

Cans2Cones

Headphone to Speaker Emulator

Audio effect plugin by Raising Jake Studios

Thank you for purchasing Cans2Cones audio effect plugin! Cans2Cones emulates the spatial and dynamic characteristics of loudspeakers while listening through headphones. It eliminates the “super stereo” effect that often clouds judgement of reverb and panning when mixing through headphones.

Cans2Cones is a 64-bit VST2, VST3 and AAX plugin for Windows and “Universal Binary” VST2, VST3, AU and AXX plugin for Mac OS 10.11 or higher on Intel and Apple Silicon.

What Cans2Cones does

Cans2Cones generates cross-mixed Interaural Time and Interaural Amplitude Differences (ITD & IAD) that occur with real loudspeakers in a well-treated room. These time and amplitude differences are based on the classic monitor geometry of a 60-60-60 equilateral triangle. Subtle changes in perceived size and distance of the sound source are generated while the exaggerated stereo sound of headphones is removed. Cans2Cones will also produce the slight tonal coloration and comb filtering of speakers cross-coupling in a real room.

A unique feature of Cans2Cones is the Dynamic De-Compression control which helps to compensate for the compression effect of headphone drivers being in close proximity to the eardrums. This control “dries out” and expands the sound a small amount which helps to provide a better sense of the overall amount of reverb and compression in a mix.

What Cans2Cones does NOT do

Cans2Cones is not a “headphone equalizer” and will not alter or correct the frequency response of your headphones. It is recommended to use high quality, studio-grade headphones.

INSTALLATION INSTRUCTIONS

To install Cans2Cones simply copy and paste the appropriate files from the Cans2Cones purchased download file to the proper folders on your computer as noted below.

All RJ Studios plugin files are “double zipped”. The top-level zip file (download) contains two sub-files dmg (for Mac) and zip (for PC) that are independently zipped.

FOR PC

To install the VST3 plugin: make sure your DAW is closed then copy the “Cans2Conesv4.vst3” file from purchased download file and save it to your VST3 plugin folder (typically C:\Program Files\Common Files\VST3). Restart your DAW and scan the plugins folder from your DAW’s plugin manager.

To install the VST2 plugin: make sure your DAW is closed then copy the “Cans2Conesv4.dll” file from purchased download file and save it to your VST2 plugin folder (typically C:\Program Files\Steinberg\VSTPlugins). Restart your DAW and scan the plugins folder from your DAW’s plugin manager.

INSTALLATION INSTRUCTIONS (cont.)

To install the aaxplugin for Pro Tools: make sure your DAW is closed then copy the “Cans2Conesv4.aaxplugin” file from purchased download file and save it to your Avid plugin folder (typically found at C:\Program Files\Common Files\Avid\Audio\Plug-Ins). The plugin will be automatically scanned/added the next time Pro Tools is opened.

FOR MAC

To install the VST2, VST3 and/or AU plugins, make sure your DAW is closed then copy the “Cans2Conesv4.vst” and/or “Cans2Conesv4.vst3” and/or “Cans2Conesv4.component” folders from the purchased download file and save them the VST and/or VST3 and/or Component folders on your Mac under /Library/Audio/Plugins.

NOTE: On Mac OS a reboot may be required before new plugins will show up in your DAW(s).

To install the aaxplugin for Pro Tools: make sure your DAW is closed then copy the “Cans2Conesv4.aaxplugin” file from purchased download file and save it to your Avid plugin folder (typically /user/Library/Application Support/Avid/Audio/Plug-Ins). The plugin will be automatically scanned/added the next time Pro Tools is opened.

REGISTRATION

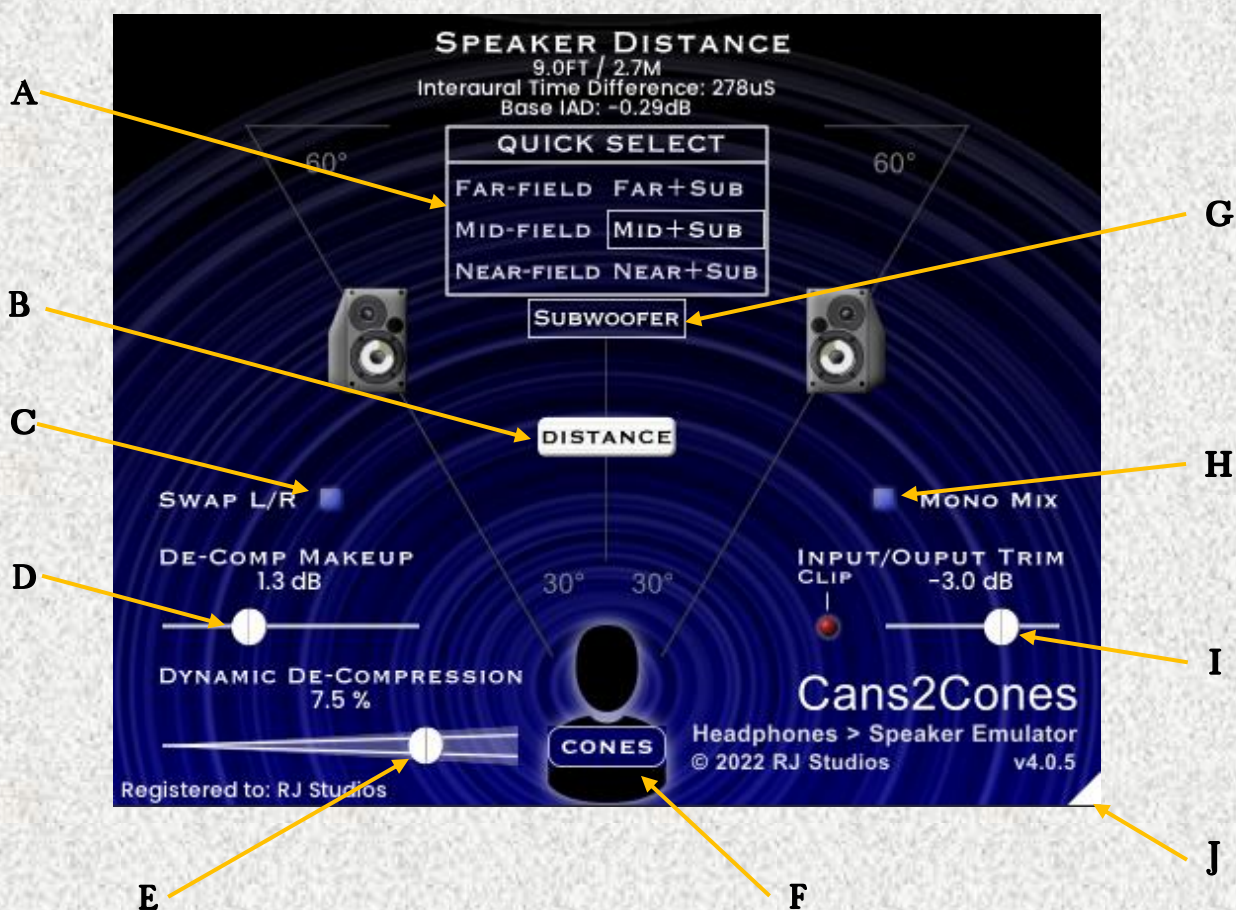
Cans2Cones will be operating in demo mode when first installed and will operate unrestricted for 14 days. At the end of 14 days the demo will cease output unless a license is purchased. To install your license, click on the registration field at the lower left corner of the plugin window; copy and right-click paste the registration code from your purchase receipt then press enter on your keyboard.

NOTE: Internet connection is required during registration. If your system is typically isolated from the internet for security or performance reasons you may disconnect after the plugin shows “Registered to: your name”.

NOTE: Many DAWs “cache” plugins and may not show the plugin as “Registered to: xxx” until the plugin is removed from a track or bus and re-loaded. Restarting the DAW will also refresh the plugin.

Answers to common registrations issues can be found on our [website FAQ page](#)

Plugin Controls



A – Quick Select – allows rapid loading of factory presets for quick comparison of different speaker settings and types. “Far-field”, “Mid-field” and “Near-field” have a low frequency roll off common to systems of their type; down 10dB at 20Hz for Far-field, 30Hz for Mid-field and 50Hz for Near-field. The speaker + Sub choices deliver full bandwidth as if a carefully balanced subwoofer was added to the system.

NOTE: Quick Select buttons quickly load preset values to all the controls but settings of the controls can be changed by the user any time thereafter. Selecting the same or another preset will overwrite any subsequent changes made by the user. If you wish to save custom settings, please save them as plugin “user presets” in your DAW’s plugin window. Saving the DAW project will save the currently active settings of all controls.

B – Speaker Distance – click and drag this slider up/down to change the emulated speaker distance. Changing the speaker distance affects the interaural time and amplitude compensation applied to the signal as well as the cutoff frequency of the low end when in Subwoofer OFF mode. With Subwoofer ON, Time and Amplitude variations are applied to a full bandwidth signal.

C – Swap L/R – click in the blue button to flip the stereo channels L <> R. Swapping channels can give a new perspective of the stereo image that can help when setting levels and panning in a mix.

D – De-Comp Makeup – makeup gain to match overall perceived levels post-decompression for A/B comparison. The required matching adjustment depends on the level of source material and amount of de-compression applied. De-Comp Makeup will revert to a preset level each time a Quick Select preset is selected. If you wish to save a custom setting, please save it with your DAW project or as a plugin user preset.

NOTE: due to the dynamic range expansion created by the Dynamic De-Compression control the processed signal peaks can exceed the level of the source audio. Use the **Input/Output Trim** control (see I below) to prevent clipping your audio I./O.

E – Dynamic De-compression – this control affects the amount of de-compression (expansion) applied to the signal making the sound appear more “dry” and dynamic - like it would through speakers played in open space. More effect to the right, less to the left. Full left is off (no effect).

F – Process/Bypass – allows A/B selection of processed vs original source signal. This control has proper gain and latency compensation and should be used for turning the effect on/off rather than using your DAW's plugin bypass. The **Input/Output Trim** remains active when the plugin is bypassed by this control to allow proper comparison of effect on/off at matched levels. (Input/Output trim will not remain in effect if the plugin is bypassed via your DAW's plugin bypass).

G – Subwoofer – when this control is OFF a scaled low-cut filter is applied to the signal to replicate the low-end frequency response of speakers typically used in the shown positions (large “Mains”; mid-field and small “near-field” monitors). In the Far-field position the cutoff is down 10dB at 20Hz (little effect on most material); Mid-field 30Hz and Near-field 50Hz. This filter's frequency is automatically scaled for all distances in between. When the “subwoofer” is ON a full bandwidth signal is delivered to the output as if a carefully balanced subwoofer was in the system.

NOTE: the audibility of the Subwoofer control depends on the frequency response of the headphones used. The Subwoofer effect may not be audible with headphones that do not have sufficient low-end response. Please use high quality, studio-grade headphones for best results.

H – Mono Mix – click on the blue button to mix left and right channels to mono. The mono mix will be sent to both output channels. In Mono Mix mode Dynamic De-compression and speaker voicing are applied but no left/right delayed cross-coupling or resultant comb filtering is applied – as if the sound was originating from a single speaker.

I – Input/Output Trim – the Dynamic De-compression and filtering stages in Cans2Cones can produce transient signal levels that exceed the input signal level. Use this control to reduce the output level, if necessary, to avoid clipping your audio interface. Clipping will be indicated in the RED clipping LED.

NOTE: the **Input/Output Trim** control (I) remains in effect even when the Process control (F) is in BYPASS so that it is easy to compare the sound when the plugin is switched on/off. The trim gain will not be applied if the plugin is bypassed using your DAW's plugin bypass.

J – Plugin window size – click and drag to resize the plugin window by +/-50%. Double click to reset to default size.

CONTROL MODIFIER KEYS

- 1) Hold down the Ctrl key while dragging or scrolling any rotary or slider control for fine resolution
- 2) Hold down the Alt (Win)/Option(Mac) key and then click on any rotary or slider control to reset that control to its default value
- 3) Double-click on any rotary or slider control to type in a control value.

HOW TO USE CANS2CONES

Cans2Cones should be placed on the monitor bus in your DAW. If used on the stereo master bus make sure to bypass or remove the plugin before mixdown!

NOTE: Cans2Cones is a stereo image controller for monitoring purposes that works with **stereo** source tracks – it has no useful purpose and may produce an odd-sounding “comb filtering” effect if used on mono tracks.

Cans2Cones generates the interaural time and amplitude differences that would be heard from real loudspeakers separated on an equilateral triangle. These time and amplitude differences will create small amounts of comb filtering that will subtly change the apparent distance and size of the emulated speakers. This sound is further enhanced by the “subwoofer” control which rolls off/fills in the low end of the speaker response to generate the characteristic sound for the size and type of speakers used in the emulated locations.

For best results when mixing switch back and forth between Process/Bypass and the various presets, mono mix and left/right channel swap for an overall “view” of the sound as if listening on multiple sets of speakers and headphones.

NOTE: the plugin generates a maximum stereo width azimuth of approximately 30 degrees L/R of center at maximum distance (15 feet). As the Distance is brought down, closer to the listener, the stereo width gradually widens as it would when moving your head closer between two real speakers. If a 30 degree azimuth sounds “too mono” for your needs, please switch to the NEAR + SUB preset and pull the distance down toward the “listener”.

LICENSE INFO

By installing this software you agree to use it at your own risk. We do our best to thoroughly test our plugins before release but it is simply impossible to test every conceivable situation. We cannot be held responsible for any damages caused as a result of use of this product. If a problem arises please contact us with a description of the problem and as much information as you can provide (DAW, DAW version, OS and version, error messages, etc.).

Distribution:

You are not permitted to distribute the software without the developer's permission. **You may register a copy on one laptop and one PC but "sharing" with others and duplication is prohibited.** Paying for the software you use helps developers like us stay in business!

Updates: You are entitled to free updates until the next major version number. **Please retain your purchase download link and registration key.** The developer makes no guarantee that this product will be maintained indefinitely.

Moving to another computer:

To move your plugin to another computer you can "De-Register" the plugin using our De-Register app that can be download anytime from our [FAQ webpage](#).

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