

# THE ESSENTIAL GUIDE TO...



## On the DVD

**VIDEO TUTORIAL**  
Open up the Video tutorial folder and... surprise! There's a video to accompany the walkthrough.

# Distortion



Even the more polite styles of music can benefit from a little crunch – read on to find out how it's done...

### JARGON BUSTER

#### ▶ DRIVE

The word used to describe the amount of distortion applied. Higher drive values are used for more extreme effects.

#### ▶ CLIPPING

A specific type of distortion with a quite distinct sonic character. Tends to occur naturally when an audio amplifier is running out of steam.

#### ▶ CROSSOVER DISTORTION

Another specific type of distortion caused by non-ideal component behaviour in certain analogue amplifier designs.

**A**lthough the rise of the virtual studio has brought fantastic levels of convenience and integration to both bedroom and professional facilities all over the world, sometimes the technology is just too perfect. Signals get from A to B and on to C in pristine digital quality. A few decades ago, this would have been considered the Holy Grail for producers, but many virtual studio users today are

frustrated by what they perceive as a thin, clinical, almost lightweight sound.

So should we all sell our computers and software licences and go back to the old way of doing things? Of course not. The answer lies (in part, at least) in replicating some of the imperfections of real analogue hardware. First and foremost, this can be achieved by using plug-ins that actually model the inadequacies of real analogue circuits –

primarily distortion.

Although analogue distortion effects have always been used heavily in rock music, they are common to many electronic styles as well (far more than you may realise). In this tutorial, we'll be looking specifically at the Trash plug-in from 64-bit processing geniuses Izotope. Not only is it a versatile beast, it also happens to be the ultimate distortion plug-in. Period. **cm**



#### MIX

This control is used to balance the processed (ie, distorted) signal and the unprocessed (ie, dry) signal. A setting of 100% means that only processed sound appears at the plug-in's output

#### OUTPUT GAIN

Applying heavy distortion to a signal can significantly raise the average level – perhaps too much in some circumstances. The output gain control can be used to keep things in check, especially when chaining effect units together

#### INPUT GAIN

This parameter can be used to adjust the level of the signal that enters the distortion stage

#### OVERDRIVE

Used to control the amount of distortion applied to the incoming signal. Use high values for extreme effects and lower values to add a small amount of crunch

#### CHARACTER

This control changes the overall sound and sonic footprint produced by the distortion unit. Tweak it to get the tone and sound you're looking for. (This is only available for certain algorithm types)

#### ALGORITHM

Select the type of distortion to be applied to the incoming signal from this list

#### LEVEL METERS

Use these meters to keep an eye on the signal levels entering and leaving the distortion unit.

#### SECTION SELECTOR

These buttons can be used to switch between pages of different parameters, providing a much higher degree of control over the end result

## WHAT IS IT?

Many factors contribute to any artist's overall sound. One of the quickest and most significant ways to develop your own sonic fingerprint is to learn to make full use of effects – distortion in particular.

So what is distortion exactly? To answer this question, we need to go back to good old analogue technology. Any amplifier (a device which makes weak signals stronger) has a maximum output level. If the output signal tries to exceed this level it will be squared off – this is called clipping, and it progressively turns a rounded sine wave into a square wave, producing a lot of harmonics in the process.

Even when working below its maximum output level, an analogue amplifier usually exhibits other 'non-ideal' behaviour. As the signal level goes from a negative to a positive half of a cycle (or vice versa), the switchover may not be completely smooth. The result is called crossover distortion, and this plays an important part in determining the character of distortion that's produced.

Distortion became popular as an effect in its own right with the birth of the electric guitar. Since then it's been adopted in many other genres, and a variety of distortion plug-ins are now available for the computer musician to experiment with.

## WHAT'S IT USED FOR?

As we've already suggested, distortion can be used to effectively combat a clinical, lifeless sound. We aren't talking about thrashing every part in the mix beyond all recognition, but a rather more subtle treatment in most cases.

Some styles of electric guitar playing rely on distortion to produce the main character of the sound. These sounds are also characterised by specific amp cabinets – even these are modelled by some plug-ins.

Synthesized drum sounds, meanwhile, can be given body, attitude and bite if you apply distortion in moderate amounts. Many electronic artists used to run their Roland drum machines through a variety of analogue gear (such as mixers, preamps and compressors) for exactly this reason. Lacklustre drum loops can often be transformed into something far more memorable if you apply some distortion and make careful use of EQ to keep things under control. Distorted, screaming synth lead sounds and throaty acid bass lines can also be used to add attitude to your wider sound.



▲ Scream if you wanna sound, er, distorted!

## HOW DO I USE IT?

Rather than being shared between channels in a send configuration, distortion plug-ins are typically used as insert effects on individual mixer channels. When combined with certain other effect types (such as reverb and delay, for example), distortion plug-ins may from time to time be loaded into a send channel instead. Placing a distortion plug-in before a reverb plug-in is one way of deliberately creating a metallic sounding reverb – this is a method that's used by a number of trance acts to enhance the popular 'superwave' sound.

Because the distortion process tends to add a large number of high frequency harmonics (perceived as brightness or brilliance), low-pass filters or high shelving EQs are sometimes placed after a distortion plug-in in the signal chain to keep the upper frequency range in check.

Other rules that apply to use of distortion generally depend on the application. Electric guitar parts recorded straight into a soundcard or audio interface, for example, can be brought to life using a combination of distortion, modulation effects (eg, chorus, flanger or phaser) and amp cabinet simulations.

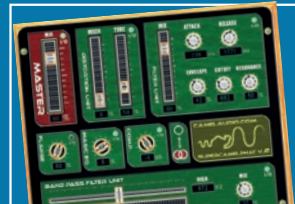
In the walkthrough at the bottom of this page, we're using Izotope Trash to add a little crunch to a pre-recorded drum loop. This serves to demonstrate that distortion doesn't always have to be a full-blown, all-out affair – it can be used in more subtle ways too.

## FIVE TO TRY...

Muon M-Drive  
[www.muon-software.com](http://www.muon-software.com)



CamelAudio CamelPhat  
[www.camelaudio.com](http://www.camelaudio.com)



DigitalFishPhones THD  
[www.digitalfishphones.com](http://www.digitalfishphones.com)



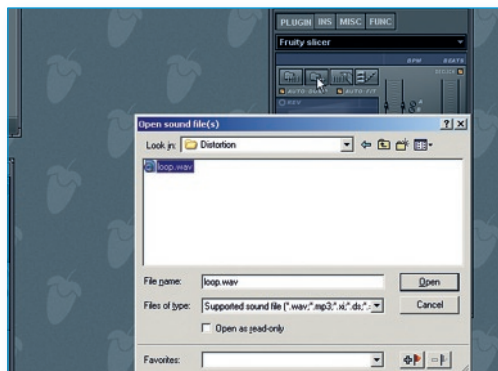
IK Multimedia AmpliTube  
[www.ikmultimedia.com](http://www.ikmultimedia.com)



Ohm Force Predatohm  
[www.ohmforce.com](http://www.ohmforce.com)



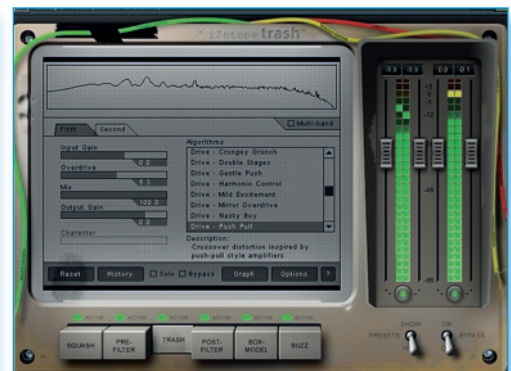
## STEP BY STEP Roughing up a sliced drum loop in FL Studio



**1** Start FL Studio and add an instance of Fruity Slicer to the step sequencer (**Channels>Add One»Fruity Slicer**). Click **Open & slice sample** (as shown) and load the file **loop.wav** from the DVD. Route the Slicer to mixer Channel 1 using the green digits in the Channel Settings window. »



**2** In the mixer window, select **Channel 1** and load Izotope Trash into the first effect slot. The Trash user interface should now be visible. Locate the algorithm list and scroll down to find the **Drive»Push Pull** preset. This emulates crossover distortion and is great for adding a little crunch. »



**3** Now set up the rest of the Trash parameters as follows: **Input Gain: 0.0, Overdrive: 5.3, Mix: 100.0, Output Gain: 0.0**. Hit play to hear Trash in action. Use the bypass switch to hear how much of a difference we've made to the original drum loop.