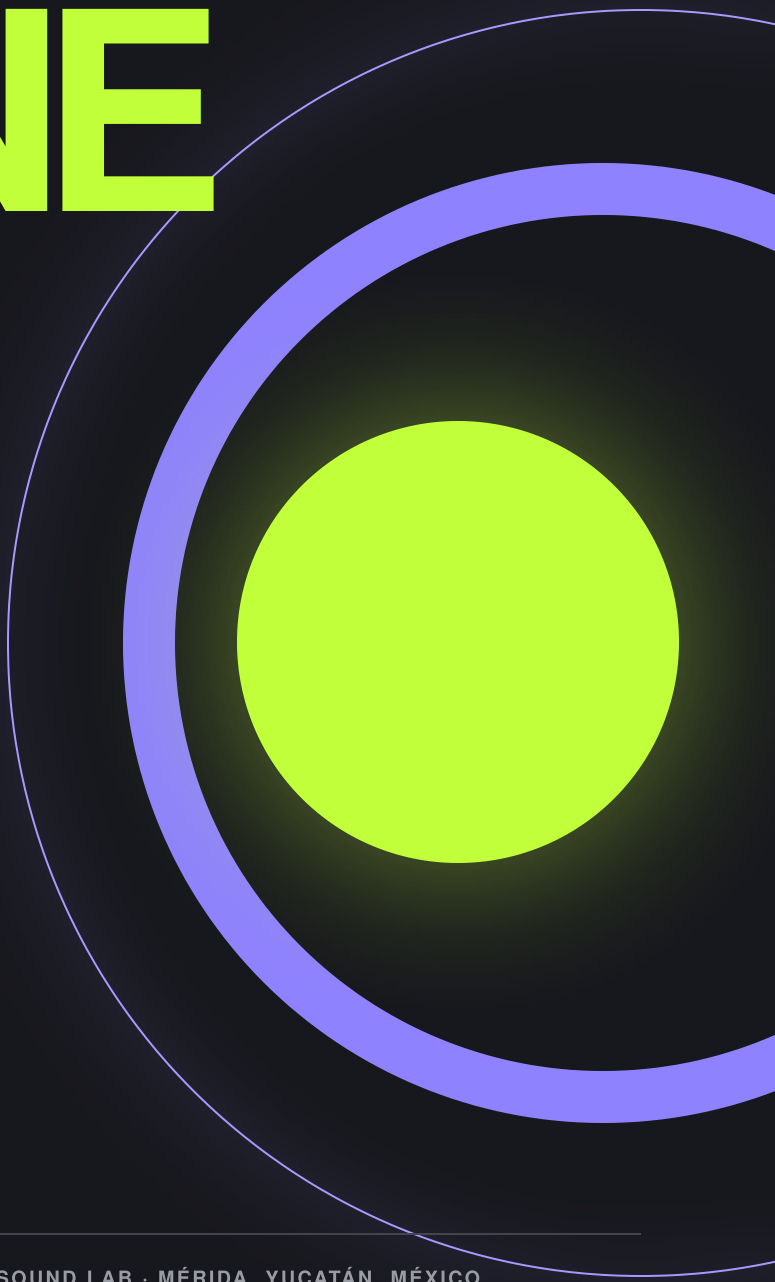
DFD

USER MANUAL · WEB · v1.1

ACID ENGINE

SEQUENCER / SYNTHESIZER / PATTERN LAB /
HARDWARE TWIN



ENGLISH EDITION

DARK FUNK DURCAL DESIGN · DESARROLLADO EN POLARIS SOUND LAB · MÉRIDA, YUCATÁN, MÉXICO
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00 WELCOME

ACID LINES YOU WOULD ACTUALLY USE.

ACID ENGINE is a free, open source acid synthesizer, step sequencer and pattern lab. It writes basslines in eight styles, from classic acid house to braindance, lets you twist them live, and sends them to your DAW or to a Roland TB-3.

WHAT YOU NEED

A computer or phone with **Chrome**, **Edge**, Firefox or Safari, and headphones. For MIDI and the TB-3: Chrome or Edge.

WHERE

drophlex.github.io/DFD-ACID-ENGINE/web
Or the **offline file** from the website: one HTML that runs from your disk.

LANGUAGE

Everything starts in English. **ES** (top right) switches to Spanish and is remembered.

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This manual covers the **web** version 1.0. The VST3 / AU plugin and the FM-1 firmware get their own manuals when they are released.

START IN FIVE MINUTES.

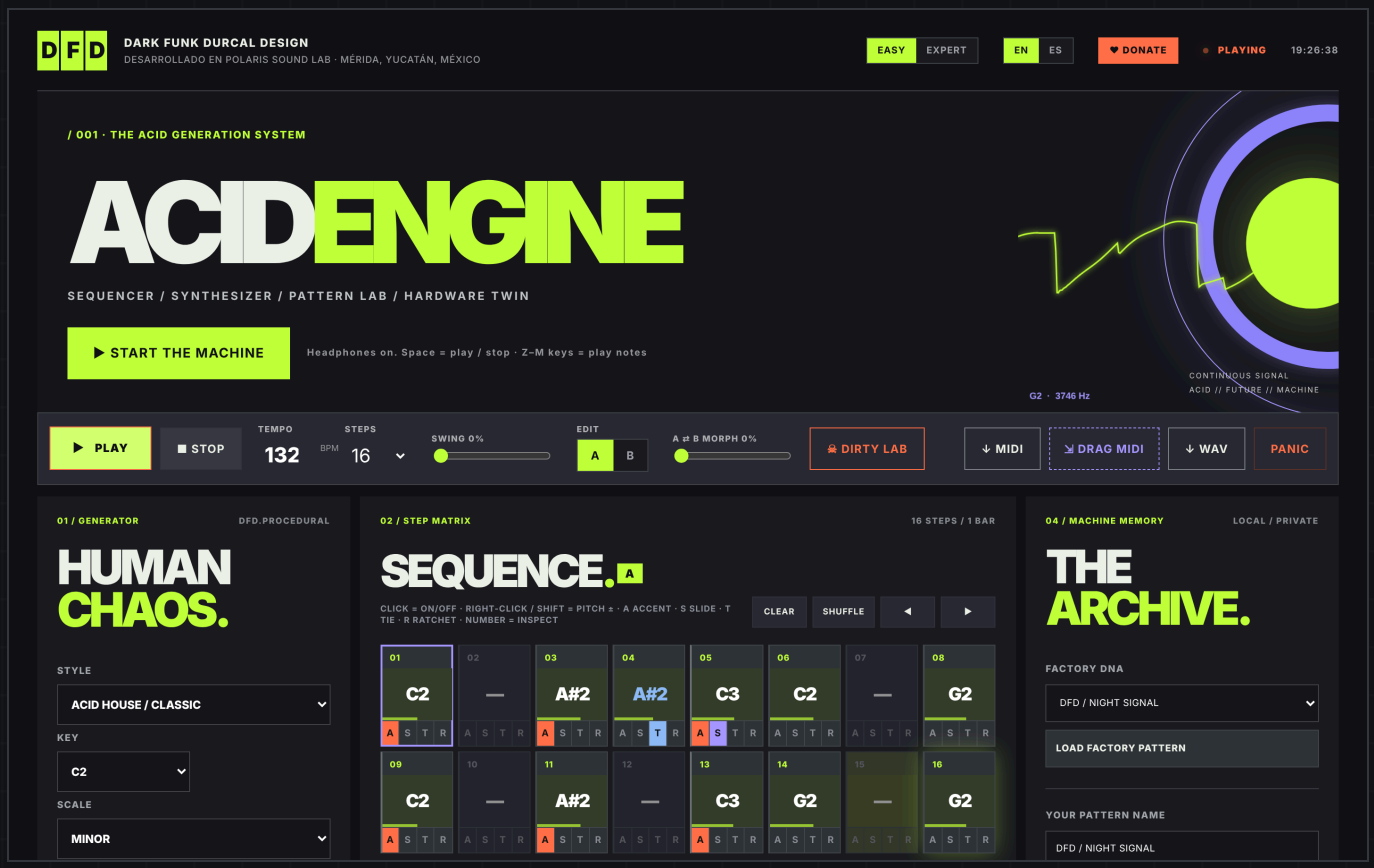


fig. 1 · the machine running. The orbit glows with the level, the line is the live waveform.

01 **Wake it up.** Open the app and press `▶ START THE MACHINE` (or `Space`). Browsers need one click before they make sound.

02 **Pick a style.** In `01 / GENERATOR` choose a `STYLE`, a `KEY` and a `SCALE`, then `↗ GENERATE NEW PATTERN`. Press it until you hear the line you want: each press is a new seed.

03 **Make it squelch.** In `03 / SOUND DESIGN` raise `RESONANCE`, then sweep `CUTOFF` and `ENV MOD`. That is the acid sound. `DRIVE` adds teeth.

04 **Keep what you like.** Tick `DNA LOCK · NOTES` and generate again: the notes stay, the rhythm changes. Lock `RHYTHM` instead to keep the groove and change the melody.

05 **Take it with you.** Drag `↘ DRAG MIDI` into Ableton, or press `↓ MIDI` / `↓ WAV`. `↓ DOWNLOAD PROJECT .JSON` keeps everything to open later.

> **TIP** Two layers: `EASY` shows what you need to make music; `EXPERT` (top right) opens probability, conditions, the step inspector and every parameter.

EIGHT PANELS, ONE MACHINE.

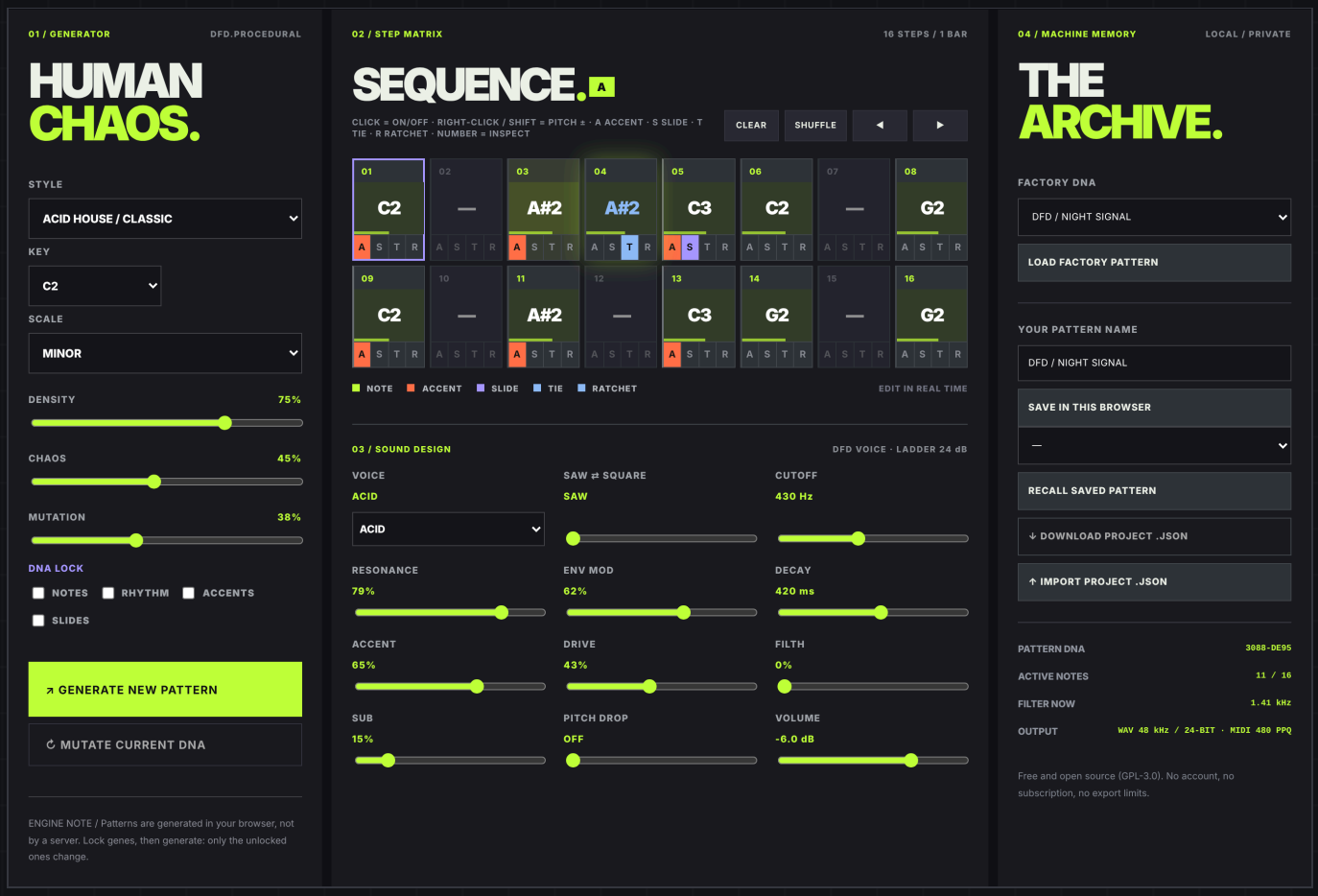


fig. 2 · the EASY layer: generator, step matrix with sound design, and the archive.

PANEL	WHAT IT DOES	PAGE
01 / GENERATOR	writes patterns in 8 styles, mutates them, locks the genes you like	06
02 / STEP MATRIX	the pattern: notes, accents, slides, ties, ratchets, one cell per 16th	07
03 / SOUND DESIGN	the acid voice: oscillator, filter, envelope, accent, drive	09
04 / MACHINE MEMORY	factory patterns, your saved patterns, project files, live readouts	13
☠ DIRTY LAB	filthy electro house in one button: riff families, dirty sounds, six macros	11
06 / FX RACK	eight effects in a chain, all in time with the tempo	10
07 / PERFORM	XY pad, hold pads, transpose and keys for playing live	12
008 / TB-3 TWIN LINK	the bridge to a Roland TB-3 over USB MIDI	15

The **LINK MONITOR** line at the bottom of the TB-3 panel tells you what just happened: every export, connection and error is written there.

03 TOOLBAR

TRANSPORT, TEMPO AND EXITS.

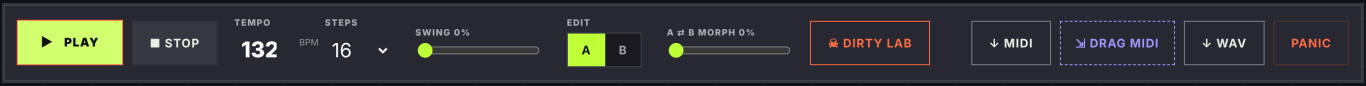


fig. 3 · the toolbar (EASY layer).

CONTROL	WHAT IT DOES
▶ PLAY · ■ STOP	start and stop. Space does the same from anywhere on the page.
TEMPO	30 to 300 BPM. Type a number and press Enter.
STEPS	pattern length: 8, 16, 24, 32, 48, 64, 128 or 256 sixteenths. Longer patterns repeat the existing steps.
SWING	delays every second 16th, up to 75 %. 15–30 % is a classic house shuffle.
EDIT A / B	there are always two patterns. This chooses which one you see and edit.
A ⇄ B MORPH	blends A into B step by step while it plays: at 50 % about half of the steps come from B. Great for slow builds.
QUALITY EXPERT	oversampling: ECO 1× (phones), HQ 2× (default), ULTRA 4× (cleanest highs, more CPU).
↓ MIDI · ⇲ DRAG MIDI	a .mid of exactly what you hear (page 13). Drag the dashed button straight into a DAW.
↓ WAV · ↓ STEMS EXPERT	render audio at 48 kHz / 24-bit, faster than real time.
PANIC	silences every note, in the browser and on the TB-3.

TIP Undo and redo any pattern edit with Ctrl/⌘ + Z and Ctrl/⌘ + Shift + Z.

TEN STYLES THAT GROOVE.

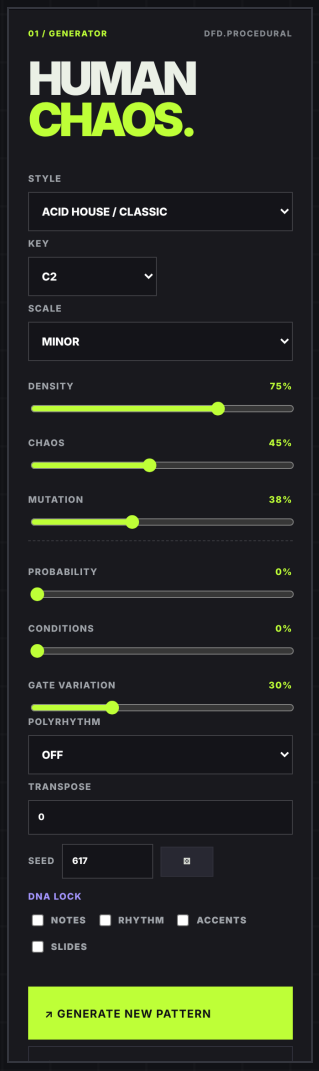


fig. 4 · EXPERT layer.

Picking a style also loads its own sound.

Every pattern is built like a real riff: a short motif on the root of your key, repeated with small changes, with a turnaround at the end of the bar. The generator writes **16 versions** and keeps the most usable one (on the root, singable leaps, a groove that repeats). The same seed always gives the same pattern.

STYLE	BPM	CHARACTER
ACID HOUSE / CLASSIC	120–128	the root note pumping with octave jumps, minor third and seventh; accents on the beat, slides into the high notes
ACID TECHNO / 3-3-2	130–145	sixteen notes per bar, accents in the 3-3-2 pattern, a four-step motif that hypnotizes
FILTER HOUSE / FRENCH	118–126	long notes on the off-beats, octaves and sevenths, ties: made for sweeping the cutoff slowly
BIG BEAT / BREAKS	100–130	a riff with blues notes (4th, flat 5th), strong syncopated accents, a full bar phrase
RAVE / HARDCORE	140–160	minor chords broken into a line, octaves up, lots of slides
BRAINDANCE / DRILL	150–180	fast ratchets, odd intervals, probability: always anchored on the root so it stays musical
ELECTRO / PUNK	125–135	a driving root and octave pulse in short, hard notes
DEEP / HYPNOTIC	118–124	few notes, long gates and ties: space for the filter and the delay
ELECTRO HOUSE / DIRTY	126–130	octave riffs on distorted saw walls, offbeat accents, short notes, pump
BLOGHOUSE / FIDGET	126–132	choppy syncopation, pitch zaps, wider leaps

CONTROL	WHAT IT DOES
KEY SCALE	the root note and the notes allowed. MINOR, PHRYGIAN and DORIAN are the acid classics; CHROMATIC lets the style use any note.
DENSITY CHAOS	how many notes, and how far the line wanders from its motif
MUTATION + ↻ MUTATE	changes the current pattern by that amount, staying in the style
DNA LOCK	NOTES · RHYTHM · ACCENTS · SLIDES: the locked genes survive Generate, Mutate and Shuffle
PROBABILITY CONDITIONS EXPERT	add steps that play only sometimes, or only on certain loops (page 08)
POLYRHYTHM SEED EXPERT	accents every 3, 5 or 7 steps across the bar; type a seed to get a pattern back, the dice button for a new one

05 STEP MATRIX

ONE CELL, ONE SIXTEENTH.



fig. 5 · each cell: step number (click to inspect), the note, the gate bar, and the four switches A S T R.

DO THIS	TO
click the note	turn the step on / off
right-click	one semitone up
Shift + click	one semitone down
mouse wheel	pitch up / down
click the number	select it for the inspector
◀ ▶	rotate the whole pattern one step
CLEAR SHUFFLE	empty it / mutate it hard

SWITCH	MEANS
A **ACCENT**	louder and brighter. Accents close together build up and get wilder, like the classic machines.
S **SLIDE**	glides from the previous note into this one, without a new attack
T **TIE**	holds the previous note through this step (same pitch)
R **RATCHET**	repeats the note 2, 3 or 4 times inside the step (up to 8 in the inspector)

Badges in the corner show ratchets (×3), probability (50 %) and conditions (1:2). The violet border marks every 8 steps; the glowing cell is the playhead.

TIP Everything can be edited while it plays. Patterns A and B have the same length; switch between them with EDIT A / B.

06 STEP INSPECTOR · EXPERT

EVERY DETAIL OF A STEP.



fig. 6 · click a step number, then shape it here.

FIELD	RANGE	WHAT IT DOES
NOTE	C1 – C7	the pitch (turns the step on)
GATE	5 – 100 %	how long the note lasts inside the step. 100 % touches the next one
VELOCITY	1 – 127	how hard; also sent as MIDI velocity. Accents always send 127
PROBABILITY	0 – 100 %	chance that the step plays each time. The dice are fixed by the seed, so exports match what you hear
MICRO	± 50 %	pushes the step early or late, by up to half a step
RATCHET	1 – 8	hits inside the step

CONDITIONS

A condition decides **on which loops** a step plays. They turn a one-bar loop into a phrase that evolves.

CONDITION	PLAYS
ALWAYS	every time (default)
FILL	only while `FILL` is held (pad or key `F`)
!FILL	only when FILL is not held
1ST	only on the first loop after PLAY
!1ST	every loop except the first
A:B	on loop A of every B: 1:2 = odd loops, 2:2 = even loops, 4:4 = the last of every four, 1:8…

THE VOICE: SQUELCH ON DEMAND.



fig. 7 · EXPERT shows the full voice. Double-click any slider to reset it.

PARAMETER	WHAT IT DOES
VOICE	ACID: one oscillator, the classic. DIRTY: a wall of seven detuned saws (DETUNE widens it). FIDGET: two hard-detuned oscillators plus one an octave up
SAW ⇄ SQUARE	blends the two classic waves; PULSE WIDTH shapes the square
FILTH · PITCH DROP	a wavefolder for grind; each note starting up to two octaves high and falling (DROP TIME sets how fast): the electro zap
CUTOFF · RESONANCE	a 4-pole resonant low-pass. Resonance near the top whistles and self-oscillates; the bass is compensated so it does not get thin
ENV MOD · DECAY	how far and how long the envelope opens the filter on each note
ACCENT	how much accented steps jump in volume and filter
SUB · NOISE	a sine one octave down for weight; noise for grit
DRIVE · OVERDRIVE · TONE	drive before the filter (fat), overdrive after it (raw); tone tilts the result darker or brighter
SLIDE TIME · AMP DECAY	glide speed between slid notes; how the volume fades while a long note is held
VOLUME	output level; a soft limiter never lets it clip

NINE EFFECTS, IN TIME.

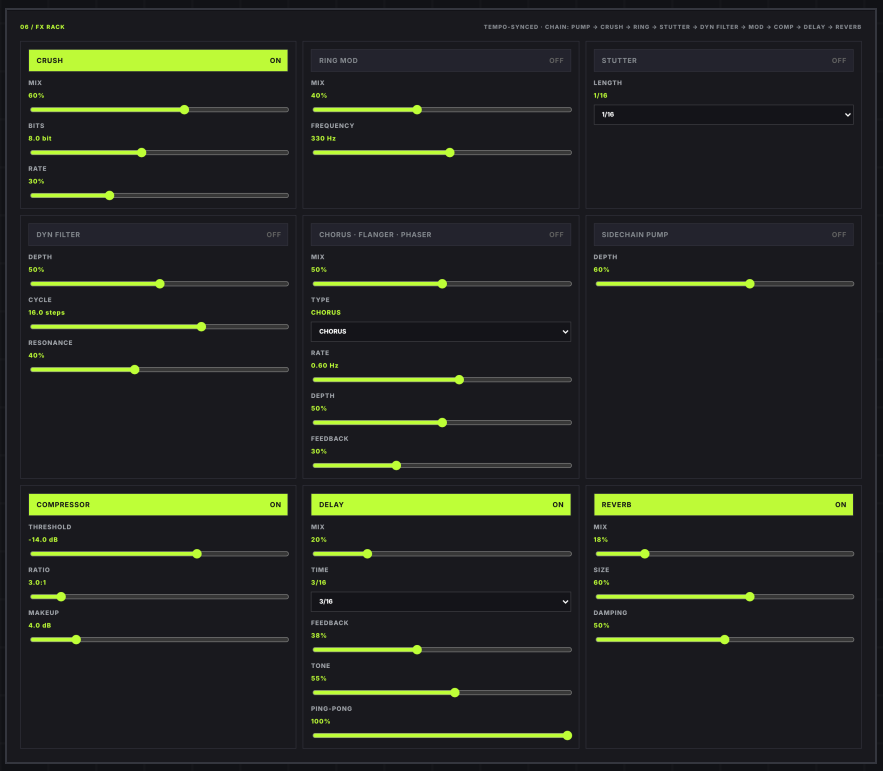


fig. 8 · click a title to switch the effect on (lime) or off. EASY shows the main knob of each; EXPERT shows all.

EFFECT	CONTROLS	USE IT FOR
CRUSH	mix · bits · rate	lo-fi grit, broken digital edges
RING MOD	mix · frequency	metallic, bell-like tones
STUTTER	length 1/4 · 1/8 · 1/16 · 1/32	freezes and repeats a slice in time. Best held from the STUTTER pad
DYN FILTER	depth · cycle (steps) · resonance	a second filter that sweeps in time, from 1 to 64 steps
CHORUS · FLANGER · PHASER	mix · type · rate · depth · feedback	width, jet sweeps, swirl
SIDECHAIN PUMP	depth	ducks on every beat and breathes back, locked to the tempo: the electro house pump
COMPRESSOR	threshold · ratio · makeup	on by default: keeps accents punchy and the level even
DELAY	mix · time (1/16 … 1/4D) · feedback · tone · ping-pong	dub echoes. 3/16 is the classic acid delay
REVERB	mix · size · damping	space; keep the mix low on basslines

Order of the chain: pump → crush → ring → stutter → dynamic filter → chorus / flanger / phaser → compressor → delay → reverb.

SPECIAL SECTION

DIRTY LAB.

Filthy electro house in one button: distorted saw walls, octave riffs, zaps and the pump. Press ☠ **DIRTY GENERATE** and it picks a riff family and a dirty sound, writes pattern A and a variation in B, and starts playing.

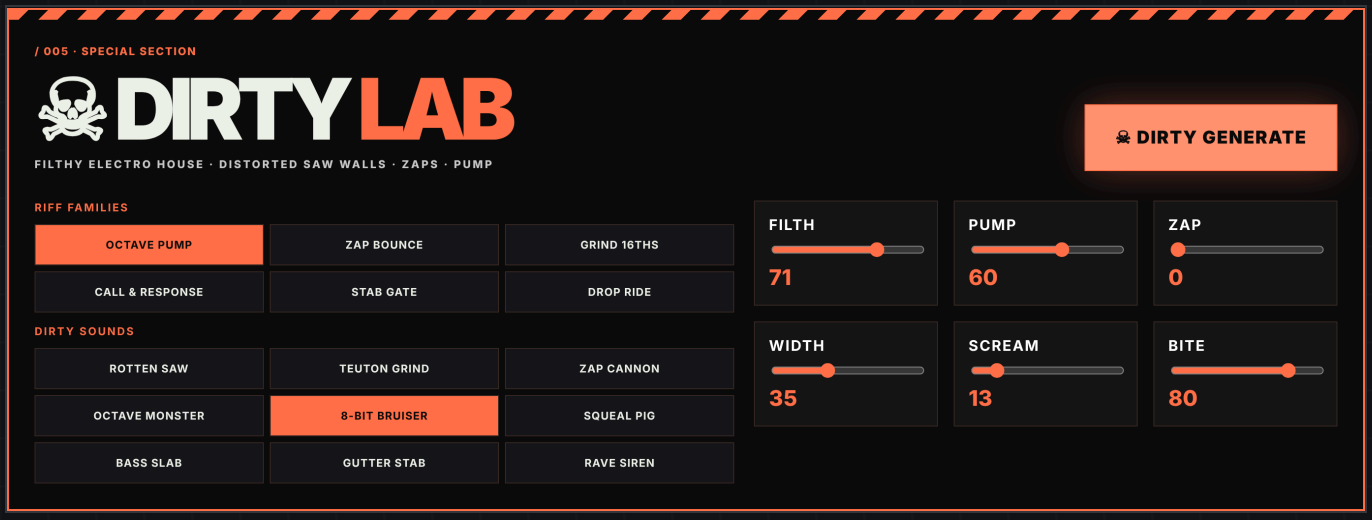


fig. 9 · the DIRTY LAB. The orange button in the toolbar jumps here.

RIFF FAMILY	WHAT IT DOES
OCTAVE PUMP	root and octave on the 16ths, accents on the offbeat
ZAP BOUNCE	sparse, bouncing hits made for the pitch drop
GRIND 16THS	a relentless 16th grind on the root
CALL & RESPONSE	a low phrase answered high, one bar
STAB GATE	short stabs on the offbeats, room for the drums
DROP RIDE	busy, rolling, slides and ratchets for the drop

MACRO	MOVES
FILTH	fold, drive, overdrive, crush
PUMP	the sidechain duck
ZAP	pitch drop and its time
WIDTH	the detune of the saw wall
SCREAM	resonance and env mod
BITE	cutoff

9 dirty sounds: ROTTEN SAW · TEUTON GRIND · ZAP CANNON · OCTAVE MONSTER · 8-BIT BRUISER · SQUEAL PIG · BASS SLAB · GUTTER STAB · RAVE SIREN.

TIP Ride A ⇄ B MORPH on the XY pad: the lab always writes B as a variation of A.

HANDS ON THE MACHINE.

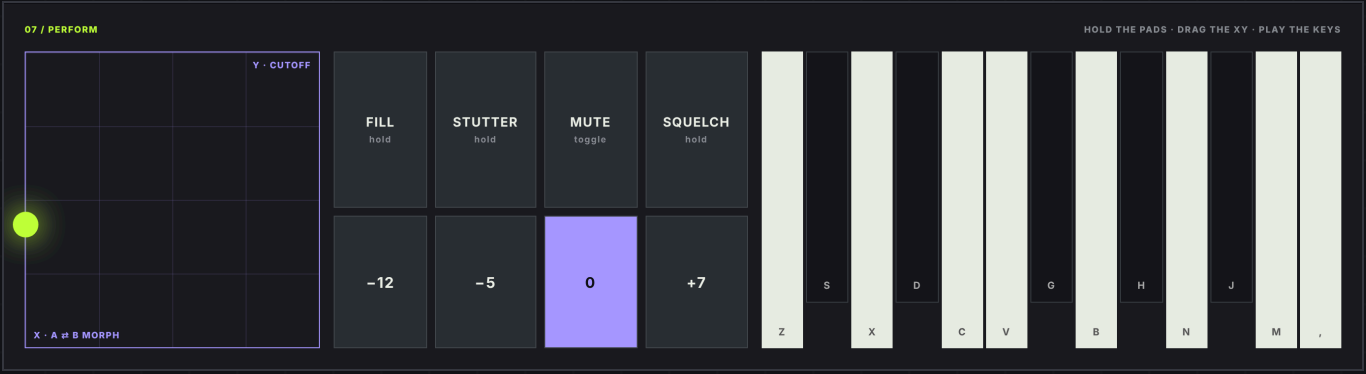
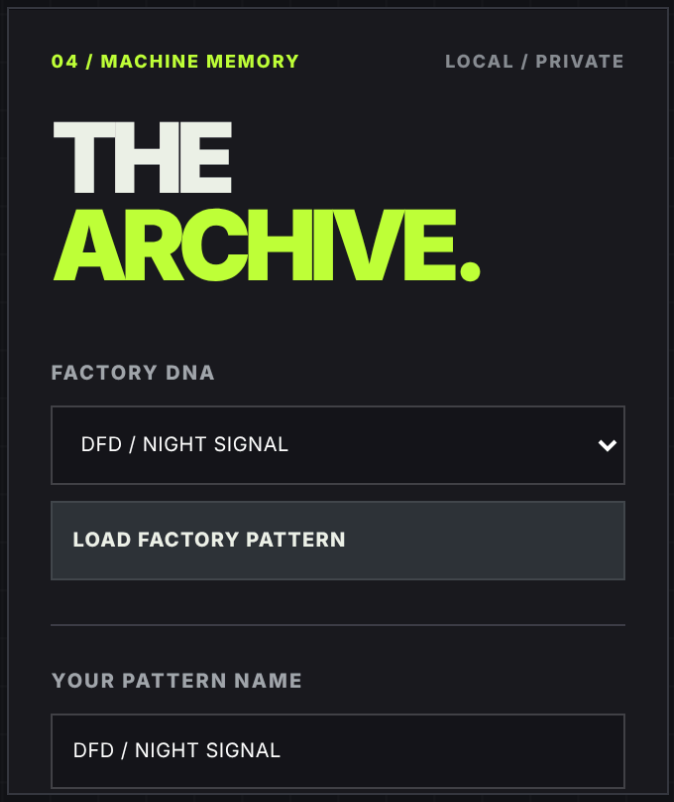


fig. 9 · XY pad, hold pads, transpose and keys. Works with a mouse, a trackpad or fingers.

CONTROL	WHAT IT DOES
XY	left ↔ right = A ⇄ B morph, down ↕ up = cutoff. One finger, two moves.
FILL	hold: plays the FILL steps and skips the !FILL steps. Key F.
STUTTER	hold: repeats the current slice; let go to drop back in
MUTE	toggle: silences the line (and the TB-3) without stopping the clock
SQUELCH	hold: filter open, resonance and env mod to the max. Let go: back to your sound
−12 −5 0 +7	transpose the whole pattern live (also the MIDI and the TB-3)
keys	one octave from the root of your key. Computer keys Z S X D C V G B H N J M ,

> **TIP** A live arc in four moves: start at morph 0 with the filter low, raise the cutoff on the XY, slide right towards B, hold SQUELCH on the last bar before the drop.

KEEP IT. TAKE IT OUT.



BUTTON	WHAT IT DOES
FACTORY DNA	ten original DFD / POLARIS patterns with their own sound and tempo
SAVE IN THIS BROWSER	stores pattern A and B, sound, FX and generator settings under the name you type. Only on this browser and computer
↓ PROJECT .JSON	the same as a file: back it up, share it, open it anywhere with ↑ IMPORT
PATTERN DNA	a fingerprint of the pattern, also used in file names

WHAT YOU HEAR IS WHAT YOU GET

Exports are rendered by the same engine, faster than real time, so probability, conditions, ratchets, swing, micro-timing and the A ⇄ B morph come out exactly as they play.

EXPORT	YOU GET
↓ MIDI	a .mid (480 PPQ) of about 64 steps, with tempo. Slides are legato notes plus CC 102; accents are velocity 127 plus CC 103
⇲ DRAG MIDI	the same file, dragged straight onto a DAW track or the desktop (Chrome / Edge)
↓ WAV	about 8 bars plus the effect tail, 48 kHz / 24-bit stereo
↓ STEMS	three aligned WAVs: SYNTH DRY, FX (wet only) and FULL, for mixing in your DAW

FROM THE BROWSER TO THE SET.

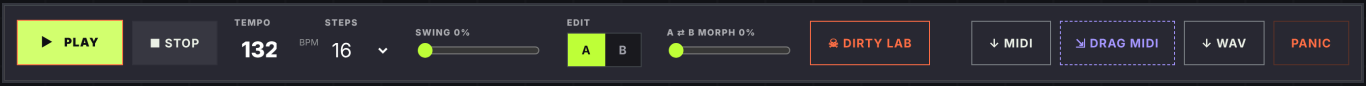


fig. 11 · ⇲ DRAG MIDI is the dashed violet button.

A · DRAG THE LINE IN

01 Set Live and ACID ENGINE to the same tempo.

02 Drag ⇲ DRAG MIDI onto an empty MIDI track: it becomes a clip. (Safari / Firefox: press ↓ MIDI and drag the file from your Downloads.)

03 Put any bass synth on the track, or route it to your TB-3 (below). Accents are velocity 127: map velocity to filter in your synth for the full effect.

B · BRING THE AUDIO IN

01 ↓ WAV for the full sound, or ↓ STEMS to process the dry synth and the effects on separate tracks.

02 Drop the WAV into an audio track. It starts exactly on the bar, so Warp it with **Beats** mode at the tempo you exported.

C · PLAY A TB-3 FROM LIVE WITH ACID ENGINE PATTERNS

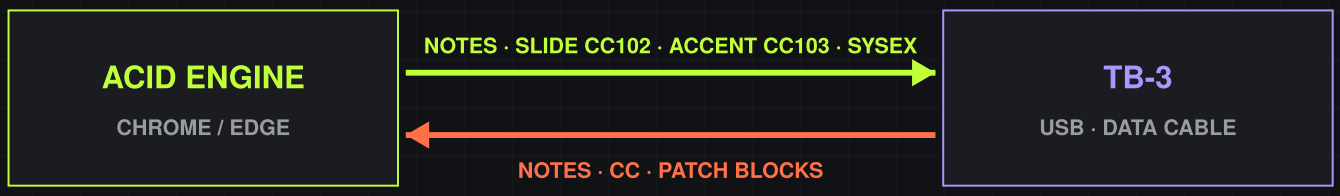
01 Connect the TB-3 by USB. In Live: Preferences › Link, Tempo & MIDI › turn on **Track** for the TB-3 output.

02 On the MIDI track with the dragged clip: MIDI To → TB-3, channel 1. Live sends the notes, legato slides and CC 102 / 103.

03 Record the TB-3 sound through your audio interface (or the TB-3 USB audio, if your setup supports it).

> **TIP** Use Live OR the browser to drive the TB-3 at one time, not both: two senders on the same channel double the notes.

ONE PATTERN, TWO MACHINES.



01 TB-3 to the computer with a USB **data** cable (a charge-only cable shows nothing). Open the app in **Chrome** or **Edge**.

02 CONNECT USB MIDI → allow MIDI. Allow SysEx too if you want the Sound Lab (read / backup / restore).

03 Choose the TWIN LINK mode and the TB-3 MIDI channel (1 by default).

MODE	WHAT HAPPENS
OFF · SAFE	nothing is sent to the TB-3. Default.
VIRTUAL	the TB-3 plays the web synth: its notes trigger the browser voice and its cutoff / resonance knobs (CC 74 / 71) move the browser filter
HARDWARE	the sequencer plays only the TB-3; the browser stays silent
TWIN	both at once, in time: notes are scheduled to land when the browser audio is heard

SHADOW CAPTURE

● START RECORDING, play a pattern on the TB-3, then ■ STOP + QUANTIZE: the notes land on the 16ths of the pattern you are editing (strong velocities become accents). Then mutate it and send it back in TWIN.

SOUND LAB / SYSEX

Reads the four documented blocks of the **active** patch (patch, distortion, EFX 1, EFX 2), saves them as a .json backup and restores them. FX type and parameter writes ask before they go out.

> SAFETY Restore always asks first, then reads the current sound and downloads it as a safety backup, and only then writes, and only to the active (edit) patch, never to a saved user slot. Only the official TB-3 MIDI implementation is used. No TB-3? Tick DEMO to try everything with a simulated one.

13 TROUBLESHOOTING

IF SOMETHING GOES QUIET.

PROBLEM	TRY THIS
No sound	press PLAY once more (browsers need a click), raise the system volume, check that TWIN LINK is not on HARDWARE and MUTE is off, check VOLUME.
Clicks or crackles	QUALITY → ECO 1×, close other tabs, plug the laptop in. On phones ECO is recommended.
Silent on iPhone	turn off the silent switch; Safari plays web audio through the ringer channel.
CONNECT USB MIDI does nothing	use Chrome or Edge on https or localhost, allow MIDI in the address bar, quit other apps using the TB-3 port, try another cable (data, not charge-only).
TB-3 plays double notes	only one sender at a time: the browser OR the DAW. Check the MIDI channel.
Read patch gives nothing	SysEx must be allowed: reload, press CONNECT again and accept SysEx.
Shadow Capture is empty	the TB-3 must transmit MIDI notes on the channel you chose; check its MIDI settings.
DRAG MIDI does nothing	dragging files out works in Chrome / Edge. Elsewhere press ↓ MIDI and drag the downloaded file.
My saved patterns are gone	browser storage is per browser and is erased with site data. Keep a ↓ PROJECT .JSON of anything important.
The page looks old after an update	reload with Ctrl/⌘ + Shift + R.

Still stuck? Open an issue at github.com/drophlex/DFD-ACID-ENGINE/issues with the line from the LINK MONITOR.

FOUR STARTING POINTS.

CLASSIC 303-STYLE HOUSE LINE

1. STYLE ACID HOUSE, KEY A1, MINOR, 124 BPM
2. RESONANCE 80 %, ENV MOD 60 %, DECAY 400 ms
3. DELAY on, time 3/16, mix 20 %
4. Sweep CUTOFF slowly over 16 bars

PEAK-TIME TECHNO

1. STYLE ACID TECHNO, 138 BPM, PHRYGIAN
2. DRIVE 60 %, OVERDRIVE 30 %, COMPRESSOR ratio 6
3. Copy A → B, mutate B 40 %
4. Ride the XY from A to B; SQUELCH before the drop

FILTER HOUSE PUMP

1. STYLE FILTER HOUSE, 122 BPM, DORIAN, SWING 20 %
2. SAW ⇄ SQUARE halfway, SUB 40 %
3. DYN FILTER on, cycle 16 steps, depth 60 %
4. Lock RHYTHM, generate new notes per section

BRAINDANCE SCRIBBLE

1. STYLE BRAINDANCE, 168 BPM, CHROMATIC, CHAOS 70 %
2. EXPERT: PROBABILITY 40 %, CONDITIONS 40 %
3. CRUSH on, bits 6; RING MOD mix 20 %
4. Hold STUTTER on the last beat of each 4 bars

TIP Every recipe is a start, not a rule: generate a few seeds in each style and lock the genes you like.

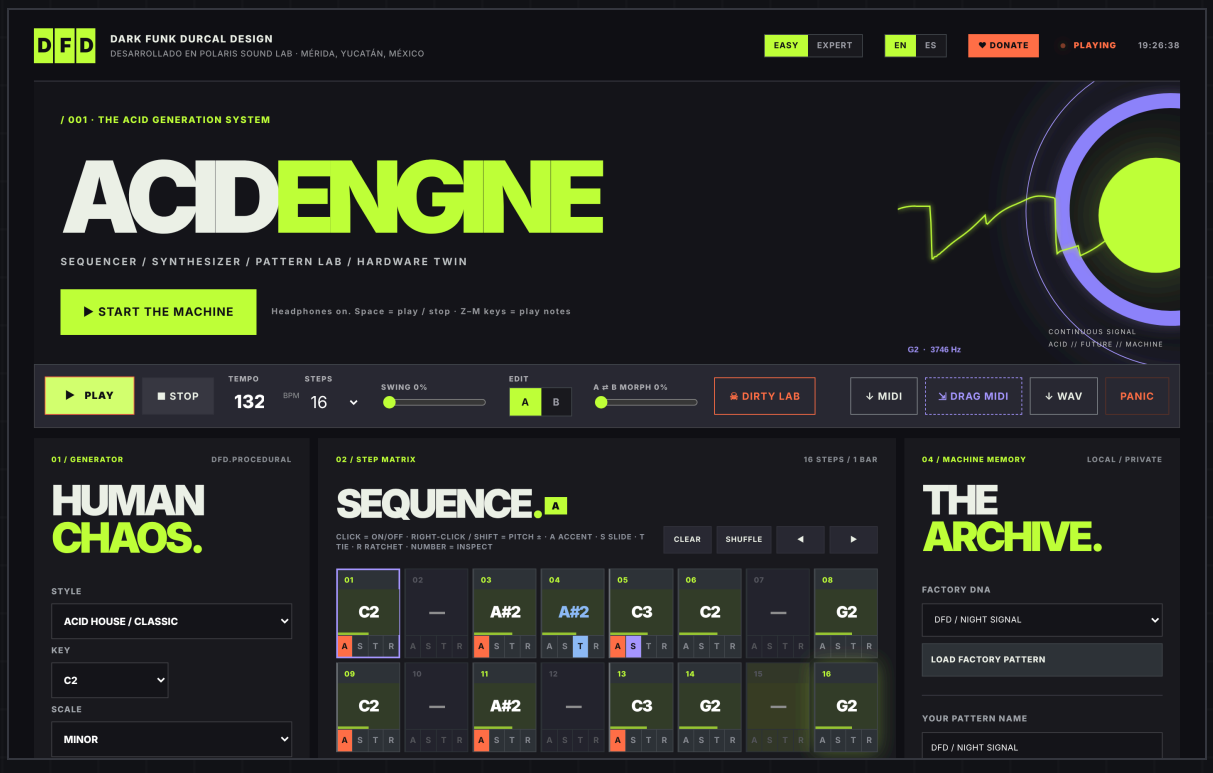


fig. 12 · DFD / NIGHT SIGNAL, the first factory pattern, running.

15 CREDITS

FREE, OPEN, MADE IN MÉRIDA.

ACID ENGINE is free software under the GNU GPL-3.0: use it, study it, change it and share it. The engine, the generator, the factory patterns and this manual are original work.

PART	DETAIL
Engine	one C++17 file (engine/dfd_acid.h) compiled to WebAssembly, running in an AudioWorklet
Source code	github.com/drophlex/DFD-ACID-ENGINE
Website	drophlex.github.io/DFD-ACID-ENGINE
Coming next	VST3 / AU plugin for Mac and Windows, and an M-VAVE FM-1 firmware, each with its own manual

D F D

ACID ENGINE

DARK FUNK DURCAL DESIGN · DESARROLLADO EN POLARIS SOUND LAB · MÉRIDA, YUCATÁN, MÉXICO

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