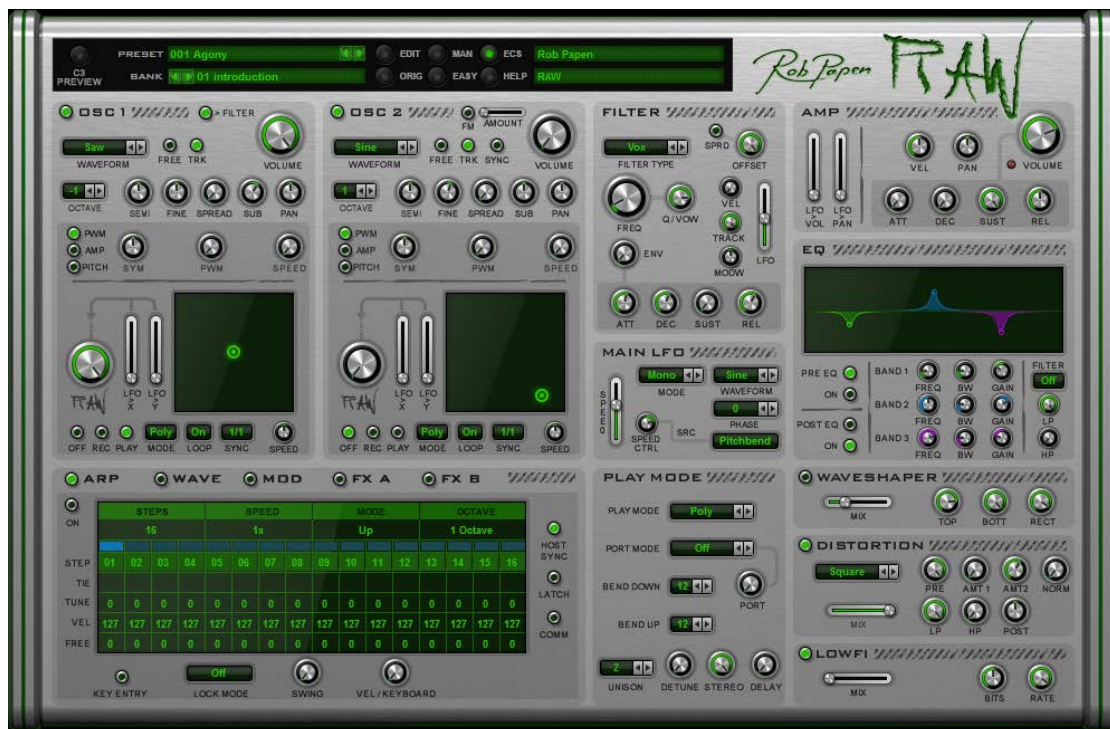


RAW



User Guide

Powered by RPCX

Welcome

At the Dutch Dancefair in 2014, DJ Promo (aka producer Sebastian Hoff) and DJ Free-k (aka producer Freek Vergoossen) approached Rob Papen with the idea of a synthesiser that focused on distorted sounds with an easy to use interface and that sounded great.

Renowned for delivering fresh, cutting edge and musical plugins for producers, Rob Papen invited the DJs to his studio for a brainstorming session resulting in a list of must-have features and tools for a brand new synth.

Armed with this list and several brainstorming sessions later, Rob Papen and his development team created the powerful new virtual synthesiser called RAW.

RAW has two oscillators each with an X/Y field (as in Blade and Blue-II) to distort the waveform using Phase Distortion. But that's not all; you can also draw two of your own custom waveforms and use them as LFO waveforms enabling the creation of unique wobble movements that are perfect for DubStep and other electronic musical styles.

RAW has all the great Rob Papen filters to shape your sound further, but in a refreshing twist, EQ, wave shaping, distortion and Low Fi have also been added on a per voice synthesis level.

Other FX such as chorus, stereo delay and the amazing HQ Reverb of Rob Papen can all be added to your sound and of course, the cool arpeggiator, easy page and preset bank manager have all been included as standard.

In true Rob Papen style, RAW comes with many great presets including contributions from several well-known DJs and Producers for instant user inspiration.

Rob Papen and the RPCX team, December 2014

Installation

Please refer to the separate installation instructions on how to get RAW up and running.

Controls

RAW uses controller knobs, sliders, buttons and drop-down menus to adjust its parameters. You operate the controls with the mouse: in general click-and-hold the control and move it to the desired value. While you move the control, its name and value are shown in RAW's read-out screen, which is located at the top of the plug-in panel.

In most cases you move a knob or slider by (left) clicking on it and moving the mouse up and down (knob) or left and right (slider). You will see the value change in the read-out screen. If you hold the shift-key while moving the mouse, you can make minor adjustments accurately. Consider this a fine-tuning method. To reset a control to its default value you can either double-click or ctrl-click the control.

There are three kinds of buttons:

<i>On / Off Buttons</i>	The value toggles between on and off with every mouse click
<i>Radio Buttons</i>	Select one option out of several predefined settings by clicking on the desired value.
<i>Menu Buttons</i>	While the menus are technically not buttons, in practice they work similar to radio buttons. The first click opens the menu which lists all possible values. With a second click, you select the value.

Right clicking (or control-click on Mac) on a control will open the midi / control menu. This menu displays the parameter name, its current value and which midi control is linked (latched) to the parameter. It allows you to select from the following:

<i>Set to default</i>	Set the control to its default value.
<i>Set to minimum</i>	Set the control to its minimum value.
<i>Set to maximum</i>	Set the control to its maximum value.
<i>Set to mid</i>	Set the control to its medium value.
<i>Set to random</i>	Set the control to a random value.
<i>Increase</i>	Increase the control by 1%in the text field
<i>Decrease</i>	Decrease the control by 1%.
<i>Set value</i>	Enter the value of the control directly into the text field
<i>Latch to midi</i>	Latches the control to the next first midi control received.

As an example, to latch Volume to an external midi expression controller, right click on the Volume Knob and select Latch to Midi in the pop-up menu. Next, move the midi Expression controller. From now the Expression controller will move the RAW Volume knob. You can still operate the RAW Volume knob directly in RAW though.

These latched midi controllers are global and will work for all Presets and active RAW instruments in your host.

<i>Set midi</i>	Brings up an entry box that allows you to key in the numerical value of the midi controller
<i>Unlatch midi</i>	Clears the link for this particular RAW parameter from any midi controls.
<i>Clear midi</i>	Clears all of the midi latching.

Note: In the Preset section you can save or load your whole midi (latch) controller setup to hard-disk. This function is called ECS (External Controller Setup). For an explanation of this function, please see the ECS chapter later in this manual.

You can select Presets and Banks using the computer keyboard. RAWs back panel is where you enable and disable this function. To access the back panel, click on the RAW logo.

Note: Scrolling the mouse wheel up and down scrolls through the Presets

<i>Up Arrow key</i>	Previous Preset.
<i>Down Arrow key</i>	Next Preset.
<i>Right Arrow key</i>	Increase Preset number by 32 (useful in the Bank Manager)
<i>Left Arrow key</i>	Decrease Preset number by 32 (useful in the Bank Manager)
<i>Page Down key</i>	Next RAW Bank
<i>Page Up key</i>	Previous RAW Bank

Command Menus

All sections in RAW have a context sensitive command menu. The command menu contains operations that are relevant to RAW component that it is part of. Call up the command menu with a right click on the component label, e.g. Oscillator.

Presets and Globals



In the Preset Section you manage all the Presets, Banks and external control settings of RAW. It includes a Favorite function, which makes it easy to create and manage your own sets of favorite RAW Presets. You select a Preset by clicking on the Preset screen which will open a Preset selection menu. Use the < and > keys to scroll through the Presets of the selected Bank one by one.

The Preset menu also has Quick Browser, Recently Browsed and Favorites functions. It allows you to manage Presets and Banks through load, save, rename, copy, paste and reset to default operations.

Note: The Presets are saved as part of a Bank. When you start creating your own Presets, we recommend you create a copy of the Bank by saving it with a new name. This ensures you keep all factory Presets that come with RAW, while you have full control over any new / changed Presets in their own Bank.

Quick Browser

The "Quick Browser" shows all the available Banks and their Presets. When you click on a Preset, the Preset and the corresponding Bank will be loaded.

Recently Browsed

This shows a list of all the recently used Presets. Clicking on an entry reloads the Preset. Clicking on "Clear Recent" removes all entries from the menu.

Favorites

This shows a list of Presets selected as being Favorite Presets. Clicking on an entry loads the Preset. Add a Preset to the Favorites by clicking on "Add Current to Favorites".

"Remove Current from Favorites" removes the current Preset from the Favorites list, and "Clear Favorites" removes all entries from the list.

The Favorites list is stored on the computer's hard disk, so the list will be available the next time you use RAW and in any other instances of the plug-in.

Bank

In the Bank section you can select the Bank, either by clicking on the Bank screen and selecting from the menu or by using the < and > to scroll through the different available Banks. All RAW Banks are saved in the "RAW/Banks" folder on your computer. It is recommended that you save RAW Banks that you have created in their own folder.

To save a Bank or to load a Bank you need to use the file function in this section.

Note: if you change a Preset in a Bank, you need to save the Bank to keep the changed Preset. To keep the original Preset Banks, always save the Bank with a new name.

Edit / Orig

As soon as you start editing a Preset (i.e. change a RAW control), the Edit button will light up. If you click on the Orig button it will return the Preset to its original settings (your edited sound is still available!). To return to the edited Preset, click on the Edit button and it will reflect all changes that you made previously. This function allows you to compare the original Preset with the edited one, to hear the differences and impact of any parameter changes.

Note: if you change a Preset in a Bank, you need to save the Bank to keep the changed Preset. To keep the original Preset Banks, always save the Bank with a new name.

Direct Access Buttons

At the centre of the Presets and Globals section you find five buttons that give you direct access to various RAW functions. These are:

<i>Man</i>	Click to open the Bank Manager
<i>Easy</i>	Click to open the Easy Page
<i>C3</i>	Click to play a C3 note to audition the current preset
<i>ECS</i>	Click to open the ECS menu
<i>Help</i>	Click to open the RAW manual

RAW Logo

A click on the RAW logo takes you the Back Panel. The Back Panel hosts a number of global settings and infrequently accessed controls.

ECS (External Midi Control)

RAW responds to external Midi messages to change its sound parameters dynamically. The assignment of external Midi messages to RAW controls is defined in the ECS. ECS is short for External Controller Setup. It contains all assignments of midi controllers to RAW controls that are being targeted for real time manipulation. Remember, you set each individual midi controller assignment by using the right button (or control-click on a Mac) menu and selecting latch to midi. You can also unlatch midi controls the same way or clear all of the midi control assignments. The ECS button allows you to load and save a complete external midi controller setup. Once set, it is shared by all Presets, and all instances of RAW that are loaded in your DAW.

<i>Load ECS</i>	This opens the folder that holds ECS set-ups. The installer of RAW installed a folder called ECS that holds all .ECS files
<i>Save ECS</i>	This gives you the option to save the midi set-up you created and use it in other songs. It is saved as an .ECS file
<i>Reset all Midi</i>	This clears all the midi settings for RAW. Handy if you want to start from scratch

Easy Mode



For those people who want a minimum amount of controls for the maximum sonic impact, RAW includes an Easy Mode page. Easy Mode incorporates a select number of controls that can change the sound most dramatically. Don't let the term easy put you off though. The Easy mode is particularly useful in a live-performance situation when you have assigned physical keyboard controllers like wheels, knobs and switches to the Easy Page's controls.

In general, when used in combination with an external hardware controller with a limited number of faders and knobs, the Easy Mode Page may be all you need to work with.

You can access the Easy Mode page via the Easy button near the top of the LCD panel.

The Easy Mode page gives you access to the following synthesis parameters:

Oscillator 1 and 2

Waveform	Octave	Volume	Raw
LFO > X	LFO > Y	Mode	Loop
Sync Speed			

Filter

Frequency	Q	Envelope	LFO
Attack	Decay	Sustain	Release
Sync Speed			

Amp

<i>Volume</i>	<i>LFO > Volume</i>	<i>LFO > Pan</i>	
<i>Attack</i>	<i>Decay</i>	<i>Sustain</i>	<i>Release</i>

Main LFO / Play Mode

<i>Waveform</i>	<i>Speed</i>	<i>Portamento</i>	<i>Portamento Mode</i>
<i>Play Mode</i>	<i>Unison</i>	<i>Detune</i>	<i>Stereo</i>

EQ

<i>Post / Pre - On</i>	<i>Bandwidth 1</i>	<i>Bandwidth 3</i>	<i>Bandwidth 3</i>
<i>Play Mode</i>	<i>Unison</i>	<i>Detune</i>	<i>Stereo</i>

Distortion Effects / FX A / FX B

<i>Waveshaper Mix</i>	<i>Distortion Mix</i>	<i>Low Fi Mix</i>	<i>Chorus Type</i>
<i>Chorus Speed</i>	<i>Chorus Mix</i>	<i>Gate Left</i>	<i>Gate Right</i>
<i>Delay left</i>	<i>Delay right</i>	<i>Feedback</i>	<i>Delay Mix</i>
<i>Reverb Size</i>	<i>Reverb Length</i>	<i>Reverb Damp</i>	<i>Reverb Mix</i>

Try it out for yourself! Take a Preset and change parameters. You will find out that you can easily create new exciting Presets. All the changes you make in this easy page are stored as part of the Preset. Don't forget to save the changed Preset or the Bank if you want to be able to recall it later

Oscillators



An oscillator is a tone generator. It is the first building block in the sound construction process. The frequency setting of the oscillator determines the pitch of the sound. The selected waveform defines the sound's tonal character, or timbre.

RAW uses two oscillators in per voice (note played). Each oscillator has its own settings. Following are the oscillator controls.

Oscillator On/Off

The LED style button in the top left corner of the oscillator section turns the corresponding oscillator On and Off.

Waveform

Use the display below to the On / Off button to select the wave-type used by the oscillator. RAW offers different types of waveforms: Sine, Square, Saw, Triangle, White Noise, Pink Noise, User 1 and User 2. The User Waves section contains more detail about the User 1 and User 2 settings.

Free

The Free button is used to select the reset-behaviour of the oscillator. If Free is turned off, the oscillator waveform is reset to zero phase position each time you play a note. When Free is turned on, the oscillator is free running; i.e. it is not reset when you play a note and every note has a slightly harmonic content in its attack transients.

Trak

The trak switch enables and disables keyboard tracking. It controls whether the pitch of the oscillator follows the keyboard or is fixed regardless of the note played. The latter setting may be useful for non-pitched percussive sounds or sound effects.

Oct

Oct sets the oscillator pitch in octaves and has a range from -2 to +2 octaves..

Semi

Semi sets the coarse tuning of the oscillator in semitones from 48 semitones (-4 octaves) to +48 semitones (+4 octaves). Right clicking on the semi control allows you to set the coarse tuning directly.

Fine

Fine controls the fine-tuning of the oscillator in cents, from -100 cents to +100 cents.

Sub

Sub controls the volume of the sub-oscillator. The sub-oscillator is tuned to one octave below the oscillator. The sub-oscillator knob lets you select two different waveforms. A counter clockwise position produces a sinus waveform. Turn it clockwise and it produces a square waveform. The centre position turns the sub-oscillator off.

Spread

Spread creates a stacked multi-oscillator sound, based on the main oscillator. The sound is augmented with multiple waveforms at slightly higher and slightly lower pitches than the main oscillator. In practice it fattens up the sound. The spread control sets the pitch difference and higher settings will make the effect more pronounced.

Pan

The Pan control places the oscillator sound in a stereo image.

Volume

This control sets the volume of the oscillator in decibels. When the oscillator is used as the modulator for frequency or ring modulation, it controls the modulation amount.

Filter > (Osc 1 only)

The Filter output switch sends the oscillator output to the filter. This is the typical setting. If you are using oscillator 1 for modulation purposes though, you may want to take the oscillator out of the audio path by turning the output switch off.

Sync (Osc 2 only)

The sync switch synchronises the oscillator 2 pitch to that of oscillator 1. Every time oscillator 1 reaches the end of its wave cycle, oscillator 2 gets reset. This means that oscillator 2 is always in tune with oscillator 1, but the resets generate additional harmonics. Use oscillator 2's pitch controls to alter the amount and character of these harmonics.

FM On/Off (Osc 2 only)

The FM On/Off switch sets up frequency modulation where oscillator 1 modulates oscillator 2. If you intend to work with pure FM modulation only, turn off the oscillator 1 filter output switch.

FM Amount (Osc 2 only)

FM Amount sets the FM modulation depth. Please note that this control is activated only when FM is switched on.

PWM / Amp / Pitch

The PWM / Amp / Pitch switches give you access to different sets of controls that appear depending on which switch is active.

PWM

Pulse width modulation controls the pulse width of the Square and other waveforms. Behind the scenes a LFO is at work that uses a sine wave to continuously change the oscillator pulse width.

Note: If you do not hear any changes you need to raise the PWM amount and the (LFO) speed parameter. If either is zero this means that the LFO is shut down and that you need to open the speed and/or amount controls in the PWM section.

PWM – Speed

Speed sets the frequency of the LFO that drives the PWM function

PWM - Symmetry

Sym controls the symmetry of the oscillator waveform. This is most commonly used with the Square waveform where it alters the pulse width. It is also applicable to other waveforms except White Noise and Pink Noise. Use the sym control for subtle harmonic changes.

Amp / Pitch Envelope

Each RAW oscillator contains its own envelopes for the oscillator volume (amp) and pitch. An envelope generates a time based modulation signal defined by four stages: Attack, Decay, Sustain and Release.

When triggered – typically by playing a note – the envelope moves from 0% up to 100% and back to 0% when you release the key. The Amp Envelope determines the volume contour of the oscillator.

The first envelope stage is known as the attack stage. It represents the time it takes for the envelope to reach 100%. If you open the Attack knob, it takes longer to go from 0 to 100%. With Attack closed, the envelope starts at 100%.

After the attack stage, with the envelope at 100%, the decay stage starts. The decay stage brings the envelope level down to the sustain level. If the sustain is set to 50%, the decay brings the level down to 50% and stays there for as long as the key is held. If you use a long decay, it takes long to reach the sustain level. This is useful for evolving pad sounds. Short decay times are a good ingredient for percussive sounds. If the sustain level is 100% the impact of the decay stage is effectively eliminated.

The sustain stage is characterised by a (sustain) level setting. After the attack and decay stage, the envelope reaches the sustain stage and remains here for as long as you hold a key. The sustain level is the level of this sustain stage and as such is main control for the perceived volume or pitch of the oscillator.

The envelope release stage starts when you release a key. The envelope fades out from the sustain level to 0% in the time set by the release control

Oscillator Command Menu

It might be daunting at times to make the many oscillator settings manually. We have included an oscillator command menu that allows you to copy, paste, clear the settings from one oscillator to the next. Please access the Oscillator Command Menu by clicking on the oscillator label.

RAW Controls



The RAW oscillators are complemented by a set of controls to dynamically drive the waveform distortion characteristics. Each oscillator has its own set of RAW controls.

RAW Amount

The RAW control sets the overall distortion amount of the oscillator

XY Screen

One of the coolest features of RAW is the XY controller. Use the mouse to control the balance between distortion of the negative section of the waveform and the positive section of the waveform. The X-axis (left/right position) represents the positive signal. The Y-axis (up/down position) represents the negative section of the signal. It is possible to move the XY position (green dot) as you are playing and then to record these movements as paths. The XY pad acts as a programmable two-dimensional LFO. The XY pad is also a modulation source for use in the modulation matrix.

XY basics – Move / Record / Play

You can move the green dot manually across the XY pad (use the mouse to click and drag) when replay is set to off / live.

You can also record movements on the XY pad as paths. Switch on the Rec button at the bottom left of the XY pad, and draw a path. For as long as you keep the mouse button pressed, RAW will capture all movements as a path in its memory.

After recording, the path is ready for playback. Hit the Play button, and play a note. You will see the XY indicator moving across the screen according to previously recorded path. The path is saved as part of the Preset, and is ready to go when you recall the Preset.

LFO > X and LFO > Y

The main LFO is capable of moving the XY position. The two controls set the strength of the movement independently for the two directions.

Loop

When loop is On, upon reaching the end of the path the green dot will jump to the start and repeat the movement. In the < > mode, the XY path also loops but travels back and forth along the path. When loop is Off it travels only one-way once.

Mode

RAW operates in Poly, Free or Mono mode. The mode setting determines how the XY responds when you hit one or more keys simultaneously.

<i>Poly</i>	Each note you play starts its own XY path and each path starts from its initial position.
<i>Free</i>	The XY path is free running and all the notes share the same XY Path. The path is not reset when you play a note. In Free mode the XY path is looped automatically.
<i>Mono</i>	All notes played share the same XY path, but the XY path is reset when you play a new key.

Sync

By default, when the XY path is replayed, it plays back at the speed with which it was recorded. However Sync enables you to play back the XY path in a set timeframe. This can be a beat or a full measure. The path timing will get scaled to the selected Sync To value.

Speed

As well as being able to sync to a set musical time, you can also scale the playback speed manually or by a modulation source. The Speed knob changes the playback speed from taking 1/16 of the original time, to 16 times the original time.

XY Menu

A right click on the XY display opens the XY Menu with the following options:

Edit Position	Allows you to edit the recorded path
Reset to Position	Resets X/Y to the central position in direct mode
Set to circle, square etc.	Sets the X/Y path to a circle, square and other preset shapes.
Reverse	Reverses the X/Y path
Flip Horizontally	Flips the X/Y path horizontally
Flip Vertically	Flips the X/Y path vertically
Rotate	Rotates the X/Y path by a set number of degrees
Snap to Grid	Snaps the X/Y path to a predefined grid
Smooth	Eliminates sharp edges from the X/Y Path
Scale X & Y	Scales the X/Y path around the XY midpoint
Undo	Undoes the last command
Copy	Copies the current X/Y path
Paste	Pastes the last copied X/Y path
Clear	Clears the current X/Y path
Load	Loads in a previously saved X/Y path
Save	Saves the current X/Y path to disk

Latch X To Midi	Latches the X position to the next MIDI controller used. The currently latched CC is displayed.
Latch Y To Midi	Latches the Y position to the next MIDI controller. The currently latched CC is displayed.
Set X Midi CC	Allows you to set directly which MIDI CC will be latched to the X position
Set Y Midi CC	Allows you to set directly which MIDI CC will be latched to the Y position
Unlatch XY	Releases X/Y MIDI controls

Filter



RAW offers a high quality analogue modelled filter for subtractive filtering. Below is a listing of all the available filter types.

Filter Type

<i>Bypass</i>	The filter is bypassed and the sound passes through unaffected
<i>6dB LowPass</i>	Low frequencies pass through this filter; frequencies above the Cutoff frequency are reduced by 6dB per octave. For example: a frequency 2000Hz is 6dB softer in volume if the Cutoff frequency is set to 1000Hz.
<i>6dB HighPass</i>	High frequencies pass through this filter; those below the Cutoff frequency are reduced by 6dB per octave. The filter is open if the Cutoff frequency knob is turned fully counter-clockwise.
<i>12dB LowPass</i>	Low frequencies pass through this filter; those above the Cutoff frequency are reduced by 12dB per octave.
<i>12dB HighPass</i>	High frequencies pass through this filter; those below the Cutoff frequency are reduced by 12dB per octave. The filter is fully open if the Cutoff frequency control knob is turned fully counter-clockwise.

<i>18dB LowPass</i>	Low frequencies pass through this filter; those above the Cutoff frequency are reduced by 18dB per octave.
<i>18dB HighPass</i>	High frequencies pass through this filter; those below the Cutoff frequency are reduced by 18dB per octave. The filter is fully open if the Cutoff frequency knob is turned fully counter-clockwise.
<i>24dB LowPass</i>	Low frequencies pass through this filter; those above the Cutoff frequency are reduced by 24dB per octave.
<i>24dB HighPass</i>	High frequencies pass through this filter; those below the Cutoff frequency are reduced by 24dB per octave. The filter is fully open if the Cutoff frequency knob is turned fully counter-clockwise.

<i>12dB BandPass</i>	This filter mode is a combination of 12dB LowPass and 12dB HighPass filters. Only those frequencies near the filter Cutoff frequency pass through (a band of frequencies), the resonance (Q), controls the width of this band so that low and high frequencies are removed.
<i>24dB BandPass</i>	This filter mode is a combination of a 24dB LowPass and 24dB HighPass filter. Only those frequencies near the filter Cutoff frequency pass through (a band of frequencies), the resonance (Q) controls the width of this band, so low and high frequencies are removed.
<i>12dB Notch</i>	The frequencies in the region around the filter Cutoff frequency are reduced in volume (12dB), the resonance controls the width of this region.
<i>24db Notch</i>	The frequencies in the vicinity of the filter Cutoff frequency are reduced in volume (24dB), the resonance controls the width of this region.
<i>36dB LowPass</i>	Low frequencies pass through this filter; those above the Cutoff frequency are reduced by 36dB per octave.
<i>36dB HighPass</i>	High frequencies pass through this filter; those below the Cutoff frequency are reduced by 36dB per octave. The filter is fully open if the Cutoff frequency knob is turned fully counter clockwise

<i>Comb Positive</i>	This is a very short delay, which emphasizes the comb filter frequency. The Cutoff frequency controls the length of this delay and resonance (Q) the feedback of the filter.
<i>Comb Negative</i>	This is a very short delay, which reduces the comb filter frequency. The Cutoff frequency controls the length of this delay and resonance (Q) the feedback of the filter.
<i>Vox filter</i>	Vocal Filter, which adds a voice-like filtering to the sound. In Vox filter mode, the distortion knob controls the vowel of the filter. Vowel Sets the vowel formant (a,e,i,o and u) as used by the vox filter
<i>Formant 2 Band</i>	Vocal Filter, which creates a vocal character based on 2 bands. In Formant 2 mode, the distortion knob controls the separation of the bands.
<i>Formant 4 Band</i>	Vocal Filter, which creates a vocal character based on 4 bands. In Formant 2 mode, the distortion knob controls the separation of the bands.
<i>Ring</i>	Ring Modulation effect, Q alters the amount of ring modulation.

Filter Controls

Freq

The Cutoff Frequency sets the filter's frequency at which point the filter starts altering the sound. For instance, if you set the Cutoff to 2000Hz and use a 12dB Lowpass filter it reduces any frequencies above 2000Hz, and frequencies at 4000Hz will be reduced by 12dB. The Cutoff frequency can be static at a single programmed frequency, but for more dynamic sounds, try modulating the Cutoff Frequency with the Filter Envelope, Keyboard tracking, Modulation Wheel and LFO.

Q (Resonance)

Q is the resonance level of the filter. Sounds at and directly around the filter cutoff frequency are emphasised by the resonance. For the 6dB filters types it has no effect though, because the filter's slope is not steep enough. In the Ring filter it controls the amount of ring modulation. In the Comb Filter it controls the amount of feedback and in the Vox filter the bandwidth of the formant filters.

Spread / Amount

The Spread switch puts the filter in stereo mode. In this case RAW employs two filters, each with a slightly different filter frequency. The amount control sets how much the filters differ between the left and right audio channels.

Vowel

In the Vox filter this controls the vowel of the filter. For Formant 2 / 4 filters, it controls the separation of the filter bands.

Cutoff Frequency Modulation

Envelope (Env)

The envelope moves the filter cutoff frequency, following the contour of the envelope. The Envelope is part of the Filter section. Keep in mind that if you use negative modulation, the control signal is inverted: as the envelope level rises the filter frequency is lowered. The filter envelope has identical stages and controls as present in the amp and pitch envelopes for the oscillators. Please refer to the oscillator section for a description.

Velocity (Vel)

Typically, the harder you strike the keys, the more the filter opens. When you use negative modulation values the filter closes with increasing velocity..

KeyTrk

Again typically, the Cutoff frequency increases, i.e. the filter opens, with notes played higher on the keyboard. When you use negative modulation values, the filter closes with increasing note pitch.

Modulation Wheel (ModW)

This control lets the position of the modulation wheel determine the cutoff frequency of the filter. The strength of the Mod Wheel – Filter Frequency coupling is set by the level of this control.

Filter Command Menu

To help you edit the filter section, we have included a filter command menu that allows you to copy, paste, clear the settings. Please access the Filter Command Menu by clicking on the filter label.

Amplifier



While the oscillator section controls the pitch, the filter section the timbre, the amplifier section is responsible for the sound's volume. It amplifies the signal and modifies the volume. An important component of the amplifier section is the Volume Envelope. The envelope defines the loudness contour. The amplifier section also contains the velocity control. This sets the response of RAW to the velocity information.

Volume

The Volume sets the overall volume of the Preset. Use this control to adjust the relative volumes between Presets in a Bank. The volume knob is complemented with an overload indicator. If any clipping is occurring in the audio path, the indicator will glow red. On the RAW back panel is an Automatic Volume Limiting switch. When engaged, RAW will reduce the volume automatically in clipping conditions

Pan

The Pan control places the sound in a stereo image. Fully counter clockwise is left and clockwise represents right.

Velocity (Vel)

The Velocity control determines how the sound's volume responds to changes in note velocity. It applies to notes played on a keyboard and those triggered by the RAW sequencer.

Volume Envelope

An envelope generates a time-based modulation signal. When triggered – typically by playing a note – it moves from 0% up to 100% and back to 0% when you release the key. The Volume Envelope determines the volume contour of a sound.

The first part is known as the attack stage. It represents the time it takes for the envelope to reach 100%. If you open the Attack knob, it takes longer to go from 0 to 100%. With Attack closed, the envelope starts at 100%.

After the attack stage, with the envelope at 100%, the decay stage starts. The decay stage brings the volume down to the sustain level. If the sustain is set to 50%, the decay brings the volume down to 50% and stays there for as long as the key is held. If you use a long decay, it takes long to reach the sustain level. This is useful for evolving pad sounds. Short decay times are a god ingredient for percussive sounds. If the sustain level is 100% the impact of the decay stage is effectively eliminated.

The sustain stage is characterised by a (sustain) level setting. After the attack and decay stage, the envelope reaches the sustain stage and remains here for as long as you hold a key. The sustain level is the level of this sustain stage and as such is main control for the perceived volume of a sound.

The envelope release stage starts when you release a key. The envelope fades out from the sustain level to 0% in the time set by the release control.

LFO > Pan / LFO > Vol

The LFO labelled controls use the main LFO to modulate the volume and panning of the Preset. Use these to create tremolo and/or leslie effects.

LFO



RAW has a main LFO that generates modulation signals for the filter, volume and panning. These modulation targets are pre-wired in RAW and have dedicated controls. The main LFO is also a generic modulation source that can be assigned via the modulation matrix.

Waveform type

The available waveforms are Sine, Triangle, Saw Up, Saw Down, Square, S&H and User 1 and 2. The waveform determines the modulation pattern of the LFO. Sinus and Triangle are often used because these move the LFO up and down in a smooth fashion. The other waveforms are more suitable for a more pronounced impact.

Mode

The LFO reset type has three different modes:

<i>Poly</i>	In poly mode, each note played has its own LFO.
<i>Free</i>	The LFO is free running and all the notes share the same LFO. The LFO is always running and does not reset when you press a key.
<i>Mono</i>	Similar to free mode. All notes share the same LFO. However when you press a key in Mono mode, the LFO is reset to its initial phase (start position)

LFO Speed

The speed control determines how fast cycles through its selected waveform. It is measured either in hertz (cycles per second) or note lengths when synchronised.

Speed Control / Source

The main LFO has a hardwired modulation path to its speed. The Source menu picks a modulation source and the speed control dial sets the modulation amount.

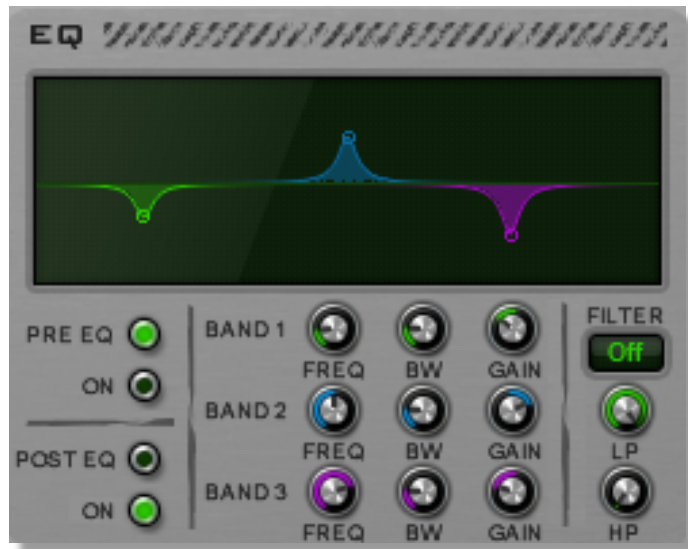
LFO Phase

The LFO Phase sets the starting point of the LFO waveform. It is measured in degrees, where 0 equals the start of the wave, 90 is a quarter in, 180 is at the halfway point and 270 is 3 quarters through. In practice, this lets you choose the start level of the oscillator. The actual level depends on the selected waveform.

LFO Command Menu

The LFO command menu allows you to edit, copy, paste, clear LFO settings. A right click on the LFO or a click on the commands button activates this menu.

EQ



A RAW voice contains two 3-band parametric equalizers. The first equalizer (Pre) is placed before the distortion section while the second equalizer (Post) operates after the distortion section. Use the Pre-EQ to determine how you want to drive the distortion section. The Post-EQ is there to touch-up the distorted output where necessary.

The EQ section has a single screen and a single set of controls for the equalizer settings. Use the switches on the left hand side to choose which equalizer you want to operate and to turn the pre and post section on and off.

3 Band EQ

Each equalizer band has three controls:

<i>Freq</i>	Sets the centre frequency of the band.
<i>BW</i>	Sets the width of the band.
<i>Gain</i>	Sets the height of the peak and the depth of the trough

The RAW EQ display allows you to edit the EQ setting visually if you like. Just a grab one of the equalizer control points and drag it to its required position. This takes care of the Frequency and Gain settings. To alter the bandwidth, hold the shift button while dragging the mouse. Please note that each EQ-band is represented by its own distinct colour in the display.

Filter LP / HP

The three EQ bands are followed by a combined 24db low-pass and high-pass filter combo. Each filter has one control: the filter frequency. The filter menu lets you switch the filters on and off, in any combination.

Distortion Effects



RAW creates its distinctive sound character by integrating distortion effects as part of its voice architecture. Three distortion effects are available: Waveshaper, Multi Distortion and Low Fi. The distortion effects are placed in the output stage between the Pre-EQ and Post-EQ sections. Each effect has its own LED-style On / Off switch and a mix-control. The latter simply sets the balance between the input signal and the distorted signal. The following lists the unique controls for the effects.

Effect On / Off

Each distortion effect has an LED-style button in its top left corner. Use this button to turn the effect On and Off

Waveshaper

The waveshaper effect distorts the incoming sound by manipulating the shape of the original waveform.

<i>Top Amt</i>	Sets the distortion strength of the positive wave component of the waveform
<i>Bottom Amt</i>	Sets the distortion strength of the negative wave component of the waveform
<i>Rect</i>	Sets the amount with which the sound is rectified, at -100% the sound passes through untouched. At 0% no negative waveform components are blocked and at 100% any negative waveform components are inverted to positive.

Multi Distortion

Multi distortion is a group of related distortion effects. Use the type menu to select the desired distortion algorithm. The options are: Off, Clipper, Tube Distortion, Atan, Cos, Cross, Foldover, Fuzz, Limiter, Overdrive, Power, Rectifier, Saturator, Square.

The tables below show the parameters available for each multi distortion type.

Multi-Distortion – Off

No distortion effect is applied

Multi Distortion – Clipper

The Clipper algorithm distorts the audio signal by cutting off the peaks and troughs of the input signal waveform

<i>Drive</i>	Pre-boost amount.
<i>Tone</i>	High pass filter to set the tonal character of the distortion.
<i>Limit</i>	Sets the signal level above which the clipping comes into effect.
<i>Symmetry</i>	Sets the balance between the clipping of the negative and positive parts of the waveform signal.
<i>LP</i>	Post distortion low-pass filter
<i>HP</i>	Post distortion high-pass filter
<i>Post</i>	Boosts the signal post-clipping.

Multi Distortion – Tube Distortion

The tube distortion simulates an overdriven tube sound by saturating, limiting, rectifying and band pass filtering the input.

<i>Limit</i>	Hard limiter threshold.
<i>Rectification</i>	Level of rectification, from -100% (no change), 0% half to 100% - full.
<i>Drive</i>	Level of Distortion.
<i>Tone</i>	Frequency of the band pass filter.
<i>Emphasis</i>	Bandwidth of the band pass filter.
<i>Post-Boost</i>	Boosts the signal post-clipping.
<i>Mod Wheel</i>	Sets the modulation level of the band pass filter frequency by the modulation wheel.

Multi Distortion – Atan, Cos, Cross, Foldover, Fuzz, Limiter, Overdrive, Power, Rectifier, Saturator, Square

The algorithms in this group each have their own method to create distortion. The controls are identical for all distortion types.

<i>Pre-Boost</i>	Boost level of the input signal before going into the distortion
<i>Amount 1</i>	Sets the level of distortion
<i>Amount 2</i>	Distortion characteristics (Fuzz only)
<i>Normalize</i>	Use this control to adjust the overall volume of the distorted signal.
<i>Low Filter</i>	Post distortion low-pass filter
<i>High Filter</i>	Post distortion high-pass filter
<i>Post-Boost</i>	Boost level of the distortion output

Low Fi

The Low Fi distortion reduces the technical fidelity of the signal. Use Low Fi to simulate a classic computer sound or more subtly, the sound of early digital samplers

<i>Bits</i>	Bit reduction reduces the accuracy of the digitized signal
<i>Sample Rate</i>	Sample rate determines the maximum frequency response of the audio signal.

Play Mode



This panel contains controls to set the Play settings for RAW

Play Mode

<i>Poly</i>	Multiple notes (up to 16) can be played at the same time. RAW is polyphonic
<i>Mono</i>	Only a single note can be played at a time. Any new note will stop the previous note.
<i>Legato</i>	Similar to mono but if you play overlapping notes, the envelopes and LFOs will not be retriggered for the new note.
<i>Arpeggiator</i>	Any notes played will trigger the sequencer (See the Arpeggiator section)

Pitch Bend Up / Down

These controls set the maximum range of pitch change that can be achieved by the pitch bend MIDI controller.

Port Mode

Portamento mode (the amount of portamento is controlled by the Amount control)

<i>None</i>	No portamento.
<i>Constant Rate</i>	The note pitch changes at a constant rate from one note to the next. Greater keyboard note ranges take a longer time.
<i>Constant Time</i>	The note pitch changes between notes always take the same time, regardless of note range.
<i>Held Rate</i>	This mode works the same as constant rate, but only affects overlapping notes (legato style)
<i>Held Time</i>	This mode works the same as constant time, but only affects overlapping notes (legato style)

Port Amount

This control sets the rate or time for the portamento effect.

Unison

In Unison mode, RAW plays multiple voices, for each note played. The Unison detune parameter makes that these voices can be detuned slightly from each other. Ultimately this gives you an extremely rich sounding stack of voices. The unison parameters are an excellent tool to create fat lead sounds.

The table below lists the unison options:

<i>Off</i>	Unison is not activated. Each note played uses only a single voice.
<i>Unison 2</i>	This combines 2 voices on one note. If you use the unison detune these 2 voices are detuned resulting in a fatter sound.
<i>Unison 4</i>	This combines 4 voices on one note. If you use the unison detune these 4 voices are detuned resulting in a fatter sound.
<i>Unison 6</i>	This combines 6 voices on one note. If you use the unison detune these 6 voices are detuned resulting in a fatter sound.
<i>2 SP</i>	Plays the original note plus an additional note one octave below. Both will play in Unison 2 mode, so a total of 4 voices will sound for each note played.
<i>3 SP</i>	Plays the original note plus an additional note one octave below and an additional note one octave above. All will play in Unison 2 mode, so a total of 6 voices will sound for each note played
<i>2 Oct</i>	This is technically not a unison mode. Plays the original note plus an additional note one octave below. Unison detune is active in this mode.
<i>3 Oct</i>	This is technically not a unison mode. Plays the original note plus an additional note one octave below and an additional note one octave above. Unison detune is active in this mode.

Detune Amount

Unison detune amount controls the level of detuning between the stacked voices in Unison 2/4/6 play modes. It creates a natural chorus effect.

Stereo Spread

Stereo spread places the unison voices in a stereo image, and in doing so widens the sound and creates a spatial effect.

Unison Delay

Unison Delay introduces a small delay between all the voices in unison mode. It spreads out the attacks and can be used to simulate musicians playing the same (unison) melody with subtle timing differences.

User Waves



RAW incorporates two user defined waveforms. To access these, click on the LED-Style Wave button. The User Waves can be used in the oscillators and in the LFO.

Presets

To make it easier for you to start working with user defined waves we have included a large collection of preset waves. There are more than 250 of them. Access these via the Presets button.

Drawing modes

There are three modes to draw the user wave:

<i>Point</i>	Draws a single point at a time.
<i>Line</i>	Draws a line between two points.
<i>Erase</i>	Erase part of the wave.

Smooth

The Smooth button activates the smooth slider. The Smooth slider defines how much of the user drawn waveform is softened. It eliminates sharp edges from the waveform to create a gentler tone.

Wave Commands

There is a large number of wave commands accessible via the Com button. The Wave commands allow you to load, copy and save waves as well as perform graphical operations on the wave-shape such as invert, quantize to grid and multiply.

Modulation Matrix



The modulation matrix allows you to dynamically alter RAW parameters, using both internal modules such as envelopes and LFOs, and external MIDI controllers such as pitch bend, aftertouch and other control messages defined in the midi-standard.

There are 8 different modulation matrix slots, and they are used in order until a blank modulation slot is encountered. You need to ensure that there are no blank slots in-between populated modulation slots.

The source column gives you access to all modulation sources. They are divided into Midi (midi input), Modulation (such as the free LFOs and multi envelopes), and Other (such as constant offset). There are 38 possible modulation sources. These sources connect to 177 possible modulation destinations within RAW's synth engine.

The minimum and maximum threshold columns define the ranges in which the modulation source is active. In the amount columns you define the minimum and maximum modulation strength for each modulation slot. It sets the level of impact the modulation source has on its destination or target. It speaks for itself that depending on the selected source and the amount the effect ranges from subtle variations to outrageous manipulation.

The destination column lists which parameter is subject to the programmed modulations.

Envelope 1 / 2 LFO 1 / 2

The Mod section contains 4 modulators that can act as sources in modulation paths. There are 2 Envelope generators and 2 LFOs. These are operated through the controls that you will be familiar with by now. Please read the envelope section in the Oscillator chapter and the LFO chapter if you require more detail about the function of these controllers.

Arpeggiator



RAW offers a classic style arpeggiator. An arpeggiator (arp) plays a chord as individual notes in sequence. For example, if you play a C-major chord, the arpeggiator will first play the C, then the E and finally the G. Depending on the arpeggiator mode, it will then cycle through these notes again and again, up and down until you release the notes. The arpeggiator has a built in sequencer for making rhythmic patterns, and offers tune, tie, velocity and free modulation settings per step/note! With every note that it plays, the arpeggiator steps through its sequence. This lets you determine how the arpeggiator plays each individual note.

To turn on the arpeggiator, click on the On button in the Arpeggiator screen.

Arpeggiator Screen

The Arpeggiator has up to 16 steps. Per step you can make the following settings:

Step Number	Click on a step number to mute / un-mutes it
Tie	Tie links the step to the previous steps and as such extends the note length.
Tune	Each step has a range of -3 octaves to +3 octaves in semi-tones
Vel	Vel defines the velocity value of the note
Free	The Free property can be used in the modulation matrix as a modulation source.

What follows is a listing of arpeggiator controls that affect the arpeggiator as a whole and that apply to all steps.

Arp Mode

The arpeggiator mode controls the order in which the arpeggiator plays its notes

<i>Up</i>	The notes are played from low to high
<i>Down</i>	The notes are played from high to low
<i>Up/Down</i>	The notes are played from low to high followed by from high to low
<i>Down/Up</i>	The notes are played from high to low followed by from low to high
<i>Random</i>	The notes are played in random order
<i>Ordered</i>	The notes are played in the order in which they were triggered, i.e. first note played first and last note played last
<i>Rev. Ordered</i>	The notes are played in the reverse order in which they were triggered, i.e. last note played first and first note played last
<i>Ordered Up/Down</i>	The notes are played from first to last followed by last to first
<i>Ordered Down/Up</i>	The notes are played from last to first followed by first to last
<i>Chord</i>	The arpeggiator plays all notes as chord in a rhythmic pattern
<i>Sequencer</i>	In this mode the arpeggiator acts as a sequencer and plays the programmed pitches relative to the played note and continues playing in sequence with every new note played.
<i>Sequencer Reset</i>	In this mode the arpeggiator acts as a sequencer and plays the programmed pitches relative to the played note. The Sequencer Resets to step 1 with every new note played.

Latch

Latch frees your hands. When latch is turned on you don't need to keep holding notes for the arpeggiator to continue playing. Tip: you can use also the sustain pedal to latch and unlatch the arpeggiator.

Lock Mode

Lock Mode locks the current arpeggiator sequence. It keeps it going even when you change Presets There are 3 modes:

<i>Off</i>	Lock is turned off
<i>On</i>	Lock is turned on. The arpeggiator sequence stays the same when you change Presets, but it can't be modified. It will not change the new Preset.
<i>Set</i>	The current (locked) arpeggiator sequence is saved with new Preset. Locking is turned off in the new Preset.

Tied Mode

Tied mode lets you select whether tied steps use their own programmed values for tuning, velocity etc. (tied mode off) or use the values of the step they are tied to. (tied mode on)

Octave

The octave setting gives you the option to play the arpeggiated notes in multiple octaves, relative to the original notes. For example, an octave setting of 2 means that the original notes will play first, followed by the same notes one octave higher.

Speed

This control sets the speed of the arpeggiator relative to the speed of the host DAW, for example 2 x tempo or $\frac{1}{4}$ x tempo.

Key

This switch enables keyboard entry of the notes in the arpeggiator sequencer.

Swing

Swing is a control that allows you to change the rhythmic feel of the arpeggiator. It does this by slightly moving every other note relative a fixed timing grid. Whether it suits your work depends very much of the musical piece you are working on, so you we encourage you to experiment with different values here.

Vel / Key

The velocity of the steps in the arpeggiator sequence can be controlled by their programmed values, by the velocity of the key played that is used to trigger the arpeggiator or a combination of both. The Vel / Key control sets the balance between these.

Host Sync

Host Sync synchronises the Arpeggiator speed to that of the DAW host. This is enabled by default..

Arpeggiator Command Menu

The arpeggiator command menu allows you to edit, copy, paste, clear, save and load arpeggiator settings. A right click on the arpeggiator display activates this menu.

Bank and Preset Manager



A click on the Man button opens the Bank and Preset Manager. The Bank and Preset Manager serves to manage the thousands of sounds that RAW comes with. That number will be higher once you start creating your own sounds. The layout is pretty straightforward: on the left you see the Preset screen which lists all the Presets in the currently loaded Bank. On the right you find a list of all installed Banks. At the bottom of the screens you find buttons that represent Bank and Preset commands to save, copy, clear and move Banks and Presets.

Many operations can be carried out directly in the Bank and Preset screens though. You can simply click and drag a Preset to a new location. The shift and control keys on your keyboard let you select continuous groups and non-continuous groups of Presets. To swap Preset location you need to hold the alt-key while performing the click-and-drag. In the Bank section, a click on a Bank name will immediately load it.

Bank and Preset Command Menus

The Bank and Preset command menus allow you to save, load, copy and paste Banks and Presets. A right click on the Preset or Bank section activates these menus.

Preset Commands

<i>Load</i>	Loads a saved Preset / Presets.
<i>Save</i>	Saves the current Preset/Presets to a file.
<i>Copy</i>	Copies the current Preset.
<i>Paste</i>	Pastes the last copied Preset.
<i>Swap</i>	Swaps the current Preset with another.
<i>Move</i>	Moves the current Preset to a new location
<i>Insert</i>	Inserts a blank Preset at the current position and moves any existing Presets in the Bank
<i>Original</i>	Reverts the current Preset to its original settings.
<i>Edited</i>	Reverts the current Preset to its last edited settings.
<i>Default</i>	Sets the current Preset to the default settings.
<i>Delete</i>	Deletes the current Preset, and moves any existing Presets in the Bank
<i>Rename</i>	Renames the current Preset.
<i>Undo</i>	Undoes the last command.

Bank Commands

<i>Load</i>	Loads a Bank, if the current Bank has been changed from its original state, a back up is created automatically
<i>Save</i>	Saves the current Bank.
<i>Copy</i>	Makes a copy of current Bank.
<i>New</i>	Creates a new Bank.
<i>Delete</i>	Deletes the current Bank
<i>Rename</i>	Renames the current Bank.

Find

The find function works through a separate window that takes a search string. It searches all the Banks for Presets which include the search string. It returns the search result as a collection of highlighted Presets in the Preset section (the non-matching Presets are shown in standard green). In the Bank section, all matching Presets across all Banks are displayed in a similar way. RAW lists the Bank and all (matching) Presets in that Bank. Now you can load the Bank or Preset with just a single click.

Set and Search Category

Two buttons in the Preset Manager make it possible to tag a Preset with category labels and subsequently look for Presets that match a particular category. To filter by category, simply click on the category tags that you want to include in your selection. Any matching Presets will be highlighted. With the Set Category button enabled, follow the same process to assign tags Presets.

FX – A Chorus and More



FX-A offers chorus and related effects. The effect-types on offer are: Chorus, Ensemble, Flanger and Phaser. You will also find a Gater effect in FX-A

On / Off

The LED-Style button in the top left corner turns FX-A effects On and Off.

Type

Type selects the effect type for FX-A chorus effects.

Mix

The Mix control sets the balance between the original signal and the effect signal..

Chorus

The chorus is a modulated delay signal which is useful for thickening up the sound.

Length	Sets the length of the delay used to create the chorus effect
Width	Sets the amount of modulation applied to the delay time
Speed	Sets the speed with which the delay time is modulated
Spread	Difference in speed between the left and right hand channels

Ensemble

This effect uses 6 choruses, each having its own setting, to give the effect of several copies of the sound playing at once.

<i>Length</i>	Sets the length of the delay used to create the ensemble effect
<i>Width</i>	Sets the amount of modulation applied to the delay time
<i>Speed</i>	Sets the speed with which the delay time is modulated
<i>Feedback</i>	Amount the choruses differ from each other

Flanger

The flanger effect is based on a very short modulated delay.

<i>Length</i>	Sets the length of the delay (time) used to create the flanger effect
<i>Width</i>	Sets the amount of modulation applied to the delay time
<i>Speed</i>	Sets the speed with which the delay time is modulated
<i>Feedback</i>	Feedback of the flanger

Phaser

A phaser is a combination of filters that can create a phasing effect

<i>Length</i>	Sets the spread of filters across the frequency spectrum.
<i>Feedback</i>	Sets how much of the phased signal is fed back to the phaser input
<i>Width</i>	Sets the amount of modulation applied to the filters
<i>Speed</i>	Sets the speed with which the filter frequency is modulated

Gater

The gater uses a 16 step sequencer to alter the volume of the sound to give a trancegate type effect. Basically it is a sequencer controlled audio gate.

<i>Speed</i>	The speed of the gater. Speed is time based from 16/1 up to 1/32T speed. If for example the speed is set to 1/1 each step is 1/16 note. If for example the speed is set to 2/1 then each step is 1/8 of a note.
<i>Smooth</i>	The level of volume smoothing between steps. Use it to avoid clicks.
<i>Mode</i>	The Gater works in either Mono or Poly Mode. In Mono Mode the effect is global and works on the overall output. In Poly Mode each voice has its own Gater.
<i>Length</i>	Length sets the number of steps in the Gater
<i>Swing</i>	Swing is a control that allows you to change the rhythmic feel of the Gater. It does this by slightly moving every other note relative a fixed timing grid. Whether it suits your work depends very much of the musical piece you are working on, so you we encourage you to experiment with different values here.
<i>Left</i>	Left channel sequencer. Clicking here turns on / off that step in the gater. When a step is on (light colour) the gate is open and you can hear the audio. When a step is off (dark colour) the audio is muted.
<i>Right</i>	Right channel sequencer. Clicking here turns on / off that step in the gater. When a step is on (light colour) the gate is open and you can hear the audio. When a step is off (dark colour) the audio is muted.

Note: Mix sets the balance between the gated signal and the original signal. With the Gater we recommend to fully open the Mix control knob (wet), unless you employ the Gater as a modulation source and do not want to affect the volume of the audio signal directly.

FX – B Delay and Reverb



FX-B offers Delay and Reverb effects.

On / Off

The LED-Style button in the top left corner turns FX-B effects On and Off.

Type

Type selects the effect type for FX-A chorus effects.

Mix

The Mix control sets the balance between the original signal and the effect signal..

Stereo Delay

The Stereo Tape Delay emulates the characteristics of an echo effect created by an analogue tape delay. It is based on the code of the full RP-Delay plug-in, and in this case replicates a Stereo Delay.

<i>Left Delay</i>	Left length of the delay set in tempo based settings
<i>Right Delay</i>	Right length of the delay set in tempo based settings
<i>Sync</i>	Switches the delay settings between tempo-based and time-based
<i>Feedback</i>	Feedback of the delay
<i>CrossFeed</i>	Feedback between the left / right delay
<i>Feed Equal</i>	Links the feedback settings of the left and right channel
<i>LP Filter</i>	Low pass filter frequency
<i>HP Filter</i>	High pass filter frequency

Reverb

This effect reproduces the sound of acoustics in rooms using different sizes and reflections.

<i>Pre-Delay</i>	Pre-delay amount of the reverb signal
<i>Size</i>	Reverb room size
<i>Damp</i>	Reverb damping amount
<i>LP Filter</i>	Sets the amount low pass filtering applied to the reverb signal
<i>HP Filter</i>	Sets the amount high pass filtering applied to the reverb signal
<i>Length</i>	Length of reverb

Back Panel



A click on the RAW logo will display the back panel. The back panel contains a number of global controls that affect all instances of RAW. Typically, the settings you make here are of the type Set-and-Forget; i.e. you only need to do it once right after installation of the plug-in. Think of these as a collection of preferences.

Big Screen

The Big Screen switch enlarges the RAW plugin window to 133% of its original size. Depending on the host (DAW) you are using, you may need to close and re-open RAW for the changes setting to take effect.

Computer Keyboard on/off

You can leaf through the Presets and Banks using the computer-keyboard. The assigned keys are:

Up Arrow Button	Previous Preset
Down Arrow Button	Next Preset
Left Arrow Button	Decrease Preset number by 32
Right Arrow Button	Increase Preset number by 32
Page Up	Previous RAW Bank
Page Down	Next RAW Bank

Midi Program / Bank Change

This switch enables RAW to respond to Midi Bank Select and Midi Program Change commands to select Banks and Presets. If set to Off, RAW will ignore any Program Change and Bank Select commands received over Midi.

External Midi Control Capture Mode

The Capture Mode switch, when enabled, ignores incoming MIDI controller messages that are latched to a RAW control, until the value of the MIDI controller matches that of the value of the RAW control. It prevents sudden jumps in parameter values that otherwise may occur as soon as you touch a latched external MIDI controller.

Automatic Volume Limiting

RAW has many gain stages in its signal path, augmented with modulation options. In some cases, with certain settings, this may result in unintended distortion (clipping). The Automatic Volume Limiting switch can be used to protect the sound from internal clipping. Please see the Amp section for further details.

Global Tuning

Global Tuning sets the reference tuning for RAW. The default setting is A4 440 Hz.