

---

## What is the best way to deliver your mixes?

It goes without saying that your mixes will be full of passion and musical genius. However, there are some more boring technical details that are worth considering:

- The higher the resolution of your mix is to start with, the better the mastered result will be. So, deliver your mixdown or bounce at the same sample rate and bit depth as the recording session in order to preserve as much of the original quality as possible.
- Try to treat the stereo mix as little as possible. Moderate amounts of EQ and compression on the stereo mix-bus when mixing gives a mastering engineer the best chance to perform his task well.
- Absolutely no limiting should be done on the mix prior to mastering. And it is best to leave about -3dBfs headroom, if you can.
- Digital mixes destined for CD should be delivered as a WAV or AIF at 44.1Khz or 88.2Khz sample rate with a bit depth of 24 bits or more.
- Mixes destined for DVD should be 48Khz or 96Khz sample rate and also 24 bits or more in depth.

However, if your session differs from the above, please leave it at its original settings. I will use high quality SRC software to convert your session to the appropriate sample rate at the right moment in the process. The end result will greatly benefit from this!

Mastering can be done from audio and data-CD, DVD and DAT, as well as all common computer file formats up to 32bit floating point and 192Khz sample rate and also from 1/4" - 15ips, analogue tape. Analogue recordings are transferred into the digital domain with 24bit accuracy. All recordings, whether analogue or digital of origin, are treated internally with 48bit fixed point precision. The final CD will be fully Red Book compliant and 16bit / 44.1Khz in resolution.

You can deliver your mixes in person, by post or via the Hightail upload-server. You can find my address and the upload link on the info page of the website.

---

## The mastering process

Any imperfections in the sound balance and differences in sound between songs can be dealt with by means of level adjustment and corrective equalizing during mastering. Greater detail and cohesion in your mix can be achieved by the use of compression (controlling dynamics). After which a peak limiter can take care of the short and most extreme dynamic peaks in order to achieve a greater overall music level, if so desired.

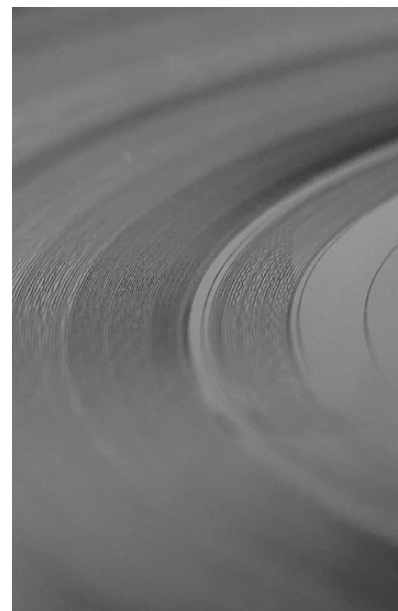
All songs are then put into their running order and the start and end of each song is cleaned or faded where necessary. After this the tracks are converted to the appropriate sample rate and dithered to their final bit depth. Then the CD will be compiled and the pauses between the songs

will be adjusted to give a smooth running feel to the album.

The tracks are also numbered (PQ-coded), provided with CD text (song names and artist information) and ISR-Coding. The finished result is converted to a DDP-file, ready to be uploaded to the CD-pressing plant. (A DDP is the data version of your CD and it ensures the highest possible fidelity, identical to the original master). The DDP containing the master is delivered as a secure data copy to the factory, ready to go onto the glass master. This glass master is used for the physical pressing of the CD.

## Mastering for vinyl

Mastering for vinyl is a bit of a different game. For instance; limiting is best avoided in mastering for vinyl releases. The person dealing with the cutting process will take care of the final vinyl level. And there are limitations to the width of the stereo field below 200Hz. Generally it is therefore best to make



a separate master for the vinyl release, also because the vinyl master can be delivered at a higher sample rate and greater bit depth than CD. There is a limit to the length of each side of the vinyl record as well. Most agree that for Laquer cutting the optimum length per side is about 14 minutes - and not more than 20 minutes. Shorter is better in this case. Anything longer than 20 minutes will result in the need to cut with less bass, less overall level and there will be a stronger build up of distortion in the high frequencies towards the end of each record side. So if your album is longer than 40 minutes total playing time, it is worth considering the possibility of taking

some tracks off the album in order to aid the quality of your precious vinyl release. However, DMM cutting is more tolerant in this respect and allows for slightly longer playing times. DMM cuts are generally considered to sound not as warm as Laquer cuts, but more accurate in comparison. Or you could go for a double album of course...

## Mastering for iTunes

If you have access to the Mastered For iTunes (MFiT) programme, you can have 24bit / 96Khz releases on iTunes. For the time being however, most will have to upload their music as 16bit / 44.1Khz WAV files. Apple will convert your WAV to their AAC format. It is important to make sure that no audio clipping occurs in the conversion process to AAC. I use specialist software that ensures that your music

will sound crisp and clear on iTunes, without clipping. It is not unusual to have to lower the playback level of the files in the process. But since I always try to avoid excessive limiting and clipping anyway, this will usually only have to be done very slightly, if at all.

## CD-text

Just so you know; the CD-text embedded in the audio CD will not show up in iTunes when you insert the CD into your computer to rip it for the first time, even though CD-text is present on the physical CD. CD-text can be displayed by some domestic CD players and most modern car stereo systems can do this, too. But iTunes needs to have some more information. To make the song names and all associated information appear in iTunes (including ISRC), these need to

be uploaded to the Gracenote database (CDDDB) first. How this should be done is described on the Gracenote website.<sup>1</sup>

---

## ISRC

Short for: International Standard Recording Code. This code is used to identify recordings and it is also used by iTunes. You have to provide this before the mastering process is finished so that it can be incorporated into the metadata of the CD and WAV files. To obtain this code for the Netherlands you need to turn to SENA. For more information (in Dutch) on what ISRC is and how it all works, please refer to the document linked below.<sup>2</sup>

For all other countries, please do a Google search to locate your official supplier of ISRC.

reference

<sup>1</sup> <http://www.gracenote.com>

<sup>2</sup> <http://www.sena.nl/makers/rechthebbenden/isrc>