LUSIONBEATZ

PROFESSIONAL MUSIC PRODUCTION EDUCATION

DAY 1 OF 10

MASTERING FUNDAMENTALS

Gain Structure | Loudness | Clarity | Tone Shaping

★ 10 EXPERT TIPS INSIDE

10 DAYS OF MASTERING TIPS & TRICKS · SERIES 2026

WHAT'S INSIDE — DAY 1

01

Understand the Goal of Mastering

The mindset before you touch a single knob

02

Gain Staging Before Mastering

Clean headroom = professional results

03

Reference Tracks — Your Secret Weapon

Compare against the pros, track by track

04

The Loudness War & LUFS Targets

Stream-ready loudness explained

05

EQ for Tonal Balance (Broad Strokes)

Shape the full spectrum at the master bus

06

Dynamic Range — When to Compress

Bus compression done right

07

Stereo Width Basics

Width without phase issues

08

Limiting — The Final Brick Wall

Maximize without destroying

09

Mono Compatibility Check

How your master survives every system

10

Bouncing Your Master — Final Chain Review

Export settings that matter

> ***"Mastering is the art of translating your vision onto every playback system in the world."***
>
> **— LusionBeatz Mastering Philosophy · 2026**

INTRODUCTION — WHY MASTERING MATTERS

Mastering is the final, critical stage of music production. It is not about saving a bad mix — it is about elevating a great mix to its absolute potential. A well-mastered track sounds balanced on earbuds, studio monitors, car speakers, and club sound systems alike. Day 1 of this series lays the non-negotiable foundation: the concepts, tools, and mindset every mastering engineer needs before opening a single plugin.

BEFORE YOU START — PRE-MASTERING CHECKLIST

✓	Mix exported at 24-bit / 48kHz or higher — no clipping, no limiting on the master bus
✓	Headroom: peak no louder than -3 dBFS to -6 dBFS
✓	Master bus is clean — no limiters or saturation left from the mix session
✓	2–3 professional reference tracks in the same genre, ready to A/B
✓	Monitoring environment is acoustically treated (or you know its weaknesses)
✓	Fresh ears — listening fatigue is the enemy of great mastering decisions

TIP 01

Understand the Goal of Mastering

Mastering has three jobs: consistency across streaming platforms, translation across every playback system, and polishing the tonal balance of the final mix. Before touching any plugin, define which of these three you are solving — because that determines every decision. Mastering is NOT mixing. You work with a stereo bus, not individual stems. Think in large brushstrokes, not fine detail.

★ EXAMPLE

Hip-hop track sounds great on monitors but thin on Bluetooth. Before adding low end, check: is 200–400 Hz too scooped in the mix? A gentle master shelf at 100 Hz (+1.5 dB) restores warmth without mud.

✓ DO	✗ DON'T
• Define your target platform before starting (Spotify, Apple Music, Club DJ)	• Start mastering before the mix is fully approved and signed off
• Focus on translation and consistency as your primary goals	• Treat mastering as a fix for mix problems — go back to the mix instead
• Work in context of the whole album or EP, not just a single track	• Over-process — mastering should enhance, not transform

■ PRO NOTE: Top engineers like Bob Ludwig spend the first 10 minutes just listening on multiple systems before opening a single plugin. Build this habit now.

TIP 02

Gain Staging Before Mastering

Gain staging means ensuring your imported stereo mix arrives at exactly the right level before hitting the first plugin. Target: peaks between -6 dBFS and -3 dBFS, with average RMS around -18 to -14 dBFS for most genres. Use a trim/gain plugin at position #1 in your mastering chain. A limiter fed too hot will distort and create inter-sample peaks that streaming codecs destroy during encoding.

★ EXAMPLE

Mix arrives peaking at -1 dBFS. Add a Gain/Trim plugin and pull it down to -5 dBFS. Now your compressor, EQ, and limiter all receive the headroom they were designed for.

PARAMETER	VALUE
Input Gain Target (Peak)	-6 dBFS to -3 dBFS
RMS / Integrated Target	-18 to -14 dBFS (pre-mastering)
Clip Indicator	Zero clips at any point in the chain
Plugin Position	Trim/Gain at slot #1 — always
Bit Depth of Import	24-bit minimum (32-bit float preferred)

⚠ WARNING: Never start your mastering chain with a limiter engaged. You lose headroom and cannot hear what the mix actually sounds like unprocessed.

TIP 03 Reference Tracks — Your Secret Weapon

A reference track is a professionally mastered song in the same genre. Import it into your DAW and use it as a tonal, dynamic, and loudness compass. Without a reference, you are working blind. Match the loudness of your reference to your in-progress master using a gain plugin — bring it to the same integrated LUFS. This eliminates loudness bias: louder always sounds "better" but that perceptual trick will mislead every decision.

★ EXAMPLE

Mastering dark minimal techno. Reference: Bicep – Glue. Import it, match to -14 LUFS. A/B every 30 seconds. The reference has more sub below 60 Hz and less harshness at 5 kHz. Two data points — those guide your entire EQ session.

PARAMETER	VALUE
Number of References	2–3 tracks (same genre and era)
Volume Matching	Match to same LUFS integrated as your master
A/B Toggle	Blind test every 30 seconds minimum
Reference Format	Lossless WAV/AIFF preferred over MP3
Plugin Options	Metric AB, Reference 4, or manual import

✓ DO	✗ DON'T
• Use references released in the last 3 years	• Use a 20-year-old reference — standards have changed dramatically
• Match loudness before comparing tone	• Compare without loudness matching — bias will fool your ears every time
• Use 2–3 references for different aspects	• Chase one single reference as your only goal

TIP 04 The Loudness War & LUFS Targets

LUFS (Loudness Units relative to Full Scale) is the international standard for measuring perceived loudness. Streaming platforms normalize playback to specific LUFS targets — which means a hyper-loud master gets turned DOWN automatically, and the dynamics you destroyed cannot be recovered. Target the platform's LUFS ceiling, preserve dynamic range, and let the platform normalize.

★ EXAMPLE

You master a pop track to -7 LUFS. Spotify normalizes it to -14 LUFS by turning it down 7 dB. Your competitor masters to -14 LUFS with natural dynamics. Both play at the same volume — but theirs breathes and punches. Yours sounds flat and lifeless.

PARAMETER	VALUE
Spotify	-14 LUFS Integrated (target)
Apple Music	-16 LUFS Integrated (target)
YouTube	-14 LUFS Integrated (target)
Tidal / QOBUZ	-14 LUFS Integrated (target)

Club / DJ Master	-9 to -6 LUFS (louder, no streaming normalization)
True Peak Ceiling	-1 dBTP (prevents inter-sample clipping on encode)

■ PRO NOTE: Always deliver TWO masters: a streaming master (-14 LUFS) and a loud master for clubs and DJ packs (-9 to -6 LUFS). Label them clearly in your file names.

TIP 05

EQ for Tonal Balance (Broad Strokes)

On the mastering bus, EQ moves should be surgical and minimal. You are shaping the overall tonal balance of the final mix, not fixing individual instruments. Use high-quality linear-phase or minimum-phase EQ depending on the material. Mastering EQ philosophy: boost or cut no more than ±3 dB in most cases. If you need +6 dB or more, the problem is in the mix. Use shelving EQs for broad control, narrow bands only to tame specific resonances.

★ EXAMPLE

Track sounds dull, lacks air. Instead of boosting 5 kHz (adds harshness), try a HIGH SHELF at 12 kHz, +1.5 dB, wide Q (0.5). Opens the top end naturally. Then: low end feels cluttered? Low shelf at 80 Hz, -0.8 dB. Two moves, massive improvement.

PARAMETER	VALUE
Sub Bass 20–60 Hz	Gentle shelf or HP filter to remove mud
Bass 60–200 Hz	±1–2 dB shelf for warmth or tightness
Low Mids 200–500 Hz	Cut if muddy, slight boost if thin
Mids 500–2 kHz	Touch carefully — honk and boxiness live here
Presence 2–5 kHz	Adds definition, clarity, and punch
Air 10–20 kHz	Gentle shelf for shimmer and open top end
Max Boost/Cut	±3 dB per band — mastering best practice
EQ Type	Linear Phase for final stage, Min Phase for feel

✓ DO	✗ DON'T
• Use reference tracks to guide every EQ decision	• EQ by sight on a spectrum analyzer only — trust your ears first
• Make 2–4 moves maximum in mastering EQ	• Apply 10+ EQ bands — that is mixing, not mastering
• Check every EQ move in both mono and stereo	• Ignore mono — phase issues may be masking your EQ work

⚠ WARNING: Never use aggressive notch filters on the master bus. You will create phase issues and a hollow-sounding master.

TIP 06

Dynamic Range — When to Compress

Bus compression in mastering glues the mix together — reducing the dynamic difference between the loudest and quietest moments so the track feels cohesive. It is not about making things louder (that is the limiter's job). Classic mastering compressor settings: very slow attack (50–100ms), fast-medium release (100–300ms), low ratio (1.5:1 to 2:1), and only 1–3 dB of gain reduction. You should barely hear it — but the mix should feel more unified with it engaged than without.

★ EXAMPLE

Indie rock mix — loud choruses feel disconnected from verses. Apply SSL-style bus comp: Ratio 2:1, Attack 75ms, Release 150ms, threshold for -2 dB GR in choruses. Bypass vs engage: the track now breathes as one piece.

PARAMETER	VALUE
Ratio	1.5:1 to 2:1 — gentle glue compression
Attack	50–100ms — let transients through first
Release	100–300ms — program-dependent
Gain Reduction	1–3 dB maximum
Knee	Soft Knee preferred for transparency
Output Gain	Match gain reduction amount (gain compensation)
Sidechain HP	60–80 Hz high-pass — avoids bass pumping

■ PRO NOTE: Try parallel compression: blend 20–30% compressed signal with 80% dry. You get density and glue without killing the dynamics.

TIP 07

Stereo Width Basics

Stereo width in mastering is about control, not creativity. Ensure the image is appropriate, consistent, and mono-compatible. Over-widened masters sound impressive on headphones but collapse on mono systems — phones, smart speakers, club systems wired in mono. Use Mid/Side (M/S): the MID channel contains all mono information (kick, bass, lead vocal) and the SIDE channel contains stereo width (reverb, pads, room sound).

★ EXAMPLE

Track sounds too narrow. Before widening: check the side channel in solo. If there is almost nothing there, the mix needs stereo elements — widening in mastering just adds noise. If the side is full, a gentle widener at 110–120% opens it beautifully.

PARAMETER	VALUE
Safe Width Range	80–120% (below 80% = narrow, above 120% = risky)
Sub Bass below 80Hz	Always MONO — stereo sub causes phase cancellation
Mid Channel Content	Kick, bass, lead vocal, snare — keep centered
Side Channel Content	Pads, reverbs, guitars, hi-hats — these can be wide
Mono Check Method	Sum to mono in DAW or use a dedicated mono plugin

Width Plugins	iZotope Ozone Imager, Brainworx M/S, Waves S1

⚠ WARNING: Never push stereo width past 130% on a mastering bus. Phase cancellation destroys low-end in mono and creates a hollow, phasey sound on any single-speaker system.

TIP 08 — Limiting — The Final Brick Wall

The limiter is the last plugin in your chain and its job is singular: prevent any sample from exceeding your ceiling while maximizing perceived loudness. A great limiter is transparent — listeners should not hear it working. Set your true peak ceiling to -1 dBTP for all streaming masters. This -1 dB of headroom prevents inter-sample peaks that occur during lossy encoding (MP3, AAC, OGG). Without it, your master will distort on streaming platforms even if it reads 0 dBFS in your DAW.

★ EXAMPLE

After EQ and compression, track peaks at -1.5 dBFS. Target: -9 LUFS for a club master. Set limiter output ceiling to -1 dBTP. Bring threshold down until LUFS reads -9 integrated. GR should peak at 3–5 dB on transients. More than that = distortion.

PARAMETER	VALUE
True Peak Ceiling	-1.0 dBTP streaming / -0.3 dBTP CD/physical
Gain Reduction Max	3–5 dB peaks (transparent) / 6+ dB = distorting
Lookahead	1–5ms — limiter sees transients before they hit
Release	Auto or 100–300ms program-dependent
LUFS Target	-14 LUFS integrated for streaming
Recommended Plugins	FabFilter Pro-L 2, Waves L2, iZotope Maximizer

✓ DO	✘ DON'T
• Set ceiling to -1 dBTP for every streaming master	• Set ceiling to 0 dBFS — guarantees inter-sample clipping after encode
• Check GR meter — aim for transient peaks only	• Push until GR is constant — that is distortion, not loudness
• A/B limiter in/out at matched loudness levels	• Judge the limiter with loudness bias — always null-match when A/B testing

TIP 09 — Mono Compatibility Check

Before finalizing any master you MUST check it in mono. The majority of real-world listening happens on mono or near-mono systems: single-speaker phones, smart home devices, DJ systems wired in mono, and cafe single-channel setups. A mono-compatible master loses minimal energy when summed. If your master sounds thin, hollow, or loses bass in mono, you have phase issues.

★ EXAMPLE

EDM track sounds massive in stereo. Hit mono. The bass disappears. Diagnosis: the bass synth has a wide stereo chorus causing phase cancellation in mono. Fix: put the bass in mono. In mastering: use M/S EQ to cut the side channel below 120 Hz by -6 to -12 dB.

PARAMETER	VALUE
Mono Check Method	Mono button on master bus or dedicated mono plugin
Side Channel Low Cut	High-pass Side channel at 80–120 Hz via M/S EQ
Correlation Meter	Must stay above 0 — positive = mono safe

Phase Scope	Lissajous ellipse should be roughly vertical
Acceptable Width Loss	5–10% energy loss in mono is normal
Red Flag	More than 20% energy loss in mono = serious phase issue

■ PRO NOTE: Add a correlation meter to your master bus as a permanent visual reference. If the needle goes negative (below 0), stop and find the phase issue before continuing.

TIP 10

Bouncing Your Master — Final Chain Review

The final export is as important as the processing itself. Correct sample rate, bit depth, dithering algorithm, and file format for the intended destination. A wrong export can introduce noise, aliasing, or resolution loss that undoes all your careful work. Before bouncing: bypass every plugin one by one, re-engage, and listen. Play the full track from start to finish at reference volume. Check the top and tail — any clicks, pops, or DC offset? Always keep your unprocessed pre-master file. It is your safety net.

★ **EXAMPLE**

Delivering to DistroKid for Spotify: WAV, 44.1kHz, 16-bit with TPDF dither. Delivering to a DJ: WAV, 44.1kHz, 24-bit (no dither needed). Apple Digital Masters: AIFF/WAV, 96kHz, 24-bit minimum.

PARAMETER	VALUE
Streaming Master	WAV, 44.1kHz, 16-bit + TPDF Dither
Club / DJ Master	WAV, 44.1kHz, 24-bit (no dither)
Apple Digital Masters	AIFF/WAV, 96kHz, 24-bit minimum
High-Res Archive	WAV, 96kHz or 48kHz, 32-bit float
Dithering Rule	TPDF ONLY when reducing from 24-bit to 16-bit
File Naming	ArtistName_TrackTitle_Master_v1_LUFS_2026.wav
Metadata	ISRC, copyright year 2026, BPM, key embedded

✓ DO	✘ DON'T
• Always keep a 32-bit float pre-master archive file	• Deliver only one file — always keep pre-master and stems
• Use TPDF dither only when reducing bit depth to 16-bit	• Apply dither when exporting at 24-bit — it adds unnecessary noise
• Name files with version number, LUFS value, and year	• Name files "final_FINAL_v3_useThis.wav" — version properly

⚠ WARNING: Never apply dither twice. Always go back to your 24-bit or 32-bit master for any re-exports.

DAY 1 · MASTER SUMMARY

01	**Understand the Goal**	Translation across all systems is the primary mission
02	**Gain Staging**	Peak at -6 to -3 dBFS before any processing begins
03	**Reference Tracks**	Always A/B with 2–3 refs at matched loudness
04	**LUFS Targets**	-14 LUFS for streaming, -1 dBTP true peak ceiling
05	**Mastering EQ**	Broad shelves only, max ±3 dB, always check mono
06	**Bus Compression**	Glue with 1.5:1 ratio, max 2–3 dB gain reduction
07	**Stereo Width**	Sub bass always mono, healthy side channel, not extreme
08	**Limiting**	-1 dBTP ceiling, max 5 dB GR peak on transients
09	**Mono Check**	Correlation meter stays positive, side HP below 120 Hz
10	**Final Export**	Right format per destination, always dither at 16-bit

TOMORROW — DAY 2 PREVIEW

Advanced Mastering EQ Techniques

Mid/Side EQ · Dynamic EQ vs Multiband · Tonal Matching Across Albums

- M/S EQ — Processing Mid and Side channels completely independently
- Dynamic EQ vs. Multiband Compression — when to use each and why
- Taming harshness and sibilance on the master bus without artifacts
- Matching tonal balance across an entire album for release consistency

> ***"Great mastering starts with great listening. The tools are just the language — your ears are the meaning."***
>
> **— LusionBeatz · 2026**