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USER GUIDE



Chameleon C4s

Livestream Processing Software

P/N 991242

Revision 1.0 - 02/25

Overview.

Getting livestream loudness right can be tricky. There's a thin line between compelling, listenable streaming audio and fatiguing annoyance. You need an audio processing guru to get it right!

Not only that, but everybody loves the beautiful, warm sound of analog. "Can't we get analog sound from a software processor?" they ask. Well guess what — we've got an app for that.



Audio Chameleon takes an entirely new and innovative approach to audio processing with a unique architecture controlled by a form of artificial intelligence. By constantly analyzing the incoming audio, Chameleon adjusts its parameters to best fit the content. You get all the loudness and consistency and punch and clarity of the most advanced program audio processing instantly, on any format — and with all the warmth and goodness of analog.

What does that A.I. do? Well, it helps your audio sound fantastic! Here's how.

- A sophisticated decision engine evaluates every nuance in real-time and tweaks parameters to deliver consistent loudness and amazing clarity
- Instead of complicated settings to fiddle with, you get Personality controls that influence Chameleon's decision-making engine. Tell it "I need a touch less bass" or "make it a little more dense" and Chameleon does the rest.
- Chameleon's loudness governor lets you set your output target to match the requirements of major streaming platforms (like Apple, Amazon, YouTube, etc.). Set it for -16 LUFS, for example, and never think about it again. Your stream will be compliant.
- Chameleon Codec Camouflage matches parameters to your chosen codec, concealing losses and artifacts.
- Every popular computer platform is supported, with clients for Windows and Mac, plus AU and VST plugins to integrate with streaming hosts.

Congratulations on your choice. You're going to sound fantastic!

To begin...

...you're going to need a few things, first of which is a very fast and modern computer with a recent OS. Chameleon C4s will demand a lot of resources so don't try to starve it to death on an old Pentium III running Windows 95. If you get any results at all, it will not be pleasant.

Recommended Specs for Windows PCs:

- Windows 10 or later; Windows 11 recommended.
- Intel 8th Gen i5 (DESKTOP CPU) or newer; 16 GB ram or better. (As with anything designed for speed, more horsepower is always better).
- If you plan on concurrently hosting streaming software and multiple channels on the same PC, we recommend Core i7 (8th gen) or higher with 16-32 GB RAM or more. RAM size dictates the number of streams you can create.

Recommended Specs for Macs:

- MacOS 11 (Big Sur) or later.
- Intel i5 with 8GB of RAM minimum
- Intel i7 with 16GB RAM recommended

Your computer's sound card input can be used to provide audio input from an external source for processing. You can also process content from your local machine by routing the output of your audio player to the input of the C4s software using a third-party software such as the Virtual Audio Cable for PCs, or VB Audio's VB-Cable for Mac.

Obtaining The Software.

Browse to <https://angryaudio.com/C4s/> and download the software package that suits your needs. Launch the Installer and follow the on-screen instructions.

Run the installer.

During installation, you will be asked whether you want to install C4s as standalone software, or as a plug-in.

- You can select Standalone, VST, or AU in MacOS.
- Choose between Standalone and VST in Windows.
- You can also choose to install everything, if you like.

The standalone application will be installed to your Applications folder on macOS, and to C:\ProgramFiles\AngryAudio on Windows. You will be given the option of creating a desktop shortcut.

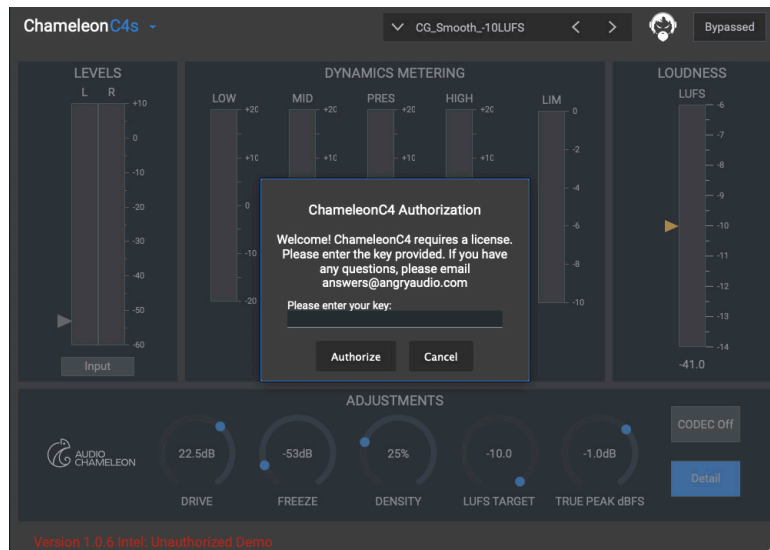
Demo Mode.

Before purchasing, install the program in demo mode to ensure that your system is compatible with the software. The program runs in fully functional demo mode for one hour per session, then automatically shuts off. All features are available during that time—so you can properly test the software before purchase. After one hour you'll need to restart the demo or enter your license key.

Activation.

When you first launch C4s, it will be in Demo Mode (noted in red text at the bottom left corner of the screen). To fully activate the software, enter the key code that was emailed to you after purchase. All of the formats you installed will be licensed for your machine once you purchase the license and enter your key code.

If you wish to continue in Demo Mode, simply dismiss this; at each restart, the serial code registration prompt will be displayed again.



Uninstallation.

We really can't imagine why you'd want to remove Chameleon C4s from your computer. All it's ever done is love you, care for you, and bring you your favorite dark chocolates on those weepy days. But seasons change, and if you must part ways we promise we can still be friends afterward.

To uninstall the software, simply delete the following folders and their contents from your drive:

- **macOS:**
AU: /Library/Audio/Plug-Ins/Components/
VST3: /Library/Audio/Plug-Ins/VST3/
Standalone App: /Library/Application Support/AngryAudio/C4s/
- **Windows:**
VST3: C:\Program Files\Common Files\VST3
Standalone App: C:\Program Files\AngryAudio\C4s

Interesting fact #1.

Everyone knows that chameleons can change color. Scientists have recently discovered that they do this not by changing the pigment in their skin, but by using nano salt crystals in their skin cells to actually refract light. Some species of chameleon can even *fine-tune* their coloration to match the visual system of their main predators. How cool is that? And you wondered why we picked this name for audio processing technology!



Important Note.

The decisions made by the Audio Chameleon's smart engines are based both on what is happening in the moment on program audio and (more importantly) also draws from what has happened in the recent past. When you first initialize an Audio Chameleon audio processor, it begins not knowing what is going on (yet).

Over the course of 15-25 seconds or so (depending on the type of content), Chameleon assembles a rolling history of the program characteristics and uses that data, along with the "in the moment" audio data to start dialing in its parameters. It is advisable to let this process play out before making changes to the controls. Chameleon needs at least 20 seconds of history to get itself acclimated to your programming; letting it tune itself for a minute or so is even better.

It can also be fun to watch the process happen by observing the gain reduction meter activity during this time period!

With that in mind, let's start the tutorial!

About the Chameleon Processing Engine.

A program audio processor uses a combination of signal modifying tools to shape the sound and control loudness. And though these products can work quite well, they are typically very expensive and complex devices requiring expert setup and tuning.

Chameleon takes an entirely new and innovative approach to program audio processing. Controlled by a form of artificial intelligence, Chameleon analyzes the incoming audio and continually adjusts its parameters to fit the content.

Typically, Audio processing products employ static parameters (such as attack and release, etc.) and imposes them onto the source audio. With that approach, most songs can be made to sound OK, but then you have that series of "other tunes" that sound terrible as a result. It's hard to fix that issue without messing up the sound of songs that comprise the bulk of your music format!

The Audio Chameleon processing engine uses intelligence to analyze the audio, and applies the appropriate parameter settings (based on parameters the end user applies). In this approach, the program audio drives the settings, and not the other way around!

With Audio Chameleon, those outliers drop to a much smaller number of tunes (if any!)



1. **Input Levels.** By default, on the processing view meters show
2. **Gate Threshold Visualization.** Changes according to gate threshold and shows where the freeze gate threshold is relative to program levels. Also changes to blue whenever audio is below gate threshold.
3. **Input/Output meter toggle.**
4. **Drive control.** Sets audio processing (compression) depth. Chameleon's AI keeps the audio texture consistent across an extremely broad range. Feel free to use this control with impunity!
5. Sets the **Freeze Gate threshold.**
6. **Density %.** Sets the amount of processing "thickness" applied to program audio.
7. **Loudness Leveler Target (LUFS).** Allows users to define the LUFS target for intended applications. For Streaming, YouTube, and Podcast, the target is defined as -16 LUFS, so this is the default setting you'll see after software installation. The range is between -25 and -10 LUFS.

7 C4s Interface

8. **True Peak level.** According to the ITU, Many True Peak meters use 4X oversampling. As a result, the accuracy is typically around 0.6 dB. The ITU recommends not using a value any higher than -1dBTP to account for the discrepancy. This is the default value for Chameleon C4s. Some lossy codecs may add up to 3dB of “overshoot” as part of their normal operation, so Chameleon’s True Peak setting can be lowered to -3dB. LUFS leveler algorithm will automatically compensate loudness target when TruePeak is raised or lowered.
9. **Detail.** Activating this function will allow the AI will “dig” into the audio more to provide spectral details and some improved consistency from source to source.
10. **Target Codec.** This section allows users to target the bitrate reduction CODEC used to provide programming to the audience. Each setting optimizes the audio processing and other specialized algorithms to said target CODEC for best audio performance/clarity.
11. **30 second (rolling) Integrated Loudness.** This is the ultimate loudness Reference value.
12. **Combined loudness meter.** Shows rolling Integrated loudness, Momentary and Short Term loudness.
13. **Loudness Target.** As the target loudness is dialed in, the loudness meter scale calibrates itself so that the center point indicator is at the selected loudness target for easy evaluation of loudness control.
14. **Final Limiter activity.** Shows the amount of lookahead True Peak peak limiter activity.
15. **Engage or Bypass** audio processing.