gLove and special sensors

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Installation

System requirments

- Max/MSP runtime 4.6 higher (including Max/MSP 5.0.6 and newer).
- Java runtime environment (JRE). Version 1.5.x is recommanded, yet, this will work with newer versions also (*see Troubleshooting section*).
- Wide-screen monitor, resolution 1280x800

Installation procedure

1. Install Max/MSP runtime (*cycling74.com*)
2. Install Java Runtime (*java.com*)
3. Authorise elastic~
    1. Open **elastic-authorization.pat** from Max/Msp – make sure you're logged in with full administrator rights on your operating system.
    2. Click on the [authorise] button.
    3. Restart Max/MSP.

NOTES:

- The application's folder and the concerts' folders are unrelated and can reside in different locations.
- The application **fully supports** long file names, for the audio samples and the concerts' folders names (including spaces and non-english characters). Yet – in the current version, the application's folder (containing the max patches) must reside in a path that contains no spaces. This limitation does NOT affect the core functionality of the application, it will only affect the „open in external editor“ feature.

Files and folders

Application

Filename	Function
main.pat	Main patch
sensors.pat	Sensors patch (may run as standalone)
sensors.preset (*)	Sensors presets (XML format)
launcher.bat	External editor launcher
elastic_authorization.pat	Elastic authorization patch
lastconcert.txt (*)	Reference to the last concert folder

* Indicates this file is automatically created when it doesn't exist. Deleting it will not affect the application's functionality.
*** This is a partial list that contains only the files you may need to interact with. The other files are the different application modules and should not be tampered with, nor will they function correctly if started alone.

Concert

The concert's preset hold all of the application's settings, excluding the sensors related configuration (which is kept globally, not per concert). It is automatically generated in the root of the concert folder and has no dependencies on it's folder – for example, to copy a concert's settings to a new concert, just copy the *concert.preset* file. In addition, as an XML file it may easily modified outside this application's interface for manipulating or copying only fragments of the presets between concerts.

Filename	Function
concert.preset (*)	Preset file (XML format)

* Indicates this file is automatically created when it doesn't exist. Deleting it will not affect the application's functionality.

Concert folders have a fixed structure, outlined in the following table:
Directory sturcture

Concert folder
- *cluster01*
  - *bank01_LEFT*
  - *bank01_RIGHT*
  - .
  - .
  - *bank12_LEFT*
  - *bank12_RIGHT*
- *cluster02*
- *cluster03*
- .
- .
- *cluster12*

- *recordings*

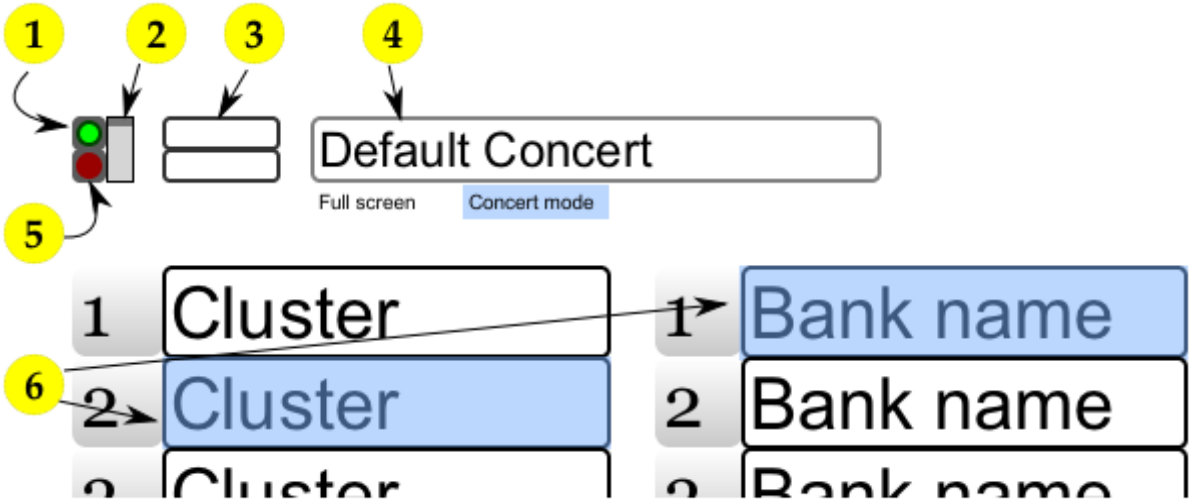
Usage

Running the application

Load Max/MSP and open **main.pat**.
You can also make a shortcut icon pointing directly to **main.pat**.

On start, the application will to load the last used concert (stored in ***lastconcert.txt***).

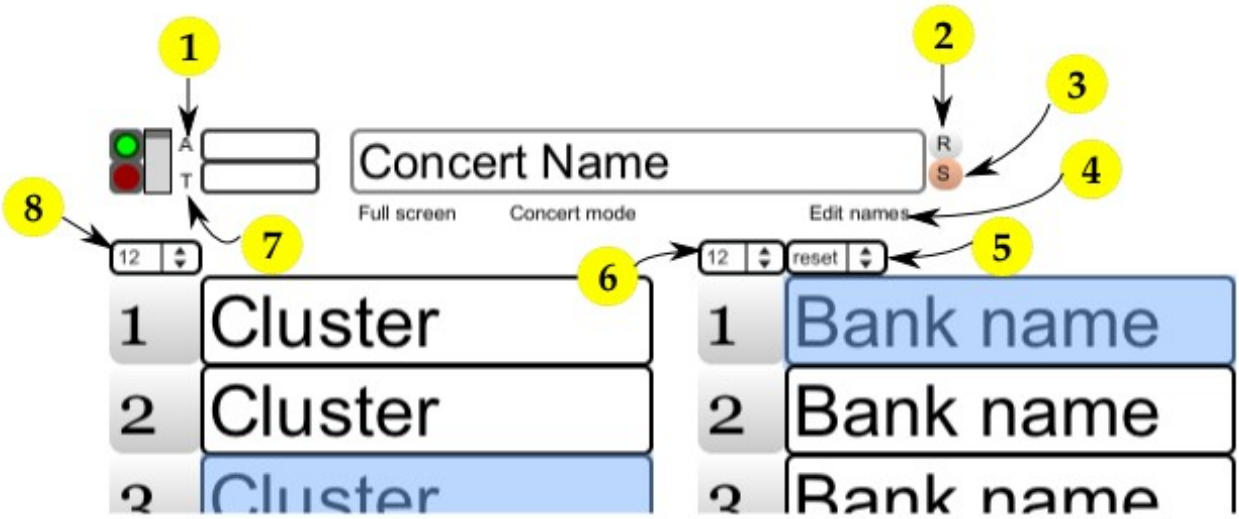
Concert mode



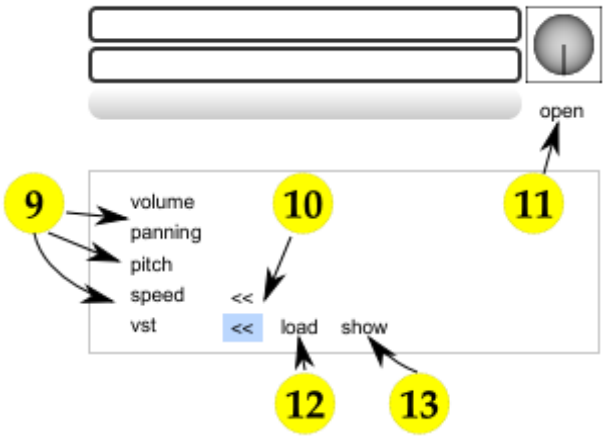
1. Audio engine - on/off toggle
2. Master volume slider
3. Master VU meters
4. Concert name box:
    1. Drag a concert folder into this box in order to load it
    2. Click on this box to rename the concert
5. Record toggle (*see section*)
6. Clusters and banks

Concert Mode hides and disables components that are not needed during a performance.
For example, file samples counting is disabled to speed up banks and clusters switching. When working with banks that contains many samples (*above 75 samples per bank, tested with up to 1500 samples in a cluster*), always switch to Concert Mode for best results.

Editing mode



1. Audio DSP setup: select audio interface, output channel, etc..
2. Reload current concert (*concert.preset*)
3. Save current concert (*concert.preset*)
4. Edit Names, enter this mode to change the clusters and banks' names
5. Bank switch mode. On cluster change:
   a) ***Reset*** – Go to Bank 1
   b) ***Stay*** – Keep the last selected bank position. On multiple cluster changes persistant is used. For example, if you were in bank 8, then you move to a cluster that has only 4 banks, bank 4 will be selected. When you switch to a next cluster that has 8 banks – bank 8 will be selected. The original banks position (8) will be kept, and tryed again in every cluster, until you manually select a new bank.
6. Set number of banks for this concert
7. Test tone
8. Set number of clusters for this concert
9. Ratio graphs (*see section*)
10. Ring finger control selector. Toggle the control of the speed and/or a VST.
11. Open sample file in external editor (*via launcher.bat*)
12. Load VST into fx slot
13. Show VST in slot

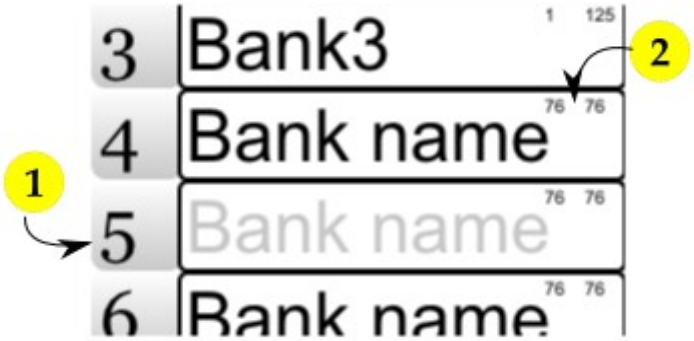


Bank Bypass

Click on the bank number to bypass a bank (*see #1 in the illustration*). While a bank is bypassed, bank-browsing using the gloves buttons or the keyboard shortcuts will jump over it. You can still manually select a bypassed bank with the mouse.

The bypass attribute for each bank is stored in the concert preset.

Samples counter indicator

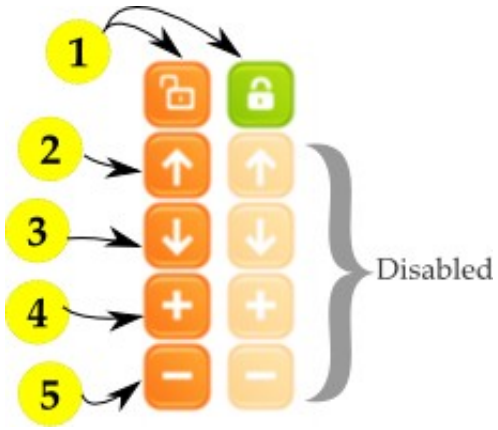


On cluster change, the application counts all the samples in the cluster's banks and presents two numbers corsponding to left and right banks. When you add/delete files from banks, you simple need to click on the cluster in order to refresh the counters.

This feature is disabled when in Concert Mode in order to prevent performance hogs while switching between large clusters.

Bank position management

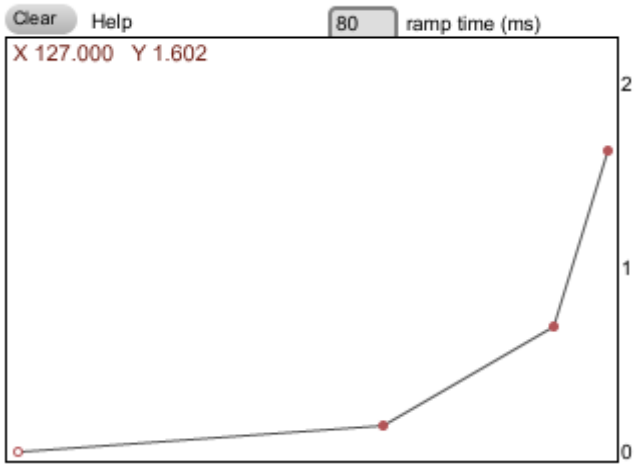
This panel operated both on the concert (*bank names, bypass mode, etc..*) and on the banks folders in the file system. It it locked by default in order to avoid accidential clicks and auto-saves (*).



1. Lock/unload buttons.
2. Move selected bank one step higher.
3. Move selected bank one step lower.
4. Insert a bank before the selected bank.
5. Delete selected bank.

* *Auto-save*: every action in this panel auomatically saves the concert in order to prevent desynchronization between banks in the concert and the file system (*banks folders*). To prevent unwanted concert changes before moving banks, you can reload the concert (*page 5, Editing mode → point #2*). In case of doubt - make a backup of the *concert.preset* file and the relevant cluster.

Ratio graphs

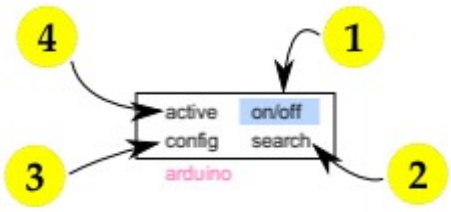


Click	Adds a point to the graph
Shift+Click	Removes a point from the graph
Clear	Restore default values

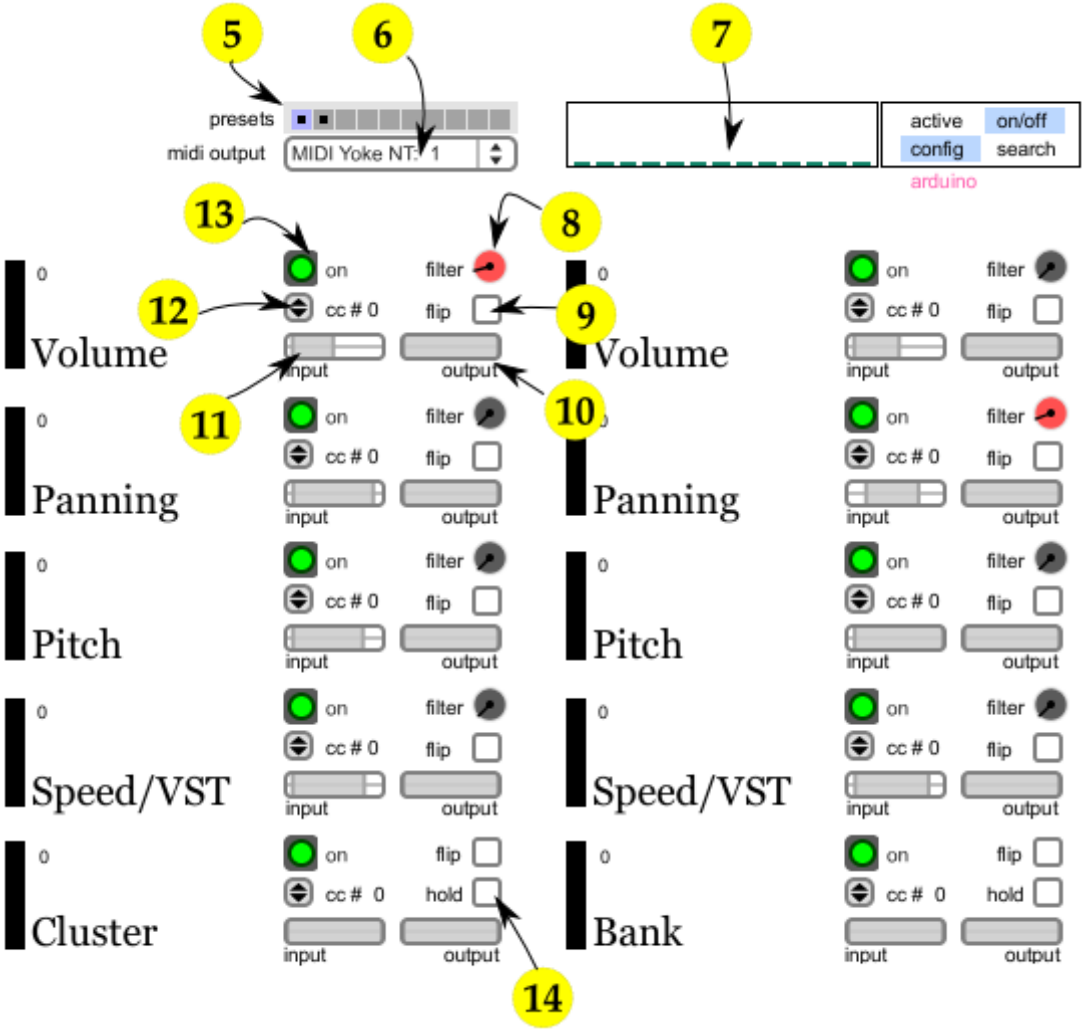
While dragging a point, the X and Y attrributes appear.
X (0 - 127) is related with the sensor pressure.
Y is related with the graph's function.

Ramp time (*only in relevant graphs*) -
This setting is related with volume level. It indicates the transition time to fade between values. Set the ramp time by dragging the mouse, or by directly inputting a value (in milliseconds).

Sensors



1. Read from Arudino - On/off toggle
2. Search for Arduino through serial ports, COM ## indicator will appear while searching
3. Configure sensors and MIDI (*see next page*)
4. Arduino activity indicator



5. Gloves preset
   a) Independent from concert, saved in it's own present file (*sensors.preset*)
   b) First preset is automatically loaded.
   c) **Click** on a box to load a preset.
   d) **Shift+Click** on a box to save a preset – saved indicator will light.
6. Midi output device selector
7. Raw analog inputs monitor from Arduino
8. Filter level to smooth the sensor's signal
9. Flip output signal
10. Output range – limit the 8 bit value (0 - 127) sent to the gloves patch and midi output
11. Input range – crop a subset of data from the sensor's 10 bit signal (0 - 1023) to use
12. MIDI controller number selector
13. On/off toggle for sensor
14. Hold (*for buttons only*) – transform a push button in to a switch

Button shift (reverse scrolling)

You can scroll through clusters and banks backwards. Hold the opposite button for at least half a second and keep it held while pressing the button in the gloves. This functionality works only with the gloves, the keyboard shortcuts use the <shift> key for reverse (*see Keyboard shortcuts section*).

Keyboard shortcuts

Master	**O**	Audio engine on/off
	A	Audio setup (dsp status window)
	T	Test tone
	R	Record start/stop
	F9	(*Max5 Runtime only*) Show application menu for MIDI setup
	F11	Concert mode
	F12	Fullscreen
Browsing	**B**	Next bank
	Shift+B	Previous bank
	C	Next cluster
	Shift+C	Previous cluster
	1	Quick volume toggle for **Left** player
	2	Quick volume toggle for **Right** player
	Spacebar	Reset all sensors and buttons
Editing	**L**	Load VST (***Left***)
	Shift+L	Load VST (***Right***)
	V	Show VST (***Left***)
	Shift+V	Show VST (***Right***)
	Y	Toggle ring finger controls (***Left***)
	Shift+Y	Toggle ring finger controls (***Right***)
	M	Toggle bank switch mode (on cluster change)

Hints – stay with the mouse above an object for half a second to see it's description and keyboard shortcut key.

Troubleshooting

Open sample in external editor

Symptom:

Doesn't work.

Resolution:

a. Make sure Java Runtime Environment (JRE) is installed.

b. Edit launcher.bat (in the application folder) to verify the path of the external editor.

c. Does the gLove application's folder contain any space in it's FULL PATH ?

Elastic~ authorization

Symptom 1:

Elastic~ not authorized. Sensors data reachs the main patch, files are selected, but no sound is generated (vu meters are empty)

Resolution 1:

Check max window (ctrl+m) for "elastic~" messages. Usually they will appear in the beginning of the max window. Successfully authorized elastic~ will print:

elastic~ 1.01 by Simon.....

authorised to Oori Shalev

If it doesn't - use **elastic-authorization.pat** to authorise.

Symptom 2:

Elastic~ authorization fails.

Resolution 2:

In the max window will appear:

code ok, authorising...

A problem occured with the authorisation, please contact...

Administrative rights are missing for the current user. Login as administrator or run-as administrator Max/MSP while authorizing. After authorization is successful, there is no need to run Max/MSP as administrator.

Max/MSP crash after Java Runtime Environment (JRE) update

Symptom:

Loading main.pat crashes Max/MSP, other patches may load.

Resolution:

Unsinstall the new JRE version. There's no need to reinstall an older version, as usually, JRE updates are intsalled in parallel to old JRE versions, and not replaced.

Another solution is to provide more memory for the Java virtual machine:

1. Go to *\Cycling '74\java* folder the Max/MSP program folder.

*(**MAX5:** C:\program Files\cycling '74\Max Runtime 5.0\Cycling '74\java)*

*(**MAX4:** C:\program Files\Common Files\Cycling '74\java)*

2. Edit **max.java.config.txt**

Change values for:

max.jvm.option -Xms64m → -Xms128m

max.jvm.option -Xmx256m → -Xmx512m