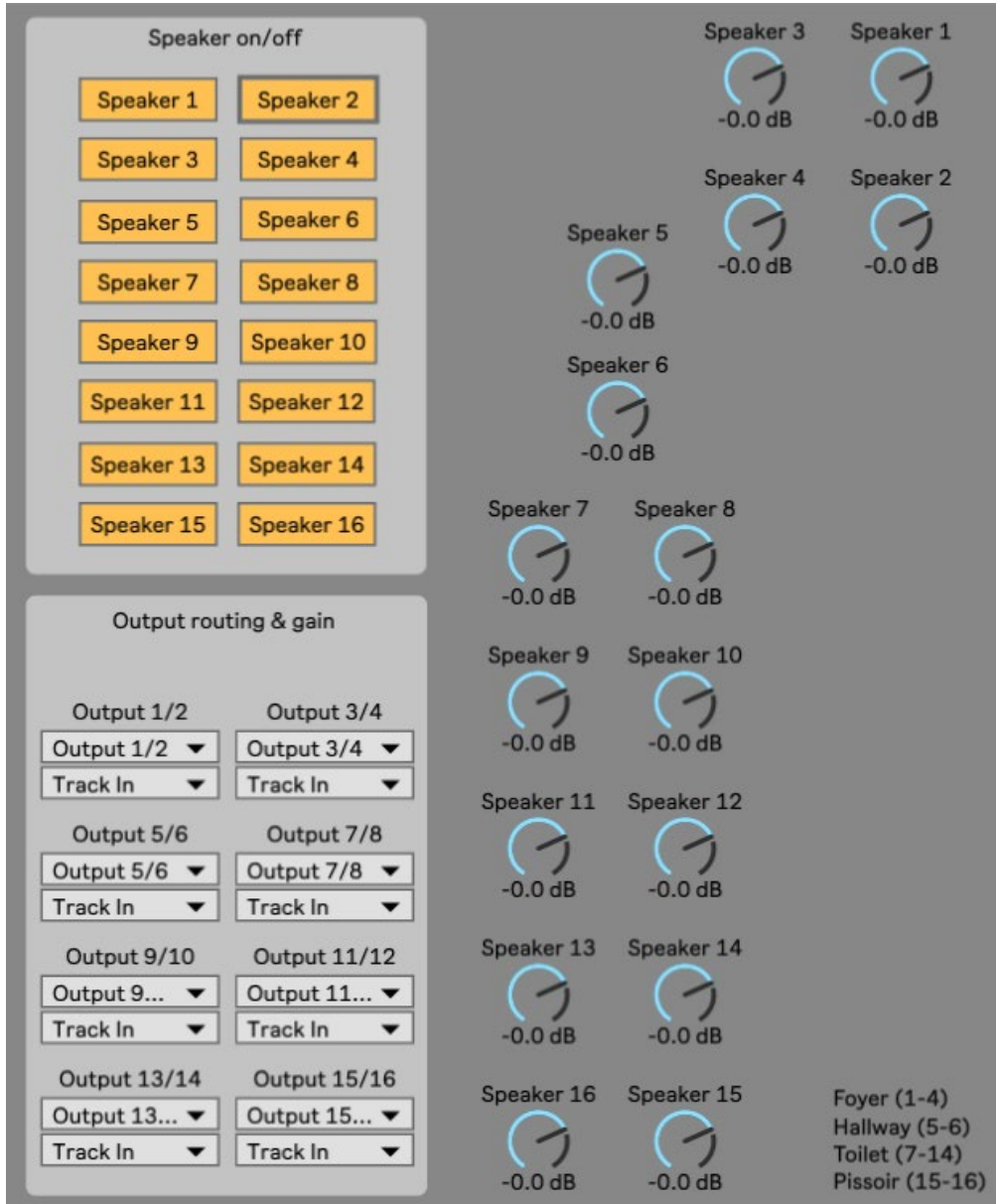


All Out user guide



The following guide shows how to set up an Ableton session with Radars multichannel speaker system *Audiocanvas* while using the Max for Live device *All Out*. All Out 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 All Out?

All Out is a Max for Live device that allows you to output audio to one or more speakers in Radars 16 channel speaker system Audiocanvas.

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 Ultragain 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.

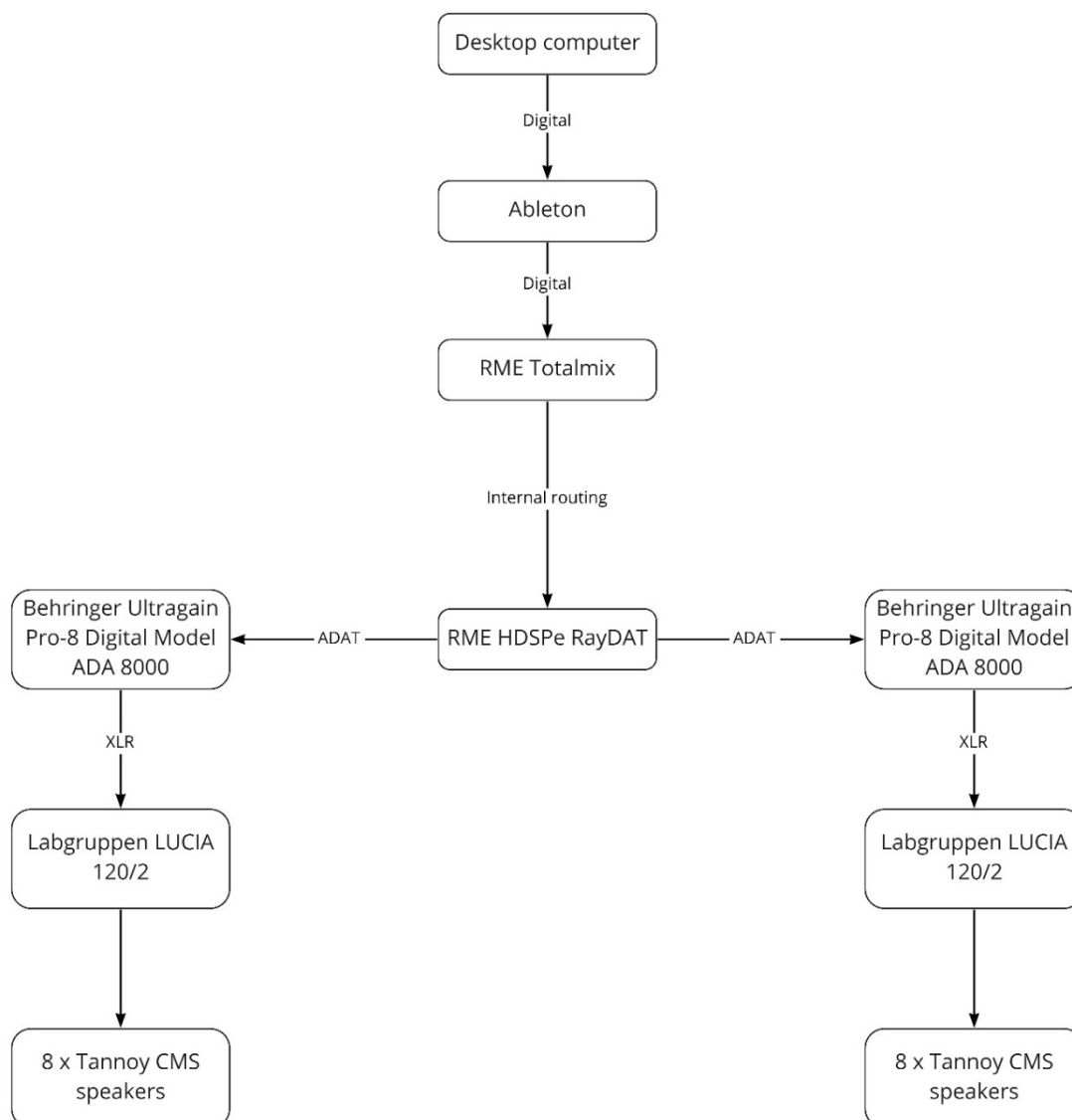


Figure 1: The signal chain for the Audiocanvas system.

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 All Out you need to set up an Ableton session, that allows All Out to send sound to the 16 speakers. You can find a template and a videoguide at Radars webpage or follow the guide below:

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 All Out onto a track, set the track to “Off” in the “Monitor” menu and set the audio to “Sends Only”

How does All Out work?

All Out sends audio from a track out to one or more speakers in Audiolocanvas. To open All Out, click the “Open button”.

A speaker can be turned on or off in “Speaker on/off” menu, so that either sends output audio via that speaker or not. To turn off a speaker in All Out, press the corresponding button for the speaker. A speaker is turned off, when the button is grey and turned on when the button is yellow. The volume for each speaker in All Out can also be adjusted via the corresponding dial, which can also be automated in Ableton.

For All Out to work correctly, the output for the audio or MIDI with All Out should be set to “Sends Only”

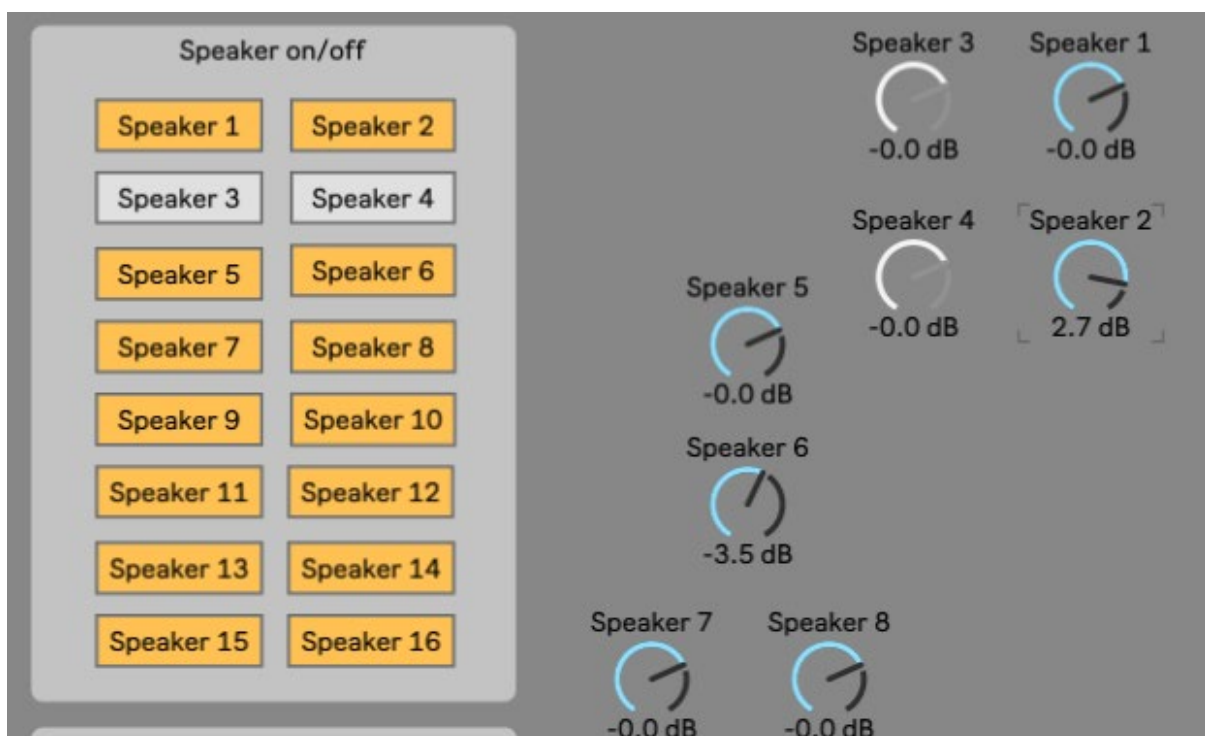


Figure 3: All Out with speaker 3 & 4 turned off and a volume adjustment on speaker 6 and 2.

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

Before outputting sound via All Out, the routing section in All Out need to be set up correctly. The output section for All Out 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, 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.

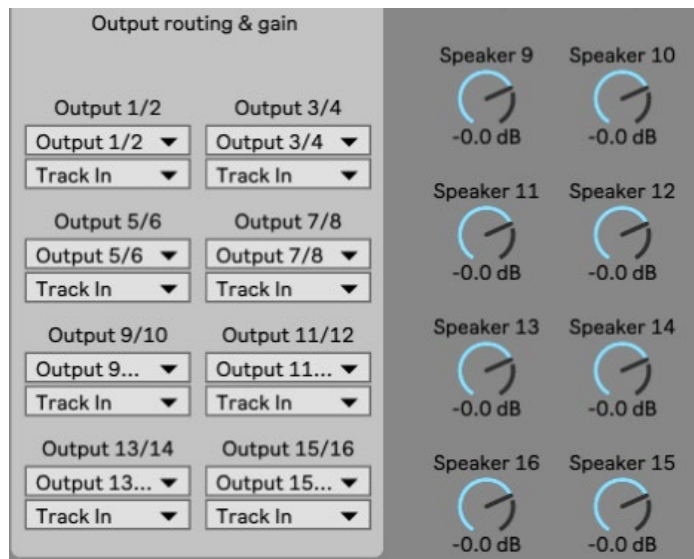


Figure 4: The routing section of All Out along with volume dials for speakers 9-16.

Each speaker has a volume dial that can decrease or increase a speaker’s overall volume output. That means that a sound moving into a speaker with a -3.0 dB value will have a lower volume than a speaker with a 0.0 dB value.

Where in the signal chain should All Out be?

Since All Out 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, All Out 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 All Out.

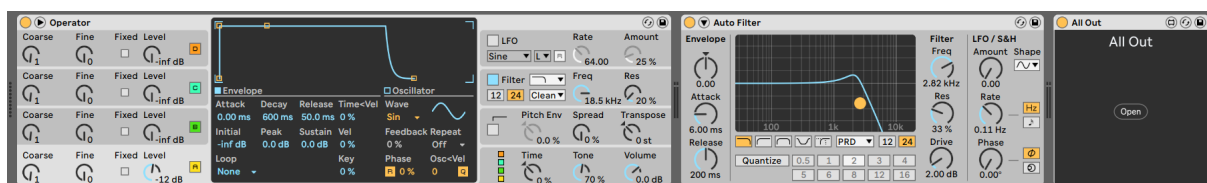


Figure 5: The Operator synth and Auto Filter effect from Ableton with All Out at the end of the signal chain.

All Out 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” or use the shortcut “Ctrl+G” on Windows or “Cmd+G” on Mac. All Out 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 All Out.

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

It is not possible to use return tracks while using All Out, 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 All Out. That means that you can't do parallel processing with two or more All Out devices.

The way to do parallel processing with All Out 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 All Out 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.

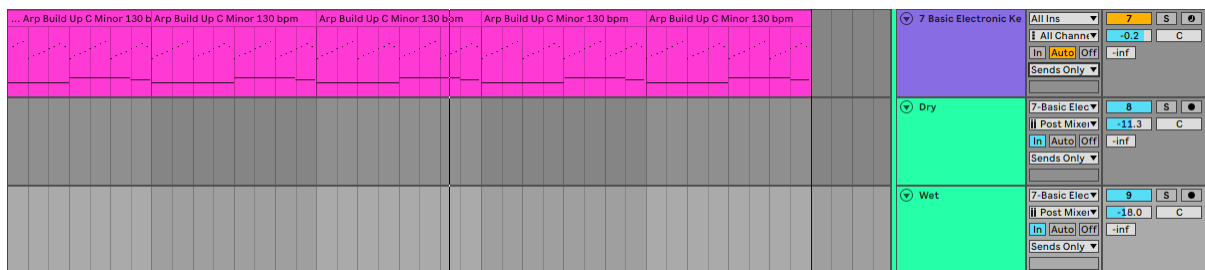


Figure 6: An example of using two audio tracks for parallel processing with a dry track and a wet track. Notice how the two tracks has the MIDI track called "7 Basic Electronic Keys" as their input tracks.