

1 Introduction

Attackease is a VST virtual effect for Windows. It requires a VST compatible host to run. VST and Windows are trademarks of the respective owners.

2 Licensing and protection

A license is given for personal and professional use.
There is no protection system. Permission is given to the licensed person.
Each licensed copy of the software shows the owner's name on the user interface.

3 General description

Attackease is an effect for transient analysis and for transient and sustain processing and routing.

It has one mono audio input, one sidechain audio input and two mono audio outputs (or one stereo output).

One additional audio input can be used as a sidechain input.
It also has a MIDI output for more creative effects.

Route a mono track to both inputs (or center-panned to a stereo group i.e. in Cubase) for an internal sidechain.

Route the audio to left input, control signal to right for an external sidechain behaviour.

The interface has been kept as simple as possible, by means of graphical controls, but it is a very complex effect.

Attackease is made by three modules.

1. Analysis
2. Attack (processing and routing)
3. Sustain (processing and routing)

The first module analyses continuously the incoming signal, looking for "attacks".
When an attack is detected, a crossfade control signal is activated. It splits the incoming audio between attack and sustain sections.

When attack section is routed to an output channel and sustain is routed to the other one, an attack detection causes a movement of the incoming audio from one channel to the other one and back. The signal is split between the two attack channels.



Another function is midi output. Each time an attack is detected, a midi note with number and midi channel selected in the options area is output.

4 Interface

The interface is subdivided in:

- Graphical display. A filled graphic represents the absolute value of the input waveform, small vertical lines represent detected attacks, a continuous line indicates the threshold for attack detection. Another continuous line indicates the crossfade control signal between attack and sustain parts of the audio signal.
- Analysis controls. Vertical sliders are available for each parameter.
- Attack controls. Vertical sliders are available for attack processing and routing.
- Release controls. Vertical sliders for sustain processing and routing.
- Options bar (bottom). Menus and buttons give access to MIDI options (channel and note number), to listening options and to sidechain options.

5 Details

5.1 Modules – 1 Analysis

Attacks are detected through a continuous analysis of the incoming audio.
Parameters are:

Time - The time constant for the detection algorithm (how fast transients are detected, faster -> more sensitive)

Threshold - The threshold level. The attack lines over this threshold trigger an attack. Threshold level can be automated. This is very useful when we need to trigger a particular attack or ignore another one. the trigger level changes are represented in real-time on the screen.

Look ahead - A time delay is introduced between control signal and audio. The module "looks ahead" to precede the audio and activate attacks a bit before, so that notching of the attack goes lost.

Attack - The time constant for the fade-in of an attack. This is commonly set to zero, set higher values when attacks are not separated by silence (to avoid clicks)

Release - The time constant for the fade out of an attack

If sidechain is selected (options section) the analysis is performed on the sidechain input while the audio input is processed.



5.2 Modules – 2 Attack

Each time an attack is detected (analysis signal over the threshold), the signal is routed through attack section.

Here it can be processed and routed to outputs for further external processing.

Processing includes a dedicated semi-automatic compressor.

Control are:

Input level - Input level adjustment for this section

Compression - Higher values lower the compression threshold while compensating the level reduction with an auto-makeup-gain.

Release - The release time constant for the compressor

Output level - The overall output level for the processed attack section

Pan - The panning between audio output 1 and 2 (or left and right).

5.3 Modules– 3 Attack

After an attack detection, routing and processing, the audio signal is routed from attack to sustain section.

Here, again, the sustain part can be processed and routed to outputs for further external processing.

Processing includes a dedicated semi-automatic compressor.

Control are:

Input level - Input level adjustment for this section

Compression - Higher values lower the compression threshold while compensating the level reduction with an auto-makeup-gain.

Release - The release time constant for the compressor

Output level - The overall output level for the processed sustain section

Pan - The panning between audio output 1 and 2 (or left and right).

5.4 Modules – 4 Options

Each attack trigger a midi note on.

The user can select MIDI channel and note number in the lower section.

Midi notes are sample-accurate, the note on is triggered as soon as the attack is detected.

A note off is triggered:

- when the crossfade signal goes down to 10%
- immediately before triggering a new note on (if the previous note was still active)

The note velocity is proportional to the "energy" in the attack from the original audio signal.



Midi output can be useful to add external samples to the original attack.

6 Typical use of the software

This software was built for use on single microphone tracks from drum recordings, but it has evolved further during development and more uses have been found. Here are some typical examples.

6.1 *The original one. Process a drum track*

With drum tracks, one of the most challenging works is processing attack, dynamics, sustain and ambient parts to give punch while keeping the good sound of the original track. Compressors often don't give the best results. With this plugin the attack and the sustain can be processed separately for a great versatility.

Settings:

- Attack: routed to output1 (or left)
- Sustain: routed to output 2 (or right)
- Analysis: set parameters to a good sensitivity and response
- Process attack and sustain with internal effects, balance levels
- Set further processing routing the plugin's audio outputs to external effects
- Mix back attack and sustain in a mono track to get the processed overall drum track

6.2 *The creative one. Get stereo movement*

Mono tracks are often "static".

Use Attackease to give movement in the stereo field related to dynamics.

Settings:

- Attack: routed to output1 (or left)
- Sustain: routed to output 2 (or right)
- Analysis: set parameters to a good sensitivity and response (maybe "attack" setting in analysis section is needed to avoid clicks)
- Process attack and sustain with internal effects, balance levels
- Set further processing routing the plugin's audio outputs to external effects
- Route the outputs to right and left master outputs in the host application. Attacks in the audio signal move the signal from left to right and back. Useful for percussions, guitars and more.



6.3 The MIDI one - Add samples

In the Options section select MIDI channel and note number. A note on will be triggered for each attack detected. Rout the midi output to an external sound generator (like a sampler) to:

- replace the attack of each hit
- replace the whole sound, with a hit for each attack
- add midi sounds to audio
- trigger external effects by midi

Have fun!

