X-Or

Two-oscillator monophonic bass synthesizer. Dual sawtooth voice, resonant low-pass filter with dedicated contour envelope, loudness envelope, glide. Pedal-bass voicing out of the box. Free.

MONOPHONIC · DUAL SAW OSCILLATORS · RESONANT LOW-PASS + CONTOUR · LOUDNESS ADS · GLIDE · VST3 / CLAP · FREE

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01. INSTALLATION

WINDOWS

Run the installer. Pick the formats you want (VST3 and/or CLAP). Restart your DAW so it rescans the plugin folders.

FORMAT	DEFAULT LOCATION
VST3	`C:\Program Files\Common Files\VST3\X-Or.vst3`
CLAP	`C:\Program Files\Common Files\CLAP\X-Or.clap`

LINUX

Copy the plugin bundle from the release archive into your user plugin folder. A DEB package is also provided.

FORMAT	DEFAULT LOCATION
VST3	`~/.vst3/X-Or.vst3`
CLAP	`~/.clap/X-Or.clap`
DEB	`sudo dpkg -i x-or-1.0.0-linux-x86_64.deb`

Linux binaries target glibc 2.35 (Ubuntu 22.04 / Debian 12 / Mint 21 / Fedora 36 / Arch). Restart your DAW after installing.

RESCANNING

Most DAWs scan VST3 and CLAP on startup. If X-Or doesn't appear, force a rescan from your DAW's preferences. Bitwig, Ardour, Reaper, FL Studio, Cubase, Live, and Studio One all expose this in their plugin manager UI.

UNINSTALL

Windows: use the standard uninstaller from the installer or the Add/Remove Programs panel. Linux: delete the `.vst3` bundle from `~/.vst3/` and the `.clap` file from `~/.clap/`, or `sudo dpkg -r x-or` if installed via DEB.

02. INTERFACE MAP

HEADER

MOUSEPLUGINS logo on the left, X-Or product title and BASS SYNTHESIZER subtitle centered, INIT button + preset selector + undo/redo on the right. Click INIT to reset every parameter to its default.

LIVE CHART + METERS

The full-width chart shows the post-processing output. Pills at the top toggle between WAVEFORM and SPECTRUM. Output meters sit on the right of the chart.

CONTROL CARDS

Three cards under the chart: **OSCILLATORS** (orange, 4 knobs), **FILTER** (green, 5 knobs), **LOUDNESS** (violet, 3 knobs). Knob titles match the on-screen labels.

SIDE PANELS

Right edge of the body: GLIDE TIME knob with its on/off toggle (top), OUTPUT LEVEL knob (bottom).

FOOTER

Sample rate, latency, output mode, and CPU readout.

RESIZABLE WINDOW

Drag any edge of the editor to resize. The aspect ratio is locked, so the layout stays consistent at any size from half-resolution up to 2× canonical.

Double-click any knob to reset it to its default value. Useful when you want to A/B against the init state without losing the rest of the patch.

03. OSCILLATORS

OSCILLATORS // OSC MIX, OSC B COARSE, OSC B FINE, MASTER TUNE

Two free-running sawtooth oscillators, A and B. OSC A always tracks the incoming MIDI note (minus the global one-octave transpose). OSC B's pitch is offset from A by COARSE semitones plus FINE cents. Their levels are mixed by OSC MIX.

OSC MIX `0 - 100 %`	Linear cross-fade between OSC A and OSC B. **0 %** = only A audible. **100 %** = only B audible. **50 %** = equal blend (this is the init value).	For detune beating to be audible, you need OSC MIX somewhere between 5 % and 95 %. At 0 % or 100 % only one oscillator is in the mix and any pitch offset of B becomes inaudible.	Init: 50 %
OSC B COARSE `-12 - +12 semitones`	OSC B's pitch offset from A in whole semitones. Quantizes to integer values. **0** = unison. **+7** = perfect fifth above A. **-12** = octave below A.	Classic stacks: **0** for fat detuned unison, **-12** for sub-octave weight under a brighter A, **+7** for fifth-up stabs and leads, **+12** for parallel-octave brightness.	Init: 0 st
OSC B FINE `-50 - +50 cents`	Fine pitch offset of OSC B relative to A, in cents. Use this for natural beating between the two free-running oscillators - the classic two-oscillator wobble.	**0 c** = locked unison (clean, no beating). **±5 c** = subtle movement. **±15 c** = obvious detune. Beyond **±25 c** it starts sounding out of tune more than wide, especially on sub material.	Init: 0.0 c
MASTER TUNE `-100 - +100 cents`	Global pitch shift applied to both oscillators. Use it to nudge X-Or into tune with material that isn't at A=440 Hz, or to detune the whole voice for design.	±100 cents = ±1 semitone. Symmetric on both sides. Affects A and B equally - any OSC B offset stays the same in cents.	Init: 0.0 c

X-Or transposes down one octave. A MIDI C3 sent to the plugin comes out as a true low C2. This is the pedal-bass default voicing. Use MASTER TUNE if you want to nudge the whole voice off-grid; use a MIDI transpose in your DAW if you want the apparent note to follow the keyboard literally.

04. FILTER

FILTER // CUTOFF, RESONANCE, CONTOUR, ATTACK, DECAY

Resonant low-pass filter with a dedicated **contour envelope** that modulates the cutoff. The filter has its own attack and decay - separate from the loudness envelope - so you can shape the filter motion independently of the amplitude shape.

CUTOFF `20 - 5000 Hz`	The filter's resting cutoff frequency. Sets where the filter sits with the contour envelope at zero.	Bass voicing: **200-500 Hz** . Plucky lead voicing: **500-1500 Hz** . Open synthy bite: **2-5 kHz** . With CONTOUR > 0 %, the live cutoff opens above this resting value on each note-on.	Init: 1000 Hz
RESONANCE `0 - 100 %`	Emphasis at the cutoff frequency. Higher values produce a sharper peak; near maximum, the filter enters very resonant territory.	**0-20 %** = neutral low-pass. **30-60 %** = audible character without screaming. **70-100 %** = acid territory. High resonance with a moving CONTOUR is the classic squelchy bass sound.	Init: 18 %
CONTOUR `0 - 100 %`	How much the filter envelope modulates the cutoff. At **0 %** the filter sits at CUTOFF all the time. At **100 %** the cutoff opens to its maximum on each note-on and decays back to the CUTOFF resting position.	For static filter colors, leave CONTOUR at 0 and use CUTOFF alone. For plucky, moving filter shapes, set CONTOUR somewhere between 40 % and 80 % and tune ATTACK / DECAY.	Init: 45 %
ATTACK `0 - 2000 ms`	Filter envelope attack time. How long the cutoff takes to ramp from CUTOFF up to its full open position on note-on.	**0-10 ms** = instant snap, classic plucky bass. **50-200 ms** = filter sweeps into the note. **500+ ms** = slow swells and pads.	Init: 10 ms
DECAY `10 - 5000 ms`	Filter envelope decay time. The envelope has **no sustain** - ATTACK ramps up to the peak (set by CONTOUR), DECAY falls back to CUTOFF.	Short decays (100-300 ms) snap the filter shut for plucks; long decays (1-3 s) let the cutoff drift down across the whole note.	Init: 650 ms

05. LOUDNESS

LOUDNESS // ATTACK, SUSTAIN, DECAY

Amplitude envelope. Three stages: **attack** (rising from zero to peak), **decay** (falling from peak to the sustain level), **sustain** (held while the note is held). Note-off uses the decay time to fall back to zero.

ATTACK `0 - 1000 ms`	Time from zero amplitude to peak on note-on.	**0-5 ms** = clean attack with no click. **5-30 ms** = softer attack, useful for swells. Anything under **1 ms** can produce a click on note-on for low-frequency content - lift to 3-5 ms if you hear one.	Init: 5 ms
SUSTAIN `0 - 100 %`	Level held after the decay completes, while the note is still on.	**100 %** = note holds at full level for as long as it's held (decay has no effect during sustain). **0 %** = note decays to silence and stays there until note-off. Anywhere in between gives a percussive-then-sustained shape.	Init: 100 %
DECAY `10 - 5000 ms`	Time from peak to the sustain level. Also the time the envelope takes to fall to zero on note-off.	For staccato basses, short DECAY (200-400 ms) and SUSTAIN under 100 % so notes fade quickly. For sustained pads or held bass, SUSTAIN at 100 % and DECAY long enough for note-off tails to feel natural.	Init: 850 ms

Soft retrigger. When a new note arrives while the previous note's release tail is still audible, the envelope ramps from its current level into the new attack - it does not slam to zero first. The result is click-free legato phrasing without enabling glide.

06. GLIDE & OUTPUT LEVEL

Two side panels live on the right edge of the body: GLIDE on top and OUTPUT LEVEL on the bottom.

GLIDE

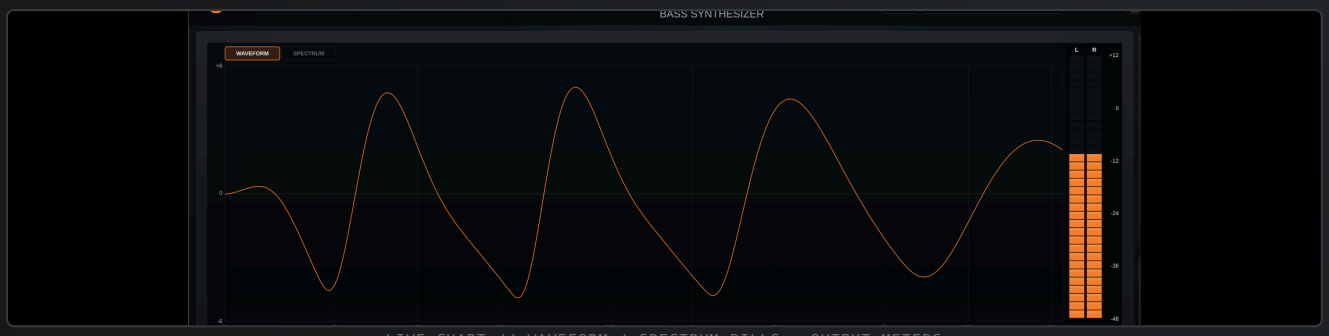
GLIDE TIME `0 - 2000 ms`	Portamento time between overlapping or legato notes when GLIDE is on.	**40-80 ms** = natural legato. **100-300 ms** = obvious portamento phrases. **500+ ms** = sound-design sweeps.	Init: 80 ms
GLIDE ON / OFF `Toggle`	Turn portamento on or off. When off, every new note retriggers cleanly at the new pitch.	Notes only glide when the MIDI note-on for the next note arrives **before** the note-off of the current one. Non-overlapping notes always retrigger normally regardless of the GLIDE toggle.	Init: Off

OUTPUT LEVEL

OUTPUT LEVEL `-24 - +12 dB`	Final gain stage before the host. Use this to set the overall output level of the patch.	Use the L/R meters in the chart's right strip to keep the output level out of the top/red zone. If the meters sit too high on your hottest notes, lower OUTPUT LEVEL.	Init: 0.0 dB

There is no separate input gain - X-Or is a synth, the oscillators are the source. OUTPUT LEVEL is your single level control on the way out.

07. THE LIVE CHART



LIVE CHART // WAVEFORM / SPECTRUM PILLS + OUTPUT METERS

The chart at the top of the editor previews the synth's **post-processing output** in real time. Click **WAVEFORM** or **SPECTRUM** pills at the top-left of the chart to switch modes. Default mode is Waveform.

WAVEFORM MODE

Time-domain trace of the output. The Y axis is labelled in dB (**+6 / -6**) for readability; what's plotted is the linear sample value scaled so ±0.5 lands at the ±6 marks. Large signals will clip the visible area - the audio output is unaffected, only the display.

Use waveform mode to read attack shape, decay curve, and detune beating between OSC A and OSC B. With both oscillators at equal mix and small FINE detune, you'll see the saw shapes phase-cancelling and reinforcing over time.

SPECTRUM MODE

Log-frequency magnitude trace from **20 Hz to 20 kHz**. The display applies a **+4.3 dB/oct tilt** so harmonic content of a low note doesn't ride a steep low-frequency hill - sub fundamentals and upper harmonics read at similar visual heights.

Flat-if-silent. Bins that sit at or below the silence floor are drawn flat at that floor; the tilt is only applied to bins with real signal. The result is a clean silent baseline that doesn't slope up at the top of the spectrum.

RMS METERS

The two narrow vertical bars to the right of the chart show **L** and **R** RMS levels. Both bars are tinted in the brand orange. Use them to keep the output level out of the top/red zone - reach for OUTPUT LEVEL if they sit too high consistently.

08. SIGNAL FLOW

X-Or is a single monophonic voice. Notes are kept on a last-note priority stack, so the most recent held note plays; releasing it falls back to the previously held note if any. The voice path:

STAGE	WHAT HAPPENS
MIDI in	Note-on / note-off events from the host. X-Or applies a -12 semitone transpose for pedal-bass voicing, plus the MASTER TUNE offset in cents.
Pitch + glide	The target pitch is set per block; the glide engine smooths between targets according to GLIDE TIME when GLIDE is on, or jumps instantly when off.
Oscillators	Two free-running sawtooth oscillators. OSC A tracks the glided pitch; OSC B is offset by OSC B COARSE semitones + OSC B FINE cents. Levels mixed by OSC MIX.
Filter	Resonant low-pass. Cutoff is the CUTOFF setting plus the contour envelope (scaled by CONTOUR). Resonance is constant per the RESONANCE knob.
Loudness VCA	The filter output is scaled by the loudness envelope (ATTACK, SUSTAIN, DECAY).
Output	Final gain by OUTPUT LEVEL. Mono mix is duplicated to L and R for the stereo output bus.

MONOPHONIC BEHAVIOUR

X-Or processes **one voice at a time**. New notes interrupt the current voice. Because retrigger is soft (envelope starts the new attack from its current level), there is no click between back-to-back notes even with long release tails.

PEDAL-BASS TRANSPOSE

Every incoming MIDI note is shifted down 12 semitones (one octave) before pitch tracking. This is the pedal-bass default: a comfortable middle-of-keyboard MIDI part sounds in the low bass register. If you'd rather have X-Or follow your keyboard literally, transpose your MIDI track up an octave in the host.

09. PRESETS

X-Or ships with a small set of factory presets and supports saving your own as `.xorpreset` files. The preset selector lives in the header.

BROWSING

Click the preset name to open the dropdown. Factory presets appear first; user presets follow. The **<** and **>** arrows step through the combined list. **INIT** resets every parameter to its default - useful when you want to start clean.

SAVING

Select **SAVE** in the preset menu. A file dialog opens in the user presets directory; type a name and confirm. Files are written as `.xorpreset` XML containing the full parameter state.

Default user presets location:

`~/Documents/MousePlugins/X-Or/Presets/`

(On Linux, "Documents" resolves to your XDG documents folder, or your home directory if XDG is not configured.)

IMPORTING

Select **IMPORT** to load a `.xorpreset` from anywhere on disk. The patch is applied to the live state immediately. If the file lives in the user presets folder, it also appears in the dropdown for next time.

A / B COMPARE

The **A / B** toggle in the header maintains two independent patch slots. Both slots start as the same snapshot. Tweak A, switch to B, make a different change, then flip between them to compare. Each slot keeps its full parameter state including any preset name you loaded into it.

COPY / PASTE

The **copy** button in the header copies the current patch as text. **Paste** applies the most recently copied patch. Use this to move patches between instances of X-Or in the same session - or across sessions - without going through disk.

10. RECIPES

Starting points. All values relative to the init preset; adjust to taste.

SUB-BASS FOUNDATION

> OSC MIX **0 %** · OSC B everything at init · CUTOFF **200 Hz** · RES **0 %** · CONTOUR **0 %** · LOUDNESS ATTACK **5 ms**, SUSTAIN **100 %**, DECAY **850 ms**.

Pure OSC A, low-passed, no envelope movement. Use as the layered sub under a brighter bass sample or instrument.

RUBBER PLUCK

> OSC MIX **50 %** · OSC B FINE **+7 c** · CUTOFF **350 Hz** · RES **35 %** · CONTOUR **60 %** · FILTER ATTACK **5 ms**, DECAY **250 ms** · LOUDNESS as init.

Quick filter snap on every note, slight OSC B detune for top-end movement. The classic plucky bass voice. Good for grooves.

ACID LINE

> OSC MIX **0 %** · CUTOFF **800 Hz** · RES **70 %** · CONTOUR **80 %** · FILTER ATTACK **2 ms**, DECAY **150 ms** · GLIDE **ON**, TIME **80 ms**.

High resonance with aggressive filter motion. Glide between overlapping notes for that walking-bass-with-portamento phrasing.

DETUNED BASS

> OSC MIX **50 %** · OSC B FINE **+12 c** · CUTOFF **400 Hz** · RES **25 %** · CONTOUR **55 %**.

Two free-running oscillators detuned 12 cents apart produce slow beating - useful for wide, animated bass without pushing the line obviously out of tune.

FIFTH-UP STAB

> OSC MIX **50 %** · OSC B COARSE **+7 st** · CUTOFF **1.2 kHz** · RES **50 %** · CONTOUR **65 %** · LOUDNESS DECAY **300 ms**.

OSC B a perfect fifth above A, with a short loudness decay so notes stay tight. Punchy stab voice for short bass riffs.

SUB-OCTAVE FATNESS

> OSC MIX **30 %** · OSC B COARSE **-12 st** · CUTOFF **500 Hz** · CONTOUR **45 %**.

OSC B an octave below A, mixed in at 30 %. Adds sub weight without changing the apparent pitch of the line.

11. TROUBLESHOOTING

SYMPTOM	LIKELY CAUSE	TRY THIS
No sound on note-on	Track is muted or routing is wrong.	Check the DAW track's monitoring and routing. X-Or only outputs audio while a MIDI note is held (or its release tail is still audible).
Pitch sounds an octave too low	X-Or transposes incoming MIDI down 12 semitones for pedal-bass voicing.	Transpose the MIDI track up an octave in the host if you want the note to follow the keyboard literally.
Click on note-on	LOUDNESS ATTACK is too short for the material.	Lift LOUDNESS ATTACK to 3-5 ms. Sub-bass especially benefits from a couple of milliseconds of ramp at the start.
Notes pile up / sound muddy	LOUDNESS DECAY is long enough that release tails overlap into the next note.	Shorten LOUDNESS DECAY, or set SUSTAIN below 100 % so notes fade during held sections.
OSC B FINE has no audible effect	OSC MIX is at 0 % or 100 % - only one oscillator is in the mix, so its detune doesn't beat against the other.	Set OSC MIX somewhere between 5 % and 95 %.
MASTER TUNE seems off-axis	OSC B COARSE is non-zero, so MASTER TUNE shifts both A and B equally but their interval stays the same - you might be hearing the OSC B note dominate.	Set OSC MIX to 0 % to solo A, then verify MASTER TUNE shifts the pitch as expected.
Plugin doesn't appear in the DAW	VST3 / CLAP folder isn't being scanned, or the DAW cached an older state.	Force a plugin rescan in your DAW's preferences. On Linux, confirm the file is in `~/.vst3/` or `~/.clap/`.
Editor opens blank in the DAW	The DAW's editor window state for an old version of the plugin is cached.	Delete and re-instantiate the plugin in the project. Some DAWs cache plugin window state per-instance and will keep showing an empty window otherwise.

Still stuck? Email `support@mouseplugins.com` with: your OS, your DAW, the plugin format (VST3 or CLAP), the X-Or version (in the menu → About), and a short description of what's happening. Screenshots help.

12. COPYRIGHT + LICENCE

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PRIVACY

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CONTACT

WEBSITE
mouseplugins.com

SUPPORT
support@mouseplugins.com

PRODUCT PAGE
mouseplugins.com/en/products/xor