HOW TO BEST PREPARE FOR BINAURAL MIXES

presented by Stefan Bangert

WHICH FORMAT SHOULD YOU CHOOSE

some things to think about before sending in your tracks

3D MUSIC PRODUCTION
FOR HEADPHONES

EMMERSION IS EMOTION

Deeper emotional insights into your music

Although in the age of YouTube all information is freely available, I still get exportedtracks sent to me whose waveform reminds me of a sausage. But we would rather see fishbones.

So if you want to have your music re-mixed for binaural listening, let there be enough headroom for high quality and natural sounding binaural mixes. So when you render your single tracks, get rid of the limiter on your master output. If you have a master-eq on the stereo bus, please leave the EQ activated.

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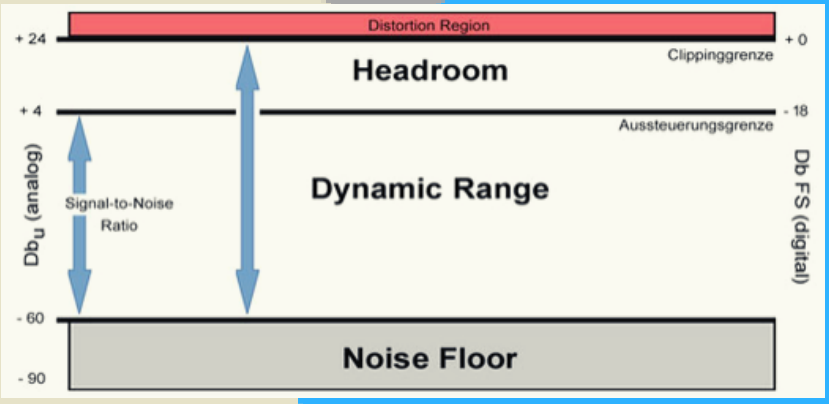
BINAURAL MUSIC PRODUCTION

Find answers on this page about
headroom and loudness range

What is headroom, and why is it important?

Headroom is the space between your highest peaks (transients) and 0 dB. Caution, do not confuse the average level (RMS) and the peak level. Because this confuses a lot of people. The presence of headroom is extremely critical. With enough headroom, you'll prevent your mix from clipping and sounding distorted.



There must be enough headroom for high quality and natural sounding binaural mixes. So when you render your single tracks, get rid of the limiter on your master output. If you have a master-eq on the stereo bus, please leave the EQ activated.

There must be absolutely no digital overloads and distortions. Binaural mixing reveals the slightest details.

What is loudness range and what is it for?

The Loudness Range (LRA) defines a perceptual parameter. It describes the difference between the loud and quiet signals of an audio signal. A good illustration of this is provided by the crest factor.

For a binaural remix, a high crest factor represents best the human perception of sound.
The more the music is acoustic or classic, the higher the loudness range should be.

The **crest factor** (or peak-to-short-term-loudness PSR) shows the difference in level between the perceived average volume (LUFS Short Term) and the level peaks. It thus describes the dynamics of the audio material. The higher the crest factor, the more dynamic the music. The LUFS measurement is basically not based on a purely mathematical calculation, but includes the subjective perception of loudness.

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BINAURAL MUSIC PRODUCTION

Find answers on this page about
bit-depth and dithering

Which bit-depth should I choose?

32-bit floating audio files are preferred ! 16-bit files are only okay if 32-bit (or 24-bit) floating files are absolutely not available !

Even if your mixing session was configured for 24-bit, your DAW probably processed with 32-bit floating point. It is therefore important to export your single tracks as 32-bit floating or 24-bit dither. Personally, I think saving as 32-bit floating without dithering is the best option. Please do not hesitate to send me an email if you have any questions. If you're not sure about the bit depth your DAW audio is processing at, you can use a free plugin called BITTER to analyze your mixing session. Place it in the last insert of your master fader and use the bit-depth counter of the plug-in to see if your session is higher than 24 bits.

You can get it here.

Should I dither before bouncing/rendering my tracks?

Rules for Dithering:
Rule N°1: Use 16-bit dither when creating a 16-bit file
Rule N°2: Use 24-bit dither when creating a 24-bit file. (But the differences are so small that nobody will notice it, if you don't notice it)
Rule N°3: Dithering to a 16-bit file only once. 24bit dither noise is much too quiet to be noticed.
As a conclusion we can say that you should definitely save as 32bit versions. If this is not possible, save them as 24bit file with dithering!

I repeat again because this is so important:
If you need to render a 16 or 24 bit file before sending it for remixing, correct dithering is essential.

And if you render tracks in place to remove plug-ins and reduce CPU overhead – you should definitely dither !
But remember: you only don't need it if you save your files in 32-bit floating point format.

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BINAURAL MUSIC PRODUCTION

See the last checks
before sending in your tracks

The last and very important steps

Make sure that all tracks have the same starting point.

When rendering you single tracks, please leave all the volume automation and EQ-settings UNCHANGED! Leave them as they are.

To obtain the richest soundscape, please export every instrument (in stereo or mono). Pads and keyboards should be stereo, guitar and bass in mono, and you can even render every tom of a drumset seperately, if you want. Leadvocals in mono and all background vocals as well seperately as single mono tracks.
But even if you send mono files in stereo, it's better than sending stereo files in mono.

All multiple microphone signals from one instrument should be mixed into one track. So when a guitar is recorded with 3 microphones, please mix them together to single a mono-file before sending it over for binaural mixing.

The tracks for binaural mixing must be as dry as possible. Some slight room information of the recording facility is ok, but do NOT export the tracks including artificial spatial information like reverb and delay.
There is one exception: if an artist (here a guitar player with his effect pedals) expressly insists on leaving his effects in, because it belongs to his sound, then leave it in.
Listen carefully to each single track for noise and anomalies.
Get in touch to obtain information on how to export a fx-track.

Listen carefully to each single track for noise and anomalies.

Listen to vocal tracks in solo mode to check for clicks, ticks, thumps, plosives, headphone crosstalk and other noises.

Look out for bad edits and unmade fade-ins and fade-outs on your tracks that cause clicks and crackles.

Also make sure that no plug-in or DAW error has occurred before sending to binaural mixing.

Give the rendered files a name that is easy to understand and describes the instrument. I don't recommend to name them "audio 1", "audio 2" etc. This is much more timeconsuming for me and will be charged extra.

Please think of sending me the mastered for stereo version as a reference. This will be a good starting point.

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