GNormal Manual

Welcome to GNormal

GNormal tries to remedy denormal problems by introducing extremely low-level noise to the signal path. (If you don't know what that means, then you probably don't need GNormal).

Some CPUs employ techniques to extend the accuracy of floating-point calculations involving very small numbers. These small numbers are called denormals.

Unfortunately, calculations involving denormals can be very slow, drastically affecting audio DSP performance; and in most cases the numbers involved are too small to be of any interest anyhow.

Adding noise to the signal path can prevent denormals from reaching subsequent calculations by keeping the signal level above the denormal range. The level of the noise added is so low that it is inaudible.

Interface

The GNormal user interface has two knobs to control the two parameters.

Level: The maximum peak level of the generated noise.

Type: The type of noise generated. Some noise types are ineffective in particular circumstances. For example, "AC" noise will be removed by a low-pass filter. The only way of knowing which will work for a given plug-in is by trying them.

- DC: A constant value is added to the signal.
- AC: Like DC except that the sign of the added value flips every sample.
- Square: Like AC except that the sign flips less frequently, forming a square wave shape.
- Pulse: Occasionally adds a single value at the set level followed by zeroes.
- Noise: Adds white noise to the signal.

Hints and ideas

- The simplest way to configure GNormal is to place it before a suspect plug-in and set the "Level" parameter to maximum. Try each setting of the "Type" parameter to see if the problem goes away. When you have found a suitable noise-type, you should reduce the noise-level as much as possible.

Installation

I've always aimed to ensure that the GVST plug-ins are each a single file and as compact as I could make them.

For simple plug-ins like these, installation usually boils down to copying a file, so I've never created any automated installers. I know some people would prefer an installer, so apologies for the extra hassle, but hopefully it won't be too difficult.

The installation process will vary for different hosts and different operating systems, but I'll try to cover the basics below.

32-bit or 64-bit (Windows and Linux)

The Windows and Linux plug-ins come in 32- and 64-bit versions. Generally speaking you will need the one that matches the host software you're running.

If you're not sure, you can usually tell if you look at the "About" screen, which can usually be found in one of the application menus.

Taking Audacity as an example: at the time of writing you can find the

necessary detail in the "Build Information" tab of its "About" screen.

If all else fails, you could try both and see which works. These days 32-bit applications are becoming increasingly rare, so try the 64-bit version first.

General installation

1. All GVST plug-ins come compressed in a `.ZIP` file, so the first step is to extract the files from the `.ZIP` file.
2. Once extracted, you should have a plug-in file - on Windows it will be a `.DLL` file, on Mac a `.VST` file, and on Linux a `.SO` file.
3. You will need to copy the plug-in file to the appropriate folder for your host program and possibly configure the host software to find it.
4. Many hosts will allow you to specify a folder on your computer where it should look for plug-ins. For example, in the Preferences in Audacity for Windows or Mac, you can add extra locations for VST plugins.
5. In most cases, you will need either to restart the host program or re-scan the plug-in folder in order for newly-installed plug-ins to appear.
6. The exact process will depend on the software you're using. You should be able to find specific instructions by searching the Internet, e.g. "How to install a VST plugin in Cubase".

Special/default plug-in locations

On a Linux machine, the convention is to locate VST plug-ins under the `~/.vst` directory. I have all the GVST plug-ins copied into `~/.vst/GVST`.

Similarly, there is a common location for audio plug-ins on a Mac: `~/Library/Audio/Plug-Ins`. I copy all the GVST plug-ins into `~/Library/Audio/Plug-Ins/VST`.

It's usually more convenient to place the plug-ins in a location of your choosing and point your host software to it, if that's supported by the application.

License

1. GVST plug-ins are provided to the user at no cost. While every GVST plug-in is tested to the best of the developer's ability, no warranty or guarantee is offered to the end user.

2. No suggestions made by the developer or his representatives (i.e., freely offered support) are to be taken as an implied warranty or guarantee.

3. These plug-ins may only be distributed by the official GVST website, or by parties explicitly given permission by the developer.

4. GVST plug-ins are to be distributed only in their original form as intended by the developer (i.e., the unaltered archive).

5. GVST plug-ins are freeware, meaning you are never under any obligation to pay for them! However, should you wish to help support continued development of GVST software, please consider donating through the official website.

6. GVST plug-ins can be used freely to create and process audio for private or commercial works.

In a nutshell, the code's all mine, but any music or sounds you create using GVST plug-ins is all yours. Of course, if you hit the big time then do feel free to pop back and donate a little something.

Credits

- Plug-in development, website and graphics by Graham Yeadon.
- A special mention to Rick "grymmjack" Christy and Greg Pettit who helped me with the UI design and documentation early on.
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