

Midi-Transform README

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Contents

1	Introduction	1
2	Features	2
2.1	Main Features:	2
2.2	Secondary Features (implemented)	2
2.3	Secondary Features (not implemented yet)	2
3	Usage	2
3.1	RC File	3
3.2	Commands	3
4	Example	3
5	Obtaining the sources	4
6	Compiling the binary program	4
7	TODO [/] Midi Transform Project	5
7.1	TODO EE: 17908960: Invalid synthesizer state EXPECTING-DATA-DUMP BUG . .	5
7.2	TODO option for absolute or pass-thru mode for knobs.	6
7.3	TODO configure the CC mapping interactively	6
7.4	TODO support other target synthesizers	6
7.5	TODO support multiple target synthesizers and multiple controllers.	6
7.6	TODO load and save programs.	6
7.7	TODO load and save whole program banks.	6
7.8	TODO take into account bank MSB/LSB in program changes.	6
7.9	TODO add some graphical (or ascii art) features	6
7.10	TODO port to Linux	6
8	License	6

1 Introduction

This is a little CoreMIDI MacOSX command-line program whose purpose is to convert some MIDI controller Controller Change MIDI messages into SysEx parameter change MIDI messages for some synthesizer. Accessorily, it also forwards all the other MIDI messages from the controller to the synthesizer.

Currently only the SysEx Parameter list for the Korg DW-8000/EX-8000 is implemented, with a default mapping for the Alesis VI61 MIDI controller.

Demo video at:

- <https://www.youtube.com/watch?v=zUB6otw7lic>

See also:

- <https://www.stereoping.com/synth-controller/>
- <https://www.youtube.com/watch?v=K6nbcbbXXn5g>

2 Features

2.1 Main Features:

- Receives MIDI messages from the controller, and
- for normal MIDI messages (note, etc), forwards them to the DW-8000 / EX-8000 synthesizer (updating the channel if needed).
- CC messages are transformed into parameter-change sysex (updating the channel if needed).

2.2 Secondary Features (implemented)

- pass through mode for knobs (continuous controls).

2.3 Secondary Features (not implemented yet)

cf. TODO list.

3 Usage

```
$ ./midi-transform --help
```

midi-transform usage:

```
midi-transform [-h|--help] [-l|--list-devices]\
               [-dd|--dw-8000-device-name|-ed|--ex-8000-device-name name]\
               [-dc|--dw-8000-channel|-ec|--ex-8000-channel midi-channel]\
               [-cd|--controller-device-name name]\
               [-cc|--controller-channel midi-channel]
```

names can be found with --list-devices,

midi-channel go from 1 to 16.

Defaults are: -dd "Korg DW-8000" -dc 11 -cd "VI61" -cc 11

3.1 RC File

When starting up, `midi-transform` will read the file `.midi-transform.lisp` in the user HOME directory, if it exists, and evaluate the Common Lisp expressions contained.

3.2 Commands

While running, `midi-transform` prints a prompt ("`>` "), and reads commands. Currently the following commands are recognized:

`quit` stops running.

`help` prints the list of recognized commands.

Furthermore, when unrecognized commands are entered, they are interpreted as Common Lisp expressions. Example:

```
[pjb@despina :0.0 current-midi-transform]$ ./midi-transform

> (list (lisp-implementation-type) (lisp-implementation-version))
--> ("Clozure Common Lisp" "Version 1.11-r16635 (DarwinX8664)")
> (+ 2 3)
--> 5
> (IN-PACKAGE "COM.INFORMATIMAGO.MIDI.TRANSFORM")
--> #<Package "COM.INFORMATIMAGO.MIDI.TRANSFORM">
> (setf *midi-verbose* t)
--> T
>
```

4 Example

```
$ ./midi-transform
    Selected group 0
>
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 4
    Selected group 1
CC: UPDATE PARAMETER VCA-VELOCITY-SENSITIVITY TO 3
CC: UPDATE PARAMETER VCA-VELOCITY-SENSITIVITY TO 2
    Selected group 0
```

```

CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 2
CC: UPDATE PARAMETER VCF-VELOCITY-SENSITIVITY TO 1
    Selected group 2
CC: UPDATE PARAMETER MG-OSC TO 22
CC: UPDATE PARAMETER MG-OSC TO 23
CC: UPDATE PARAMETER DELAY-EFFECT-LEVEL TO 2
CC: UPDATE PARAMETER DELAY-EFFECT-LEVEL TO 3
CC: UPDATE PARAMETER DELAY-EFFECT-LEVEL TO 4
CC: UPDATE PARAMETER DELAY-EFFECT-LEVEL TO 5
> help
Help:
    help      Displays this help.
    quit      Stops this midi application.
> quit

$

```

5 Obtaining the sources

1- create a directory where to clone it, since dependencies will be cloned in brother directories.

```
$ mkdir src ; cd src
```

2- clone the sources:

```
$ git clone git@framagit.org:pjb/midi-transform.git
```

Running in ccl:

```

> (ccl:chdir "src/midi-transform/")
> (load "loader")
> (com.informatimago.midi.transform:initialize)
> (com.informatimago.midi.transform:run
    :dw-8000-device-name "Korg DW-8000"
    :dw-8000-channel 10
    :controller-device-name "VI61"
    :controller-channel 10)

```

Internally, MIDI channels numbers go from 0 to 15, (they're converted while parsing the the command line arguments). So use 10 to indicate MIDI Channel 11, 0 for MIDI Channel 1. The above values are default parameters, so you can run it with just:

```
> (com.informatimago.midi.transform:run)
```

if you configure your devices on the channel 11 and name them like this in the "Audio MIDI Setup" application.

6 Compiling the binary program

```
$ make help
```

```
$ make
$ ./midi-transform --help
```

The midi-transform program can be installed in `/usr/local/bin` with:

```
$ make install
```

or in some other directory by specifying the PREFIX: ::

```
$ make PREFIX=/opt/local install
```

will install `/opt/local/bin/midi-transform`.

7 TODO [/] Midi Transform Project

MIDITRANSFORM

7.1 TODO EE: 17908960: Invalid synthesizer state EXPECTING-DATA-DUMPBUG

```
(BACKTRACE-AS-LIST :CONTEXT NIL :PROCESS NIL :ORIGIN NIL :COUNT 1152921504606846975 :START-FRAME-NUMBER 0)
(PRINT-BACKTRACE #<SYNONYM-STREAM to *TERMINAL-IO* #x30200121BA3D>)
(FUNCALL (:INTERNAL COM.INFORMATIMAGO.MIDI.TRANSFORM::MIDI-PORT-READ) #<SIMPLE-ERROR #x30200166222D>)
(SIGNAL #<SIMPLE-ERROR #x30200166222D>)
(%ERROR #<SIMPLE-ERROR #x30200166222D> (:EXPECTING-DATA-DUMP) 9390223)
(FUNCALL #<STANDARD-METHOD COM.INFORMATIMAGO.MIDI.KORG.DW-8000::CHECK-STATE (COM.INFORMATIMAGO.MIDI.KORG.DW-8000) #<SIMPLE-ERROR #x30200166222D>> #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL #<STANDARD-METHOD COM.INFORMATIMAGO.MIDI.KORG.DW-8000::SEND-PROGRAM-CHANGE (COM.INFORMATIMAGO.MIDI.KORG.DW-8000) #<SIMPLE-ERROR #x30200166222D>> #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL (:INTERNAL ((SETF COM.INFORMATIMAGO.MIDI.ABSTRACT-SYNTHESIZER:SYNTHESIZER-CURRENT-PROGRAM) #<SIMPLE-ERROR #x30200166222D>)) #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL #<STANDARD-METHOD COM.INFORMATIMAGO.MIDI.KORG.DW-8000::ENQUEUE* (T T) #<SIMPLE-ERROR #x30200166222D>> #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL (:INTERNAL ((SETF COM.INFORMATIMAGO.MIDI.ABSTRACT-SYNTHESIZER:SYNTHESIZER-CURRENT-PROGRAM) #<SIMPLE-ERROR #x30200166222D>)) #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL #<STANDARD-METHOD COM.INFORMATIMAGO.MIDI.ABSTRACT-SYNTHESIZER:UPDATE-PARAMETER (COM.INFORMATIMAGO.MIDI.ABSTRACT-SYNTHESIZER:PARAMETER-MAP-COMPILER::CELL-INPUT) :AFTER (%BEFORE-AND-AFTER-COMBINED-METHOD-DCODE (NIL #<STANDARD-METHOD # :AFTER #> . 9390283)) (%STANDARD-COMBINED-METHOD-DCODE (NIL (#<#>) #<STANDARD-METHOD # #>) 9390283)> #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL #<STANDARD-METHOD COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER::CELL-OUTPUT-CHANGED (COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER::CELL-OUTPUT) :AFTER (%BEFORE-AND-AFTER-COMBINED-METHOD-DCODE (NIL #<STANDARD-METHOD # :AFTER #> . 9390322)) (%STANDARD-COMBINED-METHOD-DCODE (NIL (#<#>) #<STANDARD-METHOD # #>) 9390322)> #<SIMPLE-ERROR #x30200166222D>)
(FUNCALL #<STANDARD-METHOD (SETF COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER::CELL-INPUT) (T COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER:DISPATCH (COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER:DISPATCH (COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER:DISPATCH (COM.INFORMATIMAGO.MIDI.PARAMETER-MAP-COMPILER:DISPATCH (COM.INFORMATIMAGO.MIDI.TRANSFORM::MAP-CONTROLLER-TO-SYSEX-REQUEST (COM.INFORMATIMAGO.MIDI-PORT-READ #<A Foreign Pointer #x7000060C3E70> #<A Foreign Pointer #x11144E0>)) (%PORT-READ-CALLBACK #<A Foreign Pointer #x7000060C3E70> #<A Foreign Pointer #x113A40> #<A Foreign Pointer #x113A40>)) CFFI-CALLBACKS::|COM.INFORMATIMAGO.MACOSX.COREMIDI::PORT-READ-CALLBACK| 15393175472062)> #<SIMPLE-ERROR #x30200166222D>)
```

```
EE: 17908960: Invalid synthesizer state EXPECTING-DATA-DUMP
```

```
Program change parameter = #<INTERNAL-PARAMETER #x302001314CCD> value = 32
```

RC: (MIDI:PROGRAM-CHANGE-MESSAGE :TIME 500878002295559 :STATUS 200 :CHANNEL 8 :PROGRAM 114)

RC: #<A Foreign Pointer #x11144E0>: PC 114

7.2 TODO option for absolute or pass-thru mode for knobs.

absolute is better when creating new sounds, pass-thru is better when patching a sound live.

7.3 TODO configure the CC mapping interactively

- select in the user interface a parameter of the target synthesizer.
- receive a CC message from the controller.
- establish the mapping between that CC message and the parameter.

7.4 TODO support other target synthesizers

Korg DSS-1 in addition to Korg DW-8000.

7.5 TODO support multiple target synthesizers and multiple controllers.

7.6 TODO load and save programs.

7.7 TODO load and save whole program banks.

7.8 TODO take into account bank MSB/LSB in program changes.

Currently bank MSB/LSB are ignored for program changes; they could be taken into account, automatically downloading new banks.

7.9 TODO add some graphical (or ascii art) features

Such as drawing the envelopes when modifying them...

7.10 TODO port to Linux

eg. Raspberry Pi.

8 License

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