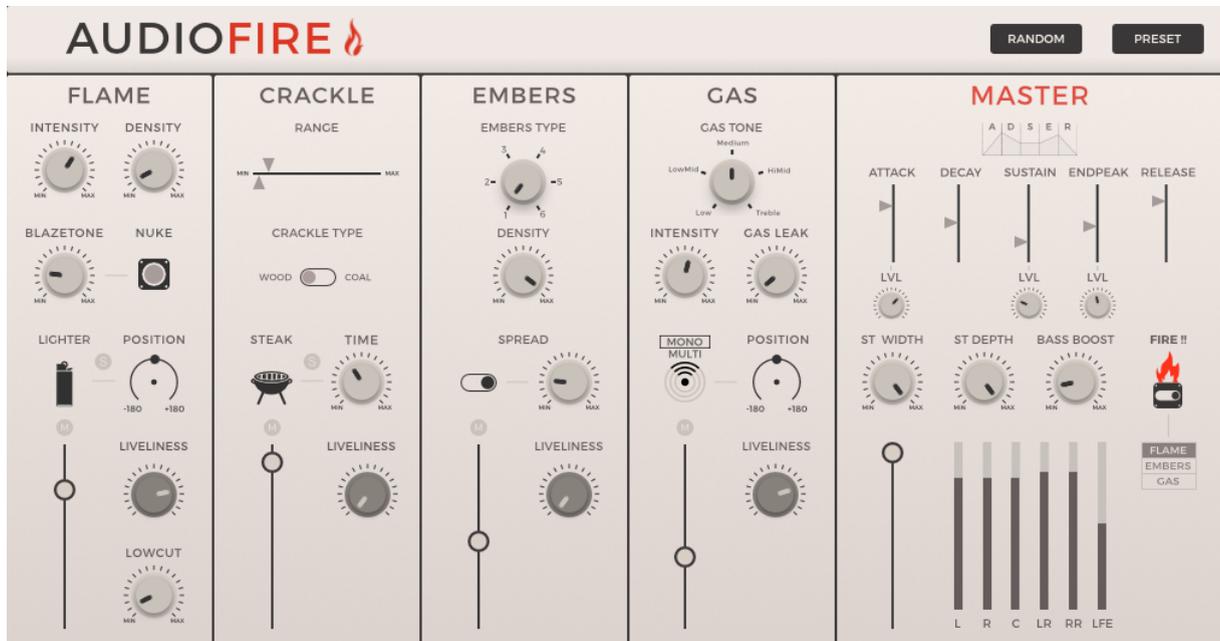# LESOUND

AUDIOFIRE 🔥

User's Guide

BEFORE WE GET STARTED

Thank you for buying or trying AudioFire. Your support is greatly appreciated and be sure that any means we have goes directly into R&D and product enhancement. If you encounter any problem or simply if you want to give us a feedback, feel free to send us a mail at support@lesound.io, we will be happy to hear from you and/or help you if needed. Information in this manual is subject to change without notice and does not represent a commitment on the part of Le Sound. The software described in this manual is furnished under a license agreement. The software may be used only in accordance of the terms of this license agreement. It is against the law to copy this software on any medium except as specifically allowed in the license agreement. No part of this manual may be copied, photocopied, reproduced, translated, distributed or converted to any electronic or machine readable form in whole or in part without prior written approval of Le Sound.

INTRODUCTION

AudioFire is a synthesizer dedicated to the emulation of fire and heat sounds. The synthesizer is based on Le Sound's dynamic modeling technology and rarely uses sampling (only for very specific modules). That is, it produces sounds by solving, on the fly, mathematical equations modeling the different components of electrical approximations developed by Le Sound.

This complex synthesis engine responds dynamically to the control signals it receives and exposes high-level controls carefully mapped to the low-level synthesis model.

Procedural audio

In the video game world, procedural audio refers to the computational process of generating audio from nothing, or almost nothing. The goal is to use almost no .wav data (pre-recorded audio files), but rather models that generate in real-time the equivalent audio data that would be contained in pre-recorded files.

Procedural audio has many advantages: it saves memory by using code instead of .wav data; it's flexible (computation can depend on all game parameters); it can lighten the burden of specific tedious tasks (sounding hundreds of interacting objects or animations) and it brings flexibility to the pipeline (since sound is directly linked to game parameters, changes will modify audio generation accordingly to keep it synced, avoiding the need for sound redesign).

System requirements

AudioFire is compatible with the following standard: VST, AAX, and AU for Windows (7 and above) and OS X (10.6 and above).

AAX 64bits is compatible with Pro Tools 11 and above. Please refer to Avid for precise system compatibility.

INSTALLATION

Windows

Double-click on audiofire*.exe to launch installation wizard. Click on "Next" to go to the next screen. You have to read and agree to the End User License Agreement before proceeding. On the following screen you'll be able to choose the components you want to install:

- Common files regroup all documentation related to this product
- VSTi 64-bit will install the 64-bit VST instrument
- AAX 64-bit: the 64-bit version of the AAX plugin for Pro Tools 11 and above exclusively.

The following screens of the installer will allow you to choose custom locations for common files, VSTi and AAX. Default installation paths are as follows:

Common files and databanks: "C:\Program Files\LeSound"

64-bit VSTi plug-in: "C:\Program Files\Vstplugins"

64-bit AAX plug-in: "C:\Program Files\Common Files\Avid\Audio\Plug-Ins"

You may have to install Microsoft Visual C++ redistributables. If you don't have them already installed on your computer, select "Yes" when the installer asks you if you want to install the package. Otherwise, you can click on "No". The installation is then complete.

Mac OS X

Double-click on audiofire*.pkg to launch installation wizard. Please read and accept the End User License agreement in order to proceed. By default, the installer is set on "automatic" mode and you won't have anything to do, but you can also choose a "custom" installation mode and you'll be able to select which component you want to install and where to install it. The different choice are:

- Common files – regroups all documentation related to this product
- VSTi 64-bit will install the VST instrument
- AudioUnit 64-bit will install the Audio Unit instrument
- AAX 64-bit will install the AAX plugin for Pro Tools 11.

Default installation paths are:

Common files and databanks: "/Applications/LeSound"

64-bit VSTi plug-in: "/Library/Audio/Plug-Ins/VST"

64-bit AUi plug-in: "/Library/Audio/Plug-Ins/Components"

64-bit AAX plug-in: "/Library/Application Support/Avid/Audio/Plug-Ins"

Activation

AudioFire uses iLok license activation. When you purchase AudioFire, an iLok license is associated and you need to transfer it to your iLok. Please enter your iLok account name while registering Le Sound.

If you encounter any problem with the activation process, please don't hesitate to send us an email at support@lesound.io.

MODULES DESCRIPTION

Flame

Flames are the visible part of the chemical reaction involved in burning. Depending on the nature and the amount of the fuel and the oxidant (eg. wood and atmospheric oxygen) they can be of many shapes, color, and intensity. Coincidently, they can emit different sounds in terms of tone, dynamics, amplitude and bandwidth.

This module uses subtractive synthesis to generate these various types of flames to meet various needs.

- **Intensity :** Controls the vividness of the flames. The larger the value, the more the flames fells animated, wooshy and of irregular intensity. The flame can be still like the ones from a gas stove as it can be vivacious and vibrant like the ones of a bonfire.

- **Density :** controls the density of the blaze which relates to the size of the fire .As the density increase, the blaze feels thicker, from a light puff to a heavy combustion uproar.

- **Blazetone :** Sets the central frequency of the blaze . Lower values makes it more powerful and mighty while higher values makes for more vivacity and sharper flames.

- **Nuke :** Distorts the highest amplitude part of the signal to add grain and texture to the fire .

- **Lowcut :** Straightforward low-cut filter.

- **Liveliness:** Randomize synthesis inner parameters to diversify the frequencies and dynamics of the module.

- **Lighter - Position :** The "lighter" shaped button triggers sounds of a lighter ignition . It can be soloed via the "S" toggle and positioned all around the listener using the "position" rotary control .

Crackle

As fire burns, the combustible material heats up and with it the liquids trapped inside (like water and sap in wood logs). Soon, liquids turn into gazes and exerts pressure towards the outside until it pops out and emits the typical crackle sound we naturally associate with fire.

- **Range**: Sets the minimum and maximum interval between two crackles (from the end of a sample to the start of the next one).

- **Crackle Type**: Two different crackle sources are available. Wood crackles are richer and have more low end than coal crackles.

- **Steak**: Triggers the sizzle of a piece of meat on a pan or grill . Can be listened in solo by pressing the "S" button .

- **Steak Time** : Length of the sizzling steak sample

- **Liveliness**: Randomize the position of each crackle. High values means constant movement.

Embers

When carbon based materials are consumed by fire, they slowly turn into embers. The combustion is still happening but at a very slow pace because the oxygen doesn't circulate easily to the combustible core. They often produce a gentle crackling, hovering soundbed and sound differently according to the materials and the temperature of it. This module uses granular synthesis to generate constant, ever-changing textures.

- **Embers Type**: The module features six different, granular synthesis based embers continuous sounds. Each one relates to a different combustible, size and state of fire.

- **Density**: This parameter extent the size of the grains for synthesis. The more density, the more overlap between grains that consequently makes it sound thicker

- **Mono - Spread**: The spread parameter makes the stereo image wider, for a more surrounding effect. This can be bypassed any time with the mono toggle.

- **Liveliness** : This setting randomizes grains size inside the granular engine for more dynamic textures .

Gas

When there's fire, there is gas involved. Mostly naturally induced like the oxygen as the combustion origin or carbon dioxide as its result. But sometimes there's also domestic and industrial gases, used as combustibles like butane or propane. These gases comes out of our ovens, stoves, water heater … with systems designed to control and restrain their flow .

- **Gas Tone**: This knob allows you to select six different gas tones, each standing in a specific bandwidth to reproduce different flows and outputs.

- **Intensity**: This parameter controls the spectral energy around the selected gas tone. As you turn up the parameter value, filters curves widen and reveals more harmonics under and over the gas central frequency.

- **Gas Leak**: This setting simulates leaking gas sound by reinforcing high end harmonics.

- **Mono/ Multi - position**: Define how gas sounds fill the audio space. In multi, all channels sounds even to surround the listener. In mono, the user can use the position knob to move the source in a circle around the listener (note that far left and far right settings both result in an even, rear-only diffusion).

- **Liveliness**: As for the flames, the liveliness parameter animates the sound by modulating randomly filters frequencies and Q factors.

Master

- Envelop controls (**Attack**, **Decay**, **Sustain**, **Endpeak**, **Release**, **Attack level**, **Sustain Level**, **Endpeak Level**) : The envelop generator allows you to define precise behavior of chosen modules amplitude. Note that when the Start Button is toggled on, envelop will follow attack and decay curves. Then when it's toggled off, it follows sustain, endpeak and release. The attack level also determines the peak on flames intensity and blaze density automated by the envelop.

- **Stereo Width**: Sets the width of stereo image panning.

- **Stereo Depth**: Sets the amplitude of rear channels (more depth = more amplitude to the rear).

- **Bass Boost**: Low frequency generator driven by low end spectrum of all active modules.

- **FIRE!!**: Toggles the envelop on & off.

- **Flames/Embers/Gas Toggle:** Assign envelop to individual modules. Note that the amplitude modulation happens at a lower level than the modules volume faders .This means that when you toggle on the envelop on a module it will be silent until you toggle the start button on. Coincidentally, you'll need to rise up the module fader to the desired volume to hear the envelop modulation. That allows you to keep control on individual modules amplitude even if they're all following the same envelop.

OTHER FUNCTIONALITIES

Click on the "AUDIOFIRE" logo to see several options menu.

Audio Options

Link to host 'Play'

When the tick box is checked, sound will be produced only when your host is playing. When you hit "Stop", sound computing will stop too. By default, this tick box is unchecked so you should always hear sound.

Speakers arrangement

Here you can select your favorite mapping for your outputs. Be sure to have configured your host correctly if you have a surround system, so that your outputs are mapped correctly. If your system only has two outputs, you will only be able to select "Mono" or "Stereo" for instance. The combo box allows you to switch between "Music" or "Cinema" mapping for surround systems.

Open Sound Control (OSC)

Audiofire is an OSC friendly plugin, meaning that you can use any OSC enabled device or software you want to control it. We also provide a fully functional template for TouchOSC users on iPad. You can find the file here: http://lesound.io/download/.

TouchOSC setup guide

The following guide covers the installation and configuration of TouchOSC on iPad for Audiofire. TouchOSC is an OSC app available on the App Store. Search it in the App Store or go to hexler.net to download it on your computer. Once the app is installed, please plug your iPad, start iTunes and go to your device's "Apps" tab Scroll to the File Sharing section where you will find a list of Apps. Select TouchOSC from this list and a new list of TouchOSC related document should appear. You can now add the Audiofire template by dropping it into that list or by clicking the Add button.

Next you will need to start TouchOSC on your iPad and tap on the OSC row in the

Connections section of main menu and turn the Enabled switch on.

The host should be the IP address of the computer running Audiofire, please scroll to the next section if you don't know how to find your IP address. Audiofire is, by default, configured to send on port 9000 and receive on port 8000.

You can of course customize the ports to be used. Please make sure that those ports are not already occupied by any other process on your computer and to reflect your configuration in the Audiofire preferences (see section "Audiofire OSC Setup Guide" below). Once the configuration is done, go back to the main menu in TouchOSC and tap the Layout row. The Audiofire template should appear in the list, tapping it will make it the current active template.

The TouchOSC configuration is now over you can go back to the main menu and tap the *Done* button in the upper-right corner of the iPad.

How to know my computer's IP address

If you're a Mac user click to the Apple icon on the upper-left corner of the screen and select System Preferences. Go to the Network button which should be on the third row. Then in the left-side list click on your WiFi connection and your IP address should appear.


If you're a Windows user, click the Start Menu (right click if you are on Windows 8.1), open the Control Panel and go to Network and Internet, then go to Network and Sharing Center. You should see your network under View Your Active Networks. Click the name of your network next to the Connections label on the right and then go to Details. Your computer's IP address should appear in the value column next to IPv4 Address.
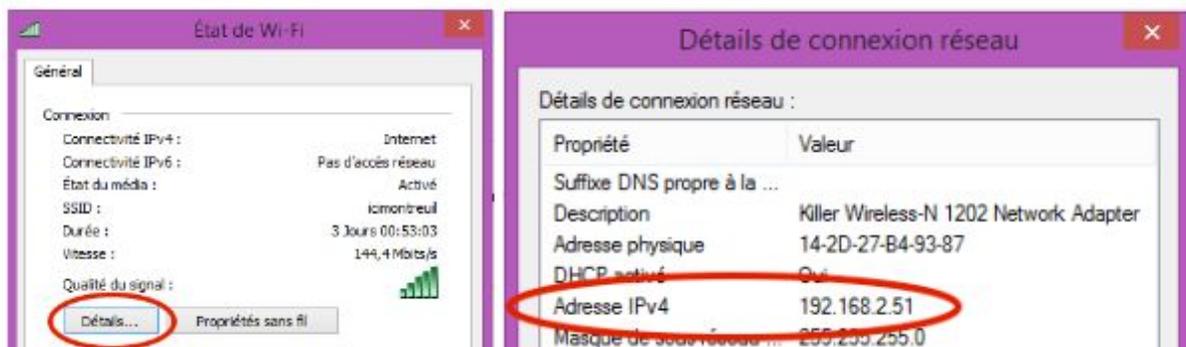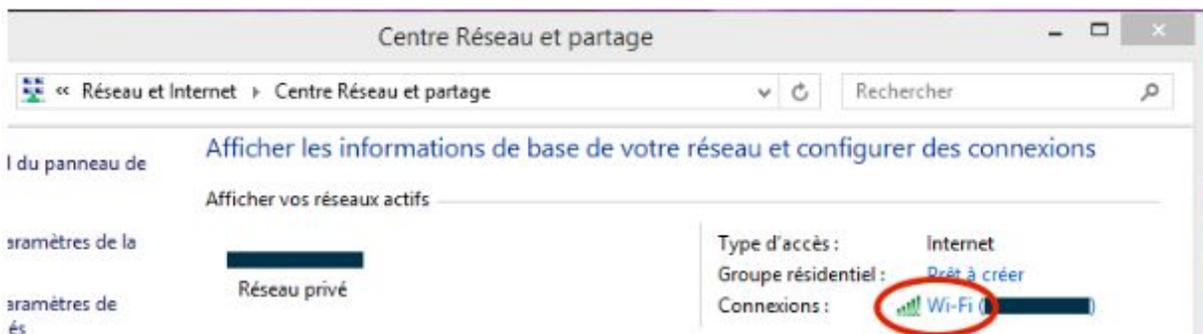
Audiofire OSC setup guide

To enable OSC, open Audiofire preference by clicking the AUDIOFIRE title of the plugin interface. Go to the OSC line and check the Enable OSC box, the IP field and input/output ports should now be editable. The IP should be the IP address of your iPad which can be found in the configuration page of the TouchOSC we have seen previously. If you configured TouchOSC with our default port values, you shouldn't need to change anything else. Otherwise, make sure you reflect the exact same port configuration on both the computer and the iPad.
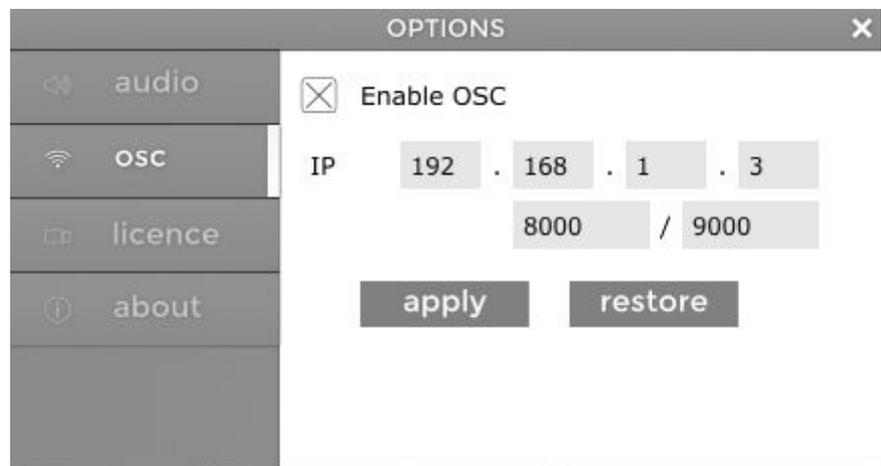

Click on the apply button to validate and come back to the plugin interface.

If you are having trouble finding the IP address to set you can open the Settings app on your iPad, go to the Wi-Fi tab and tap the circled-blue i next to the network you're currently connected.

Congratulations! Now you should be able to control Audiofire with your iPad!

Random

Located in the upper right corner, the RANDOM button generates a new set of parameters for all the modules of the plugin. You can click on the button as much as you want until you hear a sound that suits you. If you need, you can reset to default parameters or other configurations with the PRESET menu next to it (see next section).
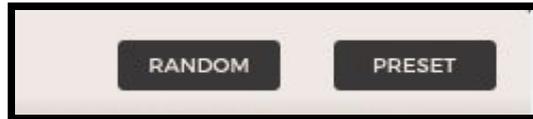
Presets

Preset Manager

The PRESET button located in the upper right corner allows you to display the preset manager which handles every basic preset operation.

There are two dropdown preset lists: *Factory presets* showing different usage of your AudioFire and *My presets* containing the presets you will save. To unroll the lists, click on the small white square on the left of the lists name. Then, load some factory preset by double clicking its name.

After getting mad and turning every single button from min to max value, you can go back to the default state of the plugin by recalling the "Reset" preset.

Once you've sculpted the sound you were looking for, simply click on the SAVE button at the bottom of the preset manager to add a new preset corresponding to the current state of the plugin. The newly created preset will appear at the bottom of *My presets* list. You can rename it by double clicking on its name to recall it then click once more on it to get the typing cursor.

To delete a preset, double click on its name (which will recall it) then click the DELETE button at the bottom of the preset manager.

Factory Presets List

The factory presets are organized by modules. Each preset of the list changes only the parameters of the module involved, leaving the other modules intact except for their volume. Here is the list of all the factory presets:

- Campfire:
    - Big Logs
    - Night watch
    - Roasting game
    - BBQ
    - Windy Forest
    - Sausage Pit
    - Embers bed
- Bonfire:
    - Beach Ceremony
    - Wicker man
- Stove:
    - Old Twigs
    - Housewarming
    - Winter Chill
    - Portable appliance
- Fireplace:
    - Large Pit
    - Quiet evening
    - Catching heat
    - Home Sweet
- Gas:
    - Huge Leak
    - Expanding
- Industrial:
    - Melting Metals
    - Incinerator
    - Foundry
    - Bakery
- ADSER (envelop driven):
    - Large Fireball
    - Small Fireball
    - Stove On & Off
    - The pyre
    - Gas Lamp

Automation

All the parameters from your AudioFire plugin are available for automation in your favorite host including separate modules volumes and master volume. Simply go to the host automation menu or panel and all of them should appear, ordered alphabetically.

TROUBLESHOOTING

If you followed this guide but still aren't able to control AudioFire, you can try the following suggestions: - Try another port configuration. - Try closing other programs that are currently using your network. - Try to reboot devices, maybe a process is still bound to the port you're trying to use. If you're still experiencing troubles please do not hesitate to contact us at http://lesound.io/support/

Thank you, we hope you'll enjoy Le Sound AudioFire!