

Fireface UCX II Setup

Always use the approved driver from the SoundCheck DVD or from our website:
<https://support.listeninc.com/hc/en-us/sections/200370694-Drivers>

For macOS setup instructions see [macOS Setup on page 6](#).

Windows Setup

Mixer

The TotalMix application for the **Fireface UCX II** should be configured as shown [Figure 1-1](#). A workspace preset for this has been included with the approved driver package on the Listen Website.

From the mixer screen click **“File”** then click **“Load Workspace”**. Navigate to the **Fireface UCX II** driver folder and open **“SoundCheck Config FF UCX II USB.tmws”**.

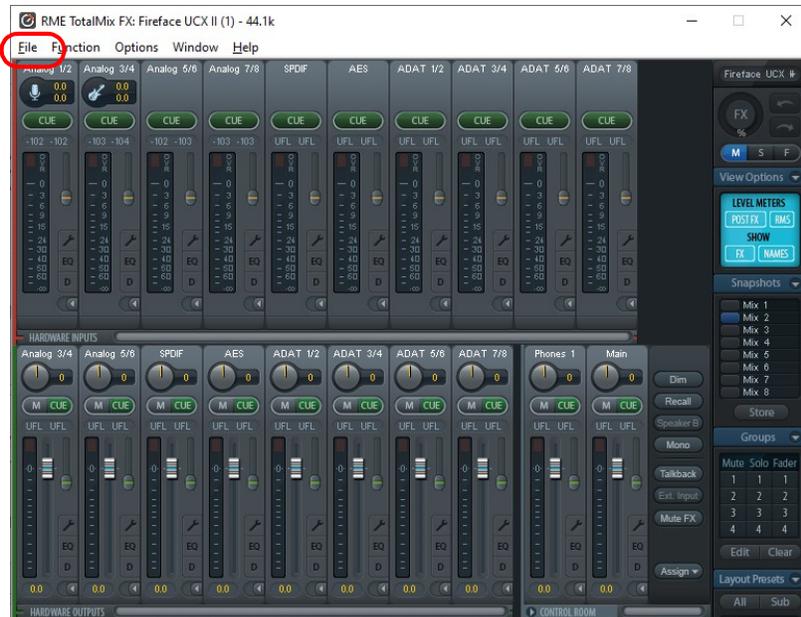


Figure 1-1: Mixer Screen

The mixer is then set to:

- Hardware Inputs: All channels used in SoundCheck must be turned down
- Hardware Outputs: All channels used in SoundCheck set to 0 dB – Unity Gain
- Software Playback: All channels used in SoundCheck set to 0 dB – Unity Gain
You must click on a Hardware Output in order to set the Software Playback for that channel.
- Control Room channel is used for the Headphone output level. **Set to 0 dB.**

Gain

Inputs 1 and 2 have fixed gain settings. Inputs 3 and 4 should be set to the default of **+19 dBu** as shown in [Figure 1-2](#). This corresponds to the Vp values used in the SoundCheck default hardware step for the **Fireface UCX II** as shown in [Figure 1-6](#).

NOTE: If the gain is changed to **+13 dBu** the default SoundCheck Hardware Editor input Vp value must be divided by 2.



Figure 1-2: Input Gain

Outputs 1 thru 6 (Main thru 6) are set to **+13 dBu** by default as shown in [Figure 1-3](#). This corresponds to the Vp values shown in [Figure 1-6](#).

If the gain is changed to **+19 dBu** the default Vp value must be multiplied by 2.

Headphone output gain (outputs 7 and 8) is set to **High** by default, corresponding to the Vp values shown in [Figure 1-6](#).

Changing the Headphone out to **Low** results in a 15.1 dBV reduction which corresponds to an output Vp of 1.69 V in the Hardware Editor.



Figure 1-3: Output Gain

Matrix

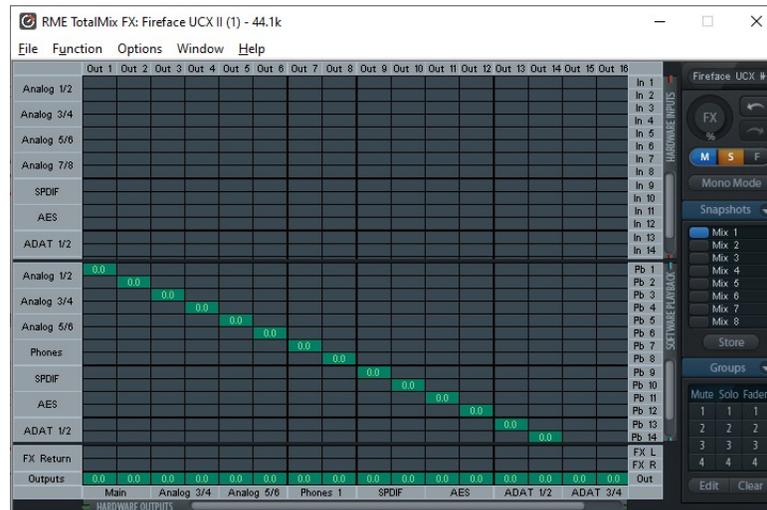


Figure 1-4: Matrix Screen

The Matrix allows for routing of software playback channels to the necessary output channels to create a one to one relationship.

The Matrix page of the mixer is set as shown in [Figure 1-4](#). This is also included in the workspace file: **“SoundCheck Config FF UCX II.tmws”**.

- Software Playback channels (vertical) are routed to Hardware outputs (horizontal). (Green cells set to 0dB.)

ASIO Buffer

The sample rate and ASIO buffer size of the **Fireface UCX II** automatically update to the values set in the SoundCheck Hardware Editor. The **Fireface UCX II** mixer updates when signal is generated from SoundCheck. The Buffer Size can be monitored in the Settings Utility which is launched separately from the Mixer Utility.

- The ASIO control panel can be opened by right clicking on a **Fireface UCX II** Channel Name in the SoundCheck Hardware Editor - Audio Tab. The panel in [Figure 1-5](#) will open.
- Clock Source should be set to Internal when the **Fireface UCX II** is used as the only audio interface
- Optical format can be switched to SPDIF

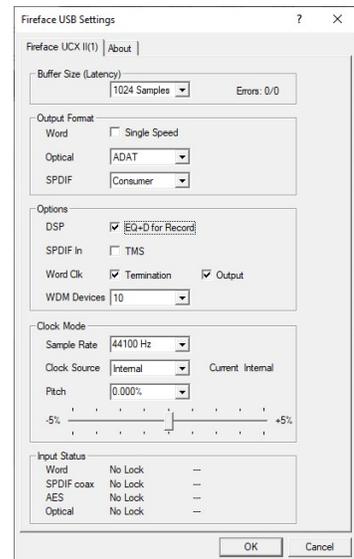


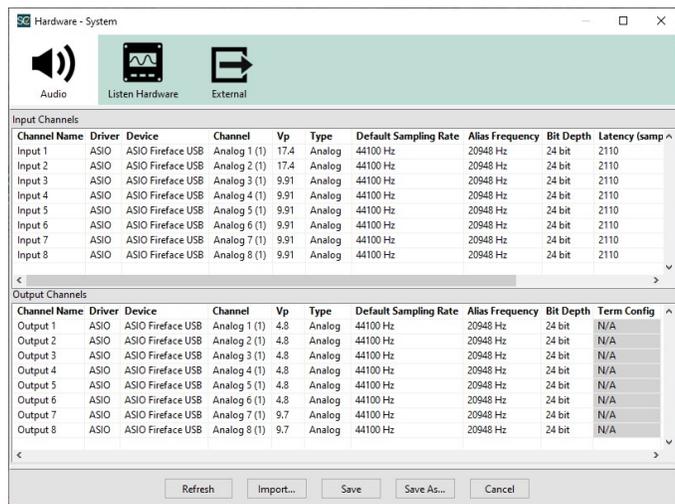
Figure 1-5: USB Settings

The default buffer size of the **Fireface UCX II** driver at 44.1 kHz and corresponding Hardware Editor Latency is shown in [Latency Windows - USB vs Firewire on page 5](#) and [Latency macOS on page 9](#). Use these charts as a guide when changing to other sample rates. You can verify that the latency is correct by following the steps in [Latency Changes on page 5](#).

SoundCheck Hardware Editor

The Hardware Editor in [Figure 1-6](#) shows the general settings for the Line Input and Output Vp values. Refer to [ASIO Buffer on page 3](#), [Latency Windows - USB vs Firewire on page 5](#) and [Latency macOS on page 9](#) for information on proper Latency values.

- Note that the default Calibration Configuration (.CAL) file in SoundCheck has only 2 signal paths of direct input and output. New signal paths will need to be created in Calibration if you plan to use the additional hardware channels.
- **Sampling Rate:** Only one rate can be selected for all Input and Output channels of an interface



Channel Name	Driver	Device	Channel	Vp	Type	Default Sampling Rate	Alias Frequency	Bit Depth	Latency (samp)
Input 1	ASIO	ASIO Fireface USB	Analog 1 (1)	17.4	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 2	ASIO	ASIO Fireface USB	Analog 2 (1)	17.4	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 3	ASIO	ASIO Fireface USB	Analog 3 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 4	ASIO	ASIO Fireface USB	Analog 4 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 5	ASIO	ASIO Fireface USB	Analog 5 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 6	ASIO	ASIO Fireface USB	Analog 6 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 7	ASIO	ASIO Fireface USB	Analog 7 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 8	ASIO	ASIO Fireface USB	Analog 8 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110

Channel Name	Driver	Device	Channel	Vp	Type	Default Sampling Rate	Alias Frequency	Bit Depth	Term Config
Output 1	ASIO	ASIO Fireface USB	Analog 1 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 2	ASIO	ASIO Fireface USB	Analog 2 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 3	ASIO	ASIO Fireface USB	Analog 3 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 4	ASIO	ASIO Fireface USB	Analog 4 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 5	ASIO	ASIO Fireface USB	Analog 5 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 6	ASIO	ASIO Fireface USB	Analog 6 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 7	ASIO	ASIO Fireface USB	Analog 7 (1)	9.7	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 8	ASIO	ASIO Fireface USB	Analog 8 (1)	9.7	Analog	44100 Hz	20948 Hz	24 bit	N/A

Figure 1-6: Hardware Editor Line Level

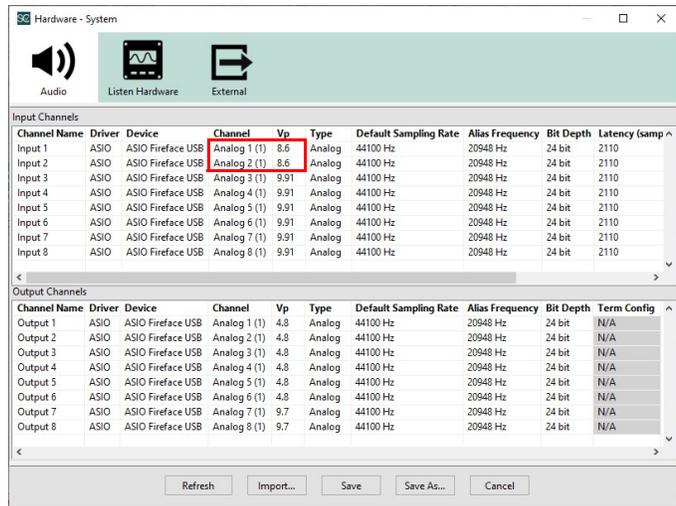
Interfaces sold by Listen include a data sheet with more precise Vp values that you can enter in the Hardware Editor.

Important! Do not use different input and output driver types for an audio interface, e.g., ASIO for Inputs and WASAPI for outputs. Doing so will result in an Acquisition Step error.

XLR Inputs 1 and 2

XLR Inputs 1 and 2 should not be used with external preamps. Use these inputs for testing dynamic microphones or microphones that require 48V phantom power. The Vp values shown in [Figure 1-6](#) are for the TRS Line Inputs. [Figure 1-7](#) shows the nominal Vp values for the XLR inputs.

We recommend that you setup new input channels in the Hardware Editor with “XLR Input” in the Channel Name. Next run the “Audio Interface Calibration” process from the Hardware Editor to get more accurate XLR Input Vp values. Instructions are in the Hardware Editor chapter of the SoundCheck manual.



The screenshot shows the 'Hardware - System' window with the 'Input Channels' table. The 'Vp' column for 'Analog 1 (1)' and 'Analog 2 (1)' is highlighted with a red box, showing values of 8.6. The 'Output Channels' table is also visible below.

Channel Name	Driver	Device	Channel	Vp	Type	Default Sampling Rate	Alias Frequency	Bit Depth	Latency (samp)
Input 1	ASIO	ASIO Fireface USB	Analog 1 (1)	8.6	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 2	ASIO	ASIO Fireface USB	Analog 2 (1)	8.6	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 3	ASIO	ASIO Fireface USB	Analog 3 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 4	ASIO	ASIO Fireface USB	Analog 4 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 5	ASIO	ASIO Fireface USB	Analog 5 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 6	ASIO	ASIO Fireface USB	Analog 6 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 7	ASIO	ASIO Fireface USB	Analog 7 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110
Input 8	ASIO	ASIO Fireface USB	Analog 8 (1)	9.91	Analog	44100 Hz	20948 Hz	24 bit	2110

Channel Name	Driver	Device	Channel	Vp	Type	Default Sampling Rate	Alias Frequency	Bit Depth	Term Config
Output 1	ASIO	ASIO Fireface USB	Analog 1 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 2	ASIO	ASIO Fireface USB	Analog 2 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 3	ASIO	ASIO Fireface USB	Analog 3 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 4	ASIO	ASIO Fireface USB	Analog 4 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 5	ASIO	ASIO Fireface USB	Analog 5 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 6	ASIO	ASIO Fireface USB	Analog 6 (1)	4.8	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 7	ASIO	ASIO Fireface USB	Analog 7 (1)	9.7	Analog	44100 Hz	20948 Hz	24 bit	N/A
Output 8	ASIO	ASIO Fireface USB	Analog 8 (1)	9.7	Analog	44100 Hz	20948 Hz	24 bit	N/A

Figure 1-7: XLR Input Vp Value

Latency Windows - USB vs Firewire

The Latency in the SoundCheck Hardware Editor is different for USB connection vs Firewire.

Latency in Samples for Typical Sample Rate and Buffer Values				
USB Connection	44.1 kHz	48 kHz	96 kHz	192 kHz
ASIO	1024	1024	2048	4096
Samples	2110	2110	4198	8379

Enter the **Samples** value in the Hardware Editor Latency field for the selected Sample Rate.

Figure 1-8: Latency in Samples

The ASIO buffer values shown above are automatically determined by the interface when that sample rate is changed.

Latency Changes

Latency is the round trip time delay between input and output channels on a single audio interface when operating in full-duplex mode (record and play simultaneously). Consistent latency is essential for sample accurate measurements such as Absolute Phase. Refer to the SoundCheck Manual > Hardware Configuration > Latency Adjustment.

The following process should be followed if you find that latency is slightly different than the default hardware step included with SoundCheck. This could be due to differences in motherboard or driver version.

1. Open the Hardware Editor. Since Latency is Sample Rate dependent, click on the **Default Sample Rate** drop down to select the desired rate.
2. Click on the drop down arrow next to the value in the **Latency** field of the Hardware Editor. Select **Edit** and the Latency Table will open.
3. Set the **Latency** for the desired sample rate to 0 (zero) and click OK.
4. Make sure the sample rate of the audio interface has updated. Change the ASIO Buffer/USB Streaming mode for the audio interface in the **ASIO Control Panel** (if applicable). Typically there is no buffer control for WDM / WASAPI.
5. Run the **Self Test** sequence from the Calibration folder in SoundCheck. This will give you the Latency for the new Buffer size or Sample Rate. (Some audio interfaces may require "fine tuning" of the Latency value by following Step 5 and then repeating Step 4.)
6. Enter this value in the Latency field of the Hardware Editor Sample Rate/ Latency Table. Repeat this process for other required Sample Rates.
7. All channels, analog or digital, must have the same latency value per sample rate for that audio interface. This ensures the system will work correctly if they are used simultaneously in a sequence.

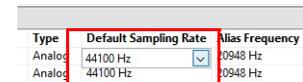


Figure 1-9: Sampling Rate

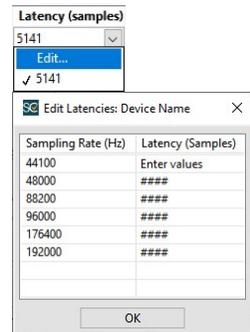


Figure 1-10: Edit Latencies Table

macOS Setup

Note: Driver testing and the stated Hardware Editor settings were performed using macOS® Catalina 10.15. Different versions of the macOS® may require different Hardware Editor Latency Values than those specified in [Latency macOS on page 9](#). Follow the instructions in [Latency Changes on page 5](#) to determine the proper latency values for the Hardware Editor.

System Extension Blocked error message after installing audio interface driver

Starting in macOS® 10.13 'High Sierra', Apple introduced a system that will automatically prevent users from installing software that wasn't downloaded from the App Store. You will need to manually allow for this from the **System Preferences** menu. Once selected, all other software by the same developer will be allowed to pass automatically without having to repeat the steps.

You may see the error message in [Figure 1-11](#) after installing an audio interface driver and restarting the computer. This will most likely prevent the audio interface from working correctly.

To fix the problem, as the error message suggests, click on:

Apple Logo > System Preferences > then click 'Security and Privacy'.

Click the 'Allow' button as shown in [Figure 1-12](#).

In our own test installations we have noticed the button does not always appear. In this case, you may need to reinstall the audio interface driver again and navigate to the **Allow** button as noted above.

Note: If the "Allow" button is NOT pressed within 30 minutes after the driver installation, this button will disappear and you will need to install the driver again for the button to appear. You may have to click the lock icon as well.

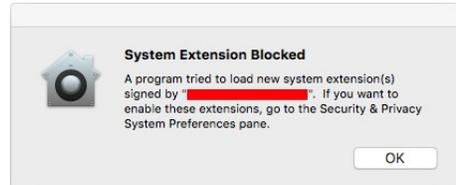


Figure 1-11: Blocked Kernel Extension

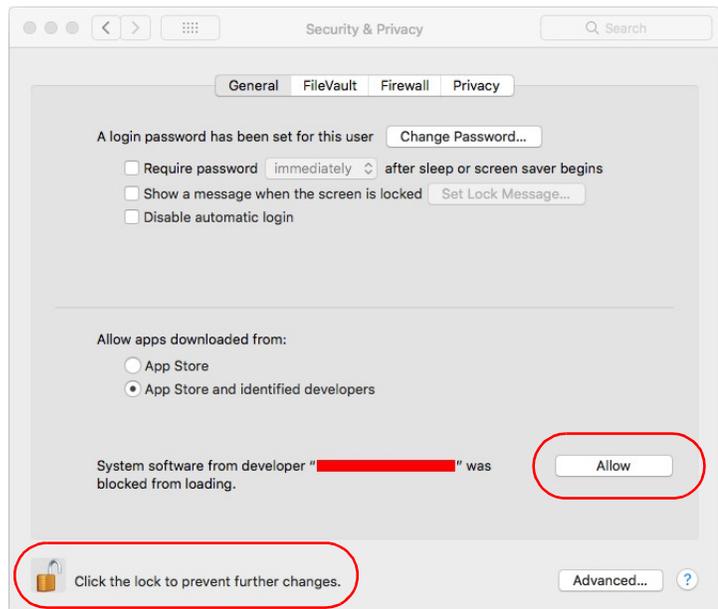


Figure 1-12: User Approval To Load A KEXT

Once this is complete, continue with the setup of the new hardware.

Matrix

The Matrix allows for routing of software playback channels to the necessary output channels to create a one to one relationship.

The Matrix page of the mixer is set as shown in [Figure 1-14](#). This is also included in the workspace file: "FF UCX Core Audio Mixer tmws".

- Software Playback channels (vertical) are routed to Hardware outputs (horizontal). (Green cells set to 0dB.)



Figure 1-14: Matrix Screen

USB Settings

- The Sample Rate must be updated in the USB panel when changed in the SoundCheck Hardware Editor
- Restart SoundCheck after setting the sample rate in the **Hardware Editor** and the **Sample Rate Field** of the audio interface app
- Clock Source should be set to Internal when the **Fireface UCX II** is used as the only audio interface
- Optical format can be switched to SPDIF

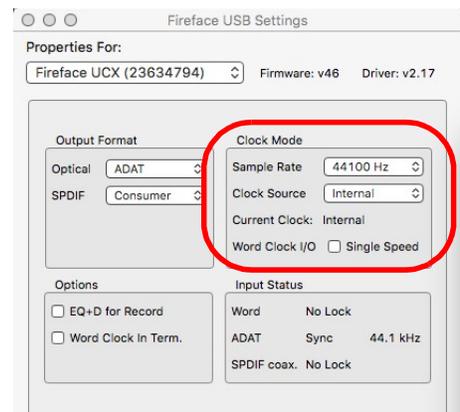


Figure 1-15: USB Settings

SoundCheck Hardware Editor

The Hardware Editor in [Figure 1-6](#) shows the general settings for the Input and Output Vp values as well as the Latency.

- Note that the default Calibration Configuration (.CAL) file in SoundCheck has only 2 signal paths of direct input and output. New signal paths will need to be created in Calibration if you plan to use the additional hardware channels.
- Sampling Rate:** Only one rate can be selected for all Input and Output channels of an interface

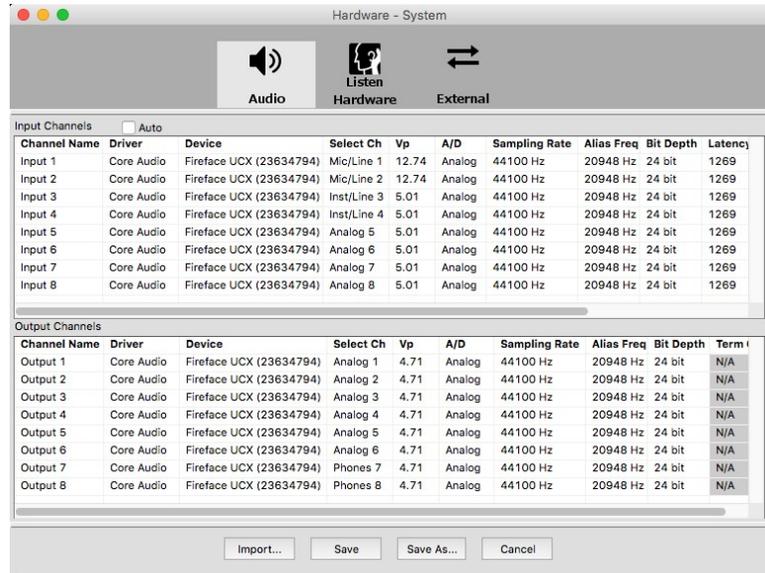


Figure 1-16: Hardware Editor

XLR Inputs 1 and 2

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[Figure 1-7](#) shows the nominal Vp values for the XLR inputs.

We recommend that you setup new input channels in the Hardware Editor with “XLR Input” in the Channel Name. Next run the “Audio Interface Calibration” process from the Hardware Editor to get more accurate XLR Input Vp values. Instructions are in the Hardware Editor chapter of the SoundCheck manual.

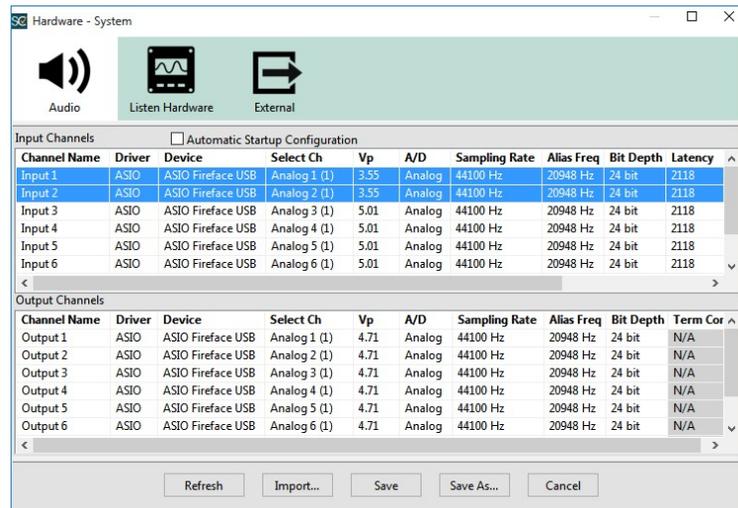


Figure 1-17: XLR Input Vp Value

Latency macOS

For instructions on how to change Latency Table values see [Latency Changes on page 5](#).

Latency in Samples for Typical Sample Rate and Buffer Values				
USB Connection	44.1 kHz	48 kHz	96 kHz	192 kHz
Samples	1269	1386	2885	5794
Enter the Samples value in the Hardware Editor Latency field for the selected Sample Rate.				

Figure 1-18: Latency in Samples