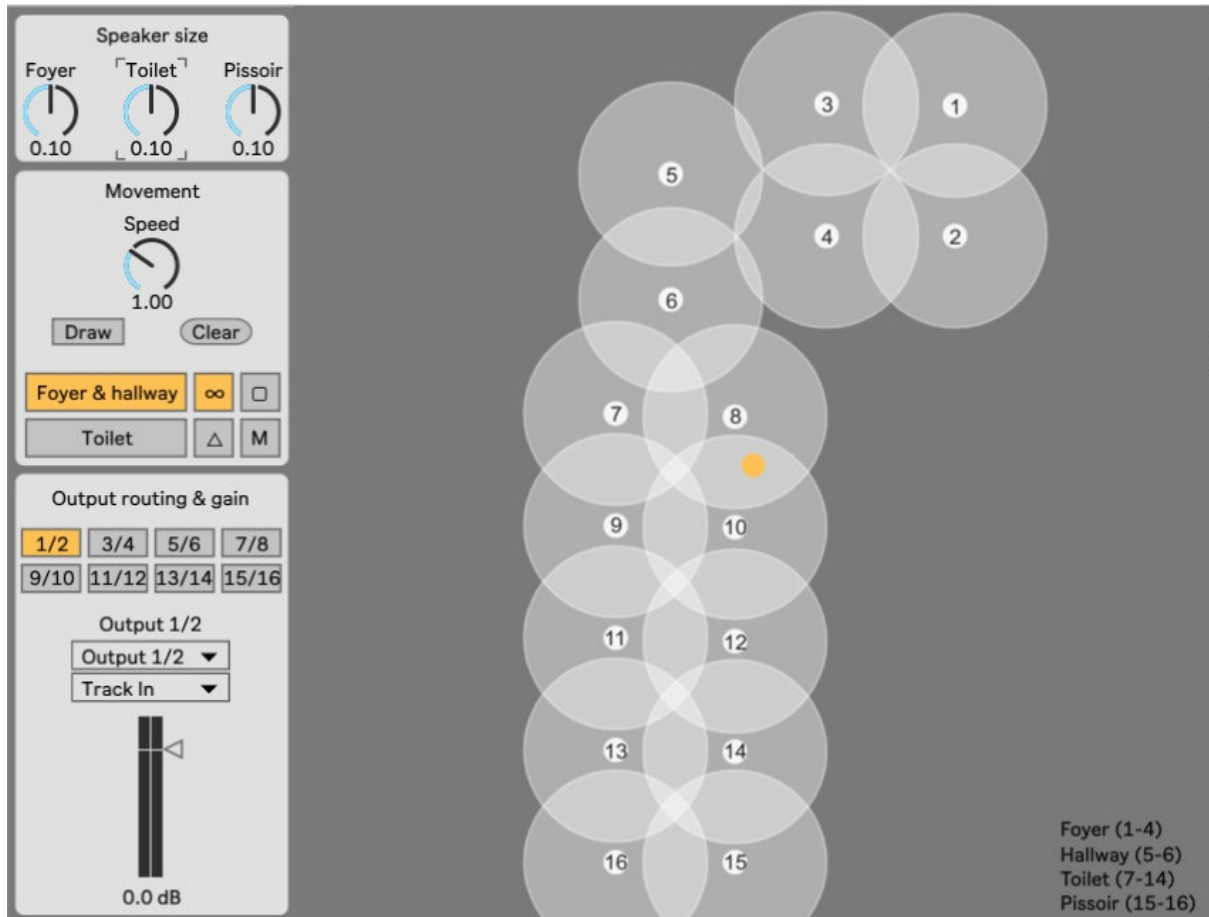


Placer user guide



The following guide shows how to set up an Ableton session with Radars multichannel speaker system *Audiocanvas* while using the Max for Live device *Placer*. *Placer* is developed by Thomas Thomsen and any technical questions or bugs should be emailed to thomas.thomsen.16@gmail.com

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What is Placer?

Placer is a Max for Live device that allows you to place and move a sound source in Radars 16 channel speaker system Audiocanvas. Placer allows you to place a sound directly in a speaker or between two or more speaker and move a sound between the 16 speakers in any way you would want.

What is Audiocanvas and why work with it?

Audiocanvas is Radars multichannel speaker system consisting of a computer with Ableton & Max MSP installed and with a RME HDSPe RayDAT soundcard, 2 Behringer Ultragrain Pro-8 Digital ADA 8000 AD/DA converter, 8 Lab Gruppen LUCIA 120/2 amplifiers and 16 Tannoy CMS speakers. The speaker system is installed in the foyer, hall and bathroom.

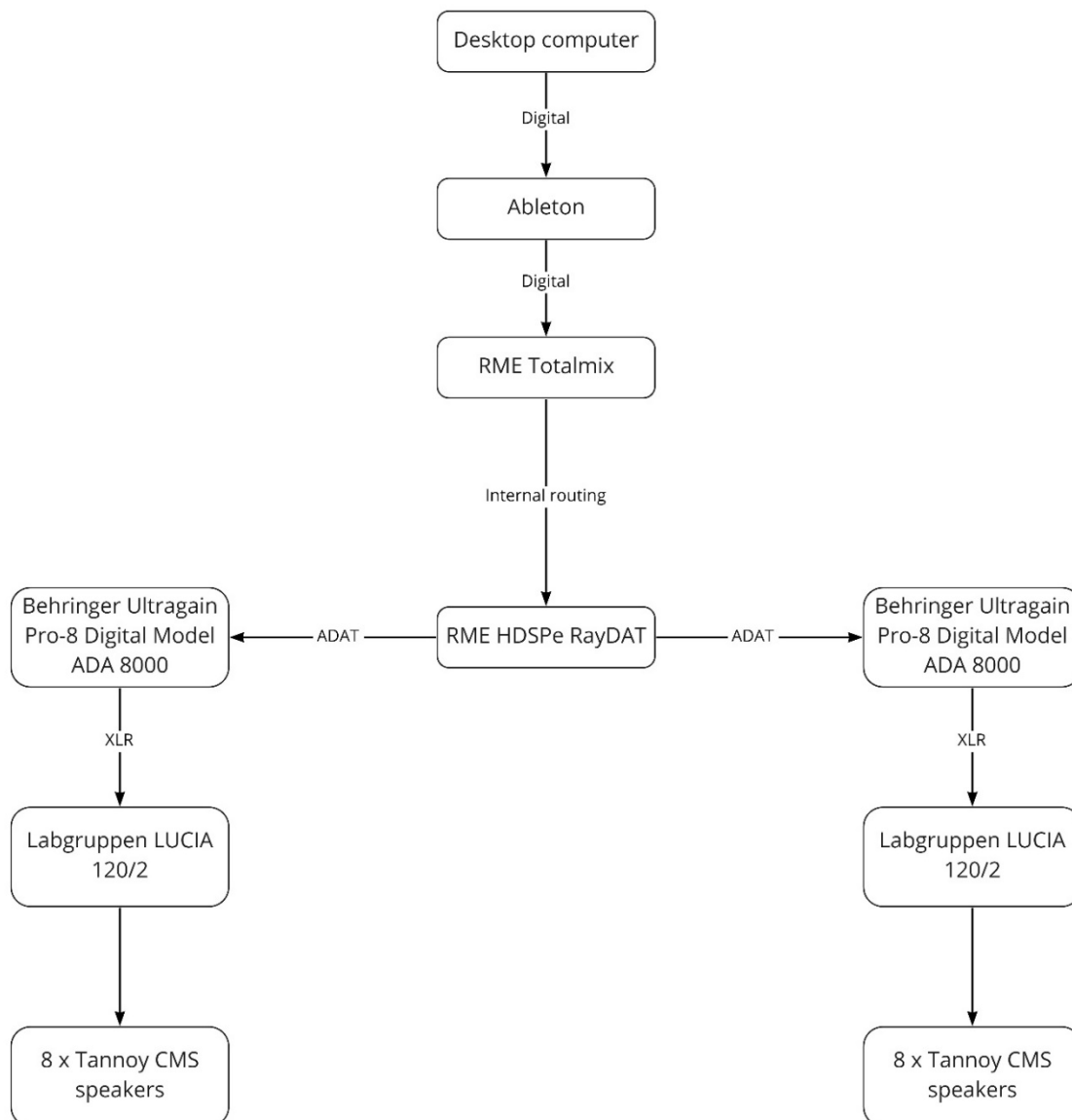


Figure 1: The signal chain for the Audiocanvas system.

Besides the technical setup, the question is: Why is it interesting to work with 16 speakers and not just a traditional stereo speaker setup? Audiocanvas' multichannel speaker system allows one to work with spatialization in the music – that is, an intentional placement of sounds in a given space through multichannel speaker arrays. Radars Audiocanvas allows you to place and move sounds throughout the 16 speaker and create a unique three-dimensional soundscape that the listener can move through, thereby expanding and intensifying the musical experience.

How do you set up an Ableton session for Audiocanvas?

However, before you can start using Placer you need to set up an Ableton session, that allows Placer to send sound to the 16 speakers. You can find a template at Radars webpage in the Radar venue manual. Otherwise, the guide below shows how to set up a template:

1. The first step is to create 8 audio tracks in Ableton. This can be done by right clicking and then selecting "Insert Audio track" or via the short "Ctrl+T" on Windows or "Cmd+T" on Mac
2. Next, rename the newly created audio tracks to "Output 1/2" up until "Output 15/16". The name of the output track can be any name, but for clarity's sake its name should correspond to its output
3. A good idea is to group the 8 newly created tracks, so that they can be hidden by collapsing the group. To group the tracks, select the audio tracks, right click and select "Group tracks" or use the shortcut "Ctrl+G" on Windows or "Cmd+G" on Mac.
4. Then select the output corresponding to the name of the track in the "Audio To" menu. The track named "Output 1/2" should have output 1/2 selected and so forth. Important: This can only be done at the computer at Radar, where 16 outputs are available via the sound card. If you are creating the Ableton session for Audiocanvas at your own studio, you can only select the available outputs from your soundcard. This step can therefore only be done at Radars computer.
5. Lastly, set each output track to "In" in the "Monitor" menu.
6. When loading Placer onto a track, set the track to "Off" in the "Monitor" menu and set the audio to "Sends Only"



Figure 2: The correct setup of the 8 output tracks in an Ableton session for using Audiocanvas and Placer.

How does Placer work?

Placer allows you to place a sound in any or between the 16 speakers in Radars Audiocanvas. To open the main menu of Placer, click the “Open” button, which will open a new window.

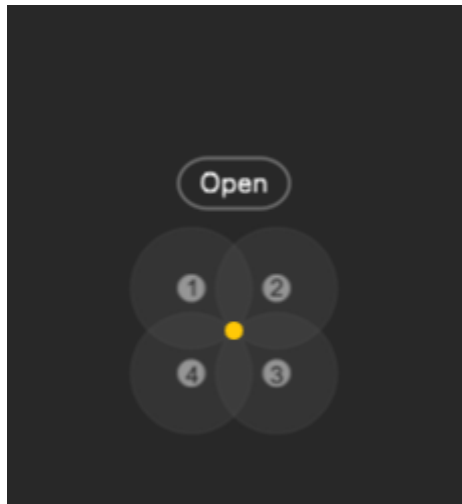


Figure 3: The open button in Placer.

To place or move a sound, drag the yellow to either a speaker or between two or more speakers. A speaker is represented by a grey circle, that represents the speaker’s “area of effect”. By placing the yellow dot at the edge of a speaker’s circle, the sound will be less audible. The closer the yellow dot is to the center of a speaker’s circle, the more audible the sound is in that speaker.

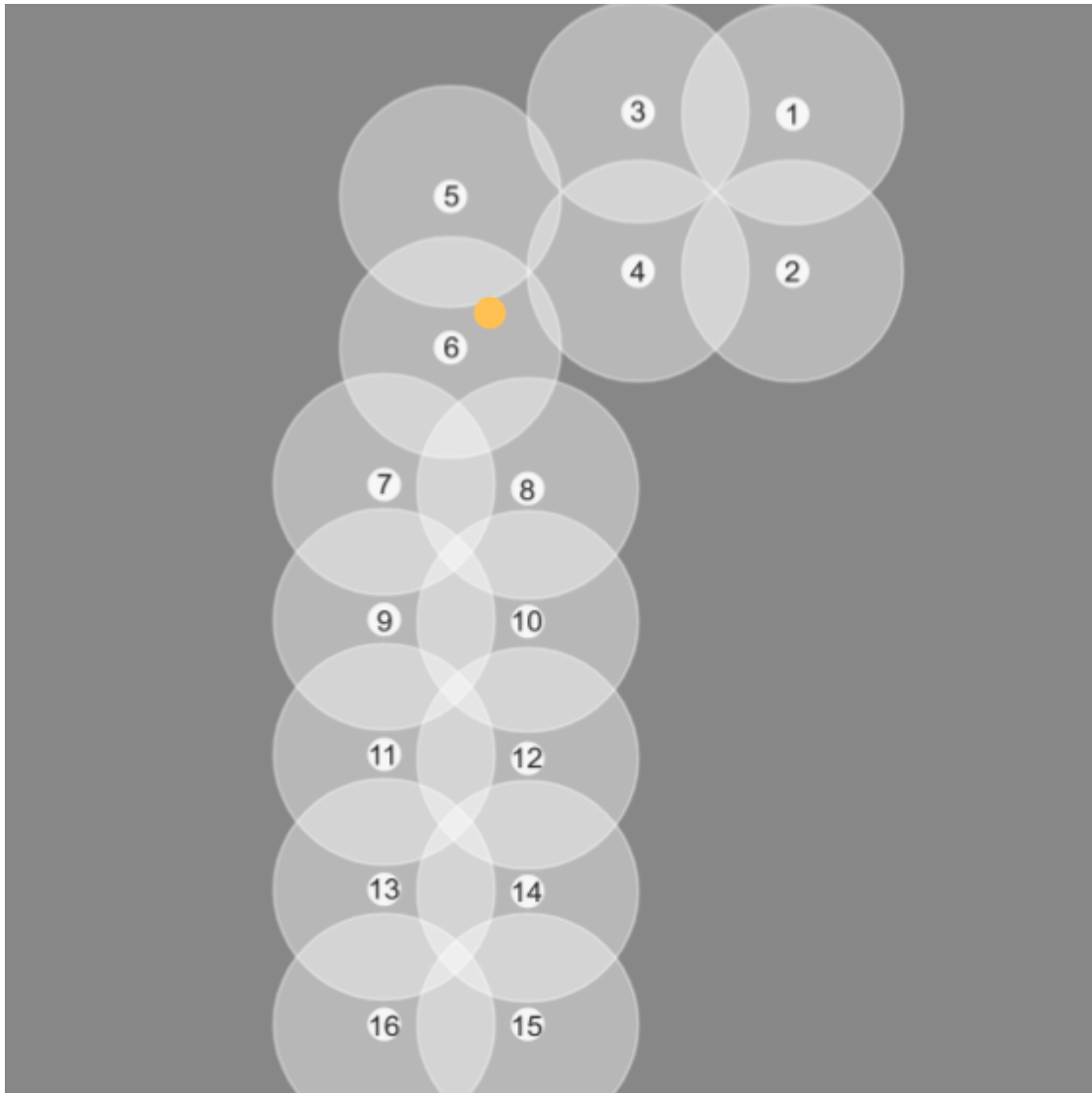


Figure 4: The sound is audible in speaker number 6 and less audible in speaker 5.

How does the “Output routing & gain” section of Placer work?

Before moving or placing sounds via Placer, the routing section in Placer need to be set up correctly. The output section for Placer is located in the lower left corner under “Output routing & gain”. Each speaker pair, 1/2 and so forth, need to be routed to its corresponding output track that was set up in “How do you set up an Ableton session for Audiocanvas?”. To set up the correct routing for a speaker pair, first select a speaker pair in the top menu in “Output routing & gain”. Then click on the drop-down menu and select the corresponding output track for the speaker pair – e.g. speaker pair 1/2 should be routed to the output track with the outputs 1/2 and so forth.

Each speaker pair has volume fader that can decrease or increase a speaker pairs overall volume output. That means that a sound moving into a speaker pair with a -3.0 dB fader will have a lower volume than a speaker pair with a 0.0 dB fader.

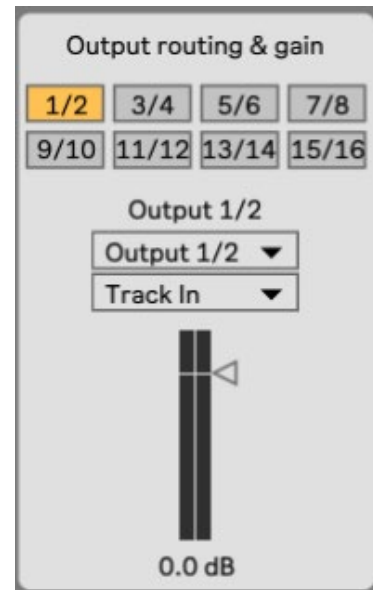


Figure 5: The speaker pair 1/2 are routed to the named track "Output 1/2", which outputs its audio to speaker 1/2.

How does the “Speaker size” dials in Placer work?

The “Speaker size” dials control the virtual size of three groups of speakers by increasing or decreasing the grey circle around the speakers. This is done via the dials or by typing in values between 0.0 and 0.2. Double click on a speaker dial to reset to its initial value om 0.1 The three speaker groups are: The foyer/hallway (speakers 1-6), the toilet (speakers 7-14) and the pissoir (speakers 15-16). The three speaker dials can by automated in Ableton. To do so, right click on a dial and click “Show automation in New Lane”.

The “Speaker size” dials don’t control the physical size of a speaker, but instead the size of the speaker inside “Placer”. By placing the yellow dot at the edge of a speaker’s circle, the sound will be less audible. The closer the yellow dot is to the center of a speaker’s circle, the more audible the sound is in that speaker. A smaller speaker size will lead to a lower precision for a sound’s presence in a speaker when moving or placing the yellow dot. At the same time, a speaker will not overlap with other speakers and higher precision in terms of placement in speaker to speaker can be achieved.

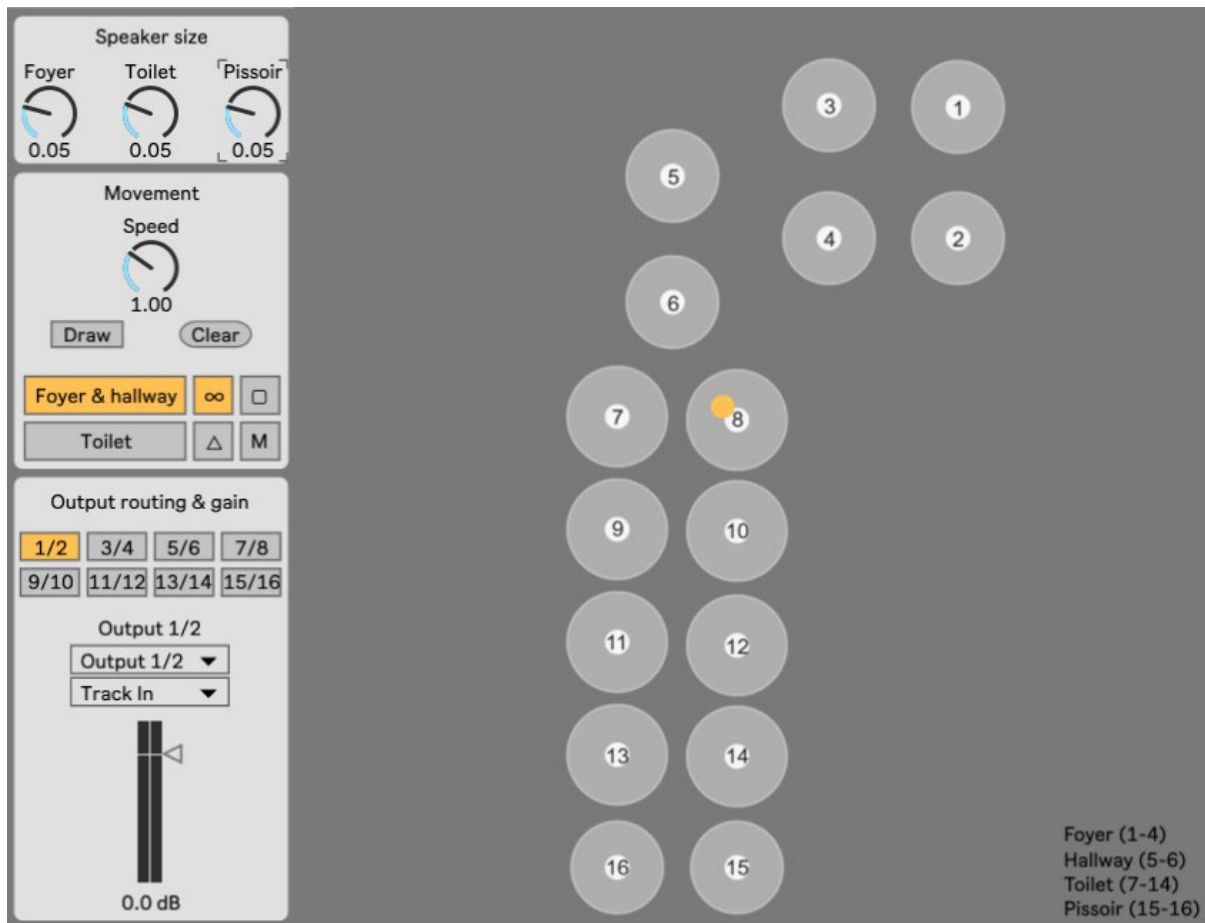


Figure 6: A low speaker size for all three speaker groups with no overlap between speakers.

A larger speaker size will lead to a higher precision for a sound's presence in a speaker when moving or placing the yellow dot. At the same time, a speaker will overlap with other speakers and lower precision in terms of placement in speaker to speaker can be achieved.

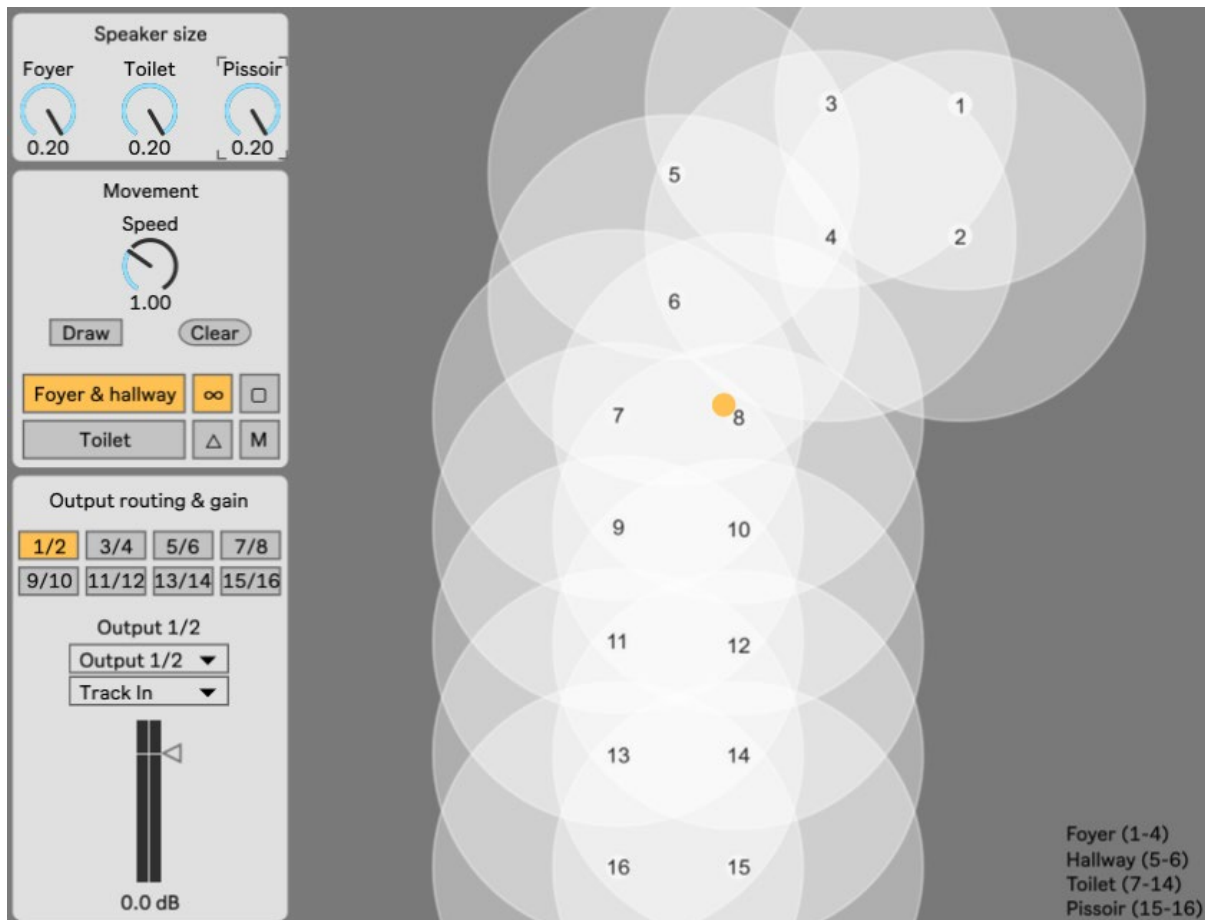


Figure 7: A large speaker size for all three speaker groups with overlap between speakers.

Where in the signal chain should Placer be?

Since Placer routes the sound from its parent track (e.g. a track for a guitar loop) to 8 audio tracks that works as output tracks to the 16 speakers, Placer should only be at the end of signal chain. That means that all instruments and sound processing via effects such as reverb should take place before Placer.

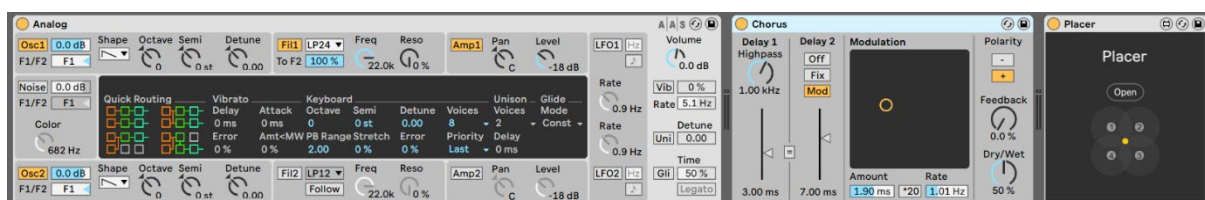


Figure 8: The Analog synth and Chorus effect from Ableton with Placer at the end of the signal chain.

Placer can also be used on group in Ableton, which can be a good idea for drums or other instruments consisting of multiple audio or MIDI tracks. To group tracks Ableton Live, select the tracks you want to group, right click and select "Group tracks" use the shortcut "Ctrl+G" on Windows or "Cmd+G" on Mac. Placer should then be on the group track and at the end of

the signal chain. The output for each track in the group should then be routed to the group track with Placer.

How can you record movement in Placer?

Besides placing a sound in a speaker or between speakers, Placer can also move a sound around in two ways seen in the “Movement” section. The movement of sound is synced to the start/stop of Ableton’s transport. A route can only be drawn when Ableton’s transport is stopped.

The first is to use pre-drawn routes. To use a pre-drawn route, first press the “Draw” button to enable drawing. Then select a room, either the Foyer & Hallway or the Toilet and then click on one of the four pre-drawn routes. This will draw the selected route in the selected room. To start the sounds movement, press Play in Ableton’s transport. To stop the sounds movement, press Stop in Ableton’s transport. The speed of the movement can be adjusted via the “Speed” dial, which can also be automated. A value of 1 corresponds to the ‘original’ speed of the pre-drawn route. Values below one will slow the movement (0.5 being half speed) and values above 1 will speed up the movement (2.0 being double speed). To delete a pre-drawn route, press the “Clear” button.

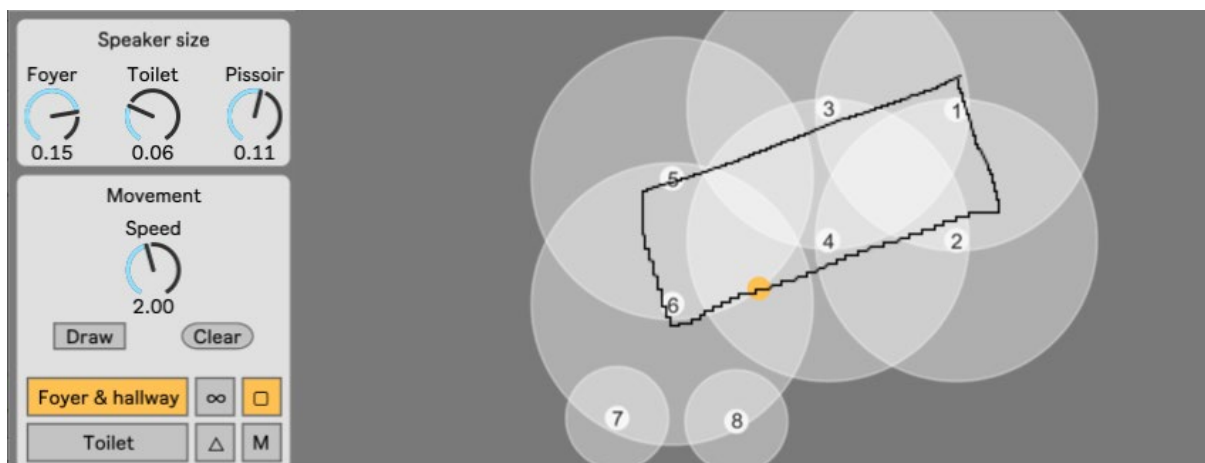


Figure 9: A pre-drawn route in the foyer and hallway with a movement speed of 2 or double speed.

It is also possible to create a custom route for the sound to follow. To do this, first press stop in Ableton’s transport. Then press the “Draw” button to enable the drawing. To draw a route, move the yellow dot around by pressing and holding down left mouse button while moving the mouse. When the custom route is finished, release the left mouse button, which will stop the drawing. To start the sounds movement, press Play in Ableton’s transport. To stop the sounds movement, press Stop in Ableton’s transport. The speed of the movement can be adjusted via the “Speed” dial, which can also be automated. A value of 1 corresponds to the speed which the route was drawn with. It is possible to create complex movement speed by moving the mouse faster or slower when drawing a route. Values below one will slow the movement (0.5 being half speed) and values above 1 will speed up the movement (2.0 being double speed). To delete a custom route, press the “Clear” button.

How can you see the position of multiple sound sources?

Working with multiple sound sources in Audioscanvas via Placer, it is often necessary to see the position of multiple sound sources at the same time. Placer works as floating window that can be placed anywhere on the screen which means, that Placer can be minimized to hide it and maximized to show it. This also means that multiple Placer windows can be open at the same time and be placed next to each other. In that way, the position and movement of multiple sound sources can be edited and seen at the same time via two or more open Placers.

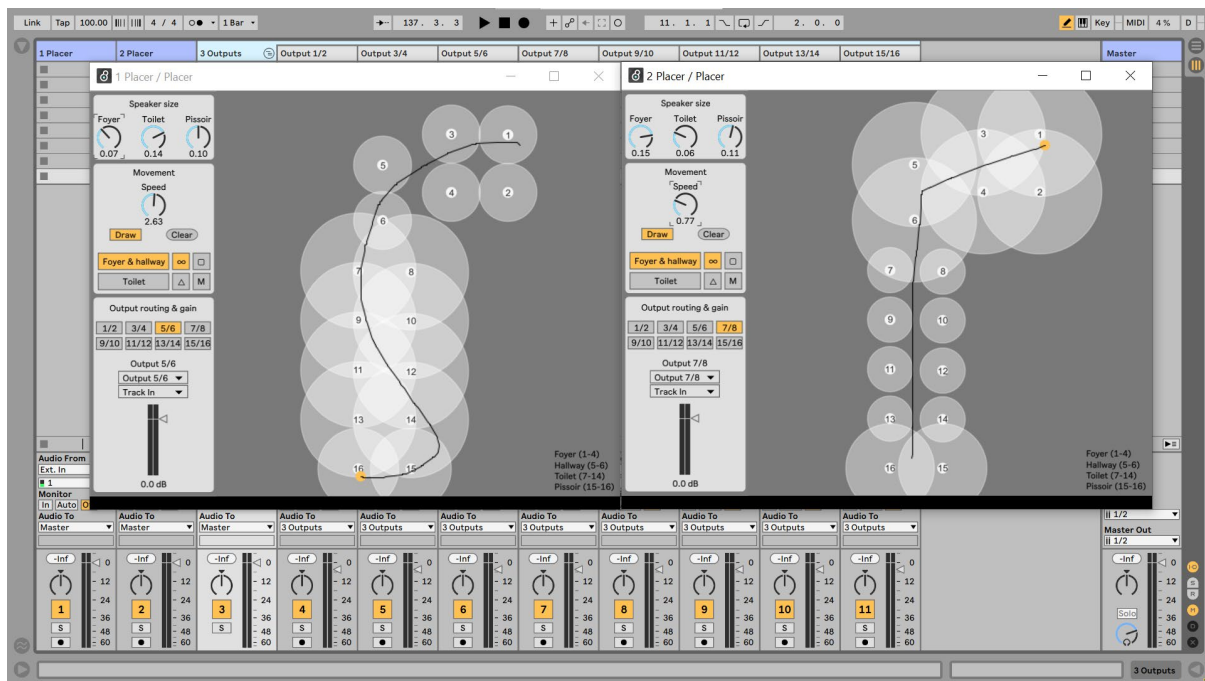


Figure 10: Two Placers with different routes and settings open at the same time.

Parallel processing: Using return tracks and Effect Racks with multiple chains

It is not possible to use return tracks while using Placer, since it grabs the audio before it is sent out to the master channel or return channel. It is also not possible to use multiple chains in Effects Racks while using Placer. That means that you can't do parallel processing with two or more Placer devices.

The way to do parallel processing with Placer is by creating three tracks: The first tracks should have your sample or MIDI instrument in it with its output set to "Sends Only". The two other tracks can then be used for parallel processing by setting their input audio to the track with the sample or MIDI instrument. The two effect tracks should each have Placer at the end of the signal chain. You can now load different effects on each track to process the original sound differently. You could have a track with no effect on, a dry track, and track with effects on, a wet track, and automate their individual volume to create evolving spatial sound.

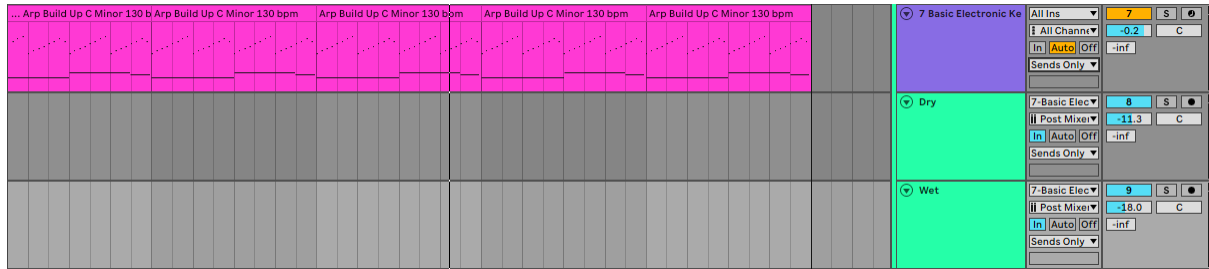


Figure 11: An example of using two audio tracks for parallel processing with a dry track and a wet track. Notice how the two tracks has the MIDI track called "7 Basic Electronic Keys" as their input tracks.