

TDL® Technology, Inc. – Case Study Number 5

Restoration of an LP in very good condition

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I've had this LP [1] in my collection since it was released, probably in the early 1970s. It has been stored and played properly and it's in very good condition – no scratches or other visible blemishes. However, I still gave it a through cleaning including a final rinse with distilled water. I thought this would be an easy project, and it was, but not as easy as I thought.

In spite of it's good condition and cleaning, it still had quite a few low-level clicks and pops – the surface noise common to vinyl discs. Often this isn't too much of a problem as the music is at a high enough level that it “covers up” at least some of the surface noise. But in this case, the LP had been mastered at a low level so the signal to noise ratio was also low.

The songs, mostly by Antonio Carlos Jobim, are tender melodies. The notes on the record jacket says the musicians tried to “out-hush each other.” And Mr. Sinatra is quoted as saying: “I haven't sung so soft since I had the laryngitis.” And he sings the beginning of track 2, *Dindi*, at barely above a whisper. Beautiful music: Sinatra at his best.

The lead-in to both sides of the LP contain about 8 seconds of just surface noise. I first tried *Audacity* [2] and used the lead-in as a noise sample (Get Noise Profile) for the Noise Reduction routine. Unfortunately, it didn't work. I kept increasing the amount of noise to be removed but as it removed the noise it added artefacts (distortions) so the result was not useable.

Then I tried *Audio Cleaning Lab 10* [3] with the same approach (getting a noise profile) and with the same result – unusable. The signal to noise ratio was just too darned low.

Finally, I tried *Sony Sound Forge 8* [4] and selected FX Favorites | Sony | Vinyl Restoration. I kept the default presets and got excellent results on both side1 and side2. I couldn't see any good reason to keep the music level so low so I normalized both sides up to -2 dB and recorded to a CD.

Even though this turned out to be a straightforward restoration, I wrote it up as a Case Study because my original idea about how to do it was wrong. I've been doing restorations for a while but I still have things to learn. If you run into the same dead end, think about it and then take another tool out of your toolbox and try again!

REFERENCES

1. *Francis Albert Sinatra & Antonio Carlos Jobim*. Reprise Records Mono LP, F-1021.
2. *Audacity* is free software and can be downloaded from <http://www.audacity.sourceforge.net>. (see Chapter 7).

3. *Audio Cleaning Lab 10* is a product of Magix and can be purchased online from:
<http://www.magix.com>. (see Chapter 7).

4. *Sound Forge 8* is available from <http://www.sony.com/mediasoftware>. It is also available from other vendors at a lower “street” price than from *Sony*. Please see Chapter 7 on Restoration Software.

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