



Connect Manual

LAMA Connect Guide

Software Manual, March 2023

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SOFTWARE DESCRIPTION

Description

LAMA Connect is an innovative app that enables users to easily connect multiple audio applications and plugins together in a graph on the same computer. Designed with real-time audio processing in mind, LAMA Connect is like a virtual 19" rack for software. With LAMA Connect, users can create complex audio processing chains and customize them to suit their specific needs, all while enjoying real-time performance and low latency. Unlike competing software, LAMA Connect does not introduce an extra buffer of latency per ASIO node when these are added to the graph.

Benefits and Value

Values and benefits provided by the LAMA Connect 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 Connect is driver agnostic as well as provide VST loading 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 10/11, Windows Server 2016 or higher.

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

Tested audio solutions:

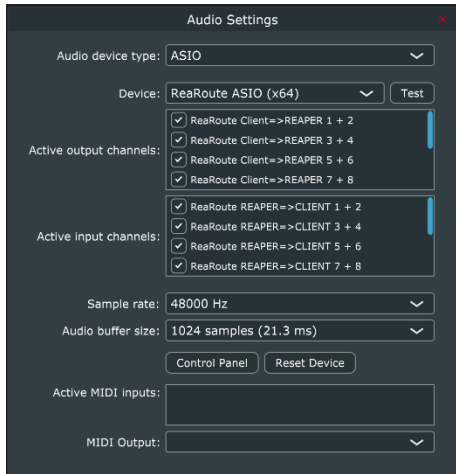
RME (several models, like the HDSPe MADI FX, HDSPe AES)
Focusrite (several models)
Dante Virtual Soundcard
Sonifex AVN-DIO10 Dante to 3G/HD/SD-SDI Embedder/De-Embedder
Merging (Using Ravenna ASIO, including 2202-7 mode)

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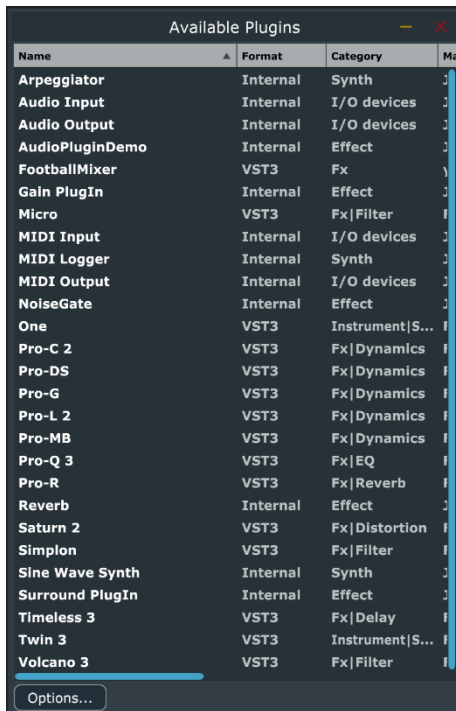
1 INSTRUCTIONS FOR SETTINGS UP CONNECT

The settings menu – Audio device settings



In the audio device settings, you can select the audio interface that the Connect uses. Connect 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 – Edit available plugins



The Plugins Manager allows you to manage and use VST plugins in your project. With the Plugins Manager, you can scan your system for available plugins, add them to your library, and use them on your channel strips and in the connectors screen.

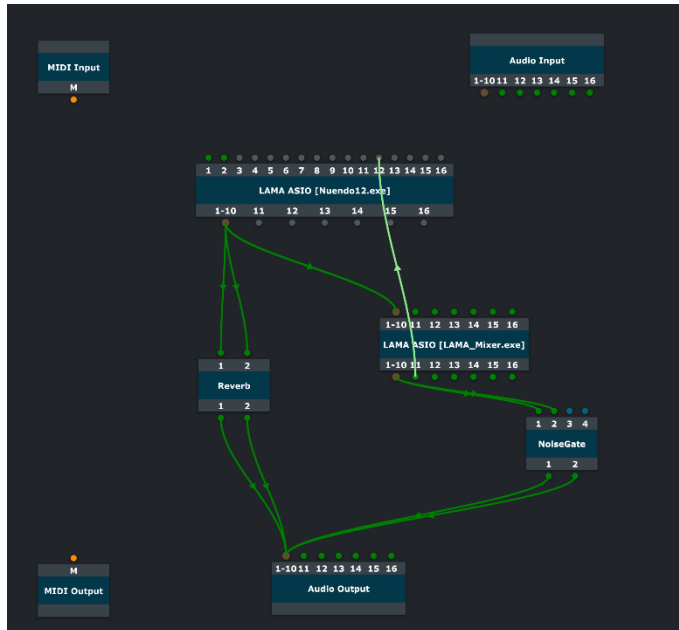
To scan for plugins, simply click on the "Scan for new or updated VST3 plugins" button in the Plugins Options window. The system will search for VST plugins in the designated folders, and display a list of available plugins that you can add to your library.

Once you have added a plugin to your library, you can use it in the graph by right clicking anywhere in the graph and add the plugin from the pop-up menu.

Using VST plugins in your project can enhance the functionality and creativity of your audio processing, and allow you to access a wide range of third-party effects.

2 HOW DOES CONNECT WORK

The main screen



The main screen of our software displays a graph that shows nodes, which represent ASIO nodes, internal DSP nodes and VST plugins.

To add a software to the graph, the software must have the LAMA ASIO driver selected as its audio device. Once the software has this driver selected, it will appear in the right-click menu in Connect, from where you can add it to the graph.

To configure the number of inputs and outputs for a node, simply right-click on the node and select the desired number of inputs and outputs.

Making connections in Connect is easy. To create a connection, just drag from an output pin to an input pin. When you hold down the control key and click on the output of one node and the input of another node. A pop-up will appear, asking you how many

connections you want to make at the same time. This way you can build large graphs with ease.

To conserve space on the screen, you can collapse input and output pins into a single pin by clicking on the input or output number that is part of a group of 10. This feature allows you to fit nodes with a large number of channels on the screen without cluttering it.

3

TROUBLESHOOTING

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 in all your applications connected with the LAMA ASIO driver. 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.