

OnAir User Guide

Optimizing Your System for Audio Performance and Low DPC Latency

Overview

OnAir is designed to enhance the real-time performance of Windows systems used for music production or live audio processing. By optimizing a targeted set of system functions, OnAir significantly reduces DPC (Deferred Procedure Call) latency, which helps prevent audio dropouts, pop noises and glitches.

OnAir Feature Categories

☒ Direct Impact on DPC Latency

These features have a **significant and immediate effect** on DPC latency. They prevent CPU throttling, USB interruptions, and process overloads:

- **Disable USB Sleep**
Prevents USB audio devices from being put to sleep and adds to DPC latency when it wakes up
- **Power Performance**
Sets system to High Performance mode, minimizing CPU scaling delays.
- **Resourcing For Audio**
Prioritizes CPU/RAM for audio processing tasks.
- **Close Non-relevant Apps**
Frees system resources by shutting down non-essential background applications.
- **Disable Dynamic Ticking**
Stops Windows from dynamically adjusting CPU wake-ups which may cause DPC/ISR spikes.

In Windows, the kernel can stop the periodic scheduler tick (the ~15.6 ms heartbeat timer) when a CPU core is idle. This “dynamic tick” reduces wake-ups and saves power. When work appears, the core is woken by the next timer/interrupt and the tick resumes. Dynamic tick kernel will group them onto a single wake-up. This reduces wake-ups (saves power) because one interrupt can service many timers, DPCs, and housekeeping tasks together instead of waking for each one.

While dynamic ticking saves power, it will cause occasional DPC/ISR spikes. It also interacts with deep C-states (lower-power CPU sleep) and chipset power saving, and exiting deep sleep adds wake latency that shows up as higher DPC execution time and buffer underruns/pops.

NOTE: This is an advanced core, kernel feature that requires a system restart to take effect.

Moderate/Indirect Impact on DPC Latency

These settings reduce background activity or system tasks that can *indirectly* cause latency spikes:

- **Suspend Windows Update**
Prevents disruptive background updates and scans.
- **Turn Off Network**
Shuts down network interfaces that may introduce latency via drivers.
- **Disable SSD Standby**
Prevents I/O delay from SSD power state transitions.
- **Disable Screen Saver**
Eliminates display-related interrupts that may affect audio processing.

Minimal/Low Impact on DPC Latency

These features clean up the user environment but have *minor or indirect* effects on audio latency:

- **Disable Visual Effects**
Reduces GPU load, but most systems already handle visuals efficiently.
- **Turn Off System Sound**
Prevents notification sounds from disrupting the user experience.

Feature Summary Table

DPC Latency Impact	Features
Direct Impact	Disable USB Sleep, Power Performance, Resourcing For Audio,

DPC Latency Impact	Features
Moderate Impact	Close Non-relevant Apps
	Suspend Windows Update, Turn Off Network, Disable SSD Standby, Disable Screen Saver
Minimal/Low Impact	Disable Visual Effects, Turn Off System Sound

Technical Mapping

Feature	Category	Windows Action Type	DPC Direct	DPC Moderate	DPC Low
Dynamic Ticking	Core	Kernel	✓		
Resourcing For Audio	Settings	System Setting	✓		
Turn Off System Sound	Settings	System Setting			✓
Disable Visual Effects	Settings	System Setting			✓
Disable Screen Saver	Settings	System Setting		✓	
Disable USB Sleep	Services	Device Power → Power Services	✓		
Power Performance	Services	System Setting → Power Services	✓		
Disable SSD Standby	Services	Device Power → Power Services		✓	
Turn Off Network	Services	Network Configuration → Network Services		✓	
Suspend Windows Update	Services	Background Services		✓	
Close Non-relevant Apps	Apps	Process/Application Control	✓		

Best Practice

Enable all **Direct** and **Moderate** impact features when performing latency-sensitive work such as: - Live music performance - Multi-track recording - Audio mastering and real-time effects

Tip: “Minimal Impact” features sacrifice some user interface experience but may be helpful if your system is struggling with DPC latency issue. Every little bit of DPC interference reduction helps avoid interruptions to processing of your audio stream.

For more help, visit our website or contact our team directly at: support@after5studio.com
