

Philippe Manoury  
*B-Partita (in memoriam Pierre Boulez)*  
2016  
Brioude 2021  
2021



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

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## Work related information

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### Performance details

- June 16, 2016, <p>Paris, Centre Pompidou, Grande Salle, Festival ManiFeste-2016</p>

Publisher : Durand

### Detailed staff

- soloist: violin
- flute, oboe, clarinet, horn, trumpet, 2 percussions, 2 violins, viola, double bass

### Realisation

- Serge Lemouton

### Useful links on Brahms

- [B-Partita \(in memoriam Pierre Boulez\) for solo violin and ensemble \(2016\), 23mn](#)
- [Philippe Manoury](#)

## Version related information

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Documentation date: Aug. 26, 2021

Version state: valid, validation date : Dec. 20, 2021, update : May 2, 2022, 10 a.m.

### Documentalist

Serge Lemouton (Serge.Lemouton@ircam.fr)

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

### Realisation

- Serge Lemouton (Computer Music Designer)
- Franck Berthoux (Sound engineer)
- Jacques Warnier (Computer Music Designer)

Version length: 20 mn

Default work length: 23 mn

### Upgrade Motivation

All the applications have been updated to MAX 8 - 64 bit.

An alternative, simplified but operational version of the software setup (all in one patch) is also provided.

### Comment

Patch performed (light version) by Ensemble Orchestra Contemporain conducted by Bruno Mantovani in Brioude - (Festival de la Chaise Dieu, August 2021).

Partita 2 performed by Jacques Warnier and Hae Sun Kang (festival OFFBEAT Juhl-Sørensen).

Some corrections has to be made for the next version/performance : cf. Instructions below.

The electronic part, as well as the violin part are very similar to Partita 2.

A few discrepancies can be found in the antescofo score, but the max patches are identical.

### Other version(s)

- [Philippe Manoury - B-Partita \(in memoriam Pierre Boulez\) - LaMeije2021 \(Aug. 4, 2021\)](#)
- [Philippe Manoury - B-Partita \(in memoriam Pierre Boulez\) - BiennaleDeVenise2018 \(Oct. 23, 2018\)](#)
- [Philippe Manoury - B-Partita \(in memoriam Pierre Boulez\) - EOC-2017 \(Jan. 9, 2018\)](#)
- [Philippe Manoury - B-Partita \(in memoriam Pierre Boulez\) - CollegeDeFrance2017 \(June 26, 2017\)](#)
- [Philippe Manoury - B-Partita \(in memoriam Pierre Boulez\) - Premiere \(June 28, 2016\)](#)

## Electronic equipment list

### Computer Music Equipment

- 1 Retina - *Apple Laptops* (Apple)
- 1 iPad - *Tablets* (Apple)
- 1 Max 8 - *Max* (Cycling74)  
version 8.1.11
- 1 antescofo~ - *External objects* (Ircam)  
version 0.91-53 (27 janvier 2016)
- 1 BowedString~ - *External objects* (Ircam)
- 1 sampler~ - *External objects* (Cycling74)  
sampler~ HD: version 3.92 (voice\_stealing) (Aug 5 2021 - 12:00:34)
- 1 Ircam Spat - *Library* (Ircam)
- 1 Mira - *Library* (Cycling74)
- 1 synful orchestra - *Virtual Instruments* (Synful)
- 1 Fireface UC - *Sound Board* (RME)

### Audio Equipment

- 1 DPA 4061 - *Condenser Microphones* (DPA)
- 6 Loudspeaker - *Loudspeakers*
- 1 subwoofer - *Subwoofers*

**Files**

<b>File</b>	<b>Type</b>	<b>Author(s)</b>	<b>Comment</b>
<a href="#">B-Partita patch light version</a>	Patch	Serge Lemouton	
<a href="#">B-Partita patches full version</a>	Patch	Serge Lemouton	

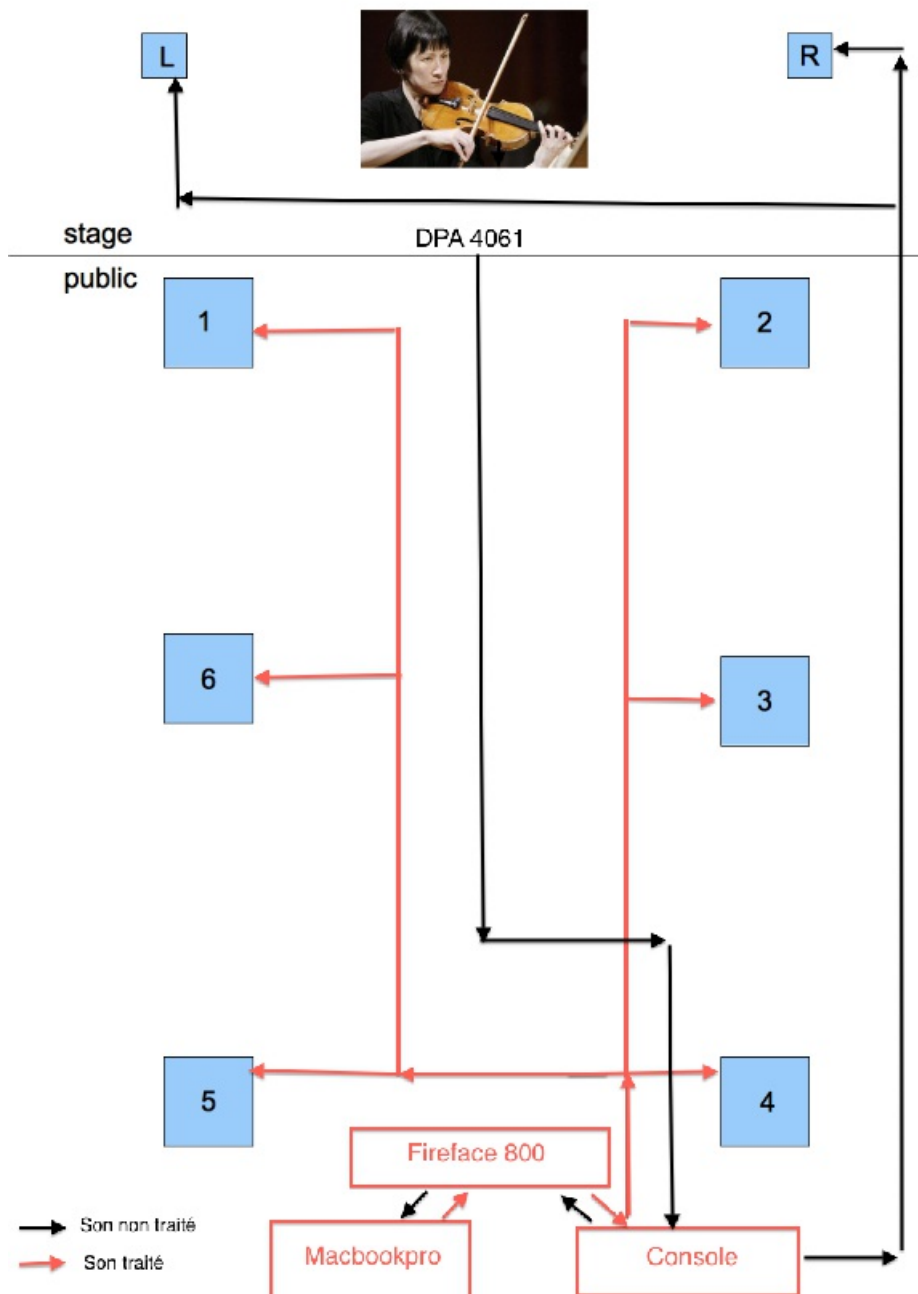
## Instructions

### Partita 2 or B-Partita ?

The electronic part, as well as the violin part of *Partita2* and *B-Partita* are very close.  
The only difference on the Max patch side is :

- To play *B-Partita* start with *B-Partita1.asco*
- To play *Partita2* start with *Partita2.1.asco*

### Audio and Loudspeaker setup



### Software installation

For CPU performance reasons, the electronic software is split in four patches running in parallel on the same computer :

1. *Partita-Deux-+3FC-10-2021.maxpat* : The main patch
  - score following (using antescofo)
  - control of all the synthesis and transformation processes.
  - The “three frequencies chord” (“3FC”) is an additive synthesis patch controlled by a continuous sound analysis of the violin.

2. *T\_synful\_03* : Synful synthesis used to play musical sequences.
3. *T\_spat\_17* : hexaphonic spatialisation
4. *T\_String\_06* : Two virtual physical model strings

*T\_synful\_03*, *T\_spat\_17* and *T\_String\_06* are applications (built with max8).

All the required applications and patches can be launch at once by executing the *\_P2-2021-run.sh* script in a terminal.

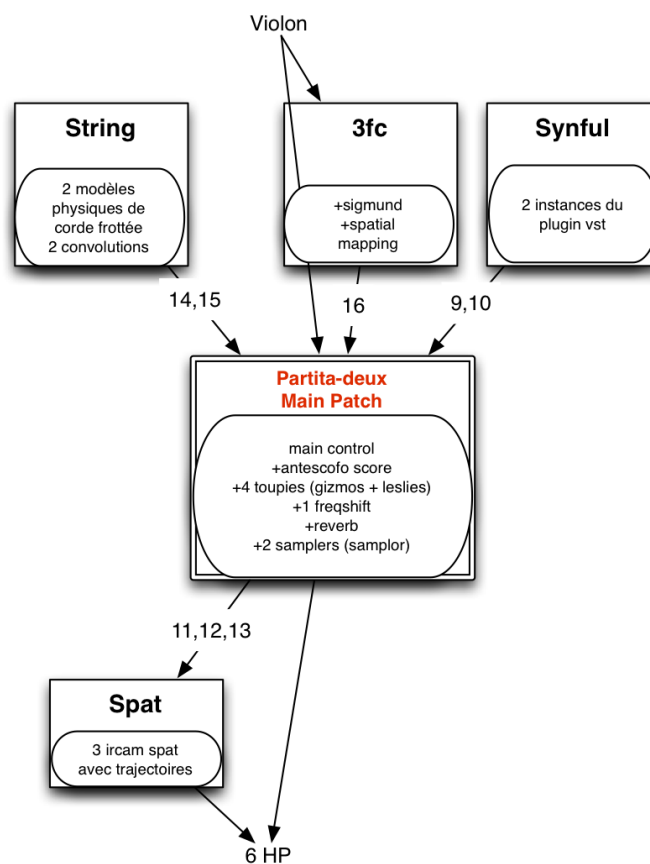
### Files preferences

Max file preferences should point to :

- *Partita2-Max8-2021/*
- *Partita2-Max8-2021/data/antescofo\_scores2017*

### DSP Overview

This diagram shows the audio routing between the applications:



The audio lines from 9 to 16 are used to communicate between the different applications. The inputs should be connected to the outputs of the audio soundboard.

You can do it :

- with an optical fiber loop.
- or as loopbacks in the TotalMix fireface software :



The image displays a digital audio workstation (DAW) mixer interface, organized into two rows of channel strips. Each strip represents a different audio input or output.

**Top Row (Software Playback):**

- AN 1/2:** Gain knob at 0, M/S buttons, level meters at -35.5 UFL, PH 7/8.
- AN 3/4:** Gain knob at 0, M/S buttons, level meters at -40.9 UFL, PH 7/8.
- AN 5/6:** Gain knob at 0, M/S buttons, level meters at UFL UFL, PH 7/8.
- PH 7/8:** Gain knob at 0, M/S buttons, level meters at UFL UFL, PH 7/8.
- SPDIF:** Gain knob at 0, M/S buttons, level meters at UFL UFL, PH 7/8.
- AS 1/2:** Gain knob at 0, M/S buttons, level meters at -29.8 -23.1, PH 7/8.
- ADAT 3/4:** Gain knob at 0, M/S buttons, level meters at -30.7 -23.1, PH 7/8.
- ADAT 5/6:** Gain knob at 0, M/S buttons, level meters at -18.6 -18.9, PH 7/8.
- ADAT 7/8:** Gain knob at 0, M/S buttons, level meters at UFL UFL, PH 7/8.

**Bottom Row (Main):**

- AN 1/2:** Gain knob at 0, M CUE buttons, level meters at -35.5 UFL, EQ, D, 0.0.
- AN 3/4:** Gain knob at 0, M CUE buttons, level meters at -40.9 UFL, EQ, D, 0.0.
- AN 5/6:** Gain knob at 0, M CUE buttons, level meters at UFL UFL, EQ, D, 0.0.
- PH 7/8:** Gain knob at 0, M CUE buttons, level meters at UFL UFL, EQ, D, -4.1.
- SPDIF:** Gain knob at 0, M CUE buttons, level meters at UFL UFL, EQ, D, 0.0.
- AS 1/2:** Gain knob at 0, M CUE buttons, level meters at -29.8 -23.1, EQ, D, 0.0.
- ADAT 3/4:** Gain knob at 0, M CUE buttons, level meters at -30.7 -23.1, EQ, D, 0.0.
- ADAT 5/6:** Gain knob at 0, M CUE buttons, level meters at -18.6 -18.9, EQ, D, 0.0.
- Main:** Gain knob at 0, M CUE buttons, level meters at UFL UFL, EQ, D, 0.0.

A "SOFTWARE PLAYBACK" indicator is visible between the two rows of channel strips.

	Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Out 7	Out 8	Out 9	Out 10	Out 11	Out 12	Out 13	Out 14	Out 15	Out 16	Out 17	Out 18	FX L	FX R			
Mic 1																						In 1	
Mic 2																							In 2
AN 3																							In 3
AN 4																							In 4
AN 5/6																							In 5
AN 7/8																							In 6
SPDIF																							In 7
AS 1/2																							In 8
ADAT 3/4																							In 9
ADAT 5/6																							In 10
ADAT 7/8																							In 11
																							In 12
																							In 13
																							In 14
																							In 15
																							In 16
																							In 17
																							In 18
AN 1/2	0.0																						Pb 1
AN 3/4		0.0																					Pb 2
AN 5/6			0.0																				Pb 3
PH 7/8				0.0																			Pb 4
SPDIF					0.0																		Pb 5
AS 1/2						0.0																	Pb 6
ADAT 3/4							-26.8																Pb 7
ADAT 5/6								-26.8															Pb 8
ADAT 7/8									0.0														Pb 9
FX Return										0.0													Pb 10
Outputs											0.0												Pb 11
												0.0											Pb 12
													0.0										Pb 13
														0.0									Pb 14
															0.0								Pb 15
																0.0							Pb 16
																	0.0						Pb 17
																		0.0					Pb 18
FX Return																							FX L
Outputs	0.0	0.0	0.0	0.0	0.0	0.0	-4.1	-4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				FX R
	AN 1/2		AN 3/4		AN 5/6		PH 7/8		SPDIF		AS 1/2		ADAT 3/4		ADAT 5/6		Main		FX Send				Out

The patches (or applications) communicate via Open Sound Control commands through network (UDP) messages and with audio via loopback or optic fiber link on the audio card.

**DSP status and IOSetup**

The IO mappings for each application should be set as shown below

**Max**

- IO VS : 1024
- VS : 128
- SR : 44100
- overdrive : on
- Scheduler in audio interrupt : off

The image shows two overlapping windows from a software application. The 'Audio Status' window on the left displays system information such as CPU usage (14%), driver (Core Audio), and input/output devices (Fireface UC Mac). It also shows performance settings like sampling rate (44100) and I/O vector size (512). The 'I/O Mappings' window on the right shows a table of channel mappings for 16 channels, with input and output groups and individual channel assignments.

Input Mapping		Output Mapping	
Ch Group		Ch Group	
1-16		1-16	
1	11 Input 11	1	11 Output 11
2	Off	2	12 Output 12
3	Off	3	13 Output 13
4	Off	4	14 Output 14
5	Off	5	15 Output 15
6	Off	6	16 Output 16
7	Off	7	17 Output 17
8	Off	8	Off
9	1 Input 1	9	Off
10	2 Input 2	10	Off
11	Off	11	3 Output 3
12	Off	12	4 Output 4
13	Off	13	5 Output 5
14	6 Input 6	14	Off
15	9 Input 9	15	Off
16	10 Input 10	16	10 Output 10

String

### Audio Status

**CPU 7 %**

Driver: **Core Audio**

Input Device: **Fireface UC Mac (237...)**

Output Device: **Fireface UC Mac (237...)**

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#### Performance and Scheduler

Sampling Rate: **44100**

I/O Vector Size: **512**

Signal Vector Size: **64**

Scheduler in Overdrive:  Audio Interrupt:

CPU % Limit: **0**

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Input		Output	
Ch 1	<b>1 Input 1</b>	Ch 1	<b>Off</b>
Ch 2	<b>2 Input 2</b>	Ch 2	<b>Off</b>

**Audio Driver Setup**      **Open I/O Mappings**

### I/O Mappings

Input Mapping		Output Mapping	
Ch Group		Ch Group	
<b>1-16</b>		<b>1-16</b>	
1	1 Input 1	1	Off
2	2 Input 2	2	Off
3	3 Input 3	3	Off
4	4 Input 4	4	Off
5	5 Input 5	5	Off
6	6 Input 6	6	Off
7	7 Input 7	7	Off
8	8 Input 8	8	Off
9	9 Input 9	9	Off
10	10 Input 10	10	Off
11	11 Input 11	11	Off
12	12 Input 12	12	Off
13	13 Input 13	13	Off
14	14 Input 14	14	6 Output 6
15	15 Input 15	15	9 Output 9
16	16 Input 16	16	Off

Synful

### Audio Status

**CPU 3 %**

Driver: **Core Audio**

Input Device: **Fireface UC Mac (237...)**

Output Device: **Fireface UC Mac (237...)**

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#### Performance and Scheduler

Sampling Rate: **44100**

I/O Vector Size: **512**

Signal Vector Size: **64**

Scheduler in Overdrive:  Audio Interrupt:

CPU % Limit: **0**

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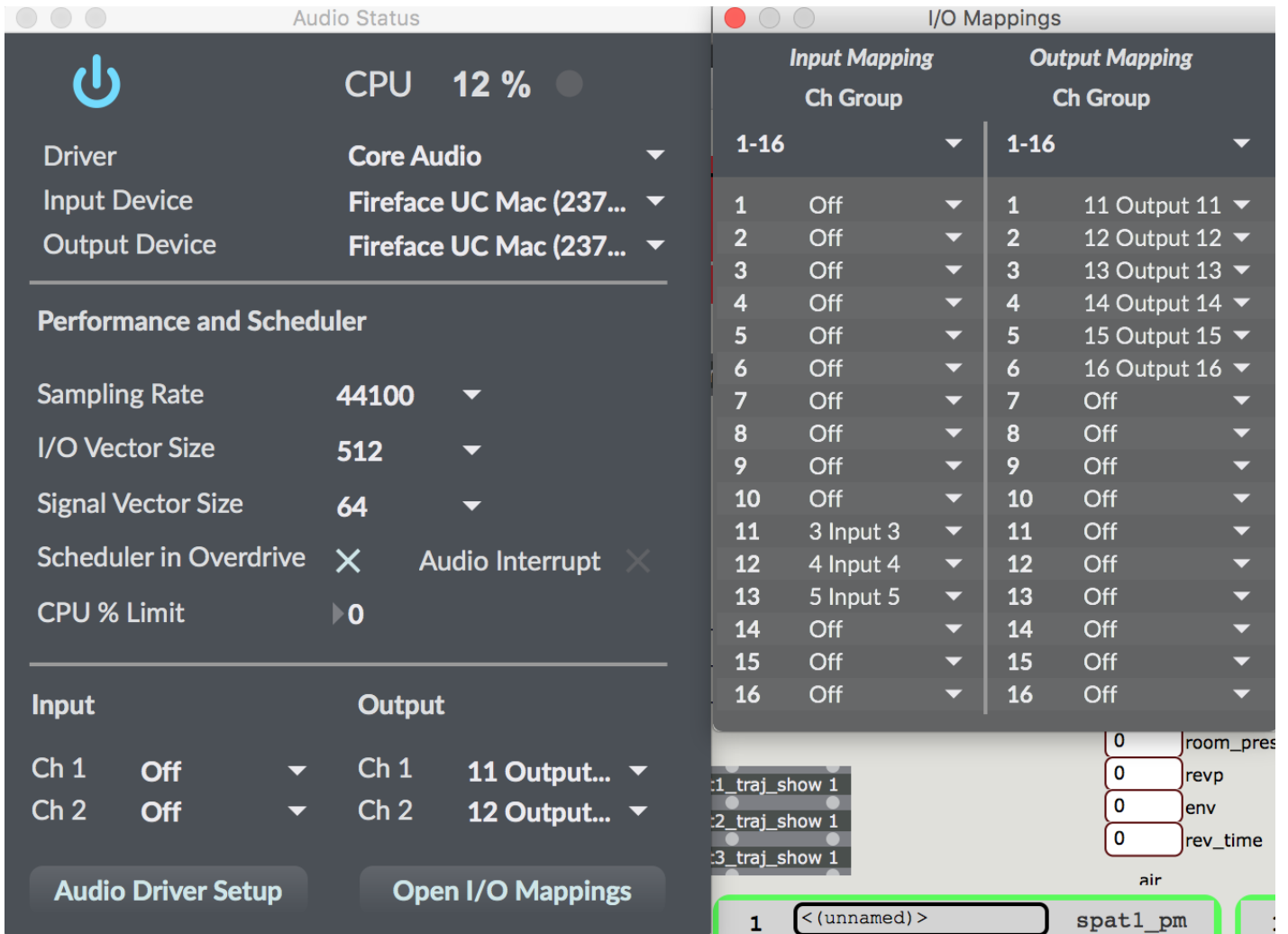
Input		Output	
Ch 1	<b>1 Input 1</b>	Ch 1	<b>Off</b>
Ch 2	<b>2 Input 2</b>	Ch 2	<b>Off</b>

**Audio Driver Setup**      **Open I/O Mappings**

### I/O Mappings

Input Mapping			Output Mapping		
Ch Group			Ch Group		
<b>1-16</b>			<b>1-16</b>		
1	1 Input 1	▼	1	Off	▼
2	2 Input 2	▼	2	Off	▼
3	3 Input 3	▼	3	Off	▼
4	4 Input 4	▼	4	Off	▼
5	5 Input 5	▼	5	Off	▼
6	6 Input 6	▼	6	Off	▼
7	7 Input 7	▼	7	Off	▼
8	8 Input 8	▼	8	Off	▼
9	9 Input 9	▼	9	1 Output 1	▼
10	10 Input 10	▼	10	2 Output 2	▼
11	11 Input 11	▼	11	Off	▼
12	12 Input 12	▼	12	Off	▼
13	13 Input 13	▼	13	Off	▼
14	14 Input 14	▼	14	Off	▼
15	15 Input 15	▼	15	Off	▼
16	16 Input 16	▼	16	Off	▼

Spat

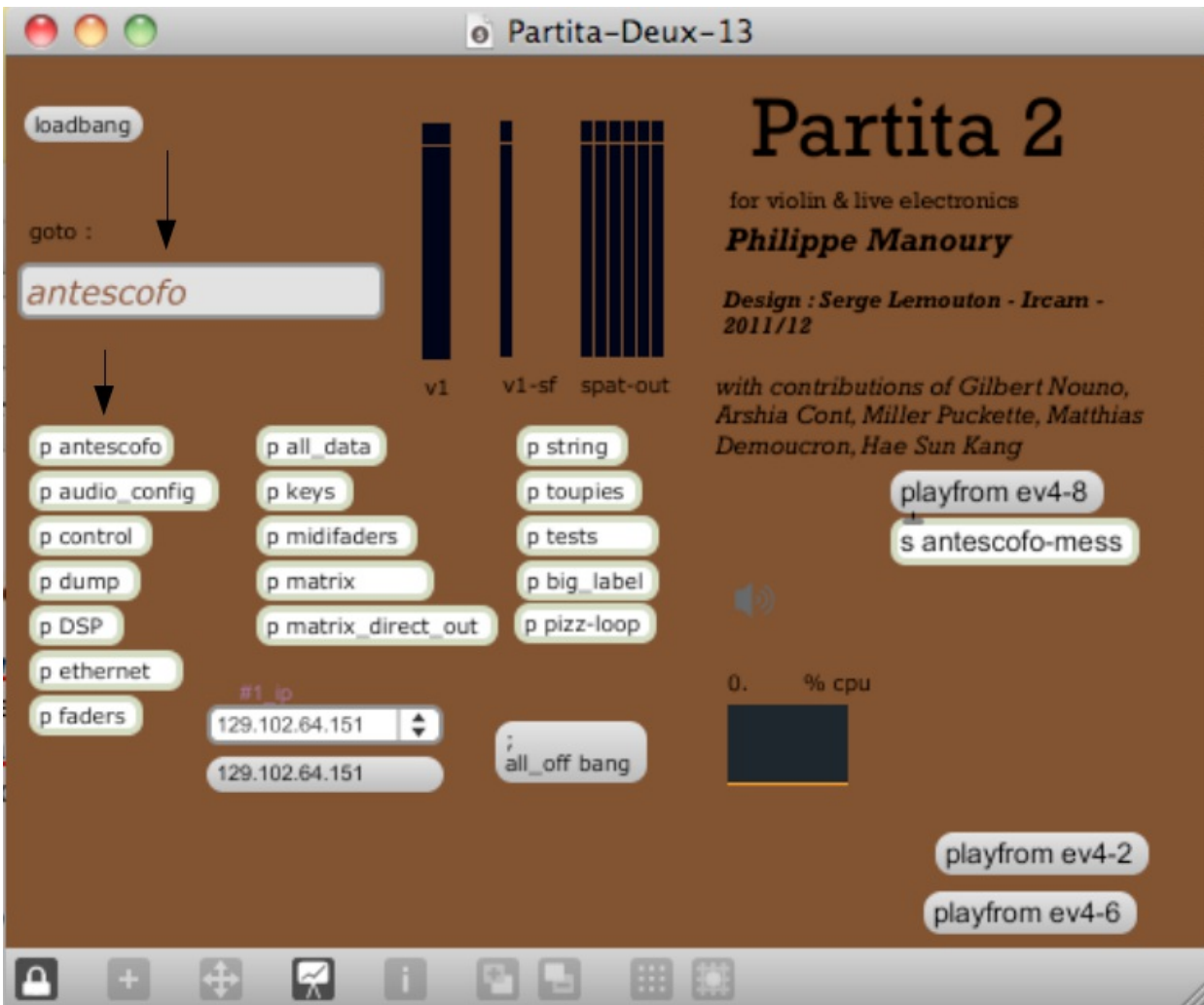


After setting the DSP status, quit every application in order to save the settings.

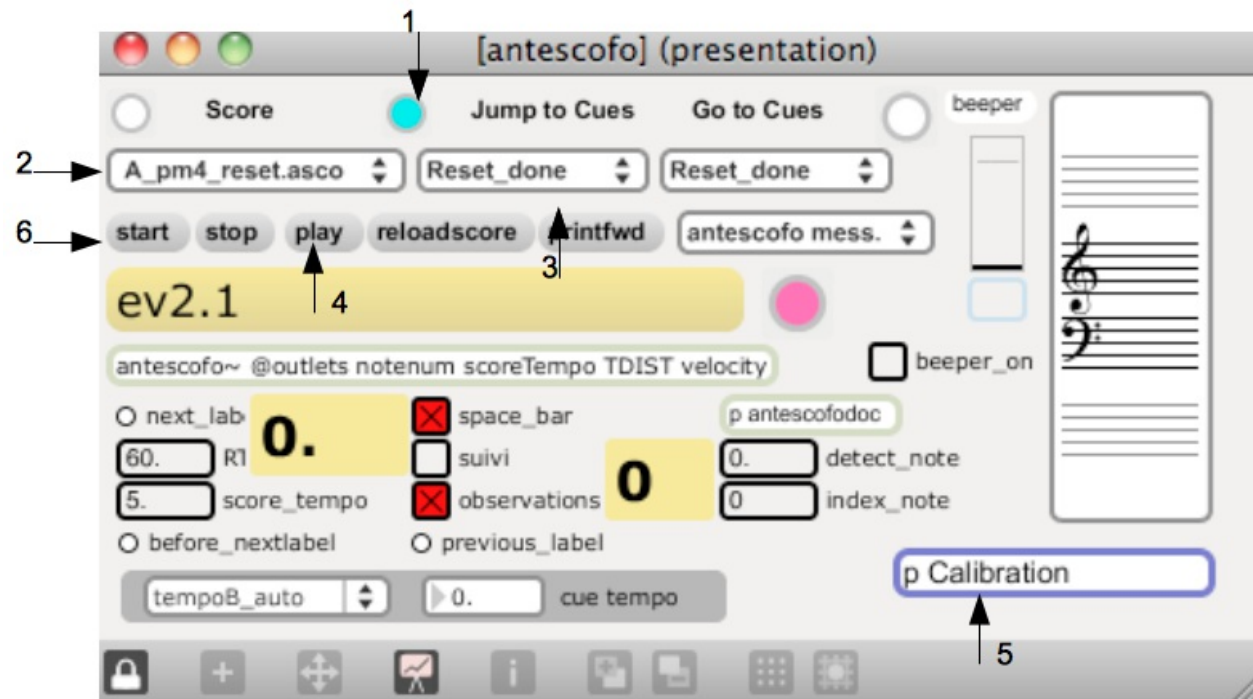
### System calibration and tests

On the main patch *Partita-Deux-+3FC-10-2021*, select *antescofo* in the menu “go to”.

(This menu contains shortcuts for easy access to important subpatches)



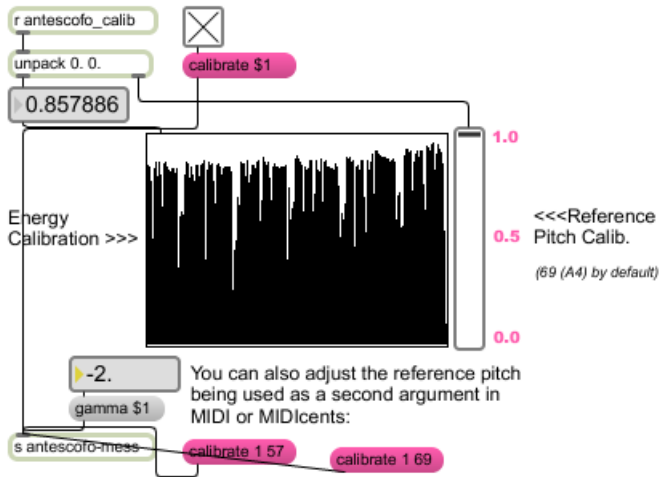
a window appears:



1. Click on the bang (Number 1). It resets everything in antescofo.
2. Choose a score (for example *Partita2.1.asco*).
3. Choose the event you want to go to.
4. Click on play and check that it commands all other patches.
5. Calibrate antescofo by clicking in the *p calibration* in *p antescofo*.

Check the toggle “Calibrate \$1”, the waveform must be close to 1:

## Antescofo - Audio Calibration



## Alternative version (max project)

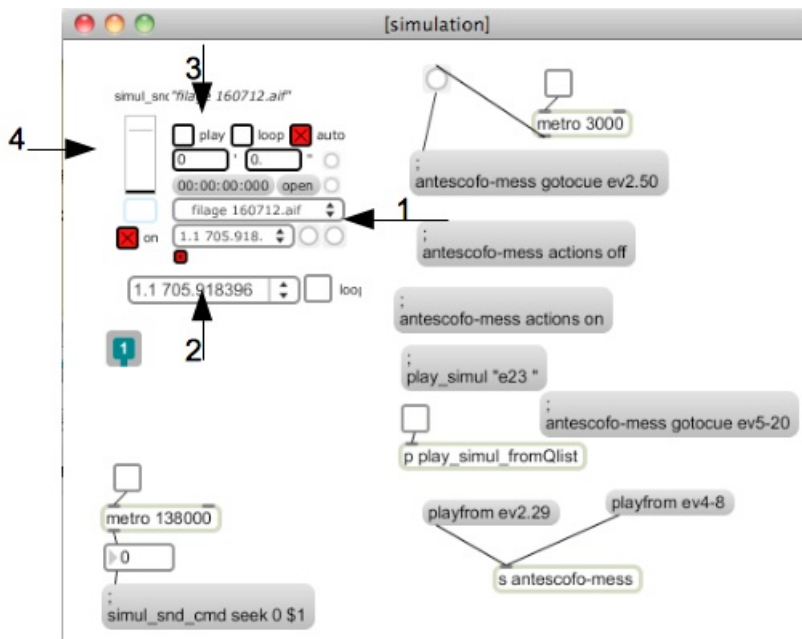
A simpler solution is provided. The synful and string real time synthesis process being replaced by prerecorded samples. Everything run in on patch : no need for loopback in this version.

To start this version simply open the max project *Partita2-2021.maxproj*.

## Simulation test

In the main patch, choose *simulation* in the “go to” menu.

This window opens:



There are several different recordings of the solo violin part, as *snd/filage160712* or *snd/filage170712*.

- Start the follower in the antescofo window as it is explained in the *initialization routine*,
- Choose *filage160712* for example (arrow number 1),
- It will automatically check *play* in the simulation window (number 3), and you will see sound on the meter (number 4).

There are also markers on the recordings called “*filage 170712*” and “*filage 160712*”.

To begin for example at part 2, number 50 in the score, you can choose it in the window below the file name (number 2).

The simulation violin sound is routed to dac7.

## Initialization routine

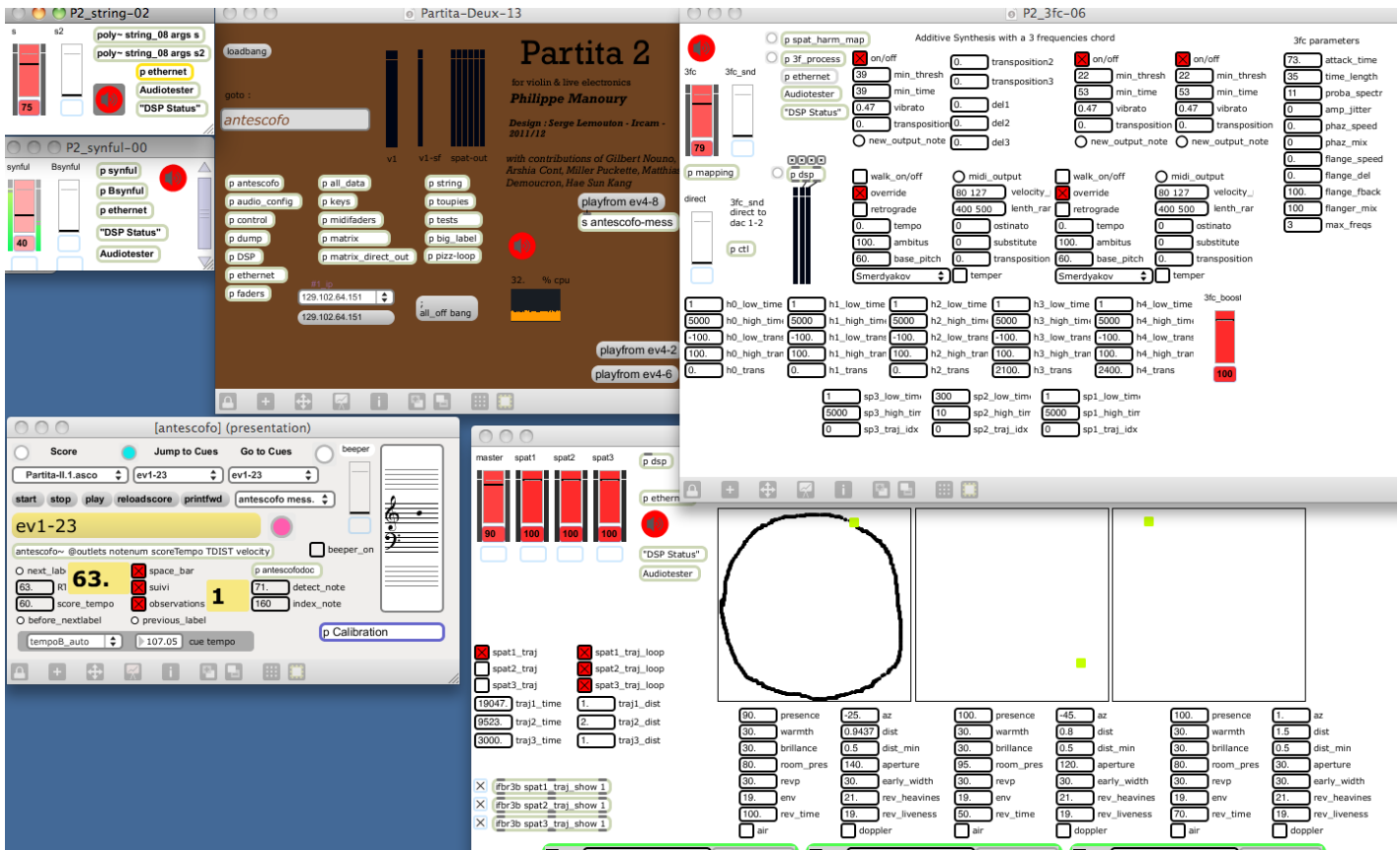
Run all the patches (2) and applications (3). (see *Software installation*)



Open the antescofo window located in the main patch with the “go to” menu

1. Reset antescofo by clicking on the bang between *score* and *jump to cue* (arrow number 1)
2. Wait 1 second.
3. Choose the antescofo score *partita2.1.asco*
4. Then you can :
  - o “start” (arrow number 6 in System calibration and tests, test “antescofo”) if you follow the musician or
  - o “play” (arrow number 4 in System calibration and tests, test “antescofo”) if you want to play the electronic part alone without following anything.

## Patch presentation



You can stop the follower by unchecking “suivi” and follow evenements manually with the space bar.

## MIDI mixer Setup

Faders of the midi mixer (BCF2000) are programmed to control some parameters during the concert:

fader	initial value	ctl	chan
Master	127	7	1
Direct	100	7	2
string1	64	7	3
string2	64	7	4
3fc	64	7	5
sampler	64	7	6
synful	64	7	7
fx (effects level)	64	7	8

NB : There is also the possibility to control the internal mix with mira on an ipad instead of the midi mixer.

## Performance notes

**For the sound engineer**

The violin must be amplified throughout the whole piece except between event I.5 and event I.18 with a crescendo between I.18 and I.19.

**For the Computer Music Designer**

The “Direct” fader controls also the level of the infinite reverb, it should be controlled carefully.

The level of the 3f synthesis process should be also carefully controlled with the “direct” fader during the “Perpetuum Mobile” section.

Score following (with antescofo) is automatic in most of this work except :

- event 1.1
- event 2.1
- event 2.29
- event 4.1
- event 5.1

**IMPROVEMENTS (A TESTER)**

---

From: Philippe Manoury [philippe.manoury@gmail.com](mailto:philippe.manoury@gmail.com)

Subject: Problèmes dans Partita II

Date: 4 November 2021 at 17:12:18 CET

To: Serge Lemouton [serge.lemouton@ircam.fr](mailto:serge.lemouton@ircam.fr)

Cc: WARNIER Jacques [JWarnier@cnsmdp.fr](mailto:JWarnier@cnsmdp.fr)

Cher Serge,

Voici les passages qui ne marche pas bien dans Partita II. Je mets Jacques en copie.

Sections II

23 : C'est souvent le cas, lorsqu'il y a des sections très courtes avec les pizz qui doivent piloter la 3F, ça ne marche pas bien. Est-ce qu'on ne peut pas faire qqchose dans ces cas ? Lancer l'evt avant et faire jouer les notes dès que le micro reçoit un signal (quelque soit la note jouée par le violon) ?

39 : Idem

52 : l'evt Synful en triolets (qui deviendra quintolet plus tard) s'arrête avant la fin (peut-être en 64 je ne me rappelle plus) mais il ne va pas à son terme qui doit être 68

Et puis il y a le problème des tempi. Est-ce qu'ils sont fixés en dur maintenant (par exemple en 49, 51, 55, 63) ? Ce n'est pas le but du jeu. Sinon on fera carrément de la musique sur bande.

Sections V : Le premier evt ne marche pratiquement jamais. Il doit y avoir de la 3F or elle ne commence presque toujours que dans la deuxième figure.

Les pizz ne déclenchent pas toujours un changement de spatialisation de la corde virtuelle. Très souvent ils ne font rien. Je pense qu'il faut abandonner la détection de hauteur mais de faire un azimut variable dès qu'il y a un pizz (quelque soit la note), par exemple celui très important à la fin (en 22)

ph.m.

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## Program note

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C'est la troisième fois que Philippe Manoury utilise le terme « Partita » pour l'une de ses œuvres. Un terme aux fortes connotations baroques qui, pour le compositeur, fait référence à une œuvre pour instrument seul, non structurée par une forme préétablie. « Les *Partitas* de Bach, dit-il, sont des suites de danses sur lesquelles on ne danse pas et qui se distinguent des *Sonates* par une structure plus libre et plus diverse (7 ou 8 mouvements contre 4 pour les *Sonates*). Mes *Partitas* sont dédiées aux cordes (j'envisage d'en écrire une pour violoncelle et une autre pour contrebasse) et sont en un seul et unique mouvement – à l'instar de la *Sonate pour piano* de Liszt, de certaines *Sonates* de Scriabine ainsi que de celle de Berg. »

Dans *B-Partita*, un ensemble instrumental s'ajoute au noyau initial constitué par l'instrument soliste et l'électronique. L'œuvre est en fait un élargissement ou une extension de la *Partita 2*, pour violon et électronique, suivant l'exemple des *Sequenze* et *Chemins* de Luciano Berio. La partie de violon ainsi que l'électronique de la *Partita 2* sont pratiquement inchangées tandis que l'ensemble instrumental glisse ses commentaires et contrepoints dans les interstices laissés ouverts entre les diverses séquences de la partition d'origine.

La démarche d'écriture de certains de ces commentaires relève du palimpseste. Historiquement, le palimpseste désigne le réemploi d'un par chemin déjà utilisé – dans le cas présent, il s'agit plutôt de réécrire sur un canevas déjà écrit. Le terme de « palimpseste » sert d'ailleurs de sous-titre à la deuxième section de cette *Partita*. Certains traitements instrumentaux sont directement ou indirectement déduits des sonorités de synthèse, en cherchant, lorsque c'est possible, des analogies entre le monde instrumental et le tissu électronique existant.

*Jérémie Szpirglas.*

*Note de programme du concert du 16 juin 2016 au Centre Pompidou.*

None

Version documentation creation date: Nov. 17, 2021, 9:17 a.m., update date: May 2, 2022, 10 a.m.