

## 61 Stèles - Laurent Durupt (2016)

### Live 10 Suite / Max 8 64bit version - June 2020

**Computer-music designer: Manuel Poletti**

The performance of the piece shouldn't require any computer-music designer. However, the sound engineer should be qualified to setup and run a multichannel Ableton session on an Apple laptop.

### Description of the piece

Amplified solo marimba & multichannel tape (no click track)

### Description of the live-electronics

Live-electronics consist in one Ableton Live session which plays some spatialized pre-recorded sound files through a set of 6 speakers disposed in a surround fashion around the audience.

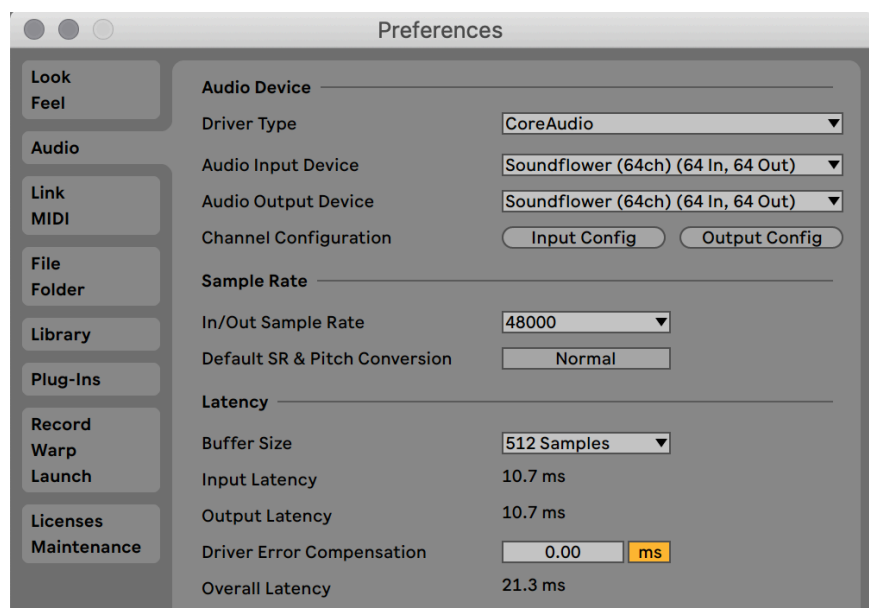
Live version: Suite 10.1.14 or later running Max 8.1.3 or later on Mac OS 10.14.6 Mojave or later.

### Live audio settings

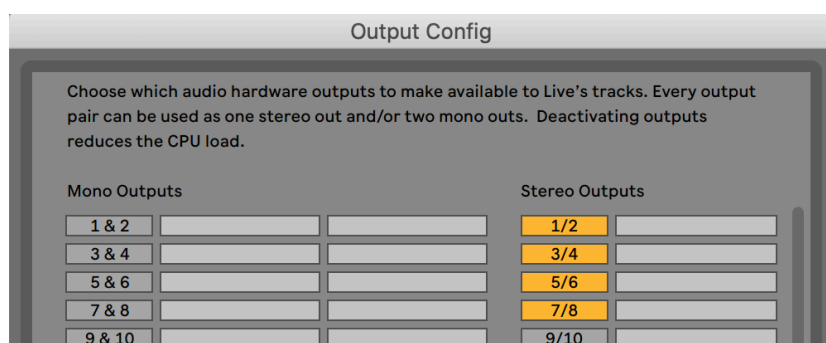
Launch Live 10 Suite and open the preferences.

In the Audio Pane, enter the following settings:

- set your soundboard as "Audio Input Device" and "Audio Output Device" (Soundflower is used here as an example)
- set the In/Out Sample Rate to 48000 Hz
- set the Buffer Size to a maximum of 512 samples (default)

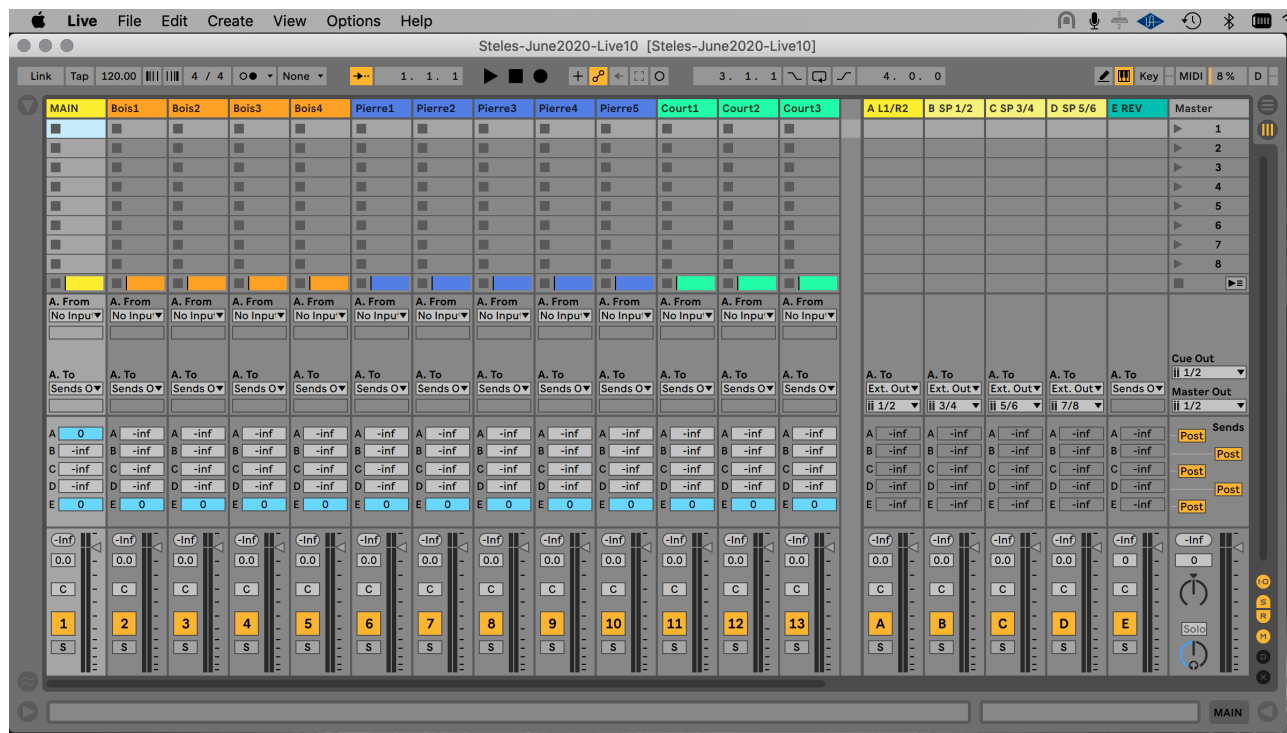


- click the "Output Config" button and enable stereo outputs 1/2, 3/4, 5/6 and 7/8:



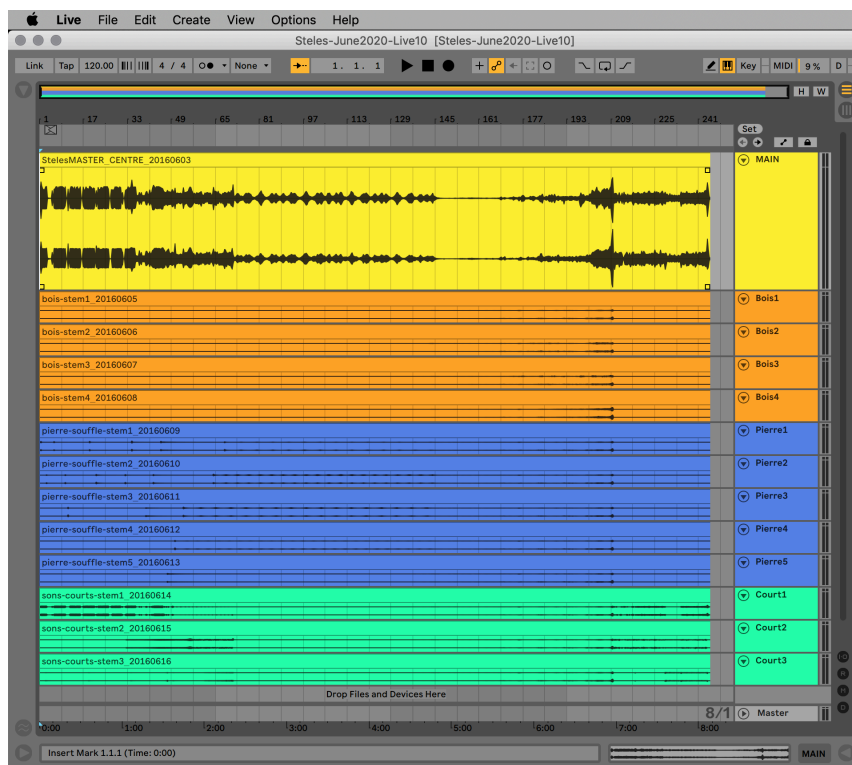
Click OK and close Live preferences. Launch the **61Steles-June2020-Live10.als** document.

## Description of the Live session in Session view



Sound sources reside in the tracks on the left part of the window. The right part of the window consists in Return tracks which are used as output and reverb master audio busses. The Master track is not used.

## Description of the Live session in Arrangement view



All tracks play together in sync, starting at 00:00:00. Tracks are graphically grouped by character of sound material.

## Output busses (Return tracks) & speakers routing

Each source track is routed to the different Return tracks, either manually using the track-local corresponding Sends, or dynamically using some panning devices which are described later in this document.

[illegible]

There are 4 stereo output busses, each one routed to a pair of stereo outputs of the sound board.

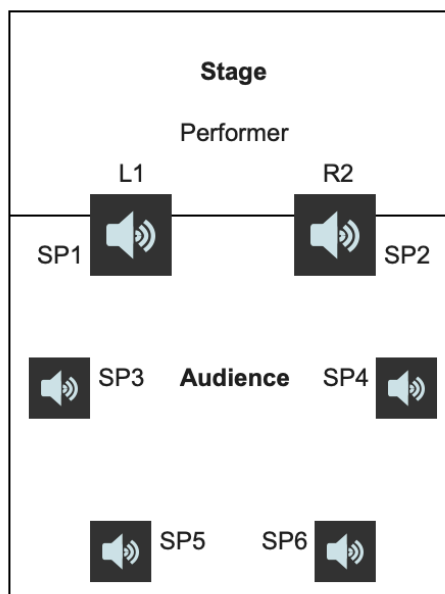
Bus A-L1/R2 feeds front speakers 1 & 2

Bus B-SP 1/2 also feeds front speakers 1 & 2

Bus C-SP 3/4 feeds side speakers 3 & 4

Bus D-SP 5/6 feeds rear speakers 5 & 6

Bus A represents the main frontal stereo output. Busses B, C and D work together as a surround 6 channels output.



The E-REV bus contains a 6 channels Ircam reverberator internally routed to busses B, C and D for a global room effect. The reverberation device is described later in this document.

## Source tracks

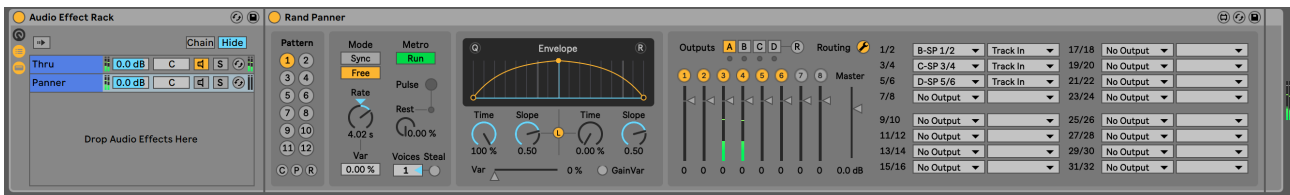
The MAIN yellow track contains the main sound material, sent to Return A / front speakers 1 & 2.

All tracks are sent to the reverberator using Send/Return E.

The three other groups of tracks, sorted by character (Bois, Pierre, Court), have, for each track, their sound diffused through a random panning device which distributes the sound in a slow and chaotic fashion among the B, C and D stereo busses, like a moving sound environment.

## Random panning device

Select a track (but the MAIN track) by double-clicking on its title to display the panning device it contains:



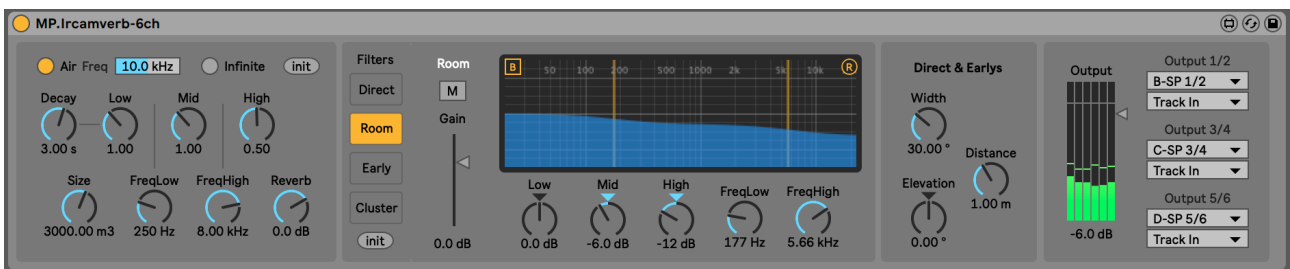
The panning device is embedded in an effect rack with two audio chains:

The Thru chain lets the incoming signal pass through the rack, so the input sound can be sent to the reverberator through Send/Return E.

The Panner chain contains the panning device. The panning device is basically an audio matrix driven by a metronome which triggers some random connections from the input signal to the available output channels (i.e. Return tracks in the present case), running at a certain rate (4s) and with adjustable fade-in for each new connection and fade-out for each de-connection. The different outputs are internally routed to the three “surround” Return busses feeding speakers 1/2, 3/4 and 5/6. This provides a random path to the sound of each separate track in between the different speakers.

## Reverberation

All tracks send their signal to the reverberator through Send E. The device contains an IrcamVerb algorithm which outputs a 6 de-correlated channels reverberated signal:



Main parameters to adjust:

Decay: global decay rate (in seconds) of the room effect - default: 3s

Size: distribution of early and late reflections in m3 - default: 3000m3

In Room pane: Low, Mid & High amounts (reverb color - darkened in the present case)

Direct sound is muted and Early sound is lowered to -10dB, for a more diffused effect.

The reverb effect should be quite long but not too much noticeable most of the time.

## MIDI mixing

In order to facilitate the mixing of the different sound components, it is recommended that you use a MIDI controller such as a Beringher BCF2000 or similar.

All MIDI-mappings are already entered in the Live session, although you might need to re-do the mapping in case your controller doesn't allow you to change its MIDI control numbers.

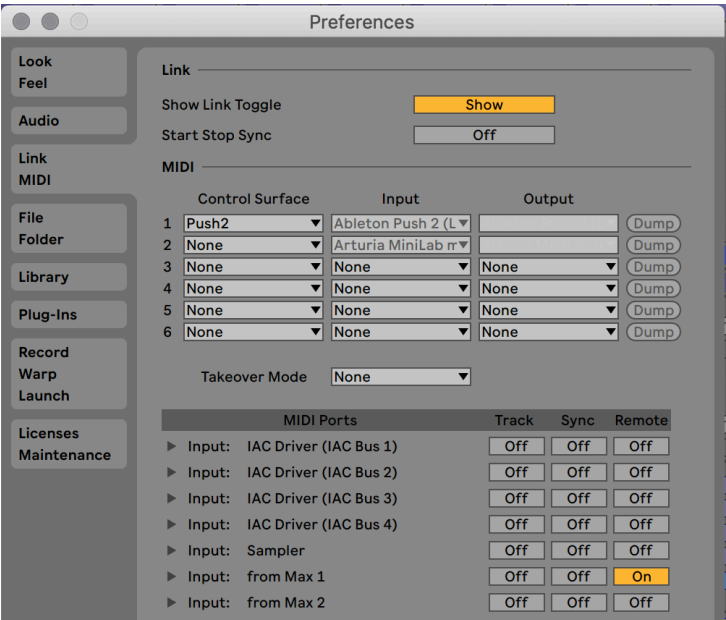
To enable MIDI mixing, open Live's preferences and enable your control device as "Remote" in the Link/MIDI pane:

then close Live's preferences and enable MIDI mapping by turning the MIDI button in the top-right part of the Live window on:



All mappable parameters turn blue.

Open the Live browser on the top-left part of the window to display the different MIDI mappings:

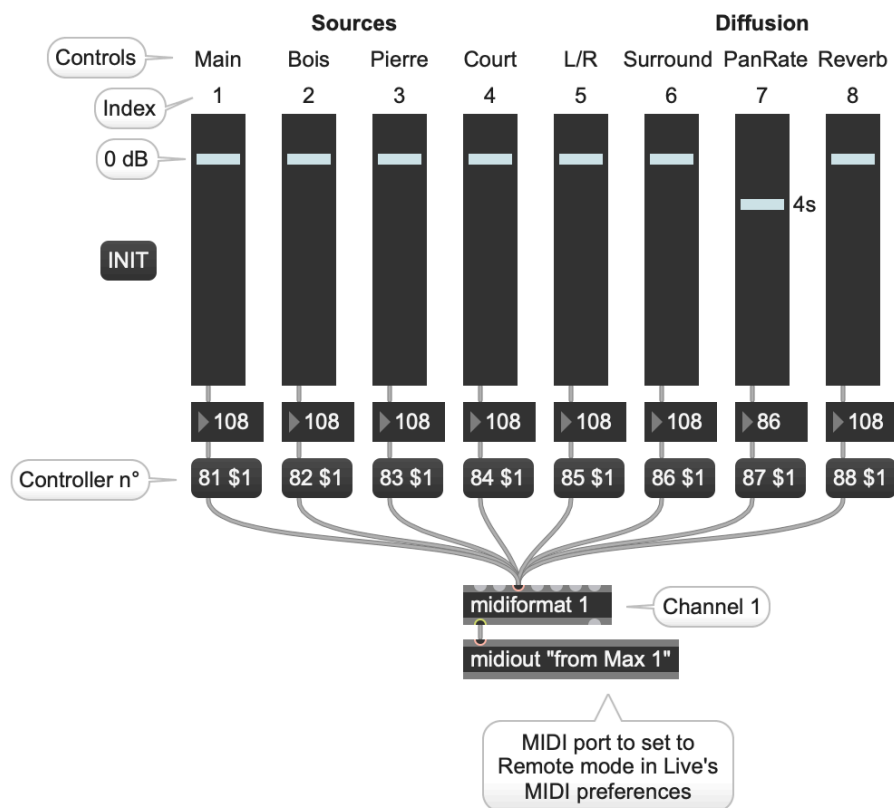
A screenshot of the Ableton Live MIDI Mappings window. It shows a table with columns: Channel, Note/Control, Path, Name, Min, and Max. The table lists various MIDI mappings for different controllers and parameters, with the 'Max' column values highlighted in blue.

Channel	Note/Control	Path	Name	Min	Max
1	CC 81	MAIN   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 82	Bois1   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 82	Bois2   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 82	Bois3   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 82	Bois4   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 83	Pierre1   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 83	Pierre2   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 83	Pierre3   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 83	Pierre4   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 83	Pierre5   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 84	Court1   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 84	Court2   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 84	Court3   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 85	A-L1/R2   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 86	B-SP 1/2   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 86	C-SP 3/4   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 86	D-SP 5/6   Mixer	Track Volume	-inf dB	6.0 dB
1	CC 87	Bois1   Audio Effect Rack   P...	Rate	10.0 ms	10.0 s
1	CC 87	Bois2   Audio Effect Rack   P...	Rate	10.0 ms	10.0 s
1	CC 87	Bois3   Audio Effect Rack   P...	Rate	10.0 ms	10.0 s
1	CC 87	Bois4   Audio Effect Rack   P...	Rate	10.0 ms	10.0 s
1	CC 87	Pierre1   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Pierre2   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Pierre3   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Pierre4   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Pierre5   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Court1   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Court2   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 87	Court3   Audio Effect Rack   ...	Rate	10.0 ms	10.0 s
1	CC 88	E-REV   MP.Ircamverb-6ch	Output	-inf dB	6.0 dB

The mapping panes displays MIDI channels and controllers, mapped parameters and mapping ranges.

## MIDI controllers guide

To get an idea of how mappings work, you may open the 61Steles-MidiMix-Guide Max patch in Max and test the controllers:



This may help you setting up your controller of finding the parameters being controlled. Controller numbers were set after the default state of Page/Preset 1 (P1) of a Beringher BCF2000:

## MIDI controllers map (MIDI channel 1)

### Sources

- ctl n° 81 controls the volume of the "Main" track - default 0dB (MIDI value: 108)
- ctl n° 82 controls the volume of the 4 "Bois" tracks - default 0dB (MIDI value: 108)
- ctl n° 83 controls the volume of the 5 "Pierre" tracks - default 0dB (MIDI value: 108)
- ctl n° 84 controls the volume of the 3 "Court" tracks - default 0dB (MIDI value: 108)

### Busses

- ctl n° 85 controls the volume of the A Return track - default 0dB (MIDI value: 108)
- ctl n° 86 controls the volume of the B, C, D Return tracks - default 0dB (MIDI value: 108)
- ctl n° 87 controls the rate of the panner in each track - default 4s (MIDI value: 86)
- ctl n° 88 controls the volume of the reverb plugin in the E Return track - default 0dB (MIDI value: 108)