

Tutorial

How to install Windows 98SE on 86Box for gaming! (Nobara Linux Edition)

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Links for the files

86Box: <https://86box.net/> (Click download stable – At the bottom of the page take the Linux-x86_64 version; don't use the Flatpak version that version is borked.)

86Box roms: <https://github.com/86Box/roms> (Click code and then Download ZIP)

MS-DOS 6.22: <https://winworldpc.com/product/ms-dos/622> (Click on Microsoft MS-DOS 6.22 Plus Enhanced Tools (3.5-1.44mb))

MS CD Extensions (MSCDEX): <https://winworldpc.com/product/ms-cd-extensions-msc/125>

CuteMouse: <https://cutemouse.sourceforge.net/> (Download version 2.1 for the wheel button handled by the BIOS)

SiS AGP Driver: <https://theretroweb.com/drivers/38> (Click on agp121.zip; remove random numbers after the agp121.)

SiS IDE Driver (Old Chipset): <https://theretroweb.com/drivers/43> (Click on side213.zip; remove random numbers after the side213.)

SiS AGP GART VxD (5591): <https://theretroweb.com/drivers/39> (Click on 91agp140.zip; remove random numbers after the 91agp140.)

Realtek RTL8029AS: <https://theretroweb.com/drivers/159> (Click on rtl8029as (645.1KB); remove random numbers after the rtl8029as.

Sound Blaster 16 (MS-DOS): <https://www.philscomputerlab.com/creative-labs-drivers.html> (Click on Download File below sbbasic.exe)

Sound Blaster 16 (Windows 98): <https://theretroweb.com/drivers/1331> (Click on sbw9xup.exe (312KB); remove random numbers after the sbw9xup.)

3dfx Voodoo 3000: <https://theretroweb.com/drivers/346> (Click on v3-10700.exe (8.5MB); remove random numbers after the v3-10700.)

Windows 98SE: <https://winworldpc.com/product/windows-98/98-second-edition> (Click on Windows 98 Second Edition (OEM Full))

Windows 98 SE Update CD (Release 1.1): <https://archive.org/details/w98se-upd-r1> (Click ISO IMAGE)

Fractal Fighters: https://archive.org/details/FractalFighters_1020 (Click ZIP)

Winamp 3: <http://www.oldversion.com/windows/winamp-3-0-full> (Click download now)

Installation of 86Box

(and its components)

- 1- Create a new folder that we will name 86Box (but you can name it as you want)
- 2- Move the 86Box-Linux-86x_64-(version).AppImage to the newly created folder ideally on a SSD drive to avoid latency problems later.
- 3- Open the file roms-master.zip and slide the folder roms-master inside the folder you just created for 86Box.
- 4- Rename the folder roms-master to roms. (which will give you access to all the bios and more)
- 5- Inside the 86Box folder, right-click and create a new file that we will call 86box-x11.sh (which will make the software run in x11 for better performance)
- 6- With a text editor open the 86box-x11.sh (here's we will use Kate)
- 7- Enter these line (be sure to enter the full path by right-clicking the file 86Box-Linux-x86_64-(your version).appimage and then copy location)
#!/bin/bash
export SDL_VIDEODRIVER=x11
export QT_QPA_PLATFORM=xcb
export GDK_BACKEND=x11
exec "/yourpath/86Box-Linux-x86_64-b8000.appimage" "\$@"
- 8- Save it and then close Kate.
- 9- Press Super Key button on your keyboard (to open the search bar) and then type konsole. Press enter.
- 10- Type `chmod +x /yourpath/86box-x11.sh` (to make it executable)
- 11- Close the terminal and double click on 86box-11.sh (Which should open 86Box Manager)
- 12- If you are seeing File/View/Tools/Help skip to #14. Otherwise, press Super Key the type background services, press enter.
- 13- Untick Application menus daemon, click apply, click ok and then log off and log in your session (or reboot your computer) if the File/View/Tools/Help didn't appear yet. Normally after the reboot when opening 86Box you should be able to see that menu.
- 14- Click Tools the Preference
- 15- Click the little blue folder and go inside your 86Box folder.
- 16- Click the create folder icon (the one with a +) and call it VM
- 17- Double click on it and click choose.
- 18- Exit 86Box and restart 86Box (now every machine will be created in the VM folder)
- 19- Click New machine and set a name (I suggest something like Windows 98SE to make it easy to find). Click next two time until you land on the configuration screen.
- 20- Machine tab
Machine type: [1998] Super Socket 7
Machine: [SiS 5591] Gigabyte GA-5SG100
CPU type: For the tutorial let's do the medium (5 year old).
 - If your computer is 10 year old, don't go Higher than Intel Pentium Speed 120.
 - If your computer is 5 year old, don't go higher than Intel Pentium OverDrive MMX 200
 - If you have a modern CPU (9700x or better in single core) with a great ram timing, AMD K6-2 300 MhzMemory: 128 MB
- 21- Display tab
Video: [AGP] 3dfx Voodoo3 3000 (use [PCI] 3dfx Voodoo3 3000 if you have a slow CPU)
- 22- Input devices tab

Keyboard: PS/2 Keyboard

Mouse: Standard PS/2 Mouse (click configure and set it to Wheel)

Joystick: 2-axis 4 buttons joystick (But I do recommend to use AntiMicroX instead which give you more freedom to set your gamepad properly)

23- Sound tab

Sound card: [ISA16] Sound Blaster 16

24- Network tab (Be sure to set one if you play indy games as many use Internet Explorer)

Card 1: Mode: SLiRP Adapter: [PCI] Realtek RTL8029AS

25- Storage controllers tab

Floppy disk controller: Internal device

Hard disk controller: Internal device

26- Hard disks tab

Click new. File name: Win98SE_Drive_C Size (MB): 2048 and then click OK.

Click new again. File name: Win98SE_Drive_D Size (MB): 2048 and then click OK.

27- Floppy tab

Click on the first 5.25" 360k; Type: 3.5" 1.44M

Click on the second 5.25" 360k; Type: None

In the CD-ROM drives: section click the first Disabled. Bus: ATAPI; Channel; 1:0 ; Speed: 72x.

Click OK.

Setting up MS-DOS 6.22

(and its drivers)

- 1- Open your folder where you downloaded all the files, create a folder named MSDOSDRV and extract the files Microsoft MS-DOS 6.22, cutemouse21b4, Microsoft MS-DOS CD-ROM and sbbasic in different folders.
- 2- Double click on the machine Windows 98SE and then wait until you get the DISK BOOT FAILURE prompt.
- 3- Click on the little diskette on the bottom left and select existing image and then DISK1.img inside the MS-DOS 6.22 folder and then press enter.
- 4- Let it load and then press ENTER three times (it will then reboot)
- 5- Set the country and keyboard layout to your preference. For the tutorial let's do United States.
- 6- Press enter until it start to install the MS-DOS.
- 7- When prompted for the next diskette click on the diskette icon on the bottom left, eject and then choose DISK2.img same principle for the third diskettes.
- 8- Once installation completed, eject the diskette and then press ENTER twice. (It'll then reboot)
- 9- Wait until it's fully booted and then click the diskette icon on the bottom left, go to the MS-DOS CD-ROM folder and then click on disk1.img. Click OK
- 10- Type A: then press enter! And then type Install. Press Enter!
- 11- When a windows with a path for the CDROM appear just press enter and wait the end of the installation. And press enter again!
- 12- Eject the diskette and then click on the blue button on the right of the pause button. (It'll do a hard reset; only use it if you're in DOS never in Windows; if for whatever reason it freeze in Windows simply close the emulator.)
- 13- Wait until it's fully booted and then click on the CD on the bottom left of the windows and then click folder. Then select the folder bin inside the cutemouse folder.
- 14- Then md ctmouse. Then type xcopy e: c:\ctmouse /e and then press enter.
- 15- Type edit autoexec.bat and then press enter.
- 16- At the botton (last line) type C:\CTMOUSE\CTMOUSE.EXE
- 17- Press ALT and F simultaneously and save. Press ALT and F simultaneously again and go to exit.
- 18- Click on the CD on the bottom left of the windows and then click folder. Then select the folder with your Sound Blaster 16 drivers for DOS.
- 19- Then md sb16ins, then xcopy e: c:\sb16ins /e
- 20- Then cd sb16ins, then sbbasic and wait until it is fully decompressed.
- 21- Type del sbbasic.exe, then type install
- 22- Once the blue screen open, Press enter three time! (Let it install)
- 23- After the installation press Enter on each prompt until it ask if you want to reboot! Press F10.
- 24- Type memmaker
- 25- Blue screen, press enter, then press space space, then press enter twice.
- 26- Select by pressing space bar option 1 and 2 and turn off the Keep current EMM386 and press enter.
- 27- Press enter until it want reboot and then wait until it comeback to memmaker.
- 28- Press enter again and wait once again until it comeback to memmaker.
- 29- Press enter twice.
- 30- (optional) Edit config.sys (add the line REM before DEVICE=C:\SB16\DRV\CSP.SYS /UNIT=0 /BLASTER A:220, and then save it. ; we have no use of that.)

Installation of Windows 98SE

(and its drivers)

- 1- Open the folder where you downloaded all the files, create a folder named Win98DRV and extract the files v3-10700, 91agp140, agp121, side213, rtl8029as, sbw9xup, win98upd and Microsoft Windows 98 Second Edition.
- 2- Click on the CD icon in the bottom left of the windows and click image and then select the iso inside the windows 98 folder.
- 3- Because we have installed a proper CD-ROM drivers, we don't need to xcopy a folder of Windows 98, we can start right now the installation!
- 4- Type E: and then press enter. And the type setup and press enter twice! Let the scan doing its jobs. And then go to exit.
- 5- Click continue and then let Windows prepare its files. (In the next few you might randomly get a SUWIN.EXE error, click ignore it won't affect your installation)
- 6- Click next and wait again!
- 7- Click Typical and then click next
- 8- Click Next and then name your computer and then click Next again!
- 9- You can choose your Keyboard Layout and Regional Settings.
- 10- Click Next until it pop-up a windows Insert Disk to create a Startup Disk. Don't waste your time with that, just click cancel to skip creating a startup disk!
- 11- Click Next and it will then enter in the "long run" of installing Windows! (Which won't be that long because we have previously installed and preloaded a functional MS-DOS 6.22)
- 12- It will the ask to wait 15 second or press restart to reboot the computer. Let's do this!
- 13- After the reboot, it'll ask you to write a name and a company names. Then click next!
- 14- Then read the very very serious licence agreement, click accept and then click next!
- 15- Enter a product key. (You might find it where you downloaded the Windows; for legal reason I won't add it here as despite in some country there is a gray zone in the laws authorizing it, it's not the same for every country.) Then click next!
- 16- Then click Finish! (It'll then do the process of Setting up hardware, as we installed basic drivers manually in the MS-DOS before, it make this process much faster and smoother)
- 17- It will ask again for 15 seconds or reboot, let's do this again!
- 18- Wait until it ask for the Date/Time Properties; set your timezone! And then click ok!
- 19- It will ask once again for 15 seconds or reboot, let's once again do this!
- 20- After the reboot, press OK!
- 21- It will then detect the emulator monitor! Let's click next until you have to option to choose CD-ROM. Tick its case and then click next and finish!
- 22- Now that Windows is installed, close the musical Window and let's install the motherboard drivers to remove unuseful handle (which will make Windows more reactive).
- 23- Click the CD icon on the bottom left and click folder. Then choose the 91agp140 folder.
- 24- Click inside the emulation windows and press super key and r simultaneously, then click browse and in the look in section, click on Desktop, then select E:, then click setup, then click open and then click ok.
- 25- Click next twice and wait for install to complete itself. Then click no for the readme and then click finish. (It'll reboot)
- 26- Click OK, it'll then properly finish the installation of that driver.

27- Once Windows fully booted, unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click folder. Then choose the agp121 folder.

28- Click inside the emulation windows and press super key and r simultaneously, then click browse and then click setup, then click open and then click ok.

29- Click next twice and wait for install to complete itself. Then click finish. (It'll reboot)

30- Click OK, it'll then properly finish the installation of that driver.

31- Once Windows fully booted, unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click folder. Then choose the Win9x folder inside the side213 folder.

32- Click inside the emulation windows and press super key and r simultaneously, then click browse and in the look in section, click on Desktop, then select E:, then click setup, then click open and then click ok.

33- Click next until it reboot.

34- Click OK, it'll then properly finish the installation of that driver. At the end of that it'll ask to restart! Let's do this!

35- Click OK and this time the boot is normal.

36- Unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click folder. Then choose the Win9x folder inside the sb16ins folder.

37- Click inside the emulation windows and press super key and e simultaneously, then click on C drive then in the empty space on the right, right-click and create a new folder call it sb16insWindows. Then click on the + (left of the C drive)

38- Click the E drive copy the file inside the sb16insWindows folder by sliding it in while pressing CTRL button (otherwise it will only make a shortcut and it won't decompress).

39- Go to the sb16insWindows folder and double click on sbw9xup (it will decompress the files)

40- Once done double click on Upddrv95. It will tend automatically update the audio drivers and at the end of the update it'll ask for a reboot! Let's do this!

41- Click OK. Now you can close the Windows Explorer window.

42- Unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click folder. Then choose the v3-10700 folder.

43- Click inside the emulation windows and press super key and r simultaneously, then click browse and then click setup, then click open and then click ok.

44- Once the setup wizard appear, click next then accept the license then click next, then click install. It'll then install the graphic card drivers. Then click on finish.

45- It'll ask for a reboot, let's do this once again!

46- Click OK, you are now in 16 bits, 800x600, but you're in 75 hz and we want it to 60 hz to avoid the tearing. So right click in the background, then properties, then settings, then advanced, then adapter, then in the refresh rate place it to 60 hz. It will then prompt you if you're sure just yes at every questions, click ok (twice)

47- Before touching anything about the network, we need to update Windows with last Windows 98 updates (very useful for games made around 2000 and after; only works with the english version of Windows 98.)

48- Unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click image. Then choose the win98upd_1-10.iso. (Don't run the update from the CD you'll break the Windows doing so)

49- Click inside the emulation windows and press super key and e simultaneously, then click on E drive drag the folder update to the D: drive. Wait until the copy is finished.

50- Unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click image. Then choose the Windows 98 CD we use to install Windows.

51- Click inside the emulation windows and close all the Windows and press super key and r simultaneously and then click browser, in the look in section click on Windows 98 SE and then choose drive D: then double click updates, then click install, then click open and then ok.

52- Press Y 5 times and just wait. (It will restart after each reboot click ok, it will then continue the updates and don't press anything else unless prompted to. Otherwise you might accidentally stop the process.)

53- Eventually you'll be prompted with the Windows 98 Second Edition CD-ROM. Type e:\win98 and press OK. The let it continue its thing until the update ask you anything.

54- When prompted to if you want to keep this file, it will ask you that many time, just click yes. (If you use the keyboard only press y once the prompt is there to avoid to accidentally stopping the processing the background) and let it do its job once again.

55- It'll eventually ask you to reboot, click yes!

56- After the reboot click OK and let it continue! It might do that several times.

57- Eventually you'll be prompted to install the version 7.1 of Windows Media Player. Say YES (twice), especially useful for game with video intro after 2000. It use WMP instead of the Quicktime.

58- Once the pre-installation process is done, click next and the click that you are read the privacy statement, then click next (4 times) and let it install. Once completed click finish and it'll reboot once again!

59- After the reboot click OK let it continue!

60- Eventually you'll be asked to install the Windows Media Player Codecs. Obviously, say yes! (twice) Then click next (4 times) and click finish. And it'll reboot once again!

61- After the reboot click OK and and you'll be prompt for the internet explorer and internet tools. Accept the agreement (especially useful as some indy games do use Internet Explorer script even when the pointer website is dead; IE refuse to run any script if you don't set internet.) click next (twice and then let it install) Once completed click finish and it'll reboot!

62- After the reboot click OK let it continue!

63- Once installation complete, press any key to close that window. (And of course it'll once again reboot)

64- After the reboot click OK, once reboot complete! Now, let's touch the network drivers before opening the net.

65- Unstuck your mouse by pressing CTRL and END simultaneously, click the CD icon on the bottom left and click folder. Then choose the Win98 folder inside the rtl8029as folder.

66- Click inside the emulation windows and press super key, then click on settings, then control panel, then System, then Device Manager, then click the + on the left of the the network section and right click on Realtek RTL8029(AS) and then click properties, you'll have the impression that it froze, but it just "scanning" so it take a while, be patient.

67- Click driver and then update driver.

68- Click next, the choose display a list of all the drivers and then click next. (And wait)

69- Click on have disk and instead of the A:\ write E:\ and click ok.

70- Click OK let it do its thing. Until prompted then click next.

71- Eventually you'll get prompted for the Windows CD, so unstuck your mouse and it mount it again. Then click ok and say yes to every prompt. Click finish and when prompted for reboot, let's do this!

70- After the reboot click OK

71- Now, let's turn on the internet for the indy games that need it.

72- Click Start/Settings/Control Panel

73- Double click on Internet Options

74- Click on the tab Connections and then click on Setup

75- Choose the third option and then click next!

76- Choose the second option and then click next!

77- Tick the Automatically discovery of proxy server and then click next!

78- Select no and click next!

79- Click Finish!

80- Type napostriouf.com to be sure it's working! If you see the drawing of my face, good news it works!

81- Let's turn off the task scheduler to avoid it annoying in the middle of gaming.

82- Double-click on it. Then go to advanced and then click stop using the advanced scheduler.

Let's test some software

(to be sure everything is ok!)

- 1- Open the folder where you downloaded all the files. Then extract in a folder FFIGHT11!
- 2- Slide Winamp file in the same folder!
- 3- Click the CD on the bottom left, eject any CD and then click again the CD on the bottom left and click folder. Choose the FFIGHT11.
- 4- Then on your keyboard press Windows sign and E simultaneously to open file explorer.
- 5- Click on the E: drive on the left!
- 6- Double click on winamp and agree with the licence.
- 7- Click next two times! (it will then install the software)
- 8- Click next, then later and then Run Winamp!
- 9- Now slide the file Wildcat in the playlist! And double click on it inside the playlist to test if the midi is playing properly!
- 10- If the cymbal is exaggerated it means it works right since you're with a Sound Blaster 16 sound font! Of course, you can install a Sound Blaster Pro 2 to play midi which is better, but problematic for many games after 1998.
- 11- Now let's try the freeware game associated to this very awesome and rocky midi files!
- 12- Close winamp! Click on the background and click properties.
- 13- Then go to settings tab and then slide the slider under screen are to 800x600. And click ok! (And ok for the rest of the prompt)
- 14- Then go back to file explorer and click on D:.
- 15- Then right click on the right window, choose new and create a folder. Call it the name you want.
- 16- Then click on the "+" just on the left of D: and then go back to the CD and slide every files except Winamp in the folder you just created!
- 17- Go the folder in the drive D and then double click on the ffignt11 to start the game!
- 18- If the game don't stutter, it means everything is fine because with the game when the emulator goes below 95 it stutter, but if you're 99/101% it means it works perfectly! So congratulation you've just installed a Windows 98SE ready for gaming!

F.A.Q.

(Or might potentially be asked!)

Question: Why did you made this tutorial?

Answer: The main reason is like for the previous tutorials, I'm still seeing on YouTube too many tutorials made by people who are telling their own life instead on focusing on the their tutorial. So we end up wasting 5 hours of our life in a job on what would normally be 40/60 minutes (sometime less) just because we are forced to hear trash about things we don't care. Talking about ourselves goes in the FAQ, so if the person is not interested it can easily be skipped.

A second reason is that all Linux tutorial that I'm seeing right now are so basic that somebody who wants to learn is more likely prone to abandon.

A third reason is that in many tutorials people seems to experiment instead of teaching. Which lead a huge mass of people doing major mistake on very simple task. Such having the mouse not properly configured with proper drivers or video card doing artifacts because a Voodoo accelerator have been added alongside the wrong card. Pushing wrong audio drivers causing major problems with the midi sound fonts. And not t say these problems are all prone to provoke more crashes. A tutorial isn't made to experiment, it's made to give some base to others.

Question: I downloaded the Flatpak version is it the same?

Answer: No, sadly the Flatpak version is borked on many levels at least on Linux Nobara 43. I presume Wayland may be at cause (once again), but even with the compatibility command the problems persists. So I presume it's too much isolated in the Flatpak, so it doesn't properly use the perks of the OS and it also have additional visual glitches while being slow. Fortunately, the appimage don't have this problem at all.

Question: In comparison to Windows 11 is 86Box perform better on Linux Nobara 43?

Answer: Yes, since the tweak of Nobara also have impact on CPU, like those Geekbench 6 results show: "<https://browser.geekbench.com/user/538704>" My score in single core is now at 3634 with a Ryzen 9700x with a very light overclock of -10 and +100 mhz and ram EXPO set at 6000 mhz, CAS30-40-40-76 1.35V. So yes, I have an overclock, which in Windows 11 I also had. And as you can see, in single core I'm 5% faster with the exact same bios setting in overclock. So yes, in Nobara I can emulate a better machine! The only downside is about CD that I must make image to mount instead of mounting the CD directly, but the images can easily be done with Brasero! So it's not a big con.

Question: Why don't you simply use the Global Menu feature instead of deactivating them in the background service?

Answer: Despite in modern process, Wayland is great, for everything that is about retro, it actually is an cancer. Performance are way better for 86Box in X11 than in Wayland. It's actually the case for like 75% of my software. However, when I'm on Steam using Proton, then the Wayland is doing its job. Then why did I chose Nobara over the rest of the distros? Because of the drivers optimization. It makes a huge difference in 86Box, which is the main use of my computer alongside video game development and writing.

Question: Why you don't speak during the video going alongside this tutorial?

Answer: Because of the thematic of the channel. The idea is to show the product as they are. Giving an authentic experience to those who watch the videos! Which is also why, I try to minimize the director

cut. And also, many people understand more easily while watching than hearing a voice over. I personally often cut the audio when somebody's voice annoy me. So the visual must speak for itself.

Question: In the past you were known to be a big advocate of Sound Blaster Pro 2. Why in this tutorial did you suggest Sound Blaster 16 with the cymbal you hate so much?

Answer: Well, I'm still a big advocate for Sound Blaster Pro 2 if your game is midi based. But I thing that I remarked is that most people actually play game that aren't really made by indy company. So games that don't use midi files. The particularity of Sound Blaster 16 (where it excel) is on the wave files, for which the Windows 98 mainstream games is the golden age era for that. But if you play REAL indy game with midi files or games prior 1998, well, I 100% recommend you to use Sound Blaster Pro 2, the midi audio will be similar of the one of a Yamaha keyboard, so music not will be more harmonious despite having less realistic sound. The problem with the Sound Blaster 16 is that some sound are drown in other because the wave sample the midi without any equilibrium and it also have those enhancement which actually is only good when playing 1 instrument at the time. But the concept of midi, is the harmony of instrument that made them memorable.

Question: What resolution do you suggest us to play?

Answer: In main stream games I suggest 640x480 16 bits in most of the case to avoid latency problems as main stream games tend to stack everything and never closing things. But with indy games, 1024x768 16 bits, 800x600 24 bits or 640x480 32 bits should be the ideal pin point. Please take note that some games especially those prior than 1997 often want you to play in 256 colors.

Question: HELP! My cursor is stuck on the screen I can't read the rest of your tutorial!

Answer: Don't panic, just press CTRL and END simultaneously and your cursor gonna be unstuck from 86Box window!

Question: How to Fullscreen?

Answer: Press simultaneously CTRL, ALT and PAGE UP.

Question: In some of your videos in the past you seems to have problems with the mouse. Will I have the same problems after using the tutorial?

Answer: No! I had the mouse problems because I made the mistake to follow other people tutorials. I then got enough and pissed off, so I made my own way with trial and error, like I was doing in the 90's. Which is how I landed with the approach I used! So, normally you should not have a problem with the mouse by following the step of this tutorial. Unless your emulation goes under 90%, but if it goes under 90% you should normally see or hear things stuttering too. Which, obviously the mouse system is not really problem there!

Question: What mouse do you recommend for gaming in Windows 98?

Answer: A mouse of 800 dpi. You know those you can get for 10\$ sometime less! Aka a basic mouse, you'll have in-between no to very little advantage even in First Person Shooter with a high-dpi mouse. It actually might ruin your experience since back the days games were made to be in sync with mouse latency of the era, which is why AI/CPU characters in games are often laughly dumb. It's to make game playable with the hardware of the epoch.

Question: My emulation is never at 100% why?

Answer: I would tend to believe that your specs are maybe a bit too low for this config approach. Understand that this emulator works mono core as much for the video and process simultaneously! So

even if you have a modern CPU, if your CPU is slow per core, it might impact its performance as only one of these is used.

Question: What to do an error pop-up continuously preventing me click the start button to reboot?

Answer: First try pressing CTRL-F12 to shut down windows. If it doesn't work, just close the 86Box windows and reopen it. Then normally Windows will do a Scandisk and everything will be fine. Unless Windows was updating it's drivers.

Question: If I install Windows in another language, will your tutorial still be valid?

Answer: Partially! I don't recommend doing the Windows update part of the tutorial if you do, because of there are some non-unicode update which will break your Windows. That being said, my first language is French Quebecer, so I grown up using a French Windows 98SE & a French MS-DOS 6.22 so aside the Windows Update CD part, all the steps are the exact same which is prolly the same for the OS of your preferred language. Well, there are exception such the Japanese and Hebrew who use special characters, but you get the global image there!

Question: So does Japanese games will works in an English Windows?

Answer: Many will actually start, but you'll have the wrong writing and they gonna be prone to crash, because of the non-unicode of these games that are in Japanese. So I recommend you to install a Japanese Windows instead!

Question: During the tutorial you lean people to use 60hz instead of higher refresh rate to avoid tearing. Why don't you use the overclock tool for Voodoo that also include a v-sync to fight these tearing?

Answer: You can use this tool, but they are well-known to cause problem in demanding games. As old school v-sync will try to match the refresh rate of the emulated monitor. But if you're under, well you will fall in a latency which will actually create more tearing and make your game more prone to crash as well. While in 60 hz, if the game run fine, it will follow the flow. And if you use a capture card to show a footage of your gameplay, well, despite some card do advertise that they can handle 144 hz, they can rarely get it without a ton tearing. While in 60 hz, they usually no problems.

Question: Can I use your installation to try to use, midi session or an old version of Paint Shop Pro?

Answer: On the software side no problems, however, you might have problems to plug anything and make it work. So if you use midi session you'll have to use your mouse to make the music instead of a Roland keyboard. And, if you want to use a drawing board, well in won't work as well, you'll be forced to use the mouse. Same thing about scanner, as at the time, JASC Paint Shop Pro forced only had a pre-selected of compatible scanner for the software. So, as these scanners are prior than the epoch of USB, well you won't be able to find one who can make even make a passthrough to simulate one of the epoch.

Question: Why did you use Winamp 3 instead of a Winamp more classic like the version 2?

Answer: Winamp 2 was using the media play output to make play the midi files. While Winamp 3 have its own inner player that use sound font different, which is more like in games. You know the thematic of my channel, Nap'n'Retrogaming!

Question: If I have some more question not answered here, where I could ask it to you?

Answer: On the video associated to this tutorial there's a comment section! Ask it there, I'm on YouTube every day. And don't worry, I might look rude due to what I said about other tutorial. But I'm not a rude person, far from that. I'm just pissed off, because I'm starting to think they are doing it on purpose to make it look harder than it is really so they look more techy than they really are, when in

fact obviously they barely can turn on a computer to say the least... Which have the results of people massively giving up on the project, so many potential good talents who could spray the interest of many unique forgotten things are sadly lost.

Question: When I open a game the joystick doesn't work! What can do to make it works?

Answer: In the control panel click on the controller/joystick and then click add. Add the 2 axis 4 buttons joystick and then be sure to calibrate it. I didn't add it to the tutorial, since I recommend people to use AntiMicroX, but still added it to the emulation configuration part to ensure the drivers are installed. Just need to make it ready to use, but in many games the joystick might interfere with your keyboard setting, so that's why I didn't add any steps for this. Let's keep things simple!