Silk Vocal / Silk Vocal Live

Smart EQ and Dynamics Processors for Vocals

User Guide

Introduction

Thank you for choosing Silk, a smart tool that locates and attenuates resonance that often prevents vocal tracks from sounding their best. Silk is easy and straightforward to use. Still, to quickly get yourself up to speed, we recommend that you take a moment to read this user guide.

Silk is available through a Creative Access Ultimate subscription plan. Before you sign up for a subscription, you'll need a free Waves Account. If you've ever purchased a Waves product, you likely already have an account. If not, click on the icon in the upper-right corner of any Waves web page and go from there. Then, visit the Creative Access web page or use Waves Central to start and manage a subscription.

We suggest that you become familiar with the Waves Support pages: www.waves.com/support. There you'll find technical articles about installation, troubleshooting, and specifications, as well as company contact information.

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About Silk Vocal

Silk Vocal is your go-to solution for prepping vocal tracks for mixing. It performs several time-consuming tasks by automatically detecting and reducing disruptive frequencies. With minimal interaction, Silk delivers cleaner, punchier vocals, enhancing your mix's transparency and clarity.

Silk combines the functions of a parametric EQ, de-esser, dynamic EQ, and vocal compressor, cutting down your workflow time significantly. Unlike traditional tools, Silk is adaptive, allowing precise control over frequency attenuation, ensuring a clear vocal sound.

Silk Vocal is user friendly and fairly light on CPU, streamlining the otherwise complex process of achieving balanced vocals.

It operates in real time, requiring little to no automation, saving you from the dreaded chore of vocal track preparation and making more time for creative mixing.
Less tedium and more mixing!

Silk Vocal Live brings the power and simplicity of Silk Vocal to live events and broadcasts. It provides the same type of adaptive frequency processing as Silk Vocal, with very low latency. You get the same Silk Vocal processing—for clean, punchy vocals— in a live mix. Silk Vocal and Silk Vocal Live share the same controls, so you can effortlessly move from venue to studio.

Components

There are four Silk Vocal components:

- Silk Vocal, mono and stereo
- Silk Vocal Live, mono and stereo

Silk Vocal or Silk Vocal Live?

Silk Vocal and Silk Vocal Live have the same interface. The background color is different—Silk Vocal is silver and Silk Vocal Live is dark blue—and Silk Vocal Live has one extra control. Workflow and processing are the same, but the filters are different.

Silk Vocal is ideally suited for mixing and postproduction.

It uses linear phase filters to provide very accurate vocal processing. This enables precise frequency control, but it introduces latency. Plugin latency is dependent on the sample rate of the session. Please refer to the Silk Vocal product page on the Waves website for details.

Silk Vocal Live is designed for live performances and real time shows, where near-zero latency is essential.

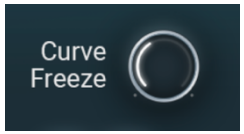
Silk Vocal Live is equipped with minimum-phase filters for very low latency. CPU usage varies depending on the sample rate and buffer size of your project and DAW.

Please note that there is a difference in sound between the two components, due to the different filters, but it is slight. A Silk Vocal user may prefer the sound of the Live component's minimum phase filters. We recommend that you choose the right component based on your needs and personal preferences.

Interface

Collapsed Panel

This is the default view. All essential controls are displayed here. In most cases, you can achieve complete vocal processing without leaving this view.



Curve Freeze (Live only)
Sets a threshold for processing during pauses and other very quiet moments.

1. **Voice Type** drop-down menu provides Silk a model before processing.
2. **Process Amount Knobs** control the processing amount of a frequency range. Three ranges: Low, Mid, High
3. **Solo Band** (headphones icon) Solos one or more frequency ranges: Low, Mid, High
4. **Process Knobs Bypass (**on/off for each range): Low, Mid, High
5. **Delta/DIFF** compares one or more processed regions against the input signal.
6. Three **Reduction Graphs** audition the reduced signal.
7. **Frequency Range Limit:** two handles constrain the frequency range of processing in the Mid-range.
8. **High Range Processing** sets how high-frequency knob behaves: for de-essing or general high-end processing.
9. **Dynamics Section Gain Reduction and Gate Display**
10. **Dynamics Threshold** controls overall compression.
11. **Dynamics Section On/Off**
12. **Output Gain**
13. **Link Dynamics threshold and Output level** (gain match)
14. **Open Expanded Panel**

Expanded Panel

The Expanded View provides additional controls for dynamics, precision, sharpness, and output mix.

15 **HP Filter**: (60 Hz, 72 dB/octave, preprocessing) filters low frequencies and helps avoid unnecessary processing.

16 **Speed** simultaneously controls attack and release.

17 **Precision** defines how smoothly the processed bins are combined. It works like a Q control, but at a very detailed level.

18 **Smart Makeup Gain On/Off**

19 **Gate** adjusts the threshold of gating. Used primarily for reducing the noise floor between voiced parts.

20 **Mix** controls the wet/dry mix of the processed signal and the input signal.

21 **Close Expanded Panel**

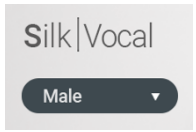
Tooltips

A tooltip provides a concise description of a control. Hover to view the tooltip.

Main Panel Controls

Silk is optimized for vocals, not only in terms of frequencies and process amount, but also in terms of attack and release. The default frequency settings are tuned for common resonance problems. When Silk initially loads, it's set to control sibilance on the high end and boominess on the low end. The human voice is primarily in the midrange, so this is where you have most control.

Voice Type Menu



This drop-down menu provides Silk a model before processing. It sets up the "under the hood" processing environment. There are two options: "Male" and "Female." We suggest that you address this selection first, before making other adjustments. You can always change the setting later. This setting cannot be automated. Range: Male or Female

Process Amount Knobs

Three Process Control knobs establish the amount of dynamic processing per frequency. Each relates to the frequency range in the Reduction Graph below. Turn the knob clockwise to expose more of the signal to processing. The higher the process amount, the more of these frequencies the plugin *sees*, thus more process (reduction) is applied.

The Process Amount knobs and the Limit handles in the Reduction Graph strongly influence each other.

Each Knob controls a Different Frequency Range

Low

Controls boominess or low-end “mud,” and reduces the *chestiness* that can accompany a voice.

Fixed frequency range: 20 Hz to 300 Hz

Mid

Controls the frequencies where most of the human voice is sung or spoken, hence the big knob and the large frequency range in the Graph. Only in this range can you constrain and move the frequency range of processing.

Maximum frequency range: 300 Hz to 4 kHz. Range can be adjusted with the Frequency Range Limiter handles.

High

High primarily attenuates sibilance but can also be used to tame other high-frequency content.

Fixed frequency range: 4 kHz to 20 kHz

There are two modes of High range processing, which are selected with the switch above the High knob.

When HF switch is set to de-essing, gain reduction is bell-shaped, so compression occurs at specific frequencies. This is commonly used for sibilance attenuation.

When HF is set to general high-frequency processing, the entire high range is attenuated, much like a shelf.

Range (all three knobs): 0 (no reduction) to 100 (maximum reduction)

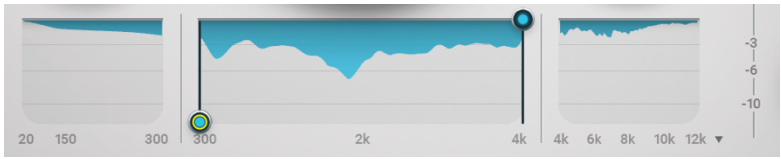
Slope of the frequency crossover between the three knobs: 24 dB/octave

Note that Silk does not require that you define the specific frequencies for gain reduction. The processing frequencies within the ranges are changing constantly.

Analysis Graph

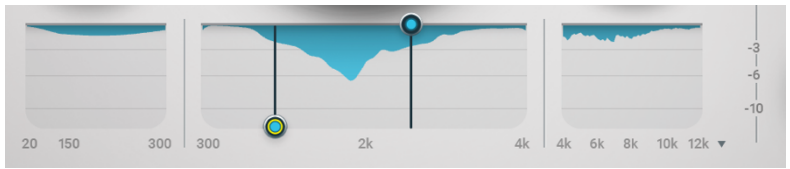
Below each Process Amount knob is a reduction analyzer graph that indicates gain reduction per frequency for the corresponding control: Low, Mid, and High. As you turn a Process Amount knob clockwise, gain reduction increases in that region, and a blue area in the graph gets larger to reflect increases in the local attenuation.

Whereas the Low and High ranges have fixed frequency ranges, the width of the Mid range can be adjusted.



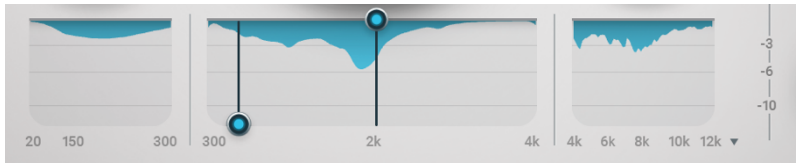
In this example, Silk processing is applied to the entire mid-range (300 Hz to 4 kHz). But resonance and related problems do not occur across the entire midrange and are instead limited to a smaller range.

With this in mind, there are two range-limiting handles that narrow midrange processing. This lets you focus on a problematic area without applying unnecessary processing elsewhere.



Grab and slide the mid handles to adjust the boundaries of a frequency range. Note the changes in the range of gain reduction display when the handles are moved. Hover over a handle to reveal its frequency.

Only the frequencies between the handles are being processed, though there is a “bleed” that is identical to the process with a graphic EQ and stems from the 24 dB/octave Q.

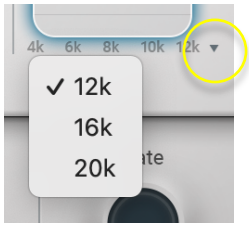


Slide the resized region back and forth to pinpoint frequencies for mid-range processing.

With the Mid handles at their default settings (300 Hz and 4 kHz), you may notice bleed into the low- or high-frequency ranges, even when these ranges are set to zero. This is due to the same Q described above, and is a positive effect that assures gentle, smooth processing.

The default Mid frequency settings are as wide as possible to tackle common, light resonance occurrences. In many cases, simply adjusting the knobs will give you all the results you want. By using the handles to constrain the mid-range processing, you can tackle more severe and specific resonances.

High Range View Selection



The High analyzer's view can be changed for greater resolution and comfort. Use the drop-down menu at the bottom of the High display to set a range.

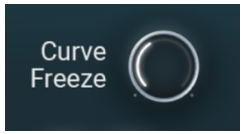
Display ranges: 4kHz to 12/16/20 kHz

Note: Changing the view does not change the processing range, only the display.

High-Pass Filter

A high-pass filter is fixed at 60 Hz, 72 dB/octave. This removes or reduces very low-frequency background sounds. This limits unnecessary processing and can recover headroom and enable greater makeup gain. The High Pass Filter is placed before all processing in the signal flow. It is turned on or off in the Expanded Panel.

Curve Freeze (Silk Vocals Live only)



The plugin's processing curve will freeze when audio falls below the threshold set by the Curve Freeze control. This is specifically useful in live settings, as it prevents unnecessary curve changes between songs.

Listening Options

Solo

You can solo one or more Process Amount controls.

- Click on the headphone icon to turn solo on or off.
- Click additional solo icons to add them to the solo group.
- To cancel all solos, Ctrl+right-click on any of the headphone icons.

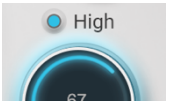
Delta/DIFF

Delta is the difference between the processed signal and the input signal. There are several ways that it can help you understand what the plugin is doing.

- To hear the difference (reduced signal) between the *total* processing of the plugin and the *input* signal, toggle Delta (**Δ**) on or off.
- To hear the reduced signal of *only one* frequency range, select a solo icon and then click Delta (or vice versa).
- To hear Delta while adjusting the Process Amount knobs (in real time), Ctrl+right-click while moving the control. In this condition, Delta and Solo are temporary switches, and they will not be automated.

When Silk is in a Delta mode, the (**Δ**) icon flashes. Delta is post-mix in the signal flow.

Processing On/Off (bypass)



A small blue button above a Process Amount knob bypasses processing in that range.

Expanded Panel Controls

There are six controls in the bottom panel. To open or close the panel, click the arrow on the right side.

Control	Range	Function
HPF	on or off	A high-pass filter fixed at 60 Hz, 72 dB/octave at the beginning of the signal flow. The HPF is not affected by the Mix knob.
Speed	0–100	Speed controls the attack and release of the reduction process. A setting of “0” means that both attack and release are zero. As the value increases, both attack and release times rise.
Precision	0–100	Think of Precision as the local Q for the entire Silk process. During analysis in the frequency domain, the signal is divided into 1000 discrete frequency bins (44.1 kHz or 48 kHz) or 2000 bins (88.2 kHz or 96 kHz). The control adjusts how individual bins within a frequency range are processed, based on local changes in the input signal. Low settings yield very sharp and accurate results, but at the risk of edgy artifacts. High settings result in a smoother, softer, more general process.
Makeup Gain	on or off	See section below.
Gate	-80 dB to 0 dB (threshold)	The Gate is used primarily to reduce unwanted sounds during pauses. You can see the gate’s activity on the Dynamics meter. Increase the Gate setting to raise the threshold. When the input signal falls below the set gate threshold, downward expansion begins. Because of the gate’s soft knee, some gain reduction may be perceived even if the Gate threshold is set very low.
Mix	0–100	This is the mix between the output of the plugin and input signal.

Dynamics

Makeup Gain

Silk Vocal uses suppressive processing—energy is reduced during processing. Makeup gain increases the output gain to match the input signal.

- When Makeup is on, dynamic processing is applied to the output signal. Silk analyzes the RMS and peak of the input signal. It then compares it to the processed signal and makes up for the difference dynamically. So, if there's no suppression, there's no makeup gain. If there's a lot of suppression, there's a lot of makeup gain.
- When Makeup is off, there is no makeup gain. Use this when you want to apply makeup gain yourself, via the Output Trim, or outside the plugin.

Default: on

Dynamics Meter and Fader

This section is responsible for static dynamics processing. It is post-EQ processing and it has no direct influence on the mechanics of the suppression process. Since, however, it affects overall dynamics, this section has a significant influence on the sound.

The dynamics meter shows total gain reduction, including the gate process. Lower the fader to increase compression and makeup gain. When the input signal falls below the set gate threshold, downward expansion begins. The downward expander provides very gentle reduction of the noise floor or other undesirable low-level signals that fall below the gate threshold.

The Dyn button turns the section on or off. Fader range: 0 dB to -36 dB

The Output Trim knob sets the output gain of the plugin. Range -inf to +12 dB

DYNAMICS/GAIN LINK

This links the Gain Reduction fader with the Output Level knob. Simply drag the link control up and down and both controls will move together, while all offsets are maintained.

Keyboard Shortcuts

Certain Silk functions have keyboard shortcuts that make your work even easier and more productive.

All bypasses off	Ctrl+right-click on any bypass
All solos off	Ctrl+right-click on any solo.
Solo Delta	Ctrl+right-click and drag any knob to hear only the reduced signal in the corresponding frequency range.

On StudioRack and StudioVerse, simply add “Control” to any hotkey combination.

WaveSystem Toolbar

Use the WaveSystem Toolbar at the top of the plugin to save and load presets, compare settings, undo and redo steps, and resize the plugin. To learn more, click the icon at the upper-right corner of the window and open the WaveSystem Guide.