CROWNFIRE User Manual

Key-Locked Resonant Filter · Sequoia Synthesizers Co · version 0.1.0 (draft for review)

Tip: hover over any control in CROWNFIRE and the help bar at the bottom of the window explains it in one sentence. This manual goes deeper.

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1. Welcome

A giant sequoia lives through fires, storms and droughts, and every year leaves a ring. CROWNFIRE is a filter built on that story. Its resonance **sings in your song's key**, its drive is thick like bark, the sound itself (or another track) can move it like a storm, and each copy has its own tiny calibration differences, like two pieces of old lab gear that never sound quite the same.

What makes it different:

- **HEAT**: the resonance rings only on notes of your key. CROWNFIRE listens to your sound and finds the key itself (AUTO), or you pick it.
- **GROWTH RINGS**: the filter drawn as a tree's cross-section. You see what passes, the peak, and the notes HEAT is ringing on.
- **HEIGHT** with five **PATHS**: LOW-PASS, BAND-PASS, HIGH-PASS, ROOT TO CROWN (high-pass to band to low-pass on one knob) and VOICE (the filter talks: I, E, A, O, U).
- **CIRCUIT**: seven filter characters, from CROWNFIRE's own SEQUOIA to a fat transistor LADDER, a clean CASCADE, a squelchy DIODE, a smooth STATE, a gritty RAW and a tearing SCREAM.
- **STORM**: drum-fast envelope follower that follows the hits, not the loudness, so it works the same on quiet and hot tracks. Every hit opens (or closes) the filter. MIDI notes fire it too.
- **GRAFT**: another track, sent to CROWNFIRE's sidechain, moves the filter and helps HEAT find the key.
- **RINGS**: movement that comes in busy bursts and long calms, never a robotic wobble.
- **AGE**: tube warmth, transformer weight, a soft noise floor, slow drift and an optional mains hum, like old lab equipment. Its switch turns it fully OFF.

- **SEED**: your copy's own calibration, saved with your song. Type any number to hear another copy; 0 is the neutral reference.
- **100 factory presets**, THE SEQUOIA MODULATION SET (3 envelopes, 3 LFOs, 4 macros, velocity, mod wheel, pressure, key, random) and a MIDI MAP.

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2. Installing

CROWNFIRE comes as **VST3**, **AU** (Mac only) and **CLAP**, for macOS 10.15 or later (Apple Silicon and Intel) and Windows. It is an audio effect: put it on any track, bus or send.

Mac

1. Unzip the download and open **Terminal** (Applications → Utilities → Terminal).
2. Type `bash` followed by a space.
3. Drag **Install CROWNFIRE.command** from the folder into the Terminal window and press **Return**.

Format	Copy to (manual install)
CROWNFIRE.vst3	`~/Library/Audio/Plug-Ins/VST3/`
CROWNFIRE.component (AU)	`~/Library/Audio/Plug-Ins/Components/`
CROWNFIRE.clap	`~/Library/Audio/Plug-Ins/CLAP/`

Windows

Right-click **Install CROWNFIRE (Windows).bat** and choose **Run as administrator**, or copy `CROWNFIRE.vst3` to `C:\Program Files\Common Files\VST3\` and `CROWNFIRE.clap` to `C:\Program Files\Common Files\CLAP\`.

After installing

Rescan plugins in your music software. CROWNFIRE appears under **Sequoia Synthesizers Co**, in the filter effects.

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3. Quick start

1. **Put CROWNFIRE on a track** with music on it (drums, a synth, a whole loop). At INIT the filter is fully open (MIX starts at 75%).
2. **Turn HEIGHT to the right.** Like every Sequoia knob it starts on the left; turning right brings the filter in. The sound darkens and the bright band in the GROWTH RINGS shrinks toward the middle.
3. **Turn up RES** for a singing edge.
4. **Turn up HEAT.** In the first third it glows; past the middle the resonance rings out **on notes of your key** (the HEAT box shows the key it hears); near the top it chokes, like a crown fire.
5. **Turn up STORM** and every hit opens the filter. Turn it left and hits close it instead.
6. **Add BARK** for thick, warm drive, and **ROOTS** to keep the low end planted.
7. **Try a preset**: click the preset name at the top.

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4. The window

Area	What it does
Gear (top left)	The manual, window size, the welcome screen, your license, About.
< RANDOMIZE >	New settings. Right-click for MILD / MEDIUM / WILD and to lock modules. The arrows step back and forward through rolls. RANDOMIZE never touches KEY, the AGE switch or OUTPUT.
↶ ↷	Undo / redo (Command+Z, Shift+Command+Z; Ctrl+Z, Ctrl+Shift+Z or Ctrl+Y on Windows). REROLL of the SEED is one undo step too.
Preset bar	`<` `>` step through presets; click the name for the preset browser; SAVE keeps your sound with tags.
A / B	Two settings to compare, both saved with your song.
MIDI	The MIDI MAP (section 8).

Area	What it does
HELP	Tips that pop up as you rest the mouse on a control.
Chip row	THE SEQUOIA MODULATION SET (section 7).
Help bar	One plain sentence about whatever the mouse is over. Your license status and SIZE sit on the right.

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5. How the sound flows

`input → BARK (drive) → the filter (HEIGHT, RES, PATH) + HEAT (resonators in key) → ROOTS (clean lows back) → SCAR (hits through) → AGE → MIX → OUTPUT`

STORM, GRAFT, RINGS and THE SEQUOIA MODULATION SET move HEIGHT (and anything else you route them to). The whole filter runs at twice the sample rate, so high resonance and drive stay clean. CROWNFIRE reports a small, fixed delay (about 1 ms) to your music software, which lines everything up automatically.

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6. The modules

HEIGHT and the GROWTH RINGS

Control	What it does
GROWTH RINGS	The filter as a tree's rings: deep notes at the middle (the pith), bright ones at the bark. Sage rings pass, dim rings are cut, the boldest ring is the cutoff, **ember rings are the notes HEAT is ringing on**. The bark glows with STORM. A clip cracks the bark with a small scar; click the rings to clear them. The rings' own shape comes from your SEED, so no two copies draw the same tree. The label row shows where the cutoff is right now.

Control	What it does
HEIGHT	How far the filter comes in. All the way LEFT the filter is wide open and steps fully out of the way; turn RIGHT and it comes down toward the roots: darker on LOW-PASS, thinner on HIGH-PASS, the band moving down on BAND-PASS. The cutoff in Hz shows in the label row.
RES	A peak where the filter cuts: a gentle edge low on the knob, a vocal, singing peak by the middle, a squelch near the top. Very loud peaks are rounded off so they never run away.
PATH	The filter's shape. **LP** (low-pass) keeps the lows. **BP** (band-pass) keeps a band. **HP** (high-pass) keeps the highs, open at the left. **ROOT TO CROWN** travels high-pass, then a band through the trunk, then low-pass as you turn HEIGHT right. **VOICE** makes the filter talk: I, E, A, O, U along HEIGHT, with RES sharpening the vowels. Changing PATH crossfades, so there are no clicks.
CIRCUIT	The filter's character: seven circuits, each modelled on a classic analog filter type. It works with every PATH except VOICE, and changing it crossfades, so there are no clicks.
SEQUOIA	CROWNFIRE's own circuit (the default): clean, smooth and singing, 24 dB.
LADDER	The classic fat 4-pole transistor ladder, 24 dB. Warm and driven; the lows thin out as RES climbs, and at the very top of RES it sings on its own.
CASCADE	A clean, bright 4-pole chip filter, 24 dB. It keeps its bass at any RES and rings without breaking up.
DIODE	The squelchy acid diode ladder, about 18 dB. Rubbery and rude; its resonance skips the lows, so bass lines stay heavy while it squelches.

Control	What it does
STATE	The smooth 2-pole state-variable, 12 dB. Soft, open and musical; it never screams.
RAW	A gritty 2-pole, 12 dB. Pushed hard or with high RES it growls and buzzes, and at the very top it sings on its own.
SCREAM	A 2-pole with diodes in its resonance, 12 dB. Drive it and turn RES up and it screams and tears.

HEAT

Control	What it does
HEAT	Four resonators tuned to notes of the key (a chord: the nearest key note, a fifth up, a fourth down, an octave up) ring on top of the filter, and the cutoff slides onto the nearest key note. They ring in a musical register (about G2 to G5) even with HEIGHT wide open. **GLOW** (low): a soft warmth. **SING** (middle): the resonance opens and rings in key. **CHOKE** (top): the resonators saturate and the rings shorten, a crown fire.
KEY	**AUTO** listens to your sound (and GRAFT's sidechain) and finds the key. It needs a few seconds of music; until then it says LISTENING. Or pick the key yourself. A preset never changes the key you set.
SCALE	Which notes HEAT may ring on. **AUTO** follows the key (major or minor). **MAJOR**, **MINOR**, **PENTATONIC** (five notes) or **TRIAD** (only the three chord notes).
The twelve notes	What CROWNFIRE hears, note by note. The scale's notes are outlined, the key's root most boldly, and the notes HEAT is ringing on glow ember.

BARK

Control	What it does
BARK	Thick, warm, slightly lopsided drive before the filter. The level stays steady as you turn it (on quiet and hot tracks alike), so you hear the colour change, not a volume jump. **THE GRAIN** below shows the drive's curve on a cut of bark grain: your sound rides it as a glowing ember, and the curve burns hotter where it bends over. It also shows ROOTS as a warm band along the bottom and flashes SCAR when a hit punches through. The grain pattern and a very slight tilt come from your SEED.
ROOTS	Adds back clean, centred low end (below about 140 Hz), so the bass stays planted however hard you filter and resonate. It works on every PATH, and is great with HIGH-PASS.
SCAR	Lets the hits punch straight through the filter, a little harder than they came in, so drums keep their attack.

STORM and GRAFT

Control	What it does
STORM	The sound moves the filter, drum fast. It follows the hits (how far each one jumps above the sound's own level), so a loud, hot track works the same as a quiet one. Right: every hit opens the filter. Left: every hit closes it. MIDI notes sent to CROWNFIRE fire it too, at their velocity.
GRAFT	Another track moves the filter. Send it to CROWNFIRE's **sidechain** in your music software; its level moves HEIGHT, and its notes help HEAT find the key. The label row says **SIDECHAIN: HEARD** when it arrives.

RINGS

Control	What it does
RINGS	The filter wanders on its own, up to several octaves: bursts of quick movement, then slower calms.
RATE	How often RINGS moves (0.05 to 8 Hz).

AGE and SEED

Control	What it does
AGE	The sound of old lab gear: tube glow that grows with the knob, transformer weight in the lows, a top end that rolls off like old electronics, a soft noise floor and slow drift of the cutoff and resonance. At 0 it is perfectly clean.
OFF · ON · 50 · 60	The AGE switch. **OFF**: AGE does nothing at all, wherever the knob is. **ON** (the default): AGE works. **50** / **60**: AGE plus a very low mains hum at 50 or 60 Hz.
SEED	Your copy’s calibration: the cutoff, resonance, drive bias, HEAT tuning and drift each a tiny bit different, shown under the number. The first time CROWNFIRE runs on your computer it picks your seed and keeps it; every song keeps the seed it was made with. **Type a number** to hear that copy. **0** is the neutral reference. **REROLL** picks a new seed (UNDO takes it back). Presets never change the seed: it belongs to the copy, not the sound.

OUTPUT

Control	What it does
MIX	Dry (0%) to fully filtered (100%); INIT starts at 75%. The dry sound is lined up exactly with

Control	What it does
	the filtered one, so in-between settings blend cleanly.
OUTPUT	The final level, -24 to +12 dB.
AUTO LEVEL	On at INIT. Keeps CROWNFIRE as loud as the track coming in, however hard you filter, resonate or drive (it moves slowly, up to 12 dB either way). The label row shows what it is adding. Turn it off to hear the raw level.
LIMIT	On at INIT. A safety limiter at the very end: CROWNFIRE never peaks over -0.3 dB, even with a screaming resonance. The label row shows LIMITING when it works.
Meters	IN and OUT levels, -24 to +6 dB.

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7. Modulation: THE SEQUOIA MODULATION SET

The chip row along the bottom holds **ENV 1–3**, **LFO 1–3**, **MACRO 1–4**, **VELO**, **WHEEL**, **PRESS**, **KEY** and **RANDOM**.

- **Drag a chip onto any knob** to make it move that knob. Coloured dots appear round the knob; drag them to set how far. A knob takes up to three modulations.
- **Click a chip** to shape it: ENV and LFO cards open over the chip row. MACROS opens four knobs; MATRIX lists every routing.
- **ENV TRIG** sets what starts an envelope: a MIDI **NOTE**, the beat (**1 BEAT** to **4 BARS**), or **INPUT**, every hit in the sound coming in (even over a held pad). ENV 1 starts on INPUT.
- **Shift + right-click** a knob to remove a modulation. Right-click any knob for *Modulate with*.

VELO, WHEEL, PRESS and KEY follow MIDI sent to CROWNFIRE's track.

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8. MIDI MAP

Click **MIDI** in the header. Pick a SOURCE (mod wheel, aftertouch, any CC, or LEARN and move a controller knob), then **+ ADD** the controls it should move and set each one's **FROM** and **TO**. Right-click any knob → *Map to MIDI* is the shortcut. Mappings are saved with your song, not with presets.

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9. Presets

Click the preset name. Search by name or tag; filter ALL / FACTORY / USER / FAVOURITES; ↑ ↓ plays each preset at once, ENTER keeps it, ESC goes back. **SAVE** names your sound and tags it. 100 factory presets in eight kinds: CLASSIC, KEY LOCKED, VOICE, MOVING, LO-FI, BASS, SIDECHAIN, CINEMATIC. Tags DRUMS, BASS, VOCAL, PAD and SYNTH say what each one suits.

Presets live in `~/Music/Sequoia Synthesizers/CROWNFIRE/Presets` (Mac) or `Documents\Sequoia Synthesizers\CROWNFIRE\Presets` (Windows).

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10. Tips

- **Drums**: PATH HP, HEIGHT a little right, STORM right, SCAR and ROOTS up: hats and snares breathe while the kick stays.
- **Pads**: HEAT in the SING zone, RINGS slow, AGE a little: the pad shimmers on the chord tones.
- **Bass**: BARK and ROOTS together keep the weight while the filter growls.
- **Two tracks talking**: GRAFT a drum bus into a pad's CROWNFIRE.
- **Compare copies**: set SEED to 0, listen, then type your own seed back.

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11. Version notes

0.1.0 (draft): first build. 11-05-2026 update: HEIGHT now starts on the left (wide open) like every knob; new BAND-PASS and HIGH-PASS paths; stronger RES, HEAT, ROOTS, SCAR, RINGS and AGE; STORM follows the hits on any level; BARK keeps the level on hot tracks; new THE GRAIN display; MIX starts at 75%; new AUTO LEVEL and LIMIT switches (both on);

HEAT now rings in a musical register even with HEIGHT open. Not in this version yet: a MIDI CC output for CROWNFIRE's movement (an audio effect can't send MIDI in every format), and drawing your own vowel path.