



Broadcast  
Software  
International



## Frequently Asked Questions

### Audio Playback Glitches, Skipping, Stuttering, or Pauses

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#### Introduction

Audio playback consists of a file being read from the hard drive and played through the sound card. If the audio playback is experiencing skipping, stuttering, or pauses in audio playback, it is due to a computer or other hardware related resource issue. Keep your broadcast/air systems free from extraneous applications and build them to the recommended specs to avoid system resource issues.

**Note: We only recommend using NVMe SSDs that utilize an M.2 connection or PCIe connection or traditional hard disk drives with a recommended speed of 7200rpm.**

#### Our recommendations

Since you are likely reading this document because you are already experiencing audio playback glitches, skipping, stuttering, or pauses, we will get right to the point. You absolutely should read the entirety of this document to get to the root of what is causing your audio playback issues. This section covers the most common workaround that tech support employs when this issue occurs.

This document will start with the most common workaround for this issue of switching the audio engine to the legacy audio engine. BSI products currently use a WDM based audio engine. This has the advantage of doing audio processing in “software” which allows functionality such as channel mixing or allowing a play device to play multiple audio files at the same time. A disadvantage is that this driver type is more susceptible to buffer underruns when system resources are low.

To work around this issue, you can switch to the legacy WAVE driver-based audio engine employed by previous versions of BSI products. The disadvantage of this audio engine is that each play device can only play one audio file at a time, but the advantage is that all audio playback functions are offloaded to the audio hardware/driver, so the shortcomings of a system are masked. All mixing functions are handled by the audio device hardware rather than within Simian’s audio engine. The following steps are how you employ the legacy audio engine in conjunction with your audio devices:

1. Make sure you have the necessary audio drivers installed for your audio device.
  - a. AudioScience – Make sure you have the appropriate ASI Combo Driver installed for your OS version and make sure you install the Legacy WAVE Driver as this is required to use the legacy audio engine in Simian and WaveCart.
  - b. Axia/Wheatstone – Make sure you are using the latest driver available.
2. Within Simian, go to the Help menu and choose SpyGlass Diagnostics.
3. In the SpyGlass Diagnostics window that appears, go to the Expert tab. In the upper-left corner, you will see a selection for New Audio Engine/Legacy Audio Engine. Select Legacy Audio Engine, then click OK.
4. Exit and re-open Simian to apply the audio engine change.
5. You will now need to re-select your playback and record devices within Simian’s Hardware Options. If you are using an AudioScience audio card, you will need to select the available WAVE driver versions of each play device rather than any available WDM driver.

## What Are the Root Causes of This Issue?

When the playback issue occurs, open the Windows Task Manager (right-click on the Windows task bar or press ctrl-alt-delete) and go to the Performance tab. Then go to the Resource Monitor to see the performance meter of the CPU, Disk, Network, and Memory tabs. One or more of the graphs may show that a resource is running at a maximum of 100%. Expand that resources list to see what service or application is using the most of that resource.

## CPU

A spiked CPU will make all operations of the computer slow to respond.

If Simian is the process causing the CPU to be running at max, it's likely due to the Log > Display Runtime & Position Info or Log > Display Backtime to Mark features enabled. These features are processor intensive due to the runtime calculations needed. Use these only when needed to measure the timing of a section of the log and disable them when done.

Prior to Windows 7, it was recommended to run processors in single core mode. Today, most modern systems will automatically be set to use multiple cores. Depending on your OS and hardware configuration, you may need to verify what mode is active to ensure optimal CPU performance.

Also keep in mind, an overworked CPU could also be due to poor cooling or airflow to the processor.

## Disk

An overworked and spiked disk causes a delay of the reading of the audio file from the hard drive. Make sure there are no large file copy or backup utilities running if the disk usage is high or spiked. Sometimes these utilities are running on a different computer on the network and access the air computer's hard drives to read or write to.

**NOTE: Only NVMe SSDs (or Solid-State Drives) that utilize an M.2 connection or PCIe connection are recommended. SATA SSDs will also cause the skipping of audio files and are NOT supported for use with Simian for either the OS or Audio drive.**

Large paging files can also cause disks to max out. Consult your IT department if pagefile.sys is using most of the disk process.

## Memory

While 4 GB should be enough to run Simian, WaveCart, and other BSI applications, keep in mind that modern Windows Operating Systems, such as 10 and 11, have higher memory requirements than previous versions. Always calculate the recommended need for the OS as well as applications that will be used when determining the amount of RAM your system will require. If the memory is maxed out, close auxiliary applications that are using large amounts of memory

## Network

For a broadcast/air computer, all the audio files should be stored to a local drive on the computer and the path to the audio folders should be through the local hard drive's letter assignment. If audio is stored to a drive on another computer on the network, high

network usage and latency will cause read and playback issues. Move the files to the local hard drive and set the path via the local hard drive's drive letter.

## File Formats

Other issues that can cause playback glitches and such are improper file formats. For wave files, avoid using the following formatting:

- **ADPCM** - This was the recommend file format in earlier Windows operating systems but has exhibited playback issues on Windows 7 and later systems. ADPCM is usually a 4-bit depth, which is part of the problem. Convert these to linear PCM 16-bit, 44100Hz wav files.
- **Non-16-Bit Formats** - .wav file formats can use a variety of file formats, from the 4-bit ADPCM codec to a 32-bit float, usually found in default Audition wave format settings. Convert anything that is not 16-bit depth to 16-bit.
- **Variable Bit Rate MP3 files** - Variable bit rate files may not experience audio playback issues but will report incorrect lengths. Only use constant bit rate for mp3 files.
- **Different encoding and file formats used** - Early generations of audio cards had trouble overlapping audio files encoded at different bit rates. Use a uniform file format at recommended bit rates to avoid these issues.

## Exceptionally Large Audio Database

Audio database libraries greater than the recommended limit of ten thousand files create a database file size that is exceptionally large and may cause Simian operation to pause while the database is updating. Please refer to the following FAQ article on SoundHound setup and audio library structure and troubleshooting:

<https://www.bsiusa.com/PDF/FAQ/Simian/File-Storage-and-SoundHound-Setup-Recommendations.pdf>

## What Should I Do to Avoid This Issue Before It Happens?

To avoid this issue completely, BSI recommends using a computer that uses quality, name brand components with adequate power supply and cooling. There are also some major pitfalls to avoid, including:

### SSDs

In the past, we did not recommend the use of early SSDs due to known issues related to their inherent read/write functionality. Systems that employed those SSDs in place of hard disk drives exhibited stuttering which usually got worse the longer a computer ran without rebooting. These issues are not as prevalent in modern SSDs, but we have noted in our

testing that SSDs that utilize the SATA bus for connection rather than the PCIe bus still exhibit playback issues. That is why **we recommend only using NVMe SSDs that utilize an M.2 connection or PCIe connection or traditional hard disk drives with a recommended speed of 7200rpm.**

### Audio Database Maintenance

The audio database is integral to many functions of Simian and WaveCart. Because of this, the overall performance of these applications requires that your audio database remains in good health. BSI recommends that you maintain your audio database at least once a month (or more often if you have many audio files in your library). The following FAQ document covers the recommended setup of SoundHound and the audio database:

<https://www.bsiusa.com/PDF/FAQ/Simian/SoundHound-recommended-setup-and-troubleshooting.pdf>

### Use Supported Audio Cards

BSI supports AudioScience audio cards, Dante, Axia and Wheatstone IP audio drivers. Even though BSI does not use any proprietary audio devices and use of other brands of onboard, consumer grade, prosumer, or non-supported pro grade audio cards is possible, it is not recommended nor supported by BSI. External audio devices (USB, etc.) are particularly problematic and can cause audio glitching due to low bandwidth of the shared data connection or bad physical cable connections.

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