





\*\*\* 'SEQ' CONTROL PANEL \*\*\*

MAIN PROGRAM: => pd seq-prog

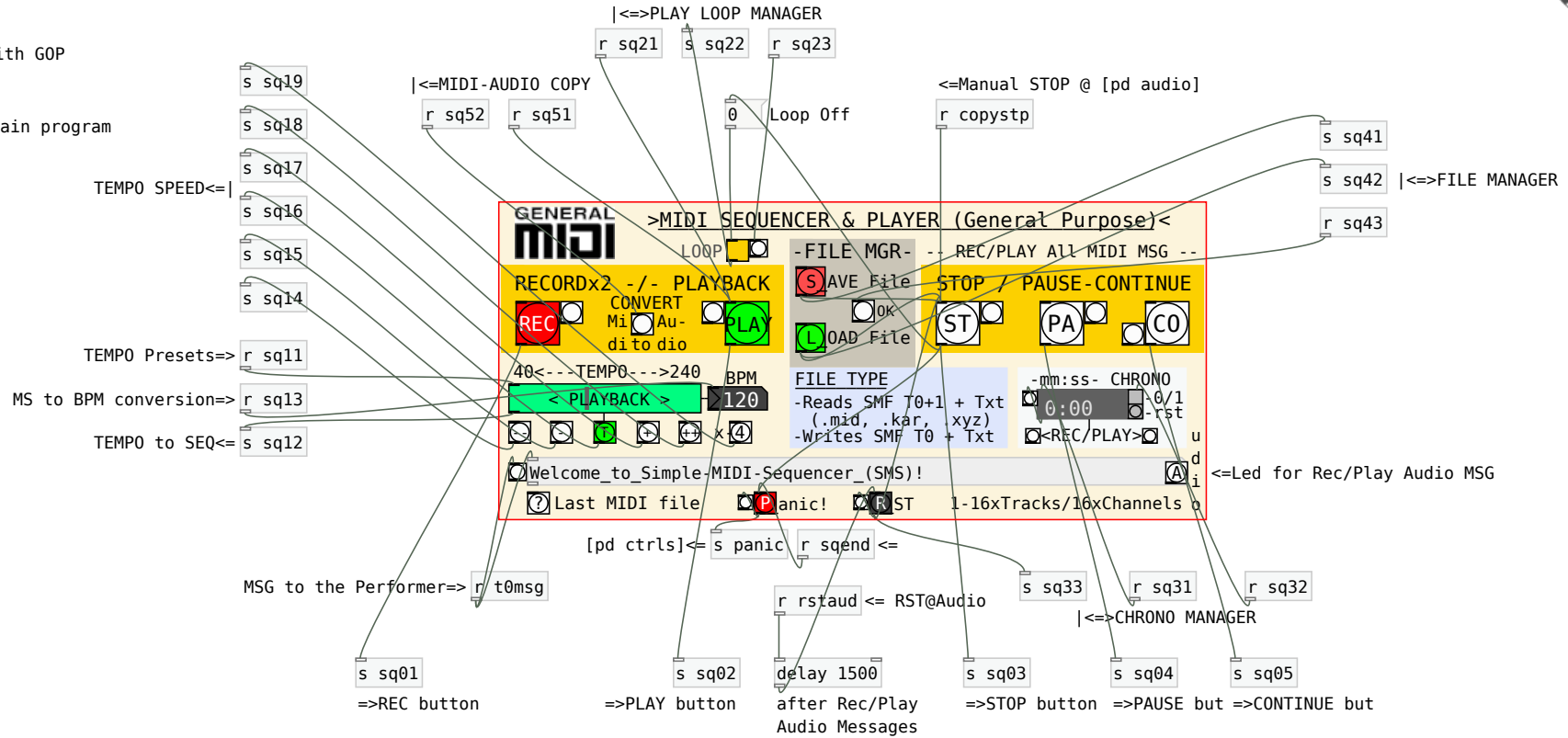
Control Panel with [pd seq]

|

[pd seq] with GOP

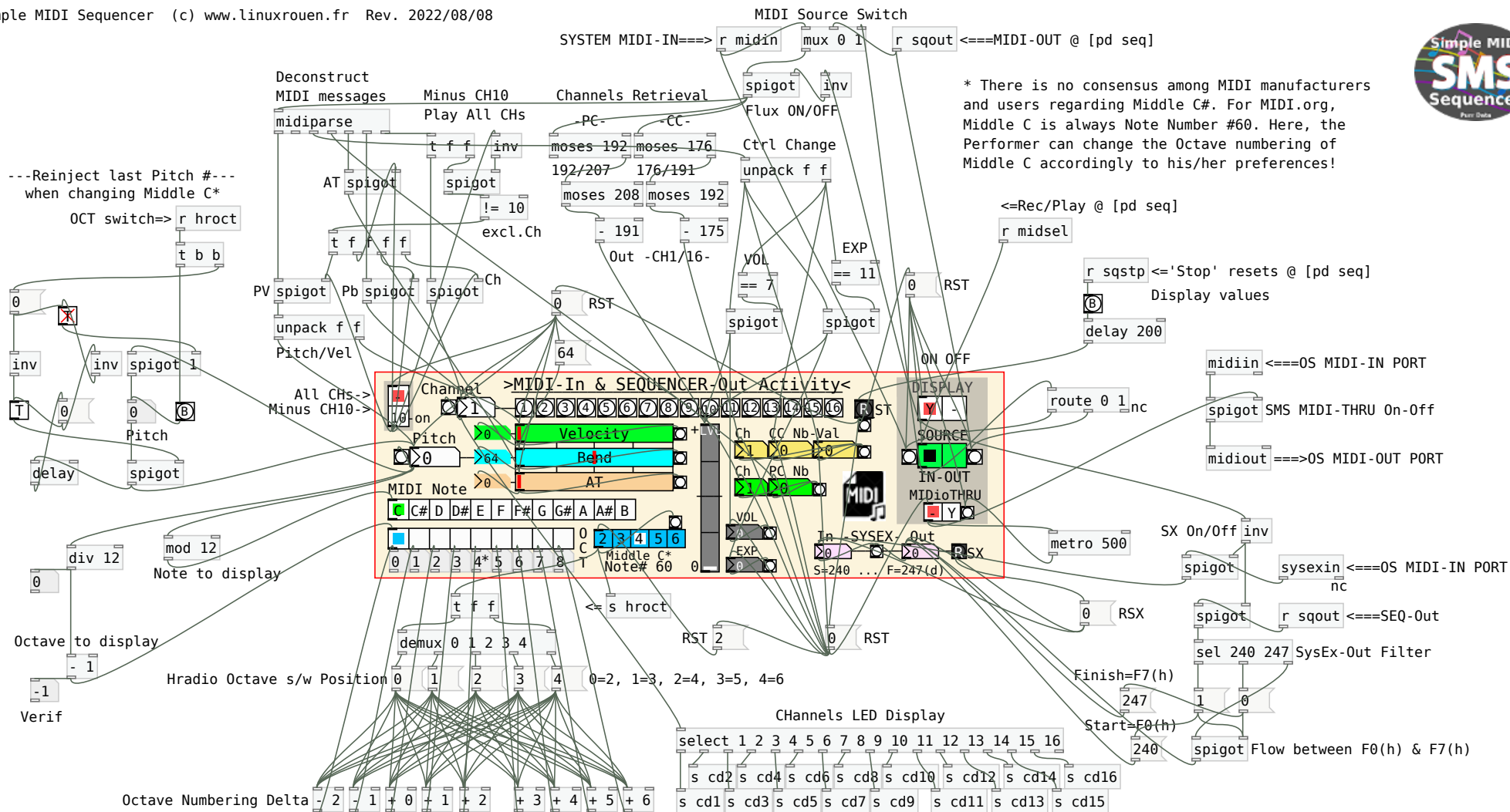
|

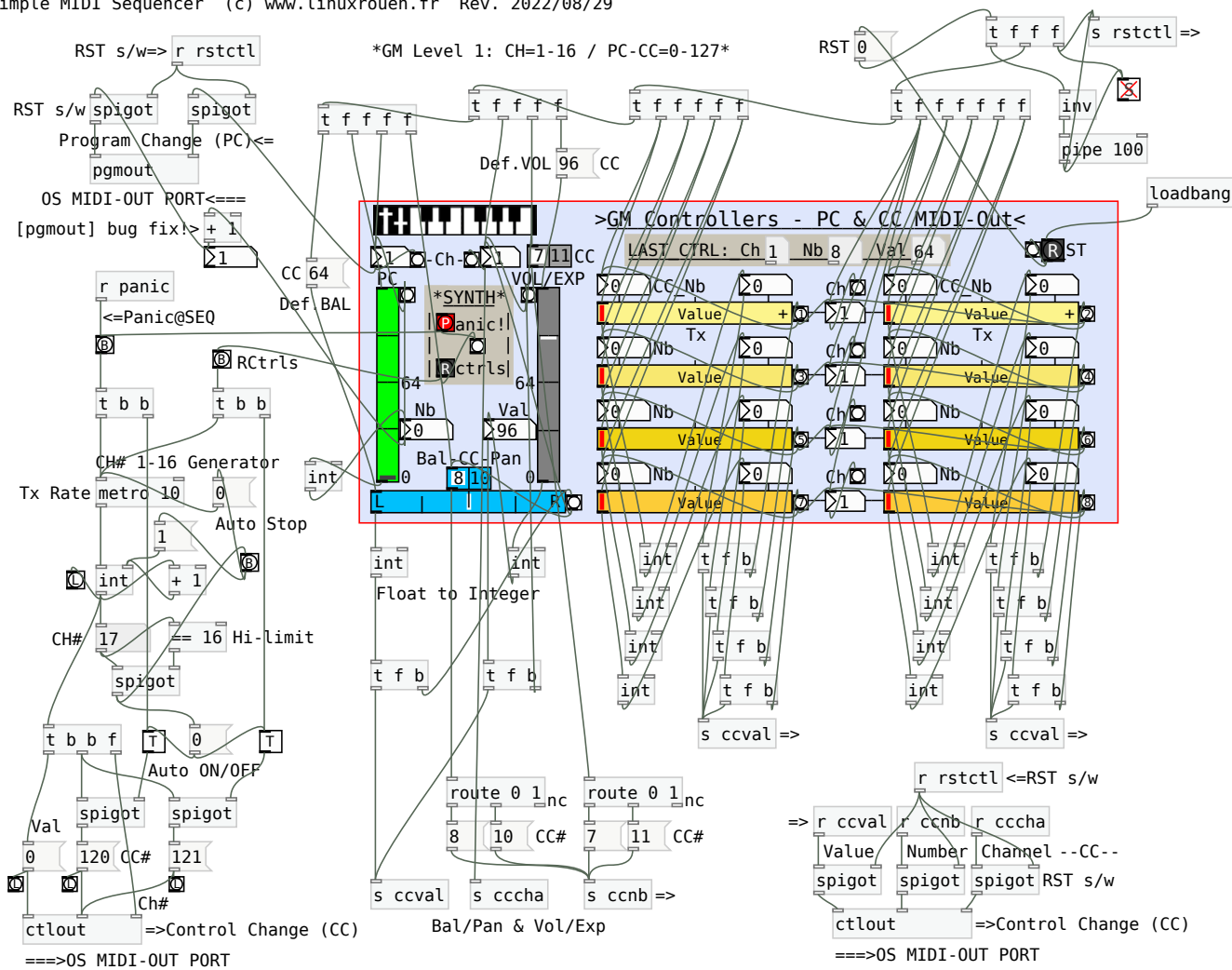
[pd seq-prog] Main program



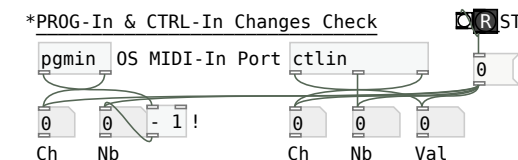
\*NOTE that [s/r sqxx] are to/from Main Program @ [pd seq-prog]\*







- \* General MIDI (GM1) - Common CONTROL CHANGE (CC) Numbers with #0-31=MSB / #32-63=LSB and #>63-120< see MIDI Specsifs
- # 0 = Bank Select MSB followed by CC32 then PC Nb
  - # 1 = Modulation Wheel or Lever
  - # 2 = Breath / After Touch Controller
  - # 4 = Foot Controller
  - # 5 = Portamento Time
  - # 6 = Data Entry MSB
  - # 7 = Channel Volume (formerly Main Volume)
  - # 8 = Balance with full Left=0, Center=64, full Right=127
  - # 10 = Pan(oramc) full Left=0, Center=64, full Right=127
  - # 11 = Expression Controller (% of CC7)
  - # 12 = Effect Controller 1 within synth/workstation
  - # 13 = Effect Controller 2 within synth/workstation
  - # 32 = Bank Select LSB for Patch selection, see CC0
  - # 64 = Damper/Sustain Pedal Off = 0-63, On = 64-127 (# of CC64)
  - # 66 = Sostenuo Switch Off = 0-63, On = 64-127 (# of CC64)
  - # Others: See MIDI Specifications
- MIDI CC 120 to 127 are "Channel Mode Messages"
- # 120 = All Sound OFF regardless of release time or sustain
  - # 121 = Reset All Controllers to their default
  - # 122 = Local On/Off Switch
  - # 123 = All Notes Off (# of CC120)
  - # 124 = OMNI Mode Off
  - # 125 = OMNI Mode ON
  - # 126 = Monophonic Mode
  - # 127 = Polyphonic Mode





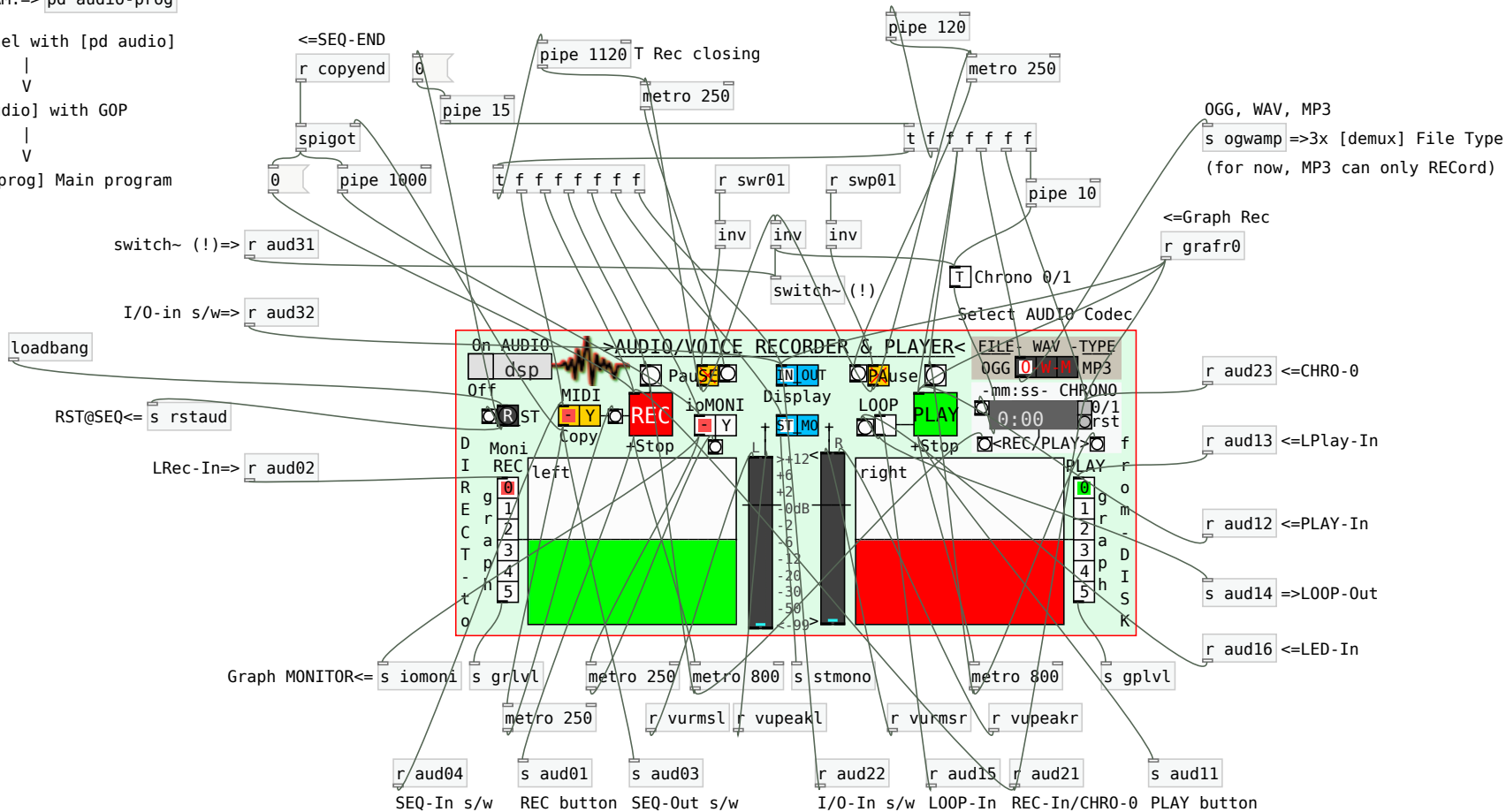
\*\*\* 'AUDIO' CONTROL PANEL \*\*\*

MAIN PROGRAM: => pd audio-prog

Control Panel with [pd audio]

[pd audio] with GOP

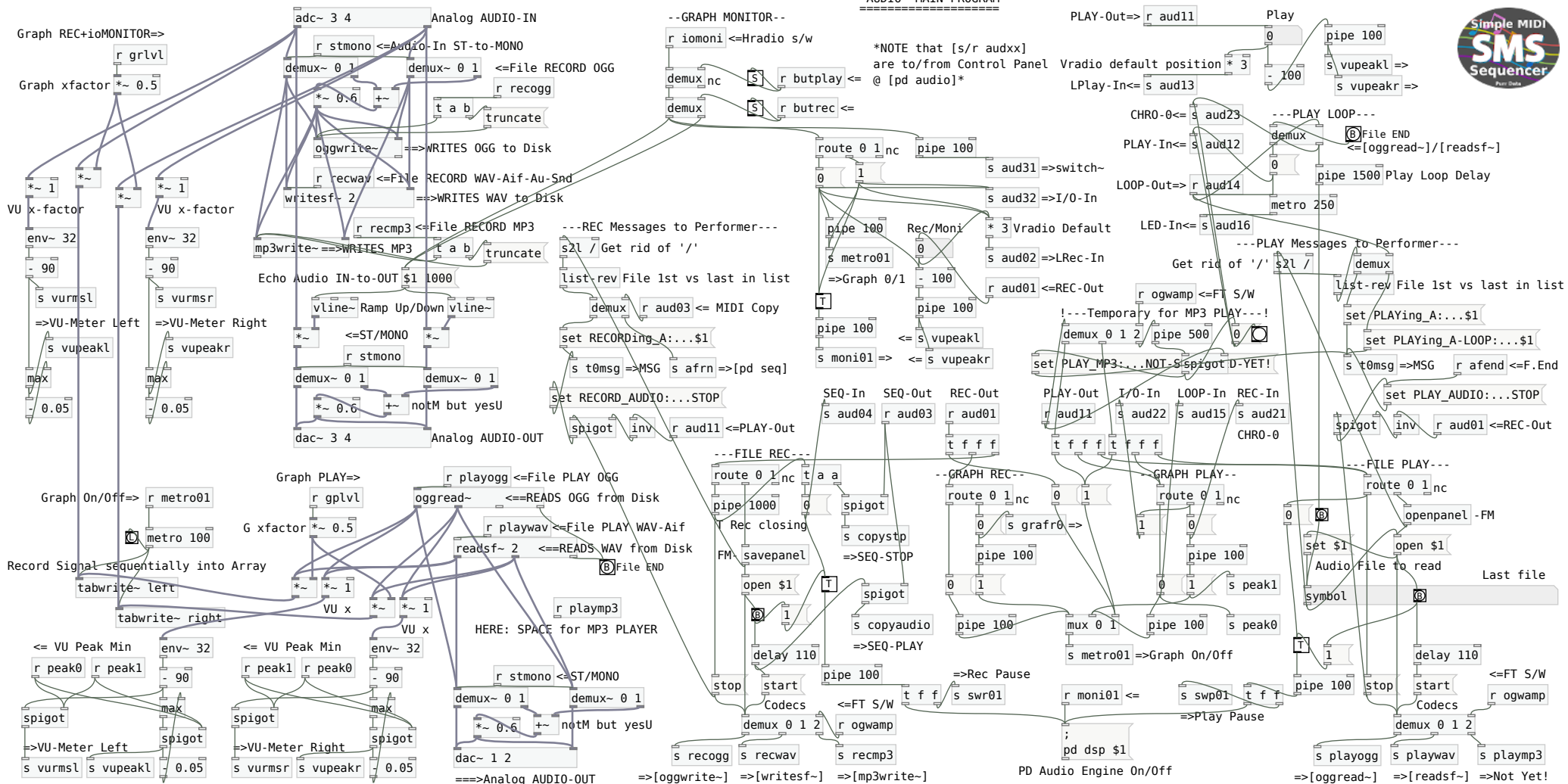
[pd audio-prog] Main program



\*NOTE that [s/r audxx] are to/from Main Program @ [pd audio-prog]\*



\*\*\* 'AUDIO' MAIN PROGRAM \*\*\*









\$! User defined Application (OS or PC)

gmidimonitor installed in the OS

midisnoop installed in the OS

gmidiroute installed in the OS

User put it in the PC

```
gnome-terminal --title="ReceiveMIDI Monitor" --
~/receivemidi list dev Pure Data-Midi-Out 1 ts --
```

User put it in the PC

```
gnome-terminal --title="SendMIDI Monitor" -- ~/sendmidi list
dev Pure Data Midi-In 1 --
```

shell

print

\* DrumStick MIDI Monitor is a MIDI monitor using the ALSA sequencer. Drumstick MIDI Monitor monitors events coming from MIDI external ports or applications via the ALSA sequencer, and from SMF (Standard MIDI files) or WRK (Cakewalk/Sonar) files. It is especially useful if you want to debug MIDI software or your MIDI setup. It features a nice graphical user interface, customizable event filters and sequencer parameters, support for MIDI and ALSA messages, and saving the recorded event list to a SMF or text file.

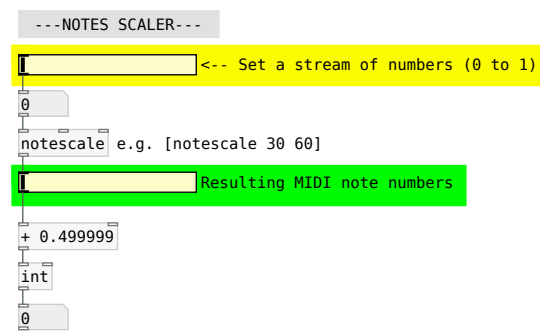
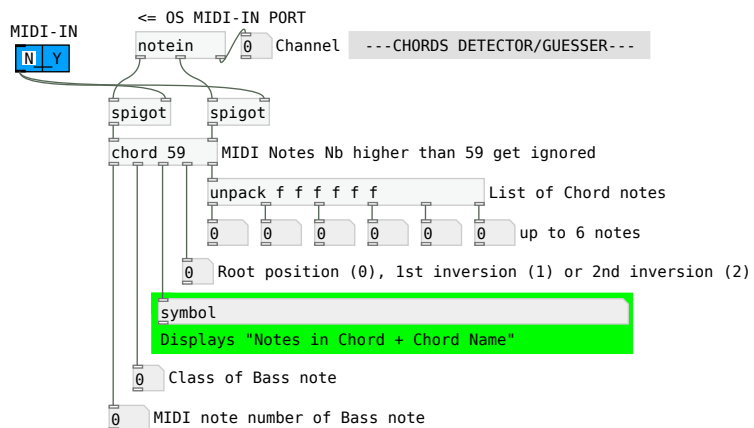
\* GmidiMonitor is GTK+ application that shows MIDI events. You need to connect desired source of MIDI events to gmidimonitor input using some kind of patchbay like qjackctl, patchage. For restoring connections (not connecting every time) you can use LASH.

\* MidiSnoop is a MIDI Monitor and Prober. Can be used to monitor a MIDI device and/or software, and to send MIDI messages to a MIDI port to see how the device/software responds. Support both ALSA and JACK MIDI ports via the RtMidi library.

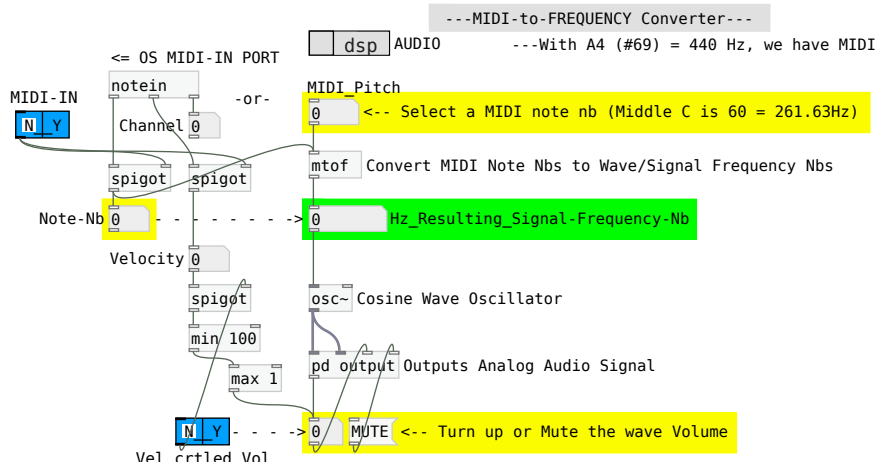
\* QMidiRoute is a MIDI Event Router and Filter. MIDI note, control change, program change and pitch bend events are logged, and can be filtered, redirected and transformed into other events according to MIDI maps defined as tabs in the main control surface. You can copy midi MAPS into new tabs using the 'Clone MIDI map' button. All MIDI maps can be saved in a .qma text file.

\* ReceiveMIDI is a Multi-platform Command-line Tool to Monitor and Receive MIDI messages. This tool is mainly intended for quickly monitoring the messages that are sent to your computer from a particular MIDI device. By providing filter commands, it's possible to only focus on particular MIDI messages.

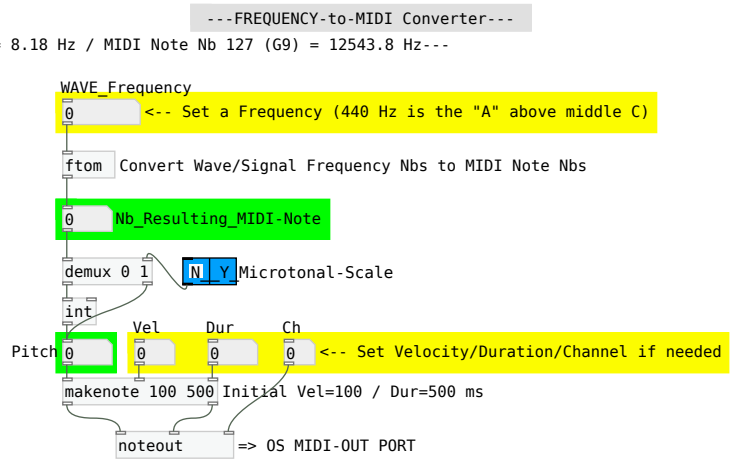
\* SendMIDI is a Multi-platform Command-Line Tool to send out MIDI messages. This tool is mainly intended for configuration or setup through Control Change, RPN and NRPN messages, but many other MIDI messages can be sent.



[notescale] scales a stream of numbers to a MIDI note number. It takes an input range of 0 to 1, and outputs MIDI note numbers based on an output range set as arguments. If we use [notescale] with no arguments, then the output range defaults to 0-127.



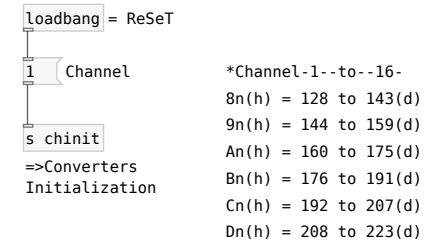
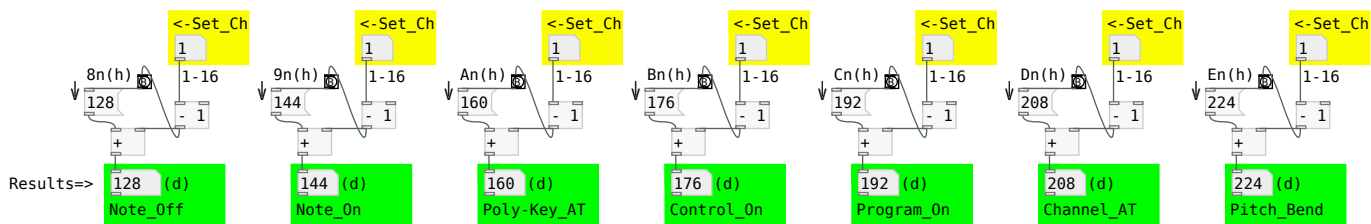
Note that the [mtof] object transposes a Midi note nb into a frequency in Hertz, so that "69" goes to "440". We can specify microtonal pitches as in "69.5" (a quarter tone higher than 69).



Note that fractional values have no effect. MIDI controllers only accept integers. Perhaps a subroutine could be designed to parse the decimal places and manipulate the pitch bend controller to achieve microtonal control.

**---MIDI CHANNEL STATUS / HEXA-to-DECIMAL Converters---**

These converters will help you to find the right decimal values to put in Note, CC, PC and so on messages. They can be used within patches design and/or for manual entry into a MIDI.txt file (compatible with SMS).



```
e.g. Note=On on Channel=1 / Nb=60 / Velocity=100      e.g. Program=On on Channel=10 / Nb1=128 / Nb2=1
144 60 100                                           201 128 1

e.g. Note=Off on Channel=1 / Nb=60 / Velocity=0      e.g. Control=On on Channel=5 / Nb=7 / Value=64
128 60 0 (0 not mandatory) -or- 144 60 0           180 7 64

===== END =====
```

En(h) = 224 to 239(d)  
\*Note that in 8n(h) ... En(h),  
n = 0-15 = MIDI Channel 1-16

## -SMS- / USER's QUICK GUIDE - ENGLISH (2020-10)

\* INTRODUCTION / Compatible GNU/Linux, macOS & Windows OS \*

SMS (Simple MIDI Sequencer) is a MIDI and SYSEX Sequencer including an AUDIO Recorder & Player composed of 4 main modules (subpatches): General Purpose MIDI Sequencer & Player + MIDI & Sequencer Activity + GM Controllers - PC & CC MIDI-Out + Audio/Voice Recorder & Player. SMS can record a Live session from any MIDI and/or Audio equipment. SMS reads SMF files (Type 0 & 1) but saves files in MIDI Type 0 or TEXT (Purr Data format). SMS can record Audio/Voice from any available sources to SMS. A MIDI patchbay and a JACK Audio mixer are highly recommended. The possible combinations of SMS usage being multiple, we will introduce the main ones.

1\* MIDI SEQUENCER & PLAYER (General Purpose) \*

- 'REC' (2x): records into PC RAM a MIDI performance or session from any MIDI equipment on 1 track with up to 16 channels (Type 0). 'ST' ends the recording process.
- 'PLAY': plays a just recorded MIDI performance - session or a compatible MIDI file loaded into PC RAM from disk. 'PA' pauses the playback, 'CO' continues it and 'ST' ends the playback process. The same file can be played in 'LOOP' by clicking on the appropriate button.
- FILE MGR: 'SAVE File' & 'LOAD File' open the OS File Manager which is used by the performer. MIDI Files can be saved as '.mid' (SMF Type 0 - Std MIDI File) or '.txt' (Purr Data format) or any '.xyz' extension (useful for differentiating between several MIDI equipment). SMF Type 0+1 + .txt or .xyz files can be loaded into SMS and then played back by the MIDI sequencer.
- 'TEMPO': during Playback, the speed can be progressively changed between 40-240 BPM (6x) using the Playback slider or by step 40, 80, 120 (default), 180, 240 and 480 BPM (12x).
- 'CHRONO': displays either the Record or Play elapsed time in mm:ss. 'PA' pauses and 'CO' continues the Chrono.
- 'BANNER' (MIDI & Audio): indicates to the performer the operation which is in progress with the file name.ext or the pressed button. Audio messages are also displayed here.
- '(?)': displays in the Banner the File Name of the last Saved or Loaded file by the performer.
- 'Panic!': mutes All Sounding Notes on the connected MIDI equipment (it does it so regardless of notes release time or sustain).
- 'RST': resets the MIDI Sequencer + Display modules to their default values and sends a Panic! command.

Simple MIDI Sequencer (c) www.linuxrouen.fr Rev. 2020/10/14  
The SMS Project is based on an original idea by linuxrouen.fr

2\* MIDI-In & SEQUENCER-Out Activity \*

- This module displays in real time all relevant MIDI info useful for the performer during both Record and Playback sessions. It can be used also as a MIDI-In Messages tester.
- 'DISPLAY': switches On/Off the MIDI display activity.
- 'SOURCE IN-OUT': MIDI is selected either automatically by the sequencer or manually by the performer during Record or Playback. MIDI-IN can also be used by the performer to check the MIDI-In flow received by SMS from any MIDI equipment.
- 'MIDIoTHRU': connects directly SMS's MIDI-IN to MIDI-OUT.
- 'in-SYSEX-out': indicates if there are SysEx-In/Out messages (F0h/F7h) and quickly displays their data values in decimal.
- '10\_ON': allows to display also Channel 10 (Drums) info.
- 'MIDDLE C Octave #': There is no consensus among MIDI manufacturers and users regarding Middle C Octave numbering. For MMA and MIDI.org, Middle C is always Note Number #60. In SMS, the performer can change the display of Middle C Octave numbering (+/- 4) accordingly to his/her preferences-needs.
- 'RST': resets All graphic elements to their default values.

3\* GM Controllers - PC & CC MIDI-Out \*

- This module sends in real time MIDI Program Change (PC) and Control Change (CC) messages to any MIDI equipment connected to SMS. PC and the 6 pairs of CC have their own Channels Nb.
- 'PC/CH': sends Program Change Nb (0-127) on a chosen Channel Nb (1-16).
- 'VOL/EXP': sends Control Change Nb (7 or 11) with CC Value (0-127) on a chosen Channel Nb (1-16).
- 'BAL/PAN': sends Control Change Nb (8 or 10) with CC Value (0-127) on a chosen Channel Nb (1-16).
- 'HSliders 1-8': with these 4 pairs of CC, the performer can freely choose the Control Change Nb (0-127) for each of the 8 sliders. Then sends Control Change Nb with CC Value (0-127) on a chosen Channel (1-16). See below for MIDI CC Nb list.
- 'Panic!': mutes All Sounding Notes sent by SMS on the connected MIDI equipment (it does it so regardless of notes release time or sustain).
- 'Rctrls': resets All Controllers to their default values on the connected MIDI equipment (Synth or others).
- 'RST': resets All graphic controllers to their default values in this SMS module without sending to external Synth.

This documentation is|a work in progress...  
v

\* This HELP NEEDS AN UPDATE!

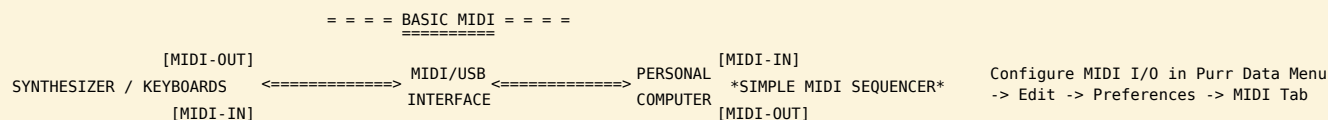
4\* AUDIO/VOICE RECORDER & PLAYER \*

- Before using REC or PLAY: switches 'FILE TYPE' to the appropriate position OGG, WAV or MP3 codec. NEVER change its position during REC or PLAY!
- This Audio module can be used in Standalone mode or in Synchro mode with the MIDI sequencer. In both cases, the Audio is recorded (with CD quality) and saved DIRECTLY to disk. 'DSP' is automatically put in either ON or OFF mode when the performer is doing appropriate actions.
- STANDALONE MODE: the performer can record Audio from any available source (microphone, line-in, S/W-audio-out, etc.) within his/her PC. A JACK Audio mixer is highly recommended.
- 'REC': opens the OS File Manager in SAVE mode. Choose a folder, give a name to the file + extension (.ogg -or- .wav, .aif, .au, .snd -or- .mp3) and confirm your choice. This starts the Recording process. A click on 'PA' (X) pauses the recording, a new click on it continues the session. A new click on 'REC' ends-stops the recording process.
- 'PLAY': opens the OS File Manager in LOAD mode. Choose a folder and a compatible file with extension (.ogg -or- .wav, .aif, .au, .snd -but not- .mp3 as not supported yet!) and confirm your choice. This launches the Playback process. A click on 'PA' (X) pauses the playback, a new click on it continues the session. A new click on 'PLAY' ends-stops the playback process. The same file can be played in 'LOOP' (X) by clicking on the appropriate button.
- SYNCHRO MODE: the performer can record the AUDIO output (synthesizer) of a loaded then played MIDI file into the MIDI sequencer as well as sing and record on top of it.
- '1st': LOAD a compatible MIDI file into the MIDI Sequencer.
- '2nd': Switch 'MIDI Copy' Hradio to 'Y'.
- 'REC': acts as in above Standalone Mode. In add, it starts playing the MIDI file and when the playing is finished, it stops automatically the AUDIO recording process.
- 'CHRONO': displays either the Record or Play elapsed time in mm:ss. 'PA' (Pause) acts as above in Standalone mode.
- 'ST\_MO': switches to STereo or MOnophonic sound.
- 'ioMONI': echoes Audio-IN => Audio-OUT. It can be used with 'REC' or just to monitor Audio-IN. It is better to have a JACK Audio mixer available in your PC.
- 'BANNER' (MIDI): indicates to the performer the operation which is in progress with the file name or the pressed button.
- 'RST': resets All commands to their default values with DSP = OFF (Audio engine) + MIDI Sequencer & MIDI Display modules.



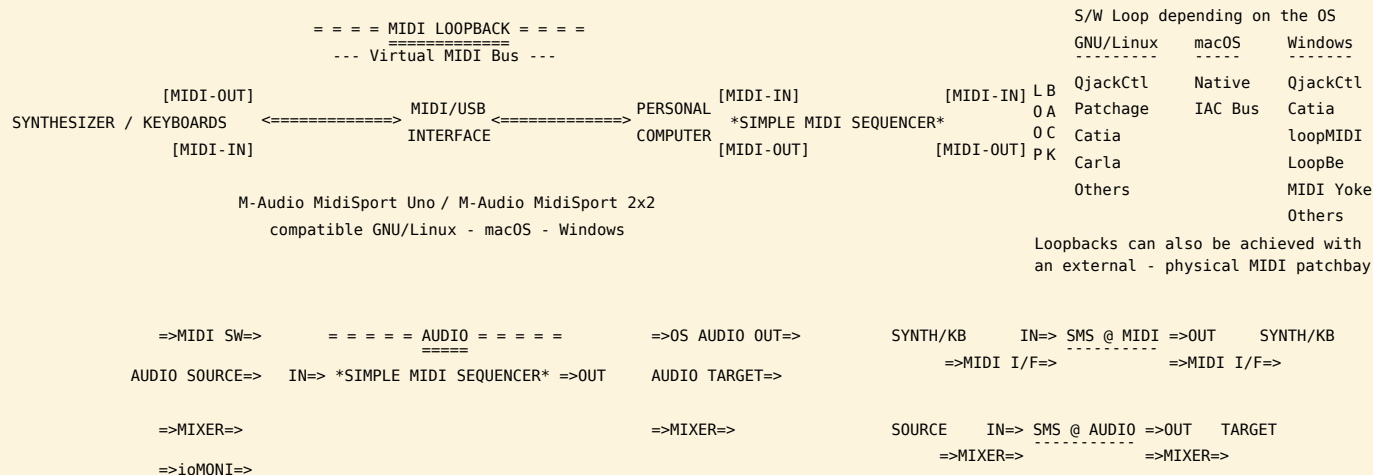
## Simple MIDI Sequencer / MIDI-AUDIO CONNECTIONS

(c) www.linuxrouen.fr Rev. 2020/03/24

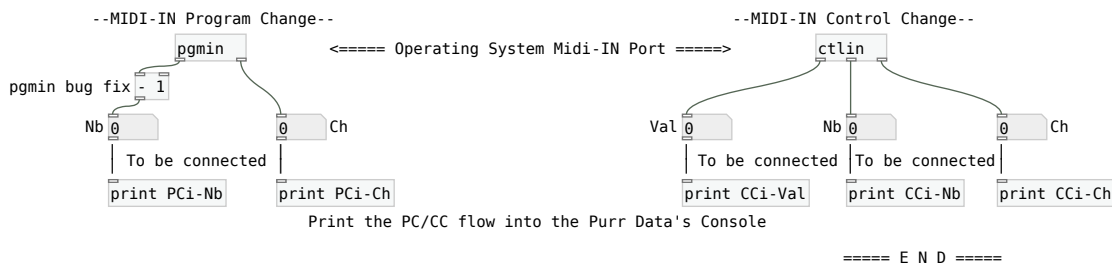


\* General MIDI (GM) - Common CONTROL CHANGE (CC) Numbers  
with #0-31=MSB / #32-63=LSB and #63-120< see MIDI Specsifs

- # 0 = Bank Select MSB followed by CC32 then PC Nb
- # 1 = Modulation Wheel or Lever
- # 2 = Breath / After Touch Controller
- # 4 = Foot Controller
- # 5 = Portamento Time



- # 6 = Data Entry MSB
- # 7 = Channel Volume (formerly Main Volume)
- # 8 = Balance with full Left=0, Center=64, full Right=127
- # 10 = Pan(oramic) full Left=0, Center=64, full Right=127
- # 11 = Expression Controller (% of CC7)
- # 12 = Effect Controller 1 within synth/workstation
- # 13 = Effect Controller 2 within synth/workstation
- # 32 = Bank Select LSB for Patch selection, see CC0
- # 64 = Damper/Sustain Pedal Off = 0-63, On = 64-127
- # 66 = Sostenuto Switch Off = 0-63, On = 64-127 (# of CC64)
- # Others: See MIDI Specifications
- MIDI CC 120 to 127 are "Channel Mode Messages"
- # 120 = All Sound OFF regardless of release time or sustain
- # 121 = Reset all controllers to their default
- # 122 = Local On/Off Switch
- # 123 = All Notes Off (# of CC120)
- # 124 = OMNI Mode Off
- # 125 = OMNI Mode ON
- # 126 = Monophonic Mode
- # 127 = Polyphonic Mode



- In SMF (Standard MIDI File) Format/Type 0 files: everything is merged into one single track (mono-track), although MIDI channel information is still retained.
- In SMF (Standard MIDI File) Format/Type 1 files: individual parts are saved on different tracks (multi-tracks) within the sequence, e.g. 1 channel/track.

(c) [www.linuxrouen.fr](http://www.linuxrouen.fr)

The SMS Project is based on an original idea by linuxrouen.fr  
Le Projet SMS est basé sur une idée originale de linuxrouen.fr

## ---Free &amp; Libre Software---

Simple MIDI Sequencer is a free/libre multimedia project  
Copyright (c) 2019-2022 [www.linuxrouen.fr](http://www.linuxrouen.fr) - published under GNU  
General Public License v.3 / built with Purr Data v.2.17+  
<https://agraef.github.io/purr-data/>

\* Simple MIDI Sequencer for General Purpose Utilization \*  
General purpose MIDI Sequencer + Audio tested with M-Audio &  
Roland Midi I/F:  
- 6 main modules: pd seq + pd display + pd ctrls +  
pd audio + pd synth + pd tools  
- MIDI Player for SMF Format 0+1 + .txt files (Purr Data)  
- MIDI Sequencer for real time performances  
- 1xTrack / 16xChannels + SMF (Std MIDI File) + SYSEX  
- Read/Write MIDI (.mid & .txt) files from/to HDD-SSD-USB  
- Display MIDI information in real time  
- MIDI 1x Program Change + 12x Control Change Controllers  
- Audio/Voice Recorder/Player (including MIDI synchro)  
- SF2 SoundFont Synthesizer Manager (including internal MIDI  
Sequencer Playback synchronisation)  
- GUI with 15x Zoom levels + Full screen  
- Compatible GNU/Linux + macOS + Windows Operating Systems

## ---Logiciel Libre &amp; Gratuit---

Simple MIDI Sequencer est un projet multimédia libre/gratuit  
Copyright (c) 2019-2022 [www.linuxrouen.fr](http://www.linuxrouen.fr) - publié sous GNU  
General Public License v.3 / conçu avec Purr Data v.2.17+  
<https://git.purrddata.net/jwilkes/purr-data>

\* Simple MIDI Sequencer pour une utilisation universelle \*  
Séquenceur MIDI Universel + Audio testé avec I/F Midi M-Audio  
& Roland :  
- 6 modules principaux: pd seq + pd display + pd ctrls +  
pd audio + pd synth + pd tools  
- Lecteur MIDI pour SMF Format 0+1 + fichiers .txt)  
- Séquenceur MIDI pour performances temps réel  
- 1xPiste / 16xCanaux + SMF (Std MIDI File) + SYSEX  
- Lit/Écrit fichiers MIDI (.mid & .txt) depuis/vers HDD-SSD  
- Affiche informations MIDI en temps réel  
- Contrôleurs MIDI 1x Program Change + 12x Control Change  
- Enregistreur/Lecteur Audio/Voix (avec synchro MIDI)  
- Gestionnaire de Synthétiseur SoundFont SF2 (synchronisation  
avec Playback Séquenceur MIDI interne)  
- Interface graphique avec 15x Niveaux de zoom + Plein Écran  
- Compatible Systèmes d'Exploitation GNU/Linux + macOS + Windows

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\* To contact the developer:  
- email to: [linux.rouen@free.fr](mailto:linux.rouen@free.fr)

This project is a work in progress...

\* Pour contacter le développeur :  
- mail à: [linux.rouen@free.fr](mailto:linux.rouen@free.fr)