Noisebud Purr-LUFS 2.0 Manual

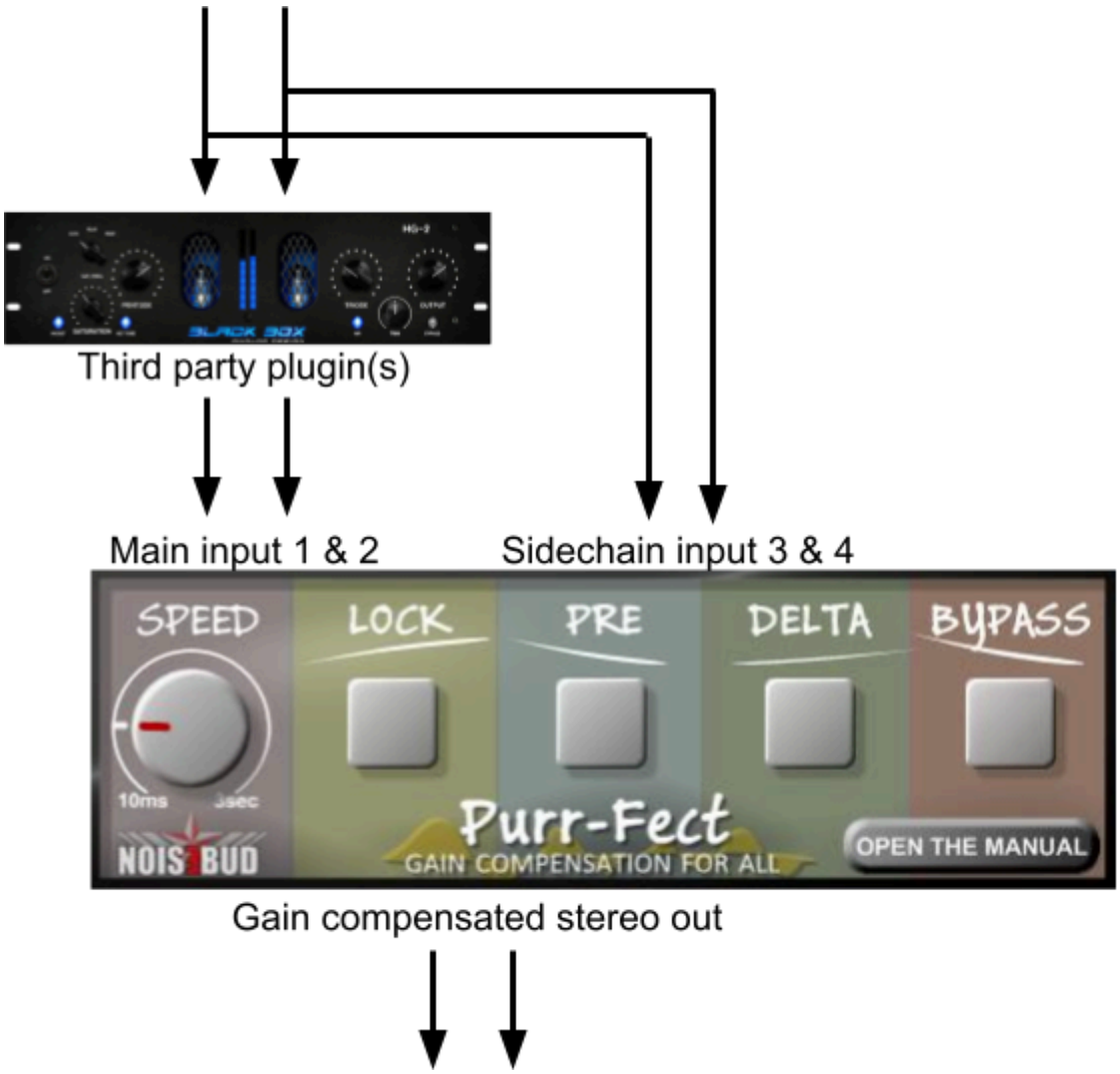
About

Noisebud Purr-LUFS is an automatic loudness adjustment plugin designed to work seamlessly with both third-party plugins and hardware, whether standalone or in a chain. The configuration process may vary slightly depending on the host, but Reaper is highly recommended due to its advanced routing features. Additionally, a Reaper script is available to help you get Purr-LUFS up and running in a flash.
In DAWs that don't have the same flexibility as Reaper, you can use a side-chain to route a dry version of the signal to the Purr-LUFS plugin. We can't cover the setup for every DAW since the setup will differ but I will add setup tutorials for the most common DAWs shortly (search the Noisebud YouTube channel for Purr-Fect and Purr-LUFS setup tutorials).

You will be able to use Purr-LUFS to loudness-compensate hardware as well as most plugins. However, the latency caused by your interface or inadequately coded plugins needs to be dealt with to have a 100% correct compensation plus using the Delta function. You can achieve this using any third-party phase align plugins, for example, MAutoAlign from Melda Production or Aligner from Nugen Audio.

Set-up

The process will be different depending on which DAW you're using. The main principle is that you need to route an unprocessed (dry) version of the signal to the sidechain input (inputs 3 & 4) of Purr-LUFS. The third-party plugins you want to use with Purr-LUFS will be placed between the incoming signal and inputs 1 and 2 into the Purr-LUFS plugin (as pictured below).



Troubleshooting using the ‘Check’ feature

After you set up the routing you can press the check button to verify that all signals look as expected. This doesn’t necessarily mean that it is set up correctly, but, it will show you if something is wrong.

Here’s a walkthrough of the ‘Check’ process

- Set up the routing according to the abilities of your DAW and run audio through the plugin, don’t add any third-party plugins yet.

- Press the ‘Check’ button. If all LEDs are green you’re likely good to go.
    - If the ‘Input’ is red; This means that there’s no signal on the main input
    - If the ‘Sidechain’ is red; This means that Purr-LUFS doesn’t receive the expected sidechain.
    - If the ‘Signal Match’ is red; This means that the signal at the main input and the signal coming in the sidechain doesn’t match. As soon as you add any third-party plugins or hardware this will turn red even though everything may be set up the right way.

To the right of the LEDs, you’ll have a simple graph that shows two peak followers of the two inputs. The green shows you the dry and the white the processed signal. You can use this to see if the two are time-aligned. You probably have a mismatch in time if you’re using hardware or third-party plugins that don’t report latency correctly. My preferred solution is to insert a phase and time align plugin at the very end of the chain before the signal goes into Purr-LUFS. You need one instance for the main input (the processed signal), and one instance for the sidechain (the dry signal). There are a few contenders, personally, I often end up using either MAutoAlign from Melda Production or Aligner from Nugen Audio.

Reaper:

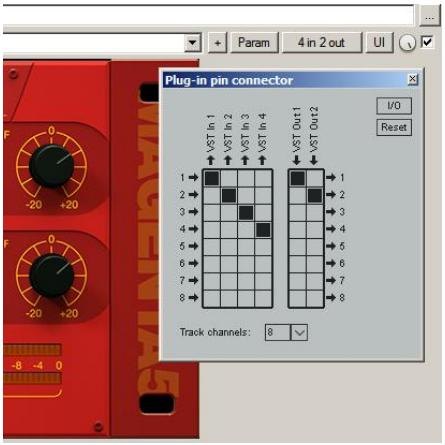
Since v2.00 of Purr-LUFS, you’ll be able to use the Purr Configurator script to set up Purr-LUFS in Reaper. However, there are situations where you may like to do this manually.

You find the manual steps below:

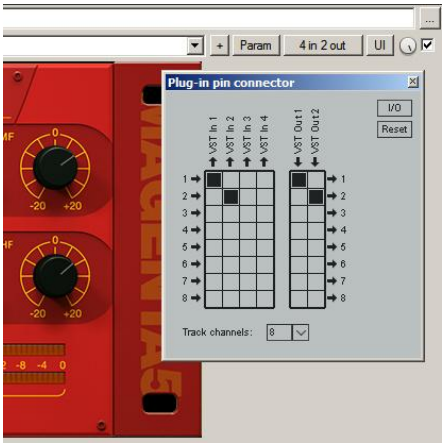
_
You can set Purr-LUFS up in numerous ways in Reaper, the method described below is the way I found to be the most straightforward.

- Go to the tracks I/O settings and set the track to use 4 channels
- Load the **Purr-Router** plugin. The router will route the incoming stereo signal to both the main output (1 and 2) and the ‘side-chain’ output (3 and 4).
- Add the third-party plugins that you want to use *and make sure they’re just using 2 channels**.
- Complete the chain by adding the **Purr-LUFS** plugin right after the third-party plugins you’re using with Purr-LUFS.
- Start tweaking your third-party plugins, fully gain-compensated.

** If you're using a plugin that utilizes more than 2 channels (like a sidechain-enabled compressor for example), make sure to "un-route" channels 3 & 4 using the plugin "plug-in pin connector"-matrix (pictured below).*



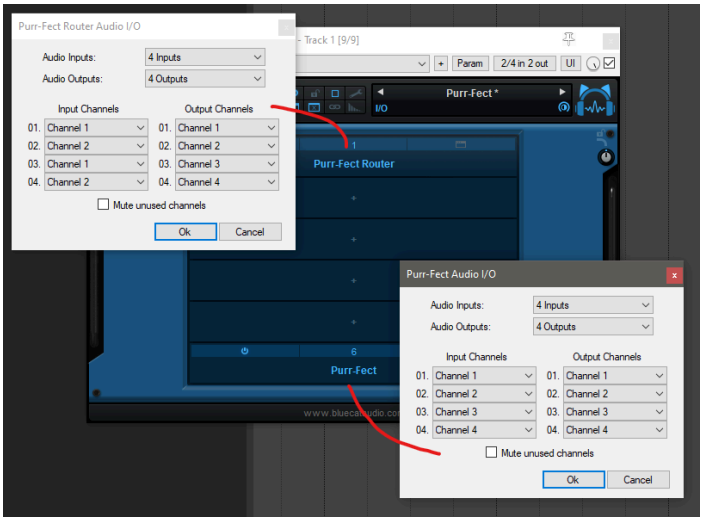
Nononono…



Yes!

Using Element, Blue Cat's PatchWork, or similar

One way that works in every DAW (even Pro-Tools even though Purr-LUFS doesn't come as AAX) is using a third-party plugin to host Purr-LUFS, one example of such a plugin is Blue Cat's Patchwork but you should be able to use any plugin that can route signals and put plugins in the signal path.



Element:
https://kushview.net/element/download/

There's also a quick setup video for Purr-LUFS using Element in this Patreon post:
https://www.patreon.com/posts/sunday-tip-for-81930978

Blue Cat Audio Patchwork:
https://www.bluecataudio.com/Products/Product_PatchWork/

DDMF MetaPlugin (I have not tested MetaPlugin with Purr-LUFS yet but I'm confident it will work):
https://www.ddmf.eu/metaplugin-chainer-vst-au-rtas-aax-wrapper/

Stagecraft Universal Plugin:

https://www.stagecraftsoftware.com/products/universalplug/

Generic set-up, most DAWs:

- Create two tracks containing the audio that you want to use.
- Insert **Purr-LUFS** on the first track.
- Make sure that the second track isn't routed to your master bus and use this track to send a sidechain signal to Purr-LUFS on the first track.
- On your first track, add the plugins or hardware loops that you want to use ***before*** the **Purr-LUFS** plugin.

Alternative set-up 1, most DAWs:

- Create two tracks.
- Insert Purr-LUFS on the first track.
- Place your audio on the second track and create two sends, one to the main channels of the first track and one to the sidechain of **Purr-LUFS** on the first track.

Alternative set-up 2 using a bus, most DAWs:

- Place your audio on a track.
- Use a bus to add all the effects you want to use and end the chain with the Purr-LUFS plugin.
- Change the track settings so that it doesn't send audio directly to your master bus, we only want the audio coming from the bus to be sent to the master bus.
- Send the audio from the track to your bus and use the same track as the sidechain for the **Purr-LUFS** plugin on the bus.

The settings

Accept & Speed - The semi-lock feature

'Accept' is a semi-automated lock function that's new from version 2.00 of Purr-LUFS. The default setting is 1 dB of acceptance. What it means is that as long as the gain-difference between the loudness-compensated wet signal and the dry signal stays within +/- 1 dB, the speed of the loudness compensation will slow down to the speed set with the 'Speed' control. The default speed is 3 seconds which correlates to the Short-Term LUFS value. At 3 seconds, it's OK to work with most dynamic processes. You can increase the acceptance in case your LUFS compensation starts to fluctuate by more than 1 dB but that's rarely needed. 1 dB or even 0.5 dB is fine for most situations. If you want the semi-lock to be even slower, raise the 'Speed' parameter to what suits you. For example; With a speed of 60 seconds, it will take Purr-LUFS 60 seconds to reach the target loudness compensation as a loudness difference is spotted between the wet and the dry signal. Remember that the

speed will only be effective as long as the signal stays below the loudness difference set with the ‘Accept’ setting. If the difference is more than the value you set ‘Accept’ to, the momentary LUFS value will be used which uses a window of 400 ms. Usually, that means that Purr-LUFS will have adjusted the level correctly within half of that window (200 ms).

Check

Brings up a tool to make troubleshooting easier. Read more here…

Lock

When pressing this button you’ll lock the current level compensation and Purr-LUFS stops adjusting the level according to the incoming sidechain. Lock uses the Short-term value that has a window of 3 seconds. To lock Purr-LUFS to a working value it’s recommended to play a part of your song that represents the average loudness of the track, usually the chorus or an intense part of a verse. Let that section play for about 3 seconds and then hit ‘Lock’. You can use the glow animation in Purr-LUFS to time 3 seconds, it’s exactly 3 seconds long.

Pre

When you press this button, you’ll hear the dry signal that’s coming into Purr-LUFS sidechain. Normally you’ll be using this to compare the tweaked audio with the dry signal to hear if your settings have affected the signal as you intended, without the need of bypassing plugins or hardware. It can also be used to check if the sidechain is coming in as expected while troubleshooting.

Note that **Pre** won’t be affected by the Bypass button from version 1.30 and forward. That means hitting **Pre** while the gain compensation is bypassed will let you hear the dry signal.

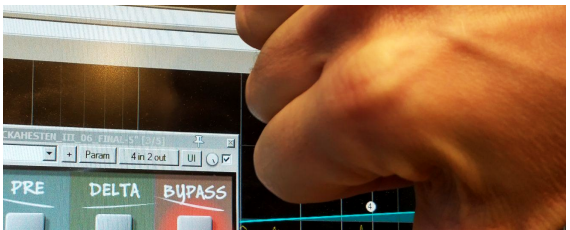
Delta

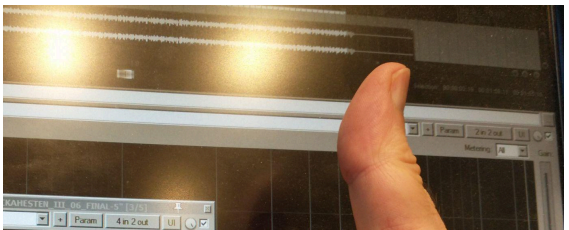
This will blend a phase-inverted sidechain/dry signal with the loudness-compensated wet signal, leaving the difference between the two. It’s a good way to understand what’s happening with the signal and can also be useful when adjusting the Speed control to avoid modulation distortion.

Bypass — CAUTION!!! —

The bypass will bypass the gain compensation and play the wet signal as you have dialed it in. If your processing adds lots of gain it may hurt your ears, speakers, or other equipment.

To warn you of a too-hot signal, I added a red light that will illuminate around the bypass button when overs occur. If you see this light, please lower your gain in the plugins/hardware used with Purr-LUFS until the red light is gone.





The dB readout below the bypass button shows you how much Purr-LUFS is boosting or attenuating the signal.

From version 1.30 of Purr-LUFS, the **Pre** button is placed after **Bypass** in the internal chain. I realized that I often wanted to be able to listen to the dry signal with just the push of a button even when Purr-LUFS are bypassed.

Basic user case

The usual approach would be

- Do the initial setup as explained earlier
- Open your instance **Purr-LUFS** in a floating window for quick access
- Dial in your third-party plugins or hardware settings
- When satisfied with your settings, press **Lock** to lock the current gain compensation so that **Purr-LUFS** stops trying to compensate for gain changes.

REMEMBER TO LOCK PURR-LUFS WHEN YOU'RE DONE!