



truc was developed by KVR members **de la Mancha** and **sinkmusic** for the KVR Developer Challenge 2007. It is a freeware VST effect for Microsoft Windows.



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Introduction

Hello, thanks for trying out **truc** and getting as far as reading the manual, we hope it helps you get the most out of the plug-in.

truc is a multi-effect VST plug-in, with 4 banks of effects controlled by the movement of 2 pucks. The top puck controls the level of each effect bank, the bottom puck modulates any 4 of 13 parameters within the effect banks. This allows continuous morphing of the sound by moving the pucks to vary the impact of each effect bank.

As well as manually controlling each puck (either by mouse or midi controller) you can lock the pucks together and/or set them to move automatically, either randomly or by a configurable LFO, all in sync with your project tempo.

Let's go F some SU...

Features

- 4 effect banks
 - dirtifier – overdrive, bit crush, sample rate, variable state filter
 - modulator – flanger, tempo sync LFO modulates auto-pan or ring mod
 - delay – tempo sync delay with reverse, ping-pong and LP filter options
 - granulator – tempo sync granulator, pitch shift and gate with random options
- 2 independent xy pucks control
 - effect bank wet/dry level and/or relative volume
 - any 4 of 13 effect parameters
- set the minimum levels of the pucks to change the sensitivity
- lock bottom puck to the top puck to control both with one movement
- either or both pucks can be independently set to 'auto', which moves the puck either randomly or by a configurable LFO, all in sync with host tempo
- seeded randomisation with option to loop
- switch unused effect banks off saves CPU
- master volume and wet/dry levels
- over 100 presets covering subtle to mental and back
- all controls have MIDI CC's assigned with MIDI learn option

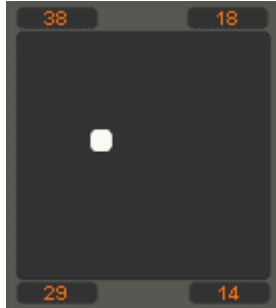
Note: truc is primarily a 'live performance' plug-in and is written in a way as to minimise CPU use. This means the modulation you hear in real-time is not rendered in the usual way in your host. Instead, you will need to record the audio in real-time in your host or use an audio recorder plugin. Please see *Rendering and real-time audio recording* on P8 for further details.

Installation

Download the zip file and extract the **truc.dll** file to the folder you have set up as your VST directory. Ensure your host can see **truc** as an effect and load it as you would any other effect. Just delete the dll if you wish to uninstall.

Principles

XY pucks



The pucks can be moved in 2 dimensions to control the level of 4 parameters. The percentage level is shown in each corner of the puck pad and the 4 corners will always add up to 100% (If you set the 'min' slider to zero, more on this later). Move the puck to dead centre, it will show 25% in each corner, as you move it towards any corner, that corner will increase and the other corners will decrease, until one is at 100% and the others at 0%. If you move the puck along one side of the pad (say the bottom), you will see the corners at either end of that side move from 0% to 100% with 50% in the centre.

Min slider



The 'min' slider will set the minimum value of any corner. If you set the slider to 50, then the lowest any corner can go is 50% when the puck is in the opposite corner. Now the levels will go from 50% to 100% instead of 0% to 100%

Data entry

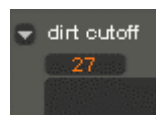
You can only enter data directly into a knob/slider/puck readout if the text is white. Orange text is read only, usually because it is modulated by a second source or is a limited selection

Dual readout knobs



Some of the knobs have dual readouts, one in white and one in orange. These are the parameters that you can modulate with the bottom puck. The white is the max value, the orange is the actual value.

- Select the parameter you wish to modulate using the drop down in the corner of the bottom xy pad (eg top left corner, select 'dirt crunch' making sure it isn't already selected in one of the other 3 corners)
- Set the crunch knob to 6.0, using the knob or typing in the white readout
- The white readout is the max value
- The orange readout is the actual value as modulated by the bottom puck
- Move the puck, you'll see the orange value vary between 0.0 (bottom right) and 6.0 (top left)
- Leave the puck so the orange readout is approx 3.0 (so 50% by the puck, move the puck halfway along the top or left side of the pad)
- Now turn the crunch knob to 10.0 on the white readout
- The puck keeps the orange value at 50%, so it should now read 5.0
- Move the puck around again, you'll see now the max value is 10.0, where it was 6.0 before
- Now select a different parameter (or none) from the dropdown in the top left corner of the bottom xy pad. As long as 'dirt crunch' is not selected in any of the 4 corners, it will now not be modulated by the puck. The orange readout should be the same as the white readout at all times



Controls

Top puck



The top puck controls the relative volume of each effect, and if selected, the wet/dry mix too. (see *Principles* for detailed explanation of puck logic). There is a mix / volume toggle to the top right of the top xy puck.

vol – the percentage level in each corner is the relative volume of each effect on the incoming audio. The output will be 100% wet (no dry input signal passes through), and the volume of each effect is according to the % shown in the relevant corner. The 'min' slider is hidden in this mode as it only changes the mix

mix – the percentage level in each corner is now the wet/dry mix and the relative volume of each effect. This means some of the dry input signal passes through to the output. It means the effect is slightly more subtle, but can be desirable to keep some of the power of the source audio. You can increase the 'min' slider to make the minimum wet/dry mix level greater, which reduces the amount of dry signal passing through and increases the wet level of all effects for greater impact.



In either mode, you can use the master vol and mix sliders to adjust the overall levels

Bottom puck



The bottom puck controls the actual level (orange readout) of any 4 selected parameters (see *Principles* for detailed explanation of dual readout knobs).

Use the dropdown box in each corner to select the parameter that will be controlled by the puck proximity to that corner. You can select none if you wish, so that corner will not have any effect. If you select the same parameter in more than one corner, truc will default to the lowest value as a protection.

To the top right of this pad is a lock icon. When selected, this locks the bottom puck to the top puck. The bottom puck will turn orange and cannot be manually controlled. When you move the top puck, the bottom puck will follow in the exact same position. You can still have different min slider settings, so that while the position may be the same, the % for any corner may be different between the 2 pads.

If you had already put the bottom puck into 'auto' mode, this will take priority and the lock will not work until the bottom puck is returned to manual.

Auto move pucks

Either or both pucks can be set to move automatically, in sync with project tempo, either randomly or modulated by an LFO. The controls are at the bottom of the GUI, the top puck controls on the left, the bottom puck controls on the right.

If you select 'auto', the puck will turn orange and you will not be able to control it manually until you deselect 'auto' and return to 'man'. If you have already locked the bottom puck to the top puck, this will take priority and the auto mode will not function until the puck is unlocked.

Once in auto, select 'rand' or 'LFO' to choose the method of movement.

Rand – select the number of beats between movements, this will then move the puck in sync with the host bpm.

Select 'damp' to make the movement between positions smooth or damped. Deselect this to make the movements instantaneous.

The random movement can be seeded and looped if required, using the controls centre-left. Choose any number for the seed or zero to switch seeding off. For any given seed, the random sequence will repeat each time you play the track. If you want the random sequence to repeat on a loop, set the loop length in beats, or zero to turn looping off.



LFO – select the LFO cycle in beats, to make the movements sync with the host tempo. You can select a different cycle for the x and y axis to get more complex patterns like figure-of-eights. You can also select different LFO waveforms for each axis to get complex shapes. To warp the shape further, you can increase the 'async' slider which delays the y axis LFO in relation to the x axis.

Eg – If the x and y axis LFO are both 2 beats, then the puck will move from bottom left to top right every 2 beats. If you increase the x axis to 4 beats, it will now move in a zig-zag, or if you increase the 'async' slider, it will start to rotate around the pad, further increases will change the direction of rotation.

Effect Banks

Each effect bank has an on/off switch in the top right of it's section. You can turn this off if you are not using the effect to save CPU, or use it as a mute button.

Dirtifier



Crunch – this control increases the overdrive and bit rate setting. Maximum overdrive is at 16 bits and minimum overdrive reduces to 4 bits, so it's always dirty either way. The overdrive has automatic volume compensation, so even when introduced at high levels by the top puck, the overall volume will remain relatively stable.

Grit – this controls the sample rate, from 11kHz to 44.1kHz

Filter – choose from Low Pass, High Pass and Band Pass. Set the filter cut off value in kHz and adjust resonance to taste. The up/down arrows show the approach direction the cutoff will take when it is modulated by the bottom puck

Eg. LP filter with cut off at 3kHz, 'dirt cut off' is selected as the top-left corner of the bottom puck. When the filter arrow is down, the LP cutoff will reduce from 22kHz to 3kHz as the puck approaches the top left corner. When the filter arrow is up, the LP cutoff will increase from 0Hz to 3kHz as the puck approaches the top left corner. This can be used to either open or close the filter as the puck approaches the corner.

Modulator



The top row of controls are for the flanger, setting the flanger rate, feedback level and mix.

Select 'pan' or 'ring' for the effect to be modulated by the LFO. The LFO depth will be labelled 'width' or 'freq' accordingly (in the bottom puck dropdowns, this knob is called 'mod depth')

Pan – the LFO will modulate the pan, increase width to make the panning go further left and right on each cycle

Ring – the LFO will modulate the ring mod frequency. The incoming audio will be modulated by the selected waveform (sine, saw, triangle or square). Increase the 'freq' knob to widen the frequency range of the ring modulation.

LFO rate is the cycle length of the LFO in beats, to keep the LFO in sync with your host tempo.

Delay



Choose the delay rate in beats, so it is in sync with your project bpm and set the feedback level to taste.

You can toggle 'fwd' or 'rev' for normal or reverse delay and choose from mono, ping-pong or stereo pan delay. The ping-pong can introduce clicking and is only suitable for drums. The pan mode is an alternative for other sounds.

The delayed signal is run through a low pass filter, where you can set the cut off and res to get increased filtering with each delayed signal.

Granulator



This module buffers the incoming audio and plays it back to give a subtle repeat/stutter effect, with a random gate for fun.

Grain rate and Grain size are set in beats for tempo sync
Rate - how often a grain is played back (should be at least as long as the size)

Size - the duration of each grain

Pitch - pitch shifts the grains

Random - randomly varies the pitch of the grains

Gate - set the gate length in beats

Gate prob - sets the probability that the gate will trigger on a random basis

MIDI CC's and MIDI learn

All knobs, sliders and both pucks have been assigned a unique MIDI CC value. See *Appendix* for a table of MIDI CC values

MIDI learn is a simple process that is saved for future sessions

- press the 'learn' button
- a timer icon appears to show that learning is in progress
- tweak the control you want to assign to a hardware controller
- tweak the hardware controller knob/slider/button
- the timer icon should now disappear to indicate learning is complete
- the hardware controller should now be linked to the VST control

Press the 'reset' button only if you wish to reset all previously learned controls

Rendering and real-time audio recording

The focus of truc is as a live performance tool, and minimising CPU is an important factor. To achieve this, truc has been written in a way that uses a low CPU method for modulating the pucks and effects, but the minor drawback is that this modulation is not rendered in the usual way from your host. To get technogeeky for a minute, truc uses the GUI processes for modulation, instead of the Audio processes, which means that it doesn't work if you can't see it on the screen (if you minimise the plugin window, you will not hear the modulation). This means Rendering or Freezing will not capture the modulations within truc either and it will sound static

Solution: You will need to record the audio from the mixer channel containing truc as real-time audio in your host, with truc visible on the screen.

Most hosts can do real-time recording in a few simple steps, recording the mixer channel output to .wav, which you then import back into your project. If your host does not support this function, you can use a plug-in such as *Voxengo Recorder* to perform the same function (<http://www.voxengo.com/product/recorder/>). We appreciate that this extra step is more work for you, but if the modulation was done in the usual way, then truc would eat 50-60% of your CPU for breakfast and demand "More!". This way, truc is useable in a live or studio situation and keeps to a strict CPU diet

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Credits

Thanks go to Tuz & KVR for running the KVR Developer Challenge 2007 and stimulating innovation and community spirit.

Thanks also to Jeff McClintock for creating SynthEdit and to the 3rd party SE module developers, without which this plug-in wouldn't exist.

Big Thanks to WhiskeyPriest, the black-belt beta-ninja, for testing and bug squashing

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Links

KVR Developer Challenge	http://www.kvraudio.com/developer_challenge_2007.php
SynthEdit	http://www.synthedit.com/
Dave Haupt Modules	http://www.dehaupt.com/SynthEdit/semmodules.htm
KD Lynch Modules	http://www.rubyhex.com/synthedit/
Soundfonts.it modules	http://www.soundfonts.it/?a=read&b=6
Scoofster Audio Modules	http://scp.web.elte.hu/synthedit/modules.html
Lance Putnam Modules	http://www.uweb.ucsb.edu/~ljputnam/synthedit.html

About the Developers

de la Mancha is a UK based producer of odd-skool breakbeat, downtempo glitchy beats and other assorted bleeps and noises. He also develops freeware synth, drum machine and effect plugins and still finds time to make babies and sleep. You can find his music, plug-ins and other junk at www.delamancha.co.uk

sink is an electronic music project born in France in 1999, making broken beatz, chip music and analogue and electronic soundscapes. These sounds are deconstructed live using hardware, software and laptop improvisation. Check out the sights and sounds at www.sinkmusic.com

They first collaborated on the randomised drum sample player *erratic*, with sink providing many of the electronic drum and glitch samples. As well as truc, there are plans to release other VST plug-ins as a collaboration. Sign up for the newsletter if you want to be kept in touch: news-subscribe@delamancha.co.uk

Appendix - Table of MIDI CC values

name	comment	MIDI CC
async	top pad	80
async	bottom pad	91
auto	top pad	104
auto2	bottom pad	84
bts	x top pad	109
bts	x bottom pad	17
bypass delay	on/off	73
bypass dirt	on/off	75
bypass gran	on/off	74
bypass mod	on/off	72
crunch	dirtifier	9
cut off	dirtifier filter cut off	16
damp	top pad	111
damp	bottom pad	20
delay	delay rate (bts)	83
delay rev	delay fwd/rev button	119
feedback	flanger	113
feedback	delay	85
filter type	dirtifier	27
gate	granulator	28
gate prob	granulator	71
grit	dirtifier	117
LFO rate	modulator	89
loop		110
LP cutoff	delay	105
min	top pad	23
min	bottom pad	103
mix	flanger	116
mixpad	top pad mix/vol select	21
panring	modulator pan/ring select	22
pingpong	delay	70
pitch	granulator	106
rand	top pad	90
rand2	bottom pad	88
random	granulator	112
rate	granulator	26
rate	flanger	15
res	dirtifier	87
res	delay	82
ringwave	modulator ring waveform	118
seed		13
size	granulator	19
vol	master volume	81
wet	master wet/dry mix	115
x pad1	top puck x axis	25
x pad2	bottom puck x axis	18
xwave	top pad	108
xwave2	bottom pad	24
y bts	top pad	29
y bts	bottom pad	86
y pad1	top puck y axis	107
y pad2	bottom puck y axis	14
ywave	top pad	31
ywave2	bottom pad	12
(un-named)	LFO depth (modulator, either width or freq)	114