

GOLD CLIP



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OPERATIONS MANUAL v1.2.1
December 2023

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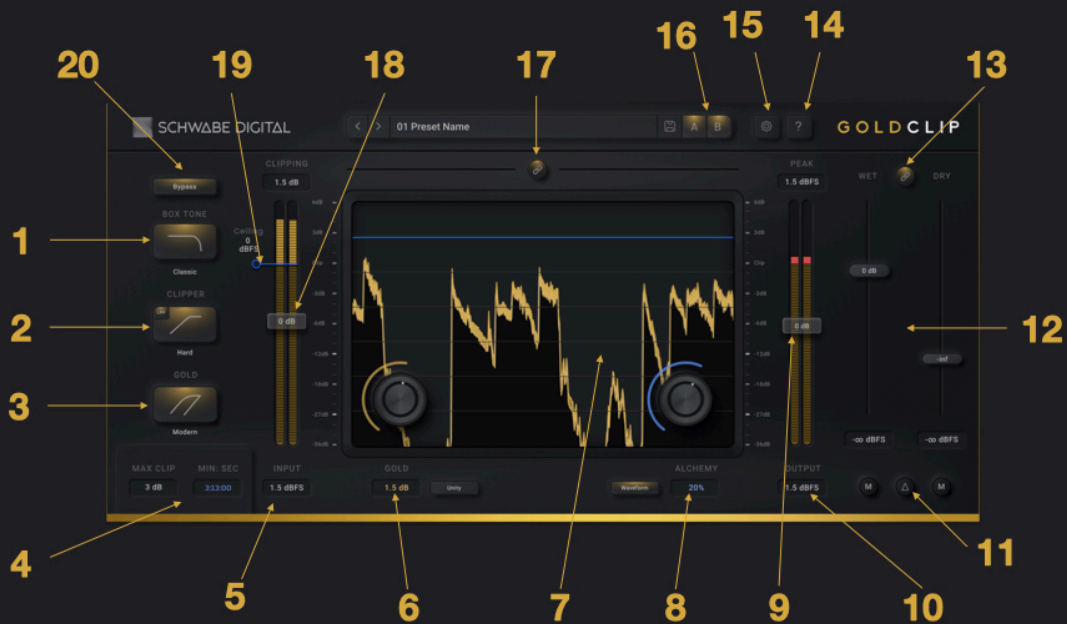
What is Gold Clip?

Gold Clip is a clipper, loudness saturator, mid- and high-frequency peak contour processor, distortion device, box tone generator, clip clock and true parallel mixer. Gold Clip can be a mastering processor, a unique dynamic effect for mixing and a creative tool for production. It can be clean and reserved, or loud, angry, and distorted.

There are three main functions of Gold Clip: Clipper, Gold, and Alchemy. The clipping behavior is inspired by the overloading effects of two famous mastering converters. Gold recreates the unique loudness saturation processing found on those devices, and Alchemy is inspired by the mid- and high-frequency peak contouring on the modern mastering processor. The powerful clipper allows you to increase loudness through a unique clean clipping processor. Gold allows you to amplify low-level information without changing the character of the peaks, and Alchemy allows you to reduce the unwanted effects of clipping by dynamically manipulating the mid- and high frequencies as the signal approaches the clip point. It is truly a unique sound that you will hear on many hit records to come.

Gold Clip uses cutting-edge digital signal processing techniques to create a versatile, high-precision clipping effect with tons of flexibility and highly optimized performance. The primary clipping algorithms are modeled from a pair of well-known hardware units using integrated wave-shaping in conjunction with variable oversampling, resulting in a clipping sound that is clean, natural, and free of aliasing artifacts. Gold Clip also includes a pair of unique loudness saturation algorithms called Gold and a unique mid- and high-frequency peak shaper called Alchemy that work in conjunction with clipping algorithms to provide a maximally smooth and loud master. Additionally, all the signal processing algorithms achieve the best performance possible on modern CPUs by utilizing cache locality and data-level parallelism.

GOLD CLIP



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Clipper

There are three settings for the clipper: Modern, Classic and Hard. These clippers can be described as soft, medium, and hard knee (respectively), but they are much more complex than that.

Modern - soft knee clipper

Classic - medium knee clipper

Hard - hard knee clipper

LPF – Integrated clipping low pass filter (LPF)

Modern and Classic are tuned to match the character and dynamic response of their hardware counterparts. Hard is a custom clipper that maintains the integrity of the signal up until the clip point. The Clip Filter (LPF) can be used when extreme amounts of clipping are necessary.

Clip Filter

The LPF button applies a slight low-pass filter to the signal to create a smooth, soft clipping sound. If linearity of the high frequencies is important, click this option off. If more aggressive clipping is required, turn this option on.

Clipper in Practice

All three clippers sound quite different, and I encourage you to try different modes to see what works best for the song. Generally, I like to start with Classic and will switch to hard if I want the integrity of the signal maintained below the clip point. If I am doing extremely moderate clipping and using the gold and alchemy processing, I will choose the Hard setting. If I want low frequencies to bloom more, I will choose Modern.

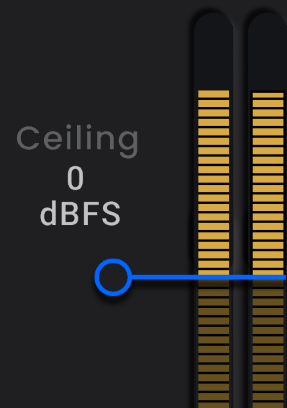
Clipper Off

You can turn the clipper off by command clicking the clipper button. When the clipper is off, the ceiling needle turns grey and input meters turn red when the signal goes above 0.0dBFS. When the clipper is turned off, it is very important that the signal entering Gold Clip does not exceed 0.0dBFS. If the input signal exceeds 0.0dBFS, the Gold and Alchemy processors will cause distortions. Gold and Alchemy processors operate

best with signals that approach 0.0dBFS, but do not go above. You should use a limiter or clipper of your choice before Gold Clip to make sure the audio comes as close to 0.0dBFS but does not go above. Turning the clipper off allows you to use a limiter or clipper of your choice before Gold Clip. Or, use Gold Clip without a clipper or limiter at all and carefully adjust the input trim so the signal never exceeds 0.0dBFS.

Clip Ceiling

Sets the point at which the signal starts to clip. By default, it is set to 0.0dBFS. However, if you are working on track-based content at lower levels you can move the clip point down to the peak level of the source material. Both Gold and Alchemy processing work below the ceiling setting.



Gold

Gold is fundamentally different than a compressor because it does not rely on attack and release times to perform compression. Gold performs a sample-by-sample analysis of the clipped signal and compresses the audio, leaving transients largely untouched, but increases sustain.



Gold compresses the audio but does so without the artifacts associated with attack and release on classical compressors. The compression is instantaneous, like the compression effect from the magnetization of tape.

Gold processing relies on the input signal's level relative to the clip ceiling to perform compression. To access the full compression curve of Gold you must push the input signal as close to the clip ceiling as possible.

However, **the more aggressive of clipping you do, the less clean Gold processing will sound.** It is suggested to push the signal as close to the clip point as possible but minimize clipping when using Gold for loudness. You can turn Gold processing off by command clicking the button or Gold amount knob.

Gold in Practice

For mastering I start with Modern Gold processing. This setting gives a maximum of 2.5 dB of gain and sounds clean and transparent. Gold Clip often sounds best when it is first in chain or just before your final limiter. Classic Gold Processing is much more aggressive sounding because it is applying more gain over a longer knee. Classic is better suited for signals with a wider dynamic range such as a drum bus, 808s or vocals, while modern is best suited for more dense content like a full mix.

Modern

Modern is inspired by the soft-loudness saturation processing of the famous modern mastering converter. In effect, Modern is a gentler and more forgiving form of amplitude saturation. Modern applies less gain than Classic and uses a shorter knee. Modern can only apply a maximum of 2.5 dB of gain to the signal, while Classic can apply a total of 6 dB of gain (at the expense of more harmonic interaction). The maximum setting of the original iteration of the Modern hardware device displays +6 dB on the front panel, but the gain applied is only +2.5 dB. For this reason, we chose to display the true gain applied to the signal rather than an incorrect number on the front panel of the hardware unit.

Classic

Classic is inspired by the soft-knee loudness saturation of a popular mastering converter from the late 2000s. It uses a soft knee for its amplitude saturation but sounds more aggressive than Modern and causes more harmonic interaction at its maximum settings. The knee of Classic is fundamentally different from Modern because the knee starts lower when higher levels of saturation are applied.

Gold Unity Gain

Unity Gain only affects Gold processing. Unity Gain nulls the non-linear gain applied by Gold so that perceived loudness is constant, but peaks are reduced.

GOLD

1.5 dB

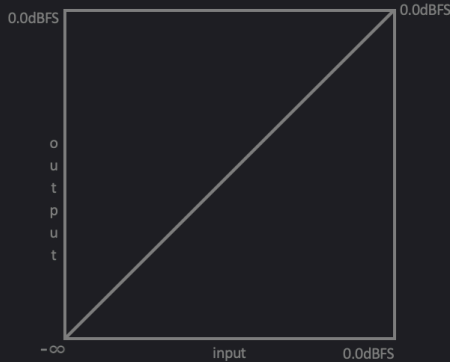
Unity

With Unity Gain turned on, the perceived loudness from Gold is maintained, but peaks are reduced. With Unity Gain turned off, the perceived loudness from Gold is increased, and peaks are left in place. For example, if Classic Gold is adding 6 dB of nonlinear gain, Unity Gain reduces the output of the signal by 6 dB as well. In effect, you are maintaining perceived loudness but lowering the peaks of the signal by 6 dB. Unity allows you to set the Gold type and amount without being misled by the changes in perceived loudness that Gold creates. In most track-based mixing situations, you will want to turn Unity Gain on, and when mastering or processing a mix bus, you will want to turn Unity Gain off. You will see the effects of Unity on the output meter as well as the waveform display. The Gold signal on the waveform display will be reduced by the amount of Gold applied.

Unity Gain in Practice

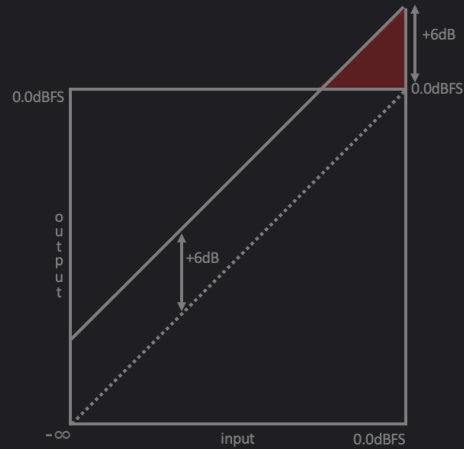
Turn Unity Gain on and set the amount and type of Gold processing that you want on your mix. By setting Gold with Unity Gain turned on you will listen to the dynamic effects of Gold and not be tricked by the loudness that it adds. After finding the best sounding Gold setting for the mix, turn Unity Gain off and enjoy the increased loudness that Gold provides.

How Gold Processing Works



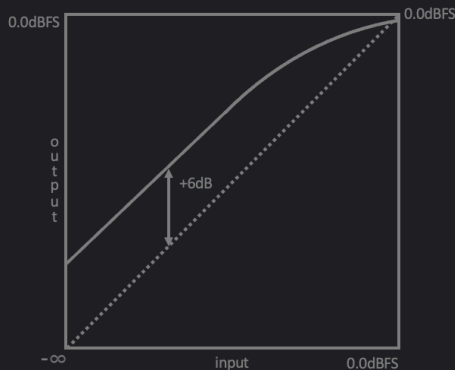
Transfer Function

If the input is equal to the output, it is considered a linear transfer. If the process changes as the input signal gets louder it is considered non-linear. The above graph shows a linear process — input on the X axis is equal to output on the Y axis.



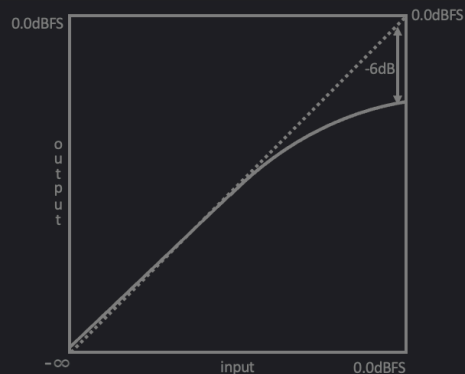
+6dB of Linear Gain

If you add 6dB of linear gain to the signal the output is 6dB louder and peaks are clipped by 6dB. Using a clipper in this way can yield creative results, but they are not always transparent.



Gold Processing

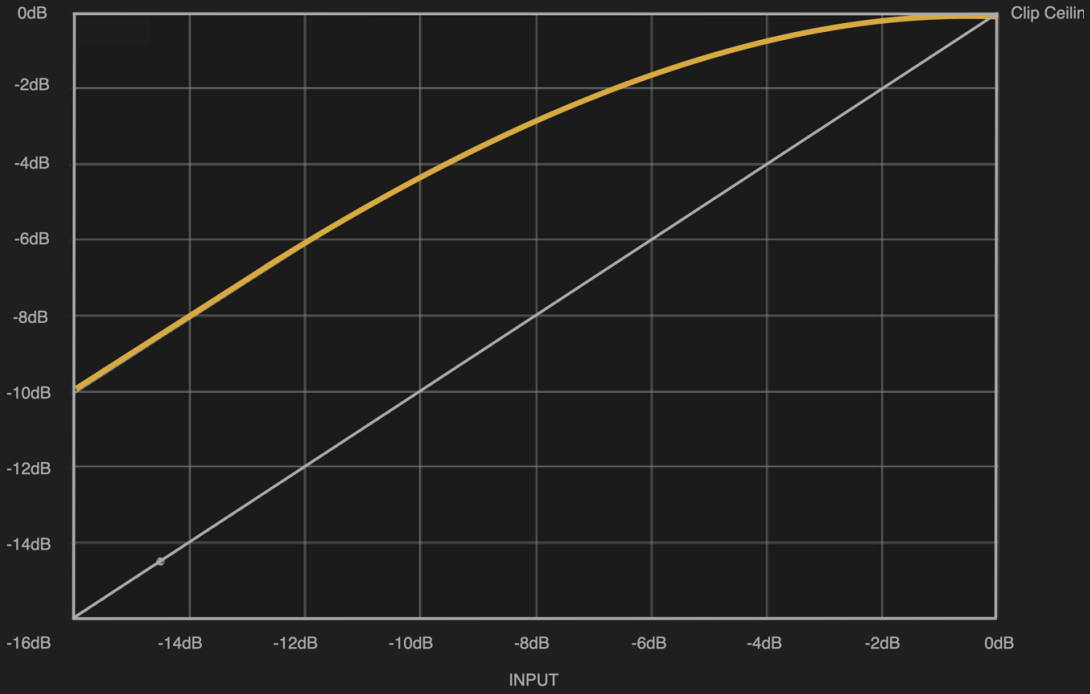
Gold processing adds up to 6dB of non-linear gain to the input signal. As the input signal approaches the clip ceiling, the non-linear gain will exponentially reduce to 0dB of gain. Gold processing makes the signal louder by amplifying low level material but keeps peak information below the clip point perfectly intact.



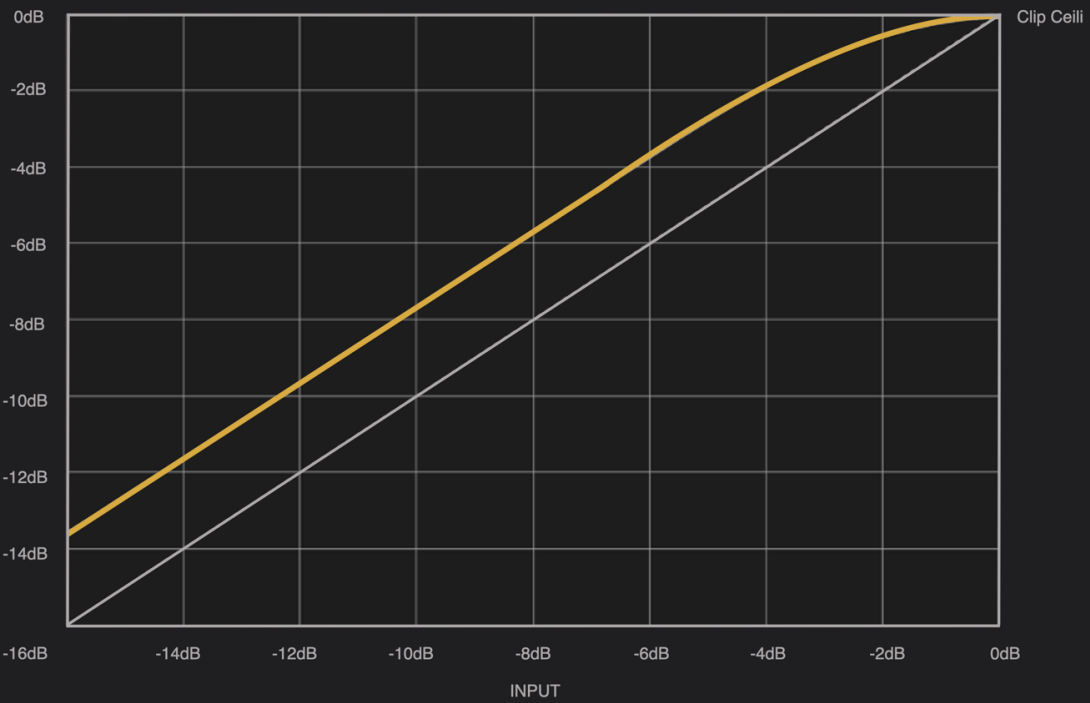
Unity Gain

If Gold adds 6dB of level, Unity Gain will reduce the signal by 6dB after all other processing. This process reduces peaks by 6dB but maintains perceived loudness. Gold Processing with Unity Gain will increase your headroom without altering the integrity of your transients.

Classic Gold Processing (+6)

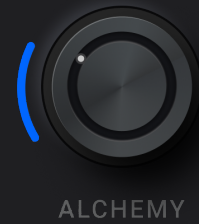


Modern Gold Processing (+2.5)



Alchemy

Alchemy reduces the harmonic effects of clipping by contouring the mid and high frequencies down by as much as 1dB after the signal is clipped. Mid- and Hi-frequencies are reduced as the signal approaches the clip point, softening the harmonics that can occur when clipping. The sonic effect is very much like the high-frequency saturation from tape but does not affect any other part of the signal.



Alchemy is an extremely subtle effect because it is only treating the -mid and high-frequencies as the clipped signal approaches 0.0dBFS. Alchemy softens mid- and high-frequencies and creates a warmer clipped sound. You can turn Alchemy on and off by command clicking the knob.

Alchemy in Practice

Alchemy is like digital tape because the high frequency compression is instantaneous without the artifacts from attack and release. You can use Alchemy as a subtle de'esser, or high frequency softener. I tend to start with Alchemy at 0dB and set the amount of clipping that I desire. I then turn up Alchemy to soften the mid- and high- frequencies. If you have a limiter adding gain after Gold Clip, Alchemy will increase the loudness of kick drums and other low frequency transients as they ascend into the clipper. If a kick drum and hi-hat hit at the same time Alchemy would turn down the hi-hat but maintain the level of the kick. Like Gold, Alchemy is instantaneous and does not alter the signal with an attack and release.

Alchemy reduces mid- and high frequencies by a maximum of 1dB. The below graphs show Alchemy at 1.0dB at varying input levels.

If input = -6dBFS signals above 2kHz are reduce by 0.2dB.



If input = -4dBFS signals above 2kHz are reduce by 0.5dB.



If input = -2dBFS signals above 2kHz are reduce by 0.8dB.



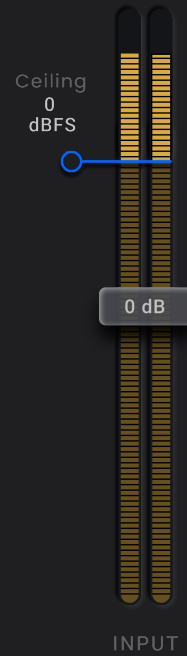
If input = 0.0dBFS signals above 2kHz are reduce by 1.0dB.



Input / Output Trim

Input Trim

Input trim is applied to the input signal. The input meter shows the input signal + input trim. The gain knob floats over the input meter and allows for +/- 12dB of gain.



Output Trim

Output trim is applied to the entire plugin output. The output meter also displays the true output of the plugin. If the output exceeds 0.0dBFS then the output meter will turn red.



Trim Link



Trim Link allows you to maintain perceived loudness when changing input or output trim. When turning the input trim up by 1dB, Gain Link will turn the output down by 1dB. This function is helpful when working on low-level sources that need additional gain to get to the clip point. Gain Link is helpful when Gold Clip is instantiated on an individual track in a mix or when you are trying to maintain perceived loudness but push the mix up to the clip point.

Input/Output Trim Link in Practice

You can use Trim Link, Clip Ceiling, and Gold (with Unity on) to apply compression to signals while maintaining the perceived level of the track. This setup will lower the peaks of the track without changing the perceived level, thus creating more headroom in the signal. This set up is ideal when processing track based instruments that you want to maintain perceived loudness, but lower peak levels.

Box Tone

Box Tone is a high precision linear phase EQ that is inspired by the high frequency contour of the modern and classic converter, but only affects the signal above 1kHz. This feature was added to make the tone of the plugin as close as possible to its hardware counterparts but leave the low-mid- and low frequencies untouched. There are three settings for Box Tone: Flat, Modern and Classic. As you would imagine, converters are intended to be as flat and balanced as possible and these effects are extremely subtle. You can turn Box Tone off by command clicking the button.

Modern - Imparts a high frequency contour and low pass filter.

Classic - Imparts a gentler high frequency contour and low pass filter.

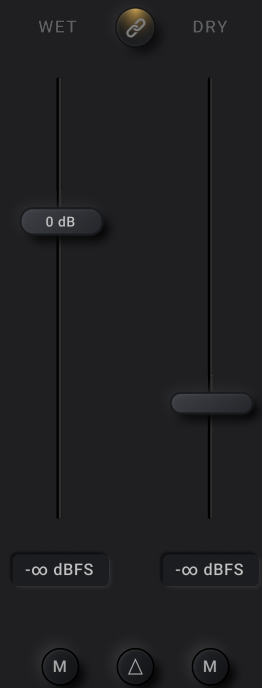
Flat - Does not have a contour or low pass filter - it is flat and true to the input signal.

Box Tone in Practice

Use Modern when you want to slightly contour the signal around 8kHz and above and slightly low pass the signal. Use Classic when you want to slightly low pass the signal but maintain high frequencies. Use Flat when you don't want any high frequency contour or ultra-sonic filtering.

Mixer

With almost all DAWs running at 32bit float you have 1528dB of dynamic range to work with. Your DAW has all the bandwidth it needs to handle parallel processing, but it's your responsibility to manage your session gain-staging and not overload your mix bus or plugins. You should try to keep Gold Clip's output below 0.0dBFS, but it can go well above that if you choose.



Dry / Wet Link

When Link is on, the faders operate like a traditional dry/wet fader found on most plugins. When Link is off, the dry and wet faders work independently, making Gold Clip a true parallel processor. You must be careful when using the mixer unlinked. When unlinked, you can make the signal twice as loud by setting both the dry and wet fader to 0.0 dBFS. This will most likely clip devices after Gold Clip. When unlinked, you must watch the output meter to make sure you are not creating signals louder than 0.0 dBFS. Use output trim to lower the output if it is above 0.0 dBFS.

Mute



Allows you to mute the wet or dry signal to determine how much of each signal is contributing to the total sound.

Delta



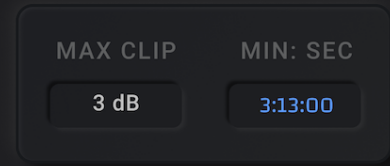
Delta phase flips the input and oversampled output signal, showing you the difference. This function can help you hear the distortion the clipper is adding, the low-level gain that Gold is adding, or the peak information Alchemy is reducing. However, this function is misleading because you are hearing both what is added (Gold and clipping) and what is taken away (Box Tone and Alchemy). In addition, when in minimum phase oversampling mode, you will hear the phase shift from the minimum phase filters. This will make you think you are changing that part of the signal, but you are simply hearing the phase shift of minimum phase filtering. Phase shift is a normal phenomenon in audio processing and not to be of concern unless you are using the parallel mixer.

Mixer in Practice

- 1) Gold Clip is a true parallel mixer. You can keep the dry signal at 100% and blend in clipping at lower levels.
- 2) Turn Delta on, and Gold, Alchemy, and Box Tone off. Then use linear phase oversampling and listen to the 100% wet signal while setting clipper. This will help you hear how the clipping is affecting transients.
- 3) Use clipping, Gold and Alchemy as you desire. Unlink dry and wet and blend in dry transient information from the bottom-up.

Clip Clock

Clip Clock displays the time of the song where the highest level of clipping occurs. The goal when using Gold Clip is to clip as little as possible and use Gold and Alchemy to increase loudness. Clip Clock tells you where the maximum amount of clipping takes place in the song, allowing you to minimize the undesirable effects of clipping.



Double clicking Clip Clock resets input meter and clip clock.

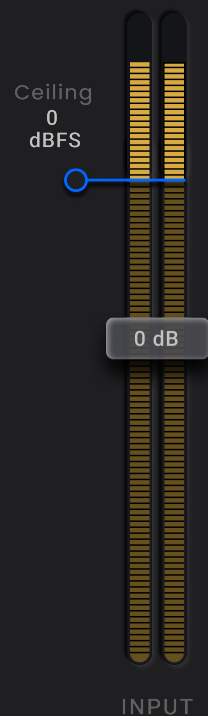
Clip Clock in Practice

Loop the section of the song that clip clock shows having the maximum clipping. Set the clipper so that the clipping is inaudible or as clean as possible during that section of the song. I have also used Clip Clock timing information to look at other dynamic processors in the same signal chain.

Metering

Input Meter

The input meter shows the input signal, as well as the input trim applied to the input signal. The number at the top of the meter displays the maximum amount of clipping. The number at the bottom of the meter provides a continuous readout of Short Term LUFS. When the clipper is turned off, it is important to ensure that the input signal does not exceed 0.0dBFS. If the clipper is off and the input signal rises above 0.0dBFS, the meter will turn red, indicating that you should decrease the input trim.

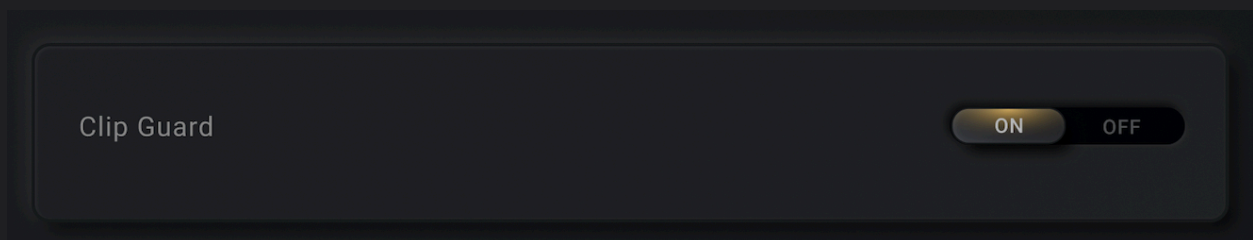


Output Meter

The output meter shows the sum of the dry and wet signal. The output trim affects the sum of the dry and wet signal. If the output level is above 0.0 dBFS, the meter will illuminate red.



Clip Guard



Clip Guard On/Off button can be found in the settings section of Gold Clip. Click the Gear box to access the plugin settings. Clip Guard manipulates the least significant bit of the data stream to remove overs from the down-sampled signal. This process comes at the expense of some aliasing but maintains output at 0.0 dBFS.

Tool Tips



Tool tips can be turned on and off with the "?" button. Hovering over any parameter will bring up a text box describing its function and the quick keys associated with that parameter.



Waveform Display

The waveform display window shows Clipping, Plugin Output and Gold Processing

Clipping – The grey outlined signal above the clip point consists of the input signal and input trim and shows you the peaks that were removed by the clipper.

Plugin Output – The black waveform with Gold border shows the plugin output.

Gold Processing – The Gold fill that rises around waveform shows the nonlinear loudness saturation that is added by Gold processing.

Clipping window magnification – Double clicking the waveform scale on the right or left side of the waveform, will change the waveform display scaling from 6dB, 4dB and 2dB.

Presets

Easily create and save your favorite mixing and mastering presets. Bring your favorite presets to the top by starring them. Delete presets by clicking the trashcan. Create your own presets by clicking the save button.



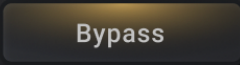
AB

AB made simple. When you first open Gold Clip, both A and B states are active; they are both lit up. As you make changes to the settings, they are applied to both A and B. Only when you click A or B will they unlink so that you can make more detailed changes to one plug-in state. Option-click A to copy to B or Option-click B to copy to A. You can toggle between A and B by simply clicking A or B repeatedly.

AB in Practice

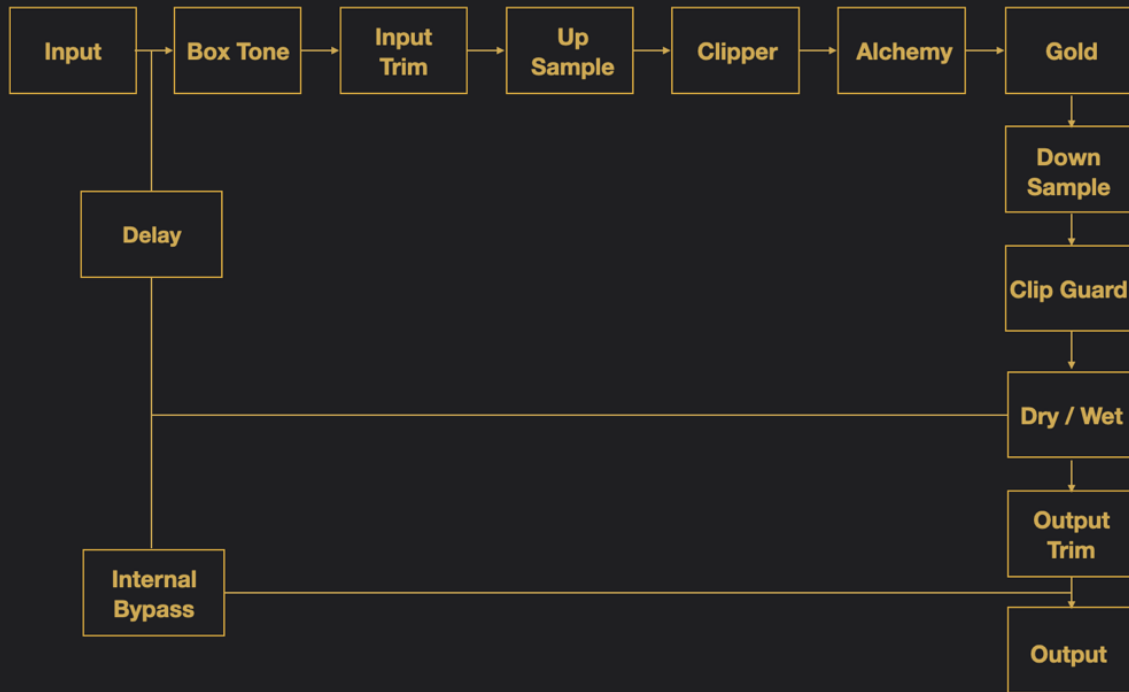
Alter Gold Clip to the settings that work best for the track and then click B to unlink the A and B settings. Now try different clipper types and amounts of Gold & Alchemy processing. You can click A or B repeatedly to alternate plugin settings.

Bypass



This is a true bypass that is internally time-aligned with the plugin delay. When automating the bypass, you should use the true bypass rather than the DAW bypass function.

Signal Flow



Oversampling Rate

High

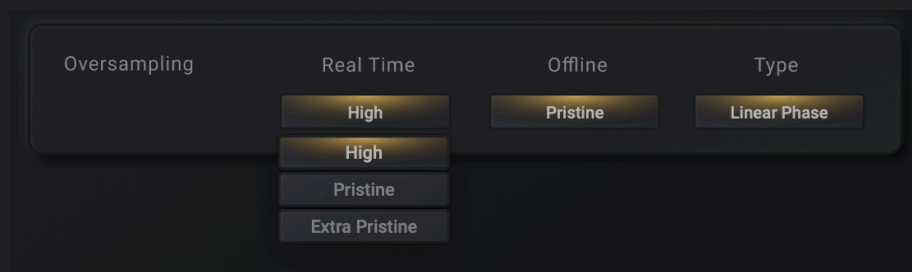
4x (44.1kHz & 48kHz sessions), 2x (88.2kHz and 96kHz sessions)

Pristine

8x (44.1kHz & 48kHz sessions), 4x (88.2kHz and 96kHz sessions)

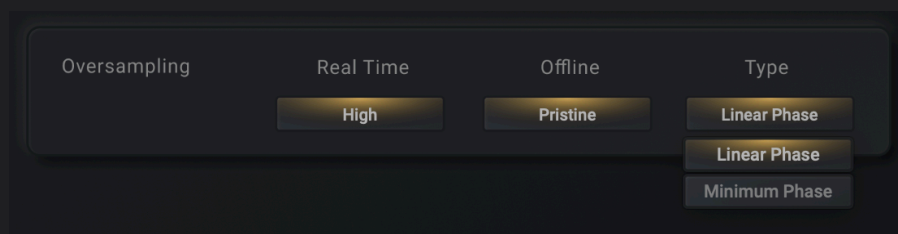
Extra Pristine

16x (44.1kHz & 48kHz sessions), 8x (88.2kHz and 96kHz sessions)



Gold Clip allows you to select separate sample rates for real time processing and offline bouncing.

Oversampling Type



Linear Phase – Uses a custom linear phase oversampling technique. This option is suggestion if you are doing parallel processing within Gold Clip.

Minimum Phase – Uses a custom minimum phase over sampling technique. This option is sometimes better for low frequency transient information that does not require parallel processing. When in minimum phase mode the delta function will present some of the phase rotation that is common with minimum phase oversampling. Phase rotation is completely normal behavior and is common in many audio processors.

Key Commands



- 1 – Box Tone – Command [CNTRL] click to bypass
- 2 – Clipper – Command [CNTRL] click to bypass
- 3 – Gold – Command [CNTRL] click to bypass
- 4 – Clip Clock – Double-click numeric values to reset
- 5 – Meter Scaling – Double-click to change range
- 6 – Gold Amount – Command [CNTRL] click to bypass
- 7 – Alchemy – Command [CNTRL] click to bypass
- 8 – Output Trim – Option-click to return to 0
- 9 – Mixer – Option-click fader to return to 100% wet
- 10 – Output Peak Readout – Double-click to reset
- 11 – Input Trim – Option-click to return to 0
- 12 – Clipping Numeric – Double-click to reset
- 13– Schwabe Digital Logo – Click for plugin options

Installation

Install the plugin as you would with any other plugin installer. Yes, it is that simple.

Authorization

All authorizations are handled through iLok. You must have an iLok account set up and have a demo, rental or perpetual license downloaded from your iLok account. Please check the website FAQ for more up to date information.

System Requirements

Mac	PC
Mac OS 10.13 or higher Native Silicon Support	Windows 11 (recommended) Windows 10
Apple Intel - Intel Core 2 Duo or higher, 4GB RAM minimum	Intel Core 2 Duo / AMD Athlon 64 X2 or higher, 4GB RAM minimum While Gold Clip may run on older OS and hardware, we cannot guarantee future compatibility or support on those systems.

We highly encourage you to use modern computers with Gold Clip. Computers older than 2018 are most likely not supported. Please test Gold Clip on your system before purchasing if your computer is relatively old.

Audio Session Compatibility

16bit, 24bit or 32bit
44.1kHz, 48kHz, 88.2kHz or 96kHz sessions (192kHz not supported)
VST3, AU AAX

