

NEWFANGLED AUDIO

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Saturate proudly uses the PFFFT library, which is available at <https://bitbucket.org/jpommier/pffft>.

Newfangled Audio

www.newfangledaudio.com

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Chapter 1

Newfangled Audio Saturate

The image shows the user interface of the 'Saturate' plugin by Newfangled Audio. The interface is dark-themed with teal and yellow accents. At the top, there are control buttons for 'UNDO', 'REDO', 'A/B', 'A > B', 'LIBRARY', 'Hard Hitter', 'SAVE', and 'SETTINGS'. The main header includes the 'NEWFANGLED AUDIO' logo, an 'ACTIVE' indicator, 'ANTI-ALIASING', 'HARD LIMIT', and the 'SATURATE' title.

The interface is divided into several sections:

- INPUT:** Shows a level of 0.0 dB. It includes a peak meter (0.0, 0.0) and an RMS meter (-12, -12). A vertical bar graph on the left shows the input signal's amplitude.
- SPECTRAL CLIPPER:** Contains several parameters:
 - DRIVE:** Set to 13.7 dB.
 - DETAIL PRESERVATION:** Set to 0%.
 - CLIPPER SHAPE:** Set to 73% between 'Soft' and 'Hard'.
 - SYMMETRY:** Set to 58% between 'None' and '100%'.
 - CEILING:** Set to 'HARD LIMIT' at 0.0 dB.
- METER TYPE:** Offers 'GAIN CURVE' (selected) and 'WAVEFORM' options.
- OUTPUT:** Shows a level of -13.9 dB. It includes a peak meter (-4, -4) and an RMS meter (-4, -4). A vertical bar graph on the right shows the output signal's amplitude.

A central graph displays a yellow gain curve that rises from -60 dB at low frequencies and levels off at approximately -5 dB at higher frequencies. A small '2' is visible at the bottom of the graph area.

Saturate is a saturation plug-in made popular as the final Spectral Clipper stage in the Elevate plug-in. Saturate has two controls which belie a sophisticated signal processing engine which allows it to overdrive a signal without effecting the tonal balance or allowing the signal to get "tubby". This makes it ideal for overdriving an entire mix, but it works quite well on individual instruments as well. Consider placing it after Punctuate to transparently treat the transients that you may have boosted.

Chapter 2

Installation and Instantiation

Newfangled Audio plug-ins are distributed by Eventide and like other plug-ins Eventide distributes, Saturate uses PACE's iLok.com licensing system, with or without and iLok hardware dongle. Each license provides two activations which can reside on either your computer or on an iLok license dongle. Once you've purchased your plug-in, you'll need to register it on Eventide's website, activate your license, and install the plug-in on to your computer

2.1 Registering Your Plug-in

When you purchase Saturate, you'll receive a Serial Number and License Key. The Serial Number will be two letters followed by 6 numbers. If you have an individual Saturate license, the Serial Number will start with NQ (i.e. NQ#####). The License Key will be 3 sets of 4 characters, a letter or a number, each; like XXXX-XXXX-XXXX.

Once you've received these codes, you can register your plug-in on the Eventide website. To do so, please log in to <http://www.eventideaudio.com>, navigate to My Account in the top right corner, and select Register a New Product. Then, fill out the form by selecting Native Plug-in (VST, AU, AAX) in the Product Category field, select Saturate in the Product list, and enter your Serial Number, License Key, and iLok.com account name. If you don't yet have an iLok.com account, you can create one for free at <http://www.ilok.com>. Once you've done so, press Register.

Once you've entered this information and pressed the Register button, Eventide will send the applicable plug-in license to your iLok.com account, which you will need to activate to your computer or iLok dongle.

2.2 Activating Your License

To activate and manage your plug-in licenses you'll need to install PACE's iLok License Manager software which you can download from <http://www.ilok.com>. If you don't have this software installed, please download and install it now.

Once you have installed and launched iLok License Manager you should be able to log in to your account by clicking the large "Sign In" button in the upper left hand corner of the application. Once you have, you should be able to see available licenses by choosing the Available tab at the top of the iLok License Manager application. If you have successfully registered your plugin, your Saturate Native license will be available in this list. Please activate this license by dragging it to either your computer or iLok dongle listed on the left. When you do so, you will be asked to confirm the activation, and you will be able to see it by clicking on the location you have chosen. At this point your license is activated.

2.3 Installing Your Plug-In

You should have been given a link to the Saturate plug-in installer when you purchased your plug-in, but if you haven't, you can find downloads for all of our plug-ins at <http://www.newfangledaudio.com/downloads>. Please download and launch the correct installer for your system.

Once you've launched the plug-in installer, it will take you through several pages of options. We have tried to choose defaults for these options which will best serve the majority of users, but it is worth a minute to make sure you understand these options before clicking through to the next page. A common issue with Windows VST plug-ins is choosing the correct VST directory, which can be different on each system. Please pay special attention to this setting. Once you have followed through the installer, your plug-ins and presets should be in your chosen locations, and you can hit finish to end the installer application.

At this point, you should be ready to use your Saturate Plug-In.

2.4 Moving or Removing an Activation

If at any point, you decide to move your plug-in activation, you can do so in iLok license manager. To move an activation between an iLok dongle and your computer, simply plug in the iLok, locate the license in its current location, and drag it to its new location. To deactivate a license, find it in its location, right click on it, and choose deactivate.

Remember that each Saturate Plug-In License comes with two activations, which can be used on either a computer or iLok dongle, meaning you can use Saturate in two locations at the same time.

2.5 Removing or Uninstalling your Plug-In

We're sure you'll love your Newfangled Audio plug-ins, but if you ever want to remove them from your machine it's as easy as removing the following files.

For Mac:

- Macintosh HD/Library/Audio/Plug-Ins/Components/<Plug-In Name>.component
- Macintosh HD/Library/Audio/Plug-Ins/VST/Newfangled Audio/<Plug-In Name>.vst
- Macintosh HD/Library/Audio/Plug-Ins/VST3/Newfangled Audio/<Plug-In Name>.vst3
- Macintosh HD/Library/Application Support/Avid/Audio/Plug-Ins/Newfangled Audio/<Plug-In Name>.aaxplugin
- /Music/Newfangled Audio/<Plug-In Name>/

For Windows:

- c:\Program Files\Common\Steinberg\VST2\Newfangled Audio\<Plug-In Name>.dll
- c:\Program Files\Common\VST3\Newfangled Audio\<Plug-In Name>.vst3
- c:\Program Files\Common\Avid\Audio\Plug-Ins\Newfangled Audio\<Plug-In Name>.aaxplugin
- My Documents\Newfangled Audio\<Plug-In Name>\

Chapter 3

Navigation Bar

At the very top of the plug-in is a navigation bar which allows you to undo and redo changes, access the preset librarian, settings, and manage several other global features of the plug-in.



3.1 UNDO/REDO

On the far left is an UNDO and REDO button. After changing any plug-in parameter in the plug-in interface the UNDO button will activate. Pressing it at this point will undo this action. At this point the REDO button will become active, and pressing it will redo this action. Multiple levels of undo are available and you can move back through several changes to reach an earlier state.

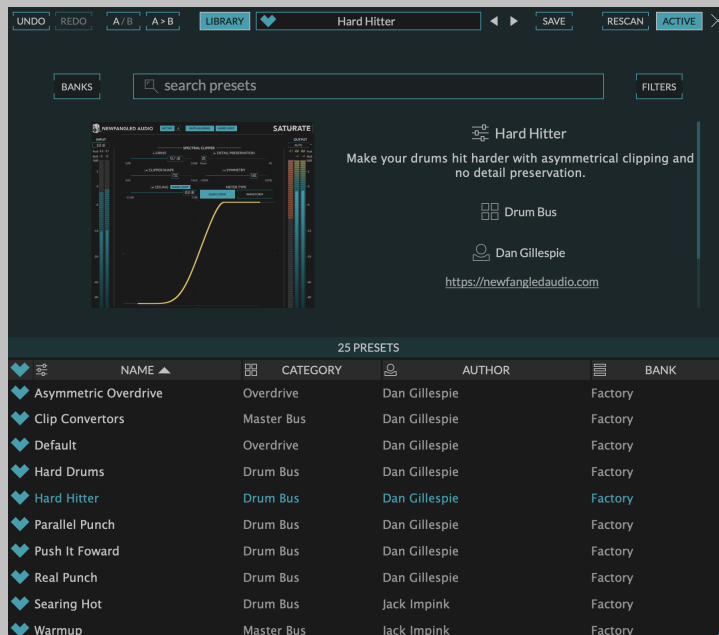
3.2 A/B COMPARE

Next you'll find buttons labeled A/B and A>B. These two buttons allow you to easily toggle between two states of the plug-in and compare the sounds. By default the plug-in is in the A state and you'll notice that the "A" is highlighted. In this state pressing the A>B button will copy the A state to the B state. Toggling the A/B button will switch to the B state, highlighting the "B" and switching the A>B button to B>A (allowing you to copy the B state to the A state).

Any changes you make in the plug-in interface will update the highlighted state. In this way, you can copy the A state of the plug-in to the B state, make changes to the A state, and use the A/B button to compare these two states.

3.3 LIBRARY

The Library button launches the Preset Librarian which can be used to explore the plug-ins presets based on any combination of category, author, tags, or favorites.



The Preset Librarian is split into four main sections.

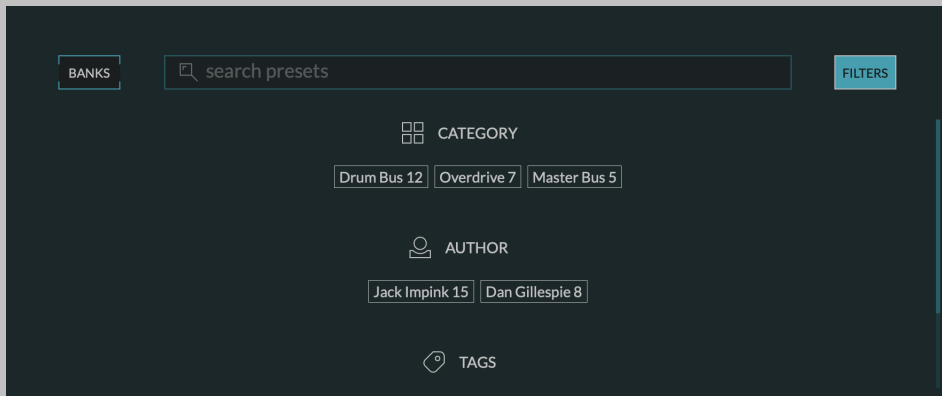
3.3.1 SEARCH and FILTERS

The top of the Preset Librarian shows the BANKS, SEARCH BAR, and FILTERS.

Typing a phrase into the search bar will allow you to search all the presets by a given phrase. You can further restrict this search by selecting a BANK or FILTERS.

Pressing the BANKS button opens a screen which allows you to restrict your search to the presets in either the FACTORY or USER bank. Or additional preset banks if you have any installed.

Pressing the FILTERS button opens a screen which allows you to restrict your search to presets matching a specific CATEGORY, AUTHOR, or one of several TAGS. Additionally, you can restrict your search to FAVORITES if desired.



3.3.2 PRESET LIST

The bottom of the Preset Librarian shows the list of presets which match the current criteria. It displays the FAVORITE status using a heart icon, the preset NAME, the preset CATEGORY, the preset AUTHOR, and the preset BANK. You can sort the list by any of these. The up and down arrows on your keyboard will allow you to toggle through the presets.

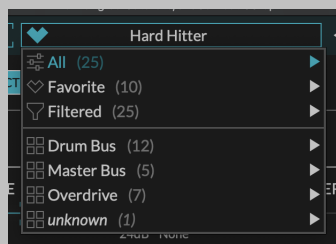
3.3.3 PRESET INFO

The center right of the Preset Librarian displays information about the currently loaded preset. This area shows the preset name, a short description if available, the category, the preset author - including a link to their work, the preset's tags, and its bank.

3.3.4 PLUGIN UI

The center left of the Preset Librarian displays a miniature version of the plug-in UI. This plug-in UI is not editable, but it is live and will show you the current settings of the plug-in, as well as any meters. We've found it incredibly useful to see this display as we've toggled through presets to get a sense of what each preset does.

3.4 PRESET SELECTOR



In the center of the navigation bar is a dropdown preset selector. Clicking on this preset selector will show you the plug-ins presets in several views.

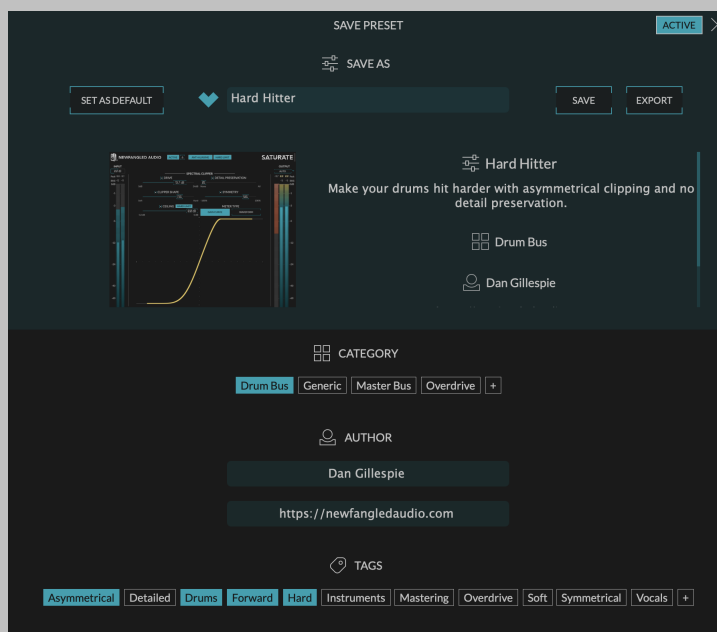
1. All will show you all the presets in alphabetical order.
2. Favorite will show you all your favorite presets in alphabetical order.
3. Filtered will show you all the presets which correspond to the current filter in alphabetical order. This filter is set up in the preset librarian.
4. Underneath these the presets are displayed according to their Category, as assigned when a preset is saved.

Once you load a preset from this dropdown list the Left and Right arrow buttons allow you to toggle through the selected subgroup in order. For more advanced preset selection click the LIBRARY button to enter the preset librarian.

Additionally, if you like the sound of the current preset you can click the heart icon to set the loaded preset as a favorite. If a loaded preset is modified the heart icon will become an asterisk and the preset name is italicized, indicating that the current state no longer matches that of the saved preset.

3.5 SAVE

The SAVE button launches the preset save screen where you can save a preset and assign categories, tags, and descriptions, as well as set the default state of the plug-in.



3.5.1 PRESET NAME

This field sets the preset name. There can only be one preset with a given name.

3.5.2 SET AS DEFAULT

This button will set the current state of the plug-in as a plug-ins default. This means when you load the plug-in the it will default to these settings.

3.5.3 HEART ICON

This will mark this preset as a favorite when you save it.

3.5.4 SAVE BUTTON

This button saves the preset

3.5.5 EXPORT BUTTON

In order to be browsed by the plug-in the presets are saved in a particular folder. However, if you want to save the preset elsewhere on your computer you can use the EXPORT button to export it as a file.

3.5.6 PLUGIN UI and DESCRIPTION

This section shows the current settings of the plug-in, and how it will appear in the preset librarian.

3.5.7 CATEGORY

Set the category for the preset you are saving. A preset can have only one category. If the preset doesn't fit into any of the existing categories you can use the (+) button to create a new one.

The existing categories are based on those that are found in the existing presets. If you create a new one it will appear in this list with an "X" on it. If you decide not to use the newly created CATEGORY you can remove it by clicking on the "X". However, once the preset is saved this category will be permanent and available to all newly saved presets, unless you delete all presets which use it.

3.5.8 AUTHOR

The AUTHOR section allows you to add your name and a url if you maintain a presence on the web. This will be automatically populated with the information from the last saved preset, so you will only likely need to enter it once.

3.5.9 TAGS

You can add any number of TAGS to a saved preset. These TAGS will allow your preset to be found in the preset librarian. It's best to add the tags that apply to the preset, and don't add the ones that don't. You can create a new tag using the (+) button.

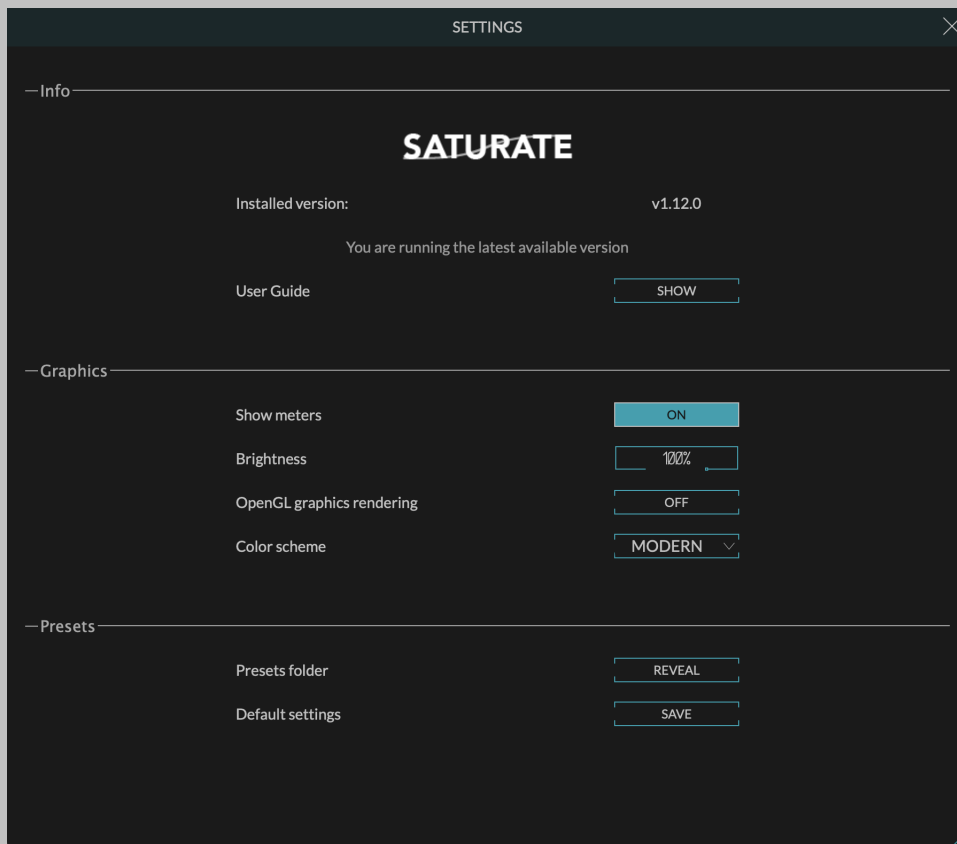
The existing tags are based on those that are found in the existing presets. If you create a new one it will appear in this list with an "X" on it. If you decide not to use the newly created TAG you can remove it by clicking on the "X". However, once the preset is saved this tag will be permanent and available to all newly saved presets, unless you delete all presets which use it.

3.5.10 DESCRIPTION

If desired you can add a short description to the preset. It's best to use this field to add information about what a preset is for, or any hints for a user about how to use it.

3.6 SETTINGS

The SETTINGS button pops down a settings page which contains additional options.



3.6.1 INSTALLED VERSION

This displays the version number that is currently installed. If you are running the latest version it will tell you. If there is an update an UPDATE button will appear. Clicking this button will bring you to the downloads page where you can get the latest version.

3.6.2 USER GUIDE

Pressing the SHOW button will launch this user guide.

3.6.3 SHOW METERS

The SHOW METERS button will show or hide the additional meters in the plug-in. Specifically, turning it off will hide the glow in the RADAR control, the envelope graph behind the LEVEL DETECTOR section, and the curve graphic behind the CURVE section.

3.6.4 BRIGHTNESS

The BRIGHTNESS control will control the brightness of the glow in the RADAR control, the envelope graph behind the LEVEL DETECTOR section, and the curve graphic behind the CURVE section.

3.6.5 OPENGL GRAPHICS RENDERING

The USE OPENGL button will enable OpenGL rendering of the UI. For this setting to take effect you must close and reopen the UI. If you find that the plug-in UI renders better with OpenGL on or off on your computer you can save this as the default setting and new instantiations will always load using this setting.

3.6.6 COLOR SCHEME

The COLOR SCHEME dropdown will allow you to choose one of several different color schemes for your viewing pleasure.

3.6.7 PRESETS FOLDER

Clicking the REVEAL button will bring you to the presets folder. This is only necessary if you want to share your presets with someone else, or access these files for another reason.

3.6.8 DEFAULT SETTINGS

Pressing the SAVE button will save all the current settings as the default for the plug-in. This is useful if you'd like a different starting point than the one we've provided.

3.7 Resize

The bottom right corner of the UI will allow you to resize the plug-in. To change the default plug-in size drag the plug-in to the desired size and save over the default preset.

Chapter 4

Parameters and Metering

Saturate has only two main controls, as well as a couple helpful controls. They are all described here.

4.1 Controls

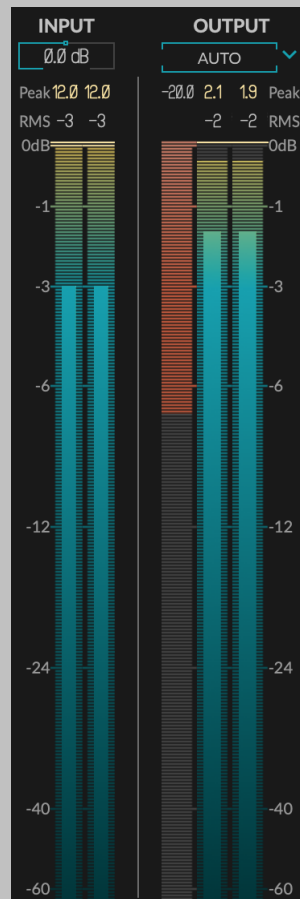
Saturate has several control types, including horizontal sliders, rotary knobs, drop-down menus, and toggle and radio buttons, all of which have tool-tips which will give you more information about their function if you hover your mouse above them.

In general, all sliders and knobs can be double clicked to type in a specific value, option-clicked to return them to their default value, or command-clicked or control-clicked to enter a vernier mode for fine tuning.

Where appropriate, many controls have a related on/off button which will deactivate this control, or even the entire section.

4.2 Global Parameters

4.2.1 INPUT AND OUTPUT LEVEL AND BAR METERS



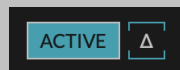
The left and right hand sides of the plug-in have matching vertical bar meters which display the INPUT (on the left) and OUTPUT (on the right) levels in levels in Peak (horizontal ticks), RMS (solid bar and numerical display), and Peak Hold (numerical display) formats. These meters are always present in the display and clicking the Peak Hold section, or by-passing the plug-in will clear the held peak value.

Above the INPUT meter is a knob for the MASTER INPUT LEVEL, and above the OUTPUT meter is an AUTO button which will allow you to automatically compensate for the level change introduced by the DRIVE control, or not. Alternatively, by clicking the down arrow next to this button, you can select a knob to manually set the MASTER OUTPUT LEVEL. The MASTER INPUT LEVEL is just before the INPUT meter and the MASTER OUTPUT LEVEL is just before the OUTPUT meter. With the AUTO button off the DRIVE control will add gain to your input signal. With the AUTO button on the DRIVE control will saturate your input audio without adding any

gain by reducing the headroom available to the signal by the DRIVE amount.

Finally, Saturate includes a GAIN REDUCTION meter which shows the amount of GAIN REDUCTION being applied by the saturation algorithm, and shows the peak amount of GAIN REDUCTION as a text value above it.

4.2.2 ACTIVE

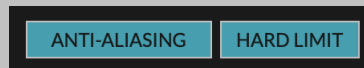


The ACTIVE button is located near the top left of the plug-in UI near the NEWFANGLED AUDIO label in the header. It activates or bypasses all the processing in the plug-in.

4.2.3 Δ

The Δ symbol engages Delta Listen Mode. When you toggle this button we subtract the plug-in output from the input to show only what is changing in the processor. Think of this as what the process is removing. Careful use of this can be a powerful tool to hear what the plug-in is doing to your audio.

4.2.4 ANTI-ALIASING



ANTI-ALIASING

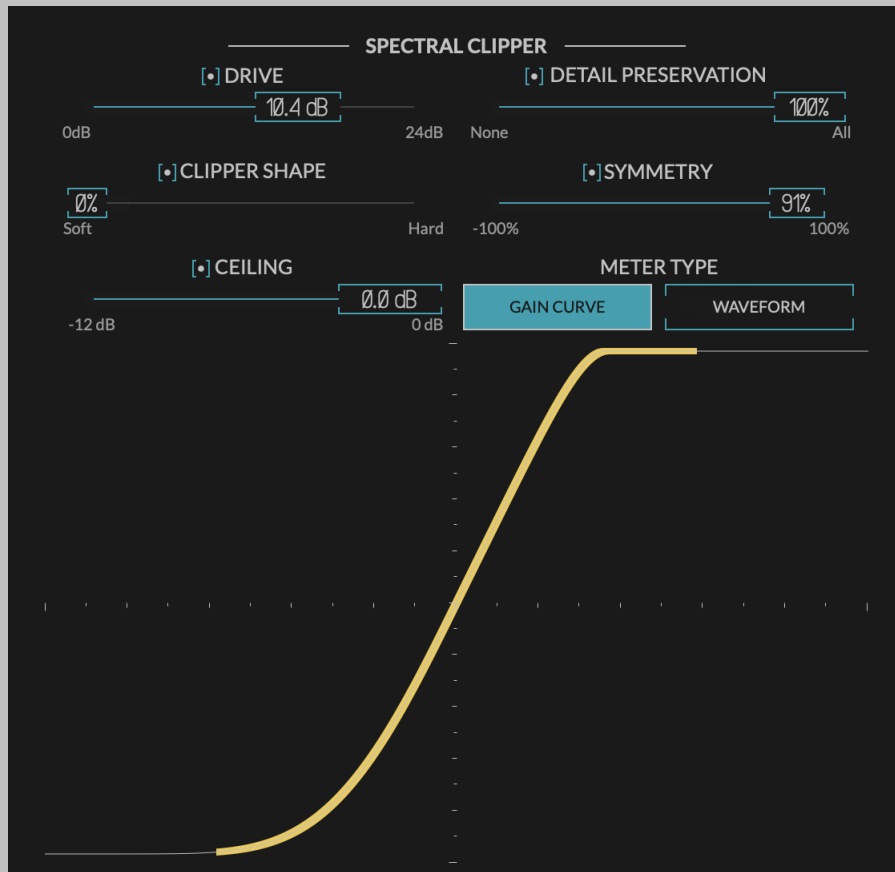
The ANTI-ALIASING button will turn on the oversampling and the aliasing reduction engine. If you're clipping or saturating harmonic material this will avoid the generation of enharmonic overtones which can create a "cloudy" or "muddy" sound, however, if you're clipping transient material this is not needed. With ANTI-ALIASING engaged the clipper will no longer strictly limit the output to the set CEILING value. If this causes a problem you can either reduce the CEILING control or engage the HARD LIMIT button.

HARD LIMIT

The HARD LIMIT button will engage a secondary hard clipper after the anti-aliased clipper, which will make sure that the output never goes above the set CEILING value, even with ANTI-ALIASING on. This HARD

LIMIT mode will introduce a small amount of aliasing, but less than if ANTI-ALIASING was never engaged. If you'd prefer to avoid any aliasing you can leave this off and reduce the CEILING control instead.

4.2.5 SPECTRAL CLIPPER



DRIVE

The DRIVE parameter adds up to 24 dB of gain to the input signal to increase loudness and distortion. The first 12 dB of gain are added according to a gain curve determined by the SHAPE parameter. When SHAPE is at 0% this curve adds the minimal amount of harmonic content to your signal to create the desired gain, and can be described as the mathematically smoothest or softest curve to achieve the desired gain. As SHAPE is increased past 0%, the distortion curve gets harder meaning more harmonics are added, but quieter sounds are less effected by the curve. DRIVE levels above 12 dB simply overdrive this curve further for additional distortion.

DETAIL PRESERVATION

The **DETAIL PRESERVATION** parameter is central to the magic in Saturate. When ordinary clippers remove the peaks of a waveform they also remove all fine detail from the clipped section. Saturate has a spectral algorithm which preserves this fine detail and allows it to be recovered. The **DETAIL PRESERVATION** control allows you to turn the amount of detail preserved up and down. When it's at 0% Saturate acts as a standard soft clipper, when it's at 100% all detail is preserved.

CLIPPER SHAPE

The **SHAPE** parameter changes the shape of the gain curve from soft to hard. This clipper uses an ideal set of shapes which allow for maximum boost with minimal added harmonic content. When **DRIVE** is 0 dB no gain is being provided and the soft and hard **SHAPES** are exactly the same.

SYMMETRY

The **SYMMETRY** parameter increases the hardness of one side of the clipper shape while decreasing the hardness of the other side. This creates an asymmetrical saturator which will generate even harmonics in addition to the odd harmonics generated when the shape is symmetrical. These even harmonics give a rich sound that most people find pleasing, and which some people claim are the secret of a lot of vintage gear.

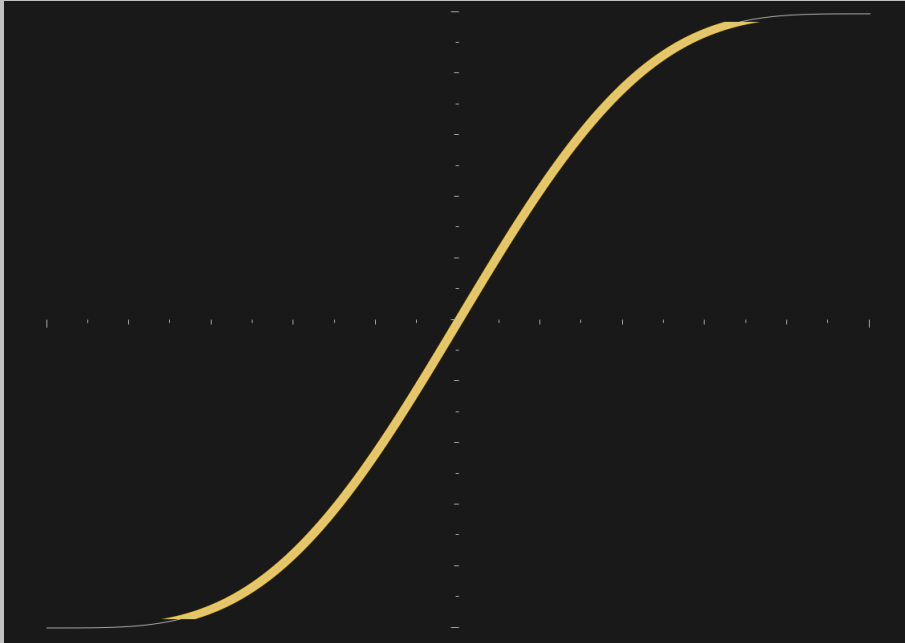
CEILING

The **CEILING** control sets the maximum level at which Saturate clips the output audio. With **ANTI-ALIASING** off the output will never go above the **CEILING**, with **ANTI-ALIASING** on the output might go slightly above the **CEILING**. You can correct for this by either reducing the **CEILING** or turning on the **HARD LIMIT** button.

METER TYPE

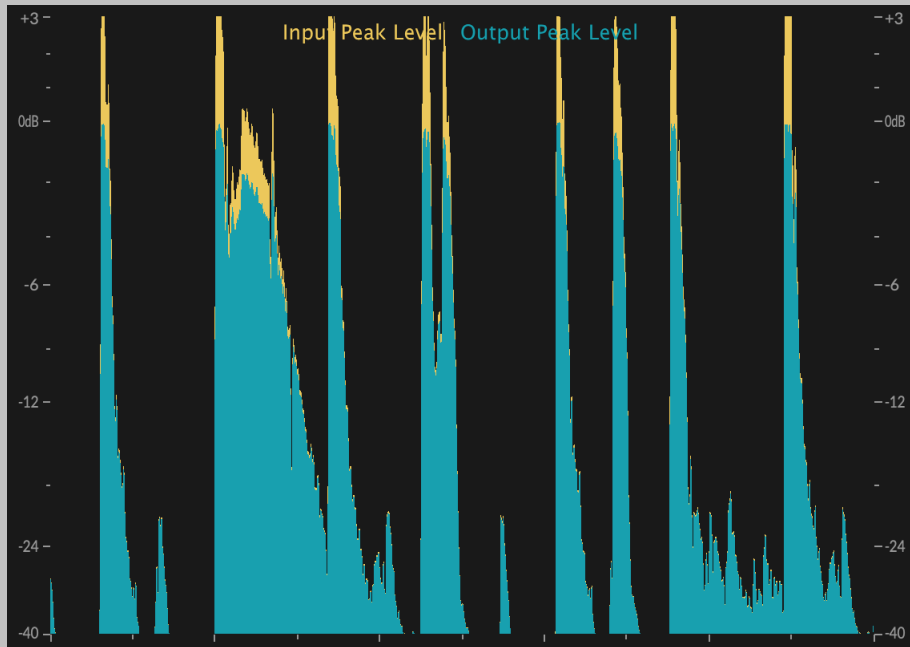
The **METER TYPE** radio buttons select whether the main meter area displays the **GAIN CURVE DISPLAY** or the **WAVEFORM DISPLAY**.

GAIN CURVE DISPLAY



The GAIN CURVE DISPLAY sits below the parameters section when the GAIN CURVE button is selected, and shows their effect on the gain curve. This GAIN CURVE is the mapping of input signals on the x-axis to output signals on the y-axis. As the DRIVE is turned up the GAIN CURVE gets steeper in the center to show the applied gain. As the SHAPE parameter moves from SOFT to HARD the shape of the GAIN CURVE changes to describe the resulting curve. The real-time values of input and output are also mapped to the GAIN CURVE DISPLAY to show you how hard you're hitting the distortion algorithm. You can adjust how hard you're hitting the algorithm with the INPUT LEVEL control.

WAVEFORM DISPLAY



The WAVEFORM DISPLAY sits below the parameters section when the WAVEFORM button is selected, and shows how the Saturate algorithm clips the incoming audio. The input audio waveform (scaled by the desired gain) is shown in yellow with the output audio waveform in blue on top of it. This way, when the output is lower than the gained up input you can see the yellow peak out from behind the blue. This allows to see how the Saturate algorithm is effecting your audio.

Chapter 5

Conclusion

We hope you enjoy Newfangled Audio's Saturate Spectral Clipper plugin. If you have any questions, comments, or concerns please write us at support@newfangledaudio.com

Chapter 6

About Newfangled Audio

The Oxford English Dictionary defines Newfangled as "objectionably new".

Music technology can sometimes be a backward looking pursuit. This is understandable, the purpose of music technology should be to help musicians make great music. There have been many great pieces of gear in the past and we should seek to keep these pieces and make them available to people who want to use them, and the time and dedication required to master a musical instrument means that changes in their design are often evolutionary rather than revolutionary.

However, the great pieces of gear from yesteryear are more often than not those that contained new ideas in their time. The reverence we have for these pieces can sometimes turn into fetishism, and mindless re-creation of classic gear can fail to inspire musicians and artists to take new risks. It's important to make sure artists and engineers have access to good tools that inspire them and don't stand in their way, but these tools should never be used as a security blanket to stand in the way of an artist or engineers ears and taste.

Newfangled Audio seeks to only make gear that incorporates new ideas. We want to make gear that is great, but only using ideas that others are not. We realize that deviation from the norm might sometimes be objectionable. The Oxford English Dictionary defines Newfangled as "objectionably new".