

Windows XP tweaks for audio systems

About this page:

While I was building a new music PC based on Windows XP, I tried to hunt down as many optimization tricks as possible to get the best audio performance. There are excellent websites available, but some sites only feature a few tweaks, others differ very much in terms of "what should be done and what not". So I decided to collect the IMO most valuable tips which I have applied to my system and put them on this page in an easy-to-follow list form.

Disclaimer:

The following tweaks have not been discovered by myself, but are just a compilation of audio tweaking tips I have found on various websites. The aim is to provide a list for everyone who is in need to tweak a Windows XP system for best audio performance. I do not claim any copyright for these informations. Please note, that you must not use all the tweaks and that **I do not take any responsibility for data loss, system damages or anything else that could happen as result of applying these tweaks.** Most of the tweaks require a solid knowledge of Windows XP and its components, so please make sure you are experienced enough, before you try anything mentioned here

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Windows XP and APIC

According to most sources on the web, using APIC should not be a problem with Windows XP if your components are not too old and APIC compatible. So only configure your PC as "standard PC", if you experience problem or if your components are not APIC compatible.

Tweaking tips & tricks

1. Processor Scheduling

should be set to "background services" and not "programs"

Start > Settings > Control Panel > System > Advanced > Performance Settings > Advanced Tab > Background Services

2. Turning off visual effects

Start > Settings > Control Panel > System > Advanced > Performance Settings > Visual Effects Tab > Adjust for best performance

You can then tick the most desired options like smoothing of fonts or usage of schemes to get back the desired windows look.

3. No Desktop background image

right-click Desktop > Properties > Desktop Tab > Background None

4. Disable the screen saver

right-click Desktop > Properties > Screen Saver > None

5. Disable Fast User Switching

Start > Settings > Control Panel > User Accounts > Change the way users log on or off > Untick Use Fast User Switching

6. Switch off Windows Power Schemes

Open the "Power Options" of your Control Panel and set Power Schemes *Turn Off Monitor* to "Never" and *Turn Off Discs* to "Never".

If the BIOS of your PC supports deactivation, also consider deactivating power management in the BIOS too.

7. **Switch Off Hibernation**

Start > Settings > Control Panel > Power Options > Hibernate > Untick Hibernation

8. **Activate DMA on Hard Discs/CD ROMS**

Start > Settings > Control Panel > System > Hardware > Device Manager > IDE ATA/ATAPI Controllers

Right-click Primary IDE channel and Secondary IDE channel > Properties > Advanced Settings Tab > Transfer Mode to "DMA if available" for both devices.

9. **Disable all system sounds**

Start > Settings > Control Panel > Sounds and Audio Devices > Sounds Tab > Sound Scheme to None.

10. **Do Not Map Through Soundcard**

Start > Settings > Control Panel > Sounds and Audio Devices > Hardware Tab > (highlight your soundcard from the list) > Properties > Audio Devices > (highlight your soundcard from the list) > Properties, and check the "Do not map through this device" checkbox.

Should work only with soundcards supporting this feature.

11. **Disable System Restore**

Start > Settings > Control Panel > System > System Restore Tab
Tick the "Turn off System Restore on all Drives"

12. **Disable Automatic Updates**

Start > Settings > Control Panel > System > Automatic Updates > Turn off automatic updating. I want to update my computer manually

13. **Startup and Recovery Options**

Start > Settings > Control Panel > System > Advanced > Startup and Recovery Settings > Untick Automatically Restart

14. **Disable Error Reporting**

Start > Settings > Control Panel > System > Advanced > Error Reporting > Disable Error Reporting

15. **Disable Remote Assistance**

Start > Settings > Control Panel > System > Remote > Untick Allow remote assistance invitations to be sent from this computer

16. **Fix Swap File (Virtual Memory)**

Start > Settings > Control Panel > System > Advanced > Performance Settings > Advanced > Virtual Memory Change > Custom Size

Set initial and maximum size to the same value.

This will help to speed up your system, as Windows does not dynamically allocate more disk space.

Good values to set are 1.5 to 2 times the amount of total RAM installed in the PC (for both, initial and maximum

size).

If you have > 512 MB RAM installed, you could check to disable virtual memory - the effect however might depend on your system.

17. **Clear Swap file at system shutdown**

It can be helpful to clear the swap file at shutdown, so it won't be corrupted or might contain old data.

1. Start -> Run -> "secpol.msc"
2. Go to "Local Policies" -> "Security Options"
3. Double click on "Shutdown: Clear virtual memory pagefile" and enable it.

18. **Speed-up menus**

Start > Run > Regedit > HKEY_CURRENT_USER > Control Panel > Desktop Folder
Set MenuShowDelay to 1

Speeding up of menus is usually done by Emagics installer for Logic Audio (it should be there as an option during the installation process, so there might be no need to change it if menus are already opening fast).

19. **Disable "Offline Files"**

Start > Settings > Control Panel > Folder Options > Offline Files
Untick "Enable Offline Files"

20. **Disable Remote Desktop**

Start > Settings > Control Panel > System > Remote
Untick "Allow users to connect remotely to this computer"

21. **Disable "Internet Synchronise Time"**

Start > Settings > Control Panel > Date and Time > Internet Time
Untick "Automatically synchronize with internet time server"

22. **Disable "Hide Inactive Icons"**

Start > Settings > Taskbar and Start Menu > Taskbar TAB
Uncheck "Hide Inactive Icons"

23. **Disable "Automatic Desktop Cleanup Wizard"**

Start > Settings > Control Panel > Display > Desktop > Customise Desktop
Untick "Run Desktop Cleanup Wizard every 60 days"

24. **Disable NTFS Last Access Time Logging (NTFS File Systems Only)**

Start > Run > regedit > HKEY_LOCAL_MACHINE > System > CurrentControlSet > Control > Filesystem

Add a new DWORD value - "NtfsDisableLastAccessUpdate" and set value to 1.
This change prevents Windows XP from updating the last access timestamp every time it accesses the hard drive (updating timestamps may significantly decrease performance)

Reboot your system for the changes to take effect.

25. **Disable Notification Area Balloon Tips**

Start > Run > regedit > HKEY_CURRENT_USER > Software > Microsoft > Windows > CurrentVersion > Explorer > Advanced
Create a new DWORD value called EnableBalloonTips and set to 0.

26. **Disable CDROM Autoplay**

Start > Run > regedit > HKEY_LOCAL_MACHINE > System > CurrentControlSet > Services > Cdrom
Set autorun to 0.

or:

Start -> Run... > GPEDIT.MSC
Computer Configuration -> Administrative Templates -> System
Enable "Turn off autoplay"

27. **Disable Disc Indexing Service**

Right Click Start > Explorer > Right Click Each Disc > Properties
Untick "Allow Indexing Service to index this disc for fast file searching" - this will lead to a message if the option should be applied to all directories. Choose "yes..." and wait, until procedure is finished.

28. **Check color depth of graphics card**

It is recommended to use at least 16-bit color depth for your graphics card. Most newer cards seem to be optimized to work faster with more colors. If you experience problems, then try using 16-bit instead of 24-bit at first. It is normally not advisable to use 256 colors.

Always update with the latest graphics card driver from the manufacturer.

Another option could be, set NOT set the graphics card to "full acceleration", but to move the acceleration slider one tick to the left.

29. **Disable all unused ports / devices to free IRQ for soundcard**

If your BIOS supports disabling of devices / ports and you are familiar with those options, you could:

- * deactivate COM ports in order to get an interrupt for your soundcard (only if you don't use COM ports)
- * deactivate USB, if you don't use it
- * deactivate parallel port if not in use

If you still have problems with IRQ sharing, then consider moving the card to another free slot. Please read your mainboards manual, as some PCI slots are master slots (number and position might depend on mainboard brand).

30. **Make sure your soundcard does not share IRQs**

It is important that your soundcard has its own interrupt. You could check this, by
Start > Settings > Control Panel > System > Hardware > Device Manager
Then select the sorting options in the menu, to see if your soundcard has its own IRQ.

<http://support.microsoft.com/default.aspx?scid=kb;EN-US;q314068>

For an in-depth explanation and history of IRQ's, click on the link below.

<http://www.pcguide.com/ref/mbsys/res/irq/>

31. **Network Cards**

Some network cards (3Com Ethernet) can cause "crackles" with audio. If you are experiencing problems related to this, then it may be worth disabling the network card. You can disable the network card in the device manager.

It is also an option to consider setting up separate hardware profiles in XP so that you can configure your devices and services according to how the PC will be used.

32. **Remote DLLs from memory**

Windows keeps DLLs from programs that are shutdown in memory for a while. It's a good idea to remove all DLLs from the system memory, when you close an application.

Launch "Regedit"

Open the following tree

HKEY_LOCAL_MACHINE > SOFTWARE > Microsoft > Windows > Current Version > Explorer

Move the mouse pointer to an empty space in the right window and right-click there. Click "New" and enter new

String

"AlwaysUnloadDLL". Double click on this new string and enter value "1" (without quotes). Close Regedit and reboot PC in order to make this work.

33. **Prevent windows from swapping its kernel / large system cache**

Even with a lot of memory installed, Windows swaps its kernel onto the harddisk. Here's how to keep the kernel in the systems memory:

Launch "Regedit"

Open the following tree

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

Search in the right window for an entry called "DisablePagingExe".

Double click on this entry and change value to "1" (without quotes).

Search in right window for an entry called

"LargeSystemCache"

and change the value to "1" (without quotes)

Close Regedit and reboot PC in order to make this work.

34. **Unregister ZIP option**

In Windows XP it is by default possible to extract and read .ZIP archives. This is nice if you don't own progs like WinZIP or PowerArchiver, but on the other hand slows down file access. If you own a program that is capable of handling .ZIP files, it is a good idea to remove this built-in option from windows XP.

Start > Run... then enter

```
regsvr32 /u zipfldr.dll
```

Confirm the deactivation and reboot your PC in order to make changes permanent.

35. **Change the way users log on**

Start > Settings > Control panel > user accounts

Click "Change the way users log on or off". Deselect "Use welcome screen" and "use fast user switching".

36. **Switch off the search-dialog puppy**

Click somewhere on the desktop, then open search dialog by pressing F3. Click "Change preferences" or (if not available)

click on puppy. Select "without an animated screen character" or simply deactivate animation according to your options.

37. **Remove unnecessary Windows components**

Open the "SYSOC.INF" file located in the \windows\inf folder with NOTEPAD.

Remove the word "hide" from any line which contains it (but leave all the commas etc.)

Reboot your PC, then open

Start > Settings > Control Panel > Software

Select "Add/Remove Windows components". You now get a complete list of all available components. There you may deactivate components that are not necessary for your system to work (like Windows Messenger, ISS etc.) Please be careful when removing components and be sure what you are doing, otherwise you could run into problem when rebooting your system.

38. **Limit usage of swapfile**

Some tweak sites recommend to add the following line in the [386enh] section of SYSTEM.INI

ConservativeSwapfileUsage=1

Personally, I did not yet test this.

39. **L2 Cache Tweak**

Launch "Regedit" and open the tree

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

Change "SecondLevelDataCache" to a value in kb (Dec) corresponding to the size of your processors L2 cache.

AMD Duron: **64**

CeleronA / Celeron2: **128**

PII mobile / PIII E(EB)/AD K6-3/AMD Thunderbird/Cyrix III: **256**

AMD K6-2/PII/PIII Katmai/AMD Athlon: **512**

PII Xeon/PII Xeon: **1024**

40. **Speed up network browsing**

Load "Regedit" and open the key

HKEY_LOCAL_MACHINE > SOFTWARE > Microsoft > Windows > CurrentVersion > Explorer > RemoteComputer > NameSpace > {D6277990-4C6A-11CF-8D87-00AA0060F5BF}

Delete this key and reboot.

41. **Get rid of QoS**

Start > Run... > GPEDIT.MSC

Go to Computer Configuration > Administrative Templates > Network > QoS Packet Scheduler

Change "Limit reservable bandwidth" to Enable and change % to "0" (Zero without quotes).

42. **NTFS - disable creation of short file names**

By default NTFS generates compatible file names with 8 characters for compatibility with older OS versions. If this is not necessary, then you may consider turning off that mode.

Run "Regedit" and open tree

HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Control > FileSystem

Change this value of NtfsDisable8dot3NameCreation to "1" (without quotes), then reboot PC.

43. **NTFS - reserve proper space for master file table**

Run "Regedit" and open the tree

HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Control > FileSystem

Add a new entry called "NtfsMftZoneReservation" as a REG_DWORD key.

When you add this entry to the registry, the system will reserve space on the volume for creation of the master file table. This allows the table to grow optimally. If the volume contains relatively few files that are typically large, then set value of this registry entry to "1" (the default, without quotes).

Use "2" or "3" for a moderate number of files and "4" (the maximum) if your volume tends to contain a relatively large number of files. Be sure to test any setting higher than 2, because they could lead to reserving a larger portion of the disk.

Additional Logic Audio tweaks

- 1 Emagic recommends to deactivate "Release audio in background" in your driver preferences
- 1 If you experience trouble, you should check if Logics preference file (LOGIC 5.PDF) is damaged. Simply move this file from your \windows folder to any other, empty folder, then launch Logic and check what happens. If this does not solve the problem, then copy LOGIC 5.PRF back into the \windows folder.
Please note that the preference file holds all key commands etc., so you should not just delete it in the first place.
- 1 In case your system has built-in soundcards (onboard) or fax/modem-cards which you do not need, it is a good idea to remove them or at least to disable those cards in the BIOS.
- 1 While troubleshooting, be sure to check your system with a standard mouse-driver, if you have e.g. installed some special "mouseware" tools etc.
- 1 In case of trouble with your soundcard, you may try to set it into any other PCI slot. Some mainboards are not dynamically assigning interrupts, but have them hard-wired to certain PCI slots. So moving the card could solve this issue. If you are familiar with the BIOS of your mainboard, you could also check if you can manually assign interrupts.
- 1 Mainboards with VIA chipset: It is always recommended to download the latest VIA chipset drivers (4-in-1) from <http://www.viaarena.com>
- 1 Only for users with VIA chipset based mainboards: Crackles and pops in your audio can sometimes be eliminated by changing the "PCI Latency" or "PCI clock" (only for experienced users, please refer to the manual of your BIOS and mainboard).
- 1 Highend graphic cards sometimes tend to use up most of the PCI bus bandwidth. This could lead to problems with audio or midi over PCI, ISA or USB, because no contiguous data streaming is possible (which results in audio artefacts or noise etc.). In such a case, do not use full acceleration for your graphic card, but move the slider one tick down.
Matrox and ATI cards seem to work fine and do very rarely cause trouble.
- 1 As a last step, experienced users could also try to update the mainboard BIOS, in case there is a new, bugfixed version available from the manufacturer.

If you have any comments, corrections or ideas to add, please [mail me](#).

Cheers and have fun
Thomas