

# SpinTracer

Version 1.5

## Owners Manual

Thank you for choosing SpinTracer, a creative live performance and spatial sound manipulation tool for sound designers and composers. This manual will guide you through the installation, setup, and effective utilization of SpinTracer, ensuring you maximize the creative potential of this innovative tool.

SpinTracer requires the following system requirements

- Windows 10 or macOS 10.13 or later
- A DAW (Digital Audio Workstation) that supports VST, VST3, AU, or AAX plugins
- A 64-bit CPU with a minimum of 4 cores
- A minimum of 8 GB of RAM
- A minimum screen resolution of 1280 x 768

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### **4. Thank you & Support**

## 1. Installation

After downloading, unzip the archive and launch the installer for SpinTracer. The installer will guide you through the installation process, copying files into the common VST2.4, VST 3, AU, or Pro Tools plug-in folders on your computer. Your host should automatically recognize the plug-in upon the next restart. During installation, you will be prompted to register SpinTracer with your iLok account.

### 1.1. MacOS

On MacOS, you can find the standard plug-in folders in the system library folders. The paths are as follows:

**Audio Units (AU):** /Library/Audio/Plug-Ins/Components

**VST:** /Library/Audio/Plug-Ins/VST and /Library/Audio/Plug-Ins/VST3

**AAX:** /Library/Application Support/Avid/Audio/Plug-Ins

### 1.2. Windows

On Windows, you can find the standard plug-in folders in the system library folders. The paths are as follows:

**VST:** C:\Program Files\VSTPlugins

**AAX:** C:\Program Files\Common Files\Avid\Audio\Plug-Ins

If your host does not recognize the plug-in, you may need to manually copy it to the host-specific plug-in path.

### 1.3. iLOK Registration

The Authorization Wizard will open if SpinTracer has not yet been authorized when you insert the plug-in or when it is scanned by your host application. You need to have an iLok account in order to use SpinTracer. Setting up an iLok account is free and easy. For more information, please visit [www.ilok.com](http://www.ilok.com). Choose whether to activate the plug-in to your computer or to an iLok 2 or later. Please note that first-generation iLoks are not supported.

After your purchase from TONSTURM, you will receive an email from us containing the download link for the installer and an iLok activation code (e.g., XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX). Download the iLok Manager from [www.ilok.com](http://www.ilok.com), then choose ACTIVATE. You will be presented with the activation window, where you may enter your code. Copy and paste the entire code into the entry form, and select your activation location: your computer or your iLok.

## 2. SpinTracer Introduction

### What is SpinTracer?

SpinTracer is an innovative audio software plugin designed for creative live performance and spatial sound manipulation. It introduces a unique spatial Doppler effect, allowing users to project incoming audio through up to sixteen dynamic sound orbs, creating immersive three-dimensional soundscapes.

At its core, SpinTracer features a state-of-the-art physics engine that enables precise control over sound movement in a defined three-dimensional space. Users can set exact dimensions for the sound's motion, define its maximum speed, and adjust its trajectory with gravitational steering force. By integrating a sophisticated physics engine with precise spatial dimension calculations and our advanced Doppler DSP, SpinTracer achieves an unprecedented level of fidelity in real-time Doppler effect simulation. This combination ensures that the sound object's movement, whether directed by mouse control or an automated path, is not just an approximation but a true-to-life representation of Doppler shifts, realized in real-time.

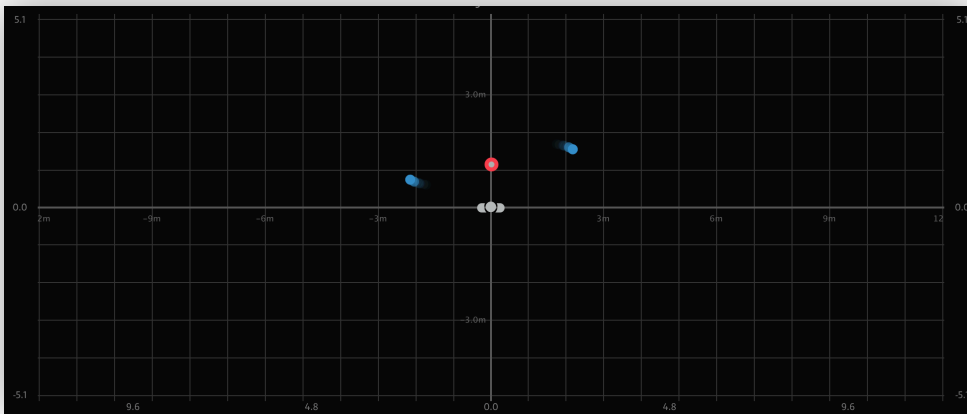
Furthermore, SpinTracer enhances sound manipulation with its orbiting sound objects, referred to as orbs. Each orb represents a channel of the incoming audio, allowing users to precisely set the radius of their orbits around the tracer object. This capability encourages users to delve into sophisticated geometric configurations by modifying the orbit rings and spinning phases, among other parameters.

The plugin also introduces a random walk mode, adding an element of unpredictability. Sound orbs can wander within their orbits, mimicking swarming or beehive-like movements. to craft intricate auditory landscapes that engage and intrigue the listener.

All these functionalities are powered by our advanced Doppler engine, which calculates precise Doppler effects, floor reflections, and binaural panning for each sound object relative to the listener's position. This engine, first introduced in our DopplerPRO plugin, now brings its high-end DSP capabilities to SpinTracer, elevating it to the forefront of creative spatial audio design.

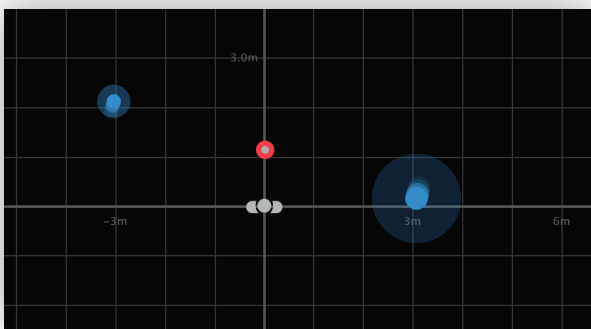
## 2.2 What is new in SpinTracer V.1.5

### Background Grid



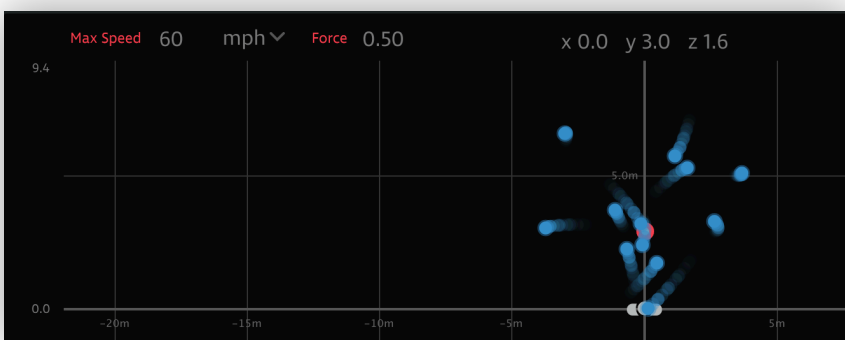
A new responsive background grid helps visualize the overall spatial scale of the stage. The grid updates while adjusting the Dimension parameter and while zooming, making it easier to judge object movement, stage size, and performance gestures at a glance.

### Improved Orb Height Indication



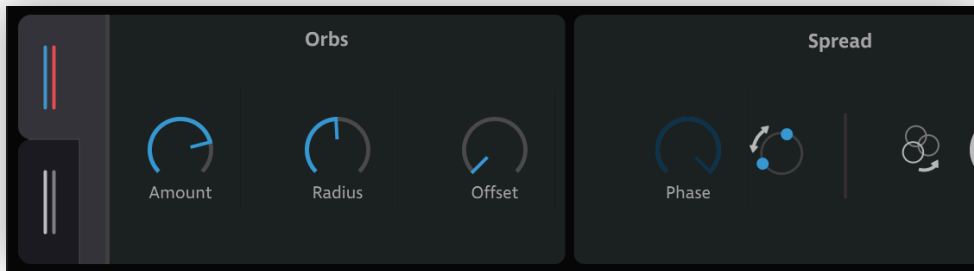
Orb height is now represented more clearly on the stage, making Z-axis movement easier to follow during performance and sound design. This improved visual feedback helps you understand elevation changes more intuitively when working with complex motion.

### Improved Control Layout



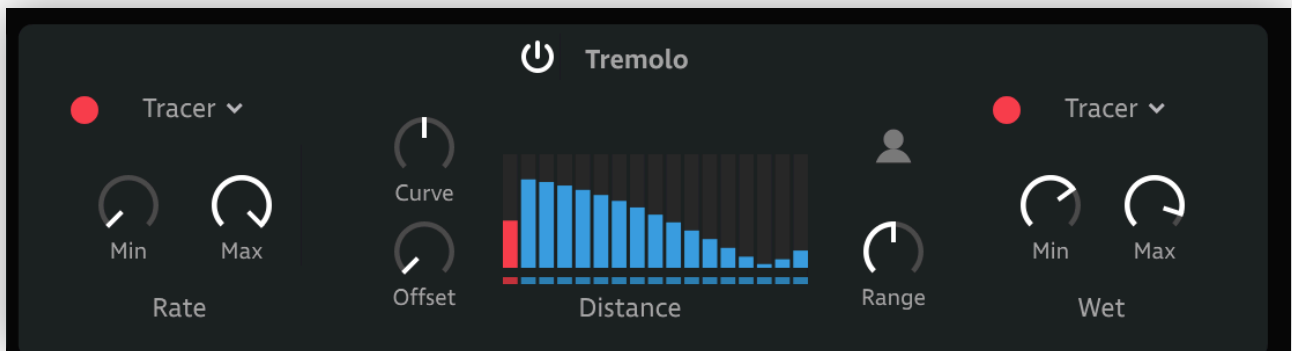
Improved Control Layout Maximum Speed and Force are now placed directly above the canvas, keeping these core tracer controls close at hand while performing or refining a patch.

## Two-Row Parameter Layout

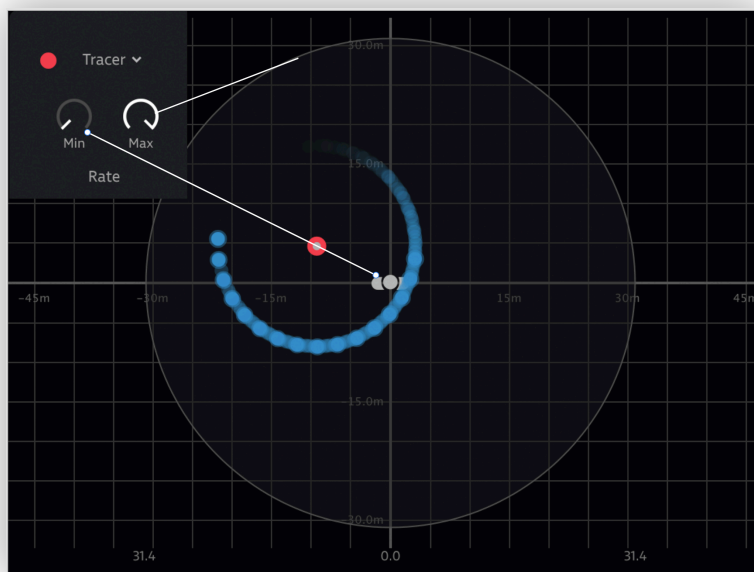


The parameter section is now split into two clearer rows.

## New Multi-Orb Tremolo Module



SpinTracer 1.5 introduces a new Tremolo module that adds rhythmic volume modulation driven by spatial movement. The tremolo can respond either to the distance of the tracer or to the distance of each individual orb, opening up a wide range of animated motion-dependent textures.

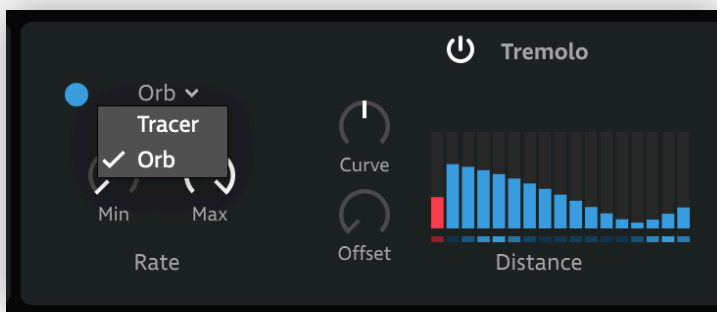


### Distance-Based Tremolo Range

When the Tremolo module is enabled, a gray circle appears around the listener.

This circle defines the tremolo range area, and the Range parameter sets its radius. The outer ring represents the minimum Rate and Wet values, while the center position of the listener represents the maximum values.

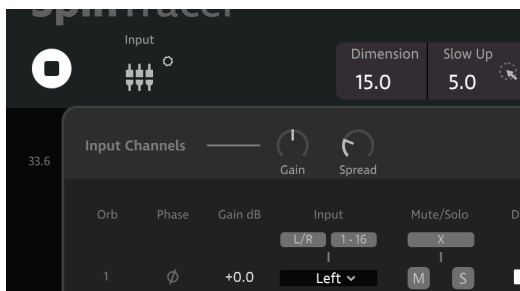
## Tracer Mode and Orb Mode



In Tracer Mode, the tremolo Rate is controlled by the distance between the tracer and the listener. As the tracer moves closer, the tremolo becomes faster and more intense.

**Per-Orb Rate Offset and Curve Control** In Tracer Mode, all orbs can share one common tremolo rate or use slightly offset modulation phases for a wider result. The Curve control changes how distance is mapped to the tremolo rate, allowing linear, exponential, or inverse-feeling responses depending on the desired motion behavior.

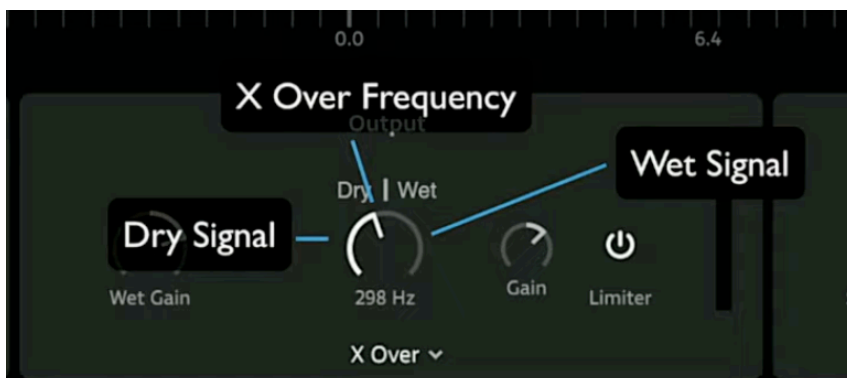
In Orb Mode, each orb calculates its own distance independently, resulting in a richer and more animated overall motion.



## Input Spread

The new Input Spread parameter applies a small delay offset across the individual input channels to decorrelate the signal. The entered value defines the maximum delay on the last orb, while the remaining orbs are distributed evenly between zero and that maximum, creating a wider and more open texture.

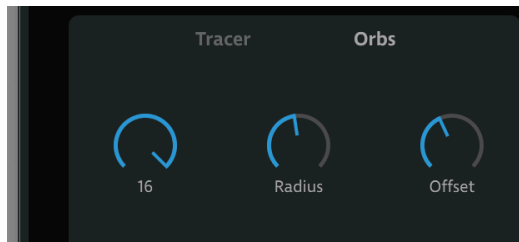
## X-Over Dry/Wet Mode



The Dry/Wet output module now includes an additional X-Over mode. The X-Over control defines the crossover frequency, with everything below that point remaining dry and everything above it processed. This is especially useful for keeping the low end stable while adding movement and Doppler effects to the higher frequencies.

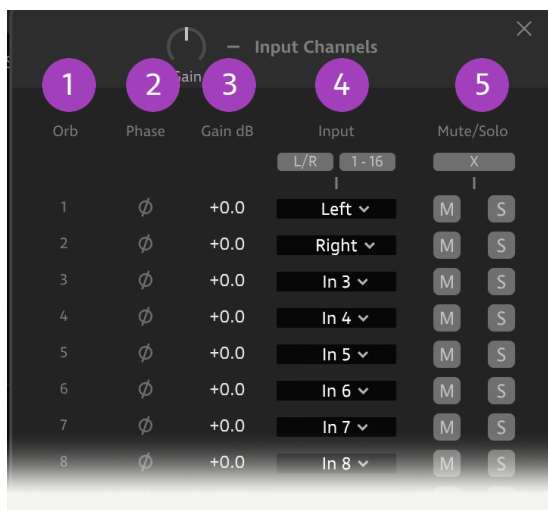
## 2.3 What was new in SpinTracer V.1.2

- **Increased Audio Orbs – Up to 16**



SpinTracer now supports up to 16 individual audio orbs, doubling its previous capacity. This expanded capability provides richer layering, perfect for complex sound environments and multi-channel audio projects.

- **Individual Input Assignment**



Assign separate audio channels to each orb, giving you full flexibility to create unique movements and positioning for each sound layer. This feature offers greater precision for advanced sound design and multi-source setups.

### 1.) Orb Number:

- Indicates the individual Orb number

### 2.) Orb Phase:

- Invert the individual Orb Input Phase

### 3.) Gain dB:

- Adjust the Orb Input Gain

### 4.) Input:

- Assign the Channel Input per Orb. At the top, you'll find quick-access shortcut buttons to streamline input assignments. You can quickly assign all 16 Orb Inputs to a Left-Right Stereo configuration, where odd-numbered Orbs receive the Left input and even-numbered Orbs receive the Right input. Alternatively, if your DAW supports multi-input workflows, you can assign each of the 16 available inputs across all 16 Orbs for full channel separation. 16 Channel Input is currently supported and tested for: Reaper,

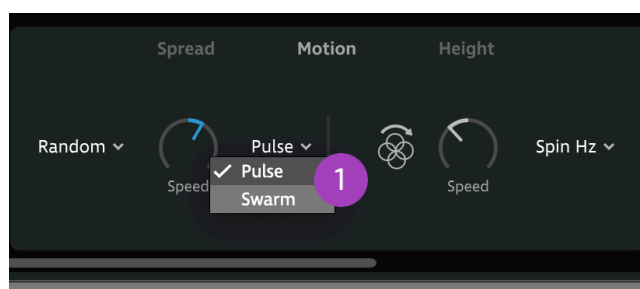


ProTools, Ableton and Cubase. We've created a dedicated video on our YouTube channel that guides you through the input assignment workflow for 16 inputs across various DAWs. Watch it here: <https://www.youtube.com/watch?v=26BcoR31p6A>

- 5.) Mute/Solo:
- In this section, you can Mute or Solo individual channels. To clear all active Mute and Solo selections simultaneously, use the "X" button at the top.
- **Note:** Mute overrides Solo if both are active.

- **Random Swarm Mode**

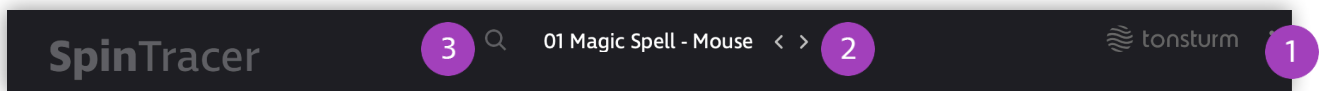
Create dynamic, unpredictable soundscapes with Random Swarm Mode. This new option allows each sound orb to move randomly within the spatial environment, adding depth and natural variation to any project.



- 5.) Random Pulse VS Swarm mode:
  - **Pulse:** In Pulse Mode, the sound orbs follow a periodic, randomized path that consistently returns to the center.
  - **Swarm:** Swarm Mode, in contrast, generates a true random walk for each orb, resulting in a more unpredictable movement.
- **Enhanced CPU Performance**  
Version 1.2 includes optimizations that significantly improve CPU efficiency, allowing for smoother performance even in complex sessions, so you can focus on creativity without technical interruptions.
  - **Z-Height Decoupling**  
The Z-height control is now decoupled, offering added flexibility when setting spatial dimensions. This adjustment helps you customize the virtual space precisely to your project's needs.

### 3. Explaining the UX elements:

#### 3.1.The Top Header



##### 1.) Settings Menu:

- Tooltips: If active, resting your cursor on a parameter will show you a description (if there is one)
- Check for Updates: The Plug In will search for updates. If a new update is found, you will be notified and provided with a link to the website where it can be downloaded. This ensures that your SpinTracer always remains up-to-date with the latest enhancements and features.
- Save: Saves the current patch at the designated folder and overwrites the currently selected patch.
- Save As: Saves the patch at the designated folder and does NOT overwrite the initial Patch

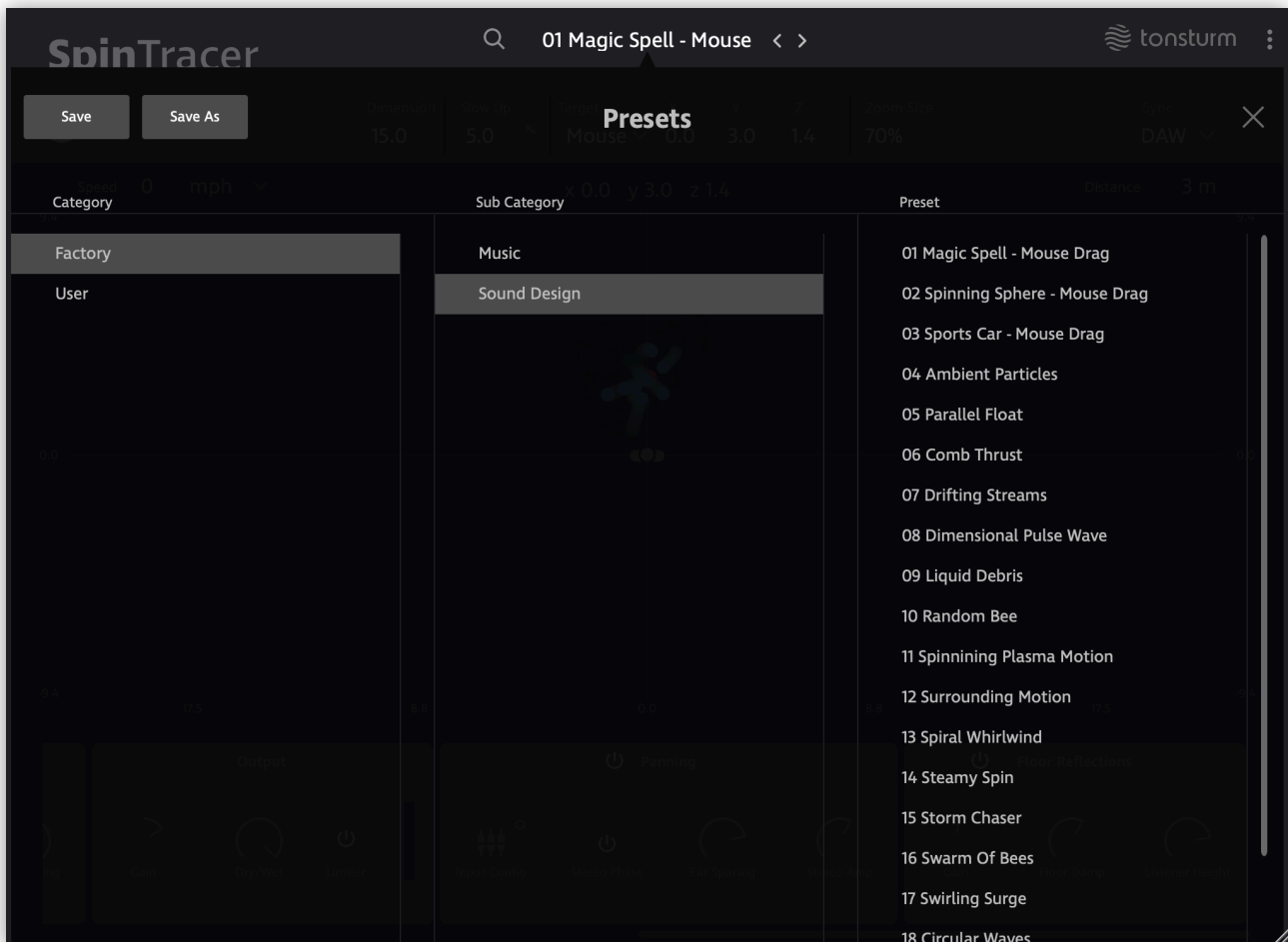
##### 2.) Navigating inside preset folder

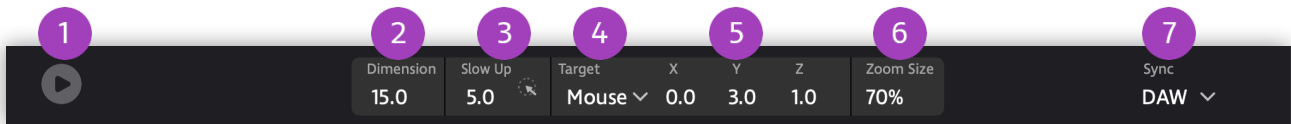
##### 3.) Open close preset window

### 3.2. The Preset Window

In the Preset Window you are able to browse Factory and User presets by clicking on the tabs in the Category bar. The presets are divided into Sub Categories for your convenience. The right column displays the actual Presets of the selected folder or sub folder.

The Save and Save As Buttons on the top right corner allow you to save the existing patch to your preferred location.





### 3.3 Playback Control Section

#### 1.) Play/Stop Toggle

This control directly engages the motion engine, which is responsible for setting the Orb object into motion. When toggling the play/stop function, the tracer is instantly relocated to the target position.

#### 2.) Dimension

The 'Dimension' control is pivotal in setting the overall size of the virtual stage, a key factor in tailoring the Doppler effect to your specific needs through real-time interaction, such as mouse dragging. This parameter's flexibility allows for a wide range of auditory experiences, simulating various spatial scenarios.

- **Large Dimensions:** Optimal for creating the sensation of significant movement within an expansive area. This setting is perfect when aiming to replicate the sound dynamics of larger objects, such as a jet or helicopter, zooming across the sky. The broader space accommodates higher speeds, enhancing the realism of the Doppler effect as the sound source seemingly moves from one point to another over considerable distances.
- **Smaller Dimensions:** Best suited for nuanced Doppler effects associated with smaller, more localized movements. This configuration is ideal for simulating the sounds of smaller entities, like a bee or fly, buzzing close to the listener's ears. The confined space emphasizes the subtleties of the Doppler effect, capturing the rapid, nearby oscillations of sound sources in a more intimate setting.

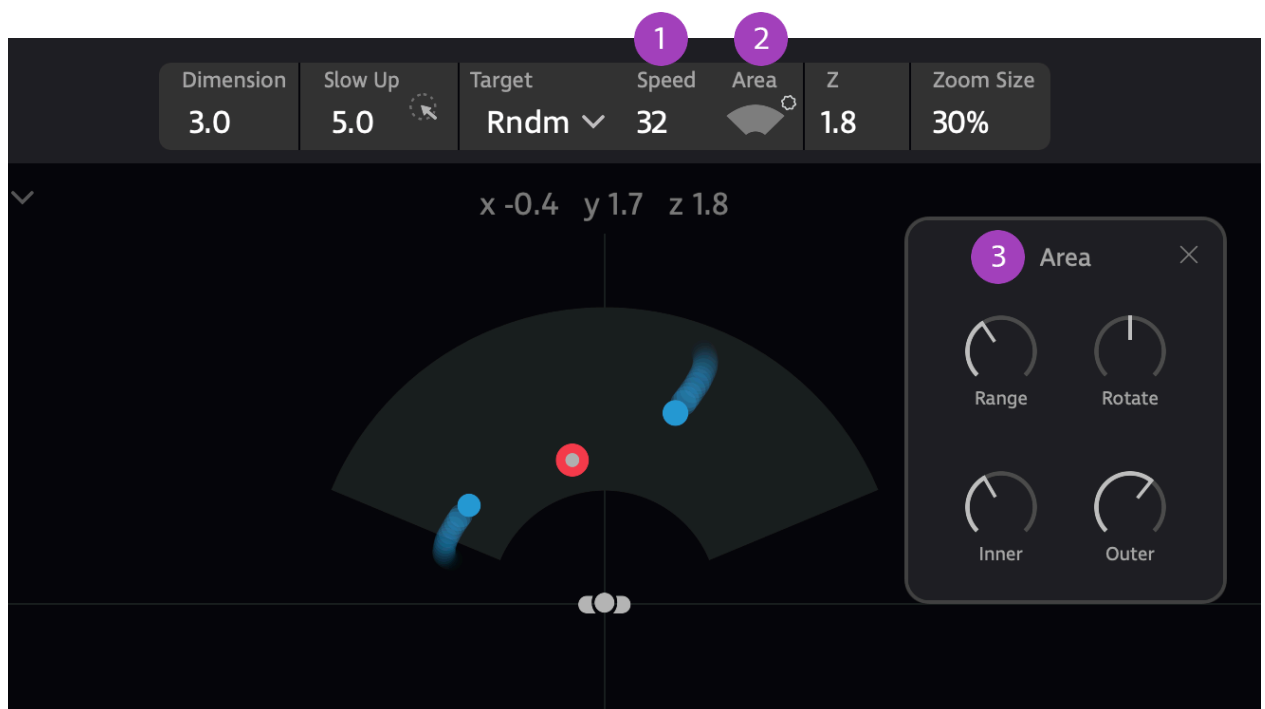
#### 3.) Slow Up

The 'Slow Up' control defines a radius around the target object. When the tracer object enters this radius, it begins to decelerate until it comes to a complete stop at the target's position. This feature ensures a smooth transition as the sound object approaches its destination.

## 4.) Target Control Mode

Here you can choose how you wish to control the movement of the target object.

- **Mouse Mode:** In this mode, you can click and drag the target object across the stage using your mouse cursor. The tracer object follows the target at a defined speed and begins to slow down upon entering the 'Slow Up' radius, eventually stopping at the target location. Additionally, you can automate or record your mouse movements into the host automation for precise control over the target's position in three-dimensional space.
  - **4.1 X Value:** Defines the target object's position along the X-axis (horizontal).
  - **4.2 Y Value:** Defines the target object's position along the Y-axis (vertical).
  - **4.3 Z Value:** Defines the target object's position along the Z-axis (height). The interface represents height through the size of the dots (target, tracer, and orbiting dots), with a higher Z value the dots increase their size.



**Target Random Mode:** In Random Mode, the target object adopts an unpredictable path, moving randomly within a specifically designated area - the random walk area. To customize this area, users can click on the **(2.) area symbol** marked with a tiny screw wheel.

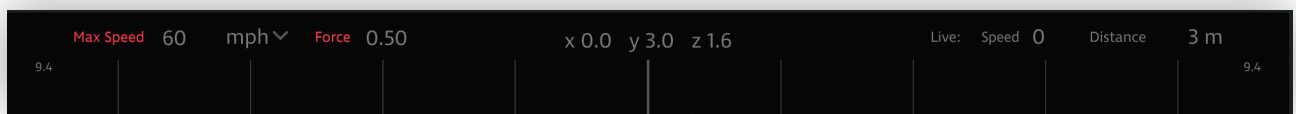
This action opens a popup menu, offering control over both the dimensions and the position of the random walk area relative to the listener's position. This mode effectively acts as an autopilot, allowing the target to move independently.

**(1.) Random Walk Speed:** This determines the pace at which the target changes its

- Interacting with the Canvas:** By clicking and dragging the **(1)Target** object across the canvas, the **(2)Tracer** object will follow at its defined maximum speed and steering behavior through the given space dimensions, attracted to the target. Also: clicking anywhere on the canvas will move the target object directly to the previously clicked location. **(3)** The Orb objects are the blue dots that are orbiting within the radius of the red tracer object. Their movement and behavior can be adjusted in many different ways. SpinTracer currently allows up to 16 Orb Objects.

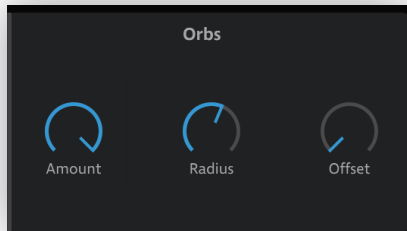
- **Adjusting Space Dimensions:** The total space dimension of the canvas can be modified using the 'Dimension' parameter, as described in section 2.
- **Zooming:** Users can zoom in and out of the canvas using the 'Zoom' parameter or by using the scroll wheel of the mouse when hovered over the canvas. Expanding the plugin window results in a larger viewable area on the screen, affecting the relative mouse resolution without altering the actual dimensions of the space.

## Display Indicators on the Canvas:



- 1.) **Max Speed:** This parameter determines the highest speed at which the tracer can move while chasing the target object across the pre-defined spatial dimensions. It is a crucial setting for managing how quickly the tracer can respond and move towards the target, affecting the overall dynamism and responsiveness of the Doppler effect simulation.
- 2.) **Force:** This setting specifies the intensity of the steering force applied to the tracer as it follows the target. The force parameter essentially governs the trajectory steering calculation, dictating how aggressively the tracer adjusts its course directly towards the target.
- 3.) **Speed Display:** Located at the top row of the canvas, it shows the current speed of the tracer object. Users can adjust the speed measurement units (meters per second, kilometers per hour, or miles per hour) via the pop-up menu.
- 4.) **Position Display:** The current position of the target object is displayed at the center top of the canvas, indicating its X (horizontal), Y (vertical), and Z (height) axis positions.
- 5.) **Distance Indicator:** Positioned at the top right, this indicator shows the directly measured distance between the tracer object and the listener.
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### 3.5 The Parameter Section

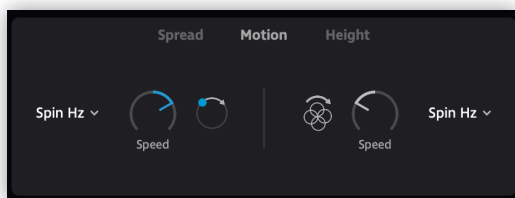


1.) **Amount:** This parameter controls the quantity of orbs that orbit within the tracer's designated radius, with options varying from two to eight. Each orb is linked to a specific audio input channel, systematically alternating between the left and right channels to create a stereo effect. Users have the flexibility to customize the routing of audio channels for each orb, tailoring the spatial audio distribution. This customization is facilitated through the input configuration popup menu, accessible within the panorama section.

2.) **Radius:** This parameter is crucial as it defines the orbit radius for each orb, setting the distance at which each orb can circulate around the tracer object. By adjusting this parameter, users can control how wide or narrow the orbit is, directly influencing the spatial spread and the perceived distance of the sound sources from the listener.

3.) **Offset:** This feature provides the ability to shift the center point of each orb's orbit away from the tracer, effectively altering their standard circular path. This adjustment is instrumental in creating diverse circling patterns and dynamic motion behaviors.

#### Motion menu:



1.) **Speed Orbit:** This control dictates the velocity at which the orbs cycle on their individual orbits. In Manual mode it sets the static Phase of the Orbit.

#### 2.) Motion Modes Orbs:

- **Manual Mode:** Allows for precise manual control over the phase position of each orb in its orbit. It's particularly useful for setting the initial phase for modulations based on Hertz (Hz) and Beats Per Minute (BPM), offering a starting point for the



orb's rotation.

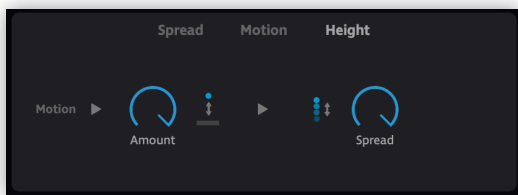
- **Random Mode:** When engaged, orbs undertake a random walk within their predefined orbit radius. This unpredictable movement pattern is excellent for generating lively, swarming behaviors in the sound field, adding a layer of complexity and dynamism to the audio experience.

- **Spin in Hertz and BPM:** Enables the adjustment of an orb's spinning speed directly in Hertz or synchronized with the host's BPM. It allows for the creation of rhythmically coherent or contrasting spinning movements.

3.) **Speed Orb:** This control dictates the velocity at which the orbits cycle around the tracer position. In manual mode it sets the static phase of the orbits.

4.) **Motion Modes Orbits: Same as in „2.) Motion Modes Orbs“** but for the orbits. Only random mode is not available for the orbits.

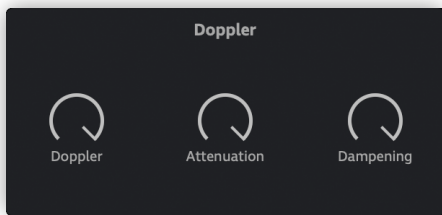
### Height Modulation:



### Height: Modulating Orb Elevation

This section allows you to control the vertical movement (Z-axis) of the orbs, adding a dynamic three-dimensional aspect to your soundscapes.

1. **Amount Knob:** This knob sets the maximum height for Z-axis modulation. The control voltage used here matches the settings chosen in the Motion Menu for the orbs. Essentially, you are redirecting this control voltage to also modulate the vertical positioning of the orbs.
2. **Spread:** This control varies the phase distribution of the modulation among the orbs, creating diverse elevation effects across the sound field.



### Doppler Amount:

These are the amount knobs for Doppler (Pitch), Attenuation, and Dampening.



### Output / Dry Wet Mode:

**Gain:** This control allows users to adjust the overall volume level, with a range from -infinity to +60 dB. This extensive range is crucial for compensating for volume reductions that occur due to the potentially large distances between the sound orbs and the listener during modulation.

**Low Cut:** Applies a high-pass filter to the processed signal, reducing low frequencies below the selected cutoff. Useful for cleaning up rumble and keeping the low end tighter.

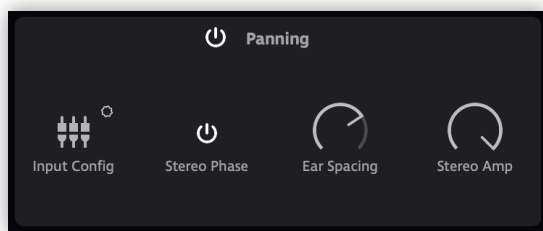
**Dry/Wet:** This control adjusts the balance between the unprocessed (dry) and processed (wet) audio signals.

**Limiter:** This is a brick wall limiter designed to reduce dynamic range by catching peaks and protecting against clipping and distortion. It ensures loud passages do not exceed 0 dBfs



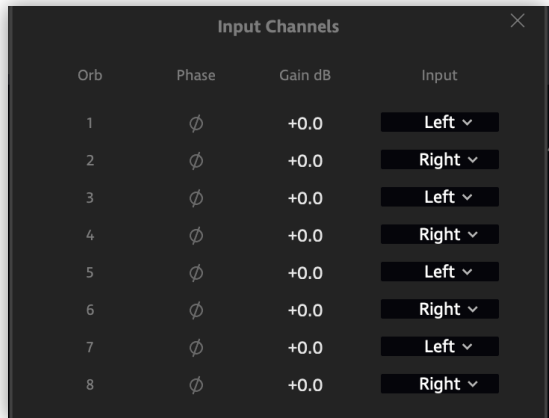
### Output / X-Over Mode:

**X Over Freq:** Sets the crossover frequency. Frequencies below this point remain dry, while frequencies above it are processed by the wet signal.



### Panning:

The Panning section allows users to enable or disable panning for stereo or mono processing. The Input Channel popup menu allows users to choose the input channel for stereo processing. The Stereo Phase switch enables binaural panning, which calculates the doppler effect based on the object's distance to each ear. The Ear Spacing and Stereo Amp parameters control the stereo image of the sound, allowing users to adjust the ear spacing and stereo amplitude for a more natural or dramatic effect.



The screenshot shows a dark-themed 'Input Channels' window with a close button (X) in the top right corner. It contains a table with 4 columns: 'Orb', 'Phase', 'Gain dB', and 'Input'. There are 8 rows of data. The 'Phase' column contains the symbol  $\emptyset$  for all rows. The 'Gain dB' column contains '+0.0' for all rows. The 'Input' column contains 'Left' for odd-numbered rows (1, 3, 5, 7) and 'Right' for even-numbered rows (2, 4, 6, 8). Each 'Input' cell has a small downward arrow indicating a dropdown menu.

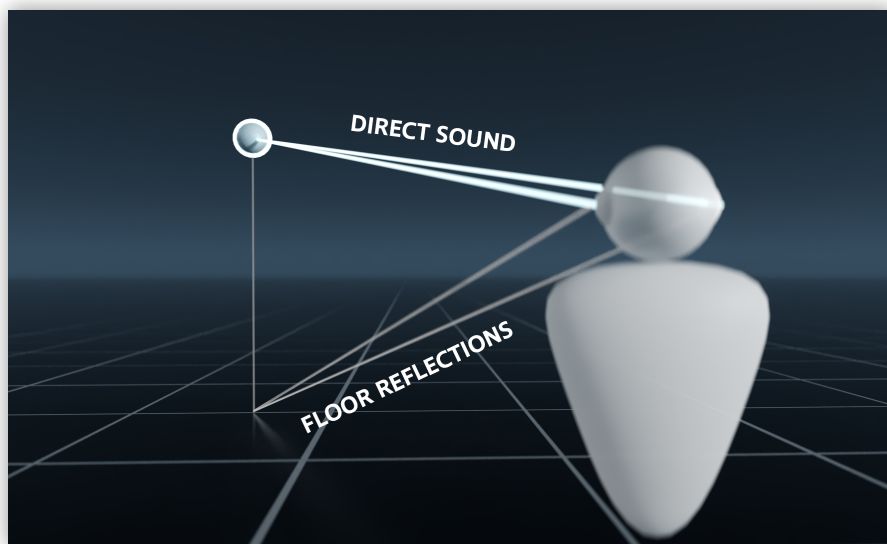
Orb	Phase	Gain dB	Input
1	$\emptyset$	+0.0	Left ▾
2	$\emptyset$	+0.0	Right ▾
3	$\emptyset$	+0.0	Left ▾
4	$\emptyset$	+0.0	Right ▾
5	$\emptyset$	+0.0	Left ▾
6	$\emptyset$	+0.0	Right ▾
7	$\emptyset$	+0.0	Left ▾
8	$\emptyset$	+0.0	Right ▾

**Input Configuration:** Click on the Input Config symbol located to the left of the panning section to open this popup. It allows you to determine the routing of audio channels for each orb, choosing between left channel, right channel, or a stereo mixdown. Within this menu, users can also adjust the gain power and invert the phase of the audio signal for each individual orb, providing precise control over the sound output.



## Floor Reflections:

The Floor Reflections switch enables or disables floor reflections, which simulate the effect of sound waves bouncing off the floor. The Floor Distance, Dampening, and Listener Height parameters control the distance between the object and the floor, the amount of dampening of the reflections, and the height of the listener's ears. Each reflection is calculated with extra doppler instances in the DSP, guaranteeing a highly realistic auditory experience.



Thank you for reading through the SpinTracer user manual. We hope that this guide has provided you with a comprehensive understanding of the plugin's installation, setup, and various features. Experiment with the various parameters and modes to discover new and unique ways to enhance the emotional impact of your audio. If you have any further questions or concerns, please don't hesitate to contact our support team.

Happy sound designing!

