



# Cab-Lab 4 IR Mixer and Tools

## Owner's Manual



Welcome to Cab-Lab 4. In the world of Fractal Audio's industry leading amp modeling, many musicians now recognize the importance of Impulse Responses (IRs). An IR can be thought of as a sonic "capture" -- like the "frequency fingerprint" of a tone through time. Fractal Audio was the first to allow installable IRs in a guitar product to recreate the sound of a mic'd speaker. This feature set a new industry standard. Suddenly, guitarists could encapsulate the essence of a favorite cab in a portable format, enhancing both studio recording and live performance. Now, Cab-Lab 4 with DynaCab™ makes it quicker, easier, more intuitive, and fun to achieve great tone, allowing you to customize and mix IRs yourself.

### A powerful IR mixer, now with DynaCab™ technology.

For decades, guitarists and audio pros have carefully selected, positioned, and mixed microphones on guitar speakers in the pursuit of great tone. Now you can do the same, selecting and placing mics, mixing, and auditioning results in real-time, and it is easier than ever before. With Cab-Lab 4, you get a 4-channel IR mixer, plus tools to EQ, align, and more.

DynaCab technology allows you to visually place a virtual mic anywhere on a virtual speaker, making it far easier to find a sound than it was when sifting through numerous individual IRs. In fact, the DynaCab system in Cab-Lab 4 offers even more resolution and flexibility than our hardware products, with 360° of placement at variable distances, the possibility of additional microphone choices, and more.

Cab-Lab 4 supports our latest **DynaCab Packs**, as well as traditional **single IRs** – whether from Fractal Audio or 3rd party producers. Cab-Lab gives you the tools you need to create your own signature tones—delivering the high quality results you have come to expect from Fractal Audio Systems.

# Features

- 4-Channel IR Mixer with per-channel level, EQ, mute, solo, and phase controls.
- Each channel can be set to **DynaCab™** or **Single IR**.
- Single IR mode supports .WAV, .IR, and non UltraRes™ .SYX files.
- DynaCab mode offers easy, intuitive, visual mic-on-speaker positioning with 360° center-to-edge mic placement, and adjustable mic distance.
- DynaCab mode supports new **DynaCab Packs**, available from <https://shop.fractalaudio.com>
- Global and per-channel **EQ** with selectable-slope **Low Cut** and **High Cut** filters and frequency plots.
- **“ZOOM”** view allows precise mic positioning using real-world units (cm or in)
- **“ALIGN”** view allows you to adjust IR time for precise phase control. (DynaCabs are automatically aligned at any mic distance but can be adjusted further.)
- Built in **Cab Pack Manager** automatically handles DynaCab pack downloads, installation, and authorization.
- Cab-Lab 4 **Standalone** connects directly to Axe-Fx III, FM9, and FM3 or any compatible audio interface for real time monitoring in **“Software Live Mode”**.
- Standalone mode can **send mix IRs** directly to User Cab memories of the connected FAS device.
- **“Hardware Manual”** audition mode sends your mix IR to “Scratchpad 1” on a connected Fractal Audio device.
- Audition setup uses easy **“DO IT!”** wizards.
- Cab-Lab 4 **Plugin** runs in a DAW or host to “re-cab” live or recorded amp tracks. Cab-Lab 4 is an excellent way to re-cab plugins or a tube amp using the Fractal-Audio X-Load LB-2 Load box.
- **IR Capture Utility** facilitates the creation of individual IRs using an Axe-Fx III.
- Cab-Lab saves **Sessions** for total recall any time you re-launch the program.
- **Wav Conversion** utility batch converts .wav IRs to .ir and .syx formats
- **IR2Syx** utility batch converts .ir to .syx
- **IR Phase Invert** utility batch corrects inverted IRs (i.e. those created when a speaker is wired backwards.)
- **RefIR Batch** utility applies a reference IR to remove coloration imparted by a power amp.
- **Rename IR** utility renames a single IR.
- **Copy Filename to IR name** batch utility allows changing the internal IR name of multiple files.
- Cab-Lab 4 Standalone is **self-updating** when new versions are released.
- New and improved “dark mode” look and feel.

## Standalone and Plugin Versions

Cab-Lab 4 has two versions. The **standalone** operates independently without needing another software platform, while the **plugin** requires a host application or DAW such as Logic, Reaper, Live, etc

The Standalone uses your Axe-Fx III, FM9, FM3 or any compatible audio interface for “Software Live Mode” auditioning. A wizard helps you to set up an “amp modeling only” preset, allowing Cab-Lab to perform speaker cab simulation while you monitor, mix and adjust it in real time. When you’re happy with the result, you can save it as a file to your computer or directly to a connected Fractal Audio device. The standalone also includes a collection of powerful IR processing tools.

The plugin is tailored for “re-cab” applications in a DAW using any audio interface to mix and monitor in real-time. This allows you to mix and monitor in real time. It doesn’t connect to Fractal Audio hardware directly, but it offers the capability to export an IR to your computer. You can then upload this IR to any compatible Fractal Audio device later.



## Download and Installation

- Download the version Cab-Lab for your operating system from <https://www.fractalaudio.com/cab-lab-4/>
- Unzip the download and double click the installer for either the Standalone or the Plugin version(s) of your choice. Repeat this process to install multiple versions.
- Launch Cab-Lab Standalone from your Applications folder (Mac OS) or Start Menu (Windows)
- For the plugin version, launch your DAW, create an audio track, and add the Cab-Lab plugin.

## Minimum Requirements

### All Versions

- 2.0 GHz or higher processor.
- 8GB RAM or higher recommended.
- Internet connection required for activations.

### Apple/Mac OS

- Apple M1/M2, or Intel processor.
- OS X 10.9 or higher.
- PLUGIN: 64-bit AU- or VST3 capable host software.

### PC/Windows

- Intel or ARM processor
- Microsoft Windows 10 or newer.
- PLUGIN: 64- or 32-bit VST3 capable host software.

# Cab-Pack Manager

Cab Pack Manager allows you to download, install, and authorize DynaCab™ packs purchased from the Fractal Audio Systems online store at <https://shop.fractalaudio.com>

## CAB PACK MANAGER

Logged in as: [REDACTED] [Log Out](#)

Please allow 1 business day for all purchases to appear.

Missing Purchases? [Refresh Purchases](#) or [Read This](#).

You can also lookup an order without logging in by entering the order number and associated email address.

[Order Lookup](#)

### Purchased Products

Order ID	Date	Product	Available	Status
133598 (A)	2023-08-31	DynaCab Pack - 1x12 AC20	1/2	Installed! <a href="#">Uninstall &amp; De-Authorize</a>
133598 (A)	2023-08-31	DynaCab Pack - 2x12 Double Verb	1/2	Installed! <a href="#">Uninstall &amp; De-Authorize</a>
133598 (A)	2023-08-31	DynaCab Pack - 4x12 1960TV	1/2	Installed! <a href="#">Uninstall &amp; De-Authorize</a>
134627 (A)	2023-10-05	DynaCab Pack - 1x10 Metro Blues	1/2	Installed! <a href="#">Uninstall &amp; De-Authorize</a>

## USING CAB PACK MANAGER

1. Launch **Cab-Lab**
2. Launch the manager from the Cab-Lab 4 **Welcome** screen or by choosing **Tools > Cab Pack Manager**
3. Follow the on screen instructions to authorize, download, and install your DynaCab packs.

## NOTES

Cab-Pack Manager requires an **active Internet connection**. It offers two authorization methods:

**Account Login:** Enter the email address and password associated with your account at [shop.fractalaudio.com](https://shop.fractalaudio.com). This provides access to all DynaCab purchases linked to your account.

- If a Cab Pack purchase seems to be missing from your account, it might have been purchased using Guest Checkout. This can happen even if the email from your account appears on the Guest order. To find purchases made via guest checkout, click on "Order Lookup" in the upper right.

**Order Lookup:** Retrieve any individual purchase by inputting the order number and the email used on that order.

**NOTE:** Legacy Cab Packs (without "DynaCab" in their name) do NOT require Cab Pack Manager and will not be found in any order lookup. However, you can manually download these legacy Cab Packs. Once downloaded, access your files in Cab-Lab 4 using "Single IR Mode" or by dragging and dropping individual files straight into Cab-Lab.

## NEED HELP?

If you're unable to retrieve your purchase using the methods above, please email [support@fractalaudio.com](mailto:support@fractalaudio.com) from the email address associated with the missing order.

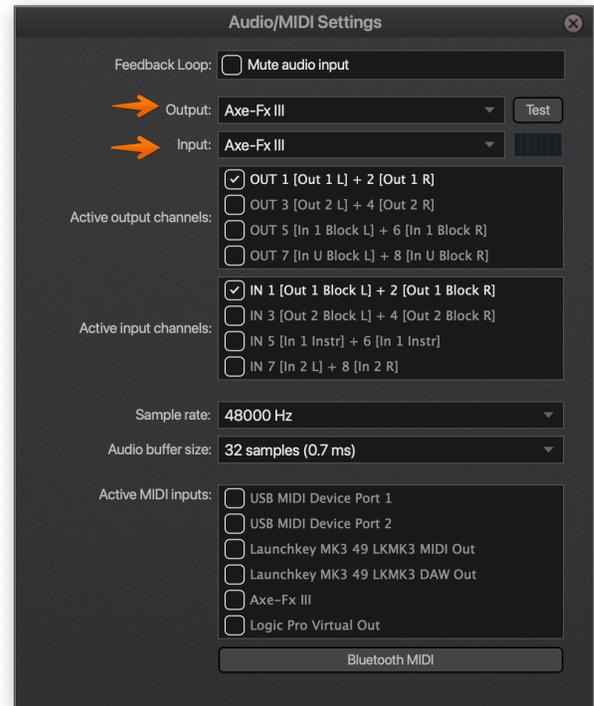
# Cab-Lab Standalone: Software Live Mode

Software Live Mode is a great way to use Cab-Lab 4. It allows you to hear mic and mix changes in real time, replicating how this process works on analog gear. It relies on a signal with amp modeling but no cab processing. A wizard helps you to set up your Axe-Fx III, FM9, or FM3 for this purpose.

Software Live Mode requires an audio interface. A connected Axe-Fx III, FM9, or FM3 is the perfect choice. Check your product Owner's Manual for details about USB connection, drivers, audio, Note that many other interfaces can also be used with good results.

## 1 Select an Audio Interface

1. In Cab-Lab, open **Settings > Audio MIDI Settings**
2. Select your Fractal Audio device or 3rd party audio interface for both **Output** and **Input** ports. [Image, Right]
3. Turn down the Out 1 knob on your Fractal Audio product and press the "Test" button. Increase the level as desired.
4. Close Audio MIDI Settings.



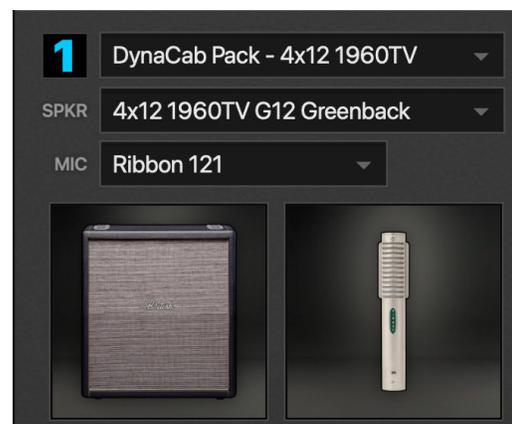
## 2 Connect to your Axe-Fx/FM9/FM3

1. Be sure your guitar and speakers are connected to your Axe-Fx, FM9, or FM3, as usual.
2. In Cab-Lab, open the **Connect** menu and select your connected Fractal Audio device. [Image, Below]
3. A small green check should appear on the left side of the Cab-Lab title bar with the word "Connected!"



## 3 Load at least one IR

1. In Cab-Lab, load an IR into the first slot of the mixer. You can choose a **DynaCab Pack, Speaker, and Mic** of your choice, or switch to **Single IR Mode** and then browse to any compatible IR file.
2. Wait before adjusting any other settings as you won't be able to hear them yet...



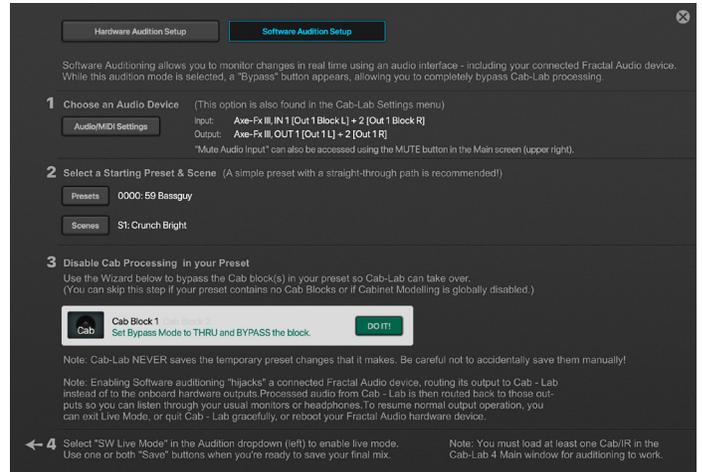
## 4 Turn on SW Live Mode

- In Cab-Lab, select “**SW Live Mode**” from the Audition options dropdown in the lower left. Then click the setup button (gear) to show the **SW Live Mode Setup Wizard**. NOTE: Make sure Bypass and Mute are turned OFF.



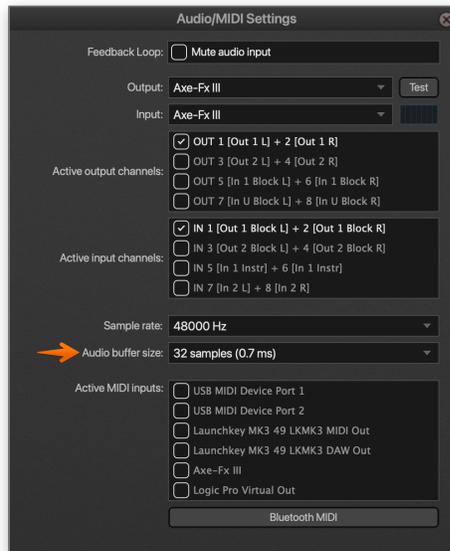
## 5 Use the Setup Wizard

- Follow the steps of the setup wizard. NOTE: If you have been following these instructions, Steps 1 and 4 will already be complete. Complete steps 2 and 3 and then close the Wizard by clicking the Setup gear again or closing the window.



## 6 Test Audio and Optimize Latency

- After exiting the wizard, you should be able to play and hear your guitar being processed by Cab-Lab. Feel free to test the various controls, but please also take a moment to optimize audio latency and performance.
- In Cab-Lab, open **Settings > Audio MIDI Setup**. Adjust the **Audio buffer size** as low as possible without causing audio dropouts and glitches. (The limit will depend on the capabilities of your computer.)



## 7 Explore Cab-Lab

- Cab-Lab 4 is easy to use even if you are not familiar with the full capabilities of your Fractal Audio product.
- Mic and mix as you would with traditional analog gear.
- Learn more in the pages that follow.

# Cab-Lab Plugin: Getting Started

After you've installed the Cab-Lab plugin, you're ready to get started. Ensure your DAW or Sequencer supports either the AU or VST3 formats. Insert the plugin on an audio track in your host application. Cab-Lab 4 processes audio in mono.

The Cab-Lab plugin is designed to work with an amp signal that has not been processed with speaker cab simulation.

- For users of Axe-Fx III, FM9, or FM3, this typically involves manually bypassing the Cab block.
- If you're using an amp modeling plugin, turn its speaker simulation section off.
- Alternatively, you can use a tube amp routed into a load box such as the [Fractal Audio X-Load LB-2](#).

Tools and certain other functions that require the Cab-Lab "Connect" menu are not supported by the Cab-Lab plugin version. Other features work as detailed in this manual..

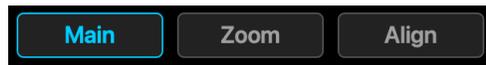


The Cab-Lab plugin as it appears in Logic Pro.

# The Main Mixer View

The Main mixer view includes 4 slots plus graphical displays showing the master mix in frequency and time domains.

The top section of each channel allows you to select a DynaCab pack, speaker, and mic, or switch to Single IR mode where you can browse to load an IR in .wav, .IR, or standard resolution .syx formats.



Current speaker and mic choices are illustrated for reference.

This image represents the speaker face; not to scale.

Drag and drop the **position indicator** to move the microphone anywhere on the face of the speaker.

Adjust the **Mic Distance** slider to move the mic closer or farther away.

**EQ controls** adjust low cut and high cut filters on the individual mixer channels.

The corresponding Slope controls set the filters from gentle (6dB/octave) to steep (24dB/octave).

## LEVEL CONTROLS

It is crucial to understand how Cab-Lab level controls work. Unlike direct volume controls, these make **relative adjustments** when multiple IRs are loaded. The resulting mix is then normalized to optimal level.

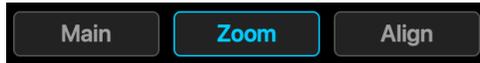
With **ONE** IR loaded, Level has **no effect**.

With **TWO** or more IRs loaded, Level can be used to adjust the relative balance between them. You will hear the tonal blend change, but not the overall volume.

Each channel has Mute, Solo, and Phase Invert switches.

# The Zoom View

The Zoom view offers a larger view of the speaker controls for the selected DynaCab channel.



The Frequency plot displays the response of the selected channel, with channel selectors (1-4) directly below. Mousing over the plot reveals the frequency in Hz at the current position.

A large view of the speaker face allows precise control. This section operates on the channel selected using the numbered selectors (1-4) below the plot on the left.

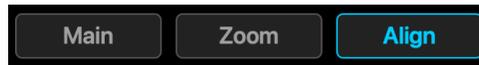
The screenshot shows the 'Zoom View' interface. On the left, a frequency plot displays a blue line representing the speaker's response across a frequency range from 20 Hz to 20 kHz. Below the plot are four channel selectors (1-4), each with 'M', 'S', and 'Φ' buttons and a 'Level' slider. Channel 1 is selected, showing a level of -5.32 dB. Below the level sliders are 'Low Cut' and 'High Cut' controls, each with a dropdown menu set to '6 dB' and a knob set to '20 Hz'. On the right, a large circular speaker face is shown with a blue dot in the center. Below the speaker face are 'MIC POSITION' controls: 'Angular' (0 deg), 'Center/Edge' (0.00 in), and 'Distance' (0.00 in), each with a slider. At the bottom right, there are icons for a window and a speaker, and text identifying the pack: 'PACK: DynaCab Pack - 1x12 AC20', 'CAB: 1x12 AC-20 G12 Blue', and 'MIC: Condenser 023'. Blue lines point from the text above to the frequency plot and speaker face.

Mute, Solo, Phase, Level, Low Cut and High Cut controls work the same here as they do in the Main mixer view.

Text fields and sliders offer greater precision than dragging the blue dot for adjusting Angular Position (theta), center-edge position, and speaker-mic distance.

# The Align View

The Align view provides tools to shift IRs forward or backward in time within the context of an overall mix.



The use of multiple microphones on a single guitar speaker, or across various speakers, is a widespread practice in the pursuit of great tone. In such setups, however, phase issues can arise due to the sounds being recorded at slightly different times because of the varying distances between the microphones and the sound source(s).

Fortunately, in today's advanced recording studios, there are tools available to synchronize timing and correct phase discrepancies. The **Align** view in Cab Lab offers such capabilities. Sometimes, mics are painstakingly phase aligned. In other situations, a slight misalignment is used as an effect.



The Align view displays superimposed time domain plots for all the currently loaded IRs. Use the four correspondingly colored knobs to make adjustments, choosing either millimeters or milliseconds as desired

To ensure phase coherence between IRs, align their first prominent peaks visually. To mimic the effect of mics at different distances, tweak the alignment and trust your ears when making final adjustments. Remember, mics are sometimes painstakingly phase aligned, but in other situations, slight misalignment is used as an effect.

Be mindful of the characteristics of the IRs you're blending: they may be pre-aligned in various ways, or may contain inherent time delays.

Note: Increasing the Mic Distance of a DynaCab does NOT also introduce a corresponding time delay; IRs remain phase aligned unless you adjust them manually.

# Session and Master Sections

The left area of the main Cab-Lab window shows Session tools and Master Mix plots and controls.

## SESSIONS

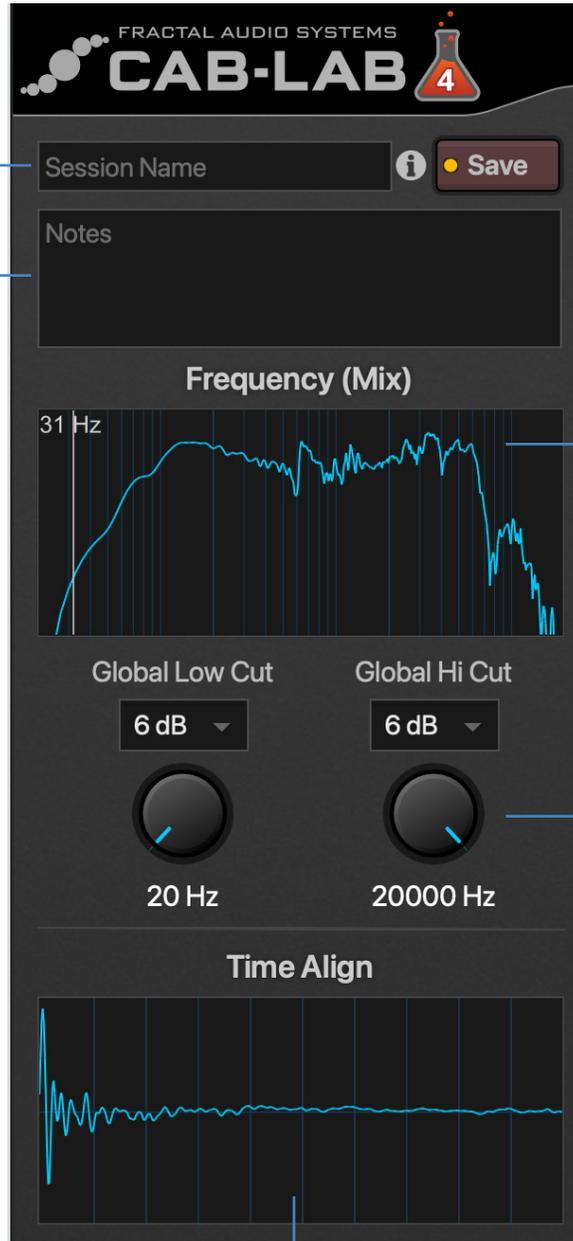
All of the settings for your current Cab-Lab session can be saved to a Session file for instant recall.

To save a Session file, enter a session name and press the Save button. A description is optional.

A Session file is like a setup preset for Cab-Lab. It stores all of the current IR selections and settings, plus any mixer and export settings, so you can continue working where you left off even after quitting Cab-Lab.

Session files can also be shared, providing a way for you to share your settings with others. Of course, they will need to have the same IRs as you in their library, but Cab-Lab will display a message if a required IR cannot be found.

The Session menu at the top of Cab Lab provides options to manage sessions.



The Frequency (Mix) plot shows the frequency response of your current mix. As you mouse over the plot, an indicator shows the frequency of the current position in Hz.

These controls adjust low cut and high cut filters on the overall mix. Increase Low Cut to reduce bass. Decrease High Cut to reduce treble.

The corresponding Slope controls set the filters from very gentle (6dB/octave) to steep (24dB/octave).

The Time Align plot shows the current mix in the time domain, allowing you to spot alignment problems. You can also double click this plot to open the Align view.

# Save & Export

This section provides a way to save the Cab-Lab mix to a connected computer or Fractal Audio Device.

**NAME** – To assign a name to your IR mix, click on the name field, type in your preferred name (up to 31 characters) and then press Enter/Return. An IR must have a name to be saved. This name is embedded within the IR and is also utilized as the filename. The “Internal” name is displayed when the IR is used in a Fractal Audio hardware or software product.

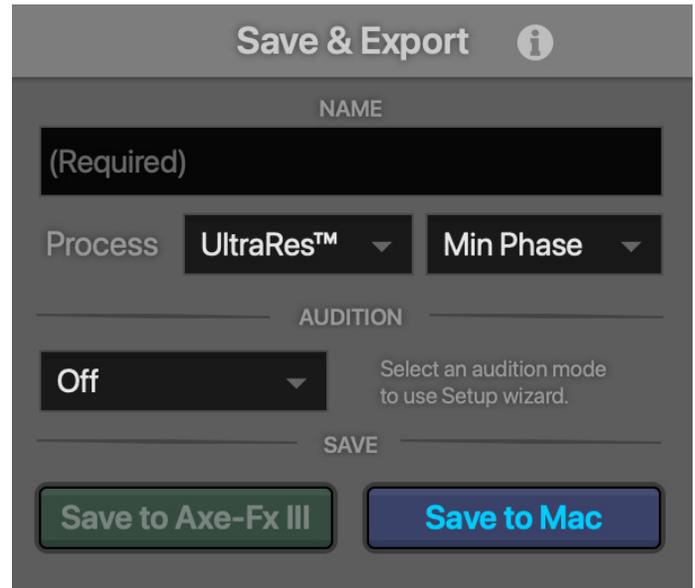
Be aware that embedded cab names can contain characters not allowed in computer file naming conventions, such as /, |, and \*. When saving an IR, these characters will be automatically stripped from the file name.

**PROCESS** – Two dropdowns determine how the current IR will be saved. **UltraRes™** processing is a Fractal Audio proprietary technique which enhances the spectral resolution of an IR without adding CPU burden or storage requirements. UltraRes IRs are more detailed than **Standard** resolution IRs.

When the **Output Format** is set to “**UltraRes**”, two files will be saved to the computer: a .syx file and a raw Impulse Response or “.ir” file that can be loaded into future Cab-Lab mixer sessions or imported like a .syx file using Axe-Edit, FM9-Edit, or FM3-Edit.

A second dropdown selects between “**Minimum-Phase**” which transforms the IR into a minimum-phase version, “**Auto-Trim**” which removes leading silence, and “**None**” which applies no processing at all.

Fractal Audio “factory” cabs are processed using minimum phase, so any IR created in this way should be aligned with the factory cabs.



**SAVE TO CONNECTED DEVICE** – The Axe-Fx III, FM9, and FM3 contain memory locations for storing User Cabs. When you use Cab-Lab to send a mix to a numbered User Cab memory location, it remains there indefinitely until you overwrite or otherwise remove it. Remember where you save the IR (ex: “User 15”) so you can update the Cab block for any presets that you want to use the new IR with.

**SAVE TO COMPUTER** – Use this option to save your Cab-Lab mix to the computer for sharing or archiving.

When the Output Format is set to “UltraRes”, two files will be saved to the computer: a .syx file and a raw Impulse Response or “.ir” file that can be loaded into future Cab-Lab mixer sessions or imported like a .syx file using Axe-Edit, FM9-Edit, or FM3-Edit.

Note that exported IRs can also be used in some Fractal Audio legacy products such as Axe-Fx II, AX8, and earlier versions of Cab-Lab.

## HW Manual Audition

Software Live Mode (p. 5) is how most people will use Cab-Lab 4. Another option allows sending IRs manually to the “scratch pad” of a connected Axe-Fx III, FM9, or FM3. Select “HW Manual” in the Audition dropdown and then click the setup gear if you prefer to use this hardware-based audition method.

# Tools

## **IR Capture**

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The IR Capture utility allows remote control of the entire IR Capture process using a connected Axe-Fx III. Please refer to your Owner's Manual for more on this process.

## **WavConversion and IR2Syx**

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WavConversion and IR2Syx allow you to create user cab files from entire directories of .wav or .ir files.

When the IR Format is set to "Standard", a .syx file is created per source. When the Output Format is set to "UltraRes", two files will be created: a .syx file and a raw Impulse Response or ".ir" file that can be loaded into Cab-Lab mixer sessions or imported using Axe-Edit, FM9-Edit, or FM3-Edit.

Wav2Syx requires mono .wav files which have been deconvolved (but they can be of any sample rate or bit depth.) If any invalid IRs are found in a directory, a message will appear and the conversion process will halt.

## **IR Phase Invert**

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This utility flips the phase of all IR files in a directory. Use this if, for example, you discover at the end of a capture session that one of your speakers or cables was wired backwards.

## **IR Rename**

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The IR Rename utility allows you to change the "Internal name" of an IR – that is, the name which is displayed when it is used in a Fractal Audio hardware or software product.

## **Copy Filename to IR Name...**

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This handy batch utility processes all IRs in a directory, changing the internal name of each to match its file name. When you combine this with 3rd party file naming utilities such as RenameMan or ABetterRenamer, it provides a very powerful way to batch rename IRs.

## **Ref IR Batch**

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This utility applies reference IR processing to all of the IRs in a specified directory. A reference IR can be used to remove the coloration of a power amp used to capture other IRs. You can create your own reference IRs using a speaker-level-to-line-level DI such as the

**Rupert Neve Designs RNDI.**

# Help

## **Check for Updates**

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**(Standalone Version Only)** Cab-Lab updates itself over the Internet. This normally happens automatically and you will be alerted when a new version is available. If you'd like to check manually, choose the Check for Updates option in the Help menu. To update the plugin version, manually download and run the new installer to overwrite any existing components.

## **Troubleshooting DynaCab Authorization & Missing Cab Pack Purchases**

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Please review this guide:

<https://support.fractalaudio.com/en-US/missing-cab-pack-purchases-319959>

## **Troubleshooting Usb Problems**

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Please review this guide:

<https://support.fractalaudio.com/en-US/usb-troubleshooting-and-testing-293683>

## **GETTING HELP**

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If you need help with Cab-Lab, please contact our support team via [support@fractalaudio.com](mailto:support@fractalaudio.com)

Please be sure to include all the information we will need to help you.

1. Details of the computer.
2. Details about how things are connected.
3. Details on any 3rd party devices such as Audio/MIDI Interfaces.
4. Details on your sequencer or DAW if using the plugin version.
5. Version numbers: Cab-Lab, computer OS, FW versions for your Fractal product, etc.
6. Steps to reproduce a given issue.
7. Things you've already tried to fix it.
8. Anything else we might need to know.

Our forum at <https://forum.fractalaudio.com> is also a valuable resource, with members helping members around the clock and Fractal Audio staff regularly joining in.