# Bryce Alexander Absolute Pitch Simulator

## Quick Start Guide

Welcome and thanks for joining our elite group of musicians. The skill and appreciation of listening to the harmonic depth of sound and music is one that you will find extremely rewarding. When you achieve a higher level of perfect pitch abilities, your skills will benefit you in the performance and composition of music as well as in other ways, which you may not yet have imagined.

**Technical Guide**

When you have downloaded the BASim.zip folder to your computer, extract this using winzip or similar application.

There are currently two versions of the Simulator in the folder. One is for use with ASIO driver, ASIO4All. This is a high-speed audio driver, which bypasses the various layers of Windows Audio buffers so that latency in real time audio applications like the Simulator is reduced. ASIO4All can be downloaded for free at http://www.asio4all.com. The driver only switches on when an audio application tells it to. This means that your PC sound will function as always with the other drivers at all other times.

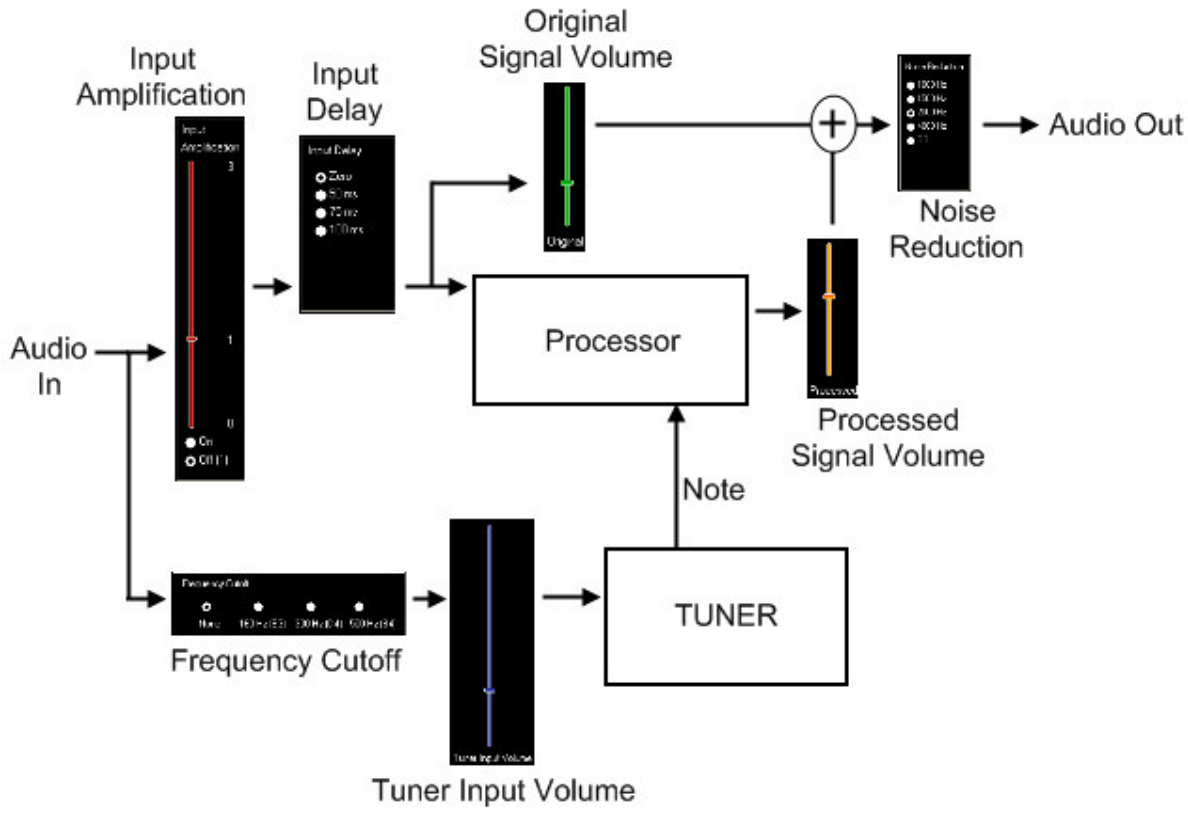
The second version of the Simulator uses the ordinary Windows DirectSound setup. This version works well with XP because there is less latency built in to XP than Vista or Windows 7. The choice is yours and a serial number to unlock both versions is available.

Double Click the BA icon to run the program. First, there is a nag screen asking for a serial number. Take a note of the hardware ID here and email it to bryce@brycealexander.co.uk. You will receive your serial by email. In the meantime, click, “Evaluate” to open the program.

For the ASIO version, when an application switches ASIO4All on, a green play symbol appears on the task bar. You can click this to open the driver options. For the Simulator, the buffer size can be changed from 512 to 1024 samples if need be. Close and restart the application after any changes are made in ASIO4All settings.

**Instrument Mode**

When this option is selected, you can play your instrument live through the Simulator. Your instrument should be input to the main microphone input of your PC and the volume level of the microphone should be set to about half way in the sound settings under Control Panel. The Simulator will process single notes from E2 to F#5. Play a note and check the volume levels. The following diagram shows how the Simulator works so you can understand what each setting does.




**Tuner Input Volume**
The most important setting to make the application run smoothly is the Tuner Input Volume. It should be set just high enough so that the tuner can detect which note is being played and no more. If set too high, the Tuner has to work so hard that the PC may be put under a high strain and the audio may suffer. High spec PCs will not have this problem but it is still best to set the Tuner Input Volume to the optimum level.

**Input Amplification**
This is an alternative to changing the input volume setting of the microphone input in the settings in Control Panel. Lower this if there is distortion in the output.

**Input Delay**
Set this so that the audio signal is in sync with the tuner. Try each setting as you play a string of different notes and simply choose the one that sounds best to you.

**The Mix**
Increase the orange volume level and decrease the green to hear more of the processed sound (the harmonics) and vice versa.

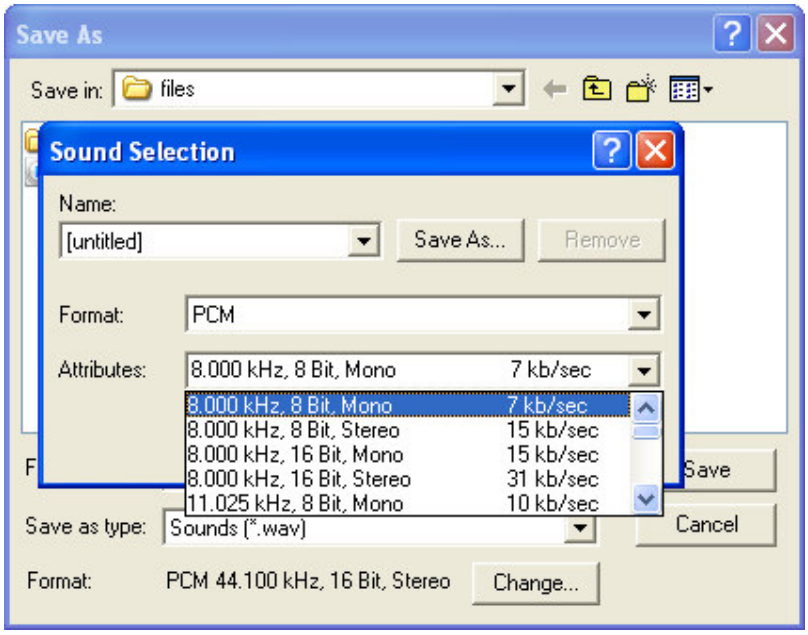
**Noise reduction**
You can cut out some noise if there is some hiss from your microphone or pick-ups. Note

that there are higher harmonics in the 5th octave above 2000Hz so be aware if you are cutting some of these out too. It is best to set this to 4000 or "Off" for playing higher notes.

**Frequency Cutoff**
This setting is usually not needed. It is to resolve any problems where an alias frequency is mistaken for the fundamental of the note. For example, you play E2 (~82Hz) and the result from the Tuner is ~164Hz (you see the Tuner result in the blue box). This will only occur if the fundamental frequency is particularly weak compared to another harmonic. In this case, you may need to select the 160Hz cutoff, which will only let frequencies of lower than 160Hz to the tuner. This means that notes higher than this (E3 and above) cannot be processed on this setting. Similarly for 300Hz and 500Hz settings.

**From File Mode**

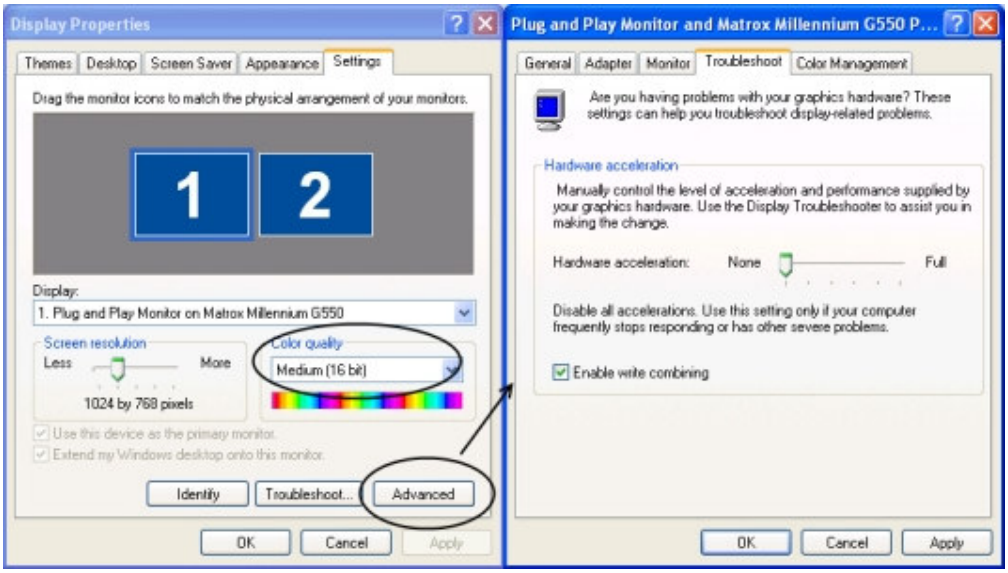
Within the BASim folder there is a sub-folder called, "Files". Place audio recordings in this folder and they will play at random when the "From File" option is selected. The audio files must be stereo 16 bit .wav files. The ASIO version of the Simulator plays files up to 44100 Hz sample rate and the format for the DirectSound version is 11025 Hz. The same settings are used in this mode. The purpose of the random order of files is so that you can test your recognition for a selection of notes. Record your instrument playing one note at a time and create a file for each note. Try to make each recording the same volume level so that the application processes them with the same settings. You can adjust the volume level and the format of .wav files in the Windows Sound Recorder. Different formats can be chosen under "Format". You can also delete sections from the beginning and end of the recordings. Files for all the notes are also available. These will be put in a folder names, "Samples", which is within "Files". Only those contained directly within "Files" will play.




**Minimizing Latency**
The latest version of the Simulator has maximum efficiency and should be able to run without problems on most ordinary PCs. However, there are some methods to decrease the latency of the DirectSound version and ease the pressure on the CPU of the computer if needed. If there are any problems, the first thing to check is where the power of the processor is being used up. To do this, open the Task Manager and see which applications are running. Are any of these taking up too many resources? Running Media Player or

watching YouTube at the same time as running the Simulator is not advised. Next, go to the "processes" tab in the Task Manager. Look at where the high percentage of the CPU is being used and check if this is a redundant process.  If you know what the problem is, select the process and click "end process".  If you are not sure, do not do this. It is safer to restart the PC to automatically end left-over processes from applications that are no longer running.

Performance of the audio can also be improved by reducing the picture quality. If need be, right-click the desktop and select properties. Go to the "settings" tab and change the Color Quality to Medium instead of Highest. The screen resolution may also be reduced here. A final last adjustment is within the "Advanced" settings. After clicking on "Advanced", select the "Troubleshoot" tab and reduce the "Hardware Acceleration". If you do this, go back to here after you are finished your session with the Simulator, and set it back to "Full".



# How to Practice with the Absolute Pitch Simulator

This is a guide for everyone using the Simulator. Some people are happy to go away and just play with the program, experiment and do their own thing. This is a good approach and I think we learn well through playing when we're young then forget how to when we grow up. Others would rather have a plan in place and require more guidance. This is no bad thing either because sometimes we need to know where we are heading. We need goals and direction to achieve great things – and learning perfect pitch is a great thing. If it was easy and fast, everyone would do it. We would all develop the ear of Mozart overnight. What the Simulator does is show you the way and allow you to make progress fast. After each session, you will have improved. You will know your ear has improved, you have heard something that day more clearly than before or heard something new. Your familiarity with a note or notes will be increased each time. You'll reach milestones that prove you are getting better. For example, one day, you'll tune up your guitar to concert pitch by ear and you'll know before even checking it that you have nailed it. These experiences keep your motivation high and will stop you from giving in. There is no going back, you can't unlearn what you achieve, so your skill can only get better and will improve as far as you care to take it.

**Notes to Begin With**

Everyone is free to use the Absolute Pitch Simulator however they choose. However, a common question is, “Which notes should I start listening to first?”. I strongly advise you to choose notes from D3 to A3 to begin with. So that's 8 notes: D, D#, E, F, F#, G, G#, and A. Choose a single octave within your vocal range so that you're starting out with notes you can play and sing. That is octave 3 for most of us. Become familiar with the notes from the Mini-course on your instrument (F#, D#, G, A) then add the others one at a time.

Play melodies live through the Simulator, which include these notes, and listen closely to the ones you are concentrating on. This doesn't mean the melodies you play should exclude other notes, any melodies are good for the exercise.

Place recordings of the notes you are interested in within the “Files” folder for playing from file at random. Hide the frequency result on screen so it won't tell you the note (minimize the window or put something in front of it). You may want to make your recordings a few repetitions of the same note so you can get a good chance to hear each one. As you listen, play each note on your instrument after you hear it. Obviously, you will know if you get one wrong. Don't worry, keep listening and you will make no mistakes. When you're ready, add another note. When you are at all 8 notes, add the other 4, one at a time in whatever order you choose. After this, add the other octaves in the same order, starting with F#.