

Software Install Basics

Upgrading From an Earlier Version

If you are upgrading from an earlier version of SoundCheck 11.0 (or Beta version) you should copy the old installation folder and name it "SoundCheck 11.0 OLD" before installing the new version. This is a precautionary measure to keep you from overwriting sequence steps that you have customized.

Please see [Upgrading From an Earlier Version on page 2 of the SoundCheck Manual](#).

Computer Setup

Please refer to [Appendix: Hardware Compatibility List on page 345 of the SoundCheck Manual](#) for specific information on setting up hardware with SoundCheck on Windows operating systems.

Software Installation

Important! Make sure the SoundCheck USB hardware key is not connected to the computer. If it is connected while SoundCheck is installed, the hardware key could be destroyed. The software install reminds the user to remove the key before continuing with the SoundCheck installation.

Important! Do not unplug the hardware key while SoundCheck is running. Doing so could destroy the hardware key.

1. Place the SoundCheck installation disc in the DVD-ROM drive of your computer.
 - If your computer is setup to Auto Run, you will be prompted to install the software
 - Or, start the software installation by running **Setup.exe** in the root of the Listen DVD-Rom
2. Follow the instructions on the screen. Click **Next** to proceed.
3. During installation, you will be prompted for the location of the *status.dat* file, which is unique to the hardware key.

For example, the file **status SC999999.dat** is automatically renamed to **status.dat** and then copied to the *SoundCheck 11.x\System* folder. The *status.dat* file is normally sent by email from Listen, Inc.

If the unique *status.dat* is lost, a new one can be sent by email.

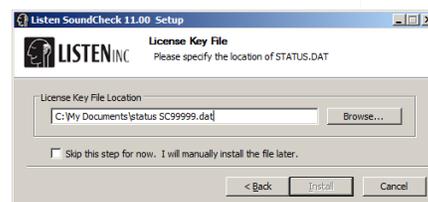


Figure 1-1: Status.dat File

Important! The file path for the Status file is part of the **Edit - Folders** setup. See ["Status.dat folder path" on page 10 of the SoundCheck Manual](#).

Hardware Key

In order to make real measurements the hardware key must be installed. Without the hardware key, SoundCheck will run in demo mode. You can save, print and recall data. However, you cannot save sequences or sequence settings. All data generated in demo mode is randomly adjusted in level and is therefore not valid.

Hardware Key Installation

1. Insert the included hardware key into the USB port of the computer *AFTER* SoundCheck is installed. The computer will recognize the new hardware.

The hardware key should have a solid green light. (A flashing hardware key indicates that the driver has not yet been installed.)



Note: If the USB key is moved from one USB port to another, the driver will need to re-install for the new USB port.

Important! Do not lose the hardware key for the SoundCheck system. It unlocks the functionality of your SoundCheck software. For insurance purposes, this key represents the full value of your system and should be noted in your company's list of assets. We recommend that it be securely attached to the computer to avoid loss or theft.

Windows 7 & ASIO Devices

When using an audio interface with ASIO drivers, you must set the sample rate for the system in the audio interface control panel. This over-rides the value set in the SoundCheck Hardware Editor. [See “Appendix: Hardware Compatibility List” on page 345 of the SoundCheck Manual.](#)

CardDeluxe Installation

Install SoundCheck before installing the CardDeluxe sound card. The SoundCheck installation also installs the CardDeluxe driver.

For more information on CardDeluxe settings refer to [Appendix: CardDeluxe Installation on page 353 of the SoundCheck Manual.](#)

See [Audio Device System Settings on page 349 of the SoundCheck Manual](#) for information on Windows settings.

If configuring a different sound card for use with SoundCheck [See “Appendix: Hardware Compatibility List” on page 345 of the SoundCheck Manual.](#)

Upgrading to SC 11

SoundCheck 11 features a fundamental change to the way hardware and calibration are handled. They are now system-level setups rather than individual steps in a sequence. This means that you set them up once in SoundCheck, and your hardware and calibration settings will be used for all sequences.

This tutorial explains the best way to upgrade from a previous version of SoundCheck.

Important! BEFORE you open or import any of your old sequences, please do the following.

Import Hardware

When you first open SoundCheck you will likely see the message box in [Figure 1-2](#) (unless you have a CardDeluxe and Windows XP).



Figure 1-2: Open Editor

Click the 'Open Editor' button to bring up the Hardware Editor.

Next, import a configuration for your particular sound card, either from the default list in SC11 or from a Hardware Step in an older version of SoundCheck.

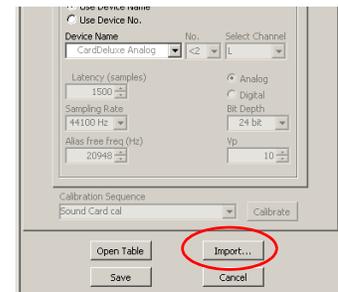


Figure 1-3: Click Import

Click the 'Import' button ([Figure 1-3](#)) to bring up the file dialog. You will see a folder for Windows XP and a folder for Windows 7. Go into the appropriate operating system and choose the setup that best fits your sound card. If you would like to use an older hardware step, navigate to its directory instead.

Once you have chosen a .har file, you may get a prompt to Overwrite channels as shown in [Figure 1-4](#).



Figure 1-4: Open Editor

You will likely want to overwrite since the existing channels are for a card you do not currently have.

Click the 'Open Table' button to review all of your channels as shown in [Figure 1-5](#). You may delete any that are no longer needed (right click - delete channel).

Hardware Channel Table									
Input Channels									
Channel Name	Driver	Device Name	Select Ch	Vp	Analog/Digital	Sampling Rate	Alias Freq	Bit Depth	Latency
Input 1	WDM/MME	Multiface Analog (1+2)	L	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 2	WDM/MME	Multiface Analog (1+2)	R	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 3	WDM/MME	Multiface Analog (3+4)	L	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 4	WDM/MME	Multiface Analog (3+4)	R	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 5	WDM/MME	Multiface Analog (5+6)	L	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 6	WDM/MME	Multiface Analog (5+6)	R	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 7	WDM/MME	Multiface Analog (7+8)	L	5	Analog	44100 Hz	20948 Hz	24 bit	111
Input 8	WDM/MME	Multiface Analog (7+8)	R	5	Analog	44100 Hz	20948 Hz	24 bit	111
Output Channels									
Channel Name	Driver	Device Name	Select Ch	Vp	Analog/Digital	Sampling Rate	Alias Freq	Bit Depth	
Output 1	WDM/MME	Multiface Analog (1+2)	L	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 2	WDM/MME	Multiface Analog (1+2)	R	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 3	WDM/MME	Multiface Analog (3+4)	L	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 4	WDM/MME	Multiface Analog (3+4)	R	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 5	WDM/MME	Multiface Analog (5+6)	L	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 6	WDM/MME	Multiface Analog (5+6)	R	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 7	WDM/MME	Multiface Analog (7+8)	L	4.9	Analog	44100 Hz	20948 Hz	24 bit	
Output 8	WDM/MME	Multiface Analog (7+8)	R	4.9	Analog	44100 Hz	20948 Hz	24 bit	

Figure 1-5: Hardware Table

If everything looks good, click 'OK' then 'Save'. Note that you can import more than one .har file and append more channels to the list.

Import Calibration

Now that you have your hardware setup you will want to import the calibration configurations used by your existing sequences. Now that calibration is system-level, you will need to have all the channels used by your sequences in a single configuration.

When you first open the Calibration Editor, if you click on the 'Open Table' button you will see that there are a number of signal channels already there for use with the example sequences that come with SoundCheck. (Figure 1-6)

You may choose to keep or delete these with the exception of **Direct In and Out 1 and 2**.

NEVER DELETE THESE CHANNELS, as they are used by calibration sequences and must remain set to unity gain.

Signal Channel Table						
Input Channels						
Signal Channel	HW Channel	Calibrated Device	Sens	Sens Unit	Sens (dB)	Sens (Hz)
Direct In 1	Input 1	unity cal (Read only)-in.c	1	V/V	0.0	1k
Direct In 2	Input 2	unity cal (Read only)-in.c	1	V/V	0.0	1k
Reference Mic	Input 1	SCM 2 Mic.dat	20m	V/Pa	-34.0	1k
Impedance Box	Input 2	unity cal (Read only)-in.c	1	V/V	0.0	1k
Ear Sim L	Input 1	Hats Ear .dat	10m	V/Pa	-40.0	1k
Ear Sim R	Input 2	Hats Ear .dat	10m	V/Pa	-40.0	1k
BT Headset Mic	Input 1	DUT Mic (Digital).dat	1	V/FS	0.0	1k
DUT Mic	Input 1	DUT Mic.dat	1	V/Pa	0.0	1k
Output Channels						
Signal Channel	HW Channel	Calibrated Device	Sens	Sens Unit	Sens (dB)	Sens (Hz)
Direct Out 1	Output 1	unity cal (Read only)-out	1	V/V	0.0	1k
Direct Out 2	Output 2	unity cal (Read only)-out	1	V/V	0.0	1k
Amp ch 1	Output 1	Crown Amp- L.dat	20	V/V	26.0	1k
Amp ch 2	Output 2	Crown Amp- R.dat	20	V/V	26.0	1k
Headphone Amp L	Output 1	Headphone Amp Default	1	V/V	0.0	1k
Headphone Amp R	Output 2	Headphone Amp Default	1	V/V	0.0	1k
BT Headset	Output 1	Bluetooth Out .dat	1	FS/V	0.0	1k
Mouth Sim	Output 1	Mouth Simulator.dat	91.2	Pa/V	39.2	1k
Source Speaker	Output 1	Mouth Simulator.dat	91.2	Pa/V	39.2	1k

Figure 1-6: Calibration Table

From the main Calibration Editor (not table view) click 'Import'.

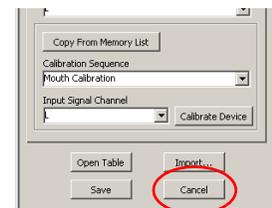


Figure 1-7: Import

Navigate to the .cal file used by your older sequences. If you used more than one calibration step in the past you will simply need to repeat this procedure. See Figure 1-8.

Just like hardware, if any of the signal channel names already exist, you will be prompted whether or not they should be overwritten with the imported version. See Figure 1-9.

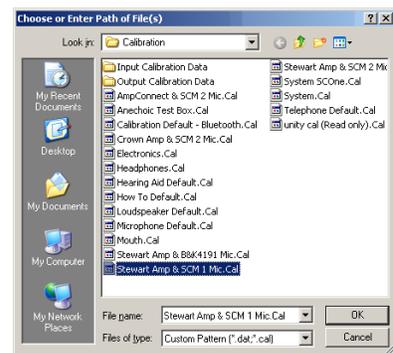


Figure 1-8: Select File

Next, you will be asked whether or not to import the calibrated device files (.DAT) associated with these signal channels. Click 'Yes'. If any of those devices already exist you will again be asked whether or not to overwrite.

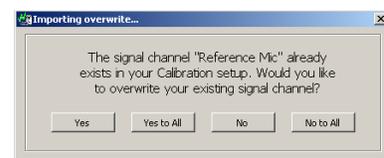


Figure 1-9: Select File

Once the channels are imported, they will each need to be assigned a hardware channel. To facilitate this, SoundCheck will automatically open the table and highlight in yellow the fields that need to be modified. See **Figure 1-10**.

Assign the channels, then click 'OK' to close the table, then 'Save'. Your calibration is now imported!

Signal Channel Table				
Input Channels				
Signal Channel	HW Channel	Calibrated Device	Sens	Sens Unit
Direct In 1	Input 1	unity cal (Read only)-in.v	1	V/V
Direct In 2	Input 2	unity cal (Read only)-in.v	1	V/V
Reference Mic	Input 1	SCM 2 Mic.dat	16.2m	V/Pa
Impedance Box	Input 2	unity cal (Read only)-in.v	1	V/V
Ear Sim L	Input 1	Hats Ear.dat	10m	V/Pa
Ear Sim R	Input 2	Hats Ear.dat	10m	V/Pa
BT Headset Mic	Input 1	DUT Mic (Digital).dat	1	V/FS
DUT Mic	Input 1	DUT Mic.dat	1	V/V
L	Please make a	unity cal (Read only)-in.v	1	V/V
R	Please make a	unity cal (Read only)-in.v	1	V/V
Output Channels				
Signal Channel	HW Channel	Calibrated Device	Sens	Sens Unit
Direct Out 1	Output 1	unity cal (Read only)-out	1	V/V
Direct Out 2	Output 2	unity cal (Read only)-out	1	V/V
Amp ch 1	Output 1	AmpConnect.dat	28.1	V/V
Amp ch 2	Output 2	AmpConnect.dat	28.1	V/V
Headphone Amp L	Output 1	Headphone Amp Default	1	V/V
Headphone Amp R	Output 2	Headphone Amp Default.dat	1	V/V
BT Headset	Output 1	Bluetooth Out.dat	1	FS/V
Mouth Sim	Output 1	Mouth Simulator.dat	48.9	Pa/V
Source Speaker	Output 1	Mouth Simulator.dat	48.9	Pa/V
L	Please make a	Crown Amp- L.dat	20	V/V
R	Please make a	Crown Amp- R.dat	20	V/V

Figure 1-10: Modify Highlighted Fields

Sequences

At this point you can start bringing over the sequences from your older version of SoundCheck. If you have not done so already, export the sequences from the old version. We recommend that you combine the contents of all the exported folders into one, such that you only have one folder containing all your steps and sequences. Then you can either open the sequences from this exported folder or easily import the sequences into SoundCheck 11. Since you already brought in your hardware and calibration, the sequences will open already connected to their appropriate channels.

Microphone Calibration Procedure

This procedure will allow you to check your measured microphone's sensitivity against the microphone manufacturer's specifications.

1. Open the *Calibration Editor* and select the Input tab. The **Calibration Sequence** should be set to **Microphone**.
2. Click **Calibrate**.
3. Select your calibrator model # from the drop down menu or select **Other Calibrator** and enter the acoustic calibrator's reference level and frequency.
 - The microphone calibrator's reference level should be indicated in its specifications as a given dB SPL value (relative to 20 μ Pa) at a reference frequency.
 - e.g., for the Brüel & Kjær Type 4231 Acoustic Calibrator:
 - Sound Pressure Level: 94.00 dB \pm 0.20 dB
 - Frequency: 1000 Hz \pm 0.1%
 - (When calibrating an artificial ear mic, you may need to select "B&K 4231 and UA1546".)
4. Enter the gain or attenuation in dB that corresponds to the settings on your microphone power supply or measuring amplifier in the **Pre-Gain** numeric field.
5. Select your measurement microphone model number from the drop down menu. If your microphone is not listed in the drop down menu, choose **Add New Mic**.
6. Place your acoustic calibrator on your reference microphone and click **Calibrate** to measure its sensitivity.
 - The measured sensitivity of your reference microphone is displayed under **Measured Sensitivity** in mV/Pa after clicking **Calibrate**. If the measured sensitivity is outside the manufacturer's specifications, a flashing FAILED message will appear. Check first to see if your connections are correct or if the calibrator is turned on before assuming something is wrong with the microphone.
 - The FAILED message can also appear if the Calibrator's frequency is not correct. If a Reference Frequency of 1000Hz is entered, but the Calibrator's actual frequency is 1008Hz, the Calibration may Fail. To verify the Calibrator's frequency, use the *Spectrum Analyzer* under the **Operate** menu.
 - The meter on the right side indicates the corresponding dB level relative to 1 Volt per Pascal. If it varies by a few tenths of a dB from your last calibration measurement, do not be alarmed, this is normal. If it varies by more than 1 dB or failed the sensitivity test, you may want to have your microphone checked by a qualified calibration lab.

Add New Mic

This allows the user to enter a different microphone into the list. The sensitivity limits can be entered for each new mic so that calibrations are made according to the microphone's specifications.

- The check box for **1/2" Free Field Microphone** should be checked only when using this type of microphone

The calibration level is set to 93.85 dB SPL @ 1kHz when measured in a pressure field, (such as a B&K 4231 Acoustical Calibrator).



Figure 1-11: Add New Mic

Amplifier Calibration Procedure

A general wiring diagram and outline of the steps for amp calibration can be found in [Appendix: Amp Calibration - CardDeluxe Connections on page 373 of the SoundCheck Manual](#).

1. In SoundCheck, open the System Calibration Editor from the **Setup** drop down menu on the SoundCheck Main Screen.

Important! Do not open the Amplifier Calibration sequence. Run the calibration from the System Calibration Editor.

2. Select the Output Tab and select the Output Signal Channel to calibrate. In the example in **Figure 1-12** "Amp ch 1" is selected.
3. Select the proper Calibrated Device: "Crown Amp-L.dat"

If a new device is used with the system, click **Add** and enter a name. Calibration values will be stored for this new device when the calibration process is complete.
4. Select the Output Hardware Channel that provides signal to the Amplifier Input: "Output 1"
5. Calibration Sequence should be set to "Amplifier Calibration"
6. The Input Signal Channel should be set to a Direct Input that is set for Unity Gain. The sensitivity of this channel must be unity gain in order to get an accurate calibration.
7. **Turn the power amplifier off.**
8. Connect SoundCheck **Output 1** to the input of the Amplifier.
9. Connect the corresponding output of the amplifier to SoundCheck **Direct In 1**. The amplifier output should not have an added Load.
10. Turn the power amplifier on. If it has a gain control, set it to maximum. This is the most stable position for a gain control.

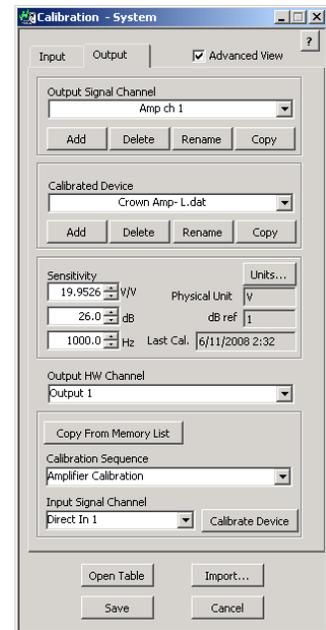


Figure 1-12: Amp Calibration

Note: Some applications may require a lower gain amp. In that case, setting the volume control to a lower level is acceptable, but less stable. If anyone bumps the control, the calibration will be off.

11. Click **Calibrate** to measure the amplifier's sensitivity (gain) and frequency response.

The measured sensitivity of your amplifier is automatically entered in the output sensitivity field. If the measured sensitivity fails, check your wiring and connections and try calibrating again.

If the measured response margin fails, check to see that the amplifier is not connected to anything other than the sound card and that it is properly grounded. If there is a bump around 120 Hz (or 100 Hz if line frequency is 50 Hz), you might be picking up hum due to poor grounding or bad cabling.

For more troubleshooting information, go to <http://www.listeninc.com> and click **Support**.

Users with High Gain amplifiers should refer to [Amplifier Calibration on page 8 of the SoundCheck Manual](#).

Amp Calibration - CardDeluxe Connections

1. Make sure amplifier is OFF.
2. to 3. Connect the Left output of the sound card to the input of the amplifier. (amp channel 1)
4. to 5. Connect the output of the amplifier (amp channel 1) to the **Right** input of the sound card.

Note: The ground of the banana adapter must be connected to the amplifier minus (-) connection or a "loop" condition will occur that could result in damage to the amp and sound card.

6. Turn the amplifier **ON**.

Follow the procedure outlined in [Amplifier Calibration Procedure on page 7](#).

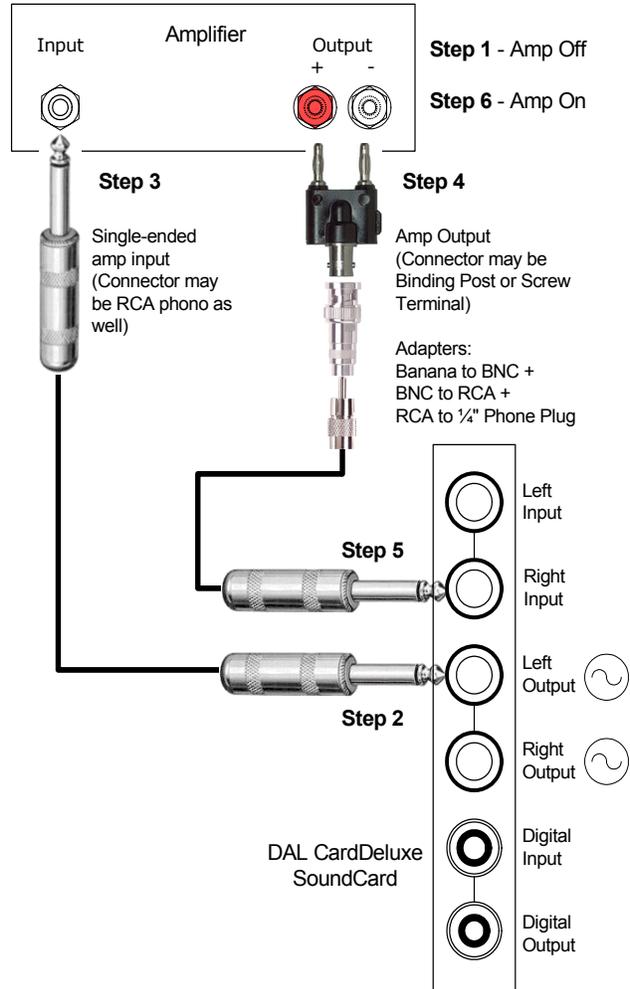


Figure 1-13: Amplifier Calibration Connections

Contact Information

Contact the Listen office at 617-556-4104, Monday through Friday, between 9 AM and 5 PM EST.

or email:

Sales - sales@listeninc.com

Technical Support - support@listeninc.com

580 Harrison Ave, Suite 2A • Boston, MA 02118 • 617-556-4104 • Fax 617-556-4145 • www.listeninc.com

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