ScottEffx
Midi Map and Effects Save / Load File

A music light show is a stream of audio for the music, and a time-synchronized stream of mostly MIDI Note-On events and a few special events such as 'All Notes Off' for controlling the lights. For full details of MIDI events see https://www.midi.org/ ScottEffx uses MIDI 1.0, although MIDI 2.0 has been released with great potential for more complex light shows with its expanded number of MIDI channels.

A Note-On event in MIDI 1.0 is 3-Bytes as follows:
Note-On = 0x9C, 0xNN, 0xVV where
C = 4 bits 0 - 15   The MIDI Channel number
NN = 8 bits 0 - 127   The MIDI Note number where middle C is the number 60
VV = 8 bits 0 - 127   The MIDI Note velocity (loudness) from 0 (off) to 127 (full on)

While composing a light show the MIDI notes are processed in real time as received from the DAW through the MIDI Bus (See the *flickerSong* **Compose** tutorial for more information on how MIDI events are transmitted to the ScottEffx App). But when playing an integrated music light show MP3 file, the MIDI events are buffered or stored on each of the *flickerSongs* in advance. The result is the same however, at the proper time-synchronized instant, the MIDI Note-On event is processed by each of the *flickerSongs* and turned into a momentary light effect as defined by the MIDI Maps, the Effects, and each *flickerSong's* channel mapping. Graphically it looks like this:

(Note-On 0x9C,0xNN,0xVV). 'NN' selects the row, 'C' selects the column. The Effect number at the (row, column) address is started. Blank cells (value 255) are not played. In this example, NN = 21, C = 3.

Column **C**

Row **NN**

This is MIDI map number 0 out of 255 such MIDI maps

Play this Effect number (Effect #3 in this case)

Lets say the Effect number 3 is this highly modulated Square pulse with the ramped rise and fall. Then, when the above MIDI Note is played, this waveform, sampled at 210 times per second, is loaded into the buffer controlling the output brightness for all flickerSong Outputs connected to MIDI Map channel 0.
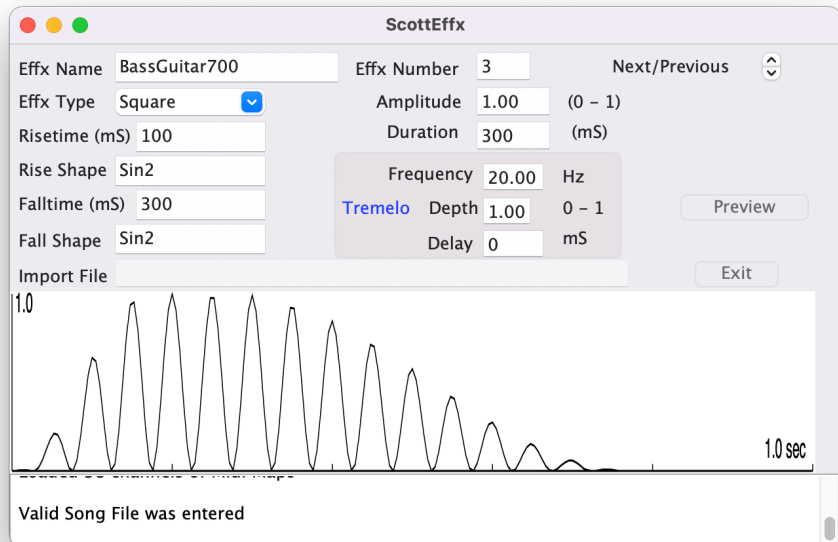
All this interpretation and effort is performed locally at each *flickerSong*. If none of the *flickerSongs* outputs use MIDI Map channel 0 then there is no response to this MIDI Note. On the other hand, if any *flickerSong's* Output has been assigned to this MIDI Map number 0, then the Effect number 3 is dutifully played.

So for each light show, it takes a stream of MIDI Note-On events, provided to the MIDI Map, which determines which light effect to play, and the effect is played by all *flickerSong* Outputs assigned to that particular MIDI Map.

Configuration File

You can **Load** or **Save** a configuration text file which contains the MIDI Map and Effects data, and you may find it more convenient to edit the text file using a text editor instead of the Macintosh application, particularly for the MIDI Maps. The next page shows an example Configuration file. The file can be edited by most editors such as Word, Pages, TextEdit etc., but it must be saved in the basic .txt format for the ScottEffx App to read it. In addition it must be in a very specific format such as 4 characters for each of the 16 entries for a MIDI Map line. This means to enter the number 219 you would enter 's219', and to enter number 8 it would be 'sss8' where 's' in this case means 'space'.

The best way to work with the Configuration file is to first save one, then modify the file while maintaining the format. Note that for MIDI Maps, rows which are all blanks (no effects) are not saved to the Configuration file.

Example Configuration file, annotated with format explanations. Be cautious of the unfortunate duplicate use of midiMap 'Channel' and MIDI Note 'Channel' .

```
ScottEffx Effects File
ConfigFileExample.txt
effxName Snare30
effxNumber 0
effxType Gaussian
riseTime 200
riseShape linear
amplitude 1.00
duration 30
fallShape linear
fallTime 200
tremeloFreq 5.00
tremeloDepth 0.00
tremeloDelay 500
END
effxName FlashShimmer2000
effxNumber 8
effxType Import
riseTime 200
riseShape linear
amplitude 1.0
duration 2000
fallShape linear
fallTime 200
tremeloFreq 5.00
tremeloDepth 0.00
tremeloDelay 200
ImportFileData
51
51
50
50
49
49
END
midiMapChannel 0
Note  21    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  60    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  64    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  71    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  78    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  82    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  84    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
midiMapChannel 9
Note  34    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  60    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  65    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  73    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
Note  86   18 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255
Note  88   16 255 255 255 255 255 255 255 255 255 255 255 255 255 255 255
END
```

Annotations (in red):

First line must be exactly this

Name of this configuration File

First Effect in the list of light effects
Each of the parameter names must be exactly as shown 'effxType', 'amplitude' etc
Each parameter value also has a specific format shown here.
Best to edit effects while in the Macintosh ScottEffx Application

'END' must appear at the end of each Effect

Here is an imported light effect

Only the tremelo settings affect an imported Effect file. The 'END' delimited series of numbers defines the light effect, each number must be between 0 and 255, and the numbers represent the relative brightness with a resolution of 210 per second

Best practice is to use the Macintosh ScottEffx Application, Effects editing view, to import Effect

Midi mapping list for each of the possible 255 channels
You may find it easier to edit the mapping here. Each number is right justified in a 4 character space, and is the effect number to play

The effect is played for this channel 0 when the note with MIDI 'channel' 0-16 is received

Mostly simple mapping is used, but here effect #18 is played when note 86 with MIDI channel 0 is received