



OPERATION MANUAL

Stereoplacer

Frequency Specific Panoramic Placement



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Introduction

The NUGEN Audio Stereoplacer is designed for the realignment, correction and redistribution of stereo balance by frequency. We have paid particular attention to the practical application of the processes, allowing for optimisation at all stages of the recording process, tracking, mixing and mastering.

Stereoplacer uses high quality filter algorithms, optimised for audio transparency, simply delivering the results of the process without generated coloration. The interface has also been designed for transparent operation, removing the link between control and control function with visual representation of many controls in graphical format.

Optional visual analysis is also available, showing the stereo relative to frequency, allowing for frequency conscious adjustment without the needs to refer to a separate analysis plug-in.

Controls

The controls are grouped into several distinct zones, to aid intuitive operation (see diagram below).



- 1 Main parameter control and visual feedback area
- 2 Detailed control zone
- 3 Level metering and stereo spectrum analysis controls
- 4 Utility control zone
- 5 Parameter value display window

Main Control Screen

This section provides controls for adjustment of the main Stereoplacer controls. The main screen shows the imposed stereo balance envelope with several control points along with optional stereo differential audio analysis.



- 1 **Graphical display.** This area shows the stereo balance envelope and associated control points (see below). The optional audio analysis gives a graphical representation of the stereo spread in the output against frequency - the wider the stereo spread the larger the deviation (Left – Up, Right – Down) from the straight line as represented by a mono signal.
- 2 **Stereo balance envelope.** This solid white line indicates the stereo balance modification envelope applied by the processing and is adjusted by moving the envelope control points [3,4]
- 3 **Envelope control point.** The control points determine the amount the stereo field is adjusted. A stereo width envelope [2] is built using several 'bands', each represented by an envelope control point in a manner analogous to the build up of an EQ envelope using the bands of a traditional parametric eq. New control points can be added by clicking in an unoccupied area of the graphical display [1].

- 4 **Current (active) envelope control point.** A control point is made current by clicking. This then highlights the contribution of this node to the overall stereo envelope and activates additional control options. The arrow markers indicate the 'Q' value of this node, and can be dragged horizontally to make adjustment. The 'x' control can be used to delete the control point. The values relating to the active node and additional advanced controls can be found in the detailed control zone.
- 5 **Mouse-over control point.** Mouse over a control point to see it's individual contribution to the overall stereo balance envelope.
- 6 **Algorithm settings.** This section determines the type of filter Monofilter process uses. 'Zero Latency' is a zero latency algorithm designed for use when immediate audio throughput is required. 'Linear Phase' is a transparent option, with a slight process latency. This is the suggested option for mixing and mastering. The 'HQ' option switches in a higher definition process, at the expense of increased CPU usage and latency in the case of the Linear Phase filter. The 'Link' control links the filter settings of all Monofilter instances with the setting activated. This allows for rapid switching between different algorithms e.g. if zero latency operation is temporarily required during a mixing session.

Note: When HQ mode is selected or deselected or the process algorithm is changed, the VST host will need to recalculate the Plug-in Delay Compensation*. If the mode is changed during playback, this can lead to a glitch in the sound output, depending upon the plug-in host, computer spec and other plug-ins in use at the time. To avoid accidental interruption of playback, the default setting will only allow the mode to be changed when audio playback is stopped.

To disable this safety setting click the plug-in title to open the 'options panel' and set the HQ mode safety switch to off.

*This is required because HQ mode/linear phase algorithm uses a different fft kernel size in order to achieve the high level of precision this feature requires.

Detailed Control Zone

This section allows for detailed adjustment of the active envelope control point and gives numeric feedback. Numeric values can be click-dragged up and down to change the current value. Changes in this zone are reflected in the graphical display area above.



- 1 **Add/remove control point.** Click '+' to add a new active control point up to a maximum of ten control points. Click 'x' to remove the active control point. This option is not available when there is only one control point remaining.
- 2 **Active control point.** The colour reflects the colour of the active control point (shown in the graphical display area). Controls points can be cycled through using the arrow buttons.
- 3 **Control point type.** There are three types of control point available, which make contributions to the stereo balance envelope in a manner analogous to those found on a traditional EQ. HS (high shelf), bell curve and LS (low shelf).
- 4 **Control point solo and mute.** Click 's' to listen to the frequencies affected by this control point. The value above represent the background 'bleed' level of the solo control and can be adjusted by click-dragging the percentage up or down. Click 'm' to mute the control point, without deleting it permanently. A muted control point will remain muted if another point is selected.

- 5 Control point parameters.** These values determine the shape of the curve applied by this control point, and can be adjusted by click-dragging vertically up or down to increase or reduce the value respectively. The Freq (frequency) value determines the reference position of the control point, Q determines the width of the affected frequencies (and the 'resonance' around the frequency in the case of the shelving option). The Position value determines the amount of L or R shift applied to the stereo balance envelope by this control point.
- 6 Harmonics section.** With each node it is possible to add a number of additional harmonically linked bell curves, all referenced from the one 'root' control point. 'Number' determines the number of additional curves added and 'Decay' decreases the relative positional input of subsequent curves.

Metering and Analysis

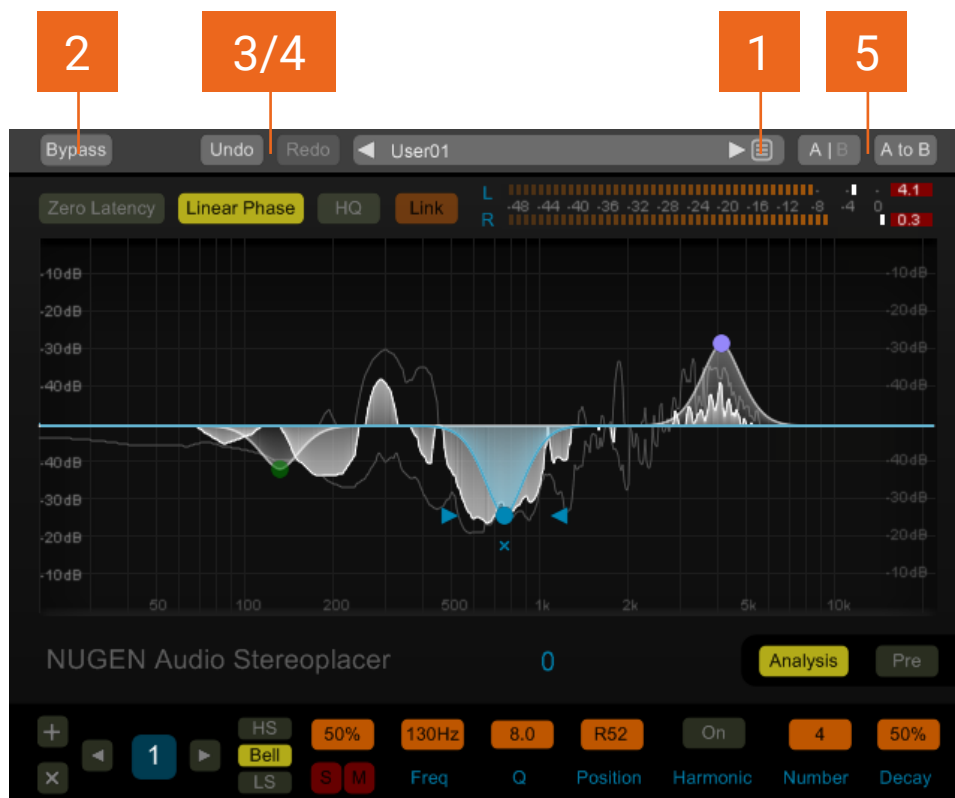
This section provides controls for adjustment of the phase correlation of the Left and Right input, along side analysis showing correlation by frequency.



- 1 **Stereo spectrum analysis options.** Click the 'analysis' button to toggle on and off the spectrum analysis view in the graphical display area. The 'Pre' button toggles the analysis pre and post processing so the stereo distribution applied by the effect can be investigated in detail.
- 2 **Output level meter.** Shows output level, with peak hold indicators and margin. If a digital 'over' is detected, the margin will show a red 'clip' indicator. Click to re-set.

Utility Controls

Monofilter supports a number of standard utility controls. These may be duplicated in some instances within the host DAW, however the controls within the plug-in will operate 'in place' to provide seamless audio performance.



- 1 **Preset browser.** Click to open preset browser window to select presets from list. Use arrows to move through presets in order.

Note: Setting up Stereoplacer is rather like setting up EQ and is entirely dependent upon the desired effect to be created with the source audio. As a result, there are no factory presets installed by default.

- 2 **Bypass.** In-place bypass mode, preserving PDC to avoid re-lock issues.
- 3 **Undo.** Unlimited session undo.
- 4 **Redo.** Unlimited session redo.
- 5 **A | B.** Switch between temporary session A and B memories to compare two sets of settings.

General Functions

- Holding down control (Ctrl) and clicking a control will return the control to the default position (Win) or double click a control (OSX).
- Holding down shift whilst moving a control will allow fine adjustment to be made.

Practical Application

Stereoplacer is a versatile effect that has many practical applications, both in the studio and during live recording and performance, from use in audio restoration projects to correcting poor mic placement, sample fixing and creative sound design. Below are some suggestions to help you get the most from your plugin.

Quick-start guide

For those looking to quickly try out Stereoplacer in practice, here is a suggested initial approach to help familiarise the new user with the basic controls.

- 1 Add Stereoplacer as an insert to an audio track and start playback.
- 2 Ensure there is only one node activated (delete any other nodes using the 'x' control by the control point on the graphical display, or in the detailed control zone.
- 3 Change the remaining control point to a 'bell' shape if it is not already, and select a Q value of about 7.
- 4 Solo the node by clicking the 's' control, with a low level of solo bleed (<10%).
- 5 Click-drag the control point around the graphical display, sweeping through the frequencies.
- 6 You will hear the frequencies 'captured' as the control point is swept up and down the frequency range, and the stereo balance adjustment made as the control point is moved away from the centre (up – left, down – right).
- 7 Once you are familiar with how the frequencies are 'captured' and shifted in the stereo image, you can tune Stereoplacer to specific target frequencies and move them to the correct position, using multiple bands if required.
- 8 The shelving option is useful for applying an offset to the entire audio spectrum above or below specific frequencies.
- 9 The harmonics option can be used to more effectively capture the imprint of a percussive part, and for creative comb panning effects.
- 10 When trying to isolate specific instruments within complex material it is often effective to focus in on the frequencies that compose the essential character of the sound. Rather than attempting to move all frequencies the instrument occupies, try to find key frequencies that are not occupied or masked by other instruments. If these key frequencies are moved, the ear can be persuaded that the entire instrument has moved without interfering with the placement of other instruments within the audio.

Stereo spectrum analysis.

The graphical display in Stereoplacer can be used as a Stereo differential spectrum analyser. Leaving controls in their default positions (you can achieve this quickly and simply by selecting the preset 'Analyser') will set up the plugin in analysis mode. The incoming sound is not affected, but is analysed for stereo content, which is then displayed visually.

'Panning' bass.

Panning bass sounds is usually something best avoided as off-centre high energy in the low frequencies can present more problems than it resolves. However, using Stereoplacer the low frequencies present in say a bass guitar track, can be left centre while the higher frequencies (i.e. much of the attack component) can be moved in the stereo field with a shelving band, without the usual problems of the attending lows, giving the impression that the bass part has been panned, when really it is only the high, directional information carrying frequencies that have been moved.

Choosing the algorithm

Stereoplacer has three separate modes of operation, zero latency, linear phase and linear phase HQ, each with it's own characteristics. The optimum algorithm setting is dependent upon the task at hand. Below are some guidelines to help with algorithm selection.

- Live (zero latency)

In live contexts, low latency is essential. Low CPU use is also a benefit, as to ensure a system always performs smoothly it is best to avoid stressing the system with a high processor load.

- Mixing (linear phase)

When mixing, a 'transparent' sound is great for 'gluing' sounds together without upsetting the overall colour of a sound. Latency and CPU are less of an issue as the system is in a more controlled environment. As the overall sound is a layering of many tracks and groups, standard linear phase mode is usually sufficient unless extremely sharp transitions are required at very low frequencies.

- Mastering (linear phase HQ)

In a mastering context quality and precise definition are the over-riding concerns. CPU and latency issues are less important. Maximum control, definition and transparency are achieved by using Monofilter in linear phase HQ mode. The HQ mode does result in a higher CPU overhead, which can be mitigated by choosing larger buffer sizes in the audio driver set-up options.

- Summary table

Application*	Priority			Setting
	Low latency	Low CPU	High precision	
Live recording (DAW monitoring)	High	High	Low	Zero latency
Mixing recording (hardware monitoring)	Med	Med	Med	Linear phase
Mastering	Low	Low	High	LP HQ

*The 'link' control can be used to switch all instances of Stereoplacer to the same algorithm simultaneously. This can be useful when unforeseen overdubs are called for etc.

Reporting a Problem

If you encounter a problem with any of NUGEN Audio's products, please let us know, to help us improve them.

Please email NUGEN Audio at support@nugenaudio.com giving a clear explanation of the problem. Please state how frequently you've experienced the problem. If there are any particular steps you need to go through to see the problem, please detail these. Also, please give details of the VST Host you are using, including version number (e.g.- Ableton Live 8.0.1).

Please also state your operating system, and the rough specs for your machine (e.g.- CPU speed, RAM) - in Windows XP you can get this information by right-clicking "My Computer" and selecting properties.

Please be patient with any problems you may experience, particularly with products at a beta stage of release. At NUGEN Audio we take problems with our software seriously, and will endeavour to correct them as quickly as possible.

Version History

- 3.0 Initial release

- 3.1 AAX 32 & 64-bit versions released
RTAS 32 bit version released
VST 64-bit version released (OSX)
AU 64-bit version released
Numerous compatibility fixes

- 3.2 New preset file browser

