



LAMA Platform

User Manual

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3. We will not ship crap.
4. We will be great to work with.
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7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

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Technical Support

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Software Description

LAMA Platform runs real-time audio processes, primarily aimed at automation.

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Description

The LAMA Platform allows for running multiple audio processes in real-time. It can be viewed as a software version of a hardware effect rack. Its primary focus is running automation processes for the broadcast and / or audio industry.

Benefits and Value

Values and benefits provided by the LAMA Platform are:

- It's a cost-effective platform that can use regular consumer computers as well as servers and cloud solutions to run as many audio processing as the CPUs can provide.
- It can be connected to any audio platform, as the LAMA Platform is driver agnostic and thus can use any soundcard / audio over IP format.
- As it's a software solution it can easily be updated for future use cases.

Platform Requirements

Windows® 10, Windows® Server 2016 or Windows® Server 2019.

Minimal Recommended System

- AMD Ryzen™ 4600G, 5600G, or better
- Intel® 11600K or 12600K, or better
- 16 GB RAM

Workstation Recommended System

- AMD Ryzen™ 3900X, 5900X, or better
- Intel® 11900K, 12900K, or better
- 16 GB RAM

Keep the following in mind:

Keep in mind that the CPU needed is highly dependent on the use case. As a general rule of thumb you can expect to run around 25-35 AutoMix instances on the minimal specs. On the workstation spec you can run a number closer to 50-60 instances. You also need an audio interface that supports the number of channels needed.

Tested audio solutions include:

- RME (several models, like the HDSPe MADI FX, HDSPe AES)
- Focusrite (several models)
- Dante Virtual Soundcard
- Sonifex AVN-DIO10 Dante to 3G/HD/SD-SDI Embedder/De-Embedder
- Merging (using Ravenna ASIO, including 2202-7 mode)

Installation

Install LAMA Platform and the LAMA license center.

Installation of LAMA Platform

The LAMA Platform is delivered as a stand-alone .exe file. Place the .exe file in any folder.

Installation of LAMA License Center

The LAMA license center comes as an installer. You install it on any computer on the network. The LAMA Platform looks for an instance of the license server on all computers it can access on the network. Once installed, load `lmxconfigtool.exe` from the installation folder.

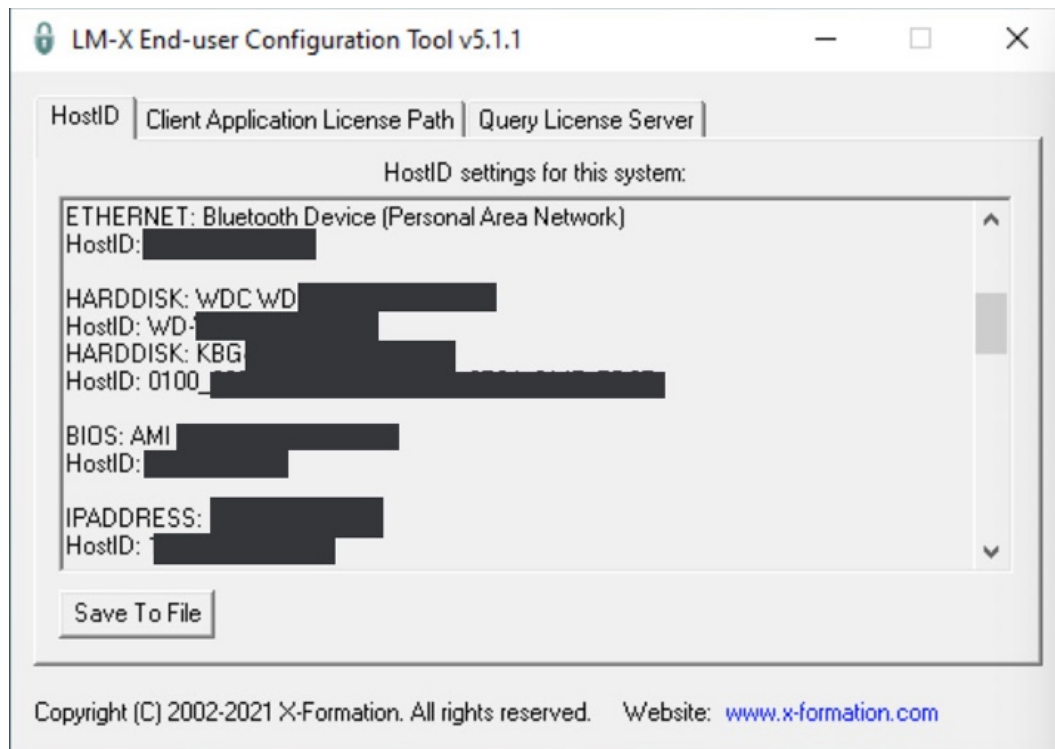


Figure 1: License Host ID

Send one of the HostIDs from one of the hard disks to license@lamamix.com. Ross Video sends a license file that contains all purchased licenses.

After receiving the license file, place it in the license folder configured by the license center, then stop and start the license server.

 > This PC > Windows (C:) > Program Files > Lama > Lama License Server

Figure 2: License Folder

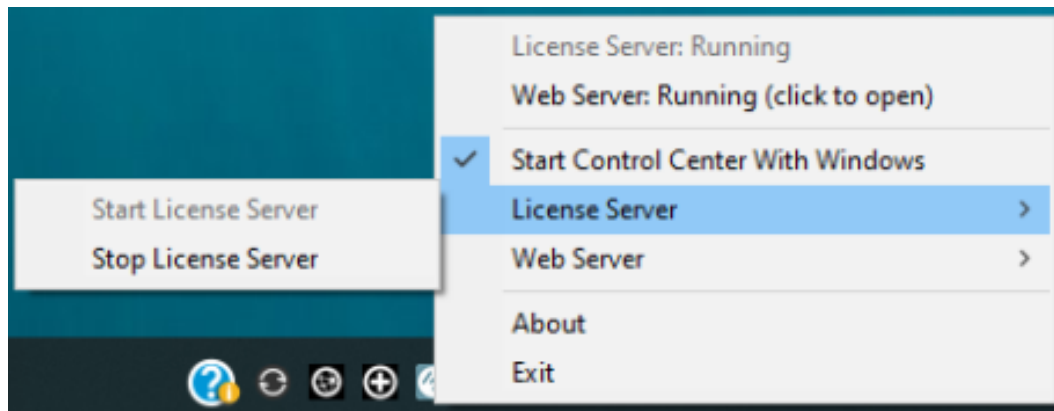


Figure 3: Restart License Server

If You Experience Difficulties Installing the Application

If you experience difficulties loading or accessing the application after a standard installation on Windows® 10, Windows® Server 2016, or Windows® Server 2019, consult your IT department to configure proper access permissions. If the problem cannot be resolved, contact Ross Video Technical Support.

Setup

Configure device, engine, system, and preference settings for LAMA Platform.

The Settings Screen – Device Tab

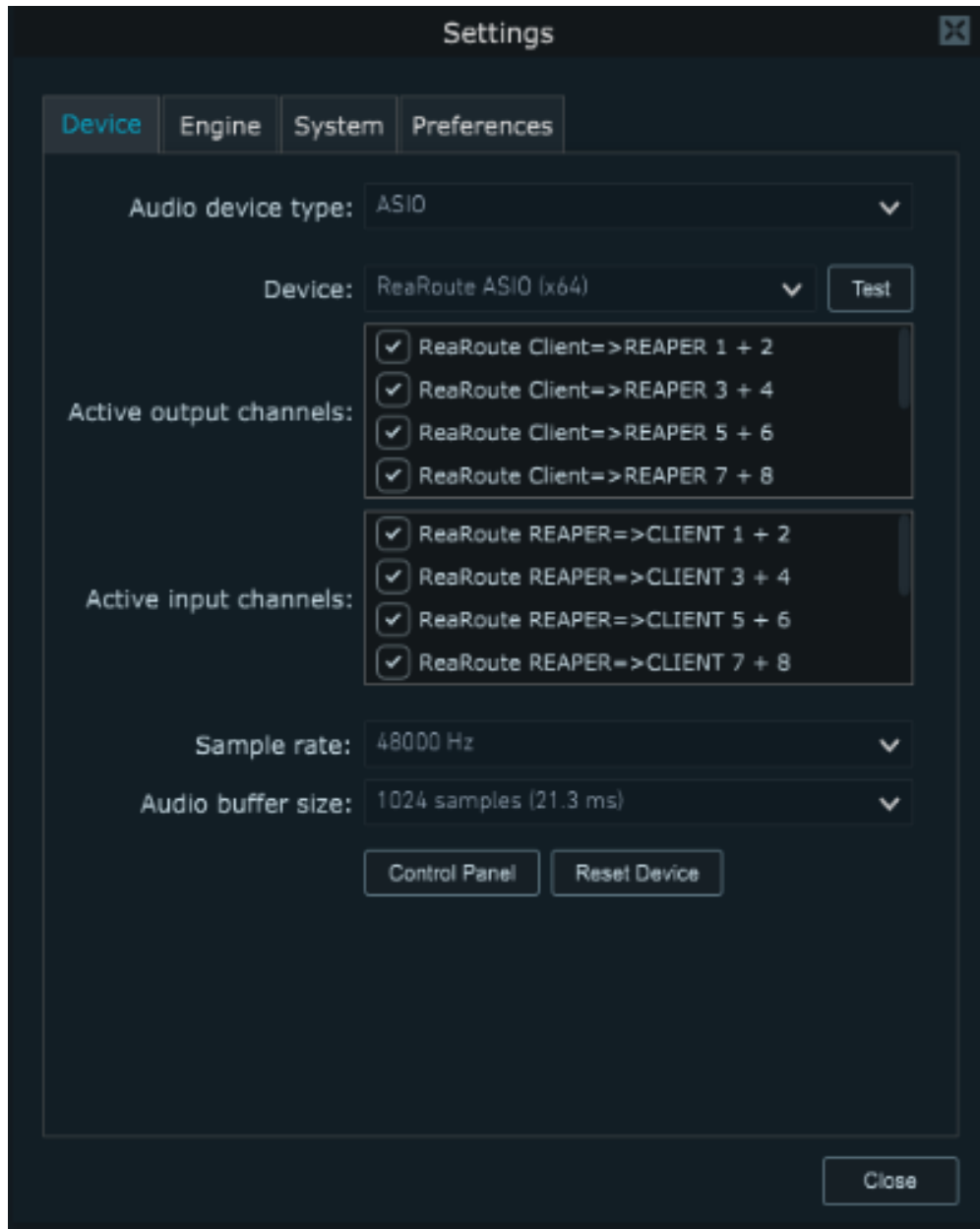


Figure 4: Device Settings

The settings screen has 4 tabs. On the first tab, the device tab, you can select the audio interface that the LAMA Platform uses. LAMA Platform can use any audio device the computer can use. We recommend selecting ASIO devices, as this standard has proven itself to be a stable standard for real-time audio.

The Settings Screen – Engine Tab

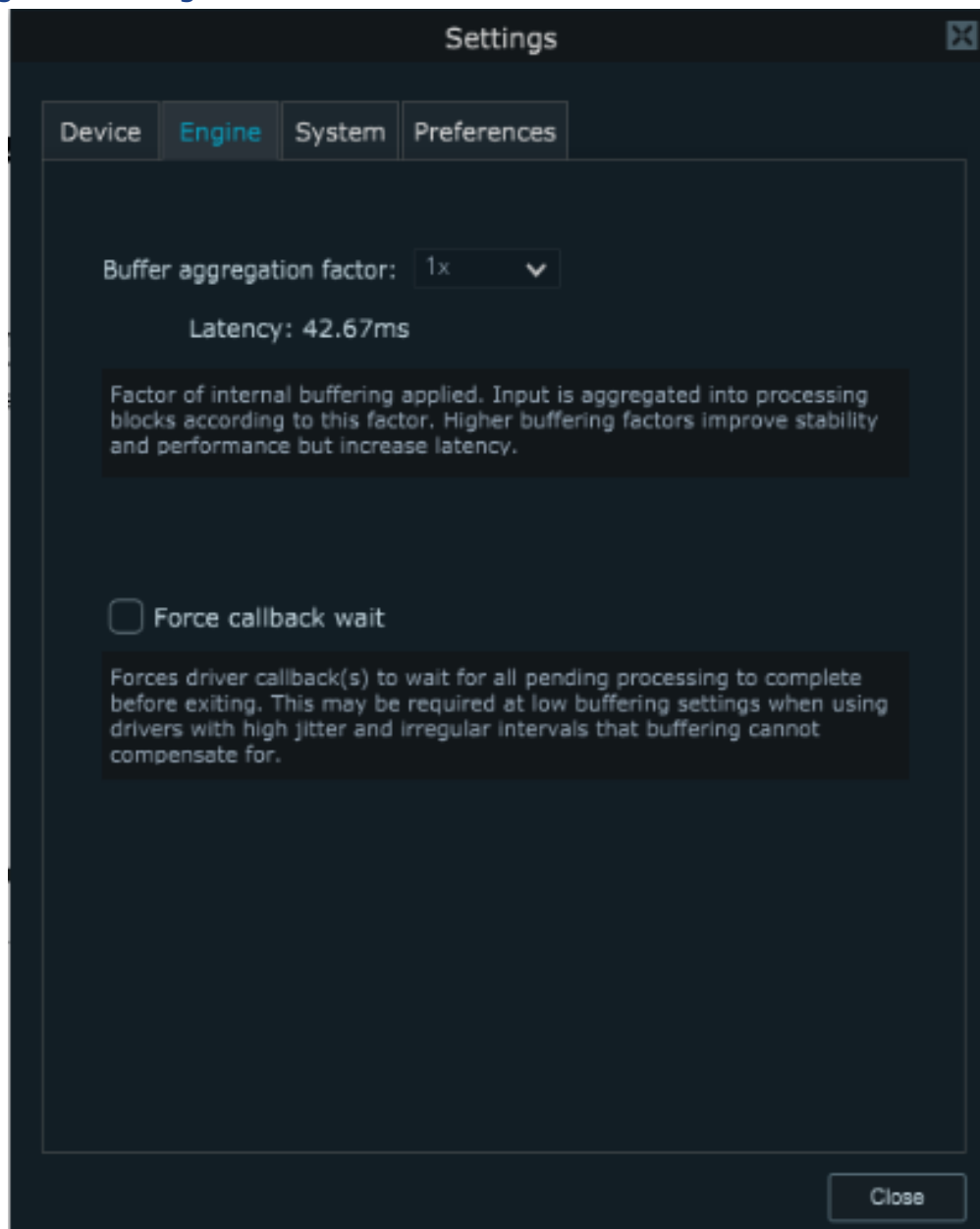


Figure 5: Engine Settings

On the second tab, the Engine tab, you can select the Multiplier settings. This multiplier creates an extra internal buffer of X times the audio buffer of the soundcard. This multiplier is used in situations where it is not possible to make the soundcard buffer larger and you still get buffer underruns. (see troubleshooting)

The Settings Screen – System Tab

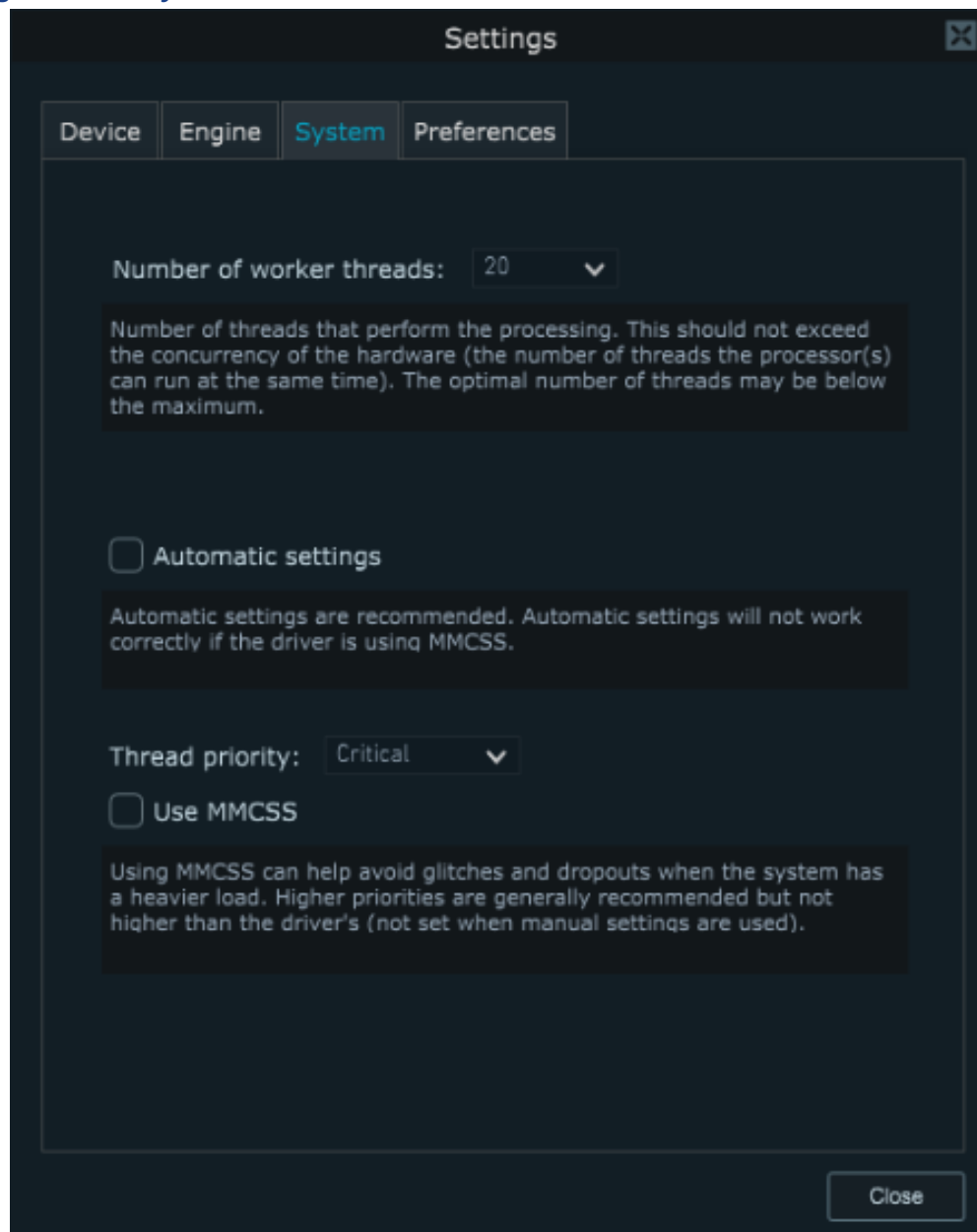


Figure 6: System Settings

On the third tab, the System tab, you can select the worker threads settings. The worker threads are the part of the software that do the actual audio processing. Each worker thread will be placed on a CPU core by the OS. So by setting the working threads you select how many cores are used. Sometimes settings the worker threads to an number that is equal to the CPU cores can cause issues. If you are experiencing clicks in the audio, please check the troubleshooting section, where we cover this issue.

The Settings Screen – Preferences Tab

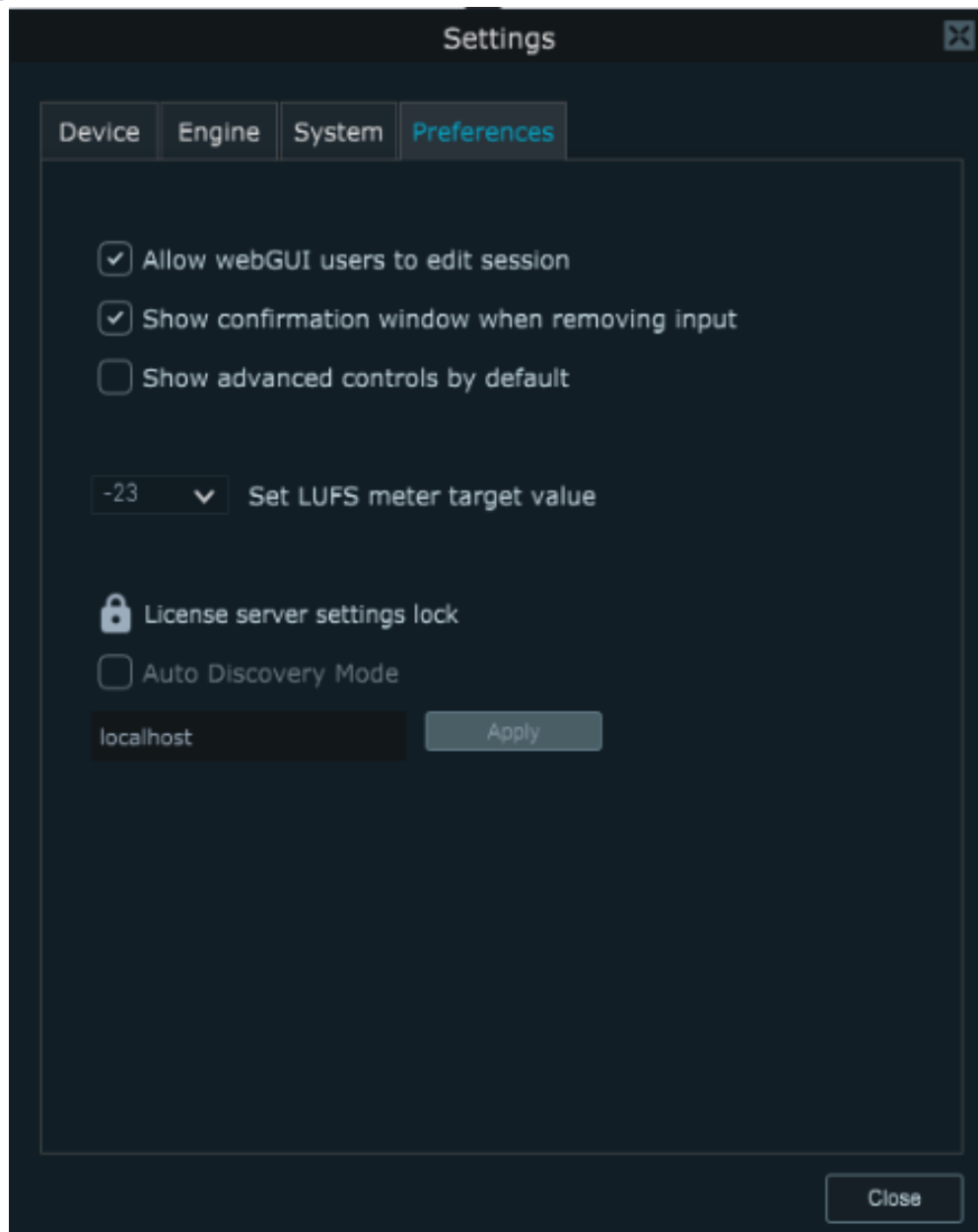


Figure 7: Preferences

On the fourth tab are more general preferences. You can:

- enable editing of the project through the webGUI.
- Set the confirmation pop-up when deleting a track.
- Show advanced or simple controls as standard.
- Set the LUFS target level.
- Set the IP of the license server.

The Tree Section

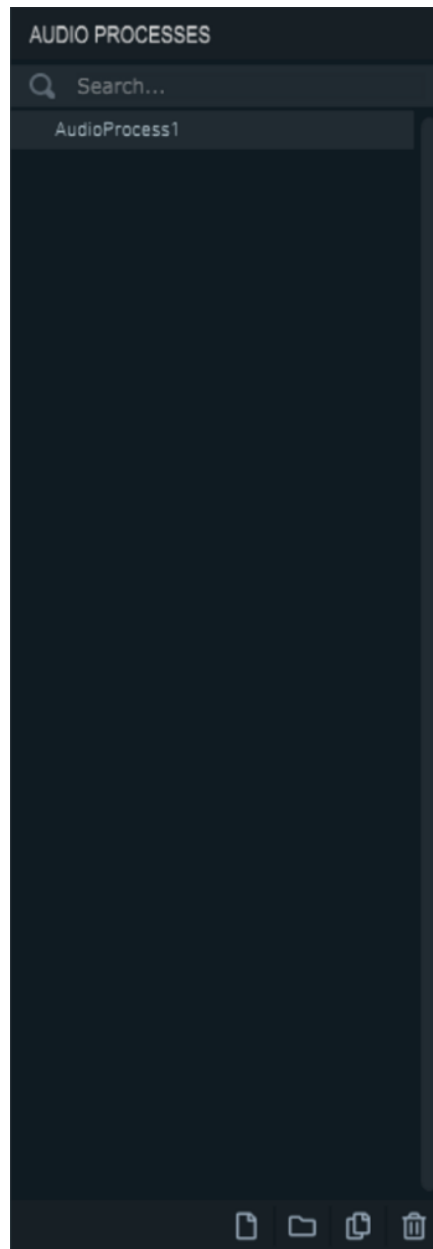


Figure 8: Tree Section

The tree section is the part where you navigate between the running audio processes. Every audio process you add will be added to the list. Upon selection of an audio process, the rest of the UI will change to represent all the settings of the selected process. The search icon at the top functions as a filter. You can search through your audio processes by typing a part of the name you gave a specific audio process. For example: you could have renamed part of your audio processes to include the language they are supposed to be in. The lower part has 4 buttons:

- New Audio Process
- New Group
- Duplicate Audio Process
- Delete Audio process

The Input Section

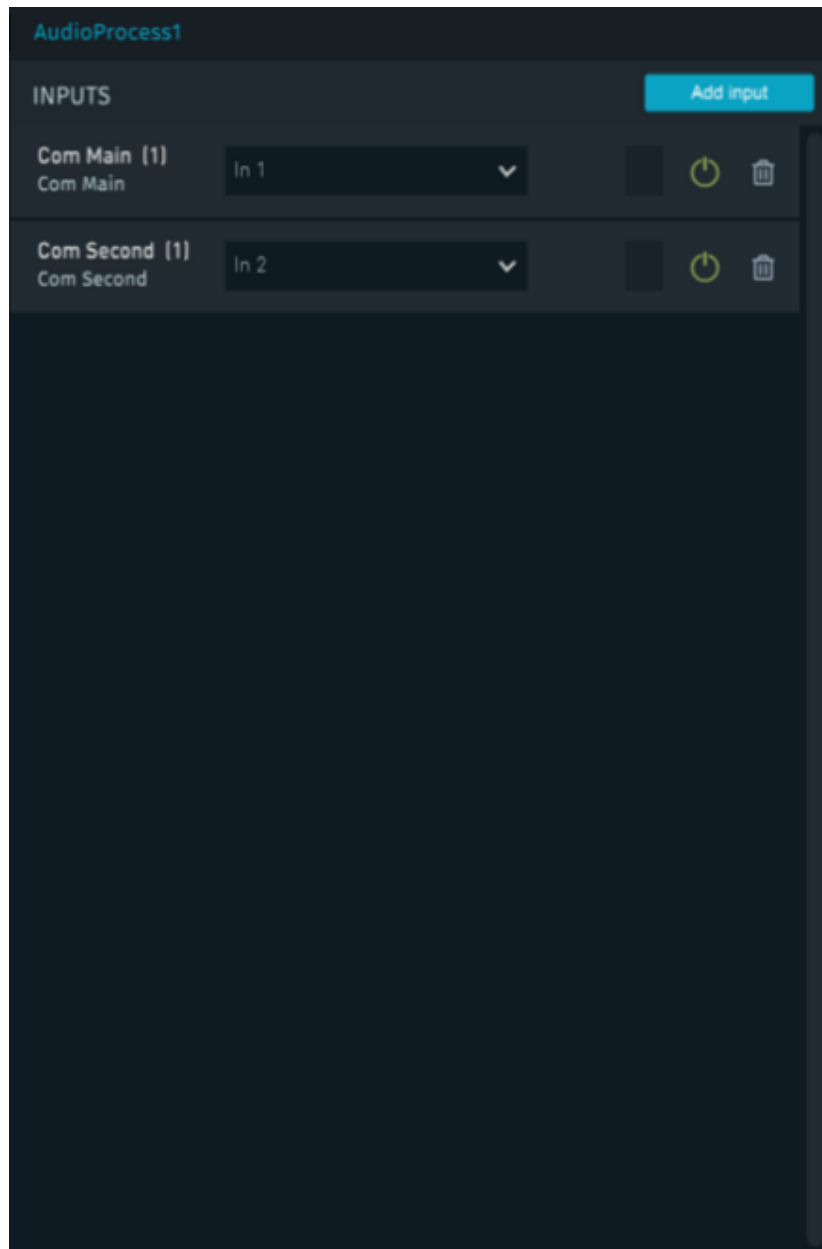


Figure 9: Input Section

The input section is where you select the input tracks that are part of the currently selected audio process. The “Add Input” button allows you to add the audio inputs. If a hardware input is already part of an input track in another audio process, this same input track will be used in this audio process, thus saving resources. If a hardware input has not been used yet, a new input track will be created.

In summary: Input tracks live across all Audio processes. This means that you can select the same input track in any audio process you want.

Once an input track is created, you can select a different hardware input with the combo box in the middle of the track. You can mute the input track by pressing the on/off sign and you can remove the track from the audio process by pressing the trashcan.

Keep in mind that any changes made in one audio process are reflected in all audio processes where this input track is a part of.

The Controls Section



Figure 10: Controls Section

The controls section is the part where you manipulate the audio. All controls are part of the selected program type. There is a manual per audio program where we go over the controls of that specific program.

There are 2 views, simple and advanced. In the simple view you only see the controls that you need for normal operations. In the advanced view, you get a fine-grained control over the engine to make changes to the sound itself.

The parts that are there for all programs are the preset section, where you can save and recall presets for the audio program. At the top there is a program selection combo box. With this combo box you can switch between audio programs of the same type, for example because you need another output configuration.

The Master Section



Figure 11: Master Section

The master section is on the right side of the UI. On the master section you can find the following:

- An LUFS meter for the selected audio process. This meter includes a Pause and a Reset button.
- An on/off button for the whole audio process
- An output selection combo box
- A shortcut the same “New audio process” and “delete audio process” that you can also find on the tree view.

The Monitor Section

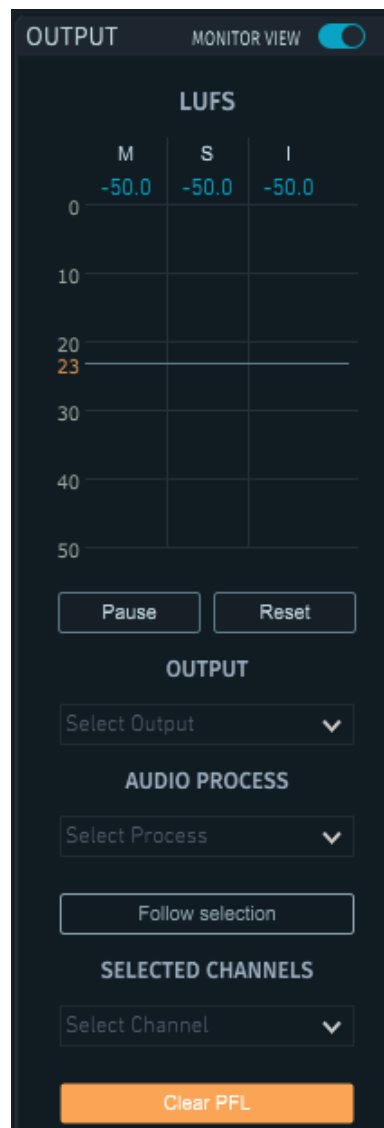


Figure 12: Monitor Section

The monitor section is on the same place as the master section, when flipping the monitor view switch. On the monitor view you can find the following:

- An LUFs meter for the selected audio process. This meter includes a Pause and a Reset button.
- An output combo box that enables you to select an output for the monitor section.
- A selection combo box that allows you to select what the monitor section is listening to.
- A follow selection combo box. When this is enabled, the monitor section listens to any audio process selected in the tree view
- A selected channels combo box. This option allows you to listen to the other channels than just 1+2.
- A clear PFL button. When there are PFLs enabled, this button will allow for deselecting them all in 1 go.

The Information Bar

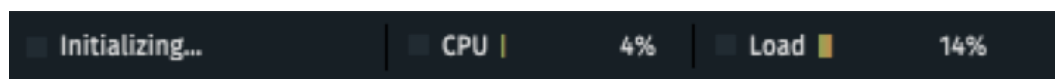


Figure 13: Information Bar

The information bar contains 3 parts: the first section shows the status of the license manager. It will show initializing when the LAMA Platform is searching for the license manager. It will show connected when connected and it will show disconnected when no license manager can be found on the network. The CPU meter shows what Windows reports as the total CPU usage of the LAMA Platform.

The Load meter shows how long it takes to calculate the next audio buffer, compared to time the audio device driver gives the software to calculate the next buffer.

Troubleshooting

Resolve buffer underruns and audio clicks in LAMA Platform.

How to Handle Clicks in the Audio

Clicks (buffer underruns) are the enemy when working with live digital audio. There can be several causes of these buffer underruns. We will go over them and look at ways to prevent them.

Windows Scheduler

Especially with older CPUs (we have not seen this on the recommended CPUs yet), there can be problems with the Windows Scheduler that cause clicks: When you have as many worker threads selected in the settings screen (or more) than the amount of logical CPU cores in the system, Windows is running other processes on cores that also need to run real-time audio. Because of context switching, these cores need time to switch between the real-time audio processes and things like storage indexing, virus scanners, memory swapping etc.

A solution for this is to set the worker threads 2-4 threads lower than the number of logical cores. So, if the system has 12 logical cores, try 8-10 worker threads.

Audio Device Buffer

The audio device buffer determines the time between each moment the audio device presents and needs a new buffer of audio information. The lower this number, the lower the latency the audio device produces. But like the Windows Scheduler problem, the lower this number, the higher the probability that there is an event on the computer that locks the CPU for a time that is long enough to cause buffer underruns. As a general rule of thumb 256 or 512 samples buffer should be good options to try.

Sometimes it's not possible to use these settings, for instance when using certain Ravenna (AES67) drivers with 2202-07. If the driver can only be set to a value much lower than the recommended value (and this causes clicks) you can try the multiplier settings in the settings menu. When the multiplier is set to a setting higher than 1, we enable an internal buffer that takes multiple audio buffers, then processes them in 1 go after which it gives the buffer back to the audio device in small parts. To a certain extent, this emulates a higher audio buffer inside the LAMA Platform.

Getting Help

- Our 24-hour hotline service provides access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel.
- During business hours (Eastern Standard Time), technical support personnel are available by telephone.
- After hours and on weekends, emergency technical support is available. A telephone-answering device will provide the names and phone numbers of technical support and field service personnel who are on call. These people are available to react to any problem and to do whatever is necessary to ensure customer satisfaction. For serious issue which need urgent attention and tracking, please ensure you are given a ticket number and refer to this in future communications.
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