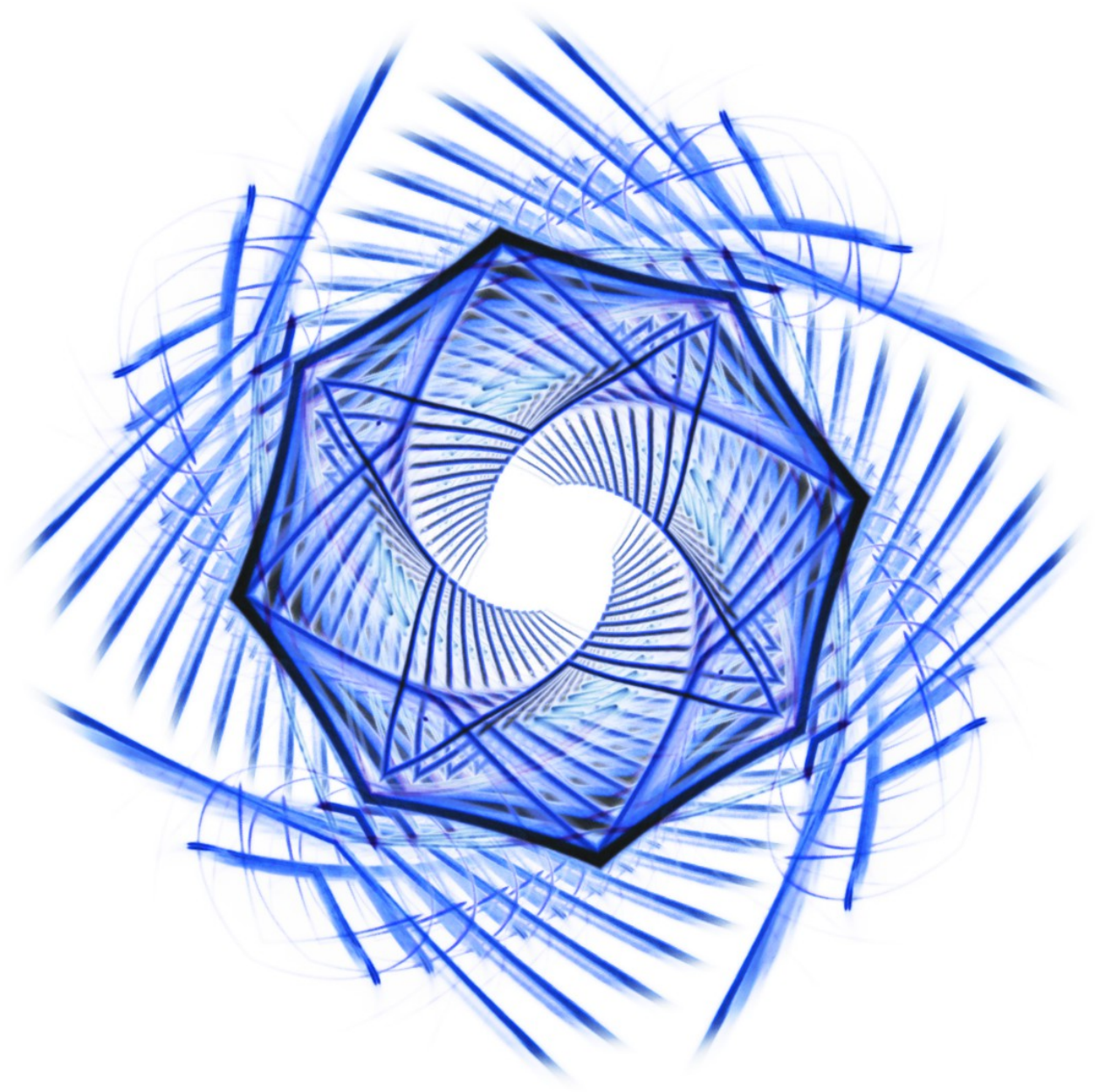


# eqkoscope

v. 0.666

USER MANUAL



Hello fellow visualist !

This is the eqkoscope, a software I've been developping since 2012. This is free software (GPL), keep in mind that this is homebrew and experimental :) However, I use it in every single live show and am very happy with it !  
It was first designed as a video feedback emulation. Someone said to me that I could never get close to analog feedback using code and I loved (I think I still do).  
This is free software, feel free to spread the word !

If you want to show some love,  
give me some feedback (p-p-p-p-pun intended!),  
or simply show me your awesome work (!!!)  
please drop me a line at  
raph@eqko.net

\*\*\* SHAMELESS SELF-PROMOTION \*\*\*

PLEASE VISIT [www.raphaelfoulon.com](http://www.raphaelfoulon.com)  
THAT'S WHERE I DUMP  
MY AWESOME VISUALZ  
ON THE INTERNETS  
THX XOXOXOXOXOXO

\*\*\* SHAMELESS SELF-PROMOTION \*\*\*

I wish to thank some visual wizards whose roads I crossed : Magali Marc, Alexia Schmidt, Benjamin Vedrenne, Leon Denise, Clement Rouil, Joris Guibert, Armandine Chasle, Laurent Carlier, Kaspar Ravel, Paul Vivien, Thomas Zaderatzky & Machine Sauvage crew, Lola Delbec, Jonathan Giroux, Barthélemy Antoine-Loeff, Gaël Sawed.  
Thanks to Céline Signoret, Julia Legrand, Enarox, Tony Lallenec, Emilien Ghomi, Fergus, Victor Beaupuy, Laly Picon, Stienis, Tom Pouce, Fabien Acatla, Barzy, Blick, Victor Drouin, Camille Castellanos, Antoine Fermé, Marine Mercier, Ludovic Nobileau, Antonia Taddei, Anaïs Defever, Théophile Denis, Valentin Schmidt, Rodrigue Mercier, Guillaume Dezecache, Arthur Terrier, Elodie Garbé, Felix Baboulène, Noël Rassendras, Tarik Yves et Thomas from Chaos E.T. Sexual, Jeanne Boutesocq and Laurent Droguet for their help, friendship, influence and good words.

We all made this together.

A very special thank you to Valentin Drean with whom I founded the eqko collective back in 2012, and has always been a great influence.



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## Installation

### Windows

Unzip and copy the « eqkoscope » folder in [C:\Program Files](#).  
Run eqkoscope.exe

### OSX

Unzip and copy the eqkoscope folder wherever you want.

## Let's Dive In ! (a tutorial)

∞ Take a deep breath. Once again. Once more. Remember a nice thing that happened to you today. Face the fact that time is an illusion that emanates from objects. The eqkoscope cherishes users that have a clear mind.  
∞ Open the eqkocope and press 'c'. This opens the video sequence mode.  
∞ Press RETURN\*. This opens a command prompt. Enter : « sobel », the press RETURN again, and enter « 1 ». Press RETURN. You just added a contour detection FX by setting the parameter « sobel » to the value « 1 ».  
∞ Try again setting the « omg3D2 » parameter to a value (between 0 and 1). That's a hell of a vortex you got there !  
∞ Now tweak the « omg3D2Rotation », « omg3D2Speed » parameters. These are low-level parameters, that work only when « omg3D2 », « omg3D2X » or « omg3D2Y » are activated.  
∞ Now, press '\$' to take a screenshot. Your screenshot is located in eqkoscope/data/capture

## Technical & Geeky Stuff

### File system

The media is placed in the « data » folder.  
There are two interesting locations :

- data/uzi : location of the images databases
- data/cinema : location of the video databases

Images and video are organized in databases. A database is simply a folder which names ends with « DB » and contains several media files. That's it. This is used to easily switch from thematic image to image and video in a randomized way when performing live.

Additional interesting locations are :

- data/brushes : location of the brush masks (for the « paint » parameter, cf. Parameters)

## The Prompt System

When not using MIDI or OSC devices, you can control the eqkoscope using the built-in parameter prompt. The procedure is as follows :

Press RETURN to open the prompt. Write the parameter's name (cf. *Parameters* section), press RETURN again, enter the value, and press RETURN one last time to exit the prompt.

## Parameters

	PARAMETER (HIGH LEVEL)	PARAMETER (LOW-LEVEL)	UNIT	DESCRIPTION
SPACE	omg3D		[0-1]	3D layering FX
		omg3DAngle	degrees	
	omg3D2		[0-1]	tunnel FX
	omg3D2X		[0-1]	fresk FX, on the X axis
	omg3D2Y		[0-1]	fresk FX, on the X axis
		omg3D2Speed	[-1-1]	
		omg3D2Rotation	degrees	
		omg3D2HardRotation	[0,1]	1 : Rotation is defined for each layer, 0 : rotation is defined for all layers
		divergence	$[-\infty, \infty]$	Layer random divergence on the X axis
		divergenceY	$[-\infty, \infty]$	Layer random divergence on the Y axis
		divergenceZ	$[-\infty, \infty]$	g
		aDivergence	$[-\infty, \infty]$	Layer angular divergence
		omg3D2Depth	[0-1]	Determines the z-distance of the first layer
		omg3D2Nb	[0,∞]	Number of layers
		omg3D2Alpha0	[0-1]	alpha-blending on the low-distance layers
		omg3D2AlphaZ	[0-1]	alpha-blending on the high-distance layers
		omg3D2DOF	[0-1]	Blur-based DOF effect (requires great GPU power)
		omg3D2Strobe	[0-1]	color inversion between
		omg3D2Dist	[0-1]	FX tunnel depth
		omg3D2x2	[0-1]	double omg3D2 FX
	warp		[0-1]	
	toLine		[0-1]	polar to cartesian coordinates
		toCircle	[0-1]	cartesian to polar coordinates

COLOR GRADING				
	brightness		[0-1]	
	reTint		[0-1]	Adds artificial hue based on « reTintHue » parameter
		reTintHue	[0-1]	
	hue		[0-1]	hue wheel shift
	reSaturate		[0-1]	adds saturation to white pixels
	saturation		[0, ∞]	
	whitePoint		[0-1]	White level (dft : 1)
	blackPoint		[0-1]	Black level (dft : 0)
	gamma		[0, ∞]	
	bw		[-∞, ∞]	over 0 : multiple black and white threshold, under 0 : color hue wheel
		bwOffset	[0-1]	color wheel offset
	contrast		[0-1]	
	invert		[0,1]	
	strobe		[0,1]	
	flash		[0-1]	random brightness
IMAGE	mediaX,mediaY,mediaZ		[-1,1]	media offset
	mediaRotX,mediaRotY,mediaRotZ		degrees	media rotation
	sharpen		[0-∞]	raw sharpening FX
	hblur		pixels	horizontal blur
	vblur		pixels	vertical blur
		tiltShift	[0-1]	tiltShift effect for blur
	glow		[0-∞]	classic x/y glow FX
		glowResolution	pixels	higher value : uses much more GPU
	sobel		pixels	edge detection
		whiteSobel	[0-1]	sets the edge's color to white
		sobelMix	[0-1]	Mix edges with original image
	chromaSep		pixels	RGB separation
		chromaSepMode	<0-1-2>	defines the RGB separation pattern
		chromaSepAlpha	[0-1]	
	kalei		[0-1]	kaleidoscope FX
		kaleiNb	[0, ∞]	kaleidoscope number
		kaleiCopy	[0,1]	kaleidoscope mirror copy
		kaleiMirror	[0,1]	kaleidoscope mirroring
		kaleiScale	[0, ∞]	kaleidoscope scaling
		kaleiOffX, kaleiOffY	[-1,1]	kaleidoscope sampling offset

	echoNb		[0, 25]	temporal echo number
		echoAdjust	[0,1]	temporal echo color grading
		echoPeriod	ms	period between two echo frames sampling, in ms
	hMirror			horizontal mirror
	vMirror			vertical mirror
	engraving		$[-\infty, \infty]$	engraving rastering
	illu		[0, $\infty$ ]	illustration style rastering. Use reTintHue and gradient parameters to adjust hue settings
	noise		[0,1]	adds grain
	pert, typhoon		[0, $\infty$ ]	perlin noise perturbation // multi-scale noise perturbation
		pertEvo	[0, $\infty$ ]	perlin noise perturbation temporal parameter
		pertEvoAuto	[0, $\infty$ ]	adds its value to pertEvo parameter each frame
		pertMode	<0,1,2,3,4>	O : X/Y, 1:X, 2:Y, 3:distance, 4:angular
	mandala		[0, $\infty$ ]	mandala circular FX. speed defined by "speed" parameter
	xpixellate, ypixellate		pixels	pixellization FX
	lcd		pixels	RGB screen vertical FX
GLITCH				
	sortXThresh		pixels	X-axis pixel sorting style FX
	sortYThresh		pixels	Y-axis pixel sorting style FX
	jpgGlitch		[0- $\infty$ ]	jpg artifact FX, with x error bytes
	displaceAmp, displaceVamp		[0- $\infty$ ]	displacement glitch
		displaceProba	[0,1]	displacement jump probability
	skewAmp, skewVAmp, skewAAmp, skewDAmp		[0- $\infty$ ]	skew FX (horizontal, vertical, angular, distance)
		skewBorderCopy	[0,1]	determines if the shader copies the frame border
UZI				
	randomUzi		[0, $\infty$ ]	loads a random image from the current image database at a rate defined by « uziPeriod »
		uziPeriod	frames	rate of randomUzi FX
	switchImg		[0,1]	If set to 1, loads a random image from the current image database. If value>1, adds a sweet zooming effect
	resize		[0,1]	automatic image resize on load
CINEMA				

FEEDBACK	movieSpeed		$[-\infty, \infty]$	1 : default speed. Use HAP codec for best performance
	feedbackRemanence		$[0,1]$	feedback blend intensity
	blackCenter		$[0,1]$	1 : draws a black spot at the center of the frame
	threshold		$[0,1]$	RGB threshold
	scale		$-\infty, \infty$	feedback scale
	rot		$-\infty, \infty$	feedback rotation
	erode		$[0,1]$	erosion FX
	shapeWeight		pixels	geometric shape weight
	shapeNbPts		$[0, \infty]$	geometric shape number of points

## Keyboard Shortcuts

space	In image or video media mode, loads another media from the same database (***/DB folder)
u	Switch to image sequencer mode
p	Switch to video sequencer mode
f	Switch to video feedback mode
l	Switch to line algorithm mode
h	Switch to text display mode
@	Full reset
r	Save preset prompt
&	Display info (performance, I/O, media, etc.)
\$	Take a screenshot (and make it rain!)
g	Toggles image to image export ON/OFF (« gif » export mode)
m	Resets the MIDI devices (useful in the rare case of a MIDI disconnection)
c	MIDI listen ON/OFF (used to check if the eqkoscope has received MIDI messages, results are displayed using the '&' info shortcut)

## Export

**Frame capture** : simply take a screenshot with the '\$' shortcut.

**Video capture** : the eqkoscope features image-by-image export. Press 'g' to start exporting an image sequence, and press 'g' again to stop exporting. A blue rectangle will be blinking during the export.

The exported frames can be found in the folder « data/capture ».

# MIDI and I/O

## Parameter mapping files

To use MIDI or OSC devices with the eqkoscope, you'll need to declare a mapping file. This file is a comma separated value file. An example is provided with the release : « MIDIMap\_example.csv »

For instance, if you want to map a MIDI control slider, add the line

`CC,parameterName,maxParameterValue/ minParameterValue,easing,channel,ID [arguments]`

*easing* : 1: no smoothing, 0 : extreme smoothing (the parameter value won't ever change). A good intermediate value is 0.7  
*channel* : MIDI channel  
*ID* : MIDI control ID

If you want to map a MIDI note, add the line

`NOTEON,parameterName,maxParameterValue/ minParameterValue,easing,channel,ID [arguments]`

*easing* : 1: no smoothing, 0 : extreme smoothing (the parameter value won't ever change). A good intermediate value is 0.7  
*channel* : MIDI channel  
*ID* : MIDI note ID

or

`NOTEON,parameterName,maxParameterValue/ minParameterValue,easing,channel,minID/maxID [arguments]`

*where minID and maxID indicate a note range. The parameter value will be mapped along the note range.*

The [arguments] can be :

bin : the parameter value will be set to either 0 or 1

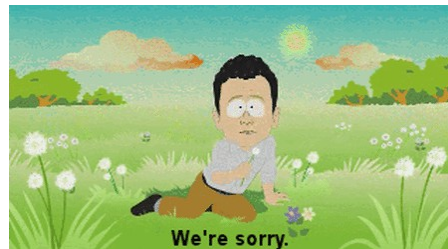
int : the parameter value will be converted to it's whole value

invert : the parameter value will be inverted (0 or 1) regardless the parameter mapping

hold : NOTEON only the parameter value will be set to maxParameterValue on NOTE ON and minParameterValue on NOTE OFF.

random : the parameter value will be set to a random value between minParameterValue and maxParameterValue

This is quite geeky stuff, and I'm deeply sorry for that.



## MIDI Learn

A semi-experimental MIDI learn feature can be accessed from the prompt. Enter « MIDI » as a command, press RETURN, then enter a parameter name, then RETURN. The next MIDI CC message received by the eqkoscope will be mapped to the parameter using precalculated values.

The learnt mappings can be found in the file « data/midiLearnt.csv ». You can delete this file to reset the MIDI mapping.

# Performance

For optimal video playback / loading it is recommended to encode your videos using the HAP codec (shoutout to the VDMX team). Codec can be downloaded at

<https://vdmx.vidvox.net/blog/hap>

For the moment, image files are not preloaded in the system. Thus, you are encouraged to use lightweight images to reduce the I/O time. *This tip is especially useful when loading bunch of images with the « randomUzi » parameter.*



## Configuration / Resolution

To change the video resolution, you can enter the command « HD » in the prompt (such as any parameter

You can set some preferences using a configuration file, « config.csv »

This configuration file uses a simple comma separated value format, and has the following fields :

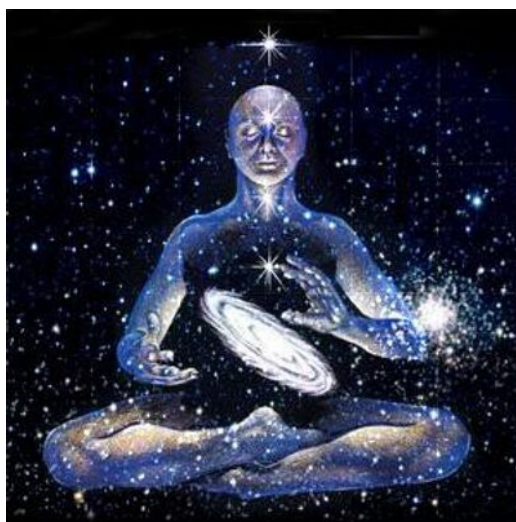
resolution	Native resolution will be WxH (make sure you use the 'x' separator between width and height)
multiProjector	0 or 1. [BETA]*
gif_width,gif_height	Image sequence export resolution
live_mode	Live safe mode [BETA]*
dualDisplay	If set to 1, extends the global resolution on the right so you can use a second monitoring screen
macro_path	Path for presets [BETA]*
enforce_MIDI	Enter different names separated by commas. The eqkoscope will make sure that the MIDI devices identified by these names will stay connected
MIDIMap	Enter different file paths separated by commas. These files will be used as MIDI/OSC automation maps (cf. MIDI and I/O).

Actually the BETA features are just not well documented. Soooooorrryyyyyyyyyyy :o

If you're using different projects, simply copy and paste different config.csv files.

# Philosophy

Your mind is a kaleidoscope of which one sees only one face.



No, seriously.

The eqgscope is a video feedback machine. To me, feedback algorithms are a way to generate infinity with simple devices. The eqgscope has been designed and optimized to work well with small computers, and low resolutions. Of course you can use 4K, but who really needs 4K ? We won't ever be close to touch the infinity of the universe by using more and more pixels. Less is more, and the void is full of promises.

The egkoscope is a multimedia tweaking device.

It's meant to crunch video and image databases, remix them, and share them to the world. In the same way, the eekscope is free software, feel free to share it and tweak the code. As long as you don't make it a machine gun tracking system.

# Easter Eggs

If you ever need inspiration, enter « oblique » in the prompt. You will get one of Brian Eno's oblique strategies to fight writer's block ( <http://stoney.sb.org/eno/oblique.html> ).