

Twisted Tools



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BUFFEATER | CREDITS

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Please check out their work and support their art.

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EVAC | www.q5studios.com

Glitchmachines | www.Glitchmachines.com

Haptic Audio | www.HapticAudio.com

Josh Hinden | www.twistedtools.com

Komposit | www.patrickcampbell.info

Mike Huckaby | www.myspace.com/mikehuckaby

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Twisted Tools™

San Francisco, CA

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TWISTED TOOLS | BUFFEATER

USER GUIDE

1. Introduction and System Requirements

1.1 What is Buffeater?

Buffeater is a real-time, dynamically ordered, granular multi-effect for Native Instruments' Reaktor 5 (all versions). Buffeater works by capturing live audio and storing it in a temporary buffer, which allows for real-time processing of the incoming audio using granular synthesis and other methods. In plain terms, Buffeater allows you take live audio and tweak elements of the sound such as time and pitch, while staying in sync with your project and never losing the groove. With Buffeater, you can easily achieve stutters, glitch, beat repeat/juggling and/or chopped and screwed effects.

Buffeater has six main fx blocks in total, each with 64 fx presets that allow you to store and change effects settings on the fly. Each effect is capable of a variety of sounds and because the signal flow changes depending on the order in which you play the effects, the variations are nearly endless.

1.2 Effects Trigger and Signal Flow Basics

Buffeater comes with 6 effects blocks which you can think of as 'effects pedals', similar to those which a guitar player uses. You can trigger an effect via MIDI or by using your QWERTY keys on your computer keyboard when in standalone mode. The order in which the effects are routed depends on the order in which you play the effects. For example, if you play effect 1, then play effect 2, signal flows from 1 to 2. If you release the keys and play effect 2, then effect 1, signal flows from effect 2 into effect 1.

1.3 The Six Effects

STRETCH

Stretch is a granular time and pitch stretching effect. You can use this effect to slow down (stretch) your audio and even freeze it, while still maintaining control over the audio's pitch.

TAPE

Tape is a varispeed type effect that allows you to slow down/speed up effect while also altering its pitch. This is similar to the effect you get when speeding up or slowing down a tape.

SLICE REPEAT

Slice repeat allows you to repeat fragments of incoming audio and even re-order them on the fly. You can also adjust the speed and direction of the playback of the slices.

DECONSTRUCT

Deconstruct takes slices of incoming audio and randomly rearranges them in time and can also reverse them. This effect is similar to Slice Repeat, except that it is more random and also features a 'slide' setting that causes audio to glide between slices.

SCRATCH

Scratch can do classic turntable style scratch effects, similar to what a DJ does with vinyl or cdjs. This allows you to play with time rhythmically with results that sound like 'scratching'.

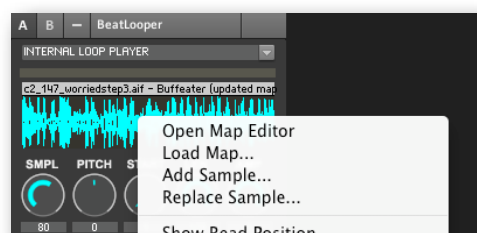
FEED GRAINS

Feed Grains is a granular feedback effect, that is great for creating spatial effects similar to reverb and also to create similar effects to ring modulation. This is a unique effect that really has no comparison that we know of. Try it and experiment.

1.4 System Requirements

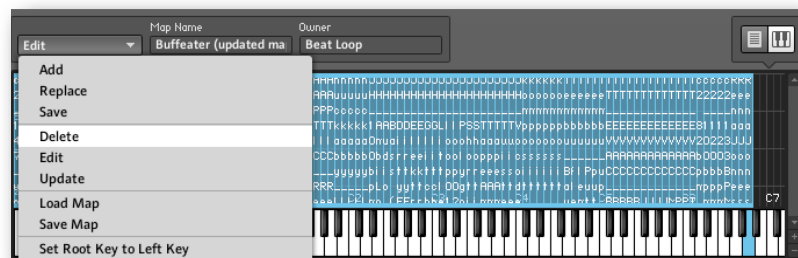
In order to use Buffeater, we recommend a Mac or PC running Reaktor 5 (5.15 and up recommended). If you'd like to test your system before buying Buffeater, try the legendary Oki Computer ensemble included with your Reaktor default library. If you're able to run Oki Computer and have at least 1gig of RAM Buffeater should run smoothly. You must current Kore 2 and Maschine to use the templates.

• TROUBLESHOOTING - Reducing the amount of RAM required to run Buffeater



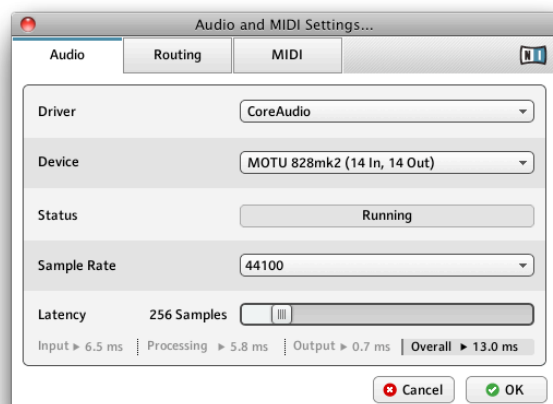
Buffeater's sample library requires RAM. If your computer is running low, here is what you can do to remove the internal sample map.

Step 1: Control-click the waveform display and choose 'Open Map Editor'



Step 2: Click the Keyboard icon in the upper right, drag select across all samples you'd like to delete and choose Edit>Delete

• TROUBLESHOOTING - Reducing the demand on your computer's CPU



In the event that you have an older computer and hear crackling sounds while in standalone mode, increase your buffer size to reduce CPU.

Step 1: Go to File>Audio and MIDI Settings (or System>Audio and MIDI Settings for earlier versions of Reaktor)

Step 2: In the Audio tab, try increasing your latency to around 512 Samples. Depending on the speed of your computer this may need to be set higher.

1.5 Setting Up Buffeater in Plugin Mode

Depending on your host software (Logic, Ableton, Pro Tools, Cubase, Digital Performer, etc.), you will need to set up Buffeater in different ways. Please refer to your Host's manual for specific details on how to set up MIDI controlled effects. Here we will discuss both Logic and Ableton.

- **LOGIC PRO** - You will need to setup Reaktor as a Software Instrument, rather than as an insert effect. This is because you can't route MIDI directly to insert effects.

Step 1: Setup Reaktor as a Software Instrument (*Track>Create New>Software Instrument*)

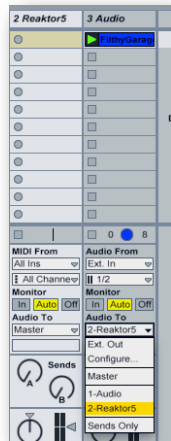


Step 2: Once you've opened Buffeater inside Reaktor as a Software Instrument you will need to route audio into Reaktor's sidechain to be processed. Please note that the only options here are Audio, Inputs and Busses. If you'd like to process another software instrument using Buffeater, simply route that instrument to a bus, mute the aux that is created and then choose Bus as the input to the sidechain.

Step 3: Play Buffeater using note #'s 60, 62, 64, 65, 67 and 69. To control Buffeater with your QWERTY keys, open Logic's capslock keyboard by hitting the capslock key and change to octave 3. Then use ASDFGH keys.

Please see the included Logic template to get an idea of how to set things up.

- **ABLETON** - Double-click Reaktor from the plugin browser and instantiate Buffeater. Then route any audio you like into Reaktor by selecting Reaktor as the 'Audio To:' option.



Play Buffeater using note #'s 60, 62, 64, 65, 67 and 69. In Ableton, the keys ASDFGH will control Buffeater FX triggers by default. Choose 'Live Input' from the Beatlooper instrument in Buffeater.

2. Buffeater Workflow and Basics

2.1 Global Controls



Buffeater has several global controls that are independent from the FX blocks, but are important to understand before beginning.

- **BYPASS**

Turns the entire Buffeater effect on and off

- **MIX, GATE and FADER (Horizontal Slider)**

When set to MIX, the cyan colored fader to the left controls the wet/dry balance. If set to GATE, the cyan colored fader to the left controls the volume and a gate (MIDI NOTE ON) message turns the effect on (100% wet). If set to gate, no signal will pass unless you are holding down and fx trigger.

- **SYNC**

Quantizes fx triggers to the nearest value set in the adjacent sync menu. Bypass this by clicking the word SYNC.

- **REC**

When on, knob movements are recorded into their respective automation lanes and automation is automatically turned on.

- **SAVE!**

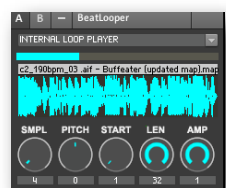
Saves all the individual FX Presets and the Reaktor snapshot at once. Do this when you want to save a Snapshot and before saving and closing Buffeater.ens. This will ensure that you settings are recalled perfectly as you left them.

It is *highly* recommended that when working with Buffeater as a plugin inside of your host, that you click SAVE! before closing your project and save Buffeater as a copy in your project folder. This way, you never have to worry about over-writing the default presets and can work freely. For instructions on how to remove the built-in sample library to reduce the size of Buffeater, see section 1.3 of this manual.

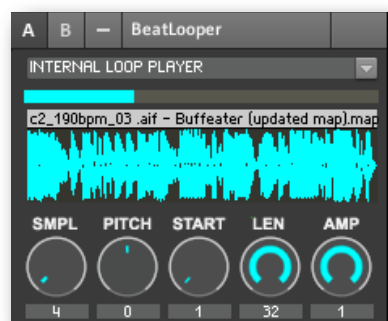
Should you need to get the default presets back, Bank 2 has all the defaults saved in their original state.

2.2 Beat Looper

Buffeater comes with a time-stretching looper to feed audio into the effect. Essentially, this is like a tape deck that you can use to demo and try out the effect. We've included a large sample library as well which you are free to use in both commercial and non-commercial musical or artistic works. Please see the license below for more information.



2.2 Beat Looper Continued...



BeatLooper has the following parameters:

- **INTERNAL/LIVE AUDIO SWITCH**

When set to INTERNAL LOOP PLAYER, the samples in the deck will be routed into Buffeater. When set to LIVE (EXT. AUDIO IN) Buffeater will look for audio from your host software when in plugin mode. In standalone mode it will look for audio from your hardware interface, so that you can route turntables, synths and microphones directly into Buffeater.

- **SMPL**

Selects the sample to be played back.

TIP : If you'd like to change the sample being played back using your MIDI keyboard, you can right-click, choose 'show in structure' and replace the select knob with a MIDI IN module by right clicking and choosing BUILT-IN MODULE>MIDI IN>NOTE PITCH.

- **PITCH**

Sets the pitch of the sample being played back.

- **START**

Sets the start position of the sample in 1/16th notes.

- **LEN**

Sets the end position or 'length' of the sample in 1/16th notes.

- **AMP**

Sets the overall volume of the BeatLooper.

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2.3 Triggering and Automating Effects Overview

Buffeater consists of 6 main effects blocks, which can be turned on and off using either MIDI notes or your QWERTY keyboard when in standalone mode. By default, the QWERTY keys will trigger the six effects from left to right, top to bottom in standalone mode. The order in which you play the effects will cause the signal flow or routing to change. The six effects are Stretch, Tape, Slice Repeat, Deconstruct, Scratch and Feed Grains (see section 1.2 of the manual for a description of the effects)

For example, if you play Stretch (q), then Tape (w) the sound will be stretched then processed by tape. Release your keys and press Tape (w), then Stretch (q) and you will notice that the order of the fx chain is reversed. We call this dynamic effects ordering and it greatly increases the amount of combinations possible.

Please note that on laptop computers, you may find that you can only play 5 effects at a time using your QWERTY keyboard. However, this is not a Buffeater limitation. You can use a MIDI keyboard and still activate all effects at once.

Automating effects in Buffeater is easy. You can either draw automation in or record it in live by using the Record button as you tweak the effects. Each knob has its own automation lane and settings which we will discuss in detail below in section 2.5 of this manual.

2.4 Triggering and MIDI Learning the Effects

In standalone mode: Use the QWERTY keys on your computer keyboard or note #'s 60, 62, 64, 65, 67 and 69.

In your host (DAW) : Use note #'s 60, 62, 64, 65, 67 and 69. The keys on your computer keyboard may or may not be the QWERTY keys depending on your host software's system for sending MIDI from a computer keyboard. For example, in Ableton, the defaults should correspond to the ASDFGH keys.

To customize and MIDI Learn notes on your computer keyboard or MIDI keyboard to Buffeater's six effects triggers:

Step 1: Right-click an FX Trigger (the grey horizontal bar with the name of the effect)



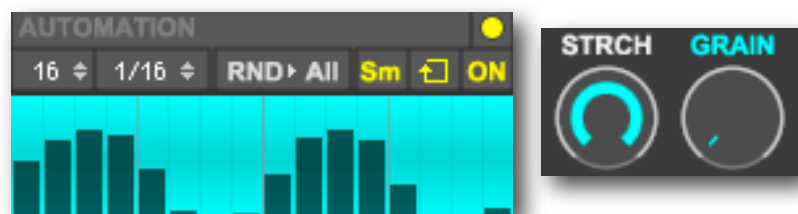
Step 2: Choose MIDI Learn

Step 3: Play a note on your keyboard or using your Computer Keyboard (if currently setup to function as a MIDI keyboard in your host).

2.5 Automating the Effects

Each knob in a Buffeater effect block can be automated. When you trigger an effect, you will notice that a playhead begins to move across a cyan colored automation lane. This is the automation for a specific knob. You can tell which parameter is currently displayed by looking at the color of the knob labels.

2.5 Automating the Effects Continued...



A cyan colored label indicates that you are viewing automation for that specific parameter. All the settings you see in the automation area with the exception of RND are specific to the currently selected knob.

To view a different automation lane, simply move a knob or click the parameter label of the knob you'd wish to see. By clicking the label rather than moving a knob, you can switch the lane being displayed without having to mess up your current knob's setting.

Automation Settings (from right to left):

- **ALL ON (indicated by the yellow circle)**

Turns automation on/off for all lanes for that effect.

- **ON**

The on button turns on or off automation for the currently visible lane (parameter)

- **LOOP (indicated by a yellow loop symbol)**

When ON, the visible automation lane will loop as long as you hold down the fx trigger. When OFF, automation will only play back once for each time you trigger an effect (similar to how an envelope would work).

- **Sm (Smooth)**

When ON, automation smoothing is turned on between steps. This is similar to a glide effect and is best left on if you are trying to record your knob movements or create smooth transitions. When OFF automation values will jump immediately from step to step. This is similar to a 'sample & hold' type effect.

- **RND**

Randomizes current automation lane. Turn on **ALL** to randomize every parameters automation lanes at once.

- **SEQUENCER SPEED**

Changes the visible automation lane's playback speed.

- **LOOP LENGTH**

Changes the playback length of the visible automation lane.

2.6 FX Presets

Each effect in Buffeater has its own presets, called FX Presets. These presets store the current knob positions along with all settings and automation for that effect.

You can store up to 64 effects presets by default for each individual effect for a total of 384 fx presets. Furthermore, each Reaktor 'Snapshot' stores all 384 fx presets independently in memory for a total of...lots of presets. The names however, are universal for every snapshot so you'll have to keep that in mind when saving and organizing.

We've created 48 preset slots for each fx block and labeled presets 49-64 USER, but feel free to erase or change these as you'll learn how to do below.



• SLCP

Save - Saves current knob, automation and additional fx settings into the currently selected preset slot. Please note that it isn't necessary to save each preset one by one. You can simply use the global SAVE! button which will save all 6 effect presets (and a Reaktor Snapshot).

(re)Load - Loads the snapshot stored in memory. Useful to 'undo' changes you've made.

Copy - Copies current knob, automation and additional settings to be pasted into a new slot.

Paste - Pastes knob, automation and additional settings into the currently active slot.

• FX PRESET MENU

Allows you to instantly change the current FX Preset.

TIP: Use your up and down arrows on your computer keyboard after having clicked on the FX Preset Menu once to scroll up and down through presets on the fly.

• RENAMING PRESETS

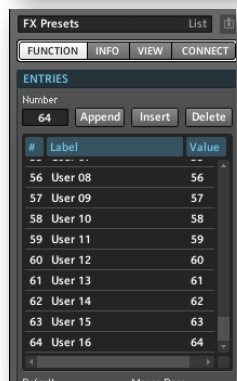
As mentioned in the introduction to FX Presets, you can rename and save over all 64 fx preset slots. In fact, if you want more than 64, you can set this up as well! Lets learn how...



Step 1: Right-click the FX Preset menu and choose 'FX Presets Properties'

Step 2: Click the tab that says 'functions' in the properties area.

Step 3: Find the slot you'd like to name and double-click the name to rename it.



IMPORTANT: Please do not use the Append/Insert/Delete features found in this area.

If you'd like to increase the total number of preset slots available, simply enter a higher number in the Number entry.

3. The Effects Parameters and Settings

Each effect has a set of knobs and additional settings directly below them. In this section, we will describe what each knob and setting does. For information on Automation, please see the section above.

TIP: Use the value readout next to the 'REC' button in the upper right hand corner of the interface while moving a knob to set it to a precise value

3.1 Stretch

Granular time and pitch stretching effect. You can use this effect to slow down (stretch) your audio and even freeze it, while still maintaining control over the audio's pitch.

- **STRETCH**

Stretch allows you to slow down the speed of the incoming audio by repeating fragments of audio called 'grains'. At 100% you can freeze the sound in time.

- **GRAIN**

The Grain control will determine the size of the repetitions (grains), allowing you to repeat fragments of the incoming audio on the fly.

- **PITCH**

Pitch, allows you to adjust the pitch of the incoming audio independently from time thus allowing you to change the pitch without changing the speed.

- **MIX**

Sets the dry/wet mix levels for this effect.

- **BUFFER RETRIG**

Enables fx retriggering type effect. Audio entering the effect is recaptured repeatedly at the rate set in the adjacent retrigger rate menu.

- **GRAIN SYNC**

Syncs grain size to clock, so that grain repeats are in time with your projects BPM.

- **REVERSE**

Reverses the direction of playback of the grains.



3.2 Tape

Tape is a varispeed type effect that allows you to slow down/speed up effect while also altering its pitch. This is similar to the effect you get when speeding up or slowing down a tape, but can also achieve more abstract effects and flanging.

- **TIME**

Sets the time in 16th notes to speed up or slowdown the audio signal.

- **BEND**

Controls the exponential shape of the speed changes.

- **MIX**

Sets the dry/wet mix levels for this effect.

- **BUFFER RETRIG**

Enables fx retriggering type effect. Audio entering the effect is recaptured repeatedly at the rate set in the adjacent retrigger rate menu.

- **UP/DOWN**

A direction option which essentially allows you to choose whether you want audio to speed up or slow down.



3.3 Slice Repeat

Slice repeat allows you to repeat fragments of incoming audio and even re-order them on the fly. You can also adjust the speed and direction of the playback of the slices.

- **LENGTH**

Determines the length of the looped slice in rhythmic values.

- **SHIFT**

Shifts start of the repeated slice by 16th notes (16 possible steps/bar).

- **SPEED**

Determines the playback speed in %

200% = doublespeed

50% = halvespeed

0% = full stop (useful for muting or gating the signal when used in conjunction with internal automation).



- **MIX**

Sets the dry/wet mix levels for this effect.

- **REVERSE**

Reverses the direction of playback of the slices.

3.4 Deconstruct

Deconstruct takes slices of incoming audio and randomly rearranges them in time and can also reverse them. This effect is similar to Slice Repeat, except that it is more random and also features a 'slide' setting that causes audio to glide between slices.

- **SIZE**

Determines the length of the slices to be processed.

- **SPACE**

Controls the amount of buffer space used for manipulation.

- **SLIDE**

Determines the amount of smoothing (glide) applied to audio readout position.

0 = No smoothing.

- **MIX**

Sets the dry/wet mix levels for this effect.

- **REVERSE**

Reverses the direction of playback of the slices.



3.5 Scratch

Scratch can do classic turntable style scratch effects, similar to what a DJ does with vinyl or cdjs. This allows you to play with time rhythmically with results that sound like 'scratching'.

- **SIZE**

Controls the length of the incoming audio signal used for scratching.

- **SPEED**

Determines scratching speed.

- **MIX**

Sets the dry/wet mix levels for this effect.



- **BUFFER RETRIG**

Enables fx retriggering type effect. Audio entering the effect is recaptured repeatedly at the rate set in the adjacent retrigger rate menu.

3.6 Feed Grains

Feed Grains is a granular feedback effect, that is great for creating spatial effects similar to reverb and also to create similar effects to ring modulation. This is a unique effect that really has no comparison that we know of. Try it and experiment.

- **SIZE**

Sets the grain size.

- **PITCH**

Transposes incoming audio in semitones.

- **FEED**

Controls the amount of feedback applied to the incoming signal.

0 = No smoothing.

- **MIX**

Sets the dry/wet mix levels for this effect.

- **REVERSE**

Reverses the direction of playback of the grains.

