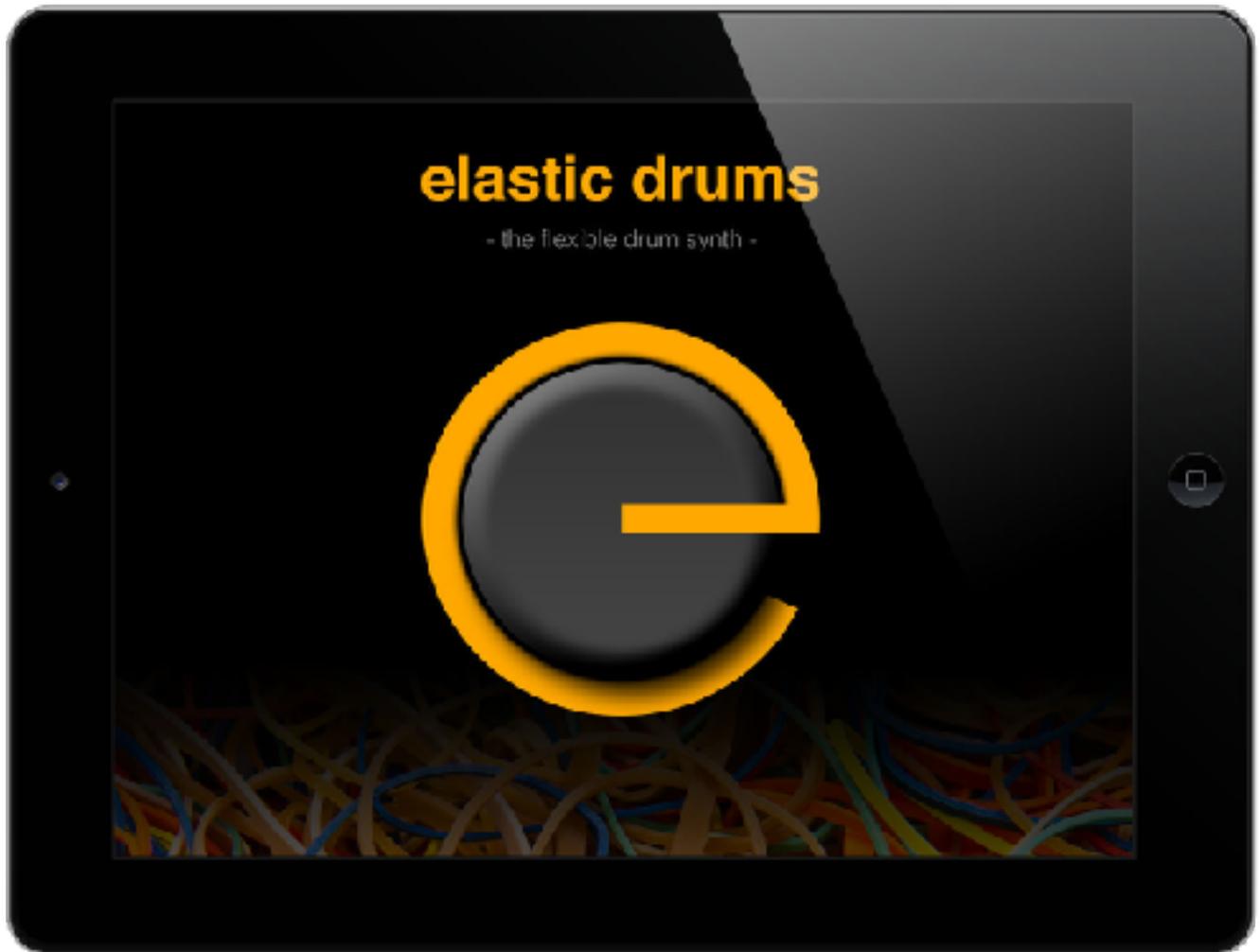


Elastic Drums

User Manual

Version 2.1



Thank you for purchasing Elastic Drums. Like the app, this manual is a work in progress and is being improved all the time. Information is subject to change as we update and add new features!

The Manual is written for the iPhone version, but as all functionality exists in the iPad version too, it should be no problem for you to find all needed informations on an iPad.

Also check the numerous video tutorials I created:

<https://www.youtube.com/playlist?list=PLXLh6yzlaRO15SweRjFzvWJxyWHnrxLEI>

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Main navigation

On iPhone, Elastic Drums navigation is split into top and bottom menus.

Top Menu



These buttons mostly operate the sequencer. From left to right:

- ► **Play/Stop**: Start/stop the Elastic Drums sequencer.
- ◇ **Play mode**: Switches between Pattern (empty diamond) and Song (solid + rotating diamond) mode. Pattern mode loops only the current pattern. Song mode loops the pattern sequence (see **Pattern screen**).
- ○ **Record**: Opens a *Record audio* menu for recording the sequencer or exporting a pattern (see **Recording**).
- **Pattern**: Displays the current pattern. Swipe left/right to switch to the next or previous patterns.
- ⚡ **Options**: Opens a contextual popup that provides additional settings for the current screen.
- ? **Help**: Displays an overlay explaining the features of the current screen.

Bottom Menu



These buttons switch between the various Elastic Drums screens. From left to right:

- **Instrument** screen: Create your percussion sounds, record parameter automation, and arrange the sequencer.
- **Pattern** screen: Arrange your sequenced patterns into a Song (which plays in Song mode).
- **Mixer** screen: A classic mixer screen with individual settings for volume, pan, mute, solo and FX, as well as main volume and tempo. This is called *Arrange* screen on iPad.
- **Effects** screen: Set the values of your effects and record FX automation.
- **File** screen: Load and save Elastic Drums presets and play with dedicated master effects.
- **Jam** screen: For intuitive and fun live jams, where you can trigger your sounds, patterns and different master effects.

iPad

On iPad, sequencer operation and screen navigation are both collected in the top menu.

Instrument screen

The *Instrument* screen displays:



- The sequence of the current pattern.
- The parameters of the current drum part.

- Buttons to affect the current drum part and access the other parts.

On the top-left is the **sequencer grid**. Tapping the grid toggles the steps on and off. By default each active step is filled in. However, the value (y position) of an active step can vary depending on whether you have set a *velocity target* (such as volume, in the above screenshot) for the drum part. See below for more information.

The **synth** menu opens the synthesizer presets window, which lets you select the percussion type, load a sound preset, or save a new preset for the current percussion type. You can also press the “rnd” button to generate a new sound with randomized parameters.

On the right, the buttons numbered 1-6 allow you to switch between your 6 **drum parts**. When a sound is triggered in the sequence, the white indicator on its corresponding button will blink.

The **autom** button, beneath the numbered buttons, activates *automate mode*. When tapped, this button will start blinking to indicate that automate mode is active. You can now record real-time manipulations on the synthesizer parameter knobs. To stop recording automation, tap the autom button again. (Note: If the sequencer is playing in Song mode, you may not see your recorded automation until the song loops again.)

By tapping the **velocity** button and then tapping one of the synthesizer parameter knobs, you can set a velocity target. The velocity target is symbolized by a yellow outline on the

knob, and this parameter will be affected by the velocity (y position) values of the activated steps in the sequencer. **Solo** mutes all drum parts except for the currently visible part. This is not recorded.

Mute will mute the currently active drum part. This information is recorded per pattern, meaning that in Song mode, a drum part could be muted in one pattern and unmuted in another pattern.

Sequencer settings

The **time** knob sets the tempo for the current part as a multiple of the master tempo (set in the *Mixer* screen).

The **len** knob sets the length of the current part (between 1 and 16 steps).

The **delay** knob sets the delay of the current sequencer according to the global time (between 0 and 1 steps).

Mixer settings

Volume and **pan** set the volume and pan of a drum part.

The two FX knobs are used to send a drum part to the FX units (see **Effects screen**). Leaving each knob at 12 o'clock produces a dry signal, where no sound goes to the FX units. Turning the **FX 1 2** knob sends to mono effect 1 (left), and

mono effect 2 (right). Turning **FX 3 4** sends to stereo effect 3 (left) and stereo effect 4 (right).

Note: Due to limited CPU performance on iPhone 4s only one mono and one stereo effect are available on this device.

Synth parameters

parameter	description
pitch	overall pitch of the instrument
tone	EQ: from low-pass and neutral to high-pass
decay	time for initial attack/hit/body of the instrument
release	time for “tail” of the sound

All percussion types have the same four *global synth parameters*. These global parameters can also be affected in the screemaster effects screen via the “param” XY input field (see **File screen**).

On iPhone, tapping the arrow on the upper-right corner of the parameters section will reveal all parameters of the current drum part, as in the picture below.

The following pages describe *synth specific parameters* for each percussion synth.

kick

The pitch of a single oscillator is dropped quickly to provide the classic electronic kick sound.

parameter	description
freq	initial pitch of the drum.
curve	time taken by the pitch curve, from initial to final pitch
square	sinewave to squarewave shaping of the drum synth oscillator
lowpass	a low-pass filter on the drum oscillator, effective <i>before</i> the “overdrive” parameter. This can be used to tame some of the harmonics introduced by increased “square” level
overdrive	distorted gain stage. use a little bit to add oomph to a standard kick, or crank it right up for big, pounding gabber kicks
noise	the colour of the initial noise hit
warble	quite subtle “warbling” of the pitch, to simulate the random fluctuations of true analogue machines
warble spd	

hiHat

Triangle oscillators are modulated to provide the metallic body of the hat, and a pitched noise source is added to simulate the diffused tail sound.

parameter	description
noise A	tone of the noise source. noise 'pitch'.
noise B	tone of the noise source. noise 'randomness'
noise+++	noise source gain
overdrive	overall gain / distortion of the snare drum
body time	length of the snare hit / body
body+++	hit / body section gain
shaper A	non-linear waveshaping distortion
shaper B	

snare

Two detuned oscillators form the "body" of the drum. A pitched noise source forms the snare "rattle" tail section.

parameter	description
body gain	volume of the initial hit / body
body time	diffusion time of the initial hit / body (can be further shaped with the global "decay" parameter, too)
highpass	high-pass filter tone control. (can also be further shaped with the overall tone parameter)
osc_xfade	crossfade between the metallic "pitched" oscillators and the noise oscillator
detune	pitched oscillators detune amount
FM	pitched oscillators frequency modulation amount
noise A	pitched oscillators noise modulation
noise B	noise oscillator tone control

clap

A noise burst oscillator creates short bursts of noise, which are repeated in succession to create the effect of a clap echoing in a room. The noise bursts are then passed through a bandpass filter to simulate the rounded sound of cupped hands as they clap.

parameter	description
echo	time between successive noise bursts
amp_env	decay time on each noise burst. Increasing this time has an effect similar to adding reverb to the sound
tone 2	tone of the noise burst oscillator
tone 3	frequency of the noise burst oscillator
vcf high	filter high frequency
vcf res	filter resonance
vcf env	filter envelope shape
overdrive	how hard you're clapping

square

A fairly simple 2-oscillator synthesizer running through a bandpass filter. Both the pitch of the oscillators and the frequency of the filter are modulated by their own envelopes. A variety of percussive and synth effects are possible.

parameter	description
env1 depth	pitch envelope modulation: 0% = rising pitch 50% = no modulation 100% = falling pitch
env1 time	pitch envelope decay time
detune	detune amount of second oscillator
noise	noise modulation of oscillator pitch
filter	cutoff frequency
overdrive	oscillator distortion (before filter)
env2 depth	filter envelope modulation amount
env2 time	filter envelope decay time

fm

A simple 2-oscillator (carrier + modulator) FM synth, with a waveshaper filter. There is a 2-stage decay + release envelope for the pitch and FM amount. It's good for 'fuzzy' sounds.

parameter	description
FM ratio	carrier to modulator pitch ratio
FM amount	depth of the oscillator modulation
FM env	pitch envelope to FM depth
overdrive	gain distortion of the oscillator
pitch env1	pitch envelope decay (first stage)
pitch env2	pitch envelope release (second stage)
shaper A	non-linear waveshaping distortion
shaper B	

fm4op

a 4-operator FM synth, configured especially for percussive sounds. Good for metallic sounds, but can do a wide range of FM-based percussion.

parameter	description
ratio 1	ratio of oscillator pitches to the master pitch
ratio 2	
ratio 3	
mod 1	modulation depths of each oscillator
mod 2	
mod 3	
env ratio	ratio between the noisy attack envelope section, and the pitched tail section
op 3 <-> 4	crossfade between FM operators 3 and 4. Its effect will depend on your settings for ratios and mod depths

wobble

more of a synth than a percussion effect, this is a simple 2-oscillator affair, with a retriggered LFO to wobble the pitch, and then some overdrive and waveshaping distortion. Best suited for bass sounds.

parameter	description
detune	second oscillator detune
grainsize	the frequency at which new grains are produced
noise	noise to FM amount
overdrive	gain distortion
pitch env	grain pitch envelope time
grain vcf	filter cutoff
vcf env	grain filter envelope shape
vcf res	grain filter resonance

grain

A non-sample-based granular synth. Small segments of sound, each with their own envelope and filter, are played back together to form a type of grain cloud. This is more of an abstract synth; while not particularly useful for emulating traditional instruments, it can make some interesting sounds that fit well in an electronic kit.

parameter	description
detune	detune amount of oscillator 2
overdrive	gain distortion
shaper A	non-linear waveshaping distortion
shaper B	
LFO depth	amount of LFO used to modulate the oscillators pitches
LFO rate	from slow to fast
LFO phase	initial phase offset (reset on every hit)
LFO shape	0 = triangle 1 = square

tom

The pitches of 3 detuned oscillators are dropped quickly by an envelope. The result is mixed and filtered, and then finally sent through a VCA. A click is added to simulate the initial hit.

parameter	description
tom type	floor tom, low tom, mid tom, high tom
click	initial click volume
att pitch	(attack pitch) the initial pitch of the drum before the pitch envelope is triggered
decay1	body section decay time
body depth	ratio of the enveloped attack sound to the resonating body sound
overdrive	how hard the tom is hit
env time	the overall envelope time for the tom (affects pitch and volume)
env depth	the overall envelope depth (affects pitch and volume)

bass

A simple monophonic bass synth. Not particularly modelled on any existing synth, but provides a neat way to get some lower frequencies or even squelchy filtered sounds into your kit.

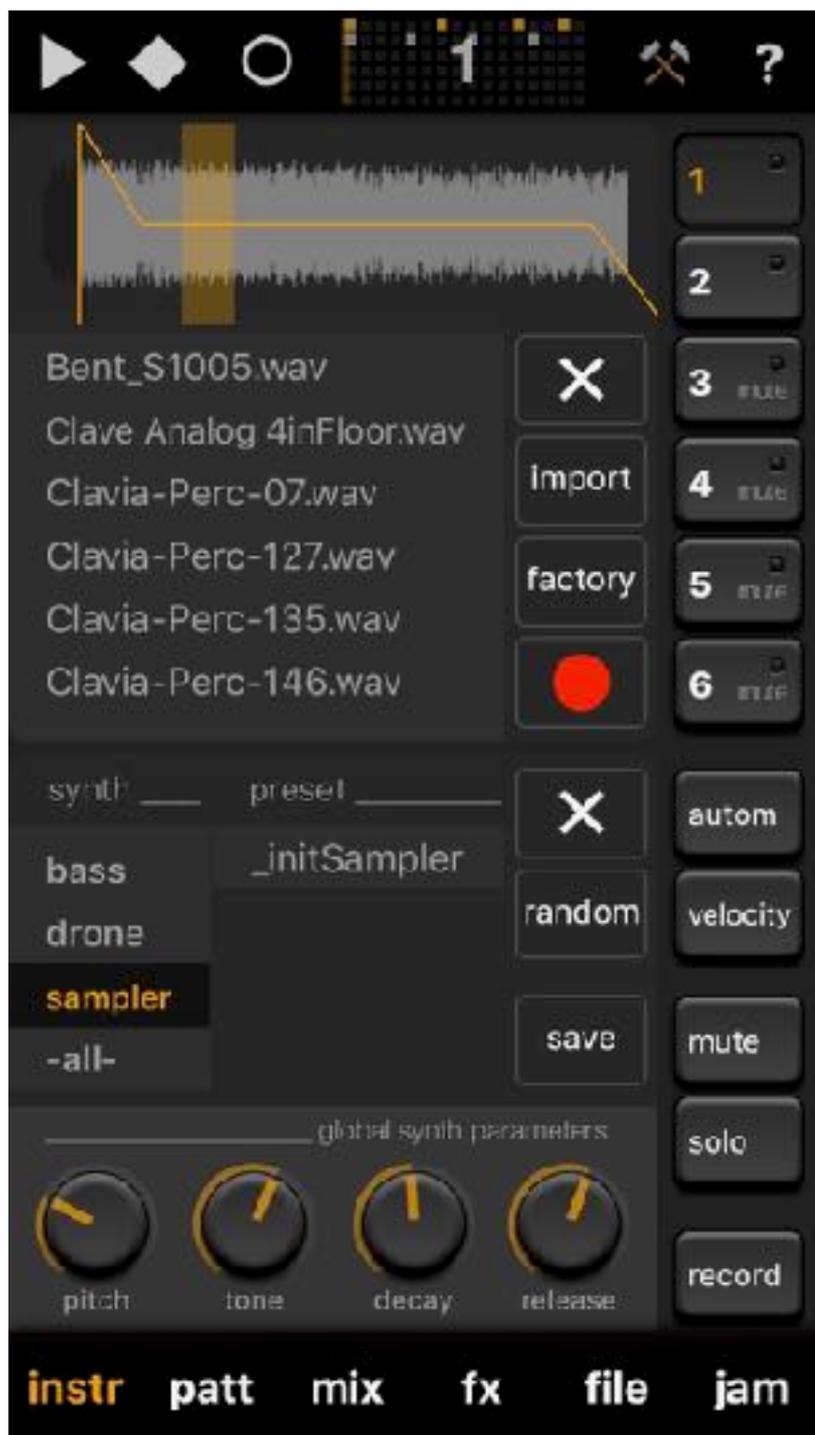
parameter	description
attack	time taken to reach full volume. Also affects the filter cutoff
waveform	Morph between a square wave to a sawtooth
sub osc	Sub-bass oscillator level
detune	Detunes the main oscillator against the sub osc
overdrive	Cranks the volume and then clips it to distort. Grungy
filter mode	Morphs between lowpass, through bandpass, to highpass
filter freq	Filter cutoff frequency
filter res	Filter resonance amount

drone

A 2 x 3-oscillator, dual filter, pad / string / drone synthesizer, generally intended for long atmospheric sounds.

parameter	description
attack	Time taken to reach full volume. Also affects the filter cutoff
noise	Amount of noise added to the frequency input of the oscillators
detune1	Detune for oscillators 1,2,3
detune2	Detune for oscillators 4,5,6
filter freq	Filter cutoff frequency
filter res	Filter resonance amount
filter 2 off	Offset for the frequency of the 2nd filter
pitch 2 off	Offset for pitch of oscillators 4,5,6

sampler (IAP)



When you choose the sampler instrument the sample choose, sample editor window will automatically open. You can not edit the sounds in the „editor“ itself, it only gives you a ‚vague‘ overview how your sample looks like and how you loop settings are, and so on.

To use your own sounds or to record sounds with the built in microphone, you have to purchase the „sample import“ option, by simply clicking on the **import** button.

After you **purchased** the sample import option,

you can get samples into Elastic Drums via:

- **iTunes:** Throw samples via iTunes -> Apps -> ElasticDrums -> Documents into Elastic Drums' documents folder. Even folders should work. Maybe you have to close Elastic Drums and reopen, so see the samples listed

- **ShareAudio:** After you successfully purchase the sample import option, pressing the **import** button will open ShareAudio, where you can import audio files listed in there
- **Email/Cloud drive:** You can email sounds to yourself via email or put them into cloud drive. Then tap the sample and choose Elastic Drums via the „open in“ screen ...
- **Microphone:** After you purchase the import option, the red record/microphone button will get visible and activated. While you hold the button the microphone will record, when you release the button the recording will get stopped. You can yet no further edit the sample (like truncate, normalize), please you other specialized programs for that, like Audioshare, etc.

Hint: I got asked a lot, if you can **use the „sample import“ option on different devices? Sure!** You don't have to buy the sample import option multiple times for different devices. Still there will occur a „buy“ button, not a restore button. But after you click "buy", there is a connection to iTunes, where it will get detected, if you have purchased the import option. If you already purchased it, it will get restored on your device.

sampler synth parameters



The sampler used in Elastic Drums can not only pitch and reverse samples it can also loop certain slices of a sample. As always all parameters can get automatized, so you should be able to create sounds you can not create with other tools very easily.

If you switch presets with the sampler included you might notice some glitches. This is from samples getting loaded for the preset. There is not much we can do about that. The other option would have been to stop the sequencer

while loading, but this would have killed the „flow“.

parameter	description
attack	Time taken to reach full volume
sustain	Volume level when envelope switches from decay to release
offset	How far into the original sample to start playback. ie: zero = start at the beginning of the sample
direction	forwards or reverse
loopStart	Loop start point
loopLen	Time of the looped snippet
loopSmth	Smoothing of the loop wraparound point. Reduces clicks when turned higher
loopUntil	How long to loop for. After this point is reached, the tail of the sample will be played. Also, a value of 0 will deactivate the loop mode

pm1

Physical Modelling Synth #1 (drums)

A burst of noise simulates the hitting of a physical drum body, which is then shaped by a small filter bank and circulating feedback.

parameter	description
stick	how hard the body is hit
stiff	the rigidity of the drum skin. 0 = loose, 1 = tight. A “loose” body creates a wobbly echo effect
bodyLength	the length of the drum body. 0 = tiny, 1 = huge. A “huge” drum will also create an echo effect
damping	“brightness” of the drum body. 0 = metallic, 1 = dull
midFreq	centre resonating frequency of the drum body
low<->mid	0 = bass frequencies boosted, 1 = mid frequencies boosted
highFreq	high resonating frequency of the drum body
highAmt	how much high frequency is resonated

pm2

Physical Modelling Synth #2 (marimba, xylophones, etc).
A larger bank of filters with more dissonant frequencies creates more metallic tones reminiscent of striking wood or metal with a mallet.

parameter	description
freq-A, freq-B	adjusts the frequency spectrum of the filter bank
amp-A, amp-B	adjust the volume of each formant in the filter bank
res	overall resonance of the body. 0 = woody, 1 = ringing, metallic
saturate	output volume boost
delay	echo time
feedback	echo feedback

merz

Chaotic fractal noise generator.

A thick and brooding wall of oscillating noise, which is filtered and shaped into various forms, with feedback. Well worth spending some time to discover its secrets.

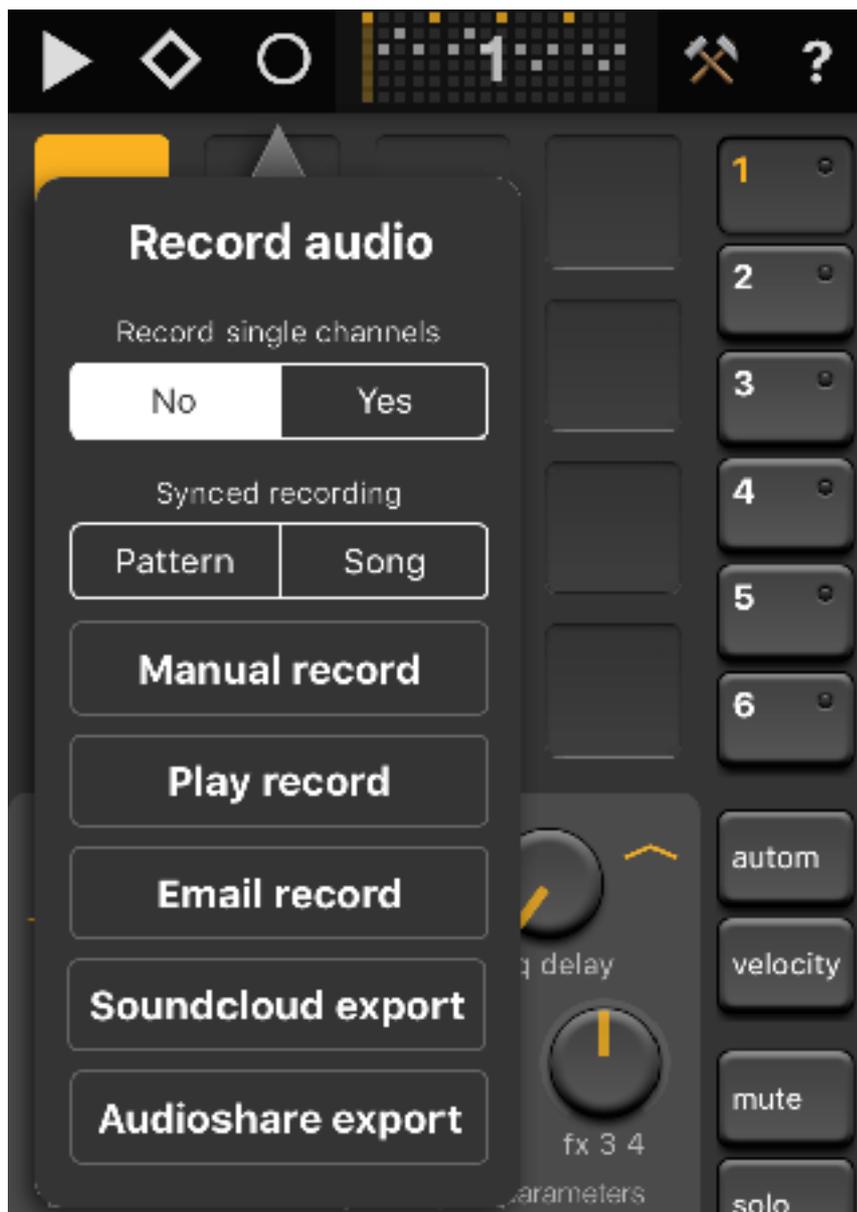
parameter	description
grain	Grainy LFO which goes up into audio range
tweak	Filter frequency multiplier
pump	Filter output booster
sat	Oscillator saturation
LFO	Low frequency modulator of the base oscillators
delay	FM feedback delay time
delayLFO	FM feedback oscillator
fb	FM feedback amount. 0 = clean, 1 = dirty

mod

A repetitive series of pulses are modulated with an LFO, and then cut up using a further “stretch” LFO.

parameter	description
oscFreq	Base frequency of the output oscillator
oscDepth	Multiplier for the oscillator frequency
lfoFreq	Main LFO frequency
lfoDepth	Main LFO depth
stretchA and stretch B	Control the speed and shape of the stretch cutter
timbreA and timberB	Waveshapers for the output oscillator, creating various timbres

Recording



The *Record audio* menu allows you to:

All audio recording is done in realtime. Means you can only record with the sequencer running.

- Activate the option to additionally record all **single channels**: all 6 drum channel will get recorded to mono wav's without effects. You will see these in the apps documents folder available via iTunes

- Record audio **synced**: Will record either the current (next) playing pattern, or the whole Song. In Song recording mode ED will jump to the very last pattern and the start recording, when pattern 1 starts
- Record with a **Manual** start (press the Play button to stop recording)
- **Play** your recording
- **Email** your recording(s)
- Upload your recording to your **Soundcloud** account
- Copy your recording(s) to Kymatica's **AudioShare** app (available separately on the App Store)

Soundcloud upload only works with the stereo recording of the master out. Email and AudioShare will also share the mono recordings of the 6 single channels, if you activated single channel recording.

Options (Instrument screen)



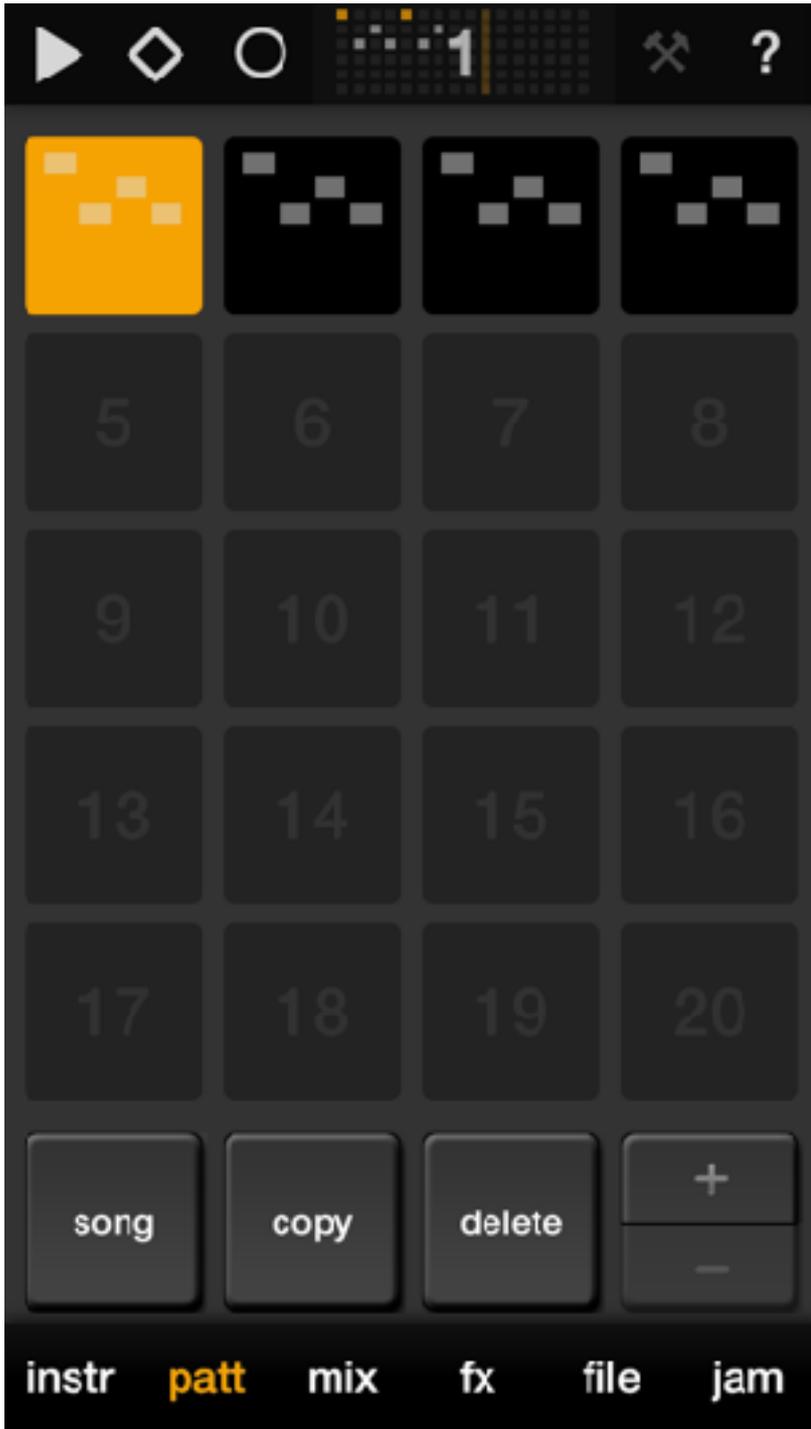
- **</>**: Shifts all steps from the active sequence to the left or right
- **Rand seq**: Randomizes active sequencer data
- **Rand instr**: Randomizes active instrument data
- **Rand instr+seq**: Randomizes active sequencer and instrument data
- **Rand all seq**: Randomizes sequencer data *on all 6 channels*

- **Rand all seq+instr**: Randomizes sequencer data and Instruments data *on all 6 channels*
- **Midi learn**: Learn function to control the 16 parameters of a synthesizer of a channel. Long tap will delete all Midi assignments
- **Copy seq+instr**: Copies the instrument and sequencer data of one channel. Select another channel and paste it into it (Can also be another preset).

The **Randomize all** function also randomizes instrument types, if used while the first pattern is active (as in the above screenshot).

If **Randomize all** is used in a pattern other than 1, the instrument types will not be randomized. This generates more results that fit with the first pattern.

Pattern screen



The *Pattern* screen lets you arrange patterns into a **Song**.

(On iPad the Pattern screen is folded into the Arrange screen.)

Each cell in the grid represents a unique pattern. Patterns without sequencer data (empty patterns) will appear plain black. Patterns with sequencer data will display filled steps.

When Song mode is activated (by tapping the **song** button or by tapping the Play mode diamond so that it is solid), Elastic Drums will

play pattern after pattern in loop mode.

To **copy** a pattern:

1. Choose a pattern (by tapping a cell)
2. Press the “copy” button
3. Tap another cell in the grid to copy the pattern to that cell

To **delete** a pattern:

1. Choose a pattern (by tapping a cell)
2. Press the “delete” button to empty the chosen cell of sequencer data

The **+ / -** buttons change the length of a song in increments of 4

Longtap on a pattern cell will enable you to move the cell to another position in the grid.

Mixer screen



The Mixer screen shows the most basic channel settings for the active pattern, similar to what you would expect on a classic mixing console.

You can set **volume**, **pan**, **mute** and **solo** states, and **FX** sends (only on iPads and newer iPhones with taller screen dimensions).

You might remember that these settings are also accessible on the Instrument screen. Contrary to the Instrument screen, you cannot automate the values here. However, mute states do get “remembered” per pattern.

On the top of the Mixer screen you can set **global volume** and **bpm**. With **tempo X**, you can multiply your global bpm so that one pattern can be twice as fast as the preceding pattern, and so on.

On iPad this screen is called the Arrange screen. It also contains the Pattern screen (see above, **Pattern screen**) and Master Effects (see below, **File screen**).

Options (Mixer screen)



This Options menu presents **Audio & Midi settings**.

Background Audio is disabled by default, but your settings will get stored. We recommend that you deactivate background audio when you want to save battery power.

Modify the **Audio buffer** size to change the latency (response time) of your app. Smaller values decrease latency, but also increase the CPU power Elastic Drums will need.

With **Metro vol** you can change the level of the metro click, that you hear, when you are in sequence „record“ mode in the instruments screen.

Ableton Link is a new wireless sync technology developed by Ableton. If you want play in sync with other apps or Ableton Live with Link implemented, turn it on. If you enable

Link, Midi clock in will be automatically set to „No Midi input“, because both sync techniques make no sense together. If you enable **Midi clock out** ED will send out clock signals to all available Midi out ports. Handle the incoming clock signal in your receiving app or hardware device. If an app runs with double speed, make sure it's not receiving clock signals via two in ports (sync signal will get doubled in this case).

With **Same controller for all instr.** enabled you can use the same Midi controllers to tweak the knobs of all 6 instruments. In that mode, you will control the knobs of the actual visible instrument, the other instruments will be unaffected.

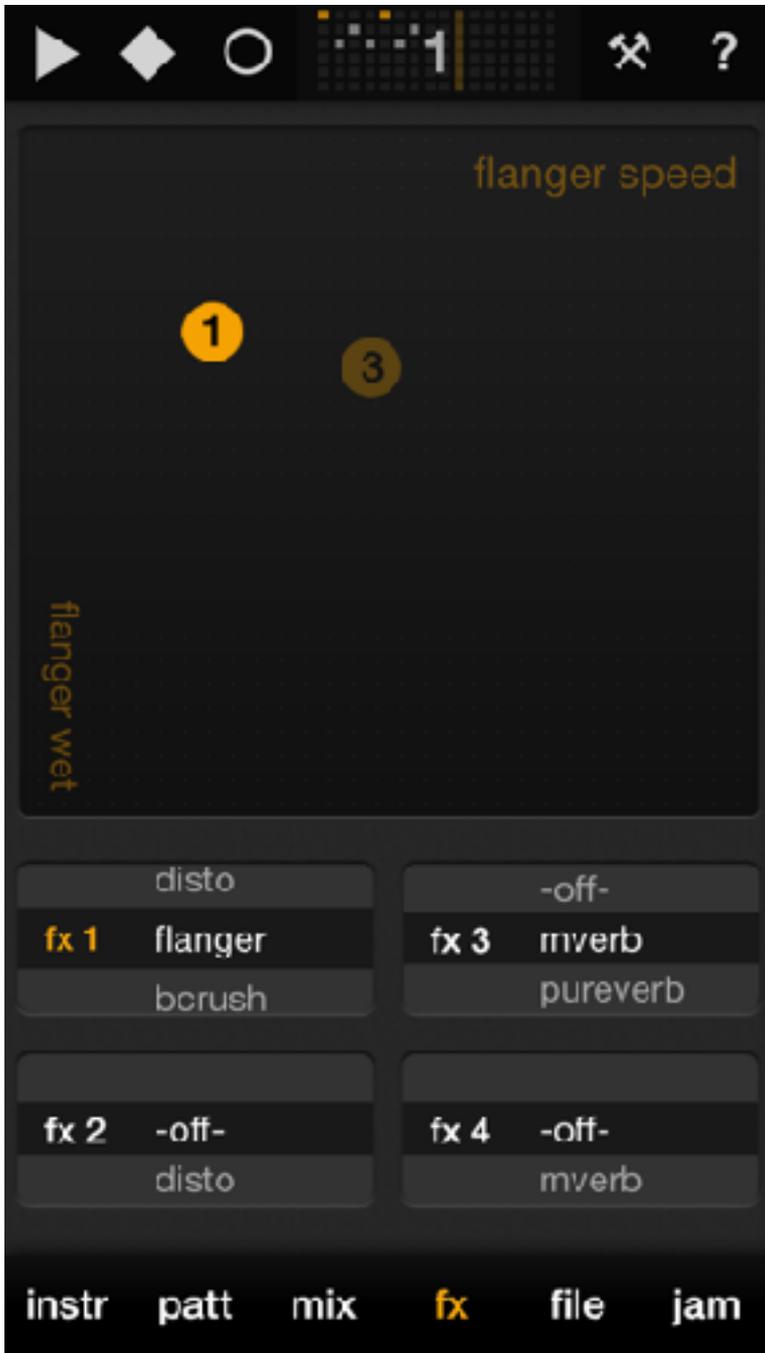
If you want to send out the sequencers trigger signals as notes (CC's are not supported yet), choose the right **Midi out channel** you want to send the notes. The outgoing notes will be the same as the incoming notes you set via Midi learn.

If you want to receive Note messages, choose the right **Midi in channel** and choose the right **Note in** port in the midi interfaces table. This works for the trigger buttons of the Jam screen so far only. No other buttons are supported to receive Midi.

If you want to receive Midi clock messages from external devices or other apps, choose the right **Clock in** port in the midi interfaces table.

Effects screen

The *Effects* screen looks simple but contains as much depth as the Instrument screen.



The position of each numbered circle in the XY pad represents the 2 parameters (shown on the lower-left and upper-right) of the corresponding effect.

fx1 and **fx2** are mono, while **fx3** and **fx4** are stereo effects. Selecting an effect (by tapping it in the list) *immediately* enables it for recording automation on the XY pad. After playing with the XY pad while the sequencer is on, you will see the FX circles retracing your finger movements.

You may disable effects automation (thus enabling static FX settings on the Effects screen) in the Options menu. There you can also customize routing of mono effects to stereo effects (see below).

Note: Due to limited CPU performance on iPhone 4s and iPad 2, only one mono and one stereo effect are available on these devices.

To *erase* all FX automation on the current pattern, double-tap the XY pad.

Mono effects	Stereo effects
Distortion (disto)	Reverb, based on Miller Pucket's reverb (mverb)
Mono Flanger (flanger)	Standard Reverb from the Pure Data library (pureverb)
Bit Crusher (bcrush)	Gated Reverb (gateverb)
Shaper (shaper)	Filtered Delay (vcfdel)
Comb filter (comb)	Dow Echo (dowecho)
Frequency shifter (fshift)	Stereo Chorus chorus)
Low-pass / High-pass filter (filter)	Stereo Flanger (flanger)
Ring Modulator (ringm)	Dual Filter (dualvcf)
Pitch Shifter (pshifter)	Autopan (autopan)
Strobe effect (strobe)	
Mono Stuter (stutter)	

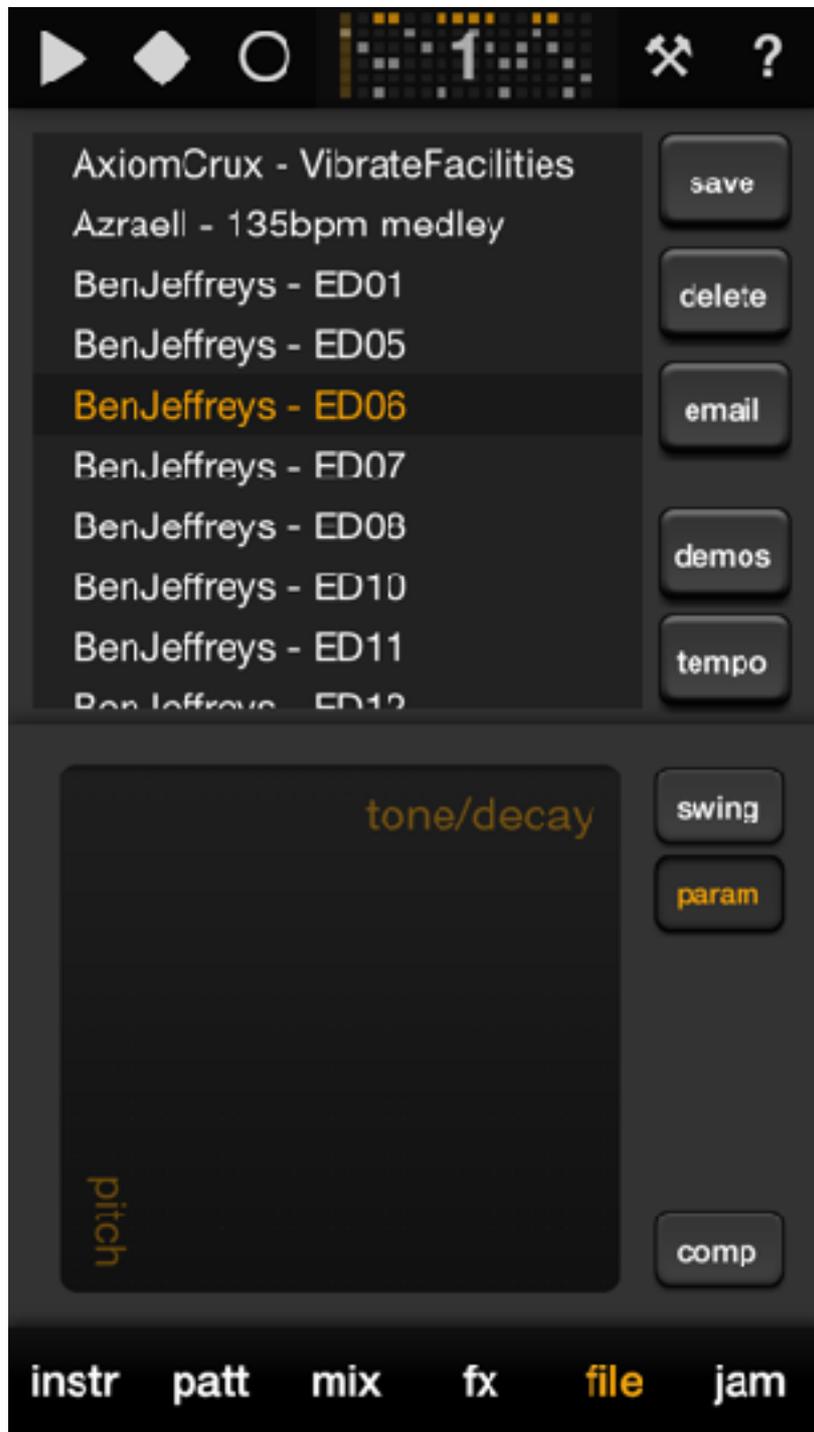
Options (Effects screen)



- Send **fx1to3**: Amount of fx1 effected sound to send to fx3
- Send **fx2to4**: Amount of fx2 effected sound to send to fx4
- **Autom off**: Toggles FX automation on/off (defaults to “on”)

File screen

Only on iPhone, the File screen is divided into two sections.



In the upper half, you can choose, save, delete and email Elastic Drums presets. These are different from synth presents: they are complete projects and retain pattern, song and FX (as well as parameter) data.

With the demo button you can toggle on/off the demo presets delivered to you. They can not get deleted, but you can turn of their visibility so you will only see the presets stored by yourself.

The tempo button toggles on/off tempo updates when you change a preset. Each preset has it's own tempo stored. Normally the tempo changes when you select a new preset. With tempo change disabled, tempo will stay the same, when you select a new preset.

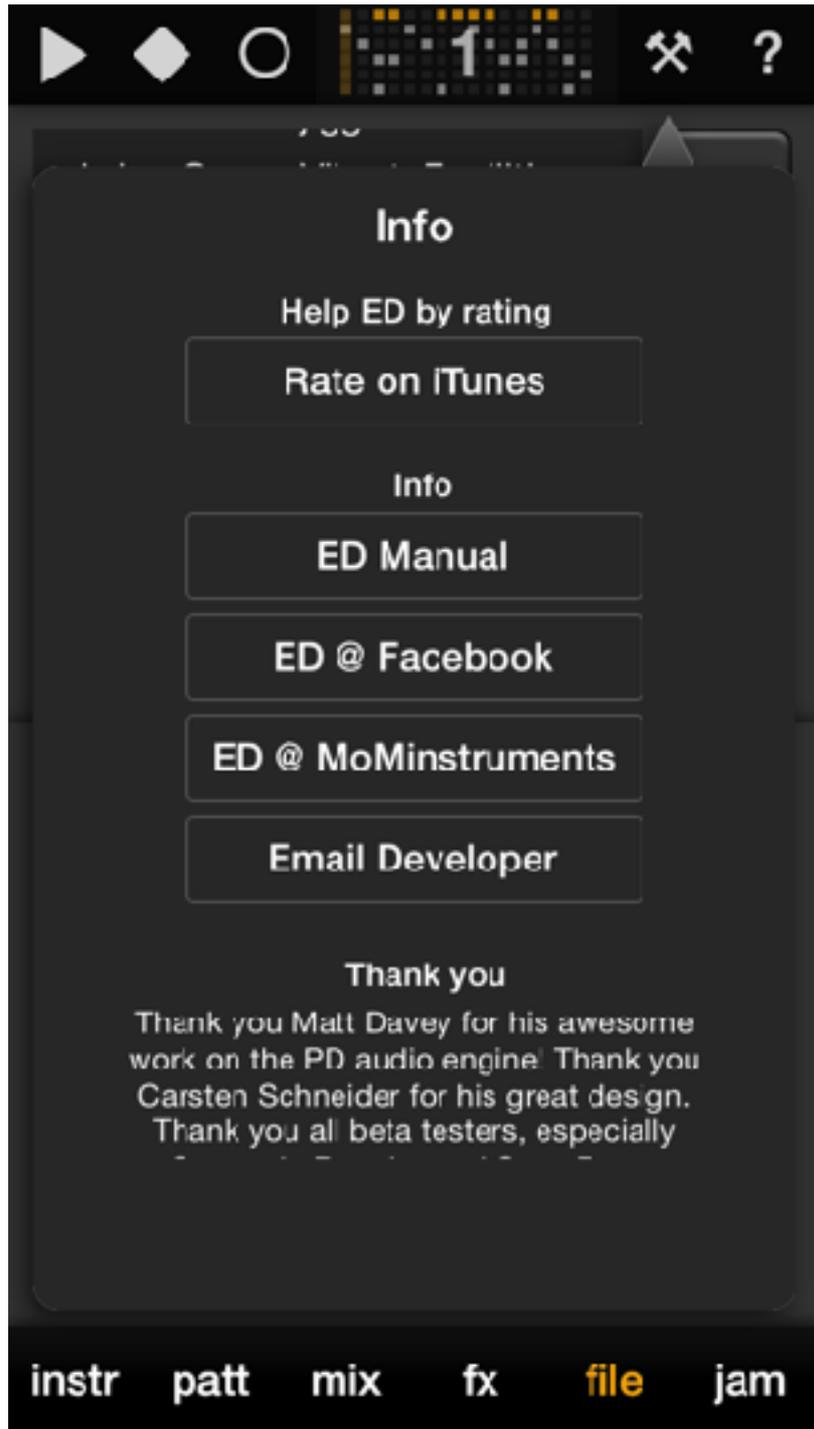
In the bottom half of the File screen are additional Master Effects that affect all instruments at once.

(On iPad the Master Effects are found on the Arrange screen.)

- **swing** sets the swing factor for all patterns when in Song mode, for the actual pattern, when in Pattern mode. The swing grid is selectable for 2,4,8, or 16 steps. The center setting of swing rate provides no swing at all, to the left and to the right positions will affect the swing effect in positive and negative way. Swing will ONLY work with the sequencer time set zu 1!
- **param** will change the global synth parameters *of all instruments* at the same time. Horizontal movement affects the decay/release rate of all sounds; vertical movement affects the pitch/tone of all sounds.

Double-clicking on an effect's XY pad will reset that effect (effect settings at zero; XY pad at center position).

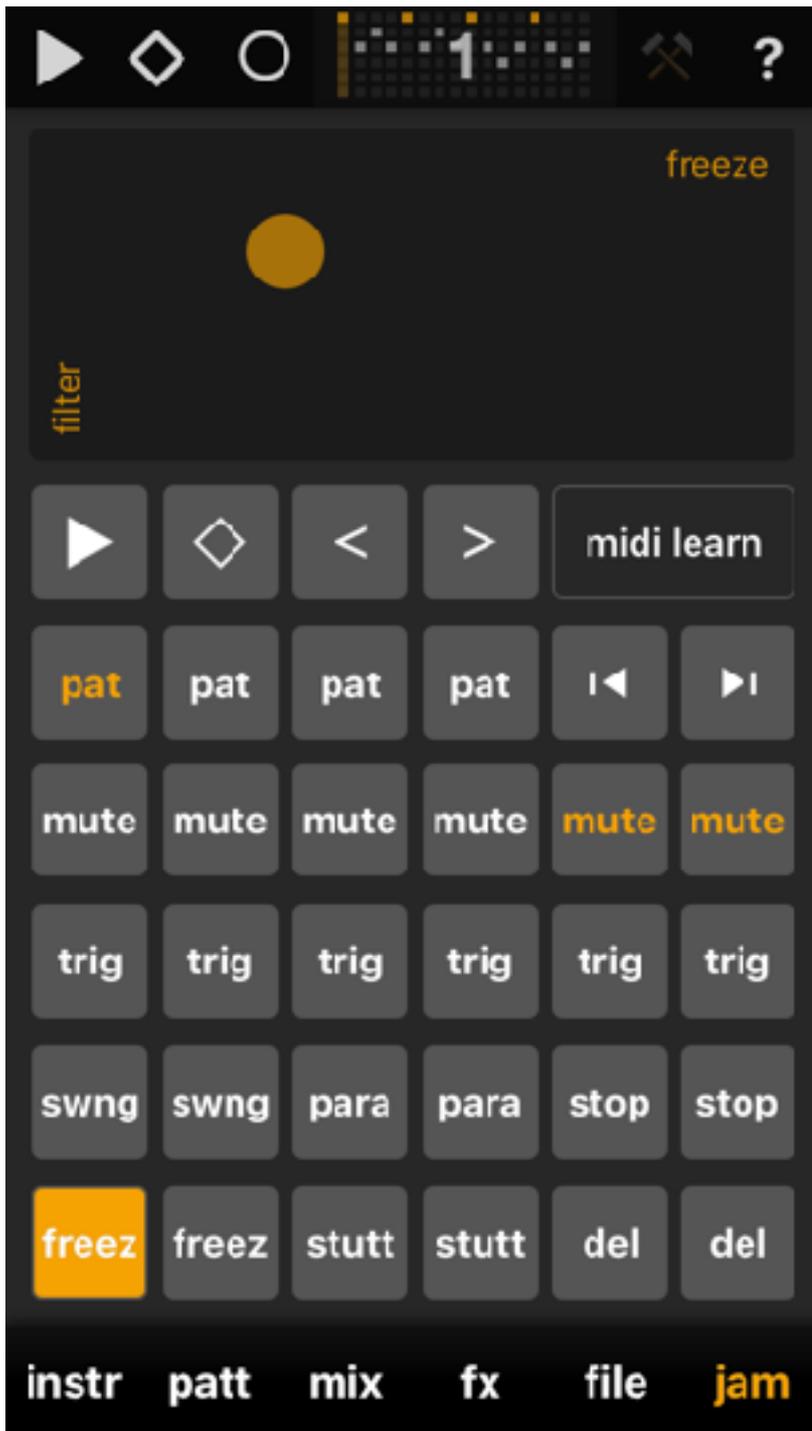
Options (File screen)



Here is all kinds of information about Elastic Drums—for example, the **Manual!**

If you like Elastic Drums, please rate the app in iTunes (this is very much appreciated!) or spread the word. This will help us to work on further improvements and updates.

Jam screen



This screen was introduced in update 1.6. It's made for intuitive and fun live jams, where you can trigger your sounds, patterns and different master effects. Either with a Audiobus remove device, a midi controller or just in the app itself.

With **Midi learn** enabled, you can assign Midi notes to all „trigger“ buttons, you see in this screen. And you can assign Midi Controller to the knobs you see in this screen. Don't forget to choose a Midi input port first, otherwise you will get not Midi informations into the app.

Long tap **Midi learn** will delete all Midi assignments

- ► **Play/Stop**: Start/stop the Elastic Drums sequencer.
- ◇ **Play mode**: Switches between Pattern (empty diamond) and Song (solid diamond) mode.
- </> **switch screens**: Swipe through your screens

Channel trigger

- **pat** with the 8 pat buttons you can quickly switch between the first 8 patterns of a song.
- **< >** switch to the previous, next pattern of you preset.
- **mute** will toggle-mute the sounds of the 6 channels. It works also as a toggle switch: When you long press a mute button the sound will get un-mute again, when you release the button.

Master effects

- **trig** will trigger the synth engines of the 6 channels. With the trig roll knob you can choose for every trigger button if there trigger will occur continuously (normally called roll) or not and how fast the roll effect will be
- **swing** will activate a swing effect. If there is already swing in your pattern swing will temporarily change to this settings and come back to the saved settings, when releasing the effect
- **para** will change the global synth parameters *of all instruments* at the same time.
- **stop** emulates a tape stop effect. Set the tape time for each button with the according stop knob.
- **freeze** is a stutter effect combined with a filter effect. Set the stutter time and the filter freq with the according knobs.
- **stutt** is like freeze a delay based repeat effect. this time you change the values of the amount that gets written and played
- **delay** activates a delay when tapping the button. Set the delay time and the delay fx mix with the according knobs.

When you press **midi learn** 2 knobs (midiX, midiY) will appear temporarily. You can assign midi controllers to them, to control the x and y axis of the fx pad. After midi learn is done, they will be invisible again. They only serve to assign 2 midi controllers to the xy pad.

Midi Implementation

The Midi Implementation of Elastic Drums is limited but should be enough to tweak the most important elements of the app.

When ED is in InterApp-Audio mode and hosted by another app, ED can receive Midi via InterApp-Audio. Be aware to avoid double triggers by receiving Midi via InterApp-Audio AND the usual Midi ports. Update 1.7.7 will disable the possibility to do so.

The Knobs which you can tweak, are basically the instrument knobs, where you change the sound of a channel. And you can control the x- and y- axis of the jam screen xy pad. To control these knobs, you have to go into Midi learn mode via the **midi learn** button, available in the jam screen and via option in instr. screen.

The Buttons that are able to receive Midi notes, already have a predefined assignment, but you can change it to your needs (with the exception of the „hidden“ commands, where is no visible button available at the moment).

Please keep in mind that Midi notes get handled differently. The MIDI specification only defines note number 60 as "Middle C", and all other notes are relative. The most common convention is the one where MIDDLE C (note #60) is C3 (C in the 3rd octave). In the other convention, Middle C is designated „C4“. So Midi Note number 36 might be C1 or C0 in the other case.

Trigger Button	Midi Note
pat0,pat1,pat2,pat3,patPrev,patNext (jam)	0,1,2,3,4,5
mute0,mute1,mute2,mute3,mute4,mute5 (jam)	6,7,8,9,10,11
trig0,trig1,trig2,trig3,trig4,trig5 (jam&instr&record)	36,37,38,39,40,41
swing0,swing1,para0,para1,stop0,stop1 (jam)	66,67,68,69,70,71
freeze0,freeze1,stutt0,stutt1,del0,del1 (jam)	72,73,74,75,76,77
play0,song0,screen0,screen1,midirecord0 (jam&instr)	84,85,86,87,88
instr0,instr1,instr2,instr3,instr4,instr5 (hidden)	108,109,110,111,112,113
openIAAHost, prev preset, next preset (hidden)	114,115,116
switch user presets (hidden)	Program Change

Performance: About glitches and crackles

„Aaaah, help, there are this crackling noises and glitchy sounds, Elastic Drums sounds like shit !!!“ :(

There is no doubt that Elastic Drums is **VERY CPU CONSUMING**, it's not a sampler, but a 6 percussion synthesizers! All sounds get calculated and created in real time. If you are on older devices, such as an iPad 2, there is not too much you can do about that in general, but you can try the following things, to improve performance:

- a) Enlarge Audio buffer: (Mixer ->) Audio & Midi settings
- b) Mute the channels, you don't need. When a channel is muted, the synth engine get's switched off, which saves CPU
- c) Switch off effects, you don't need. This also switches of the effects of this channel and saves some CPU again
- d) Sometimes it may even help to completely delete Elastic Drums (backup your presets before!), freshly download and install from iTunes and to do a restart of your device
- leaked from IT crowd ;)