Slayer Manual

Audio code, presets and manual by Markus Feil
GUI and support by Michael Kleps
MacOS port by Mathias Reichert

Visit us at http://www.reFX.net/

Technical support: support@refx.net

Welcome to Slayer

Slayer is an electric-guitar-simulation plug-in for Steinberg's VST platform. It uses a hybrid synthesis similar to physical modelling. Especially guitar sounds are very hard to emulate because of the sonic complexity of the signal. We tried to tweak out the most important parameters which are relevant for guitar and keep the synthesizer as simple as possible. Slayer comes together with an amp simulation and an effect rack. So you got a complete electric guitar equipment in a single plug-in!

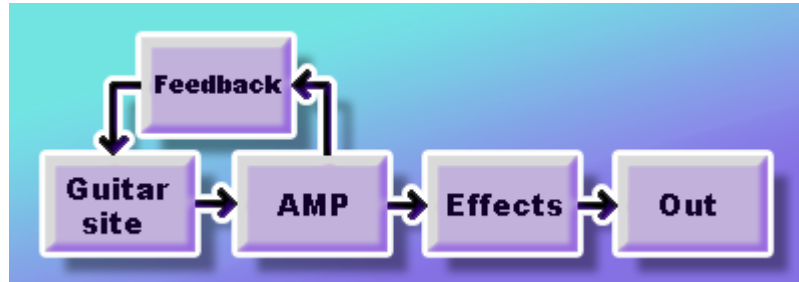Please note that the demo version of Slayer works only for 10 minutes!

Highlights:

- Advanced physical modelling
- Simulates electric guitar, e-bass and clean guitar
- 4 different AMP and 4 different cabinet simulations
- Real site feedback
- 7 different plug model simulations
- 15 high quality guitar effects before or behind AMP
- Automated playing-aids with shuffle and strumming
- 100% alias-free

The Signal path of Slayer

Slayer is a hybrid synthesizer similar to physical modelling. This means that Slayer tries to shape the sound in a way like it happens in reality.

Just think about what happens if you plug the site of your electric guitar. You move your finger (or whatever) to the site and make it swing. Depending on how you make your site swing the result in sound is different. More hard plugs will result in a more hard sound. A specific characteristic for guitars is that the plug sound with that you made the site swing will be kept over time. The plug sound is the key to the different guitar type characteristics.

When the electric information has passed the output jack of your guitar it goes into the amplifier. The AMP shapes the signal. This means it attenuates or de-attenuates sonic information (filters in the presence section), passes it through a non-linear shaper (the overdrive), reaches the EQ and a speaker-simulation. The typical distorted guitar sound you know from the rock or heavy-metal CDs is know as „inter-modulation distortion". The mathematical background beyond this is very complex. Basically you can say: Distortion on strictly harmonical content sounds static. Distortion on disharmonical content sounds awesome. Distortion on slightly disharmonical content sounds fat. There is a special algorithm integrated into Slayer that creates a slight detune on chords. It always finds the optimal detune setting no matter what you play. So don't care about site tuning - you always hear something modulate.

When speakers a placed near the guitar and the gain is high it can happen that the swinging air molecules start to move the sites of the guitar. This is simply called feedback – that high pitched screech. Slayer is the first and only VST-instrument which emulates feedback in the correct way. Feedback in Slayer is, like in reality, always harmonic. The tune depends on which site you play / not play.

The effect section is designed to give you fast access to preset-ready settings with low CPU cost. There are lots of different types covering the most common units used on guitar sounds.

The Parameters

Parameters of Slayer can be split into 4 sections:

1. Playing-aids
2. Guitar
3. Amp-Simulation
4. Effects

Playing-aids parameters (1):

- Mode
- Timing
- Latch

Guitar parameters (2):

- Plug simulation type
- Formant
- Slap
- Fret
- Harmonic
- Damp
- Vscale
- Pickup type selector
- Pickup bar

Amp Simulation parameters (3):

- Amp type selector
- Cabinet type selector
- Drive
- Presence
- EQ: Low, Mid, High
- Feedback

Effect unit parameters (4):

- Effect type
- Effect parameter 1
- Effect parameter 2

Playing-Aids

Because it is rather difficult to play keyboard in the same way as a guitar is played we included several playing-aids.

Use the Mode button to select the playing-aid type:

- None
- Autochords
- Powerchords
- Strumming
- Solo fixed
- Solo dynamic

None: Slayer handles notes like you are used from any other hardware synthesizer.

Autochords: Slayer creates guitar style chords automatically. The chord harmonic depends on the last played note. You can control the strum speed with the timing knob. Small values will result in tighter timing.

Powerchords: Slayer creates power chords automatically. The pitch depends on the last played note. The keyboard is split into two sections. The upper keyboard range is reserved for C1-G1-C2 style chords; the lower range is for C1-F1-C2 style chords. You can control the strum speed with the timing knob. Small values will result in tighter timing.

Strumming: This mode is designed for individual guitar chords on live-playing. Every key you hit on the keyboard is also played as a single note. Chords are automatically strummed.
You can control the strum speed with the timing knob. Small values will result in tighter timing.
The first note is played immediately. All notes which follow are delayed by the strum time!

Solo fixed: Switches Slayer to monophonic glide mode - only one voice is played. Hit a key, hold it down and press a second one - you will hear Slayer slide to the next note smoothly. When you release the second one again, Slayer slides back to the starting key. In solo fixed mode the glide speed is always constant, no matter which notes you press.
You can control the glide speed with the timing knob. Small values will result in a faster glide. It automatically syncs with BPM rate.

Solo dynamic: Switches Slayer to monophonic glide mode - only one voice is played. Hit a key, hold it down and press a second one - you will hear Slayer slide to the next note smoothly. When you release the second one again, Slayer slides back to the starting key. In solo dynamic mode the glide speed depends on the difference between the note values. A glide from C3 to E6 will take longer than a glide from D6 to E6. You can control the glide speed with the timing knob. Small values will result in a faster glide. It automatically syncs with BPM rate.

The latch button:

If the latch button is pressed, notes are not muted after releasing a key – simply like a real sustain-pedal.

Site simulation

Slayer uses an advanced physical model for the guitar site simulation. The following parameters control sound generation:

You can see a number of strings to the left. Here you can choose from the different site simulations.

- Noise is the classic Karplus Strong algorithm.
- The 6String settings are related to the electric guitar play modes.
- Slap is the sound of a slap bass.
- Ebass is the Plug noise of a hard played E-bass.
- Fretless for fretless bass sounds.

The "Formant" Knob is very close related to the site simulations selector. Here you set the pitch of the formants. Feel free to experiment around with this knob a lot, since it is one of the most relevant ones!

The "Slap" Knob is used to control the slap level of the signal. If velocity is high more "slap" will occur than it is on low velocity. If Slap knob is set to "0" no slapping will happen no matter how loud you play.

"Fret" tells the guitar how much fret noise is mixed together with the guitar sound. Use high settings for more aggressive plug sounds in basses.

"Harmonic" is used to simulate the different pickup typed used in electric guitars. High settings are for bright pickups, low settings for dumb pickups.

"Damp" is used to control the decay time of the guitar. Muted guitars use a high damp amount.

"VScale" tells Slayer how velocity sensitive the preset is. Use high settings for very dynamic sounds like slap basses. Use low settings for non-velocity sensitive sounds like power chords.

You can select a pickup setup left next to the strings:

None: This is for natural guitar sounds. There is no pickup simulation.
Single: Single coil pickups.
Double: Double coil pickups.

Move the pickup bar left or right to make your guitar sound different!

Site simulation parameters are rather difficult to handle. Small parameter changes may result in huge changes or unusable sounds. Only very experienced users should edit them. If you are not so sure, we advise to tweak the presets only slightly.

The AMP section

Slayer offers an excellent AMP simulation with real site feedback and speaker simulation.

You can choose between four AMP types:

Dry: Signal is passed through EQ. No feedback, no presence. Drive knob is used for gain of the signal. Use this setting for Unplugged sounds.

Valvue: Simulation of a three stage valvue AMP with soft saturation. Signal is passed through presence, distortion, EQ, Speaker simulation.

EQ: This is a special AMP. Signal is passed through EQ before it goes through 3 stage distortion. Especially on critical sounds like talkbox this AMP can be the best choice.

Bandpass: This is a special AMP. Signal is passed through bandpasses and soft saturators in 3 stages. Presence controls bandpass cutoff. Finally it goes through EQ. Boost low and high band of EQ for fatter sound!

You can choose between four Cabinet types:

Dry: This is the sound you would get if you connected a HIFI system to your guitar. It is absolutely linear. Use this setting for unplugged sounds.

British: A simulation of a British Cabinet. It sounds rather aggressive.

Combo: A combo box simulation. It gives a softer sound.

StaX: Very aggressive Cabinet with a big boost on high frequencies. Use it for heavy metal style sounds.

The Knobs

Drive: Controls the level of distortion.

Presence: A simple high–shelf filter which adds or removes some brightness.

Low: Part of an equalizer. It controls the bass level below 200 Hz.

Mid: Controls the mid level around 1000 Hz.

High: Controls high frequencies above 2.5 KHz.

Feedback: Amount of feedback which is returned from the output of AMP simulation back to the site simulation.

The Effect Section

The effect section is designed to give you fast access to preset-ready settings with low CPU cost. There are 16 different types covering the most common units used on guitar sounds. The effect engine is linked to guitar events. If a new note is played the tremolo retriggers automatically, for example.

Use the first knob to select the effect type. The two smaller ones control the effect parameters. If you want to use external effects set the first knob to „dry". The display shows the current effect.

AMP: Pedal effect before the AMP

MST: Master effect applied behind the AMP

Effect settings:

Dry	Nothing happens
AMP: Phaser	Signal is passed through an allpass filter and mixed with dry signal. The first parameter controls the LFO speed for modulation. The second one is feedback level.
AMP: Tremolo	A tremolo which is connected before the AMP. It automatically retriggers on new notes and syncs with host BPM rate. First parameter controls LFO speed. Second one controls modulation depth.
AMP: WahWah	A lowpass filter with resonance and envelope follower. The first parameter controls the attack speed, the second the modulation depth.
AMP: WahWah LFO	A WahWah with LFO. The first parameter controls the LFO speed, the second the modulation depth. The LFO automatically syncs with the last played note.

AMP: Ringmod	Ring-modulation which automatically tunes harmonic with the last played note! Parameter 1 controls the harmonic for the modulator.
AMP: Fuzz Box	Signal-shaper for adding some grunge to the signal. Use this effect VERY carefully since it adds a high amount of harmonics to the signal, which can destroy your equipment! Parameter 1 controls Fuzz Box drive. The second parameter adds some digital crap.
AMP: Harmonizer	This effect adds harmonics one octave below and one octave above the current played note. Parameter 1 controls the mix level for the upper harmonics, parameter 2 the mix level for the lower harmonics. This effect only works well on single notes. The frequency tracker will jam up on chords.
AMP: Talkbox	Simulates human-voice formants. Parameter selects LFO modulation speed, parameter 2 selects the formant pitch. We suggest to switch pickup simulation to "none" because the achieved results are often better.
MST: Chorus	Smooth stereo chorus. The first parameter controls LFO modulation speed, the second parameter modulation depth.
MST: Flanger	Flanger with feedback. The first parameter controls LFO modulation speed, the second parameter modulation depth.
MST: Phaser	Stereo phaser. The first parameter controls the LFO speed for modulation, the second parameter controls feedback level.
MST: Leslie	Leslie effect known from the Hammond Organs. Originally it was built with a speaker rotating around a microphone. The first parameter controls rotation speed, the second one controls modulation depth.
MST: Tremolo	First parameter controls LFO speed. Second one controls modulation depth. It automatically retriggers on new notes and syncs with host BPM rate – this makes it a lot easier to play!
MST: DubDelay	A simple left-right delay for adding some spatial to the sound. Parameter 1 controls delay time.
MST: Multitap	A stereo-tap-delay with filter. The first parameter controls delay time, the second one controls feedback. It automatically syncs with host BPM rate.

Installing Slayer

Copy "Slayer.dll" into your VST plug-ins / VST instruments directory. Your host software will automatically detect it as a VST instrument.

Copy protection (PC version)

After the full version of Slayer is installed and you are connected to an internet service, Slayer will send out one short data package to the reFX-server on a random date. This data package strictly only contains the email address (which is already known to us from your registration) and the serial number of the hard-disc - no further information - only for one time after it was installed. As a normal user you will not be bothered to register and not even notice when it happens. If you disagree with this kind of copy protection you are not allowed to install this product.

Ordering Slayer

The full version of Slayer can be ordered at www.reFX.net. Also take a look at our other products!

Copyright:

Slayer is copyrighted by reFX. It may only be distributed from our webpage. We may not be held responsible for problems on your system which appear with the use of this product. We reserve us the right to modify Slayer for update and bug fixes. By using this software you accept the German laws for software and copyright.

Credits:

Feilei thanks: Michael Kleps for coding the nice GUI, Mathias Reichert for MacOS port, Lars Ha for discussing filters, Marc Lorenz for the rammstein secrets, Har, Paul Brown and Cubic Daniel for sound examples, the people from KVR forum and #KVR chat for suggestiones, Heigel for the idea of sawtooth scratches, Mock, Max, Bubi.

<u>All versions</u>

Back-engineering of any version of this software is strictly forbidden. All kinds of debugging, hex decoding, loading into editor or altering of the product for distribution by illegal means will be discovered through active search.

<u>Demo version</u>

You may make as many copies of the demo version of Slayer as you wish. You may also distribute them freely. You may not charge anyone for distributing the demo copy. The demo version copy must be in its original untouched form. No part of the program or documentation may be changed.

<u>Licensed Version</u>

One licensed copy of Slayer may either be used by a single person who uses the software personally on one or more computers. You are not allowed to resell this product.

<u>Distribution of demo versions</u>

Provided that you verify that you are distributing the original demo version, you are hereby granted to make as many copies of the demo version of this software and documentation as you wish; give exact copies of the original demo version to anyone; and distribute the demo version of the software and documentation in its unmodified form via electronic means. There is no charge for any of the above.

You are specifically prohibited from charging, or requesting donations, for any such copies, however made; and from distributing the software and/or documentation with other products (commercial or otherwise) without prior written permission.

<u>Disclaimer of Warranty</u>

THIS SOFTWARE AND THE ACCOMPANYING FILES ARE SOLD "AS IS" AND WITHOUT WARRANTIES AS TO PERFORMANCE OR MERCHANTABILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED. Because of the various hardware and software environments into which Slayer may be put, NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS OFFERED.

Good data processing procedure dictates that any program be thoroughly tested with non-critical data before relying on it. The user must assume the entire risk of using the program. ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO PRODUCT REPLACEMENT OR REFUND OF PURCHASE PRICE.