Sound2Light Tool

Version 0.0.1.1.0.16

August 22nd, 2016

Overview

The Sound2Light tool **converts live audio signals to trigger events** that can be sent as OSC messages. It can reproduce the sound-to-light function of the NT/NTX consoles with systems of the Eos-, Cobalt- and ColorSource-families. It can also be remotely controlled by OSC.

Software-Download

- The software can be downloaded for Windows and Mac from the following link:
  - https://github.com/ElectronicTheatreControlsLabs/Sound2Light/releases

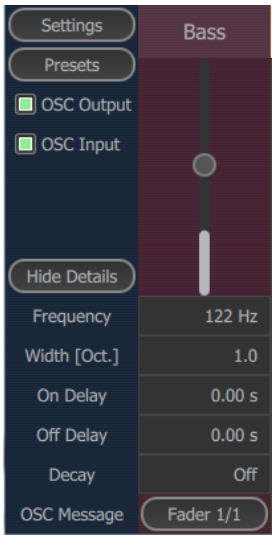
Installation

- Download and run the installer as mentioned above.
- If necessary, a previous installation will be removed, but the previous settings will be reused.

Basic Usage

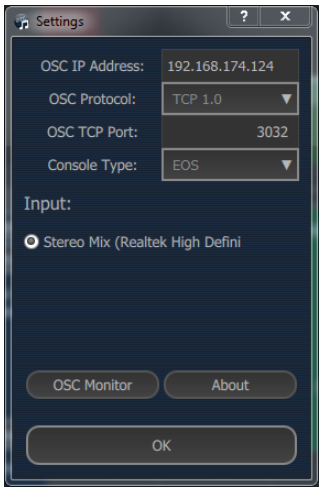
- Set OSC **IP-address and port** as well as audio input and console type in **Settings** (see below)
- Adjust **Gain** according to the audio input or activate Automatic Gain Control (AGC)
- Adjust **Compressor** as desired
- Change the **Bandpass Parameters** using the numerical settings or by moving the Bandpass preview in the spectrum by dragging it in the upper area (width can be changed by holding CTRL or CMD on Mac)
- The Bandpass Previews can also be manipulated with **two-finger pinch gestures** on a touchscreen.
- To change the triggering behavior set the **On** and **Off Delay**
- Set the **Decay Time** if you want to limit the maximum duration of a trigger signal
- Open the **OSC** message dialog by clicking the button at the bottom and configure the OSC messages (see OSC section below)

Bandpass Filters and Level-Trigger



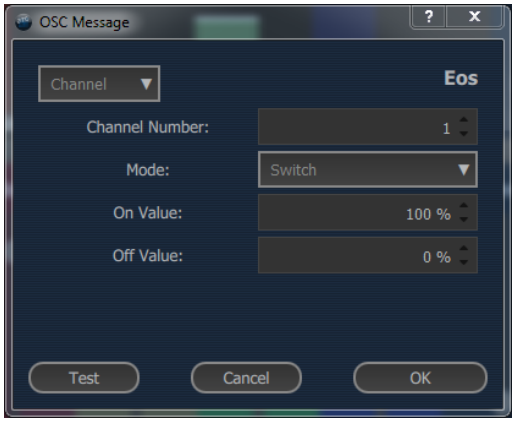
- Four bandpass filters and the level and silence channels can be used as sources for trigger signals
- **Slider:** set the threshold used for on / off signals and the upper boundary for continuous values
- **Frequency** (bandpass only): middle frequency of the bandpass filter
- **Width** (bandpass only): width of the bandpass filter in octaves
- **On Delay:** time to delay the On message (On message will only be sent when the signal is above the threshold for the given time)
- **Off Delay:** time to delay the Off message (Off message will only be sent when the signal is below the threshold for the given time)
- **Decay:** maximum time till the off message is sent (decay = 0 will be ignored)
- **OSC Message:** configure the OSC messages (see below)

Settings



- **OSC IP Address:** IP address of the console
  - If the target is a local Eos Nomad software, the IP address displayed in the Shell Settings / Network must be used
- **OSC Protocol:** Protocol to use to send and receive OSC (see "Console Settings" section below, default: TCP 1.0)
- **OSC Ports:** Ports to send and receive OSC messages (Standard: UDP Tx 8001 (Rx Port of the console), UDP Rx 8000, TCP 3032)
- The dot in the upper area in the spectrum indicates the connection state (red = not connected, green = message sent)
- **Console Type:** Type of the targeted console (affects the OSC message dialog)
- **Input:** Audio Source
  - i.e. **Microphone / Line** Input of the soundcard or an USB Audio-Interface
  - To use the audio output as an input devices with Windows the "Stereo Mix" device must be activated (Right click on the speaker icon in the taskbar -> Recording Devices -> right click in empty space -> Show disabled devices -> Right click in "Stereo Mix" -> enable)
- **OSC Output** (in main window left): enable or disable Trigger OSC output
- **OSC Input** (in main window left): enables OSC remote control input
- **Low Solo Mode** (in main window right): only the lowest active Trigger will be used

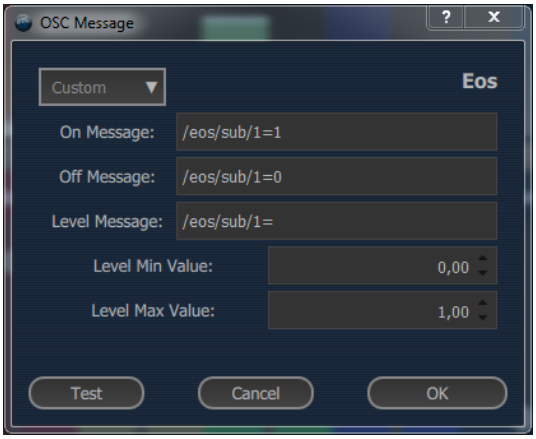
Using Predefined OSC Messages



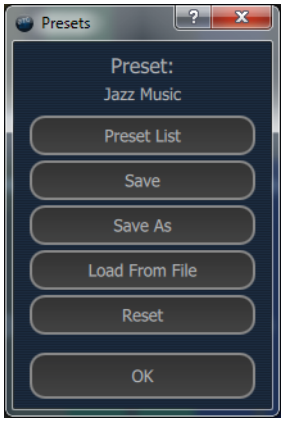
- Open the OSC message dialog by clicking on the respective button under the trigger settings
- Choose **Message Type** in the upper left
- Change **Parameter** on the right
- Test the message with the **Test button** (On message will be sent when the button is pressed and Off message when released)
- For channels, groups and submasters you can choose to send **On and Off signals (Switch)** when the threshold is reached or **continuous values (Level)** based on the level within the filter
    - The threshold is also the upper boundary of the level for the continuous values

Custom OSC Messages

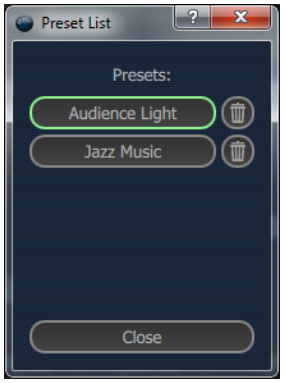
- Choose **Custom** as message type
- **On Message:** message to be sent when the level reaches the threshold
    - Format: „/<path>/<command>=<argument>“
- **Off Message:** message to be sent when the level falls below the threshold or after the decay time
    - Format: „/<path>/<command>=<argument>“
- **Level Message:** message that is used to transmit the continuous values
    - Format: „/<path>/<command>=“
- **Level Min Value:** value of level messages to be sent at silence
    - Typical 0.0
- **Level Max Value:** value of level messages to be sent at the threshold value
    - Typical 1.0 or 100, depending on message target
- **Examples** (also covered by predefined messages):
    - Flash Eos Channel 1:
        - On Message: /eos/chan/1=100
        - Off Message: /eos/chan/1=0
    - Trigger Eos Macro 5:
        - On Message: /eos/macro/fire=5
    - Continuously control Eos Channel 2 between 0% and 80%:
        - Level Message: /eos/chan/2=
        - Level Min Value: 0.00
        - Level Max Value: 80.00
    - Continuously control Eos Submaster 1 between 0% and 100%:
        - Level Message: /eos/sub/1=
        - Level Min Value: 0.00
        - Level Max Value: 1.00



Presets



- Most of the parameters can be saved as a preset to be reused later
- A preset does **not** contain the following settings:
  - OSC IP address, port and protocol type
  - "Send OSC" status
  - Audio Input Device
- Preset dialog can be opened with the button "Presets" on the left of the main window
- **Preset List:** opens a list of all presets, presets can be loaded by clicking on the name and deleted by clicking on the trash icon
  - The currently loaded preset is highlighted blue when there are unsaved changes, otherwise green

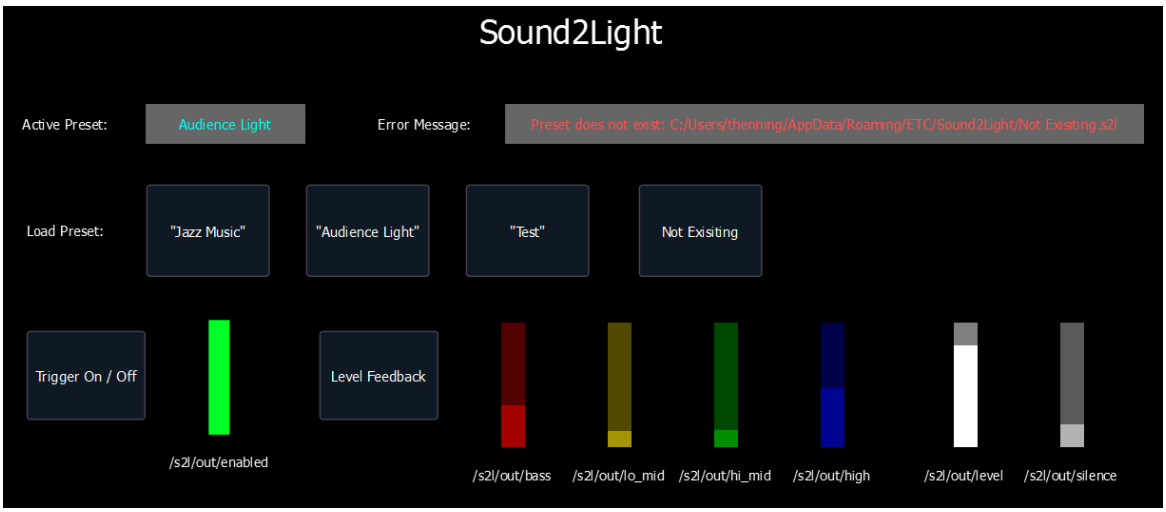


- **Save:** saves the current parameter settings to the loaded preset
- **Save As:** saves the current parameter settings as a new preset
- **Load From File:** loads a preset from a "*.s2l" file
- **Reset:** resets all parameters to factory defaults

OSC Remote Control

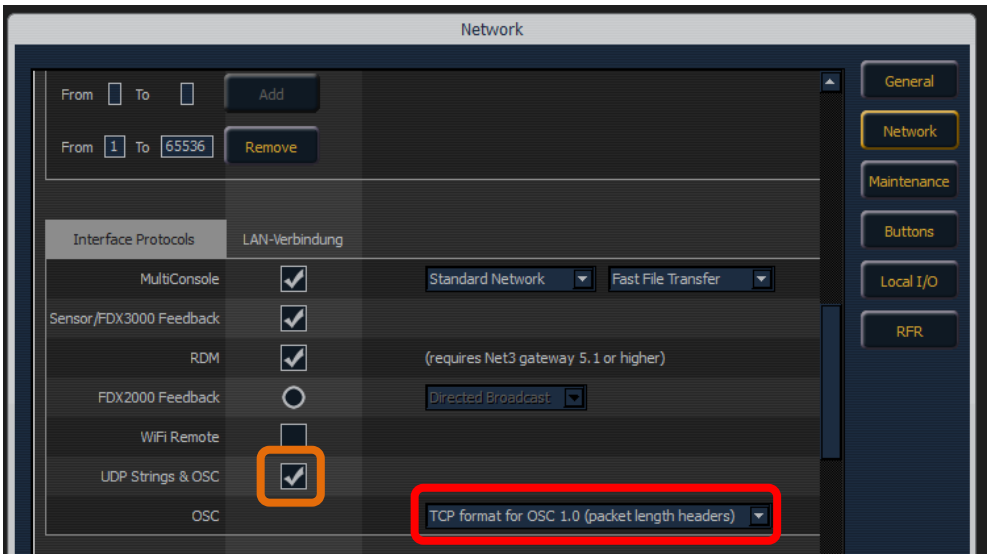
- The Sound2Light software can not only send OSC messages based on the triggers, it can also be remotely controlled by OSC (i.e. from a Magic Sheet)
- It is possible to control the state of the Trigger Output and to load Presets.
- Optionally the level of the six trigger can be sent as feedback messages (Level Feedback).
- An example Magic Sheet is available (*Sound2Light_Magic_Sheet_Example.esf*, see screenshot below).
- Supported OSC messages:
  - */s2l/enabled=1* to activate or *=0* to deactivate Trigger Output
  - */s2l/enabled/toggle* to toggle Trigger Output
  - */s2l/preset=<Preset Name>* to load a Preset (<Preset Name> without path and suffix)
  - */s2l/level_feedback=1* to activate or *=0* to deactivate Level Feedback messages
  - */s2l/level_feedback/toggle* to toggle Level Feedback messages
- OSC Feedback:
  - */s2l/out/enabled* -> state of the Trigger Output (1 or 0)
  - */s2l/out/active_preset* -> name of the active Preset (String)
- OSC Level Feedback (has to be activated before, see above):
  - */s2l/out/bass* -> volume in Bass band (0-1)
  - */s2l/out/lo_mid* -> volume in LoMid band (0-1)
  - */s2l/out/hi_mid* -> volume in HiMid band (0-1)
  - */s2l/out/high* -> volume in High band (0-1)
  - */s2l/out/level* -> total volume (0-1)
  - */s2l/out/silence* -> "silence" (0-1)

Example Magic Sheet:



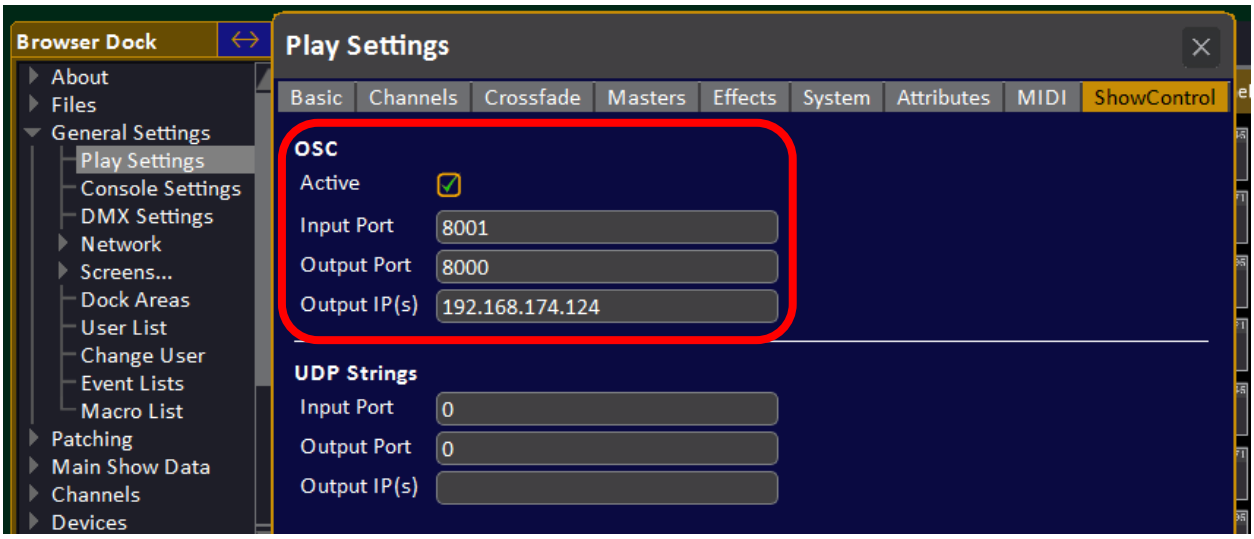
Console Settings (Eos)

- Use Eos or Eos Nomad **version 2.3.3** or later
- Shell Settings / Network:
  - Choose **"TCP format for OSC 1.0 […]"**
  - (Only for UDP transmission: activate „UDP Strings & OSC")
- Eos Show Settings / Show Control:
  - Activate **„String Rx"** and **„String and OSC Tx"**
  - (Only for UDP transmission: set OSC Rx Port to 8001, Tx to 8000 and set OSC Tx IP Address to that of the Sound2Light client)



Console Settings (Cobalt)

- Browser -> General Settings -> Play Settings
    - Enable **Active** checkbox
    - Set **Input Port** to 8001
    - Set **Output Port** to 8000
    - Set **Output IP** to the IP address of the Sound2Light tool
    - Choose **UDP** as the Protocol and **Cobalt 7.2** or **Cobalt 7.3+** depending on the version as the Console Type in the Sound2Light tool settings



Console Settings (ColorSource)

- Setup -> Settings -> Console
    - Set **OSC Remote Control IP** to the IP address of the Sound2Light tool
    - Set **Send Port** to 8000
    - Set **Rec. Port** to 8001
    - Choose **UDP** as the Protocol and **ColorSource** as the Console Type in the Sound2Light tool settings