

StroboSoft is a software application developed by Peterson Electro-Musical Products. The application runs on a Mac or PC and simulates the functionality of a conventional spinning-wheel strobetuner. (See set-up instructions on page 3.)

StroboSoft is highly sensitive, and proper set up and usage is vital to achieving optimal performance for tap tuning.



Fig. 1

**About tap tuning:**

Tap tuning is the process of adjusting the stiffness of the parts of an acoustic musical instrument by measuring the frequency (note) the parts produce when struck (tapped). Here are some fundamental rules:

- 1) The stiffer the part, the higher the note.
- 2) As air chambers are made larger, the resonant frequency of the air chamber is lowered.
- 3) As apertures (f-holes, soundholes) are made larger, the resonant frequency of the air chamber is raised.

Several other attributes apply. For more information, read *The Art of Tap Tuning* by Roger H. Siminoff (Hal Leonard Publishing).

Only version 2 (StroboSoft v2) has the tap tune function. The tap tune function is not available on the iPhone version of StroboSoft.

**The StroboSoft Display:**

The functions of StroboSoft are displayed on a screen that resembles a mechanical strobetuner and provides the user with an interface that feels more like operating a mechanical device



Fig. 2

than a software application. The upper center of the unit (Fig. 2) shows the note/octave window, a selectable window for cents or Hertz (cycles per second). (MIDI and OFF are also selectable, but not used for tap tuning.)

A large graphic window replicates the functionality of a spinning wheel strobetuner. When the graphic image moves up, it indicates the note is sharp; when the graphic image moves down, it indicates that the note is flat. If the image appears static (as shown in Fig. 2), it indicates that the note is at correct pitch. When the note is a correct pitch, the small light to the right of the graphic image will illuminate.



Fig. 3

The three buttons on the bottom right select different screen displays. For tap tuning, the “Chromatic Tune” button should be enabled.

The “Instrument tune” button” provides access to another screen which is used when seeking tunings for specific instruments. (This function is not used for tap tuning.)



Fig. 4

The “Setup” button provides access to another screen which displays the “Oscilloscope” and “Spectrum Analyzer” buttons (Fig. 4). These functions are helpful in tap tuning. (See last section of this document “Spectrum Analyzer.”)



Fig. 5

The upper left quadrant of the “Chromatic Tune” screen (Fig. 5) shows the “Tap Tune” function. There is a “Tap Tune Enable” button (which turns tap tuning on or off), a “Threshold Adjust” window (which indicates the correct intensity of the tapped sound), and an “Average Taps” window which is user-selectable.



Fig. 6

Below the “Tap Tune” button is a “Note Select” button (Fig. 6) which, if clicked, exposes a knob that can be rotated with the mouse to select

any of the 12 semitones. (This function can be used with tap tuning to seek specific notes, but it eliminates access to the tap tuning Threshold Bar.)



Fig. 7

Lastly, there are four set-up adjustments in the center of the screen (Fig. 7): “Global Cents Offset,” “Concert A,” Temperament,” and “Transpose/Drop/Capo.” Of these four settings, only the “Concert A” adjustment is used for tap tuning. A “Noise Filter” function can be found in the SETUP screen. See #4, page 5.



Fig. 7

**Set up:**

To enable Tap Tuning, click on the TAP TUNE button to the right of the NOTE SEL button to enable the tap tuning screen. Click on the TAP TUNING ENABLE LED to turn on the tap tuning function. The indicator light will turn orange indicating that tap tuning is on.

**Tap Tuning**

To excite the air chamber or part, the instrument is tapped with a padded hammer (special tap tuning hammers are available from Siminoff Banjo and Mandolin Parts), and the response is measured by StrobeSoft.



Because the peak and decay of the tapped tone is abrupt and has minimal sustain (unlike the sustain of string musical instruments) a “compressor” is typically added to mechanical (spinning wheel) tuners to increase the sustain of the tapped sound and keep it on the screen for a longer period of time. But even the addition of a compressor does not provide sufficient time to fully study the result. The instantaneous response from StroboSoft makes it the ideal application for tap tuning, and a new built-in signal-locking feature in StroboSoft 2.0 eliminates the need for an external compressor.

This signal-locking function exists in the form of an “averaging” feature. The system listens for the number of taps set by the user in “Average Taps” and will then: calculate the average note and frequency of those taps, display the results for the user, and then temporarily freeze (so that the information can be read without interruption) until additional taps are made.

### Thresholds

StroboSoft 2.0 features a threshold setting for the input to trigger and capture a signal at the desired level (user setable) to provide tap-to-tap consistency. The data is stored in a buffer, averaged, and then displayed on the screen and held until the next series of taps are made. The threshold is indicated by a yellow square (see Fig. 5) which can be moved by the user’s mouse to the desired threshold point. An orange bar indicates the intensity of the attack. The orange bar leaves a red line (visible in the left of the Threshold Adjust window in Fig. 5) which indicates the intensity level of the last tap. Ideally, this line should appear in the center of the yellow square indicating that the intensity of the tap was within the threshold setting.

When a measurement has been captured, a “peak-hold” indicator (red line) is shown in the “Threshold Adjust” window to indicate the level of sound that triggered the capture. The tap should be hard enough to move the “peak-hold” indicator above the yellow threshold square.

To avoid a complex signal from generating multiple responses from StroboSoft, there are really two thresholds; an ON and an OFF level. When the signal goes above the ON threshold (yellow square), capture starts. But another measurement won’t be permitted until the level goes below the OFF threshold.

For tap-tuning, the threshold is set for the system to read a signal when it’s level rises above the yellow square (the set or ON threshold

threshold). When a signal occurs above this threshold it will become “triggered.”

(Note: If you are using the spectrum and/or oscilloscope function, this will update the spectrum and oscilloscope displays to indicate what the captured data looks like. A red “X” will appear on the spectrum display to indicate the fundamental [lowest] note of the attack, and a red bar will appear on the tap-tune threshold control to indicate the actual level that caused the trigger.)

If a pitch measurement can be made of this data, it will be measured and the note, cents, and strobe graphic image (Fig. 2) will update.

This gives you two states: captured (no measurement) and captured (pitch measurement).

After the first acceptable trigger, no more measurements can be triggered until the level falls below the OFF threshold (which is below the yellow square threshold). This ensures that a suitable gap in the audio occurs and prevents incorrect triggering. By adjusting the threshold you can achieve reliable triggering with most input signals.

### Average Taps Function

Averaging allows an average reading to be taken from several (user setable) taps. When the number of averages is set to 3 or more, statistical techniques are used to reject bad “measurements” such that a single poor measurement won’t affect the results. For example, if you set averaging to 5 and perform 4 good measurements and, by accident, perform one additional bad measurement (for a total of 5), all measurements will be used to calculate the average result. In this way, averaging can be used to measure difficult sound sources.

The averaging function eliminates the need for a compressor. However, a compressor can be used with StroboSoft to sustain the note when taking single readings.

The Note/Octave window and the round graphic “strobe” window will turn grey and freeze as soon as the first and subsequent average readings are being taken. Once the selected number of taps have been heard by StroboSoft, the Octave/Note window and graphic “strobe” window will illuminate and report the findings of the average taps. This is when you read the note and octave and observe the graphic wheel

to see how sharp or flat the note is. When tapping begins again, the windows will turn grey and freeze again.

## Operating Instructions

To ensure optimum results, there are several important considerations when tap tuning:

1) Use a good quality directional or semi-directional microphone.  
2) Support the microphone on a noise canceling base or stand.

3) Position the microphone no closer than 3' to the object being tapped, and no farther than 4' from the object being tapped.

3) Ensure that there is no ambient noise in the room. Refrigerators, air conditioners, heaters, fans, machinery, and fluorescent light ballasts can cause sufficient background noise to interfere with the tap tuning process.

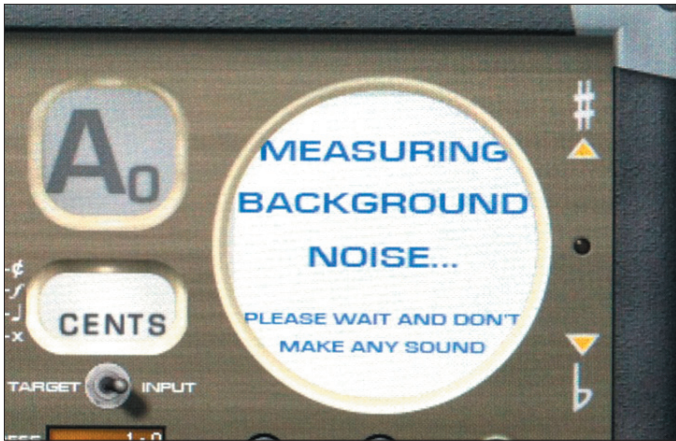


Fig. 8

4) To filter out ambient noise, you can turn on the Strobosoft Noise Filter. Press the SET UP button, and then touch the NOISE FILTER button (to right of "NOISE FILTER"). The button will illuminate orange and the main display screen will display the message "MEASURING BACKGROUND NOISE... PLEASE WAIT AND DON'T MAKE ANY SOUND" (Fig. 8). The noise filter will take from three to 10 seconds to profile the room. During the profiling process no extraneous noise should be made so that Strobosoft can properly detect the ambient background noise. Once the noise profile is complete, the window will revert to its normal grid display.

### Notes:

1) If you think a bad noise profile has been captured, or if you believe that some unusual noise occurred during the profiling process, you can stop and reset the profiling process by turning off the NOISE FILTER button and turning it on again when you are ready to re-profile.

2) When Strobosoft is shut down and the NOISE FILTER button is left ON, the system will automatically make a new profile when it is turned on again. (It is important to realize that profiling is taking place so that you can ensure there is a normal room noise level before you turn Strobosoft back on.)

3) Frequencies captured during the profiling process are NOT removed from the SPECTRUM. They are mildly attenuated (filtered) to enhance the tuning process.

5) Tap the part in the same place and with the same intensity for every tap.

6) Strike the object only hard enough to evoke a tone. If you strike too hard, you will evoke an unwanted overtone series.

7) Watch the threshold bar to ensure that the intensity of each tap falls in the same place (ideally, just above the yellow square).

8) Strike at intervals of no quicker than about 3 seconds.

9) Ensure that all activity is quiet between striking intervals.

10) Do not be concerned about achieving a specific octave; only focus on the note. (If the part is too stiff, the note will be obviously high.)

11) Be aware that Strobosoft is so sensitive that it will report different cents every time you tap. This is because it is virtually impossible for an individual to precisely replicate the duration of attack, intensity of attack, and location of attack for each and every tap. Each of these methods of attack will evoke a different overtone series which results in Strobosoft reporting different cents values.

12) Optimum tap tuning results will come from setting the concert pitch to A=431. (While today's concert pitch is A=440, superior results comes from tuning the parts of a stringed musical instrument 1/4 tone off of concert pitch. For more on this subject, read *What Was Loar Hearing* - a free download from our website at [www.siminoff.net](http://www.siminoff.net) > Products & Info > Free Downloads.

13) After the first tap (that begins the averaging function) the Note/Octave window and the round graphic "strobe" window will turn grey and freeze. This indicates that the system is reading the taps to average. Do not anticipate that the system should be reporting the results of each tap. Once the selected number of taps

have been heard by StroboSoft, the Octave/ Note window and graphic “strobe” window will illuminate and report the findings of the average taps. This is when you read the note and octave and observe the graphic wheel to see how sharp or flat the note is. When tapping begins again, the windows will turn grey and freeze again. Please re-read this paragraph and become familiar with this process - this is often the cause of users not being able to interpret how StroboSoft is working.

#### Notes:

- 1) After a measurement has been triggered, another measurement will not be triggered (even if it's level is above the trigger threshold) unless the level has first fallen below the off threshold, or 3 seconds has elapsed.
- 2) Setting the Average Taps control to 0 or 1 will result in no averaging (i.e., single measurements). At a setting of 0 or 1 the immediate results of each tap are displayed in the Octave/Note and graphic “spinning wheel” windows. Setting this value from 2 to 10 allows that number of measurements to be taken and averaged.
- 3) To further improve results, if 3 or more measurements are taken, erratic measurements inside those 3 or more will be rejected. In other words, if you perform a “bad tap”, it won't affect the average results.
- 4) To improve the gain when tapping tone bars and/or braces in string acoustical instruments such as guitars, mandolins, and members of the violin family, go into the SET-UP screen (right most button above POWER but-

ton) and turn on the “+24dB” boost button (located to the right of the NOISE FILTER button). This will increase the amplitude of the input signal and provide a greater range for the Threshold Adjustment (above). However, we only suggest the use of this gain adjustment when using internal microphones or microphones with poor response.

#### Spectrum Analyzer

The Spectrum Analyzer is an effective support tool that indicates the frequency and intensity of the notes. A red “X” appears at the peak of the fundamental (lowest note heard). Other tall peaks are typically the overtones, the second tallest of which is usually the octave.

#### Support

- 1) CD versions of StroboSoft are available from us at: [www.siminoff.net](http://www.siminoff.net) or 805-365-7111.
- 2) For technical support or more information on Peterson tuners, visit: [www.petersontuners.com](http://www.petersontuners.com) or contact them at:  
Peterson Electro-Musical  
11601 S. Mayfield Avenue  
Alsip, IL 60803  
708.388.3311
- 3) For supplemental reading: *The Art of Tap Tuning* by Roger H. Siminoff (Hal Leonard Publishing, Milwaukee, WI)

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## - ADDITIONAL INFORMATION -

### StroboSoft 2.0 Quick Start Guide

by Peterson Electro-Musical Products Inc.

Thank you for purchasing StroboSoft 2.0 from Peterson Tuners. Please follow these directions for installing, authorizing, and setting up StroboSoft 2.0 to ensure an error-free process. Internet access will be required for registering and unlocking the software.

#### Installing and Unlocking StroboSoft 2.0

##### To install on PC:

1. Log in as an administrator and insert the installation disc.
2. Navigate to the Install > Windows folder.
3. Double-click the StroboSoft.msi file to install StroboSoft 2.0 on your system.

##### To install on Mac:

1. Log in as an administrator and insert the installation disc.
2. Navigate to the Install > Mac folder.
3. Double-click the StroboSoft.dmg file to open.
4. Drag the StroboSoft.app icon to the root of your Applications folder. It will begin to unpack and install itself.

#### Please follow the directions below to register StroboSoft.

1. Double-click the StroboSoft icon after installation to open the authorization dialogue box.
2. Click the button marked REGISTER ONLINE.
3. Enter the supplied ten-digit serial.



4. Enter your user information and verify the MACHINE CODE area is filled in. (The machine code is unique to every system StroboSoft is installed upon and will need to be entered along with the serial before an unlocking code is supplied.)
5. After user details are verified, the unlocking code will be displayed in the browser and emailed to the address provided during registration.
6. Highlight the unlocking code displayed in the browser and use the 'copy' command to minimize entry errors.
7. Use the 'paste' command to paste the unlocking code into the UNLOCK window.
8. Click UNLOCK to launch the application.

### **Installing On A Computer Without Internet Access**

1. After installation of StroboSoft, copy-and-paste the MACHINE CODE from the registration dialog box on the computer where the installation is desired to a text document and save it to a removable media drive.
2. On a computer that has internet access, visit [www.stroboSoft.com](http://www.stroboSoft.com) and click the button marked REGISTER on the left side of the screen. Enter your serial number.
3. Insert and open the removable media. Open the file you saved with the machine code and copy-and-paste it into the appropriate area. Complete the basic user details.
4. After verification of details, copy the UNLOCK CODE to a text document to minimize entry errors. Save the file to removable media.
5. Open the file on the computer where installation is desired and copy-and-paste the code from the text file into the UNLOCK window.
6. Click UNLOCK to launch the application.

### **Audio settings for Windows and Mac OS X:**

After installation and successful unlocking of StroboSoft, please make sure your audio level settings are optimal by reviewing your Windows audio settings or Mac OS X audio preferences.

### **To view your Windows Recording mixer settings in Win XP:**

1. Go to Start > Settings > Control Panel > Sounds and Audio Devices.
2. The Sounds and Audio Device Properties dialog box will open. Select the AUDIO tab at the top.

3. Go to the second option, Sound Recording, and make sure the desired audio interface is selected. You can click the arrow at the right to view additional options (if installed).
4. Click the VOLUME button to open the Recording Mixer and view settings.
5. The Recording Control Mixer will open (titled Recording Control in top-left). Make sure the desired input is selected (Microphone or Line-in) by placing a 'check' in the select box. With StroboSoft open, adjust the input volume slider on the appropriate channel and a signal present to view the LED indicators in StroboSoft. (Make sure the input is not too high or clipping will result.)
6. Click the 'X' in the top-right to close the mixer. Close the Control Panel.

### **To view your audio input settings in Vista:**

1. Go to Start > Settings > Control Panel > Sound.
2. The Sound dialog box will open. Select the RECORDING tab at the top.
3. You can select the desired audio input by clicking on it. (A green check box denotes the default device.)
4. Highlight a device and select the PROPERTIES button in the lower part of the window.
5. The device properties open. Select the LEVELS tab. With StroboSoft open, adjust the input volume on the appropriate channel being careful not to clip the input going into StroboSoft.
6. Click the 'X' in the top-right to close the dialog box. Close the Control Panel.

### **To view your audio preferences on Mac OS X:**

1. Go to System Preferences > Sound > Input.
2. Select the desired input (Ex., internal microphone, line-in, etc.).
3. With StroboSoft open, drag the Input Volume slider to an appropriate level. View the LED indicators in StroboSoft and adjust the input so that it is not too high or clipping will result.)
4. Close the System Preferences.

### **For technical support or more information on Peterson tuners, visit:**

[www.petersonstuners.com](http://www.petersonstuners.com) or contact us at:  
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