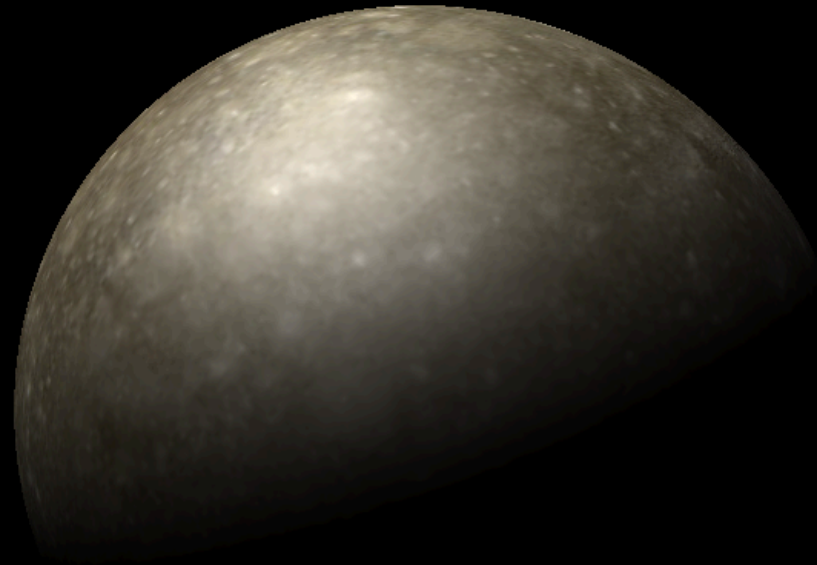
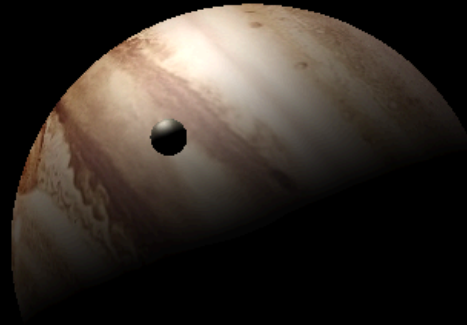


QUADRIVIUM

ORBITAL SYNTHESIZER AND CONTROLLER



INTRODUCTION

Welcome to Quadrivium!

The Quadrivium in the Middle Ages was the upper division of the education in the liberal arts, which comprised arithmetic (numbers), geometry (numbers in space), music (numbers in time), and astronomy (numbers in space and time).

Quadrivium is a synthesizer and MIDI controller that uses the orbital data of 12 moons of the giant gas planets of the Solar System: Jupiter, Saturn, Uranus and Neptune to create music.

If we think to the moons orbiting around planets as oscillating functions, we basically get a set of VERY slow sine LFOs that we can use to modulate synthesis parameters. The 12 moons' orbits create interesting asynchronous oscillating patterns and you are free to use the orbital data in realtime (1 hour = 3,600,000 ms in the Quadrivium clock) or speed it up making one hour to last just 100ms. You can also travel in time!

Quadrivium has an internal synthesizer with four VCO/LFO, one VCMIXER, one VCF, one echo unit, one reverb, a Ring Modulator and one harmonic filter bank and you can also process external sounds with two stereo inputs.

Last but not least the data from the moons' positions can be also used with your MIDI gear (software and hardware)!

Although Quadrivium is not a VST plugin (it's a standalone software) you can connect it with your DAW with a virtual audio driver such as Blackhole or Loopback.

It's time for the music of the spheres!

The screenshot displays the VC02 synthesizer's control panel. At the top is a large circular knob for frequency, with a scale from 0 to 100. Below it are two buttons: 'FREQ SIN' and 'FREE TUNED LFO'. To the right of these is a 'TRI' button. Below 'FREQ SIN' is a 'FOLD' button. To the right of 'FOLD' is a 'SHAPE' button. Below these buttons are four vertical sliders: 'FM', 'FOLD MOD', 'SHAPE MOD', and 'AMP'. The 'AMP' slider is currently set to a high value. At the bottom is a large 'VC02' label.

The screenshot displays the VC03 synthesizer interface. At the top, there are several controls: a large 'FREQ' knob with a scale from 1 to 10, a 'SIN' wave selector, a 'TUNED' indicator, a 'FREE' knob, and an 'EVENT' button. Below these are a 'TRI' wave selector, a 'FOLD' knob, a 'SHAPE' knob, and a 'FREE LFO' knob. The bottom section features four vertical sliders labeled 'FM', 'FOLD MOD', 'SHAPE MOD', and 'AMP'. The 'AMP' slider is currently positioned at approximately 75% of its range. The interface has a dark, metallic aesthetic with various textures and lighting effects.

The screenshot displays the VC04 synthesizer interface. At the top, there are several controls: a large 'FREQ' knob with a sunburst design, a 'TUNED' indicator light, a 'FREE LFO' knob, and a 'SHAPE' knob. Below these are 'SIN' and 'TRI' waveforms, a 'FOLD' knob, and a 'SHAPE' knob. The bottom section features four vertical sliders labeled 'FM', 'FOLD MOD', 'SHAPE MOD', and 'AMP'. The 'AMP' slider is currently set to a high value. The interface is dark-themed with a light gray background for the control area.

The mixer interface features eight vertical sliders at the top, each with a circular knob at the bottom. The sliders are labeled from left to right: CH1, MOD CH1, CH2, MOD CH2, CH3, MOD CH3, CH4, and MOD CH4. Below the sliders is a central circular knob with a needle, labeled "DISTORTION". The entire interface is set against a dark background with a light gray grid.

FREQUENCY

RESONANCE

MODULATION

FILTER

AMPLITUDE

RING MOD

TIME

DRY WET

REVERB

TIME WET

MODULATION WOW FREQ

FEEDBACK FILTER DRY

TAPE ECHO

SET RECORD

MASTER

Software Authorization

In demo mode the software will work for 8 minutes (after that you must restart it).
To authorize your copy follow carefully these instructions.

Go to www.giorgiosancristoforo.net/softwares and buy the software with Paypal.
The price is only 14.99€

After 24/48hrs you will receive a mail from softwares@giorgiosancristoforo.net (set this address as safe in your email account, in order to receive mails from this address and not marked as spam!). The mail will be sent to your email account that you use with PayPal.

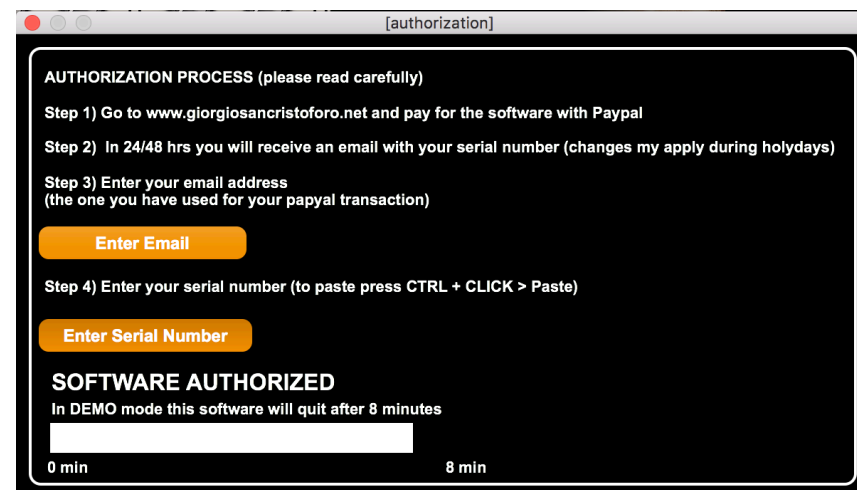
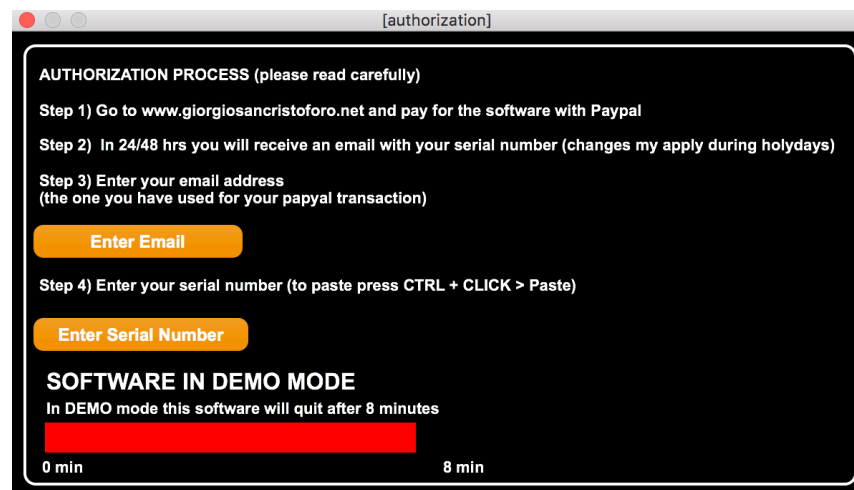
To unlock your software press REGISTER YOUR COPY in the top menu, at the far right of the window.

A window will open.

First input your PayPal email, then the serial, as is with spaces.

Email is case sensitive. You can paste the serial number using ctrl + mouse click "paste".

When the software is successfully authorized you will see: SOFTWARE AUTHORIZED in the window.



Before you start to play with Quadrivium it's essential to set some preferences. At the top of the window you will find the DSP preferences. Select your audio interface I/O: Quadrivium work in stereo both in input and output. If you use a single input you can set MONO in the input channel preferences in the MATRIX.

I/O vector size and Signal vector size set the size of the audio vectors used from and to your audio interface, and inside the software. To reduce latency lower these vectors. If you have clicks and pops, try to rise these values. Optimum values depend by your computer, but in general 128 samples for both is a good compromise.



The Matrix

Just like Gletchlab, Berna and Fantastic Voyage, Quadrivium uses two matrixes to connect the modules (one for audio path and the other for control signals' path). More or less in the same fashion of the good old VCS3 Synth.

MATRIX
AUDIO AND CONTROL ROUTING

EXTERNAL 1
STEREO CH1-2

EXTERNAL 2
STEREO CH3-4

AUDIO

MIXER CH1

MIXER CH2

MIXER CH3

MIXER CH4

FILTER

RING X

RING Y

REVERB

ECHO

FILTERBANK

MASTER OUT

OSCILLATOR 1

OSCILLATOR 2

OSCILLATOR 3

OSCILLATOR 4

MIXER OUT

FILTER OUT

RING MOD

REVERB OUT

ECHO OUT

FILTERBANK

EXTERNAL 1

EXTERNAL 2

CONTROL

OSC1 FM

OSC1 SHAPE

OSC1 FOLD

OSC2 FM

OSC2 SHAPE

OSC2 FOLD

OSC3 FM

OSC3 SHAPE

OSC3 FOLD

OSC4 FM

OSC4 SHAPE

OSC4 FOLD

MIXER CH1

MIXER CH2

MIXER CH3

MIXER CH4

FILTER

ECHO

OSCILLATOR 1

OSCILLATOR 2

OSCILLATOR 3

OSCILLATOR 4

JUPITER 1

JUPITER 2

JUPITER 3

JUPITER 4

SATURN 1

SATURN 2

SATURN 3

SATURN 4

URANUS 1

URANUS 2

URANUS 3

URANUS 4

NEPTUNE 1

ORBITS MIDI ROUTING

MIDI VALUE

MIDI CC

JUPITER 1 IO

8

1

JUPITER 2 EUROPA

115

2

JUPITER 3 GANYMEDE

105

3

JUPITER 4 CALLISTO

23

4

SATURN 1 DIONE

55

5

SATURN 2 THETYS

68

6

SATURN 3 ENCELADO

33

7

SATURN 3 MIMAS

104

8

URANUS 1 ARIEL

105

9

URANUS 2 UMBRIEL

5

10

URANUS 3 TITANIA

123

11

NEPTUNE 1 TRITON

122

12

MIDI CHANNEL

1

PORT

from Quadrivium 1

The left matrix is for audio routing the right matrix instead routes control signals (including oscillators).

At the top you have the outputs and at the left the inputs.

The example above in the AUDIO MATRIX the oscillator 1,2,3,4 are routed to mixer ch1,2,3,4. The mixer then goes to the reverb and echo, and these

effects then go to the master out. In the CONTROL MATRIX we have OSC2 to FM modulates OSC1, OSC3 FM OSC2, OSC4 FM OSC3, and last OSC1 FM OSC4.

The Moons orbital data is patchable in the control matrix at the right. We have 12 moons each one has a different orbital speed:

Jupiter 1: Io
Jupiter 2: Europa
Jupiter 3: Ganymede
Jupiter 4: Callisto

Saturn 1: Dione
Saturn 2: Thetys
Saturn 3: Encelado
Saturn 4: Mimas

Uranus 1: Ariel
Uranus 2: Umbriel
Uranus 3: Titania

Neptune 1: Triton

In this example the moons modulate all the oscillators plus the four mixer channels.

Except for the FILTERBANK, all the other modules have modulation indexes (FADERS OR POTS) that set the intensity of the modulation.

for example look at the oscillator 1 used in this patch. The FM Mod, Fold MOD and Shape MOD faders are all used in order to receive the modulations signals from the moons.

MATRIX AUDIO AND CONTROL ROUTING

EXTERNAL 1: STEREO CH1-2
EXTERNAL 2: STEREO CH3-4

ORBITS MIDI ROUTING

	MIDI VALUE	MIDI CC
JUPITER 1 IO	53	►1
JUPITER 2 EUROPA	84	►2
JUPITER 3 GANYMEDE	90	►3
JUPITER 4 CALLISTO	16	►4
SATURN 1 DIONE	15	►5
SATURN 2 THETYS	124	►6
SATURN 3 ENCELADO	41	►7
SATURN 3 MIMAS	11	►8
URANUS 1 ARIEL	120	►9
URANUS 2 UMBRIEL	5	►10
URANUS 3 TITANIA	124	►11
NEPTUNE 1 TRITON	96	

MIDI CHANNEL ►1 PORT from Quadrivium 1

VC01

FREQ SIN TUNED FREE LFO
TRI
FOLD SHAPE
FM FOLD SHAPE AMP
MOD MOD MOD

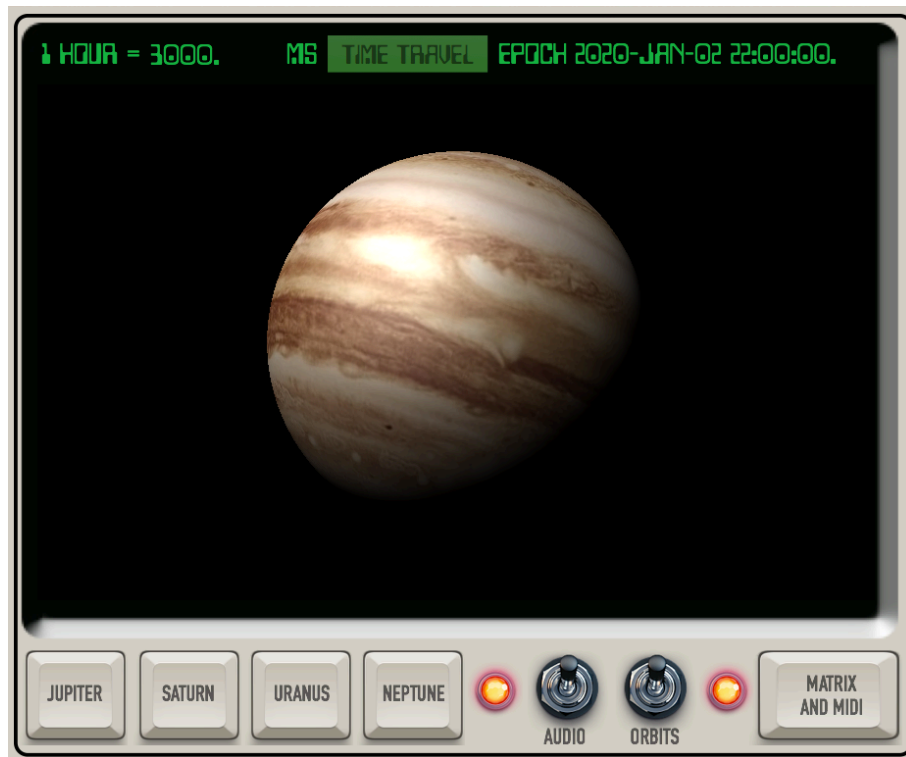
At the right of the matrixes we see the moon data as MIDI values which can be assigned to any Control Change number.

First off select the MIDI PORT and Channel (at the bottom of the window) and then select the CC you want to use for every moon.

By default the moons MIDI data is routed from CC1 to CC12.

It's very easy to connect your modular synthesizer (WITH USB OR MIDI INTERFACE) and use the orbital data for amazing cosmic drones.

The Planetary Interface



This window is the core of Quadrivium.

At the top left you have the Quadrivium Clock (default 1hr=60,000ms).

The orbital data in Quadrivium goes from JAN 1st 2020 to JAN 1st 2030 with a step size of 1 hour.

If we want Quadrivium to be in “realtime” we just need to set 3,600,000 in the Quadrivium clock, as there are 3,600,000 milliseconds in one hour. But maybe you want to speed up things! So you can make one hour to last just 60 seconds (60,000ms) or 100ms! It's up to you.

Whenever you change the Quadrivium clock it's best to reset the ORBITS button located at the bottom of the window.

(To reset turn it OFF and ON again).

The TIME TRAVEL button will work when the Quadrivium clock is below 1000ms. When you press it you will jump to a different date and the moons will set in the correct position for that date.

Unfortunately the Timelords are not very happy that people travel in time so they asked me to put a limitation on the TIME MACHINE mechanism.

Basically you will jump to an unknown date every time you press the TIME MACHINE BUTTON. I believe it's still a good compromise.

At the bottom of the window you will find the four planets buttons. The moons will orbit regardless the window you are using. These buttons are just for taking a look at the images. You can zoom a planet by pressing ALT on the keyboard and (click) dragging up or down the planet (not the moons) in the center, with the mouse. You can also rotate the planet just using the mouse by click+drag the center of the planet.

You can see beautiful space panoramas while playing!

The Audio button turns ON or OFF the DAC, **if you change audio interface or sample rate, please reset this button.**

The MATRIX and MIDI button opens the Matrix window we discussed in the previous pages.

Modules Overview

OSCILLATORS



There are four identical oscillators in Quadrivium.

Each one can be tuned to the equal temperament in chromatic steps, or used free or as an LFO.

To make small steps press SHIFT and drag the potentiometer/fader with the mouse.

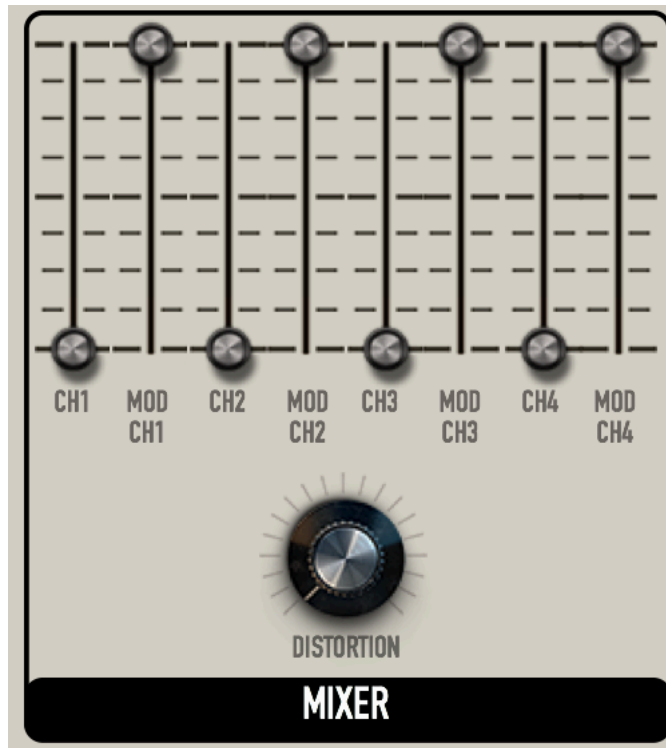
There are two waveforms: Triangular and Sine. These can be processed with a wave folder and the triangular waveform can be turned into a sawtooth with the SHAPE control.

FM, FOLD and SHAPE have also MODULATION INDEX that must be used to adjust the amount of modulation from other oscillators or from the moons' orbital data.

The AMP fader controls the output gain.

WHEN YOU MODULATE THE PARAMETERS IT'S BEST TO USE ONLY THE MODULATION INDEX CONTROLS

MIXER + DISTORTION



There is a simple VCMixer in Quadrivium that can be set manually or modulated by oscillators or moons' orbital data.

At the end stage there is a raw distortion algorithm for noisemakers :D

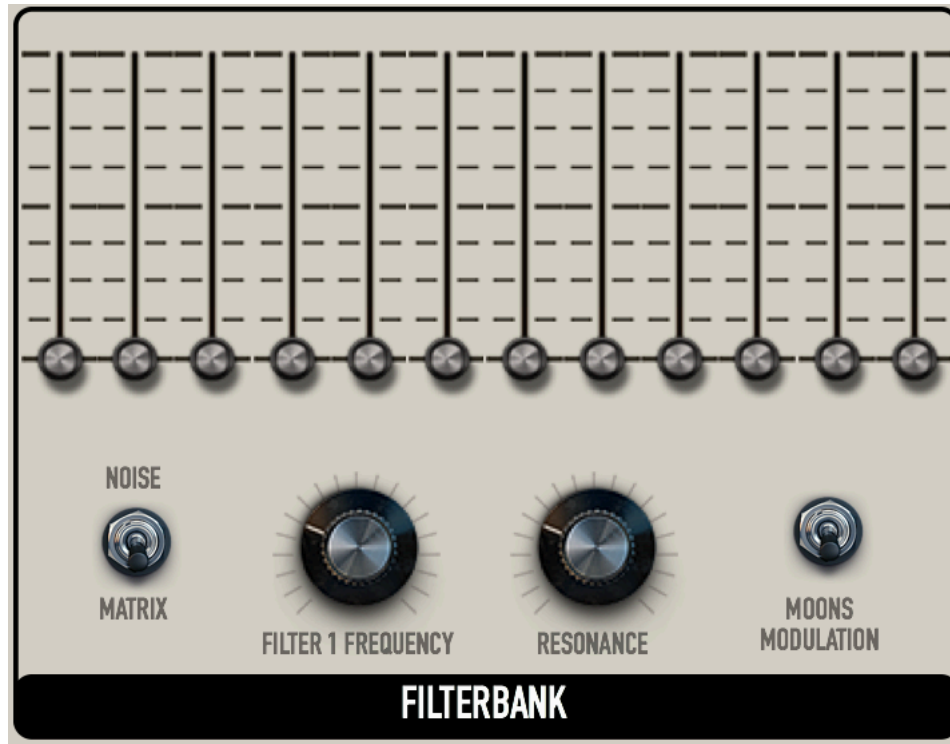
WHEN YOU MODULATE THE PARAMETERS IT'S BEST TO USE ONLY THE MODULATION INDEX CONTROLS

FILTER



Quadrivium has a 24dB Low Pass filter with Frequency and Resonance controls. The modulation input is used to modulate the Cut Off Frequency.

FILTERBANK



This is an harmonic filterbank with 12 (12dB/OCT) resonant band pass filters. The filters are tuned harmonically to the frequency of the first filter. You can use an internal noise generator or feed the filter with any signal coming from the MATRIX.

The filters controls can be manual OR modulated: if you press MOONS' MODULATION, the 12 moons will modulate authomatically (NO MODULATION INDEX) the 12 filters.

RING MODULATOR



There is an handy Ring Modulator that can be used to create beautiful old style timbres. To use is patch two different signals to the X and Y inputs in the MATRIX.

REVERB



A Simple reverb, self explanatory...

TAPE ECHO



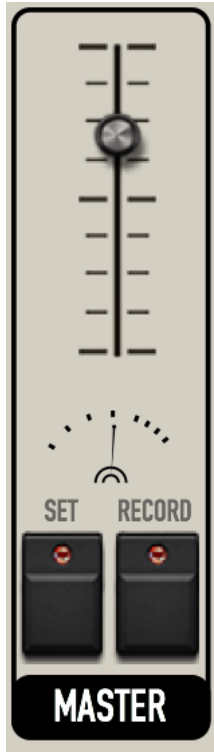
This Echo unit is very similar to the one used in Fantastic Voyage.

A WOW circuit simulates irregular motion of the drum (use FREQ to set the speed).

The Modulation input modulates the time of the delay.

A filter circuit is provided to shape the color of the delay sound.

MASTER OUTPUT AND RECORDER



Set the master fader for the output volume.

To RECORD sound press SET and write a filename, then press RECORD to start recording.
to STOP recording press RECORD AGAIN!

Files are 24bit aif.



MIDI AND MAPPING

In the lower bar you will find buttons to assign MIDI CC to the Quadrivium interface (and to save and load your mappings).

To map a potentiometer or fader click ASSIGN MIDI, select with the mouse the control you wish to map, and simply move your controller pot or fader in order to map it.

NOTE: TO EXIT MAPPING PRESS “ESC” on your keyboard.

Remember to save your mapping on a file with “SAVE”

STORING, LOADING and SAVING PRESETS

To store a preset press SHIFT + mouse click on one of the little squares of the lower bar.

To recall a preset simply click the stored preset

LOAD BANK load a bank of presets in memory

SAVE BANK save a bank of presets on your computer

HAVE FUN!

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Orbital data
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