



Clavinet.

USER GUIDE



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CHAPTER 1 INTRODUCTION

Thank you for choosing Waves! In order to get the most out of your new Waves plugin, please take a moment to read this user guide.

To install software and manage your licenses, you need to have a free Waves account. Sign up at www.waves.com. With a Waves account you can keep track of your products, renew your Waves Update Plan, participate in bonus programs, and keep up to date with other important information.

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

Acknowledgement

The Clavinet samples library was recorded and produced by Yoad Nevo at NevoSound Studios in London.

To contact Yoad Nevo, visit: <http://www.yoadnevo.com>



1.1 Product Overview

The Clavinet is a keyboard instrument that uses strings, keys, and electromagnetic pickups to produce a unique, funky sound. Many musical hits, such as “Higher Ground” and “Superstition” by Stevie Wonder and “Outta Space” by Billy Preston, fused the Clavinet sound with funky music. By the 1970s, it became a classic element when making funky disco bass lines and choppy stabs.

The Clavinet is essentially an electrified version of a clavichord – an instrument popular from the Renaissance through the Classical period. The clavichord was famously quiet, so it was not suited for performances with ensembles and orchestras. When the Clavinet was introduced in the 1960s, it addressed the issue of amplification and opened the way for numerous sounds and effects. It was manufactured in Germany until the ‘80s.

The Clavinet consists of sixty keys. It uses electromagnetic pickups to turn sound into electrical signals, ready to be amplified. The overall sound of the Clavinet is a staccato pluck, followed by a rather quick decay. It features a damper that shortens the decay (a mode we call “Mute”), or lets it die out naturally (“Unmute”). This produces a sound that is a bit more open and bright, especially in its decay.

The Waves Clavinet is a virtual instrument, sampled from an original Hohner Clavinet D6 in both its Mute and Unmute modes. We added some sound-shaping tools and effects, such as EQ and Compression. There is also an AutoWah effect and (as with other Waves classic keyboard instruments) there is a phaser, chorus, and reverb.



1.2 Concepts and Terminology

- In the case of the Clavinet, the term “Mute” does not describe a full mute of the sound. Instead, it refers to the action of a fader-like lever to the right of the Clavinet’s keys that mechanically chokes the sustain and introduces a faster decay and mellower tone.
- The tuning of the Clavinet is equal tempered. Equal temper means that an octave is divided to 12 equal $\frac{1}{2}$ tone or semitone intervals of 100 cents each. This is contrary to the Justonic or other temperaments.
- The reference tuning for the actual sampled instrument was the normative middle A=440 Hz. The Clavinet’s top toolbar features a global tune control that allows setting of the overall tuning one semitone up or down. For users looking to adhere to a 432 Hz reference, the tuning should be set to -31 cents.

Waves Clavinet is powered by the Waves Sampler Engine (WSE): a state-of-the-art multi-sample engine, designed to deliver solid, high-quality performance.

1.3 Components

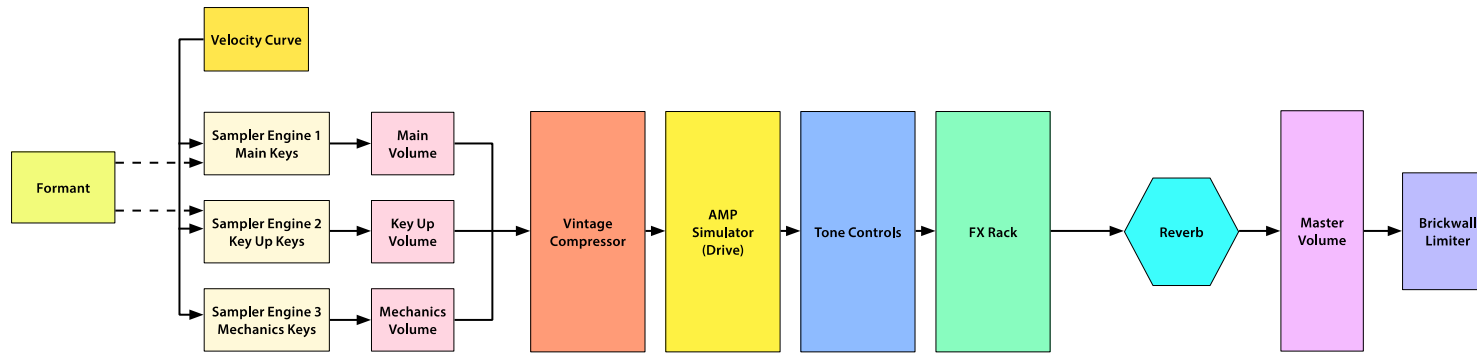
The Waves Clavinet has one component: Clavinet Stereo.

Clavinet is a virtual instrument plugin and will appear under the related selection menus for virtual instruments in all supported DAW host applications.

Waves Clavinet also has a standalone application. It uses ASIO (Windows) or Core Audio (Mac) drivers to enable play through any audio device of choice. Clavinet receives MIDI data to trigger notes and control changes.



1.4 Functional Block/Flow Diagram



1.5 Starting Clavinet

Insert the Clavinet plugin on an instrument track in your DAW, or launch the standalone application. The plugin will load its default settings and will be ready to use.

Before getting started, use the Velocity Curve control to adjust your keyboard to get the feel you like. Once you're happy with the touch, you can uncheck the VEL (velocity) box in the top bar. This prevents the velocity setting from changing when a preset is loaded.



CHAPTER 3 INTERFACE AND CONTROLS

3.1 Interface



3.2 Controls

Keyboard Control



A virtual keyboard enables you to preview the sound of a note when a keyboard controller is not available. Use a mouse or similar input device to play a note. This control cannot be automated, although it will follow any MIDI input device.

Keys Section



Vel Curve

The Vel Curve control changes the curve of the velocity response from logarithmic to exponential. Use it to adjust the feel of your MIDI keyboard.

When the control is set to 0, the curve of the velocity response is linear.

Range: -50 to +50

Initial Value: 0

Reset Value: 0

Continuous control

Formant

The Formant control changes the sound character, but not the pitch. Each step is equal to a half tone. This means that when this control is set to -12, the piano sound character will be lower by one octave, while the pitch will not change.

Range: -12 to +12

Initial Value: 0

Reset Value: 0



Discrete control, 25 steps



Mix Section

Main

Main controls the sampled sound of the Clavinet without the mechanics and the release keys sounds. It controls the Main samples level in the overall mix.

Range: 0% – 100%

Initial Value: 90%

Reset Value: 90%

Continuous control

Key Up

Key Up controls the sound of the keys while releasing. It controls the Key Up samples level in the overall mix.

Range: 0% – 100%

Initial Value: 12%

Reset Value: 0%

Continuous control

Mechanics

Mechanics controls the sampled sound of the Clavinet mechanics without the Main or Key Up sounds. It controls the Mechanics (thump) samples level in the overall mix.

Range: 0% – 100%

Initial Value: 12%

Reset Value: 0%

Continuous control



Comp



The Comp control influences the mix of the internal compressor. Turning the knob clockwise increases the level.

Range: 0% – 100%

Initial Value: 25%

Reset Value: 0%

Continuous control

Amp Section



Amp On/Off

The Amp button turns the Amp section On or Off.

Range: Off or On

Initial Value: Off

Switch: Off or On

Reset Value: None

Alt+click does not affect the current mode of this switch.

Drive

Controls the level of the amplifier overdrive.

Range: 0–100

Initial Value: 0

Reset Value: 0



Continuous control

Type

There are two microphone options in front of the amplifier: Condenser and Dynamic.

Range: Dyn or Cond

Initial Value: Cond

Reset Value: Cond

Two-state switch

Tone Section



Bass

The Bass control is a bell filter at 100Hz, which can be increased or decreased by up to +/-18 dB.

Range: -50 – +50 (+50 = +18 dB)

Initial Value: 0

Reset Value: 0

Continuous control

Mid

The Mid control is a bell filter at 380Hz, which can be increased or decreased by up to +/-18 dB.

Range: -50 – +50

Initial Value: 0

Reset Value: 0

Continuous control

Treble

The Treble control is a high-shelf filter at 7.5KHz, which can be increased or decreased by up to +/-18 dB.



Range: -50 – +50
Initial Value: 18
Reset Value: 0
Continuous control

FX Section



FX On/Off

The FX button turns the FX On or Off.

Range: Off or On

Initial Value: On

Switch: Off/On

Reset Value: None. Alt+click does not affect the current mode of this switch.

AutoWah On/Off

The AutoWah button turns AutoWah On or Off.

Range: Off or On

Initial Value: Off

Toggle Switch

Reset Value: None. Alt+click does not affect the current mode of this switch.

Sens

Sens controls the sensitivity of the Wah effects envelope detector.

Range: 0 – 100

Initial Value: 80

Reset Value: 80

Continuous control



Speed

Speed controls the speed of Wah filter movement.

Range: 0 – 100

Initial Value: 60

Reset Value: 60

Continuous control

Range

Range controls the center frequency of the Wah filter.

Range: 0 – 100

Initial Value: 30

Reset Value: 30

Continuous control

Direction

The Direction switch flips the movement direction of the Wah filter.

Range: Up or Down

Initial Value: Up

Toggle Switch

Reset Value: None. Alt+click does not affect the current mode of this switch



Phaser



Phaser On/Off

The Phaser button turns the Phaser section On or Off.

Range: Off or On

Initial Value: On

Toggle Switch

Reset Value: None. Alt+click does not affect the current mode of this switch.

Phaser Mix

Phaser Mix controls the level of the Phaser effect.

Range: 0% – 100%

Initial Value: 50%

Reset Value: 0%

Continuous control

Phaser Rate

Phaser Rate provides control over **Sync** rates that relate to the host (such as $\frac{1}{4}$), or **Free** rates (in Hz) that can be set independent of the host BPM, using the same knob. The middle position (i.e. 12 o'clock) is the slowest Free value. Turning the knob clockwise from this position increases the rate from 0.01 Hz to 22 Hz.

When the knob setting is less than 12 o'clock, values are defined with respect to the host. Turning the knob counterclockwise increases the Phaser Rate through music note duration values related to the host's BPM: $\frac{1}{32}T$, $\frac{1}{32}$, $\frac{1}{32}D$, $\frac{1}{16}T$, $\frac{1}{16}$, $\frac{1}{16}D$, $\frac{1}{8}T$, $\frac{1}{8}$, $\frac{1}{8}D$, $\frac{1}{4}T$, $\frac{1}{4}$, $\frac{1}{4}D$, $\frac{1}{2}$, $\frac{1}{2}D$, 1, $\frac{2}{1}$.

$\frac{2}{1}$ equals one cycle in two bars.

Scaling: Custom.

Range: Sync $\frac{1}{32}T$ – $\frac{2}{1}$ / Free 0.01 Hz – 22 Hz

Initial Value: 1 Bar Sync rate

Reset Value: 0.1 Hz Free rate

Continuous control.



Phaser Depth

Phaser Depth controls the Phaser feedback.

Range: 0 – 100

Initial Value: 15

Reset Value: 0

Continuous control

Chorus



Chorus On/Off

The Chorus button turns the Chorus section On or Off.

Range: Off or On

Toggle Switch

Reset Value: None. Alt+click does not affect the current mode of this switch.

Depth

The Depth control influences the dry/wet mix of the signal into the chorus and determines how much the module oscillator will influence the delay. The chorus engine contains four delays and four oscillators.

Range: 0 – 100

Initial Value: 34

Reset Value: 0

Continuous control



Reverb



Reverb Mix

Reverb Mix controls the balance between the dry and wet signal. It also controls the amount of reverb added.

Range: 0% (dry) to 100% (wet)

Initial Value: 20%

Reset Value: 0% (dry)

Continuous control

Reverb Predelay

Reverb Predelay controls the amount of the delay between the dry and wet signals.

Range: 20 ms – 400 ms

Initial Value: 20 ms

Reset Value: 55 ms

Continuous control

Reverb Time

This controls the reverb time.

Range: 0.4sec – 6 sec

Initial Value: 1.3 sec.

Reset Value: 2 sec

Continuous control

Reverb Damp

The Reverb Damp control increases the level of the high frequencies during the decay.

Initial Value: 0.4

Reset Value: 0.1

Continuous control



Output



Volume

Volume controls the output gain level after plugin processing.

Range: 0 –10

Initial Value: 7

Reset Value: 7

Continuous control

Limit

The Limit control confines the instrument's output with respect to full scale. When Limit is active, the clip LED pulses to reflect limiter gain adjustment activity. The limiter is especially useful when using the standalone application.

Range: On or Off

Initial Value: Off

Reset Value: Off

Discrete Off or On control

Meter Scale

Peak meter: -48 dB to 0 dB (shown as -30 dB to +18 dB)

VU meter scale calibrated for 18 dB of headroom (0 dBVU = -18 dBFS).



Split Meters

Separate left and right meter indicators.

Black = Left

Green = Right

3.3 WaveSystem Toolbar Controls

Use the bar at the top of the plugin to save and load presets, load sample libraries, 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.

Samples

Clavinet loads the default sample library when the plugin is instantiated or the application is launched. Click on the Samples button to navigate to another sample library folder. This library will become the default until you load another library. The folder must contain valid Waves sampled instrument files, otherwise the OK button will be grayed out. You can download Waves sample libraries from the Waves download page

<http://www.waves.com/downloads/sample-libraries>



Tune



Allows global fine tuning of the instrument.

Range: -100 – 100 cents

Initial Value: 0

Reset Value: 0

Continuous control

Velocity (Load with preset)



When the Velocity button is checked, the Velocity setting does not change when a preset is loaded. When the box is unchecked, the velocity setting loads to the value specified by the preset.



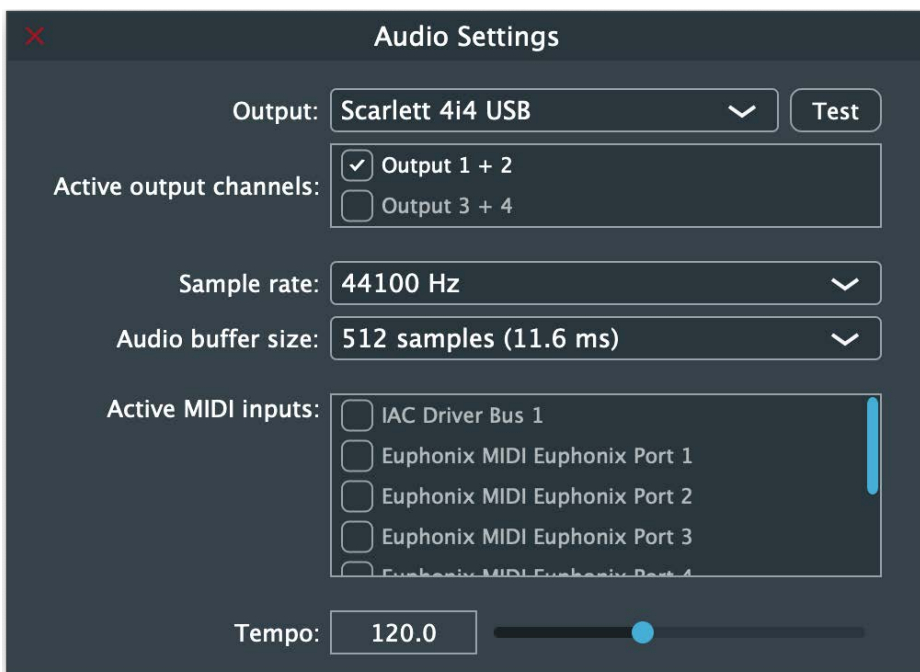
CHAPTER 4 Clavinet Standalone Application

The Clavinet application can be used as a standalone instrument. It requires ASIO drivers for Windows or Core Audio for macOS. Clavinet.exe (Win) or Clavinet.app (Mac) loads the Clavinet instrument and configuration preferences dialogs.

Set up the standalone application from its File menu:

- All Notes Off Sends an All-Notes-Off MIDI command to the Clavinet synthesizer. This is useful in cases of “stuck” sustaining notes.
- Preferences Displays the Preferences dialog for the Audio, MIDI, and User Choices configurations.

PREFERENCES



Output displays the audio devices available on the system. **Test** plays a sound if the outputs are configured correctly.

Active Output Channels allows selection of audio outputs from the selected device.

Sample Rate displays and sets the sample rate.*

Audio Buffer Size displays and sets the buffer size, which influences latency.*

*In Windows, sample rate and buffer size cannot be changed from this panel. To modify these settings: close the application, adjust sample rate and buffer size with your driver's control panel (link shown below), and then relaunch.

Control Panel

Reset Device

(Windows Only)

Active MIDI Inputs displays a list of available MIDI input devices on the current system. Select the MIDI device for receiving MIDI data.

Tempo: Sets the tempo for all relevant plugins. By default, tempo-based Waves plugins are in a “tempo listen” state. Their tempo rates will fix to this value.

