How I came to create clear OPL3 recordings.

Ok, I am not sure how I want to start. Let’s jump back to January of 2012, when I first discovered MIDI. MIDI stands for musical instrument digital interface, and it is like sheet music for a computer. Most modern MIDI synthesizers use sets of pre-recorded samples called sound fonts, and that is what I started using. My MIDI obsession phased out in late 2013, when I got into speech synthesis, and I am still into speech synthesis to this day.

In early 2015, I saw a video of someone installing Windows 3,1 in DOSBox, a DOS emulator. At the end of the video, he demonstrated DOSBox’s ability to emulate the OPL3 FM synthesis chip. He played a MIDI file on the chip, it was the classic canyon.mid from Windows 3.1.

I heard this MIDI rendered this way back in 2013, when I was looking up videos of MIDI files played on different synthesizers, and I was thinking to myself, I like this. I want to get this type of synthesizer on my computer.

When I heard the MIDI played in the video of installing Windows 3.1 in DOSBox, I thought, this is what I have been looking for a long time!

This was perfect timing, because the same month a talking DOSBox was released and I installed Windows 3.1 on it. That is how I listened to and recorded MIDIS for several months, but I wanted to use this synth outside of DOSBox because I wanted to use it in modern Windows applications.

In December of 2015, I googled Windows OPL3 synthesizer, I found a MIDI driver for Windows that emulated the MIDI sound I liked. I downloaded and installed the emulator on my computer, and I was happy for a while. The only problem was that I would have to mute all other sounds other than the emulator to make my MIDI recordings.

In late 2016, I got a new computer. Unfortunately, it had audio enhancements that added bass and other effects I didn’t want in the audio. This made my MIDI recordings sound not as good as they used to on my older computer, which had no audio enhancements. A new version of the emulator was also released during this time, and it was more accurate compared to the original hardware. However, it wasn’t compatible with older Windows versions, as the older emulator was. The newer emulator didn’t rely on any features in modern windows, so I easily ported it in early 2017, and I have been developing it for the last year.

I got a program called VB audio cable in 2017, and I was able to only record the emulator if I set my default audio device to the virtual cable, and I sent sound I didn’t want recorded to my real sound card. However, this could get a bit tricky to set up, and I had to make sure the cable was set to the correct sample rate, or else there would be resampling artifacts in the audio.

In late 2017, I was studying the source code of the emulator, and I thought to myself, what if I could capture the audio in the emulator itself without having to rely on other software. That would solve all my problems!

I did days of research, and I figured out how to capture the raw audio from the emulator, however it didn’t have a WAV header, so it couldn’t play in a normal media player. I had to use an audio editor to import the data and export it as WAV.

In February of 2018, I figured out how to write the WAV header to the file.

Finally, I got myself the cleanest OPL3 recording setup. I had no enhancements, no weird virtual cables to set up. I could just enable WAV writing in the emulator, open a MIDI file, sit back, and enjoy. Since the raw data is recorded, this means no resampling artifacts, no enhancements, no need to worry about other audio being captured.