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Guidelines and Suggestions for Using Bel Canto Products with a Computer as the Audio Source

Introduction

Current storage and control technology has made the computer a viable alternative for storing and playing back digital audio data stored on a Hard Drive in your PC or Macintosh computer. This document is meant to supply information to get the most from your Bel Canto product in playing back music stored on your personal computer.

The information in this document is not definitive, it is meant to serve as a starting point in getting the most from your computer music playback system. As this is a relatively new technology there will be continuing changes in software and hardware capabilities so it is important to stay abreast of these changes.

We will attempt to keep the soft copy of this document on the www.belcantodesign.com website up to date as the field of computer audio playback progresses. Note that the USB port on the S300i and Dac3 products will accept standard 16/44.1 CD data rate and data up to 16/48. For higher data rates you will need to use one of the SPDIF or AES/EBU inputs on the Dac3.

Bel Canto has no association with any products mentioned in this document and we provide no guarantee of the quality or performance of these products. This is meant as a starting point and guide to playback of music through the computer.

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1) Ripping CD data to the hard drive.

- Important for a good rip is a mirror-perfect finish to the CD
- Note your CD-ROM drive model and look up the 'offset' number at <http://accuraterip.com/driveoffsets.htm> and make a note of it for use with ripping software.
- If the CD is Mirror clean, most rip programs will do a fine job
- If the CD is not Mirror clean, try the following:
 - Wash with dish-soap and a lint free cloth, drying in a radial direction from the center of the disc.
 - Use a CD resurfacing machine. (<http://www.ifjdiscrepair.com/> has a heavy-duty machine for \$700 and a smaller version for \$250.)
- If the CD is still not Mirror clean, you will get the most detailed rip from EAC. For EAC setup see <http://forum.calonet.org/index.php/topic,127.0.html>
- EAC is free, but one may also use 'dbpoweramp Music Converter' (<http://www.dbpoweramp.com/dmc.htm>) for converting between codecs and also use it to rip at a faster speed than EAC. It is a decent value at \$14 (also has a free 30 day trial)
- Of Course – Always backup your data, 100-200 Gigabyte hard drives are relatively inexpensive!

2) Data Storage Formats

- Although WAV is the standard uncompressed format, it does not support embedded metadata called 'tags' (i.e. – track info, comments, dates, other fields, etc.)
- The so-called 'lossless' formats such as Apple Lossless, WMA lossless, and FLAC all preserve bit-for-bit identical data and can be 'trans-converted' to any other format with programs such as dbpoweramp mentioned above. They also take up about 60% of the space of an uncompressed file and support file 'tags'.
- For a great 'tag' editor, check out 'Tag & Rename' (<http://www.softpointer.com/tr.htm>). It can be used to edit and add tags and album covers from free databases.
- In general FLAC is recommended for use with Windows and Apple Lossless with Macs.

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3) Cables

- High quality digital cables are important to assure best sound reproduction
- For the SPDIF interface, we recommend the Stereovox XV2 which comes with both BNC and RCA connectors – use BNC connectors whenever possible. (<http://www.stereovox.com/xv2.html>)
- For the USB interface, we recommend a good quality cable such as the Monster Digital Pro USB Cable: (<http://www.monstercable.com/productPage.asp?pin=2906>)
- For long runs between transport and DAC, we recommend the Opticis optical USB extender (http://www.ramelectronics.net/html/usb_fiber.html). We also highly recommend replacing the standard switching power supply with a linear model.

3) Macintosh OS Playback

- Generally acknowledged to be a good multimedia platform with strong USB drivers
- Alternatively, if using USB out, you may want to try the Mac compatible version of the 3rd party usb-asio drivers. Download the driver from <http://www.usb-audio.com/>. It costs 44 Euros but can be auditioned with a 'beep' every 30 seconds.
- I-Tunes seems to be the player of choice when using a Macintosh
 1. Turn off the iTunes equalizer.
 2. In Preferences, uncheck all boxes in the audio tab except "disable iTunes volume control for remote speakers"
 3. 24/96 on MAC: MAC does actually support 24/96 with iTunes, but the setup is a bit convoluted. Find the OS X utility named "Audio Midi Setup". It's not in a preference pane, but rather an application that Apple usually installs in the Utilities folder. Once you have found this, focus on the lower left of the window and make the changes. You can do this on-the-fly and hear the difference in the audio playing using iTunes.

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4a) Microsoft Windows OS Playback

- Ticks and pops can occur in long playlists when the hard disk becomes fragmented or the system is overtaxed. It is a good idea to periodically defragment the hard disk where your music data is stored.
- If you use a screen-saver, either turn it off or use one that is static (no motion). At least a 2.4GHz Pentium is recommended.
- Choose a decent soundcard (with true ASIO support) or use USB or Ethernet out
 1. Budget choice: EMU-0404 (www.emu.com)
 2. Luxury choice: LynxTwo (www.lynxstudio.com)
 3. The basic Windows system uses something called 'kmixer' to resample all music that goes through the machine. There are a several ways to avoid this:

If your soundcard supports ASIO, use ASIO Output.

If your soundcard does not have ASIO drivers and you use Windows 9x try WaveOut.

If your soundcard does not have ASIO drivers and you use Windows XP, 2000 or later try Directsound.

4b) If using USB out, try the following ASIO drivers:

- The driver that came with the device.
 - Download the driver from <http://www.usb-audio.com/>. It costs 44 Euros but can be auditioned with a 'beep' every 30 seconds.
 - Download the driver from <http://www.asio4all.com/>. It is a free driver but is not a true ASIO driver but more like an ASIO costume on top of 'kernel streaming' (it may under-perform native ASIO drivers with Soundcards that support them).
 - Download the driver from <http://www.asio2ks.de/> (also a 'kernel streaming' driver from 2003). This is outdated compared to asio4all, but it is free to try.
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- Keep in mind that the next version of Windows ('Vista') due in January has no more 'kmixer' and supports much higher native sample rates.
 - Press control/alt/delete to bring up the Task manager window. Select your playback software program ('Foobar2K' or 'Winamp' for example) and

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then right click. There's a menu called "set priority." Set that to "High".
[Note: this must be done each time the program is restarted.]

- A good list of tips can be found at http://www.musicxp.net/tuning_tips.php, most important is probably #1. Processor scheduling should be set to background services and not Programs. Go to: Start > Settings > Control Panel > System > [Advanced](#) > Performance Settings > Advanced Tab > Background Services

4c) Consider Foobar

- Download the latest version from <http://www.foobar2000.org/>
- ASIO plugin can be downloaded from:
<http://www.foobar2000.org/components/index.html>

4d) Consider Winamp

- Download latest version from www.winamp.com
- ASIO plugin can be downloaded from:
[http://otachan.com/out_asio\(dll\).html](http://otachan.com/out_asio(dll).html)