

## Doctor Xap's Tuner beta version 0.0 help file

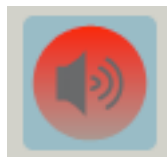
[www.harchanko.com](http://www.harchanko.com)

Thank you for downloading Dr.Xap's Tuner. This software was designed by Joseph Harchanko for use with music students and professionals alike to help design a systematic approach to better intonation. It is particularly useful to music teachers in demonstrating recurrent intonation problems in students, and to students in creating a goal oriented approach to improving intonation. This beta version of Dr.Xap's Tuner is available for free. Please email me at [DoctorXap@gmail.com](mailto:DoctorXap@gmail.com) and let

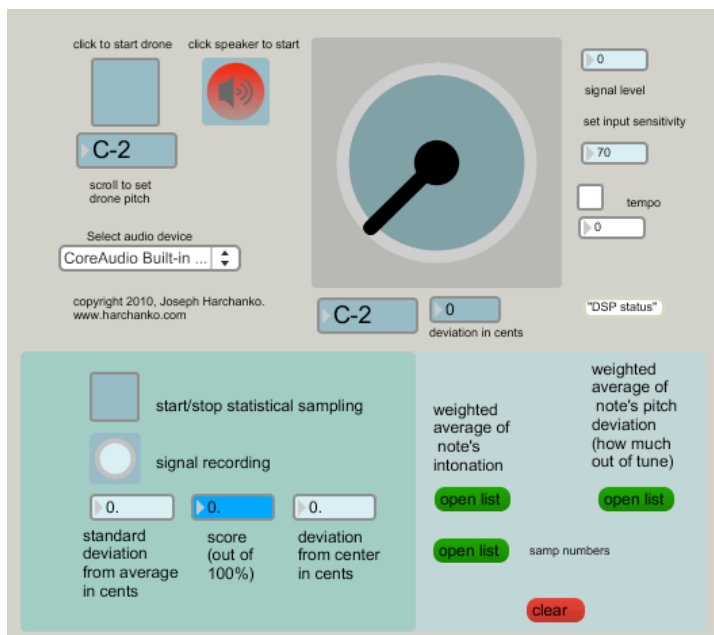
me know what you think. I do not share contact information with any other party. I will send (very infrequently) announcement of product updates. If you would like to opt out, please put "no subscription" in the subject line.

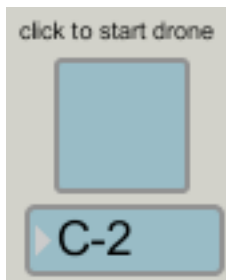
(BTW, "Xap" is pronounced "Har" in Russian and Ukrainian, but its pronounced "Zap" in MediaXap and Dr.Xap's Tuner.)

### Basics



The speaker button is used to start and stop all audio processes. Click the red button and it will turn green to indicate that the audio processing is turned on. If you would like to stop the processing (as you may want to do if you are leaving it open in the background and you don't want it using processor power) click it again. It will turn red to indicate that audio processing has stopped.





Click the drone box to turn an audible tuning pitch on and off. Use the lower box to set the tuning pitch. A3 is 440 Hz. You may click and scroll the box to select the pitch, or you may click on the box and type in the pitch, such as “a3”, and hit return. This feature is useful not only for tuning the instrument, but can be set to a tonic pitch for intonation practice in musical passages and scales.



This drop-down menu may be used to select your audio interface. It should default to your system’s default soundcard. Be sure to set your audio system to use the microphone (built in or external) connected to your computer. See your computer’s system help file to learn

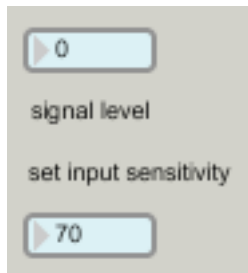
how to set the default audio input for your system. Most computers contain an internal microphone.



Click here to open an interface that may be used to adjust the sound card settings (coming in version 0.1)

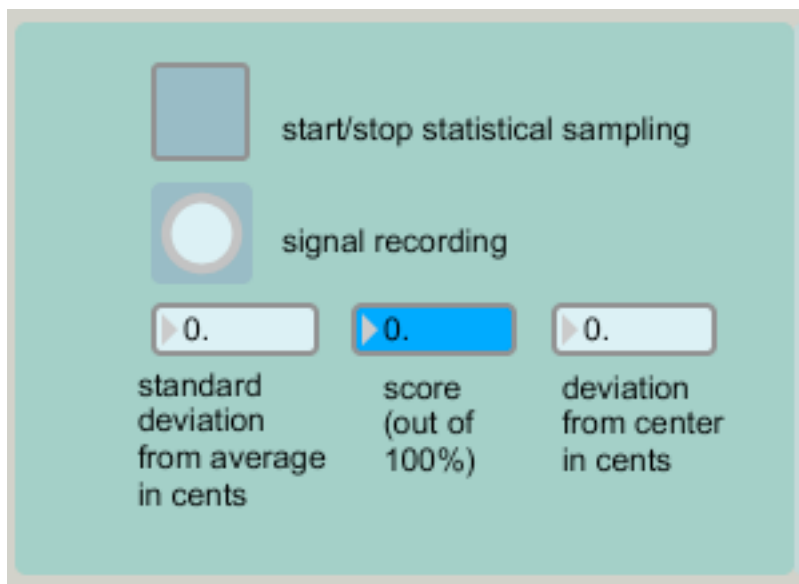


The dial points upwards (to 12:00) when the input pitch is in tune. The number box below indicates the number of cents sharp (positive) or flat (negative) from equal temperament. The box on the left indicates the pitch being played. Note that the needle is very sensitive. A steady tone is necessary to get a steady reading. In practice, this helps string students particularly to develop a clear and steady tone, but it also means that it is quite difficult for singers with a natural vibrato to produce a tone steady enough for a good reading.



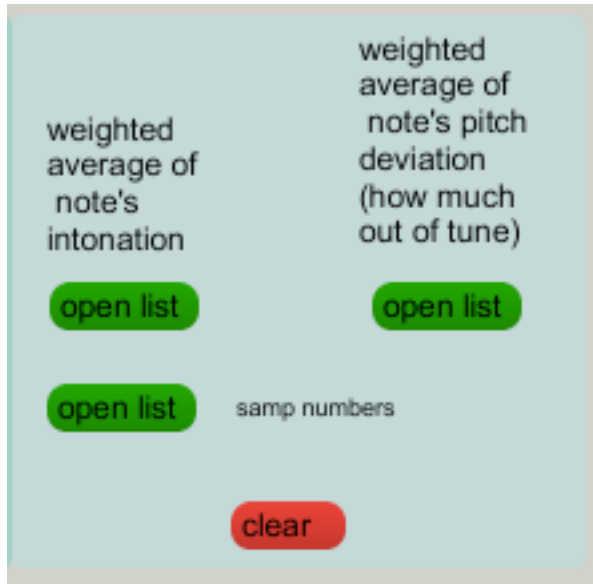
In order to have the software read only the instrument's signal and ignore any ambient noise, use the input sensitivity settings. The top box shows the signal level. Typical room noise is somewhere around 30dB. A violin playing in close proximity to the microphone may produce about 90dB (depending on the microphone's volume setting in the audio system settings). Set the input sensitivity (by scrolling or typing) to a number higher than the ambient room readings, but lower than the instrument readings.

## Statistical Sampling



The statistical sampler is useful for determining intonation tendencies, particularly over short passages. String players, for example, may choose to play a scale fragment from open string to fourth finger, but it may also be used for entire pieces. Click the top box or press the space bar to start and stop sampling. When the button is turned off, the blue box will give the player a score out of 100%. Deviations from the center pitch less than 5 cents will not be counted as they

typically lie within the perceptible range of subsequent pitches (five cents difference is noticeable through beating when two pitches are played simultaneously). Samples of the intonation are taken whenever there is a signal present that exceeds the input threshold set by the input sensitivity. The blinking yellow light indicates that samples are being taken. The number box on the right indicates the average deviation in pitch from equal temperament. The standard deviation from average indicates the deviation from the average of all the sampled pitches. In other words, if the player is consistently 10 cents flat, their deviation from center will be 10 cents, but their deviation from the average will be closer to 0. A high score (blue box) is desirable, but a low deviation number is what it takes to get a high score.



This section opens lists with detailed information about the pitch deviation of each pitch. This is useful for troubleshooting problem notes. If a musical passage contains multiple notes at the same pitch, they are averaged into the results. Click the green buttons to open the list. The sample number list shows how many times each note was sampled. Of course, the more a note is sampled (through longer sustain time) the more accurate the pitch reading will be. Click the clear button before using this feature each time, in order to remove previous sample numbers.