Particle World Audio Visualizer (pWAV)

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Thank you for downloading my Particle World Audio Visualizer. These are modular Max 4 Live devices designed to create easy visuals for music videos or just your personal enjoyment. In the following document, I will provide a basic tutorial on how to get started with pWAV as well as an in depth description of every aspect of the devices.

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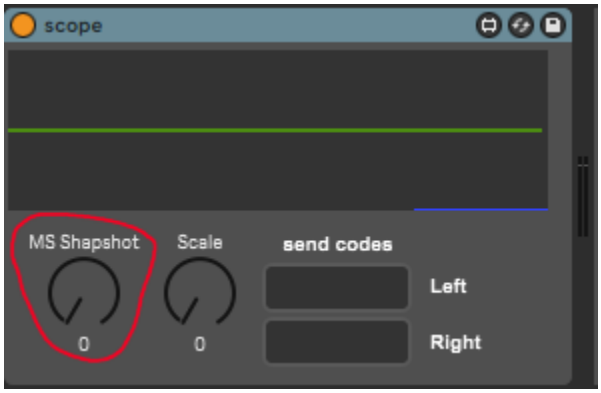
Getting Started

pWAV consists of two main components: one World device and one or more Scope devices. Place your World device on any track (this has no effect on audio or midi). I generally prefer to use either an empty Audio track or the Master track. Place a Scope device on an audio track or a MIDI track with an instrument. The Scope will listen to its track and output a value based on the level of that track. You can use the text boxes within the Scope to assign this output value to different parameters in the World.

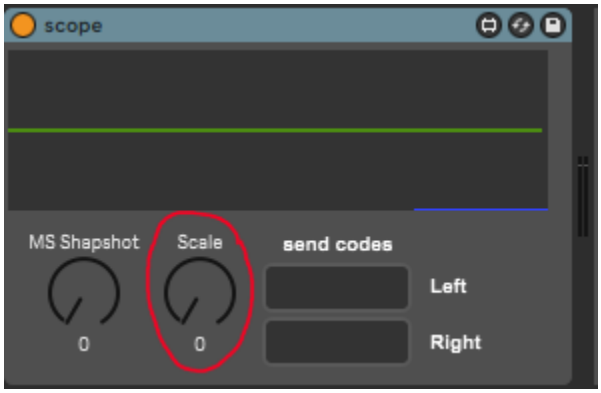
Scope Breakdown

MS Snapshot



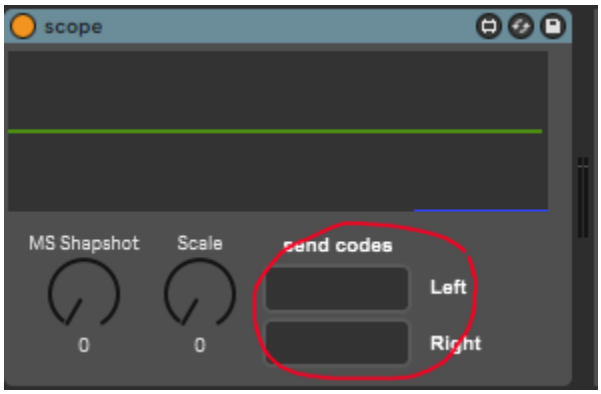
MS Snapshot is a dial that changes how often the scope device outputs information to the send codes. A high snapshot could produce choppier information while a low snapshot will create smoother information. I suggest playing around with a high snapshot for sounds with fast attack and a low snapshot for smoother pad-like sounds. If your computer can handle it, having a low snapshot is better in general.

Scale



Scale is a dial used to multiply the output information by a constant. This is used to increase the overall effect within the World. For example a high scale would be used for quiet sounds that you want to have a strong effect on the World. By default the Scale is at 0 which disables the sends.

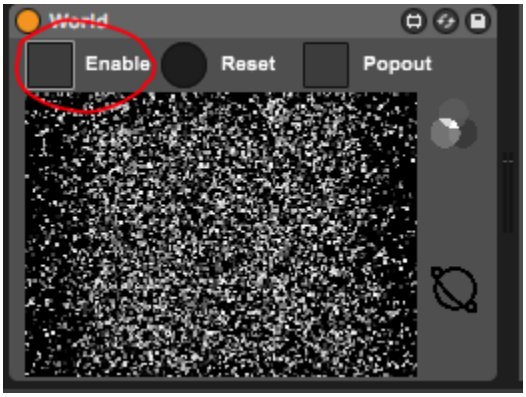
Send Codes



Send Codes are text boxes that you will populate with text. This tells the scope device where to send its information. These codes will match something within the World device. For example, if you want to send codes to affect the size of the particles, you could label the left and right channels as sizeSignal. Then within the World you would change the size label to match.

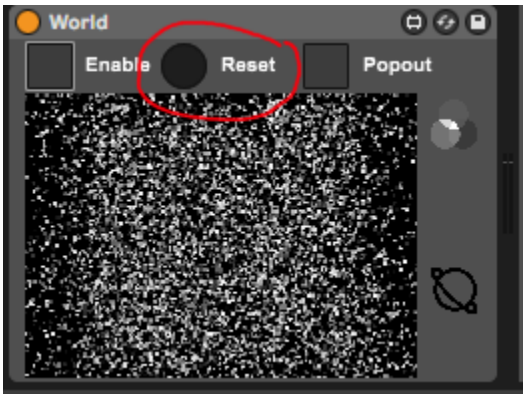
World Breakdown

Enable



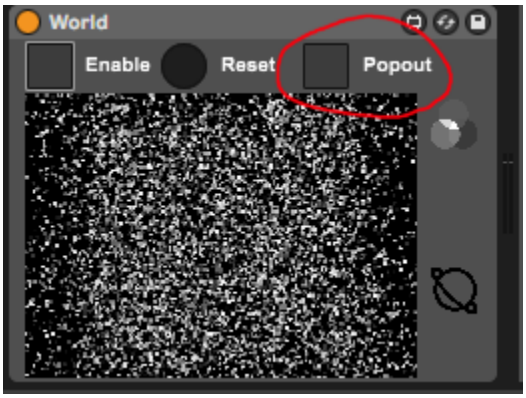
Enable is a toggle button that will turn on and off the world device. The send / receives will still function but all of the graphics are disabled, rendering the world object useless. Make sure to have this on!

Reset



Reset is a button that will reset the particles within the system. This will return each particle's position to a randomized cube and remove all velocity, acceleration, color, and size.

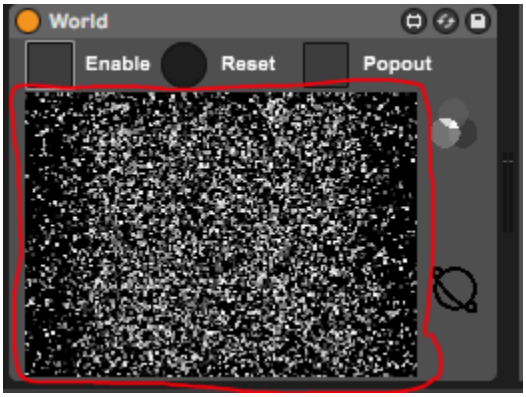
Popout



Popout is a button that will expand the preview into a separate window. This will allow for user input to the camera:

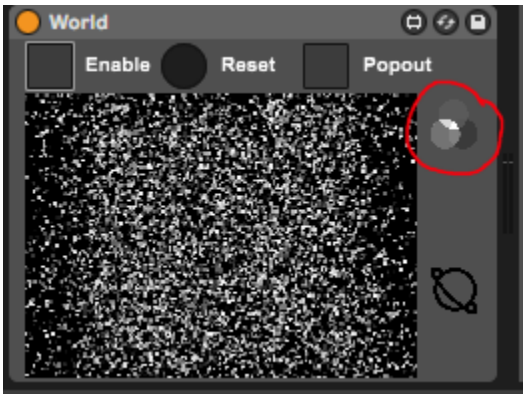
escape - full screen
A / D - move side to side
Q / Z - move up and down
W / S - move in and out
Clicking and dragging with the mouse - rotational movement

Preview



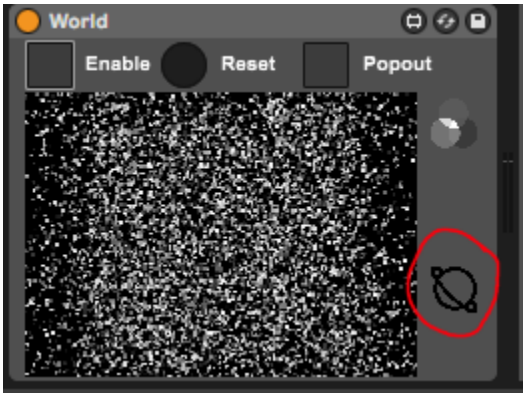
The preview is a small display within the device that will allow the user to see the particle world. To get a larger image and have controls over the camera please see Popout.

Color Control Toggle



Color control toggle button will open up the color control window on the right of the device. For individual color control tutorial readings please find the Color Control section later in this file.

Gravity Control Toggle



Gravity control toggle button will open up the gravity control window on the right of the device. For individual gravity tutorial readings please find the Gravity Control section later in this file.

Color Control

Color Scale

Color scale controls how much the red, green, and blue signals affect the color of the particles. Think of it like a multiplier on the signal. For brighter more vibrant reds, for example, turn the color scale red knob up all of the way. The knobs are (from top to bottom) red, green, and blue.

Color Control

Color control section ties the World object to the scope device. If you choose to, you can remove the text from the signal text boxes and automate the dials rather than use a scope device. The top signal text box “colorSig” controls the overall effect of all of the colors. For example, in order to change the red value of the particles, a scope object with “rSig” and “colorSig” will have to be placed on the controlling audio. This is mildly over complicated and I may change it in the future.

Background Color

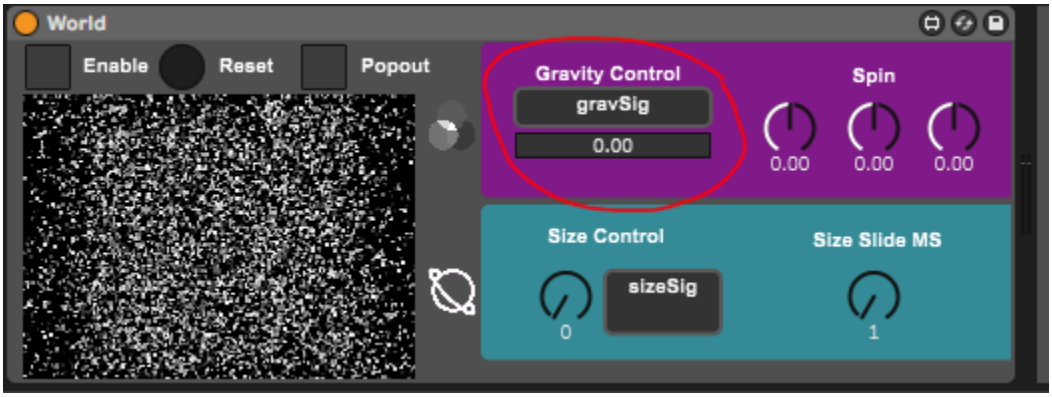
Background color changes the background color using red green and blue values. The dials (from left to right) are red, green, and blue.

Color Slide MS

Color slide MS changes how fast the color of the particles can change (in milliseconds). Having this value too low can result in flashy / stuttery colors, while having this value too high can result in no color change at all. For fast attack sounds, such as drums, I suggest a low color slide MS while slow attack sounds, such as pads, I suggest a high color slide MS.

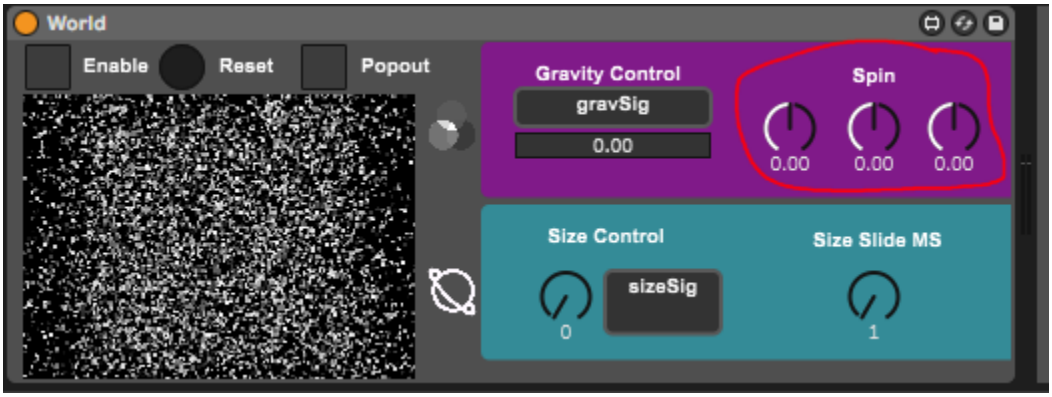
Gravity Control

Gravity Control



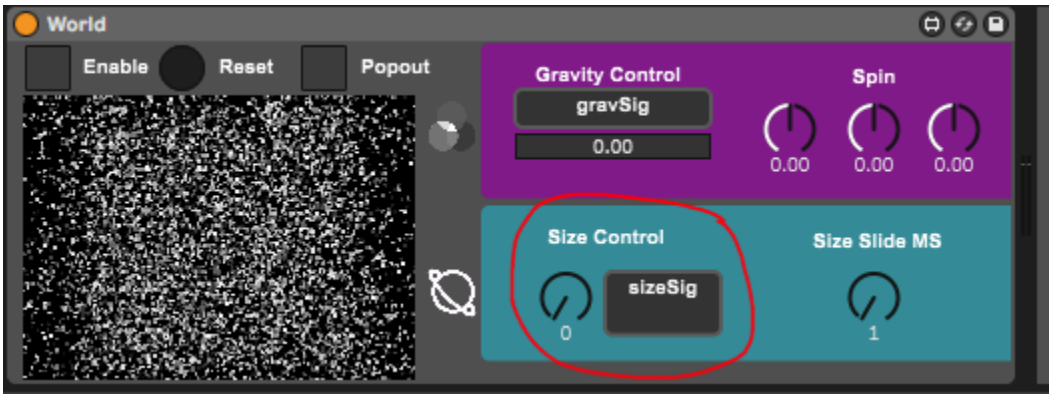
Similarly to the “colorSig” control, Gravity Control affects all of the particle’s gravity towards or away from the center floating particle. This cannot be automated with Ableton’s automation, although this functionality may come in the future.

Spin



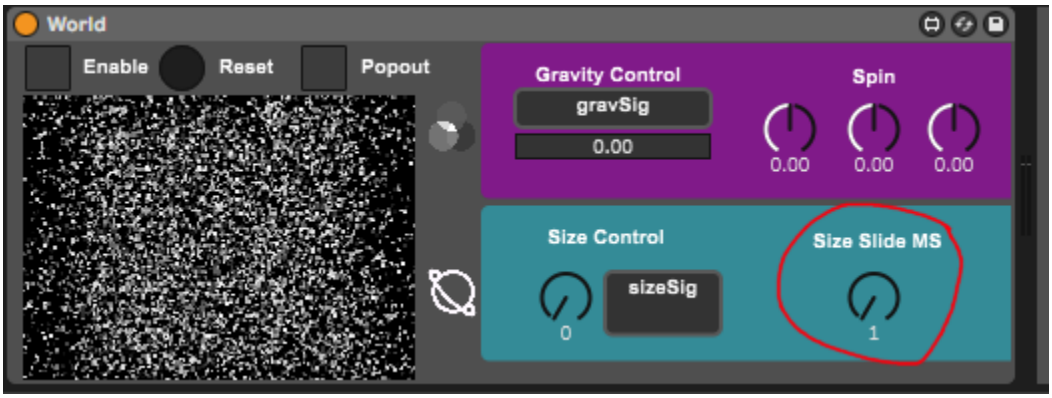
Spin controls additional gravity in a direction. From left to right, the dials control X axis, Y axis, and Z axis. Combining these will create fun spinning in diagonal directions.

Size Control



Size control changes the size of the particles. My favorite use of this control is to have the particles get larger on drum hits. You can choose to automate this using the dial or a scope device with matching code to the text box.

Size Slide MS



Size slide MS controls the time it takes for the particles to change size (in milliseconds). Having this value too low can result in flashy / stuttery size, while having this value too high can result in no size change at all. For fast attack sounds, such as drums, I suggest a low size slide MS while slow attack sounds, such as pads, I suggest a high size slide MS.