Requirements

OS: Windows XP/Vista
DAW: host that supports Mackie protocol (tested with Essential 4 and Live 6)
Other: Virtual MIDI patch cable like MIDI Yoke (www.midiox.com)

Setup

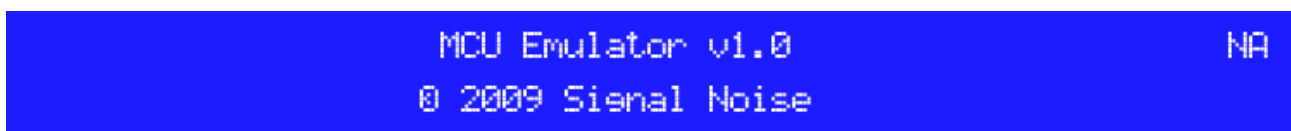1) Install MIDI Yoke (see www.midiox.com)
2) Run MCU Emulator and set MIDI ports as needed (see *Setup Dialog*)
3) Close MCU Emulator
4) Run host and configure MIDI ports as needed
5) Close host
6) Open MCU Map Editor and create map file (see *Map Editor*)

Usage

Start the emulator. Start your host...

Main window

When you start the MCU Emulator, the following window will appear:

This window emulates the Mackie Control display. It also contains the user bank indicator in the top right corner. The window can be moved and when you right-click on it you can access the application's main menu.
As long as the emulator is running you can find it's icon in taskbar notification area (tray). When you right-click this icon, the application's main menu appears.

Main menu

This menu can be accessed by right-clicking the main window or the application icon in the taskbar tray. It contains following items:
1) *Window Size* – allows you to select the main window's size
2) *Center Window* – centers main window on the screen
3) *Reload Map* – reloads map file
4) *Map Editor* – starts map file editor
5) *Setup* – opens setup dialog
6) *About*
7) *Exit Emulator* – closes the application

Setup Dialog

Use this dialog to setup the MIDI port as well as behavior of 'endless' faders and mode of rotary encoders of your controller.

– *MIDI Ports*
   MCU Emulator can operate in "full duplex" mode to and from your controller
   and DAW. The ports are labeled as follows:
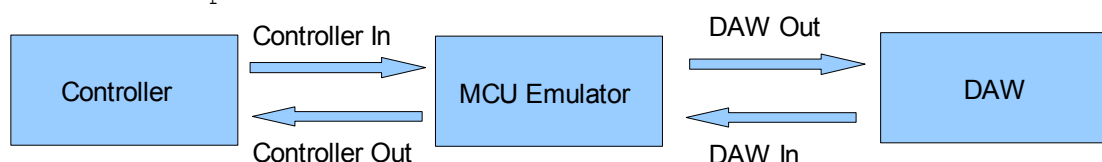
- *Faders*

  Faders operation is relative, i.e. wherever the fader is located, moving it results in an relative offset from controlled value, rather then reflecting fader's abolute position. Since Mackie controls use pitch bend for controlling faders, faders' internal resolution is 16386 steps and can be accordingly mapped to 127 steps of a continuous controller. You can control the granularity of all faders with the *Precision* parameter relative to full 16386 steps of a pitch bend controller. The *Halt* parameter sets the amount of milliseconds considered as a fader halt.

- *Encoders*

  Here you can set which relative mode your rotary encoders use.

- *Bypass emulation*

  This switch enables/disables the Mackie Control emulation, however the pre-emulation MIDI rules are not bypassed (see *Map Editor*)

All parameters are automatically stored in the mcu.ini file, whenever you successfully change them. Below is the image of the Setup Dialog:
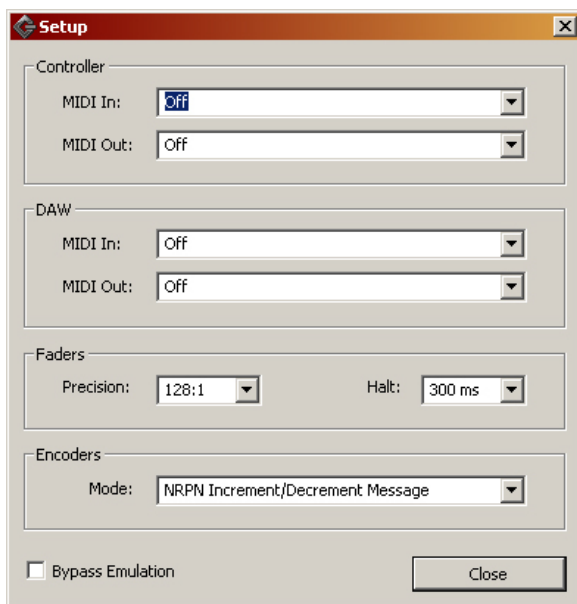
Map Editor

Map editor is a a standalone application. It allows you to map your controller's controls to Mackie Control functions as well as create your own set of MIDI mapping rules that get processed prior to emulation. The messages from your controller are processed by MCU Emulator as follows:

in -> bank up/down -> bank 0(always on) -> bank 1-4 / none -> emulator -> out

MCU Emulation
Mackie Control functions can be either *Default* – the controller is expected to transmit the default message that corresponds to this function (see *Appendix*), or *Mapped* – the emulator expects a CC message (0xb0). You can set the controller number and channel for each mapped function. Use *Store* button to preserve your changes in memory.

MIDI Rules
Here you can set mapping rules that take place prior to emulation. You can define incoming midi message to match, it's outgoing counterpart and bank this rule belongs to. Use *Add*, *Update* and *Delete* buttons to manage the rules in

memory.

Bank Up and *Bank Down* are MIDI messages used by MCU Emulator to cycle between four user defined banks and a state where none of them is active. Note that rules assigned to Bank 0 are always active.

Save

Note that all changes you make to the map are stored in memory only. To save them to the hard disk use this button. Using the *Close* button discards all changes made after last save.

Note that after map update you need to either restart MCU Emulator or use the Reload Map command in the Main Menu.
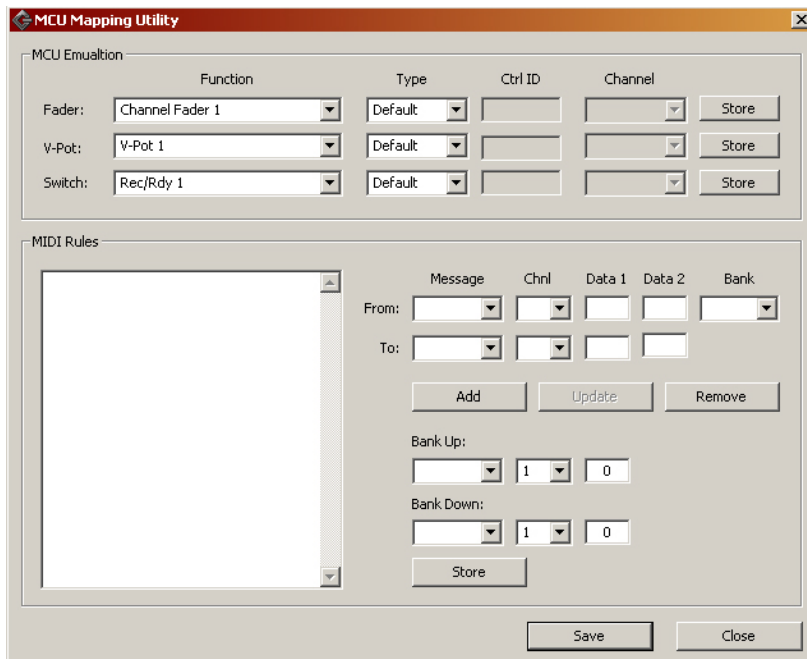
Note on MMC

MCU Emulator recognizes MMC Stop, Play, Record, Fast Forward and Rewind commands. Stop, Play and Record are automatically mapped to their respective Mackie Control counterparts. Fast Forward and Rewind are passed to MIDI transformation step as controller messages on channel 1:

Fast Forward -   controller id 116 (decimal)
Rewind   -   controller id 115 (decimal)

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Appendix – Default mapping (decimal)

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Faders: Pitch Bend on channels 1-9
V-Pots: CC 16-23 on channel 1
Jog Wheel: CC 60 on channel 1
Switches: NoteOn on channel 1, note numbers follow:


Note number      Function
-------------------------------------------------------------------------
0                rec/rdy 1
1                rec/rdy 2
2                rec/rdy 3
3                rec/rdy 4
4                rec/rdy 5
5                rec/rdy 6
6                rec/rdy 7
7                rec/rdy 8
8                solo 1
9                solo 2
10               solo 3
11               solo 4
12               solo 5
13               solo 6
14               solo 7
15               solo 8
16               mute 1
17               mute 2
18               mute 3
19               mute 4
20               mute 5
21               mute 6
22               mute 7
23               mute 8
24               select 1
25               select 2
26               select 3
27               select 4
28               select 5
29               select 6
30               select 7
31               select 8
32               v-pot push 1
33               v-pot push 2
34               v-pot push 3
35               v-pot push 4
36               v-pot push 5
37               v-pot push 6
38               v-pot push 7
39               v-pot push 8
40               assignment: track
41               assignment: send
42               assignment: pan/surround
43               assignment: plug-in
44               assignment: eq
45               assignment: instrument
46               fader banks: bank left
47               fader banks: bank right
48               fader banks: channel left
49               fader banks: channel right
50               flip
51               global view
52               name/value
53               smpte/beats
54               f1
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55              f2
56              f3
57              f4
58              f5
59              f6
60              f7
61              f8
62              global view: midi tracks
63              global view: inputs
64              global view: audio tracks
65              global view: audio instrument
66              global view: aux
67              global view: busses
68              global view: outputs
69              global view: user
70              shift
71              option
72              control
73              command/alt
74              automation: read/off
75              automation: write
76              automation: trim
77              automation: touch
78              automation: latch
79              group
80              utilities: save
81              utilities: undo
82              utilities: cancel
83              utilities: enter
84              marker
85              nudge
86              cycle
87              drop
88              replace
89              click
90              solo
91              rewind
92              fast forward
93              stop
94              play
95              record
96              cursor up
97              cursor down
98              cursor left
99              cursor right
100             zoom
101             scrub
102             user switch a
103             user switch b
104             fader touch 1
105             fader touch 2
106             fader touch 3
107             fader touch 4
108             fader touch 5
109             fader touch 6
110             fader touch 7
111             fader touch 8
112             fader touch master
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