



SERIES X · SERIES S · XBOX ONE · ONE S · ONE X

XBOX OPTIMIZATION GUIDE.

Microsoft hid some genuinely good performance switches two menus deep. Here's every one of them — and an honest list of the "tweaks" that do nothing at all.

EDITION 1.0 · OCTOBER 2026 · F1ZZTWEAKS.COM

Read this first.

An Xbox is a locked-down console, so there's no registry to edit and no services to kill. But Xbox is a better story than most consoles, because Microsoft actually built real performance features in — FPS Boost, Auto HDR, Quick Resume — and then buried the switches where most people never look.

What you can actually change

- **Real console features.** FPS Boost can nearly double the frame rate of older games on a Series X or S. That's Microsoft's own feature, free, and off by default on some titles.
- **Your TV.** Still the biggest single win, and still the one nobody does. Most people are adding 80–150 ms of input lag through picture processing alone.
- **Hardware.** An expansion card, keeping the drive from filling up, and keeping dust out.

How to read the results

Nothing in here comes with a frame-rate number attached, because nobody can promise you one. Your console, your TV, your internet and the specific game all change the outcome. What this guide promises is that every step is a genuine setting or a genuine hardware fact — not a placebo. Where something only helps in certain situations, it says so.

The one thing that can lose you data

Under Settings > System > Console info > Reset console there are two options. **Reset and keep my games & apps** is the safe one and is a legitimate fix. **Reset and remove everything** wipes the console completely. They sit on the same screen, so read before you press A.

And one thing you should never do

Don't install anything that claims to "optimize", "boost" or "unlock" an Xbox from a USB stick, a website or a paid app. A retail console only runs software signed by Microsoft, so those products can't do what they say — at best they do nothing, and plenty exist only to take your account details. **If it isn't in the console's own menus or physically inside the console, it isn't real.**

How to use this guide

- **Everyone starts on page 02.** The TV page applies to every Xbox and costs nothing.
- **Series X or S:** pages 03–05. **Xbox One family:** page 06.
- **Pages 07–09 are for everyone** — fixing a sluggish console, network, and the myths.
- **Page 10 is the whole guide as a checklist.** If you read one page, read that one.

Fix your TV.

This is the single most effective thing on any page of this guide, it costs nothing, and it takes about four minutes. A TV in its out-of-the-box picture mode runs your image through smoothing, sharpening and noise-reduction filters, and every one of those takes time. That delay sits between your thumb and the screen in every single game.

1 Turn on Game Mode

In your TV's picture settings, set the picture mode to **Game** (sometimes "Game Optimizer"). This switches off most of the processing in one go, and on many TVs it alone cuts input lag by well over half. If your TV offers Game Mode per HDMI input, make sure it's on for the port the Xbox is in.

2 Switch off motion smoothing

Every brand names it something different: TruMotion (LG), Motionflow (Sony), Auto Motion Plus (Samsung), Action Smoothing (TCL/Hisense). Set it to **Off**. It invents fake frames, which means waiting for the next real one first — that wait is pure lag.

3 Turn on your TV's enhanced HDMI mode

This is the step people miss, and without it your Xbox silently drops to 60 Hz and no HDR. Microsoft names them directly: **LG** — All Settings > General > HDMI ULTRA HD Deep Color. **Samsung** — Picture > Expert Settings > HDMI UHD Color. **Sony** — Settings > External Inputs > HDMI signal format > Enhanced format. **Vizio** — Settings > Inputs > HDMI Color Subsampling. Enable it **on the port the Xbox is plugged into**, not just globally.

4 Use an HDMI 2.1 port and the cable from the box

Only one or two ports on most TVs carry full bandwidth — your TV's manual says which. The Series X and S ship with an **Ultra High Speed HDMI** cable, which is what 4K 120 Hz needs. An old cable from a drawer will usually still show a picture while quietly capping you.

5 Then check the Xbox agrees

Go to Settings > General > TV & display options > 4K TV details. This is the best diagnostic screen on the console: it lists 4K, HDR10, Dolby Vision, VRR and 120 Hz with a green tick or a cross next to each. Anything with a cross means the TV, the port or the cable — not the Xbox.

6 Check your soundbar or receiver

If the Xbox goes through a receiver or soundbar first, that box can strip 120 Hz and VRR out of the signal. Use a game or pass-through mode, or run the Xbox straight into the TV and send audio back over eARC.

Let it switch itself

Most TVs from the last few years support **ALLM** (Auto Low Latency Mode), which flips the TV into Game Mode by itself the moment the Xbox wakes up. Turn it on in the TV's HDMI settings and you stop having to remember. The Xbox uses it automatically — there's no console-side switch to find.

Series X|S — display.

Work down this list in order. Everything here is in the console's own menus, and nothing on this page can lose you data.

1 Start at the diagnostic screen

Settings > General > TV & display options > 4K TV details

Do this before changing anything else. Green ticks tell you what your setup genuinely supports; crosses tell you there's a TV, port or cable problem to fix first. There is no point forcing a setting the chain can't carry.

2 Resolution and refresh rate

Settings > General > TV & display options

- **Resolution** — set to the highest your TV ticked. On a **Series S** this is worth understanding: the S outputs 4K for video apps, but games target 1440p and get upscaled. Setting the output to 4K doesn't make games render at 4K.
- **Refresh rate** — **120 Hz** if your TV ticked it. Games that don't support 120 are unaffected. Microsoft's own note: if your TV can do VRR at 60 but not at 120, choosing 60 Hz to keep VRR is the better trade.

3 Video modes — leave these on

Settings > General > TV & display options > Advanced > Video modes

- **Allow 4K, Allow HDR10, Allow Auto HDR, Allow Variable Refresh Rate, Allow Dolby Vision** — all on, assuming your TV ticked them.
- These are **troubleshooting switches, not performance switches**. Microsoft's guidance is to turn one *off* if something breaks — blank screens, strange colours, visual corruption — so you can find the culprit. Turning them off doesn't buy you frames.
- **Auto HDR** is worth leaving on. It adds HDR to older games that never shipped with it, it's done in hardware, and it costs essentially nothing. If one specific game looks wrong, you can switch it off for that game alone (next page).

4 Calibrate, properly

Settings > General > TV & display options > Setup

Calibrate TV walks you through the basic picture settings, and **Calibrate HDR for Games** sets HDR brightness to your actual display. Badly calibrated HDR is why so many people think HDR looks washed out and turn it off. Five minutes, and it makes more visible difference than anything else on this page.

The features nobody finds.

This is the page that actually separates Xbox from every other console. These are real Microsoft features that change how games run, and most people have never opened the menu they live in.

FPS Boost — the big one

My games & apps > highlight the game > Manage game and add-ons > Compatibility options

Microsoft's own description is that FPS Boost uses new methods for **nearly doubling the original frame rate** on select older titles. It works on Series X and Series S only, on supported Xbox One and backward-compatible games — roughly a hundred of them.

- **It isn't always on by default.** On some games it lowers resolution as the trade, so Microsoft leaves the choice to you. Those are exactly the ones worth going and switching on.
- Games running with it show an on-screen indicator, so you can confirm it took.
- If a game looks softer than you'd like, the same screen turns it back off.
- **Auto HDR has a per-game toggle on this same screen**, for the rare game it doesn't suit.

Power options — Sleep vs Shutdown

Settings > General > Power options

Sleep (previously "instant-on") wakes the console instantly and keeps Quick Resume working, drawing roughly 10–15 W while idle. **Shutdown** is the energy-saving mode and takes about 15 seconds to boot, drawing around 0.5 W. Microsoft now defaults new consoles to Shutdown, so if yours feels slower to start than it used to, this is why. Overnight updates still happen either way. **Active hours**, on the same screen, keeps the console ready during the hours you actually play and saves power the rest of the time — the best of both.

Quick Resume — and when to let go of it

Series X and S can suspend several games at once and drop you straight back in. It's automatic; there's nothing to enable. Two things worth knowing: online games often can't resume cleanly and will need reconnecting, and if a game starts behaving oddly after a long suspend, fully quitting it (highlight the game > Menu > Quit) and relaunching clears it. That's not a bug you need to fix — it's just how suspended states work.

Controller latency

There are three ways to connect, and they are not equal. **USB cable** is the fastest and never drops. **Xbox Wireless** — the console's own radio, which is what pairing to the console directly uses — is next. **Bluetooth**, which is what you get pairing to a PC or phone, is the slowest of the three. For anything competitive, play wired.

One thing Xbox doesn't give you

Unlike a PS5, there's **no system-wide "performance mode" preset** on Xbox. If a game offers a choice between smoother frames and a prettier picture, that switch lives in **the game's own graphics or display menu**, and you set it per game. Worth checking the first time you launch anything — plenty of games default to the prettier option, and plenty of people never realise there was a choice.

Storage & heat.

Xbox storage has one rule that catches everybody out, and it's worth getting straight before you spend money on a drive.

The rule everyone gets wrong

Series X|S optimized games can only be played from the internal SSD or an official expansion card. Not from a USB drive — not even a fast one.

- A USB drive **can store** Series X|S games, which saves you re-downloading 100 GB. You just move them back to internal storage to play.
- A USB drive **can run** Xbox One, Xbox 360 and original Xbox games directly, and a USB SSD does that well.
- So a USB drive is a parking space for new games and a real drive for old ones. That's the whole picture.

Expansion cards

These slot into the back of the console and match the internal SSD's speed, so games run from them at full performance with no copying about.

CAPACITIES	512 GB, 1 TB and 2 TB
MADE BY	Seagate, Western Digital and SanDisk all make officially licensed cards. Any licensed card works — buy on price.
FITS	Series X and Series S, same card
SETUP	Slot it in. No formatting, no tools, no opening the console.

They are not cheap. If most of your library is Xbox One or backward-compatible titles, a plain USB 3.0 SSD does the same job for a fraction of the price.

Leave yourself some free space

A Series X gives you around **802 GB** usable and a Series S around **364 GB**, which is less than the box says because the system takes its share. Keep roughly 10% free. A nearly-full drive isn't just slower — it's where failed patches start, which is a far more annoying problem. [Settings](#) > [System](#) > [Storage devices](#) shows what's eating it.

Airflow and dust

- Give it around **10 cm (4 in)** of clear space, especially above a Series X standing upright — that top grille is the exhaust, so don't stack anything on it.
- A closed TV cabinet is the worst place for any console. It just breathes its own hot air.
- Vacuum or brush the vents every few months. With compressed air, spray from **outside** in short bursts and never spin the fan with it.
- Both orientations are supported on a Series X. What matters is clearance, not which way up it sits.

The Xbox One family.

An Xbox One is held back by the same thing a PS4 is: a slow 5,400 rpm laptop hard drive. Unlike a PS4, though, you don't have to open anything to fix it.

The big one: add an external SSD

This is the best thing about Xbox One storage. Games run **directly from an external USB drive**, so you get the benefit of an SSD without a screwdriver anywhere near the console. It transforms load times and game launches. It will **not** raise your frame rate — that's the GPU's job, and the GPU isn't changing.

- You need **USB 3.0 or newer** and at least **128 GB**. A basic USB SSD is ideal.
- Plug it in and the console offers to format it for games. Then install there by default.
- No disassembly, no warranty worries, and you can move the drive between consoles.
- Swapping the internal drive *is* possible but needs a full system reinstall and is far more work for a similar result. The external route is the sensible one.

Video output

Settings > General > TV & display options

Set **Resolution** to what your TV supports, and use **4K TV details** to confirm 4K and HDR are actually getting through (One S and One X only — the original Xbox One is 1080p). Under Video modes, turn on **Allow 4K** and **Allow HDR10** if they're ticked.

Be straight with yourself about what it is

There is no FPS Boost, no Auto HDR and no Quick Resume on an Xbox One — those are Series X|S features and no update will bring them back. The One X is meaningfully more powerful than a One S, but within each model what you have is what you get. An SSD, a clean TV setup and a wired connection are the three real wins available to you, and they're all on these pages.

Housekeeping

- A loud Xbox One is a dusty Xbox One. Clean the vents before you assume it's dying — the fan noise is the console fighting heat.
- Keep free space. Delete the games you've finished; you can always redownload them.
- Power cycle it properly every so often (next page). It clears up more sluggishness than people expect.
- Full teardowns and fresh thermal paste do help an old console, but they void the warranty and are not a beginner's solo job.

When it feels sluggish.

In order: the thing that fixes most problems and costs nothing, down to the one that wipes your console.

1 Power cycle — the real "clear cache"

The Xbox equivalent of clearing the cache. Completely safe, loses nothing, and it genuinely works.

- Hold the console's **power button for about 10 seconds**, until it shuts fully off.
- Unplug the **power cable** and leave it out for **two minutes**. This part matters — it's what actually drains the cache.
- Plug back in and start it normally. A slower boot with the green Xbox logo means it worked.

2 Clear the Blu-ray persistent storage

Settings > Devices & connections > Blu-ray > Persistent storage > Clear

Only for disc drives, and only if discs misbehave. Harmless, but not a performance setting.

3 Check what's installed

Settings > System > Storage devices

Free space is the most common cause of a console that "got slower over the last year". Delete what you've finished before looking for exotic fixes.

4 Reset the console — read carefully

Settings > System > Console info > Reset console

OPTION	WHAT IT DOES	RISK
Reset and keep my games & apps	Rebuilds the system software, leaving your installed games and apps alone. The real last-resort fix.	CARE
Reset and remove everything	Wipes it back to factory: games, apps, settings, local saves and all accounts.	ERASES ALL

Check your saves are in the cloud first — Xbox syncs them automatically online, but confirm rather than assume. Only reach for "remove everything" if you're selling the console.

What the symptom usually means

WHAT YOU'RE SEEING	START WITH
Dashboard slow, apps slow to open	Power cycle, then check free space.
One game stutters, the rest are fine	The game — its settings, Compatibility options, a pending patch.
No 4K, HDR or 120 Hz offered	4K TV details — it's the TV, port or cable, not the Xbox.
Screen goes black at random	A different HDMI cable, then Video modes off one at a time to find it.

Network.

This is the area with the most nonsense attached to it, so here's the split: things that genuinely change your connection, and things that only look like they do.

Actually helps

- **Run an ethernet cable.** Nothing else comes close. Wired is more stable and lower-latency than even good Wi-Fi, and a long flat cable under a rug costs very little.
- **If you must use Wi-Fi, use 5 GHz** and get the console in line of sight of the router.
- **Stop other devices hogging it** while you play. A 4K stream or someone else's download is a real cause of lag spikes.
- **Download overnight.** In Sleep mode, or with Active hours set, nothing is competing for the line.
- **Check your actual speed** at Settings > General > Network settings > Test network speed & statistics, so you know whether it's the console or the line.
- **Router QoS**, if yours has it, can prioritise the console. Worth ten minutes in a busy household.

Doesn't do what people claim

- **Custom DNS.** It can make store pages feel a touch snappier, and it's harmless. It does not raise your download cap, your frame rate or your in-game ping — DNS isn't involved once you're in a match.
- **Clearing the alternate MAC address** (Network settings > Advanced settings). This is a genuine fix for a console that *won't connect*. It is not a speed boost, and running it when your connection is fine does nothing.
- **Chasing NAT Type Open at all costs.** Open is nice and worth a look in your router's UPnP settings, but Moderate is fine for almost every game. A DMZ exposes your console for little gain.
- **Hand-typed MTU values.** Leave it alone. Values copied from a video usually make things worse.
- **VPNs for lower ping.** Adding a detour adds latency. A VPN is for region access, not performance.

Three numbers people keep mixing up

NUMBER	WHAT IT ACTUALLY IS	WHAT CHANGES IT
Download speed	How fast a game downloads. Nothing to do with how a match feels.	Your internet plan, and whoever else is using it.
Ping / latency	How long a message takes to reach the server and come back.	Distance to the server, and wired vs Wi-Fi. Mostly out of your hands.
Input lag	The delay between your thumb and the screen, offline <i>and</i> online.	Your TV, first and foremost. Then a wired controller.

If a game feels laggy, check them in this order: your TV's picture mode, then a wired connection, then your internet line, then the game's own servers. Three of those four you can fix — and in single-player it's almost always the first one, which means the fix is on page 02.

Things that don't work.

All of these are popular. None of them do what the video title said.

"Put your Xbox in Dev Mode to unlock more power"

Developer Mode is real, and it does the opposite — it reserves resources for development and your retail games don't even run in it. It costs money to register for, too. This one gets repeated constantly and it's backwards.

"Clear your cache every day for more FPS"

The real cache clear is the two-minute power cycle, and it's a maintenance step for a sluggish console — not a frame-rate setting. Doing it weekly is pointless, not dangerous.

"Run your Series X games off a fast external SSD"

You can't. Series X|S optimized games only run from internal storage or an official expansion card. A USB drive stores them and runs older titles — that's it.

"Turn off Auto HDR for better performance"

Auto HDR is handled in hardware and costs essentially nothing. Switch it off for one game if it looks wrong in that game — not as a performance setting.

"The Series S does 4K gaming"

It outputs 4K for video apps and upscales, but games target 1440p. Setting the output to 4K doesn't change what the game renders at. That's not a flaw — it's what the console is.

"Instant-on wears your console out"

Sleep mode is a designed feature and it's where updates are meant to happen. It costs you a few watts, not console life. If you want the power saving, use Active hours rather than avoiding it.

"Enable 120 Hz and every game runs at 120 fps"

The setting lets the console output 120 Hz where a game supports it. The game decides the frame rate, and most target 60.

"Clear the alternate MAC address to speed up your internet"

That's a connection-repair step for an Xbox that won't get online. It has nothing to do with speed, and doing it to a working connection achieves nothing.

"Delete and reinstall your games to speed them up"

A reinstall fixes a corrupted install. It doesn't make a working game faster, and you'll burn an evening of bandwidth finding that out.

"Overclock / undervolt your Xbox"

Not a thing on a retail console. There's no menu, no tool and no file to edit.

"This app optimizes your Xbox"

A retail Xbox only runs software signed by Microsoft. Third-party "optimizers" can't touch the system, which is why the honest ones do nothing and the dishonest ones are after your account.

Quick checklist.

The whole guide, condensed. Top to bottom in order of how much difference it makes.

Everyone, every Xbox

- ☐ TV picture mode set to **Game**
- ☐ Motion smoothing **off** (TruMotion / Motionflow / Auto Motion Plus / Action Smoothing)
- ☐ TV's **enhanced HDMI mode enabled on the Xbox's port** (Deep Color / UHD Color / Enhanced format)
- ☐ Using the **HDMI cable that came with the console**, in an HDMI 2.1 port
- ☐ **4K TV details** checked — green ticks across the board
- ☐ **Ethernet cable** plugged in, or at least on 5 GHz Wi-Fi
- ☐ At least **10% free storage**
- ☐ Vents **clear and dusted**, not shut in a cabinet

Series X / Series S

- ☐ **Refresh rate** set to 120 Hz (or 60 to keep VRR)
- ☐ All **Video modes** left on
- ☐ **Calibrate HDR for Games** done properly
- ☐ **FPS Boost checked per game** under Compatibility options
- ☐ **Active hours** set, so it's ready when you play
- ☐ Expansion card if you need space for **new** games
- ☐ USB SSD if you mostly play **older** games
- ☐ Controller **wired** for competitive play

Xbox One / One S / One X

- ☐ **External USB 3.0 SSD** added and set as the install location
- ☐ **Allow 4K** and **Allow HDR10** on (One S / One X)
- ☐ **Power cycled** properly, not just restarted
- ☐ Fan noise investigated = **dust cleaned**
- ☐ Finished games deleted to free space

And ignore

Dev Mode for "more power" · custom DNS for "more FPS" · clearing the alternate MAC address for speed · hand-typed MTU values · VPNs for lower ping · daily cache clearing · console "optimizer" apps · reinstalling working games

Still feels wrong? Narrow it down in this order

- **One game, or all of them?** One game is the game's problem — check its own graphics menu and Compatibility options.
- **One TV input?** Move the HDMI cable to another port and see if the problem moves with it.
- **Only online?** Then it's the network, not the console. Go back to page 08.
- **Everything, all the time?** Power cycle, then "Reset and keep my games & apps". If it persists, it's hardware or heat.

Now go play something.

If you worked through the checklist, your console is doing everything it's capable of doing. The rest is down to the games.

On the PC side

A PC is the opposite situation: it's wide open, and there are hundreds of real settings buried in places you'd never find by hand. That's what **F1zz Tweaks** is for — one app, every tweak explained in plain English, and anything you turn on can be turned straight back off.

f1zztweaks.com

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Pass it on. This guide is free — send the whole PDF to anyone who'd find it useful. Just leave it as it is rather than clipping bits out, since the warnings matter as much as the steps.

