Sonnox

Oxford Envolution

Manual

Contents

1 Overview

The Oxford Envolution plug-in provides comprehensive control over the **transient** and **sustain** portions of an audio signal. Unlike most alternatives, attack, hold and release can be independently adjusted, enabling a wide variety of effects.

In addition to this, the effect of the transient and sustain processing may optionally be applied in a flexible frequency dependent manner. This is achieved without splitting the signal into separate bands, so unlike conventional multi-band processors, Oxford Envolution may be freely used in parallel routing configurations without creating phase-cancellation problems.

2 The Main Level Controls

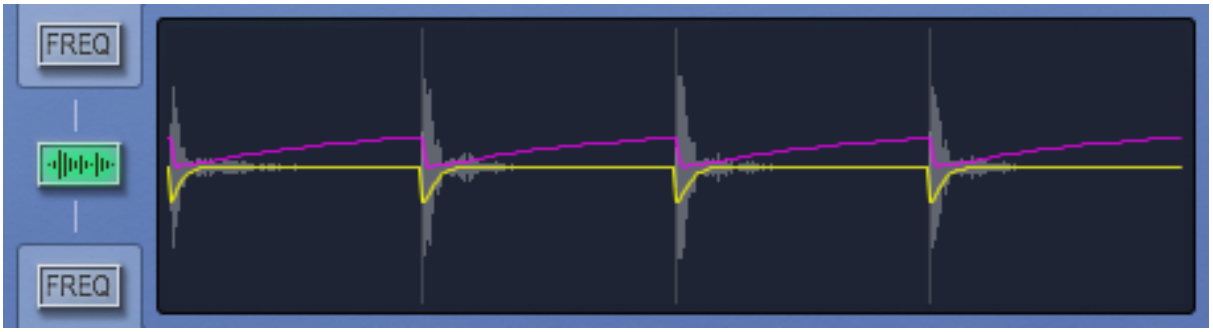
To enhance or reduce the Transient or Sustain portions of the input signal, simply increase or decrease the main level control.

Gain is set in dBs and will not exceed the selected setting, regardless of the Profile settings. The current level of the gain envelope is displayed in the circular meter inside each level control.

3 Centre Panel Assignment

The centre panel can be assigned to three views. Use the left-hand buttons to assign the panel to a different view.

Scope



See Envelope Scope

Transient Frequency Mix

See Spectral Shaping

Sustain Frequency Mix

See Spectral Shaping

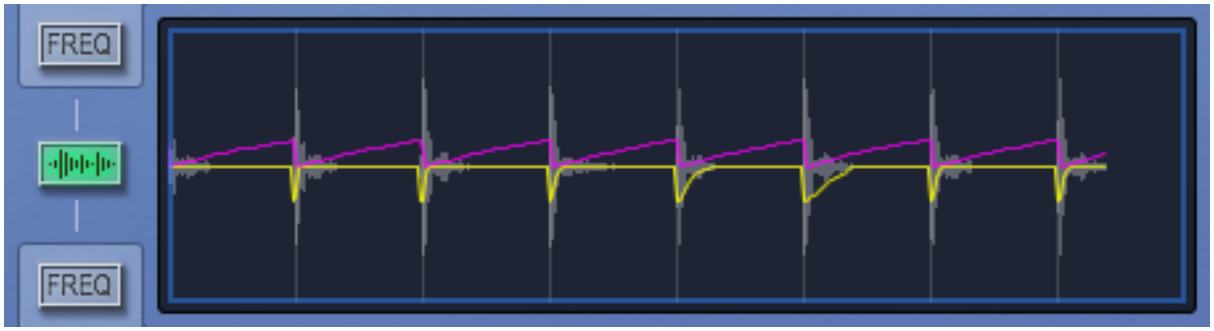
4 Envelope Scope

The Scope display shows an amplitude over time trace for the input signal (grey), Transient envelope (yellow), and Sustain envelope (purple).

By default, the scope operates in Scroll Mode, in which the time axis scrolls freely from right to left.

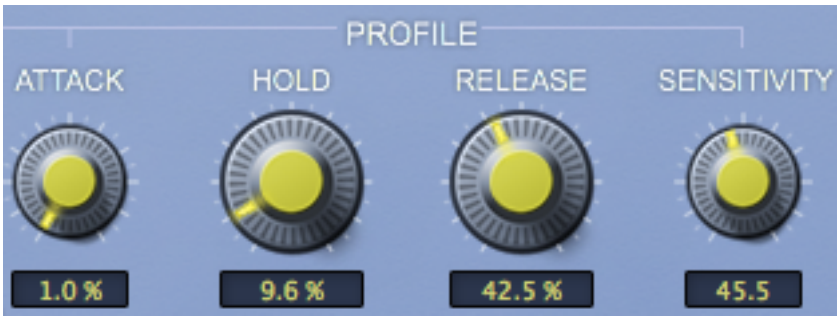
When using Envolution in a tempo-mapped project, the Bar Sync modes are more appropriate. To select a different mode, click the settings panel which appears with the mouse cursor over the Scope display.

Particularly in Scroll mode, it may be useful to freeze scope display in order to inspect the shape of the envelopes. To do this, just click anywhere inside the Scope display. When frozen, a blue border is drawn around the display. Click again to unfreeze.



Frozen scope display. Click to un-freeze.

5 Envelope Shaping



Transient Profile Controls

For high-quality and versatile detection and processing, all time constants are automatically adjusted based on characteristics of the input signal. Because of this, the timing profile parameters are shown as a percentage of the available range.

While the Attack, Hold and Release controls perform similar functions for both the Transient and Sustain sections, their behaviour in use is quite different. These differences are outlined in the following sections.

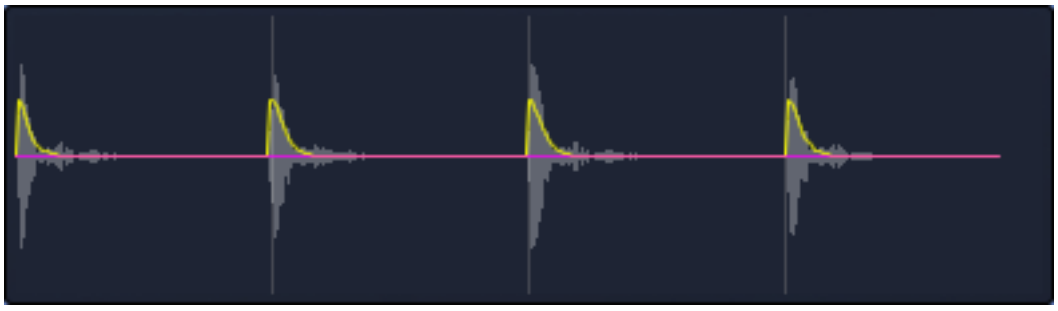
The Scope display in the centre panel of the plug-in helps to visualize the sensitivity and shape of the gain envelopes which are applied to the signal.

See Envelope Scope

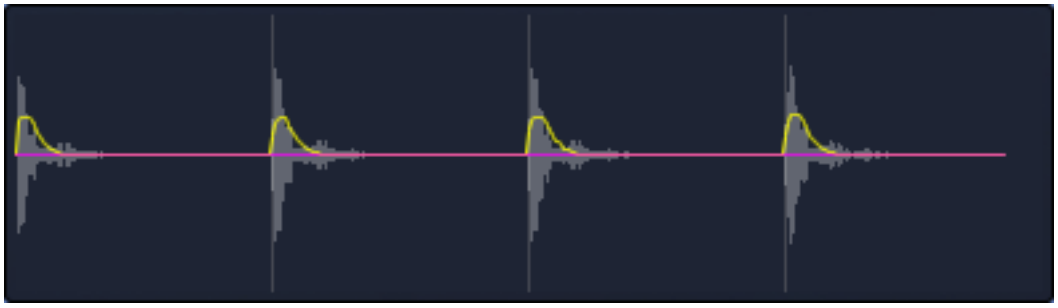
5.1 Transients

5.1.1 Attack

This can be used to smooth the leading edge of the transient envelope over time. Slower attack times allow some of the initial edge of the detected transient event to pass through the plug-in unchanged.



Fast Transient Attack speed

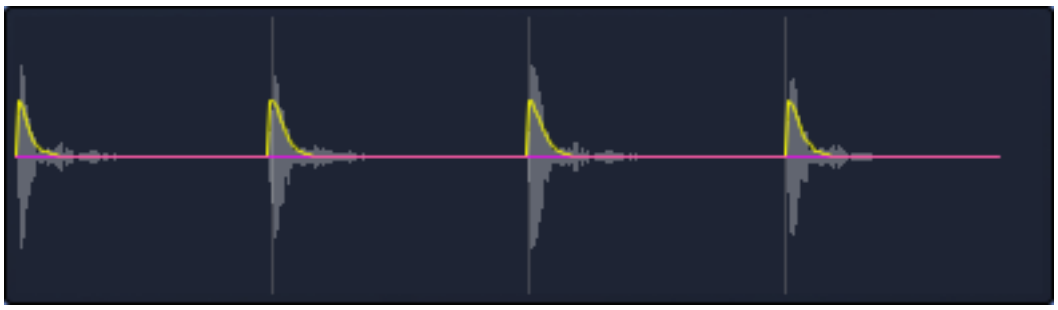


Slow Transient Attack speed

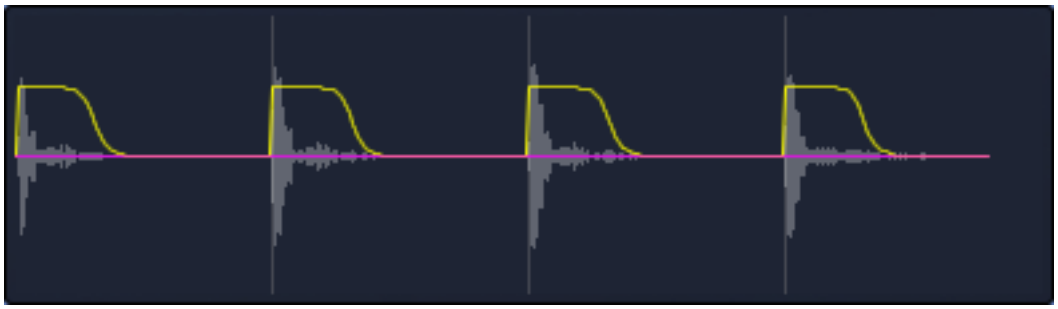
Slower Attack times also decrease how sensitive the transient detection is to small, fast transient events. However, the Sensitivity control will be more effective!

5.1.2 Hold

This delays the onset of the release portion of the envelope, and is very powerful for shaping the sound of processed transients. For example, when boosting, increasing the hold time a little can give the impression of more low frequency ‘punch’ without overly lengthening each transient event.



No Transient Hold

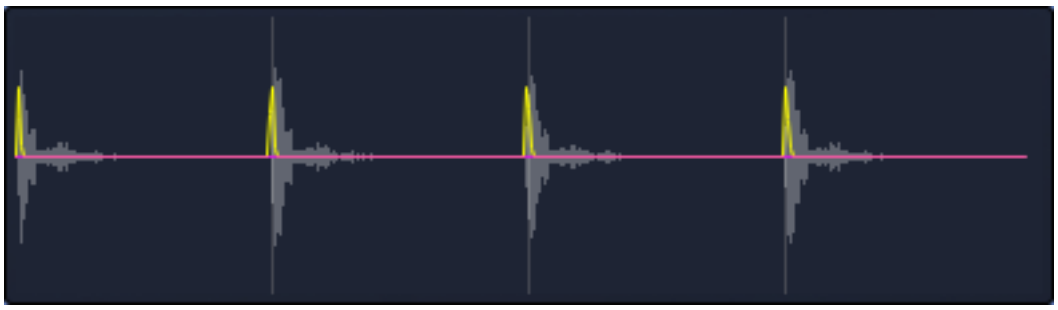


Long Transient Hold

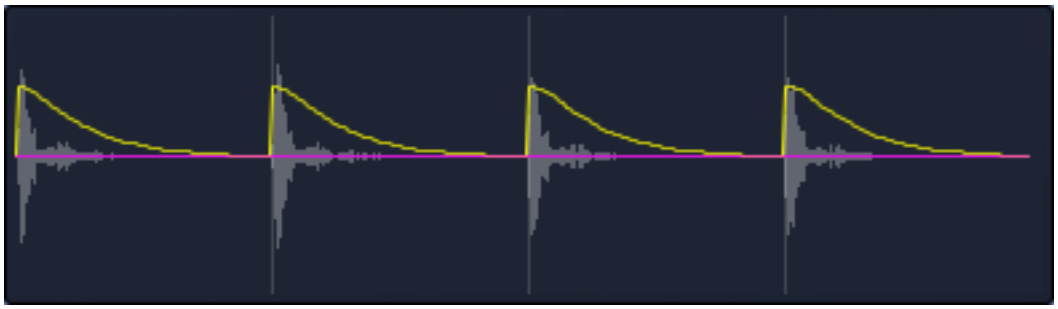
Another useful application of Transient Hold arises when processing plucked or strummed acoustic instruments; with some performances there may be multiple transient events very close together. When processed separately these can begin to sound unnatural due to multiple fast excursions in the gain envelope. Increasing the Hold control will effectively group adjacent events together, which can provide more pleasing results.

5.1.3 Release

This smooths the release portion of the transient envelope over time, resulting in longer transient events with a smooth decay.



Fast Transient Release

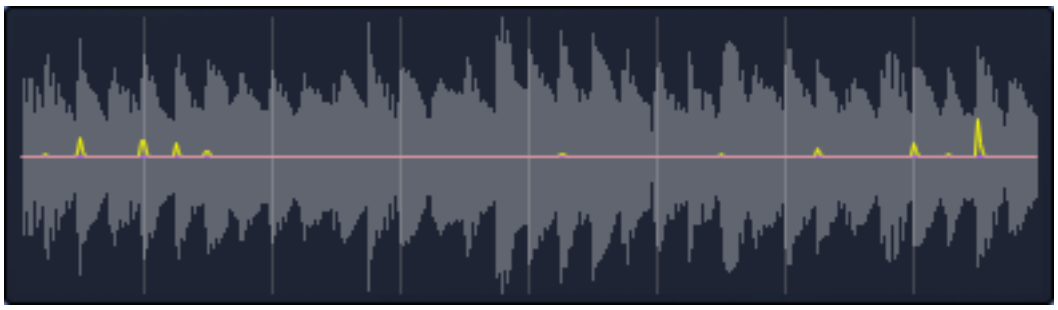


Slow Transient Release

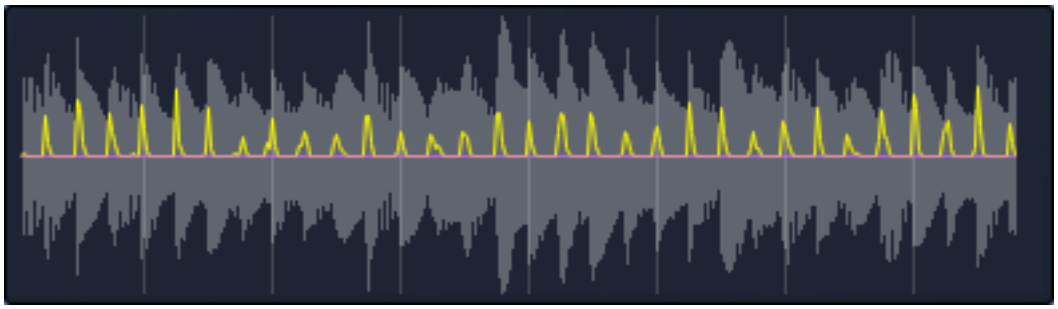
Try reducing Transients by 3 to 6 dBs with a slow Release time for a level-independent compressor-like effect which will leave sustained signal components untouched!

5.1.4 Sensitivity

This Sensitivity control adjusts how sensitive the gain section is to small transient events in the gain envelope. At 100%, all detected transient events are allowed to contribute to the gain envelope. As Sensitivity is increased, more transient events are detected.



Default Sensitivity – not all of the audible transient events are detected!



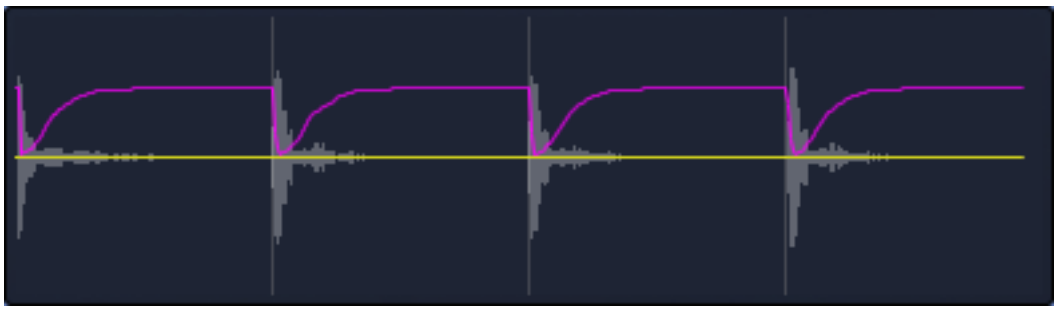
High Sensitivity – all audible transient events are detected and processed.

If the Transient processing ever sounds like it is ‘distorting’ or ‘fluttering’, try reducing the Sensitivity control.

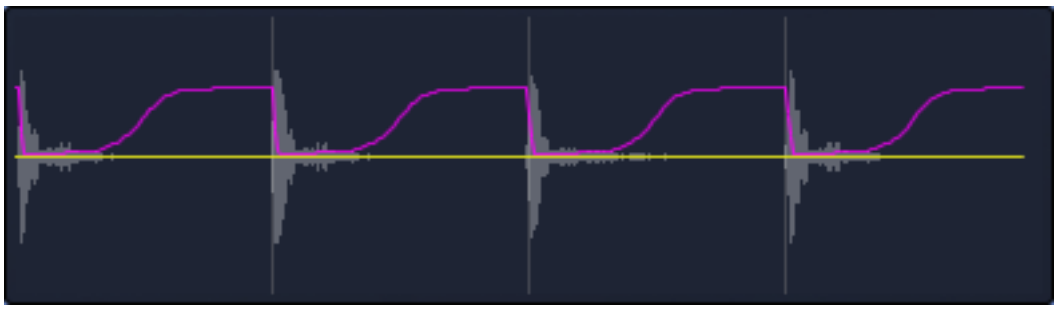
5.2 Sustain

5.2.1 Hold

This delays the onset of the attack portion of the Sustain envelope.

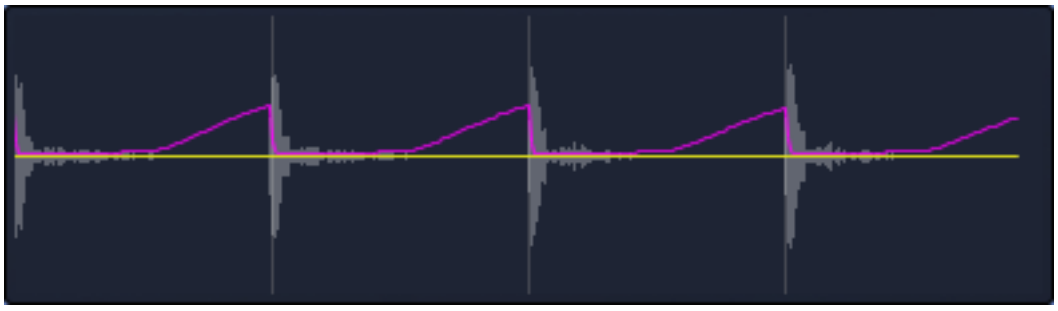


No Sustain Hold



Longer Sustain Hold

In conjunction with the Sustain Attack control, this allows you to shift the focus of the Sustain envelope later in time, so that only the ‘decay’ portion of the signal is processed.

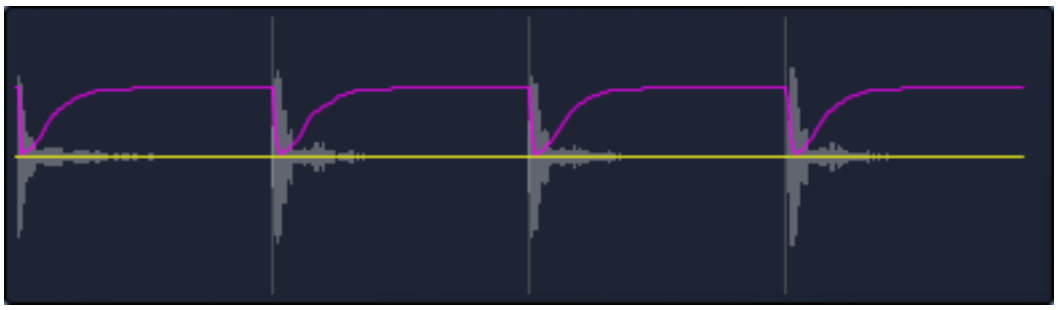


Longer Sustain Hold and Release, pulling up only the decay

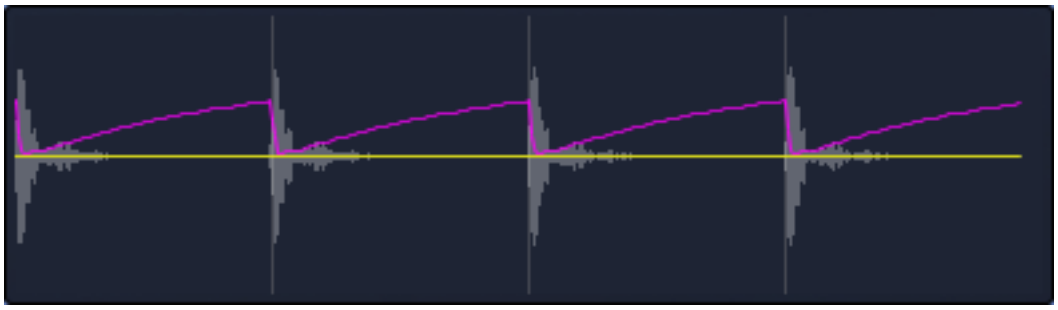
5.2.2 Attack

As in the Transient section, this smooths the leading edge of the Sustain envelope over time. However, this is much more useful here!

As Attack time is increased, the Sustain section takes longer to reach the target set by the main Sustain Level control. Adjusting the Sustain Attack can also help when adjusting the speed of the Sustain envelope to match the speed of a musical performance.



Fast Sustain Attack



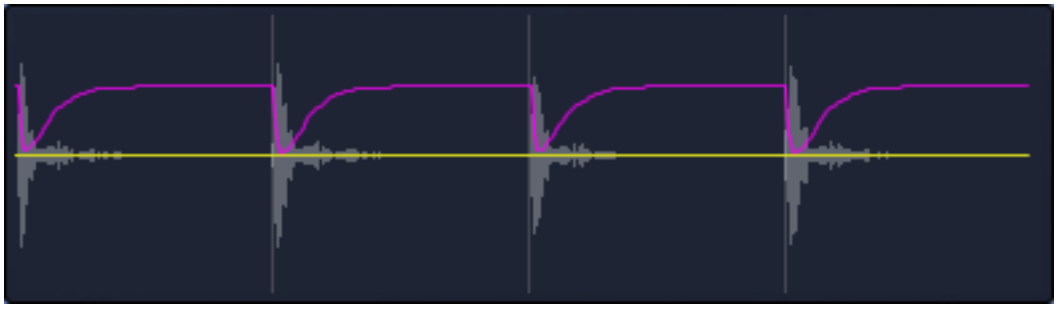
Slower Sustain Attack

If the Sustain processing ever sounds like it is ‘distorting’ or ‘fluttering’, try increasing the Attack control.

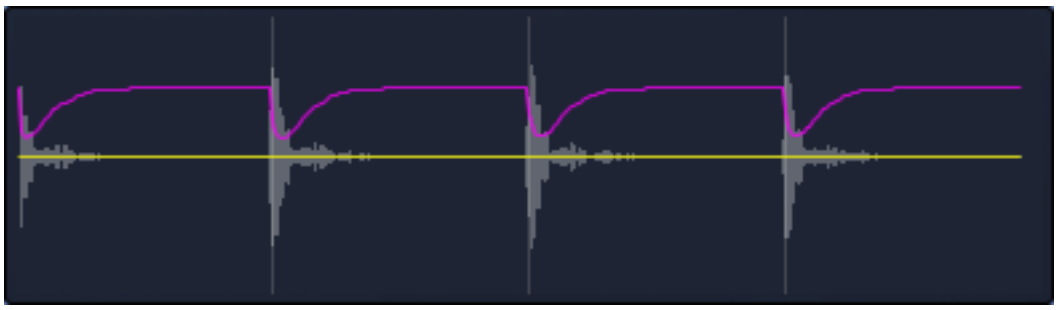
5.2.3 Release

This sets the speed with which the Sustain envelope returns to 0 dB in response to a detected transient event.

As such, it is usually best left at the default setting, which is quite fast.



Fast Sustain Release



Slow Sustain Release

However, this control can be used as an alternative way of enhancing or reducing Transient events. For example when reducing Sustain, increasing the Release time will soften the leading edge of each detected transient, without using the Transient section's processing. When increasing Sustain, increasing the Release time will allow the beginning of transient events to be boosted as the envelope releases back towards 0 dBFS. So, the Release control can be used to adjust how 'punchy' the Sustain processing sounds.

This can be useful when the Transient section is already being used for another effect, perhaps focussed on a different frequency range.

6 Spectral Shaping

The Frequency Mix (**FREQ**) controls allow the Transient and Sustain effects to be applied by different amounts in different frequency ranges.

To view these controls, click the **FREQ** button for the Transient or Sustain section.

Transient Frequency Mix controls

This can be thought of as a frequency dependent wet/dry mix – the top of the graph is fully Wet, the bottom is Dry.

These controls make the **detection** and **application** of the Transient and Sustain effects frequency dependent. An important aspect of this behaviour is that it is achieved *without splitting the signal into multiple frequency bands*. Because of this, inserting the Envolution plug-in into parallel routing paths will not introduce static phase-cancellation artefacts. There are no FIR filters either, which allows the plug-in to have very low latency.

> With 0% Tilt/Focus settings, Envolution is **frequency-independent** and completely true to the spectrum of the input programme, unlike a multi-band processor.

6.1 Tilt Mode

Tilt Mode provides ‘tilt EQ’ style control of frequency dependency. Defaulting to a smooth 6 dB/octave slope, this is very useful for gentle tone shaping. At extreme settings (-100% and 100%), the response changes to a low-pass or high-pass filter,

allowing you to exclude low or high frequency signal components from the processing.

If you're ever hearing too much effect in the Low or High regions, use Tilt Amount to tilt the curve down in that region. For example, when using the Sustain section to reduce room ambience on a drum bus, the cymbals may begin to sound unnaturally 'gated'. To resolve this, simply use Tilt Mode to reduce the Freq Mix Amount at high frequencies. High frequency ambience will be reduced by a smaller amount, allowing the cymbal decay to pass through unaffected!

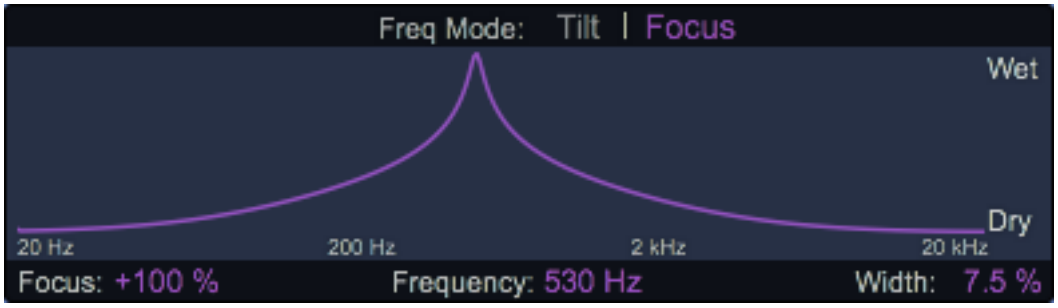
Sustain Frequency Mix configured to de-emphasise the effect in the HF region.

Transient Frequency Mix configured to de-emphasise the effect in the LF region.

6.2 Focus Mode

Focus Mode provides a band-pass or notch response for more precise control.

Here are some examples of how Focus Mode can be used:



Use with a Sustain Level boost or cut to treat drum resonance without affecting the transients.

Use with a Transient Level boost to add weight to kick drums without boosting LF ambience!

Reduce high-mid frequency ambience without losing presence.

Tweak the balance of sustain enhancement to prevent excessive low-mid build-up.

7 Warmth and Level Control

Although the Transient process works to maintain constant average signal levels, the process can produce significantly larger peak levels when positive Level settings are used. With highly percussive sounds, the peak levels can increase by up to 24 dB.

The Sustain process can dramatically change average signal levels, and can also increase the peak level of the input programme.

This effect will be seen on the plug-in's Output Meters as well as on the Transient and Sustain Effect meters. Since most DAW applications provide no headroom above the peak level operating target that most users aim for, the increased signal level is susceptible to overloading processing after the Envolution plug-in. Therefore care must be taken to set appropriate **Output Gain** settings to prevent levels over 0 dBFS.

7.1 Warmth Processing

The Warmth process is included to allow a degree of relief from premature clipping if high modulation levels are required, by providing a method for the harmonic content of peak information above digital max to be included in the final output signal from the plug-in.

When set to maximum (**100%**) the Warmth process will allow peak input signals up to +6dBFS to be included without the sound of hard clipping, while preventing output signal overloads greater than 0 dBFS. Warmth processing will also change the harmonic content of the programme to provide warmth and richness to many programme types.

7.2 Loudness Enhancement

When used with negative Transient Level settings, Envolution can provide a useful method to increase the loudness of programme by reducing very short transients that may otherwise cause overloads. In many cases, very short transients may not be a prominent part of the programme sound, and can be reduced without damaging the sonic character of the results. If very short-term peaks are reduced, higher modulation levels can be achieved without overloads. Since the look-ahead process timing can act on the signal before it appears at the output of the plug-in, short-term peaks can be effectively reduced without apparent loss of overall sonic character.

To achieve this effectively, small negative Transient Level and Transient Release values should be used with the minimum Transient Attack setting, in order to catch the fastest transients only. Coupled with an appropriate Transient Sensitivity setting transients can be reduced by the required amount, allowing the overall level of the programme to be increased before limiting occurs.

Since Envolution is an adaptive process that constantly changes with programme content, the peak limiting function will not be as predictable and accurate as that provided by a programme limiter.

8 Master Dry/Wet Mix

A Master Dry/Wet Mix control is provided to adjust the strength of the combined Transient and Sustain effects.

This can be used to make final adjustments more easily than adjusting the Transient and Sustain controls independently.

It can also be used with extreme Sustain settings to achieve level-independent parallel compression effects.

For more powerful parallel processing options, just place Envolution on a parallel effects bus!

9 DIFF Listen

The **DIFF** listen mode allows auditioning of the difference between the original input signal, and the Transient/Sustain processed signal; this can can have various uses.

Listening to the difference signal can help hear the optimum Transient Sensitivity setting – where all transient events are detected without any false positives.

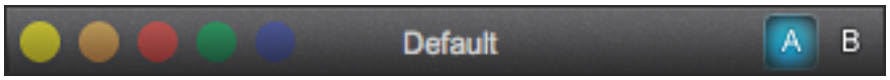
However, the DIFF listen mode can have more creative uses too!

Here are just three examples of what's possible in DIFF listen mode:

- Increase or decrease the Transient Level to extract only the transient events. These extracted transients can then be used to trigger other dynamic processors, or to feed time-based effects processors.
- Increase or decrease the Transient Level, and use the Transient Release control to adjust how quickly the extracted transients decay. For percussive signals, this can provide excellent sustain reduction, and leaves the Sustain section available for further envelope shaping!
- Increase or decrease the Sustain Level to extract only the non-transient events. This can sound similar to extreme negative-ratio compression, but is still level-independent! Use the Sustain Attack and Release controls to adjust how aggressive this effect is.

In order to prevent harmonic distortion from inhibiting the utility of the DIFF listen mode, the Warmth processing is not included in the difference signal.

10 Preset Manager Toolbar



Sonnox Oxford plug-ins come equipped with their own onboard Preset Manager, which is displayed at the top of the plug-in window. The reasoning behind this is to allow increased portability of your presets across all the host applications, while also providing a consistent and versatile interface. While most host platforms allow creation and loading of presets, those host-created preset files are not portable between different host applications. With the Oxford plug-ins' Preset Manager, you can create a named preset in one host application and load it when using an alternative application.

The Sonnox Preset Manager is fully described in a companion document — Sonnox Toolbar and Preset Manager User Guide — available for download at www.sonnox.com/docs

11 Copyright and Acknowledgements