

Olga Neuwirth  
*Le Encantadas o le avventure nel mare delle  
meraviglie*

2015

Wien  
2018



---

The setup and the execution of the electroacoustic part  
of this work requires a Computer Music Designer (Max expert).

---

## Table of Contents

|   |    |
|---|----|
| Table of Contents   | 2  |
| Work related information  | 3  |
| Performance details   | 3  |
| Detailed staff  | 3  |
| Realisation   | 3  |
| Useful links on Brahms  | 3  |
| Version related information   | 4  |
| Documentalist   | 4  |
| Realisation   | 4  |
| Other version(s)  | 4  |
| Electronic equipment list   | 5  |
| Computer Music Equipment  | 5  |
| Audio Equipment   | 5  |
| Files   | 6  |
| Instructions  | 7  |
| OLGA NEUWIRTH - Le Encantadas   | 7  |
| Instructions for Live Electronics   | 7  |
| Electronics - Olga Neuwirth, Gilbert Nouno, Markus Noisternig             | 7  |
| Live Electronics - Gilbert Nouno, Markus Noisternig                       | 7  |
| Sound Engineering - Sylvain Cadars  | 7  |
| About Le Encantadas - Setup   | 7  |
| Installing and Running the patches on the MacPro main computer            | 7  |
| About the midi inputs - see also the Annexe about the midi configuration. | 11 |
| Running the macBookPro main sampler                                       | 11 |
| Annexes   | 15 |
| A Midi Configuration  | 15 |
| MidiConnect physical connections  | 15 |
| B MidiConnect Routing   | 15 |
| Midi controllers  | 18 |
| From the BCF2000  | 18 |
| From the triggering keyboards (SY77)                                      | 18 |
| C ADC   | 18 |
| D DAC   | 19 |
| E Audio Click Tracks  | 20 |
| F Loudspeakers studio 1 Setup   | 20 |
| G Groups of Musicians   | 20 |
| H Computer Requirements   | 21 |
| Mixing desk routing, Keyboards, Click Video and Stage Setup               | 21 |

## Work related information

---

### Performance details

- Oct. 18, 2015, Allemagne, Donaueschingen, Donaueschinger Musiktage

Publisher : Ricordi Berlin

### Detailed staff

- 2 flutes, oboe, 2 clarinets, saxophone, bassoon, 2 horns, 2 trumpets, 2 trombones, 3 percussions, 3 electronic/MIDI keyboards/synthesizers, electric guitar, 4 violins, 2 violas, 2 cellos, double bass

### Realisation

- Gilbert Nouno

### Useful links on Brahms

- [Le Encantadas o le aventure nel mare delle meraviglie](#) for ensemble and electronics (2015)
- [Olga Neuwirth](#)

## Version related information

---

Performance date: Nov. 20, 2017

Documentation date: Feb. 6, 2018

Version state: valid, validation date : May 23, 2018, update : Jan. 3, 2023, 6:29 p.m.

## Documentalist

Gilbert Nouno (Gilbert.Nouno@ircam.fr)

You noticed a mistake in this documentation or you were really happy to use it? Send us feedback!

## Realisation

- Sylvain Cadars (Sound engineer)
- Gilbert Nouno (Computer Music Designer)
- Markus Noisternig (Researcher)

## Other version(s)

- [Olga Neuwirth - Le Encantadas o le avventure nel mare delle meraviglie - Paris2022-post \(Jan. 3, 2023\)](#)

## Electronic equipment list

### Computer Music Equipment

- 2 MacBook Pro - *Apple Laptops* (Apple)  
OSX 10.11. 10.12 (for the samplers, one is a spare)
- 2 MacPro - *Apple Desktops* (Apple)  
OSX 10.11.6 or 10.12.6 (spare)
- 1 Live - *Music Software* (Ableton)  
version 9
- 1 Max 7 - *Max* (Cycling74)  
v 7.3.5
- 1 antescofo~ - *External objects* (Ircam)  
version 0.8.526 (2/10/2015)
- 1 Ircam Spat - *Library* (Ircam)  
version 4
- 1 Kontakt5 - *Sampler* (Native Instruments)
- 3 KX 88 - *MIDI Keyboard* (Yamaha)  
for the samplers
- 3 SY 22 - *MIDI Keyboard* (Yamaha)  
to trigger the events
- 1 BCF 2000 - *MIDI Mixer* (Behringer)
- 3 Footswitch / Sustain Pedal - *Footswitch / Sustain Pedal*
- 3 Volume Pedal - *Volume Pedal*

### Audio Equipment

- 24 Loudspeaker - *Loudspeakers*  
ambisonic hemisphere
- 4 subwoofer - *Subwoofers*
- 1 CL5 - *Digital Mixers* (Yamaha)
- 1 CL1 - *Digital Mixers* (Yamaha)

## Files

| File  | Type     | Author(s)      | Comment                                     |
|---|----------|----------------|---|
| <a href="#">Score of the electronic part with cues</a>              | Score    |                | Electronic-Particell                        |
| <a href="#">Keyboard1 score</a>                                     | Score    |                |   |
| <a href="#">Keyboard2 score</a>                                     | Score    |                |   |
| <a href="#">Keyboard3 score</a>                                     | Score    |                |   |
| <a href="#">Documentation</a>                                       | Document | Gilbert Nouno  | instructions                                |
| <a href="#">Encantadas_Neuwirth_MacProMain.dmg</a>                  | Patch    | Gilbert Nouno  | patches and environment for MacPro 2664     |
| <a href="#">Encantadas_Neuwirth_Sampler_macBookPro2417_Wien.dmg</a> | Patch    | Gilbert Nouno  | patches and sounds for "Sampler" MacBookPro |
| <a href="#">Instrumental Groups</a>                                 | Setup    | Sylvain Cadars | setup for the instrumental islands          |
| <a href="#">PLAN-WIEN-HALL-E-Version1.pdf</a>                       | Setup    | Sylvain Cadars |   |

# Instructions

---

## OLGA NEUWIRTH - Le Encantadas

---

### Instructions for Live Electronics

---

#### Electronics - Olga Neuwirth, Gilbert Nouno, Markus Noisternig

Live Electronics - Gilbert Nouno, Markus Noisternig

Sound Engineering - Sylvain Cadars

*gilbert dot nouno at ircam dot fr, markus dot noisternig at ircam dot fr, sylvain dot cadars at ircam dot fr*

Le Encantadas was premiered in Donaueschingen

### About Le Encantadas - Setup

---

Due to the complexity of the audio and computer setup different annexes are describing the important parts of it. Refer to the main score, the *Elektroni Particell* and the keyboard parts for the midi program changes and notes indications, for both event trigger and sampler keyboards.

- Midi configuration
- MidiConnect routing
- ADC (audio input)
- DAC (audio output)
- Loudspeakers setup studio 1 (reference setup)
- Groups of musicians
- Computer Requirements
- Mixing desk routing, Keyboards, Click Video and Stage Setup (external document from the sound engineer)

### Installing and Running the patches on the MacPro main computer

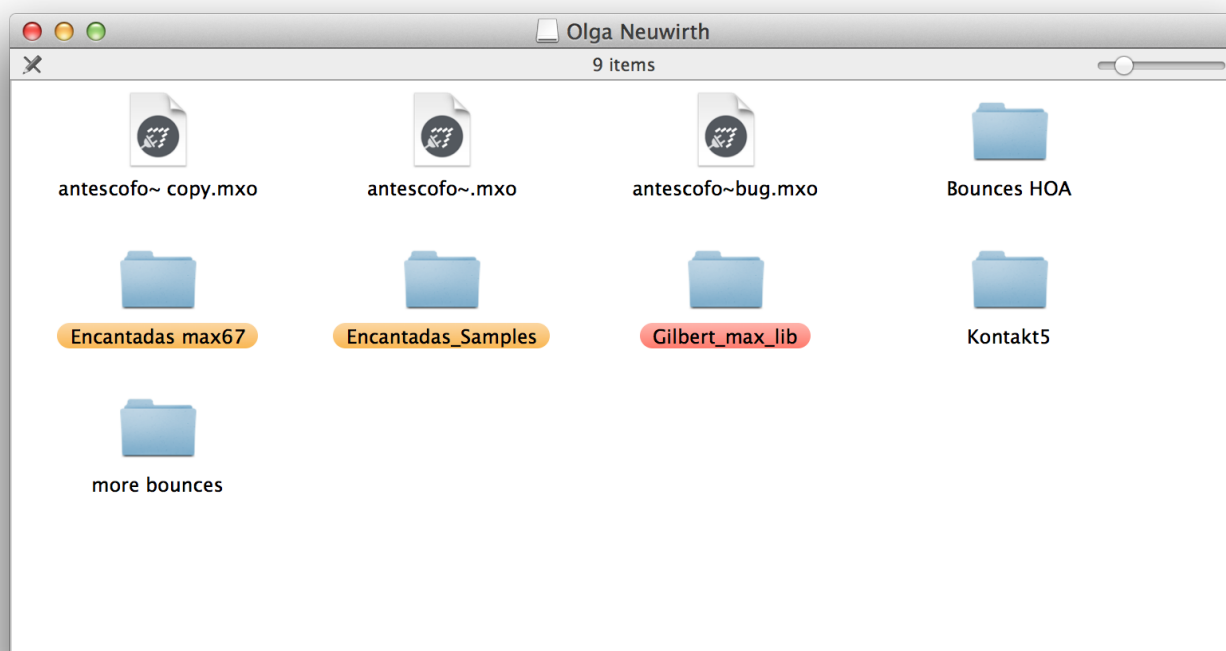
---

It is a good idea to create a new OS X user account as *Encantadas*.

You need to create the following instances of Max Application (version 8 or above):

- Max.app (should be in rosetta mode)
- Max 64 II.app (should be in rosetta mode)
- Max IV.app (should be in rosetta mode)
- Max 64 III.app (should be in arm native)

Before running the script set the max preferences (both file as the whole *Olga Neuwirth* folder and audio) Copy the folder Olga Neuwirth in your document folder from the image file *Encantadas\_Neuwirth\_MacProMain.dmg*



In a terminal window run the script `./paris_run_max8_encantadas_dec22.sh` as the following :

`cd /users/encantadas/documents/Olga Neuwirth/encantadas max67 ./paris_run_max8_encantadas_dec22.sh`

```

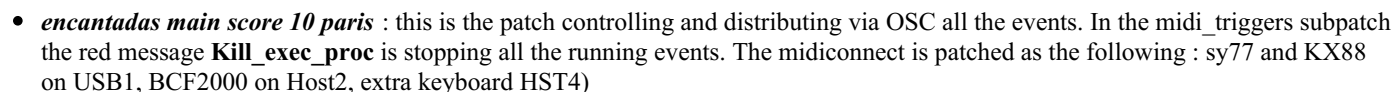
run_max7_strasbourg_encantadas.sh
File Path ▾ : ~/Documents/Olga Neuwirth/Encantadas max67/run_max7_strasbourg_encantadas.sh

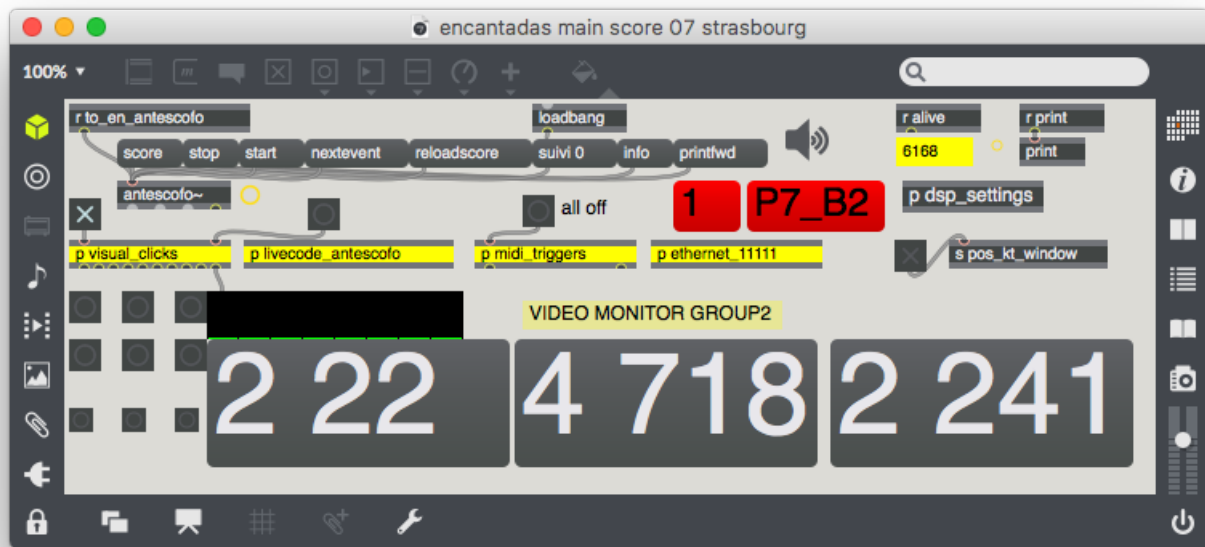
1  # Olga Neuwirth Ancantadas Max Patches
2  # Gilbert Nouno (2015)
3
4  # chez moi : cd /Users/nouno/Documents/IRcam/PRod/Olga Neuwirth/Encantadas max67
5
6  # main antescofo control patch
7  # 64 bit
8  # open -a /Applications/Max\ 6.1/Max\ 64.app      ./encantadas\ main\ score\ 00.maxpat
9  # 32 bit
10
11 # paris oct 2015
12 # open -a /Applications/Max\ 6.1/Max.app           ./encantadas\ main\ score\ 04.maxpat
13 # open -a /Applications/Max\ 6.1/Max.app           ./encantadas\ main\ score\ 05\ amsterdam.maxpat
14 open -a /Applications/Max.app                     ./encantadas\ main\ score\ 07\ strasbourg.maxpat
15 sleep 8
16
17 # hoa player , plays the pre recorded 25 channeles ambisonics file and decodes it on the loudspeaker setup
18 # 64 bit (car trop gourmand en memoire avec les samples chargés en ram avec polybuffer)
19 # open -a /Applications/Max\ 6.1/Max\ 64\ II.app    ./encantadas\ player\ hoa\ 15\ paris.maxpat
20 # open -a /Applications/Max\ 6.1/Max\ 64\ II.app    ./encantadas\ player\ hoa\ 16\ amsterdam.maxpat
21 open -a /Applications/Max\ 64\ II.app              ./encantadas\ player\ hoa\ 18\ strasbourg.maxpat
22 # 32 bit ne marche pas avec les fichiers trop gros !
23 # open -a /Applications/Max\ 6.1/Max\ II.app        ./encantadas\ player\ hoa\ 11\ studio1.maxpat
24 sleep 8
25
26 # reverb CSL solo
27 # open -a /Applications/Max\ 6.1/Max\ IV.app        ./encantadas\ csl-o4\ 16\ paris.maxpat
28 # open -a /Applications/Max\ 6.1/Max\ IV.app        ./encantadas\ csl-o4\ 17\ amsterdam.maxpat
29 open -a /Applications/Max\ IV.app                  ./encantadas\ csl-o4\ 19\ strasbourg.maxpat
30 sleep 10
31
32 # spat and chiesa san lorenzo reverb and sampler player and dsp
33 # 64 bit
34 # open -a /Applications/Max\ 6.1/Max\ 64\ III.app   ./encantadas\ spats\ hoa\ 35\ paris.maxpat
35 # open -a /Applications/Max\ 6.1/Max\ 64\ III.app   ./encantadas\ spats\ hoa\ 36\ amsterdam.maxpat # ./tmp-encantadas-09new-d.maxpat
36 open -a /Applications/Max\ 64\ III.app             ./encantadas\ spats\ hoa\ 38\ strasbourg.maxpat
37 # 32 bit does not work cos the patch is > 2Gb patch dsp
38 #open -a /Applications/Max\ 6.1/Max\ III.app        ./encantadas\ spats\ hoa\ 14\ studio1.maxpat #./tmp-encantadas-09new-d.maxpat
39
40

```

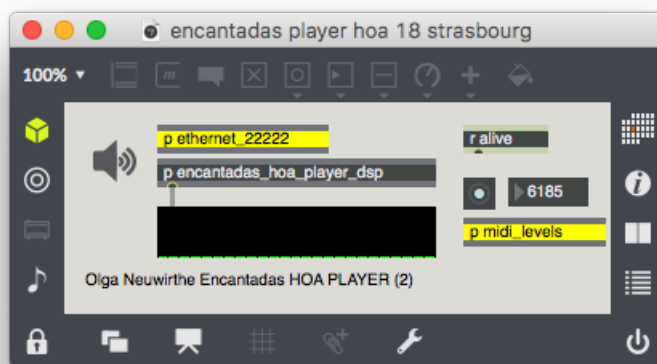
Line 36 Col 65 | Unix Shell Script | Unicode (UTF-8) | Unix (LF) | Last saved: 30/09/2017, 09:07:05 | 2.063 / 331 / 40 | 100%







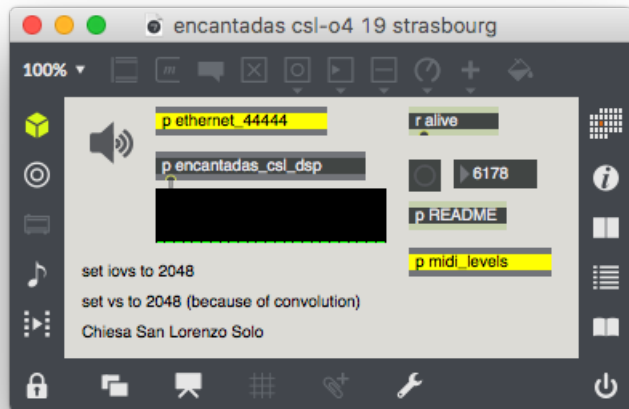
- *encantads player HOA 21 paris* (Max II), this is a direct to disk ambisonics sound file player.



- *encantadas spats hoa 41 paris* (Max III), this is for the real time and sound ambisonics spatialisation



- *encantadas csl-o4 24 paris* (max IV), this is the real time convolution 3D reverberation sampled from the Chiesa San Lorenzo in Venezia.



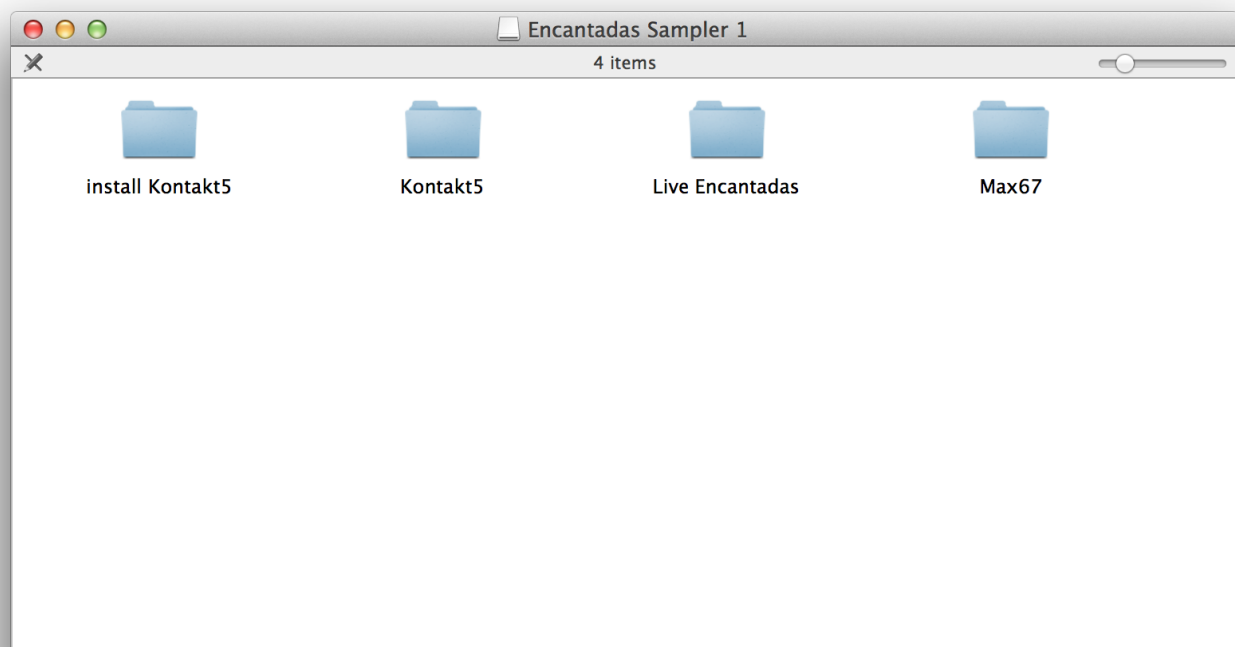
?

### About the midi inputs - see also the Annexe about the midi configuration.

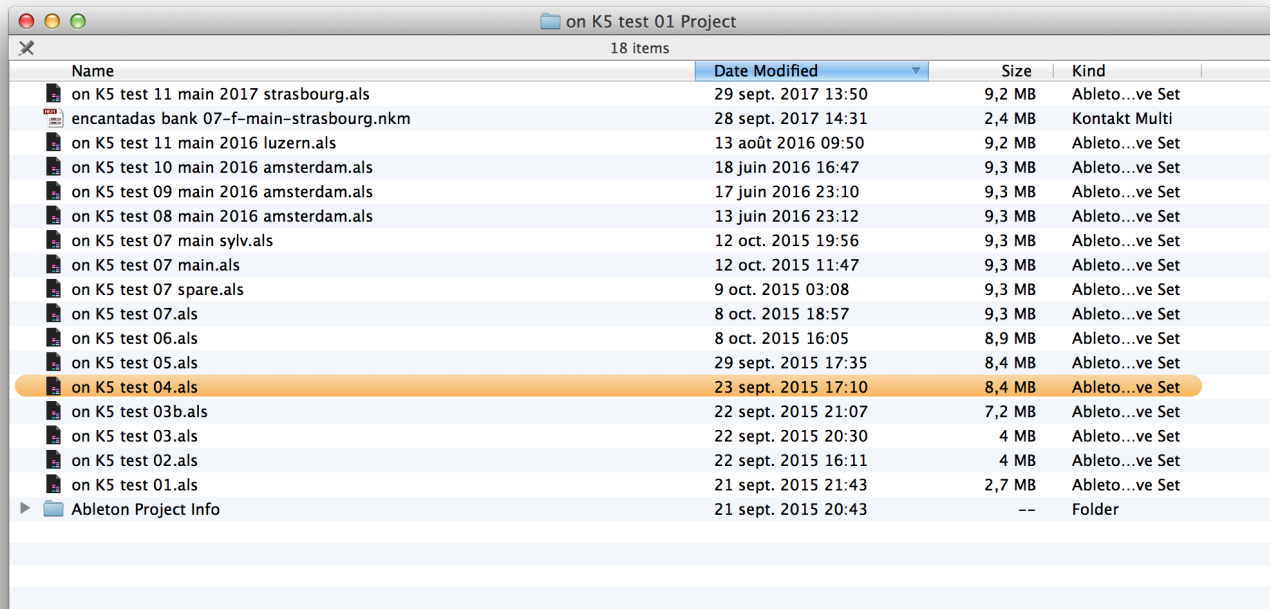
- the max patch *encantadas main score 10 paris* receives “iconnectMIDI4+ USB 1” for the sy77 on midi channel 16 (program change and event keys), KS88 ignored as channel 1
- the max patch *encantadas main score 10 paris* receives “iconnectMIDI4+ HST 2” for the BCF2000 (ctlin 76, tutti CSL key)

## Running the macBookPro main sampler

Two samplers (macBookPro) are needed, one is a spare. They run the Kontakt plugin (**Version 6**) inside an Ableton Live 10 session. Copy the folder from the image file *Encantadas\_Neuwirth\_Sampler\_macBookPro2417\_Wien.dmg*

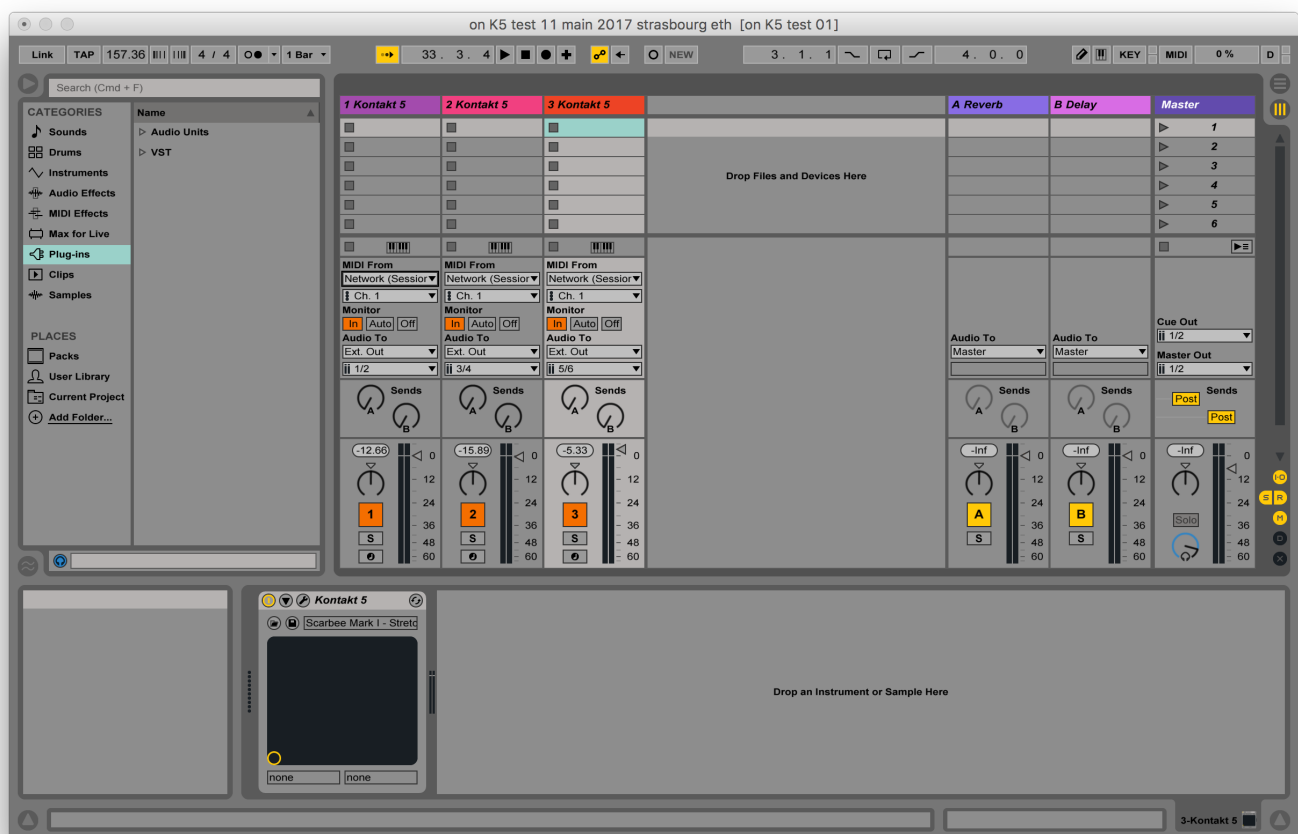


The Kontakt5 folder contains the sound banks used by the Kontakt sampler. Run the following Ableton Live session *on K5 test 11 main 2017 strasbourg.als* from the folder */Live Encantadas/on K5 test 01 Project*

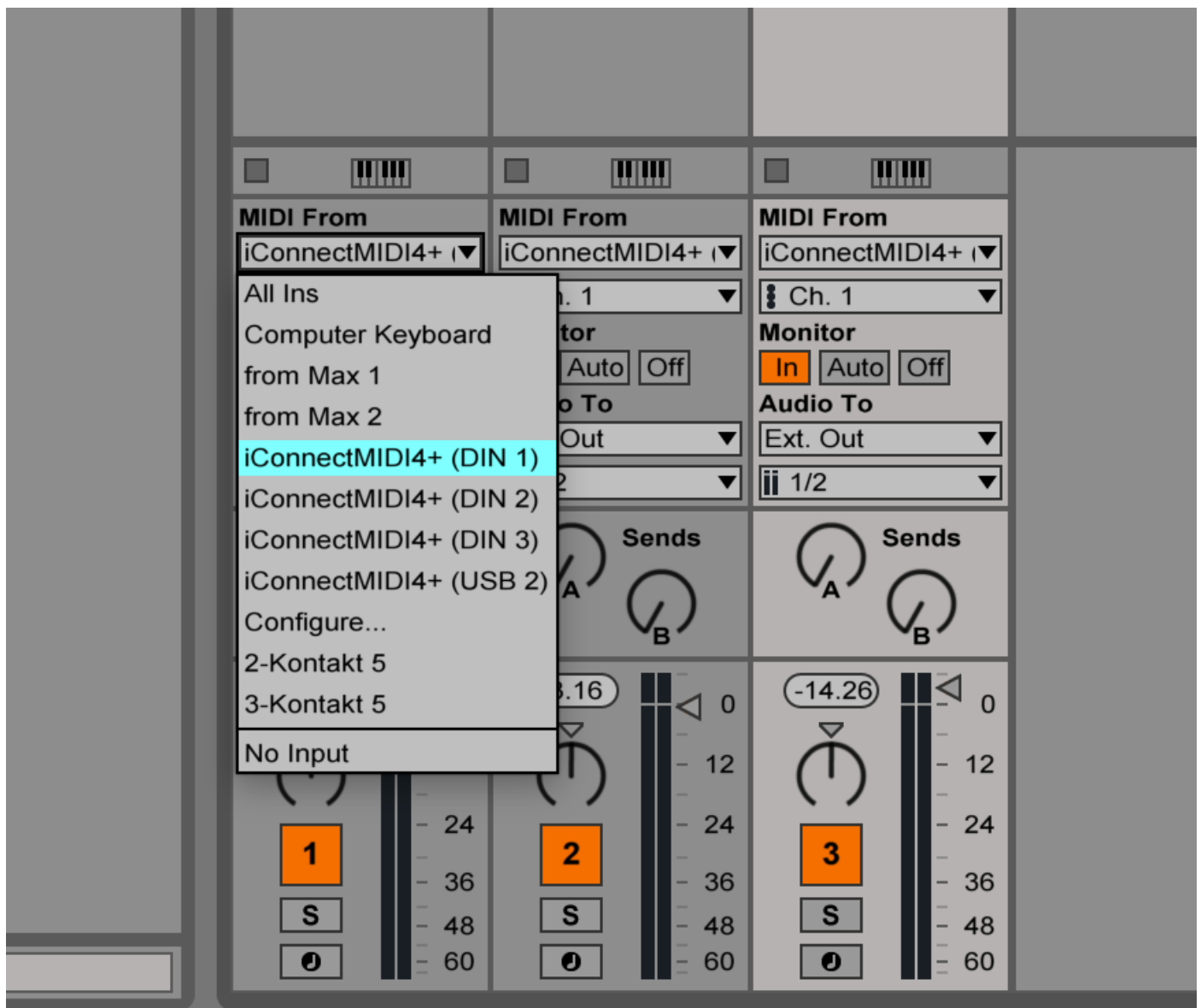


| Name                                     | Date Modified       | Size   | Kind            |
|--|---------------------|--------|-----------------|
| on K5 test 11 main 2017 strasbourg.als   | 29 sept. 2017 13:50 | 9,2 MB | Ableto...ve Set |
| encantadas bank 07-f-main-strasbourg.nkm | 28 sept. 2017 14:31 | 2,4 MB | Kontakt Multi   |
| on K5 test 11 main 2016 luzern.als       | 13 août 2016 09:50  | 9,2 MB | Ableto...ve Set |
| on K5 test 10 main 2016 amsterdam.als    | 18 juin 2016 16:47  | 9,3 MB | Ableto...ve Set |
| on K5 test 09 main 2016 amsterdam.als    | 17 juin 2016 23:10  | 9,3 MB | Ableto...ve Set |
| on K5 test 08 main 2016 amsterdam.als    | 13 juin 2016 23:12  | 9,3 MB | Ableto...ve Set |
| on K5 test 07 main sylv.als              | 12 oct. 2015 19:56  | 9,3 MB | Ableto...ve Set |
| on K5 test 07 main.als                   | 12 oct. 2015 11:47  | 9,3 MB | Ableto...ve Set |
| on K5 test 07 spare.als                  | 9 oct. 2015 03:08   | 9,3 MB | Ableto...ve Set |
| on K5 test 07.als                        | 8 oct. 2015 18:57   | 9,3 MB | Ableto...ve Set |
| on K5 test 06.als                        | 8 oct. 2015 16:05   | 8,9 MB | Ableto...ve Set |
| on K5 test 05.als                        | 29 sept. 2015 17:35 | 8,4 MB | Ableto...ve Set |
| on K5 test 04.als                        | 23 sept. 2015 17:10 | 8,4 MB | Ableto...ve Set |
| on K5 test 03b.als                       | 22 sept. 2015 21:07 | 7,2 MB | Ableto...ve Set |
| on K5 test 03.als                        | 22 sept. 2015 20:30 | 4 MB   | Ableto...ve Set |
| on K5 test 02.als                        | 22 sept. 2015 16:11 | 4 MB   | Ableto...ve Set |
| on K5 test 01.als                        | 21 sept. 2015 21:43 | 2,7 MB | Ableto...ve Set |
| Ableton Project Info                     | 21 sept. 2015 20:43 | --     | Folder          |

Which opens as the following, with one track for each keyboard player :



- Sampler1 Keyboard 1 routing



- Sampler1 Keyboard 2 routing



- Sampler1 Keyboard 3 routing



Each of the three keyboard players plays samples on a KX88 and triggers events on the SY77 keyboard (program changes and notes are in the score for both keyboards).

Please refer to the sound engineer stage setup for the connection of the midi keyboards. The 3 samplers should be set on 3 individual stereo outputs routed in the mixing desk with the Dante controller.

Please refer to the score for the midi triggering of both the sampler KX88 keyboard and the event trigger keyboard (SY77).

The sound bank should be as the following :

|                                |                                |                                  |                                |
|--------------------------------|--------------------------------|----------------------------------|--------------------------------|
| 001 - Scarbee Mark I - Stretch | 002 - Vienna Concert Grand     | 003 - Upright Modern Playtime I  | 004 - 5 Celesta olga           |
| 005 - _ steeldrum [C1-G1] COUR | 006 - _ steeldrum [C1-G1] LONG | 007 - Kettle Gong on 2 -5Sc      | 008 - Flower Pops olga 2       |
| 009 - Theater Organ olga 2     | 010 - Glass Armonica olga 2    | 011 - Scarbee Mark I - Stretch T | 012 - Vienna Concert Grand     |
| 013 - gangsa gong on           | 014 - 5 Celesta olga           | 015 - _ steeldrum [C1-G1] COUR   | 016 - _ steeldrum [C1-G1] LONG |
| 017 - Kettle Gong on 2 +5Sc    | 018 - Flower Pops olga 2       | 019 - Theater Organ olga 2       | 020 - Glass Armonica olga      |
| 021 - Scarbee Mark I - Stretch | 022 - Vienna Concert Grand     | 023 - Upright Modern Playtime I  | 024 - 5 Celesta olga           |
| 025 - _ steeldrum [C1-G1] COUR | 026 - _ steeldrum [C1-G1] LONG | 027 - gangsa gong on             | 028 - Flower Pops olga 2       |
| 029 - Theater Organ olga 2     | 030 - Glass Armonica olga      | 031 - Patch_chamber.bowls        | 032 - Parsifal bells 20K       |

## Annexes

### A Midi Configuration

#### MidiConnect physical connections

- The midi *sampler* keyboards must be set on midi channel 1
- The midi *triggering* (SY77) keyboards must be set on channel 16.

See the midi connecting pdf for the connections : normally the SY77 midi out goes into the midi in of the KX88 and KX88 midi out goes to the midi interface.

The iconnect interface is configured as the following

- input port DIN1 midi keyboards 1 (SY77 channel 16 + KX88 channel 1 merged together)
- input port DIN2 midi keyboards 1 (SY77 channel 16 + KX88 channel 1 merged together)
- input port DIN3 midi keyboards 1 (SY77 channel 16 + KX88 channel 1 merged together)
- mac sampler 1 is on USB device Jack 1
- macPro 1 is on USB device Jack 2
- macPro 2 is on USB device Jack 3
- the BCF2000 midi mixer is connected on the USB host jack 1 or on a USB hub connected to the USB host jack 1
- the Ethernet port is connected to the ethernet port of the sampler 2 macbookPro

### B MidiConnect Routing

- DIN1 routing

Port

ETH 4

USB Device Jack 2

DIN 1

DIN 2

DIN 3

DIN 4

USB 1

USB 3

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

ETH 1

ETH 2

ETH 3

ETH 4

USB Device Jack 3

DIN 1

DIN 2

DIN 3

DIN 4

USB 1

USB 2

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

ETH 1

ETH 2

ETH 3

ETH 4

USB Host Jack 1

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

HST 7

HST 8

Ethernet Jack 1

ETH 1

ETH 2

ETH 3

ETH 4

DIN 1

DIN 2

DIN 3

DIN 4

Port Routes (Destinations)

|                   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|-------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| USB Device Jack 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Device Jack 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Device Jack 3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Host Jack 1   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Ethernet Jack 1   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 1        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 2        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 3        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 4        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Enabled

Disabled

- DIN2 routing

Port

ETH 4

USB Device Jack 2

DIN 1

DIN 2

DIN 3

DIN 4

USB 1

USB 3

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

ETH 1

ETH 2

ETH 3

ETH 4

USB Device Jack 3

DIN 1

DIN 2

DIN 3

DIN 4

USB 1

USB 2

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

ETH 1

ETH 2

ETH 3

ETH 4

USB Host Jack 1

HST 1

HST 2

HST 3

HST 4

HST 5

HST 6

HST 7

HST 8

Ethernet Jack 1

ETH 1

ETH 2

ETH 3

ETH 4

DIN 1

DIN 2

DIN 3

DIN 4

Port Routes (Destinations)

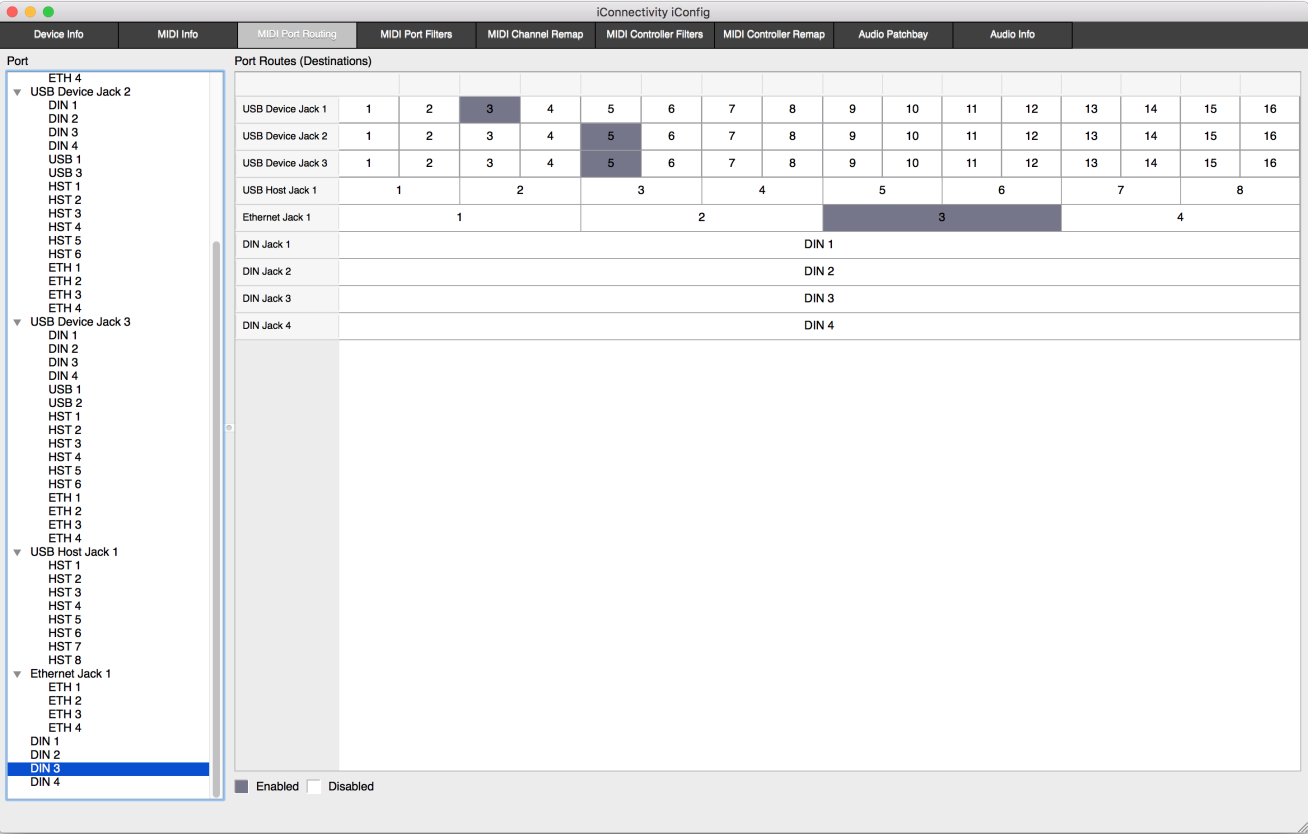
|                   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|-------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| USB Device Jack 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Device Jack 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Device Jack 3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| USB Host Jack 1   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Ethernet Jack 1   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 1        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 2        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 3        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DIN Jack 4        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

Enabled

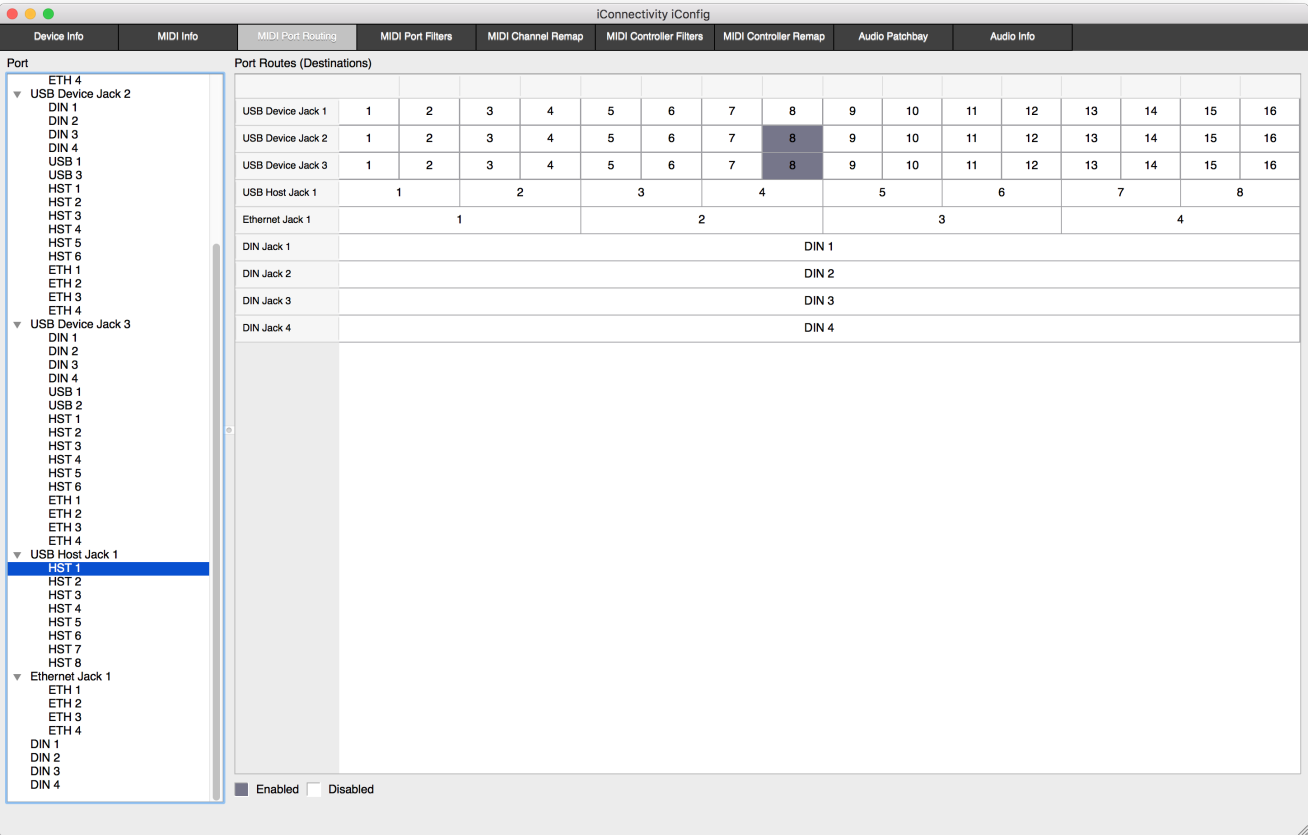
Disabled

- DIN3 routing

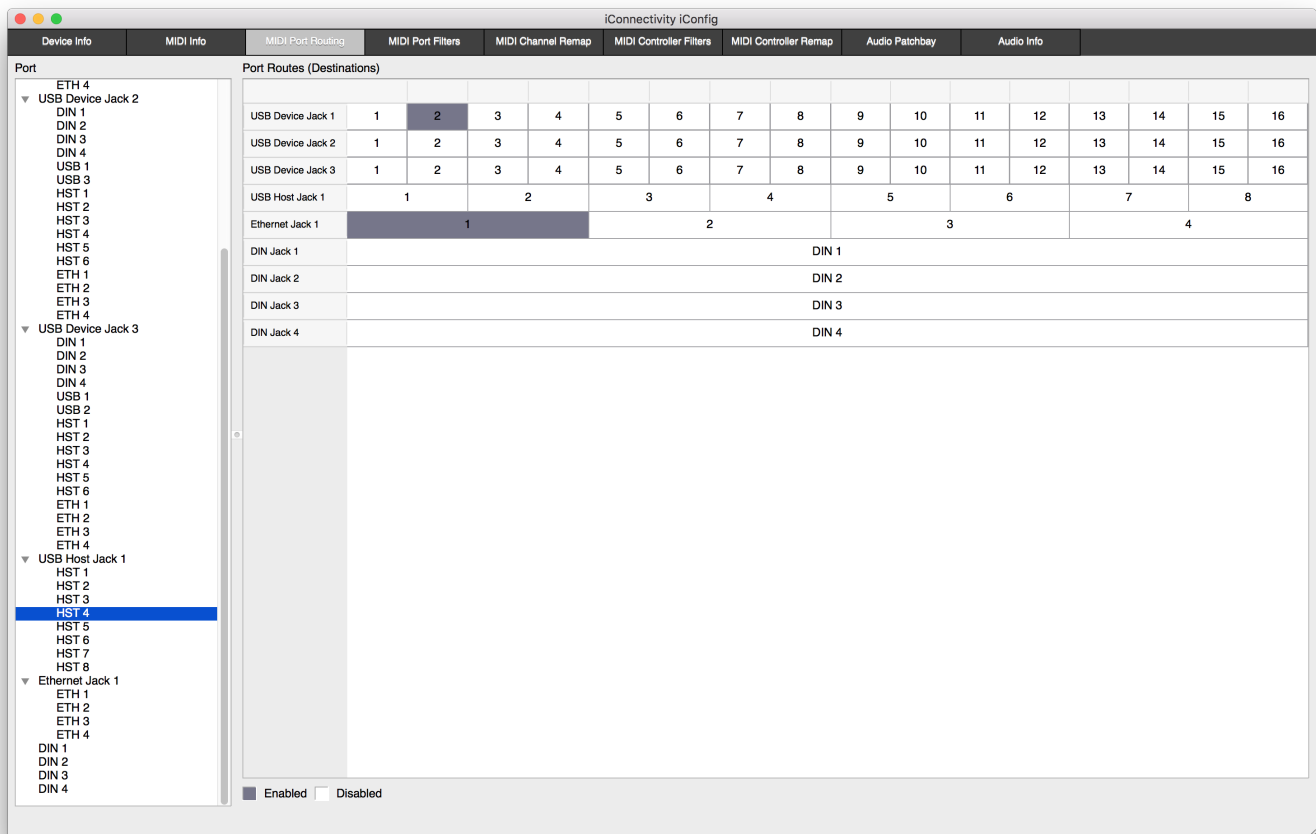




- Host 1 (BCF200) routing



- Host 4 (extra mini keyboard for test) routing



## Midi controllers

### From the BCF2000

- CC 1 main level
- CC 2 main relative level plus or minus 6 db
- CC 3 HOA relative level plus or minus 6 db
- CC 4 3D convolution reverb relative level plus or minus 6 db
- CC 5 samples from patch III relative level plus or minus 6 db
- CC 6 instrument transformation level from -100 to +6db
- CC 7 sub relative level plus or minus 6 db
- CC 8 (button) tutti to 3D reverb

### From the triggering keyboards (SY77)

- CC 8 on midi channel 16 of the SY77 is stopping everything (useful for rehearsal)
- the note C5 of the SY77 is also stopping everything

## C ADC

Below are the ADC input number seen from the max patches. The audio In/Out is using the Dante protocol.

### (group I)

- 1 sax
- 2 basson
- 3 trumpet 1

- 4 guitare electric

**(group II)**

- 5 Kl 1
- 6 trumpet 2
- 7 vc 1 (keyb 1)

**(group III)**

- 8 Fl.
- 9 Ob.
- 10 Hrn. 11 Tb.
- 12 Perc. 1

**(group IV)**

- 13 Vl. 3
- 14 vl. 4.
- 15 Va. 2
- 16 vc. 2

**(group V)**

- 17 fl. 1
- 18 Kl. 2
- 19 hrn. 2
- 20 tb. 2
- 21 perc. 2

**(group VI)**

- 22 vl. 1
- 23 vl. 2
- 24 va. 1
- 25 Kbass
- 26 Perc. 3
- 27 glass (for transformation)
- 28, 29, 30 are not used

**KEYBOARDS (sampler)**

- 31 & 32 KEYBOARD (sampler) 1
- 33 & 34 KEYBOARD (sampler) 2
- 35 & 36 KEYBOARD (sampler) 3

**D DAC**

The Output Dac seen from the max patches are 1-25 for a 4th order ambisonics sound projection. The nth order requires  $(2^{(n+1)})$  loudspeakers. DAC 42 is the send to the 3D convolution reverb, routed by the mixer to come back into the Max CSL patch. DAC 37 and 38 are the sub send channels (to the mixing desk)

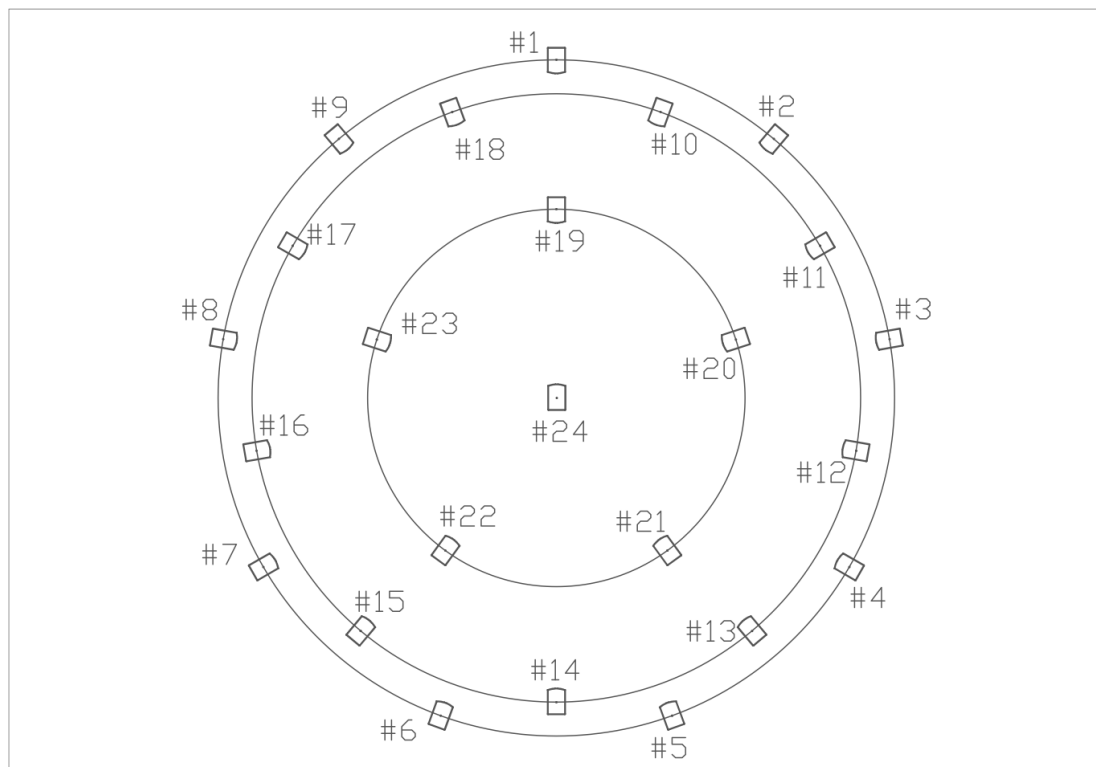
## E Audio Click Tracks

- click 1 : dac 39 conductor audio click track (high and low pitch) , also dac 51-52 for visual audio click track
- click 2 : dac 40 group II audio click track (high and low pitch) , also 43-44, 45-46, 47-48 and 49-50 for visual audio click track group II (not used any more as the video is enough)
- click 3 :dac 41 group III audio click track (high and low pitch)
- click 1 goes to conductor
- click 2 goes to Cl. 1 (group II), perc. 1 (group III), flute 1 (group III), oboe (group III)
- click 3 goes to Perc. 2 (group V), keyboard 3 (Group VI) and guitare (Group I)

See also the video click setup and the score to refer each click track to each group of musicians.

## F Loudspeakers studio 1 Setup

The following is the reference HP setup loudspeaker used for the ambisonics sound projection.



## G Groups of Musicians

Six groups of musicians with different tunings are surrounding the audience as below, please also refer to the score.

..... I

IV ..... V

III ..... VI

..... II

### Group I

Sax ,Fagot, Trumpet 1, Electric Guitare

**Group V (+33 cents)**

Perc. 2, Pos. 2, Hn 2, Kl. 2, Fl. 2

**Group VI (+33 cents)**

Perc. 3, vl. 1, vl. 2, Va. 1, KEYBOARD 3

**Group II (-66 cents)**

Kl. 1, Trp. 2, Vc. 1, KEYBOARD 1

**Group III (-33 cents)**

Fl. 1, Ob., Hn. 1, Pos. 1, Perc. 1

**Group IV (-33 cents)**

VI 3., VI 4., Va. 2, Vc. 2, KEYBOARD 2


**H Computer Requirements**

- 1 MacBookPro M1 OS X 12 main)
- 1 MacPro OS X 10.11.6 or 10.12.6 ( spare)
- 2 MacBookPro OS X 10.11 or 10.12 for the samplers (one is a spare)
- Max8.1 from Cycling 74'
- DANTE Dante audio network
- BCF2000 midi fader
- Digital mixing desk Yamaha CL5 + Yamaha CL1 (see sound engineering document)
- 3 KX88 midi keyboards, for the samplers
- 3 Yamaha SY22 keyboards (or equivalent), used for the event triggering
- 3 midi sustain pedal
- 3 midi volume control pedal

**Mixing desk routing, Keyboards, Click Video and Stage Setup**

- see external pdf document by the sound engineering team.

□

© IRCAM 

This documentation is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Version documentation creation date: Feb. 6, 2018, 6:36 p.m., update date: Jan. 3, 2023, 6:29 p.m.