

CircuitStomp

A drum & bass machine built from synthesised robot voices

User guide & Reaper workflow

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dredarkroom.github.io/darklabs/circuitstomp/

Quick start

CircuitStomp runs in a web browser. There is nothing to install, no account and no tracking. Every sound is generated live by the browser's audio engine (the Web Audio API): there are no samples inside it.

1. Open the page and click **boot the robot**. Browsers block sound until you interact once.
2. Press **Run** (or Space). Pattern A is a two-step drum & bass loop at 174 BPM.
3. Tap squares in the grid to add or change hits. Each tap cycles full, medium, soft, off.
4. Hit the eight robot units with keys **A S D F G H J K**, or tap the pads.
5. Try **Robot brain -> Generate** for a new pattern, and **Mutate** to vary it.
6. Open **Export -> Reaper pack** to get stems, MIDI and a ready-made Reaper project.

Your work saves automatically in this browser. Use **Save & share** to move it to another device.

The page, top to bottom

Area	What it does
Transport	Run/stop, record, tempo (BPM), tap tempo, swing and a click track.
Pattern	Eight one-bar patterns A-H, copy/paste/clear, song mode chain, Robot brain generator.
Sequencer	16 steps x 8 units. Paint modes: velocity, pitch lock, chance.
Robot units	Eight playable pads. Tap a name to select it for editing.
Robot keys	The selected unit played chromatically, like a keyboard.
Unit editor	Shape the selected unit: gain, pitch, decay, tone, grit, robotize, pan, sends, choke group, mute/solo. Load your own recording.
Master	Filter, reverb, delay (dotted 1/8), volume, glue limiter.
Drawers	Export, MIDI, Learn (11 lessons), Watch (promo), Guide, Save & share, Keys.

The eight robot units

#	Unit	Sound	Tip
1	KICK	Sine sweep with a servo-tick transient	Pitch -2 to -5 for a deeper kick. Keep reverb near zero.
2	SNARE	Triangle body plus band-passed noise	Grit + short decay = metallic crack.
3	HAT	Six clashing square waves, high-passed (808 method)	Choke group 1 by default; use chance paint for movement.
4	SERVO	Saw sweeping up and down through a resonant filter	Great for fills and pickups.
5	CLANK	Inharmonic metal partials plus a noise ping	Pan it wide; send to reverb.
6	BITZAP	Stepped square-wave dive	Delay send makes it echo in time.
7	VOXBOT	Formant-filtered saw: a robot syllable	Pitch-lock steps to make it 'talk'.
8	NEURO	Reese bass: two detuned saws + sub sine, tuned to A	Use pitch lock to write basslines.

Unit editor controls

Control	What it does
Gain	Level of this unit.
Pitch	Semitones, -24 to +24. 12 semitones = one octave.
Decay	How long the sound lasts. For recordings it shortens playback.
Tone	Low-pass filter. Lower = darker.
Grit	Distortion. The top of the range adds bit reduction for a lo-fi edge.
Robotize	Ring modulator: multiplies the sound by a tone for the classic sci-fi robot effect.
Pan	Left/right position.
Reverb / delay send	How much of this unit goes into the shared reverb and tempo-synced delay.
Choke group	Units in the same group cut each other off (hats, bass).
Start / End / Reverse	Shown only when a recording is loaded: trim and reverse it.
Mute / Solo	Mute silences a unit; solo plays only the soloed units.

Load your own sound: select a unit, press **Load recording** (or drag a file onto its pad). WAV and MP3 are safest; files over 20 MB are refused. Robotize and Grit reset to zero so you hear it clean first. **Use synth** puts the robot voice back.

Sequencing and song mode

Paint modes

Mode	Tap a step to...
velocity	cycle full -> medium -> soft -> off. Right-click clears.
pitch lock	give that single step its own pitch (set with the slider). The number shows on the step. Tap again to clear.
chance	make the step fire only some of the time (5-95%). A striped bar shows on the step.

Chance steps are rolled fresh every time the loop plays live. When you export, they are rolled once, so the mix, the stems and the MIDI always match each other.

Robot brain

Generate writes a new pattern into the current slot in the chosen style: two-step, jungle/amen-style, halftime, neuro roller or glitch chaos. **Mutate** changes a few steps but keeps the kick and snare backbone. Copy a pattern, paste it into the next slot and mutate it to build variations quickly.

Song mode

Type a chain of letters, such as `A A A B A A A C`. Each letter is one bar. Tick **Song mode** and Run plays the chain; the grid follows along. Exports use the chain too, and the Reaper project gets a marker at every pattern change.

Recording live

Press **Rec** (R) and play pads, keys or a MIDI kit over the loop. Hits are quantised to the nearest step and written into whichever pattern is playing. Turn on **Click** for a metronome.

Keyboard shortcuts

Key	Action
Space	run / stop
R	record on / off
T	tap tempo
1-8	select pattern A-H
A S D F G H J K	hit units 1-8
Keys mode on	A W S E D F T G Y H U J K O L P ; ' play the selected unit chromatically; Z / X change octave

MIDI in and out

MIDI works in Chrome, Edge and Firefox on computers and Android. **Safari (Mac and iPhone) has no Web MIDI at all**; the rest of CircuitStomp works there, just not MIDI. Open the MIDI drawer and press **Enable MIDI**, then allow the permission prompt.

Note maps

Unit	General MIDI kit (default): plays from / sends	Darkroom Labs 36-43
KICK	36, 35 / 36	36
SNARE	38, 40, 37 / 38	37
HAT	42, 44, 46 / 42	38
SERVO	43, 41, 45 (floor toms) / 43	39
CLANK	51, 59, 53 (ride) / 51	40
BITZAP	49, 57, 52, 55 (crashes) / 49	41
VOXBOT	48, 47, 50 (mid/high toms) / 48	42
NEURO	39, 54, 56 / 39	43

The General MIDI map means an electronic drum kit plays the robots straight away. Darkroom Labs 36-43 matches MonkeyBeat, so the two can share controllers and MIDI files.

MIDI out

- Pick an **Output**. Drum units go out on the drum channel (default 10) using the chosen map.
- **NEURO** always goes out on **channel 2** as real notes (A1 = note 33 plus pitch and pitch locks), so it can play a synth in your DAW.
- **Send clock + start/stop** sends 24 pulses per quarter note, so a DAW or hardware can follow CircuitStomp's tempo.
- To reach a DAW on the same computer you need a virtual MIDI port. Windows: install loopMIDI and create a port. Mac: enable the IAC Driver in Audio MIDI Setup.

Latency

Any browser adds a little delay between hitting a pad and hearing it. Wired headphones on a computer keep it tightest; Bluetooth adds a lot. If you record the output into a DAW, nudge the recorded audio earlier to line it up.

Exporting

Button	You get
Reaper pack (.zip)	Every unit that plays as its own stereo WAV stem (all the same length, starting at zero), a reference mix, a type-1 MIDI file, a .RPP Reaper project, manifest.csv and README.txt, all in one folder.
Mix (.wav)	The full mix through the master filter and limiter.
MIDI (.mid)	One named track per unit. Drums on the drum channel, NEURO on channel 2.
Unit one-shot (.wav)	The selected unit's single hit, dry, trimmed.
One-shot kit (.zip)	All eight units as dry one-shots, plus manifest.csv.

Export settings

- **Filenames** follow `prefix_type_source_vNN.wav`, lowercase letters and digits only. The version number never changes by itself: raise it before re-exporting so nothing is overwritten.
- **Sample rate / bit depth**: 48 kHz 24-bit suits video and game engines; 44.1 kHz 16-bit suits CD-style masters.
- **Loop repeats** renders the pattern or chain 1, 2 or 4 times.
- **Normalise** sets the mix peak to -1 dBFS. Stems are never normalised individually: they share one gain change so their balance is exactly as you mixed it, and no stem goes above -1 dBFS.
- **Seamless loop** folds reverb and delay tails back onto the start, so the file loops without a click or gap in a DAW or game engine.
- **Stems include their reverb/delay**: on = each stem carries its own sends; off = dry stems for your own effects.

Stems are rendered before the master filter and glue limiter. Summed together they give the mix without the glue.

Recordings you load onto units are exported like any other unit. Only export sounds you have the right to use.

Into Reaper (and other DAWs)

REAPER

1. Press **Export -> Reaper pack** and save the zip.
2. **Unzip the whole thing first** into a permanent folder (for example Documents\Music\CircuitStomp). Opening the .RPP from inside the zip viewer breaks the file links.
3. Double-click the `.RPP` file. REAPER opens with one track per unit, each item at the start, named after the unit.
4. If REAPER says media is missing, choose **Search for media** and point it at the `stems` folder next to the .RPP.
5. Check the tempo reads the BPM shown in README.txt. With Seamless loop on, each item is set to loop: drag its right edge to repeat it.
6. For notes, insert the `.mid` on a new track (Insert -> Media file). Put a drum sampler on the drum track and a synth on the NEURO track (channel 2).
7. Song-mode exports add a marker at every pattern change, so the arrangement is visible at a glance.

The .RPP is a plain-text REAPER project that only references the WAV files, so it is safe to open and edit. It was written to REAPER's documented text format; if an older REAPER version complains, drag the stems in by hand as below.

Ableton Live, FL Studio, Logic, Bitwig, Cubase

1. Unzip the pack.
2. Set the project tempo to the BPM in README.txt.
3. Select every file in `stems` and drag them in together at bar 1, beat 1 (one track each).
4. Turn off any warping or time-stretching on import: the stems are already at the right tempo.
5. Drag in the .mid for the notes.

Game engines (Godot, Unity, Unreal)

Use **Mix (.wav)** with **Seamless loop** on, 48 kHz. In Godot, select the WAV, open the Import tab, set Loop Mode to Forward and reimport.

Troubleshooting

Problem	Fix
No sound at all	Click the boot button once; check the volume knob and your system output. On iPhone, flip the side silent switch off: Safari mutes web audio when it is on.
Timing stutters	Close heavy tabs. CircuitStomp schedules audio ahead on the audio clock, so it survives busy pages better than most, but a struggling device still drops frames.
MIDI button does nothing	Safari has no Web MIDI. Use Chrome, Edge or Firefox. Allow the MIDI permission via the padlock icon.
Can't hear a unit	Check its Mute/Solo, gain, and whether another unit is soloed. Units in the same choke group cut each other off.
Export is silent or empty	The pattern (or chain) has no steps, or every chance step rolled 'no'. Raise chance or add steps.
Download blocked	Some browsers ask before multiple downloads; allow them for this site.
Lost my work	Work lives in this browser's storage. Private/incognito windows forget it on close. Use Save project (.json) as a backup.
Recording won't load	Use WAV or MP3 under 20 MB. Some browsers can't decode every format.

Promo video

The Watch drawer plays a 35-second promo presented by CS-01, rendered live from the same engine. **Record promo to video** saves it as .webm (Chrome, Edge, Firefox). Keep the tab in front while it records. The promo uses your current unit settings, so change the sounds and the promo changes with them.

Privacy

CircuitStomp makes no network requests after the page loads, has no analytics and stores everything in your own browser. Share links carry the beat inside the link itself; no server sees it.

Credits

Part of Darkroom Labs, alongside MeowSynth and MonkeyBeat. Built with the browser's Web Audio API; timing follows Chris Wilson's lookahead scheduling approach ("A Tale of Two Clocks"). MIT licence.