

Windows Configuration guide

Windows has been designed for a wide variety of applications. Unfortunately that means that, out-of-the-box, it works correctly for office or entertainment applications, but for DAW applications, several settings and features have to be fine-tuned.

BIOS

If you can access your computer BIOS, it is recommended to disable all power management features of your CPU, as this implies changes in the CPU speed and that is far from optimal for any audio application.

Same applies to overclocking.

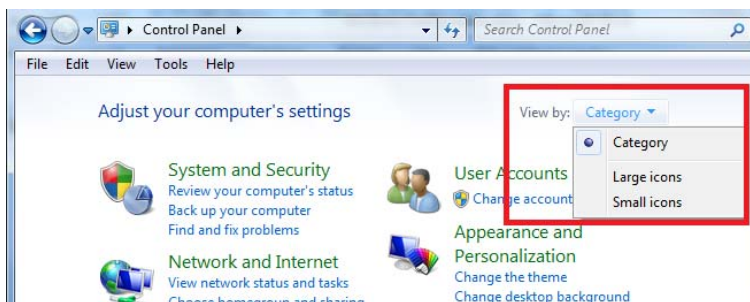
Please have a look at your motherboard manual to locate these settings:

- *Intel Turbo Boost Technology*: **Disabled**
- *CPU Enhanced Halt (C1E)*: **Disabled**
- *C-State Support (C3, C6, C7, C8 State)*: both **Disabled**
- *CPU EIST Function*: **Disabled** (also called Intel Enhanced SpeedStep, that should always be disabled)

WINDOWS CONFIGURATION

Windows Control Panel

For ease of use, it is recommended to set the Control Panel to **Small Icons**.



Disable Windows User Account Control (UAC)

- User Accounts > Change User Account Control settings > set it to **Never notify**. > OK.

View hidden files, folders and drives and show file extensions in Windows Explorer

1. *Folder Options* > *View* tab :
2. *Hidden files and folders* : set it to **Show hidden files, folders or drives**
3. *Hide empty drives in the Computer folder* : **disable**
4. *Hide extensions for known file types* : **disable**
5. Leave Hide protected operating system files (recommended) active.

WINDOWS CONFIGURATION Continued

Power Options

1. Set the power scheme to *High Performance* or *RTX – recommended* (MassCore users) .
2. *Change plan settings*
 - a. Screen Saver (*Turn off the display*) is usually set to **Never**. If you are recording, you surely don't want the display to turn off after several minutes!
 - b. *Put the computer to sleep* must be set to **Never**
 - c. Access *Change advanced power settings* and make sure that:
 - i. *Hard Disk > Turn off Hard disk after:* **Never**
 - ii. Desktop background settings > Slide show: **Paused**
 - iii. *Sleep > Sleep after:* **Never** / *Allow hybrid sleep:* **off** / *Hibernate after:* **Never** / *Allow wake timers:* **Disable**.
 - iv. *USB Settings > USB selective suspend setting:* **Disabled**
 - v. *PCI Express > Link State Power Management:* **Off**
 - vi. *Processor power management > System Cooling policy :* **Active**
 - vii. *Minimum and Maximum processor state:* **100%**

Sound

- Windows can notify the user of some vents by playing a sound.
If your ASIO device is also used by Windows to play its sounds, it may cause audio drops as it will access the device.
In that case it is recommended to access the **Sounds** tab and set the **Sound Scheme** to **No Sounds**.

System > Advanced System Settings

1. Go to the Advanced tab > Performance: Settings
2. *Select the Visual Effects* tab:
3. These settings have to be disabled to prevent system peaks:
 - a. *Animate Windows when minimizing and maximizing* : **disable**
 - b. *Animations in the taskbar and Start Menu* : **disable**
 - c. *Aero Peek* : **disable**
 - d. *Transparent Glass* : **disable**
 - e. *Fade or slide menus / ToolTips into view* : **disable**
 - f. *Save taskbar thumbnail previews* : **disable**
 - g. *Show translucent selection rectangle*: **disable**
 - h. *Show window content while dragging*: **disable**
 - i. *Slide open Combo boxes*: **disable**
 - j. *Enable Desktop Composition* should be **enabled** if you use a separate graphic card, and **disabled** if you use onboard graphics (Intel)

Onboard graphics (Intel)

Custom:

- Animate controls and elements inside windows
- Animate windows when minimizing and maximizing
- Animations in the taskbar and Start Menu
- Enable Aero Peek
- Enable desktop composition
- Enable transparent glass
- Fade or slide menus into view
- Fade or slide ToolTips into view
- Fade out menu items after clicking
- Save taskbar thumbnail previews
- Show shadows under mouse pointer
- Show shadows under windows
- Show thumbnails instead of icons
- Show translucent selection rectangle
- Show window contents while dragging
- Slide open combo boxes
- Smooth edges of screen fonts
- Smooth-scroll list boxes
- Use drop shadows for icon labels on the desktop
- Use visual styles on windows and buttons

Graphic card (AMD)

Custom:

- Animate controls and elements inside windows
- Animate windows when minimizing and maximizing
- Animations in the taskbar and Start Menu
- Enable Aero Peek
- Enable desktop composition
- Enable transparent glass
- Fade or slide menus into view
- Fade or slide ToolTips into view
- Fade out menu items after clicking
- Save taskbar thumbnail previews
- Show shadows under mouse pointer
- Show shadows under windows
- Show thumbnails instead of icons
- Show translucent selection rectangle
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System > Advanced System Settings Continued

4. **Advanced tab:**
 - a. *Processor Scheduling* should be set to **Background Services** for Native ASIO users.
 - b. *Data Execution Prevention* tab:
 - i. **Turn on DEP for essential Windows programs and services only.**
5. **Advanced tab > System Protection:**
 - a. Make sure protection is turned off on the Media drive(s), as this feature only protect system files, but not media files.

Windows Update

- You should install important updates, recommended updates are optional.
- You may create a System Restore point before installing Windows updates.

Windows Update for Win 7 users

- Click on *Change Settings*: **Check for updates but let me choose whether to download and install them.**

Window Update for Win 8.1 users

- Click on *Change settings*: **Check Only (Do Not Download & Do Not Install)**

Windows Update for Win 10 users

- You must use the Group Policy Editor, as updates are applied automatically. Note: The Group Policy Editor is not accessible in Windows Home Editions.
 1. Hit the **Windows** key to open **Start Menu**.
 2. Type in "**Group Policy Editor**" and launch it from the results.
 3. Go to **Computer Configuration** and expand the **Administrative Templates** folder.
 4. Select **All Settings** and then select **Configure Automatic Updates**.
 5. Double-click on the entry and enable it by clicking the **Enabled radio button** at the top-left.
 6. Now you will be able to edit the greyed out **Options** pane at the bottom.
 7. You can now configure the way updates are handled by opening the combo-box and selecting the final option: **Allow local admin to choose setting**.
- After successfully enabling this option, you need to unlock access to it.
 1. Launch **Control Panel** and go to the **System and Security** settings.
 2. Launch **Windows Update** and select **Change settings**.
 3. You should now get the option: "**Check for updates, but let me choose whether to download and install them**".

Windows Firewall

- RAVENNA Users have to disable the Windows Firewall (for Public Networks).

Windows Defender and antivirus

- Tools page > Options: adjust **Automatically scan my computer** to your needs.
- Virus Scanning should NEVER run at the same time as Merging software.
- If you plan to install an Antivirus software, Windows Defender will be disabled.
- You should also disable scanning of the Pyramix files (pmx, pmf, pml, pad, pmw) but also media files (wav, aif, flac, mp3,...), because each time the DAW have to access such file, your antivirus may scan it.
- AVAST has already caused a lot of problems with several Merging programs, it is therefore not recommended.
- AVG Free has been used quite a lot and has had good feedback from our users. However, we cannot completely and constantly validate anti-virus solutions so for the best choice, please consult the [Merging Forum](#)

Device Manager Setup

Ports (COM & LPT)

- If you use 9pin-RS422 connection:
 - *Communication Port (COM x)* > Properties
 - *Ports Settings* tab > *Advanced* > set both *Receive* and *Transmit buffer* to **Low (4)**

Universal Serial Bus controllers

- Check each USB Root Hub and disable power management if any, by right clicking on it and accessing its properties.

Network Adapters

- Right click on your network adapter and access its properties to disable the power management features:
- Disable *Energy Efficient Ethernet* and *Green Ethernet*, and *all Power Saver / Power management* features.
- RAVENNA ASIO users have to set *WOL & Shutdown Link Speed* to *Not Speed Down*.

MEDIA DRIVES

By default; Windows will index the content of all drives, which allows Windows Search to work faster. But this indexing task takes CPU power and can result in performance issue when recording.

Internal Drives

To disable the Windows indexing, open My Computer

1. Right-click on the Media Drive(s)
2. Select Properties
3. Disable ***Allow files on this drive to have contents indexed in addition to file properties*** checkbox.
4. Format block size
 - a. if you only use audio files, the best size is 64 Kb when formatting the drive.
 - b. But if you also need to use video files, 64Kb is not the optimal size
 - i. in that case keep the Default Allocation size (128Kb)
 - ii. The best way is to use separate drives for video and audio, if possible.

External drives

Access your external drive properties through Windows Device Manager and set it to ***optimize for performance***.



Notes Regarding Media Drives

- Never use “Compress this drive to save space” on any drive in the system
- Always use separate physical hard drives for Audio and Video media being used for your projects.

SYSTEM CONFIGURATION (MSCONFIG)

Many installed programs have associated background services, which usually can then start faster, or get updates automatically. But this uses memory and CPU power, so you should only run useful programs.

!!!Be careful in this area, if you remove an essential program or service, Windows may not start anymore !!!

Steps:

1. Windows Control Panel > Administrative Tools > System Configuration:
 - a. Services Tab
 - i. Check the box **Hide all Microsoft services**, those are critical for Windows.
 - ii. Service Bonjour is critical for RAVENNA networks and Virtual Transport.
 - iii. Do not disable your graphic card and ASIO card driver or service.
 - iv. Common services that can be disabled are: printer services, Skype, QuickTime updaters ...
 - b. Startup tab
 - i. Do not disable Microsoft Windows Operating System or any other critical driver – program for your system.
 - ii. Common programs that can be disabled are Adobe Reader, Java updater, Skype, QuickTime... Those programs will be still be installed and accessible, but will not be loaded during Windows startup.

DEVICE DRIVERS

Merging recommends to install WHQL (Driver certified by Microsoft) or if not available, the latest drivers from the manufacturer website.

- **Install the drivers ONLY, do not install the utilities it can cause much trouble.**
- Do not install Intel® Control Center that is included in Intel® Rapid Storage Technology installer or Intel® Management Engine installer.
- Do not install the RealTek Ethernet Diagnostic utility.

DPC LATENCY CHECK

To handle real time application, the CPU gets a defined amount of time to perform the required tasks. If those tasks are delayed, the result is usually drop-outs in the signal. A common tool to verify if your computer is able to handle real-time audio is DPC Latency Checker. If you experience DPC latency issues, disable each device one by one to see if there is any improvement in DPC latencies.

- Remember that some devices cannot be disabled.
- Wi-Fi, LAN, specific USB devices, on-board audio, PCI / PCIe devices are the common culprits.
- See http://www.thesycon.de/deu/latency_check.shtml for further details.
- !!! The DPC latency utility runs on Windows 8 or 10 but does not show correct values.