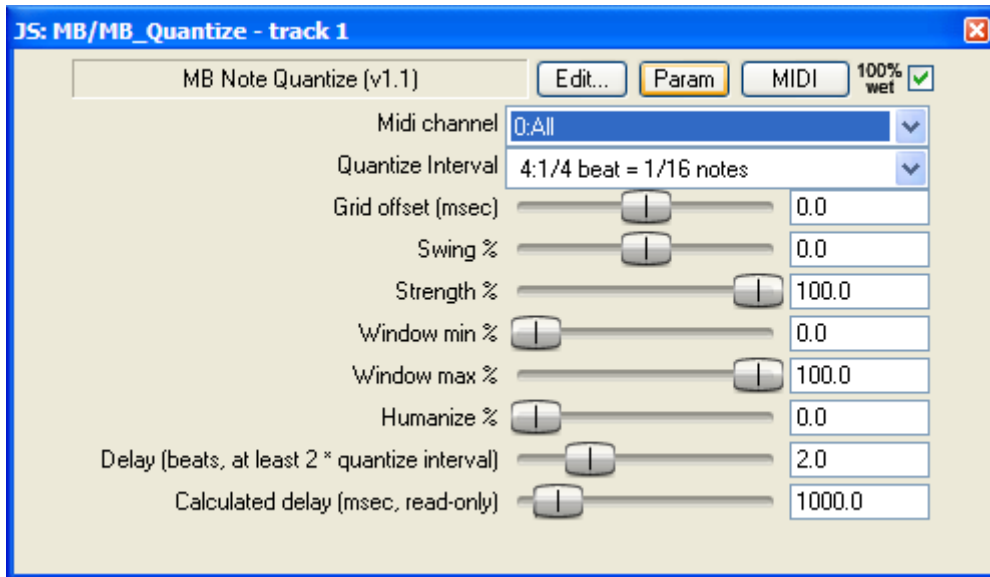# MB Note Quantize JS Plugin for REAPER

Version 1.1

Overview

Coming from other DAW sequencers, I was badly missing the ability to achieve in REAPER on the fly, non destructive quantization of MIDI note events in tracks; thanks to the Jesusonic framework, I managed to write a plugin for this purpose.

Please note that this plugin cannot be used to quantize live input events, it only works for data already set in track items.

To perform a correct (nearest to grid alignment) timing quantization, the plugin must be able to move events backward in time; Jesusonic allows time warp by using delay compensation, but I decided not to make use of it: the size of buffers involved could easily bring to huge latency and/or high CPU utilization if it was used. So a particular technique is used instead: all events sent to the plugin must be shifted earlier in time in order to provide the necessary lookahead.

In other words, provided that:

– the events sent to the plugin are manually shifted earlier by a certain beat amount

– the very same amount is specified as "delay" parameter in the plugin

the plugin takes care of calculating the correct amount of time shifting for each event needed to perform the requested quantization and, at the same time, keeps the events in sync with the other tracks.

You can think about it as a manually induced lookahead delay compensation :)

The quantization process only affects note on events with velocity > 0; other note related events are simply shifted by the same amount used to quantize the most recent note on event of same note number and same MIDI channel. In short, you cannot currently quantize note event lengths, but only note starts times; the note durations always stay the same.

All unaffected (not note related or out of specified window) events are simply delayed by the specified amount in order to keep them in sync with the affected events.

Parameters description

MIDI Channel

MIDI channel filter for quantized MIDI channels; if a specific MIDI channel is selected, only events using that channel are processed, while the remaining channels are passed through (but delayed anyway by the "Delay" parameter to keep them in sync with the quantized events, as already mentioned).

Quantize interval

Defines the size of the grid to which all note on events are aligned.

Each setting is described using two different reference values, one related to bare beat fraction, the other tells the equivalent note value in case one beat is meant as quarter note (which can be easily seen as the most frequent situation).

Grid offset (msec)

Offset in milliseconds of the quantize grid; you can use it to bring all quantized events slightly earlier or later.

Swing %

Distorts the quantize grid so that the notes aligned to even grid slots are shifted away from them.

To determine which grid slot is even and which is odd, grid positions are enumerated from beat 1. That is, the slot starting at beat 1 is slot 1 and as such it is considered odd, next slot is even and so on. Events aligned to even grid slots are shifted forward for positive swing values and backward for negative values; even though backward swing is much less encountered, it can sometimes bring to interesting musical effects, so that's why it's allowed.

0% means straight grid, 66% is usual shuffle (triplets), 100% moves even grid slots aligned events one half of grid size forward. Same applies, but in the opposite direction, for negative swing values.

Notes:

- The behaviour of swing with "uneven" time signatures is not predictable.
- The swing value behaves exactly the same as in the MIDI quantize REAPER native function (for positive values).

Strength %

The degree to which events are brought towards the grid boundaries. 100% means full quantization, 0% no quantization at all; intermediate values can help tighting up events without having them sound too precise and mechanical, that is averaging the quantization process with the original feel.

Window min & max %

Using these parameters, you can select note events affected by quantization based on their distance from the grid. When min is 0% and max is 100% all note on events are quantized.
A value of 100% means a distance half the size of the quantization grid (which is indeed the maximum possible distance of an event from the nearest grid boundary).

By tweaking appropriately these parameters, you can decide to quantize only events far enough from the grid (for example setting min = 50%, max = 100%) or only events already in proximity of the grid (for example setting min = 0%, max = 25%).

Humanize %

Can be used to randomly move events off of the grid; the value of the parameter is the maximum distance allowed from the grid; 100% means that an event can be moved off the grid up to half the quantization grid size.

Delay

As already explained previously, the plugin needs events in advance. With this parameter, you tell the plugin how much earlier the events are being sent; an unaffected event is delayed by the exact same amount so that it plays at the exact original time; this trick supplies the necessary lookahead while allowing events to stay in sync in reference to other tracks.

The delay is expressed in beats and should always be at least twice the size of the quantization grid. For example, if you need to quantize in 1/4 beat (1/16 notes) you can safely move track data 1 beat earlier (and set the "delay" parameter to 1).

In this case, track data is sent to the plugin 1 beat earlier, and the plugin, after processing it, delays it 1 beat so that events line up with the other tracks.

Calculated delay

This is actually a read only value , expressed in milliseconds, of the delay value, so that if you wish to use other compensating delay methods to avoid move track data, you can use this value to know the exact millisecond amount of induced delay.

History

2009/10/08 – version 1.1

First stable release:

- enhanced and refined quantize calculation
- additional window + humanization parameters
- delay milliseconds readout
- multiple MIDI channel support

2009/09/13 – version 1.0 beta1

First beta, just quantize with grid offset, swing, strength, quantize interval.

Not supporting data from multiple channel yet.

Notes and disclaimer

This plugin is "as is" and used completely at your own risk. I cannot be considered responsible for any consequences of using this plugin..

"MB Note Quantize" was written by mabian (Mario Bianchi) in 2009, built and tested in REAPER 3.1.

Some code was taken from schwa's humanize Jesusonic plugin.