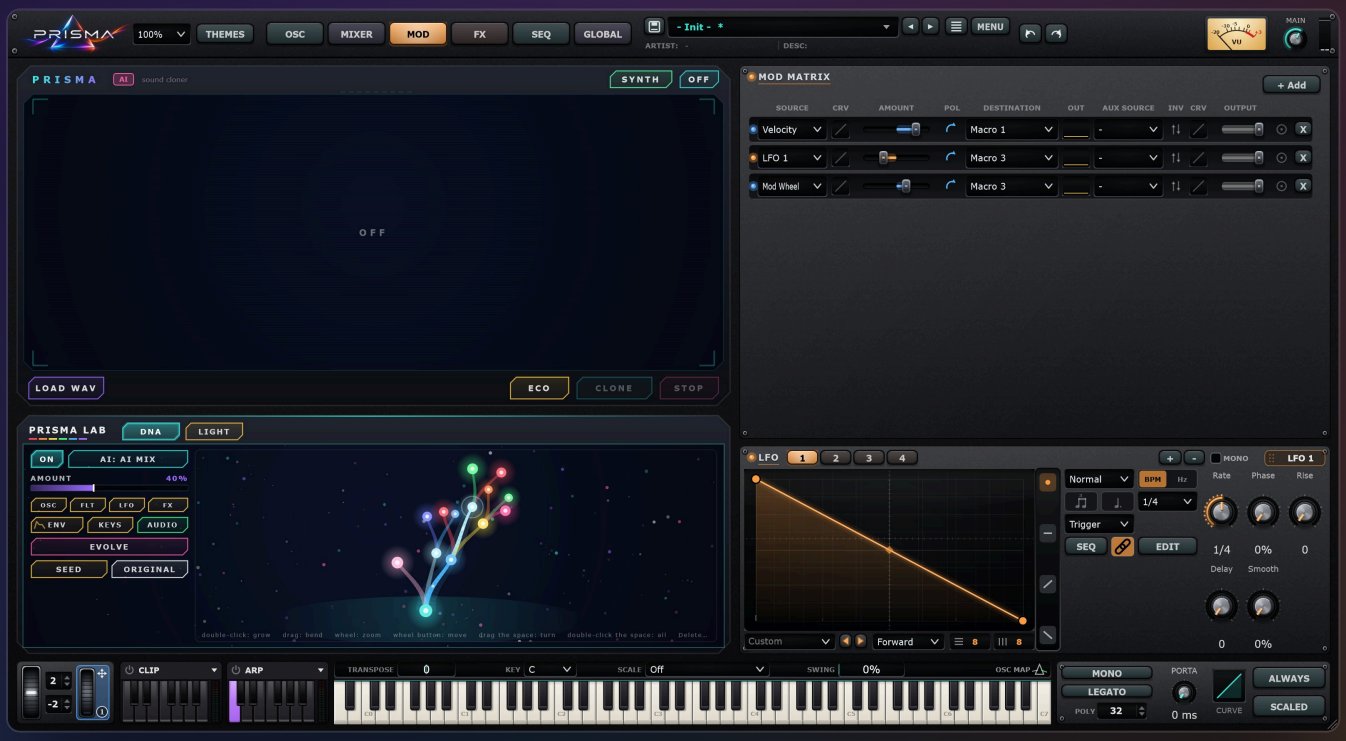
PRISMA

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 saw wave through a low-pass filter.
- 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.

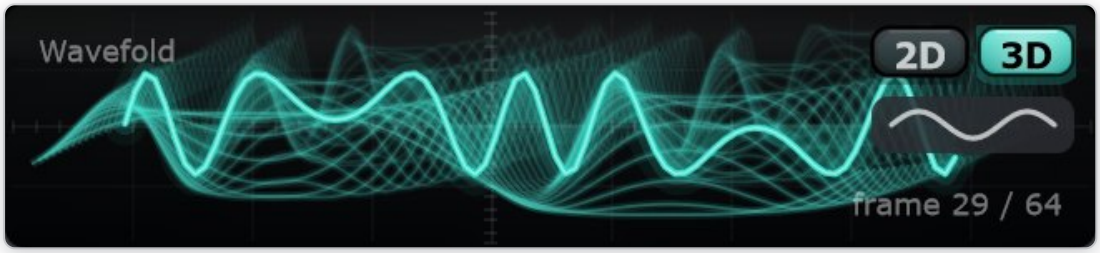
Engine	What it plays	Good for
Wavetable	A table of single-cycle waves. WT Pos moves through it.	Basses, leads, pads, anything that moves.
Sample	An audio file, with loop points.	Real instruments, one-shots, drums, vocals.
Multisample	An instrument made of many samples spread over the keyboard.	Pianos, 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.

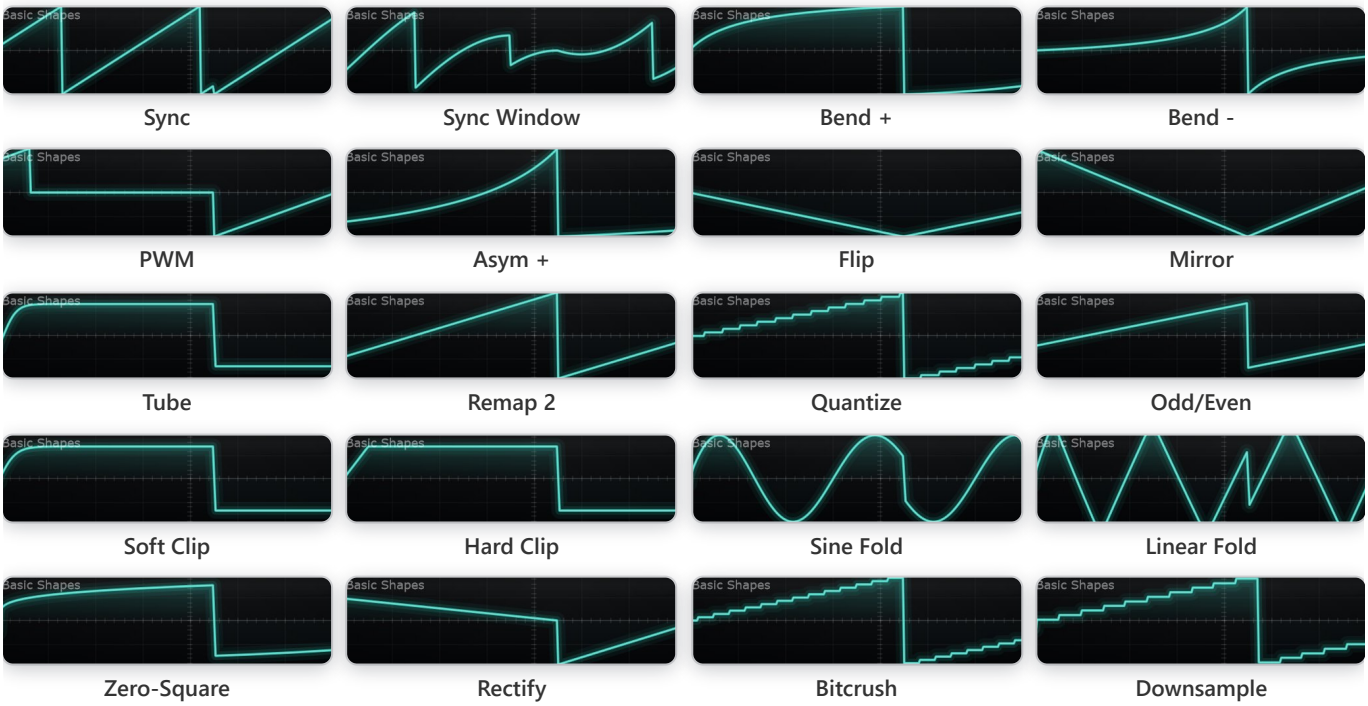
Warps

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

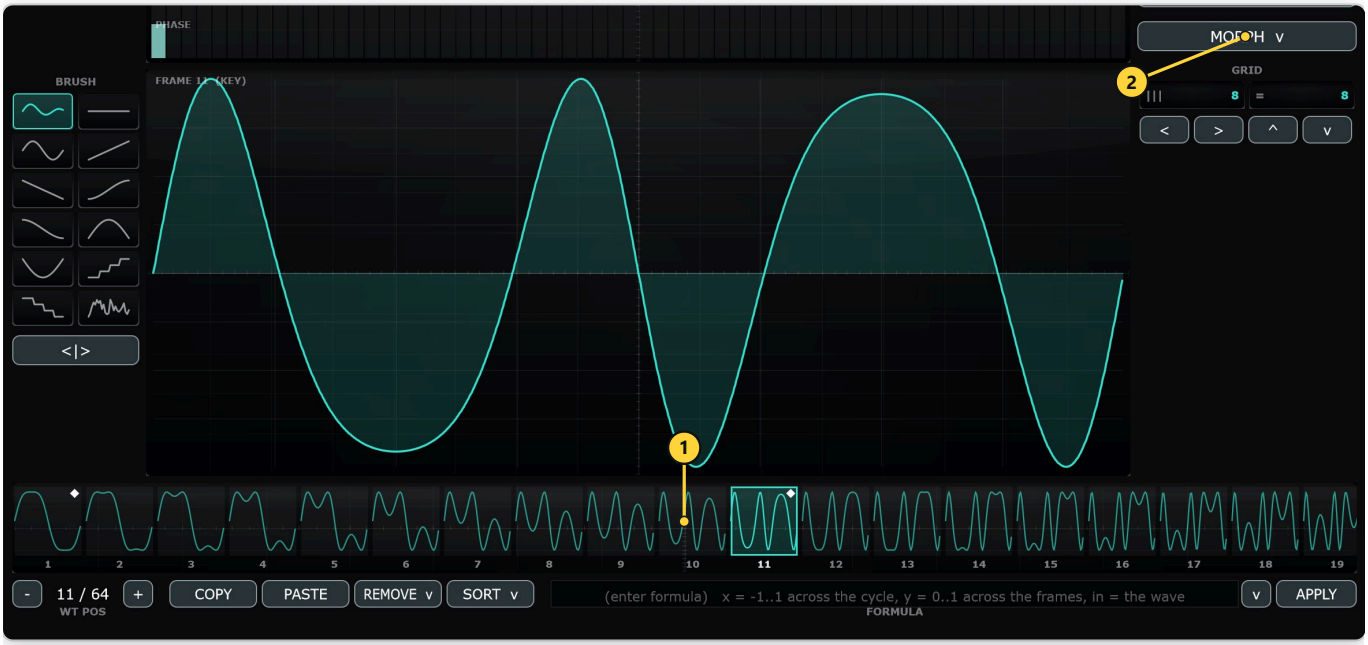
SINGLE changes the current frame, **ALL** changes every frame of the table. "Grid Size" in a name means the process uses the GRID columns (for example, the length of a fade).

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



The FILTER 1 / FILTER 2 panel on the OSC page.

1. Power
2. FILTER 1 / FILTER 2 tabs
3. Filter type (Normal, Multi, Flanges, Misc, PF Filters)
4. Key track: the cutoff follows the note
5. Inputs: S (sub), A, B, C, N (noise)
6. Output: main, global filter, buses, direct, filter 2
7. The response: drag left / right for cutoff, up / down for resonance
8. Cutoff, Res, Drive, Fat / Var
9. Pan, Mix, Level

Prisma has two advanced filters. A source goes through a filter when its input button (**S A B C N**) is lit; the filter then sends the result to its output (and FILTER 1 can feed FILTER 2). Right-click the display to choose what it shows: the frequency response, the response with the live FFT of the sound, or the phase response.

The filter types come in five families: **Normal** (low / band / high pass, notch, peak, from 6 to 24 dB), **Multi** (combined responses), **Flanges** (combs and flangers), **Misc** (formant, ladder, diode and character filters) and **PF Filters** (phase-shaping filters). One type, **Draw**, lets you draw your own response with bands.

Global filter and envelopes



1. Global filter on / off
2. Global filter type
3. Cutoff, Reso, Drive, Env Amt, Key Trk
4. FILTER ENV: the global filter's envelope



The strip under the oscillators.

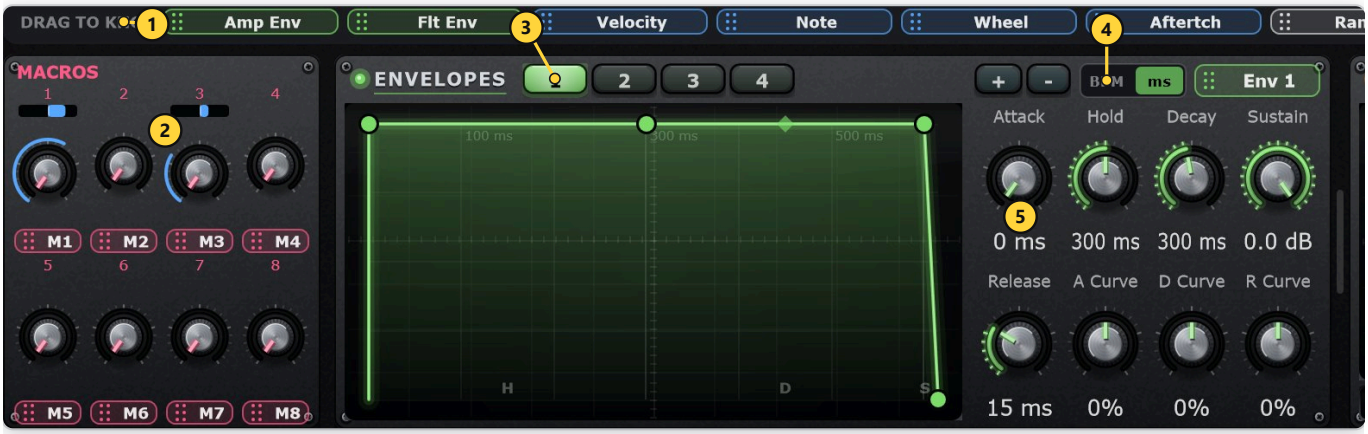
5. AMP ENV: the volume envelope (it is ENV 1)

Channels routed to **GLOBAL FLT** (the output button of each oscillator, or the mixer) pass through the global filter, which has its own envelope. The **AMP ENV** is the volume envelope of every note; it is the same as **ENV 1** in the envelope section.

CHAPTER 7

Modulation

Modulation is what makes a sound move. In Prisma you drag a source onto a knob: a coloured ring appears, and the knob now moves by itself.



1. Drag one of these sources onto a knob
2. MACROS 1-8 (drag M1..M8 onto knobs)
3. ENVELOPES 1-4 (tabs), add / remove with + / -
4. BPM / ms: times in milliseconds or note lengths
5. Envelope times and curves



The modulation area under every page (left and right halves).

6. LFO display: draw the shape
7. Drawing tools: points, steps, ramps
8. LFO type: Normal, Path, Lorenz, Rossler, S&H
9. Mode: Trigger, Free, Envelope
10. EDIT: the big LFO editor
11. Rate, Phase, Rise, Delay, Smooth
12. VELO / NOTE curves

Adding a modulation

- Drag a source - an envelope tab, an LFO tab, a chip from the strip, a macro (M1..M8) - 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) to set how much it moves.
- Right-click the knob for its menu: add another source, **Bypass**, **Remove**, or **Remove All**.
- Every modulation also appears as a row in the **MOD MATRIX** (MOD page), where you can fine-tune it.

Envelopes

Four envelopes (more can be added with **+**), each with Attack, Hold, Decay, Sustain and Release, and three curves (A, D and R Curve). Drag the points in the display, or the diamonds to bend the curves. With **BPM** the times become note lengths that follow the song tempo. **ENV 1** is the volume of every note.

LFOs

Type	What it does
Normal	A shape you draw with points, steps and ramps; grid, direction (forward, reverse, ping-pong) and loop point.
Path	A ball travels a closed or open loop you draw; its X and Y are two modulation outputs.
Lorenz / Rossler	Chaotic attractors: movement that never repeats exactly. X and Y outputs, CHAOS amount.
S&H	Sample and hold: a new random value every cycle, held until the next one, with smoothing.

Trigger restarts the LFO on every note, **Free** lets it run for everybody, **Envelope** plays it once. **BPM** locks the rate to the song (with **TRIP** and **DOT** lengths), **MONO** shares one LFO between all voices, and **SEQ** restarts it on every arpeggiator / sequencer step. **EDIT** opens a large editor window.

Macros, velocity and note

The eight **MACROS** are knobs you can map to anything: drag **M1..M8** onto knobs, then one turn moves many things. Double-click a macro's name to rename it; the name is saved with the preset. **VELO** draws how hard you play becomes the Velocity source, **NOTE** draws how the key becomes the Note source.

The MOD page and the matrix



The MOD MATRIX: every modulation as a row.

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

Each row is one connection. The **AUX SOURCE** scales the modulation by a second source - for example LFO 1 on the cutoff, scaled by the mod wheel, so the wobble only appears when you push the wheel.

> **TIP** Under the matrix you find the same LFO block as on the other pages, so you can draw a shape and watch the matrix at the same time.

CHAPTER 8

The mixer

The MIXER page shows every sound source as a channel strip, the filters, two buses and the outputs.



The MIXER page.

1. Output of the channel (GLOBAL FLT, MAIN, BUS 1 / 2, DIRECT)
2. Sends to BUS 1 and BUS 2
3. M (mute) / S (solo)
4. Pan
5. Fader
6. Envelope button: follows ENV 1 (off: full level while held)
7. FILTER 1 / 2 strips with their response
8. BUS FX: opens the bus's effect rack
9. LIMIT: soft limiter on the main output
10. DIRECT: straight out, no effects
11. CROSS MODULATION: FM B>A, FM A>B, AM B>A, Ring A x B
12. SIGNAL FLOW: a short map of the routing

Each source (SUB, OSC A, OSC B, OSC C, NOISE, RING) has its own strip. Its output button decides where the sound goes; the two small knobs send part of it to **BUS 1** and **BUS 2**, which have their own effect racks. The **MAIN** channel runs the main effect rack, the master volume and the limiter; **DIRECT** skips every effect.

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

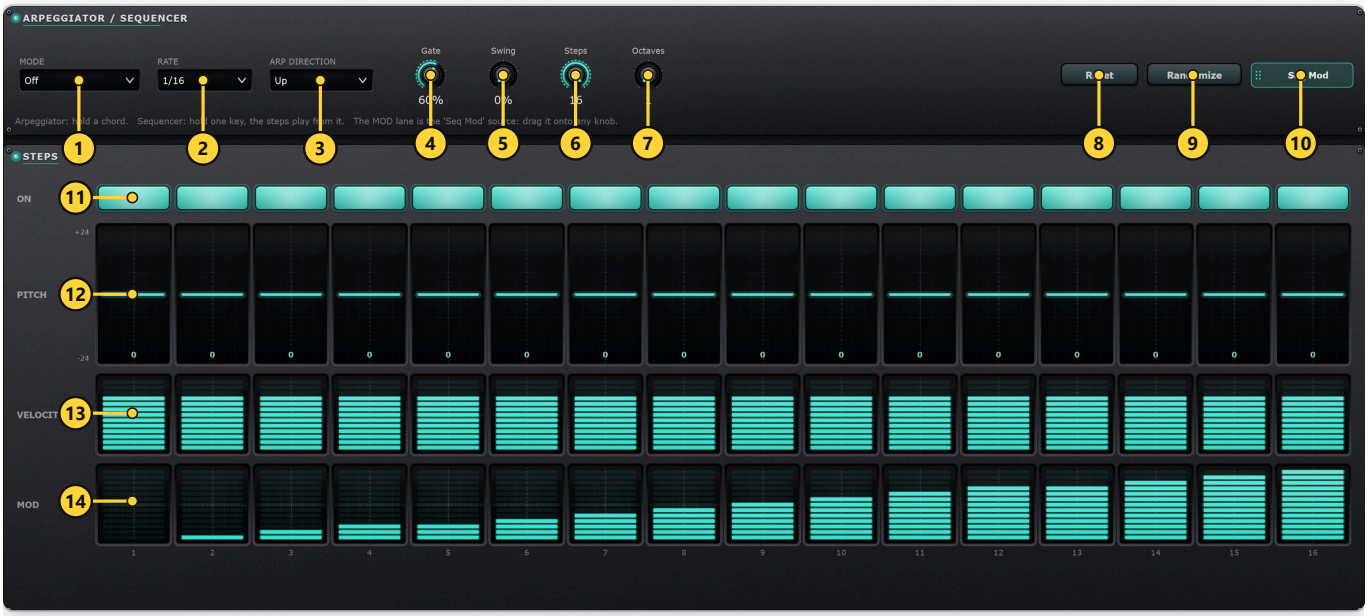
Splitter L/H	Low and High. **Crossover** sets where they meet; **Low** / **High** set each band's level, and each can be bypassed.
Splitter L/M/H	Low, Mid and High with two crossovers (**Low / Mid**, **Mid / High**), a level and a bypass per band.
Splitter M/S	Mid (what is the same in both speakers) 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.

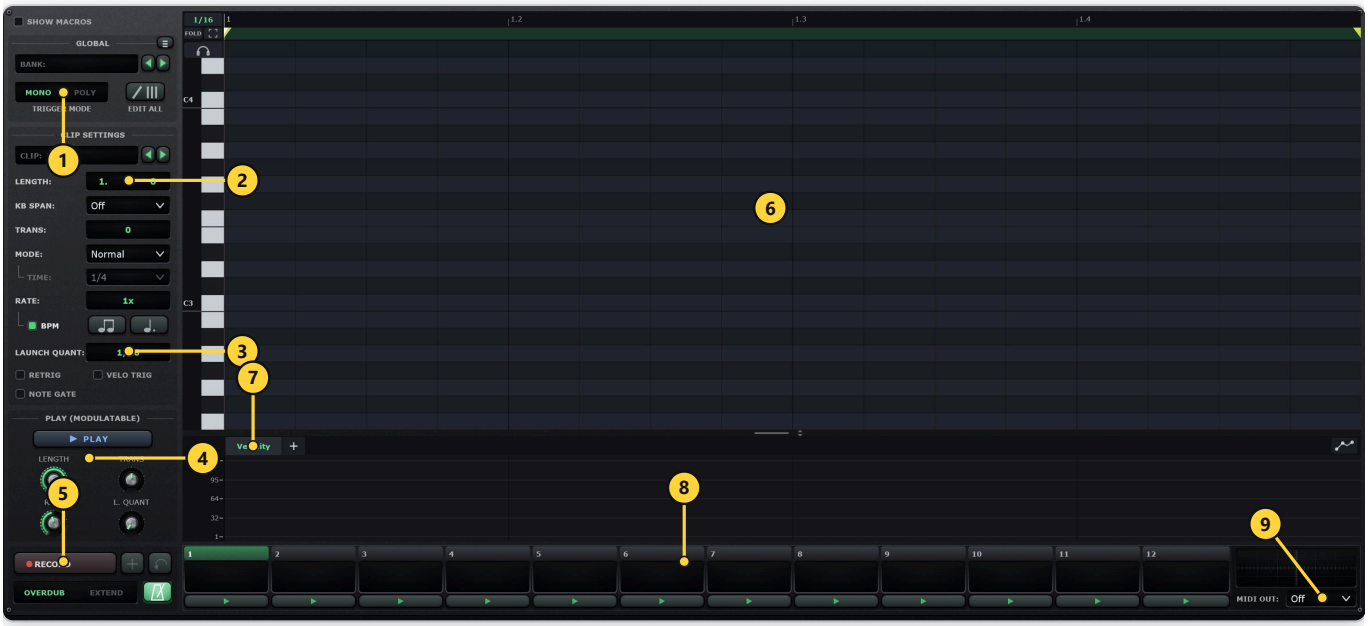
1. MODE: Off, Arpeggiator, Sequencer
2. RATE: the step length
3. ARP DIRECTION
4. Gate
5. Swing
6. Steps
7. Octaves
8. Reset
9. Randomize
10. Seq Mod: drag onto a knob
11. ON: each step on / off
12. PITCH: -24 .. +24 semitones
13. VELOCITY
14. MOD: a value per step = the Seq Mod source

Arpeggiator: hold a chord and Prisma plays its notes one after another, up, down or in other orders, over one or more octaves. **Sequencer**: hold one key and the steps play from it, each with its own pitch, velocity and MOD value. The MOD lane is the **Seq Mod** source: drag it onto any knob to move that knob step by step.

CHAPTER 11

CLIP player and ARP ADV

Left of the keyboard live two players. Their power buttons switch them on, a click on the name opens them, and the small keys launch their 12 slots.



The CLIP player.

1. Trigger mode: MONO / POLY, EDIT ALL
2. Clip settings: length, KB span, transpose, mode, rate
3. Launch quantize, retrigger, velocity trigger, note gate
4. PLAY: the modulatable play controls
5. RECORD, overdub / extend
6. The piano roll: click to add notes, drag to move
7. Lanes: velocity and macros
8. The 12 clips: click to edit, play button to launch
9. MIDI OUT

The **CLIP** player holds 12 short MIDI clips. Play them from the small keys, from MIDI, or let a played note transpose them (**KB SPAN**). Notes, velocities and macro lanes are edited in the piano roll; recording captures what you play. **ARP ADV** is a pattern arpeggiator with 12 slots: each slot is a pattern (drawn like a clip) that turns the chord you hold into a phrase.

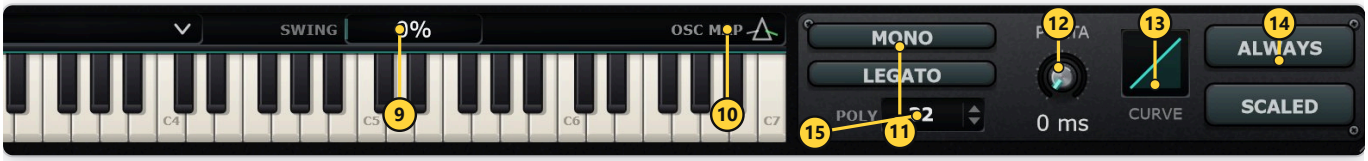
> **TIP** MIDI OUT can send the clips' notes (or the clips through the ARP) to the host, so you can record them as MIDI in your song.

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



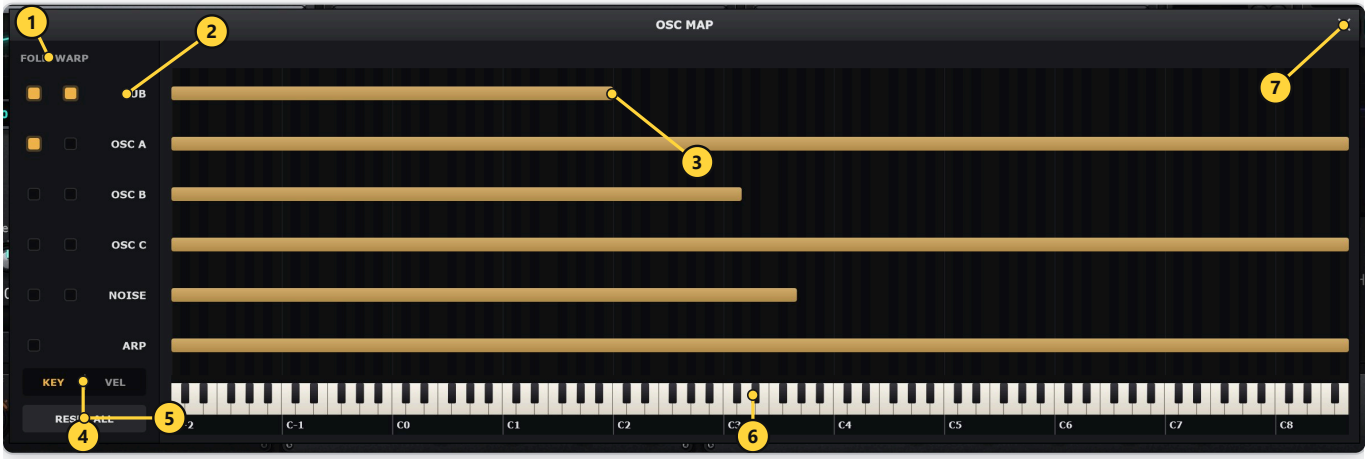
The bottom of the window (left and right halves).

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.

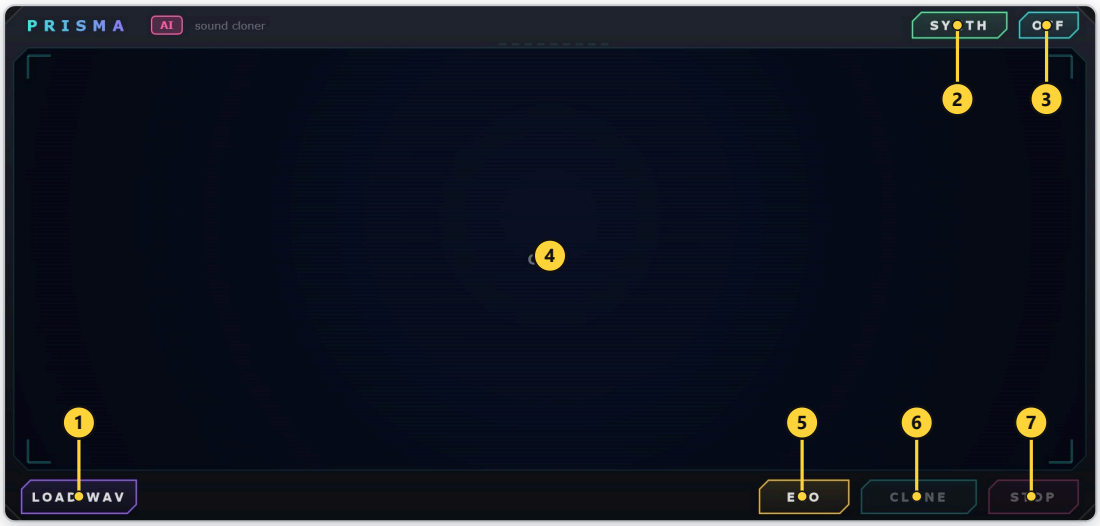
EXAMPLE **A sub that always stays low.** Set the SUB range to C0 - B0 and switch FOLD on. Wherever you play, the sub falls into that one octave: low notes play as they are, high notes come down to it.

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



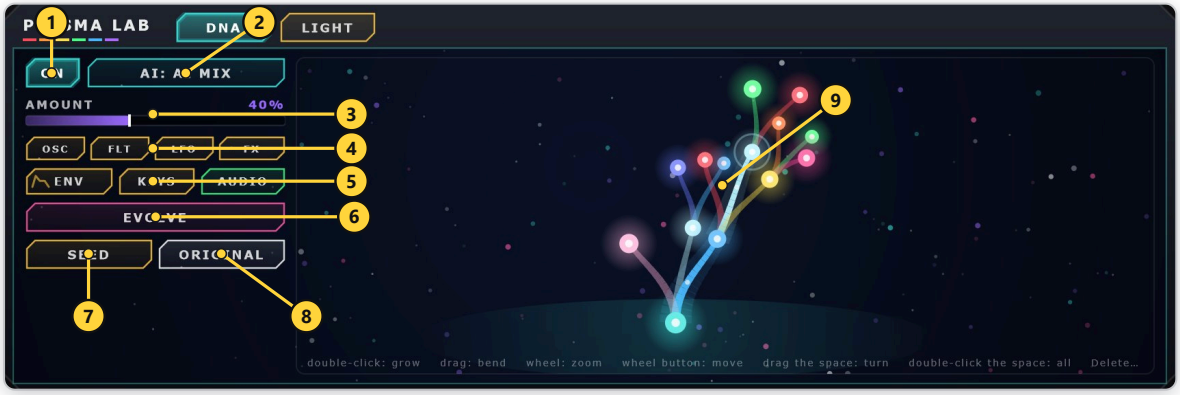
The PRISMA sound cloner (MOD page, top left).

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



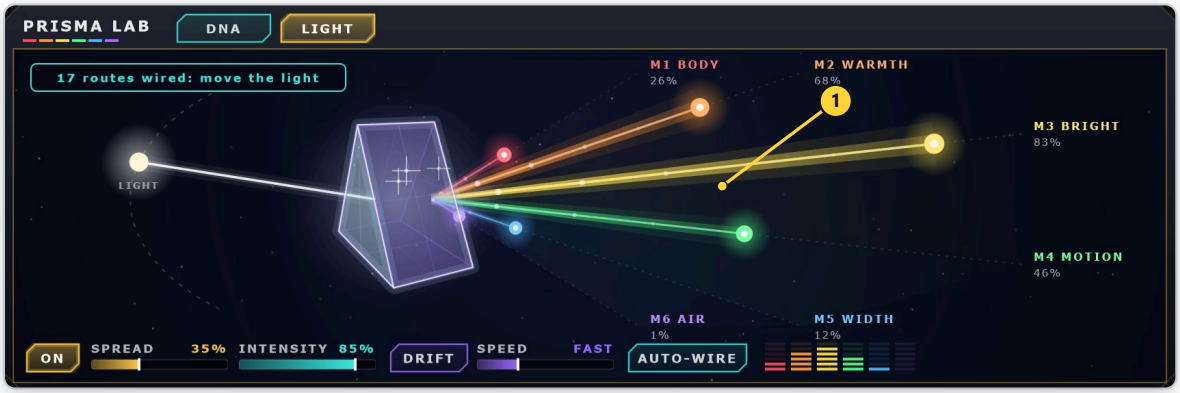
PRISMA LAB, DNA tab.

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



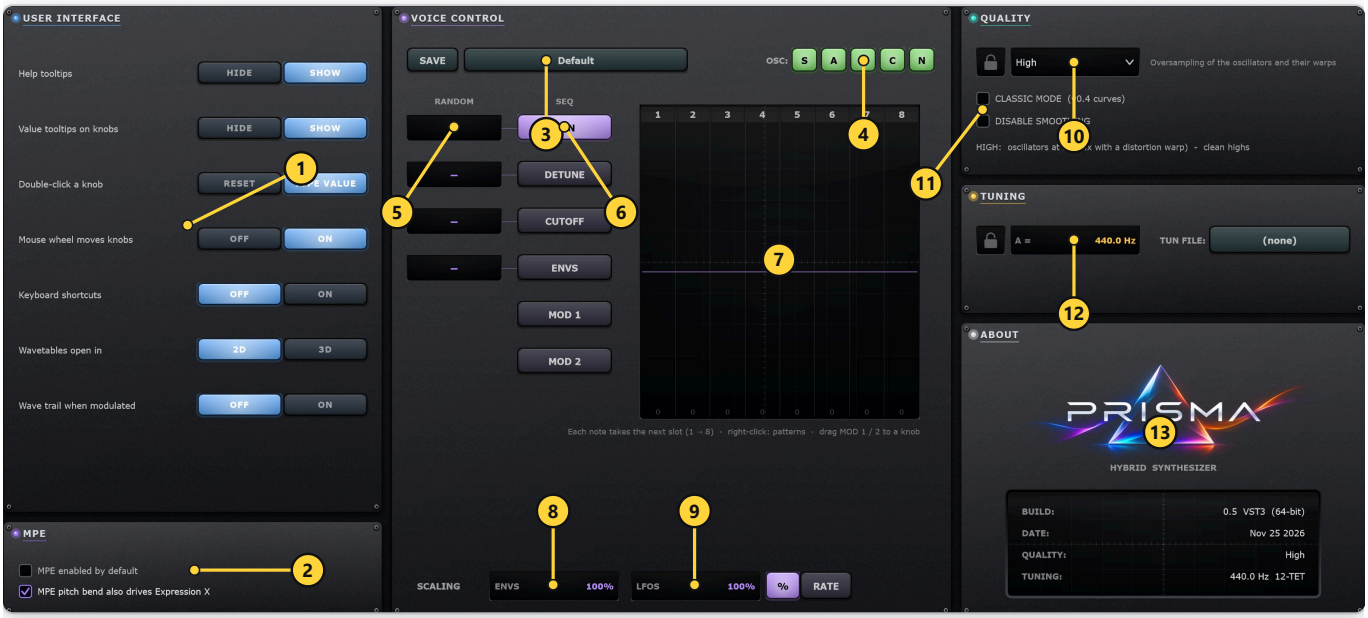
PRISMA LAB, LIGHT tab.

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



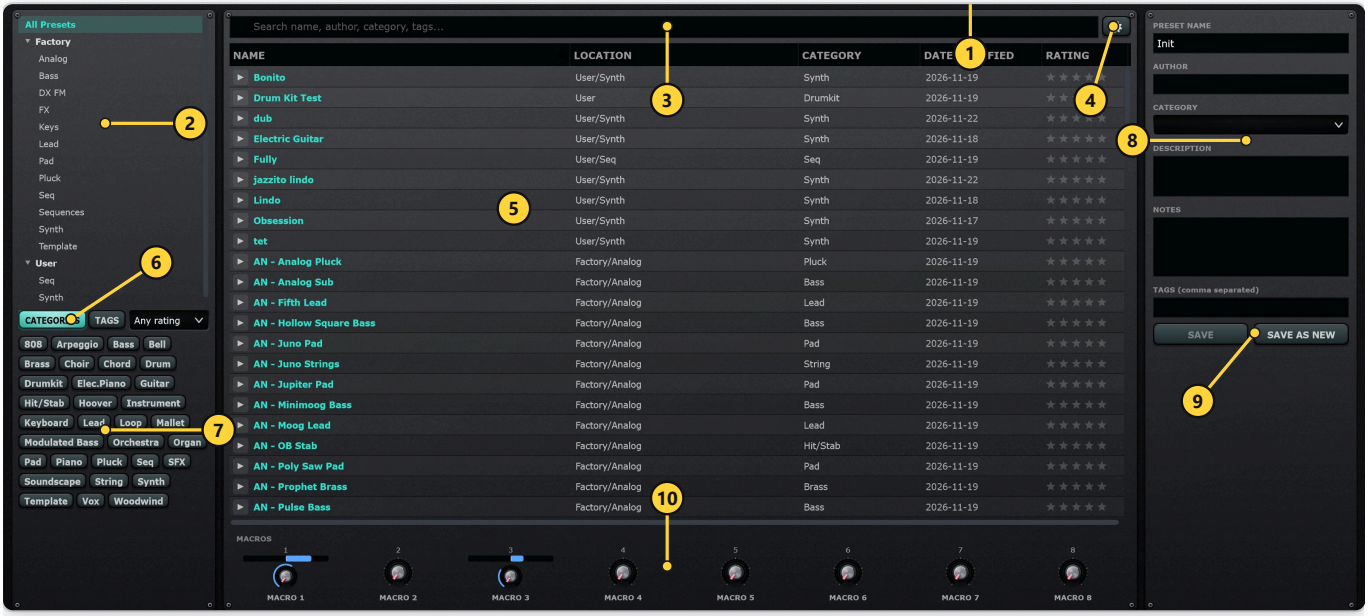
The GLOBAL page.

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.