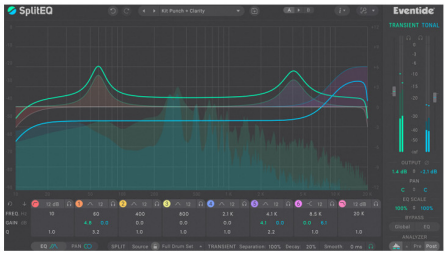

Eventide SplitEQ Changed Mixing and Mastering User Guide

SplitEQ Changed Mixing and Mastering User Guide

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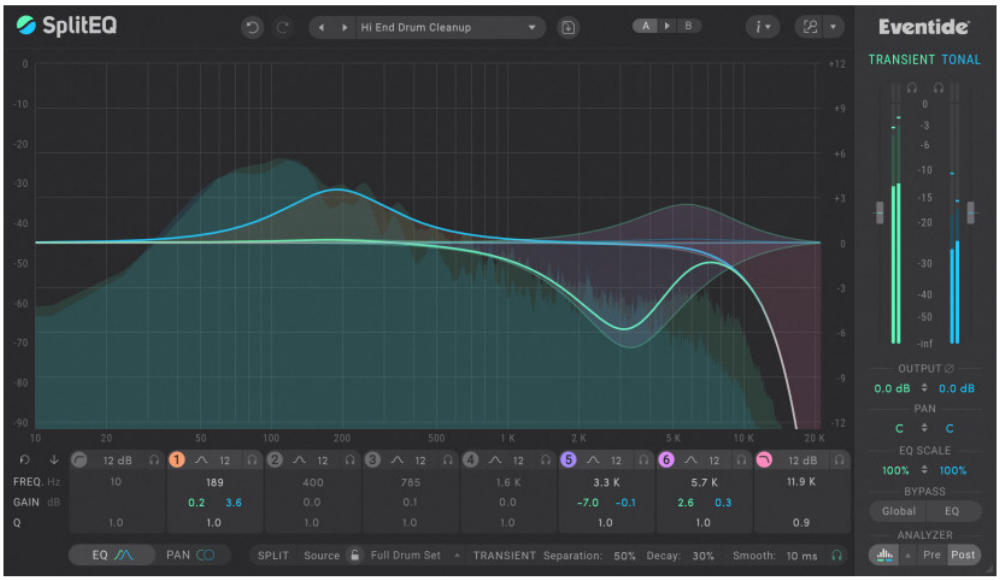


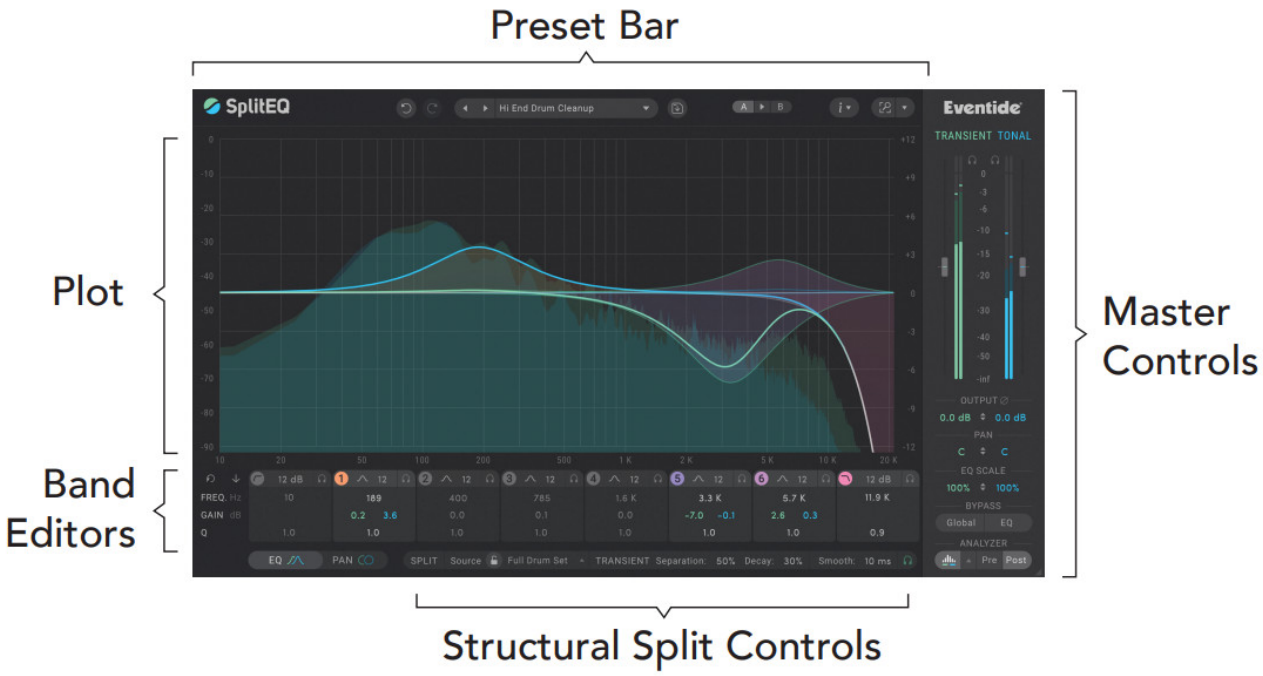
Contents

About This Product

SplitEQ is a mixing/mastering EQ that enables you to surgically address common equalization problems, even in a complex mix. Eventide's patented Structural Split™ technology splits the incoming audio into Transient and Tonal signals: the rapidly changing parts of the input signal are identified as Transient, while the remaining, sustaining elements are considered Tonal.
Once the signals are split, you can apply equalization and pan separately to each.
This is useful because many tough EQ problems can be formulated as "I want to do X but without doing Y." For example: "I want to increase the low thud of the kick drum,
but a low-shelf boost will also make the sound muddy." In split, this problem is easy to solve: simply apply a low-shelf boost to only the Transient signal.
We think that as you learn to use SplitEQ, you will be delighted to discover how many common EQ problems it can solve, as well as new creative possibilities.

Introduction

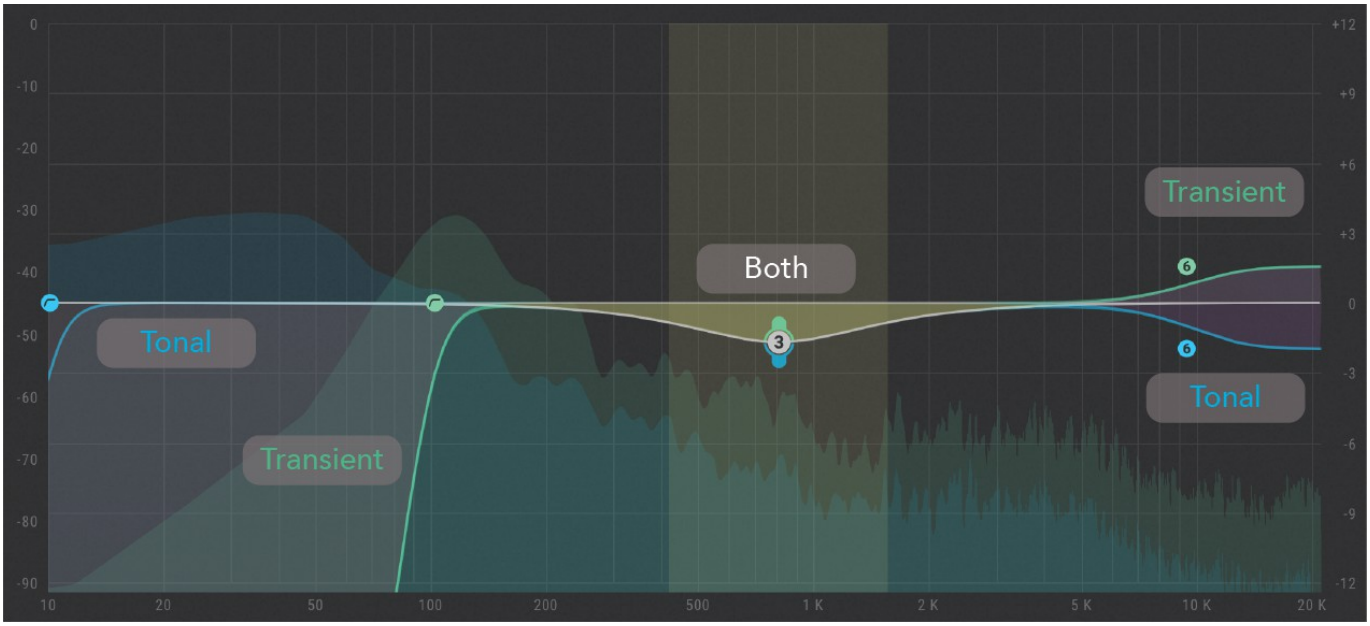
The plugin window for SplitEQ is divided up into five major sections:



Preset Bar	Presets, Undo/Redo, A/B Comparison, Info, and Zoom.
Plot	Graphical EQ curve editor.
Band Editors	Adjust EQ and Pan controls.
Structural Split Controls	Fine-tune SplitEQ's Transient and Tonal detection algorithm.
Master Controls	Metering, Spectrum Analyzer, and Master Controls.

Control Scheme

Under the hood, SplitEQ operates two EQs in parallel, one for the Transient signal, and one for the Tonal signal. This allows you to adjust Transient or Tonal signals independently or together. Because there are twice as many EQs, there are also twice as many controls and curves on the plot. Consequently, SplitEQ provides linked controls for adjusting Transient and Tonal values together and uses color-coding to show which signal a control affects.



- Green controls apply only to the Transient signal.
- Blue controls apply only to the Tonal signal.
- White or Gray controls apply to both signals.

Similarly, green curves on the plot indicate the Transient EQ curve, while blue curves indicate the Tonal EQ curve. White indicates portions of the EQ curves where Transient and Tonal are the same. The color-coding scheme also applies to the metering and the spectrum analyzer.

The EQ Plot

You can adjust the gain, frequency, and Q for each band directly on the EQ Plot by clicking and dragging on the band's handle(s) or on or near the band's highlighted area.

When Tonal and Transient gains are the same, a white (Both) handle is shown with colored pull tabs for the Transient and Tonal handles. When the handle is white the band is behaving just like a normal parametric EQ band; dragging on the handle or band will adjust Transient and Tonal settings together.

Dragging on one of the pull tabs splits the handle so that you are now affecting only the Transient or Tonal portion. Separate handles are shown for Transient and Tonal, and Both handles disappear.

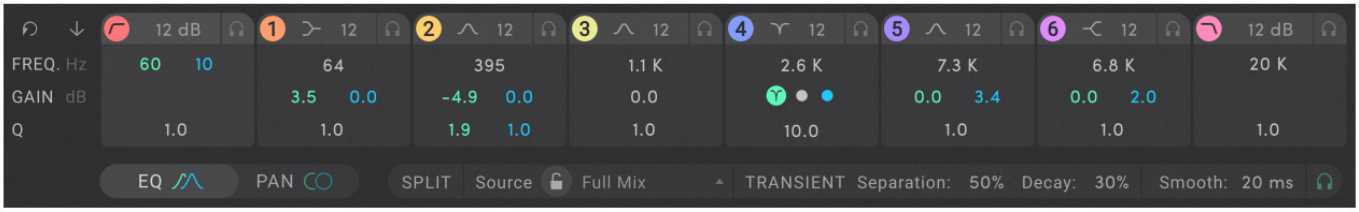
The blue handle represents the Tonal settings, and the green candle represents the Transient settings. Dragging anywhere other than the Transient or Tonal handle will move both handles in parallel, maintaining their initial offset. To bring the handles back together, double-click on the Transient or Tonal handle and the other handle will snap to it.

The following table shows the mouse interaction modes for SplitEQ's plot:

Action	Mac	Windows
Join handles	double-click	double-click
Reset handle	⌥-click	Alt-click
Adjust Q	⇧ drag	⇧ drag
Precision Drag	⌘ drag	Ctrl drag
Momentary Solo	⌘ + ⌥ drag	Ctrl + Alt drag

For an illustrated overview of how the band handles work, follow the tutorial when you first launch the plugin. This tutorial is also accessible under the "i" (Info) menu in the menubar.

Band Editors



The Band Editors section is located underneath the plot. It contains two panels, EQ and Pan, which can be accessed through the EQ and Pan buttons in the lower left corner.

Similar to the plot, the controls in the Band Editors also support linked edits.
The following table shows the mouse interaction modes for SplitEQ's linked text sliders:

Action	Mac	Windows
Type In a Value	double-click	double-click
Reset Value	⌥-click	Alt-click
Repel Mode *(link arrows only)*	⇧ drag	⇧ drag
Precision Drag	⌘ drag	Ctrl drag

Controls

Reset All 	Reset All
Collapse/Expand 	To reduce the size of the band editors, click on the collapse icon. When the band editors are collapsed, clicking the expand button will restore them to their original size.
EQ/Pan (Mono/Stereo and Stereo instances only)	Switches view from EQ values to panning values and vice versa.

EQ

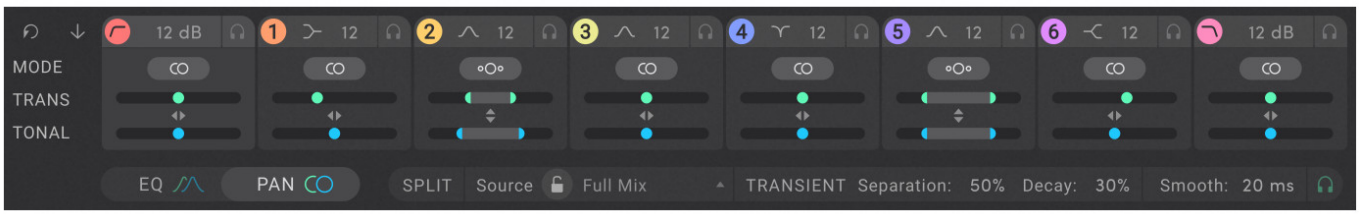
Each EQ band's parameters are displayed on this panel.
The first band and last band are dedicated highpass and lowpass filters with independent Transient and Tonal cutoff frequencies.
The numbered bands (1-6) can be assigned to different filter types. These bands each use a single frequency for the Transient and Tonal filters.

Band Controls

Active	Enables/disables processing for the band. Disabled bands will not be shown on the plot unless they are soloed.
Type (bands 1-6 only)	Selects the type of filter for bands 1-6. The available types are: • Low Shelf • Peak • Notch • High Shelf • Tilt Shelf • Bandpass
Slope	Selects the slope of the filter in dB/oct.
Solo	Solos the band. When you mouse over the headphone icon a popup appears which allows you to select the source for the solo: Transient, Both, or Tonal.
Frequency	Sets the frequency for the band. The Highpass and Lowpass bands have separate Transient and Tonal frequencies. The numbered bands (1-6) use a single frequency value which applies to Transient and Tonal.
Gain	For peaking and shelving filters, this sets the individual Transient and Tonal Gains of the band. These values can be moved together or separately. Linked adjustments preserve any offset between Transient and Tonal Gain.
Split Source (Notch filter only)	Selects which signal the notch applies to Transient, Both, or Tonal. This appears in place of gain controls for the Notch filter type.
Q	This sets the Transient and/or Tonal Q factor of the band. These values can be moved together or separately. Linked adjustments preserve the ratio between Transient and Tonal Q.

Pan

(Available in Mono/Stereo and Stereo instances only.)



Each band's stereo positioning details are displayed on this tab. This panel is not available for mono output instances of SplitEQ.

Controls

Pan Mode	Switches between Left/Right and Mid/Side panning modes.
Pan	This pans the effect of the band's EQ for both the Transient and Tonal signals. These values can be moved together or separately. Linked adjustments preserve any offset between Tran sient and Tonal Pan.
Mid/Side	This adjusts the stereo width of the band's Transient and Tonal signals. These values can be moved together or separately. Linked adjustments preserve any offset between Transient and Tonal Mid/Side.

The Pan Mode and Mid/Side controls are only available in stereo instances of the plugin because Mid/Side processing requires a stereo input source.

Split

The Structural Split™ divides the incoming audio signal into Transient and Tonal signals.
It does this by looking for regions of relative stability in terms of time and frequency and considers those to be Tonal. Subtracting those regions from the input, what remains is Transient. The advantage of this approach is that, unlike compressors or other dynamics-based tools, it is not level-dependent. After all, in the real world transients can be loud or soft.
The Transient and Tonal signals are complementary: if you sum them back together, they perfectly reconstruct the incoming signal. Put another way, any part of the sound that is not considered Tonal is Transient, and vice versa. The word "considered" here is important: the controls in the Split section simply affect which areas of the sound across time and frequency are considered Transient or Tonal, and do not alter the sound on their own.
SplitEQ provides four controls for shaping the operation of the Structural Split: the Source and Transient Separation controls determine how the Split identifies regions, and the Transient Decay and Smooth controls allow you to shape the transitions between Transient and Tonal regions.
Additionally, there is a master solo button on the right end of the Split controls which is provided to facilitate tuning since it is often helpful to listen to the Transient and Tonal signals in isolation to hear the effects of these controls.

Source

This menu box includes "coarse" algorithmic tunings for different audio sources as suggestions for the separation engine. In general, you will see the best results by matching the Source to the input audio.
These coarse Source Type tunings essentially scale the internal algorithm parameters used by the Transient Separation control to split the input audio. Tunings for higher polyphony or complexity (full drums, electronic beat, piano, guitar, vocal) tend to split best on source material that has higher polyphony or complexity.
That said, you may find interesting results with tunings that do not match the source.

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Source Lock	Locks the Source control as you change presets.
Transient Separation 0-100%	Affects the isolation level for transients across the spectrum. This control sets the main transition region or decision point where audio splits (in time and fre quency) into separate Transient and Tonal streams. At higher values, Transient regions will be smaller and have sharper boundaries in terms of time and frequency. This is the main control you will use to fine-tune the Split. If you solo the Transient signal and i ncrease Transient Separation, less of the sound will be classified as Transient.
Transient Decay 0-100%	Increases the release time of Transient regions, resulting in longer Transient areas and slower Tonal swells. This control limits how quickly a region is allowed to transition (in time and frequency) from Tra nsient to Tonal, thus increasing the decay on the Transient regions. Larger values of Transient Decay will limit the transition rate substantially. This control could equally be named “Tonal Sw ell”, as larger values will also increase the auto-swell period in the Tonal Channel.
Smoothing 0-50 ms	This control essentially controls the speed of the decision-making process, preventing it from making too fast a decision either way. This is useful for trimming out unwanted transient chirp s or smoothing rough transitions. It can also be musically useful for slowing the attack of Trans ient regions. In general, turning this control up will reduce the differences between the EQ curv es.

Tuning the Split

You can certainly get good results out of SplitEQ without ever changing any of the Split section controls, but learning how to use them will allow you to more precisely target particular aspects of a sound. The following steps may be helpful in tuning the Split.

1. Choose an appropriate source in the Source popup for your program material.
2. Use the solo button to audition the Transient or Tonal signals in isolation. It is significantly easier to hear what the controls are doing with the solo engaged.

   The following settings can be useful for observing how the Split is working.

   • Transient Solo Active

   • EQ Bypass Active

   • Analyzer – Source: All, Routing: Pre + Post, Decay: Very Fast

   With these settings, the green curve represents the transient portion. The visible portion of the gray curve above the green portion effectively represents the portion of the signal which is tonal.
3. If necessary, adjust Transient Separation, Transient Decay, and Smoothing until you reach your desired results. The streams do not necessarily have to be completely distinct from each other.

   After making some adjustments to the EQ curves in the plugin, you may find small adjustments in the Split settings useful for making global adjustments to the application of your EQ curves.

The Transient and Tonal audio streams automatically mix back together at SplitEQ's output to perfectly reconstruct the input signal.
You will not hear any change in audio as you adjust the controls in the Split section unless the Transient and Tonal EQ curves are different or you are soloing Transient or Tonal.

A Note About Latency

In order to effectively separate the incoming audio signal into Transient and Tonal audio streams, the Structural Split™ keeps a small running history of the audio signal.
This introduces a significant bit of latency, which is expected.
Most modern DAWs will compensate for such latency, so SplitEQ will not audibly delay the audio signal in your sessions. However, due to this inherent latency, SplitEQ is not fit for real-time use.

Sample Rate (Hz)	Latency (Samples)
44,100	3,592
48,000	3,592
88,200	7,176
96,000	7,176
176,400	14,344
192,000	14,344

Master

The Master section contains controls and metering for the post-EQ Transient and Tonal signals as well as the spectrum analyzer.
The bar meters display the peak and RMS amplitude for the Transient and Tonal signals, with the lighter-colored bar representing the RMS, and the darker-colored bar representing the peak. Infinite-hold clip indicators appear above the meters. Click on the clip indicators to clear them.

Solo	Solos the Transient or Tonal audio stream (post-EQ).
Output Gain	Amount of gain in dB (-30 to +30) to apply to the audio post. These values can be moved together or separately. Linked adjustments preserve any offset between Transient and Tonal Gain.
Phase Invert	Inverts the phase of the plugin's output.
Pan (Mono/Stereo or Stereo only)	Adjusts the L/R balance of the entire Transient or Tonal audio stream. These values can be moved together or separately. Linked adjustments preserve any offset between Transient and Tonal Pan.
M/S (Mid/Side) (Stereo only)	Adjusts the stereo width of the entire Transient or Tonal audio stream. These values can be moved together or separately. Linked adjustments preserve any offset between Transient and Tonal Pan. To switch from Pan to M/S mode, click the Pan label and select "M/S".
Scale	Scales the overall EQ curve for the Transient or Tonal audio stream. These values can be moved together or separately. Linked adjustments preserve any offset between the Transient and Tonal Scale.
Global Bypass	Bypasses the plugin completely.
EQ Bypass	Bypasses the EQ section, but includes any alterations made in the Master section.

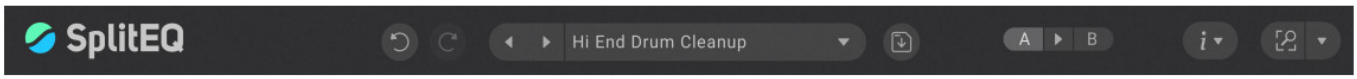
Spectrum Analyzer

The Spectrum Analyzer displays the spectrum of one or more signals on the plot. SplitEQ's analyzer is especially useful because it can display the spectrum of the Transient and Tonal signals as well as the plugin's input and output.
The controls for the Spectrum Analyzer are located in the bottom right corner of the plugin. The first button turns the analyzer on and off. The second button pops up a panel with additional settings for the analyzer. Finally, the Pre and Post buttons adjust the routing of the analyzer.

Analyzer Settings

Source	The spectrum analyzer has four source options: • All – the summed Transient and Tonal signals. • Split – separate views of Transient and Tonal signals. (pre or post) • Transient – only the Transient signal. • Tonal – only the Tonal signal.
Routing	Select pre and/or post-EQ routing for the spectrum analyzer. When Source is set to Split, the analyzer can be either pre or post, but not both.
Resolution	Adjusts the resolution of the analysis. “Best for Frequency” and “Better for Frequency” will capture more detail about the frequency, but with less frequent updates. “Better for Time” and “Best for Time” will show less frequency detail but update more often.
Decay	Sets the decay rate for the peaks of the analyzer.
Freeze	Enables infinite peak hold on the plot. When active, existing peaks will not decay, and new p eak values will be held, allowing you to see the peak amplitude at any given frequency.

Preset Bar



Located at the top of the SplitEQ plug-in, the Preset Bar lets you load and save presets, along with several other features.
When SplitEQ is installed, a library of settings is placed into the <user>/Music/Eventide/SplitEQ/Presets folder (Mac) or the <user>/Documents/Eventide/SplitEQ/Presets folder (Windows). These presets have a .tidex extension and can be saved or loaded from the SplitEQ preset bar in any supported DAW.
In many DAWs there is an additional generic preset bar that saves DAW-specific presets to a separate location. We recommend saving your presets using the Eventide preset bar to ensure that your presets will be accessible from any DAW. You can also create sub-folders inside the preset folders if you wish.

Controls (from left to right)

Undo	The Undo button undoes the last chance and restores the plugin to the previous state. Pressing t his button multiple times will move you backward in the plugin's state history.
Redo	The Redo button reverses the last undo command if any. Pressing this button multiple times will move you forwards in the plugin's state history.
Previous Pr eset	Loads the preset before the current preset in the preset menu.
Next Preset	Loads the preset after the current preset in the preset menu.
Preset Choo ser	Choose a preset from the Factory or User preset collections. • Save as… Save the preset with a new name or location. • Load… Open a preset from a location on disk. • Import… Copy a preset from a location on disk into the User preset collection.
Save	Saves the preset to disk.
A I B	Switches between two temporary plugin states, A and B. This is useful for making A/B comparis ons. • Click A or B to switch states. • Click I to copy state A into B. • Click J to copy state B into A. The A and B states are not saved in your DAW session. When you load a session, the current se ttings for the plugin will be loaded into A and B.
Info (i)	Opens a drop-down menu with various help topics and settings. • User Guide – Open this document. • Tutorial – Open the tutorial which was displayed the first time the plugin was loaded. • Webpage – Launches the SplitEQ webpage. • Theme – Select a color theme for the whole UI. • Use OpenGL – Enable or disable OpenGL for the analyzer. After changing this value, you must close and re-open the plugin window for the change to take effect. (N.B. OpenGL is unavailable on certain systems lacking sufficient support. If this is the case, this setting will be hidden.) • Tooltips – Enable or disable tooltips. • Invert Handle Tabs – Invert the direction of the Transient and Tonal band handle tabs.
Zoom	Clicking the magnifying glass button will automatically zoom the plot to fit its contents. Click the d rop-down menu to the right of the button to choose a zoom setting from a list.

Conclusion

We hope you enjoy the SplitEQ plug-in and put it to good use in all of your mixes.
Please be sure to check out Eventide's other native plug-in offerings for more unique and interesting effects.

Documents / Resources

	Eventide SplitEQ Changed Mixing and Mastering [pdf] User Guide SplitEQ, Changed Mixing and Mastering, Mixing and Mastering, SplitEQ

References

- Eventide Audio & Communications
- Eventide Audio | Studio Processors, Effects Pedals and Plug-ins