

Bidule v0.97 user manual

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Chapter 1. Introduction : Bidule's Concepts

Bidule is a realtime modular creation studio aimed mainly at artists seeking a new environment with which to experiment. With Bidule, you create your own live music

making environment, inserting audio and MIDI devices, ReWire Devices, VST/AU instruments and plugins. Patch them anyway you like, in realtime, while it plays. Bi can run either as a standalone app, a ReWire Device or a VST/AU plug-in.

Please take the time to read through this help document and then open and play the tutorial patches included in the "layouts" directory, we feel they give a good idea of kind of patches you can make.

Chapter 2. User Interface

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Palette

The Palette window allows you to create a patch by dragging and dropping bidules on the patchbay. It has two panes: the Bidules pane and the History pane.

Bidules

This pane contains a list of all available bidules grouped according to your [preferences](#). To add a bidule to the patchbay, drag it from the Palette and drop it on the patch

Find Next

Find Next is a bidule/VST/AU search utility, it helps track down bidules by name. Once found the highlighted bidule can be double clicked so it can be added to the patchbay.

Use Next

Use Next behaves exactly like Find Next, but automatically creates the bidule that represents the first match found.

History

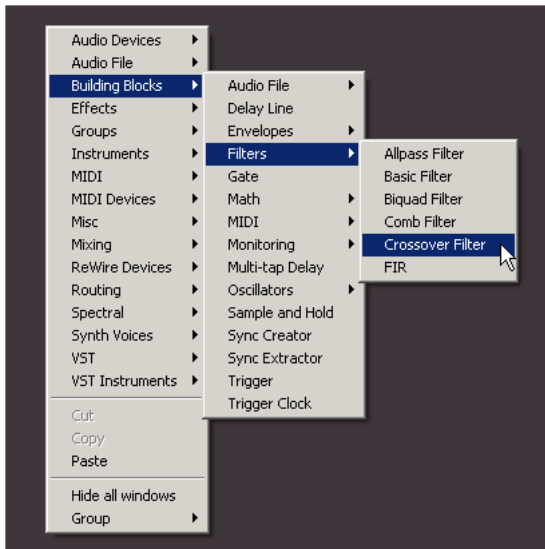
Plogue Bidule keeps track of the bidules you use most. The History pane shows these bidules in a sorted list. To add a frequently-used bidule to the patchbay, drag it fr the History list and drop it on the patchbay.

Patchbay

The patchbay is the black canvas that you can see in Bidule. This is where you build the layout/patch to create/manipulate sounds and songs.

Modules (aka 'bidules')

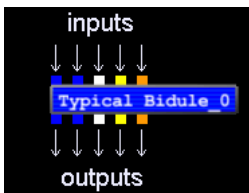
Right-click in the patchbay to pop up a menu that contains all available bidules (modules) you can use. The bidules are classified into different categories like Audio Devices, Audio File, Building Blocks, Effects, Groups, Instruments, MIDI, MIDI Devices, Misc, Mixing, Routing and Spectral.



Once the bidule is in the patchbay, you can double-click it to pop up its GUI (only available if the bidule has any parameters)

Connectors

A bidule has input and output connectors. The little squares on the top of the bidule are the input connectors and the one at the bottom are the output connectors.



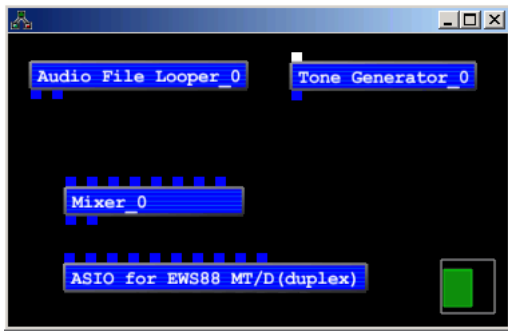
Each connector/cable colour specifies a different type of signal. Using the default skin:

- Blue is for audio/data signals
- White is for MIDI signals.
- Yellow (frequency vector) and Orange (amplitude vector): Spectral Processing. These contain not the raw FFT results (complex vector), but actual properly phase vocoded and overlapped signal vectors.

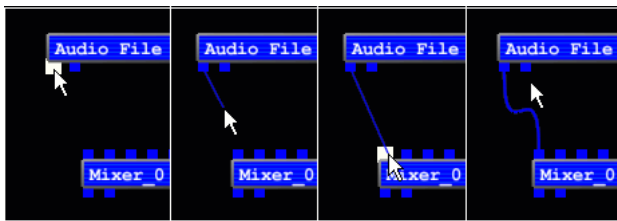
Please note that AU/VST plugins might show up an extra audio output connector. This means that the plugin introduces latency, the extra output will send the introduce delay amount in samples so you can use a Delay Line to have PDC (plugin delay compensation) when you need it.

Basic Bidules Connections

Building a layout is easy. Just choose which bidules you want and connect them graphically, one at the time.

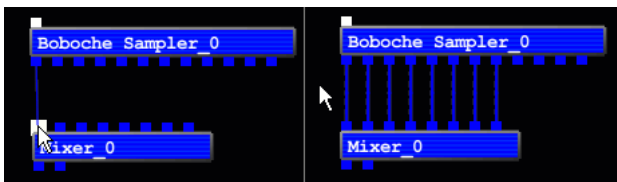


To connect two bidules together, you need to select a connector (it will become bigger when you place the mouse pointer over it), press the left mouse button and then move the mouse to another bidule's connector (it will also become bigger). Once you have selected the correct one, let go of the left mouse button and a cable linking the two bidules will appear.

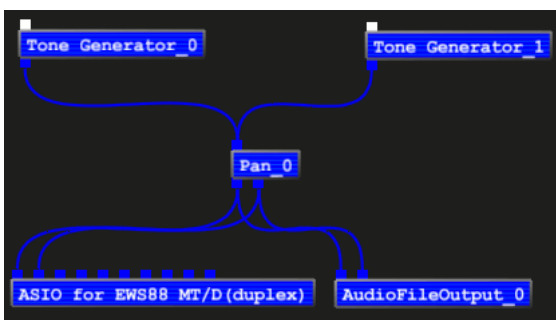


Advanced Bidules Connections

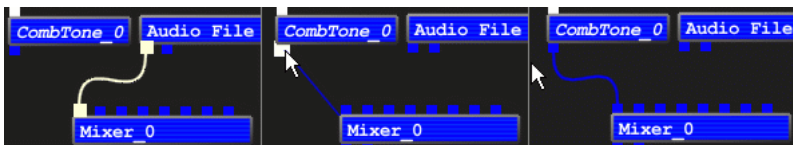
To connect multiple connectors from one bidule to another, create the first cable while holding the CTRL(Windows)/Command(OS X) key - Bidule will try to create as many cables as possible.



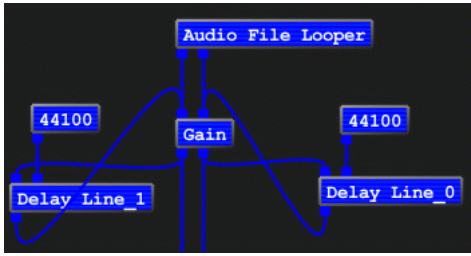
You can also have multiple cables coming out of one connector or multiple connectors leading into one of the connectors (the signal will be mixed/duplicated automatically).



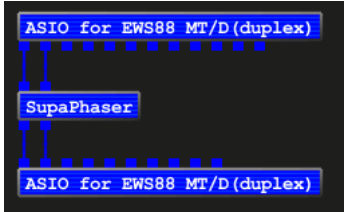
You can repatch an existing cable by first selecting it (clicking on it when it's highlighted or by lassoing), then by clicking on one of the connectors at the end of the cable and holding the left mouse button until you have selected the new connector.



You can of course send outputs signals back to the inputs signals (provided there is at least another module in between) to create a feedback loop.

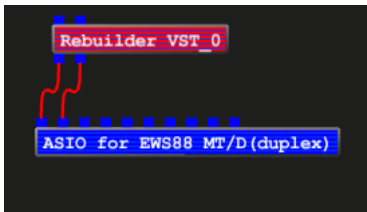


To process live audio (DUPLEX devices only), just connect both bidules representing your duplex device to the processing module (in this example - SmartElectronix's SupaPhaserVST) as shown.



You can insert/remove bidules by holding the ALT key while dragging. Doing this on a connected bidule will remove it and reconnect the before and after bidules the best way it cans. You can insert into existing cables by aligning the outputs of the to-be inserted bidule over the cable you wish to insert into.

If you ever encounter a red bidule when you load a .bidule file, it means that the saved file contains a reference to a module or plugin that cannot be found within your current configuration. This is usually the case if there is a plugin you didn't own or if you are trying to open a layout that had an Audio or MIDI Device having a bigger index then the number of available devices in your system. The following picture is an example a patch loaded that requires a missing Plogue Rebuilder VST.



Context Menu

To bring up a Bidule context menu, first left click it to highlight (should turn yellow.. not translucent blue), then hit the right mouse button.

Cut

Cuts the selected bidules so you can paste them elsewhere in your layout

Copy

Copies the selected bidules to the clipboard so you can paste them elsewhere in your layout

Paste

Pastes the bidules in the clipboard into the current layout.

Delete

Deletes the selected bidules (and puts them in the undo stack). You can also simply hit the "Del" key, once the bidule is selected.

Rename

Renames the selected bidule. You can also hit F2 to access the rename dialog.

Monitor

Brings up an audio signal monitoring window that displays peak meters and sample audio values for each of the input and output channels of the selected bidule. Great for tracing issues with clipping or loss of signal in a chain.

Replace

Replaces the selected bidules by the one you choose in the menu, connections will be kept if possible.

ReInit

Reinits or reset the selected bidules as if it was freshly created.

Replace With Paste

Replaces the selected bidules by the the first bidule in the pasteboard, connections will be kept if possible.

Hide All Windows

Hides (closes) all the windows associated with the selected bidules

Alignment

Allows alignment of selected bidules in the patchbay. The six modes of alignment are:

- Top
- Center Horizontally
- Bottom
- Distribute Horizontally: Spaces selected bidules evenly along the vertical axis
- Left
- Center Vertically
- Right
- Distribute Vertically: Spaces selected bidules evenly along the vertical axis

Group

- Group selected object(s): Selected bidules and cables are grouped together. Internal connections between selected objects are preserved, external connections are lost.
- Save selected group: Save the selected group in a file. If the file is saved in the "groups" subdirectory of bidule's installation directory it will appear in the "Groups" category in the Palette.
- Properties: Allows editing of the number and type of connectors, the author's name, the group version number, and the name of this group.
- Parameters: Allows editing of parameters from child bidules that will be seen as the group parameters.
- Parent group: Display the parent of the visible group (if it is not the top level group). The keyboard shortcut for this feature is BACKSPACE(Windows)/TAB(OS X).
- Expand: Make the selected group the visible group. The shortcut for this feature is CTRL(Windows)/Command(OS X) - DOUBLE CLICK.

Polyphonic Adapter

Brings up the Polyphonic Adapter dialog if the bidule is suitable for polyphonic uses(it needs to be a group, have at least one MIDI input and at least 2 audio outputs). 1 polyphonic adapter will treat this group as a synthesizer voice.

DSP Adapter

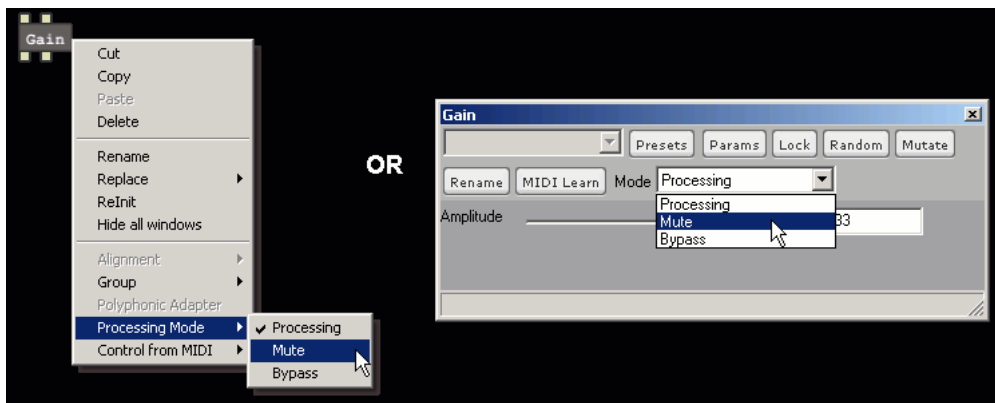
Toggles the DSP Adapter on the selected group, currently the DSP Adapter is only used to have a sub-group of bidules run at a buffer size of 1 sample.

MP Assign (only available in standalone mode)

Sets the current bidule to run on another thread unit (which usually will also mean another core) than the main one, currently there is a maximum of 7 entries (the main audio thread counts as one so you should see the number of cores on your computer minus one with a maximum of 7). Once a bidule is set to MP Assign, everything connected upwards will ALSO be running on the other thread unit so you should make sure that the layout is not set up so that multiple bidules using MP Assign or not all depends on the same upward bidule.

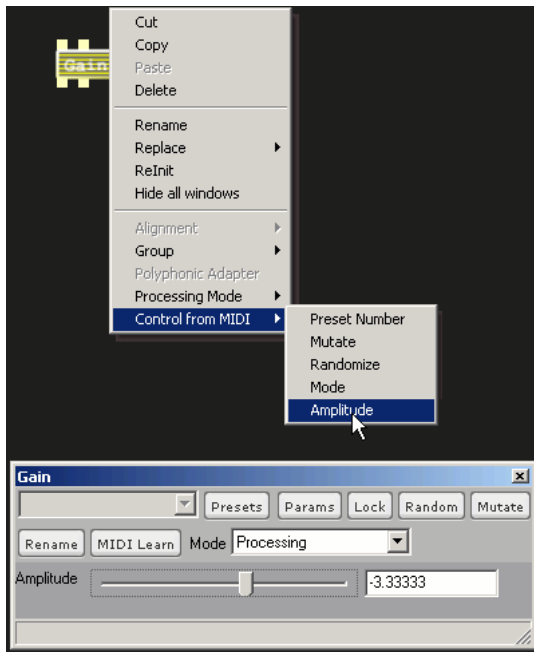
Processing Mode

Sets the way the selected bidules are behaving in the patchbay (choices are Process/Mute/Bypass). (this setting is also available on the bidule's GUI). The Use Fades opt is to specify if the bidule should be using a fade window (of about 5 ms) on mode changes to prevent clicking, the main reason to disable this option is when you use numbers and not an actual audio signal.



Control from MIDI

Allows selection of the current bidule internal parameters to be mapped to a MIDI Controller. Only available if a MIDI Device is connected to the current graph.



Send to OSC Servers

Selects the OSC Servers to which OSC message for the selected bidule will be sent to.

Mouse Usage and Hot Keys

Mouse:

- Left Mouse Button permits moving bidules, adding connections, etc.
- Right Mouse Button in black patchbay pops up a bidule selection menu.
- Right Mouse Button on a bidule, pops up a contextual menu.
- Double-click on a bidule, pops up its window

Keyboard:

- CTRL-SPACE starts and stops audio
- CTRL(Windows)/Command(OS X)-N starts a new layout
- CTRL(Windows)/Command(OS X)-O opens a saved layout
- CTRL(Windows)/Command(OS X)-S saves the current layout
- Arrow Keys pan through the patchbay.
- CTRL-Up and Down(Windows)/Page Up and Down(OS X)/Mouse Wheel zoom in and out of the patchbay.
- HOME gets back to default pan/zoom settings in the patchbay.
- Backspace(Windows)/TAB(OS X) goes back to the parent group.
- CTRL(Windows)/Command(OS X)-double left click to explore a group.
- CTRL(Windows)/Command(OS X)-A selects everything
- ESC cancels the current selection
- CTRL(Windows)/Command(OS X)-C, V, and X for your usual cut and paste needs.
- CTRL(Windows)/Command(OS X)-D does a copy+paste on a selection
- Highlighting a bidule or connector + "Delete" deletes it. (Backspace too on OS X)
- CTRL(Windows)/Command(OS X)-F to search a bidule by its display name in the current group
- CTRL(Windows)/Command(OS X)-P toggles the display of the Parameters window
- CTRL-M(Windows)/Command-E(OS X) toggles the display of the Mediapool window
- CTRL(Windows)/Command(OS X)-G toggles the display of the Group Manager window
- CTRL(Windows)/Command(OS X)-B toggles the display of the Palette
- CTRL(Windows)/Command(OS X)-1 sets the mode to Process on the selected bidules
- CTRL(Windows)/Command(OS X)-2 sets the mode to Mute on the selected bidules
- CTRL(Windows)/Command(OS X)-3 sets the mode to Bypass on the selected bidules
- CTRL(Windows)/Command(OS X)-9 brings the group properties dialog for the selected or current group
- CTRL(Windows)/Command(OS X)-0 brings the group parameters dialog for the selected or current group
- F2 renames the selected bidule
- ALT-F4(Windows)/Command-Q(OS X) quits Bidule

You can select multiple bidules/connectors by pressing CTRL(Windows)/Command(OS X) while selecting or by using the left mouse button to lasso.

Toolbar Features

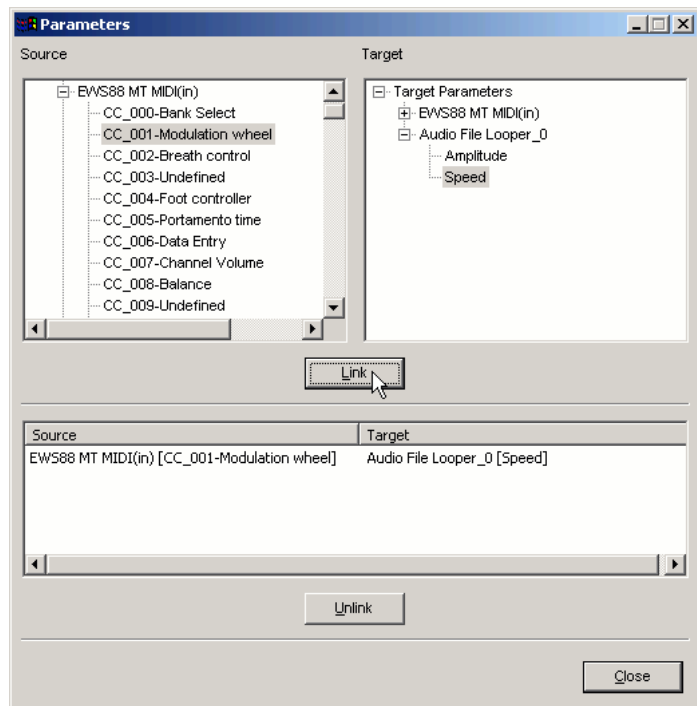
Besides the usual toolbar buttons: new, open, save, undo and redo.

Parent (Go up a level)

Press this button to go back to the parent group of the group currently displayed in the patchbay

Parameters

Access the parameter linking window: Simply highlight one source parameter and one destination parameter, then the "Link" button to link them together



MediaPool

Click the Mediapool button to access the MediaPool where all the clips (wavs, aiffs, etc) used by bidules are managed.

- Use it to load an audio file so that it becomes accessible to the Audio File Player, for example. Even if you open 15 sample playback devices to play myWav.wav, it will only be read/put in memory once.
- WARNING: watch the length of those audio files!!! (it has to fit in RAM).

To load file(s) press the Add File(s) button and select the audio files you want with the open file dialog. To remove files, select them in the list and press the Remove File(s) button or press the "Del" key.

Media Pool							
File	Type	Samples	Sample Rate	Bit Depth	Channels	FileSize	RAM Usage
E:\Audio\tightenup.aiff	AIFF (Apple/SGI)	157057	44100	16	mono	306 kilobytes	613 kilobytes
E:\Audio\monkey.au	AU (Sun/NeXT)	1652	8012	8	mono	1 kilobytes	6 kilobytes
E:\sndfiles\wavLoop\drum.wav	WAV (Microsoft)	87392	44100	16	mono	170 kilobytes	341 kilobytes
E:\Audio\drmapan.wav	WAVEX (Microsoft)	105507	22050	16	4 channels	824 kilobytes	1 megabytes

Add file(s) Remove files

Free memory : 531 Megabytes

Palette

Press this button to toggle showing and hiding of the palette window.

On/Off

Press this button to toggle the audio processing.

Preferences

User Interface

Show Tips

Enable/disable the showing of tips at Bidule startup

Process at startup

Enable/disable automatically activating signal processing upon launching Bidule

Keep Auto-save setting on restart

Keep the status of the auto-save option across restarts, otherwise auto-save will only be enabled for the current session

Floating frames

On : Windows always stay on top of the patchbay Off: Windows only appear on top of the patchbay when double-clicking on a bidule

Use Regional Options

Enable/disable use of your operating system's regional settings which include language, units settings (floating points are separated by comma or radix), etc. Bidule ship with some pre-defined languages, if you would like to help us in adding a translation to your language, please advise us so! WARNING if some VST/AU plugins cease working, please try without this option checked, if it makes any difference, please advise the plugin authors that they do not support C locales properly.

Show CC Types dialog on learn

On : Each time MIDI Learn is used, there will be a dialog asking for CC Types (i.e. 7/14 bit, relative). Off: 7bit MIDI CCs will always be used.

Use OpenGL acceleration (Windows only)

On : The video card will use its power to render the patchbay, potentially antialiasing lines. Off: A default "Microsoft" software OpenGL renderer will be used. If the graphics slows down, or you get audio glitching when moving things around, you may want to try both settings to see what your system prefers.

Skin

Select the skin that will be used by Bidule.

Cable styles

Toggle between cables as straight lines or as curves.

Install skins

Use this to install skin distributed as zip files through Bidule instead of manually.

VST

VST Plugins Path

Set the path where Bidule can find your VST plugins, this only exist for the Windows version as Bidule will automatically look to the standard locations in OS X (/Library/Audio/Plug-Ins/VST and \$HOME/Library/Audio/Plug-Ins/VST)

VST by company names

On : sorts the VST plugins by company names Off: sorts the VST plugins with the folder names in your VST plug-ins folder

VST by internal names

On : sorts the VST plugins by internal names Off: sorts the VST plugins with the filenames

AU

AU by company names

On : sorts the AU plugins by company names Off: flat list of AU plugins

ReWire

Enable ReWire Mixer

Enable the ReWire Mixer (i.e. being able to use ReWire devices) feature of Bidule.

ReWire stereo channels

Enable/disable Bidule ReWire slave outputs to show up as stereo in the ReWire master application

ReWire MIDI Ports

Select the number of ports you want to use in the Bidule ReWire device, a port represent 16 MIDI channels, some software limit the number of available MIDI outputs (ReWire, virtual instruments, software and physical outputs) and will show each channel of each port as a possible MIDI output so you might want to set this to something lower than 4. These will usually show up as Plogue Bidule Device Bus:x Chn:y in a ReWire mixer.

ReWire Channels

Select the number of audio outputs for the Bidule ReWire device.

ReWire device always use adapter

Force Bidule ReWire device to never attempt to do a direct match of the ReWire mixer buffer size and always buffer up. (Chances are you will be told to enable this feature following a support query and otherwise you shouldn't bother about it).

Disk I/O

Preferences for streaming file from and to disk, don't touch if you're not sure what you're doing...

use WAVEFORMATEXTENSIBLE

WAVEFORMATEXTENSIBLE is the new Microsoft standard header created to support multichannel WAVE files and non standard bit depths. as it is new, not all editors understand what those files are at all, while others expect all multichannel, or 24bit files to be in that format. Hence why you have the choice of the following behaviours:

- always: always writes it, for any number of channels or bit depth.
- adaptive: only use when required by Microsoft's standards, example any 24 bit file or any file with more than 2 channels.
- never: always use the old header style (WAVEFORMATEX)

DSP

Sample Rate

The sampling rate to use for the audio interface. Be aware that some interfaces don't support all possible sampling rates. You will get an error message if you select a sampling rate not supported by your audio interface when you try to use it.

Buffer Size

This is the size of the buffer used internally in Bidule, not the one for your audio driver. The lower this quantity the lesser the latency but the higher the CPU requirements.

FFT Window Size

Size of the FFT window, all FFT settings have no effect on CPU usage if you do not use the spectral features of Bidule.

FFT Overlap

Number of overlaps for FFT frames (also called decimation factor)

Higher Precision FFT

Use double-precision for FFT.

Bypass Driver's Current Settings (Windows only)

Enable this option if you wish Bidule to bypass your ASIO driver's control panel latency setting and try set it closer to its own buffer size. ONLY use this setting if you know what you're doing. (under some configuration it may just as well add more crackling).

Since some ASIO control panels (like Creative ASIO) do not allow you to set power of two buffers (32,64,128,256,512), this is often the only way to get low latency and low MIDI I/O jitter using Bidule with your driver. In any case look at the "Current Latency Details" text displayed in the GUI of your Audio Device in Bidule for more details. If you get both input/output buffer size "->match", then you know you have the best settings. if you get "-> adapting", then it probably means that it can be tweaked a bit more.

Dither Audio Output (Windows only)

When reducing the number of bits in audio samples, it's better to dither. If your audio card only has a 16 bit DAC, you should think of putting this on (for a slight CPU increase)

Enable Connected IOs only (Windows ASIO only)

Use this to have Bidule only use inputs and outputs from your audio interface when connected inside Bidule, this is mainly useful for multi-client ASIO drivers.

MIDI

Virtual MIDI Ports (OS X only)

The number of virtual MIDI ports (named Bidule 1 to x) created when Bidule launches.

Reduce MIDI Jitter (OS X only)

When this is enabled, Bidule will add a little latency to incoming MIDI events in order to keep the timing between events as accurate as possible. This is usually useful when either using a larger (i.e. greater than 10ms) latency or using another application to send MIDI to Bidule (compared to live playing).

Use Display Names (OS X only)>

On : Use the names of MIDI devices as specified in Audio MIDI Setup. Off: Build the names of MIDI devices using manufacturer, model and port.

Never Substitute Devices

When this is enabled, Bidule will never attempts to replace one audio/MIDI device by another if the wanted one is not currently available, instead it will show only a red bidule.

Round Imported MIDI Files to next bar

When this is enabled, all MIDI files loaded in the Mediapool will have their length rounded to the next bar, i.e. if a MIDI file last event happens at half in the third bar, its length will be 4bars.

Main menu/Menubar

File Menu

- New: starts a new layout
- Open: opens an existing layout
- Import: opens an existing layout and attempts to merge it into the current one
- Recent Files: lists recently used .bidule files
- Clear File History: removes all files under the Recent Files menu
- Save: saves the current layout to its existing location (or a new one if it does not have one)
- Save As: saves the current layout to a new location
- Save Copy: saves a copy of the current layout to a location, this will not change the default location of the layout

Edit Menu

- Undo: undoes the last action
- Redo: redo the last undo
- Cut: cuts the selection
- Copy: copies the selection to clipboard
- Paste: pastes the contents of the clipboard in the current layout
- Copy+Paste: copies and pastes selection in a single command
- Auto-save: enables auto-saving the current layout every 5 minutes for the session (the time can be changed manually through the registry or defaults CLI)
- Offline: toggles offline mode:

Offline mode

Toggles Offline mode On/Off (default is Off)

The Offline mode was added to Bidule so that it could be used to

- Render audio to disk faster than realtime, when the graph takes less than 100% cpu in normal use
- Render stutter-free audio to disk, when the graph takes more than 100% cpu usage in normal use.

You cannot use an audio device (input or output) in Offline mode. In almost all cases, you will use an Audio File Recorder bidule (or more than one) instead to record the offline output.

When using the Offline mode, you will notice that the standard cpu gauge has been replaced by an elapsed time meter, which should give you an estimate of the speed at which the render is done.

- Scan Plugins: rescans VST and AU plugins from scratch
- Scan Groups: rescans groups from scratch
- Update Plugins and Groups: scans for new plugins and groups (same as when starting up)
- Reset History: resets the count for the History tab of the Palette
- Set current patch as default: saves the current layout as the default (i.e. you will get this each time you startup and each time a new layout is created), each mode (standalone, ReWire, VST, AU) has its own default layout.

Tools Menu

- MediaPool: toggles the display of the MediaPool window
- Parameters: toggles the display of the Parameters window
- Palette: toggles the display of the Palette window
- Groups Manager: toggles the display of the Group Manager window
- ReWire Devices Config

ReWire Devices Config

The ReWire Devices configuration dialog lets you specify default number of MIDI inputs/outputs, number of audio outputs and if the ReWire application should launch/closed automatically. Use this to set up as many MIDI inputs you want for a ReWire device or restrain the number of audio outputs to only 2 if you only want to have the master output. If you have multiple layouts using ReWire devices and you want to be able to quickly change between them, make sure to un-check the auto-launch option, this will keep the ReWire application opened and it will be ready to use as soon as the layout is loaded.

- OSC Server: toggles the display of the OSC Server window, this is where the entire OSC address space for the current layout is displayed
- OSC Client: toggles the display of the OSC Client window, this is where OSC servers (i.e. where OSC messages are sent) are managed
- OSC Monitor: toggles the display of the OSC Monitor window, the OSC Monitor is used to log all incoming and outgoing OSC messages
- Find: finds a bidule by display name in the current group

Bidules Toolbar

Most of the bidules have a toolbar in their user interface. The first button is to bring up the parameter properties dialog, the second one the parameter locking dialog, the third one is to randomize the parameter values and the fourth one is to "mutate" (i.e. slightly modify) the parameter values. Take note that plugins have more items in their toolbar and the new items comes before the usual one, they are : the list of available presets for the plugin, a rename preset dialog and load and save presets.

Presets

There are two types of presets in Bidule, regular presets are dynamic snapshots (they will always save the current value of parameters) and read-only preset will always revert to the original value of parameters when that preset was created

- Rename: renames the current preset
- Add: adds a new preset using the default value of all parameters
- Add N: adds N new presets using the default value of all parameters
- Add Copy: adds a new preset using the current value of all parameters
- Add Copy (read-only): adds a new read-only preset using the current value of all parameters
- Add N Copies: adds N new presets using the current value of all parameters
- Remove: removes the current preset
- Load: opens a previously saved preset bank
- Save: saves current preset bank to a file for later use (if you use the default name for saving and save the file in the presets folder, these presets will always be used when creating a new bidule of that type)

Parameter Properties Dialog

In this dialog, you can set the minimum and maximum value to be used for a parameter, you can lock the parameter, meaning that the parameter value will not change on randomize and mutate, as well as the mutation factor.

Parameter Locking Dialog

In this dialog, you have the list of unlocked and locked for randomize/mutate parameters and you can quickly change their state by double-clicking on the parameter name.

Chapter 3. Synchronizing tempo and musical position between modules

In a recording studio you normally encounter many different devices that either acts as clock generator or requires receiving a clock to be able to keep up with the other. But you could also have two or more sequencers that drive a certain amount of instruments/beat boxes separately at different tempos. Bidule's internal "sync" signal allow you to reproduce this "freedom of sync choice" concept that you have when you have a complex studio. Why would you want different clock generators you ask? Well, you want to segue one track into another in a live situation, and that the two tracks follow completely different tempos, time signatures and positions?

In most hosts you cannot achieve this, as there is often only one transport control center, which resides in its toolbar. So every plugin "feeds" on sync information that's coming from the host's "master timeline".

But in Bidule there is no enforced "master timeline" and it's up to the user to decide exactly what should be synched to what (as you would do in a real studio). And as with many things in Bidule, there are graphical cues to give you a clue of what's happening "under the hood".

If a newly chosen bidule possesses the intrinsic support to be synched, then a small grey "s" (for Slave) letter will appear left of its patchbay representation, meaning it "knows" how to deal with extra sync information.

Similarly, a sync generator bidule (Bidule's Sync Transport or Step Sequencer, for instance) has a small green "m" (for Master), followed by a unique identifier, saying can provide sync information on this sync ID.

If you sync a slave-able bidule to this one, its letter "s" will turn green and the number of the unique master ID will also appear beside it.

- Grey means "available for sync" (currently free running)
- Green means active (masters are always active)
- Most ReWire devices (Reason/Rebirth/Live) can simultaneously be masters and slaves

(*)VST Developers note: Bidule's Sync is very closely related to VstTimeInfo. Also Bidule is currently the only host that support the part of the VST 2.0 spec that allow plugin to BE a Sync Master (ie sending VstTimeInfo BACK to the host). Such a plugin should return "1" when asked about canDo "sendVstTimeInfo" for this option to become available.



Chapter 4. Bidules

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Audio File bidules

Audio Buffer

Fun little device (we think), here's how it works:

- Mode: Bypass(sound passes through it unaltered), Capture (captures audio for a certain length in RAM), Playback (plays back what was recorded in Capture mode)
- Buffer Size: change the length of the playback buffer (in seconds)
- Bit Depth/File/Recording: saves current buffer to the specified filename and bit depth and then loads it in MediaPool, making it available to Audio File Loopers.
- Playback Amplitude: change the volume of the output

Boboche Looper

Loops files loaded into the MediaPool. Syncable

- Audio file: select a file from the MediaPool
- Add Files: shortcut to add audio files to the MediaPool
- Speed: change the playback speed of the audio file
- Amplitude: change the volume of the output
- Interpolation: calculation method for interpolating samples when playing at speeds different than 1x

Granulator

Mad grain/loop audio file playback.

- Audio file: select a file from the MediaPool
- Add Files: shortcut to add audio files to the MediaPool
- Min/Max Static Length: range of available sizes for the grains
- Zero Percent: adjust the ratio of silence vs. grains
- Min/Max Pitch: range of available pitches for the grains
- Change Pitch: ratio of pitch changing
- Stretch1/2: stretching for the grains
- Fade: length of the fade window for each grain

Looper

Main short ram-based Audio File Player in Bidule.

Main Section:

- Audio file: select a file from the MediaPool
- Add Files: shortcut to add audio files to the MediaPool
- File Amplitude: added gain of this file
- Master Amplitude: added gain for any files (over the File Amplitude)
- Update loop points: Changes the moment when changes to the loop points are applied when using the mouse

File Settings Section:

if the loaded file contains standard "loop" info, some of these fields will be automatically filled with these, otherwise a guess on the number of beats will be made with bpm and 4/4.

- Meter: Original Meter of the file
- Orig.BPM: Original Tempo of the file. This is directly coupled to the number of beats, if you manually change the Orig.BPM, the Number of beats will be changed, but not the other way around.
- Meter Adaptation: Adapt (or not) the meter of the loop to the incoming timeline meter (see the Meter Adaptation section in this Guide for more info)
- Number of beats: Number of beats you specify that corresponds to the current selected loop points

- Edit Loop points: Pops up a separate window to edit the in and out points that you want, you can zoom in or out using either the mouse wheel or the plus and minus keys on your keyboard. changing the loop points will also change the number of beats but not the other way around. You can always reenter the number of beats you really want that corresponds to the current selection anytime.

Playback Settings Section:

- Interpolation: Interpolation used in vari-speed playback.
- Stretch Type: Type of time stretching used.
- Stretch Grain Size: Size of the sample blocks that the CHEAP-OLA algorithm will use to overlap.
- Pitch Shift: In semitones, only available when stretching

Player

Streams audio files from disk (up to 32 channels)

- Position slider: go to a specific position in the file
- Home button: go back to the beginning of the file
- Stop button: stop playing the file
- Play button: play the file
- Eject button: select a file for playing

Recorder

Write audio files to disk (in 1, 2, 4, 6, 8, 10, 12, 14, 16, 24 and 32 channels audio file), with the specified file name.

- Bit Depth: bit depth of the file to record
- File: select the file name and location for recording
- Recording: stops/resumes recording of audio
- Create new files for each record: create a new file appended with the take number on every start of recording
- Current take/Elapsed time/Size on disk: statistics on the current recording
- Create multiple files: enable the creation of several mono/stereo files instead of a single multi-channel file (see next parameter)
- Channels per file: when Create multiple files is active, select between creating mono and stereo files

Effects bidules

Buffer Granulator

The same algorithm from Audio File Granulator applied to the incoming (and buffered) audio signal

- Min/Max Static Length: range of available sizes for the grains
- Zero Percent: adjust the ratio of silence vs. grains
- Min/Max Pitch: range of available pitches for the grains
- Change Pitch: ratio of pitch changing
- Stretch 1/2: stretching for the grains
- Fade: length of the fade window for each grain
- Freeze: freeze the contents of the internal buffer

Deconcrisseur

The bidule that F****s Beyond Repair is a pseudo sample rate/bit depth reducer.

- Sample Rate: change the sampling rate of the incoming signal
- Bit depth: change the bit depth of the incoming signal

Dither

Apply high-pass triangular-PDF dithering (adds "ear-friendly" noise to prevent "harsh" quantification noise when down-converting) on an audio signal. The 32 bit float outputs samples coming out of this bidule will only contain the resolution of your chosen final bit depth, so when another down-conversion is made in the audio outputs OR the audio file outputs, then nothing more will be taken out.

- Final bit depth: the target width for result signal, typically this will be 16 or 24 bits
- Noise shaping: changes where the added noise is in the spectrum
- No Dither: This allows you to hear what the non-dithered BUT down-converted signal would sound like without dither. If you always doubted dithering made any difference, heres your chance to know, if you hear the improvements of dithering at more than 16bits, then you really got good ears... try a 880 Hz Sine wave (tone generator) as source for fun.

Note1: This module possibly does a better job at dithering than the Dither option in the DSP preferences, but as dithering is to a large extent a suggestive improvement, let you be the judges.

Note2: Make sure the incoming signal DO NOT break the [-1;1] limit.

Moog VCF

Courtesy of the music-dsp source code archive!

Time Domain Convolver

Don't search for parameters - there aren't any. Just feed two different input signals into each in socket.

Instrument bidules

Boboche Sampler

Cheapo Sampler, very straight MIDI note to audio clip mapping

- File: select a file for each note from the MediaPool
- Master Volume: kept for backwards compatibility

MIDI bidules

Arpeggiator

The same arpeggiator as found in chipsounds

- Arp Mode: note playing mode, pretty much the standard list of available modes
- Arp Play Mode: loop will loop through the entire sequence until notes are released, one shot will play through the sequence once, one shot and sustain last will play through the sequence one and keep the last note playing until you release keys.
- Velocity: As Played will play back the velocity of each input note in the output sequence, Use First will apply the velocity of the first received note to all the output notes, Normalized normalizes all output notes to the same value.
- Gate Ratio: proportion of silence between successive notes.
- Proportional Division: Sequences will take the same time to play, however many notes they contain.

Buffer

Similar to the Audio Buffer but for MIDI events

- Mode: Bypass, Capture, Playback modes, take note that Capture will continue to play what's in the buffer while recording
- Buffer Length: the length of the buffer in milliseconds
- Loop In: In point position for looping, represented in % of the buffer length
- Loop Out: Out point position for looping, represented in % of the buffer length
- Clear Buffer: Clear the contents of the buffer
- Speed: speed at which the buffer is played back
- File/Save: select a file to save the buffer contents, the file will be added to the MediaPool
- Create new file for each record: create a new file with the current take appended to the name each time Save is pressed
- Current take: display for the current take number when using the Create new file for each record option

Buffer (Synced)

Same as the MIDI Buffer except it uses musical time and can follow the tempo of a sync source

- Mode: Bypass, Capture, Playback modes, take note that Capture will continue to play what's in the buffer while recording
- Buffer Length: the length of the buffer in quarter-notes
- Loop In: In point position for looping, represented in % of the buffer length
- Loop Out: Out point position for looping, represented in % of the buffer length
- Clear Buffer: Clear the contents of the buffer
- File/Save: select a file to save the buffer contents, the file will be added to the MediaPool
- Create new file for each record: create a new file with the current take appended to the name each time Save is pressed
- Current take: display for the current take number when using the Create new file for each record option

CC Latch

Latch for MIDI CCs, the state (value 0 or value 127) changes when receiving a MIDI value of 127

CC Splitter

Splits incoming CCs to the output corresponding to the CC Number

CC To Params

Same functionality as the CC linking feature from MIDI devices. Can be used to extract CC from a MIDI device that might change, user mangled or created MIDI CCs at the output of any plugin/ReWire device that can output CCs.

CC Value Scaler

Scale the value of incoming CC values between the selected range.

MIDI Delay

Delays the MIDI events for a specified amount of time in milliseconds.

MIDI Delay (Synced)

Delays the MIDI events for a specified amount of time in quarter-notes, the real amount of delay will be calculated using the sync source tempo.

Aftertouch Filter

Filters out (to the second output) all unselected MIDI Aftertouch on a note basis. Note the additional buttons in the toolbar:

- Select all: select all Aftertouch events
- Unselect all: unselect all currently selected Aftertouch events
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of Aftertouch events to select

Aftertouch Pressure Filter

Filters out (to the second output) MIDI Aftertouch events with values outside of the specified range.

CC Filter

Filters out (to the second output) all unselected MIDI CC on a CC number basis. Note the additional buttons in the toolbar:

- Select all: select all CC events
- Unselect all: unselect all currently selected CC events
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of CC events to select

CC Value Filter

Filters out (to the second output) MIDI CC events with values outside of the specified range.

Channel Filter

Filters out (to the second output) all unselected MIDI events on a MIDI Channel number basis. Note the additional buttons in the toolbar:

- Select all: select all channels
- Unselect all: unselect all currently selected channels
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of channels to select

Channel Pressure Filter

Filters out (to the second output) all unselected MIDI Channel Pressure events on a number basis. Note the additional buttons in the toolbar:

- Select all: select all Channel Pressures
- Unselect all: unselect all currently selected Channel Pressures
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of Channel Pressures to select

Channel Pressure Pressure Filter

Filters out (to the second output) MIDI Channel Pressure events with pressure values outside of the specified range.

Comparison Filter

Filter out (to the second output) MIDI events according to the selected Comparison value and operator, the event value is compared with the value at the same index in the current buffer.

Message Filter

Filters out (to the second output) all unselected MIDI events on a message type basis.

Misc Sysex Filter

Filters out (to the second output) all unselected MIDI Misc Sysex events on a message type basis.

Note Filter

Filters out (to the second output) all unselected MIDI Note events on a note number basis. Note the additional buttons in the toolbar:

- Select all: select all MIDI Notes
- Unselect all: unselect all currently selected MIDI Notes
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of MIDI Notes to select

Note Velocity Filter

Filters out (to the second output) MIDI Note events with velocity values outside of the specified range.

Program Change Filter

Filters out (to the second output) all unselected MIDI Program Change events on a number basis. Note the additional buttons in the toolbar:

- Select all: select all MIDI Program Changes
- Unselect all: unselect all currently selected MIDI Program Changes
- Inverse selection: invert the current selection
- Set Range: show a dialog to specify a range of MIDI Program Changes to select

Pitchbend Value Filter

Filters out (to the second output) MIDI Pitchbend events with a value outside of the specified range.

Key Switch

Enables you to change the MIDI Channel of incoming events according to the last played note. You can associate a MIDI Note with each MIDI Channel, once that MIDI Note has occurred, all MIDI events will be remapped to the associated MIDI Channel until another MIDI Note with an associated channel occurs.

MIDI Clock To Sync

Its purpose is to transform a MIDI Timing Clock (Clock, Song Position, Start, Stop and Continue) into Bidule internal sync info. MIDI Clock synchronisation is an old legacy standard that is hard to emulate right in the slave software. The results are a combination of MANY factors including your Bidule audio buffer latency (lower the better), MIDI driver jitter and timestamp precision, and also the following settings:

- Override tempo: manually force a tempo instead of using the calculate value
- Tempo: current tempo (calculated or user-specified)
- Time signature numerator/denominator: time signature to use for Bidule sync (this is not transmitted through MIDI Clock). This cannot be changed while the Clock is active on the other end.
- Hard Clock Resynch: force resynch of the current position every n measures
- Use last n values: number of last events used to calculate the average tempo, the higher the more stable the tempo value but the longer it takes for changes to occur
- Round tempo: round calculated tempo to the closest integer value (will usually give a much more stable result)

MIDI To Value

Convert the selection (incoming MIDI Note or CC) to a smoothed out signal at audio rate.

- CC#: select the CC to listen to in the incoming signal
- Use Notes: use MIDI Note number as a 0 to 1 interval
- Channel#: channel to listen to in the incoming signal
- Smoothing: smoothing time for changes in value
- Learn: go into learn mode, where the number of the next CC or Use Notes will be selected

NRPN To Params

Same as CC To Params but for NRPN (MIDI Non-Registered parameters) often used by hardware devices to access extra parameters, NRPN are actually composed of 1 to 4 MIDI CC events

Note Latch

Latch for MIDI Notes, MIDI Note On opens a note and keep it open until another MIDI Note On for that note is received.

Note Number To Param

Takes incoming MIDI Note On events and use the MIDI note number to set the value of its exported parameter that you can link to any parameter using the Parameter Linking window.

Note On To Value List

This is a convenient bidule to be used as a shortcut instead of using 3 different bidules. It is behaving like a MIDI Note Extractor -> Value List -> Parameter Modulator. The Modulation parameter is changed to next entry in the value list each time a Note On is received. The Min and Max are to specify a different minimum and maximum value for the modulation range, all numbers entered in the value list have to be within that range.

Note Shuffler

Randomly alters the incoming MIDI notes.

- Lowest/Highest Note: select the available range for randomization.

Note Splitter

Splits incoming Notes to the output corresponding to the Note Number

Note Velocity To Params

Takes incoming MIDI Note On events and use the MIDI note velocity to set the value of the corresponding exported parameter that you can link to any other parameter using the Parameter Linking window.

Particle Arpeggiator

Modified version of Nate Robins's particle.c example from the GLUT library. In this version, colliding particles trigger MIDI. Each of the maximum 128 particles represent the 128 possible MIDI notes, so do some tests. You might not hear your synths right away. The ToneGenerator works OK with this, but as you know it is monophonic.

- Num Particles: the number of particles in the system
- Flow: the flow of the particles
- Gravity: the gravity for the system
- Show Balls: show the ball
- Spectrum Colors/Blue: use the MIDI to spectrum color code or not
- Fountain/Waterfall: fountain or waterfall mode
- Point Size: size of the particles

Program Change To Params

Takes incoming MIDI Program Change events and use the Program Change number to set the value of the corresponding exported parameter that you can link to any of parameter using the Parameter Linking window.

RPN To Params

Same as CC To Params but for RPN (MIDI Registered parameters) often used by hardware devices to access extra parameters, RPN are actually composed of up to 4 M CC events

MIDI Remappers bidules

Aftertouch Remapper (Multi)

Allows you to remap any Aftertouch event to a different Aftertouch event on a number basis. Notice the extra toolbar button "Reset all" which will reset all parameters to their original value of no remapping.

CC Remapper

Remaps all incoming MIDI CC events to the selected CC.

CC Remapper (Multi)

Allows you to remap any CC event to a different CC event on a number basis. Notice the extra toolbar button "Reset all" which will reset all parameters to their original value of no remapping.

CC Value Remapper

Remaps CC values according to the curve, you can draw the curve or double click to generate an entire curve (or segments) by specifying start and end point and value as well as the function for the slope.

CC Type Remapper

Remaps CC values between absolute and the various relative types, this will internally keep the current or last value and outputs CCs accordingly.

Channel Pressure Remapper (Multi)

Allows you to remap any Channel Pressure event to a different Channel Pressure event on a number basis. Notice the extra toolbar button "Reset all" which will reset all parameters to their original value of no remapping.

Channel Remapper

Remaps all incoming MIDI events to the selected channel.

Channel Remapper (Multi)

Remaps the channel of a MIDI event to any other channel on a number basis. Notice the extra toolbar button "Reset all" which will reset all parameters to their original value of no remapping.

Message Remapper (Multi)

Transforms a MIDI event into another on a type basis.

Note Off Velocity Remapper

Remaps Note Off velocity values according to the curve, you can draw the curve or double click to generate an entire curve (or segments) by specifying start and end point and value as well as the function for the slope.

Note Remapper

Remaps all incoming MIDI Notes to the selected note.

Note Remapper (Multi)

Remaps any incoming MIDI Note event to any other Note on a note number basis. Notice the extra toolbar button "Reset all" which will reset all parameters to their original value of no remapping.

Note Velocity Remapper

Remaps Note On velocity values according to the curve, you can draw the curve or double click to generate an entire curve (or segments) by specifying start and end po and value as well as the function for the slope.

PC Remapper (Multi)

Remaps any incoming MIDI Program Change event to any other Program Change on a program number basis. Notice the extra toolbar button "Reset all" which will res all parameters to their original value of no remapping.

Splitter

Splits a MIDI signal into 16 different outputs.

- Channel: A MIDI Event is routed to the output according to its channel number (channel 1 goes to the first output, channel 16 to the last)
- Program Change: The program number of a Program Change event will change the current output
- Note: FIFO (first in first out) assignment of outputs according to the current number of voices playing (1st opened voice goes to the first output, 2nd opened voice to the second, ...)

Step Sequencer

With the step sequence editor you can edit a grid of 16 sequences that always loop, or use the playlist to set a desired sequence to play for all 16 output channels. Each sequence step in the playlist can have its own BPM and step size. Note: the Step Sequencer outputs on all channels and by default sequences 1 to 16 are assigned to cha 1 to 16 meaning that if you draw notes on a sequence between 2-16 and select it as the sequence for channel 1, the events will be output twice, once on channel 1 and or on the channel N (where n is the sequence number between 2 and 16).

- Load: loads a saved bank of sequences (.bmsd file)
- Save: saves a bank of sequences (.bmsd file)
- +: zoom in the grid
- -: zoom out the grid
- Play/Stop: start and stop the output of the step sequencer
- BPM: tempo for the playing sequences. Remember to press ENTER to apply the value!
- Steps: number of steps for the playing sequences
- Channel: assign the current sequence to the MIDI channel
- Sequence: assign the sequence to the current MIDI channel
- Playlist Mode: use the playlist / loop the current sequences
- Edit Playlist: show the playlist editor dialog

The playlist editor dialog is where you can assign a sequence number for each channel for a specified number of events. You can also specify the BPM and the number steps for each event.

- Playlist Length: number of events in the playlist
- Playlist Start/End: in/out points for looping
- BPM/Set BPM: specifies and set the BPM for each event
- Num Steps/Set Num Steps: specifies and set the number of steps for each event
- Reset Events: reset all events to the default BPM, number of steps and no playing sequences

Controls for the grid:

Windows:

- left mouse button: add and lengthen notes
- middle mouse button/ctrl-left mouse button: delete notes
- right mouse button: change a notes velocity (darkens, lightens color of note)

OS X:

- (left) mouse button: add and lengthen notes
- shift-(left) mouse button: delete notes
- ctrl-mouse button/right mouse button: change a notes velocity (darkens, lightens color of note)

The sequence number playing on each channel is also exported as a parameter that you can link to in the Parameter Linking window. For example, you could have a No Number To Params per MIDI channel and have each of them link to the corresponding parameter for the currently playing sequence for each channel - giving you hand control of the sequence being played on all channels at once!

Sync to MIDI Clock

Transforms Bidule internal sync info to MIDI Timing Clock for output to other softwares or external gear.

MIDI Transposers bidules

Aftertouch Transposer

Alters the incoming MIDI Aftertouch events note number or value by a specified amount.

- Wrap Around: when enabled, if applying the offset make the value go out of range, the result will be wrapped around instead of clipped.

CC Transposer

Alters the incoming MIDI CC events number or value by a specified amount.

- Wrap Around: when enabled, if applying the offset make the value go out of range, the result will be wrapped around instead of clipped.

Note Transposer

Alters the incoming MIDI notes by the specified semitones, detune and velocity value.

- Wrap Around: when enabled, if applying the offset make the value go out of range, the result will be wrapped around instead of clipped.

Program Change Transposer

Alters the incoming MIDI Program Change events number by a specified amount.

- Wrap Around: when enabled, if applying the offset make the value go out of range, the result will be wrapped around instead of clipped.

Velocity Scaler

Like a MIDI dynamics compressor.

- Lowest/Highest Velocity: range to remap all incoming note velocities
- Master Attenuation: attenuation for all incoming notes

MIDI File bidules

MIDI File Looper

Standard MIDI file player. Use MIDI files loaded into the Mediapool. This module is also a sync master. Loop players and other modules synched to it should follow all bpm and time signature changes embedded in the file. The Speed parameter can be used to slow down or accelerate the playback of the file. Note: the Speed parameter has no effect if the Looper is synched to a source.

MIDI File Player

Standard MIDI file player. Two versions are currently available, the merged tracks and non merged (up to 32 tracks) versions. In case of doubt use the "merged" version and split the outputs using a Channel Splitter. This module is also a sync master. Loop players and other modules synched to it should follow all bpm and time signature changes embedded in the file. The Speed parameter can be used to slow down or accelerate the playback of the file. Note: the Speed parameter has no effect if the Loop is synched to a source.

MIDI File Recorder

Standard MIDI file recorder. When synched and recording is enabled, the actual recording will only start at the beginning of the next bar.

- File: select the file name and location for recording
- Recording: stops/resumes recording
- Current take/Elapsed time: statistics on the current recording
- Create new files for each record: create a new file appended with the take number on every start of recording
- Add recorded file to Mediapool: automatically add the recorded file to the Mediapool once the recording stops

Misc bidules

Audio Dummy

The do-nothing-bidule, as requested by Bram at smartelectronix. In his words: "No software is complete without a do-nothing part, it balances yin and yang, it's the met essence of Zen"

Clock

A display only bidule to show in a larger font the elapsed time as well as the current musical time when synched

Comment

Just an idea scratchpad for text, no ins or outs.

HID Data Extractor

Use any standard USB HID (Human Interface Device) like keyboard, mouse and joystick as a MIDI and parameter source. Buttons will be transformed into MIDI notes and bool (on/off) parameters while axis-based controls (like the mouse wheel or the digital joystick pad) will be transformed into MIDI CC and parameters with a range

- HID Device: the device the Data Extractor takes/outputs information from
- Axis1->Pitchbend: force the first axis control to be transformed into MIDI pitchbend
- Fixed MIDI Mapping: information read-only display of the currently selected device available controls and their mapping

- Buttons Are Triggers: enable this to not have buttons send MIDI Note Off and set the parameter value back to 0 when the button is released

Key Sender

Simulate keyboard events that will be received by the application that is currently in the foreground. You can specify a key modifier (like CTRL, SHIFT, etc...) and an actual key. If both the key down and key up triggers are received at the same time this will generate a "normal" keystroke. Always remember to send a key up event if you intend to use the keystroke as a gate.

- Key Down Trigger Input: send a 1 to simulate a pressed key.
- Key Up Trigger Input: send a 1 to simulate an unpressed key.

Key Stroke

DEPRECATED: please use the HID Data Extractor, this is only kept for compatibility.

Matrix Sequencer

A NxN set of knobs each with a specified value and an active checkbox. The global minimum and maximum value can be set. The MIDI version will output MIDI note while the audio version will output value, event gate and event trigger on different outputs. The current x, y position is driven by the audio input, basically you can create any maths or random thing to drive the current event

MIDI Dummy

The do-nothing-bidule, as requested by Bram at martelectronix. In his words: "No software is complete without a do-nothing part, it balances yin and yang, it's the meta essence of Zen"

Sync Transport

Standard transport bar that can also act as a sync source.

Variables Multi

User drawn set of values with either an output for each one or an input to select the current one

Wave Folder

This will subtract from the incoming values the amount over the set clipping value, typically use on a sine signal to generate a more complex signal, the folding over can happen multiple times if the operation with the clipping value difference goes over the other side clipping value. The Rescale output parameter will multiply the output signal so that the lowest and highest value become -1 and 1.

XY

Little XY mouse-pad to control parameters through signal or parameter linking

- Origin at bottom left : toggles between having the 0,0 point in the upper left and bottom left

Mixing bidules

Crossfader

A simple crossfader where you can select the type

- Cos/Sin: fade using cos and sin law, will give a 3dB boost in center position but it is what the human ears want
- Linear/Linear: fade using linear, no boost in center will sound thin.
- Cos/Linear: fade using cos for the left signal and linear for the right signal
- Linear/Sin: fade using linear for the left signal and sin for the right signal

Fadecross

An "inverted" crossfader, with two stereo outputs and one stereo input.

Gain

A simple 10db gain.

Mono Mixers

4, 8 or 16 mono channels mixer with pan/mute/solo and 10db gain for each channel and a master 10db gain. Note: double-clicking on Strip N will let you change the channel name on the window and in the status bar when hovering over the input pin.

Stereo Mixers

4, 8 or 16 stereo channels mixer with pan/mute/solo and 10db gain for each channel and a master 10db gain. Note: double-clicking on Strip N will let you change the channel name on the window and in the status bar when hovering over the input pin.

Pan

A simple pan.

Stereo Squeezer

Squeeze the width of a stereo signal.

Continuous Surround Panner

A mono to 5-speaker (ITU) panner using laws in which each output speaker feed is a sum of circular harmonics. The output speaker feed is (in order) Left Surround, Left Front, Center, Right Front and Right Surround. Note: double-clicking on Strip N will let you change the channel name on the window and in the status bar when hovering over the input pin.

Mono ITU Mixers

4, 8 or 16 mono channels mixer with Continuous Surround Panner/mute/solo and 10db gain for each channel and a master 10db gain. Note: double-clicking on Strip N will let you change the channel name on the window and in the status bar when hovering over the input pin.

Modulation bidules

Parameter Modulator (Absolute)

Reads all samples of each buffer of the incoming signal to find the highest sample and sets its internal parameter to that value so it can be used in the parameter linking. The value, if outside of the defined min and max, will be set to the nearest acceptable value. If the value doesn't change the parameter won't be set again. The Trigger version of this allow to let you decide which actual sample to use for the parameter value whether it has changed or not. The Passthrough version will let the incoming signal go through instead of having to use endpoint bidules.

- Min: lower bound to use for the incoming signal
- Max: upper bound to use for the incoming signal

Parameter Modulator (relative)

Works much like how a Relative CC would work, meaning that it will apply increment/decrement value whatever the target parameter current value is even if you change using the mouse. - Sending a positive integer value will increment the target parameter by that amount*the parameter increment value. - Sending a negative integer value will decrement the target parameter by that amount*the parameter increment value. e.g. for a preset parameter, if the Parameter Modulator receives a 1, it will make the preset parameter go to the next preset, if it receives a 2 it will make it go to the second next preset (change next for previous if the integer is negative) for a variable, the increment is 0.001 so this means that sending a 1 will add 0.001 to the current value, sending a 2 will add $2 * 0.001 = 0.002$ to the current value (change add for subtract the integer is negative) The Passthrough version will let the incoming signal go through instead of having to use endpoint bidules.

Monitoring bidules

Audio Monitor

For the geek in you wanting to see it all passing by. Values refreshed about every 90ms.

- Min: minimum sample value since the last reset
- Max: maximum sample value since the last reset
- Tick: Bidule internal tick counter for the current buffer
- Value: value of first sample in the buffer

Audio Stats

Displays some statistics for the current audio buffer.

- First Sample: value of the first sample in the buffer
- Last Sample: value of the last sample in the buffer
- Minimum Sample: value of the smallest sample in the buffer
- Maximum Sample: value of the largest sample in the buffer
- Average Sample: average value of all samples in the buffer

Audio Value Display

Renames itself to the current value so you can see directly from the patchbay what the value is

Frequency Value Display

Renames itself to the current value so you can see directly from the patchbay what the value is, the display bin value is selected from the Bin Number input.

Level Meter

Level meters you can insert anywhere in the layout.

Magnitude Value Display

Renames itself to the current value so you can see directly from the patchbay what the value is, the display bin value is selected from the Bin Number input.

MIDI Value Display

Renames itself to the current MIDI event so you can see directly from the patchbay what the value is, by default this shows the hexadecimal value but there is a parameter to enable a user-friendly display.

MIDI Monitor

For the geek in you wanting to see it all passing by all in hexadecimal.

- Tick: Bidule internal tick counter for the current buffer
- BO: sample offset inside the buffer for the MIDI event
- ST: status byte of the MIDI event
- D1: first data byte of the MIDI event
- D2: second data byte of the MIDI event
- CH: channel of the MIDI event
- Event: short string representation for the MIDI event

MIDI Monitor 2

A human readable version of MIDI Monitor

WaveViewer

Lets you see the last few seconds of audio as in an audio editor.

Routing bidules

Audio Matrix

8/16/32 ins/ 8/16/32 outs device with a grid to select the routing. Left of the grid is the outputs and top of the grid is the inputs. The Use fade windows option will add fade in and fade out when a cell is turned on and off.

Audio Switcher

Switch the audio input between the 16 outputs by sending a MIDI program change or choosing the output in the GUI. Each output has a processing mode parameter that you can see in the Parameters dialog and link to another bidule or group of bidules processing mode parameter. When the output is selected the parameter is set at "Processing" and when it is de-selected it is set at "Mute". With this it is possible to have complex layouts and having only the wanted bidules using the processing power.

Input Selector

8 audio ins + 1 in to select the input you want to output. If the value you send for the input to use isn't a integer number, the output will be a crossfade between 2 inputs.

MIDI Matrix

8/16/32 ins/ 8/16/32 outs device with a grid to select the routing. Left of the grid is the outputs and top of the grid is the inputs. The Close MIDI Notes option will automatically close any opened MIDI Notes when turning off a cell.

MIDI Switcher

Same as the audio switcher but for a MIDI signal.

MIDI Switcher 2 ports

Same principle as the switchers except that the added MIDI port is used as the control to receive Program Change, the first port input is directly forwarded to the currently selected output

Output Selector

8 audio out, 1 audio in + 1 in to select the output you want to route the input to. If the value you send for the output to use isn't a integer number, the input will be panned between 2 outputs.

Spectral bidules

Bin Delay

A user-drawable graph to specify the delay (up to 5000ms) for each of the FFT analysis band.

Bin Delay (wrong)

A user-drawable graph to specify the delay (up to 5000ms) for each of the FFT analysis band, mostly kept for compatibility reasons but does have a distinct sound.

Cherizer

The name is a hint. Changes the all the incoming frequencies of the input signal to the nearest ones in the well-tempered scale (for now)

Crossfader

Crossfades 2 Freq/Mag pairs.

FFT

Time Domain to Spectral Domain Conversion using the Phase Vocoder. Select your own windowing method.

File Looper

Use PVOC files loaded into the Mediapool (that you can create with Freeze), it will continuously output the frames contained in the PVOC file.

Freeze

Keeps and outputs the current FFT window.

- Gate Input: the window will be frozen as long as 1 is received. The first time the input goes from 0 to 1, it uses the current window as the frozen window
- Trigger Input: send a 1 to force a refreeze
- Freeze Frequencies: check this to freeze the frequencies
- Freeze Magnitudes: check this to freeze the magnitudes
- Force Gate: does the same as sending 1 continuously in the gate input
- PVOC File: select a file to save the contents to, upon saving the file will be automatically added to the Mediapool

Frequency

Binary Operator

Mathematics for Frequency data.

Breeder

Mix two frequency signals as wanted or at random.

- Breed Ratio: Amount of the left input to use in the output
- Crazy Genetics: Enable random amount of mixing for each bin

Buffer

Works like Audio Buffer but for frequencies (no save option).

Gate

Select the lower/upper bound of the signal going through.

Inversion

Finds the highest bin, each bin is changed to the difference between the highest value and the current bin value

Logic Gate

Simple Logic Gate for the frequency part of the spectral signal

- Left-Side Argument Input: input for the left-side argument of the logic operator
- Right-Side Argument Input: input for the right-side argument of the logic operator
- Value for True Input: input to be redirected to the output when the operator result is true
- Value for False Input: input to be redirected to the output when the operator result is false

Shifter

Shifts the frequency signal.

- Horizontal Shift: shift the order of the bins by the selected value
- Vertical Shift: add a constant to each bin

Stretcher

The spectral deconcrisseur: samples a specified number of bins and interpolates values.

Variable

User-defined variable range with slider and input box. Don't forget to hit ENTER to validate a value you just entered

- Min and Max: define the range of the slider

Graph

A user-drawable graph to specify the magnitude of each frequency bin. The frequency output is the normalized/no-deviation values for the selected FFT size. The magnitude output is the drawn magnitudes.

Graph Analyzer

See the magnitudes for each analysis bin.

Graph EQ

A user-drawable graph to specify the gain for each analysis bin, you can also see the results on the same graph.

Inverter

Invert the n (controlled by the invert ratio) bins with the greater magnitude value higher with the n bins with the magnitude value equal or higher than the specified min

- Invert Ratio: the number of bins to invert as a [0,1] ratio on the current FFT size
- Min mag value: the minimum magnitude value for bins to be included in the inversion

Magnitude

Binary Operator

Mathematics for Magnitude data.

Breeder

Mix two magnitude signals as wanted or at random.

- Breed Ratio: Amount of the left input to use in the output
- Crazy Genetics: Enable random amount of mixing for each bin

Buffer

Works like Audio Buffer but for magnitudes (no save option).

Gate

Select the lower/upper bound of the signal going through.

Logic Gate

Simple Logic Gate for the magnitude part of the spectral signal

- Left-Side Argument Input: input for the left-side argument of the logic operator
- Right-Side Argument Input: input for the right-side argument of the logic operator
- Value for True Input: input to be redirected to the output when the operator result is true
- Value for False Input: input to be redirected to the output when the operator result is false

Scaler

Scales the magnitude signal.

Shifter

Shifts the magnitude signal.

- Horizontal Shift: shift the order of the bins by the selected value
- Vertical Shift: add a constant to each bin

Stretcher

The spectral deconcrisseur: samples a specified number of bins and interpolates values.

Variable

User-defined variable range with slider and input box. Don't forget to hit ENTER to validate a value you just entered.

- Min and Max: define the range of the slider

Pitch Scaler

Simple example to scale frequencies out of a mag/freq pair (this operation can't be de-correlated on phase vocodered signals).

Resynthesizer

AKA Rebuilder's Core. Takes a Frequency and Magnitude Signal and rebuilds the sound using the selected waveform types.

Spectral To Loudest Freq/Amp

Takes the frequency+magnitude in input and outputs the loudest frequency with its amplitude

Spectral To MIDI

Take the "loudest" incoming frequency and outputs the nearest MIDI note in the well-tempered scale (for now)

Sustain

Keeps the highest magnitude for each bin and decay them over time.

- Gate input: send continuous 1 to activate/keep the sustain
- Reset Trigger input: send 1 to reset the sustain
- Magnitude multiplier (param): the value to multiply the magnitude values kept in sustain
- Frequency multiplier (param): the value to multiply the frequency values kept in sustain

iFFT

Spectral Domain to Time Domain Conversion using the Phase Vocoder. Select your own windowing method.

Devices

MIDI Device

For MIDI input and output.

Audio Device

For audio output and duplex output. On Windows, you should choose an ASIO driver in order to get lower latency figures. On OS X, most Core Audio device settings will be just fine.

Building Blocks

The building blocks bidules are aimed at the more experienced users. Their main feature is that they have inputs for their main parameters instead of a GUI which means that the parameter values are applied at each sample instead of at each block of samples. With these you can design your own effects and synths.

Audio File

Basic Audio Buffer

Really basic audio buffer that let you decide which index position to record/play. Take note that play has priority on record, meaning that if the buffer is both playing and recording, the buffer will output the sample at the given position inside the buffer before replacing it with the new one.

- Size in ms: the length of the audio buffer in memory
- Interpolation: method used to interpolate samples when the playback speed is different than 1.0
- Audio Input: input for the audio signal you might want to record
- Play Position Input: wanted index position to play at each sample
- Play Gate Input: once a 1 is received the playing will continue for as long that 1 is received in this input
- Record Gate Input: once a 1 is received the recording will continue for as long that 1 is received in this input
- Record Position Input: wanted index position to record at each sample
- Clear Contents Trigger input: send a trigger here to erase the contents of the buffer
- # of samples in buffer Output: the total amount of samples (ie sample rate multiplied by time) available in the buffer, use this to know the upper bound to use (typically in an Accum) in the position inputs

Basic Audio Buffer 2

An evolution of the Basic Audio Buffer to include a display (where you can set the in and out points also through parameter linking) of the contents of the buffer. (Notice extra + and - buttons (mouse wheel can also be used) in the toolbar to zoom in and out) This is a simplified version where the position index is internally managed.

- Size in ms: the length of the audio buffer
- Interpolation: method used to interpolate samples when the playback speed is different than 1.0
- File/Save: set a filename to record the selected portion to a file and add it to the mediapool
- Audio Input: input for the audio signal you might want to record
- Play Gate Input: once a 1 is received the playing will continue for as long that 1 is received in this input
- Playback speed multiplier Input: playback speed
- Record Gate Input: once a 1 is received the recording will continue for as long that 1 is received in this input
- Clear Contents Trigger input: send a trigger here to erase the contents of the buffer
- # of samples in buffer Output: # of samples in buffer Output: the total amount of samples (ie sample rate multiplied by time) available in the buffer

Basic Audio Buffer 2 Ex

An evolution of the Basic Audio Buffer to include a display (where you can set the in and out points also through parameter linking) of the contents of the buffer. (Notice extra + and - buttons (mouse wheel can also be used) in the toolbar to zoom in and out)

- Size in ms: the length of the audio buffer
- Interpolation: method used to interpolate samples when the playback speed is different than 1.0
- File/Save: set a filename to record the selected portion to a file and add it to the mediapool
- Audio Input: input for the audio signal you might want to record
- Play Gate Input: once a 1 is received the playing will continue for as long that 1 is received in this input
- Play Position Input: wanted index position to play at each sample
- Record Gate Input: once a 1 is received the recording will continue for as long that 1 is received in this input
- Record Position Input: wanted index position to record at each sample
- # of samples in buffer Output: use this to know the upper bound to use in the play position input use this to know the upper bound to use (typically in an Accum) in the position inputs
- Loop in point output: The index in the buffer for the loop start point as driven by the UI or parameter linking
- Loop out point output: The index in the buffer for the loop end point as driven by the UI or parameter linking

Basic Audio File Player

Really basic file player that let you decide which position index to play.

- Audio File: select a file from the MediaPool
- Add Files: shortcut to add audio files to the MediaPool
- Interpolation: calculation method for interpolating samples when playing at speeds different than 1x
- Play Trigger Input: send a 1 to start the playback of the file
- Play Gate Input: once a trigger is received the playing will continue for as long that 1 is received in this input
- Play Position Input: wanted sample to play at each sample
- Amplitude Input: wanted amplitude to apply to the output
- # of samples in audio file Output: use this to know the upper bound to use in the play position input or to calculate the length of the file with the sample rate output
- Sample Rate of Audio File Output: sampling rate of the currently selected audio file

Delay Line

Basic delay line

- Audio Input: input for the audio signal
- Delay Length: delay length (in samples)

Envelopes

ADSR Envelope

ADSR envelope

- Gate Input: gate input for the duration of the A, D, and S parts of the envelope
- Retrigger Input: retrigger the ADSR by sending a 1

The second output is an activity gate, it will output 1 for the entire time that the envelope is active.

AHDSR Envelope

AHDSR envelope, the H stands for hold, it's the amount of time the Attack value is maintained before going to the decay state

- Gate Input: gate input for the duration of the A, H, D, and S parts of the envelope
- Retrigger Input: retrigger the AHDSR by sending a 1

The second output is an activity gate, it will output 1 for the entire time that the envelope is active.

Basic ADSR Envelope

Basic ADSR envelope, same as the ADSR envelope except that the values used are inputs instead of sliders.

- Attack Input: Attack time in ms
- Decay Input: Decay time in ms
- Sustain Input: Sustain level in %
- Release Input: Release time in ms
- Gate Input: gate input for the duration of the A, D, and S parts of the envelope
- Retrigger Input: retrigger the ADSR by sending a 1

The second output is an activity gate. It will output 1 for the entire time that the envelope is active.

Basic AHDSR Envelope

Basic AHDSR envelope, same as the AHDSR envelope except that the values used are inputs instead of sliders.

- Attack Input: Attack time in ms
- Hold Input: Hold time in ms
- Decay Input: Decay time in ms
- Sustain Input: Sustain level in %

- Release Input: Release time in ms
- Gate Input: gate input for the duration of the A, H, D, and S parts of the envelope
- Retrigger Input: retrigger the AHDSR by sending a 1

The second output is an activity gate. It will output 1 for the entire time that the envelope is active.

Basic Exponential Envelope

Basic exponential envelope.

Same as the Exponential Envelope except that the decay time is an input instead of a parameter.

Envelope Follower

Basic envelope follower.

The second output is an activity gate, it will output 1 for the entire time that the envelope is active.

Exponential Envelope

Exponential envelope.

The second output is an activity gate. It will output 1 for the entire time that the envelope is active.

Graphical (Trigger) Envelope

Graphical (Trigger) Envelope

Multipoint envelope automation whose transversal is activated (and reset) by a trigger signal. The base unit is in seconds. You can move points and delete them using the delete key (once they are highlighted in blue). you can select multiple points when holding the Ctrl(Windows)/Command(OS X) key.

Synched Graphical (Trigger) Envelope

Synched Graphical (Trigger) Envelope

Same thing as a Graphical (Trigger) Envelope, except that its time base is in quarter notes (PPQ) and it will follow the tempo of a sync source. It will NOT play if not synced or if the sync source is stopped

Filters

Allpass Filter

Basic allpass filter.

- Audio Input: input for the audio signal
- Delay Time: delay time for the filter (in ms)

Allpass Filter 2

Slightly different version of the Allpass filter consisting of a delay line and low pass filter

- Audio Input: input for the audio signal
- Delay Length: delay time (in samples)

Basic Filter

Collection of basic one pole, one zero and one pole/one zero 6db filters that you can cascade to create others.

- Type: select the type of filter

Biquad Filter

Basic biquad filter.

- Audio Input: input for the audio signal
- Frequency Input: frequency to use for the filter for the current sample (in Hz)
- Q/Bandwidth: Q/Bandwidth for the current sample, depending on the selected filter type

Comb Filter

Basic comb filter.

- Audio Input: input for the audio signal
- Delay Time: delay time for the filter in ms

Comb Filter 2

Better version of the comb filter.

- Audio Input: input for the audio signal
- Delay Time: delay time for the filter in samples
- Filter Frequency: frequency value to use for the comb filter internal filter

Crossover Filter

Basic crossover filter.

- Audio Input: input for the audio signal
- Frequency Input: frequency to use for the filter for the current sample (in Hz)

FIR

Only does Hilbert 90 degree phase shift for now. And coeffs are only valid in 44100 or 48000 sampling rates (for now).

FIR Table

Brute-force convolution through a loaded impulse or a user drawn waveform, length can be set by user, fading out the impulse is optional but recommended if the impulse is longer than the maximum length

- Audio Input: input for the audio signal
- Audio Output: convolution result
- Latency in samples: latency introduced by the convolution depending on the parameter values

Gate

Simple bidule that outputs 1 while the checkbox is on and 0 otherwise,

Gate Clock

Simple bidule that outputs 1 for a specified duration then 0

- # of samples for the gate to be active: the clock length
- Reset Clock: trigger input to reset clock

MIDI

Activity

Outputs a 1 at each sample a MIDI event occurs.

Aftertouch Creator

Creation of MIDI Aftertouch events. It stores the last value for any given Aftertouch note number and will output an Aftertouch event only if the value has changed. The amount of created events is bound by the MIDI specifications which means about a thousand events per second.

- Aftertouch Note Number Input: the note number of the Aftertouch event to create
- Aftertouch Normalized Value Input: the Aftertouch value remapped between 0 and 1
- Trigger Input: to force the creation of an Aftertouch event (otherwise only created when the number or value input has changed)
- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

Aftertouch Extractor

Extraction of MIDI Aftertouch events. When an Aftertouch event is received the outputs are changed to reflect that value.

- Note Number Output: the note number of the Aftertouch event
- Normalized Value Output: the Aftertouch value remapped between 0 and 1

Basic Channel Remapper

Change the MIDI channel of incoming MIDI events to the input value, specially useful when using extractors/creators to manipulate MIDI events

- MIDI Channel Input: the channel to remap the event to

CC Creator

Creation of MIDI CC events. It stores the last value for any given CC number and will output a CC event only if the value has changed. The amount of created events is bound by the MIDI specifications which means about a thousand events per second.

- CC Number Input: the number of the CC to create
- CC Normalized Value Input: the CC value remapped between 0 and 1
- Trigger Input: to force the creation of a CC (otherwise CCs are created only when CC number or value has changed)
- 14bit CCs Mode: create 14bit CC instead of 7bit if the CC number is valid (0-31)

- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

CC Creator (Multi)

Possibility to create all 128 MIDI CCs in a single bidule, this will keep track of the last value for all CCs and only output a new CC if the incoming value has changed

- CC Normalized Value Input: the CC value remapped between 0 and 1

CC Extractor

Extraction of MIDI CC events. When a CC event is received the outputs are changed to reflect that value.

- CC Number Output: the number of the CC
- CC Normalized Value Output: the CC value remapped between 0 and 1
- 14bit CCs Mode: interpret CCs 0 to 31(32-63) as 14bit instead of pair of 7bit

CC Extractor (Multi)

Extraction of all 128 MIDI CCs in a single bidule

- CC Normalized Value Output: the CC value remapped between 0 and 1

Channel Extractor

Extraction of the MIDI Channel of any incoming MIDI event.

- Channel Number Output: the channel number for the event

Channel Pressure Creator

Creation of MIDI Channel Pressure events. It stores the last value and will output an event only if the value has changed. The amount of created events is bound by the MIDI specifications which means about a thousand events per second.

- Channel Pressure Normalized Value Input: the Channel Pressure value remapped between 0 and 1
- Trigger Input: to force the creation of a Channel Pressure event (otherwise only created when the number or value input has changed)
- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

Channel Pressure Extractor

Extraction of MIDI Channel Pressure events. When a Channel Pressure event is received the output is changed to reflect that value.

- Normalized Value Output: the Channel Pressure value remapped between 0 and 1

MIDI Delay Basic

Delays the MIDI event for a specified amount of time in samples, the delay time is taken at the same sample index in the current buffer that the MIDI event.

- Delay time in samples: the amount of samples to delay the event

MIDI Gate

Use a gate signal at audio rate to control if a MIDI event goes through or not, the gate value is taken at the same sample index in the current buffer that the MIDI event.

- Gate Signal: 1 to let event pass, 0 to block

Map

Map: association between a number(key) and a MIDI event(value), the data will be kept until it is explicitly cleared or overwritten

- Read Index Input: send the key for the MIDI event you wish to read, will be read as an integer
- Read Trigger Input: send a 1 to read the MIDI event at the read index
- Write Index Input: send the key for the MIDI event you wish to write, will be read as an integer
- Write Trigger Input: send a 1 to write the MIDI event to the write index
- Clear Index Input: send the key for the value you wish to remove from the map, will be read as an integer
- Clear Trigger Input: send a 1 to clear the value at the clear index
- Clear All Trigger Input: empty the contents
- Write Event Input: send the MIDI event to be saved at the write index
- Number of Elements Output: the current number of key-value pairs in the map
- Event Output: the MIDI event when a read trigger occurs

Message Creator

Create MIDI messages directly (Note: there is no validation on the resulting MIDI message) by specifying the 3 data bytes.

- data0, data1, data2 Inputs: value for the 3 data bytes of a MIDI message
- Trigger Input: to force the creation of a message event (otherwise only created when an input has changed)
- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

Message Extractor

Extracts MIDI messages directly (Note: there is no validation on the incoming MIDI message) to the 3 data bytes.

- data0, data1, data2 outputs: value for the 3 data bytes of a MIDI message

Note Closer

Will act as a passthrough and keep track of opened notes, when it receives a trigger (1.0) signal on its audio input, it will send Note Off events (at the same sample index the trigger is received) for all currently opened notes.

Note Creator

The opposite of the MIDI Note Extractor: use values to generate MIDI notes.

- Frequency Input: frequency value for the outgoing MIDI note (in Hz)
- Amplitude Input: velocity value remapped between 0 and 1
- Gate Input: input for the gate signal, set to 1 on MIDI Note On until a MIDI Note Off is received
- Trigger input: input for triggers, set to 1 for the sample on which the MIDI note should be created
- Add Microtonal info (param): if this is selected, the outgoing MIDI notes will carry a detune factor if the frequency input is not an exact MIDI note

Look at the Arpeggiator group's internals for an example of how to use the MIDI Note Creator.

Note Creator 2

MIDI note creator for creating multiple notes, this version doesn't keep memory of what note is on or off

- Frequency Input: frequency value for the outgoing MIDI note (in Hz)
- Amplitude Input: velocity value remapped between 0 and 1
- Note On Trigger Input: send a 1 when you want to create a Note On event
- Note Off Trigger Input: send a 1 when you want to create a Note Off event
- Add Microtonal info (param): if this is selected, the outgoing MIDI notes will carry a detune factor if the frequency input is not an exact MIDI note

Note Extractor

Useful information extracted from MIDI Note On/Off events.

- Frequency Output: frequency value for the incoming MIDI note with pitch bend applied (in Hz)
- Amplitude Output: velocity value remapped between 0 and 1 (NOTE ON only!)
- Gate Output: output for gate signal, set to 1 on MIDI Note On until a MIDI Note Off is received
- Trigger Output: output for triggers, set to 1 for the sample on which the MIDI note is received
- Stealing Mode: select "Use Lowest" to have portamento
- Glide Time: used when in portamento mode
- Wheel Range: range of the pitch bend in cents
- Always Retrigger: select this to send a trigger output even if the note is currently in legato (portamento mode)

Note that once a note is received, the frequency and amplitude outputs will continue to output the previous note's information, even if note becomes OFF (gate=0). This is useful to allow for proper envelope release. Please look at the "PhatSynth" group's internals for an example.

Note Extractor 2

MIDI note extractor similar to MIDI Note Creator 2 contrary to the MIDI Note Extractor this version doesn't keep memory of what note is on or off

- Frequency Output: frequency value for the incoming MIDI note (in Hz)
- Amplitude Output: velocity value remapped between 0 and 1
- Note On Trigger Output: sends a 1 on a Note On event
- Note Off Trigger Output: sends a 1 on a Note Off event

Pitchbend Creator

Creation of MIDI Pitchbend events from values, events will be created automatically when the input value changes

- Normalized Value Input: the value for the Pitchbend remapped between -1 and 1 where 0 is no pitch change
- Trigger Input: send a 1 to force the creation of a Pitchbend event even if the number hasn't changed
- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

Pitchbend Extractor

Extraction of MIDI Pitchbend events. When a Pitchbend event is received the output is changed to reflect that value.

- Normalized Value Output: the value for the Pitchbend remapped between -1 and 1 where 0 is no pitch change

Program Change Creator

Creation of MIDI Program Change events from values, events will be created automatically when the input value changes

- Program Change Number Input: the program number for the event to create
- Trigger Input: send a 1 to force the creation of a program change event even if the number hasn't changed
- Auto-detect value changes parameter: keep track of the incoming values and create new events when there is change if this is off, events are only created when a trigger is received.

Program Change Extractor

Extraction of MIDI Program Change events. When a Program Change event is received the output is changed to reflect that value.

- Program Number Output: the program number for the event

Stack

Stack for MIDI events that can be set either as FIFO (first in first out, i.e. events comes out in the same order they came in) or LIFO (last in first out i.e. events comes out in the opposite order they came in).

- Pop Trigger Input: send a 1 to remove the next event from the stack
- Push Trigger Input: send a 1 put the MIDI event at the current sample in the stack
- Event Input: send your MIDI stream here
- Empty Stack Trigger Output: sends a 1 when the last element of the stack has been popped
- Event Output: outputs the popped MIDI event

Time Delta

Outputs the time in samples between the last two MIDI events.

Voice Counter

Outputs the current number of voices for the MIDI stream connected at its input.

Map

Map: association between a number(key) and another(value), the data will be kept until it is explicitly cleared or overwritten

- Read Index Input: send the key for the value you wish to read, will be read as an integer
- Read Trigger Input: send a 1 to read the value at the read index
- Write Index Input: send the key for the value you wish to write, will be read as an integer
- Write Trigger Input: send a 1 to write the value to the write index
- Write Value Input: send the value to be saved at the write index
- Clear Index Input: send the key for the value you wish to remove from the map, will be read as an integer
- Clear Trigger Input: send a 1 to clear the value at the clear index
- Clear All Trigger Input: empty the contents
- Value Output: the value when a read trigger occurs
- Number of Elements Output: the current number of key-value pairs in the map

Math

Accum

Accumulate at each sample by a specified amount and output the value at each sample with defined minimum and maximum values.

- Accumulation type: select the wanted operation to use
- Loop values between low/high: if this is selected, the accum will wrap around when hitting the lower/upper bound
- Value to Accum Input: at each sample, use this value and the selected operation on the current value to get the new current value
- Start Value Input: the start value
- Reset Trigger Input: when a 1 is received, resets the accumulated value to the minimum
- Inclusive Lower Bound Input: lower bound of the accum
- Exclusive Higher Bound Input: upper bound for the accum
- Wrap Around Output: outputs a 1 when wrapping from max to min value

Binary Logic Operator

Simple logic operator.

- Left-Side Argument Input: input for the left-side argument of the logic operator
- Right-Side Argument Input: input for the right-side argument of the logic operator

Binary Operator

Math binary operators.

- +
- -

- *
- /
- %
- **
- MIN
- MAX
- LOUDEST
- QUIETEST
- atan2

Change

Monitors the incoming signal and outputs 0 when the current sample value is the same as the previous one, 1 when it's greater, and -1 when it's lower.

Clip

Clips the incoming signal between the specified minimum and maximum values. Don't forget to hit ENTER to validate a value you just typed.

Constant

Useful set of available constants; you can also specified your own.

Counter

Simple counter with specified minimum and maximum values. Don't forget to hit ENTER to validate a value you just typed.

- Number of samples to increment at Input: used to specify the counting interval. (I.e. increment at each 10000 samples)
- Reset Trigger Input: send a 1 to reset the counter

Function

Mathematical expression with up to 3 variables (fed into the three inputs) that is evaluated at each sample. Don't forget to hit ENTER to validate the function you just typed. The following functions and constants are available:

- +, -, *, /
- abs(x)
- floor(x)
- ceil(x)
- exp(x)
- ln(x)
- sin(x)
- sinh(x)
- cos(x)
- cosh(x)
- tan(x)
- tanh(x)
- asin(x)
- acos(x)
- atan(x)
- sqrt(x)
- atan2(x,y)
- mod(x,y)
- min(x,y)
- max(x,y)
- pi()

Function (Recursive)

Same as the Function bidule except that you have access to the 4 previous values of each variable as well as the 4 previous results using the following functions with 1, 2, 3 or 4 as the parameter.

- prevX(n)
- prevY(n)
- prevZ(n)
- prevR(n)

Logic Gate

Simple logic gate.

- Left-Side Argument Input: input for the left-side argument of the logic operator
- Right-Side Argument Input: input for the right-side argument of the logic operator
- Value for True Input: input to be redirected to the output when the operator result is true
- Value for False Input: input to be redirected to the output when the operator result is false

Lookup Table

A 512 point lookup table with linear interpolation.

- Index Input: input for 0-based index of the point you want
- Value Output: value (interpolated if needed) for the wanted point

Unary Operator

Math unary operators.

- INVERSION
- RECIPROCAL
- ABS
- FLOOR
- CEIL
- SQUARE
- CUBE
- SQRT
- EXP
- LOG
- LOG10
- SIN
- COS
- TAN
- ASIN
- ACOS
- ATAN
- SINH
- COSH
- TANH
- LOGICAL NOT
- ROUND

Unit Converter

Useful sets of common unit conversions.

Value List

A list of values separated by a semi colon (;). A value will be output until the next trigger is received - by sending a 1 in the trigger input. The second input is used to reset the list to its first member (without requiring to wait until the list loops back to start).

Value List 2

A variation on the Value List, it adds some useful outputs

- Current Index Output Output: The index of the current value
- Total Elements Output: The current number of values in the list
- Wraparound Trigger Output: sends a single trigger when the current index goes back to 0

Value List Indexed

A list of values separated by a semi colon (;).

- Index Input: Index of the value to output
- Value Output: The value
- Number of Values Output: The current number of values in the list

Variable

User-defined variable range with slider and input box. Don't forget to hit ENTER to validate a value you just typed.

- Min and Max: define the range of the slider

Variable (Int)

Same as the Variable except that the value will always be an integer.

Crossfader (Basic)

A building block version of the Crossfader using a [0, 1] range as the fade value as an audio rate input

Multi-tap Delay

A 4-tap delay with up to 120000 milliseconds (2 minutes) delay

- Audio Input: input for the audio signal
- Delay for Tap n in samples Input: delay length for the current sample (in samples)

- Tap n Output: the delayed signal

OSC

OSC Creator

Let you send an OSC message at a specified OSC address, the number of arguments of the sent message is the number of connected inputs.

- Parameter 1 to 8 Inputs: parameters for the OSC message
- Trigger to send message Input: send a 1 to use the values at the parameter inputs to send an OSC message
- Force int parameters (param): message will be send with integers instead of floats parameters

OSC Creator 2

More complex and flexible version of OSC Creator, the number of arguments of the sent message is the number of connected inputs and any parameter defined as Strin

- Parameter 1 to 8 Inputs: parameters for the OSC message
- Trigger to send message Input: send a 1 to use the values at the parameter inputs to send an OSC message
- OSC Parameter Type :
 - Float from input: take the incoming signal and use it for a float parameter to the OSC message.
 - Int from input: take the incoming signal and use it for a integer parameter to the OSC message.
 - String: take the value field and use it for a string parameter to the OSC message.
 - Format string with float input: C format string to generate the parameter value using the value field and the incoming signal as a float: param_%f
 - Format string with int input: C format string to generate the parameter value using the value field and the incoming signal as a int : voice_%n
- OSC Parameter Value: only used for String, Format string with float input, Format string with int input.

OSC Extractor

Let you specify an OSC address to receive OSC message

- Parameter 1 to 8 Outputs: parameters for the OSC message
- Trigger on message received Ouput: sends a 1 when an OSC message is received at the specified address

OSC MIDI

Send and receive MIDI using OSC, the OSC address it sends to and receives from is the path and name of the bidule appended with MIDI (e.g. /OSC_MIDI_0/MIDI if in the root of a layout, /GroupName/OSC_MIDI_0/MIDI if it's inside a group named GroupName and that group is in the root of the layout). The expected message for is 3 integer parameters representing the 3 MIDI bytes, an optional fourth float parameter can be use to apply a detune in cents.

Oscillators

Basic Oscillator

A simple oscillator with a bandlimited (or not:) signal.

- Frequency Input: frequency value (in Hz)
- Amplitude Input: amplitude value between 0 and 1
- Phase Reset Input: trigger input to reset the phase to 0
- Phase Offset Input: input for the value to use as the applied phase offset.

By using a combination of phase reset/phase offset you can create for example, PWM or Phase Distortion synthesis.

Noise

Generates different types of noise (white and pink for now)

Pulse

A simple pulse generator.

- Frequency Input: frequency value (in Hz)
- Amplitude Input: amplitude value between 0 and 1
- Number of Harmonic Input: number of harmonics present in the pulse.

Random

Generates random values at the specific rate.

- Rate Input: rate at which new values are generated
- Amplitude Input: amplitude value between 0 and 1

Sample And Hold

Basic sample and hold.

- Audio Input: input for the audio signal

- Trigger Input: input for the signal with zero crossings

Sanitizer

Cleans the incoming signal of denormals, infinite and nans

Smoother

Smooths the incoming signal to avoid jumping values, mainly aimed to be used on control signals

Stack

Stack for samples that can be set either as FIFO (first in first out, i.e. samples comes out in the same order they came in) or LIFO (last in first out i.e. samples comes out the opposite order they came in).

- Value Input: send your value here
- Pop Trigger Input: send a 1 to remove the next sample from the stack
- Push Trigger Input: send a 1 put the sample from the Value input at the current sample index in the stack
- Value Output: outputs the popped sample
- Empty Stack Trigger Output: sends a 1 when the last element of the stack has been popped

Sync Creator

You can use this bidule to create your own sync source to control other bidules and plugins

- Playing Gate Input: send 1 continuously for play and 0 for stop
- Tempo in BPM Input: input for the tempo, the time signature can be set on the GUI
- Reset Position at 0 Trigger Input: send a 1 here to reset the position a 0ppq
- Offset in PPQ Input: offset to use when creating the sync information as the creator uses its own timeline, and restarts at 0 when requested

Sync Extractor

You can sync this bidule to any master bidule to use some of the sync info for your processing.

- Playing Output: sends 1 when playing and 0 when not
- BPM Output: the current BPM
- Numerator Output: the current time signature numerator
- Denominator Output: the current time signature denominator
- Samples per beat Output: # of samples per beat
- ppq Pos Output: the current ppq position
- Last Bar started at Output: start ppq of the last bar
- Trigger at bar Start Output: sends a 1 at each start of bar

Trigger

Sends a trigger (a value of 1) in the output signal when the the button is pressed, or at the start of each measure when synched to a syncsource.

Trigger Clock

Sends a trigger (a value of 1) in the output signal when the # of samples has been counted.

- # of samples between triggers Input: # of samples before sending a trigger
- Reset Clock Input: send a 1 here to restart the clock to the current # of samples input

Chapter 5. VST and VSTi support

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VST and VSTi Plugins

Bidule's VST implementation is somewhat different than what you might be accustomed to from other hosts. The fact that this host is modular, for instance, allows any possible combination of wiring that you can think of. This leads to new set of possibilities for plugin developers.

The VST 2.0 standard is full of very nice features, that are slowly being used by developers of both plugins and hosts out there. We at Plogue, feel many of these features should be used more often. We tried in Bidule to implement most of the more obscure features. Here's a rundown of Bidule's VST peculiarities.

Input/outputs configurations

We really support all possible combinations of ins and outs for VSTs. Audio Effects receiving/transmitting MIDI, synths with audio input, we even support MIDI only plugins (no audio ins and outs). There are few MIDI only plugins available, though, but they could be easily created. Interested developers may ask us for a template.

Tempo Sync

Not only VST plugins in bidule can receive tempo/sync information, but they can also become sync generators! VST Sequencers to which others modules will sync to is now a possibility, as an example [TobyBear's MetroGnome](#)

Plugins availability

- Unique IDs

Unique IDs are a standard feature of the VST format that helps the hosts differentiate the plugins. While many hosts use the file name of the plugin as reference, Bidule and others use their unique IDs (which is the cleanest and most cross platform way to go). Sadly, most commercial hosts out there don't look at those, so n plugin developers don't enter a unique ID when they code their plugins. As a result, many plugins use the default names that were chosen by Steinberg in the SDF: "Gain", "ADIE", "ADly" and "VxSy". We, and other host makers, have decided to deny the right for plugins using these IDs to work in Bidule. This is for reasons of code purity mostly, and to force developers to fix their plugins.

Same applies to Bidule, if a developer points out a fault in Bidule's hosting, we will gladly cooperate and fix our bugs. (Nobody writes perfect code:)

- Internal names vs. plugin file names

One of those features that are used more and more are the plugin's internal names, which can give a better description of the plugin to the user than its filename would. For example "Spectral Inverter Using Pvoc", instead of "si_up.dll" or "si_up.vst". If a plugin doesn't provide a name, Bidule will then revert to its filename.

Users wanting to use the filename only can change this option in the preferences menu.

- Company name vs Directory names

As with Internal Names, the VST 2.0 standard also supports the plugins that export their company (vendor) name. Most newer plugins support this feature, but older ones seldom do. These automatically go into the "Unknown Vendor" category.

Users wanting to categorize plugins by their directory structure instead can do so by changing this option in the preferences.

VST banks and parameters vs MIDI CCs and program changes

A VST plugin's internal programs and the normal 128 patches of a MIDI synth are sometimes 1 to 1, and sometimes completely unrelated. It's a case by case basis. We are still not sure on what would be the best solution for the users.

Some VST plugins can also choose to listen to some CC's _themselves_ and map their internal parameters without Bidule knowing about it!!! (You can imagine the conflict with Bidule's parameter mapping:)

As a host, Bidule can't do much about that sadly, so any VST plugin can decide to map incoming MIDI CCs to their internal parameters without telling the host about it (in fact there is no way for the host to know). However, the Bidule CC learning is there on top of that, in case the plugin doesn't do it.

Two solutions we can think of right now:

- Use the MIDI Message Filter bidule to filter out all CCs going to a particular VST plugin so that Bidule CC mapping becomes the only one that applies.
- For the users to use two MIDI input devices. ex: PhatBoy plugged in MIDI Input 1 (and only used as parameter mapper). Keyboard plugged to MIDI Input 2 and routed to VSTi plugin.

VST errors reported by Bidule

Each plugin can report info/errors of its own. But Bidule can also show supplemental ones on top of those for each plugin:

- Duplicate VST plugin ID found ("a.dll uses the same ID as b.dll : PLUG")

This can suggest a couple of things. Either you have two duplicate plugins in your folder (potentially an older version along with a recent one!) or that two developers were unlucky enough to choose the same unique ID when they created their plugins. In either case, you will have to sacrifice one or the other and resc in the meantime, informing the plugin author would be a great help to the community.

- VST Plugin Error ("a.dll caused an error while unloading so it will not be used.")

This means the plugin didn't deallocate properly when Bidule was testing it (leaving leaked objects around). While the plugin might work before being unloaded, we found it was wiser to disallow using this plugin at all, since each time you would delete it from the patchbay, it would have left Bidule in an undesirable state. To be on the safe side, you should remove the plugin from your VSTplugins folder, save your layout, and restart Bidule.

- VST Plugin Error ("plugin a.dll by companyX caused an unknown exception and will be set to bypass")

This error will be reported when using the plugin, it means that the central processing function of the VST plugin caused a fatal error. Most other hosts would have died by now, but instead of killing Bidule, we set the plugin to bypass automatically. Mind you, as for critical scanning errors, it is always wiser to save your patch and reload it after a fresh restart of Bidule.

- Too common Unique ID used! ("a.dll uses a common id")

"Gain", "ADIE", "ADly", or "VxSy" Unique ID has been detected. As previously mentioned, Bidule will refuse to use any of these plugins in order to strictly respect the VST 2.0 standard.

Yet to be implemented VST Features

Bidule has yet to support the following VST features

- pinConnected interface (too many plugs only check this when playing starts. This means that if you connect a in/out while Bidule is processing audio, you might not get any result unless you stop the processing and restart).

If you are a plugin developer and think that Bidule is missing some other interfaces, please contact us.

Chapter 6. ReWire support

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Bidule ReWire support.

Bidule currently supports ReWire functionality in both master and slave modes. In master mode, it can load ReWire devices in its patchbay as a ReWire master. Using ReWire devices in Bidule in this way is similar to using VST plugins (with outputs only) or instruments (in the case of Reason, for instance). In ReWire slave mode, the ReWire Device bidules acts as the Audio output within the patchbay, with MIDI input from the ReWire master application.

Basics

In order to use a ReWire device in Bidule, you must :

- Close any other ReWire Mixer applications (like Cubase SX)
- Start Bidule
- Add the appropriate ReWire device to the patchbay (right-click the patchbay and select ReWire Devices, then the desired device)
- Start the device's application (Live/Rebirth, etc, - but Reason will start by itself)

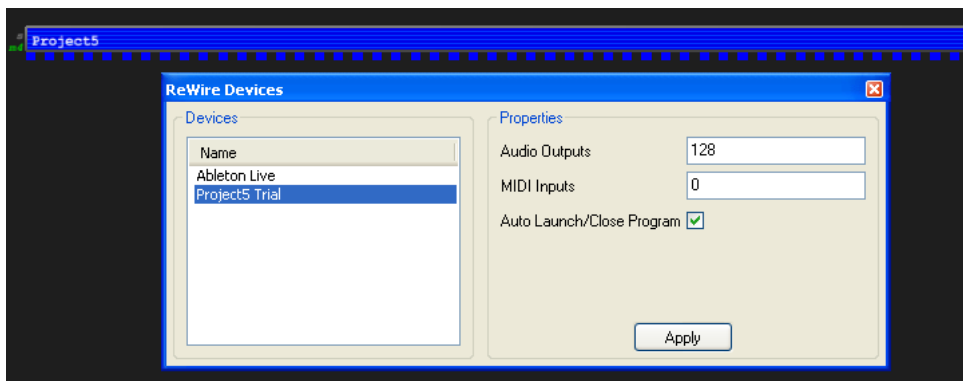
Then to end your ReWire session:

- Close the device's application (Live/Rebirth, etc, - but Reason will close by itself)
- Remove the device from Bidule's patchbay (or close the current patch)

The order in which these steps are taken are of utmost importance more info here: [ReWire Info](#).

ReWire Devices Config

Slaved ReWire devices can have quite a few audio channels available and take up a lot of space on the patchbay. The Project 5 ReWire device bidule, for instance, has a total audio outputs by default! In addition to this, the ReWire devices can also have a potentially large number of MIDI outputs. To keep the size of your ReWire device bidules more manageable, select Tools > ReWire Devices Config dialog to manage the number of audio outputs, number of MIDI inputs, and the Auto Launch behavior (if the ReWire device application supports Auto Launch).



Note that this only restricts the audio outputs/MIDI inputs visible on the ReWire device bidule in the patchbay. As far as the slaved ReWire application is concerned, nothing has changed and the full number of inputs/outputs is available.

ReWire Slave Basics

In order to slave Bidule to another ReWire master device, you must do the following steps in the exact order below:

- Launch the ReWire master application
- Activate at least one output of the Plogue Bidule ReWire device. (How you do this varies from program-to-program - consult your ReWire application's manual for more details.)
- Launch Bidule. The splash screen will indicate that Bidule is in ReWire mode.
- Connect any MIDI outputs from the master ReWire device to any desired instruments in Bidule, and connect all audio from Bidule to the appropriate audio inputs on the Bidule ReWire device to send audio to the ReWire master application.

Special notes:

- Windows Digidesign hardware and software users : before trying to use Bidule as a ReWire device, please launch Bidule in standalone mode and go to the "Preferences" entry in the "Edit" menu and double-click the "Use Alternate ReWire Bridge" entry. The default ReWire bridge implementation is causing problems with the Digidesign drivers.
- Bidule will only receive tempo/transport sync from the ReWire master if this one runs at a specific audio buffer size, matching Bidule's 512,256,128,64, or 32. Running your ReWire master at one of those buffer sizes also guarantees you zero added latency when running with Bidule.

ReWire Sync

When Bidule is in ReWire master mode, most ReWire devices will be able to act as either Master or Slave sync interfaces. This means that they can be slave or master to other devices, other bidules (like the Audio File Looper), and plugins requiring sync (timing) information. Starting play in the slaved ReWire application will start play all items synched to the ReWire bidule. If the ReWire device is synched to a master in Bidule, then its playing will not start until the tempo master in Bidule gets started.

When Bidule is in ReWire slave mode, the ReWire device can only act as a tempo master. Bidule still can, of course, contain other independent sync masters in addition to the ReWire device.

Sending MIDI to ReWire Devices

Be aware that not all ReWire devices support that feature.

You can control the number of MIDI ports available on a slaved ReWire device in the ReWire Devices Config dialog (see above).

Knowing the current mapping

If you double click on the patchbay representation of the ReWire device, you will get an info popup, which gives information on the current channel mapping for each track currently through ReWire. By using Bidule's MIDI Channel filters/re-mappers, you can then reach the specific unit you require in Reason.

Troubleshooting ReWire Problems

- Bidule is not launching in ReWire slave mode when I start it!

Did you remember to add the Plogue Bidule Device to the track...? If you didn't, then Bidule has no way of knowing you wanted it to be a ReWire slave.

- Bidule is always launching in ReWire slave mode, but I want it to be in independent mode.

This will usually happen if there was a crash while running as a ReWire device. Use the "Clear ReWire Mode status" menu entry under "Edit" to fix this.

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Ableton Live is a trademark of Ableton AG, Berlin, Germany.

Chapter 7. Groups

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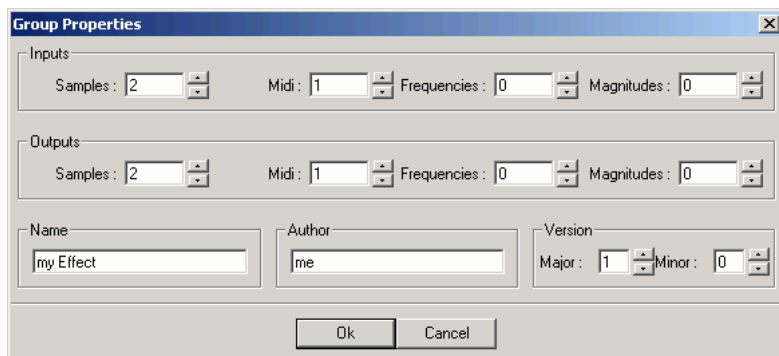
[Group Manager](#)

[Group Submenu](#)

Bidules can be grouped together to form a new bidule that you can save and see appear in the Palette. This way, instruments and effects can be built, re-used and shared. Anything related to a group in Bidule is shown in italics (labels in the patchbay, items in the Parameter and Palette windows).

Creating a new group

Selecting "New" from the Group submenu will pop up the Group properties dialog box, in which you will be asked to input the configuration of the group you want to create. E.g.: its number of inputs or outputs and of which types, its name... etc. The display path is to customize where your group will show up in the Palette and context menu instead of simply showing up under Groups. You need to use "\t" (without the quotes) as a separator, eg "me\tmyGroups\tMyGroup" will make MyGroup show up under me->myGroups.



Group Properties

Inputs

Samples: 2 Midi: 1 Frequencies: 0 Magnitudes: 0

Outputs

Samples: 2 Midi: 1 Frequencies: 0 Magnitudes: 0

Name: my Effect Author: me Version: Major: 1 Minor: 0

Ok Cancel

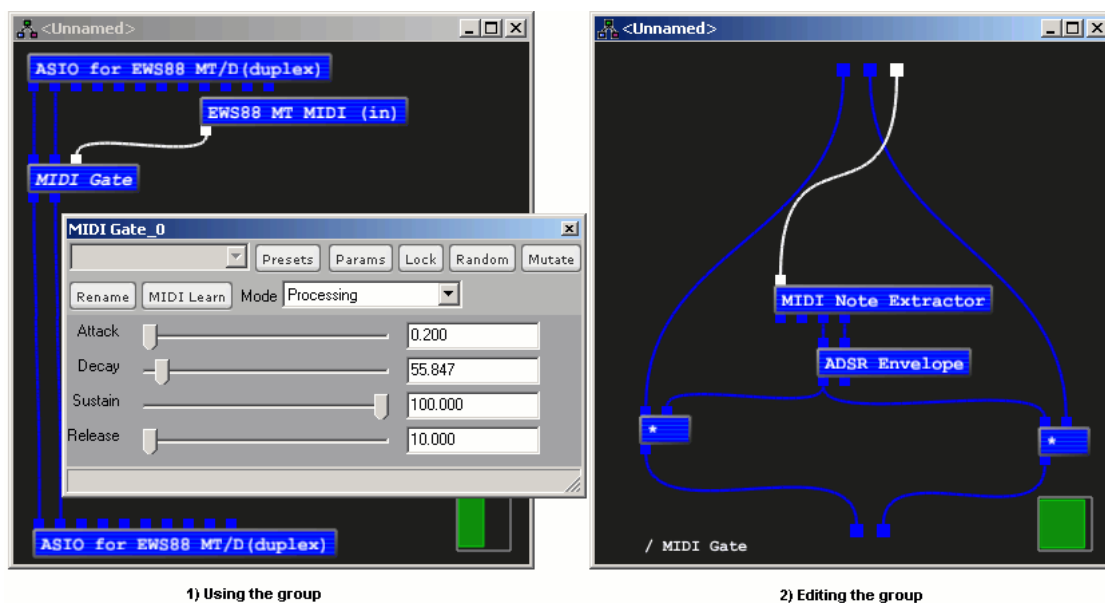
Creating a new group from a selection of bidules and links

Select a few bidules and links on the patchbay, right click on the selection and choose Group:Group selected object(s).

Group navigation

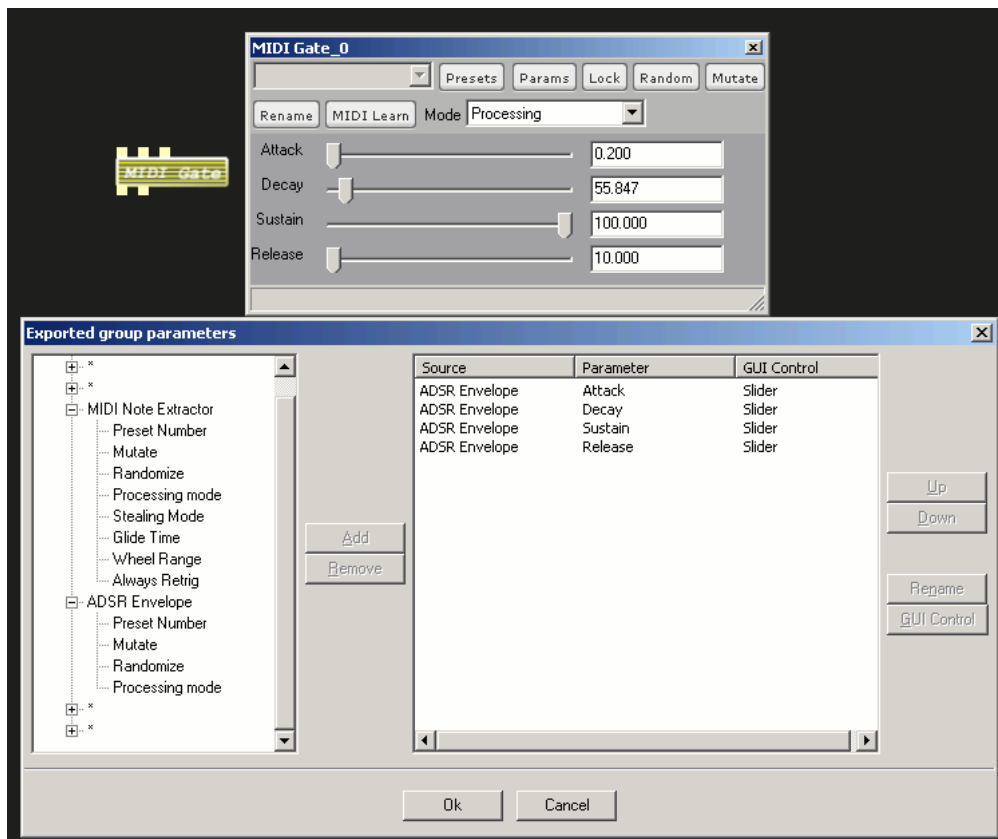
Once a group is created or selected, you can expand it by double-clicking on it while holding the CTRL(Windows)/Command(OS X) key. To go back to the parent group hit the BACKSPACE(Windows)/TAB(OS X) key. You can also use the menu items found under the "Group" menu in the contextual menu (right click on a group to access it).

Once inside a group, you will see a white text line at the bottom of the patchbay. This line identifies the current location (ie. inside a group or several subgroups).



Exporting group parameters

It is possible to select parameters from the children of a group and "export" them as parameters for the group itself. For example, create a group and add a Gain bidule inside it. Select Group: Parameters from the contextual menu. Select the amplitude item in the tree to the left and click "Add". Select the "Amplitude" parameter that just appeared in the list at right, click "Rename", and enter a new name for this exported parameters (for example "Final Amplitude"). Click "OK" to close the rename dialog and click "OK" once again to close the "Exported Group Parameters" dialog. For advanced users, you can also change the type of control used to represent the parameter in the group window by clicking on the GUI Control button. The Columns control enables you to set the number of columns to use for the group window, the default is 1 to have a vertical list of all parameters. The parameters will be displayed in the following order if you choose to change the Columns value : parameter #1 parameter #2 parameter #3 parameter #4 parameter #5 parameter #6



Now, if you double-click on the the group in the patchbay you will see a window allowing you to edit the parameter you just exported. Setting its value will automatical set the value of the "Amplitude" parameter of the "Gain" bidule inside the group.

Exported parameters can also be linked in the Parameter window and controlled from MIDI.

Editing group properties

To edit a group's properties, right click the group, and select Group:Properties. This will bring up the dialog you saw when you created the group. See the [Creating a new group](#) section. You will need to save the group again if you wish to keep the modification in your re-useable group.

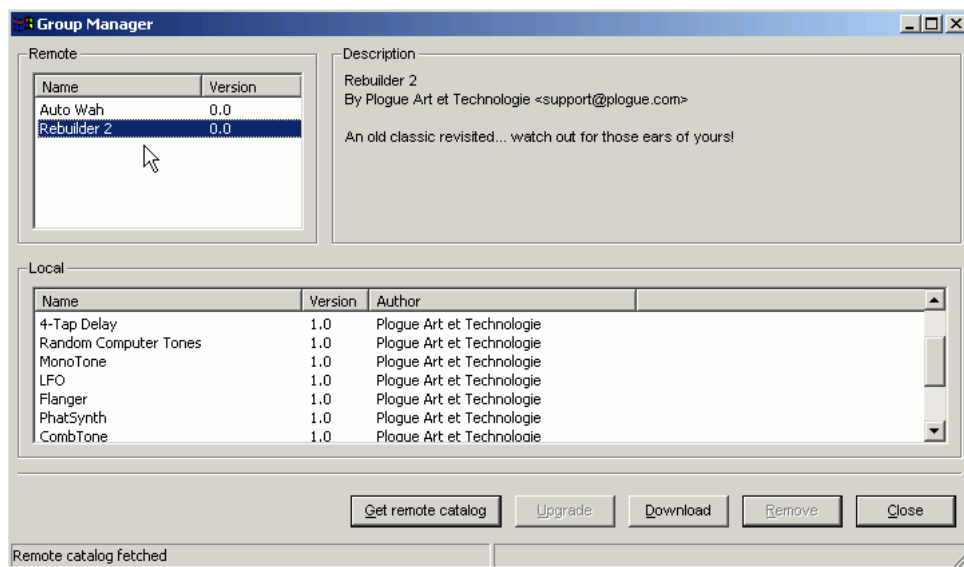
Saving Groups

To save the visible group in the patchbay, right click the patchbay and select Group:Save current group. To save a selected group, right click on the group you want to s and select Group:Save selected group.

Once a group is saved, it will be accessible in the Palette under the "Groups" tree item. To change its name, rename it using [the group properties dialog](#).

Group Manager

The group manager is accessible using the main window menu bar under the "Tools" menu. It allows you to download, upgrade, and delete groups. The upper list show which groups can be installed or upgraded. To update this list, click the "Get remote catalog" button (this will contact www.plogue.com and download a list of available groups). Once a group is downloaded, it is automatically available in the [Palette](#) window (usually under the "Group" category, but it may appear somewhere else).



If you built an interesting group and want to share it with the bidule users community, feel free to post it to our forums or send us the related ".bgrp" file found in the "groups" subdirectory of bidule at [<groupmanager@plogue.com>](mailto:groupmanager@plogue.com).

Group Submenu

The Group submenu on the patchbay's right mouse menu allows you to:

- New: Creates a new group and set its properties
- Save Current Group: Saves the group currently displayed in the patchbay
- Properties: Pops up a dialog to edit the group properties
- Parameters: Pops up a dialog to let you choose the parameters of the current group you want to export
- Parent Group: Goes back to display the parent group

Chapter 8. Building Synthesizer Groups

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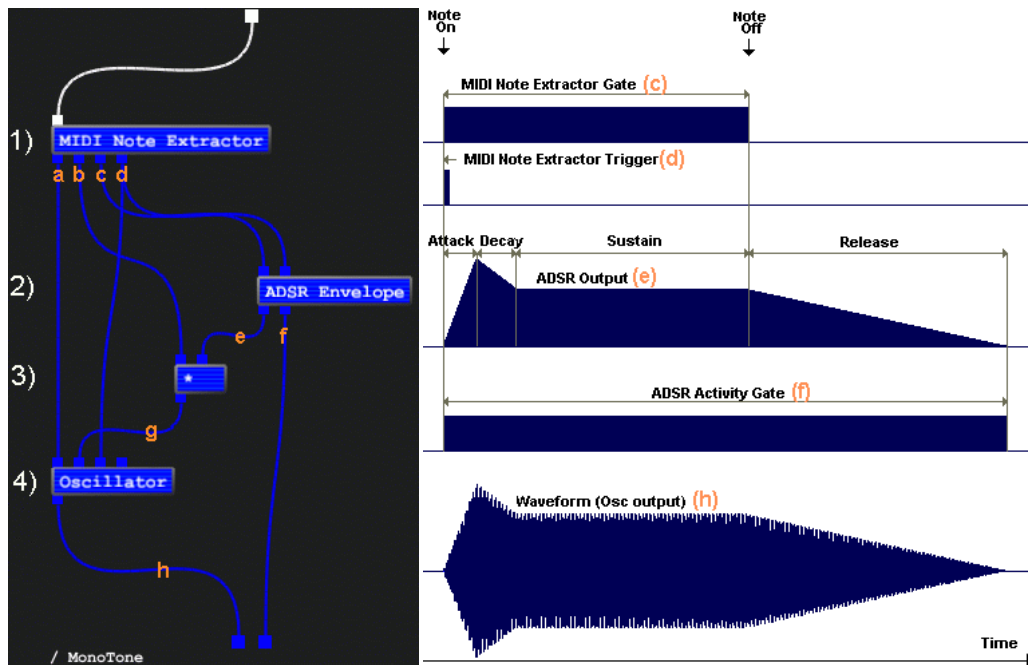
Creating CPU-friendly polyphonic and monophonic synths is now a reality in Bidule. Once you know how to do a group, it's just a matter of following these steps:

Making a voice Group

Let's start by creating the most simplistic synthesizer voice group as a example.

- Create a new group with 1 MIDI input and 2 audio outputs.
- Get inside the group
- Add the 4 modules shown below (you can either create them as shown, or use the already created Monotone group)

Table 8.1. How it works



1) The MIDI Note Extractor does the job of separating the note information encoded into the MIDI stream in a sample accurate manner. More precisely, it decodes the MIDI Note On and MIDI Note Off messages. This is what it outputs:

- (a) Frequency value for the incoming MIDI note with pitch bend applied (in Hz)
- (b) Amplitude (velocity) value remapped between 0 and 1 (NOTE ON only!)
- (c) Gate signal. Set to 1 on MIDI note ON until a MIDI note OFF is received, in which case it's 0
- (d) Trigger. Set to 1 on the sample on which the MIDI note is received, and 0 at any other time

(Please see the bidules section for more details on this bidule.) Once a MIDI note OFF is received, the frequency (a) and amplitude (b) it outputs stay at the same values they had when the note was still ON. This allows for the rest of the group to continue computing the release of the note. (If we don't do this, the note will stop abruptly, creating an unwanted glitch!) Because the Gate output falls from 1 to 0 as soon as the Note is OFF, that's where the ADSR comes in handy...

2) Following down, it's up to the ADSR to generate a normalized (between [0:1]) envelope signal (e) which is independent of the note amplitude (b) given by the extract. It also generates the VERY important "activity gate" (f) signal that the Polyphonic Adapter will use to detect that the note has completely finished playing (release included) so that it can manage this instance of the voice to another note. In more detail, the activity gate output of the ADSR will be "1" or "on" from the start of the note until its completion (the release), after which it will output "0" or OFF.

3) Next the "*" (Binary operator), multiplies the original "Note On" amplitude (b) with the current envelope value generated by the ADSR (e). If you recall, the ADSR generated a normalized gate, so in order to get the final amplitude we need to multiply both together.

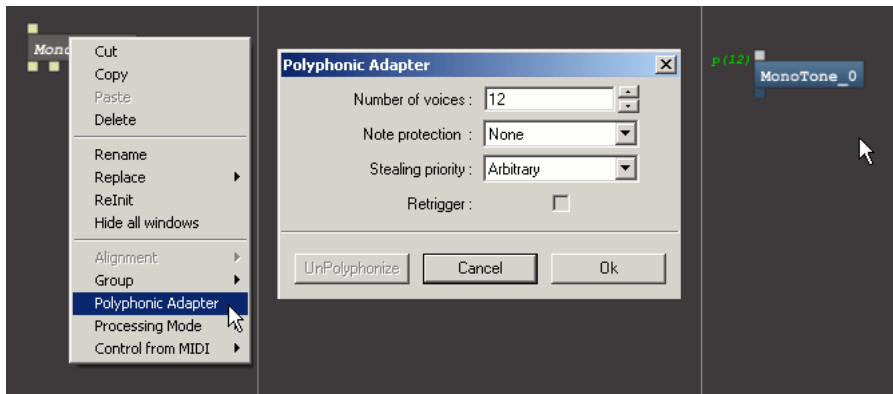
4) Finally the Oscillator (sine wave by default), will output a nice waveform (h) that will have its frequency given by the MIDI Note Extractor, (a) and a smooth amplitude envelope generated by the results of the original amplitude multiplied by the envelope value at a certain point in time (g). If you look closely, you'll notice that the third input of the oscillator - phase reset - is also filled in by the Note Extractor's trigger output (d) so that each time a new Note is sent to the group, the oscillator's phase is set back to 0.

Polyphonic Adapter

You can now go back one level (pressing the BACKSPACE(Windows)/TAB(OS X) key or by clicking on the Parent button on the toolbar), and connect the MIDI input of your voice group to a source (Sequencer or live MIDI input) and ONLY the FIRST output to your soundcard (you don't want to listen to the activity gate directly!!)

Once you are satisfied with the way the voice sounds and behaves, you can now wrap your voice group with the Polyphonic Adapter!

The Polyphonic Adapter is a special bidule that only appears in the right mouse menu of a voice group. (Basically any group that has at least one MIDI input, and at least two audio outputs qualifies as a voice group.) Its purpose is to transparently create cloned copies of your monophonic voice group, and to literally transform it into a polyphonic group. Its job is to listen for all notes that enter it and dynamically dispatch each and every note it receives to one of the clones. It is very customizable, as you can even specify the maximum polyphony, and both the note stealing and note protection algorithms you need for your specific synth. And that's not all! Some polyphonic synths on the market are plain CPU drains as each and every voice consumes resources all of the time. The Polyphonic Adapter in Bidule takes care of that. If only 1 out of 12 maximum voices are needed at one point, then only 1 out of 12 is effectively taking CPU resources. Here's how you wrap a voice:



- 1) Select and right click on your voice group
- 2) Set the wanted settings in the Polyphonic Adapter dialog and press OK
- 3) Use your newly-made polyphonic synth! Notice the little green number left of it? This is a visual cue telling you its maximum polyphony. Notice also that the second output has disappeared? Well in fact it didn't disappear; in reality, the bidule you now see -is- the Polyphonic Adapter itself.

The Polyphonic Adapter is now well in place and monitors incoming notes given to it and looks at the activity gates coming from all its hidden clones. It can now manage the polyphony of your synth.

NOTE: If you later want to modify your source voice, you will first need to "UnPolyphonise" the adapter - which will make it disappear - and make your voice group reappear.

Advanced Polyphonic synth topics

Details on the Polyphonic Adapter's voice management algorithms settings. These settings affect the behaviour of the resulting synthesizer once a new note arrives and there are no more free voice group "clones" to play it. The default settings work well (provided you use a good number of voices, like the default 12), so these settings should not be used carelessly.

Note Protection. With this setting, you can specify if you want certain notes to be protected from being stolen (i.e., when there are no notes available and you want a new note to play).

- None: No note will be protected, any of them can be stolen
- All: All currently playing notes will be protected (warning, the new note will NOT play)
- Lowest: Only the lowest note will be protected
- Highest: Only the highest note will be protected

Stealing Priority, is the complementary option to the Note Protection. It applies to the notes that are playing, but that were not protected by the Note Protection algorithm. Between all the unprotected playing notes, which one will you choose to eliminate first:

- Arbitrary: Don't care, the adapter will randomly steal one
- Quietest: The quietest note will go first (this is usually less noticeable when many notes are playing)
- Closest to New: This will steal the note that's the closest to the new note you want to play
- Oldest: Will steal the note that's been playing for the longest period of time
- Newest: Will steal the note that's been playing for the shortest period of time

Retrigger. This option is only available when you want to use the Polyphonic Adapter to create Monophonic Synths in order to benefit from its automatic Note playing/CPU use management. By clicking this option, ALL MIDI Notes will be fed directly to the single mono voice group. (overlapping or not), so you can use the Portamento features of the Note Extractor. If this option is OFF, only one note at time will arrive to the group.

Voice groups are not limited to being created as shown! They can have more audio ins and outs. All its audio ins will be a direct copy of audio data coming to the Adapter from the outside. So, for instance, if you need your synth voices to modulate to an LFO, but you want this LFO to be the same for all voices, then there's no need to duplicate that LFO 12 times - just keep one outside of the Adapter, and wrap both the adapter and the LFO in another standard group.

Chapter 9. Presets support

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Presets

Bidule supports creating and modifying presets not only for AUs and VSTs but also for internal bidules and groups. Internal presets can be saved as part of the .bidule in which they were created, as independent .bprs (Bidule PReSet) files, or as a default to be loaded every time that type of bidule is loaded.

VST Presets

In addition to its own GUI, each VST plugin interface has a toolbar with three buttons to edit the plugin's presets.

Preset Buttons



- A) Rename - click this button to change the name of the currently-selected preset.
- B) Load - click this button to load an FXB file.
- C) Save - click this button to save a copy of the current presets in an FXB file.

Saving VST Presets

Bidule creates and loads FXB files - a bank of VST presets. Any VST plugin with presets will load with a default bank of presets. You can modify these defaults and then save them as your own FXB files. Every plugin has a finite amount of presets available in one bank; the actual number depends on the plugin. To create your own set of presets, you should first rename the default preset in the VST plugin (so that you know it's been changed from the default). Then make your changes to the plugin's settings. Repeat for as many preset slots the plugin has. You can press the Save button to save your presets as an FXB file at any time. Note: As soon as you change a plugin parameter, that change is immediately written to the preset in that instance of the VST plugin. Also, it is currently impossible to copy one preset slot's settings to another preset slot.

AU Presets

In addition to its own GUI, each AU plugin interface has a toolbar with three buttons to edit the plugin's presets.

Preset Buttons



- A) Rename - click this button to change the name of the currently-selected preset, this will only work for the User preset as other presets are read only.
- B) Load - click this button to load an aupreset file, this will only work for the User preset as other presets are read only.
- C) Save - click this button to save a copy of the current presets in an aupreset file.

Bidule will look into the standard locations for AU preset and automatically add the found files to the list of available presets for a plugin.

Group/bidule Presets

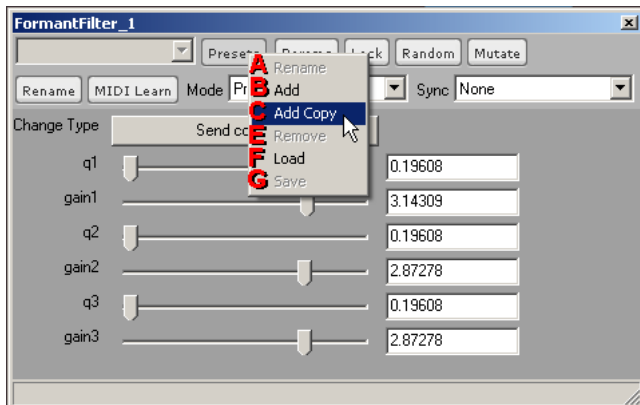
Every bidule and group can have its own bank of presets. While bidule and group presets are created and used in the same way, there are a few small differences in the way they are saved:

Presets created for a bidule/group are only used in that instance of the bidule/group, and are stored only in that .bidule layout.

Presets present in a group when the group is saved as a .brp file are saved into that group. That is, they will appear in every instance of the group added to the patchbay.

Group/bidule presets saved as an independent .bprs file can be loaded into that group/bidule, replacing the default presets in that single instance of the group/bidule. .bprs files can be saved in a Default folder location so that they appear every time the corresponding bidule/group is added to the patchbay.

Preset Buttons

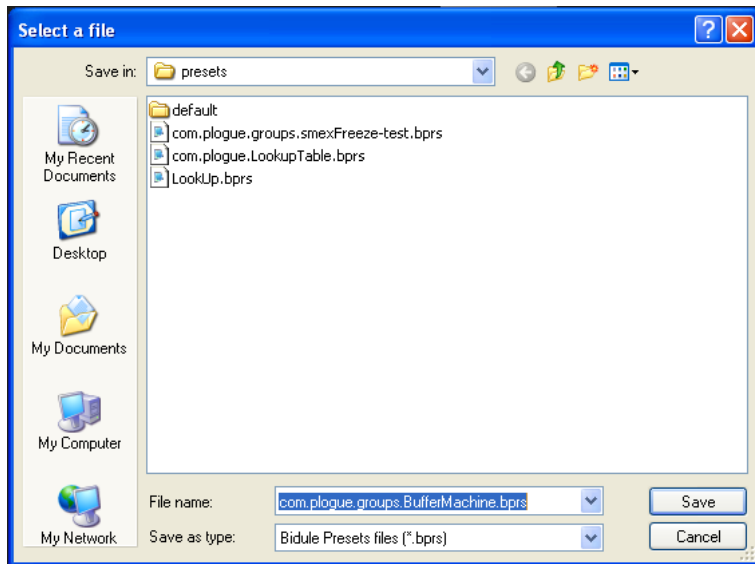


- Rename - click this to edit the name of the currently-selected preset.
- Add - click this to create a new preset slot that is a copy of the first (default) preset in the set.
- Add N - click this to create multiple new preset slots that are copies of the default preset.
- Add Copy - click this to create a new preset slot that is a copy of the current preset.
- Add Copy (read only) - click this to create a new preset slot that is a copy of the current preset, this preset will not save any changes and always revert to its original values
- Add N copies - click this to create multiple new preset slots that are copies of the current preset.
- Remove - click this to remove the current preset slot from the set.
- Load - click this to load a .bprs file of saved presets.
- Save - click this to save the current set of presets as a .bprs file.

Note the difference between the Add and Add Copy. Clicking Add to add a new default preset is useful every time you want to start from scratch when designing a preset. Clicking Add Copy is useful when you want to create a variation on the currently-selected preset.

Creating Default Bidule Presets

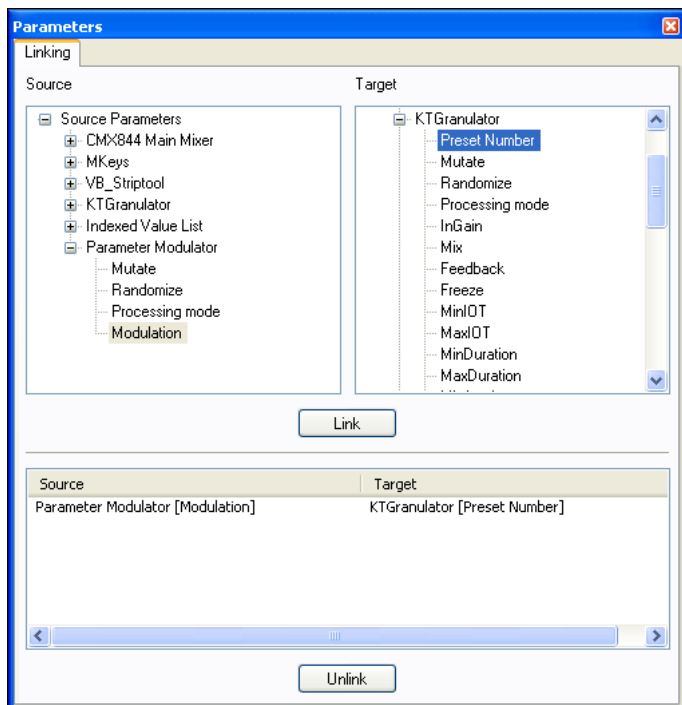
When you click the Save button, by default Bidule will save the .bprs file to the /Presets folder (located in the folder where the Bidule software is installed). Bidule also assigns a name by default, that begins with com.plogue.[whatever] (see the following image).



If the .bprs file you are saving is not meant to be a default set, you can rename the file to whatever you like (be sure to indicate the type of bidule/group, in case you forget) and save it wherever you like. However, if you want this preset to be the new set of default presets for a bidule or group, then keep the default filename and save the .bprs file to the Presets/Default folder (located in the folder where Bidule is installed). Once a properly-named .bprs file is saved to the Default folder, Bidule will always load the set of presets whenever an instance of the bidule/group is added to the patchbay.

Automating Presets

Every plug-in, bidule, and group has a parameter called Preset Number that can be linked to automatically switch the active preset for that bidule. Link one parameter to the Preset Number parameter in the Parameters dialog box. (See User Interface>Toolbar Features>Parameter Linking for more on linking parameters in Bidule.)



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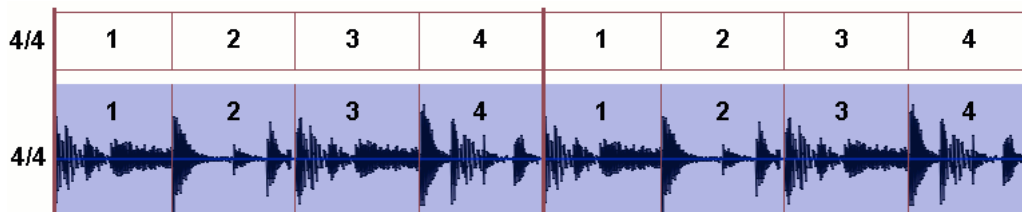
Audio Units is a registered trademark of Apple Computer, Inc.

Chapter 10. Meter Adaptation Explained

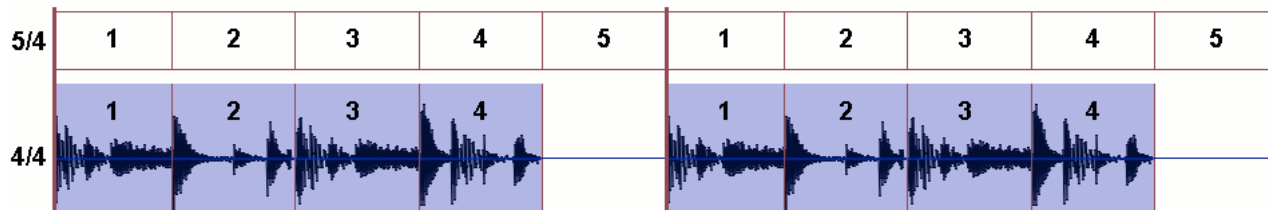
Meter Adaptation is a feature in Bidule that allows audio loops and MIDI sequences, and time lines of different meters (aka time signatures) to stay in synch with each other. Why is that useful, and why do we care? Well probably because (one of us) has listened to too much prog rock in his youth, and (he) didn't want Bidule to follow same 4/4-only looping mentality that is the standard in all the other hosts at the moment.

It's a pain to start a track (or section) in 6/8, 7/8 or 7/4 and be limited by the choice of audio/MIDI loops we can use in it. With Meter Adaptation, synched bidules will try their best to fit "on the fly" to the bidule they are slaved to. But as you are going to see some compromises need to be made. At the moment only the Bidule Step Sequencer and the revamped Audio File Looper supports adaptation, more will follow, like the MIDI loop player and other surprises.

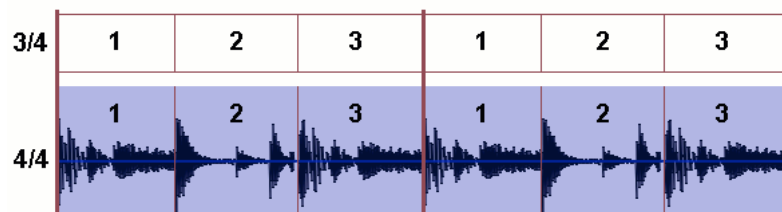
Say we have a basic one 4/4 bar audio loop of exactly 4 beats, and we want to synchronize it to timelines of different meters.



This is the easy case, both the loop and the timeline are at the same Meter. Move along.



This is getting interesting, the timeline is running at 5/4 so the loop player has to compensate by adding a 1 beat-long silence at the end of its 4 beat run. Why doesn't it repeat the first or last beat of the slaved loop instead of silence? Well it might work for this example, but what if you slaved a 4/4 bar to a 12/4 master? what do you cope now? We went for the easiest method to understand. (we might add another adaptation method later on)



Timeline at 3/4, so the loop player truncates its last beat and restarts over. If your slaved loop is more than 4 beats long (say 8 beats -> 2 bars), then the first 3 beats of the first measure will be played, followed by the first 3 beats of the second measure and so forth.

NB: All permutations of meters are possible, these were just an example.

Chapter 11. OSC/Open Sound Control

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What is OSC?

OSC/Open Sound Control is a control/communication protocol over the network. An OSC server can receive messages and an OSC client can send messages to servers. Bidule is both a client and a server. The current implementation in Bidule should not be viewed as being in its final form. We have quite a few good ideas to extend the functionality.

OSC Server Implementation

First to enable the OSC Server part of Bidule, you need to go to the OSC Server dialog by selecting OSC Server from the Tools menu. You need to select a port for Bidule to listen for messages (Note: you might need to change your firewall software settings to allow incoming messages to that port), the default one should be fine but you can change it.

Every parameter of every bidule that is available for parameter linking is also available for control through OSC. Each parameter has an address to receive values, the address is built automatically from the location and name of the bidule as well as the parameter name. The location of a bidule is the "path" to it (look at the bottom left of the patchbay when you're inside a group to get the idea) so for example a group named Freeverb in the root of the layout would be /Freeverb, now if we wish to control the mode of the effect, the address would be /Freeverb/Mode. Take note that some characters (like spaces) are reserved and this might change the "expected" address so your best bet is to look into the OSC Server dialog and see the name that is there.

Each parameter expects to receive values within its range (click the Params button on the bidule's window to see them). Parameters that are a drop down box with a list of choices will also accept a string representing an available choice.

These two address also exists: /play : to start/stop the processing (parameter: 1 or "true" to start audio, 0 or "false" to stop it) /open : force the loading of a .bidule file (parameter: the path to the bidule file on the machine)

OSC Client Implementation

First to enable the OSC Client part of Bidule, you need to go to the OSC Client Config dialog by selecting OSC Client from the Tools menu. Click on the Enable OSC Client checkbox to activate/deactive. If you wish to use the OSC Client mode, you'll need to add some OSC servers to send OSC messages to by clicking the Add button. Fill in the Name, IP Address and Port fields and click the Apply button.

Now that you have at least one OSC server set up and OSC Client enabled, you can right-click on any selected bidule in the patchbay and see a Send to OSC Servers submenu. For each bidule, you can select one or more OSC server to send messages to. The OSC messages that Bidule will send will automatically build an address from the location and name of the bidule and the parameter name (see the OSC Server Implementation section for more details. (Note: you might need to change your firewall software settings to allow Bidule to send messages through the network)

What can I do with OSC?

Lots of things!, like : - Use one copy of Bidule with dummy empty groups with lots of variables (arranged so the auto-built OSC addresses are significant;) to control another copy of Bidule running on a more powerful computer. - Use another software supporting OSC to control Bidule - Use one of the multiple available bindings for OSC to create a customized interface to control Bidule. - Etc...

Chapter 12. Troubleshooting

- Windows : Grey Patchbay (or heavy crash at startup in (graphic driver).dll)

This usually happens when the driver for your video card doesn't support OpenGL correctly. Please make sure that you have the most recent drivers by visiting your video card manufacturer's website.

Please note that Bidule requires a properly working OpenGL driver. To test your current configuration for OpenGL, please download and try the two following tests (in order):

- [OpenGL Test1](#).
- [OpenGL Test2](#).

If these two tests are working, there are good chances that Bidule will!

Bidule works best with any nVidia or ATI Radeon chipsets. Microsoft's default software rendering works fine too.

ATI128, 3Dfx Voodoo3, S3 Savage have OK OpenGL drivers.

Many problems were encountered using Matrox cards. Use with caution.

Also, some people experiencing weird crashes at Bidule startup had to update to DirectX 8.1 to solve them.

In any case, please report crashes. We are trying to find a solution to this.

Keep in mind that some drivers won't work properly with OpenGL at certain color depth (i.e. the number of colors displayed), so you can also try changing the number of colors.

Other: [OpenGL info software](#).

- Windows : "Slow" Patchbay

It might seem that the display of the patchbay is really slow. This might occur if your display settings (resolution and colour depth) aren't supported by the OpenGL implementation of your video card driver and the display rendering is then done in software instead of using your video card.

- Windows : Bidule crashes at startup

If you take a look at the bidule.log file and you see that the last lines are Initialising Devices... -----
Severe Bidule Crash Detected (The Severe Bidule Crash Detected might not be there) This means that Bidule was unable to open/query and close one of your audio drivers. Bidule tries to query all of the available audio card drivers at startup which is a different behavior than most other audio softwares and this could expose problems you wouldn't normally see in other softwares. Main causes of crashing are badly uninstalled audio drivers, some users have also reported problems when Internet stream capturing softwares are installed. (such would usually install an audio driver and set it as the default output device to be able to capture)

If all this fails, please send us the bidule.log file that was created by Bidule at the moment of the crash.

Chapter 13. Acknowledgements

Seb would like to thank his computer for so kindly taking the verbal abuse.

David would like to take a moment of silence for all of those dead PC keyboards and also to thank Martine, parce qu'elle aime ses schemas.

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- [PortAudio](#) library from Ross Bencina, Phil Burk and many others
- [wxWidgets](#) library
- [Laurent de Soras - Productions](#) for FFTReal and many other tips!
- [DestroyFX/Sophia Poirier](#) for the dfx-au-utilities library
- [Xerces](#) library of XML parsers in Java and C++
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- [Nate Robins](#) For original GLUT Particle C sources.

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Chapter 14. Plogue Bidule Revision History

Revision History:

Version v0.9715 (2011)

- ReWire 2.6 implementation: 64-bit ReWire mixer and 64-bit ReWire device
- Basic Audio Buffers/Multitap Delay: added option to force an immediate clear contents
- Choice: now answers to mouse wheel
- Crossfader/Fadecross: added more curve types
- Added Basic Crossfader
- Knob: now answers to mouse wheel
- Misc Sysex Filter: added undefined MIDI messages to the list of filters
- OS X: slider now answers to mouse wheel
- Value Display: added some protection to prevent excessive cpu usage if name changes too often
- Added Replace With Paste
- Polyphony settings/unpolyphonize/ReInit/Replace can be applied to all selected
- Ctrl/Cmd-1,2,3 changes the mode of the selected bidules
- Ctrl/Cmd-9,0 group properties, group parameters

Bug Fixes:

- AU Hosting: newly saved aupreset files are not added right away to the presets menu
- AU Hosting: Sync dropdown might not show if the UI is already shown and the plug-in requests musical time information
- Groups: possible crash after using the Parameters dialog
- MIDI Value Display: not saving the user friendly parameter value
- Oscillator: band-limited triangle was clipping
- Oscillator: band-limited triangle phase reset was wrong
- OS X: a crash could occur when MIDI Feedback is enabled and devices go offline and back online
- OS X: opening an AU with a Cocoa UI disables the usage of cmd-w to close windows
- Presets: current preset data could possibly not be loaded correctly when loading a layout
- Saving: file saving could silently fail under some conditions
- VST version: 32outputs not showing as such in Vienna Ensemble Pro
- WaveViewer: out of bounds values aren't clipped correctly graphically
- Windows: maximum number of opened files might be lower than expected

Version v0.9712 (June 9th, 2011)

- Crash can occur when loading older groups and layouts

Version v0.9711 (June 8th, 2011)

- Windows: major compiler and compiler options changes, if you experience anything you do not think you should please report, this should also apply to OS X
- Added Matrix Sequencer, MIDI Matrix Sequencer
- Added MIDI CC Splitter
- Added MIDI CC Type Remapper
- Added MIDI Note Splitter
- Added Wavefolder
- Added Variables Multi and Indexed Variables Multi
- Added Frequency and Magnitude Value Display
- Added FIR Table
- Added Knob control type
- Added Vertical Slider control type
- Added Gate LED control type
- New look for LED control
- ADSR/AHDSR/Basic ADSR/Basic AHDSR : added parameter to force envelope to go back to 0 on a retrigger
- Group parameters: increased the allowed maximum number of columns
- Groups: added a parameter to set a group as the current one show in the patchbay
- MIDI Note Extractor: added use highest and use newest stealing modes
- MIDI Value Display: added user-friendly mode
- Monitoring: MIDI is now monitored on a per channel-basis
- OSC Creator/Creator2/Extractor : added more I/O configurations
- Windows: added support for having user-defined MME and DS duplex devices through the registry, see forum post on the subject

Bug Fixes:

- AU/VST version : some connections which shouldn't be lost are lost if a file is loaded into a different i/o config
- DSP/Polyphonic Adapters: processing mode is not saved/loaded correctly
- Groups: modified min and max of parameters could end up not being saved in a preset
- OS X 64bit version: dropping of bidule file not working
- OS X 64bit version: text not selected on rename dialogs
- OS X 64bit version: maximum number of opened files might be lower than expected
- OS X : multiple aliases to the ReWire device could be created
- OS X AU/VST version: fixed possible crash of the host depending on how the OS caches some strings
- OS X VST hosting: plug-in UI not showing up with the correct size
- OS X VST version: UI not showing up correctly in Reaper
- ReWire: on Windows, if the host attempts to launch Bidule, the 32-bit version is always the one launched
- Spectral Bin Delay/Graph/Graph Analyzer/Magnitude EQ: presets takes more memory/disk space than needed
- VST hosting: newer NI plug-ins were getting double keystrokes
- VST version: prevent crashing if the host sends effEditIdle before any effEditOpen
- VST version: better protection against hosts sending crap in VstTimeInfo
- Windows : some ASIO drivers could refuse to start

- Version v0.9710 (March 14th, 2011)

- Added MIDI Message Extractor
- Added MIDI Value Display
- Added 64 channels version of Audio Matrix, Audio Matrix Stereo and MIDI Matrix
- Discrete processing version: added Discrete Value Display
- GUI: generic UI can now have an horizontal scrollbar if needed
- MIDI Note Extractor: added Smooth amplitude changes parameter
- MIDI Switcher: added Close Notes on Output Change parameter
- OSC : added offline_set message
- Windows: speed improvement when adding a plug-in/bidule with a large amount of parameters

Bug Fixes:

- AU/VST hosting: added more possible memory error handling when restoring a plug-in saved data
- AU version: some sequences of buffer size changes could lead to distorted/no sound
- Audio Matrix, Audio Switcher, Output Selector: better performance in some conditions
- Audio File Player: position not always reflecting going back to 0 when the Home parameter is changed through parameter linking
- Audio File Player: monitoring was no longer working
- Discrete processing version: changed the default colour for discrete cables and connectors
- Discrete processing version: discrete param modulator does not apply the current value upon linking
- Discrete processing version: constant and variable do not resend their values once they have been disconnected
- Constant: FFT delay was wrong if FFT size was 4096
- Group Parameters: crash could occur when using the dialog
- OS X: the list of parameters for some HID devices had extra entries preventing them to work correctly
- OS X: filenames with some specific characters could not be saved to or loaded from
- OSC Client: if an OSC Server was added automatically from loading a .bidule file, the OSC Client GUI will not show it before a restart
- Oscillator: better cpu usage when receiving out of range values
- Palette: can be slow to build depending on groups/plug-in installed
- Patchbay: if several bodies are overlapped, clicking cannot select a single one
- Patchbay: using reconnect a cable when the view has panning applied would make the cable start from the wrong place
- RPN/NRPN To Params: only works if receiving MSB then LSB for parameter number
- RPN/NRPN To Params: only works if receiving MSB then LSB for value
- SDK: terminal plug-ins made with the SDK would not get their audio inputs filled correctly
- VST hosting: more robust protection against unexpected ioChanged coming from a plug-in
- VST version: some sequences of buffer size changes could lead to distorted/no sound

Version v0.9709 (December 20th, 2010)

- Autosave: added preference to keep the setting between layouts/restarts
- CC Latch: added reset parameter
- Mediapool: added preference to round MIDI file length
- Offline: will now disable the audio device in the patchbay instead of requesting its removal
- VST: scrollbars will be added if the user interface cannot fit in the current resolution

Bug Fixes:

- Comment: using presets could lead to a crash
- Discrete: events could be lost and prevent correct processing
- Mediapool: any bidule using mediapool files could retain reference if files were changed and there was no processing
- MP Assign: FFT/iFFT doesn't work if used with MP Assign
- VST: loading Vienna Ensemble could cause a crash

Version v0.9708 (November 15th, 2010)

Bug Fixes:

- AU: some Cocoa-based UI do not display

Version v0.9707 (November 10th, 2010)

- Added support for 12 cores
- OS X: 64-bit test version of the standalone now available
- ReWire: added preference to enable the 64bit standalone to communicate with the ReWire device
- VST: added support for plugins changing the number of inputs/outputs through audioMasterIOChanged

Bug Fixes:

- MIDI To Sync: fixed possible crash when loading an existing layout
- OS X: crash could possibly occur on certain edge cases of MIDI input
- OS X: crash can occur in host after last instance of AU/VST is removed
- OS X: crash could occur under some specific circumstances when plugging back a MIDI device
- Patchbay: connect-insert doesn't work with some signal types mismatch
- Polyphonic Adapter: parameter links are not kept when using the Polyphonic Adapter
- Sync Transport: uses more CPU when the UI is shown
- + many more fixes

Version v0.9705 (July 5th, 2010)

- Added LFSR (Linear Feedback Shift Register)
- Added Gate Clock
- Added Basic Audio File Player 2

- Added attempting to load an audio file using OS functions if libsndfile fails (OS X: ExtAudioFile, Windows: Windows Media Format)
- Audio File Player: now behaves like audio and MIDI devices for MP Assign
- Added autosave mode

Bug Fixes:

- Groups: using spectral inputs/outputs could cause a crash
- Groups: using relative modulation with group parameters could result in the modulation being applied twice
- Group selected: some parameter links are not restored
- Magnitude EQ: parameters are not loaded correctly
- MIDI File Player: crash could possibly occur when using Follow Sync Source transport state
- MIDI Splitter: could crash when set to split by Note
- OSC : a crash could occur when removing a bidule from the layout and OSC Server is enabled
- Plugin and ReWire mode: MIDI output events could end up be out of sequence
- Plugin Mode: clearing the contents of Basic Audio Buffer and Multitap Delay doesn't work if the UI is not shown
- Presets: the current preset is not saved before it is changed to be read-only
- ReWire Mode: under some specific circumstances the tempo taken from the host is using a wrong value
- Windows: double-clicking on elements in both Lock Parameters and Exported Group Parameters dialog could cause a crash when running the 32-bit version on Windows 7 64-bit
- + many more fixes

Version v0.9702 (March 15th, 2010)

Bug Fixes:

- Biquad filter clicking on some frequency changes
- Audio File Recorder not allowing to change the filename

Version v0.9701 (March 8th, 2010)

Bug Fixes:

- Arpeggiator : renamed the old group version to differentiate with the new built-in
- MIDI CC Creator (Multi) : not loading correctly from file
- Sync Transport : loop mode could give bad results upon hitting the cycle end position

Version v0.97 (March 2nd, 2010)

- Added parameter linking of all parameters when selecting a bidule in the source and target tree of the Parameters window
- Added load and save of Map files to the MIDI and Sample Map UI
- Added Arpeggiator from chipsounds
- Added MIDI CC Creator (Multi) and CC Extractor (Multi)
- Added MIDI Comparison Filter
- Added MIDI Gate
- Added MIDI Basic Delay
- Added Variable (Int)
- Added multiple i/o configurations for Audio Dummy
- Added 176400 Hz sample rate
- Increased speed parameter range in MIDI Buffer, File Looper and Player
- Plugin mode : added possibility to have different FFT settings than standalone
- Value List: added parameter to save current position
- Windows x64 : added possibility to have a different VST folder for 64bit

Bug Fixes:

- Audio File Player: linking the home parameter through several players doesn't work
- Basic Audio Buffer 2: added option to save mono files
- Clock : meter changes do not correctly change the current musical time display
- Groups: plugins becoming syncable when processing do not change the syncable state of the parent group
- Multiple clicking not registering correctly on some buttons
- OS X : Resizable AU Cocoa views not working correctly
- Plugin mode: VSTs with no UI wouldn't work if the main window wasn't shown
- Plugin mode: menus not working in some hosts
- Presets: presets made with a bidule with an i/o configuration should be able to load into another i/o configuration if the parameters are the same
- Presets: attempting to create a copy of a read-only preset does not retain the changes made to the original preset
- Sync Creator: meters could be wrong when loaded from a file
- Sync Transport: changing meters could result in an incorrect start of bar
- Trigger: When synced it should only output values if the transport is playing
- Using Reorganize presets could make some presets disappear
- Windows x64: input and output selectors not working correctly
- + many more fixes

Version v0.9696 (November 9th, 2009)

- Fixed scrolling display issue with Step Sequencer Windows

Version v0.9695 (November 2nd, 2009)

- Added several OSC addresses to many bidules for things unrelated to parameters
- Added Variable (Integer)
- Audio File Looper/Basic Audio Buffer 2/Step Sequencer : added cursors for current positions

Bug Fixes:

- Fixed possible crash when disconnecting a bidule/closing a layout/closing the application
- ADSR/AHDSR : sustain could never truly be 0
- AU: fixed possible crash when .aupreset could not be parsed
- AU plugin: fixed display of UI sometimes not working correctly in some hosts under 10.6
- Audio File Looper/Basic Audio Buffer 2: relaxed zoomed out "x" limitation
- Crossfader/Fadecross: left input could slightly bleed into output when it's 100% right input
- + many more fixes

Version v0.9692 (September 23th, 2009)

- Added Clock
- Added stereo version of Audio Switchers
- Added stereo version of Audio Matrices
- Added stereo version of Input Selectors
- Added stereo version of Output Selectors
- Added large label control
- Monitoring : added tooltips to view the complete input/output name
- Sync Transport : added loop mode
- Sync Creator: added inputs to generate looping
- Sync Extractor : added outputs for looping information
- Organize Presets : added Toggle Read Only status button
- OSC : added options to assume input messages parameters are normalized [0, 1] and to send normalized values
- Value List 2 : Value with extra outputs for current index, number of entries and trigger for wraparound

Bug Fixes:

- Accum : does not take start value into account without doing a reset
- Align : Bidule with two bodies could end up with one body over the other
- AU : better handling of preset changes when aupreset files have mismatched filename and internal name
- Bidules with two bodies could have their position not saved correctly
- Group : using LED control with columns lead to strange UI look
- MIDI Buffer : fixed possible crash
- Organize Presets : it was possible to make presets "disappear" when selecting multiple presets to move
- OS X: fixed some cases where Reaktor menu sometimes would not appear
- Step Sequencer : fixed ancient bug that could cause bad event timing when looping

Version v0.9691 (August 24th, 2009)

- Offline mode can now support MP Assign
- Send To OSC Servers context menu : when applied on a group, all bidules inside the group will also be set to send to the selected OSC server
- Added Reorganize Presets

Bug Fixes:

- AU : if an AU changes its list of parameters, the original list could still be seen in the Parameter window
- AU : some multi buses plugins would show extraneous i/o
- AU : Cocoa UI not hiding
- CombFilter 2 : not working correctly when using a delay of 0 samples
- MIDI File Recorder : pitchbend events could be recorded incorrectly
- MP Assign : many little adjustments made that should fix some non-working cases
- MP Assign : MP Assigning inside a group could lead to more CPU usage than it should
- OS X plugin mode : presets menu sometimes becoming non-responsive
- ReWire device : Bidule not able to start correctly in ReWire mode with Sonar under Vista
- VST plugin : multi output not showing correctly in Sonar
- Windows : windows for plugins and bidules could have their position slightly offset upon loading

Version v0.9690 (July 6th, 2009)

- Most pop-up messages will now auto-dismiss after 5 seconds

Bug Fixes:

- AU plugin : fixed possible crash that could occur on key down/up after several closing+opening of the AU window
- AU+VST plugin : fixed possible crash on wake from sleep if the plugin was not initialized completely but still loaded in RAM
- VST plugin OS X : fixed crash that could occur on 10.5 on drag and drop when running as a plugin and having multiple monitors
- Added warning to the user if saving to file fails because of too many opened files.

Version v0.9688 (June 10th, 2009)

Bug Fixes:

- Audio Stats : values not exported correctly to the group level
- DSP/Poly adapter : parameters window missing parameters after using undo/redo
- Groups : names starting with an ampersand are not displayed correctly in menus
- Undo : undo of adding a bidule does not always release memory
- Matrix : clicking on cells when scrolled could lead to strange results
- Matrix : scrolling causing display issues on Windows
- MP Assign : better support of MIDI devices shared between MP assigned branches
- ReWire mode : tentative fix for crash on closing the device when displaying MIDI ports in PT because it doesn't explicitly remove them (this needs a manual config/registry change)

OS X : open a Terminal window and paste this:

```
defaults write com.plogue.bidule ReWireDevice.PTFix -int 1  
then press enter
```

Windows: under HKEY_CURRENT_USER\Software\PlogueBiddle add a DWORD value named ReWireDevice.PTFix
set its value to 1

- Spectral Graph: 4 channels version could crash depending on the FFT Window Size setting
- VST plugin : crash could occur on a mono track when there's no default VST layout
- VST/AU plugin/ReWire mode : having the Never Substitute Devices option enabled could lead to layouts not loading correctly
- Windows : added possibility to blacklist ASIO devices in a text file

Version v0.9687 (May 25th, 2009)

- Added number of columns field in the Group Parameters window
- Added display path field in the Group Properties window

Bug Fixes:

AU Plugin: some MIDI events could be lost in some hosts
Context Menu: MP Assign submenu can disappear after using the context menu on a group of objects
Devices: loading a .biddle made with another audio/MIDI device changes the display name of the current device
Graphical Envelope : fixed possible infinite loop
Groups : crash could occur if reordering group parameters when there is a group parameter linked to another group parameter
Groups : crash could occur when deleting a group under some specific combination of sync source/sync to and groups
MIDI : fix possible issue where multiple events occurring on the same sample tick could become out of order
Monitoring: crash could occur when using replace with the monitoring window visible
OSC Extractor : Depending on the address pattern and other Extractors, changing the address could lead to messages not being processed anymore
OSC Monitor : Unresponsiveness can occur after a large number of messages
OSC : hanging can occur if cut+pasting OSC sending biddles while sending OSC messages
OS X : saved renamed virtual MIDI ports are not renamed upon loading back the file
Relative Parameter Modulator used as group parameters could lead to strange issues
VST plugin OS X: added code to prevent crash when opening the UI in Resolume Avenue
VST plugin : Live 8 configure parameters now work

Version v0.9686 (March 26th, 2009)

Bug Fixes:

DSP Adapter: subgroups not working with DSP Adapter
DSP Adapter: some biddles being allowed to be used with DSP Adapter but output nothing
ReWire Devices Config: not saving the correct number of audio channels

Version v0.9685 (March 16th, 2009)

- Added DSP Adapter feature to wrap groups to run a limited set of biddles at a buffer size of 1 samples (more biddles to be supported, other buffer sizes and sample rates support to come)
- Added OSC Monitor to show all incoming/outgoing OSC Messages
- Optimized handling of presets to reduce memory usage and fix a few bugs

- Added MIDI Message Creator
- Added MIDI Note Off Velocity Remapper
- Expanded MP Assign to use up to 8 cores
- + many more little improvements

Bug Fixes:

- AU Version : sample rate change could be missed
- Integer parameter display not always being accurate
- Message Remapper : remapping pitchbend doesn't work
- OSC : using the /open command on a file loading audio files in the Mediapool or using the polyphonic adapter crashes
- Polyphonic Adapter: doesn't transmit some MIDI messages to active voices
- Possible crash if a VST could not properly initialize itself
- ReWire Device : added protection against out of range MIDI events timestamp
- Value List : could load up with incorrect values
- VST Hosting : some MIDI events coming out of plugins could be missed/skipped
- + many more fixes

Version v0.9675 (November 3rd, 2008)

- Basic Audio Buffer 2 biddle with selectable loop points
- Waveviewer biddle to view the signal waveform
- Parameter Modulator (abs) trigger version
- Audio File Output : Added W64
- Comb Filter 2 : now uses hermite interpolation
- Main window : added Find biddle by name
- Main window : added scan new plugins only menu entry
- MIDI To Sync : overridden tempo is now saved within the layout
- MIDI To Sync : added round tempo parameter
- VST/AU plugins : added user-specified tail time

+ many more little improvements

Bug Fixes:

- Crossover filter : 5th order minimum frequency being enforced incorrectly
 - Import/drop of .bidule files don't show all parameters in the parameters window
 - MIDI : 7bit CC could be used for feedback when 14bit should have been used
 - MIDI Devices : renaming Bidule virtual MIDI ports could lead to an endless loop of renaming
 - Monitor : changing the I/O of a group while monitoring could cause a crash
 - Multitap Delay : taking more CPU than it used to
 - Multitap Delay/Basic Audio Buffer : buffer allocation could possibly occur in realtime thread
 - OS X : backspace key not working as shortcut to delete parameter links
 - OS X : using cmd-w shortcut to close an AU plugin window could lead to a crash
 - OS X : VST version could make Live menu disappear
 - OS X : VST version could crash when deleting it from the host
 - Parameters window: deleting links with the delete key sometimes doesn't remove the link
- + many more fixes

Version v0.9656 (July 14nd, 2008)

- Crash bug fix on startup under some platforms

Version v0.9655 (July 2nd, 2008)

- Comb Filter 2 bidule
 - MIDI Matrix : added option to automatically close opened notes when turning off a connection
 - Generic UI for VSTs now always show the string value of the parameter
 - Added a parameter to all MIDI Creators to disable the detection of value changes and only use triggers
- + many more little improvements

Bug Fixes:

- An incorrect MIDI device could be selected at load time to replace a valid one
 - Constant: Number of media files constants could have the wrong value in certain cases
 - MIDI File Player : could cause glitches in playback
 - MIDI File Player : loop mode could skip tempo changes at the loop boundary
 - OS X : AU Cocoa UI not showing up correctly on 10.5
 - OS X : VST version could cause a crash when closing the UI
 - Palette Search : Searching skips children if the parent matches the query
 - Patchbay : Name used in the context menu differs from the name used in the Palette
 - Patchbay : Body seem selected but is not
 - Presets : Attempting to load a presets file would always clear the current presets even the file was not for that bidule
 - Spectral Graph bidules: could crash when changing preset
 - VST hosting : some MIDI events coming from a plugin could be lost when a large number of them were sent
 - VST plugin : getSpeakerArrangement implementation could cause error in some hosts
- + many more fixes

Version v0.9650 (February 28th, 2008)

- Audio File Recorder: added option to record to multiple stereo files
 - CC Latch bidule
 - Group Manager: now allows multiple selection for download/delete of groups
 - HID Extractor: on loading a file, now tries to at least match the device type if the device isn't present
 - MIDI Device: rename devices
 - Note Latch bidule
 - OS X: Cmd-W can now be used to close bidule/plugin windows
 - OS X: virtual MIDI ports created by Bidule can be renamed
 - OS X: added support for MIDI devices renaming callback
 - SDK: added opcode to rename I/Os
 - VST: will show I/O configurations for plugins supporting speaker arrangements (VST rescan needed)
 - Windows: some MME/DS drivers should now show up with multiple channels instead of only stereo
- + many more little improvements

Bug Fixes:

- Audio File Player UI slider not directly going back to start on Home
- Dropping bgrp files in the patchbay should add the group, not import its contents in the current layout
- Group/layout(manual) save in plugin mode not saving parameter links
- Group: reducing the number of outputs could lead to a crash if there were passthrough connections
- Keyswitch bidule corrupts some MIDI messages
- Linked Audio File Player Play parameter could prevent "slaved" files to finish playing correctly
- MIDI file player doesn't close notes when seeking
- MIDI file recorder when synced starts a bar too late
- MIDI voice counter sometimes doesn't reset to 0 although there are no voices currently opened
- Mouse moves sometimes causes unintended selection move
- Offline mode freezing single-core/cpu machines running Leopard
- OSC Creator: doesn't allow to send messages without arguments
- OSC Extractor: messages are lost if multiple messages are sent to the same address between two audio callbacks
- OSC Extractor/MIDI: don't work if OSC Server is started after adding either to the layout
- OS X : accentuated chars in bidule/group/connector names aren't saved correctly
- OS X : some media files refusing to load based on some characters in their paths and/or names
- Plugin version: sound becomes distorted in some variable buffer size cases

- Polyphonic Adapter: reducing the number of voices could lead to a crash
- ReWire device not working with Cubase 4.1
- Sync Transport not working correctly with Sync To MIDI Clock on pause/restart
- VST version: not working with Sound Forge and Wavelab
- + many more fixes

Version v0.96 (October 25th, 2007)

- Added possibility to use read-only preset vs. dynamic snapshots in bidules/groups
- AU : added support for AUs with MIDI output and MIDI output in Bidule AUs
- MIDI Note On To Value List bidule
- MIDI RPN To Params bidule
- MIDI NRPN To Params bidule
- OSC Creator 2 bidule
- Spectral EQ bidule
- Spectral Analyzer bidule
- Audio File Player/Recorder : can now read/write FLAC
- Crossfader : added selection of fade type
- Matrixes : added renaming of I/Os
- Matrixes : added 16 and 32 I/Os versions
- MIDI File Player : now uses the Mediapool
- OS X : MIDI devices in patchbay now currently change their state when a device is disconnected/reconnected
- OSC : added possibility to have multiple OSC Creator using the same address
- Patchbay : added dropping of .bidule and .bgrp files
- Parameter Pool GUI : added possibility to select multiple targets at once
- Parameter Pool GUI : added replace source/target buttons
- Spectral Bin Delay, Graph : now use logarithmic display
- Spectral Graph : can now use PVOC files from the Mediapool
- + many more little improvements

Bug Fixes:

- AU : scope part parameters aren't available
- Bidule AU : added proper support for multiple outputs in Logic 8
- OS X : return/enter/copy/paste can't be used in Comment
- + many more fixes

Version v0.95 (July 13th, 2007)

- Added preliminary support for multicore processing
- CC Value Remapper bidule
- Note Velocity Remapper bidule
- Groups are now kept in user-space
- Mixing bidules : Better parameter change smoothing
- Audio/MIDI Switchers : added 32, 64 and 128 outputs versions
- MIDI CC Creator and Extractor : Added 14bit option
- Unit Converter : Added MIDI 14bit to Normalized and Normalized to MIDI 14bit options
- + many more little improvements

Bug Fixes:

- Aligning bidules misbehaves if bidules have 2 bodies in patchbay
- LED : release time is too long
- No dialog showing up when a bidule can't be added to the layout
- Removing a bidule with no output from a layout could cause a crash
- ReWire: an extra initialization of Bidule could occur upon loading
- Trying to load a large audio file in the mediapool could cause a crash
- VST: parameter values aren't updated correctly upon loading for some plugins
- VST: crashes could occur if a plugin refused to initialize correctly
- Windows: DI8 Device type not shown in HID Extractor
- + many more fixes

Version v0.94 (March 13th, 2007)

- Added easy dis/connect when holding the Alt key
- OSC Creator : added force int values parameter
- ReWire device : now configurable with up to 96 audio outputs
- Added drag and drop of media files in the patchbay and on Mediapool-using bidules
- Level Meter bidule
- MIDI Monitor 2 bidule
- + many more little improvements

Bug Fixes:

- Fixed some memory leaks
- OSC Creator : not accepting addresses with multiple slashes
- OS X : MIDI device added notification sometimes not handled

- OS X plugin : not drawing correctly in non-compositing windows
- Plugin : crash when switching to a layout with no plugin device
- Plugin : MIDI devices not being seen in some cases
- SDK : mediapool param wasn't updated on add/remove files
- SDK : not showing their parameters in the OSC address space
- Spectral Bin Delay : doesn't sound correct when all bins are equally delayed
- Sync To MIDI : could output bad MIDI Clock messages
- VST : MIDI Clock output from plugin doesn't work
- Windows : log files not being written in some cases on Vista
- + many more fixes

Version v0.93 (November 13th, 2006)

- Added Open UI parameter to all internal bidules and plugins
- Optimized internal processing of many internal bidules
- Added possibility to change a parameter UI control type in groups
- Added label and LED to group parameter UI controls
- Audio Stats bidule
- OS X (UB version) : handling of AU and VST plugins UI completely redone
- OS X : added larger buffer sizes for DSP processing
- OS X : added reduce MIDI jitter option in the preferences
- OS X VST : multimaker (to have multiple I/O VSTs) now available
- AU : added sidechain effect version
- MIDI Splitter : added split by note
- + many more little improvements

Bug Fixes:

- Couldn't read some AIFF files
- OS X : Cocoa UIs sometime creating crashes when closing
- Plugin : crash could occur when closing plugin with linked Plugin Device parameters
- VST : latency returning to 0 wasn't noticed
- VST : not setting itself to the host sample rate in some cases
- Windows : OpenGL hardware acceleration now off by default, you can enable it in the preferences
- + many more fixes

Version v0.92 (June 21th, 2006)

- New disk streaming code with
sample accurate loop mode
players now play what they can when there's a channel mismatch between the player and the file
files with a different sampling rate than Bidule aren't pitch down or up
- ReWire master support on MacIntel
- Added possibility to turn off fading windows per bidule when switching between processing modes
- Added 18, 20, 22, 24, 26, 28, 30 file players and recorders
- OS X: ReWire temporary files are now created in a Bidule owned folder
- SDK: added support for plugs with no output

Bug Fixes:

- Saved MIDI files are sometime corrupted
- Monitoring not working on terminal groups
- SDK: plugins can't receive the sync information
- SDK: getParameterChoices isn't called with the parameter id
- OS X: AUAudioFilePlayer can't open its UI twice
- VST Plugin: not setting itself to the host sample rate in some cases
- many more fixes

Version 0.9102 (March 2nd, 2006)

- Added 8192 and 16384 FFT Window size as well as 16 overlaps
- Fixed ReWire device version of Bidule to work correctly on MacIntel

New Modules:

- MIDI Misc Sysex Filter

Bug fixes:

- Lemur OSC messages having no effect in Bidule
- VST hosting: plugins requesting tempo once their UI is up don't show the Sync to control
- Group UI using CC and Note Remappers parameters are very slow to show up
- Note Transposer : sending a C0 Note Off when receiving a Note Off for a note without having first received a Note On for that note
- several other minor fixes

Version v0.91 (February 9th, 2006)

- Universal Binary version for OS X
- x64 version

- VST 2.4 support (both as a host and as a plugin)
- There's now a Bidule SDK
- Added context menu to all sliders

New Modules:

- Surround ITU Mixers
- Continuous Surround Panner

Changes:

- Audio Matrix : added optional fading
- Audio Switcher : added optional fading
- Biquad Filter : added extra input for dB value for peaking band, low and hi shelf
- FFT/iFFT : added higher quality preference
- Group Manager : added button to set a custom catalog URL
- MIDI Buffers/Recorder : added takes mode
- MIDI Recorder : added add to Mediapool parameter
- Monitoring : can now open multiple windows
- Plugins/ReWire device : relaxed sync information validation when looping is on (bad in/out point or a position outside the loop points will result in disabling looping)
- VST : finally(!) added load/save of fxp

Bug Fixes:

- Application : if old VST mode is activated, there's no way to reset it
- Audio Files : bad embedded loop information could lead to weird behaviors/crashes
- Audio File Recorder : multiple mono files option is not remembered when loading
- Envelope : moving points doesn't work
- Mediapool : sometimes flags files as being used when they aren't
- Multi Channel/Channel Pressure Remapper : display is 0-based instead of 1-based
- OS X : help doesn't show in Help Viewer for some persons
- OS X : crash at startup on some 10.2.8 systems
- OS X : closing a VST window could crash
- OS X : changed AU cache format to prevent possible clash between plugins
- OS X plugins : fixed mouse handling workaround needed for Live and Traktion to only be enabled in those hosts
- OS X VST plugin: UI doesn't work in Renoise
- Particle Arpeggiator : closing its UI could lead to a crash
- Plugins OS X : doesn't display correctly with a composite window
- Plugins : the Plugin Device always use the name saved in a .bidule file, leading to confusion when using files made with the standalone version
- Plugins : MIDI data could be lost when Bidule/host buffer size didn't match
- Polyphonic adapter : random/mutate gives different results on each voice
- VST : channel names aren't always shown
- Windows VST plugin : Envelope/Looper extra windows can't be reopened
- Windows : using Control From MIDI could crash
- + many other fixes

Version v0.9 (October 19th, 2005)

- Bidule can now run as a VST/AU plug-in (available only to registered users)
- Audio monitoring of inputs/outputs of a bidule (new context menu entry)
- New Spanish translation (many thanks to BiCho)

New Modules:

- Key Sender
- MIDI Aftertouch Value Filter
- MIDI CC Value Filter
- MIDI Channel Pressure Value Filter
- MIDI Note Closer
- MIDI Note Velocity Filter
- MIDI Pitchbend Value Filter

Changes:

- Basic Audio Buffer : added Clear Contents trigger input
- Constant : added loaded files in Mediapool choices
- Mixer : you can double-click on the Volume label to change the channel strip label
- OS X : you can drop supported audio/MIDI files on the dock icon to add them to the Mediapool
- OSC MIDI : detune parameter is now optional
- Unit Converter : added MIDI 7bit to/from [0,1] normalized

Bug Fixes:

- Application : group selected objects could crash
- Application : for some dialogs escape/enter don't act as cancel/ok
- Audio File Output : append mode doesn't work
- Buffers/Freeze : save parameter is not available for linking/groups
- Copy/Paste : copy/paste could crash on dual core/processor machines
- Dialogs : some dialogs aren't working with the Enter/Escape keys
- Envelope : not using correct values after loading if presets were used
- Envelope/Map : adding presets could lose the current preset values
- Envelope/Map : adding a copy of the current preset didn't copy the value
- FFT : some buffer size/FFT size/FFT overlap settings could sound "weird"
- Groups : possible crash when trying to save/cut/copy/etc.. depending on contained parameter linking
- Groups : loading brps file for a bidule with their preset parameter exported to the group doesn't list presets correctly

- MIDI Buffer (Synced) : can't save MIDI file
- MIDI Program Change To Param : didn't work as expected
- Mixer : solo/mute need 0 to be turned off through parameter linking
- OSC MIDI : doesn't work depending on how its connected
- OS X : 192kHz sample rate didn't work
- Presets : saving a large number of presets is slow
- Pulse Generator : crashes with 0 harmonics
- Pulse Generator : weird output with less than 1 harmonics
- Spectral Freeze : filename disappear when using presets
- Sync Transport : stops after a 1000 bar
- Trigger : rename "Play Signal" to the more accurate "Start of processing"
- VST OS X : floating frames option doesn't work with cmd-tab
- VST Windows : vst still losing focus in some cases
- Windows : crash when trying to load an unsupported audio file in the audio file player
- Windows : crash could happen when renaming an Envelope

Version v0.8501 (July 7th, 2005)

Changes:

- Graphical Envelope : added set position dialog when double-clicking on a point
- MIDI Note Transposer : changed velocity offset behavior to use maximum velocity instead of skipping note when resulting velocity is higher than maximum

Bug Fixes:

- AU : Cocoa UIs don't work with Floating Frames option
- AU : Cocoa UIs disappearing when clicking on some toolbar button
- Graphical Envelope : can't delete point if scrollbar is used
- Graphical Envelope : possible crash after reaching 100 points on Windows
- Graphical Envelope : display doesn't update correctly when changing presets
- Input/Output Selector : confusion between processing mode and interpolation mode parameter names
- Replace : replacing a duplex audio device with a direct connection by another duplex device causes a crash
- VST Windows : focus on the VST panel can be lost depending on some other UI operations

Version v0.85 (June 24th, 2005)

- OSC Client implementation (Bidle can now send OSC messages)

New Modules:

- AHDSR Envelope
- Basic AHDSR Envelope
- Graphical Envelope
- Graphical Envelope (Synced)
- MIDI File Recorder
- MIDI Map
- OSC Creator
- OSC Extractor
- OSC MIDI
- Sample Map
- Sanitizer
- Smoother

Changes:

- Application : default files are now saved in user space instead of application space
- Audio Monitor : better management of min/max values
- Audio Monitor : min/max are reset when disconnecting
- AU : added support for multiple busses
- HID Data Extractor : added renaming of parameters when changing device
- HID Data Extractor : added act as trigger parameter so that keys/buttons can be linked to buttons
- Input/Output Selector : added Mode parameter to select between Pan and Linear Interpolation
- MIDI Buffers : added save to file
- MIDI Message Remapper : added Program Change to Note
- MIDI Monitor : added Clear Buffer button
- MIDI Note Transpose : added velocity transpose parameter
- Mixer : now allows multiple solos
- Mixer : added interpolation for Pan values
- OS X : better MIDI clock input
- OS X : better timing on MIDI output
- OS X : help now appears in Help Viewer
- Unary Operator : added Truncate operation
- VST OS X : added supported for plug-ins requiring compositing window

Bug Fixes:

- Application : loading files with Mediapool references on a different platform doesn't truncate the filename to search correctly
- AU : parameter list change notification takes time to process
- Groups : syncable status not being updated correctly
- Groups : parameter linking from a group parameter to another parameter inside the group isn't saved
- Groups : doesn't remember the i/o labels when changing the i/o config or using the polyphonic adapter

- MIDI Feedback : some parameters not sending the correct value back
- MIDI File Looper : doesn't send currently opened notes Note off messages when stopping
- MIDI To Sync : sometimes outputs wrong info
- Monitors : freeze after a certain time on OS X when not using an audio device/not in VST or ReWire mode
- Oscillator : normalized amplitude of bandlimited waveforms
- Palette : history isn't always updated
- Patchbay : sometimes doesn't refresh immediately
- Parameter Modulator (abs) : presets aren't displaying their values correctly
- Presets : some values aren't save correctly
- Presets : can't be saved for some groups
- Trigger : possible crash when using it synced
- + many more fixes

Version v0.8002 (May 2nd, 2005)

- Prefs : added preference for the number of virtual MIDI ports

Bug Fixes:

- AU : problems when loading files containing Kontakt instances
- AU : crash with AUNetReceive/Send UIs
- AU : gain parameters don't change their value correctly with parameter linking
- Windows : changing DSP settings could cause a crash

Version v0.8001 (April 21th, 2005)

- Mixer : added peak meters and clip indicators

Changes:

- Audio File Recorder : added option to save to multiple mono files
- Crossfader, Pan and Mixer : added interpolation to some parameter changes.
- Loading : faster loading of bigger files
- MIDI Switcher : added sending of Note Off for opened notes when changing the active output
- Parameters : better precision for some parameters
- VST : faster refresh rate

Bug Fixes:

- AU : parameters don't save min/max/mutation factor/locked status
- AU : going back to User preset doesn't always display the correct values
- Audio File Looper : resetting the loop points at start and end of file doesn't always recalculate the correct number of beats
- Audio File Looper : stuttering data instead of silence on some stereo files.
- Audio Switcher : an output could possibly not be reset correctly when changing the active one
- Basic Audio File Player : doesn't unreference the audio file when going back to None
- Buffer Granulator : could crash on some settings
- Context menu : syncing multiple bidules to one source doesn't work
- Delete : could crash in some special cases when OSC server is enabled
- Groups : sometimes doesn't save the group display name correctly
- Groups : exported amplitude parameters with a user-set min and max don't always work correctly
- HID (OS X) : devices won't work when waking from sleep
- HID : now supporting POV/hat switches.
- Mediapool : loading files with the same name could lead to weird events
- Mediapool : loading of some raw audio files could cause a crash
- Mediapool : sometimes refuses to load existing/working audio files
- Mediapool : could not load some MIDI files
- MIDI Buffer : 0 length shouldn't be available
- MIDI File Looper : outputs incorrect syncing
- Replace : could crash on dual proc machines
- ReWire : devices go back to the beginning of their timeline when switching processing on/off
- Spectral Freeze : could crash when saving a file
- Spectral Inverter : could crash on some settings
- Sync Transport : sometimes outputs wrong syncing info
- Trigger Clock : doesn't reset itself correctly when making it inactive
- VST : previous parameter value is shown in the status bar of generic ui
- VST OS X : problems when loading files containing Kontakt instances

Version v0.8 (March 9th, 2005)

- You can now use your USB joysticks, mouse, keyboard and other HID devices as MIDI controllers and parameter sources: see Misc/HID Data Extractor (DX9 on Windows is HIGHLY suggested, DX8 is however the minimum no extras are needed on Mac OS X)
- Mediapool now shows more AudioFile details, including bpm, bars, beats and includes whole new tabs for MIDI and PVOC files!
- New and improved Audio File Looper with graphical loop points editing, variable number of beats/bars, meter adaption and time stretching (old looper has been renamed to Boboche Looper)

New Modules:

- 12, 14, 16, 24 and 32 channels Audio File Player
- 12, 14, 16, 24 and 32 channels Audio File Recorder
- Mono Dither (just duplicate by hand for the number of channels you want)
- HID Data Extractor
- MIDI Activity
- MIDI Aftertouch Creator
- MIDI Aftertouch Extractor
- MIDI Aftertouch Filter
- MIDI Multi Aftertouch Remapper
- MIDI Aftertouch Transposer
- MIDI Channel Pressure Creator
- MIDI Channel Pressure Extractor
- MIDI Channel Pressure Filter
- MIDI Multi Channel Pressure Remapper
- MIDI CC Transposer
- MIDI File Looper
- MIDI Message Remapper
- MIDI Note Extractor 2
- MIDI Pitchbend Creator
- MIDI Pitchbend Extractor
- MIDI Multi Program Change Remapper
- MIDI Program Change Filter
- MIDI Program Change Transposer
- MIDI Stack
- MIDI Switcher 2 ports
- Sync to MIDI Clock
- MIDI Time Delta
- MIDI Voice Counter
- 4 and 16 mono channels Mixer
- 4, 8 and 16 stereo channels Mixer
- Parameter Modulator (Relative)
- Pulse
- Spectral File Looper
- Spectral Inverter
- Spectral Sustain
- Stack
- Sync Transport

Changes:

- Accum : changed the higher bounds input to be exclusive, please change your layouts accordingly
- AU : added support for Cocoa UIs
- Audio File Player : added loop mode
- Audio File Recorder/Audio Buffer: added option to save in either wave or aiff instead of forcing the platform's preferred format
- Basic Audio Buffer: added Interpolation parameter
- Basic Audio Buffer: added distinct Record position input, please change your layouts accordingly
- FFT/iFFT/PVOC : Improved Frequency detection.
- Indexed Value List: changed Index input to be 0-based for consistency, please change your layouts accordingly
- Mediapool : added extra info on audio file
- MIDI Monitor : add events one by one in the window instead of by block
- Noise : added HP Tri noise type
- Parameter Properties Dialog : added display of increment value
- Patchbay : Paste from the context menu now pastes at the mouse position
- Spectral Freeze : can now save to file
- VST Bridge : added MIDI output to the host
- VST Bridge : added OS X version
- Windows : you can now have multiple versions of Bidule installed

Bug Fixes:

- Application : possible crash if groups cache file is corrupted
- Application : import causing crashes with some layouts
- Application : some undo operations could fail depending on your regional options
- AU : some AUs crashing when starting processing
- AU : some AUs windows not resizing properly
- AU : scanning fails on MusicDevices with a flexible configuration
- Audio File Granulator : crashes upon certain settings
- Buffer Granulator : crashes upon certain settings
- Groups : parameters exported to group sometimes don't update their enable/disable status correctly
- Groups : re-saving a group with a displayPath doesn't change the displayPath
- MIDI File Player : some files not looping correctly
- MIDI Step Sequencer: settings saved on one platform might not work on the other
- OS X : main window title bar could appear under the menu bar
- OS X MIDI Output: some MIDI events aren't sent properly for some interfaces
- OS X VST : keys aren't received by some plug-ins
- Presets : some bidules have parameters that reset to 0 when using presets
- ReWire : looping sections inside a ReWire device sometimes causes weird results
- Patchbay : current zoom isn't taking into account when adding bidules through drag and drop

- Spectral To MIDI : the threshold parameter doesn't have any effect
- Trigger : the send trigger parameter doesn't behave properly through parameter linking
- Windows : failure to open a MIDI port isn't reported

Version v0.7003 (January 14th, 2005)

Changes:

- Windows : added preference to force ASIO driver buffer size to Bidule's size

Bug Fixes:

- ASIO : lots of little fixes
- AU : crash with some plug-ins using CurrentPreset when changing presets
- Basic Audio Buffer : Number of samples isn't set correctly for some buffer sizes
- Better handling of failure of starting audio processing
- Audio/MIDI Matrix : crash when clicking outside the grid
- MIDI File Player : stuck notes when stopping playback
- OS X : Main window shows up with the titlebar under the menu bar
- OS X : crashes on startup with some Digidesign card/driver combination
- Presets : possible loading problem when files are shared between locales
- ParameterPool : having a default presets file prevent parameters to show up correctly

Version v0.7002 (January 5th, 2005)

Changes:

- AU : can now save any presets not just the User preset
- Faster application shutdown
- Group Config Dialog : changed max number of ins/outs to 128
- Polyphony Config Dialog : changed max number of voices to 128
- Windows : ASIO devices now reporting channel names as other bidules

Bug Fixes:

- AU : doesn't load the correct values if the plug-in has no factory presets and only file presets
- Audio Monitor : sometimes stop working when changing buffer size/sample rate
- Groups : re-saving groups doesn't keep the display path
- Learn mode : crash if in learn mode and the MIDI device is deleted
- OS X : crashes on startup with some Digidesign card/driver combination
- Undo/Redo not always keeping the correct links for Group Selection
- VST Scanning : sometimes always try to re-scan the same bad plug-in at startup
- VST : crashes when loading a fxb on a plug-in with no preset
- VST : some plug-ins not saving correctly
- VST OS X : glitches in drawing with some plug-ins
- VST OS X : crash on deleting some plug-ins

Version v0.7001 (November 29th, 2004)

Changes:

- MIDI Buffer : added speed parameter
- Palette : shown/not shown state is now remembered
- Step Sequencer: only clicking is needed to delete notes (instead of clicking+move)

Bug Fixes:

- Cable detection not working correctly with short curved lines that are straight
- Constant/Counter/Clip : can't set parameter when using it as a group parameter
- Main Window : shrinks to a tiny window when loading some files
- Main Window : using the key shortcut for processing doesn't change the button
- Preferences : changing AU/VST sorting by company names takes a long time
- Tools : some tool windows not remembering their size and position

Revision History:

Version v0.7 (November 23th, 2004)

- You can now register Bidule to avoid expiration date (and feed us :)
- New default look
- Skin support
- More intuitive MIDI Learn mode for all bidules/plugins
- MIDI Feedback support (send values back to controller)
- Support for 7-bits Relatives and 14-bits Absolute MIDI CC
- Processing mode now in the window for each bidule/plugin
- Sync To option now in the window for each bidule/plugin
- Bidule is now an OSC server (all parameters are accessible)
- AudioUnits now lists all the installed presets for a plugin
- AudioUnits/VSTs now have an extra output reporting their latency (if any)
(so you can do your own latency compensation when you need it)
- Internationalization so you have Bidule in your native language (french is done)
- Cables can now be straight lines or curves

- Scan Groups and Scan Plugins are now separate
- Palette: You can double click on a entry to use it
- Palette: new "Find Next" and "Use Next" search/use utils

New Modules:

- MIDI Buffer
- MIDI Synced Buffer
- MIDI Delay
- MIDI Synced Delay
- MIDI Dummy
- MIDI Multi Channel Remapper
- MIDI Multi CC Remapper
- MIDI Multi Note Remapper

Changes:

- Audio/MIDI File Player : can now use presets
- AU : now shows Clump name in Parameter Pool
- AU : support for updated channel config specs when scanning
- AU/VST : doesn't show unnamed parameters in the Parameter Pool
- Clip/Constant/Counter/Variable : lowered min possible value, raised max possible value
- FIR : now takes a list of coefficients so you can create your own
- FFT/iFFT : faster AltiVec implementation
- FFT/iFFT : SSE implementation
- Audio/Freq/Mag Logic Gate : AltiVec implementation
- MediaPool : can now be sorted by columns
- MIDI Filters : added select all, unselect all, reverse selection, set range buttons
- MIDI Filters : added second output for rejected MIDI events
- MIDI Note Transpose : optional wraparound behavior
- MIDI CC Source/Input : can now optionally use all channels
- Mixer : AltiVec/SSE implementation
- New About dialog
- OS X : Better update rate of bidules/plugins UIs
- OS X : Support for MIDI setup changes notification (adding/removing MIDI ports)
- Palette : double-clicking on an entry adds it to the patchbay
- Parameter Pool : now shows bidules in alphabetical order
- Patchbay : Added Re-Init in each bidule context menu
- Patchbay : Size and position of the window is now saved+loaded
- Patchbay : Type of bidule is shown in the statusbar when going over it with the mouse
- Patchbay : Radar now working as expected
- Replace : now keeps parameter linking informations when replacing a MIDI input by another
- Sync Creator : added offset input
- Unary Operator : AltiVec implementation
- Windows : Optional dithering of output to sound card
- Windows : Mixing is done in SSE when there's multiple connections
- New Ctrl/Command - D shortcut for copy+paste in one step
- Original bidule type is shown in the statusbar if the bidule was renamed
- groups can now be rescanned separately from plug-ins

Bug Fixes:

- Sometimes duplicate connections are created
- Audio/MIDI devices : only 1 entry show up when multiple devices with the same name
- Accum : loop mode wraps to start value + 1
- AU : dynamically added parameters don't show in the Parameter Pool
- Audio File/Buffer Granulator: sometimes crashes when loading at a different sampling rate than it was saved
- Default layout : some plugins state aren't loaded correctly
- Groups : parameters are renamed even if cancel is hit
- MIDI File Player : always in loop mode
- OS X : files with accentuated characters can't be loaded
- OS X : double-clicking on a .bidule file doesn't always open it in Bidule
- OS X : windows saved on second monitor show up on first monitor on loading
- OS X : renaming a preset doesn't reflect immediately in dropdown
- OS X : AU plugins now list all .aupreset files as available presets
- ReWire slave : doesn't default to stereo channels but the dialog does
- Windows : Workaround for MIDI Yoke changing application priority
- Reaktor now doesn't process if it's not connected

Version v0.6602 (June 7th, 2004)

New Modules:

- MIDI Program Change Extractor
- MIDI Program Change Creator
- MIDI Channel Extractor
- MIDI Basic Channel Remapper

Changes:

- Expiration date now in the splash screen

Bug Fixes:

- AU : sometimes crashes when trying to load a preset
- AU : dialog about found AUs showing even if there's 0 new AUs
- AU : some AUs always scanned as new at Bidule startup
- Groups : re-worked arpeggiator, cc inverter, cc lin to log to keep MIDI channel
- ReWire device : now actively waits with dialog for the ReWire host application instead of popping up a message that it failed to
- OS X : possible crash when scanning VST plug-ins
- OS X : less UI freezes/hangs on 10.2.x (but still there)
- Parameters in dB can't be set a min/max
- Saved groups aren't renamed after their filenames
- Step Sequencer: doesn't start/stop when synced
- Step Sequencer: several step seq playlist problems
- Step Sequencer: stuck notes with step seq when stopping sync
- Using cut+delete+paste in the context menu cause crashes
- Windows : Crashes on startup on Windows 2003 with Terminal Services enabled

Version v0.6601 (May 19th, 2004)

- OS X : Audio Units hosting

New Modules:

- Noise Generator (White and Pink noises for now)

Changes:

- New Preferences dialog
- Added progress dialog when downloading from online group catalog
- Now tries to load audio/MIDI devices by their names first (useful when you use the same audio/MIDI interface on different machines)
- Faster cut/delete/polyphonize operations
- Right-clicking on a bidule automatically select it
- Now show the value of the parameter being changed through parameter linking in the bidule's window status bar
- Bidule ReWire dynamically shows if it can sync to the ReWire master application
- Added dialog to locate audio files for the mediapool when loading a layout and not being able to find them
- Preset parameter can now be virtualized as a choice control showing all the presets by their names
- Audio File Recorder : now shows elapsed time and size of file on disk
- Basic Audio Buffer : upped maximum to 180 000ms
- MIDI File Player : added loop option
- MIDI To Sync : Better Sync generation, more options.
- Polyphonic adapter : pitch bend support
- Polyphonic adapter : can now output MIDI
- VST : implemented reportConnectionChanges
- Windows Audio File Recorder : can now optionally output using WAVEFORMATEXTENSIBLE format

Bug Fixes:

- Starting/stopping audio processing causing crashes/problems under certain specific conditions
- Glitches when using ASIO after using MME even if the cpu usage is low
- Crashes sometimes happening when un-polyphonize-ing or deleting a bidule
- Audio File Recorder : various record/stop problems when using parameter linking with it
- Audio File Recorder : tries to append to the file when selecting an existing file for overwriting
- Default layout : Parameters of VST plug-ins in default layout not loaded correctly when starting Bidule
- Groups : sometimes audio skips upon deleting a group
- Groups : virtualized preset parameter maximum isn't set correctly
- Groups : UI wasn't rebuilt after changing the UI control type of a parameter
- Groups : terminal bidule connected to group input doesn't work
- MIDI Input : sending note offs for every note on every channel sometimes doesn't work
- MIDI Note Extractor : amplitude output sometimes cause clipping of synth voice
- MIDI Step Sequencer : doesn't send sync information correctly to SupaTrigga
- OS X : crashes on startup if Helvetica font can't be found
- OS X : can't load more than 200 something files in sampler plug-ins
- OS X : mouse wheel behaves weirdly for zooming in/out
- OS X : windows sometimes showing under the menubar
- OS X VST : crashes when quitting when using some specific plug-ins
- Sync source not always updating their names in the Sync To submenu
- Unknown (Red) bidules: sometimes cause crashes depending on how they are connected
- VST : multiple plug-ins with non-characters uniqueIDs (Pluggo) can't be seen by Bidule
- VST : only one of multiple plug-ins having the same internal name show up in the list
- VST : audioMasterOpenFileSelector returns 1 even if no file is selected
- VST : some Waves plug-ins crashing when adding them to the patchbay
- Windows MIDI : can't see more than 64 MIDI devices

Version v0.6502 (January 18th, 2004)

- Added a preference entry for choosing the number of wanted MIDI ports when running Bidule in ReWire Slave mode

Bug Fixes:

- Audio Switcher : sometimes buzzes when changing active output
- Audio File Recorder: doesn't record properly when takes occur rapidly
- MIDI Step Sequencer: stuck notes sometimes happening
- MIDI Step Sequencer: OS X Display problems
- Clicks in processing mode changes.
- Crash in standalone mode when loading a bidule file made from ReWire mode.
- Uninstaller didnt remove ReWire Device.
- Crash when removing output connections from a VST (actually fixed in 0.6501.1)

Version v0.6501 (December 13th, 2003)

- Bidule can now run as a ReWire device
(Windows Digidesign hardware and software users, please read the ReWire section of the help file first)
- Presets support for bidules and groups
- Offline processing mode
- Fading is applied upon changing processing modes
- Added replace to the context menu
- Group connectors can be named by double-clicking on them inside the group
- No more need to restart Bidule when changing audio/FFT settings
- Parameters using the mediapool for selecting wavefiles can now be linked to other parameters
- Added "Add/Remove All" buttons in the Locked Parameters dialog
- Added "Takes" mode to the Audio File Recorder
- OS X : added Bidule virtual MIDI ins and outs
- VST chunks are now compressed in .bidule files

New Modules:

- Dummy
- Input Selector
- Keystroke
- MIDI Note Creator 2
- Multitap Delay (up to 2 minutes of delay)
- Sync Creator
- Output Selector
- XY

Changes:

- Accum : Added a trigger output for loop mode
- Audio File Recorder : Stopping recording and then restarting it without changing the file will append to the file instead of overwriting it
- Clip : Now uses float numbers instead of integer
- Constant : Added FFT delay (the delay induced by FFT+iFFT an audio signal)
- Lookup Table : Added Interpolation parameter and the possibility to use audio files
- MIDI CC Filter : Lets non-CC MIDI messages pass
- MIDI File Player : Can now be sync slave
- MIDI Input : MIDI learn now working without having to connect the device to the graph
- MIDI Note Filter : Lets non-Note MIDI messages pass
- MIDI Step Sequencer : Can now be sync slave
- MIDI To Sync: Added parameters+GUI to let the user specified a constant tempo
- Parameter Modulator : now only change parameter value if the input value has changed
- VST : plugins that can send VSTTimeInfo don't need to be connected to the graph anymore

Bug Fixes:

- All : If the layout was saved at a greater resolution than the one at loading time, some windows don't appear
- All : Group parameters are screwed up after changing the exported parameters of a subgroup
- All : Shortcut for connecting multiple connectors at the same time doesn't work with group's inside connectors
- Audio File Recorder : Sometimes file doesn't get written to disk immediatly
- Basic Audio File Player: File doesn't play if play is triggered before a file is loaded
- Buffer Granulator : Randomize sometimes causing crashes on OS X
- Deconcrisseur : Not remembering values correctly upon loading
- MIDI File Player : Crashes if there's no time signature in the MIDI file
- OS X : Bidule crashes if ReWire is not installed on the machine
- Parameter properties dialog : Reset not working for maximum in some cases
- Variable/Constant : Not working after switching processing mode
- VST : Kontakt+Battery sometimes stalling when loading a layout
- VST : Some plugins not remembering their state correctly
- VST : Trying to control Waves plugins parameters through parameter linking crashed Bidule
- VST : Presets drop down still display old preset names after loading a bank from the plugin's UI
- VST : Parameters with values greater than 1 are set to 1 at saving time
- VST : Classic series not correctly initialized
- VST : VST presets can't be changed if the plugin GUI isn't showed first
- VST OS X: Some plugins resizing their window makes the toolbar disappear

- Windows : Bidule doesn't work if the arial font files can't be found

Version v0.6000 (July 18th, 2003)

New Modules:

- Audio File Recorder(1,2,4,6,8 and 10 channel(s))
- Audio File Player (1,2,4,6,8 and 10 channel(s))
- Audio Matrix
- Basic Audio Buffer
- Bin Delay
- Gate
- Lookup Table
- MIDI File Player
- MIDI CC Extractor
- MIDI Matrix
- Spectral Graph
- Spectral to Frequency/Amplitude
- Value List (Indexed)

New Included groups:

- Convolution XFade
- MIDI CC Lin to Log
- MIDI CC Inverter
- Stochastic MIDI Note
- Stochastic MIDI Note List
- Stochastic MIDI Seq
- Spectral EQ
- FreqTimeDub

- Added Parameter properties dialog where you can set the min/max/mutation factor of parameters
- Added Randomize parameters function (also a controllable parameter)
- Added Mutate parameters function (also a controllable parameter)
- Added Lock for randomize/mutate function
- All slider controls now have a textbox to manually enter the value (don't forget to hit enter)
- Disk Streaming (beta)
- Added ReWire devices configuration dialog (so you can set a default number of MIDI inputs/audio outputs)
- Faster FFT/iFFT thanks to FFTReal by Laurent de Soras
- VST: Added support for WaveShell 4.01
- OS X : Started adding some AltiVec optimizations

Changes:

- Audio File Output : now automatically using wav format on Windows and aiff format on OS X
- Audio File Output : now automatically adding .wav on Windows and .aiff on OS X to filenames
- CC Creator : added a third input (trigger) to force creation of CC messages
- Freq/Mag Binary Operator : rename itself like Binary Operator
- General : Renamed passthrough to bypass
- General : Cut/Paste/Copy/Undo/Redo including linked parameters and sync
- Parameters window : the bidule hierarchy now appear in the links window (in the form groupName.biduleName [parameterName]) instead of just the bidule name
- ReWire : the devices are kept open, no more ReWire errors when loading layouts containing a ReWire device you're already using (You might need to turn off auto launching of the application in the ReWire device configuration dialog)
- Virtual parameters dialog : you can now double-click to add/remove parameters
- VST : VST(i)s with no custom GUI now have proper preset management
- VST : Added rename preset
- VST : Implemented audioMasterGetDirectory
- VST : VST(i)s only requesting tempo can now be synced

Bug Fixes:

- Accum : looping not working correctly if maximum is changed once the looping has started
- All : Crashes on dual proc machines
- All : Bidules selection/lasso not working after panning the patchbay
- All : Crash when there is a polyphonic adapter in the default layout
- All : Crash when there is no default layout
- All : Group contents disappearing from Parameter window after using the Virtual Parameters dialog
- All : Potential crash when using the Parameter Modulator on a parameter in a shown window
- All : Group properties not wanting to remember that a group has no inputs+no outputs
- All : Terminal bidules still processing when inside a muted/bypass group
- All : Only 1 group entry instead of 2 when saving an existing group under a new name
- All : Virtual parameters dialog always rebuilding the virtual parameters when pressing OK without keeping track of parent groups referencing the virtual parameters

- All : Virtual parameters rename dialog not selecting text automatically
- All : Virtual parameters dialog not keeping the selection when moving up and down
- All : Parameters with value close to the minimum sometimes resulting in loaded/copied parameter with minimum value
- All : Crash when the target linked parameter has no GUI controls and the bidule owning the parameter has a gui
- All : Note protection, stealing priority, retrigger not saved/loaded with polyphonic adapter
- All : Group GUI not remembering visible state, position and size
- All : Polyphonic Adapter dialog not remembering retrigger parameter of polyphonic adapter
- All : Sometimes crashes when deleting a group containing a polyphonic adapter
- Audio Switcher : Noise in previous output when changing the active output
- Freq/Mag Binary Operator : Min and Max not working correctly
- Groups : Saved group not appearing in the palette if Bidule crashes in the same session
- MIDI to Sync: Potential crash when syncing VST
- Mixer : GUI sometimes not showing correctly
- Mixer : Target volume jumping to maximum when source volume set to minimum
- OS X : Rename bidule dialog not selecting text automatically
- OS X : MIDI devices detection causing Bidule to crash
- OS X : Problem with Mach-o VST loading on some machines
- OS X : SampleTank causing a crash when loading
- OS X : VST : audioMasterOpenFileSelector not working
- OS X : Now using proper shortcuts for cut/copy/paste/select all/new/save/open
- OS X : VST : Major bug preventing some plugin to work correctly
- OS X : updated Portaudio library should make more audio drivers work
- OS X : Mbox is not detected
- OS X : and lots of other tweaks/fixes
- Spectral to MIDI: Sending multiple notes on/off if the note doesn't change
- Step Sequencer : Size not remembered when loading a .bidule
- SynchedArpeggiator : Syncing not working correctly
- VST : Plugins not outputting sync info when they should
- VST : Crashes with plugins erroneously reporting to be able to use chunks
- VST : Processing mode not remembered when loading a .bidule
- VST : Generic GUI not updating for plugins internally updating their parameter values
- VST : Complete Bank not saved when saving a .bidule file and the plugin doesn't support chunks
- Windows : bidule.log file sometimes not created in the directory where Bidule is installed
- Windows : Double-clicking on a file containing a space in its name or path not working
- Win98/ME: The infamous 98/ME bug (hopefully)

Version v0.5701 (February 26th, 2003)

New Modules:

- MIDI CC Creator
- Recursive Function

Bug Fixes:

- Fixed PortAudio bug for ASIO cards using int24 for input (EX: Edirol UA-20)
- Fixed parameter linking
- Support for Waves plugins proxy (waveshell.dll)
- Bad contents of Step Sequencer upon pasting.

Version v0.5700 (February 8th, 2003)

- New Polyphonic Adapter to make polyphonic synths out of mono groups.
- Some audio processing optimizations
- Now using single document interface (so that OS X and Windows versions look the same)
- OS X Alpha tests started. (please be patient until Beta tests!)
- New faster code to detect the selection of bidules
- Some OpenGL optimizations
- ASIO duplex devices now showing as 2 bidules in the patchbay
- MME and DirectSound duplex devices are now available
- Added a progress bar when loading sound files
- New VST/groups scanning mechanism (should always be up to date with what's on your HD)
- VST errors now showing in the statusbar
- Can now set the processing mode of a multiple-selected bidules
- New bidules
 - Basic ADSR
 - Trigger Clock
 - MIDI Note Number to Param
 - MIDI Note Velocity To Params
 - MIDI To Sync (beta)
- Changes
 - Stats about the driver and ASIO Control Panel now available when double-clicking on an Audio Device
 - All Envelopes bidules now have an activity gate output
 - Step Sequencer now exporting currently playing sequence on each channel as parameters
 - Treating Note On and Note Off as two different message types in the MIDI Message Filter
- Fixes

- VST
 - better refresh
 - some VSTs crashing on initialization
 - prevent VSTs from sending MIDI events outside of the current buffer
 - removed isPinConnected interface implementation since too much developers haven't implemented it thinking of a modular application.
 - linking 2 parameters of the same VST
- P4 denormal with the Biquad Filter
- Possible division by 0 with the Biquad Filter
- Possible division by 0 with the Sync Extractor
- Possible stuck notes when using the MIDI Note Transpose
- Linked parameters not copied when cutandpasting a group
- Unlinking parameters sometimes made other links dissappear from the list in the Parameter Pool GUI
- Sync link not being loaded correctly sometimes
- List of sync sources in the context menu showing more than it should
- Cut and pasting of bidules from inside a group to the outside sometimes causing weird connections
- VST plugins directory registry key is an empty value
- Specified Minimum sometimes not loading correctly for Parameter Modulator and Variable
- MIDI Note Creator sometimes not using the correct detune value on Note Off messages
- MIDI Note Extractor using a 1ms glide even when none was wanted

Version v0.5601 (October 26th, 2002)

- Added "Spectral Freeze" Bidule
- Improved ReWire timing precision (Live's synch seldom flashes anymore)

Version v0.5600 (October 20th, 2002)

- Added "Random" Bidule
- New group
 - Schottstaedt String Tone
- Optimizations in Portaudio library (thanx again Ross!)
- Fixed VSTGUI/ReWire refreshes.
- Fixed Sync Extractor/Arpeggiator group

Version v0.5600RC1

- ReWire Mixer support
- New bidules:
 - Building Blocks : Accum
 - Building Blocks : Basic Audio File Player
 - Building Blocks : Basic Filter
 - Building Blocks : Binary Logic Operator
 - Building Blocks : Change
 - Building Blocks : Clip
 - Building Blocks : Counter
 - Building Blocks : Function
 - Building Blocks : MIDI Note Creator
 - Building Blocks : Sync Extractor
 - Building Blocks : Trigger
 - Building Blocks : Value List
 - MIDI : CC Filter
 - MIDI : CC Remapper
 - MIDI : CC To Params
 - MIDI : CC Value Scaler
 - MIDI : Message Filter
 - MIDI : Note Filter
 - MIDI : Note Remapper
 - MIDI : Note Transposer
 - Misc : Parameter Modulator
 - Spectral : Frequency Logic Gate
 - Spectral : Frequency Variable
 - Spectral : Magnitude Logic Gate
 - Spectral : Magnitude Variable
- Modified bidules:
 - Audio File : Added saving as 32 bits float to Audio Buffer
 - Audio File : Audio File Output now available with 2 or 6 channels
 - Added saving as 32 bits float
 - Audio File : Added interpolation parameter to Audio File Looper.
 - Added playing start at the same relative position when changing files.
 - Building Blocks : Added retrigger input to ADSR Envelope (at any stage)
 - Building Blocks : Added e, 12th root of 2, and 1 on 12th root of 2 to Constant
 - Building Blocks : MIDI Monitor is now terminal

- Building Blocks : Oscillator : added ramp [0;1] oscillator
Oscillator : changed 4th input from "initial phase" to "phase offset"
- Building Blocks : Added portamento and specifiable wheel range to MIDI Note Extractor
Inversed the order of the Gate and Trigger output to match the other bidules
Plus type of action needed (Always steal, use lowest note)
- Building Blocks : Added Round to Unary Operator
- Building Blocks : Added MIDI note to frequency, frequency to MIDI note, cents to frequency ratio and frequency ratio to cents to Unit Converter
- MIDI : Added play/stop button to the Step Sequencer
- Spectral : Added Ramp to the possible wave types of Spectral Resynthesizer
- VST Hosting: Implemented effEditKey opcodes
Implemented isPinConnected interface
- New Included groups:
 - 16 Step Seq
 - 16 Step Seq2
 - Analog Drum
 - Analog Kit
 - Arpeggiator
 - Complex Limiter
 - Formant Filter
 - Note to Chord
 - PD Osc
 - Pitch Sampler
 - Pseudo Granulator
 - PWM Osc
 - Saturate
 - Simple Limiter
 - Stereo Delay
 - Stereo Flanger
 - Tone Gen
 - Two Band Distortion
 - Waveshaper
 - Wavetable Synth
- Added mechanism to display sync master/slave status of bidules in the patchbay
- Added transport information when syncing bidules
- Added Alignement Command in the Patchbay context menu
- Added automatic rename in the patchbay to the parameter value for Binary Operator, Constant, Function, Unary Operator and Unit Converter
- Added display of possible range in the status bar for inputs and outputs of some basic bidules
- Text is now automatically selected in the rename dialog
- Changed the play/stop button in the toolbar for an on/off switch
- Added directory browse dialog when changing the VST plugins path
- Better displaying of audio file types in the MediaPool GUI
- Added option to save MediaPool content when saving a group
- Added mechanism to limit the number of patchbay refresh per second
- Fixes
 - Several little VST hosting bugs (many thanx to tobybear's Kondor!)
 - fixed CRITICAL bug with host dangling "all notes off" midi events (made some plugins crash between after a stop/play command)
 - fixed preset list drop down to be VST 1.0 compatible
 - fixed receiving of MIDI events from certain plugins
 - added Bidule-side FPU control word protection
 - misc VstTimeInfo members fixed
 - audioMasterVersion returns 2200 (as SX)
 - audioMasterCanDo's (host) now properly filled
 - Rare occurrence crash when deleting bidules and audio was playing
 - Fixed proper CPU speed detection routine (for tighter timing)
 - Bug in our addons to PortAudio that would prevent some audio cards to work
 - Crash when trying to use an audiodevice inside a group
 - Mixer crashes when using parameter linking with it
 - Potential crash with remote catalog
 - Bidule appearing in the taskbar and not possible to view its window
 - Group dialogs now showing proper value of virtual parameters in the statusbar
 - Min and Max inversion in Binary Operator
 - Loading problems when using reserved characters for bidules/parameters display name
 - GUIs of bidules contained in a group sometimes appearing+disappearing immediatly when deleting the group
 - Fixed first bar syncinfo from Step Sequencer (now starts at ppqPos=0)

Version v0.5000 (July 24th, 2002)

- Added Pitch Bend to Note Extractor
- VST fxbs load/save added
- VST fixed selected program save/load
- Parameter Pool now is hierachical (by groups)
- Optimized band limited osc.
- Misc Groups manager bugs fixed

Version v0.5000RC1 (July 15th, 2002)

New features:

- Bidule Grouping ability
- Pre-made example groups:
 - 4-Tap Delay
 - Comb Tone
 - PhatSynth
 - Flanger
 - Freeverb (based on Jezar's famous reverb - public domain)
 - LFO
 - MIDI Gate
 - MonoTone
 - Random Computer Tones
 - SimpleFM
- Group Manager
(up to date live info from plogue.com's Catalog of
of freely downloadable groups)
- Unified Audio Device Types (now one exe for ASIO/DS/MM)
- Bidule Palette
- Patchbay:
 - CTRL-drag for n to n connections
 - CUT and Paste of bidules/connections
- Default Patch

----New modules----

Oscillator (new name of "tone generator")

- New choice of bandlimited tones (on/off)
- Freq/amp/trig/phase inputs

- MIDI Note Extractor (extracts freq/amp/gate/trig from MIDI notes)

Can only do monophonic tones right now...

polyphonic and portamento managers in next version

- Sample And Hold

Math:

- Constant (with many usefull defaults, like current SampleRate)
- Logic Gate
- Unit Converter (ms 2 samples, dB to Linear. etc)

Envelopes:

- Exponential
- ADSR
- Envelope Follower

Filters:

- Crossover
- Biquad
- Comb
- Allpass

Monitoring

- Audio Monitor

MIDI

- Midi 2 value (smoothly interpolates CC's into audio)

Mixing

- Stereo Squeezer (Stereo image width reducer)

Routing

- Audio switcher
- MIDI switcher

Spectral

- Magnitude Stretcher
- Magnitude Breeder
- Magnitude Shifter
- Frequency Stretcher
- Frequency Breeder
- Frequency Shifter
- Frequency Inversion

Improved modules

Delay Line

- Fully interpolating output depending on variable delay lenghts

Variable

- now has user definable min/max ranges
- and convenient slider

VST

- reporting errors at the end of scan only
- can be terminal (MIVI now works)
- can generate VstTimeInfo (be master) (lots of things i dont remember)
- manual loading of FXP/FXB started (will be complete in 0.5000 -no RC)

New Parameters

- Better efficiency in linking, CC mapping
- lots more routing flexibility

Bug Fixes

- misc opengl fixes (ATI128 crash),
- misc vst hosting fixes
- and little optimisations here and there

Version v0.4501 (May 12, 2002)

Bug Fixes

- ASIO devices detection logic in PortAudio.
- OpenGL crashes with some cards (please try with your own!)
- VST GUI ASIO crackles on some plugins
- VST loaded from .bidule causing infinite loop
- VST protection from GUI coordinates fetch.
- VST saving binary "chunk" states.
- VST subdirs "changed" detection for auto scan.
- Loss of sound in iFFT using Frequency Binary ops
- Patchbay panning directions inverted

Version v0.4500 (Apr 23, 2002)

Bug fixes

- ASIO devices fixes
- PlogueBiduleASIO.exe can now play the tutorial layouts
- New Windows help file and splash
- and more...

Version v0.4500 RC1(Apr 16, 2002)

New modules:

- Mixer (8 mono ins, stereo out)
- Buffer Granulator (beta)
- Spectral To MIDI (beta)
- Spectral Cherizer (beta)

New features:

- MIDI Splitter has a new program change mode
- Improved parameter linking window.
- Textures in processing modes (passthru, mute)
- Tone generator now has a toggleable linear envelope.
- New tutorial layouts 7 and 8

Bug fixes/Annoyances

- Layout of default GUI enhanced with value display, tab access.
- Sequencer display buffering enhanced (less flashing)
- Catching errors on VST editor close
- Checking for VST duplicate and Common IDs added to scanning. (and removing them)
- Mediapool bugs
- Bugs in layouts saving
- Error message when current sample rate isnt supported by driver

Version 0.4419 pre-beta (Mar 23, 2002)

New modules:

- SmartElectronix Granul8 (slightly modified by us:)
- MIDI Channel Remapper
- MIDI Channel Filter
- MIDI Note Shuffler
- MIDI Velocity Scaler
- MIDI Monitor
- SpectralDomain Pitch Shift

New features:

- ALL: Process/Mute/Passthrough modes added for Bidules (non devices)
- Sequencer: Clear Button and Set BPM/StepSize for all in PlayList
- Correct Phase vocoding with user selectable FFTSize and overlap factors
- SampleRate, BufferSize, FFTSize, FFTOverlap are now in preferences

Bug fixes/Annoyances

- Adding protection so that only one device is opened at once.
- Fixed VST-selected patch vs. Bidule's selected patch problem.
- Took out warnings after a VST scan.
- Sample Accurate AudioFileLooper, ToneGen, BobocheSampler
- Fixed random GUI appearing when deleting bidules bugs
- Fixed MIDI Learning bug (used last CC received when not in learn mode)
- Fixed crash on manual sequencer bank loader.
- VstTimeInfo fixed for Reaktor3 synchronisation
- Wav file listing discrepancy between wav pool/Bidules

Version 0.4153 pre-beta (Feb 10, 2002)

- New options to automatically show GUIs when inserting them... or not.
- Fix for paths (they are now remembered)
- Fixed locales (use whatever you want, it doesn't bother Bidule anymore)
- Misc bad VSTi behaviour fixes.
- Added supplemental crash protection in VST scanning phase
(a new popup will warn the user that a plugin acted funny
and that bidule won't use it in the future)
- ASIO driver optimizations, especially for the hacked Live drivers
(a new "output only" driver is now available for it, instead of a fake duplex)
- OpenGL optimizations so that it does less screen refreshes (helps ASIO a lot!)
- Fixed random crashes in AudioFileOutput and AudioBuffer,
that would crash Bidule randomly on start/stop file writing.
- Fixed 24/16 bits file for audio clipping wraparound.

Version 0.4152 pre-beta (Jan 29, 2002)

- MIDI Outputs work (must have a Audio Device somewhere though)
- Parameters can now "learn" a from a MIDI CC. (see Context menu below)
(got rid of the old MIDIToParam Bidule, now obsolete)
- Playlist Interface for the MIDISequencer (first version)
- VSTs/VSTis/AudioFileLooper can now be synched to any MIDISequencers
- First third party deal: SmartElectronix Chorus! (more to come!)
- VST Sorting by "directory names", and "DLL names" as option (happy???)
- New "radar" view for the Patchbay
- Speed slider of loopplayer now goes from [-2.0:2.0] Scratchy!
(only available if not synched)
- Modules pins information are now displayed in the status bar.
- Each Bidule now has its own context menu
(bidule must be selected first then right clicked)
- VST fix for some wrongly sized GUIs (FM7, sonic syndicate plus, etc)
- Maybe some other things but we don't remember, it's been a long time ;)
- + and many other bug fixes.

Version 0.4100 pre-beta. (date?)

- Completely new Patchbay (see next section)
- Added Spectral Domain Bidules and connectors
This is a preliminary version of all Spectral Bidules, so for now
FFT size HAD to be fixed to 256 so is the Standard Audio BufferSize!!
you can't change it anymore in the registry for this version.
Also the Phase Vocoder overlap factor is also set to 1 (no overlap)
So everything you do spectral-wise won't exactly be high quality
all this section is _very_ alpha.(see Bidules section for specific details)
- Enhanced MIDI Sequencer (16 Sequences can run simultaneously, one for each midi channel)
- Added MIDI Splitter
- Added support for VST opcode audioMasterOpenFileSelector and VstPinProperties
- Changed saved files format (you won't be able to load your previous .bidule files)
- Fixed bug with MIDI Devices allocation/detection
- Added option for selecting your own VSTPlugins directory and manually call the
scanning (see the Edit Menu)
- Fixed popup dialog when clicking cancel on open file dialog

Version 0.4001 pre-beta. (Oct 22, 2001)

- Added Ctrl-left mouse button as deleter of connectors/midi notes
- MIDI and Audio Devices appears with their real names in the menu
- Double-clicking on a Bidule in the Patchbay brings up its GUI

Version 0.4000 pre-beta. (Oct 21, 2001)

Version 0.3003 alpha (Sep 22, 2001)

New features:

- Layouts Try the 3 new Bidule examples in layouts (but don't use ASIO!!!)
- AudioBuffer Saved wav files now instantly appear in MediaPool!

- Patchbay: Bidules now have a size proportionnal to their max inputs/outputs, yay!
- MediaPool: Can now load many wav,aiff,au,raw files at once!
- ParticleSequencer: Spectrum colored balls.

BugFixes

- Patchbay: Seb added a feature that _we hope_ will solve lots of crashes that occur when adding/removing connections in playback.
- Patchbay: Middle clicking + hitting del made Bidule crash! (budz_ reported)
- Menu: First dummy entry on the menu reported "missing main" (ben@KVR reported)
- VST: Now looking EffectName, then ProductString, then dll name. (marc3poirier/DFX suggestion)
- ToneGenerator: Noise's wavtable access (noise sounded loopy!)
- Device Names: Now generic (except in patchbay) to make sharing of .bidule files a reality
- MoogVCF: Fixed "speaker destroyer" side-effect.

Version 0.3002 alpha

- Minor fixes
- Started Implementation of own CPU monitoring with overflow management (50%)

Version 0.3001 alpha

- Particle Sequencer now outputs MIDI!!!!
- Saves now workspace layouts (thanx seb!)
- Now using VSTPath from registry if previously set, otherwise using/VSTPlugins
- Using SGI GL implemtation. If you have an accelerated card, your normal GI ICD will of course be used, otherwise, you have something faster than MS's implementation .
- + you could test the software mode if you want (see below in GL Config)
- Fixed AudioBuffer filename problem
- Fixed Paths problems
- Fixed Max Midi Devices crashes.. I hope it covers all!
- Minor additions to sequencer. (can now change sequences)!
- Minor AudioDevice Fixes for same input/output name (thanx Laurent for finding this!)

Version 0.3 alpha (#musicdsp dev friends test)

- Added: WavePool and AudioFile Player speed changes. (soon to match BPMs)

Version 0.2 alpha
