

OSCar

User Manual



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1 Description



Tosca stands for Thibaut's OpenSoundControl Automation. OSCar is the successor of the Tosca plugin, and it serves similar purpose.

The OSCar plugin can be inserted into a DAW (Digital Audio Workstation) in order to send/receive parameters' automation. It is based on the OSC (Open Sound Control) protocol (<http://www.opensoundcontrol.org>). The plugin does not process any audio (the audio signals are just bypassed actually).

- "Plugin ID" : this is the ID of the current instance of the plugin. This can be used in the OSC pattern of incoming/outgoing OSC messages. (cf Section 4)
- "input port" : this is the (UDP) port for incoming OSC messages.
- "output port" : this is the (UDP) port for sending OSC messages.
- "output IP" : this is the IP address of the destination of the outgoing OSC messages. For local communication, you could use "127.0.0.1" or "localhost".
- "enable" : this toggle will enable or disable the OSC send/receive.
- "use bundle" : when enabled, this packs synchronous OSC messages into a single OSC bundle.
- "polling rate" : this is the refresh rate of a background thread polling for incoming/outgoing messages.

Multiple instances of the plugin can live in parallel into the DAW. The Plugin ID number is displayed in red when there is a conflict with another instance of the plugin having the same ID. It is displayed in black otherwise.

The input port number is displayed in green when the plugin is properly bound to the port. It is displayed in red if something went wrong. There is also a green led that blinks when OSC messages are received.

The output port number is displayed in green when the plugin is properly connected to the destination (IP and port). It is displayed in red if something went wrong. There is also a green led that blinks when OSC messages are sent.

Please note that all plugin instances share the same input port, output port and output IP address, and mapping file. If you change the input port of a given instance, it will be changed accordingly in all other instances.

All these attributes (ID, input port, output port, output IP, enable toggle) are saved with the plugin state i.e. they are stored with your DAW session. And they are automatically recalled when the session is restored.

2 Installation

2.1 Mac OSX

Copy the plugin bundle into your "plugin folder".

- "OSCar.component" is the AudioUnits (AU) version.
You can copy it into : "~/Library/Audio/Plug-Ins/Components" or "/Library/Audio/Plug-Ins/Components"
- "OSCar.vst3" is the VST3 version.
You can copy it into : "~/Library/Audio/Plug-Ins/VST3" or "/Library/Audio/Plug-Ins/VST3"
- "OSCar.aaxplugin" is the AAX version.
You can copy it into : "/Library/Application Support/Avid/Audio/Plug-Ins"

2.2 Windows

OSCar Windows version requires the Visual C++ Redistributable Packages for Visual Studio 2019. You can (freely) download it from Microsoft website: <https://www.visualstudio.com/downloads/>.

Select "Microsoft Visual C++ 2019 Redistributable" and "x64" and follow the instructions for installation.

Then copy the VST plugin "OSCar.vst3" in your VST folder.

3 OSC mapping

- The parameters exposed by the plugin are defined in a configuration file (called mapping file).
- The mapping file must be named "oscar.xml", and it must be located in "~/Documents/Ircam/oscar/oscar.xml"

- If no mapping file is provided, OSCar will use the default settings, i.e. the parameters' names will be "param1", "param2", "param3", etc, and their range will be [0.0 - 1.0].
- The same mapping (file) is used by all instances of the OSCar plugin.

Below is an example of a mapping file.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
```

```
<oscar version="1.0">
  <parameter index="1" name="x" pattern="/source/1/x" min="-20" max="20" default="0"/>
  <parameter index="2" name="y" pattern="/source/1/y" min="-20" max="20" default="0"/>
  <parameter index="3" name="z" pattern="/source/1/z" min="-20" max="20" default="0"/>
  <parameter index="4" name="pres" pattern="/source/1/pres" min="0" max="120" default="40"/>
  <parameter index="5" name="bril" pattern="/source/1/bril" min="0" max="50" default="25"/>
  <parameter index="6" name="warm" pattern="/source/1/warm" min="0" max="50" default="25"/>
</oscar>
```

- The "parameter index" determines the order of the parameters, as they will appear in the host DAW. The parameter index must be greater than 1, and there should be no duplicate indices.
- "name" is the label of parameter, as it will appear in your Digital Audio Workstation.
- "pattern" is the OSC address pattern used to communicate with this parameter to/from the outside world.
- "min", "max", and "default" specify the minimum, maximum, and default values of the parameter. In the host DAW, the automation parameters are typically stored in the range [0.0 - 1.0], however the OSCar plugin applies a scaling of the incoming/outgoing OSC messages. Currently only linear scaling is implemented.
- The OSC address pattern should not contain the following characters: "#", "*", ",", "?", "[", "]", "{", "}", " ".
- All instances of the OSCar plugin share the same set of parameters. However, it is possible to use the "Plugin ID" as a variable for the OSC address pattern:

```
<parameter index="6" name="warm" pattern="/source/$1/warm" min="0" max="50" default="25"/>
```

the "\$1" wildcard will be automatically replaced by the ID of the current plugin instance when receiving/sending OSC data e.g.

"/source/1/warm" for instance #1,

"/source/2/warm" for instance #2, etc.

- After edition of the mapping file, it is recommended to restart your Digital Audio Workstation to make sure the OSCar plugin(s) get updated accordingly.

4 OSC messages

- The OSC mapping is used for determining the pattern of the OSC input/output messages. For instance the messages for the "y" parameter of the plugin with ID #3 are : "/source/3/y 0.0" where "0.0" is the current value of the "y" parameter.

- OSCar can be used for reading/writing automation from a remote controller. It can also be used for "touching" an automation track from a remote controller. To do so, the remote controller must notify the DAW host that the parameter is being touched. The OSC syntax for touching the "y" of the instance with ID #3 is : `"/source/3/y touch 1"` for beginning the touch. `"/source/3/y touch 0"` for ending the touch.

5 Setup

- Install the plugin.
- Create your "oscar.xml" mapping file and copy it in "`~/Documents/Ircam/oscar/oscar.xml`"
- Make sure the plugin folder is properly set in your DAW search path.
- Insert the plugin onto an audio track. The track should be mono or stereo.
- Configure the input/output port and address.
- Edit the automation tracks and start the playback engine.
- Send or receive OSC data in a remote OSC-enabled application or device.

6 Miscellaneous informations / Known bugs

- In ProTools : multi-mono plugin format is not supported.
- In Digital Performer : you must disable the "Pre-gen mode when possible" option in the "Plug-in real-time preferences" menu of Digital Performer.
- In Apple Logic Pro : you should have some audio data on the track(s) otherwise the automation is treated in economy mode.
- In Ableton Live VST : the remote automation doesn't work. Use AU instead.
- In Cockos Reaper : you should change the parameter automation notifications to "Process all notifications" (under Preferences / Plug-Ins / VST). See Figure 1.
- In Nuendo : it seems like automation with VST3 is very jerky. Use VST instead.

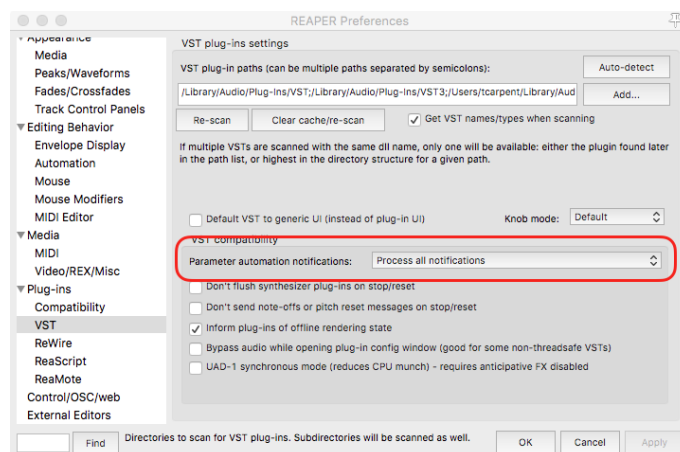


Figure 1: Parameter automation notifications in Reaper

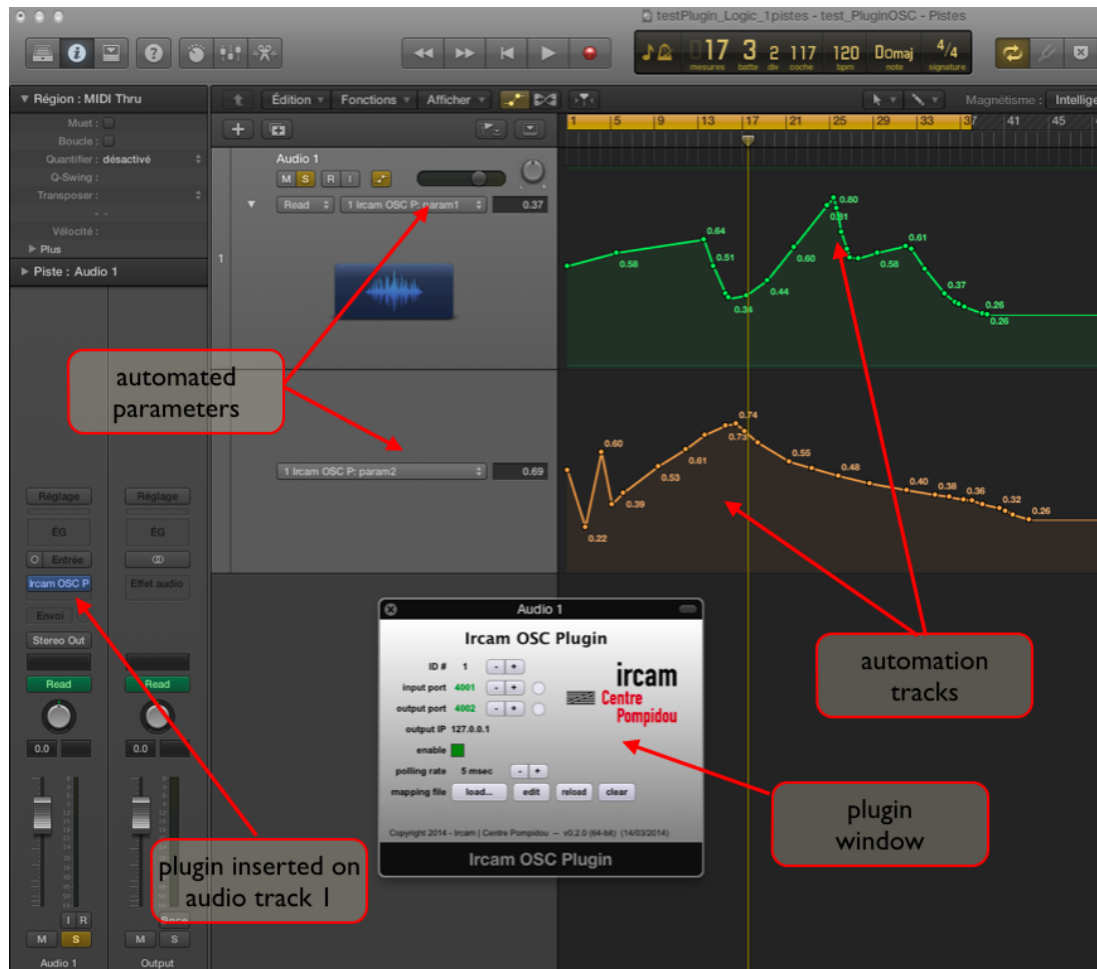


Figure 2: Example in Apple Logic



Figure 3: “Oscar”, one of the first mannequin used for binaural recording experiments by Bell Telephone Laboratories in 1930s.

7 References

- T. Carpentier. TosCA: an OSC communication plugin for object-oriented spatialization authoring. In *Proc of 41st International Computer Music Conference (ICMC)*, Denton, TX, USA, pp 368 – 371, Sept 2015. <https://hal.archives-ouvertes.fr/hal-01247588v1>
- T. Carpentier. TosCA: un plugin de communication OSC pour le mixage spatialisé orienté objet. In *Proc of Journées d'Informatique Musicale (JIM)*, Montréal, May 2015. <https://hal.archives-ouvertes.fr/hal-01247477v1>

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VST 3 SDK License

Part of OSCar is built with the Proprietary VST 3 SDK from Steinberg (<https://sdk.steinberg.net>).

```
//-----  
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//-----  
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