# Vocalstrip™

One Stop Vocal Processing Plug-in for SSL Duende – a User's Guide

# Contents

# 1. Introduction

Thank you for purchasing the Vocalstrip plug-in for the SSL Duende platform. Vocalstrip is a one stop solution for superior vocal processing, with all the tools you need to take your vocal sound into the big league.

Vocalstrip features 4 configurable processing blocks to take care of unwanted artefacts, dynamics and equalisation and extensive metering and visual feedback give you invaluable information during your work.

Liberated from any analogue style control legacy, the Vocalstrip graphical user interface will especially appeal to people who like to see what they are hearing. The fully interactive EQ display shows the exact filter shapes and resulting curves of the different EQ bands, and a real-time spectrum analyser allows you to see the effect of your EQ settings on the overall frequency spectrum of the sound source. The Compander response is shown visually and full gain reduction metering shows you exactly how the dynamics are being manipulated. Extensive control options include traditional mouse parameter control, wheel adjustment and exact numerical entry.

The plug-in is available as a mono instance only 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, Vocalstrip 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.

Vocalstrip 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 pro-level presets provide great starting points for any vocal job that you may encounter.

*\* RTAS support is provided via the included FXpansion VST-RTAS wrapper – www.fxpansion.com*

# Key Features

- Intelligent De-esser

- Intelligent De-ploser

- 3 band EQ

- Compander featuring compression, downwards expansion and output drive

- Extensive visual feedback including a real-time FFT analyser showing the result of the EQ processing on the audio spectrum

- Complete control over process order

- Extensive control options including mouse wheel adjustment and numerical data entry

- Proprietary preset management functions providing compatibility between all DAW platforms

- A/B functionality for easy comparison of any two settings

- 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

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

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# Hardware Limitations

Because of the many processor-intensive processes that are part of Vocalstrip, this plug-in uses a large number of Duende DSP cycles.

Although this is un-noticeable for most 'normal' use, it does mean that if 6 or more Vocalstrips are loaded onto one Duende DSP at 44.1/48kHz and all of the modules are enabled (ie De-esser, De-ploser etc.), then a 7th will not have time to be processed. This will result in the audio 'crackling' or glitching.

To minimise this situation we have made the Vocalstrip modules only use DSP cycles when they are switched in. For example, you can quite happily run 8 Vocalstrips on one Duende DSP as long as maybe two of them have the De-esser switched out, and another two the De-ploser switched out. Also, in reality you are very unlikely to run more than 6 fully enabled VocalStrips on any one Duende DSP!

If you do run into this, you will hear glitching. In this case unload the last plug-in, then load a couple of 'dummy channel strips' onto a spare muted audio channel. The next VocalStrip you instantiate will then be loaded onto the next DSP, so another 6 fully enabled plug-ins can then be run.

# Vocalstrip Graphical User Interface
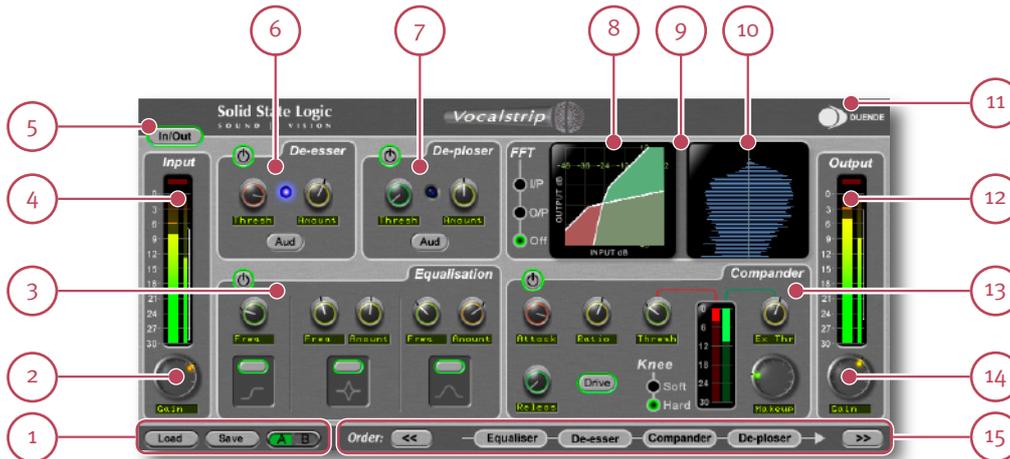


1 Preset Management buttons

2 Input gain control

3 Equalisation module

4 Input meter

5 Latency free plug-in bypass

6 De-esser

7 De-ploser

8 Compander response graph

9 EQ graph *(not shown)* will show here – with optional FFT display

10 Amplitude histogram

11 Duende logo *

12 Output meter

13 Compander

14 Output gain control

15 Process order

*\* Press ‹**Ctrl**› & click (Windows) or ⌘ & click (Macintosh) on the Duende logo to access the Product Activation window*

# 2. System Requirements

| Apple Macintosh | Windows/PC |
|---|---|
| • SSL Duende running V2.59 software and 2.19 firmware | • SSL Duende running V2.59 software and 2.19 firmware |
| • Mac PowerPC G4/G5 or Intel 1Ghz or higher | • Minimum of Intel Pentium IV 1GHz or equivalent |
| • 512MB RAM (1GB recommended) | • 512MB RAM (1GB recommended) |
| • Mac OS X ('Tiger' 10.4.11 or 'Leopard' 10.5.2 or higher) | • Windows XP or Vista – *32 bit versions only* |
| • 60MB of free Hard Disk space | • 80MB of free Hard Disk space |
| • Audio Units, VST or RTAS* compatible host application | • Approved VST or RTAS* compatible host application |
| • 17" or larger colour monitor with screen resolution of 1024 x 768 or higher recommended | • 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) | • Internet connection (for product registration and to download software updates) |
| • Approved audio interface | • Approved audio interface |

• Vocalstrip is provided in AU, RTAS* and VST formats as a universal binary for both Intel and PowerPC Macintosh, whilst RTAS* VST and versions are provided for use under Windows XP or Vista on the PC platform.

*RTAS is supported through the integrated FXPansion VST-RTAS wrapper, a product developed by FXpansion Ltd. For more info visit www.fxpansion.com*

# 3. Installation & Authorisation

A time limited trial version of Vocalstrip will be installed during the Duende v2.6 software update. This allows Vocalstrip 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 Vocalstrip after this period, you can purchase the full version from our on-line store. Once the authorisation procedure has been completed, you will have an unrestricted version of Vocalstrip.

To obtain an authorised version of Vocalstrip please do the following:

1. Discover your Duende unit's Authentication ID. This can be found in the Product Activation window – press *<Ctrl>* & click (Windows/PC) or ⌘ & click (Macintosh) on the Duende logo in the Vocalstrip GUI to open this box. Make a note of this number, you'll need to provide it in step 3. of the purchase for us to generate your un-lock key.



The full authentication ID

2. Navigate to www.solid-state-logic.com/store/index.asp and log in to your SSL account. If you do not already have an account, please create one.

3. Under the **SSL Products and Admin** section, proceed to the Online Shop.

4. Add Vocalstrip to your cart and confirm your identity in the next step.

5. In step 3. of the purchase you will be asked to enter the **Authentication ID** (see step 1. above).

6. If your Duende hardware is not already registered you will be asked to register it here.

7. Enter your payment details and your order will be completed and you will be provided with the Unlock Key.

8. Return to the Product Activation box and enter the Unlock Key. Vocalstrip is now authorised for unlimited use.
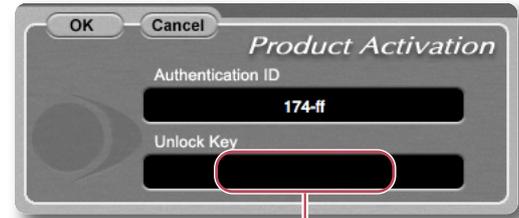


Enter the Unlock Key here

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

# 4. Vocalstrip In Detail

### 4.1 De-esser

Sibilance is a resonance often found in vocal recordings which can cause undesirable distortion artefacts which sounds like the 'S' constants are overly high in level. The De-esser in Vocalstrip intelligently detects these sounds and gives you control over how much attenuation to apply. The blue indicator between the controls 'glows' to show that the de-esser is working. The **Thresh** (threshold) control sets the relative detection point, so that the de-esser can distinguish between 'S' and 'non-S' sounds. Pressing the **Aud** button enables a solo mode where you hear only what is being taken out. This can be used effectively with the **Thresh** control to ensure you are only processing the correct portion of the signal.

### 4.2 De-ploser

Plosives can ruin a good vocal take as they cause a burst of low frequency energy in the signal which can not only sound unpleasant, but use valuable headroom and can cause dynamic processors to behave in an undesirable manner. Plosives are often caused by an excess of wind noise whilst recording which can occur if the singer is standing too close to the microphone. They can also be caused by compressor overshoot. The VocalStrip De-ploser detects these artefacts and lets you manage their level. Similar to the De-esser, it also features **Thresh** (threshold) and **Amount** controls and an **Aud** (audition) mode. Again, the blue indicator between the controls shows action.

### 4.3 Equaliser

Three popular EQ types are provided to allow you to cut low frequencies, find and attenuate resonances and shape the top end of the signal. Each EQ type features independent in/out switching:



- The low cut filter operates in the range of 30Hz to 300Hz – you will see from the graphical EQ display that it causes a slight boost around its cut-off frequency.

- The notch filter operates in the range 200Hz to 10kHz and offers 12dB of boost and 36dB of attenuation. It has a high Q value.

- The high band EQ offers 12dB of boost/attenuation over the range of 1kHz to 20kHz. It has a low Q value and hence a broad response.

**!  Tip: Finding and attenuating a resonance**

A vocal recording may contain a resonant frequency caused by a number of factors, including bad mic placement, room modes, or even unpleasant resonances caused by the singer's skull!

These can be detected and reduced in the following way:

- Switch off the low cut filter and high band EQ

- Set the notch filter gain to between 4 and 10dB

- If you know the frequency area where problem lies, aim for this

- If you don't know this, sweep the frequency slowly up range, listening out for ringing

- Once you have found the offending frequency, bring the gain down to a significant negative value
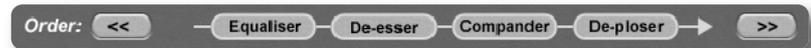
## 4.4 Compander

The term Compander is a hybrid of Compressor and Expander. First the signal enters the downwards expander, which has a fixed ratio of 1.5:1 and is designed to reduce room ambience, spill or breath noise that is often brought up by the subsequent compression. The **Thresh** (threshold) ranges from 0dB FS down to –96dB FS which essentially turns the expander off.

The compressor offers both hard and soft knee modes alongside fully variable **Ratio, Thresh** (threshold)**, Attack, Releas** (release) and **Makeup** controls. The output stage which is sourced after the make-up gain features an optional **Drive** feature. This introduces non-linear characteristics and hence harmonics to the signal and its intensity is controlled by the level of the make-up gain knob. More make-up gain increases the level into the drive circuitry. If you use a lot of make up gain to drive the circuit, the level can be reduced again by using the **Output** slider.

## 4.5 Process Order

The four processing blocks can be arranged in any serial order using the process order controls at the bottom of the plug-in. To use, just highlight the block you would like to move and press either the left-hand `<<` arrow or the right-hand `>>` arrow to move it one place in that direction.

# 5. Graphical Displays

Vocalstrip features an assignable display in the top right hand corner of the plug-in GUI. This toggles between showing the Compander Law Graph and the EQ response curve. Clicking on any of the controls in either the Compander or EQ section will switch to the appropriate display.

When displaying the EQ response there is also the option to show a real-time FFT analyser engine reports the amplitude of all frequencies at any moment in time. The analyser can be placed at either input or output, so you can see what effect the processing has on the frequency spectrum. The Spectrum Analyser makes it easy to spot an offending frequency that needs attenuating, or a range of frequencies that require boost.

### 5.1 Graphical EQ Display

The EQ curves are calculated from the actual analogue response of the different EQ types. Each band is shown as a different colour so individual bands can be easily identified in the display. The different curves are alpha blended, so if curves are overlapping one can see the different bands through each other. An overall response curve is calculated from the combined EQ bands and the result is displayed in white. *Note here the slight boost in the LF curve caused by the low cut filter.*
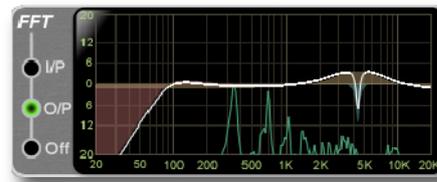


### 5.2 FFT Spectrum Analyser

A real-time FFT analyser engine reports the amplitude of all frequencies at any moment in time. The analyser can be placed at either input or output, so you can see what effect the processing has on the frequency spectrum. The Spectrum Analyser makes it easy to spot an offending frequency that needs attenuating, or a range of frequencies that require boost. The analyser display can be switched to input, output or off.

### 5.3 Compander Law Display

This shows the output level for any given input level according to the Compander controls which are currently being used. You can see both the compressor and expander threshold, indicated by the two knees. As the ratio of the compressor is increased, you can see the top portion flatten out indicating that the output level for any given input is being reduced.
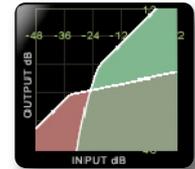


### 5.4 I/O Difference Display

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 and shows the amount of times that a particular amplitude is occurring. The vertical scale is the full range of amplitudes from −∞ to 0dB. It allows you to see the shift in dynamic range that occurs over time due to the compansion. 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.
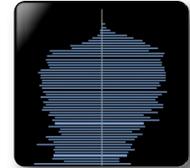
### 5.5 Meters

The Vocalstrip 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.

### 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.

### 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.
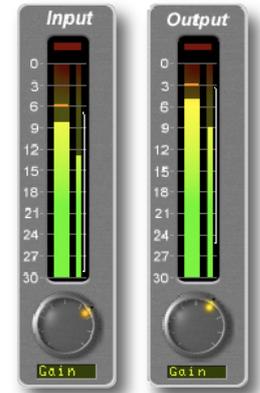
# 6. Control Options

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

- Press *<Ctrl>* & click (Windows) or ⌘ & click (Macintosh) on a knob to reset it to its default value

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

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

- Exact numerical entry is possible for any value by double clicking on the value box

### 6.1 Preset Save and Load

Permanent preset storage and retrieval can be carried out by using the **Load** and **Save** buttons. The underlying **.SSLpreset** files used by Vocalstrip are written in a standardised file interchange format that is fully platform and software independent. This means that any stored setting or collection of presets can be easily transferred between workstations, regardless of the platform being used. Possible workstation systems encompass Intel and PPC Macs, Windows XP and Vista (32bit only) 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 Macintosh 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.

It is suggested that Vocalstrip presets are stored in an **SSL Presets** directory created on one of your hard disks.

Alternatively, you may wish to store the presets in a sub-directory within your project folder.
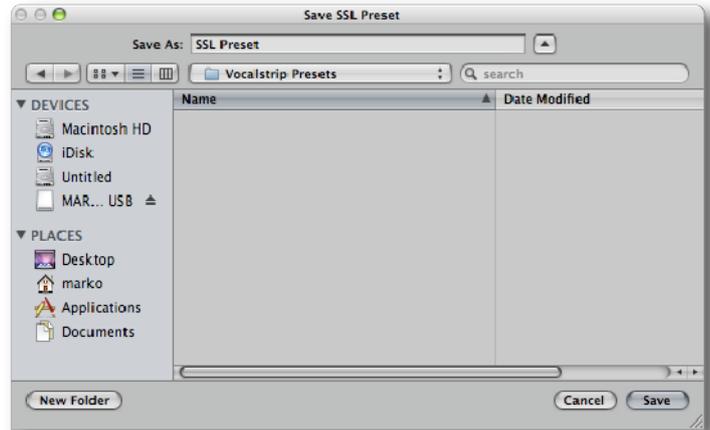


### 6.2 A/B Functionality

An A/B function, providing two different memory locations, 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.

> **!** **Tip: Copy from location A to location B**
>
> • Save the preset to a temporary location on your hard disk whilst in location A
>
> • Toggle to location B
>
> • Load the stored preset

## 6.3 Automation

Every Vocalstrip 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.

## 6.4 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 Vocalstrip 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. A short fade is performed when the In/Out button is used to avoid a digital click that would otherwise be present.

# 7. Vocalstrip Parameters & Control Ranges

**Equaliser**

| Control | Gain | Frequency | Q/Slope |
|---|---|---|---|
| HP Filter | n/a | 30Hz to 300Hz | 12dB/oct |
| Notch Filter | +12dB to −36dB | 200Hz to 10kHz | 0.5 to 72 *(depends upon gain setting)* |
| High Band | ±12dB | 1kHz to 20kHz | 0.8 |

**De-esser and De-ploser**

| Control | Range |
|---|---|
| Threshold | −48dB to 0dB |
| Amount | 0 to 100% |

**Compander**

| Control | Range |
|---|---|
| Compressor Ratio | 1:1 to 50:1 |
| Compressor Threshold | 0dB to −48dB |
| Attack | 0.1ms to 100ms |
| Release | 0.5ms to 2s |
| Knee | Soft/Hard |
| Expander Threshold | 0db to −96dB |
| Make-up Gain | 0db to 48db |

# 8. Vocalstrip Support

**Support FAQs**

To access the latest support information on Duende, please visit our online support site at:

www.solid-state-logic.com/music/Duende/Classic/faq.asp



The information within the FAQ is kept up to date to ensure all information is accurate and available to you 24/7.

*If you can't find your answer or a solution to your issue, you can submit a question via the FAQ pages to our support staff for resolution.*

# Solid State Logic
## S O U N D  | |  V I S I O N