LEAPWING
ROOTONE

MANUAL

WELCOME TO ROOTONE

Thank you for choosing Leapwing. We are a small team of highly passionate people, devoted to developing easy to use digital tools that achieve rapid results with the highest possible quality. We've built an active community of loyal and engaging users and appreciate all the feedback we receive from our customers. We encourage every user to stay in touch, so please don't hesitate to contact us if you need any further assistance or want to show your support. We highly recommend you to read this manual to get the most out of your new Leapwing RootOne.

Product Overview

RootOne is a unique, original design that can generate and shape subharmonic frequencies in many ways. We set out to create the cleanest low-end possible, with subharmonics phase-aligned with the original signal to deliver a natural sounding extended sub-range. RootOne has three low frequency bands with variable crossover frequencies, which, after careful amplitude and phase analysis, "look" for a frequency an octave above and generate a clean, phase-aligned subharmonic within the selected frequency band. There is also an additional fourth "harmonics" band which focuses on the lower mid-range, where you can add saturation. This helps low frequency sounds to cut through on smaller speakers. All in all, you're given immense control over your low-end to create new artistic possibilities!

Features:

• Unique Subharmonics Generator: proprietary algorithm delivers the cleanest low frequencies.

• Pitch Follower and Phase Alignment: instead of simply pitch shifting the signal, we use advanced analysis to generate subharmonics that are phase-aligned with the source.

• Full Harmonics Shaping: saturation module allows you to shape mid-range harmonics, letting them cut through on smaller speakers.

• Ultimate Dynamics: drive, dynamics, attack and decay parameters provide immense control to optimize your newly generated subharmonics to best fit your musical material.

• Simple yet Beautiful Design: modern resizable Retina interface with unique design for an optimal workflow.

• Multiple DAW & OS Compatibility: available for Mac OSX (10.10 +), Windows 8, 10 (64-bit only) in AAX-Native, VST, VST3 and AU.

Authentication

When opening the plugin for the first time, you will be asked to enter your email address and serial number to authenticate the plugin. The email address should be the same one as you used to create your online Leapwing user account. The serial number has been sent to you via email after your purchase, and can also be found on your Leapwing account page.

https://www.leapwingaudio.com/my-account/

On the Leapwing account page you can manage the Hardware ID (computer) connected to your license key. If you want to move the license to another computer you own, you can do this by deleting the current Hardware ID and activating the license on the other computer.

Applications

The factory presets for bass and drums should suggest obvious uses for RootOne. A bass part lacking deep low frequencies can be played with power in the lower octave using presets such as "Electric Bass Thick". Or a bass part too low in frequency for playback on bass-shy audio systems can be enhanced to help bass sounds translate on a wide range of audio reproduction systems by adding saturation (such as with the "Bass Phone Cut Through" preset).

A kick drum or tom tom part that is too thin and not 'present enough' in a mix can be filled out to sound larger and deeper with settings similar to "Kick Punch" and "Kick Weight". And a thin snare recording can be beefed up with settings such as "Snare Body". Using the Drive controls and Harmonics section can even help modify the overall tonality of an instrument.

Presets like "Guitars Thick" can also reinforce melodic lines from instruments such as guitars, pianos and synths – there is even a "Vocal Chest" preset that may fill out a lean baritone or contralto voice. RootOne can also be used on a mix bus or full mix to help strengthen weak bass through lower mid-range frequencies without increasing noise level as would happen by boosting the low end with EQ. See "Beef Up Mix" and "Low Mid Energy Shot" presets.

In all RootOne can provide a wide range of control and enhancement in the lower few octaves of the audio range, on single instrument tracks, buses and full mixes.

Interface and Controls
Subharmonics Section – Sub / Thump / Punch

1 – Level Faders and Meters
This section provides control per band of the subharmonic generation. RootOne's unique algorithm checks for a frequency an octave above the band that is selected and will generate a pure tone in that band, phase-aligned to the source frequency. The vertical bar meter displays a RMS-level with a continuous column and the peak level with a single bar that stays in place three seconds when any new maximum occurs. The fader setting is shown in dB below the meter/fader.

2 – Solo Link Mute
The three controls under each fader band enable soloing, linking and muting each band. Soloing a band will mute the other bands as well as the original signal. A shift-click on a solo button resets all other solo buttons. An alt-click on a solo button resets every solo button. Muting a band will drop that band's level to -infinity, same as moving the fader all the way down, but without losing the current fader setting. Linking two or more bands will cause adjustment of any fader to move any linked faders and any changes to Drive, Dynamics, Attack and Decay will also be linked.

3 – Drive
Drive adjusts a send level, taken post level faders, which is sent to the fourth "saturation" band. The higher you set drive, the more level of that band is sent to the saturation section. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to a desired level.

4 – Dynamics
Dynamics enables controlling the dynamic range of the newly generated low frequencies in each band and is based on the amplitude envelope of the original signal. At 100% it tracks the original envelope levels and as its setting is reduced it will generate the new frequencies in a smaller and boosted dynamic range. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to the desired level.

5 – Attack & Decay
These controls affect the overall amplitude envelope shape of the sub-frequencies. The attack parameter allows you to boost the initial attack of the envelop to minimize "flamming", the doubling effect that can occur with sources such as kick drums where a higher frequency click occurs before the low frequency "boom" builds up in energy. The higher the attack setting value, the more initial boost is applied to the respective sub-frequency. The decay parameter controls how long the sub-frequency lasts after the source signal's transient energy dissipates – with a short decay setting and fast transient material, the sub-frequency will decay very quickly, and won't sound after the transient is passed. With a higher decay value the sub-frequency's energy lasts longer and may be extended beyond the original sound's duration depending on several factors since the results are also signal dependent. Using your ears on your own material will provide the best judgment of use for these settings. Clicking on a value will open a popup with a slider that allows you to quickly drag the setting to a desired level.

6 – Crossover Frequencies

Crossover frequencies between the 4 bands are variable. The lowest frequency generated by RootOne can be controlled with the setting in the window on the far left. This lower corner frequency has a frequency range of 8 Hz to 30Hz and a default of 10Hz.

The Sub band upper corner frequency can be adjusted from 32-56 Hz, the Thump band from 62-104 Hz and the Punch band from 110-196 Hz. The default corner frequencies are 36 Hz, 72 Hz and 114 Hz respectively. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to the desired level.

Harmonics Section – Saturation

7 – Level Fader and Meter

This level fader adjusts the contribution of the generated new harmonics in the signal that are affected by the Drive levels used (see 3 – Drive, above). Note that even with no signals sent via the subharmonic Drive section, the Saturation section can create harmonics based on the original input signal. To add to the complexity of harmonics you can create, the signals you send from each subharmonic band create harmonics of those sub-frequencies. For example, if you have an 80 Hz input tone, you can get 160 Hz, 240 Hz, and 320 Hz from the fundamental frequency, and also 120 Hz (3rd harmonic of the 40 Hz subharmonic) and 200 Hz (5th harmonic of the 40 Hz subharmonic) and so forth! A lot of variation is possible using the Sub / Thump / Punch Section's Drive settings and the Drive and Color controls described below (9 and 10).

The vertical bar meter displays a RMS-level with a continuous column and the peak level with a single bar that stays in place three seconds when any new maximum occurs. The fader setting is shown in dB below the meter/fader.

8 – Solo Link Mute

Soloing the saturation band will mute the other bands as well as the original signal so you can hear the saturation contribution itself. A shift-click on the solo button resets all other solo buttons to off. An alt-click on the solo button resets every solo button. Muting the saturation band will drop its level to -infinity, same as moving the fader all the way down. Using Link in the saturation band with any subharmonics bands linked will link only the fader movement.

9 – Drive

This drive level controls how much saturation/distortion will be generated in the Saturation section. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to a desired level.

10 – Color

This control varies the distortion characteristics from symmetrical to asymmetrical as the level is increased. Subjectively speaking, low settings will give you a more tape-like distortion and high values, closer to 100, will sound more tube-like. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to the desired level.

11 – Low Pass

This setting adjusts a final low pass filter on the saturation section. If you don't want generated harmonics up in the mid-range frequencies, you can set a Low Pass filter frequency to roll off the harmonics sooner. By clicking on the value, a popup with a slider will open which allows you to quickly drag the setting to the desired level. Low Pass frequency range is 100 Hz to 1 kHz; default is 300 Hz.

Additional Controls

12 – Original Level

This controls the amount of the original or dry signal level that is mixed into the output. This control allows you to control the dry/wet balance.

13 – Mute Original

Mutes the input signal without needing to change fader level – only subharmonics and harmonics will be played.

14 – Output Level

Final output trimmer that allows you to compensate for added gain as needed for gain staging in your DAW. The integrated level meter shows the K-weighted loudness in LUFS and has a 3-second-hold peak bar. Default setting is 0 dB.

15 – Main bypass button

Full bypass switch that maintains the plugin latency.

16 – Undo/Redo

Basic undo/redo functionality applies to all parameters in the plugin apart from changing presets. When changing a preset, the undo/redo history will be cleared.

17 – A/B Comparison

A/B comparison can be used to quickly store 2 different sets of parameters, and toggle between them to evaluate them in detail. At initialization, both A and B are set to the same "Default Setting" state. When you start making changes to parameters, the latest settings will be stored under A, while B keeps the original values. A is highlighted to show it is active. You can toggle between state A and B by clicking the A/B button. When A is active, any changes are stored under A; however, if B is made active, changes are stored under B. Clicking the Copy button will set both A and B states to the current active set of parameters.

18 – Presets

RootOne presets are selected using a dropdown menu accessed by clicking on the preset name. You can also cycle through them by clicking the left and right arrows (< and >). There are 14 factory presets organized into four categories (Bass, Drums, Melodic, and Mix-Master) that demonstrate some of RootOne's range, but playing with all the controls previously described can take your results in many directions. When you arrive at a collection of settings you wish to save, you can save them as your own presets by using the "Save as.." option. User presets will be automatically added to the list in the dropdown menu. It is also possible to make your own subfolders in the preset folder, and they will be displayed in the dropdown menu as subcategories.

To change the default preset folder location, first copy all presets to the desired new location, and then click Options > Change Preset Folder in the preset menu and select the new folder. Selecting "Restore Factory defaults" will reset all factory presets in the current preset folder.

Location of default preset files:
• MacOS: /Users//Library/Audio/Presets/Leapwing Audio/ RootOne
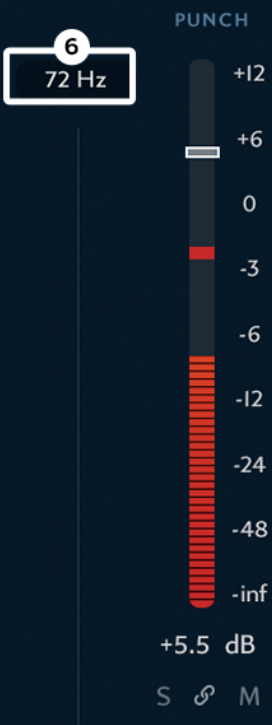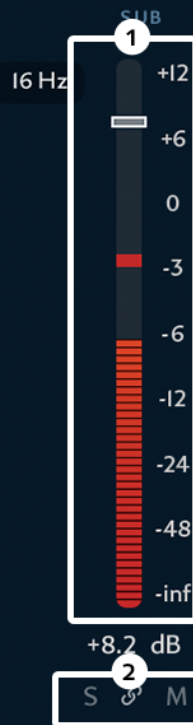• Windows: C:\Users\\Documents\Leapwing Audio\RootOne

19 – Info menu

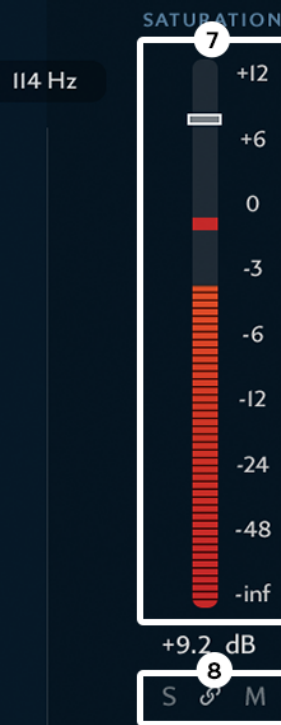The info button opens a convenient list of following information:
• Version number of the plugin
• License Info: More info in the Authentication section
• Check for updates... connects to Leapwing if system is online
• Website: link to www.leapwingaudio.com if system is online
• Manual: links to the handy local pdf user manual

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15
16
17 A | B Copy
18 < Default Setting >
19

SUBHARMONICS

SUB
16 Hz
1
+12
+6
0
-3
-6
-12
-24
-48
-inf
+8.2 dB
2 S 🔗 M
DRIVE
3 60
DYNAMICS
4 100
ATTACK / DECAY
5 10   10

THUMP
36 Hz
+12
+6
0
-3
-6
-12
-24
-48
-inf
+8.0 dB
S 🔗 M
60
100
10   10

6 72 Hz

PUNCH
114 Hz
+12
+6
0
-3
-6
-12
-24
-48
-inf
+5.5 dB
S 🔗 M
60
100
10   10

HARMONICS

SATURATION
7
+12
+6
0
-3
-6
-12
-24
-48
-inf
+9.2 dB
8 S 🔗 M
DRIVE
9 80
COLOR
10 50
LOW PASS (Hz)
11 1000

ORIGINAL
12
+12
+6
0
-3
-6
-12
-24
-48
-inf
-4.8 dB
13 M

OUTPUT
14
+12
+6
0
-3
-6
-12
-24
-48
-inf
-4.8 dB

6
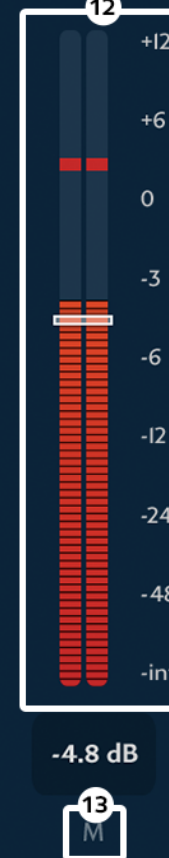
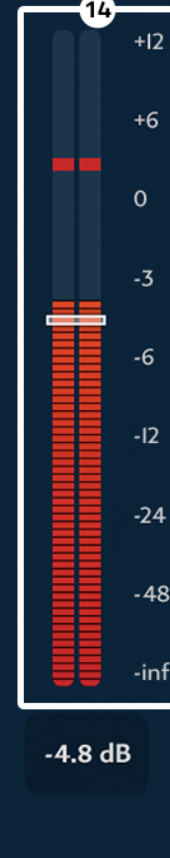## Installation Locations

After running the RootOne installer with default folder paths, you will find the different plugin formats in the following locations:

MacOS:
AAX - /Library/Application Support/Avid/Audio/Plug-Ins
VST - /Library/Audio/Plug-Ins/VST
VST3 - /Library/Audio/Plug-Ins/VST3
AU - /Library/Audio/Plug-Ins/Components

Windows:
AAX - C:\Program Files\Common Files\Avid\Audio\Plug-Ins
VST - C:\Program Files\Steinberg\VstPlugins
VST3 - C:\Program Files\Common Files\VST3

*VST PlugIn Technology by Steinberg Media Technologies

Contact Us

If you have questions, need any further assistance or want to share your thoughts about our plugins, please don't hesitate to contact us by email on support@leapwingaudio.com or join the Leapwing Users group on Facebook.

Thanks again for choosing Leapwing and we look forward to hearing from you.

Audio Units