Subquake 1.x

User Guide & Workshop Manual

Subquake 1.0.0
20240412

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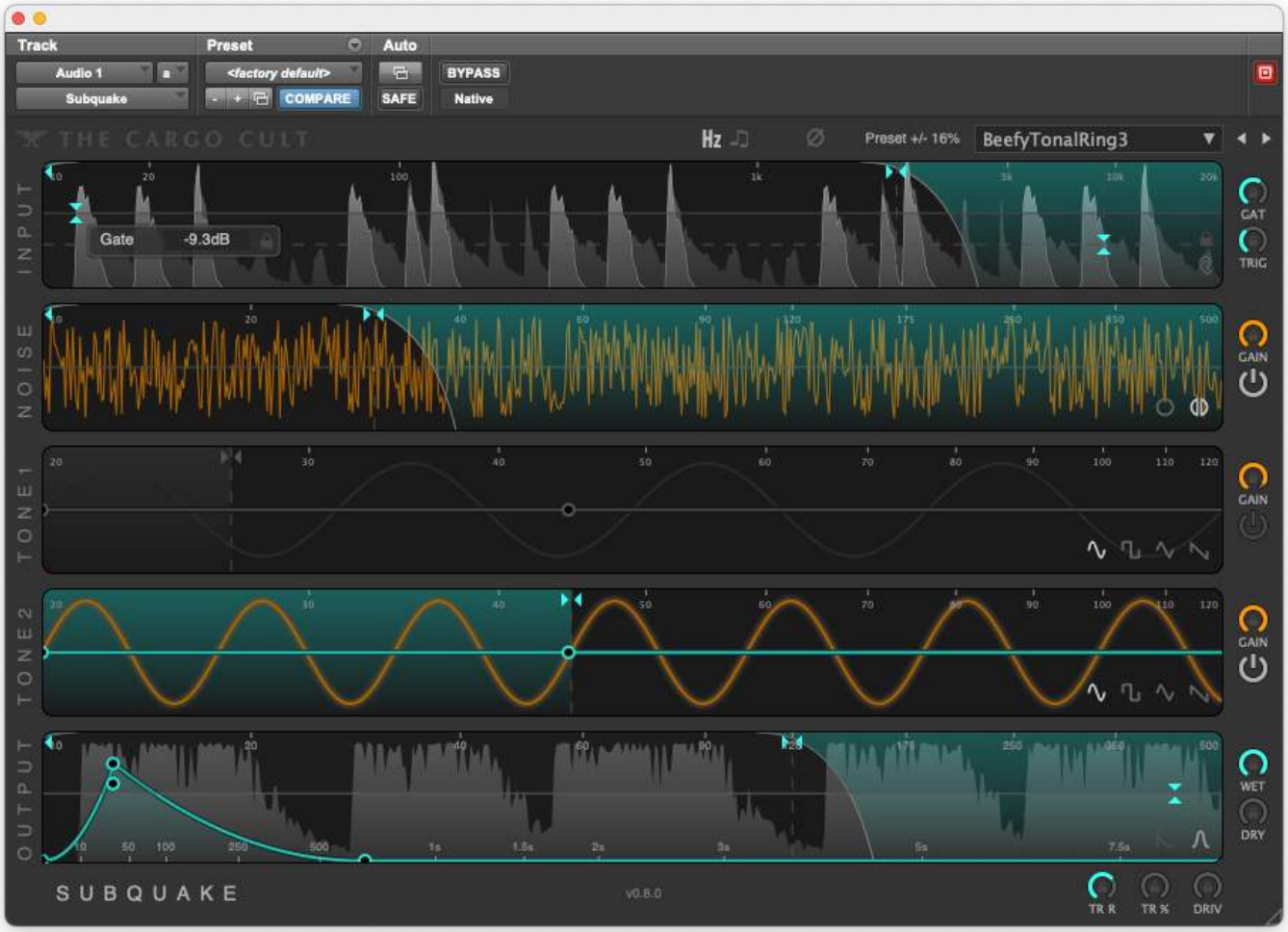
1. An Introduction to Subquake

Subquake is a sub harmonic generator with applications in post-production sound mixing, sound design, and music. It can be used as a traditional "sub" processor, adding subtle or extreme low-end to sound FX in a mixing setting, as a creative tool for generating colourful new low frequency effects, or as a bass-extender for adding weight and tonal elements to kick drums.

The basic idea is that you feed it some signal and it generates fresh new bottom end. It can follow the amplitude shape of your input signal or trigger a specific shape using a user defined envelope. It responds to any input signal, including high frequencies.

PLEASE NOTE:
Subquake is extremely loud and very aggressive. Ensure your speakers & sub are capable of handling reference-level rumbles before hitting play. This is not a toy.



The input signal (effectively the internal sidechain) can be filtered and gated to better isolate the sounds that you wish to trigger the plugin.

The user can then choose any combination of 3 bands to be the source of the newly generated signal. Note that there is no pitch detection or pitch shifting happening at all - this is a completely decorrelated signal which should never cause nasty phase interactions with your dry signal.

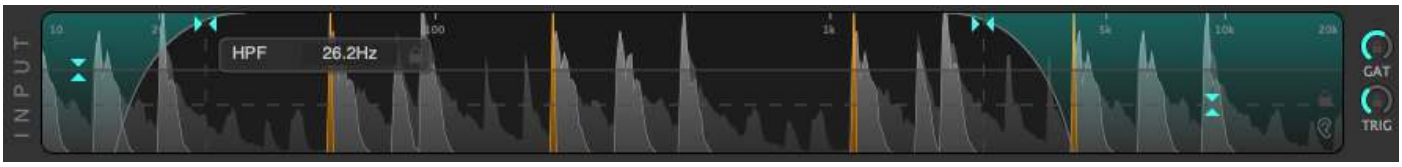
The 3 sources can each be filtered or pitched, depending on which type they are, before being fed into the output stage.

The output stage applies an envelope using one of 2 modes, then filters, modulates, overdrives and limits before finally outputting via the WET/DRY knobs.

2. Input Module

The input module provides control and visualisation of the input signal and the side chain signal which will feed into the rest of the plugin. You may sculpt this signal in various ways to affect the way the envelope section responds.

The darker waveform represents the raw, unfiltered input signal - that which you've sent to the plugin.
The lighter waveform represents the input signal after HPF/LPF filtering and gating.
The orange markers show any trigger events (where relevant)



HPF/LPF
These are fixed 36dB/octave IIR filters useful for isolating the important part of your input signal.
E.g. you may have creature footfalls with contain high frequency rustle and wish to focus only on the heavy impact. Or you may have a drum-loop and wish to isolate just the snare drum.

Gate
The input gate comes after the filters, and is a very steep and fast gate designed to aggressively remove anything below a certain threshold. The gate is presented with a "handle" in the main UI towards the left side and a control knob is also offered.

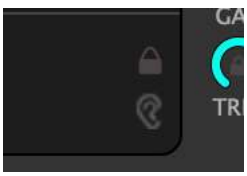
Trigger Threshold
For situations where a pitch bend or an envelope needs to be triggered, you may set a threshold at which these triggers will be fired. This detection circuit is placed after the gate, so you can often leave it set quite low and play with the gate instead, to achieve basically the same result.

Trigger threshold can be set using the "handle" usually located towards the right side of the view, or with the control knob provided.

Trigger Minimum Time
This parameter is also controlled by Trigger "handle", by dragging in the horizontal plane. It sets a minimum time value within which a new trigger may not be fired. This is useful for situations where the initial event is intended to trigger the envelopes, but it is closely followed by other very loud events. E.g. lightening strikes or double-kicks.

The dotted Trigger lines will flash orange any time a trigger event is fired.

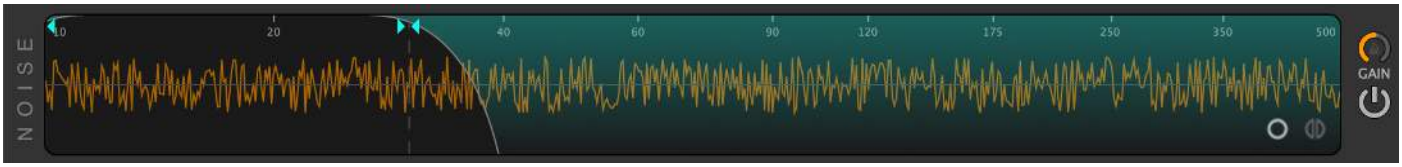
Listen Mode
If you wish to hear the effect of the filters and gate on your input signal, a Listen button is offered. This temporarily feeds the "side chain" signal to the left channel of whichever channel format you are using.



Parameter-Preset-Lock
When auditioning presets from the library, it is quite likely that you will not want your input module settings to change, as these are usually chosen specifically for the signal that you're working with. Use the Lock button to put all Input Module parameters into lock-mode, which stops them from changing when a preset is called up. Note that they will still respond to automation or manual changes.

3. Noise Module

The Noise module is a generator (source) which creates a pseudo-random noise signal, filtered to produce constantly varying bottom end, devoid of any distinct tonal "note".



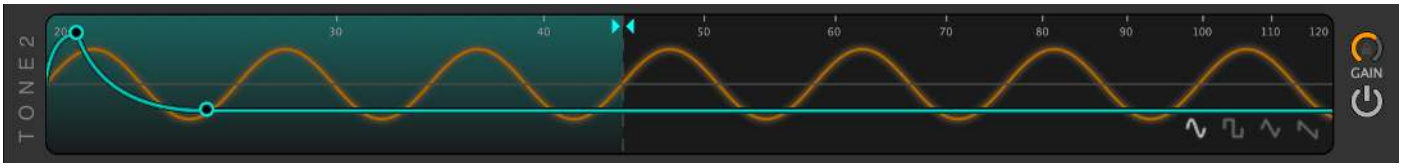
HPF/LPF
These filters allow sculpting of the signal output from this module, before it reaches the output module. These filters offer 12dB, 24dB and 36dB/octave slopes via the little popup control panel or using the CMD (win: CTRL) - click on the "handle". The 2 filters can be moved together using SHIFT or CMD-SHIFT (win: CTRL-SHIFT), to provide control over bandwidth and centre point.

Note that due to the design of the output envelope and limiter, applying filtering to this noise signal will often result in more perceived output level for this band. E.g. filtering out the very low <20Hz range will give you more apparent gain. Leaving it in will reduce the possible loudness from this module.

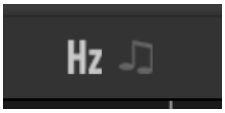
Mono vs Multi Mode
The noise band is capable of generating stereo (or wider) noise signals by feeding completely independent, decorrelated signal to each output channel of the plugin, where a multichannel output format is being used. This is useful in a stereo instance where you wish to add some width to an explosion or a snare drum. If, however, you prefer to keep the image centred, the Mono Mode button is offered.

4. Tone Modules

The Tone modules generate a tone at a specific frequency or note value, using one of the standard oscillator shapes. The two tone bands can be set to intermodulate, creating some interesting throbbing and shuddering effects.



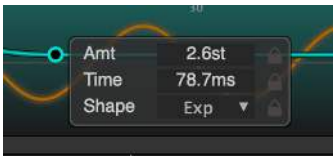
Pitch
Set the frequency of this oscillator using the left/right "handle" or by entering specific values in the popup control panel. Toggle between Hz and musical notes using the buttons at the top of the UI.



When entering a note value like C#, Subquake will jump to the C# nearest to the current value.

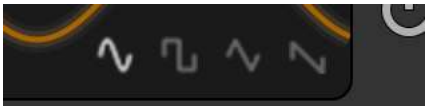
The two Tone bands can have their fundamental pitches moved together using the SHIFT modifier. This will shift them in a relative way, such that intermodulations are maintained.

Bend Envelope
This envelope warps the generated pitch ups and down around its fundamental frequency. Two breakpoints are offered and both can be dragged independently to set amount and time, and a CMD-CLICK (win: CTRL) will change the shape of the curve for that point. "Amount" is a value in semitones above or below.



This pitch bend envelope is triggered whenever the trigger threshold is met (assuming the minTime value has been satisfied).

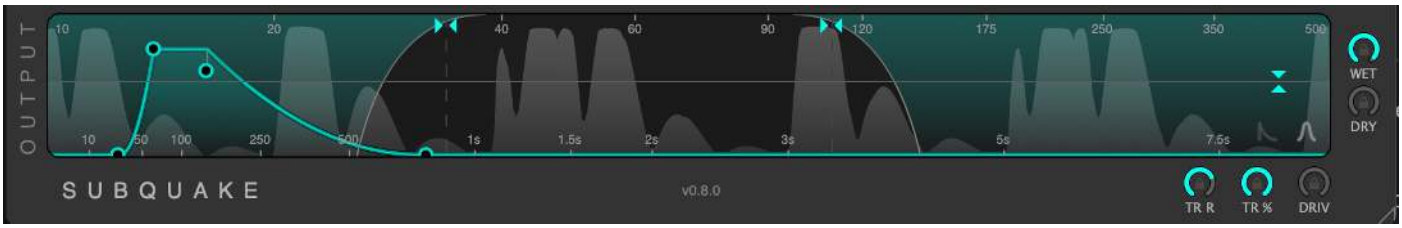
Oscillator Mode:
Four oscillator types are offered, Sine, Square, Triangle and Sawtooth.
Not sure what else to say about that. Pretty much speaks for itself right?



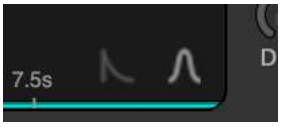
5. Output Module

The Output module is where the sources are shaped to match the input signal.

The waveform displayed in this module represents the wet signal post the Wet gain control. The dry signal is not represented in this display at all.



Envelope
The envelope controls how the sources are shaped with respect to the input signal. There are 2 modes: One-shot, and continuous-follower.



In one-shot mode, the envelope is triggered whenever the trigger threshold is met. In continuous-follower mode, the shape of the input signal is followed, with the user-specified envelope simply modifying this shape. In this mode you should think of the attack/release more like rise and fall on a VU level meter. They really are quite different approaches so may sound different in different scenarios.

One-shot will obviously play the envelope shape once, then reset.

Continuous-follower mode will be constantly applying the rise, hold and fall characteristics as signal flows through the processor.

There are 4 parameters to the envelope:
Delay is basically an offset, such that the envelope plays late, allowing you to carve a hole for the dry impact, or create a reactive shudder after some big event.
Attack softens the front of any loud, incoming event.
Hold will maintain the loudest value for a time, and in envelope follower mode it will effectively "stretch out" the middle portion of any shape, playing the tail as expected.
Release is the fall time.

HPF/LPF
These filters allow sculpting of the combined signal from the 3 source modules.
These filters offer 12dB, 24dB and 36dB/octave slopes via the little popup control panel or using the CMD (win: CTRL) - click on the "handle". The 2 filters can be moved together using SHIFT or CMD-SHIFT (win: CTRL-SHIFT), to provide control over bandwidth and centre point.

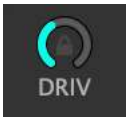
Note that due to the design of the output envelope and limiter, applying filtering here will often result in more perceived output level. E.g. filtering out the very low <20Hz range will give you more apparent gain.

Tremolo
If modulation of the entire output signal is required, the tremolo feature can be used. Rate and % amount are offered, and do exactly what you'd expect. "Amount" ranges from 0% -

200%, which is way cooler than just going to 100%.

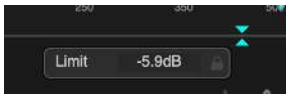
Overdrive

After all that, a drive circuit is employed, which adds harmonics in the frequencies just above those being generated. With low LPF settings it may be quite subtle.



Limiter

The final processing step is an auto-gain-compensated output limiter, which serves to catch any "overs" and also offers +18dB of gain at its maximum setting. It has been tuned to minimise distortion so for already-loud signals, it may not actually increase perceived level by the full 18dB, instead serving to raise decay tails.



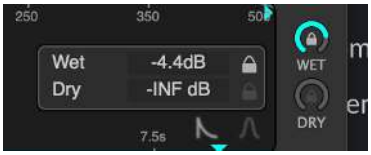
Wet/Dry

Subquake offers independent Wet and Dry gain controls. This allows you to set and manipulate the mix without limitations no matter how you deploy the tool. Like pretty much every other parameter, these can be put into "preset lock" mode whereby they will refuse to change in response to the loading of a preset. Double-click the knob to toggle preset-lock mode.

6. Parameter Preset Locking

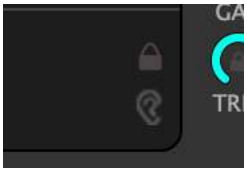
When auditioning presets from the library, it is quite likely that you will not want your input module settings to change, as these are usually chosen specifically for the signal that you're working with. Likewise, your wet/dry mix settings will depend on whether you're running Subquake in a send/return arrangement or as an insert on a track.

In such cases, Subquake offers the ability to lock a parameter to stop it from responding during loading of a preset. The parameter will still respond to automation, manual manipulation or hardware controllers, but will refuse any changes from presets.



In the little popup control panel, use the lock button next to the parameter. For parameters with knobs, you may double-click the knob to toggle preset-lock mode.

The Input Module offers a global Lock button which puts all Input Module parameters into lock mode.



Note: it might be possible to accidentally leave a parameter in lock mode, so it is important to remember to unlock when you're done. For the input module you can toggle the global lock button on/off to ensure they are all unlocked.

If in doubt, deactivate and reactive the plugin to clear any hidden locks.

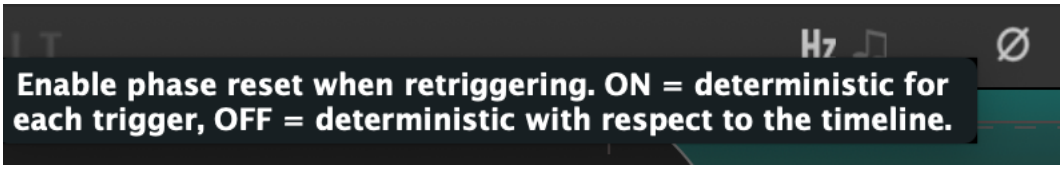
7. Determinism Modes

Subquake is designed to sound the same every time you hit play. For post production mixers, it is important that the rumble you hear while mixing is the same as the one you hear when you print a pass. For electronic music producers, it is often desirable to have every kick sound identical.

So this deterministic behaviour is offered in a couple of different forms, depending on the user's preference.

Standard (timeline) determinism
In normal operation, Subquake can be trusted to play the same rumble every time you play over a particular piece of the timeline. You can vary the send level to the plugin and still get the same rumble. If you move your source sound to a new location, the Subquake rumble may sound different. Note: that this may be the case after a reconform.

Trigger point determinism
In this mode, all source phases and modulators are reset at a trigger event. This means every kick drum will receive exactly the same treatment. To enable this mode use the Ø button near the top of the UI.



8. Shortcuts Reference

Note: Unless otherwise specified in brackets, the CMD modifier should be read as CTRL for Windows users.

GENERAL

CMD-CLICK	Filters (excl. Input)	Change filter slope
SHIFT-DRAG	Filters	Move HPF/LPF together (centre frequency)
CMD-SHIFT-DRAG	Filters	Move HPF/LPF opposite (bandwidth)
CMD-CLICK	Pitch breakpoints	Change bend shape
SHIFT-DRAG	Pitch handle	Link Tone1 and Tone2 pitches (relative)
DBL-CLICK	Knobs	Toggle Preset Lock Mode
CLICK-DRAG	Text Boxes	Increase/Decrease parameter value

9. Specifications, Supported Formats etc

HOST PLATFORMS
Mac OS 10.12 or greater. Universal Apple Silicon & Intel binaries.
Windows 10 or 11

PRO TOOLS
Minimum version = 12.4

PLUGIN FORMATS
VST3, AU, AAX Native & Audiosuite.

SAMPLERATES
44.1kHz thru 192kHz

CHANNEL FORMATS
The following formats are supported as input and output, where input = output. Any of these formats -> Mono is also offered.
Where a x.1 output format is used, the wet signal will be sent to the LFE channel only. In all other formats it is sent to every channel.

Supported stem width formats:
Mono, Stereo, LCR, Quad
5.0, 5.1, 5.0.2, 5.1.2, 5.0.4, 5.1.4
7.0, 7.1, 7.0.2, 7.1.2, 7.0.4, 7.1.4, 7.0.6, 7.1.6
9.0.4, 9.1.4, 9.0.6, 9.1.6, ambi1 thru ambi7

COPY PROTECTION & AUTHORISATION
Copy protection is provided by PACE Anti-Piracy in the form of the iLok system.
Any use of the Subquake software requires an account with iLok.com though a hardware dongle is not necessary.
Authorisation is enabled to the iLok dongle, the host computer, or the iLok Cloud.

PLEASE BEWARE:
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