USB audio “quiet popping/static” white-paper

Symptom explanation

Generally described as a quiet popping noise or static in the background during playback, and sometimes compared to the noise you might hear from a turntable with a dirty needle. In general, it's noted that the noise is not present when no sound is being played.

Known Potential Causes

- 4th Generation Haswell Intel integrated USB 3.0 controllers
- Apple's Fusion Drive
- WASAPI playback under Windows
- Interruption of real time processes by background processes
- Interruption of real time processes by an unoptimized driver
- Using a USB port that shares it's bus with another device

4th Generation Haswell Intel integrated 3.0 USB controller

Community presence on the web has indicated that the integrated USB controller included with 4th Generation Haswell chips-sets are in some cases related to this symptom with some USB class 1 and 2 audio devices.

Possible fix

If this is the cause of the symptom, putting a USB hub in-between the computer and the USB class 1 or 2 audio device has been shown correct it.

Apple's Fusion Drive

Apples factory installed hybrid-SSDs (Fusion Drives) have shown to be related to poor performance with USB audio interfaces in general, and this symptom is a common manifestation. Apple has acknowledged the issue, and has put through software fixes related to the issue. The software fixes have currently (as of 4/15/14) only solved this issue for some.

Possible fixes

First try making sure you're on the latest update from Apple.

If the most current software update doesn't fix this issue for you, the most surefire way would be to swap your computers Fusion Drive for a traditional platter hard-drive, or a fully solid state drive.

WASAPI playback under Windows

When using WASAPI playback on JRiver or foobar2000, this symptom has been shown to pop up from time to time as a result of unoptimized playback settings. Sometimes it can seem related to specific file formats. In this case, you would only notice the problem in JRiver or foobar2000. Other applications will behave normally

Possible fixes

The most common fix is experimenting with hardware buffer length. Most report minimum as the best setting, but results seem to vary, so try minimum first, and if that doesn't to the trick test out a few different settings.

The JRiver forum is a great place to get help. If an existing topic doesn't help you solve your problem, you can post details about your issue and a dedicated knowledgeable community can usually help get things worked out.

Interruption of real time processes by background processes or an unoptimized device driver

This symptom can also be the result of poor system performance. Either from overall system sluggishness due to things like having too many poorly written (or intentionally background intensive) applications installed, or from devices with unoptimized drivers interrupting real-time operations (network adapters are common culprits, but not the only offenders).

Possible fixes

There are many potential causes and fixes for this. Sometimes its as easy as disabling an unused piece of hardware (or updating it's driver with the most up to date version from the manufacturer). Sometimes it might be a anti-virus application polling the Internet too regularly. Latency checking applications can help you determine what might be causing the problem, and will sometimes offer suggestions on action that can be taken. Here are links to two such applications:

http://www.resplendence.com/latencymon_faq

http://www.thesycon.de/eng/latency_check.shtml

Using a USB port that shares it's bus with another device

Sometimes this symptom can be the result of the USB port being used for audio sharing it's internal bus with a either device built into your computer (i.e. Keyboard or track-pad), or with another port that's being used with another device. This can cause interruptions, or cause bandwidth related issues.

Possible fixes

The easiest way to prevent this is to ensure the USB audio device is on a USB bus by itself.

On a Mac you can find out what USB bus a device is on in system profiler.

For Windows users, check out the link below for more info.

Microsoft USB View