Fractionate Manual

Changelog

- v1.1
  - Added 2 Modulation Sequencers which can modulate the main sequence parameters.
  - Added min and max settings to the randomisation profile for the Modulation amount knobs.
  - Added 2 dedicated CC Sequencers with CCID, Base Value and Amount.
  - GUI changes.
  - Added Mod Wheel to Octave Transpose for transposing the whole sequence by octaves in real-time.
  - Simple BPM Mode replaced by various Clock options menu.
  - Added a Fixed length parameter so that Length is always the same regardless of Clock settings.
  - Changed 'BPM' to clock which makes more sense because it is a clock divider based on BPM rather the BPM.
- v1.02
  - Improved Randomize profile for Division parameter, now the minimum and maximum are percentages of the selected step size which is much better.
- v1.01
  - Added Midi Recorder
  - Added a Flip Keys button so that C starts with Sequence 11 instead of sequence 1 for those that prefer it when using chromatic Mode.
- v1.0
  - Finished Random Profile Load/Save
  - Improved the Quantize code.
  - Graphic Improvements
  - Added Hold
  - Added 3 new Main Modes
  - Added Fluctuate Parameter
  - Added a Note animation to show polyphonic current steps as well as a separate note play animation.
  - All Sequencer knobs can now be automated by the host.

- Beta 1
  - Initial Release

FRACTIONATE
EUCLIDEAN MIDI SEQUENCER

HOLD   GATED   KEY FLIP   SHADE   BLUE   MOD > VEL   50   SAVE   LOAD   < >   SAVE DEF
FIXED LEN   MODE   CHROMATIC   MOD > XPOSE   0

Default Prefllanka.nka
test1.nka
test2.nka
test3.nka

RANDOMIZE PROFILE   CLOCK MODE   1-128   QUANTIZE   1/16

GLOBAL
RANDOMIZE   MAX SEQS   12

MIN   0%   1   1%   0   50   10   50   1
MAX   15%   16   50%   7   100   100   100   8
         X   X   X   X   X   X   X   X

D R   FLUCTUATE   0

GLOBAL CLOCK   1

| | D R | D R | D R | D R | D R | D R | D R | D R | | MAIN | MOD | | PRESET | RANDOM |
	CLOCK	STEPS	DIVIDE	SHIFT	VELO	LENG	PROBA	DIR						
1	4	1	1	0	52	100	100	FWD					D R
2	4	8	2	0	72	100	100	FWD					D R
3	4	9	4	0	68	100	100	FWD					D R
4	4	10	2	0	59	100	100	FWD					D R
5	4	8	4	0	61	100	100	FWD					D R
6	4	12	6	0	87	100	100	FWD					D R
7	4	6	1	0	67	100	100	FWD					D R
8	4	4	1	0	82	100	100	FWD					D R
9	4	6	3	0	63	100	100	FWD					D R
10	4	16	1	0	73	100	100	FWD					D R
11	4	15	5	0	98	100	100	FWD					D R
12	4	6	3	0	84	100	100	FWD					D R

Fractionate is a Sequencing System that uses 12 Euclidean Sequencers that play sequence the played Keys. The default main mode is to assign a sequencer to each note in the Octave but there are other modes as well.

Euclidean Sequencing is based on the amount of steps and the number of notes that should be distributed across them. Fractionate also allows shifting the sequence using the Offset function which will rotate the sequence to the right.

All Sequence parameters have a random min and max setting to constrain how they are randomized. There is also an enable for each Column to determine if they should be randomised by the Row/Global randomizers.

You must enable Midi output in Kontakt to use this instrument, it produces no sound of its own and needs to be pointed at a software or hardware synthesizer. In Kontakt options select these options:
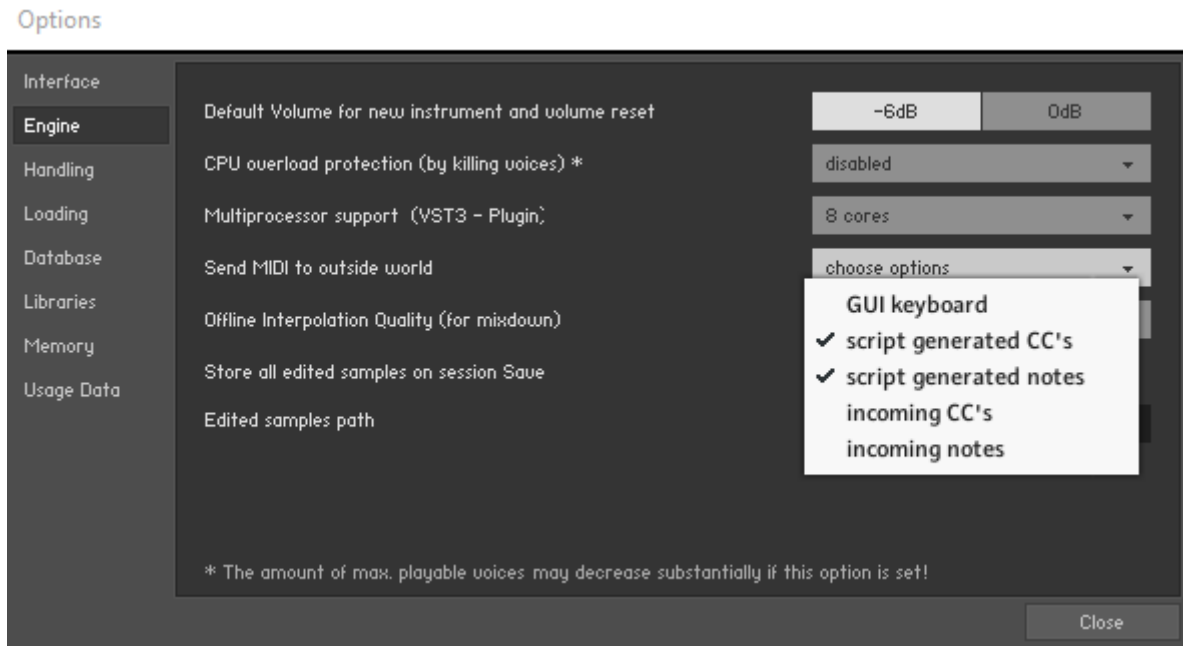
For examples of how to use in many hosts, see this video if you are not used to using VST midi output:

https://youtu.be/kcKY7F2si-I

NOTE: The Kontakt listener that keeps beats to the host tempo seems to be fluctuating more than ever these days in the latest versions. It makes it hard to implement a reliable quantized first note which makes jamming/recording much easier at keeping the sequencers in sync. You may find that when starting playback with an immediate note it will be skipped, you can either start from before the part or disable the quantize setting once you have recorded in which case it will be fine.

There is a settings file called FractionateSettings.nka in the data folder which can be edited in any text editor like notepad etc.. The first line has a latency value in ticks that is used to help with the early clock beats during playback. I've found 6 to be the best compromise on my system, if you find it wildly out of time, you can change it although it shouldn't be much more than this otherwise notes will be very obviously late. If you want super tight midi it's best to record the output to a midi track with auto quantize enabled when you are finished editing.
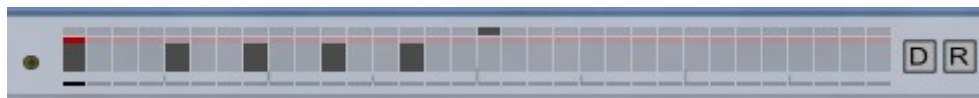
Sequencer Row

Each Sequencer has a range of controls as follows:

- **CLOCK** – This is actually clock of the master clock rate, so usually sticking to 2,4,8 etc will be the most playable tempos, however it can do anything between 1 – 128 for lots of experimental purposes.

- **STEPS** – How many steps will be used for the sequence, between 1 and 32.

- **DIVIDE** – This tells the algorithm how many notes should be distributed over the given steps.

- **SHIFT** – This will shift the sequence to the right allowing the sequence to be started on any note.

- **VELO** – The velocity of the Sequencer. It's good to assign parameters to velocity in your target synth, then this can be used to affect the Filter Cutoff as an example. Another use is having 2 different sequencers with different Step amounts and different velocities using the same note which can lead to some intricate and complex sequencing considering the note choking of one sequencer over another.

- **LENG** – The length of the note as a percentage of the current step length. It allows going over 100% to 200% but different synths can react differently to any overlapping notes so mostly it's probably advisable to stay below 100.

- **PROBA** – The probability that the note will play, 100% means all notes will always play.

- **DIR** – The direction of the sequencer

  - **FWD** – Plays forward

  - **REV** – Plays reversed

  - **>< 1** – Plays forward then back, repeating the first/last steps to keep the step size in sync.

  - **>< 2** – Plays forward then back with no repeated notes.

  - **<> 1** – Plays back then forward, repeating the first/last steps to keep the step size in sync.

  - **>< 2** – Plays back then forward with no repeated notes.

  - **RND** – Plays a Random step

  - **TOG** – Rolls the dice to see if it should advance or reverse each step, basically like a drunk sequencer.

Clicking on any control whilst holding SHIFT will set the entire column to that value.

To the right of each sequencer is a display that shows the note arrangement, the top line shows the amount of steps, just below that is a row that lights when a step is played and the bottom shows the playhead position when running. There is also a light on the left that signifies when a sequence is triggered. Note that multiple notes can use the same sequence and so only the last triggered will be animated.

The default button will reset the row to whatever is save in the Default preset (You can save the state of the machine at anytime with 'SAVE DEF' to customise what values the default buttons will use.

Randomize will randomize the row using the random profile settings:

You can set the minimum and maximum amount used by each column. Note that the Divide settings are a percentage of the current step amount. When using Global Randomize it will randomize the step size first and use that as the max.

Clock Mode allows selecting a random value based on a custom selection instead of wild randomization. Min and Max settings are still respected so a range can be selected within the selection as percentages.

Each Column also has an 'X' button which determines whether it should be included in row/global randomizing.

Each row has a Default and Random button which will randomize/reset that parameter in all sequences.

Global Default uses the Default file as a reference to restore a Preset, you can overwrite it at anytime with your own using the Save Def button.

Global Randomize Randomizes all parameters that have been enable using the 'X' buttons.
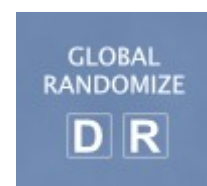
Options

- **MOD > VEL** – The modulation wheel can be used to lower the velocity by this percentage.

- **MOD > XPOSE** – This will transpose the entire instrument in real-time by Octaves when using the Modulation Wheel.

- **QUANTIZE** – This defines how incoming keys are Quantized to the Sequence clock.

- **MAX SEQS** – Decides how many of the sequence will used in the Cycle modes set in the main mode menu.

- **FLUCTUATE** – Adds a random amount to the Velocity of notes.
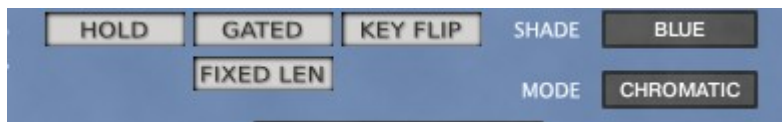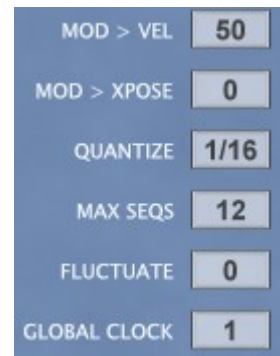
- **HOLD** – This is useful for hands free jamming, not recommended for production.

- **GATED** – Each Sequencer will have a single clock rather than each Note having it's own clock and being polyphonic.

- **KEY FLIP** – Changes the chromatic mode so that C is represented by Sequence 11 instead of Sequence 1 which some may prefer, the Key display > is changed to reflect this. This setting is global and stored in the settings file so it will always be remembered.

- **FIXED LENGTH** – Normally the maximum note length is based on the sequencers individual Clock setting so that slower sequences have longer notes, this setting will make all Note Lengths based on the same clock rate.

- **SHADE** – Allows selecting a background colour.

- **MODE** – This decides how the Sequences are distributed when keys are played

  - **CHROMATIC** – Each Sequencer is hard assigned to a note in the chromatic scale so that Sequencer 1 is triggered by C keys and so on.
    There is a guide at the side showing the keys for reference →

  - **CYCLE FWD** – This will always start with Sequence 1 when the first note is played and any legato Keys after that will cycle forward through the sequences.

  - **CYCLE REV** – This is the opposite it will start with the last Sequence selected by the MAX SEQUENCES setting and select the next previous sequence for each new note.

- **RANDOM** – Chooses a Random Sequence with each new note
- **ELASTIC F** – Chooses the next unused sequence Starting with Sequence 1, if all are in use then it uses Sequence 1
- **ELASTIC R** – The same As F except it starts at whichever sequence is set by the 'MAX SEQS' setting and works back.
- **SEQUENCE 1** – This will always use Sequencer 1 for every Note.

Modulation

Added in v1.1 the Modulation page enables some advanced manipulation of the Sequencer Parameters. Note that the Modulation Sequencers act like a semi-modular synth and so replace the parameters used on the main page when amounts are dialled in. Modulating the Clock can be very unpredictable but also very interesting!
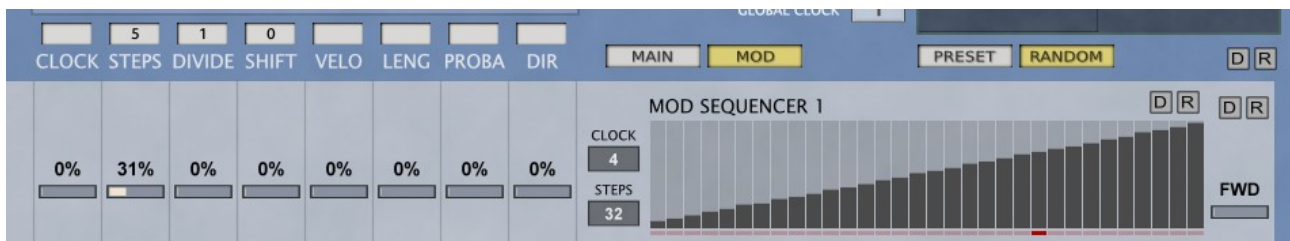

All Parameters can be modulated, the actual Euclidean Sequences are calculated per step when Steps, Divide or Shift are modulated. If Modulation is being used the displays at the top show the values passing through in real-time.

If both Sequencers are assigned to the same destination the total is halved to keep it in a sensible/useful range and the values are added together.

- **Clock Mod Mode** allows defining a series of values that the modulation will scale through rather than the raw BPM number, so that it allows sticking to more musically useful values such as 2,4,8 etc…

- **Random Destination Probability** is a dice rolled before randomizing each destination when using the randomizers. This value determines how likely it is to be randomized or reset to zero.

- **RND Direction** – Should Direction be randomized when randomizing the Modulation Sequencer

- **RND Clock** – Should the Clock setting be randomized when randomizing the Modulation Sequencer

- **RND Steps** – Should number of steps be randomized when randomizing the Modulation Sequencer
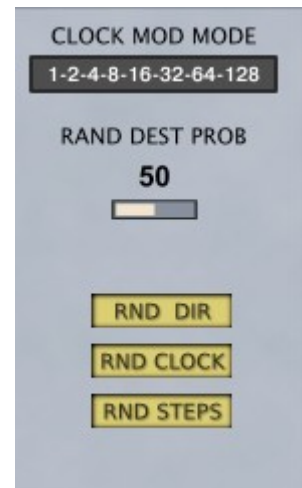
CC Sequencers
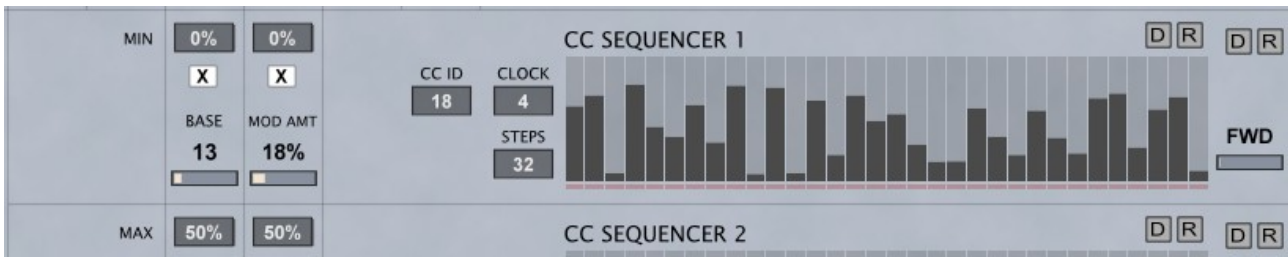
There are also 2 CC Sequencers which can each target a CC Parameter.

- **CC ID** – This determines which CC is manipulated on the target instrument, when it is set to zero the CC send is OFF.

- **CC Base** – This acts as a direct control knob for the CC parameter and the Modulation Sequencer value is added to this by the percentage set by the Amount Knob so this value becomes the floor.

- **Clock Divider** – This sets the speed of the LFO by skipping clock steps to slow it down and can be anywhere between 1 and 128.

- **Steps** – Determines the total length of the Sequencer between 1 and 32.

- **Direction** – Allows selecting Forward, Reverse Alt modes and Random etc.. identical to the main Sequencers.

- **Min/Max** – These are part of the randomizer Profile and decide the range used to randomize the Base and Mod Amount values. The 'X' decides whether they should be included in Randomization at all.

The Random/Default at the top right will Randomize all Mod Sequencers and Destinations, the random above each Sequencer will randomize/default the Single sequencer and the one to the right of it will do the Sequencer plus destinations.

Preset Browser

The instrument uses it's own Preset System and Presets can be loaded or Saved using the Preset Browser. The Preset Folder is called 'Fractionate Presets'

- **SAVE PRESET**
  When you save a Preset, unfortunately Kontakt always opens the File Browser showing the data folder which stores all the configuration files for the Synth, so you must select the Presets Folder and save your preset there so it will be visible next time you load the synth. You can create sub folders in this directory if you wish, they will be listed on the Left hand side. When saved the folder is updated now so your saved file can be seen without reloading the instrument!

- **LOAD PRESET**
  This is only needed to load a preset which isn't visible in the File Browser.

- **SAVE DEFAULT**
  All Homegrown Sounds Kontakt Instruments use a Default File for referencing when using any section or Global Default button. This Button will allow you to overwrite the file with the current state of the instrument, which will be used from then onwards.

- **PRESET PREVIOUS AND NEXT**
  These Buttons will navigate through the presets. However a Preset must be loaded in the Browser first to create the start point.

When 'RANDOM' is selected the random profiles Browser will be shown instead, save profiles in the 'Fractionate Random Profiles' folder.

Midi Recorder

MIDI RECORDER

- Play the DAW, the Midi Buffer is cleared and starts Recording immediately.
- Drag the Recorded Midi File to your DAW or desktop.

EVENTS RECORDED:

DRAG MIDI

In a separate script slot, starts recording as soon as the DAW playback begins. You can then drag and drop the midi. The buffer is cleared each time the DAW stops and starts.