



dirty harry was developed by **de la Mancha**
It is a VST instrument for Microsoft Windows.

This manual applies to dirty harry v1.1

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In association with



:: Introduction

dirty harry is an unashamedly DIY lofi synth based on the samples of two homemade, lofi noisemakers, the Atari Punk Console and the BugBrand WOM. (see last page of manual for more details)

dirty harry offers 20 unique waveforms in all their mono/monophonic glory. For extra grit the oscillators can be sync'd or ring modulated. Fidelity can be lowered further still with reduction in sample quality, distortion and a unique 'bad contact' emulation. 2 tempo sync LFOs allow modulation of filter, pitch and contact, with one LFO modulating the depth and frequency of the other. There are envelopes for volume, pitch and filter, with different contours and pitch options. Throw in an arpeggiator, pitch drift and portamento and you can see that whilst it may be lofi in sound, it doesn't lack for sound design features

v1.1 has some extra options for dirt types, lofi style and arp octave range. It is also updated to SynthEdit 1.1 which eliminates any problems with multiple instances in multi-core CPUs, as well as additional presets

:: Features

- 20 unique waveforms sampled from homemade lofi synths, the Atari Punk Console and the BugBrand WOM
- 3 oscillators, syncable to osc1 and ring modulatable with each other
- Each osc can be routed to the filter independently
- 2 tempo sync LFOs with many waveforms, can modulate filter cutoff, each osc pitch and the contact depth and wet level
- LFO 2 can modulate the depth and speed of LFO 1
- 2 envelopes for volume, filter or pitch, with various contours and options to modulate up/down
- Tempo sync arpeggiator
- Dodgy contact emulation
- Pitch instability
- Low quality, dirty, lo-fi options
- 16 dirt types [\[v1.1\]](#)
- 3 flavours of lofi [\[v1.1\]](#)
- Arp octave control [\[v1.1\]](#)
- 103 presets across Lead, Bass, Arp, Fx, Drone and Basic categories
- Updated to SE 1.1, eliminating multi-instance problems on multi-core CPUs [\[v1.1\]](#)

:: Installation

To install **dirty harry**, you should copy the full contents of the zip file into your VST directory and install in your host as you would any other VST instrument. Please ensure when you copy or extract the contents of the zip that you preserve the folder structure contained in the zip file. This is necessary for the plugin to find the files it needs to work correctly.

As dirty harry will install some module files into a sub-directory with the dll, you need to make sure that Windows folder permission rights for your VST directory allows this, especially in Vista where it may default to block this process

Install of v1.1 will not overwrite the original dirty harry install, they will both be available in your host VST list

To uninstall, simply delete the *dirty_harry_1_1.dll* file and the associated *dirty_harry_1_1* folder that you installed from the zip file

:: Controls

dirty harry is an instrument plugin and should be loaded in your host as you would any other instrument.

Oscillators

There are 3 oscillators, which are identical except that Osc1 does not have a “Sync 1” toggle (as it is already in sync with itself)



Click the on/off toggle to the left of the Osc name to turn it on/off, useful for sound design or saving CPU if not needed.

Click the down arrow or anywhere on the oscillator waveform display to see a list of the 20 waveforms available. Click the left/right arrows to scroll through the list. These are not your usual sine, saw, triangle waveforms, but odd, asymmetrical waveforms sampled directly from my APC and WOM. They are too unconventional to have names, so they are just numbered 1-10 for each piece of hardware they come from.

You can change the pitch of the oscillator in octaves using the **octave** drop-down menu, choose from -3 to +3 octaves. Good for creating both low and high tones from the same patch.

Turn the **tune** knob to fine tune the pitch from the played note (+/- 36 semitones). Double-click the tune knob to reset to zero.

Turn the volume knob to adjust the output level of the oscillator.

There are 3 toggles to the right hand side

- . filter – when on, the oscillator is routed through the LP filter
- . ring X – when on, the oscillator is ring-modulated with osc X
- . sync 1 – when on, the oscillator is sync'd to osc 1

Ring-modulation multiplies the 2 oscillator signals together

Sync means the oscillator waveform is restarted each time osc1 waveform starts a new cycle. This is especially gritty when the oscillator is detuned from osc1

Note: There is also a global **octave** drop-down which changes the pitch of all 3 oscillators by the amount selected, in addition to any individual oscillator tuning.

Envelopes

There are 2 envelopes, one is fixed as an amp envelope (otherwise dirty harry just wouldn't stop making a noise) and the other can be either a pitch or filter envelope, or switched off if not needed.

The contour of the envelopes can be changed globally using the **env shape** drop-down to choose from A to F, giving various exponential and S-curve contours.

Amp Envelope

The amp envelope is a simple ADSR (attack, decay, sustain, release) envelope.



A, D and R knobs define the time length for those stages. S defines the sustain level when the note is held.

The other Envelope

The other envelope is also a simple ADSR envelope, but it has some extras.



First you can select it as a filter cut-off envelope or a pitch envelope using the drop-down box.

Secondly you can turn it off using the toggle next to the label, useful for sound design or saving CPU when not needed.

Thirdly, there is a freq knob, to define how much the envelope modulates the pitch or filter cut-off. If this is zero, then no modulation will happen.

Finally, you can select a modulation mode (up, down, up to, down to). This determines which direction the modulation is in, and the end point.

- . up – modulates the pitch/filter up by the value of the freq knob
- . down - modulates the pitch/filter down by the value of the freq knob
- . up to - modulates the pitch/filter up to the default level
- . down to - modulates the pitch/filter down to the default level

Where the up/down modes take the pitch away from default to an unknown amount (which is likely then out of tune) the up to/down to modes return the pitch to the default level, which is then in tune (unless you detuned it).

Filter

The filter is a resonant Low Pass (LP) filter.



Increase **cut-off** to allow more of the audio spectrum to pass through, increase **resonance** to boost the frequencies around the cut-off point.

Filter cut-off can be modulated by the filter envelope and both LFO's.

Quality

Next to the filter, you have some options to make the sound even more lofi than it already is.



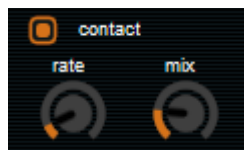
The **quality** drop-down allows you choose the samplerate resolution of the oscillator waveforms. Normal is the full samplerate, but you can reduce it to 50%, 25%, 12.5% or 6.25% for a less defined/tuned sound. You will see the resolution of the waveform display change accordingly.

The **dirt** dropdown lets you choose which flavour of distortion you want, or you can turn it off if you want

The **lofi** toggle adds some degradation to the audio, with the drop down letting you choose from 3 styles (linear, step or curve) for different levels of harshness

Contact

This is a feature you aren't going to find on many (if any) synths. It simulates the scratchy, lofi sound of poor contacts, as if two wires are loosely joined or a potentiometer needs a good clean.



You can toggle on/off as required. Use the **rate** knob to determine how much scratchiness you want, from super fast (like a stylophone stylus) to slow (like a wire coming loose). The **mix** knob changes the wet/dry mix, so you can make the effect more (or less) subtle. Both parameters can be modulated by LFO1

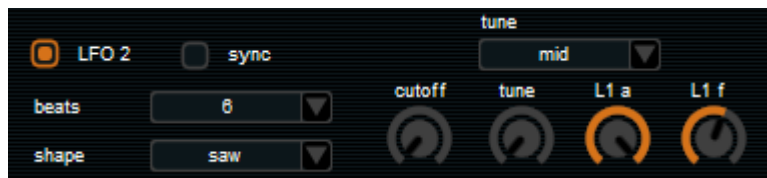
LFO's

The LFO's are Low Frequency Modulators, which mean they can make some of the synth parameters move up and down from their default values.

There are 2 LFO's that share the same controls but modulate different parameters



LFO1 can modulate the filter cut-off, the pitch of each modulator and the contact rate and mix levels



LFO2 can modulate the filter cut-off, the global pitch and the amplitude & frequency of LFO1

LFO Common controls

You can toggle the LFO on/off as required and to save CPU when not needed

The **sync** toggle means that the LFO cycle restarts on each new note, otherwise it will be free running.

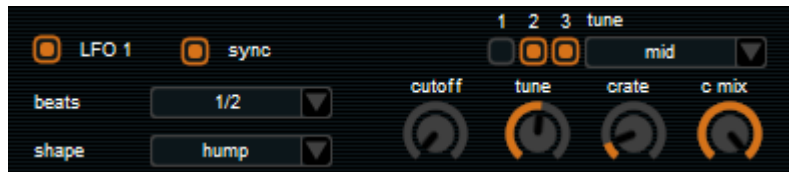
The LFO's are tempo-sync'd to the host bpm and the cycle time is expressed in beats. Using the **beats** drop-down, you can choose from 1/32 (very fast) to 32 beats (very slow) with some interesting values in between, multiples of 3 and 4

Using the **shape** drop-down, you can select the LFO waveform from a long list including classics (sine, triangle, square), oddballs (dolphin, ripramp, hump) and random (of course!)

The **tune** drop-down allows you select the boundaries of the LFO pitch modulation

- . up – pitch is modulated only above the default pitch
- . mid – pitch is modulated equally above and below the default pitch
- . low – pitch is modulated only below the default pitch

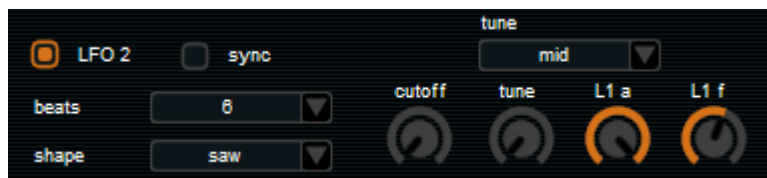
LFO1 controls



LFO1 modulates:

- . cutoff – make the filter cutoff change for lots of movement in the sound
- . tune – modulates the pitch of any/all oscillators. Select which oscillator to modulate using the toggles above the tune knob. It can be useful for example to modulate only osc1 and sync 2 and 3 to osc1 in the oscillator controls.
- . crate – contact rate
- . c mix – contact mix

LFO2 controls



LFO2 modulates:

- . cutoff – as per LFO1, gives flexibility to use either or complexity to use both
- . tune – modulates the global pitch of all 3 oscillators
- . L1 a – LFO1 amplitude. Have great fun modulating the depth of LFO1 with LFO2
- . L1 f – LFO1 frequency. Even more fun to modulate the frequency of LFO1 with LFO2

arp

A simple arpeggiator which can do the 8-bit bleepy game thing quite well



You can switch the arp on/off using the toggle next to the label

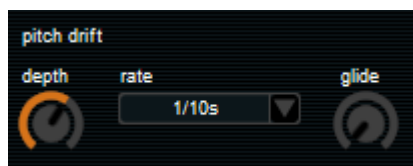
Use the **beats** drop-down to set how often a new arpeggiated note is played, anything from 1/32 beats (for drilling madness) to 4 beats (laidback).

The **note** drop-down lets you change how long each note is, from small to extra large.

The **octave** drop-down lets you choose the range of octaves to arpeggiate over (1,2,3 or 4)

drift

drift makes the pitch unstable, either slow drift caused by components heating or quick fluctuations like an interference.



You can set the drift **rate** using the drop-down, from 1/100s (superquick vibration) to 40s (long slow wandering).

The **depth** knob determines how far out of tune the drift goes. All the way left is zero to switch it off

The **glide** knob is not actually part of the drift control, but it does also influence the global pitch. This is the glide (or portamento) time for when 2 overlapping notes are played. It is the time for the pitch to change from the first note to the second note and creates a pitch bend sound.

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:: Credits

The Atari Punk Console 2.0 deluxe kit is from the brilliant **GetLoFi**, great service, good documentation and nice prices

The WOM kit is from Tom at **BugBrand**, excellent instructions and a brilliant design

More on both these kits on the next page

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

Also thanks to my good friend **SINK**, for coming up with the name **dirty harry**

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Links	
SynthEdit	http://www.synthedit.com/
Dave Haupt Modules	http://www.dehaupt.com/SynthEdit/semodules.htm
Chris Kerry Modules	http://www.chriskerry.f9.co.uk/
K D Lynch	http://www.rubyhex.com/synthedit/
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Daz Disley	http://www.roughdiamondproductions.com/SE/
GetLoFi	http://www.getlofi.com/
BugBrand	http://www.bugbrand.co.uk/
SINK	http://www.sinkmusic.com/

:: About the hardware

The waveforms in **dirty harry** are sampled directly from 2 lofi noisemakers that I built myself from kits. Here's a little more info about the stars of the show

Atari Punk Console (APC) 2.0 Deluxe kit (from GetLoFi)



The Atari Punk Console is a simple pulse wave generator with origins in a 1980's Radio Shack booklet.

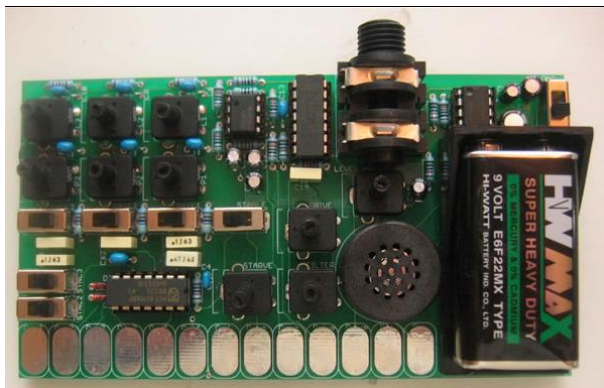
I bought the kit of parts from GetLoFi and armed with a soldering iron I made my first DIY synth. Two knobs change the pitch and the pulse length. This deluxe kit has 2 buttons and a photo-resistor to also change pitch

More info and ordering at GetLoFi

http://www.getlofi.com/?page_id=1440

http://www.getlofi.com/?page_id=1395

BugBrand Workshop Osc Machine (WOM)



Flushed with success at building the APC, I then bought this kit from BugBrand.

The WOM is more complex in design but was very easy to build. It has 3 pulse oscillators, a filter, distortion and a very lofi starvation feature. It becomes a man/machine cyborg instrument as it has 13 finger contacts for live circuit bending experiments.

More info from BugBrand

http://www.bugbrand.co.uk/index.php?main_page=index&cPath=1_14

:: About de la Mancha

de la Mancha lives, eats, dreams and breathes VST plugins, seeking to bring lofi, randomization and modulation to the masses. He is also a producer of odd-skool breakbeat, downtempo glitchy beats and other assorted bleeps and noises. You can find his music at www.papadodo.co.uk www.3x0.co.uk and www.monolog.co.uk

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