

*X-Comp™ for SSL Duende*

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**User Guide**



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# 1. Introduction

Thank you for purchasing the X-Comp plug-in for the SSL Duende platform.

X-Comp can deliver the transparent audio finesse of a mastering grade stereo compressor or be driven to inject character and raw power to rival the SSL Listen Mic Compressor. In X-Comp we haven't just modelled a particular compressor, but have provided a set of features and controls that allow the emulation of many vintage and modern compression designs based on a well loved SSL feed forward compressor algorithm.

Extensive visual feedback includes drag and move threshold/ratio graphic, Amplitude Histogram, Gain Reduction History and Stereo input and output metering with peak hold, separate RMS meter and dynamic history display.

Both the compressor audio path and side-chain signal can be manipulated in the frequency domain via the Bleed Through controls. These alter the frequency dependant behaviour of the compressor through the use of 1st order high and low pass filters, delivering user friendly Frequency Dependant Parallel Compression. This is great at focusing the compression on a certain frequency range, or allowing parts of the spectrum past the compressor.

The knee parameter provides a great deal of control over the way the compression is applied allowing for everything from

precise dynamic control to more subtle transparent effects. The inclusion of a second knee provides the facility to back off the compression towards the top of the dynamic range in conjunction with the Max GR feature. This allows the transients to breath and preserves the life of the signal whilst still offering a great deal of dynamic control.

Carefully selected control laws mean that setting the exact value of a parameter via a control knob is made easy and intuitive, as the critical ranges have been given the most resolution. All rotary controls can be altered using the mouse, mouse wheel or entered numerically.

The plug-in is available in both mono and stereo instances in VST, AU and RTAS formats making it compatible with virtually all audio software currently available on both PC and Mac. As with other Duende plug-ins, X-Comp is capable of operating at 44.1, 48, 88.2 and 96kHz sampling rates, where a mono instance at 44.1/48kHz occupies 1 Duende processing slot. This figure is doubled for stereo use and doubled again for 88.2/96kHz operation.

X-Comp comes equipped with a hotlist of presets based on the settings used by some of the world's most renowned Sound Engineers and Producers. These presets provide great starting points for any correction or sound shaping job that you may encounter.

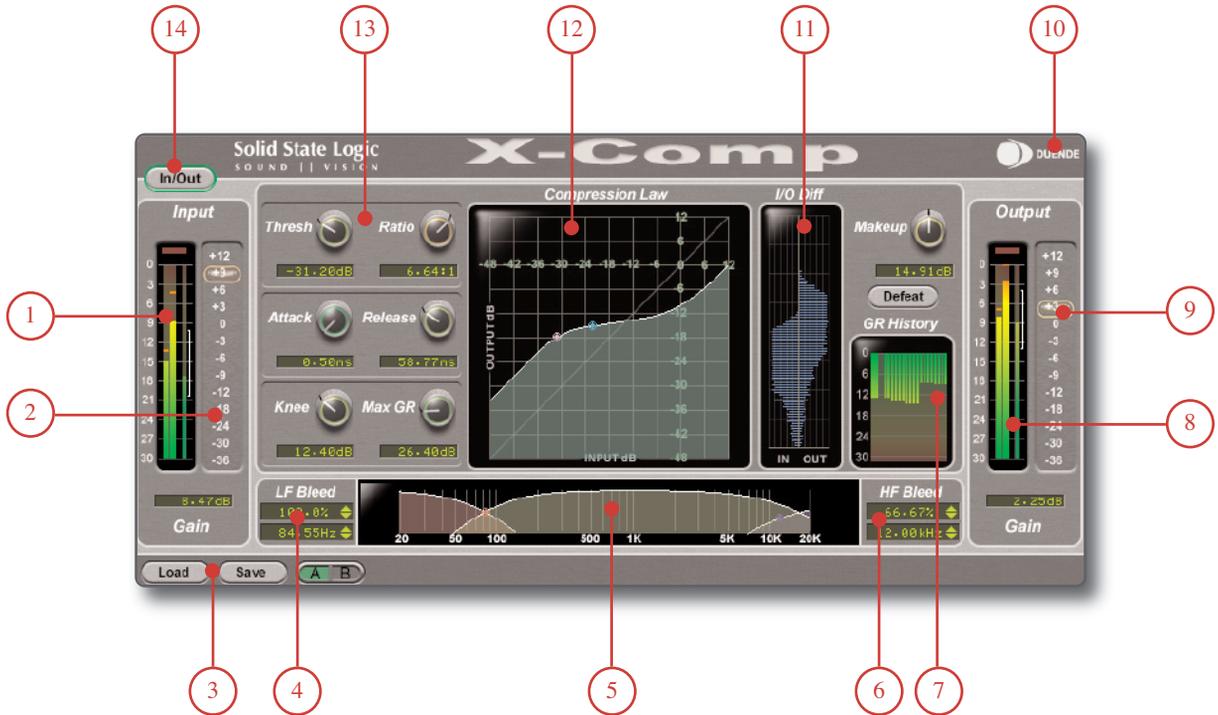
## Key Features

- Dual symmetrical knee design allows detailed shaping of the compression characteristic
- Advanced side chain architecture using 1st order filters delivers user friendly Frequency Dependant Parallel Compression
- Amplitude Histogram and Gain Reduction history displays provide advanced real time pre/post signal analysis
- Max Gain Reduction control provides genuine vintage compressor characteristics
- Intuitive user interface with drag and move graphic, mouse wheel and numeric editing
- A/B facility for instant comparison of two different compression set ups
- Proprietary preset management functions providing compatibility between all DAW platforms
- Global soft latency free bypass
- Superb mastering grade audio quality delivered by Duende's 40-bit floating point engine
- Preset library based on settings used by some of the worlds top mixing engineers

## X-Comp Graphical User Interface

- 1 Stereo/mono input meter
- 2 Input Gain control
- 3 Preset Management buttons
- 4 LF Bleed controls
- 5 Bleedthrough display
- 6 HF Bleed controls
- 7 Gain Reduction History
- 8 Stereo/mono output meter
- 9 Output Gain control
- 10 Duende logo – Command + Click (Mac) or Ctrl + Click (PC) here for Product Activation
- 11 I/O Difference display
- 12 Compression Law display
- 13 Compression control section
- 14 Latency free plug-in bypass

# X-Comp Graphical User Interface



## 2. System Requirements

### Apple Macintosh:

- SSL Duende running V2.3 software and firmware
- PowerPC G4/G5 or Intel 1.0GHz or higher
- 512MB RAM (*1Gb recommended*)
- Mac OS X (*Version 10.4.10 or higher*)
- 60Mb of free hard disk space
- Audio Units, VST or RTAS\* compatible host application
- 17" or larger colour monitor with screen resolution of 1024 x 768 or higher recommended
- Internet Connection (*for product registration and to download software updates*)

### Windows/PC:

- SSL Duende running V2.3 software and firmware
- Minimum of Intel Pentium IV 1.0GHz or equivalent
- 512MB RAM (*1Gb recommended*)
- Windows XP
- 80Mb of free hard disk space
- Approved VST or RTAS\* compatible host application
- 17" or larger colour monitor with screen resolution of 1024 x 768 or higher recommended
- Internet Connection (*for product registration and to download software updates*)

X-Comp is provided in VST, AU and RTAS\* formats in a universal binary format for Intel based and Power PC Macs.

VST and RTAS\* versions are provided for use under Windows XP on the PC platform.

As with other Duende plug-ins, X-Comp will take one 'slot' at 44.1/48kHz in mono. Please see the Duende manual for more information on DSP resource management.

\*RTAS is supported through the integrated FXpansion VST-RTAS wrapper, a product developed by FXpansion Ltd. For more info visit [www.fxexpansion.com](http://www.fxexpansion.com).

### 3. Installation & Authorisation

A time limited trial version of X-Comp will be installed during the Duende V2.3 software update. This allows X-Comp to be run in evaluation mode, which means the plug-in can be used with full functionality until a certain number of samples of audio have been processed. At 48kHz this gives 10 hours of continuous use for either stereo or mono plug-ins. At the point where 10 minutes of the evaluation period remains, the countdown timer will turn red. Once the timer reaches '0h 0m 0s' the sample count has been reached and the plug-in will cease to process audio.

If you wish to continue using X-Comp after this period, you can purchase the full version from <http://solid-state-logic.locotalk.com>. Once the authorisation procedure has been completed, you will have an unrestricted version of X-Comp.

To obtain an authorised version of X-Comp please do the following:

1. Navigate to <http://solid-state-logic.locotalk.com> and log in to your SSL account. If you do not already have an account, please create one.
2. Under the 'SSL Products and Admin' section, proceed to the Online Shop.
3. Add X-Comp to your cart and confirm your identity in the next step.

4. In step 3 you will be asked to enter your Authentication ID. This is found in the X-Comp Production Activation box. Command + Click (Mac) or Ctrl + Click (PC) on the Duende logo in the X-Comp GUI to open this box.
5. If your Duende hardware is not already registered you will be asked to register it here.
6. Enter your payment details and your order will be completed and you will be provided with the Unlock Key.
7. Return to the Product Activation box and enter the Unlock Key – X-Comp is now authorised for unlimited use.

*Please note that X-Comp will only run on the particular Duende hardware for which it is authorised.*



*Authentication ID*

*Unlock Key*

## 4. Control Options

Extensive control options mean you can control X-Comp in any way that suits you.

### 4.1 Rotary



Move the mouse cursor either up/down or in a circular movement over a knob to adjust its parameter value. The exact nature of the movement you need to make to change a knob value is dictated by your DAW.

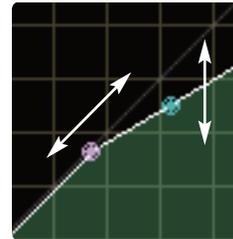
The scroll wheel can also be used to alter parameter values here.

Press 'Shift' whilst scrolling for increased resolution.

Command + click (MAC) or Control + click (PC) on a knob to reset it to its default value.

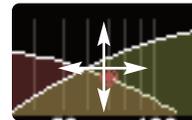
Exact numerical entry is possible by double clicking on the value box.

### 4.2 Graphical



The pink node controls the threshold on the compression law graph and can be dragged using the mouse in a diagonal movement along the linear response line.

The blue node controls ratio and is draggable in a vertical direction.



The bleed through nodes can be moved around in both planes to simultaneously adjust the **Amount** and **Cutoff** parameters for the respective band.

### 4.3 Bleed Through



The numerical bleed through controls can be manipulated in a similar manner.

Drag up or down with mouse cursor or use scroll wheel to alter a value or double click and enter exactly.

### 4.5 Automation

Every X-Comp plug-in parameter can be automated as long as parameter automation is supported by the host application. The method for recording and editing automation varies from host to host. For specific instructions on using automation with your host, consult the host application's documentation.

### 4.4 Input and Output



The input and output sliders function in the same way as rotary controls, allowing you to move with mouse cursor, scroll (with shift as fine adjust) and reset using modifier keys.

Again, exact numerical entry is possible by double clicking on the value box.

## 5. Operational Overview

### 5.1 Threshold and Ratio



The *Thresh* control ranges from  $-48$  to  $+12$ dB and sets the point at which gain reduction starts to occur. It has a linear

response throughout the travel of the knob. The lowest setting of  $-48$ dB has been chosen to allow very low ratios to be used alongside the low threshold values which allows for very subtle compression effects.

The *Ratio* control ranges from 1:1 to 50:1 and controls the amount of gain reduction that is applied to the signal once it is above the threshold. For example, with a ratio of 2:1, anything above the threshold is halved. As the ratio increases then any signal over the threshold is subjected to more attenuation. The knob has a logarithmic response which serves to both provide a musical feel more in line with the way the ear functions and give finer resolution towards the lower end of range which makes the setting of low ratio values easier.



This shows an uncompressed waveform, where the ratio is 1:1 and threshold 0dB.



Now the threshold is brought down to  $-12$ dB and the ratio increased to 2:1. You can see that the peaks over  $-12$ dB are halved in value. With low ratios the shape of the waveform is largely preserved, but the signal occupies a smaller portion of the dynamic range.



With the ratio increased to the maximum of 50:1 and the threshold remaining at  $-12$ dB, anything above the threshold is reduced to the threshold value of  $-12$ dB. This limiting effect changes the shape of the waveform considerably, but ensures that no peaks exceed the threshold value.

## 5.2 Attack and Release



The *Attack* ranges from 0.5 to 100ms.

The *Release* ranges from 1 to 2000ms.

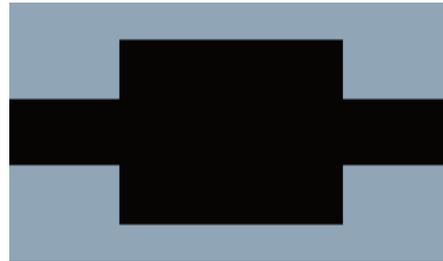
Both knobs follow a logarithmic control law.

A compressor will take a finite time to react to the signal once it has passed the threshold, known as the attack time. This causes a degree of overshoot as the gain reduction is applied gradually over time. The attenuation also takes time to back off once the signal has fallen below the threshold, known as release time.

The attack time is defined as the time taken for the compressor to reach 66.6% of its eventual level after the signal exceeds the threshold, as defined by the ratio control.

The release time is the time taken for the signal level to return to 66.6% of its nominal value after the signal level has fallen below the threshold.

This shows an input signal which starts at  $-12\text{dB}$  and then instantaneously rises to  $-3\text{dB}$ . After holding for a period at  $-3\text{dB}$ , the signal again instantaneously falls back to  $-12\text{dB}$ . No compression is taking place here.



With a threshold of  $-6\text{dB}$ , the compressor now starts to reduce the gain as the input signal rises to  $-3\text{dB}$ . This shows the logarithmic attack and linear release curves of X-Comp.



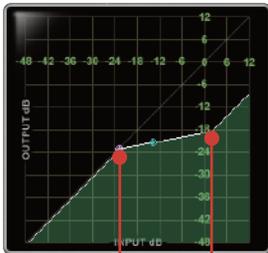
## 5.3 Knee



Ranging from 0 to 40dB the *Knee* control has a linear response and can also be adjusted graphically on the Compression Law graph. X-Comp features a dual symmetrical knee design. This dual knee design provides precise control over the

way the compression is applied around the threshold point and the way it backs off again at the Max GR value. Knee 2 is always at least 20dB above knee 1, depending on the Max GR value.

### 5.3.1 Hard Knee

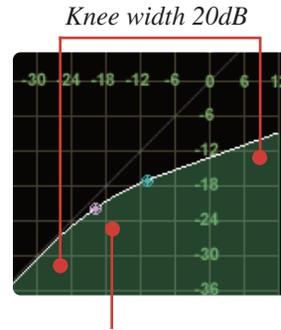


*Knee 1*      *Knee 2*

With the knee at its default setting of 0dB (hard knee), the onset of compression occurs exactly at the threshold point. This means that any signal at or above the threshold will be compressed by the amount defined by the ratio. This gives precise control over the point at which compression starts happening, but the audible change from uncompressed to compressed can be obvious.

### 5.3.2 Soft Knee

As the *Knee* control is increased, the way in which the compression is applied changes. A soft knee (high Knee settings) means that a small amount of gain reduction occurs below the threshold point, which gradually increases past the threshold, and at an equidistant point above the threshold the compressor eventually reduces gain according to the ratio that has been set. In short, the higher the amplitude of the input signal the more gain reduction is applied. This reduces the audible change from uncompressed to compressed, and can be said to provide a more transparent result.



*Knee 1 slightly below threshold of -20dB*

The width of the knee, measured in dB is the range of input levels over which this increase in gain reduction occurs. Because Knee 1 is a symmetrical knee, the threshold will always be in the middle of the range. The width is the sum of the gain range above and below the threshold point over which a change in gain reduction is happening.

As you can see the effective threshold point is lowered as the knee becomes softer. As you soften the knee, you may wish to adjust the threshold setting accordingly to make a true comparison of the effect of the knee control.

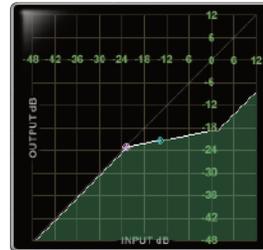
#### 5.4 Max GR



Ranging from 20 to 60dB the *Max GR* control has a linear response and can be seen on the compression law graph.

In a traditional compressor, peak transients are reduced in gain by a larger amount than those of lower amplitude, according to the ratio and threshold controls. X-Comp however provides the facility to limit the maximum amount of gain reduction to a level set by the *Max GR* control. This means that peaks that would normally be compressed by a large amount because they are well over the threshold can only be reduced in gain up to the maximum imposed limit, so are therefore compressed less than you would expect. The rest of the dynamic range is left unaltered, and behaves as expected according to the other controls.

With the threshold at  $-23\text{dB}$ , anything above this is compressed by the amount set by the *ratio* control, shown above right, as 5:1.



But, as the input level increases and reaches  $-19\text{dB}$  the response again becomes linear, so transients over  $-19\text{dB}$  are not compressed. This creates only a small input level range over which gain reduction occurs.

This 'letting go' of peak transients can be thought of as a type of upwards expansion applied to the top of the dynamic range. At low ratios and/or high thresholds, the Max GR feature will not come into effect because there is never more than 20dB of gain reduction taking place. The Max GR effect starts happening at the knee 2 point, which also softens along with Knee 1 as the Knee value is increased. This will make the return to a linear response more subtle. Older optical compressors often behave in this manner, not by design but as a side effect of the LED/opto transducer technology available in those times. An LED is only capable of shining to a maximum luminosity, so however much gain reduction you attempt to apply, there is an upper limit imposed by this factor.

It has the effect of compressing the middle of the dynamic range to offer general dynamic control, whilst at the same time preserving the original dynamic range to some extent by applying less gain reduction than is expected to the peaks.

## 5.5 Bleed Through

55.56%

The **Amount** controls range from 0 to 100% and change the proportion of the overall signal sent to the respective filter.

78.04Hz

The **Cutoff** control ranges from 30Hz to 300Hz for the high pass filter and 2kHz to 12kHz for the low pass filter. These change the frequency at which the signal is split between compressor and straight through.

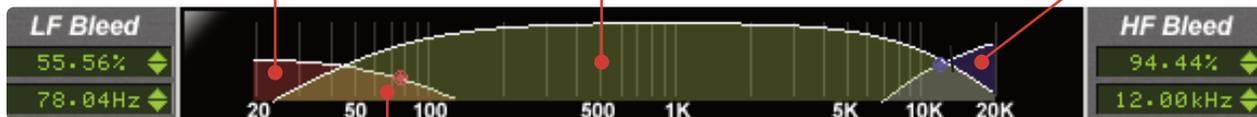
The bleed through section can also be controlled with the mouse via the two colored nodes. Drag up and down to alter the **Amount** and left to change the **Cutoff**.

The Bleed Through feature of X-Comp offers a simple and effective way to control the range of frequencies that are being processed and pass the others through unaffected. By default the whole frequency range of the signal is sent to both the side chain and the processing chain. If you engage one of the 1st order bleed through filters, the affected range of frequencies (below cutoff for *LP Bleed*, above cutoff for *HP Bleed*) are no longer routed through the compressor, but are passed through unaffected and summed with the compressed signal at the output of X-Comp.

*The red area is the low pass filtered signal routed around the compressor and set by the LF Bleed controls.*

*This shows the mid band that is sent only to the compressor.*

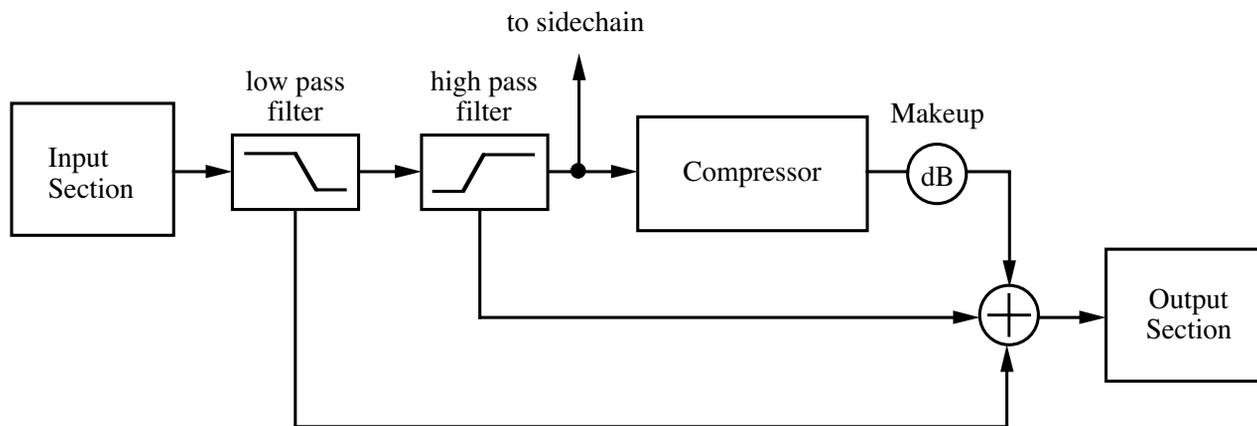
*The blue area is the high pass filtered signal routed around the compressor and controlled by the HF Bleed parameters.*



*These areas show the portion of the frequency range sent to both the compressor and routed around it due to the employment of shallow filter slopes.*

### 5.5.1 Signal Flow

The input signal is first passed to a low pass filter, and everything below the cut off point is passed to the sumer. The remainder of the signal above the cutoff point is then passed to a high pass filter. Everything below the high pass filter cutoff point is now sent to the compressor. The signal is reconstructed before the output stage where the compressed signal is now summed with everything below the low pass filter cutoff and everything above the high pass filter. The side chain signal is identical to the audio signal, and follows the high and low pass filters.



## 5.6 Makeup



Ranging from  $-6\text{dB}$  to  $+36\text{dB}$  the makeup gain is always controlling the level of the compressed signal after the gain reduction has taken place. It can be used to make up the loss in overall level due to the attenuation caused by the gain reduction. It has no affect on the portion of the signal passing through the bleed through section.

This allows it to be used as a balance control against the filtered signals, whilst the output slider can be used to control the overall output level of the plug-in.

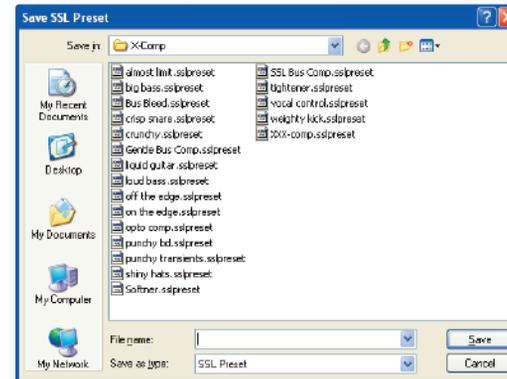
The *Defeat* button mutes the compressed signal, so only the portion of the signal passing through the bleed through section is heard. This is to aid the setting up of the bleed through controls, acting as a solo-in-place for these. It is shown here in its active state, surrounded by a green line.

## 5.7 Save, Load and A/B Functionality



Permanent preset storage and retrieval can be carried out

by using the *Load* and *Save* buttons. Because the .sslpreset files used by X-Comp use a standardised file interchange format they are fully platform and software independent meaning any stored setting or collection of presets can be easily transferred between workstations. This includes Intel and PPC Macs, Windows XP and Vista (32bit) PCs, and any compatible audio software including Cubase, Nuendo, Logic, Pro Tools, Live! and Sonar amongst others.



Clicking the *Load* button with the left mouse button will bring up a standard Mac OS X or Windows dialogue box asking you to choose a file to load.

The *Save* button behaves in the same manner, and when clicked will ask you choose a destination to store the file.

During Duende v2.3 install a collection of presets are copied onto the computers hard disk. On Mac OSX they are stored in Macintosh HD:/Applications/Solid State Logic/X-Comp. Windows computers store the presets in c:\program files\solid state logic\presets\X-Comp. If the presets folder is present from an earlier software install, only the X-Comp folder will be added and other presets will remain untouched.

A/B functionality provides two different memory locations and is included for easy comparison of any two settings. When the plug-in is instantiated memory location A is selected by default, as shown above. Pressing the *A/B* toggle button will move to memory location B which allows you to set up a completely independent EQ curve. Pressing the *A/B* button again will return to A. You may wish to use this function to compare two very similar settings or to keep a ‘maybe’ setting in reserve if your current one does not work out.

You may wish to copy one memory location to another so it becomes the starting point for a different setting you may wish to explore.

Example: To copy from location A to location B:

1. Save the preset to a temporary location on your hard disk whilst in location A
2. Toggle to location B
3. Load the stored preset

The A/B memory locations are only stored when the GUI is open. If the GUI is closed and reopened these temporary memory locations are lost. If you wish to preserve a temporary setting even after the GUI has been closed, use the *Save/Load* buttons to store a preset file in your chosen location.

## 5.8 Global Bypass

Because Duende plug-ins cause a noticeable latency at higher host buffer settings, the bypass button provided by the DAW can cause an undesirable shift in time. For this reason a latency-free global bypass is included. When this is engaged the audio is still passed to and from Duende, but is unchanged as all X-Comp processing (including input and output gains) are bypassed. This gives a smooth, glitch free bypass function and we recommend that you use this method every time.

## 6. Meters and Displays

### 6.1 Compression Law display

X-Comp features a draggable graphical display which allows you to see at a glance and intuitively alter the way the compression characteristic is set up. To calculate the output level for any given input level trace the input value vertically upwards. The point at which the thick white compressor response line is intersected gives the output level for that given input. The pale white line running diagonally indicates a linear response, ie a 1:1 ratio. The ratio is indicated by the angle of the compressor response line after the threshold point. This line becomes shallower as the ratio is increased, eventually becoming almost horizontal at 50:1.

Here a  $-30\text{dB}$  input level shown in red yields an output level of the same value. Because the input level is below the threshold of  $-30\text{dB}$ , no gain change is applied. With an input level of  $-6\text{dB}$  shown in blue, the output level is  $-12\text{dB}$ . This is because the input is above the  $-30\text{dB}$  threshold so within the gain reduction range. The ratio of 2:1 means the output level is half the input.

The first knee is shown by the pink node on the compression law display. Knee 2 is the point at which the maximum gain reduction starts coming into effect. The blue node in the middle of the graph is a handle to allow the dragging of the compression curve and sets the ratio accordingly.

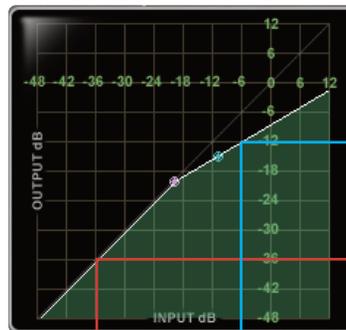
#### Settings

Threshold =  $-20\text{dB}$

Ratio = 2:1

Knee =  $0\text{dB}$

Max GR =  $60\text{dB}$

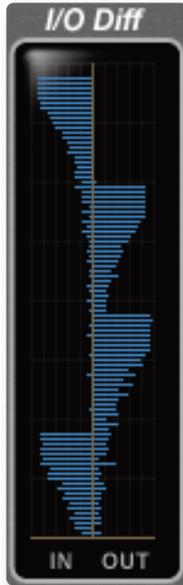


Input level of  $-30\text{dB}$     Input level of  $-6\text{dB}$

Output level of  $-12\text{dB}$

Output level of  $-30\text{dB}$

## 6.2 I/O Diff

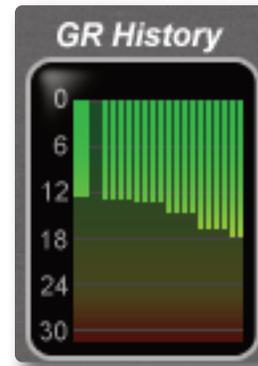


Also known as an amplitude histogram, the *I/O Diff* meter shows the relative occurrence of various amplitudes before and after processing. For either input or output, the distance the blue horizontal line protrudes from the middle shows the amount of times that a particular amplitude is happening. The vertical scale is the full range of amplitudes from  $-\infty$  to 0dB. It allows you to see the shift in dynamic range that occurs over time due to the compression.

Here you can see that the input signal spends most of the time fluctuating between loud and soft. This indicates that the signal has a large dynamic range which is changing very quickly. You may wish to compress this so the peaks are not as high and the troughs not as low.

This effect can be seen on the right as the blue lines are now bunched up in the middle of the dynamic range, with less at the top and bottom. The signal has been controlled so it occupies a smaller portion of the dynamic range.

## 6.3 GR History



The *GR History* meter not only shows the gain reduction at any point in time, but also indicates how it has been fluctuating.

The thicker line towards the left of the display is an instantaneous gain reduction meter, firing downwards from 0 to  $-30$ dB.

The thinner lines to the right show how this has been changing over the past second.

## 6.4 Input and Output Meters

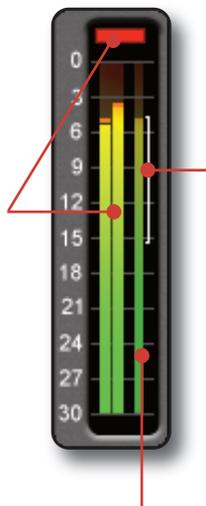
The X-Comp input and output meter displays are in fact three meters in one. They offer various ways to easily read the Peak and RMS levels of a signal over time, and the 'dynamic history' meter allows you to see at a glance how the amplitude has been changing over the past second or so. A 30dB range from 0dB FS downwards gives ample information about the amplitude of the signal.

### Peak Meter and Clip Indicator

The wide meter bar to the left is a responsive peak meter which allows you to observe the exact input level at any point in time. A red clip light at the top of the meters indicates that three consecutive samples are at maximum which is taken to mean that the input is higher than 0dB FS and is therefore clipping. It will stay illuminated for 1 second following clip detection, after which it will automatically clear. It can also be cleared at any point with a mouse click.

### RMS Meter

The thinner bar to the right of this shows the RMS (average) level. This is useful in graphically judging the 'loudness' of the signal and when used in conjunction with the peak meter can give a good idea of the peak to RMS ratio (crest factor) of the signal.



### Dynamic History Meter

The thin white bracket on the far right of the meter gives an indication of the recent dynamic range of a signal. The top of the bracket measures the most recent peak level of the signal, where as the bottom of the line shows the smallest peak to have happened recently. If the bracket is long it indicates that the signal has a large swing in dynamic range, and if it is short the range is small. If the top and bottom points of the bracket are quickly moving around, it can be assumed that the dynamic range is quickly changing, which could be interpreted as an 'energetic' signal.

## 7. X-Comp Parameters and Ranges

Parameter	Range
Input Gain	-36 to +12dB
Threshold	-48 to +12dB
Ratio	1:1 to 50:1
Attack	0.5 to 100ms
Release	1 to 1000ms
Knee	0 to 40dB
Max GR	20 to 60dB
LP filter Amount	0 to 100%
LP filter Cutoff	30 to 300Hz
HP filter Amount	0 to 100%
HP filter cutoff	2 to 12kHz
Makeup	6 to +36dB
Output Gain	-36 to +12dB

## 8. Application Tips

### Why Compress?

Every playback medium has a limited dynamic range. Try recording some speech without any compression, burning it onto CD and playing it back on a portable HiFi at a medium volume. You can't quite hear the softer parts and the louder parts seem to jump out at you – right? Compressors and Limiters reduce the dynamic range of a signal, so that the quieter parts are audible as well as the louder parts. This can be useful in creating the illusion that is loud without it consuming much level. Compression can also be used to control the presence of a particular instrument within a track. Using longer attack times can let the sound punch through in a dense mix, and fast release times can increase the apparent intensity of a signal. This can be exaggerated in X-Comp by utilising the Max GR, Bleed Through and Knee controls to inject a particular characters found through classic compressor designs.

Many modern engineers do not compress during the tracking stages of a project. No longer constrained by the limited dynamic range of analogue tape, 24-bit digital audio allows this important decision making process to be saved for later on in the production process. This brings with it the advantages of full recall and undo from today's modern DAWs, but also makes dynamic control even more important during the mixing process.

### Setting up X-Comp

It can be difficult to set a compressor effectively due to the complexity and inter dependency of the controls and the subtle dynamic changes that can be difficult to hear. Here is a suggested method which allows you to judge the effect of each control at every step of the way without being distracted or confused by the others.

- Start with a fresh instantiation of X-Comp
- Set the Ratio to maximum (50:1)
- Release to 20ms
- Knee to hard (0db)
- Set the attack to any setting

The threshold should be set to a point where about 6 to 18dB of gain reduction is occurring.

Firstly, concentrate on the attack. Whilst adjusting this listen to the effect it has on the leading edge of the transients. Try to ignore the pumping and/or distortion that may be occurring after the attack. You can think of the attack as the control for the 'size' of the sound.

Next look at the release control. This effects how quickly the signal comes back after being reduced in level. Try to make this as slow as possible whilst still retaining control of the signal.

Now move to the ratio. So far this has been set to maximum, so should now be reduced (or not!) to a point where the effects that you have created with the attack and release controls are still occurring, without the sound being obviously squashed.

Finally use the threshold control to a point where X-Comp is not compressing all of the time, which will avoid flattening the sound.

### **Using the Bleed Through Controls**

Single band or full range compression applies gain reduction to whole frequency spectrum of the signal where bass frequencies are compressed by the same amount as middle and top. Some compressors can have their side chain signal manipulated by inserting an equaliser into the key input which alters the way the compressor responds to various frequencies. However this still compresses the entire frequency range of the signal. X-Comp adds an extra dimension of control via the bleed through section which allows the adjustment of frequency response of the compressor in addition to the range of signals that this compression is applied to. This can be thought of as a pseudo multiband functionality, where only the middle band is compressed and the edges of the spectrum are left untouched. First order filters have been implemented so this frequency splitting is as transparent as possible without the ringing often associated with higher order cut filters.

Because the middle compressed band will often appear to be louder due to the compression effects, the makeup control offers 6dB of attenuation in addition to the 36dB of gain, which serves to allow the high and low bands to be heard against the mid band. The output slider can then be used as the overall output control for the plug-in.

By allowing some of the bass frequencies past the compressor, the illusion of a bigger sound can be easily achieved. Letting some high frequencies through can reinstate some of the transient information often lost when fast attack times are employed.

## 9. X-Comp Support

### Support FAQs

To access the latest support information on Duende, please visit our online support site. The information there is kept up to date by our support staff to make sure all information is accurate. All information is available to you 24/7.

URL: <http://solid-state-logic-en.custhelp.com>



If you can't find your answer or a solution to your issue, you can submit a question on the site to our support staff for resolution.



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