Basic Tweaks

Basic Tweaks that are good to know and don't interfere with power saving features and other stuff.

For people who don't want to perform deep tweaking.

Updated Jul 15 2020. [Windows Firewall Warning](.).

Updated Aug 1 2022. DalDramClockChangeLatencyNs seems to cause massive flickers on some AMD GPUs, use it at your own risk. If you're experiencing problems, simply delete the dword and reboot the system.

Updated June 15 2025. **Please read**: If you're planning to use these on modern multiplayer games, there's a massive chance that the anticheat or the game itself might complain due to the fact that they added random checks. This doesn't always happen, but the most popular games have such checks. If you want to troubleshoot later, keep in mind **that they do not tell you what's wrong when they crash**, which is done on purpose to make troubleshooting more difficult.

ESSENTIALS

Disable 57-bits 5-level paging, also known as "Linear Address 57". Only 100% effective on 10th gen Intel. 256 TB of virtual memory per-disk is way much more than enough anyway.

bcdedit /set linearaddress57 OptOut

bcdedit /set increaseuserva 268435328

Avoid the use of uncontiguous portions of low-memory from the OS. Boosts memory performance and improves microstuttering at least 80% of the cases. Also fixes the command buffer stutter after disabling 5-level paging on 10th gen Intel. Causes system freeze on unstable memory sticks.

bcdedit /set firstmegabytepolicy UseAll

bcdedit /set avoidlowmemory 0x8000000

bcdedit /set nolowmem Yes

Disable some of the kernel memory mitigations. Causes boot crash/loops if Intel SGX is enforced and not set to "Application Controlled" or "Off" in your Firmware. Gamers don't use SGX under any possible circumstance.

bcdedit /set allowedinmemorysettings 0x0

bcdedit /set isolatedcontext No

Disable DMA memory protection and cores isolation ("virtualization-based protection").

bcdedit /set vsmlaunchtype Off

bcdedit /set vm No

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\FVE

DisableExternalDMAUnderLock -> 0

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\DeviceGuard

EnableVirtualizationBasedSecurity -> 0

HVCIMATRequired -> 0

Disable Process and Kernel Mitigations.

powershell "ForEach($v in (Get-Command -Name \"Set-ProcessMitigation\").Parameters[\"Disable\"].Attributes.ValidValues){Set-ProcessMitigation -System -Disable $v.ToString() -ErrorAction SilentlyContinue}"

powershell "Remove-Item -Path \"HKLM:\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Image File Execution Options*\" -Recurse -ErrorAction SilentlyContinue"

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\kernel

DisableExceptionChainValidation -> 1

KernelSEHOPEnabled -> 0

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management

EnableCfg -> 0

Use realtime priority for csrss.exe.

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Image File Execution Options\csrss.exe\PerfOptions

CpuPriorityClass -> 4

IoPriority -> 3

Disable RAM compression.

powershell "Disable-MMAgent -MemoryCompression"

Enable Kernel-Managed Memory and disable Meltdown/Spectre patches.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management

FeatureSettings -> 1

FeatureSettingsOverride -> 3

FeatureSettingsOverrideMask -> 3

Disallow drivers to get paged into virtual memory.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management

DisablePagingExecutive -> 1

Use big system memory caching to improve microstuttering.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management

LargeSystemCache -> 1

Use big pagefile to improve microstuttering (reboot or system might become unstable and BSoD).

wmic computersystem where name="%computername%" set AutomaticManagedPagefile=False

wmic pagefileset where name="C:\\pagefile.sys" set InitialSize=32768,MaximumSize=32768

Disable additional NTFS/ReFS mitigations.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager

ProtectionMode -> 0

Enable X2Apic and enable Memory Mapping for PCI-E devices.

(for best results, further more enable MSI mode for all devices using MSI utility or manually)

bcdedit /set x2apicpolicy Enable

bcdedit /set configaccesspolicy Default

bcdedit /set MSI Default

bcdedit /set usephysicaldestination No

bcdedit /set usefirmwarepcisettings No

Disable synthetic TSC tick and use accurate RTC instead (not to be confused with useplatformclock). Enable HPET in BIOS for best results. Only for untweaked systems (TSC recommended instead on tweaked systems).

bcdedit /deletevalue useplatformclock

bcdedit /deletevalue disabledynamictick

bcdedit /set useplatformtick Yes

bcdedit /set tscsyncpolicy Enhanced

Set a reliable 1 ms (minimum) timestamp. Only for untweaked systems (disabling it with 0 is recommended on tweaked systems).

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Reliability

TimeStampInterval -> 1

Force contiguous memory allocation in the DirectX Graphics Kernel.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\GraphicsDrivers

DpiMapIommuContiguous -> 1

Force contiguous memory allocation in the NVIDIA driver.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4d36e968-e325-11ce-bfc1-08002be10318}\0000

PreferSystemMemoryContiguous -> 1

(0000 may vary depending on the GPU number)

Enforce Security-Only Telemetry (disable other kinds of Telemetry).

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\DataCollection

AllowTelemetry -> 0

Disable Application Telemetry.

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\AppCompat

AITEnable -> 0

Disable Windows Error Reporting.

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\Windows Error Reporting

Disabled -> 1

Enable Experimental Autotuning and NEWRENO congestion provider.

netsh int tcp set global autotuning=experimental

netsh int tcp set supp internet congestionprovider=newreno

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\QoS

Tcp Autotuning Level -> Experimental

Application DSCP Marking Request -> Allowed

Enable WH send and WH receive.

powershell "Get-NetAdapter -IncludeHidden | Set-NetIPInterface -WeakHostSend Enabled -WeakHostReceive Enabled -ErrorAction SilentlyContinue"

Enable UDP offloading.

netsh int udp set global uro=enabled

Enable Teredo and 6to4 (Win 2004 Xbox LIVE fix).

netsh int teredo set state natawareclient

netsh int 6to4 set state state=enabled

Disable local firewall (you're behind a NAT / router dude).

~~netsh advfirewall set allprofiles state off~~

There seems to be a bug with Windows Firewall and IPsec when disabling the local firewall. This causes IPsec to ignore all the advanced tunneling settings that have been set in the source program / connector, and this causes IPSec servers to refuse the connection in some cases. To revert:

netsh advfirewall set allprofiles state on

Enable Winsock Send Autotuning (dynamic send-buffer)

netsh winsock set autotuning on

Decrease mouse and keyboard buffer sizes.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\mouclass\Parameters

MouseDataQueueSize -> 16 decimal

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\kbdclass\Parameters

KeyboardDataQueueSize -> 16 decimal

Tell Windows to stop tolerating high DPC/ISR latencies.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Power

ExitLatency -> 1

ExitLatencyCheckEnabled -> 1

Latency -> 1

LatencyToleranceDefault -> 1

LatencyToleranceFSVP -> 1

LatencyTolerancePerfOverride -> 1

LatencyToleranceScreenOffIR -> 1

LatencyToleranceVSyncEnabled -> 1

RtlCapabilityCheckLatency -> 1

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\GraphicsDrivers\Power

DefaultD3TransitionLatencyActivelyUsed -> 1

DefaultD3TransitionLatencyIdleLongTime -> 1

DefaultD3TransitionLatencyIdleMonitorOff -> 1

DefaultD3TransitionLatencyIdleNoContext -> 1

DefaultD3TransitionLatencyIdleShortTime -> 1

DefaultD3TransitionLatencyIdleVeryLongTime -> 1

DefaultLatencyToleranceIdle0 -> 1

DefaultLatencyToleranceIdle0MonitorOff -> 1

DefaultLatencyToleranceIdle1 -> 1

DefaultLatencyToleranceIdle1MonitorOff -> 1

DefaultLatencyToleranceMemory -> 1

DefaultLatencyToleranceNoContext -> 1

DefaultLatencyToleranceNoContextMonitorOff -> 1

DefaultLatencyToleranceOther -> 1

DefaultLatencyToleranceTimerPeriod -> 1

DefaultMemoryRefreshLatencyToleranceActivelyUsed -> 1

DefaultMemoryRefreshLatencyToleranceMonitorOff -> 1

DefaultMemoryRefreshLatencyToleranceNoContext -> 1

Latency -> 1

MaxIAverageGraphicsLatencyInOneBucket -> 1

MiracastPerfTrackGraphicsLatency -> 1

MonitorLatencyTolerance -> 1

MonitorRefreshLatencyTolerance -> 1

TransitionLatency -> 1

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4d36e968-e325-11ce-bfc1-08002be10318}\0000

(NVIDIA GPU)

D3PCLatency -> 1

F1TransitionLatency -> 1

LOWLATENCY -> 1

Node3DLowLatency -> 1

PciLatencyTimerControl -> 32 decimal

RMDeepL1EntryLatencyUsec -> 1

RmGspcMaxFtuS -> 1

RmGspcMinFtuS -> 1

RmGspcPerioduS -> 1

RMLpwrEiIdleThresholdUs -> 1

RMLpwrGrIdleThresholdUs -> 1

RMLpwrGrRgIdleThresholdUs -> 1

RMLpwrMsIdleThresholdUs -> 1

VRDirectFlipDPCDelayUs -> 1

VRDirectFlipTimingMarginUs -> 1

VRDirectJITFlipMsHybridFlipDelayUs -> 1

vrrCursorMarginUs -> 1

vrrDeflickerMarginUs -> 1

vrrDeflickerMaxUs -> 1

(AMD GPU)

LTRSnoopL1Latency -> 1

LTRSnoopL0Latency -> 1

LTRNoSnoopL1Latency -> 1

LTRMaxNoSnoopLatency -> 1

KMD_RpmComputeLatency -> 1

DalUrgentLatencyNs -> 1

memClockSwitchLatency -> 1

PP_RTPMComputeF1Latency -> 1

PP_DGBMMMaxTransitionLatencyUvd -> 1

PP_DGBPMMaxTransitionLatencyGfx -> 1

DalNBLatencyForUnderFlow -> 1

DalDramClockChangeLatencyNs -> 1 (WARNING: This dword caused massive screen flickering for some people, use it at your own risk. If you're already using it and you have problems, simply delete the dword and reboot the system)

BGM_LTRSnoopL1Latency -> 1

BGM_LTRSnoopL0Latency -> 1

BGM_LTRNoSnoopL1Latency -> 1

BGM_LTRNoSnoopL0Latency -> 1

BGM_LTRMaxSnoopLatencyValue -> 1

BGM_LTRMaxNoSnoopLatencyValue -> 1

LOGGING OPTIONALS

Enable detailed startup/shutdown messages.

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System

VerboseStatus -> 1

ANTIVIRUS OPTIONALS

Disable Windows Defender Antivirus

bcdedit /set disableelamdrivers Yes

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows Defender

DisableAntiSpyware -> 1

DisableRoutinelyTakingAction -> 1

ServiceKeepAlive -> 0

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows Defender\Real-Time Protection

DisableBehaviorMonitoring -> 1

DisableIOAVProtection -> 1

DisableOnAccessProtection -> 1

DisableRealtimeMonitoring -> 1

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows Defender\Reporting

DisableEnhancedNotifications -> 1