X-Limit User Guide

Introduction

SSL X-Limit is an easy-to-use and visual limiter for increasing the loudness of your tracks and buses without the fear of clipping – featuring multiple set characteristics ranging from extremely transparent to colour and glue, a standard-compliant True Peak algorithm for precision processing, and useful feedback about the limiter's impact on the stereo image of your signal.

Key Features

- Pick from 4 carefully designed limiter characteristics – **Transparent**, **Glue**, **Punch** and **Auto**
- **True Peak** mode engages SSL's True Peak algorithm to ensure that inter-sample peaks are effectively limited using intelligent oversampling

- **All-in-one visualiser** and threshold/ceiling sliders let you easily set parameters against the incoming signal level
- Set the **Ceiling** in **True Peak** mode to prevent your signal from exceeding a maximum level
- Pull down the **Threshold** control to control when limiting kicks in
- **Auto** style automatically adjusts the ballistics on the limiter based on the transient content of the signal
- **Auto Release** overrides the release time, automatically shortening for transient peaks and prolonging it for sustained sounds
- Use the advanced fade-in **Lookahead** algorithm to smoothly catch transients
- Accurate momentary and max **True Peak** value readouts
- Use on the master bus to transparently add loudness to your mix
- **Channel Link** blends between stereo or independent left/right limiting
- ITU-R B.S. 1770 and Apple 'afclip' True Peak detection standard compliant
- Minimise stereo degradation using the **Steering** and **Ducking** meters
- Gain Match allows you to preview the effect of the limiter without the psychoacoustic effect of the signal level increase
- Use **Gain Lock** to maintain the applied gain to quickly demo different presets and styles on your source material
- **Mix** control to dial back in the original signal when using the limiter to add punch or character rather than catch peaks

Supported Platforms and Hosts

When we release an SSL plug-in, we test it on all Windows and macOS operating systems that aren't End-of-Life (EOL) at the time of release.

The versions listed below are the latest on which we have officially tested the the product.

It is possible for our products to work on platforms outside of this list. However, if your host, host version or operating system is not listed here, we recommend you demo the product before purchase to confirm that it works correctly.

Unless specified otherwise, our plug-ins do not yet have native support M1 machines running macOS. It is possible to run the Intel macOS builds of our plug-ins inside of Rosetta 2 in the majority of hosts. We are currently working to develop and test Universal Binaries for all of our plug-ins.

macOS M1/ARM Support

X-Gate is provided as a universal binary for macOS and features native M1 support.

Operating Systems

macOS	Monterey (12), Big Sur (11), Catalina (10.15)
Windows	11, 10

Hosts

- Logic Pro 10
- Pro Tools 2020
- Ableton Live 10
- Studio One 5
- Cubase 11

Demo/Trial

To demo this plug-in, you can simply download it from the product page and run it up in your host - the software will guide you through the rest of the process.

1. Download and install the plug-in.
2. Open your DAW/host.
3. Insert the plug-in to commence activation (sometimes this will happen when the plug-in is scanned on startup, depending on your DAW/host).
4. When you see 'Activation is required', click 'Try'.
5. Log into your iLok account and click 'Next'.
6. Select a location to activate the license to, and click 'Next'.

Installation and Download

You can download installers for a plug-in from the website's Download page, or by visiting a plug-in product page via the Web Store.

All SSL plug-ins are supplied in VST, VST3, AU (macOS only) and AAX (Pro Tools) formats.

The installers provided (macOS Intel .dmg and Windows .exe) copy the plug-in binaries to the common VST, VST3, AU and AAX directories. After this, the host DAW should recognise the plug-in automatically in most cases.

Simply run the installer and you should be good to go. You can find more information about how to authorise your plug-ins below.

Licensing

Visit the online plug-ins FAQ for guidance in authorising your SSL plug-in.
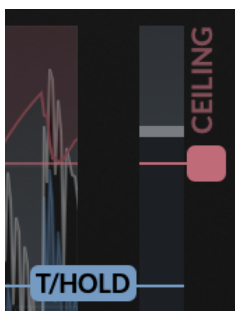
Setting Values

All numerical controls can be dragged to change the value, including all of the circular controls, numerical inputs and the flags/tabs.

Hover over a control and use the mouse wheel to increase/decrease its value.

Double-click any of the numerical controls to directly type in a value.

Flags/tabs

The **CEILING** and **THRESHOLD** parameters can be set by dragging the flags on the graph. Click and drag between the area between the flags to move both parameters at once.

Click and drag in the area above the **CEILING** to move only the **CEILING**. Click and drag in the area below the **THRESHOLD** to move only the **THRESHOLD**.

When brickwall limiting, you want your **CEILING** and **THRESHOLD** to be equal. To achieve this, always drag in the area above the **CEILING** or below the **THRESHOLD** to move them around in tandem.

FINE control (hold ⌘/ALT)

Hold ⌘/ALT while dragging a control to enter 'FINE' control mode. This causes all interactions with numerical input to have finer control - including the increment/decrement buttons!
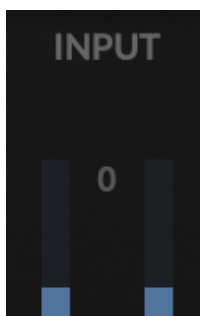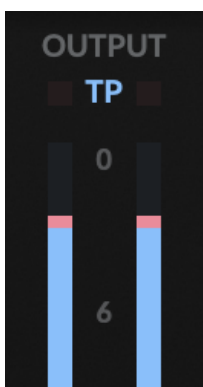
I/O

Bypass

The **BYPASS** button at the top right of the plug-in window allows the user to bypass all plug-in processing. In some supported DAWs, this bypass is linked to the DAW bypass.

Input meter

The **INPUT METER** shows the instantaneous value of the **INPUT** signal. There is no clipping indicator on the input signal.

Output meter

The **OUTPUT METER** shows the instantaneous value of the **OUTPUT** signal.

When **TRUE PEAK** is enabled, the meter will change colour and 'TP' will be displayed to indicate that you are seeing the momentary true peak value. The maximum true peak value will be represented on the meter by a thicker, light-red line.

To reset the maximum true peak value on the meter, click the TPmax readout above the meter.

If the signal is very loud or is clipping, this is indicated by a red segment at the top of the metering. When limiting, there is a chance that you will see clipping occur when **TRUE PEAK** is disabled, or when using the **MIX** control to dial back in the original (post-gain) signal when using the limiter to add dynamic character rather than to limit the output level.

MIX

The **MIX** control sets the blend between the 'wet' effected signal and the original 'dry' input signal. A **MIX** control is a rare breed on a limiter, so use it with care - it means that it no longer guaranteed that you signal will not exceed the **CEILING**!

When using the limiter to add punch rather than catch peaks, you can use the **MIX** control to easily dial back the effect. Note that this means your signal may exceed the **CEILING**, since it blends with the original unprocessed signal!

GAIN, THRESHOLD and CEILING

The **GAIN**, **THRESHOLD** and **CEILING** controls are at the core of the X-Limit processor. These parameters define how much loudness to add, the level at which limiting kicks in, and the maximum output level (pre-**MIX**).
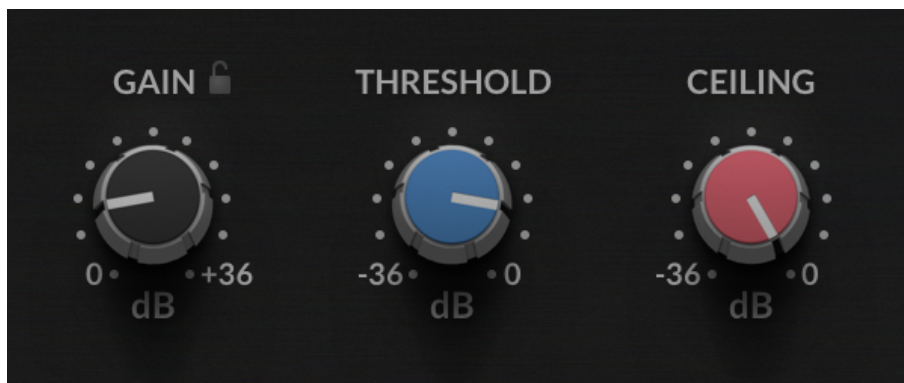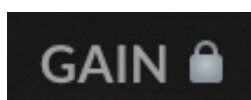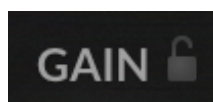

GAIN

The **GAIN** control adds up to 36 dB of gain to the input signal. Use this to increase the loudness of your signal.

GAIN LOCK

Click the lock symbol next to the **GAIN** in order to lock the **GAIN** when changing between presets. This lets you apply the same amount of gain when quickly trying out different limiter characteristics.

THRESHOLD

The **THRESHOLD** defines the level above which limiting kicks in, in order to compress and control peaks in the signal. The further the **THRESHOLD** is to the **CEILING**, the softer the effect of limiting will be. As you move the **THRESHOLD** towards the **CEILING**, you blend from softer compression approach hard-limiting. This could be considered the equivalent of increasing the 'ratio' of compression that is being applied.

Regardless of where you set the **THRESHOLD**, the signal will never exceed the **CEILING** when **TRUE PEAK** is enabled.

CEILING

The **CEILING** control defines the absolute maximum value of the output signal (pre-**MIX**). When **TRUE PEAK** is enabled, SSL's standard-compliant and intelligent oversampling - the least amount of oversampling, based on the current sample rate, is applied to the signal in order to guarantee that the signal will never exceed this level.

This keeps CPU use and latency at minimum possible levels.

Waveform Visualiser

You can also set the **CEILING** and **THRESHOLD** values visually against the incoming signal by using the 'CEILING' and 'T/HOLD' flags/tabs on the Waveform Visualiser. These are also provided as numerical inputs above the graph, so you can always see their value.
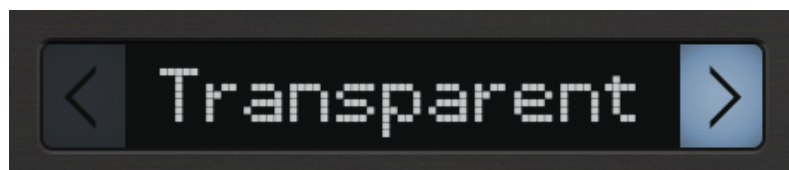
Gain Reduction Meter

The Gain Reduction Meter shows the instantaneous gain reduction applied to the signal as a result of limiting.

Style

X-Limit comes with 4 carefully designed limiter characteristics for easy operation.

To cycle between different characteristics, press the arrows either side of the **STYLE** readout.

Transparent

Non-invasive style, true to the original sound. Avoids pumping/coloration.

Glue

Tailored to bus and group processing. Can also be used on individual stems and tracks. Adds 'glue'!

Punch

Introduces pumping and flavour, but with as little distortion as possible. Use this to add punch and weight to your tracks and buses.

Auto

The Auto style automatically adjusts the attack of the limiter based on the transient content of the signal. This preset adapts to your signal on-the-fly!

Ballistics

The ballistics section lets you tweak the dynamics of the limiter processor, and how the limiter responds to changes in the signal.
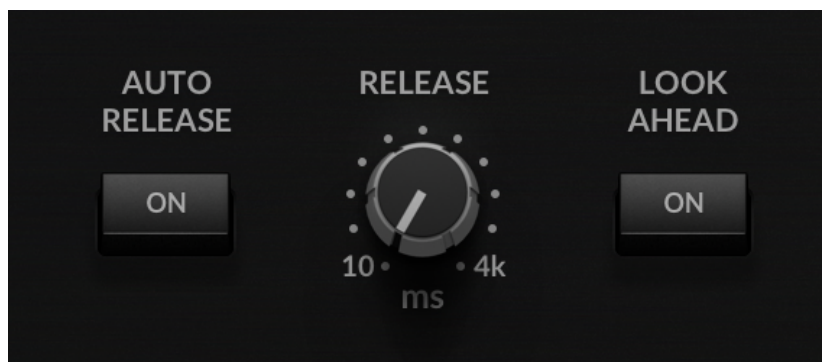
AUTO RELEASE

Switching in **AUTO RELEASE** overrides the release time. When in **AUTO RELEASE** mode, the release time is automatically shortened for transient peaks and is prolonged for sustained sounds - thereby adapting to the source material on-the-fly.

When **AUTO RELEASE** is enabled, the **RELEASE** control will be overridden.

RELEASE

The **RELEASE** control defines how quickly the limiter reacts when the signal level is falling.

Fast release settings will cause the limiter to stop reacting quickly - potentially causing pumping and distortion. Slow release settings may reduce the dynamics in the signal, and could cause the signal to become lifeless. A release time of between 40 and 500 ms is suitable for most material.

LOOKAHEAD

Switching in the **LOOKAHEAD** option allows the limiter to 'lookahead' at the incoming signal and catch peaks, by introducing an internal latency. The advanced fade-in LOOKAHEAD algorithm smoothly catches transients.

Each preset characteristic defines a different **LOOKAHEAD** under-the-hood that introduces minimal latency, so you simply have to switch it in or out.
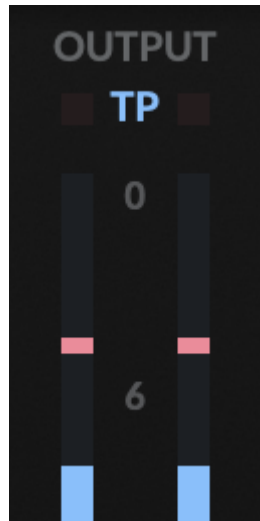
True Peak

TRUE PEAK mode engages SSL's true peak algorithm to ensure that inter-sample peaks are effectively limited using intelligent oversampling.
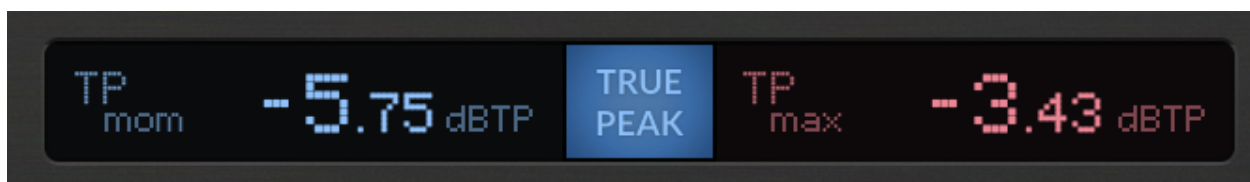
When **TRUE PEAK** is enabled, the momentary and maximum true peak values are displayed in the top section of the GUI.

The corresponding true peak momentary and maximum values are shown on the output meter. The 'TP' indicator and the change in colour on the meter indicates that the output meter is showing the true peak momentary value.
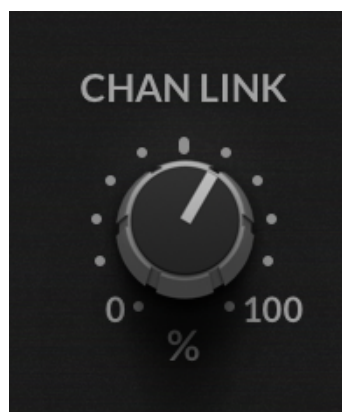

To reset the maximum true peak, click the TPmax value in the display.


mceclip20.png
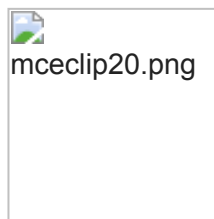
Channel Link, Steering and Ducking

The **CHANNEL LINK** control blends between stereo or independent left/right limiting.

When working with stereo signals, using either 0% or 100% channel linking can cause stereo degradation, depending on the stereo content of the signal.

Use the steering and ducking meters to tweak the **CHANNEL LINK** control and observe the effect that this has on the stereo image of your signal. Try and tweak the **CHANNEL LINK** until ducking and steering are at a minimum.
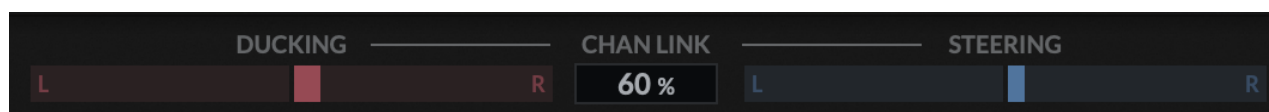
Ducking

When the **CHANNEL LINK** is more than 0%, then when one channel in a stereo signal exceeds the threshold, then both channels are limited - including the quieter signal, which gets limited unnecessarily.

The ducking meter indicates the extent to which the quieter signal is being limited when it doesn't need to be. If you're seeing a lot of ducking, consider reducing the channel link. However, this means that each side of the signal will be limited more independently, and this will effect the stereo image of your signal.
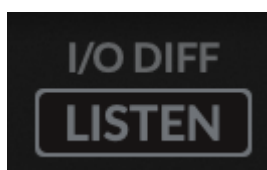
Steering

When the **CHANNEL LINK** is less than 100%, degradation of the stereo image can occur.

The steering meter illustrates the direction that the signal is being steered in as a result of the stere channels being limited independently.

Auditioning

X-Limit includes an **LISTEN** control that auditions the difference between the input and the output.

This lets you listen to the effect of parameters such as the ballistics. This can be useful when setting parameters such as the **RELEASE** time and the **STYLE**. The smoother the signal you hear when using **LISTEN**, the more transparent the limiting is likely to sound.

Gain Match

The **GAIN MATCH** option allows you to drive the input louder without the psychoacoustic effect of the output being louder, therefore sounding 'better'.
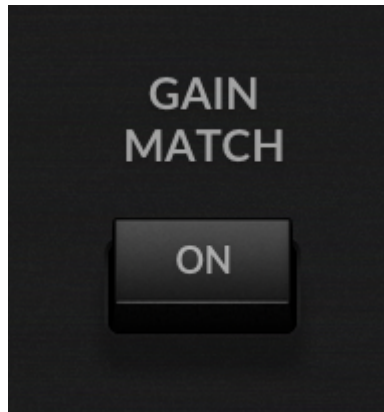
This control automatically adjusts the output to compensate for the **INPUT GAIN** and **THRESHOLD**. This lets you more easily preview the only the perceived effect or character added by limiting, rather than the increase in loudness.

Presets

X-Gate ships with several plug-ins to aid your workflow, including several carefully designed presets for different common gating applications such as presets to resolve Snare Mic & Vocal Bleed as well as more creative uses such as the '*Gentle Mastering Expander*' to revive dynamics in a heavily compressed Mix.

Factory presets are included in the plug-in installation, installed in the following locations:

macOS: /Library/Application Support/Solid State Logic/PlugIns/Presets/[Plug-in Name]

Windows: C:\ProgramData\Solid State Logic\PlugIns\Presets\[Plug-in Name]

Switching between presets can be achieved by clicking the left/right arrows in the preset management section of the plug-in GUI, and by clicking on the preset name which will open the preset management display.

The Preset Management menu reflects the folder structure of the preset folder.

Revert Changes and Delete

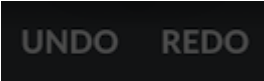**Revert Changes** discards any changes to the current preset.

Delete removes the current preset from the filesystem. Factory and Producer presets cannot be deleted from the plug-in GUI, although they can be manually deleted using the filesystem (Windows Explorer or Finder).

A/B and Copy

A/B allows you to toggle quickly between two presets. This is useful for comparing between two parameter settings.
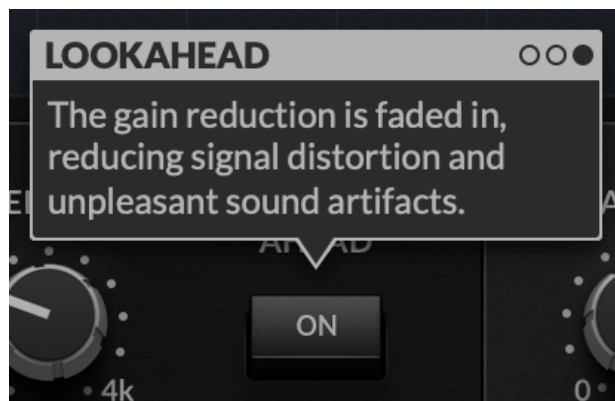
COPY X TO Y is used to copy presets between A/B.

UNDO/REDO

SSL plug-ins come with a built-in UNDO/REDO stack, in case your DAW doesn't handle this. **UNDO** undoes the current action in the history stack. **REDO** re-does the next action in the history stack.

Built-in Help

This plug-in features built-in contextual help. To turn this feature on, click the '?' in the bottom right-hand corner. Mouse over elements of the GUI to see some information about the feature.

Click the tooltip to cycle through the pages.