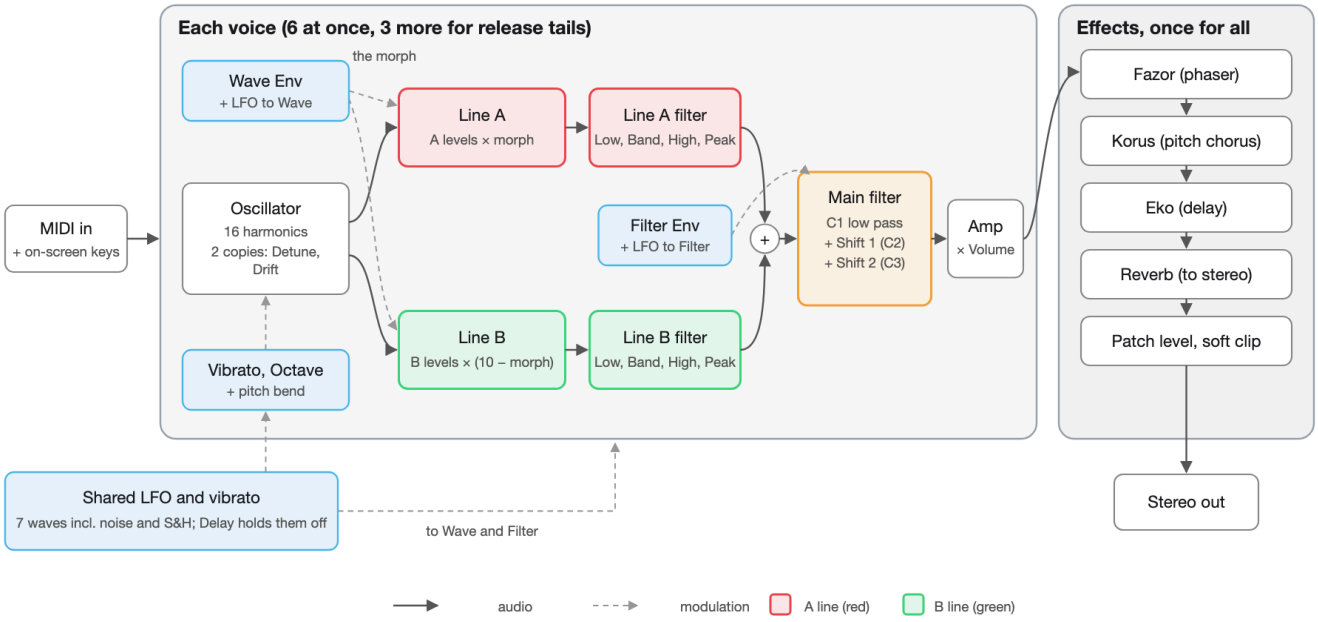
Xakt User Guide

Krakli · 8 November 2026

What Xakt is

Xakt is an additive synthesizer from Krakli. Every sound is built from 16 harmonics, and each harmonic has two levels, **A** and **B**. The sound morphs between the B spectrum and the A spectrum as an envelope or LFO moves it, so a single note can open from one tone colour into another. The original Xakt was a 32-bit SynthEdit VST from 2010. This is a 64-bit rebuild for Mac (VST3, AU and Standalone) and Windows (VST3 and Standalone), with the original's 128 patches and a modern panel. The original panel is one click away.

- **Two spectra and a morph.** Draw the A and B waves, or set their 16 harmonics as drawbars, and the Wave Env moves the sound between them.
- **A classic signal path.** A resonant low pass with two distortion shifts, envelopes for the wave, filter and amp, a shared LFO and vibrato, then Fazor (phaser), Korus (pitch chorus), Eko (delay) and reverb.
- **New in this rebuild:**
  - the modern panel, with drawable waves and live graphs;
  - **Detune** and **Drift**: the oscillator as two copies that beat and wander, for warmth;
  - a resonant **line filter** on each of A and B before they merge;
  - **Sample & Hold** on the LFO, in place of the original's pink noise;
  - a **randomiser** that builds new patches from the factory sounds;
  - a playable keyboard.
- **The same patches and banks.** Original `.fxb` banks load as they are, and banks saved here open in the original Xakt.



Installing

Mac (macOS 12 or later, Apple silicon or Intel):

- **VST3:** copy `Xakt.vst3` to `~/Library/Audio/Plug-Ins/VST3`.

- **AU:** copy `Xakt.component` to `~/Library/Audio/Plug-Ins/Components`.
- **Standalone:** `Xakt.app` runs on its own. Choose your audio and MIDI devices in its Options menu.

If you download a build rather than building it yourself, macOS may say the plugin "is damaged and can't be opened". It isn't damaged. macOS blocks downloaded plugins that aren't signed with an Apple Developer ID. To clear the block, run this in Terminal, with the path of the plugin you copied:

```
xattr -dr com.apple.quarantine ~/Library/Audio/Plug-Ins/VST3/Xakt.vst3
```

Windows (64-bit):

- **VST3:** copy the whole `Xakt.vst3` folder into `C:\Program Files\Common Files\VST3`. That needs administrator rights.
- **Standalone:** run `Xakt.exe`.

`BUILD-WINDOWS.md` explains how to build Xakt on a PC, or where to download the Windows build that GitHub makes.

In your DAW, Xakt is listed as an instrument by **Krakli**. The original 32-bit Xakt was a VST2 with a different ID, so the two can be installed side by side.

The screen at a glance



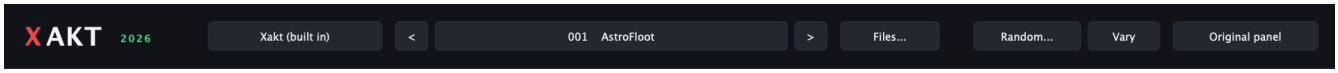
- **Top bar:** bank, patch, **Files...**, the randomiser (**Random...** and **Vary**) and **Original panel**.
- **Harmonics:** the A and B waves on the left, their 16 harmonics as drawbars on the right, and the morph below.
- **Wave:** the wave sounding now, with **Detune**, **Drift** and **Octave**.
- **Middle row: Wave Env**, **Filter** (three pages) and **Amp**, each with a live graph.
- **Bottom row: LFO / Vibrato**, then the effects: **Fazor**, **Korus**, **Eko** and **Reverb**.

- **Keyboard:** plays Xakt, which helps most in the Standalone app.

The panel scales as a whole: drag the window's corner to make it larger or smaller.

Knobs: drag up and down, or use the mouse wheel. Hold **Shift** while dragging for fine control. Double-click to return a knob to its default. Hover over any control to see its name.

Patches and banks



A **bank** holds 128 patches. Xakt starts with the built-in bank, the original's 128 patches (listed at the end of this guide).

- **Choose a patch:** click the patch name for a list, or step with **<** and **>**.
- **Files...** (or the bank name):
  - **Built-in bank** goes back to the factory patches.
  - **Load bank (.fxb)...** reads a bank saved by the original Xakt or by this one.
  - **Save bank (.fxb)...** writes the bank, including your changes to the current patch, in the original's format.
  - **Load patch...** and **Save patch...** read and write a single patch as an `.xaktpatch` file.
- **In a project:** your bank, patch and edits are saved with your DAW project, along with which panel you were using.
- **Level trims.** Each factory patch has a level trim, measured so that stepping through the bank stays at an even loudness. It stays in place while you edit the patch. The randomiser sets its own patches' levels the same way.

Edits and patch changes. Choosing another patch loads it fresh, so edits you haven't saved are lost. To keep an edit, save the patch or the bank. The randomiser is the exception: its results are kept in the current slot (see **The randomiser**).

Banks and the original. The original Xakt doesn't have Detune, Drift or the line filters. Banks saved here keep those settings in an extra block that the original ignores, so a bank opens in both, and the original plays it without them.

Harmonics, waves and the morph



Every Xakt sound is made of 16 harmonics: the note itself (harmonic 1) and 15 overtones above it, each a pure sine at a whole multiple of the note's frequency. Each harmonic has two levels, from 0 to 10:

- **A (red):** the spectrum at the full Wave Env.
- **B (green):** the spectrum at rest.

As the morph moves from B to A, each harmonic glides from its B level to its A level. With a Wave Env that rises and falls, a note opens from the B tone into the A tone and back.

The wave pads

The two pads on the left show the A and B waves.

- **Draw a wave** by dragging across a pad. Your stroke shows in white while you draw, and the 16 drawbars for that layer move to match. When you let go, the pad settles to the wave Xakt will play.
- **Why it changes shape.** Xakt keeps only the first 16 harmonics of what you draw, and only how loud each one is. Fine detail is smoothed away. Some shapes, such as saws and triangles, come back looking different from your drawing but sounding close to it.
- **Double-click a pad** to clear that layer.

The drawbars

- **Only one layer is active at a time.** Click or draw on a wave pad to choose its layer. Its pad gets a coloured outline and its bars light up, while the other layer's bars dim and ignore the mouse.
- **Drag across the bars** to set the active layer's harmonics, and its wave pad redraws as you go.
- **Double-click a bar** to clear that harmonic.
- **The white tick** on each pair is the level sounding now, at the current morph.

Copying

- **A > B** copies the A spectrum onto B, and **B > A** copies B onto A.
- **Swap A / B** exchanges them.

The morph

The strip below the drawbars shows how far the playing note has moved from **B** (left) toward **A** (right). The Wave Env and the LFO's **To Wave** both move it. With nothing playing, it rests at B.

Wave



- **Scope:** the wave sounding now, at the current morph.
- **Detune** (0 to 50 cents) runs the oscillator as two copies, one flat and one sharp. A few cents gives a slow beat that makes a sound feel alive. Around 7 to 15 cents gives a lush chorus, and more gets wide and sour.
- **Drift** (0 to 10) makes each copy's pitch wander slowly on its own and starts each note slightly off, like an ageing analogue oscillator. It works with Detune at 0 too, as a gentle movement.
- **Copies** shows where the playing note's two copies sit, in cents either side of the note. It moves as Drift wanders. With Detune and Drift both at 0 it says "one oscillator", and the voice is exactly the original's.
- **Octave:** −2, −1, 0 or +1 octaves.

When Detune spreads the copies, Xakt raises the level a little to make up for it, so the patch's loudness stays the same.

Wave Env, Filter and Amp



Each envelope has **Attack**, **Decay**, **Sustain** and **Release**, from 0 to 10. Times rise steeply toward the top of the range, up to about 5 seconds. Each graph shows the envelope's shape, scaled by its amount.

Wave Env

The Wave Env moves the morph from B toward A. **Amount** sets how far it goes: at 10, it reaches A at the top of the envelope. Two classic uses:

- **A bright strike.** Fast attack, medium decay, low sustain, A brighter than B: each note starts bright and settles into a darker tone.
- **A slow bloom.** Slow attack and high sustain: the tone opens gradually while the note is held.

Filter

The Filter card has three pages. Click **Main**, **Line A** or **Line B** at its top right.

Main is the original Xakt's filter, after A and B have merged:

- **C1** is the cutoff of the low pass you hear, and **Res** its resonance.
- **Filter Env** (**Att**, **Dec**, **Sus**, **Rel** and **Env**, the amount) moves C1 up from where you set it.
- **Shift 1** and **Shift 2** add two soft-distorted copies of the low pass. **C2** (a high pass) and **C3** (a band pass) decide how hard each copy is driven, so they colour the distortion rather than filter the sound directly.
- **The graph:** the low pass you hear (solid), where the Filter Env takes it (faint), and the C2 and C3 filters (dashed).



Line A and **Line B** each hold a resonant filter on one line, before the morph merges them:

- **Type: Off**, **Low** (low pass), **Band** (band pass), **High** (high pass) or **Peak**.
- **Peak** keeps the whole line and boosts a resonant band at the cutoff, up to about 15 dB. It's the way to bring out a particular group of harmonics.
- **Cutoff** (in Hz) and **Res**. At Res 0, Peak is flat.
- **The graph:** the line filter's response, over the main low pass it feeds (faint).

Because the line filters come before the morph, the Wave Env moves the sound between two differently filtered spectra. For example, A can have a resonant peak that fades in as the note opens. Both line filters are Off in the factory patches.

Amp

The amp envelope, and **Volume**, the patch's level.

LFO / Vibrato



Xakt has one LFO and one vibrato, shared by all the voices.

- **Wave: Sine**, **Saw** (falling), **Ramp** (rising), **Tri**, **Pulse**, **Noise** (white noise) or **S&H** (sample and hold, a new random level held for each LFO cycle).
- **Rate:** the LFO's speed, from very slow (a cycle every minute or so) up into audio rates.
- **To Wave:** how far the LFO moves the morph.
- **To Filter:** how far the LFO moves C1.
- **Delay:** after each new note, holds the LFO and vibrato off for up to 3 seconds.
- **Vib Rate** and **Vibrato:** the vibrato's speed (about 0.9 to 7 Hz) and depth.

Effects

The effects work on all the voices together, in this order:

- **Fazor:** a four-stage phaser. **Rate** is the sweep speed, **Freq** its centre, **Width** how far apart the stages sit, and **Mix** how much is added to the dry sound.
- **Korus:** a chorus made of six small pitch shifters. **Shift** sets how far they move the pitch, and **Mix** the blend.
- **Eko:** a delay of up to 1 second. **Delay** is the time, **Repeat** the feedback (negative values invert each repeat), and **Mix** the blend.
- **Reverb: Size**, **Width** (stereo spread), **Damp** (darker tails) and **Mix**. Mix at its lowest turns the reverb off.

The keyboard

The keyboard along the bottom plays Xakt from C2 to C7. It sounds the same as notes from your MIDI keyboard or DAW, and it's most useful in the Standalone app.

Xakt plays up to 6 notes at once, with 3 more voices kept for release tails. Pitch bend covers ±12 semitones.

The randomiser

Random... makes new patches. **Vary** nudges the one you have. Each result goes into the current patch slot, replacing what was there. To keep a result, save the patch or the bank. It's also kept with your project.

How it works:

- **Settings come from the factory patches.** Each section (Wave Env, filter, amp, LFO, effects) is taken from a factory patch with the same kind of sound, then kept within ranges that suit it.
- **The harmonics are tailored to Xakt.** The A and B spectra come from a factory patch, or are built from additive shapes: saw, square, soft, organ drawbars, formants, bells and hollow odd-harmonic tones. They're given a relationship first, so the morph has something to do:
  - a bright A that settles to a darker B;
  - a formant peak that moves;
  - two contrasting spectra;

    - or a subtle shimmer.
- **It listens to every result offline.** It rejects anything silent, unstable or off centre, or brighter than the brightest factory patches of that kind. Then it sets Volume so the level matches the factory patches.

The **Random...** menu:

- **New patch:**
    - **Any** picks a character at random.
    - **Pad**, **Keys**, **Bell**, **Bass** and **Lead** do what they say.
    - **Morph** makes slowly evolving sounds that travel through the morph.
    - The result gets a name such as "Velvet Orbit" or "Pale Chime".
- **Crossbreed two factory patches.** Takes each section from one of two random factory patches. It's named after both parents, for example "Phase x VocalLike".
- **New part only.** Replaces just **Harmonics A**, **Harmonics B**, both, **Wave Env**, **Filter**, **Amp**, **LFO / Vibrato**, **Effects**, or **Detune, Drift and line filters**, and keeps the rest.
- **Vary this patch: Subtle, Medium** or **Strong.** Nudges most settings. It leaves the octave and the list choices alone, so the patch stays recognisably itself. The **Vary** button is the same as Medium.
- **Original features only.** Leaves Detune, Drift, the line filters and Sample & Hold off, so new patches play the same in the original Xakt.
- **Undo random.** Steps back to what you had before, up to 30 steps.

The randomiser is on the modern panel only.

The original panel



Original panel at the modern panel's top right switches to the original Crush panel, and **Modern panel** in its patch bar switches back. Both panels edit the same settings, and Xakt remembers your choice in the project.

- **The wave controller:** each harmonic has a pair of faders, red for A and green for B. The 8th and 9th pairs are swapped on the panel, as they were in the original: the 8th pair drives harmonic 9 and the 9th drives harmonic 8. The modern panel shows them in order.
- **Faders and knobs:** drag up and down. Hold Shift for fine control. Double-click to reset.
- **Octave:** click or drag along the slot above the oscilloscope.

- **LFO wave:** click to step through the five shown. Right-click for the full list, including Noise and Sample & Hold.
- **Patch bar: <** and **>** step through the patches, the name opens the list, and **Load Bank**, **Save Bank**, **Load Patch** and **Save Patch** work as on the modern panel.
- **New features:** the original panel has no controls for Detune, Drift or the line filters. They keep whatever you set on the modern panel.

Sound design tips

- **Start from the morph.** Set B to a soft, dark spectrum (harmonic 1 strong, a few low harmonics) and A to a bright one. Give the Wave Env a fast attack and a medium decay with Amount at 8 or more. Each note now has a bright strike that settles.
- **Draw, then refine.** Sketch a wave on a pad to get close, then tidy individual harmonics on the drawbars.
- **Organ tones:** use only harmonics 1, 2, 3, 4, 6 and 8 (the drawbar footages), with the Wave Env Amount at 0.
- **Bells:** a strong harmonic 1 with a few high, isolated harmonics on A, a Wave Env with a fast attack and no sustain, and a long amp release.
- **Vowels and formants:** build a bump of harmonics around one point on B and around another point on A, so the morph slides the bump. A Peak line filter on one line sharpens it.
- **Warmth:** Detune 3 to 6 cents with Drift 2 to 3 turns a static tone into a living one. For a wide pad, try Detune 10 to 15 with Korus.
- **Movement without envelopes:** set the LFO's **To Wave** to 4 or more at a slow rate, so the tone keeps drifting between A and B while the note is held. S&H at a medium rate gives stepped, random tone changes.
- **The Shift distortions:** raise Shift 1 or Shift 2 a little at a time, and move C2 or C3 to change which part of the sound they bite on.

Control reference

Ranges are in the plugin's own units, which follow the original (mostly 0 to 10).

Harmonics and wave

Section	Control	Range	What it does
Harmonics	Harmonic 1 A to Harmonic 16 A	0–10	Each harmonic's level at the full morph (A)
Harmonics	Harmonic 1 B to Harmonic 16 B	0–10	Each harmonic's level at rest (B)
Wave	Detune (new)	0–50 cents	Spacing of the oscillator's two copies
Wave	Drift (new)	0–10	How far each copy's pitch wanders, and how far off each note starts
Wave	Octave	4 steps	–2, –1, 0 or +1 octaves

Envelopes and filter

Section	Control	Range	What it does
Wave Env	Att, Dec, Sus, Rel	0–10 (Att from –1)	The morph envelope's shape

Section	Control	Range	What it does
Wave Env	Amount	0–10	How far the envelope moves the morph toward A
Filter, Main	C1	0–10	Low pass cutoff (5 is about 440 Hz, each step an octave)
Filter, Main	Res	0–9.8	Low pass resonance
Filter, Main	C2, Shift 1	0–10	High pass that drives distortion 1, and how much of it is added
Filter, Main	C3, Shift 2	0–10	Band pass that drives distortion 2, and how much of it is added
Filter, Main	Att, Dec, Sus, Rel, Env	0–10	The filter envelope, and how far it raises C1
Filter, Line A and B (new)	Type	5 steps	Off, Low, Band, High or Peak
Filter, Line A and B (new)	Cutoff	about 14 Hz–14 kHz	The line filter's frequency
Filter, Line A and B (new)	Res	0–10	Resonance; for Peak, also the boost
Amp	Att, Dec, Sus, Rel	0–10 (Att from −1)	The amp envelope
Amp	Volume	0–10	The patch's level

Modulation and effects

Section	Control	Range	What it does
LFO	Wave	7 steps	Sine, Saw, Ramp, Tri, Pulse, Noise, S&H
LFO	Rate	−10 to 5	LFO speed (volts: 5 is 440 Hz, each step down halves it)
LFO	To Wave, To Filter	0–10	LFO depth to the morph and to C1
LFO	Delay	0–30	Holds the LFO and vibrato off after each note, 0.1 s per step
Vibrato	Vib Rate	−4 to −1	About 0.9 to 7 Hz
Vibrato	Vibrato	0–0.04	Vibrato depth
Fazor	Rate, Freq, Width, Mix	various	Phaser speed, centre, stage spacing and blend
Korus	Shift, Mix	0–0.1, 0–10	Pitch-shift amount and blend
Eko	Delay, Repeat, Mix	0–1, −10 to 10, 0–5	Delay time (up to 1 s), feedback and blend
Reverb	Size, Width, Damp	0–10	Room size, stereo width and damping
Reverb	Mix	−5 to 0	Reverb level; −5 is off

Xakt 2026 and the original Xakt

- **The same:** the 74 original settings, their ranges and the 128 patches. Original `.fxb` banks load as they are, and banks saved here open in the original.
- **New:**
  - the modern panel, with drawable waves, live graphs and a keyboard;
  - Detune and Drift;
  - the line filters;

- the randomiser.

- **Changed:**
  - The LFO's Pink Noise is now Sample & Hold. No factory patch used it.
  - The sound engine is new. It follows the original's design closely but was rebuilt from scratch, so some patches may sound slightly different.
  - The effects run once on all the voices together, rather than once per voice.
  - Each factory patch has a level trim, so stepping through the bank stays at an even loudness.

Factory patches

No.	Name	No.	Name	No.	Name	No.	Name
1	AstroFloot	33	Blow it	65	PD Low Dark PPG H	97	SuchASquare
2	Biosphere Bells	34	FanFare	66	PD Tangerine PPG H	98	WarmShiver
3	Blade Runner	35	Impakt	67	PD Wire Wave H	99	Berlin
4	Brilliant keys	36	IsThisYourPad	68	SY Ants on Saturn H	100	TheMadness
5	Desert Star	37	MoveMe	69	SY Broken Lab H	101	DefaultSine
6	Disto Duck	38	Strident Lead	70	SY Dirty Crystal H	102	DefaultSoftSaw
7	Eko Xylo	39	TackyBell	71	SY Nastylab Pluck H	103	DefaultNearlysaw
8	Fall of Meteorits	40	ATM Mattalic Space H	72	SY Newt Cave H	104	DefaultSoftSquare
9	Half TalkBox	41	ATM Satelite Probe H	73	SY Pluck in Orbit H	105	DefaultNoisySaw
10	Hesitations	42	ATM Spaceship Robot H	74	SY Pluck in Space H	106	DefaultNoisySquare
11	Ideal for Sequences	43	ATM Synlab in 1960s	75	SY Sputnik Keys H	107	DefaultReed
12	Long Mono-Notes 2	44	BA Ampdark H	76	FireSide	108	DefaultNonFilterSweep
13	Long Mono-Notes	45	BA Dark DX H	77	Channel4	109	StartingPoint
14	Micro Harpsichord	46	BA Deep and Dark H	78	CryingOutForTouch	110	StartingPoint
15	My Precious Dream	47	BA Lion Growl H	79	SlowWaw	111	StartingPoint
16	My silent Life	48	BA Low Sustain H	80	Marlow	112	StartingPoint
17	Petit Lead for Friends	49	BA Woody H	81	StayDumb	113	StartingPoint
18	Pigs on the Wing	50	KB Analogic Plastic H	82	PluckingSustain	114	StartingPoint
19	Quiet Moments	51	KB Chamber Clavispace H	83	Chuiuaua	115	StartingPoint
20	SequoMonster	52	KB Dark Room EP H	84	Gutter	116	StartingPoint
21	Short Stories	53	KB Harpsichordix H	85	BD-LD	117	StartingPoint
22	Slow Butterflies	54	KB Light Totem H	86	Plucking EL	118	StartingPoint
23	Subtle Underground	55	KB Memory Tunnel H	87	VocalLike	119	StartingPoint
24	Sweet Mad Vibes	56	KB Phase Organ H	88	EverythingGoingOn	120	StartingPoint
25	The Prophecy	57	KB Vintage Wave H	89	Plonk	121	StartingPoint
26	The Strangled Giant	58	LD Morning Dew H	90	BigDog	122	StartingPoint
27	Thunder Delay	59	LD Tender H	91	SpaceSonar	123	StartingPoint
28	Toy Home	60	PD Ambient Chain H	92	Warmth	124	StartingPoint
29	V Angel 15	61	PD Dissolution Plains	93	SummerBells	125	StartingPoint
30	Where is China ?	62	PD High Voices H	94	SpaceSerenade	126	StartingPoint
31	Why Emergency ?	63	PD Icelandic Night H	95	DaytimeTV	127	StartingPoint

No.	Name	No.	Name	No.	Name	No.	Name
32	Wooden Drops	64	PD Lonemars H	96	FillErUp	128	StartingPoint