VelorX — User Guide

Algorithmic Reverb Processor

Version: 1.0
Website: rockheyday.com

Formats: Standalone Application (Windows 64-bit), VST3 (Windows)
Audio Engine: 96 kHz Ready / 32-bit Floating Point

VelorX is a high-fidelity Algorithmic Reverb Processor designed to provide total spatial control through advanced visual feedback. Built around a precision dual-layer FFT engine and a real-time stereo correlation monitor, VelorX eliminates the guesswork of spatial mixing. Instead of dialing in reverb settings blindly, users can instantly visualize the exact relationship between the dry source and the wet reflections—allowing for the creation of lush, expansive atmospheres that maintain perfect phase coherence and mix clarity.

VelorX includes a dedicated **Stereo Correlation Meter** to protect your mix clarity. Expanding the soundstage can often introduce phase issues that weaken the signal in mono. By monitoring correlation in real time, you can confidently dial in wide, immersive spaces without sacrificing the power and focus of your track.

Key Features

- **Engine:** High-Fidelity Algorithmic Reverb with Dual-Layer FFT Analysis
- **Spatial Controls:** Adjustable Room Size (0–100%) and High-Frequency Damping
- **Stereo Imaging:** Variable Width control (Mono to Wide Stereo)
- **Mix Logic:** Equal-Power Dry/Wet blending for constant perceived volume
- **Pre-Delay:** Up to 250 ms
- **Analyzer:** Dual-Layer Input/Output FFT display for precise harmonic monitoring
- **FFT Engine:** 4096 / 8192-point resolution with Blackman window
- **Response Model:** Internal 4.5 dB tilt and 350 ms ballistic decay
- **Gain Structure:** Output trim (-12 dB to +12 dB)
- **Metering:** Real-time Correlation meter and Dual-layer LR Peak meters
  (Background = Input, Foreground = Output)
- **Precision:** 32-bit floating-point processing
- **Sample Rates:** 44.1 - 96 kHz (Standalone), Host-Dependent in VST3

Standalone-Only Features

- **Playback:** Drag & Drop loading with Loop functionality
- **Export:** Render processed audio to WAV (16-bit or 24-bit)

Standalone Architecture

The standalone architecture enables instant loading, looping, and analysis of audio files without requiring a DAW. It’s designed for fast, focused audio work— whether for reference checking, harmonic inspection, or precision adjustments.

CPU-Efficient Processing

Each tool is engineered with highly optimized DSP and lightweight graphics, ensuring stable, low-latency performance in both standalone and VST3 formats—even under heavy analysis or high sample rates.

Analyzer and Windowing

High-Resolution Spectrum Engine
This tool provides a high-resolution real-time spectrum display optimized for accurate dual-layer frequency visualization during playback.

Blackman Windowing
An ultra-low spectral leakage Blackman window provides clean frequency separation and stable fundamentals, minimizing spectral smearing between adjacent bands.

Precision Engine Support
The application operates using a high-resolution 32-bit floating-point processing engine, optimized for desktop performance and stable real-time operation.

Standalone File Management and Export

Flexible Loading

- **Load Button:** Browse files via your system dialog.
- **Drag & Drop:** Drag audio files directly onto the window for instant loading.

Audio Export
It is intended for reference renders, comparison, and archiving.

- **Format:** WAV
- **Bit Depth:** Selectable 16-bit or 24-bit

WAV Output Only

The application processes all audio in high-resolution 32-bit float, so exporting to compressed formats would cause generation loss and artifact buildup. To preserve full fidelity, the output is limited to uncompressed WAV with selectable 16-bit or 24-bit depth.

Credits

Development: Application architecture, processing integration, analysis engine, and user interface design by Hakan Yurdakul. DSP implementations use JUCE framework components.
Framework: Developed using the JUCE framework.
Typography: Open Sans (SIL Open Font License 1.1). Copyright © The Open Sans Project Authors.
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Installation & First Launch (Windows)

VelorX standalone version is a portable application. No installation is required.

1. Download and unzip the file.
2. Double-click **VelorX.exe** to launch the application.

Note: On the first launch, Windows may display a **"Windows protected your PC"** message. This occurs because the application is not yet code-signed by Microsoft.

To continue:

1. Click **More info**
2. Click **Run anyway**

The application does not install background services or modify system files.

VST3 Plugin

1. Copy the file "**VelorX.vst3**" to the standard VST3 folder on your computer:
   C:\Program Files\Common Files\VST3\
2. Once copied, restart your **DAW** or rescan your plugins.