Grav-LF— User Guide

Bass Enhancement Processor

Version: 1.0
Website: rockheyday.com

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

Grav-LF is a precision Bass Enhancement Processor built around a specialized dual-layer FFT analysis engine that monitors the critical **20 Hz to 1000 Hz** frequency range in real time. Instead of adjusting the low-end blindly, Grav-LF allows users to visualize the exact spectral impact of the enhancement—making it easier to balance fundamental sub-frequencies against generated upper harmonics for perfect translation on any system.

The processor features **seven bass tonal modes** and operates with maximum CPU efficiency. By focusing strictly on the crossover bandwidth, it achieves high-fidelity saturation without the need for oversampling or added latency. Grav-LF is available as both a Standalone application and a VST3 plugin.

Key Features

- **Engine:** Dual-Layer FFT-Driven Bass Enhancement Processor
- **Modes:** 7 selections for tonal shaping
- **Frequency Range:** 20 Hz to 1000 Hz
- **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:**
    - Drive: 0 to +24 dB
    - Output: -12 dB to +12 dB
- **Metering:** 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)

Grav-LF standalone version is a portable application. No installation is required.

1. Download and unzip the file.
2. Double-click **Grav-LF.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 "**Grav-LF.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.