

Symptom:

The AudioFetch App can receive and play audio, but audio quality is not optimum because there are momentary audio drop-outs, or distorted audio quality.

Occasional audio drop outs can be caused by too many background apps running on a mobile device, an input signal level that is too loud or too soft or that may have poor audio quality, or Wi-Fi related issues including a momentary heavy load on the Wi-Fi network, interference by nearby Wi-Fi networks, or other Wi-Fi related network issues. If closing all apps on the phone and relaunching AudioFetch does not resolve audio quality, consider the following:

1. Check the Input Audio Source

- a. **Is the audio source good?** Try to listen to the audio source directly to ensure it is good quality or use an alternate audio source to identify if the issue is the audio source itself. Optical-type audio sources should be configured for PCM, not Dolby. Dolby encoded audio is not supported.
- b. **Is the audio source input level correct?** If the source of the audio signal has its own volume control, adjust the input volume level while listening to the audio. In the AudioFetch Doghouse configuration management App, check the input audio signal strength for each channel under the "Audio Settings" page. The Doghouse provides further audio level adjustment to get the peak audio status to the appropriate level of 70-95% by changing the default gain setting of 10.0 dB to an adjustment range from -100.0dB to 20.0dB.

2. Check for Wi-Fi-related issues –Keep in mind that AudioFetch does not depend on the internet. The audio is delivered strictly over the Wi-Fi network so slow internet service may not be involved in audio quality issues.

- a. **Do drop-outs occur on the 2.4 GHz Wi-Fi but not on the 5 GHz Wi-Fi band?** This is a clear indication of RF congestion in the 2.4 GHz band. If you are using the FetchExpress integrated Wi-Fi which is 2.4GHz only, consider connecting the FetchExpress to an outboard Wi-Fi with a 5GHz band.
- b. **Is there other Wi-Fi channel interference?** Use an app like "Wi-Fi Analyzer" (Android only) to scan for interfering/overlapping Wi-Fi networks. Adjust channel settings in your access point(s) to minimize conflicts.
- c. **Is the Wi-Fi network configured for real-time automatic channel selection?** Check that the access point(s) or network controller do not have a real-time auto channel hopping feature enabled, such as Cisco's "Clean Air" or Juniper Networks' "Channel Auto Tuning". Every time the network changes an access point's Wi-Fi channel, the real-time audio stream may be interrupted causing an audio drop-out. Alternately, adjust the real-time auto channel feature to change channels less frequently, such as the very early morning hours when no users are connected.
- d. **Are older 802.11 modes enabled on the Access Points?** Even a single mobile device connecting in 802.11b mode can consume a large portion of an access point's available air-time causing audio dropouts on other devices. 802.11b mode should be disabled in the access point(s).
- e. **Is WMM enabled in the access point(s)?** Ensure WMM is enabled. The WMM quality of service can greatly improve performance of real-time streaming. Try changing the special configuration setting in the AudioFetch configuration "Doghouse" Tools & Utilities page to "Force alternate WMM VOICE QoS". Different Access Point brands handle QoS differently. Sometimes adjusting this setting can improve the audio.
- f. **Is the DHCP server on the network configured for short lease times?** Frequent re-acquisitions of IP address can cause audio dropouts. Ensure DHCP server lease times are set to 4 hours minimum. 12 hours or longer may be better.
- g. **Is the Wi-Fi signal weak in some areas?** Notice if the issues are specific to locations within the facility. Determine if the Wi-Fi coverage is adequate at all locations within the facility. Noticing the number of bars of Wi-Fi signal strength on a device, or using a speed check App (like Speed Test) can help identify areas of weak Wi-Fi signal.
- h. **Are there potential sources of interference near the problem locations?** Microwave ovens, nearby businesses with interfering Wi-Fi, or other electrical devices or power cabling may cause interference.
- i. **Do drop-outs occur when a higher number of users, or certain users, are on the network?** Check loading balance on the access points. It may be that too many users are connected to an access point and overloading its capacity. Assign per-user-bandwidth limits to ensure single users do not hog bandwidth with large downloads, video streaming etc.
- j. **ACE Feature:** Should the above suggestions not solve your audio quality issues, consider adding a small amount of buffering to eliminate audio glitches. The Audio Settings page in the Doghouse provide the ACE feature where 4 different levels of audio buffer can be progressively added to minimize audio quality issues. The ACE feature buffer will add latency, or delay, to the audio.