



TRASH²™



HELP GUIDE

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Welcome to Trash 2

iZotope Trash is a plug-in designed for adding distorted character to audio tracks. Distortion covers a wide range of possibilities, from typical "guitar overdrive" sounds to lo-fi digital characteristics to simply warming or brightening a track.

While the guitar is the instrument that typically comes to mind when thinking about distortion, Trash can be effectively used on all types of tracks. You can add tape saturation to a vocal or acoustic guitar part, fuzz to a bass, overdriven compression to a drum beat -- with Trash we went beyond a typical distortion simulator in order to provide you with something that had the flexibility to be used on just about anything.

When applying distortion to a track, several factors are involved in getting a "good bad" sound. Controlling dynamics is important for smoothing out distortion, adding sustain, or simply gating out unwanted noise. Filters are a key ingredient for shaping the tone of the distortion, as well as for filtering out unwanted distortion and harmonics. And for realistic overdriven sounds, speakers and cabinets play an important part in naturally smoothing the frequency and transient responses. In short, distortion by itself is only part of the puzzle -- filtering, dynamics and speakers are the additional pieces for getting a beautifully bad sound, inside of any space.

With that in mind, Trash is a collection of modules that comprise a complete distortion system. This allows you to work with the components you need, create presets that encompass entire Trash setups, and compare settings across different modules through history lists and undo features.

Whether you just use a couple modules to overdrive a guitar, or all modules in multiband mode to create entirely new sounds, we hope you enjoy using Trash as much as we enjoyed making it.

- The iZotope Team

Authorization

Each purchased copy of Trash contains a unique serial. After downloading Trash 2 directly from iZotope or another re-seller the serial number will be e-mailed along with the link to download the product.

The serial number should resemble:

SN-TRASH2-XXXX-XXXX-XXXX-XXXX

Launching the Authorization Wizard

The first time you open Trash, the Authorization Wizard will appear. You can choose to either authorize Trash or use it in Trial mode for evaluation purposes. Please use your supplied Trash 2 serial number to fully authorize your product.

Trial vs. Demo Mode

For the first 10 days after installation, Trash 2 will run in Trial mode, which offers full functionality. After 10 days, Trash will revert to Demo mode.

Authorizing Your Copy of Trash 2 Online

After opening Trash and launching the Authorization Wizard, the following steps will complete the authorization process online:

1. First, click on 'Authorize'.
2. Next, enter the serial number emailed to you. It should look like this:

SN-TRASH2-XXXX-XXXX-XXXX-XXXX

3. You must also enter your name and a valid e-mail address.

Make note of the e-mail address you use to authorize your license. Your license and iZotope account will be linked directly to this e-mail address.

Note: Clicking the 'Advanced' button reveals a set of options that allow you to store your Trash 2 authorization on a portable hard drive or flash drive. Click [here](#) for more information on these options.

4. When you have confirmed that your serial number and e-mail information is accurate, click once more on 'Authorize'.

5. Lastly, click on 'Submit' in order to send your authorization message to the iZotope servers. If the authorization is accepted, click on the 'Finish' button to complete the authorization.

Authorizing Your Copy of Trash 2 Offline

Some customers choose to keep their audio workstations offline, and a simple offline authorization option has been included. After opening Trash 2 and launching the Authorization Wizard, the following steps will complete the authorization process offline:

1. When first prompted to authorize Trash 2, click on 'Authorize'

2. Next, click on the option for 'Offline Authorization' at the bottom of the authorization window, select "Authorize with iZotope challenge/response" and click next.

3. You will be given a unique Challenge Code that is specific to your computer only. Write down or make a copy of the exact Challenge Code. It will look like this:

IZ-TRASH2-XXXXXXXX-XXXX-XXXX

4. Next, using a system with internet access, login to your customer account at the iZotope website:

<http://www.izotope.com/store/account.asp>

5. Click the 'Activate Software with a Serial Number' button, enter your full serial number and click 'Submit'.

6. Select the 'Challenge/Response' option and click on 'Submit'.
7. Read the License Agreement and click "Agree" if you find it agreeable.
8. Now enter your full Challenge Code copied in step 3.
9. After submitting your Challenge Code, you will receive a unique authorization file named:

iZotope_Trash 2_XXXXX.izotopelicense.xml

You then need to copy this file to your offline computer.

10. Once the authorization file is copied over to your offline computer using a network, hard drive or USB stick, click the 'Choose File...' button in your authorization wizard.
11. Navigate and select the authorization file and click 'Next' to authorize your machine.
12. You should now receive a message that your authorization has been successful and may click Finish to begin using Trash 2.

iLok Support

Trash 2 does support iLok. Our plug-ins will be able to detect iLok keys and assets if you already use iLok and PACE software on your system. If you don't already have PACE or iLok, we will not install any PACE or iLok software to your system, and iLok authorizations will be unavailable.

Authorizing Trash 2 with iLok

1. When first prompted to authorize Trash 2, click on 'Authorize'
2. Next, enter the serial number emailed to you. It should look like like this:

SN-TRASH2-XXXX-XXXX-XXXX-XXXX

3. You must also enter your name and a valid e-mail address.
Make note of the e-mail address you use to authorize your license. Your license and iZotope account will be linked directly to this e-mail address.
4. Select 'Use iLok Authorization' and enter your iLok ID.
5. When you have confirmed that all your information is accurate, click once more on 'Authorize'.
6. Lastly, click on 'Submit' in order to send your authorization message to the iZotope servers
7. You will now be instructed to log in to your iLok account and transfer your Trash 2 license to your iLok.
8. When you have completed this step and have your iLok connected to the computer on which you want to use Trash 2, click 'Next'.
9. You should now receive a message that your authorization has been successful and may click Finish to begin using Trash 2.

Web Help

Should you encounter any problems during authorization please consult our online portal with additional information: <https://www.izotope.com/support/portal/authorization.asp>

Contact Support

Should you not be able to resolve your authorization issue please contact the customer at support@izotope.com. iZotope's highly trained support team is committed to responding to all requests within one (1) business day and frequently respond faster.

Getting Started

Using Presets in Trash 2

Trash's presets are designed to give you a quick starting point for your own projects.



Every track is different, so no single preset will always work for your audio. Knowing this, we have provided a wide range of presets that will help you determine a good starting point for your own material.

By starting with a preset and adjusting the available controls, you'll be able to customize Trash

2 to more closely fit the needs of your session.

Presets can take you a long way, but learning how each of Trash's modules works is the key to getting the best results.

Setting Your Input Level

Setting the input level in Trash can make a huge difference in how the Trash and Dynamics modules behave. Setting your input level is important when selecting presets as the sound will change drastically if your input level is too loud or quiet. As a starting point try setting Trash's input level so that the input meter is peaking in the yellow area of the meter. It is OK if the input meter occasionally goes into the red when Trash's Limiter is enabled, it will keep the audio from clipping.

Choosing a Starting Point

Start by listening through several of Trash's presets. We've organized presets into categories that will let you search easily for presets for any sound. When you've found one that sounds like it has what your track needs, you can start tweaking to your liking.

Modules

Trash consists of six modules that each perform a specific function in the signal chain.



Filter 1: Tone shaping and envelope filter effects

Trash: Distortion and control of distorted signal.

Filter 2: Further tone shaping and envelope filter effects.

Convolve: Modeling of cabinets, speakers and devices.

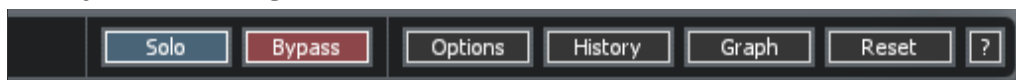
Dynamics: Analog compression and gating control.

Delay: Time-based effects.

By default the order of processing is the top-down order listed above.

Standard Module Controls

At the bottom of each of the module's touchscreen is a navigation bar that includes a set of buttons and controls. The function of these controls is the same regardless of which module you are using.



Reset

Resets the control to its default value. For most modules, this means setting the values of controls in the displayed module to zero or their default states.

History

Clicking on the History button brings up a window that shows a history of the operations that have been performed so far. You can undo a single operation or sequence of operations and assign setups to keyboard shortcuts for A/B/C/D listening comparisons.

Solo

Clicking the Solo button turns off (bypasses) all the modules except the one currently displayed. This allows you to audition the effect of one module without hearing the effect of the others. If you change screens by selecting a different module, the solo will be automatically turned off so that you can work immediately on the new screen and hear the effect (without worrying about whether a screen that isn't displayed is being soloed).

Bypass

Clicking the Bypass button turns off the processing within the currently displayed module. This allows you to compare the sound with or without the processing of the currently displayed module. Unlike the Solo button, if you change screens by selecting a different module the bypass will still apply. This allows you to bypass more than one module.

Note: *You can also bypass modules by clicking the power button on the Trash faceplate as shown below. You can solo a module by holding down the Alt key and clicking the power button for the module you wish to solo.*

Graph

The Graph button reveals the order in which Trash processes audio through the main modules. Here is the default order of signal processing through Trash's modules:

Filter 1 • Trash • Filter 2 • Convolve • Dynamics • Delay

Clicking on the Graph button also allows you to change the order of processing, and insert the spectrum at any point in the signal path. By default, the spectrum is based on the final output signal (the readout is the signal after all processing).

Trash's Input/Output Gain stages are fixed by design.

Options

Opens the Options screen, which lets you customize the behavior of meters and set other properties.

(?)

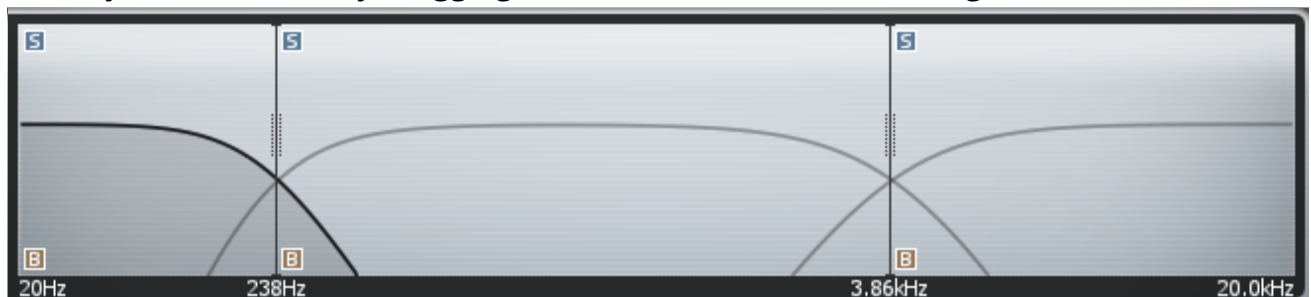
Opens the Help file to the specific page or topic that relates to the module you are currently in.

Slider Compare Feature

You can Shift+Click on any slider in Trash to quickly A/B the changes that have been made to that slider. This works for all sliders on the touchscreen.

Using Multi-band Modules

The Trash and Dynamics modules in Trash 2 can each be configured as multi-band, allowing you up to four bands of processing each. The ranges (or cutoffs) of these four bands are shown at the top of the multi-band modules with up to two vertical lines. You can adjust the cutoffs by dragging the cutoff lines to the left or right with the mouse.



Bypass a Band

You can bypass the processing for a specific band (or bands) by clicking on the box labeled "B" in the lower left corner of the band. This allows you to hear the audio within that band, but without any processing.

Solo a Band

You can Solo a band by clicking on the box labeled "S" in the upper left corner of the band in the Crossover View. This allows you to adjust multi-band processing by hearing only the audio within the selected band.

Change the Number of Bands

You can choose to split the audio into one, two, three, or four bands. Less CPU is required when working with fewer bands. To add or remove bands, right-click (you can also control-click in OS X) on the mini-spectrum and select "Insert Band" or "Remove Band".

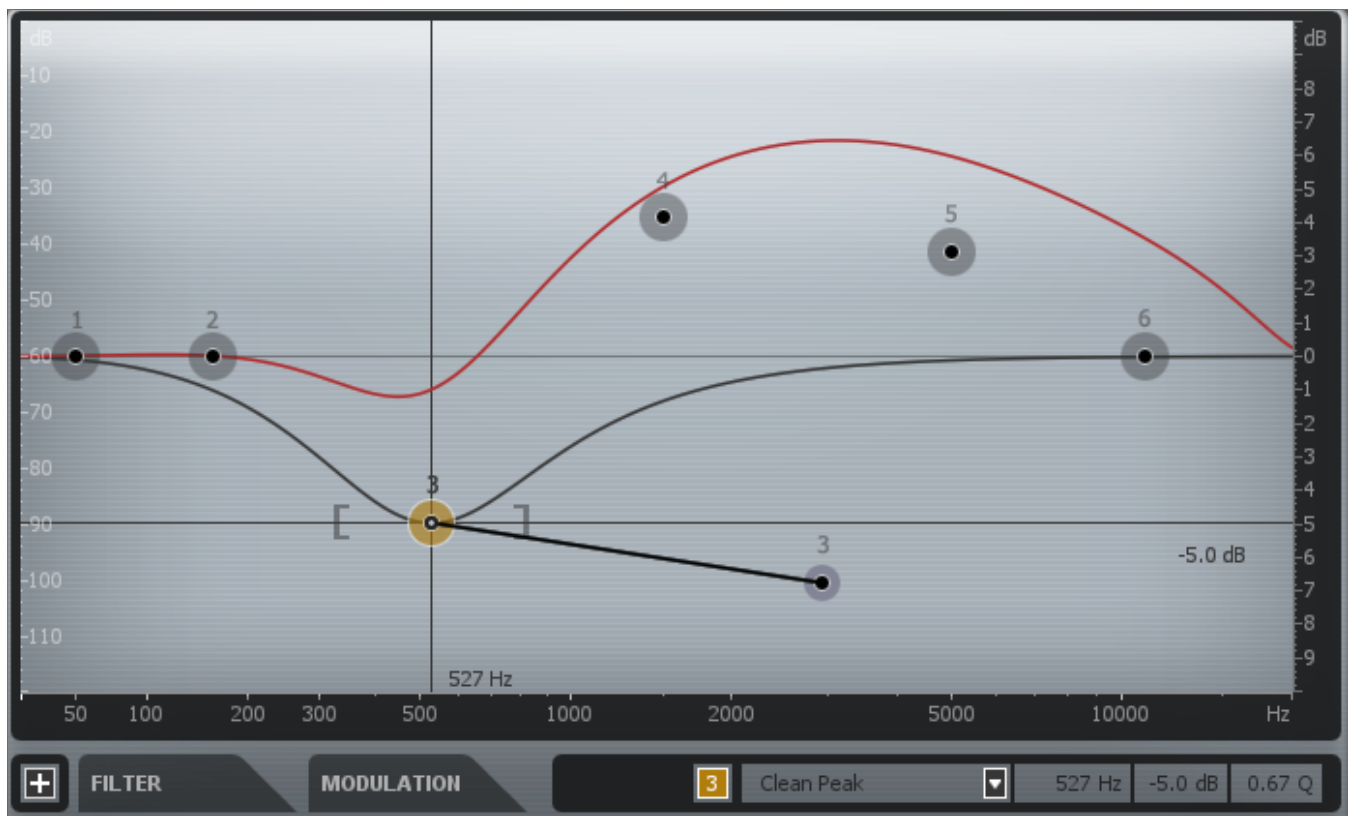
***Note:** You may also adjust the number of crossover bands within each Options page.*

Copy and Paste Settings Across Bands

Using the same right-click menu, you can copy settings from one band and apply them (paste them) to another band. This is helpful, for example, for duplicating settings across bands in the multi-band dynamics module or copying your single band settings and pasting them across all bands within a modules multi-band mode.

Filter 1 and 2

The Filter 1 and 2 modules can be used for shaping the tone of the audio, as well as adding LFO (low frequency oscillator) and envelope controlled filter effects.



The Filter module provides six bands or filters as indicated by the six circle nodes on the spectrum. You can independently select and set each of these six filters, apply LFO or envelope effects, or change the type of each filter.

Frequency and Gain

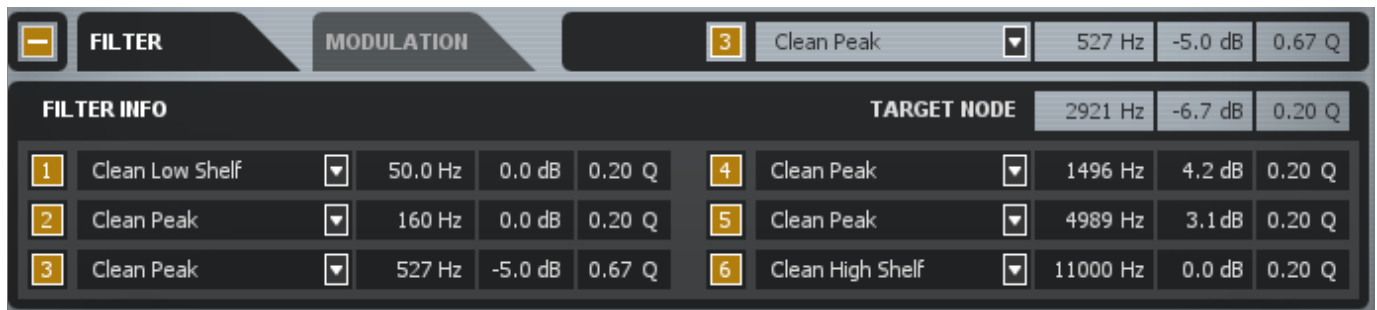
The numbered circles mark each of the six Filter nodes. You can adjust a Filter band by clicking on a node and dragging the crosshairs to change the frequency and gain of the band.

Q/Bandwidth

If you move the mouse over the "handles" on the side of the band, you can adjust the Q (bandwidth) or resonance of the Filter by dragging with the mouse and widening the band. If you have a mouse with a scroll wheel, you can use the scroll wheel to widen/narrow a selected band.

Selecting Filter Types

Trash provides the ability to set the type or shape of any of the six nodes. Each filter type may contain options for a low shelf, low-pass, peak, high shelf or high-pass filter.



FILTER INFO						TARGET NODE					
1	Clean Low Shelf	▼	50.0 Hz	0.0 dB	0.20 Q	4	Clean Peak	▼	1496 Hz	4.2 dB	0.20 Q
2	Clean Peak	▼	160 Hz	0.0 dB	0.20 Q	5	Clean Peak	▼	4989 Hz	3.1 dB	0.20 Q
3	Clean Peak	▼	527 Hz	-5.0 dB	0.67 Q	6	Clean High Shelf	▼	11000 Hz	0.0 dB	0.20 Q

A number of filter styles are available:

Note: *Certain filter types contain internal frequency cutoff limits as part of their sound.*

Clean – Analog modeled for smooth, uncolored filtering.

Rez – On the cleaner side of dirty with high resonance for exaggerated effects.

Retro – Old school filter design for a smooth but colored sound.

Saturated – Extra distorted for a dirtier, harmonically rich sound.

Screaming – Very sharp resonance for aggressive peaks and overdrive.

Synth – Classic analog synth and hardware filters for a rich and highly colored sound.

Vowel – Modeled on multiple formant vocal filters with varied shapes and vowel types based on its frequency.

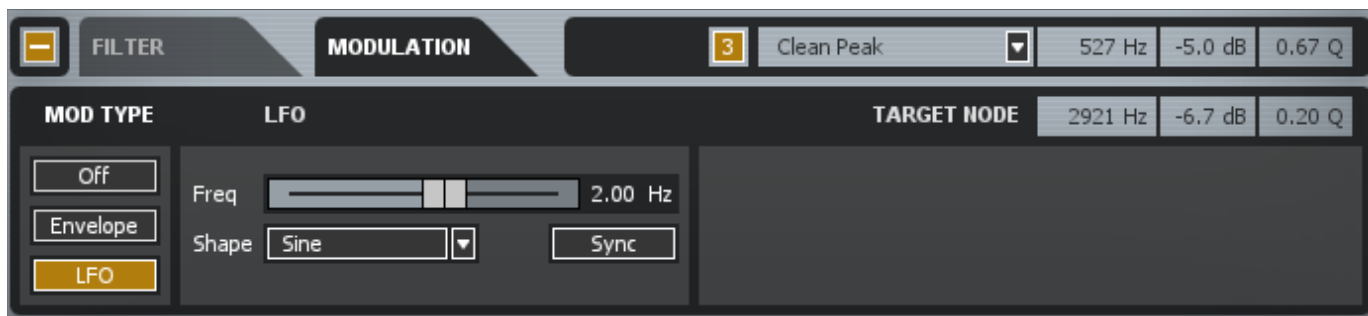
To change the shape select a node and click on the drop down menu in the bottom right or simply right-click the node. To work in the expanded info view, click on the "+" button.

From this table, you can specify a different filter shape for each node, as well as configure each node to be modulated by an LFO or Envelope.

You can also use the dialog boxes to enter values for the filter nodes directly. You can also disable bands with this table by clicking on the square number box to the left of a band in the table.

Modulation

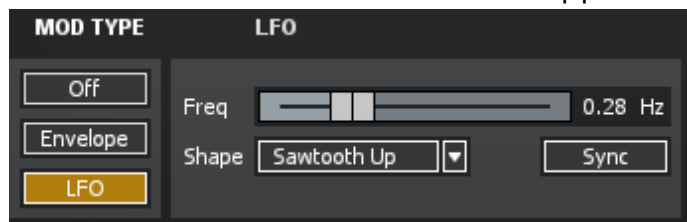
The Filter modules can provide "sweeping" filter effects as well. The sweeps can be controlled by an LFO (low frequency oscillator) so that the sweep is based on a periodic or host synced tempo.



Filters can also be controlled by the level of the incoming audio or sidechain audio, so that the sweep is triggered by higher levels in the audio.

LFO

To create a sweeping LFO filter, select a filter and under the Modulation tab, click the LFO button. Additional LFO controls appear as shown below:



You can set the frequency of the sweep with the Freq control. Clicking on the waveform drop-down and selecting the desired waveform sets the shape.

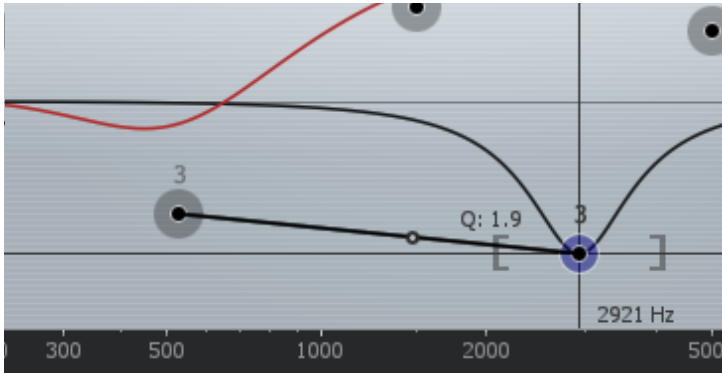
Host Sync

You can turn Sync on to lock the LFO's rate to your host session's bpm. The rate slider will then be displayed and set in musical subdivisions of the host's tempo.

Target

Finally, you'll want to set the target destination for the sweep. A filter can sweep in frequency, gain, Q and/or resonance. For example, you might have a filter that sweeps

up and down in frequency, or one that sweeps to become wider and then becomes more narrow.



To set a target destination, first select a filter and set it to either LFO or Envelope modulation. An additional filter node will appear on the spectrum. That is your target filter. You can position the target filter in any location with any resonance or bandwidth, and your filter will sweep to that point. A line connects any node with its target node, and a small dot on that line shows the current position of the modulation during playback.

Envelope

Instead of sweeping to a timed LFO, you can sweep filters based on the level of incoming audio.



To setup an envelope sweep on a filter, select a filter and click the Envelope button under the Modulation tab.

Threshold

Sets the level at which the sweep will be triggered. A lower threshold will result in the sweep being triggered more often, as the level of the incoming audio will cross the threshold more often.

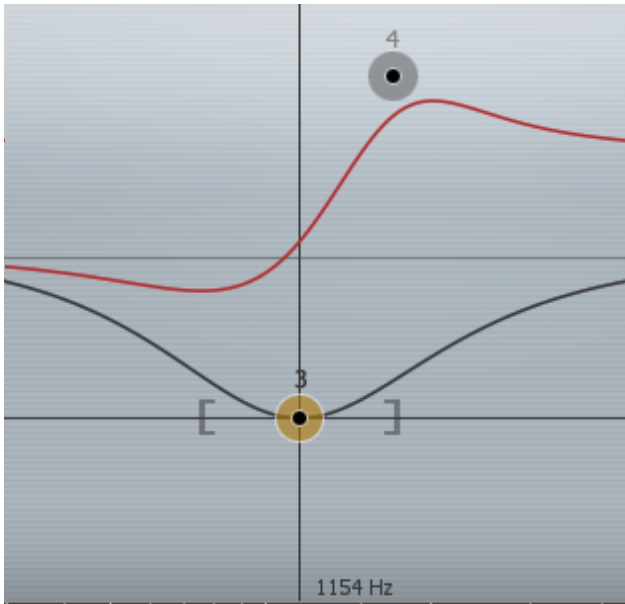
The threshold slider serves a dual purpose as a meter and a control, allowing you to see the level of the incoming audio as you adjust the threshold point.

The threshold level is based on an RMS or averaging of the audio for a more natural and consistent effect.

Attack and Release

The attack sets the time that it takes the filter to sweep to its destination after the threshold is exceeded, while the release sets the time it takes for the filter to return to its original position after the level drops back down below the threshold.

Visual Feedback



As you adjust a band you will see two filter curves. The bright curve is the composite of all filter bands while the darker curve shows the filter curve of only the currently selected node.

A spectrum by default is overlaid on the filter modules for visual feedback of the incoming audio. You can turn off the spectrum to conserve CPU or if you just don't want to see it using the Options screen. You can also set options such as average or real time spectrum, show peak spectrum, etc. These are available in the Spectrum Options screen.

On the right you'll see the gain scale for the Filters. On the left you'll see the scale for the spectrum. On the bottom you'll see the frequency scale, which applies to both the Filters and the spectrum.

The Alt-Solo Feature

If you hold down the Alt key and click on the spectrum, you have an "audio magnifying glass" that lets you hear only the frequencies that are under the mouse cursor, without affecting your actual filter settings. Releasing the mouse button returns the sound to the actual filter.

You can set the default bandwidth of this filter in the Options screen under "Alt-Solo Filter Q" or simply use your mouse's scroll wheel. Once you've pinpointed a particular frequency using the Alt-Solo feature, double-click that area to activate a new node in that exact location.

Trash

The heart of Trash 2 is the Trash module. This is where the magic happens.



Distortion Types

The Trash module provides many different distortion types organized into categories based on their sound and timbre.



Click through any category to see the provided algorithms and single click on an algorithm to activate it. You can use the Back arrow in the upper left to experiment with a different category.

The chosen algorithm will be represented in the waveshape curve display as the Base curve, and the Result curve will show the shape that results from applying the algorithm and the curve drawn by the user.

Note: Certain distortion types do not have a visual representation but will still have effect.

You can also simply select <None> from the category list to start from scratch and build your own algorithm using the Waveshaper.

IMPORTANT NOTE: The output Limiter is there to help! Depending on your input signal and gain controls, selecting different distortion algorithms can result in very different output levels. Please turn down the output gain initially when selecting different algorithms.



Pre

An input gain control. Use this to normalize your input levels, compensating for any previous module's level changes.

Drive

For most distortion algorithms, this controls the amount of drive or distortion.

Style

Some distortion algorithms provide an additional "Style" control. Increasing the Style slider for these algorithms will generally trash the sound more and provide an alternate variety of interaction with the chosen algorithm.

Gain

Controls the gain after distortion. For most distortion algorithms, you'll want to turn down the output gain as you turn up the overdrive.

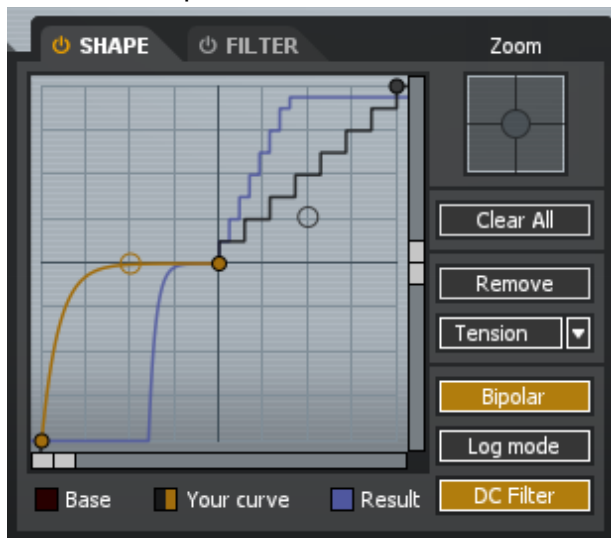
Mix

This controls the mix between the processed distorted signal (100%) and original unprocessed signal (0%)

Waveshaper

What is a waveshaper?

A waveshaper, while seemingly complex, does just what its name implies: it shapes the waveform. It does this by mapping an input signal to a new output signal based on the current 'shape' that is shown in the curve.

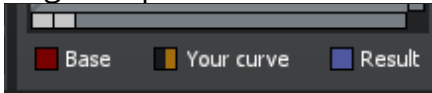


As the shape is applied to your incoming waveform, complex harmonics are created in your signal. These harmonics can come in many different varieties but result in what we call 'distortion.'

Trash goes beyond a simple list of distortion types to choose from and instead allows

you to see the curves of what distortion type you've selected, and also to edit and tweak that distortion algorithm directly with more than just a slider.

The top half of the waveshaper corresponds to effect on the positive portion of the incoming waveform, while the bottom half corresponds to the effect applied to the negative portion of the incoming waveform.



Base / Your curve / Results

Click each of these buttons in order to show or hide the corresponding curve.

Base - Displays the currently selected distortion type. (Hidden by default)

Your Curve - Displays your drawn waveshape.

Results - Displays the result of applying your selected Base curve and your drawn waveshape.

Interaction

Double-click to add points to the waveshaper. Click and drag on any point or tension point to adjust and draw in your shape.



Curve Type

Each individual line in between any two points can be a certain shape.

Click the drop-down menu or right click on the desired line to select a different shape for a different sound.

Zoom

There are four quadrants in the waveshaper. By default you will be fully zoomed out. Click on any individual square to zoom in on that quadrant for greater accuracy in adjusting your waveshape.

Clear All

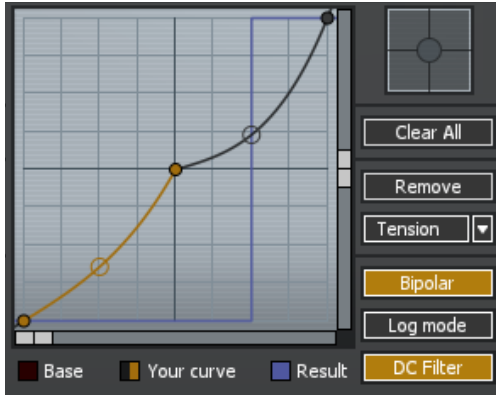
Removes all points and sets the curve back to its neutral default state.

Remove

Deletes the currently selected portion of the waveshape.

Bipolar

Allows you to edit the effect on both the positive and negative sides of the incoming waveform.



By default, the effect of the current waveshape is mirrored on both the Positive and Negative sides of the waveform.

Log Mode

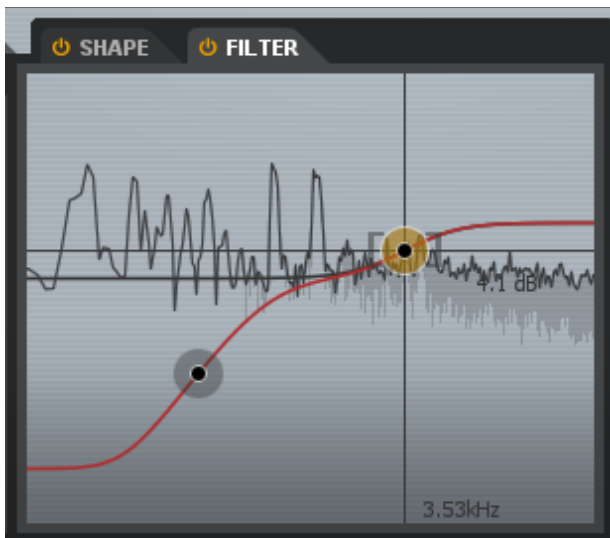
Applies the current waveshape to a logarithmic scale as opposed to the default linear scale.

This alters how the current shape is applied to your incoming signal and therefore the sonic effect the current waveshape has. In general, Log Mode can provide smoother and less harsh results.

DC Filter

Filters out any DC offset bias that can easily be created with bipolar waveshapes.

Filter



Each distortion type, distortion stage, or distortion band contains its own post-filter tab designed to help control the extra harmonics that are generated by distorting the signal.

Enable the Filter with the small power light on the tab and adjust the included shelf filters to taste.

Each filter is independent and therefore can be used per band or distortion stage.

Dual Stage Distortion

In many "real life" situations, distortion is a combination of two or more effects. For example, a distortion stomp box might be driving the distortion in the preamp of a amplifier. Adding two stages of distortion is effective for creating complex yet natural sounding distortion, as the "dual stages" interact to drive each other and create complex harmonics.

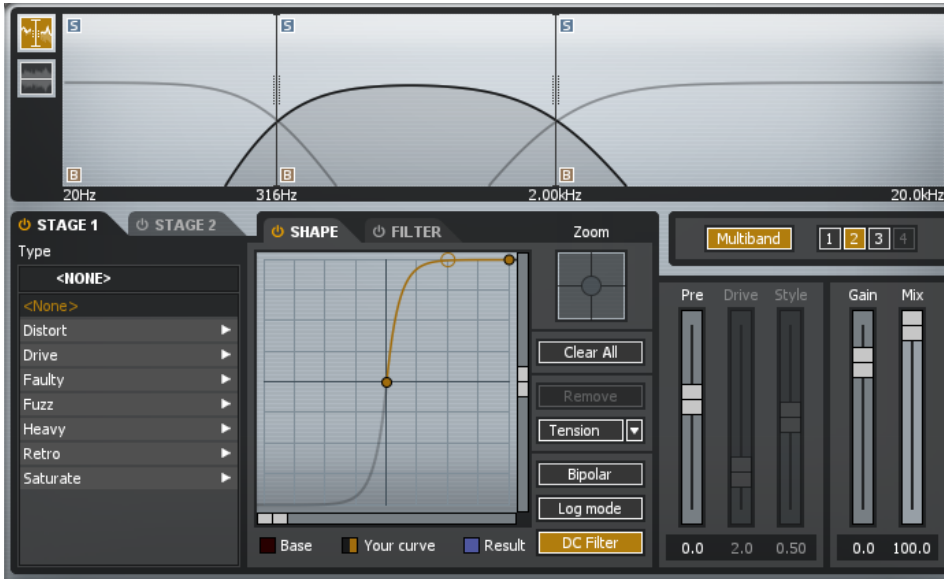


Trash allows you to chain two distortions together with the "First" and "Second" tabs. You have identical controls for each tab, with the output from the First tab providing the input to the Second tab. This allows you to place a Fuzz effect before an amplifier distortion algorithm, for example.

Note: the output gain of the First stage becomes the input gain of the Second stage. Since many distortion algorithms are gain dependent, you can often get more or less distortion in the Second stage by adjusting the output gain of the First stage.

Multiband Operation

You can apply multiband distortion in the Trash module by clicking on the multiband button in the upper right corner of the module. This allows you, for example, to apply Fuzz distortion on a lower band while using overdrive on a higher band, or simply alter the amount of distortion applied to different bands or ranges of frequencies.



In multiband mode, each band has its own controls for setting the level of distortion in that band. There are by default three bands, as shown by the sections in the multiband spectrum at the top.

To select a band, click on its corresponding section in the multiband spectrum. The Trash controls will be updated to display the currently selected band.

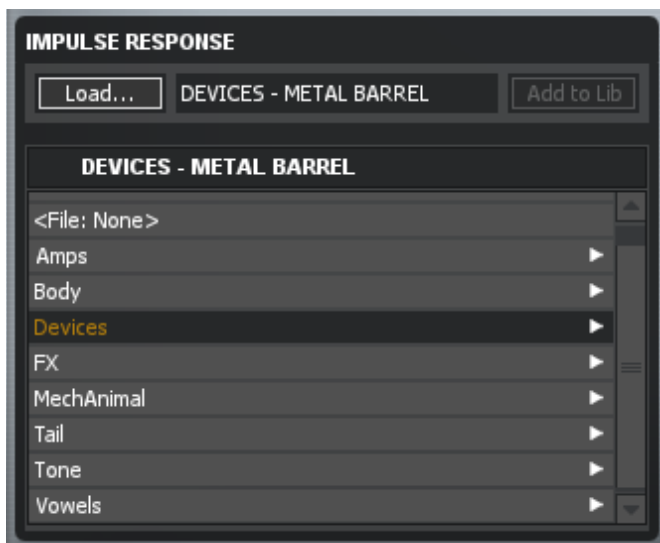
Convolve

The Convolve module provides convolution modeling of cabinets, speakers, vowels and other devices and timbres. It also provides natural post filtering of distortion, as well as modeling transient and dynamic characteristics of the impulse response that is currently loaded.



Impulse Responses

The Convolve module comes with a wide range of impulse responses to choose from, separated into helpful categories. Click on a category to explore the impulse responses and single click on any impulse response to load it.

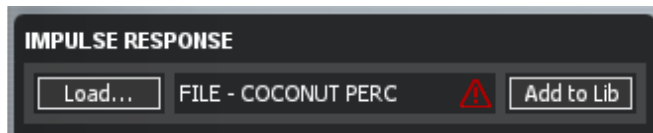


Load...

You can use your own custom impulse response by hitting the Load button and navigating to the file you wish to load. Trash will load and read the file from its current position and use it to convolve any incoming audio signal in your host.

Note: Only .wav and .aiff audio files can be used.

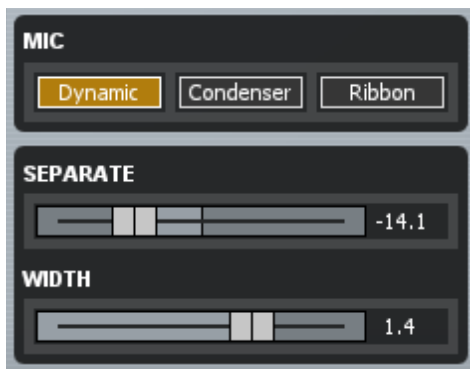
To preserve performance, Trash 2 will automatically trim and use the first portion of the loaded audio file, regardless of the length of that file.



The length is 44,100 samples by default, and can be set in the Options panel. A small hazard icon will appear if any file has been loaded and trimming has occurred.

Add to Lib

Automatically copies and adds the currently loaded Impulse Response to your Impulses Library list within Trash 2. An 'Imported' category will automatically be created in the list.



Microphone Type

With Trash's built-in impulse responses, you can select the type of microphone used to capture the output of the impulse response. In most cases, a dynamic microphone will be suitable, but you can experiment with a condenser mic for a broader high frequency response, or a ribbon microphone for a warmer response.

Separate

Stereo tracks are processed through the Convolve module in stereo. The separate control can create an offset in distance which creates a delay between the two channels. This in turn causes a stereo effect with stronger emphasis either on the left or right channel, depending on where the control is set.

Width

Controls the overall stereo balance of the Convolve module's output between Mono, Stereo, and 2 x Stereo. The Width control only has effect therefore on stereo audio.

Gain

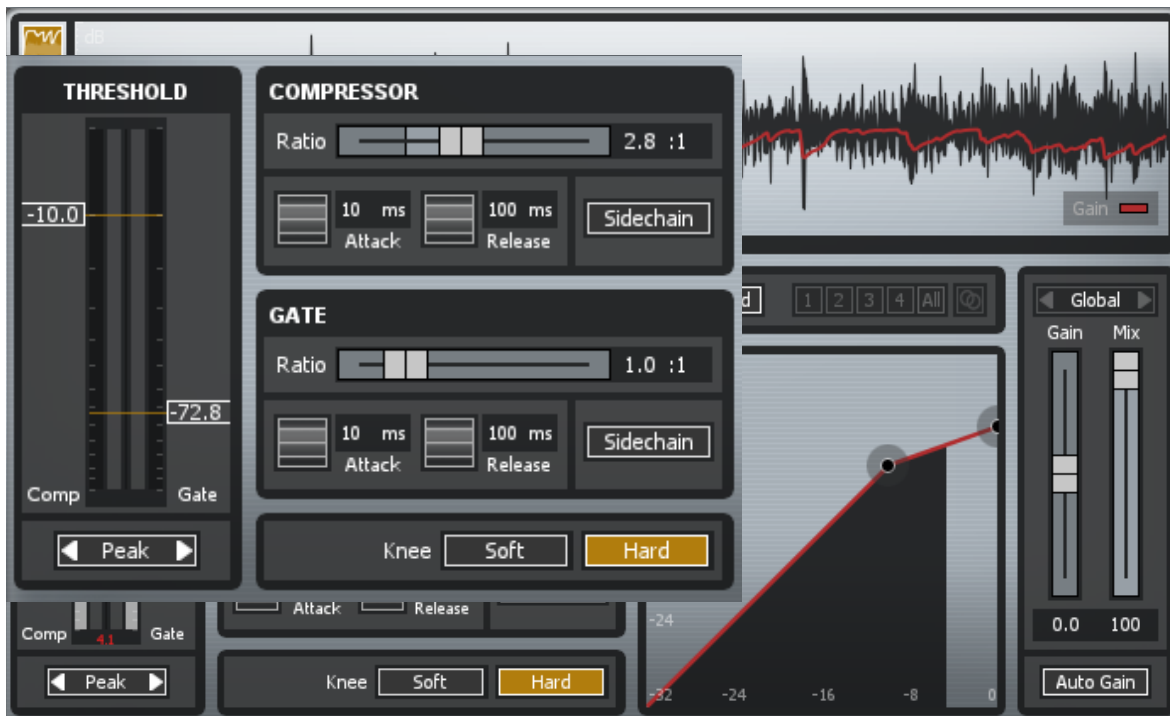
Controls the output gain of the Convolve module.

Mix

This control sets the balance between the convolved signal (100%) and the unprocessed signal (0%).

Dynamics

One of the more powerful modules in Trash 2 is Dynamics. You can use this module to shape the dynamics of your mix with up to four bands of analog modeled compression and gating.



Threshold

Set the point where the dynamics processing takes place. Both the Compressor and Gate have a threshold.

Ratio

Sets the ratio for the Compressor. Higher ratios will result in more extreme compression or gating. The Gate and Compressor can have a ratio greater than or less than 1.0. When the ratio is greater than 1, it is operating as a gate and any signals below the threshold will be decreased in volume. With a high positive ratio it can act as an effective multi-band noise gate, as shown below. With a ratio of less than one, upward compression is performed. This is discussed further below.

Attack and Release

Adjusts how quickly the dynamics processor reacts to the threshold. Attack determines how quickly the dynamic processor reacts when the threshold is reached. Release determines the amount of time before the dynamics processor returns the level to normal once the signal no longer reaches threshold.

Note: Each section (Compressor and Gate) of each band can have its own Attack and Release settings.



Band/Global

This toggles the Gain and Mix settings between "Global" mode and "Band" mode. Global mode affects the entire frequency range of your mix while band mode will only affect the frequency range of the currently selected band. Band mode is only available when the Dynamics module is processing in multi-band mode.

Mix

This is a wet/dry mix for the Dynamics module output. This is available for individual bands and/or globally for the entire frequency spectrum.

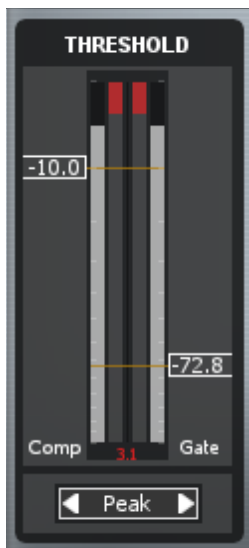
Gain

Adjusts the output gain of either the band or the entire module. This is useful, for example, after compressing or limiting a band to makeup the decrease in volume.

Visuals

The Threshold Control

The Threshold Control is a meter that allows you to adjust the thresholds of the Compressor and Gate with sliders on the left and right side. Additionally, the Threshold control allows you to monitor how the incoming signal is being affected in real time.



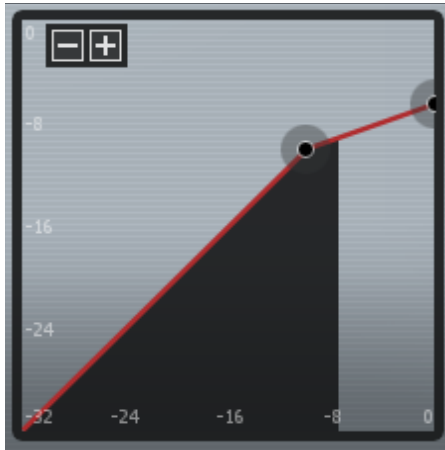
The Threshold Control can display gain reduction as it is taking place with level meters. To enable the gain reduction meters, right- (or control-) click on the Threshold Control's meter window and select Dynamics options. From the Dynamics options page select Gain Reduction from the Threshold Meter drop-down menu. Two meters display the levels of the incoming signal and as gain reduction begins to take place, a gain reduction meter appears in red between the two level bars. The Threshold meter also displays the amount of gain reduction in real-time with a dB readout at the bottom.

The Threshold Control can also display a histogram, a history of level over time. To enable the histogram, right- (or control-) click on the threshold control's meter window and select Dynamics options. From the Dynamics options page select Histogram from the Threshold Meter drop-down menu. This allows you visualize the overall "level content" of the audio by providing a running display of the history of levels in the audio.

The button at the bottom of the Threshold Control allows you to adjust level detection mode which is explained below.

Dynamic Curve Meter

The Dynamic Curve Meter shows the input signal (x axis) plotted against the output (processed) signal (y axis). More horizontal compression curves means the signal is being flattened (compressed) more. You can zoom in and out on the meter by clicking buttons in the top left.



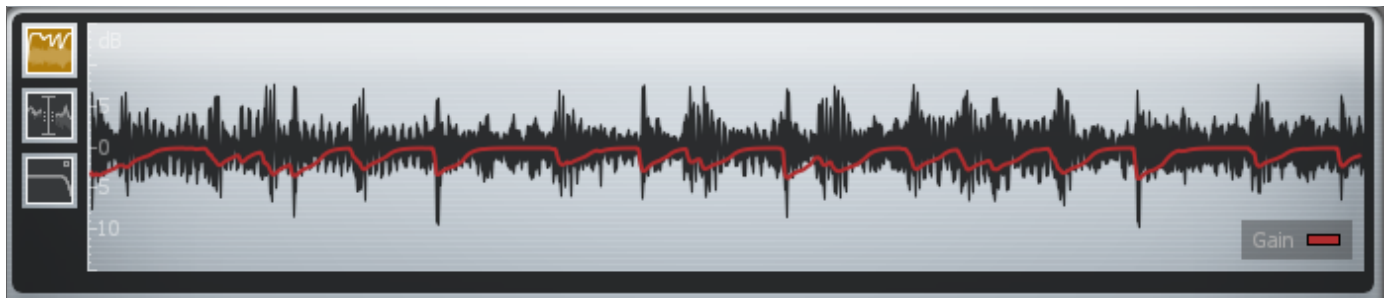
Nodes

The meter features individual nodes for the Compressor and Gate as well as nodes surrounding these that represent input and output. These nodes are linked to the Threshold and Ratio controls, and can be used to adjust the curve in a visual way, rather than setting them with the standard controls.

Additional Metering and Controls

Gain Trace

A scrolling meter that displays the incoming signal's waveform with a superimposed curve that illustrates the amount of gain reduction or addition taking place in real-time. To view the gain trace, click on the first mini-spectrum view button in the top left of the window.



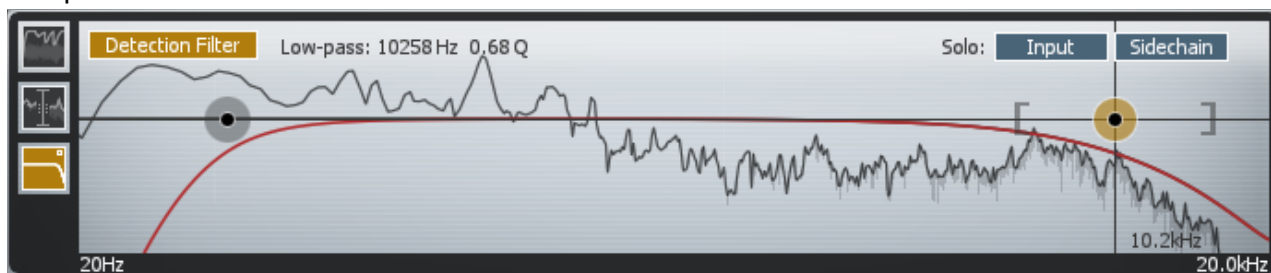
When using multi-band processing, the currently selected band's gain reduction is drawn imposed on a waveform of only that band's signal. The Gain Trace can help you to set attack and release controls appropriately and monitor the envelope of gain

reduction and addition.

Note: You can adjust the scale on the left by hovering over it and using your mouse wheel. You may also click on the "Gain" legend indicator in the bottom right to toggle on and off the drawing of gain reduction and addition.

Detection Filter

Trash 2's Dynamics module features an optional Detection Filter with both resonant high- and low-pass filters. These filters allow you to adjust what Trash 2's Dynamics detection circuits are responding to. This can mean that the dynamics process isn't triggered by certain frequencies or that the process may be weighted heavier on certain frequencies.



To enable the Detection Filter, select the third mini-spectrum view button in the top left of the window. Then, click the Detection Filter button that appears in the top left.

Once enabled two nodes will appear which function much like the nodes in the EQ module. They may be dragged to adjust frequency and feature handles which allow you to adjust the Q. Alternatively, you may enter precise values for each by clicking on the node and entering values in the readouts at the top of the window.

Multi-band Mode

Clicking the multi-band button allows the Dynamics module to perform multi-band processing. Each band has its own controls for controlling the dynamics. There can be up to four bands, as shown by the sections in the crossover view at the top of the

The screenshot displays the iZotope Neutron 2 software interface, specifically the multi-band compressor section. The top part of the interface shows a frequency spectrum from 20Hz to 20.0kHz, with four vertical lines indicating the boundaries of the four frequency bands. Below the spectrum, the 'Multi-band' button is highlighted in orange. The bottom section of the interface is divided into four columns, each representing a frequency band (BAND 1, BAND 2, BAND 3, and BAND 4). Each band has its own compressor and gate/expander settings. The gain for each band is displayed on the left side of the band's controls: BAND 1 is -7.5, BAND 2 is -3.2, BAND 3 is -10.0, and BAND 4 is -10.0. The compressor settings for all bands are 1.00 : 1 ratio, 10 ms attack, and 100 ms release. The gate/expander settings are also 1.00 : 1 ratio, 10 ms attack, and 100 ms release. The sidechain is set to 'Sidechain' for all bands. The bottom of the interface shows the overall gain and mix settings, with 0.0 dB gain and 100.0 % mix.

Each band of dynamics is capable of two types of dynamics processing: gating and compression. This allows you, for example, to aggressively compress high level signals while applying a more gentle gate to the level of soft signals.

Trash 2 allows you to view and adjust the dynamics settings for all bands in one easy to use window. Clicking the "All" button next to the individual band selection buttons

reveals all the most relevant Dynamics controls for all currently enabled bands in one screen.

Linked Bands Mode

Selecting Linked Bands Mode allows you make changes across all bands by adjusting the settings of one band. To enable Linked Bands mode, click on the Linked icon to the right of the Band Selection buttons.

Attack Characteristics

Trash's compressor reacts to the threshold quicker initially while approaching the threshold level, then begins to ease in on an indefinite curve. This can give Trash's compressor a punchier sound.

Release Characteristics

Trash's compressor returns the level to normal once the input signal no longer reaches the threshold using an eased-in and eased-out slope. This can give Trash's compressor a smoother sound.

Hard Knee

As the signal passes the threshold, the compression ratio is immediately imposed upon the signal, effectively eliminating all bend in the knee. This transition can therefore become more noticeable, however also provide for quicker, more firm compression depending on the desired effect.

Soft Knee

As the signal passes the threshold, the ratio will gradually increase until it reaches the value specified in the Ratio parameter. This therefore provides a gradual bend from the unprocessed signal to the specified ratio value, making this transition less noticeable and giving more transparent results.

Level Detection

Below the Threshold Meter is a selection box which determines what levels the dynamics module's detection circuit looks at:

Peak

When this option is enabled Trash acts as a peak compressor/limiter/expander. This means the detection circuit looks at peak levels of the incoming signal. In general this is useful when you're trying to even out sudden peaks in your music.

RMS

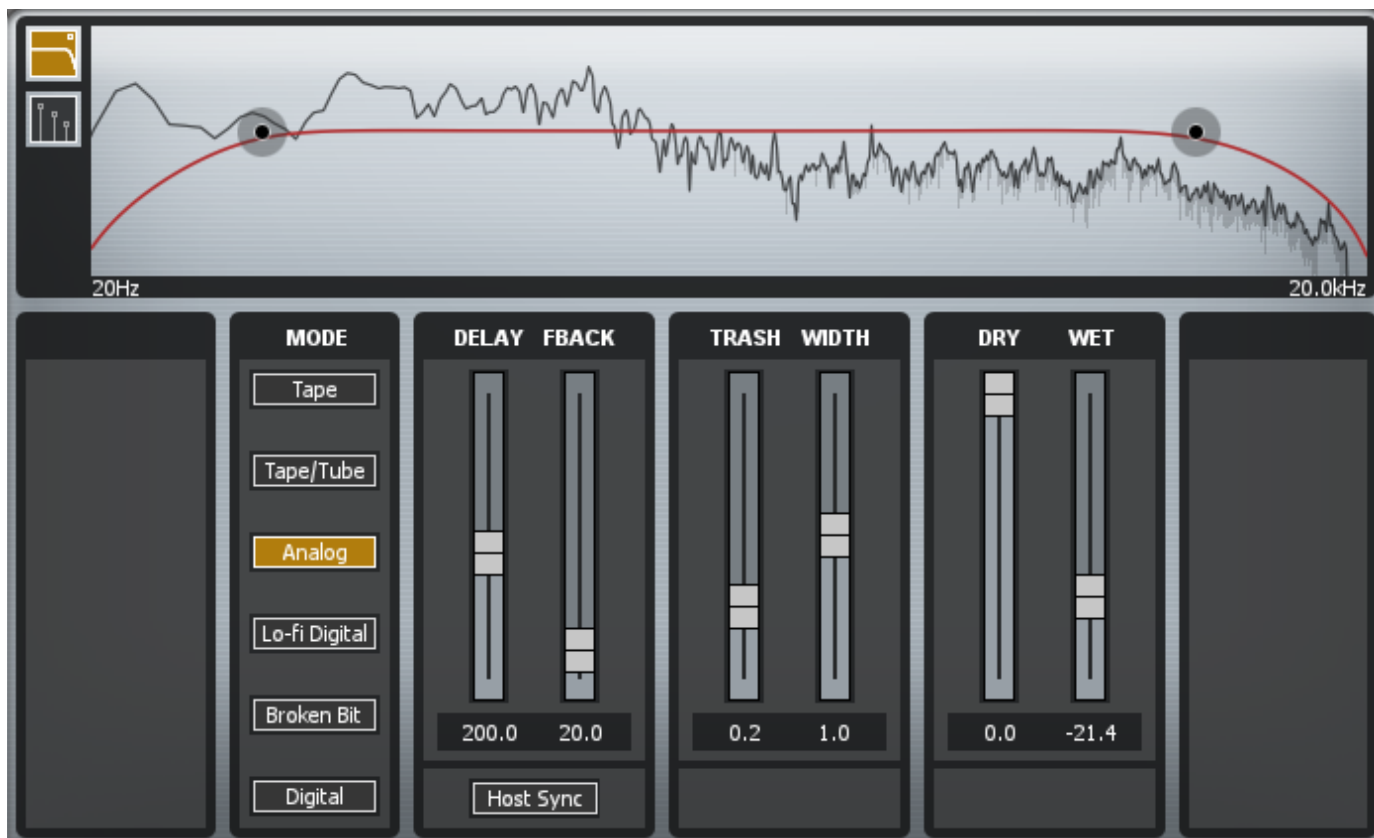
When this option is enabled, Trash looks at the average level of the incoming signal. RMS detection is useful when you're trying to increase the overall volume level without changing the character of the sound.

Upward Compression

Trash's dynamics module now allows for ratios of less than 1:1 in both of the dynamics stages. At the gate and compressor stage a ratio of less than 1:1 performs upward compression. This raises the levels of anything that falls below the threshold. Upward compression can gently raise levels instead of pushing down peak.

Delay

Trash provides a delay module with tape, tape/tube, analog, digital and lo-fi digital delays.



The upper portion of the module sets the delay parameters, while the lower portion provides an EQ for specifically shaping the response of the delayed portion of the signal. This filter module only affects the delayed portion not the dry signal.

Mode

You can choose between many different types of delay.

Tape – A straight tape delay effect with saturation and wow/flutter.

Tape/Tube – A tape delay effect with additional tube saturation properties.

Analog – A lo-fi analog delay effect with smearing and analog degradation.

Lo-Fi Digital – A lo-fi digital delay effect, similar to the first digital delay stomp boxes.

Broken Bit – A digital delay effect with infinite feedback on the lowest bit, similar to a faulty "stuck bit" delay.

Digital – For completeness, a pure, clean digital delay.

Delay

Sets the delay time in milliseconds by default.

Feedback

Sets the gain of the delay feedback. Higher values will result in longer audible feedback times, i.e. more repeats.

Trash

Sets the amount of degradation for the delay. For example, higher Trash values for tape delays results in more saturation. Higher Trash values for lo-fi digital delays results in more bit truncation and aliasing.

Width: For stereo tracks. Sets the stereo spread of the signal, from mono (0) to extra wide (2).

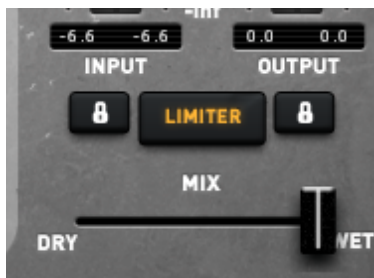
Dry

Sets the output gain of the unprocessed signal.

Wet

Sets the output gain of the processed signal.

Limiter



Trash's output Limiter allows you the peace of mind to tweak and distort to your heart's content without having to worry about blowing up your speakers. Multiple behavior options in the Options menu allow you to tweak and alter the timbre and performance of the Limiter.

Quiet: A transparent limiting with neutral character and slower release times.

Loud: More aggressive limiting while still keeping transparent as possible and medium release times.

Clipping: Aggressive limiting with very short release times.

Zero Latency

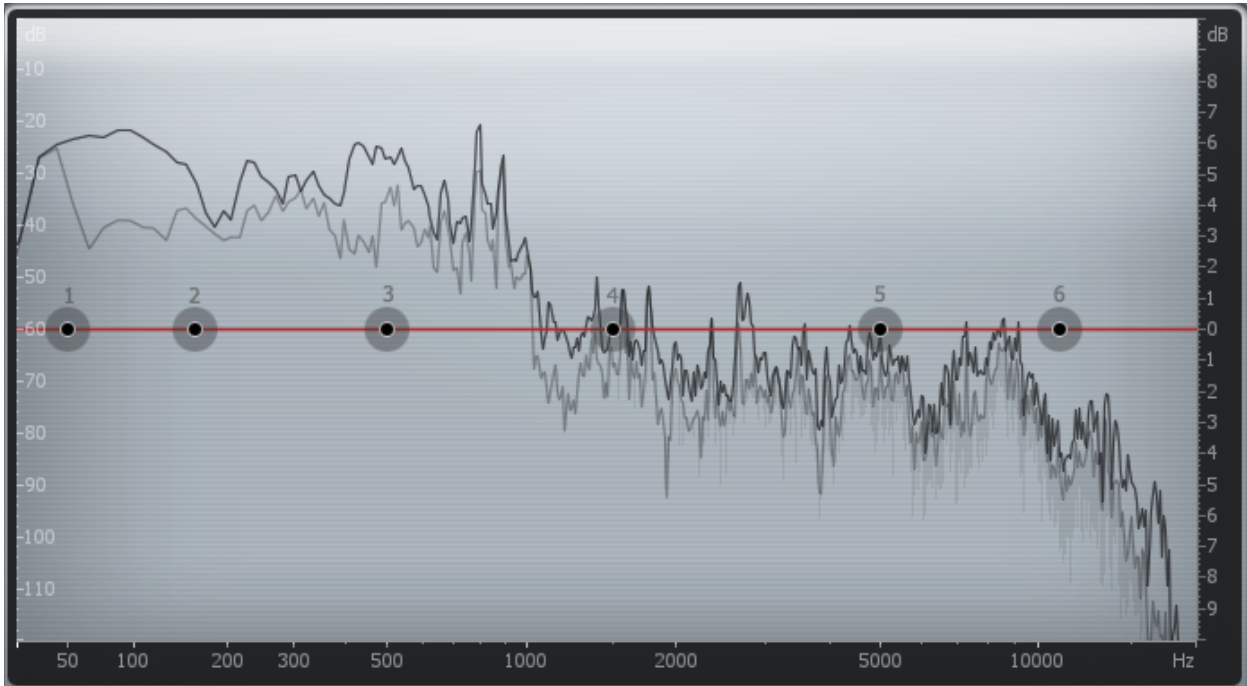
Zero Latency mode may be enabled by the Zero Latency checkbox in the Options window. When Zero Latency mode is active, look-ahead processing in Trash's Limiter will be turned off allowing the plug-in to be used in situations where latency is undesirable, such as tracking or performing.

With Zero Latency mode inactive, Trash will impose a small delay to account for look-ahead processing, allowing the modules to react to incoming audio material quicker. Due to this functional difference however, the sound of the Limiter will change slightly with Zero Latency mode On or Off.

Meters

Spectrum Analyzer

The spectrum provides a real time display of the frequency content of the mix. This display helps with Filtering and adjusting the band cutoffs for multi-band dynamics. Trash 2 can show two spectra, so users can see both peak and average spectra simultaneously in the display.



Options

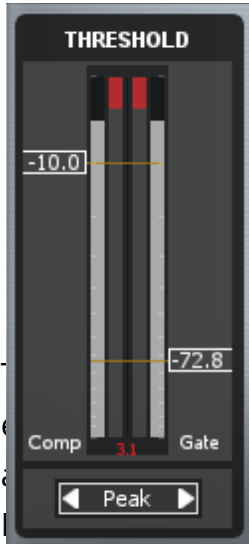
You can set options for the spectrum by accessing the Spectrum Options tab or right-clicking (under OS X you can also ctrl-click) the spectrum and selecting "Spectrum Options" from the context menu.

Dynamics Meters

Trash provides three types of meters for viewing the dynamics of a mix. You can set options for these meters in the Modules options tab.

Threshold Control Meters

The Dynamics module features Threshold Control Meters that allow you to adjust the thresholds of the gate and compressor while monitoring how the signal is being affected in real time.



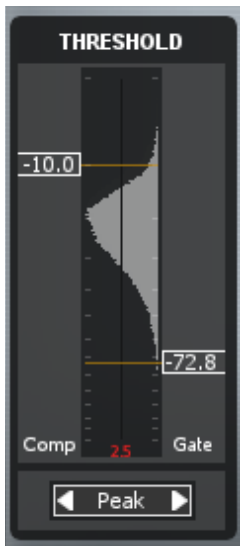
The Threshold Control can display gain reduction as it is taking place with level meters. Two meters display the levels of the incoming signal and as gain reduction begins to take place, a gain reduction meter appears in red between the two level bars. The Threshold meter also displays the amount of gain reduction in real-time with a dB readout at the bottom.

The Threshold Control can also display a histogram, a history of level over time. To enable this, right- (or control-) click on the threshold control's meter window. From the Options page select Histogram under the Threshold menu. This allows you visualize the overall "level content" of the audio by providing a running display of the history of levels in the audio.

Reduction Meters

When working in the Dynamics module, the reduction meter provides you with a readout of how much the dynamics processing is changing the level of the signal. You can select whether these red meters are drawn from the top down or if they are attached to the incoming level meters from the Options page. To draw the reduction meters attached to the level meters, select "Attached" under the Gain Reduction Draw Mode drop down menu.

Level Histograms



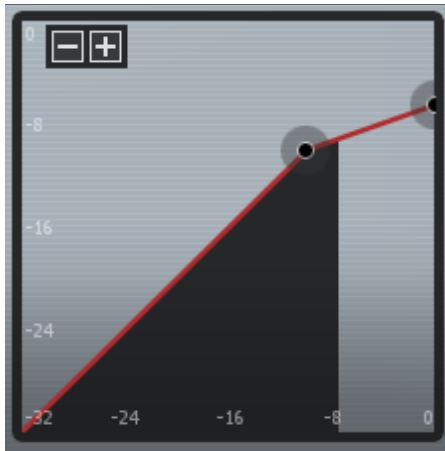
Level histograms can be turned on in the Dynamics module to provide a view of the audio level as a function of time in the Threshold Controls.

As Trash processes audio, it calculates the level and displays it on the level histogram. Unlike a standard level meter, the level histogram provides a view of the history of the level over time. The height of the histogram represents the high and low levels of the

audio, while the width of the bar indicates the most frequent levels.

Dynamic Curve Meter

This meter shows the input signal (x axis) plotted against the output (processed) signal (y axis). More horizontal compression curves means the signal is being flattened (compressed) more.



By default, the range of the meter is from 0 dB to -64 dB. You can adjust the range by pressing the (+) or (-) buttons in the graph to see a zoomed-in or zoomed-out view of the curve.

Note: *If you zoom out completely so the range is 0 dB to -128 dB, you'll be able to set compressor/limiter/expander thresholds down to -130 dB. When you zoom in again, the thresholds will keep their values, even though the sliders will adjust to allow finer control of thresholds between 0 dB and -80 dB.*

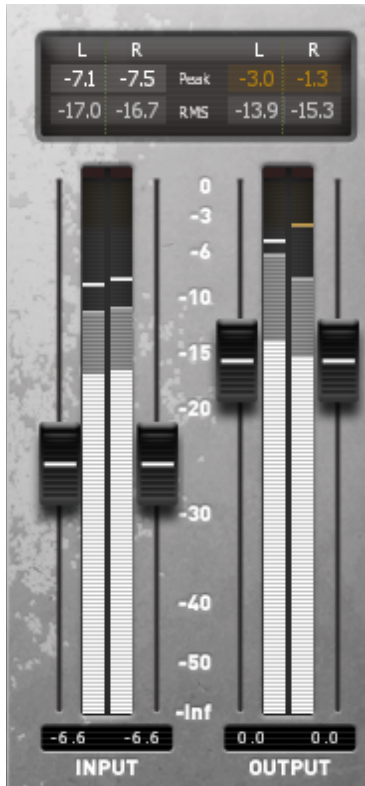
You can also set individual options for this meter by right-clicking (under OS X you can also ctrl-click) on it to bring up the dynamics meter options screen.

Nodes

The meter features individual nodes for the Compressor and the Gate as well as nodes surrounding these that represent input and output. These nodes are linked to the Threshold and Ratio controls, and can be used to adjust the curve in a visual way, rather than setting them with the standard controls.

Input and Output Meters

Trash level meters display the input and output level for the left and right channels.



Note: You can set these options by opening the Options Dialog and selecting the I/O Options tab. The available options for calibrating Trash's I/O meters are listed below.

RMS

RMS (Root Mean Square) is a software-based implementation of an analog-style level meter. Using different integration times, you can model popular VU or PPM meters. The RMS meter displays the average level calculated over a short window of time. The RMS meter readout will typically be lower than an equivalent PPM meter (Digital/Analog), since it is averaging peaks into the overall loudness.

Peak

The Peak meter is a fast meter that measures instantaneous maximum sample value OR peak analog waveform values, depending on the "Detect 'True Peaks'" checkbox in the I/O options menu. If you are tracking the peaks for possible clipping the Peak meter is appropriate.

RMS + Peak

This is a combined RMS and Peak meter. This meter displays a lower bright bar representing the average level (RMS) and a higher dimmer bar representing peak level. There is also a moving line above the bar representing the most recent peak level or peak hold.

Peaks

By default, the meters will hold peaks. You can configure this in the I/O tab of the Options Dialog, which you can also access by right-clicking (under OS X you can also ctrl-click) on the level meters.

To reset a peak that is holding, click anywhere on the meter.

Clipping

Above the meter is a red LED that serves as a clipping indicator. If the level exceeds 0 dB at any point, this LED will light up and remain lit until you click anywhere on the LED itself. The clipping indicator will also show the number of samples over 0 dB you have clipped. Once you have clipped over 99 samples the indicator will show an ellipsis (...).

By default the Input/Output meters will only indicate clipping which occurs within the digital domain. To accurately measure the signal that will result from digital to analog conversion select 'Detect "True Peaks"' in the I/O Options tab.

Graph and Sidechain

Setting the Order of the Modules

By default, the order of processing is the order listed below. The spectrum is based on the final output signal (after all processing).

Filter 1 • Trash • Filter 2 • Convolve • Dynamics • Delay

You can change the order of the processing by clicking on the Graph button.

Signal Flow Graph

This provides a signal path flowchart of the current settings. You can modify the order by clicking a module and dragging it with the mouse to a new position.



You can also place the spectrum anywhere within the processing, if for example you'd prefer to see a spectrum of the audio going into the Filter as opposed to seeing the spectrum after filtering.

Close

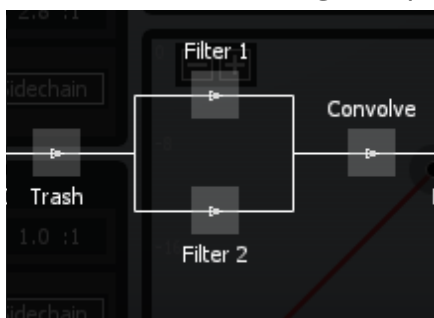
To apply the new signal order, click on the Close button.

Reset

If you want to reset to the default order, click the Reset button.

Parallel Processing

Instead of Trash's Filter 1 and 2 modules running in series (one right after the other) they can also run in parallel. The incoming audio will be split into two identical audio streams, each running independently into Filter 1 and Filter 2.



To turn Parallel Filter processing ON, simply open the Graph and click and drag one Filter module up and over the other.

Routing Sidechain Signals

By default, Trash's Dynamics and Filter module will simply respond and react to the incoming audio from the track that Trash is inserted on. In this way, if the incoming audio passes the specified threshold values inside of Dynamics, the module begins to process the audio.

When working with sidechain signals however, each Filter modulation or Dynamics module will still process the incoming audio, but the module will no longer be triggered by the same incoming audio. Instead, the process will be triggered either by an external audio source or audio from one of the bands in the multi-band Dynamic's crossovers.

Sidechain

To enable a sidechain input, click the Sidechain button within the Compressor or Gate controls box in the Dynamics module, or in the Envelope section of the Modulation tab in the Filter module. For both Dynamics and Filter modules, Trash 2 can accept incoming sidechain trigger signals from an external source of audio as defined inside of your host audio application.

Inside of your host application, with the use of buses, sends or aux tracks, you will need to send the audio signal you would like to serve as your sidechain trigger to the audio track that Trash is inserted upon.

As each audio host application is different, please refer to your host's help documentation for instructions on how to route audio to Trash.

Note: Incoming stereo sidechain signals will be mixed and summed to mono for use in triggering the Dynamics modules.

Detection Filter

Trash 2's Dynamics module features an optional Detection Filter with both resonant high- and low-pass filters. These filters allow you to adjust what each of Trash 2's Dynamics module's detection circuits are responding to so that the dynamics process isn't triggered by certain frequencies or so the process may be weighted heavier on certain frequencies.

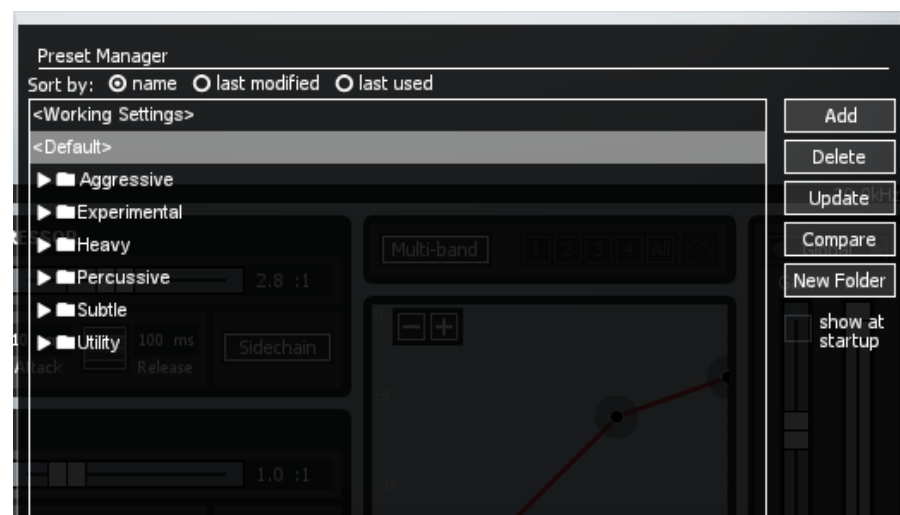
To enable the Detection Filter, select the third minispectrum view button in the top left of the window. Then, click the Detection Filter button which appears in the top left.

Once enabled, two nodes will appear which function much like passfilter nodes in the EQ module. They may be dragged to adjust frequency and feature handles which allow you to adjust the Q. Alternatively, you may enter precise values for each by clicking on the node and entering values in the readouts at the top of the window.

Preset System

Preset Manager

Trash has over 300 Presets designed by professional engineers, composers, musicians and sound designers.



To access the Preset Manager, click the Presets button under Presets in the lower right corner of Trash's faceplate.

Folders

Trash 2 presets have been sorted and organized into separate categories or preset folders based on the timbre and use of the enclosed presets and the sound you're looking for.

Aggressive

Experimental

Heavy

Percussive

Subtle

Utility

Dock and Undock

Clicking the Undock button at the bottom of the Preset Manager opens a floating window. This lets you work with the Preset Manager while still being able to view the edit windows for the individual Trash modules. To have the Preset Manager return to the Trash interface click the Dock button.

Selecting Presets

To access the Preset Manager, click the Presets button in the lower right corner of the Trash faceplate.

Loading Presets in Trash

You can select and audition any preset by simply clicking on the name in the list. This will activate selected Trash modules and you will hear the effect of the preset when you playback your audio. You can easily compare several different presets just by picking a different name on the list.

Working with Presets in Trash

Once you have selected a preset from the list, you may choose to change the original settings within a specific module. When you change any of the original settings within a preset you will see an asterisk (*) added to the beginning of the preset's name. This means that the preset has been altered. If you want to keep these settings you need to Add a new preset or Update the existing preset.

Working Settings

If you modify a preset's settings, then these modified settings become your "Working Settings". Your Working Settings will always be at the top of the preset list within the preset manager. This allows you to freely preview and compare different preset options. When you are done, you can return to your Working Settings by selecting the item at the top of the Preset Manager labeled <Working Settings>. To select a preset and have it replace your Working Settings, just select the name of the new preset and click the Close button.

Sort by Name, Last Used, or Last Modified

As a convenience you can sort presets by name, by the time/date last used, or the time/date last modified.

Last Used

A preset is considered "used" when you select it and you close the preset system dialog. The last used time/date stamp is not updated when you are selecting and auditioning presets from the list.

Last Modified

A preset is considered "modified" when you either create one or you make changes to one and update it with the Update button.

Adding and Removing Presets

Add

Clicking this button adds the current Trash settings as a new preset. You can type a name and optionally add comments for the preset. Note that a few keys such as * or / cannot be used as preset names. If you try to type these characters in the name they will be ignored.

Note: *This is because presets are stored as xml files (for easy backup and transferring). Their file names are the same as the name you give the preset (for easy reference) and therefore characters that are not allowed in Windows file names are not allowed in preset names.*

Delete

To permanently delete a preset, select the preset from the list and click the Remove button.

Update

When you click the Update button your current settings are assigned to the selected preset (highlighted). This is useful of course for selecting a preset, tweaking it, then coming back to the preset system and clicking Update to save your changes to the existing preset.

Compare

The Compare button is a great way to quickly hear the difference between the default settings of the most recent preset that you've selected, and the result of any changes that you have made to this preset (Working Settings). This lets you start your mixing session based on one of Trash's default presets and then continue to tweak the settings, always comparing to where you started.

New Folder

The New Folder option allows you to easily add custom named folders to the Trash preset manager.

Show at Startup

This allows you to set whether or not the preset manager will open automatically when starting Trash.

Close

Closes the preset manager loading the last preset you selected from the preset list.

Renaming Presets

You can double click on the name of a preset to enter the "edit" mode and then type a new name for that preset.

Changing Where Presets Are Stored

Change Folder

You don't need to store all of your presets in the default folder(s). You can create custom folders of presets for different projects, archive presets, etc. To change the folder that Trash looks to for presets, click the Change Folder button and browse to the folder that contains the presets you want to use.

Backing up Presets

Backing up presets is as simple as copying files. Just browse to the location of your preset files. The XML files in this folder are your presets with one XML file for each preset. You can reference the preset files by their file names because the name you give the preset in Trash becomes the name of the XML file.

Windows Users

C:\Documents and Settings\<your username>\My Documents\iZotope\Trash 2\Global Presets

Mac Users

<username>\Documents\iZotope\Trash 2\Global Presets

General Functions

Input and Output Gain

The panel on the right side of the Trash interface is the main input/output section. This is used for setting and monitoring gain levels going into and coming out of Trash.

Setting Input and Output Gain

You can adjust the input or output gain by sliding the faders with the mouse, either by clicking and dragging or clicking and using the wheel of a wheel mouse. You can also use keyboard shortcuts to adjust the level in small increments.

Adjusting Left and Right Channels Independently

By default, the left and right gains are linked so moving one moves the other. You can adjust left and right gain independently by clicking on the "unlock" icon. You can offset the two channels and then "relock" them, so that later adjustments move both channels by the same amount.

Faders will remember their offset even if they are temporarily turned up or down all the way, so that when you bring the faders back to the middle the offset will be preserved.

Double-click to Reset Faders

If the left and right faders are locked, double clicking on either fader will reset both of them to 0 dB. If the left and right faders are unlocked and set at different levels, double clicking a specific fader will reset it to 0 dB. If the left and right faders are locked but had been previously been set to different levels, double clicking on a fader will reset it to match the level of the other fader. Another double click will reset both faders to 0 dB.

More Information

Right-clicking (under OS X you can also ctrl-click) on the level meters provides an options screen for the level meters.

You can set a gain offset for when Trash is bypassed, to compare the sound when Trash is on and off with a relative change in volume to help you objectively preview Trash's processing with matched gain when Trash is bypassed.

Undo and History Comparisons

The History window is a unique and powerful feature for comparing settings in Trash. To access the History list, click on the History button.



As you tweak controls, each movement is captured and displayed in the History list. To go back and hear a previous setting, simply click on the list at the point you want to audition. The changes that you've undone will show up in a lighter color. In the screenshot below, all changes after the Dynamics 2 module's Global Gain was increased to 4.2dB are undone.

Clear

You can also press the Clear button to clear the history list at any time.

Close

If you close the History window, processing resumes from the point you had last selected, so you can continue building on the History list from a earlier point.

A,B,C,D buttons

You can assign up to four points in the History list to A, B, C and D buttons. To do this, select the point in the list you want to capture, and click on the "Set" button below the A, B, C or D button. Clicking on the appropriate button will then recall the setting assigned to that button.

History Depth

The history list has a depth setting which controls how many edits it remembers. You can change this setting in the General Options tab.

When you exit Trash, the History list and any settings assigned to the A, B, C or D buttons will be saved to the file iZTrash2.hst in the directory where you installed Trash. The next time you start Trash, the list will be remembered so you can pick up right where you left off.

While using Trash, you can press Ctrl+Z repeatedly to undo edits you've made, and Ctrl+Y to redo edits. See Shortcut Keys and Mouse Support for more keyboard shortcuts.

Gain when Bypassed Function

If you right-click on the input/output level meters and select "I/O Options" the dialog box below is displayed. There is a useful feature called "Gain when bypassed" that allows you to set a gain that is only applied when Trash is bypassed.

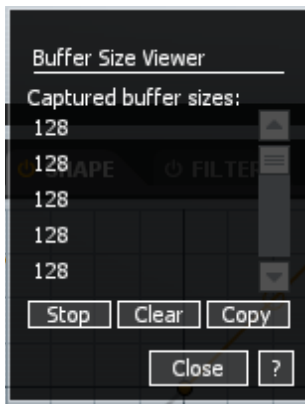
Gain when bypassed

When Trash is on there are many modules such as the multi-band dynamics and limiter that can affect the overall or perceived level of the mix. This makes it very hard to compare "Trash on" to "Trash bypassed".

"Gain when bypassed" solves this problem. You can bypass Trash and set this gain so that when you A/B Trash on and off, the apparent volume is the same. This is the only processing that is applied when Trash is bypassed, and it is of course only applied when Trash is bypassed.

Buffer Size Viewer

The Buffer Size Viewer dialog lets you inspect the buffer sizes that your host application is using.



If you are using Trash at low latencies, you may experience unusually high CPU usage. Trash allows you to tweak several buffer sizes in order to optimize CPU usage for your host application settings. Some host applications make it very easy to see what your buffer sizes are, but it can be more difficult to determine in others. For that reason, Trash provides this dialog to let you find out exactly what buffer sizes are being sent to the plug-in.

To use this dialog, simply launch it by clicking the View Buffers button on the General tab of the Options screen. Then use the following controls:

Captured buffer sizes

This list-box shows the buffers you have captured thus far. The number on the left is the input buffer size, and the number on the right is the output buffer size. Note that the input and output buffer sizes will usually be equal in Pro Tools, VST, and AU versions of Trash, but in the DirectX version if delay compensation is enabled then the sizes may differ. When tweaking buffer sizes, you're interested in the number on the left, which is the host application's buffer size.

Start/Stop

Push Start to begin capturing buffer sizes. Now each time a buffer is sent to the plugin, it will be added to the list of captured buffer sizes for you to see. Push Stop to stop capturing buffer sizes. Note that buffers are sent in very rapid succession to the plugin, and after 100 buffer sizes are captured, the capturing will automatically be stopped.

Clear

Clears the list of captured buffer sizes.

Copy

Copies the list of gathered buffer sizes to the clipboard, useful for pasting into support e-mail if necessary. See Buffer Sizes for more info.

Options

General Options

Graphics	
Enable Meters	Although each meter has its own options, this option allows you to quickly turn on/off all meters.
Show Tooltips	When enabled this allows informational notes to appear when the cursor/pointer is hovering on top of the features' controls
Enable Animation	Allows you turn on/off the animated appearance of dialog boxes.
Enable Animated Focus	Allows you to turn on/off the animated white brackets which indicate the control where keyboard commands are sent.
Dim Controls When Bypassed	When this option is enabled, each module's

	controls will be dimmed when the module is bypassed. Modules can be bypassed in several ways: global bypass, module bypass, and crossover band bypass. This feature helps to remind you when a module is bypassed, so that you don't make adjustments to a bypassed module unintentionally.
Frame Rate Limiter	Allows you to set the speed (frames per second) that Trash should use to display and update meters. In most cases the default will provide smooth displays while still allowing adequate processing time for audio. You can increase the frame rate for smoother animation however, if you notice graphics performance problems in your host application, you can set the FPS value lower to limit the amount of CPU used for drawing.
Opacity	Allows you to control the opacity or transparency of the UI. Setting partial transparency does require additional CPU, but there is no CPU penalty when opacity is at 100% (i.e. the feature is not being used). The slider will be disabled in host applications that do not support this feature.
Brightness	Allows you to control the overall brightness of the Trash user interface. This allows you adjust the look of the UI to be more viewable on various monitors and in various venues.
Solo/Bypass Indicator	Allows you to set the behavior of the Solo/bypass indicators. Options are Blinking or Solid.
Host	
Delay Compensation	Using some of Trash's processing may result in a slight delay of the signal. That is, Trash needs

	<p>some time to "work on" the audio before it can send it back to the host application. That time represents a delay when listening or mixing down. Fortunately, many applications provide "delay compensation" which is a means for Trash to tell the application it has delayed the signal, and the host application should automatically delay every other track in your session to align. If your host application supports delay compensation, enable this option.</p> <p>If your application doesn't support Trash's delay compensation feature, or skips/stutters with this option turned on, you can manually correct the delay offset in the host application (i.e. manually edit out the short delay of silence). To help you perform manual correction, the delay Trash introduces is shown below "Total System Delay" in both samples and milliseconds.</p>
View Buffers	This launches the View Buffers dialog, which lets you inspect the buffer sizes which your host application is using.
Host Sync	This launches the Host Sync Viewer window which displays information about your current session/ host application including Tempo, Transport State, Time signature, etc.
Other	
History Depth	Lets you set how many levels or steps are remembered in the History dialog to control the size of the history log file.
Keyboard Support	Keyboard support must be set to full for all Keyboard shortcuts to be available. Available

	options include Full (full keyboard support), Minimal (only TAB, arrow keys, and ENTER), or None (Keyboard shortcuts turned off).
Auth & Updates	
Check for updates	Selects the frequency with which Trash checks for version updates. Choose between daily, weekly, monthly, and never.
Check now	Instantly checks if your version of Trash is currently up to date.
Remove Authorization	Removes the current authorization of Trash 2.
More Information	Directs to the supporting documentation for authorization.

Spectrum Options

Spectrum	
Enable mini-spectrum	Turns on or off the spectrum meter that appears on top of multi-band modules.

Spectrum type	<p>Lets you select between four types of spectrums:</p> <p>Linear: a continuous line connecting the calculated points of the spectrum</p> <p>1/3 octave: splits the spectrum into bars with a width of 1/3 of an octave. Although the spectrum is split into discrete bands, this option can provide excellent resolution at lower frequencies.</p> <p>Full Octave: splits the spectrum into bars with a width of one full octave.</p> <p>Critical bands: splits the spectrum into bands that correspond to how we hear, or more specifically how we differentiate between sounds of different frequencies. Each band represents sounds that are considered "similar" in frequency.</p>
Peak hold time	<p>You can click on the Peak Hold time to select between specific hold times in milliseconds, or Infinite, where the peak is held indefinitely. You can reset the peaks by clicking on the spectrum.</p>
Average time	<p>Averages the spectrum according to this setting. Higher average times can be useful for viewing the overall tonal balance of a mix, while shorter average times provide a more accurate display. Real Time is the shortest average time settings while the Infinite setting will continue to calculate indefinitely.</p>
Window size	<p>Controls the trade off between frequency and time resolution in the spectrum. Higher values will let you see smaller peaks in the spectrum, but the spectrum will update more slowly.</p>
Overlap	<p>Controls how often the spectrum updates. More overlap will cause the spectrum to update more frequently, at the expense of increased CPU usage.</p>

Window	Selects a window type for the spectrum. In most cases the default window type will work well, but you can choose from a variety of window types. Each window type has different amplitude and frequency resolution characteristics.
Fill Spectrum	Allows you to display the real-time spectrum as a solid graph as opposed to a line graph. This option can be used to differentiate the real-time spectrum from the peak hold spectrum.
Show Peak Hold	Toggles whether Trash displays and holds the peaks of the spectrum.

I/O Options

Input/Output Meters	
Enable meter	Turns on or off the level meters
Show peak hold	Turns on or off the peak hold display for the level meters
Detect "True Peaks"	This examines the levels of the analog signal that will eventually be produced by D/A conversion, as well as the levels of each digital sample (inter-sample peaks). An analog signal's peak level can exceed its corresponding digital signal's peak level by more than 3 dB!
Type	Allows you to set the type of metering used for Trash's I/O meters. Available options include RMS, Peak, and RMS+Peak. See the Input and Output Meters page for info about metering options.

Peak hold time	If peak hold is on, clicking this button allows you to cycle through different peak hold times. The choices are 5 ms, 250 ms, 500 ms, 1000 ms, 5000 ms, and infinite. If set to infinite, the peak value will be held until you double click on the meter.
Integration time	This setting only applies if the level meter displays RMS. It lets you specify the integration time for the RMS calculation. In most RMS meters, the integration time is set to around 300ms.
Readout	Allows you to control what is displayed by the numeric display on top of the meters: peak or actual (real time). If set to "Max Peak", the display will reflect the meter's highest peak value encountered during processing. If set to "Current", the display will reflect the meter's current value of the level. If there are two levels displayed (Peak+RMS), we read the RMS value.
Input/Output Gain	
Gain when bypassed	See the Gain When Bypassed Function page for info about the gain when bypassed feature.

Module Options

Trash	
Oversample Distortion	Distortion creates high frequency harmonics which can cause aliasing. Selecting this option allows distortion to be processed at oversampled rates in order to reduce aliasing. Selecting this option requires greater CPU power.
Bands	Allows you to set the default number of bands available in the Trash module when processing in multi-band mode.

Filter	
Alt-Solo Filter Q	Allows you to set the default Q or width of the filter that is activated when Alt-clicking in the Filter module.
Dynamics	
Threshold Meter	Selects whether the Threshold Control displays a level histogram meter or a gain reduction meter.
Gain Reduction Draw Mode	Selects whether the gain reduction meters in the Threshold Control are detached or attached to the level meters.
Curve level meter	Allows you to turn on or off the dynamics curve level meter.
Bands	Allows you to set the default number of bands available in the Dynamics module when processing in multi-band mode.
Limiter	
Behavior	<p>Sets the internal limiting character of Trash's Limiter.</p> <p>Quiet: A transparent limiting with neutral character and slower release times.</p> <p>Loud: More aggressive limiting while still keeping transparent as possible and medium release times.</p> <p>Clipping: Aggressive limiting with very short release times.</p>

Zero Latency	When Zero Latency mode is active, look-ahead processing in Trash's Limiter will be turned off. With Zero Latency mode inactive, Trash will impose a small delay to account for look-ahead processing, allowing the modules to react to incoming audio material quicker. If your host does not have delay compensation, leave Zero Latency mode on to keep all of your audio aligned.
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Convolve Options

Convolve	
Maximum Impulse Length	Automatically trims any custom loaded Impulse Responses to the specified sample length. This is done to preserve performance. The greater the length, the more CPU intensive the process.
Change Folder	Sets the location of the Impulse Response library.
Show Folder	Launches a new window and displays the currently specified Impulse Response library.

Tips and Shortcuts

CPU Optimization

Unlike many single task plug-ins, Trash 2 harnesses the power of six plug-ins in one. Trash performs a significant number of calculations when running. The combination of multiple DSP modules performing analog modeling and a half dozen real time meters dictates that it requires more CPU processing than a typical plug-in. While continuing to push the limits of high quality audio signal processing, Trash 2 offers significant improvements concerning CPU optimization allowing your sessions to run more efficiently.

If you do start to reach the limits of your particular machine, here are some tips for optimizing your CPU:

If you're not using modules for processing, you should be sure to bypass them to conserve CPU power.

Try changing the buffer size and/or latency setting in your host application. When buffers are too high (latencies are too large), meters will update very slowly and performance may suffer.

Using fewer crossover bands can save significant CPU. Try using single band dynamics, for example, instead of all 3 bands. See [Using Multi-band Modules](#) for instructions on how to change the number of crossover bands.

Automation

Automation allows you to record and specify changes to parameters over time. You can automate more than 400 parameters in Trash using host applications that support effects automation.

Using Automation in Trash

The implementation and specifics of automation are dependent on the host application, so please refer to the documentation of the host app for setting up an automated mix.

In general, though, you insert Trash as an ordinary effect on a track, then in the track view of the host app assign automation envelopes to it. These envelopes control how Trash parameters are changed over time. In this case, most of your "tweaking" is done in the track view of the host app, dragging curves and envelopes as opposed to changing controls in Trash.

Keeping track of all the parameters. We've done our best to provide the controls with intelligent names, but it can be overwhelming when you initially see the list of automatable parameters in Trash. Don't panic. Scroll through the list, remember that each multi-band module has up to 4 bands per parameter.

When you automate a control from the track view, you can see the control on the Trash interface move under the control of the host application. We purposely don't update the position of the control as often as we could. It takes CPU to redraw controls and it takes CPU to process audio. So we update the drawing of the control less frequently. Therefore, it may look like the control is moving in steps, but rest assured that the audio is being processed smoothly.

When automating in a track view with envelopes, but working mainly with the Trash interface, we found it helpful to be able to "see through" Trash so you can monitor Trash meters and controls but see the track view and automation curves behind Trash. So we provide an Opacity slider in the main options dialog. This allows you to see through Trash to monitor both what Trash is doing and what is happening with the automation curves.

Note: *this is not available in all host applications, and it does require more CPU than a standard "opaque" plug-in if you set the Opacity to less than 100%.*

Shortcut Keys and Mouse Support

Turn Keyboard Support On or Off

You can turn Keyboard Shortcuts On or Off from the General Options menu. Keyboard support must be set to Full for all Keyboard shortcuts to be available. Available options include Full (full keyboard support), Minimal (only TAB, arrow keys, and ENTER), or None (Keyboard shortcuts turned off).

Alt+click

If you Alt+click on the "power" light of a module on the faceplate that module is made active (on) and all other modules are bypassed.

If you Alt+click on the Bypass ("b") button of any band, that band is solo'ed.

Alt+clicking on most other controls will reset them to their default value.

Wheel Mouse Notes

If you have a wheel mouse, you can adjust most controls (I/O gain, sliders, etc.) by simply positioning the mouse cursor over the control and rolling the wheel. Hold CTRL (command on Mac) to move in smaller increments and SHIFT to move in larger increments. If the wheel has no effect, try clicking on the plugin to make sure Trash has the keyboard focus.

In the Filter modules, you can adjust the Q of a selected band or bands with the wheel.

In the Filter table (accessed with the "+" button) you can adjust a value by holding the mouse over the value and rolling the wheel.

Copy/Paste Support

Right-click (under OS X you can also ctrl-click) on any slider to bring up a context menu allowing you to copy and paste its value. You can copy/paste between sliders, even if the sliders are in different instances of the plugin. You can also copy/paste between a slider and a text editor such as Notepad or TextEdit in order to see the slider's value to a much higher precision than the plugin displays.

Mouse and Meters

You can zoom in and out on level meters and level histograms by holding down the Ctrl key under Windows or the Command key under OS X and clicking with the left mouse

button to zoom in or the right mouse button to zoom out. Under OS X you can also Command-ctrl- click to zoom out.

You can reset the peaks or averaging of the spectrum by clicking on the spectrum.

You can reset a meter's peak indication by clicking on it. You can also reset a level meter's clipping indicator by clicking on the clipping indicator (the red "over" light at the top).

iZotope Customer Support

How to purchase the full version of Trash 2

If you are using the demo version of Trash and would like the full version, you can purchase Trash direct from the iZotope online store.

<http://www.izotope.com/products/audio/Trash>

Once your purchase is complete you will be sent an e-mail confirmation and a full version serial number that can be used to fully authorize your current installation of Trash.

Customer Support Policy

iZotope is happy to provide professional technical customer support to all registered users. We also offer valuable pre-sales support to customers who may be interested in purchasing an iZotope product.

For details, please see our [Product Support Policy](#).

Before contacting iZotope Customer Care team, you can search our [Product Knowledgebase](#) to see if the solution to your problem has already been published.

How to contact iZotope for Technical Support

For additional help with Trash, please check out the support pages on our web site at <http://www.izotope.com/support> or contact our customer support department at support@izotope.com.

iZotope's highly trained support team is committed to responding to all requests within one (1) business day and frequently respond faster. Please try to explain your problem with as much detail and clarity as possible. This will ensure our ability to solve your problem accurately, the first time around. Please include all system specs and the build/version of Trash that you are using.

Once your support request is submitted, you should automatically receive a confirmation email from iZotope support. If you do not receive this email within a few minutes please check your spam folder and make sure our responses are not getting blocked. To prevent this from happening please add support@izotope.com to your list of allowed email addresses.

International Distribution

Support is also available from our international distributors worldwide, for any customers who purchased their iZotope products through a certified iZotope distributor. Check with your local distributor for their availability. If you would like help locating your local distributor please contact iZotope support.

<http://www.izotope.com/support>

Thanks for using Trash 2!

- The iZotope team



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