GRAVITY WAVES MANUAL

Changelog

v1.0

- Initial Release

Introduction

Gravity Wave is an attempt at exploring Granular style synthesis within the Kontakt system. It uses Long Evolving Waveforms and the sound is generated by playing Looped Sections from these WAVs. The Loop Position and Length can be Sequenced in real-time via the Dedicated Loop sequencers which can create both Glitchy and interesting Pads.

It has a Dual Synth Architecture which have identical features. As well as the 2 Loop Start and Length Sequencers, there are also another 6 Per Synth which control Cutoff, Volume, Pan, Drive, Reverb Send and Delay Send. The Sequencers use tempo based divisions making them great for tempo Synched Patterns, have a maximum of 128 steps and 11 choices of tempo division.

There are also XY Pads which represent the currently visible Sequencers and will animate to show their current state when the Sequencers are in play Mode. They can also be use to record the Sequencers in real-time, and when a sequencer not in Play Mode they control the static value used for the destination amount.

Gravity Wave was designed to be intuitive and easy to use with all parameters + 4 Sequencers visible. There is also an internal presets system in place with a built in Browser.

The Synth Sections

Each of the Synthesizer has some general parameters relating to each. They are both identical in features.
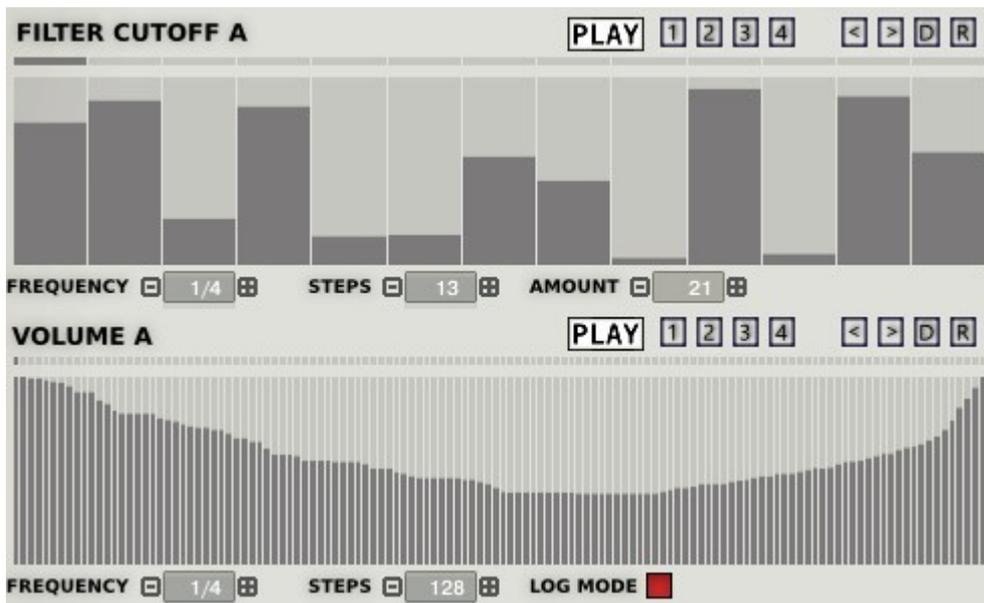
- **ENABLE**
  Switches the Synth Section On or Off
- **RETRIG**
  Forces all Sequencers relating to the Synth to Retrigger on every new note. The Normal behaviour is that they will retrigger on the 1st Note played when no notes are currently playing. The exception to this is the Volume which is polyphonic and is always retriggered on each new note like a classic ADSR Envelope.
- **LOCK WAVE**
  When either using Randomizers or loading presets, enabling the lock will prevent the currently selected Wave will not be changed.
- **CUT**
  This Offsets the Filter Cutoff and forms the lowest value of the Cutoff Sequencer.
- **RESO**
  The Resonance of the Synths Filter.
- **RELEASE**
  The Release of the Envelope – how long it takes a note to fade out.
- **TUNE**
  This is the RAW Tuning Value of the synth in cents -+ 1 Octave, you can hold SHIFT for Fine Tuning. Unlike previous HGS Instruments this does not step in Semitones. All knobs cab be reset to their default Value using CTRL + Click.
- **UNST**
  This adds a random Warble to the Sound
- **VOL**
  Level of the Synthesis
- **WAVE**
  Select which Waveform will be used by the Synthesizer either using the drop down menu, the increment/decrement buttons or the W Button which will select one randomly.
- **FILTER**
  Chooses the Filter used by the Synth Section.
- **DRIVE**
  Enables Drive for this synth, the level is controlled by the Drive Sequencer/XY Pads.

- **WAVE DISPLAY**
  Displays the currently loaded Waveform and when playing shows the looped section which is currently playing. It always shows the most recent triggered Note
- **F**
  Randomize the Filter Type
- **W**
  Randomize the Waveform used.
- **D**
  Sets the section to it's default state.
- **R**
  Randomizes the Section.

MOD Wheel and Aftertouch

- The Mod Wheel always affects the Filter Cutoff of both Synths in a positive way
- Aftertouch always adds to the Resonance of both Synths

The Sequencers – General

There are dedicated Sequencers for each of the 2 Synth Sections (A and B), and so each Synth has a Sequencer for Volume, Filter Cutoff, Loop Length, Loop Start, Pan, Drive Amount, Reverb Send and Delay Send.

All Play switch – When enabled switches all Plays to ON, and also overrides the Global Randomizers to ensure that all Plays are always ON when Randomizing.

The Tempo Up Down buttons to the right of the Panel Selectors will increase or decrease all Sequencers Tempo Divisions permanently. If the Tempo is already at either end of the available choices it will not be changed.

Each Sequencer has:

- **Frequency**
  The clock runs at 32nds of a beat and divides down and although the time also depends on the amount of steps used, the frequency is labelled as divisions of a bar which seemed less confusing than using 32nds!
- **Steps**
  The Sequencer can use between a selection of 1 and 128 steps, when the sequencer reaches the last step it will repeat.
- **Amount**
  All except the Volumes have an Amount Setting which determines in % how much affect the Sequencer will have on the destination.
- **LOG Mode**
  This is for the Volume Sequencers only, because the Volume is in decibels, using Linear Mode means that it has a very wide dynamic range. LOG Mode reduces the dynamic range and is much less radical.
- **PLAY**
  This determines whether the Sequencer runs or not. Note that when the Sequencer is disabled, the value of step 1 is used to determine the value of the Destination. The XY Pad is used to set the value in this situation.

- **1234**
  These are randomizers which use algorithms to make rhythmic patterns
  - 1 – This uses just downward Ramps
  - 2 – This uses downward and upward ramps
  - 3 – This uses downward and upward ramps plus flat sections
  - 4 – This is the same as 3 but also uses zero based sections.
- **< >**
  These are used to Shift the Sequence steps Left and Right
- **D**
  This sets the Sequencer to the Default settings saved in the Default File.
- **R**
  This will Randomize the Sequence using one of the many included Sequences from the Database. Not this works best when the steps are 128 or 64. Holding SHIFT whilst clicking will Randomize the Frequency , Step Amount and Amount. Holding CTRL will create a true Random Sequence.

The Filter/Volume Sequencers
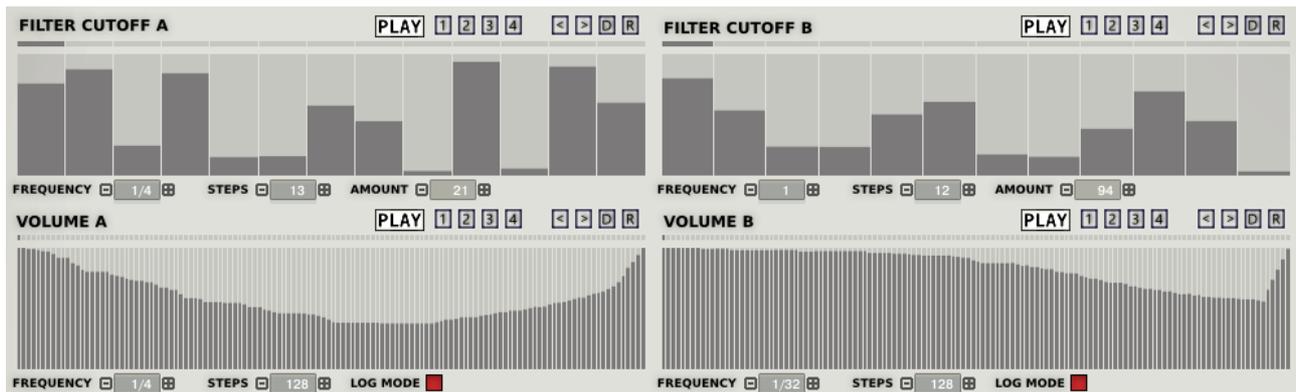
The Filter Cutoff Sequencers will directly positively affect the Filter Cutoff Value, you can offset this using the Filter cutoff control in each Synth Section. The Amount % determines how extreme the highest value of the Sequencer output will be.

The Volume applies a Volume Curve to each Synth's Output, using LOG Mode will mean that the Sequencer will have less dynamic range and so will be louder than using Linear Mode.

The Loop Length/Start Sequencers
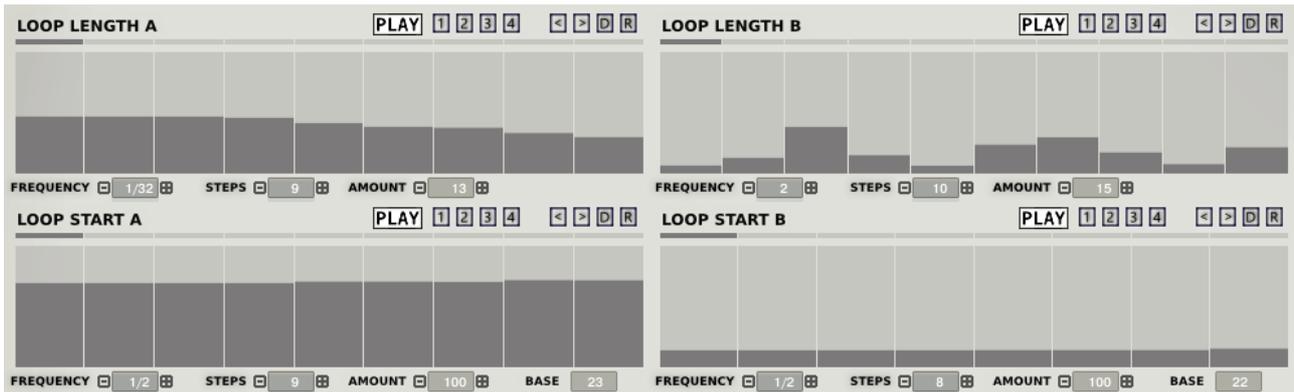
The Loop Length and Start determines the position of the WAV File used to generate sound. It is along the lines of way Granular Synthesis works although the behaviour is actually quite different and may not be quite what you would expect.

This is because there is no way to control the play head directly in Kontakt. As a Result if you are playing a loop and move the Loop forwards suddenly, the WAV will continue playing until it reaches the new Loop End before using the new Start Position. This is actually interesting in itself and defines the character of Gravity Wave.

To get a feel for this I suggest that you set both Sequencer steps to zero and then play with each individually to understand how they operate individually.

If the Loop Length is set to low amount the output will become more glitchy, for Glitchy sounds its best to keep the Amount low.

The Pan/Drive sequencers

PAN AMOUNT A	PLAY 1 2 3 4 < > D R	**PAN AMOUNT B**	PLAY 1 2 3 4 < > D R

FREQUENCY ⊟ 32 ⊞   STEPS ⊟ 128 ⊞   AMOUNT ⊟ 100 ⊞

FREQUENCY ⊟ 16 ⊞   STEPS ⊟ 5 ⊞   AMOUNT ⊟ 20 ⊞

DRIVE AMOUNT A	PLAY 1 2 3 4 < > D R	**DRIVE AMOUNT B**	PLAY 1 2 3 4 < > D R

FREQUENCY ⊟ 16 ⊞   STEPS ⊟ 16 ⊞   AMOUNT ⊟ 84 ⊞

FREQUENCY ⊟ 8 ⊞   STEPS ⊟ 64 ⊞   AMOUNT ⊟ 53 ⊞

The Pan Sequencer will Pan each Synth Left to Right, the centre line represents the Centre of the Soundstage. You can adjust the Amount to narrow the width of the effect.

The Drive Sequencer is the Drive Amount, which is a fairly subtle effect, but is is great for adding body and or Rhythm to the Sound.

The Reverb/Delay Send Amount Sequencers
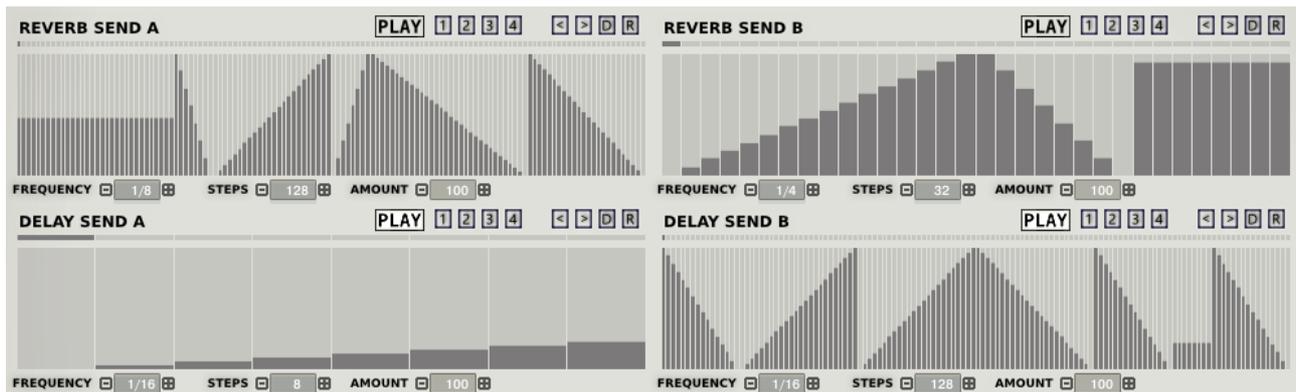
Gravity Wave uses Send Effects unlike all previous HGS Kontakt Instruments. This is interesting when using the Sequencers because you can throw snippets of sound into them and they really do become part of the sound design as opposed to the usual adding Effects to the end of the chain. It also means you can send each Synth independently, or for example send A to Reverb and B to Delay.

Another thing to note is that the main Master Volume controls the signal before being sent to the effects and so has no bearing on the actual output of the Effects. The FX knob determines how loud they are.

Master Section

The Master Section contains controls which affect the entire instrument.

- **BASS**
  The Bass Amount has no effect at centre value and can be used to add or remove Bass from the output.
- **VELOCITY**
  How Velocity Sensitive the Instrument is.
- **PITCH BEND**
  How many semitones are used by the Pitch Bend Wheel, up to 24 semitones
- **TRANSPOSE**
  Transposes the entire instrument in semitones
- **FX**
  The Master FX Level – Note this is unrelated to Master which controls the Dry Synth and Send Levels.
- **MASTER**
  This controls the dry Synth and Send Levels
- **HOLD**
  Will play Notes until Hold is disabled, each time new notes are played whilst Hold is enabled the will replace the existing playing notes if no keyboard keys are in use, if any keys are in use then each note will be added to the Held playing notes.
- **LIMIT**
  Enables the Limiter on the Dry Output
- **F**
  Randomizes both Synth Filters
- **W**
  Randomizes the Waveforms used by both Synths.
- **L – S - < - >**
  These are shortcuts to Load, Save, Increment or Decrement Presets – See the Browser section for more info.
- **D**
  Global Default – Restores the Synth to the state saved by the SAVE DEFAULT button in the Browser Section.
- **R**
  Global Randomize – A general Randomizer, this one is general purpose, there are more Global Randomizers which are more targeted to specifics – see the XY Section for details.

Reverb

The Reverb uses Impulse Responses to gernerate the Reverb. It is a Send Effect which means that the signal is sent to it via the dedicated Sequencer which controls the amount sent. The overall Volume of the output is controlled by the FX knob in the Master section.

- **Size**
  This is the Time of the Reverb Tail in a percentage of the original IR Time.
- **LP**
  Low Pass Filter
- **HP**
  High Pass Filter
- **PRE**
  Pre-Delay of the Reverb
- **Impulse**
  Selects which Impulse Response is used from a selection of 50

Delay

The Delay is a Send Effect which means that the signal is sent to it via the dedicated Sequencer which controls the amount sent. The overall Volume of the output is controlled by the FX knob in the Master section.

- **Time**
  Tempo Locked Time of the Delay
- **Damp**
  How much the signal is dampened.
- **Pan**
  Width of the Delay Pan
- **Feedback**
 How much Feedback the Delay uses to generate repeats.

Chorus/Flanger/Phaser

Multi Purpose Modulator which can be used as a Chorus, Flanger of Phaser. Click on it's name to select which it will use from the popup menu.

- **LEVEL**
  The Mix Level between Dry and Wet.
- **FREQ**
  The Frequency of the Modulators LFO
- **AMT**
  The Amount of Chorus between 100% dry and 100% Wet.
- **DEPTH**
  The depth of the Modulation
- **PHASE**
  Stereo Phase Offset of the effect
- **FDBK**
  The Feedback Level of the Flanger and Phaser
- **COLOR**
  The Central Delay time of the Flanger.

XY Pad / Global Randomizers
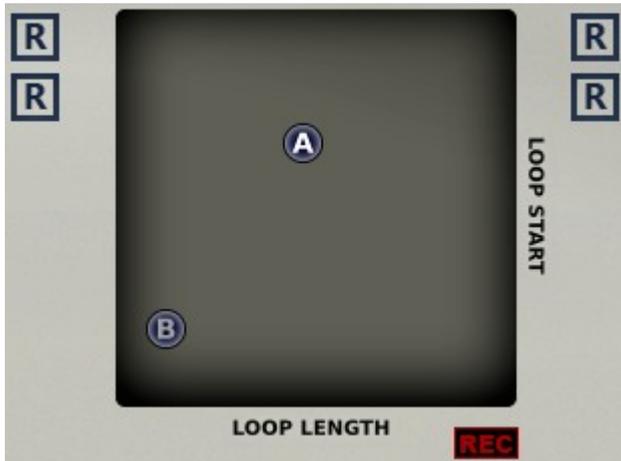
The XY Pad has various uses. It always displays/manipulates the currently visible Sequencers.

- If the Sequencers are playing then the XY Pad will animate the current activity.

- The XY Pads Can be used to Record the Sequencers.
    - Make sure no notes are playing/keys held
    - Click on either the A or B XY depending on which you want to record
    - Click on Record
    - As soon as you play a note on your keyboard Recording will begin until the end is reached or all notes are released.

- If the Sequencers are not playing, the XY Pad is used to set the value of the Sequencers output. In reality this is setting step 1 of the sequencers which is used as the constant value when the Sequencers are switched off.

At the side of the XY Pad you will see 4 'R' Buttons, these are Tuned Global Randomizers for generating various styles of Preset. Compared to the main Global Randomize these are as follows:

- Left Top – Creates Tempo Based Rhythmic Presets
- Left Bottom – Creates Presets with some emphasis on Tempo Rhythms.
- Right Top – Randomizes Everything but only Volume Sequencers Play.
- Right Bottom – Randomizes Everything but only some Sequencers Play

Browser
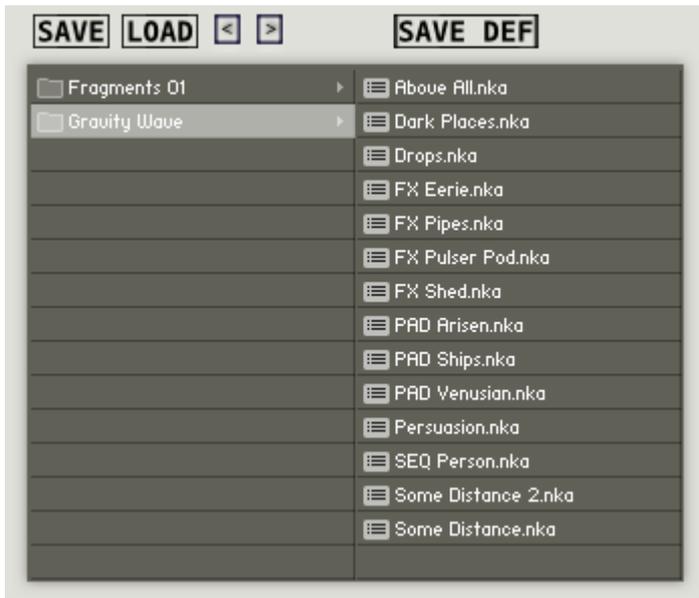
The browser is used for loading and saving presets. Double clicking will load the preset.

- **SAVE**
  This will open a window which allows saving a Preset. When it opens it shows the Data folder, select the GW Presets folder and give the preset a name. Any presets saved in the GW {Presets folder are visible in the browser when kontakt is re-opened. You can also create Sub Folders which appear as sub folders as seen above.
- **LOAD**
  Load allows loading a preset manually which is useful if you need to open a preset saved in the current session which isn't visible yet, or loading a preset stored elsewhere.
- **PREV/NEXT PRESET**
  Selects the previous or next preset. Note that this will not work until a preset has been loaded via the browser.
- **SAVE DEFAULT**
  Saves the Default preset using the current instrument state. Using the Global Default Button and many local default buttons will use this as a reference.