outputs meet.



The MIXER page (here with effects loaded in the buses and the main rack).

1. Source channels: SUB, OSC A, B, C, NOISE, RING
2. FILTER 1 / FILTER 2
3. BUS 1 / BUS 2 with their effect racks
4. MAIN and DIRECT
5. CROSS MODULATION
6. SIGNAL FLOW: the routing in words

How the sound flows



Each source channel has one **output**: the global filter, MAIN, a bus or DIRECT. Its two **send** knobs can also copy part of it to BUS 1 and BUS 2, like the aux sends of a mixing desk. A bus can go on to MAIN, DIRECT or the other bus (never both ways). Everything ends at the output, after the MAIN rack, the volume and the limiter - except DIRECT, which skips every effect.

A channel strip



The OSC A channel.

1. Power: the channel on / off (off = darker)
2. The source's colour
3. Output: GLOBAL FLT, MAIN, BUS 1, BUS 2, DIRECT
4. Send to BUS 1
5. Send to BUS 2
6. M: mute
7. S: solo
8. Pan
9. Fader: the level
10. Meter
11. Envelope button: follows ENV 1
12. Level in %

Control	What it does
Output	**GLOBAL FLT**: through the global filter, then MAIN. **MAIN**: straight to MAIN (no filter). **BUS 1 / 2**: into a bus. **DIRECT**: out with no effects at all. A channel that is an input of FILTER 1 / 2 (the S A B C N buttons on the OSC page) goes through that filter instead.
B1 / B2 sends	How much of the channel is also sent to BUS 1 and BUS 2 (double-click = 0). The sound still goes to its output.

M / S	Mute this channel / play only the soloed channels.
Pan	Left / right.
Fader	The channel's level. The same as the oscillator's Level knob.
Envelope button	On: the channel follows ENV 1 (the volume envelope). Off: it plays at full level while the note is held - useful for a drone layer or a noise that should not fade.

RING is a channel of its own: OSC A multiplied by OSC B (ring modulation). Switch it on and raise its fader for bell-like, metallic tones.

FILTER 1 / FILTER 2 strips

The two advanced filters also have strips: a small display of their curve (drag it: cutoff and resonance), their output, sends, pan, **MIX** (dry / wet) and a fader in dB. Their inputs are chosen on the OSC page (Chapter 6).

BUS 1 and BUS 2



BUS 1.

1. Where the bus goes
2. Its effects (click a power icon to bypass one)
3. FX: opens its rack on the FX page
4. Pan, fader

A bus is a second place to put effects. Send several channels to the same reverb on BUS 1 instead of one reverb per channel; or put a distortion on BUS 2 and send only the sub and OSC A to it. The list shows the bus's effects; the power icon next to each one bypasses it, and **FX** opens the bus's rack.

MAIN and DIRECT

- **MAIN** is the end of the chain: its effect rack (the list), the master volume (fader) and **LIMIT**, a soft limiter that catches peaks before they clip. **FX** opens the main rack.
- **DIRECT** is an output with no effects: a channel routed here stays dry and clean, whatever the racks do.

CROSS MODULATION

Knob	What it does
FM B > A	OSC B modulates the frequency of OSC A: from a subtle shimmer to metallic, bell and growl tones.
FM A > B	The same the other way round.
AM B > A	OSC B modulates the level of OSC A: tremolo-like at low pitches, new tones at audio rate.
Ring A x B	The level of the RING channel.

These are global, quick versions of what the warps do per oscillator (FM, AM, RM from another oscillator, Chapter 4).

Mixing recipes

> **EXAMPLE** **One reverb for everything.** Put a Reverb on BUS 1 with Mix 100 %. Turn up the B1 send of each channel as much as you want it in the room. Keep the sub's send at 0: a dry, solid low end.

> **EXAMPLE** **Parallel distortion.** Distortion on BUS 2 (Mix 100 %), send OSC A to it with B2: the clean sound stays, the distorted copy adds grit underneath.

> **EXAMPLE** **Clean sub.** Route the SUB channel to DIRECT: no effect touches it, even if the main rack is full of chorus and reverb.

CHAPTER 9

Effects

Prisma has three effect racks: MAIN, BUS 1 and BUS 2. Each rack is a chain: the sound enters at the top and leaves at the bottom, through every effect that is switched on. This chapter explains the racks and then every effect, control by control.

The racks



The FX page.

1. Rack selector: MAIN, BUS 1, BUS 2
2. + FX: add an effect at the end of the rack
3. FX Presets: whole racks, ready to use
4. Save the rack as your own FX preset
5. How many effects the rack holds

- **MAIN** processes everything that reaches the main output (the MAIN channel in the mixer).
- **BUS 1** and **BUS 2** process what the channels send to them: the two small send knobs on every mixer strip, or a channel routed to a bus. A bus then goes to MAIN, DIRECT or the other bus.
- A rack can hold each effect more than once (two compressors, three reverbs ...). Each copy has its own settings and can be modulated on its own.
- Every knob of every effect is a modulation destination: drag an LFO, an envelope or a macro onto it.

Anatomy of an effect



One effect in the rack (here a Reverb).

1. On / off (bypass): off, the effect is kept but does nothing
2. Presets of this effect, and reset
3. Remove the effect from the rack
4. The logo: drag it up or down to move the effect in the chain
5. Type or mode
6. Previous / next type
7. The display: shows the effect working, most can be dragged
8. The controls
9. MIX: how much of the effect you hear (dry / wet)

> **TIP** Effects that are switched off cost no CPU. To compare with and without an effect, click its power button while you play.

Distortion

Adds harmonics: from warm tube saturation to hard clipping, folding and digital destruction. A filter can shape the sound before or after the distortion.



The Distortion.

Control	What it does
Type	The distortion curve: **Tube**, **Soft Clip**, **Hard Clip**, **Diode 1 / 2**, **Lin. Fold**, **Sine Fold**, **Zero-Square**, **Downsample**, **Asym**, **Rectify**, **Bitcrush**, and **X-Shaper** / **X-Shaper (Asym)**, where Drive morphs between two curves you can shape.
Filter	**Off**, **Pre** (filter, then distort: what you keep gets distorted) or **Post** (distort, then filter: tames the harshness).
LP-BP-HP	The filter morphs from low pass through band pass to high pass (the strip under the display).
Freq / Q	The filter's frequency and resonance - or drag the point on the display.
Key Track	The filter frequency follows the note you play.
Drive	How hard the signal hits the curve.
Mix	Dry / wet.

Filter

A filter inside the rack: the same types as the synth's filters, plus a second filter B in series or in parallel. Great on a bus, or for a filter sweep over the whole sound with an LFO.



The Filter.

Control	What it does
Type	Any of Prisma's filter types (Normal, Multi, Flanges, Misc, PF Filters).
Cutoff / Res	Frequency and resonance of filter A (or drag on the display).
Drive	Saturation inside the filter.
Var	The type's own extra control (its character, its spread ...).
Pan	Moves the filtered sound left / right.
Key Track	The cutoff follows the note.
Filter B	Switches on the second filter: **B Type** (low pass, high pass, band pass, notch), **B Cut**, **B Res**.
Routing	**Serial**: A then B. **Parallel**: A and B side by side, mixed.
Mix	Dry / wet.

EQ

A three-band equaliser. Drag the points on the display: left / right is the frequency, up / down the gain; the mouse wheel on a point changes its Q.



The EQ.

Control	What it does
Low Type	**Shelf**, **Peak** or **High Pass** for the low band.
Freq / Q / Gain	The low band.
Mid Freq / Mid Q / Mid Gain	The middle band (a peak).
High Type	**Shelf**, **Peak** or **Low Pass** for the high band.
Freq / Q / Gain	The high band.

Chorus

Two short, moving delays make the sound wider and thicker, like several players at once.



The Chorus.

Control	What it does
Rate / BPM	Speed of the movement, in Hz, or a note length with BPM on.
Delay 1 / Delay 2	The two delay times: short for a light shimmer, longer for a deep chorus.
Depth	How far the delays move.
Feedback	Sends the chorus back into itself: more metallic, flanger-like.
Filter / HPF	A filter on the chorus signal; HPF keeps the low end out of it (clean bass).
Mix	Dry / wet.

Flanger

A very short moving delay mixed with the dry sound: the classic jet sweep.



The Flanger.

Control	What it does
Rate / BPM	Speed of the sweep.
Depth	How far it sweeps.
Feedback	Resonance of the sweep: more makes it sing.
Phase	The offset between left and right: wider stereo sweeps.
Mix	Dry / wet.

Phaser

Moving notches in the spectrum: a softer, swirling sweep.



The Phaser.

Control	What it does
Rate / BPM	Speed of the sweep.
Poles	4, 6, 8 or 12 stages: more stages, more notches.
Depth / Depth 2	How far the notches move.
Freq	Where in the spectrum they sweep.
Feedback	Sharper, more resonant notches.

Phase	Left / right offset.
Mix	Dry / wet.

Dimension

Two widening effects in one: a unison chorus (copies of the sound, detuned) and a dimension expander that places the sound in a wide stereo space.



The Dimension.

Control	What it does
Rate	Movement of the unison copies.
Unison	How many copies.
Detune	How far they are detuned.
Retrig	The unison restarts with each note.
Mix (unison)	How much of the unison part you hear.
Size / Width	The size and stereo width of the dimension space.
Mix	Dry / wet of the whole effect.

Delay

Stereo echoes with a filter band in the feedback, modulation, drive and ducking.



The Delay.

Control	What it does
Mode	**Normal** (left and right echo separately), **Ping-Pong** (echoes bounce from side to side), **Mono**, **Tap > Delay**.
BPM / L / R	Echo times: note lengths with BPM on, or milliseconds. **Link** ties R to L.
L x / R x	Multiplies each side's time: uneven echoes for a wider image.
Feedback	How many echoes: from one to almost endless.
Freq / Q	The band the echoes keep: drag on the display (left / right = Freq, up / down = Q). Double-click: live spectrum.
Spread	Stereo width of the echoes.
Wow	Slow tape-like pitch movement.
Drive	Saturation in the echoes: they get warmer and dirtier as they repeat.
Ducking	The echoes get quieter while you play and come back in the pauses: clear mixes.
Mix	Dry / wet.

Reverb

Space: from a small room to an endless shimmer. Each type shows the knobs it uses.



The Reverb.

Control	What it does
Type	**Room**, **Hall**, **Plate**, **Chamber**, **Spring**, **Cathedral**, **Vintage**, **Nitrous**, **Basin**.
Mode (Nitrous)	The shape of the space: Space, Marble, Rectangle, Hexagon, Box.
Size	How big the space is.
Pre-Dly	Time before the reverb starts: keeps the attack clear.
Decay	How long it rings (Nitrous and Basin use **Feedback** instead).
ER Size	Size of the early reflections (Vintage).
Diff A / Diff B	Diffusion: low = separate echoes, high = smooth wash.
Damp	The highs fade faster: a darker, softer tail.
Spin Rate / Spin Depth	Gentle modulation of the tail (lusher, less metallic).
Lo Cut / Hi Cut	Filters on the reverb: keep the low end clean.
Width	Stereo width of the reverb.
Freeze	Holds the reverb tail forever: a pad from any sound.
Mix	Dry / wet.

Compressor

Evens out the level: loud parts are turned down, so the sound is denser and more present. In Multiband it works on three bands at once.



The Compressor.

Control	What it does
Single / Multiband	One compressor for the whole sound, or three (low, mid, high).
Thresh	Above this level the compressor works.
Ratio	How strongly it turns the level down.
Attack / Release	How fast it reacts and lets go. Slow attack keeps the punch.
Gain	Make-up gain after compression.
X-Low / X-High	Multiband: the crossover frequencies between the three bands.
Below	Multiband: the ratio below the threshold - lifts quiet details (upward compression).
H / M / L	Multiband: the level of each band.
Mix	Dry / wet: parallel compression keeps the transients.

Limiter

Keeps the peaks under a ceiling, transparently. Put it last in a rack.



The Limiter.

Control	What it does
Ceiling	The highest level that gets through.

Release	How fast it lets go after a peak.

Bode (frequency shifter)

Shifts every frequency by the same amount in Hz, which breaks the harmonic relationships: metallic, bell-like, phasing, barber-pole sounds.



The Bode (frequency shifter).

Control	What it does
Shift / Range	How far the frequencies move, within the range you choose.
Dir	Up, down or both (left / right shifted opposite ways).
Width	Stereo spread between left and right.
Delay / BPM / Feed	A delay with feedback around the shifter: each echo is shifted again - endless rising or falling sweeps.
Balance	Between the up- and down-shifted sound.
Blur	Smears the shifted sound.
Mono Input / Retrig	Shift the mono sum / restart with each note.
Mix	Dry / wet.

Utility

The practical tools you want at the end of a chain.



The Utility.

Control	What it does
L / R	Invert the phase of the left or right channel.
LPF / HPF	Gentle low pass and high pass.
Mono Bass / Freq	Everything under the frequency becomes mono: a solid low end.
Width	Stereo width, from mono to extra wide.
Pan	Moves the sound left / right.
Gain	Level.
Mix	Dry / wet.

Convolve

Puts the sound in a real space or through a real device, recorded as an impulse response (IR).



The Convolve.

Control	What it does
Impulse	Small Room, Bright Room, Chamber, Large Hall, Cathedral, Plate, Spring, Tunnel, Metal Tank, Glass Box, Reverse Swell, Gated Hall, Speaker Cab, Telephone, Noise Burst, or **User IR** (your own file).
Size	Stretches the impulse: a bigger or smaller space.
Tone	Brighter or darker.
Min	Minimum phase: a tighter, more direct response.
Pre-Dly / BPM	Time before it starts.
Attack / Decay	Shapes the start and the length of the impulse.
Damp	The highs fade faster.
IR Gain	Level of the impulse.
Mix	Dry / wet.

Splitters

A splitter cuts the sound into bands and gives every band its own little chain of effects; at the end the bands are added back together. Drag effects into a band's chain, or use its **+**.



Splitter L/H with a Distortion on the low band and a Reverb on the high band.

Splitter	Its bands and controls

Splitter L/H	Low and High. **Crossover** sets where they meet; **Low** / **High** set each band's level, and each can be bypassed.
Splitter L/M/H	Low, Mid and High with two crossovers (**Low / Mid**, **Mid / High**), a level and a bypass per band.
Splitter M/S	Mid (what is the same in both speakers) and Side (what differs). Put a reverb only on the sides, keep the middle dry and focused.

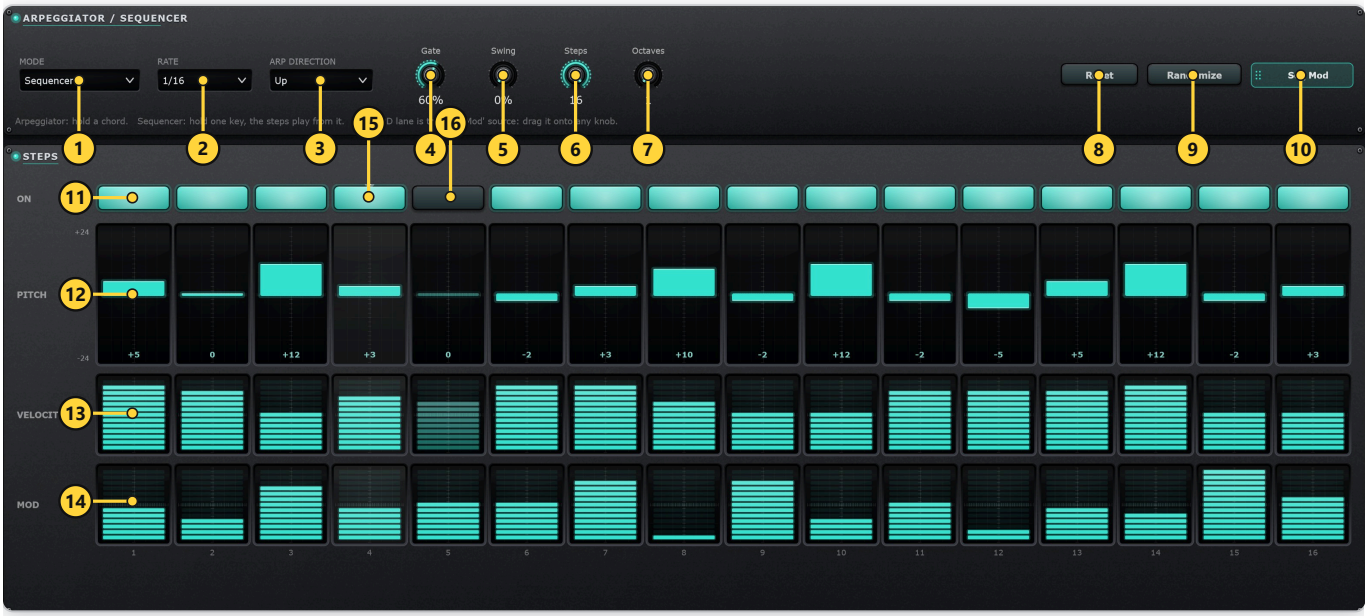
EXAMPLE **Distort only the bass.** Splitter L/H at 200 Hz, a Distortion in the Low chain: the low end gets grit while the highs stay clean.

EXAMPLE **A wide reverb that keeps the centre clear.** Splitter M/S with a Reverb in the Side chain only.

CHAPTER 10

Arpeggiator and step sequencer

The SEQ page turns held keys into rhythm. As an arpeggiator it plays the notes of a chord one after another; as a step sequencer it plays a 16-step pattern from the key you hold, each step with its own pitch, velocity and a modulation value you can send anywhere.



The SEQ page in Sequencer mode, with Randomize pressed and a key held.

1. MODE: Off, Arpeggiator, Sequencer
2. RATE: the length of a step
3. ARP DIRECTION
4. Gate
5. Swing
6. Steps
7. Octaves
8. Reset
9. Randomize
10. Seq Mod: drag onto a knob
11. ON: each step on / off
12. PITCH: -24 .. +24 semitones
13. VELOCITY
14. MOD: the Seq Mod source
15. The step playing now
16. A step switched off

The controls

Control	What it does
MODE	**Off**, **Arpeggiator** (hold a chord) or **Sequencer** (hold one key).
RATE	The length of one step: 8 bars to 1/32, with triplets (T) and dotted (D) lengths. It follows the song tempo.
ARP DIRECTION	The order of the arpeggio: **Up**, **Down**, **Up/Down**, **Random** or **As Played**.
Gate	How long each note sounds, as a part of the step: short and staccato, or long and legato.

Swing	Delays every second step: a shuffle, a groove.
Steps	How many of the 16 steps the pattern uses (1 - 16): odd lengths make patterns that shift against the bar.
Octaves	The arpeggio climbs over 1 to 4 octaves.
Reset	All steps back to on, pitch 0, the same velocity, and a rising MOD ramp.
Randomize	A new pattern: random steps on / off, pitches from a minor pentatonic scale, velocities and MOD values.
Seq Mod	The MOD lane as a modulation source: drag this chip onto any knob.

Editing the steps

- **ON**: click a pad to switch the step on or off; drag across several pads to paint them all the same way.
- **PITCH**: drag up or down in a step: -24 to +24 semitones from the key you hold (the number shows it).
- **VELOCITY**: drag the ladder: how hard that step plays (louder, and brighter if velocity is mapped to the filter).
- **MOD**: drag the ladder: a value from 0 to 1 per step. It does nothing by itself - drag **Seq Mod** onto a knob (cutoff, a warp, a macro ...) and that knob follows the steps.
- Drag sideways through a lane to draw many steps in one stroke.

Arpeggiator or sequencer?

	Arpeggiator	Sequencer
You hold	A chord	One key
It plays	The chord's notes in turn (DIRECTION, OCTAVES)	The 16-step pattern, transposed to your key
The steps	Every step plays, at the velocity you played; only the MOD lane (Seq Mod) follows the steps	Everything: ON, PITCH, VELOCITY, MOD

In both modes the LFOs with **SEQ** on restart on every step, and the **Seq Mod** source moves with the steps. The swing here is the same SWING as on the keyboard bar.

> **NOTE** For more than this - patterns drawn like a piano roll, 12 slots launched from the keys, slides and per-note expression - use **ARP ADV** (next chapter).

Recipes

> **EXAMPLE** **A trance gate.** Sequencer mode, RATE 1/16, every PITCH at 0, switch some steps off: one held chord becomes a rhythmic pad. Seq Mod on the filter cutoff for accents.

EXAMPLE **An acid line.** Sequencer, RATE 1/16, Gate 40 %, Randomize until you like it, then Seq Mod on the cutoff of an Acid Ladder filter with high resonance.

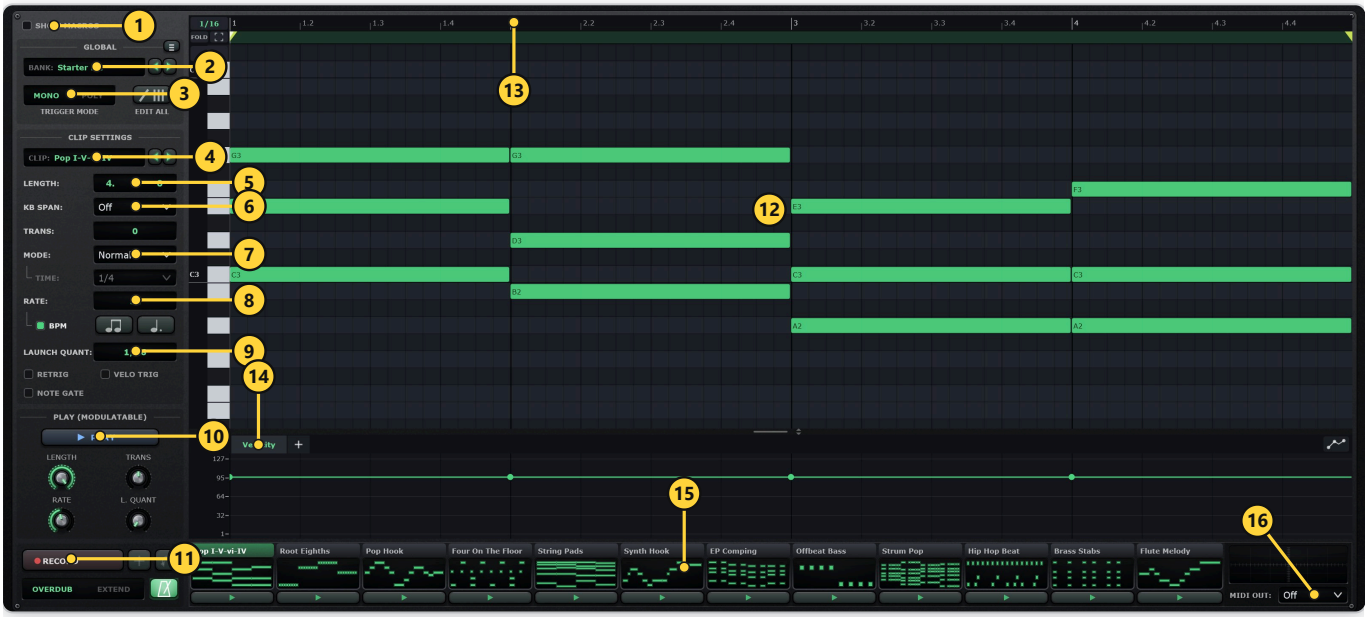
EXAMPLE **A rolling arp.** Arpeggiator, Up/Down, 2 octaves, RATE 1/16 T, Swing 20 %: hold a minor chord and let it roll.

CHAPTER 11

CLIP player and ARP ADV

Left of the keyboard live two players. The CLIP player holds 12 MIDI clips - chords, basslines, melodies, beats - that you launch from the small keys or from MIDI. ARP ADV is a pattern arpeggiator with 12 slots: each turns the chord you hold into a phrase. The power button switches a player on, a click on its name opens it.

The CLIP player



The CLIP player with the factory bank "Starter Kit" (clip 1: Pop I-V-vi-IV).

1. SHOW MACROS: the macro lanes
2. BANK: 12 clips together (factory or yours)
3. Trigger: MONO / POLY, EDIT ALL
4. CLIP: the clip you edit
5. LENGTH
6. KB SPAN
7. MODE: how the playhead moves
8. RATE
9. LAUNCH QUANT
10. PLAY and its modulatable knobs
11. RECORD, overdub / extend
12. The piano roll
13. The timeline (bars)
14. Lanes: velocity, macros (+ adds one)
15. The 12 clips: click to edit, play to launch
16. MIDI OUT

Control	What it does
BANK	Loads 12 clips at once: the factory banks (*Starter Kit*, *Chord Progressions*, *Melodies & Leads*, *Bass Lines*, *Drum Grooves*) or your own. Save your bank from its menu. A * means it has changed.
MONO / POLY	MONO: one clip at a time - launching another stops the first. POLY: several clips together.
EDIT ALL	Changes to the clip settings go to all 12 clips (or hold Alt while you change one).

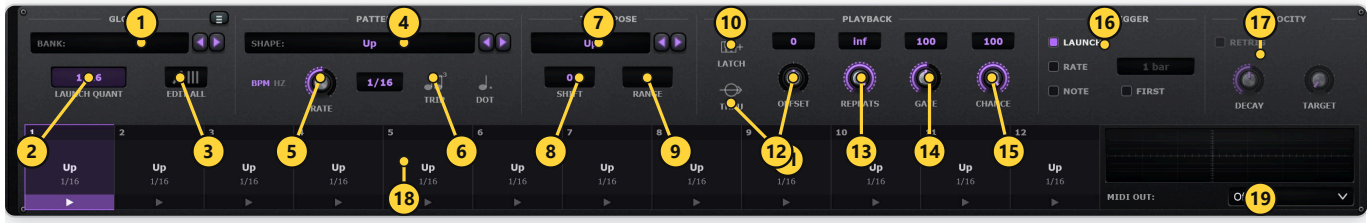
LENGTH	The clip's length in bars, beats and sixteenths.
KB SPAN	Whether MIDI notes trigger the clip. **Mono** / **Poly**: it plays transposed by the note (relative to C3) - play a chord progression from one key. **Offset**: each note starts it from a different place.
TRANS	Transposes the whole clip.
MODE	**Normal**, **Reverse**, **Pendulum**, **Random**, **Rand No Dup**, **Rand Start**, **Rand End**, **One Shot**, **Static**. Random modes jump between slices of TIME.
RATE / BPM	Plays the clip faster or slower; BPM keeps it in time with the song.
LAUNCH QUANT	When a launched clip starts: on the next 1/16, beat, bar ... (Off = at once).
RETRIG / VELO TRIG / NOTE GATE	A new trigger restarts the clip / the playing velocity scales its notes / letting go of the note stops it.
PLAY	Length, transpose, rate and quantize as knobs - drop modulation sources on them.
MIDI OUT	**Off**; **Clip Player**: the clips' notes go out of the plugin (to record them in your DAW); **On**: the clips through the ARP, with KEY / SCALE.

Editing notes

- **Click** to add a note, then drag it up / down / sideways. **Drag its edges** to make it longer or shorter.
- **Double-click** a note to delete it; **Delete / Backspace** deletes the selection.
- **Ctrl + drag** selects notes (on an empty area: a time range).
- The lanes under the roll draw **velocity** and **macro** movements; **+** adds a lane.
- **RECORD** captures what you play (with a metronome); new notes are red until you commit the take. **OVERDUB** adds to the clip, **EXTEND** makes it longer as you play.
- Right-click a clip slot: rename, copy, paste, erase, preview.

> **TIP** Hold one key with KB SPAN on Mono and launch "Pop I-V-vi-IV": the whole progression plays from that key - change the key and the progression follows.

ARP ADV

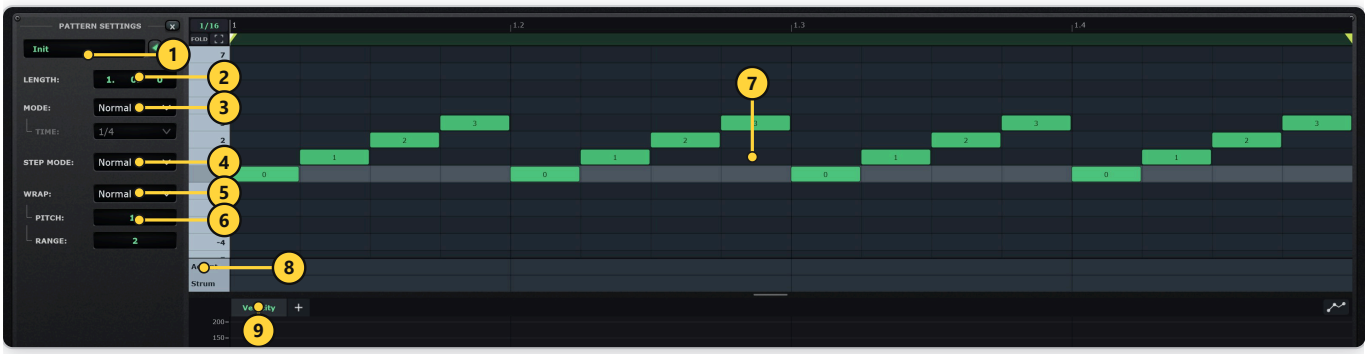


ARP ADV, open in the lower part of the window.

1. BANK of 12 arps
2. LAUNCH QUANT
3. EDIT ALL
4. SHAPE (Pattern: your own)
5. RATE (BPM / Hz)
6. TRIP / DOT
7. TRANSPOSE: the range shape
8. SHIFT
9. RANGE
10. LATCH
11. THRU
12. OFFSET
13. REPEATS
14. GATE
15. CHANCE
16. RETRIGGER: Launch, Rate, Note, First
17. VELOCITY: Retrig, Decay, Target
18. The 12 slots: click = select and play
19. MIDI OUT

Control	What it does
SHAPE	The order the held notes are played in: **Up**, **Down**, **Up/Down**, **Down/Up**, **Up+Down**, **Down+Up**, **Thumb Up / UD**, **Pinky Up / UD**, **Converge**, **Diverge**, **Con+Diverge**, **Chord**, four **Random** kinds, and **Pattern** - your own, drawn in the pattern editor.
RATE / TRIP / DOT	How fast the steps go: a note length (BPM, 1 bar .. 1/256, with triplets and dotted values) or a time (Hz). For a Pattern: how fast it plays (1x = as drawn).
TRANSPOSE: SHIFT / RANGE	Repeats the pattern RANGE times, SHIFT semitones further each time (12 = an octave up); the small menu sets the order of those repetitions.
LATCH	Keeps playing after you let go; a new chord replaces it (the sustain pedal latches too).
THRU	The notes you play also sound, under the arpeggio.
OFFSET	Starts the shape further along (rotates the order). For a Pattern: moves the root row.
REPEATS	How many times the pattern plays (inf = forever).
GATE	Note length, 0 - 200 % (over 100 % the notes overlap - legato).
CHANCE	The probability of each note. Right-click: **Pre** - decided before the shape moves on.
RETRIGGER	**LAUNCH**: launching restarts the pattern. **RATE**: it restarts every bar / note value. **NOTE**: every note restarts it. **FIRST**: only the first note after all keys are released.
VELOCITY	The notes start at the velocity you played and move towards **TARGET**, **DECAY** setting how fast; **RETRIG** starts again on each retrigger.

The pattern editor



The pattern editor (SHAPE: Pattern, then the pencil).

1. PATTERN SETTINGS: presets
2. LENGTH
3. MODE / TIME
4. STEP MODE
5. WRAP
6. PITCH / RANGE of the wraps
7. The steps: each row is a held note (0 = the lowest)
8. Accent / strum rows
9. The velocity lane

Choose SHAPE › **Pattern** and click the pencil: a piano roll opens above. Its rows are not pitches but **steps of the chord you hold** - row 0 is the lowest held note, row 1 the next one up - so the same pattern follows any chord you play.

Setting	What it does
STEP MODE	**Normal**: the held note of its row. **New Only**: a step plays only as you press a key. **Chord**: every held note at once, the row = the voicing. **Chord (new)**: the chord, only as you press a key.
WRAP	Steps above the held notes: **Normal** - around the chord again, PITCH semitones higher; **Phantom** - the same, as quiet ghost notes; **Muted** - silent.
PITCH / RANGE	How far each wrap is transposed (12 = an octave), and after how many wraps it starts again.

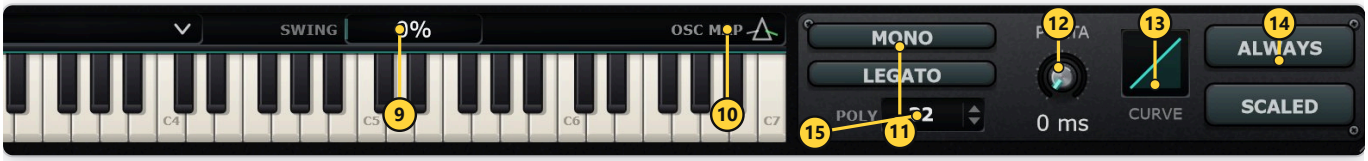
EXAMPLE Each of the 12 slots keeps its own settings and pattern: put a slow chord pattern on slot 1, a fast 1/16 run on slot 2, a random sparkle on slot 3, and switch between them live from the small keys.

CHAPTER 12

Keyboard and performance



1. Pitch bend
2. Bend range up / down
3. Mod wheel (drag the arrows onto a knob)
4. CLIP player
5. ARP ADV
6. TRANSPOSE (-24 .. +24)
7. KEY
8. SCALE: notes snap to the scale



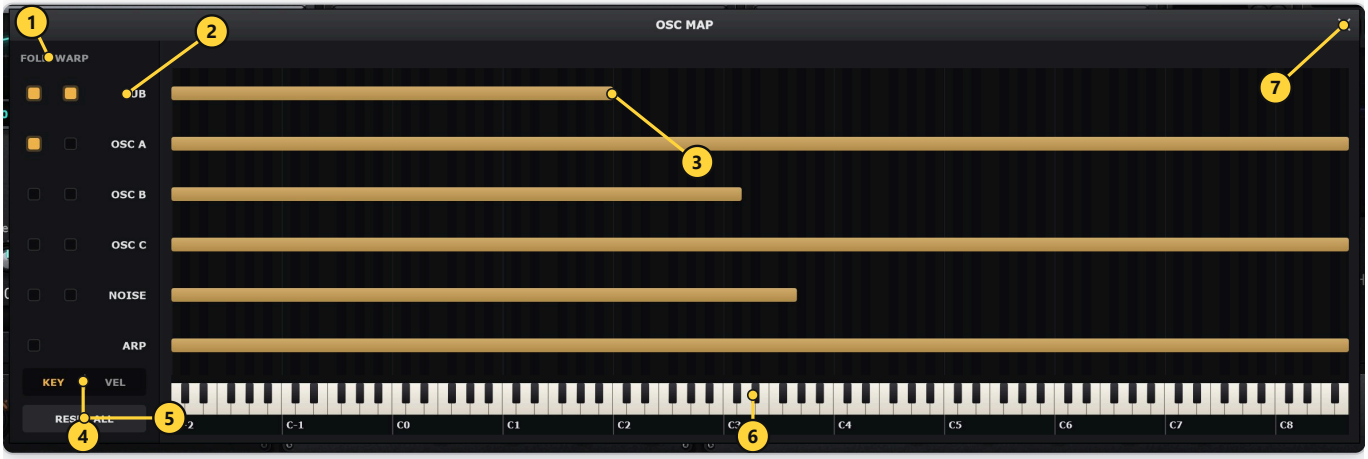
The bottom of the window (left and right halves).

9. SWING
10. OSC MAP
11. MONO / LEGATO
12. PORTA time
13. Portamento CURVE
14. ALWAYS / SCALED
15. POLY: voices

Voicing

- **MONO**: one note at a time, the last one wins. **LEGATO**: overlapping notes do not restart the envelopes.
- **PORTA**: glide time between notes; **ALWAYS** glides on every note (off: only when notes overlap); **SCALED** makes longer jumps glide longer; **CURVE** shapes the glide.
- **POLY**: how many notes can sound at once (up to 32, right-click for 64).

OSC MAP: splits and layers



The OSC MAP window (button on the keyboard bar).

1. FOLD and WARP for each source
2. The sources: SUB, OSC A, B, C, NOISE, ARP
3. A range bar: drag its ends, or the whole bar
4. KEY: key ranges / VEL: velocity ranges
5. RESET ALL
6. The keys you play light up in yellow
7. Close

OSC MAP decides which notes each oscillator answers to. Every source has a green bar: drag an end to set where it starts or stops, drag the middle to move the whole range, or double-click the bar and type it (*C1 - C3*, or *40 - 100* in the velocity view). Notes outside the range leave that oscillator silent.

Option	What it does
FOLD	Notes outside the range are moved by octaves into it - only as far as needed - instead of being silent.
WARP	Outside its range the oscillator is silent, but it still feeds the warps of the other oscillators (FM, AM ...).
VEL	Shows velocity ranges (1 - 127): a layer that only plays when you hit hard, or softly.
ARP	Keys outside the ARP's range are not arpeggiated: they play as they are. With FOLD they join the arpeggio.

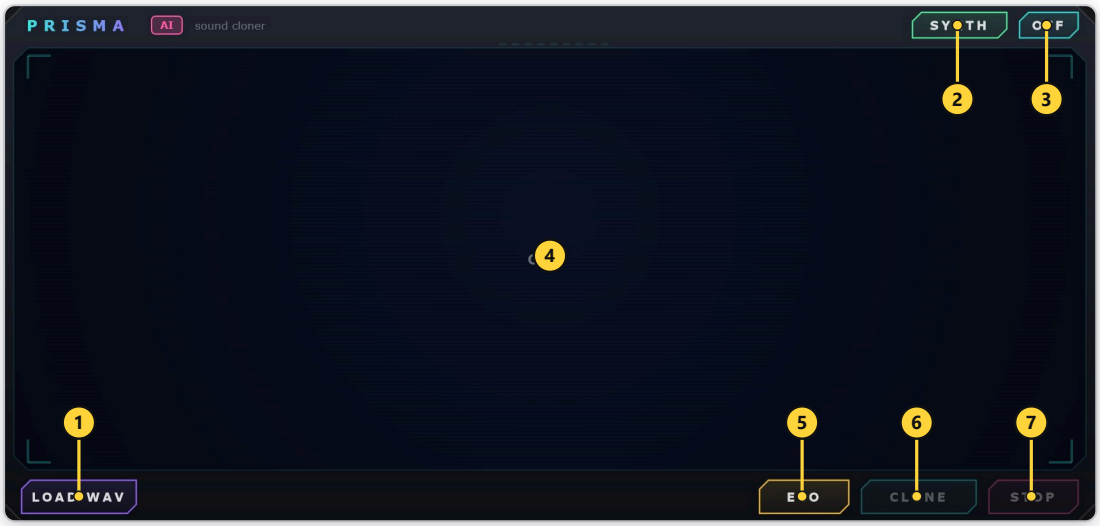
EXAMPLE **A sub that always stays low.** Set the SUB range to C0 - B0 and switch FOLD on. Wherever you play, the sub falls into that one octave: low notes play as they are, high notes come down to it.

EXAMPLE **What FOLD does at the edge.** OSC A from C1 to C3 with FOLD: C3 plays as it is; C#3, one key above, plays C#2 - one octave down. A note far above, like C7, comes down as many octaves as it takes to land inside (C2 or C3). Notes below the range go up the same way.

EXAMPLE **A split.** OSC A from C-2 to B2 (bass), OSC B and C from C3 up (lead), ARP from C3 up: the left hand plays a bass, the right hand an arpeggiated lead.

CHAPTER 13

PRISMA AI: the cloner and PRISMA LAB



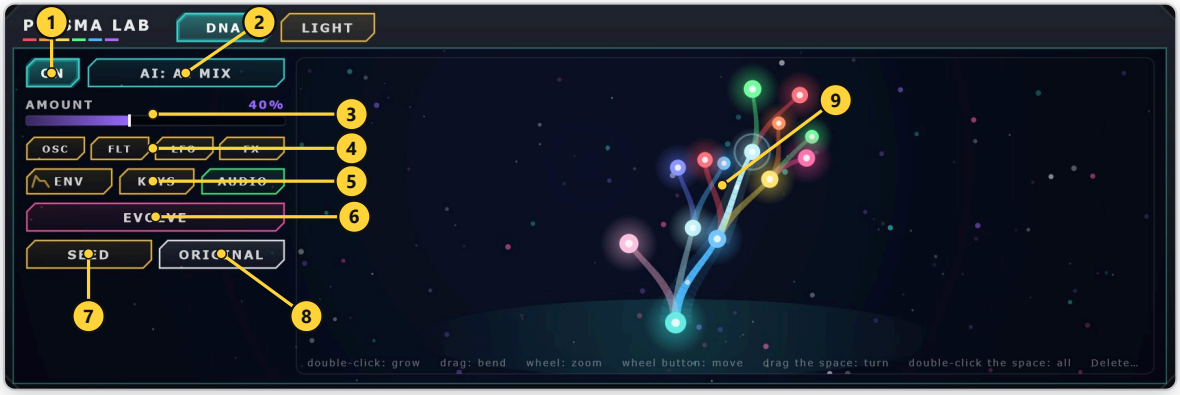
The PRISMA sound cloner (MOD page, top left).

1. LOAD WAV: the sound to clone (or drop a file)
2. SYNTH / HYBRID
3. On / off
4. The prism: it splits when a sound is loaded
5. ECO / TURBO: one core or several
6. CLONE: start the search
7. STOP: keep the closest sound

The sound cloner

Load a WAV, AIFF, FLAC or MP3 and press **CLONE**. The AI rebuilds the sound with Prisma's own engines - tables, warps, filter, envelopes, LFO - and keeps improving it for as long as you let it; the best sound so far is always playing. **SYNTH** clones with pure synthesis; **HYBRID** lets OSC C play your sound itself as a sample (whole, or only its attack) and builds the rest around it. **STOP** ends the search and keeps the closest sound.

PRISMA LAB: DNA



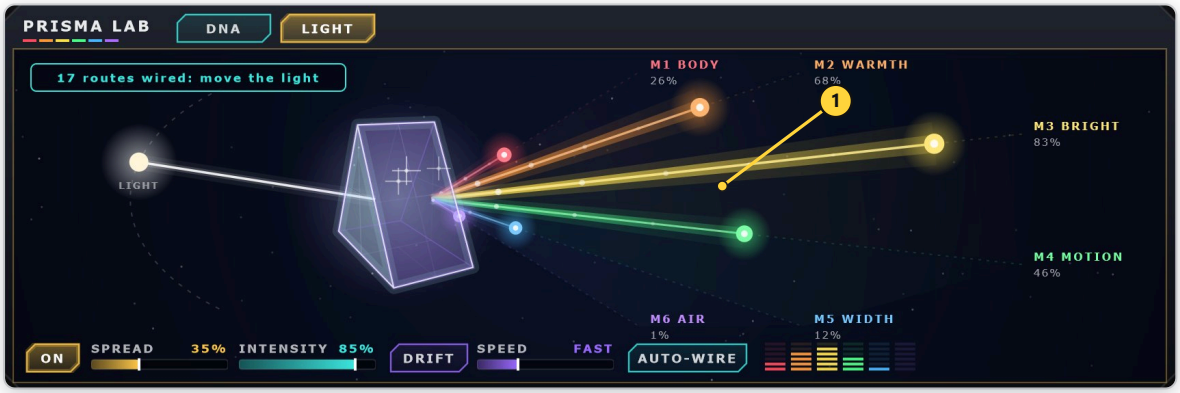
PRISMA LAB, DNA tab.

1. ON / OFF
2. Mood: AI MIX, BRIGHT, DARK, WIDE, MOTION, GRIT, SOFT, AIR, PUNCH, CHAOS
3. AMOUNT: how big each branch's change is
4. Locks: OSC, FLT, LFO, FX
5. ENV, KEYS, AUDIO switches
6. EVOLVE: the AI keeps growing by itself
7. SEED: a new tree from your sound
8. ORIGINAL: the preset as it was saved
9. The tree: double-click a bud to grow, drag a branch to bend the sound

DNA grows variations of your sound as a living 3D tree. Double-click the seed, and the AI grows branches - each one a variation in a **mood**. Click a branch to hear it; double-click it to grow more from there; drag it to bend the sound - the length of a branch is how strongly its change is applied. **Delete** removes a branch.

- **View**: mouse wheel zooms, the wheel button moves the view, dragging empty space turns the tree, double-click resets.
- **ENV off**: the AI never touches your envelopes. **KEYS off**: it never touches velocity or glide.
- **AUDIO**: the tree folds into one vine that grows with the music - buds on the beats, the camera breathing with the bass.
- **Branches as modulation destinations**: *Prisma Lab › Branch 1..24 › X / Y*. Drop an LFO on a branch and it moves the sound all round by itself.

PRISMA LAB: LIGHT



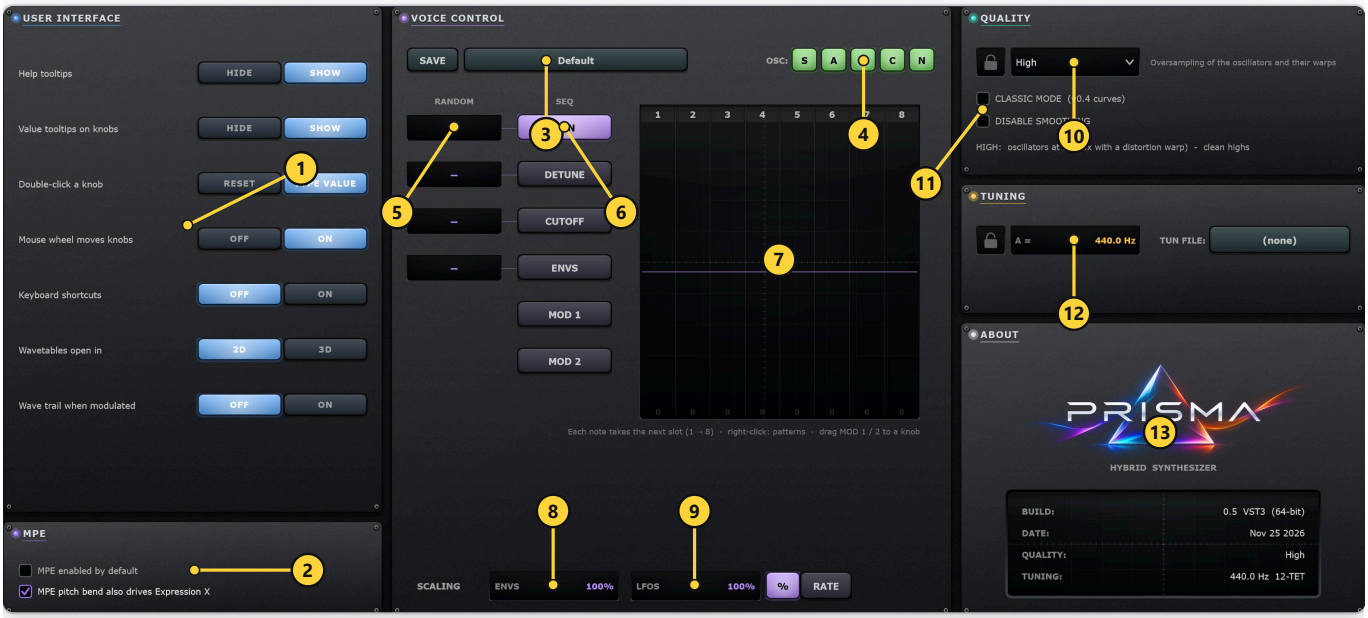
PRISMA LAB, LIGHT tab.

LIGHT shines a beam through a prism; the six rays are macros 1 to 6. Move the light and the macros move with it. **AUTO-WIRE** connects each ray to destinations that change the timbre (BODY, WARMTH, BRIGHT, MOTION, WIDTH, AIR); **SPREAD** sets how many rays the light touches at once, **INTENSITY** how strongly it drives them, and **DRIFT** lets the light travel by itself, from very slow to ultra fast.

> **NOTE** Loading any preset resets the cloner and the lab. ORIGINAL brings the preset back as it was saved.

CHAPTER 14

The GLOBAL page



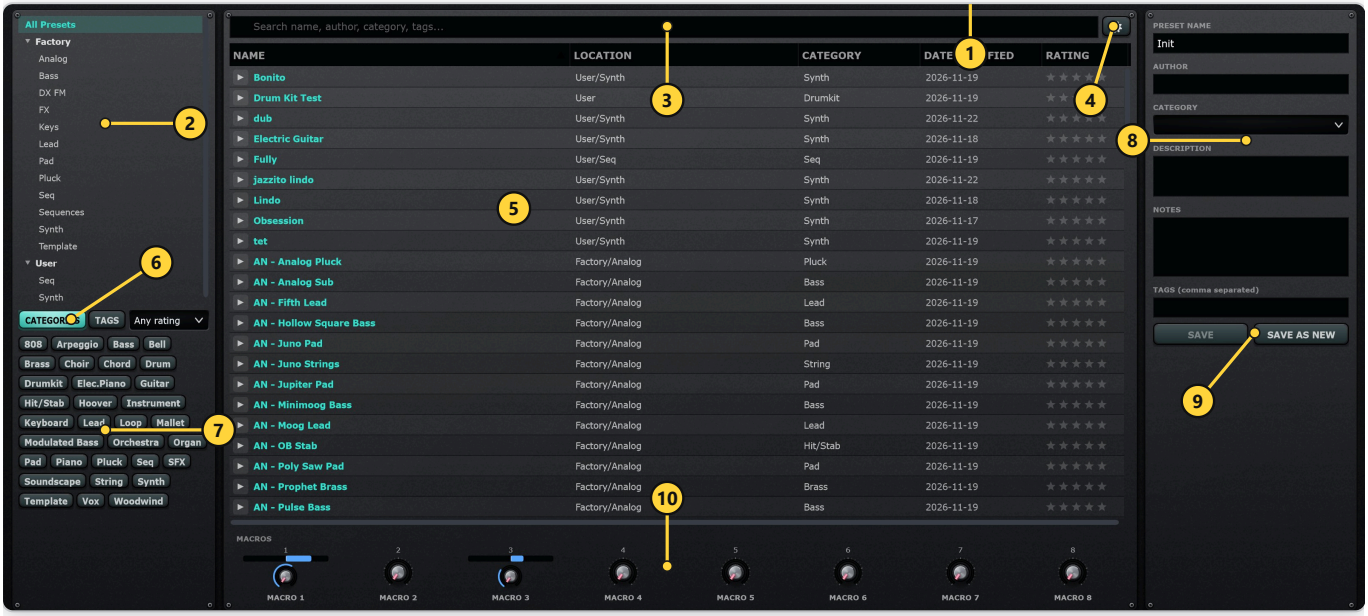
The GLOBAL page.

1. USER INTERFACE: tooltips, double-click, mouse wheel, shortcuts, 2D / 3D
2. MPE
3. VOICE CONTROL: save / presets
4. Which sources follow it: S A B C N
5. RANDOM per note: pan, detune, cutoff, envelopes
6. SEQ: a value per voice slot
7. The 8 voice slots
8. SCALING: every envelope time
9. every LFO speed
10. QUALITY: Good, High, Ultra
11. Classic mode, Disable smoothing
12. TUNING: A4 and microtuning files
13. ABOUT

Setting	What it does
Quality	**Good**: lightest CPU. **High**: oscillators at 2x (4x with a distortion warp). **Ultra**: 4x (8x) - the cleanest highs. The lock keeps it when loading presets.
Classic mode	The gentler warp curves of Prisma 0.4, for older projects.
Disable smoothing	Wavetable position and warp amounts follow modulation at once: snappier, may zipper.
Tuning	The A4 reference (440 Hz), .tun / .scl files, or an MTS-ESP master.
Voice Control	Each new note takes the next of 8 slots; each slot can have its own pan, detune, cutoff and envelope times, set by pattern or at random - an analogue-poly feel.
MPE	Per-note pitch bend, slide and pressure from MPE controllers.

CHAPTER 15

Presets and the browser



The preset browser.

1. Browser button (or click the preset name)
2. Folders: Factory and User
3. Search: name, author, category, tags
4. Options
5. The list: click to load, sort by any column
6. CATEGORIES / TAGS, rating filter
7. Click categories to filter
8. Preset info: name, author, category, description, notes, tags
9. SAVE / SAVE AS NEW
10. The macros of the preset

The **MENU** next to the preset name holds **Init** (a clean start), save, import / export, copy / paste of presets as text, and the preset packs. Rate presets with the stars, filter by category or tag, and search by name or author. **Undo / Redo** remember your edits.

CHAPTER 16

Tips and shortcuts

Keyboard shortcuts

With **Keyboard shortcuts** ON (GLOBAL page), Prisma keeps the computer keyboard while you work in it:

Keys	Action
Ctrl + Z / Ctrl + Y	Undo / Redo
Ctrl + B	Preset browser
Ctrl + 1 .. 6	Pages OSC .. GLOBAL
Left / Right	Previous / next preset
Delete / Backspace	Delete the selected notes, points or branch

Keeping it light

- **Quality** on the GLOBAL page: *Good* uses the least CPU; *Ultra* the most.
- Unison is the biggest CPU cost: 16 voices on three oscillators is 48 waves per note.
- Lower **POLY** if long releases pile up.
- The cloner in **ECO** leaves your other cores free for the project.

Sound design ideas

- Drop LFO 1 on **WT Pos** and a slow envelope on Warp 1's amount: a sound that moves on its own.
- Put OSC B in **Granular** with a vocal sample, under a wavetable pad: texture with body.
- Map one macro to cutoff, drive and reverb mix at once: one knob that makes the sound bigger.
- Use the **sequencer**'s MOD lane on the filter for rhythmic movement that follows the song.
- In PRISMA LAB, grow a few branches in **GRIT** and **AIR** and drag them out slowly while you play.

CHAPTER 17

Tutorials

Nine recipes, from your first sound to the AI tools. Each one starts from the **Init** preset and takes a few minutes. Follow the steps, then change things: that is how you learn a synthesizer.

#	Tutorial	You learn
1	A pluck in ten steps	Filter, envelopes, modulation, effects
2	A supersaw lead	Unison, layering, glide, vibrato
3	An evolving pad	Wavetable movement, slow LFOs, PRISMA LAB LIGHT
4	A growl bass	Warps, FM, drawn LFOs, formant filter, bass mixing
5	A sub bass that never leaves its octave	OSC MAP, FOLD, DIRECT routing
6	A split: bass and arpeggio	OSC MAP ranges, ARP ADV
7	A rhythmic sequence	Step sequencer, Seq Mod, LFO SEQ
8	Textures with the granular engine	Granular, Spectral, grain window
9	Let the AI help	PRISMA LAB DNA, locks, the cloner

1. A pluck in ten steps

Your first sound from scratch: a short, bright note that closes fast - the most useful sound in music.

1. Load **Init** (MENU › Init): one bright saw on OSC A.
2. On the OSC page, switch **FILTER 1** on and light its **A** input: OSC A now goes through it.
3. Choose the type **MG Low 24**. Set **Cutoff** low (about 300 Hz) and **Res** around 25 %.
4. Click envelope tab **2**. Set Attack 0 ms, Decay 300 ms, Sustain 0 %, Release 200 ms.
5. Drag the **ENV 2** tab onto the **Cutoff** knob and pull the ring up: every note opens and closes the filter.
6. In **ENV 1** (the volume) set Decay 600 ms, Sustain 0 %, Release 300 ms.
7. Raise **UNISON** on OSC A to 3 and **Detune** to 15 %: wider.
8. On the FX page add a **Delay** (1/8, Ping-Pong, Mix 20 %) and a **Reverb** (Plate, Mix 20 %).
9. Drag **Velocity** onto the Cutoff too: harder notes, brighter plucks.
10. Save it: the disk icon next to the preset name.

> **TIP** Lengthen ENV 2's Decay and you have a stab; shorten it and you have a marimba-like blip.

2. A supersaw lead

The big, shiny lead of trance and EDM.

1. From **Init**, OSC A on a saw (Basic Shapes, WT Pos at the saw frame).
2. **UNISON** 7 voices, **Detune** 30 %, **Blend** 70 %. In the gear menu raise the stereo **width**.
3. Switch on **OSC B**, the same saw, **Octave +1**, Level 50 %.
4. FILTER 1 on with inputs **A** and **B**, **Low 12**, Cutoff high (8 kHz): it only softens the top.
5. In the voicing area: **MONO** + **LEGATO**, **PORTA** 60 ms - notes glide into each other.
6. Drag **LFO 2** onto OSC A **Fine**: sine, 5 Hz, **Rise** 0.8 s - vibrato that grows on long notes.
7. FX: **Chorus** (Mix 25 %), **Delay** 1/8 D (Mix 20 %), **Reverb** Hall (Mix 25 %), **Compressor** last.

> **TIP** Map **Macro 1** to Detune and the reverb Mix: one knob from tight to huge.

3. An evolving pad

A pad that breathes and changes colour on its own - ideal for intros and breakdowns.

1. From **Init**, OSC A on a soft but rich wavetable (try the Analog or Digital tables with the arrows).
2. UNISON 6 - 8, Detune 25 %, Blend high.
3. Drag **LFO 1** onto **WT Pos**: BPM on, 2 or 4 bars, a smooth shape. The wave now travels through the table.
4. Drag **LFO 2** onto a **Warp** amount (Bend + or Sync), even slower, a small amount: the two never line up.
5. OSC B one **octave down**, lower level: body. (For texture: OSC B in **Granular** with a vocal or ambient sample, very low.)
6. FILTER 1 **Low 12**, Cutoff in the middle; drag LFO 1 onto the Cutoff too.
7. **ENV 1**: Attack 1.5 s, Sustain high, Release 3 s.
8. FX: **Chorus**, then a big **Reverb** (Hall or Cathedral, Mix 40 %).
9. MOD page, PRISMA LAB › **LIGHT**: **AUTO-WIRE**, then **DRIFT** slow: the macros move by themselves.

> **TIP** Play long chords at 80 - 90 BPM, one per bar. Turn on Reverb **Freeze** on the last chord for an endless tail.

4. A growl bass

The talking, growling bass of dubstep and bass music.

1. From **Init**, MONO on. OSC A on a harmonically rich table; **Octave -1**.
2. OSC B on, a sine or saw, **Level 0** - it is only there to modulate.
3. OSC A **Warp 1**: **FM** from the other oscillator (OSC B). Warp 1 amount around 40 %.
4. OSC A **Warp 2**: a folding or saturating warp (**Sine Fold**, **Tube**), amount 30 %.
5. Draw **LFO 1** as a shape with a few steps and slopes; BPM on, 1/8. Drag it onto **WT Pos**, the **Warp 1** amount and the **Warp 2** amount - each with a different ring size.
6. FILTER 1: **Formant-I** or **Low 24**; drag LFO 1 onto its **VAR** (vowel) or Cutoff: the bass "talks".
7. Turn on **SUB** (sine, -1 octave) for weight; route the SUB channel to **DIRECT** in the MIXER so no effect smears it.
8. FX: **Distortion** (Tube or Hard Clip), **Compressor** (Multiband), **Utility** with **Mono Bass** at 120 Hz.

> **TIP** Change LFO 1's RATE during the drop (1/8 → 1/16 → 1/4 T), or put RATE on a macro and automate it in FL Studio.

5. A sub bass that never leaves its octave

A clean sub that stays low wherever you play - with OSC MAP.

1. Switch on the **SUB**: shape **Sine**, Octave -1.
2. Open **OSC MAP** (keyboard bar). On the SUB row, drag the bar so it covers only **C0 - B0** (or double-click it and type *C0 - B0*).
3. Tick **FOLD** on the SUB row.
4. Now play anywhere: high notes come down and low notes go up into that one octave, so the sub always sits in the same register.
5. Route the SUB channel to **DIRECT** and keep its sends at 0: no reverb or chorus in the low end.

> **TIP** Do the same with OSC A on a narrow range one octave higher: a bass layer that never gets muddy.

6. A split: bass on the left, arpeggio on the right

One preset, two hands: a bass in the low keys and an arpeggiated lead above.

1. OSC A: a bass sound. In **OSC MAP**, OSC A from **C-2** to **B2**.

2. OSC B and OSC C: a bright lead. Their range from **C3** up.
3. Switch **ARP ADV** on (its power button left of the keyboard) and set the **ARP** row in OSC MAP from **C3** up.
4. ARP ADV: SHAPE **Up/Down**, RATE **1/16**, TRANSPOSE RANGE 2, SHIFT 12, GATE 70 %.
5. Play a bass note with the left hand and a chord with the right: the chord is arpeggiated, the bass is not.

> **TIP** Use the **VEL** view of OSC MAP to add a third layer that only plays when you hit the keys hard.

7. A rhythmic sequence from one key

A whole groove from a single held note - with the step sequencer.

1. SEQ page: MODE **Sequencer**, RATE **1/16**, Gate 50 %.
2. Press **Randomize** until you like the melody, or draw the PITCH lane yourself.
3. Switch a few **ON** pads off for space; draw the **VELOCITY** lane for accents.
4. Draw the **MOD** lane as a rising ramp, then drag **Seq Mod** onto the filter Cutoff.
5. Turn **SEQ** on in LFO 1 and put LFO 1 on a warp: it restarts on every step.
6. Add **Swing** 15 % for groove. Hold one key - change the key to transpose the whole pattern.

> **TIP** Set Steps to 12 or 7 instead of 16: the pattern shifts against the bar and never sounds the same twice.

8. Textures with the granular engine

Clouds, shimmers and frozen moments from any sample.

1. OSC A: engine **Granular**. Load a factory sound (try *Glass Cloud*) or your own sample with **Load...**.
2. Raise **Density** and **Size** for a thick cloud; **Spray** scatters the grains through the sample.
3. **Pitch Rnd** detunes each grain a little: shimmer.
4. Put a slow **LFO** on **Position**: the cloud travels through the sample.
5. Open the grain window view and shape the grain's volume curve: soft grains for pads, sharp ones for glitches.
6. FX: a long **Reverb** and **Dimension** for width.

> **TIP** Put OSC B in **Spectral** with the same sample and its **Smear** warp under the granular cloud.

9. Let the AI help

Use PRISMA LAB and the cloner to find sounds you would not have designed.

1. Make or load a sound you like. On the MOD page, PRISMA LAB › **DNA**: double-click the seed.
2. Pick a mood - **BRIGHT**, **DARK**, **WIDE**, **GRIT**, **AIR** ... - and keep double-clicking buds: each branch is a variation.
3. Click a branch to hear it; drag it longer or shorter to apply more or less of it.
4. Lock what must not change (**OSC**, **FLT**, **LFO**, **FX**), keep **ENV** and **KEYS** off to protect your envelopes and playing feel.
5. Like one? Save the preset. **ORIGINAL** brings back where you started.
6. To copy a sound from a recording: **LOAD WAV** in the cloner, **CLONE**, play while it searches, **STOP** when it is close.

> **TIP** Drop an LFO onto a branch (Prisma Lab › Branch › X / Y in the matrix): the sound wanders around that variation by itself.