

Building A PC-based Music Server / Transport

Installation Guide for Windows 8.1



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Overview – The Principles of Computer Audio

“Imagine sitting in your listening chair and deciding that you want to hear a particular piece of music. You get up, walk over to racks full of CDs, turn your head sideways to read the labels, and scan the jewel-box spines for the desired disc. You then take a jewel box from the rack, remove its CD, put it in a disc-transport mechanism, start the disc playing, and return to your chair.

Now, imagine opening an app on your tablet or mobile device and seeing your entire music collection displayed as a series of album covers. The titles can be presented alphabetically–by genre or composer or conductor or orchestra or, in many cases, by which musician(s) plays on the album. You touch the image of the album cover and the music instantly begins to play.

Welcome to the world of music servers”

Abstract from “The Complete Guide to High-End by Robert Harley”

The Advantages of Computer Audio [from DCS guide to Computer Audio]

Convenience: Entire music libraries are now easily accessible and many listeners have rediscovered their entire music collections when adding a music server to their systems. People are no longer listening to the last five or ten CDs they've purchased or a limited number of readily accessible discs in the collection. Scanning a wall of CDs is a thing of the past once the discs have been imported into a music server. Finding a specific artist, album, track, or composer is accomplished by a simple search, scroll of the mouse, or tap of the finger.

High Resolution: Support the Compact Disc standard developed in the late 1970s and early 1980s is limited to 16-bit / 44.1 kHz resolution. Music servers are capable of a wide range of formats including 16, 24 and 32 bit word lengths and 32, 44.1, 48, 88.2, 96, 176.4, 192 kHz sampling frequencies.

Jitter Reduction: A well implemented asynchronous USB interface can reduce jitter compared to traditional interfaces such as Toslink, S/PDIF and AES/EBU.

Flexibility: Computer-based music servers allow tremendous flexibility in the range of supported audio formats, additional data storage, graphical user

interface designs, and personal customizations.

Backup: A complete music library can be backed up automatically without user intervention. This backup is easily restored in the event of a disaster or simple mishap.

The Future: Optical discs as a form of audio distribution are slowly disappearing and music retail stores are closing at an increasing rate. SACD remains a healthy but niche market as it represents a high performance standard. Computer based solutions are clearly the future of audio reproduction and are establishing new references in high end audio quality.

The Disadvantages of Computer Audio [from DCS guide to Computer Audio]

PC Phobia: Many audiophiles are adverse to computers in the listening room. This PC Phobia stemmed from computers that couldn't live up to audiophile sound quality standards and were difficult to operate. Also, improperly configured computers can damage audio components.

OS Problems: The most popular consumer operating systems in the world – Microsoft Windows and Apple OS X –were not created solely to reproduce audio. These operating systems use internal sample rate converters and sound mixers that must be properly configured or avoided to prevent degradation of the playback quality.

Lack of Technical Knowledge: The learning curve in computer audio can vary greatly for people due to the huge number of different configuration options available to listeners.

Suboptimal Implementations: There are a plethora of implementations that can lead one to believe computer audio is incapable of high quality sound. The same method of connectivity (e.g. Firewire or USB) implemented by two different manufacturers can make a night and day difference in sound quality. People often consider this poor sound quality as part of the computer and group all computer based playback into the same category.

Feature Overload: The number of options available for computer-based playback is large right now and only increasing. Playback applications, operating systems, and computer hardware all come in many different varieties. All of the options are great for those who understand computer

based playback but are overwhelming for newcomers. The key is to find a knowledgeable resource(s) and continue to educate oneself a little bit at a time.

Other variables (RFI, Noise): There are a number of variables affecting sound quality inside a computer. Traditional audio issues like RFI, noise, and power supplies are major concerns with music servers. As time goes on, more of these issues are being dealt with by proper design and new technologies.

The Computer as a Music File Transport

The minimum system requirements for computer based audio system are:

1. A Computer with appropriate configuration and setup for optimal music reproduction
2. A software application for the management of music files (music library) and a software application for music playback
3. A USB card powered by an external linear power supply for connecting the computer with the DAC
4. A decent USB Cable
5. A DAC with asynchronous USB class 2 input

Below is the diagram of the “VerseTransport”, a Windows 8.1based DIY Music Server. This is a personal computer that is specifically built to be a music server that can co-exist on the equipment rack in the listening room. It aims to become a reference quality music server for playback of high-resolution and redbook digital music files based on the following requirements:

1. Silent, low heat, no vibration
2. Capable of “audiophile” sound
3. Easy to operate remotely (power on/off, music selection, music playback-next / previous / pause / resume / stop)
4. Easy to assemble and install
5. Size and look compatible to the rest hi-fi components on the rack
6. Capable to install a PCIe “audiophile” class USB card for linking with the DAC
7. Motherboard, CPU, and SATA disks powered by an external linear power supply
8. Play 16, 24 bit /44.1, 48, 88.2, 96, 176.4, 192 kHz bitperfect

9. Tweak BIOS and OS for optimal music playback

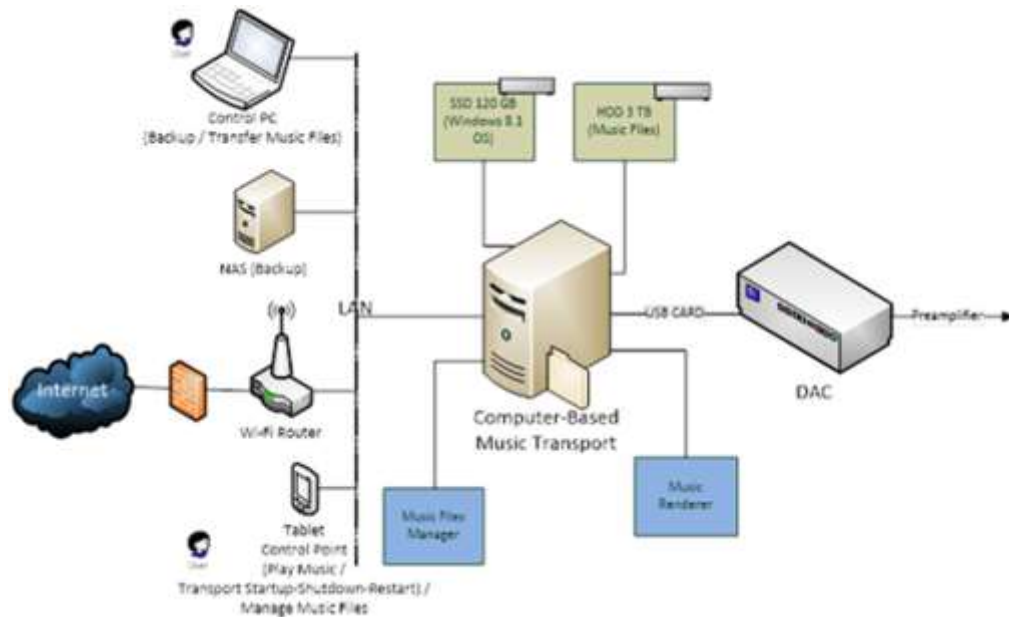


Figure 1: Diagram of "VerseTransport" basic Components

"VerseTransport" Hardware Components

Computer Component	Product Used In "Verse" Implementation
PC Case (Fanless)	HD-PLEX H5
Motherboard	ASUS Z170M-Plus (Intel® Z170 Chipset)
ATX Power Supply (DC only)	HD-PLEX HiFi 250W DC-ATX
CPU	Intel Core i5-6400
RAM	Corsair Desktop RAM Vengeance 8GB 2400MHz DDR4
USB (Sound) Card	SOtM USB Card tX-USBexp
HDD (OS)	Samsung SSD 850 EVO 120 GB
HDD (Music Files)	Western Digital RED (NAS Drive) 3TB
SATA3 Cables (Data and Power)	Akasa / Nanoxia

Cable Shielding	Techflex
(AC/DC) External Power Supply	HD-PLEX 100W Linear PSU 5V/9V/19.5V
WiFi Router	Netgear N600 WNDR3700v5
NAS Backup	Seagate BlackArmor NAS 220 (2TB)
LAN Cables	Inline Patch CAT.6A S/FTP
USB Cable	VUE VU-1
Control Point (PC)	HP 14-r105nv
Control Point (Tablet)	Samsung Note 10.1

“VerseTransport” Software Components

S/W Component	Product Used In “Verse” Implementation
Operating System	Windows v8.1 Pro
Music Server	MinimServer v0.8.4 + MinimStreamer v0.5.24
Music Renderer	JPLAY v6.2 (JPLAY Streamer)
Music Player (Control PC)	Linn Kazoo v4.8 (Open Source)
Music Files Backup/Synchronization (Control PC)	FreeFileSync v8.2 (Open Source)
Music Files Tagging (Control PC)	MP3Tag v2.78
Music Player (Control Tablet – Android)	Bubble DS Next
Remote Power On (Control Tablet – Android)	Wake On Lan (Android App)
Remote Power Off / Restart / Music Files Management (Control Tablet – Android)	Parallels Remote Desktop (Android App)

Additionally JRIVER 21 (and JRemote) is used for Tag management, Playlist management, comparison of different setups, e.t.c.

Digital-To-Analog Converter

Aqua La Voce S2 – Non Oversampling R2R DAC based on dual Burr Brown PCM1704 chips

Features

High performance proprietary DFD (Direct From Decoder) digital decoding without digital filter for purest digital signal quality

- Burr Brown PCM1704 (2 dac) – sign magnitude R2R ladder DAC 24bit / 192 kHz – DFD MODE
- Galvanic isolated S/PDIF – AES/EBU Digital input
- Jitter free digital interface AQlink (I2S protocol), uncompromising digital connection to La Diva cd transport
- Zero S/PDIF Jitter design, digital receiver stage PLL (phase locked loop) technology
- precision sign magnitude R2R ladder DAC with 2 Burr-Brown PCM –1704 arrayed in dual mono configuration (PCM1704 DAC option)
- Passive current / voltage conversion (I / V)
- Discrete Regulator (MOSFET, J-FET, BJT) for analog and digital DAC's power supply
- RJ45 (AQlink) input connection, employs CAT6 cable
- 2 separate low noise power transformers, one for the analog and one for the digital section
- MODULAR DESIGN with upgradeable multi board system
- Fully discrete analog stage, not even a single Op-Amp is used
- Proprietary USB Firmware / driver
- Fully upgradeable Bit perfect asynchronous USB module with resolution up to 24 bit and 192 KHz, operates with computers running OSX 10.7 and above, WINDOWS 10 , 8 , 7 and XP ASIO – WASAPI bit perfect high-speed
- Digital phase selector on front panel
- High-quality parts selected for sound quality:
 - 105° long life capacitors
 - low noise Metal Foil ultra-precision resistors
 - metallized film pulse capacitor
 - ultra-fast diodes
- Aluminum anti-resonant cabinet with Nextel

- Input:
 - RJ45 AQlink (I2S serial bus) – 24 bit / 384 KHz
 - BNC coax (S/PDIF) 75 ohm – 24 bit / 192 KHz
 - USB port – 24 bit / 192 KHz
 - MODULAR INPUT upgradeable, options:
 - AES/EBU balanced 110 ohm – 24 bit / 192 KHz
 - RCA coax (S/PDIF) 75 ohm – 24 bit / 192 KHz
 - AT&T (ST Fiber) – 24 bit / 192 KHz
 - Optical TOSLINK – 24 bit / 96 KHz
- Analog output:
 - RCA single-ended
 - XLR balanced asymmetrical (optional)

VerseTransport H/W Installation Procedure

- 1) Install the H5 HDPLEX case following the instructions in the pdf guide available at the following URL:
<http://www.hd-plex.com/hdplex-h5-fanless-computer-case.html>
- 2) Install the SOTM USB Card tX-USBexp following the instructions at the following URL:
<http://www.sotm-audio.com/sotmwp/english/portfolio-item/tx-usbexp/>
- 3) Install the HD-PLEX 100W Linear PSU following the instructions at the following URL:
<http://www.hd-plex.com/HDPLEX-Fanless-Linear-Power-Supply-for-PC-Audio-and-CE-device.html>

VerseTransport S/W Installation Procedure

Install Windows 8.1 PRO

Start with a completely fresh install of Windows, and during the setup process, create a new local user (*Admin*) that isn't associated with a Microsoft account. Do not enable Windows Updates.

Install ASUS Motherboard Drivers

Intel Chipset Driver

Intel Management Engine Interface

Intel LAN Driver

Note: Uninstall Intel Security Assist (installed with Intel Management Engine Interface)

Install AQUA DAC Drivers (Thesycon USB ASIO Driver Class 2.0 USB Audio drivers version 1.61b)

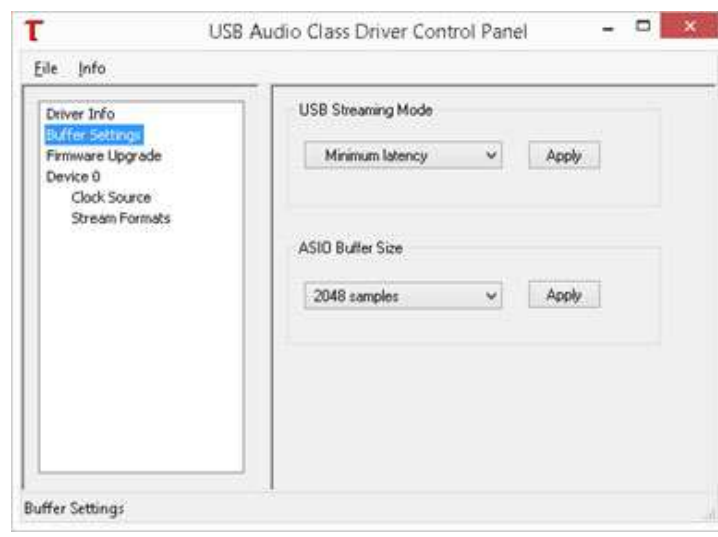
Run setup.exe as Administrator from Aqua software folder. The drivers must be installed prior to connecting the USB cable to SOTM card usb 3.0 port

After finishing the installation disable the *USB Class Driver Control Panel* from the startup programs (Task Manager -> Startup).

Configure the AQUA DAC USB driver

Connect with the USB Cable the DAC usb input and Music Server via SOTM usb 3.0 port. Open the USB 2.0 class driver control panel ("C:\Program Files\AQUA\aquasUSB_Driver\aquasUSBCpl.exe") and configure for low latency

Click the red 'T' icon that has been added to the Task Bar to open the Thesycon Control Panel. The window shows all attached XMOS USB devices.



Activate Windows (requires an active Internet Connection)

Go to *Control Panel\System and Security\System* and **Activate Windows**, click on Windows Activation dialog and provide the product key:



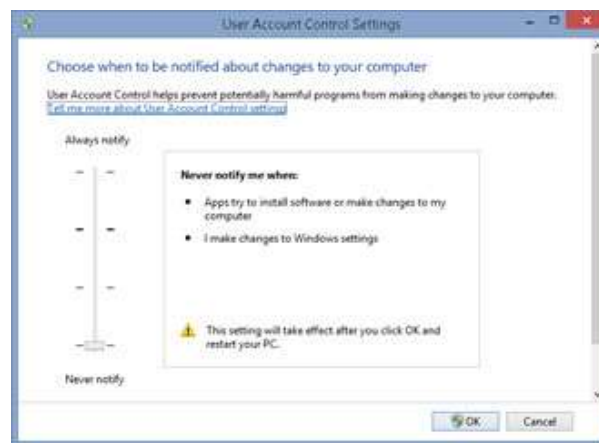
or

Open Command Prompt with Administrator rights. To do so, switch to the Start screen, type **CMD** and then simultaneously press **Ctrl + Shift + Enter** keys to run Command Prompt as administrator and type:

slmgr.vbs /ipk <Your product key>

Disable User Account Control (UAC)

Control Panel -> Change User Account Control Settings -> Never Notify



Remove Page File

Before rebooting Windows, let's remove the page file. Our PC doesn't need this kind of memory management because there will always be enough RAM for our audio application.

- Switch to the Start menu and type **system**. Find the **System** control panel applet in the search results and open it.
- In the System window, click **Advanced system settings** on the left.
- In the System Properties window, switch to the **Advanced** tab.
- Under Performance, click **Settings**.
- In the Performance Options window, switch to the **Advanced** tab and click **Change** under Virtual memory.

In the Virtual Memory window, de-select **Automatically manage paging file size for all drives**.

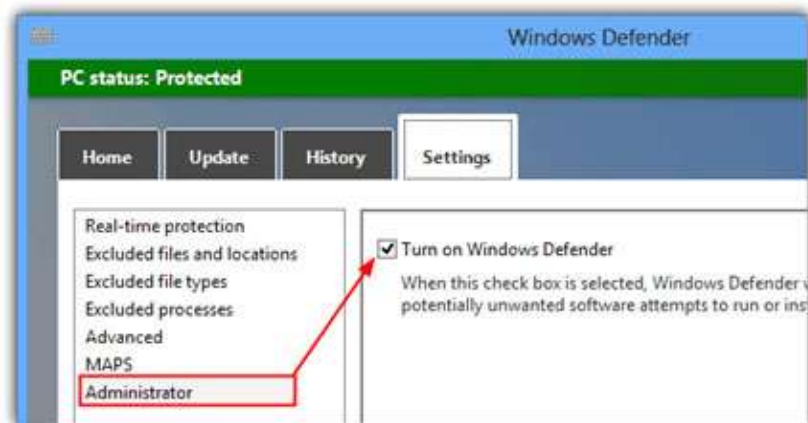
- Select **No paging file** and click **Set**.

- Repeat this procedure if you have more than one drive configured with a page file.
- Click **Yes** in the warning dialog and then click **OK** in the Virtual Memory window.
- Click **OK** in the Performance Options window and close the System Properties control panel applet.
- **Now reboot Windows.**

Disable Windows Defender

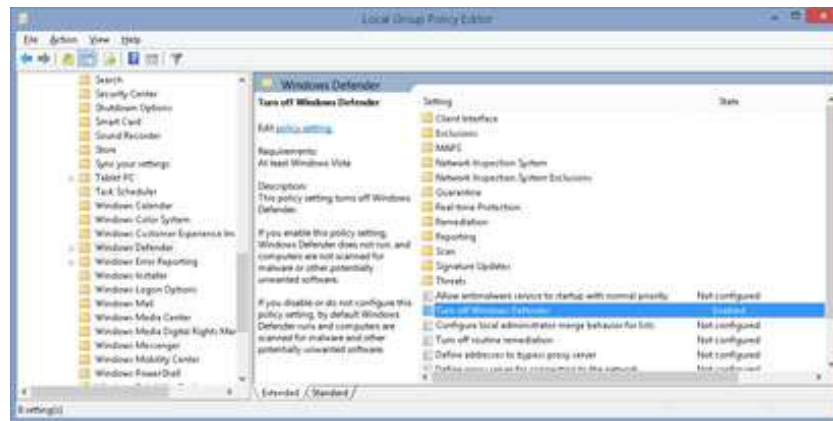
Once Windows has restarted, we should also disable Windows Defender.

1. Go to Control Panel -> Windows Defender or click on the Start Screen -> right click -> All Apps -> Windows Defender.
2. Click on the Settings tab -> click Administrator on the left, and then uncheck the “Turn on Windows Defender” box and save the changes.



Also remove Windows Defender from Group Policy :

Start -> Run -> gpedit.msc -> Computer Configuration -> Administrative Templates -> Windows Components -> Windows Defender -> Turn Off Windows Defender -> Enabled



Install JPLAY

Start the *setupJPLAY.exe* as Administrator, click Next, choose *Official Version*, click Next, choose *Optimize JPLAY for Single PC Setup*, click Next and Restart The Computer

Jplay configuration (Settings panel)

To open the GUI panel, double-click on **JPLAY** icon in **Notification Area** (Taskbar)

Below you can see **JPLAY Settings GUI panel** which allows for quick & easy adjustment of most important options, **click on the button to adjust**.



WASAPI may be compatible with greater number of devices, but Kernel Streaming offers much lower latency. KS is the lowest audio engine level in Windows, allowing more efficient, real-time streaming. For the ultimate playback experience, we recommend KS. ASIO is applicable only to DACs that have an ASIO driver.

JPLAY Advanced settings

Additional JPLAY settings via regedit under:

Computer\HKEY_CURRENT_USER\Software\JPLAY6 key.

SinglePCOnly: [0,1] default is 1 and is recommended for singlePC setup users. It should not be changed manually – please use installer to activate/deactive ‘Optimize for SinglePC’ option.

Clock: [0,1,2,3] default is 0 and set OS timer resolution to 0.5ms. 1 is 1ms, 2 is 10ms and 3 is 15.6ms.

DedicatedCore: [0,1] default and recommended is 1. Optimizes CPU affinity settings.

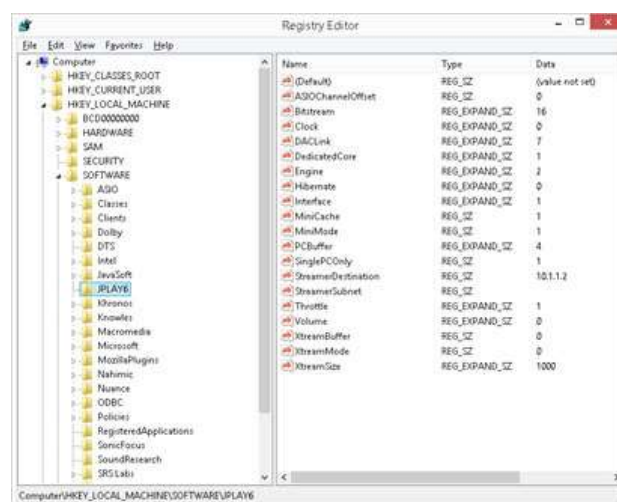
MiniMode: [0,1] default and recommended is 1. JPLAYmini does not use memcpy during playback.

StreamerDestination: IP of a network adapter used with JPLAYStreamer

StreamerSubnet: if you have multiple network adapters in PC and they are on different subnets (i.e. first 3 numbers of IP address are not identical) you can put desired subnet into StreamerSubnet property. For example: if all other OpenHome components are on 192.168.1.xx subnet then type 192.168.1.0 (last number should be 0). Then from Task Manager→Services restart JPLAYStreamer service.

XtreamBuffer: [0–1024] default is 0. Set number of samples Xtream Engine uses in a packet. For example, if you used DirectLink in JPLAY v5 set it to 1.

XtreamMode: [0,1] Some older drivers which worked with Xtream Engine in JPLAY v5 do not work in JPLAY v6. Setting XtreamMode to 1 will use ‘old’ behaviour from v5.



Install MinimServer (requires Internet Connection)

Install JRE for Windows x64 (required for minimserver)

MinimServer is written in Java and requires Java 7 or later to be installed. Install the latest version of the Oracle Java Runtime Environment (JRE)

Start the *jre-8u31-windows-x64.exe* as *Administrator* and follow the instructions

Disable Java Update Options

- 1) Find and launch the *Java Control Panel*. (Press **Windows logo key + W** to open the **Search charm** to search settings, In the search box enter **Java Control Panel**, Click on Java icon to open the Java Control Panel)
- 2) Click the **Update** tab to access the settings.
- 3) To disable Java Update, deselect the **Check for Updates Automatically** check box.

Install minimserver

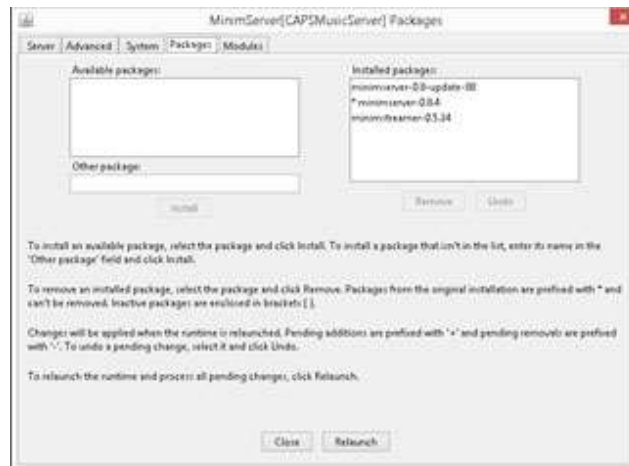
Start the *MinimServer-0.8.4-install.exe* as *Administrator* and follow the instructions

Install MinimStreamer

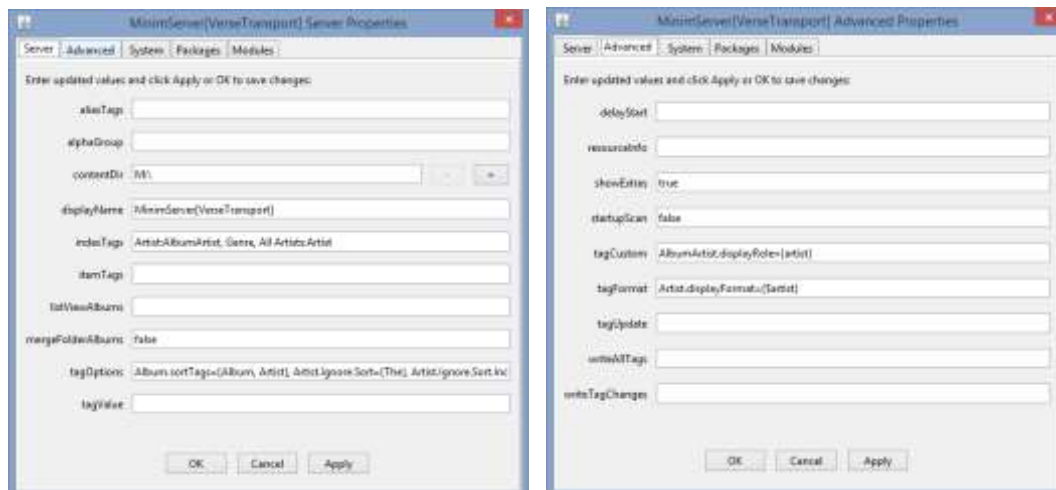
MinimStreamer is packaged as an optional extension to minimserver

Important: Before installing MinimStreamer, you should make sure MinimServer is updated to the latest level. To check this, select 'About' from the minim icon and click 'Show updates'. After applying any updates, relaunch MinimServer.

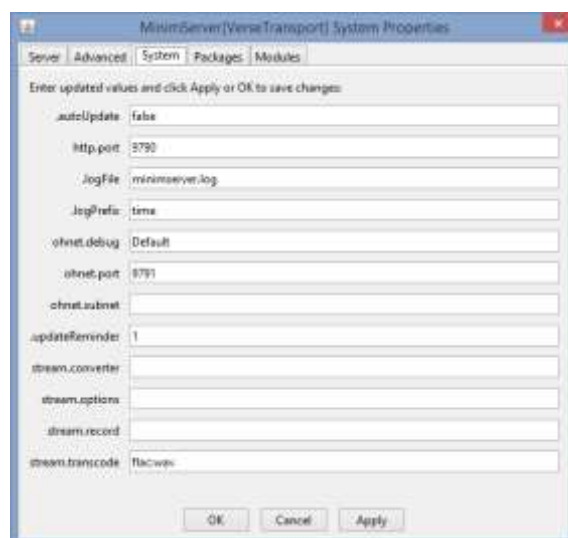
If MinimStreamer isn't shown as an available package, this probably means you don't have the latest MinimServer update installed. After you have installed this update to MinimServer, you should be able to see and install the MinimStreamer package.



Configure MinimServer



Server Tab / Advanced Tab

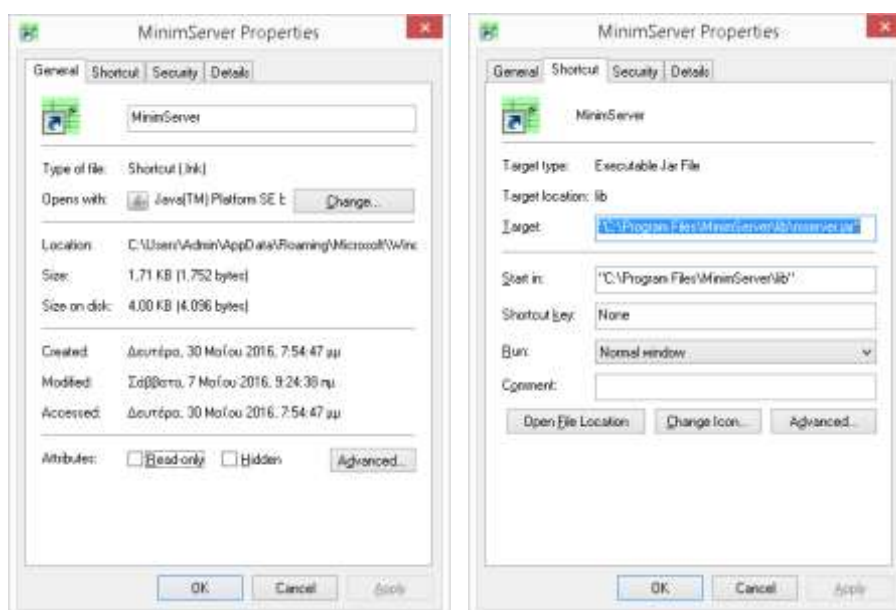


System Tab

MinimServer Automatic Startup (alternative way / not to be used along with VerseOptimizer)

1. First of all right-click on the file which you want to pin to Start Screen and select **"Create shortcut"** option to create a shortcut of the C:\Program Files\MimimServer\lib\mserver.jar file.
2. Now copy and paste following text in RUN dialog box and press Enter:

`%USERPROFILE%\AppData\Roaming\Microsoft\Windows\Start Menu\Programs`
3. Now paste the shortcut which you opened in step 2.
4. Right Click on shortcut -> properties and select Opens With Java



Install JRIVER (requires Internet Connection)

1) Run *MediaCenter210076.exe*

Accept the conditions, click Next, choose *Custom Setup Type*, click Next, choose *Normal Install to a computer*, click Next, put checks on *Audio* and *Playlists*, click Next, leave both boxes checked on Create Shortcuts, click Next.

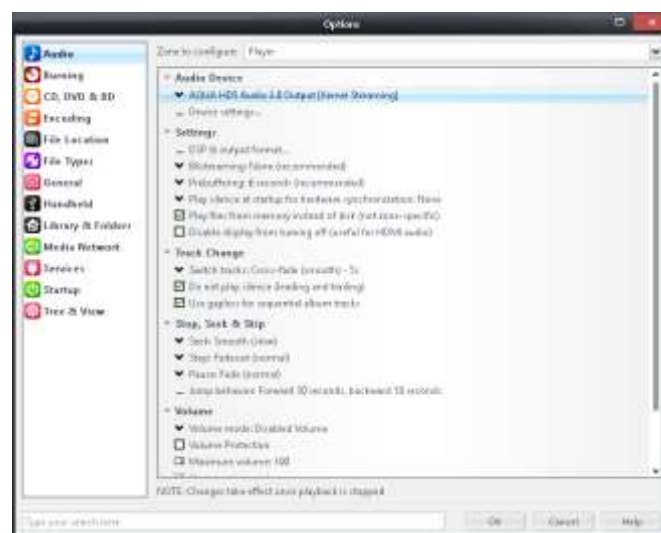
2) Help -> Install License

3) View -> Skin -> Noir

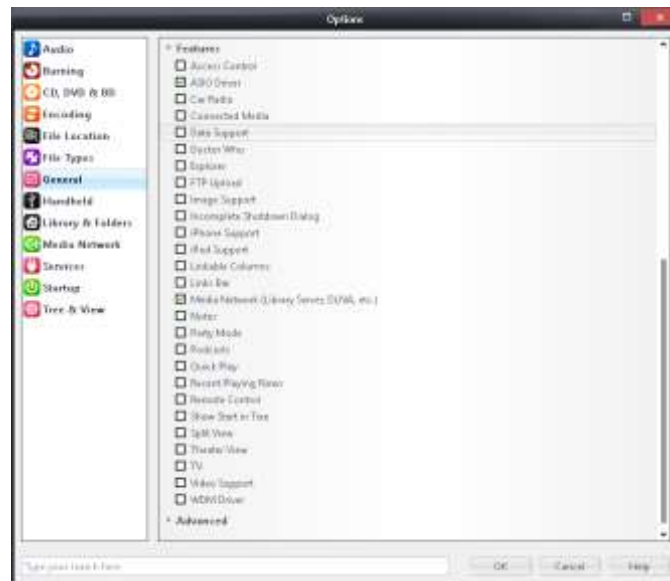
4) Help -> Update Channels -> Disable Automatic Update

5) Tools -> Options -> Audio -> AQUA USB Asio Driver

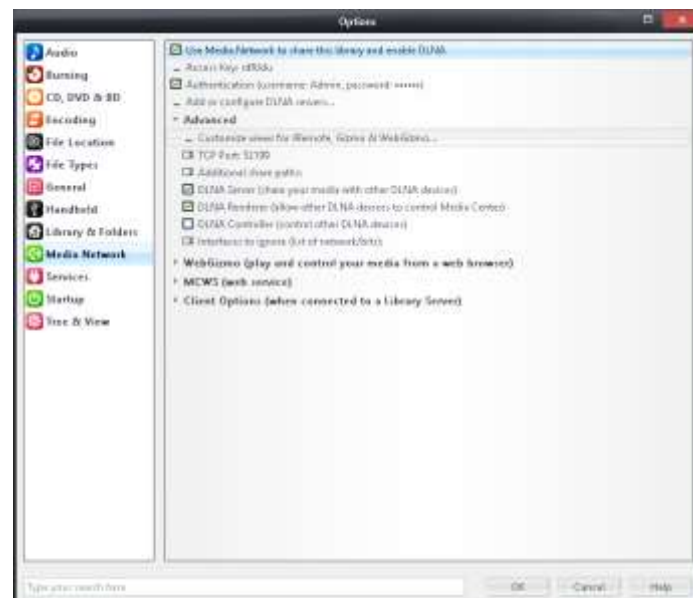
Audio Properties



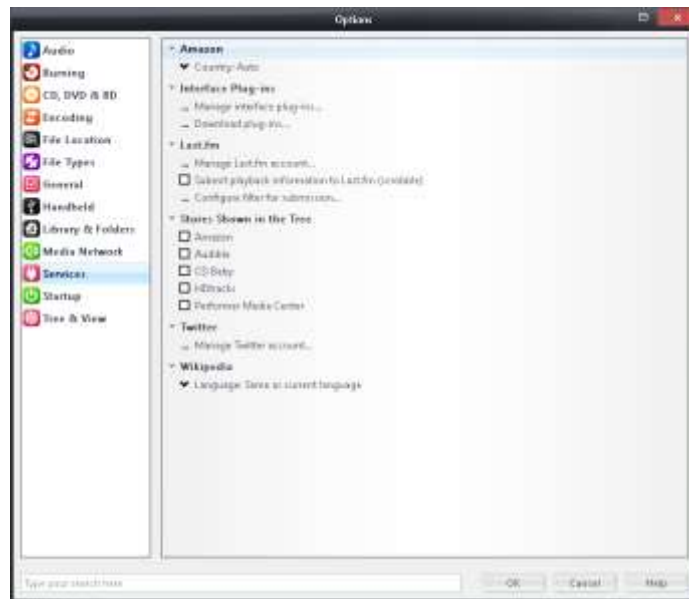
General Properties



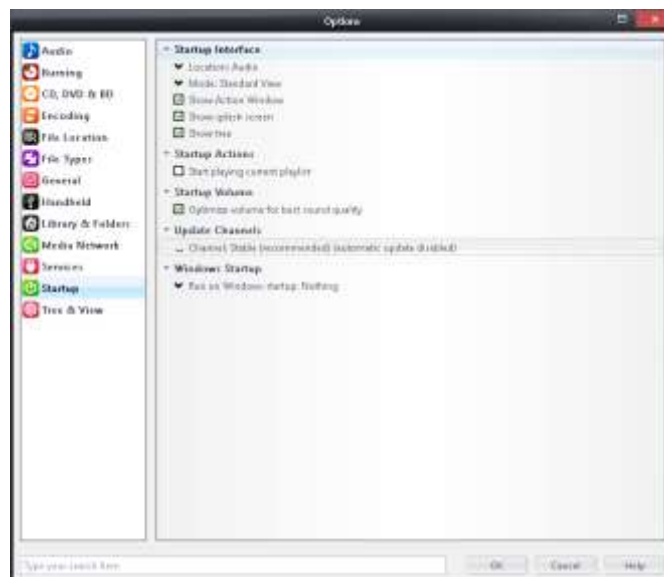
Media Network Properties



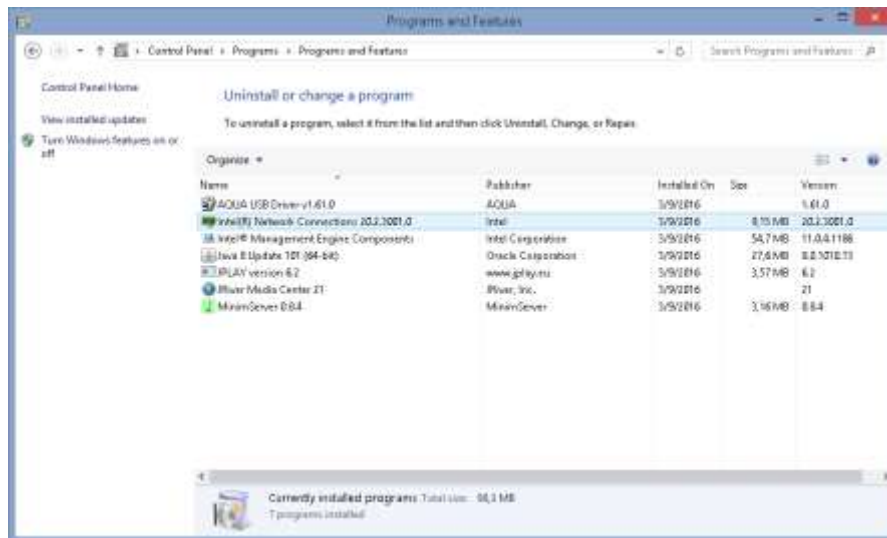
Services Properties



Startup Properties



After finishing the software installation process Programs and Features should look like this:



Remove / Uninstall Tiles from the Start Screen

Remove / uninstall all tiles from the Start screen. You can remove more than one tile at a time in Windows 8.1 by right-clicking the tiles you'd like to remove and then click **Unpin from Start** / **Uninstall** in the grey bar at the bottom of the screen.

Keep only: "Desktop", "File Explorer" and "Command Shell", MinimServer, JplaySettings, Aqua USB Control Panel, Jriver Media Player



Remove all unused Icons from the following locations:

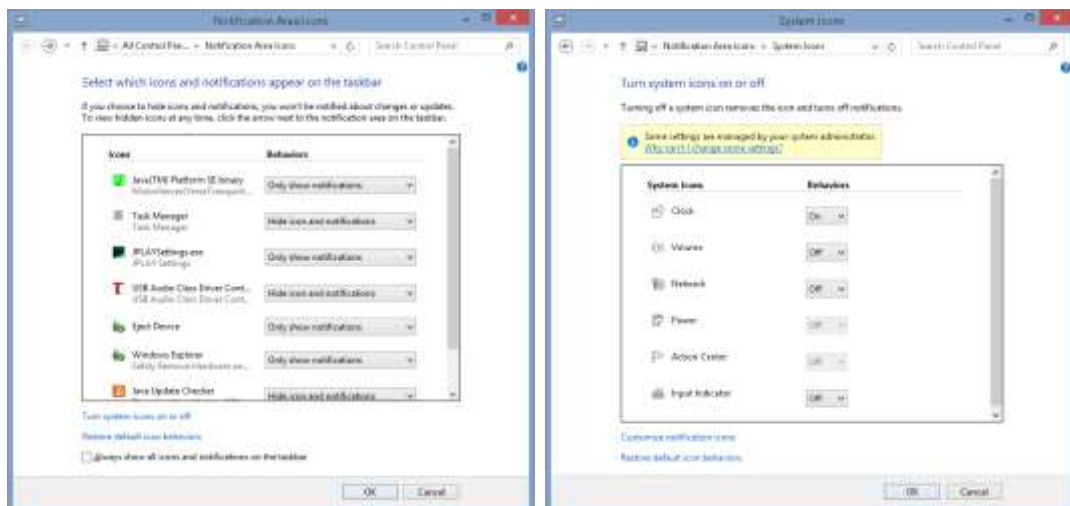
C:\Users\Default\AppData\Roaming\Microsoft\Windows\Start Menu\Programs

C:\Users\Admin\AppData\Roaming\Microsoft\Windows\Start Menu\Programs

C:\ProgramData\Microsoft\Windows\Start Menu\Programs



Remove All Notification Area Icons and turn off all system icons except clock.



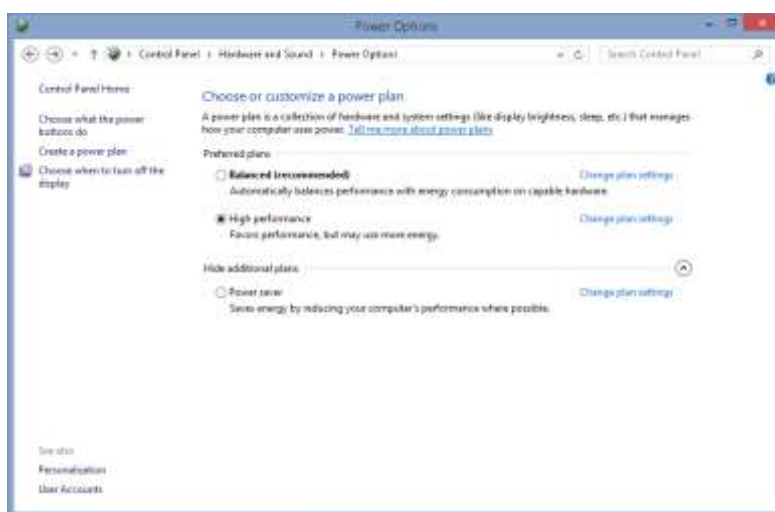
Create Shutdown and Restart shortcut Buttons on the Taskbar and set Desktop and Start Screen background



Change the Power Plan

Most people find that setting the Windows power plan to **high performance** improves sound quality. You can change this setting in the Control Panel under **System and Security** and then select **Power Options**.

1. Click on the Windows Start button and choose Control Panel
2. In Control Panel choose Power Options
3. In Power Options, choose High Performance
4. To the right, click Change Plan Settings
5. Choose “Change Advanced Power Settings”
6. At the top of the Advanced Settings window, change to “High Performance” in the menu.

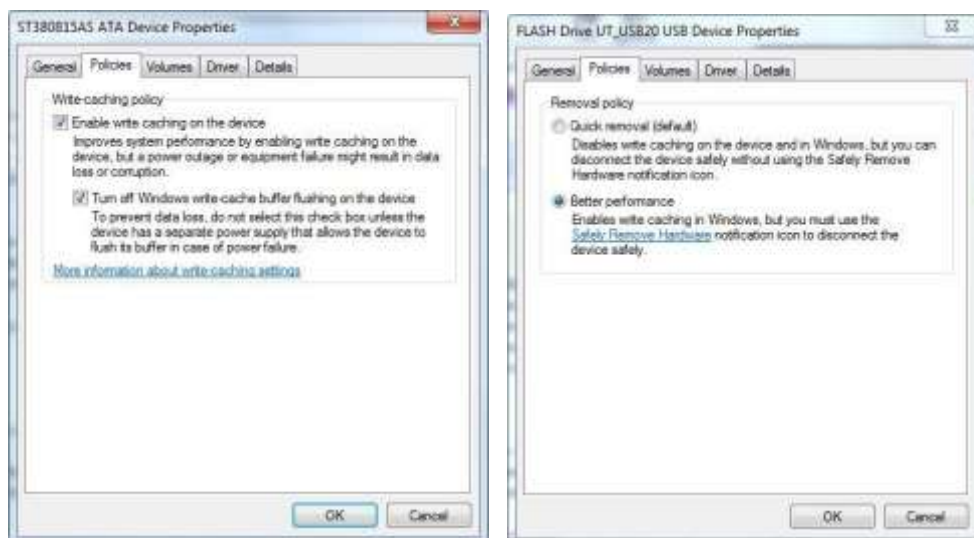


Recommened Power Options

- Disable USB Selective Suspend setting
- Pause Desktop Background settings slide show
- Disable PCI Express Link State Power Management
- Set Minimum/Maximum CPU state to 100% (No Throttling)
- Set system cooling to passive
- Turn off display after 1 minute
- Never turn hard disk off
- Never allow the computer to go to sleep
- Turn CPU Parking OFF
- Power button action: Shutdown
- Sleep button action (laptop lid closed): No action

Enable Write Cache and Advanced Performance for hard drives

1. This helps alleviate poor hard drive performance. In Device Manager open the Disk Drives menu.
2. For all of your hard drives, right click on the drive name and select Properties
3. Go to the Policies tab and check the boxes to “Enable write caching” and “Turn off Windows write-cache buffer flushing”

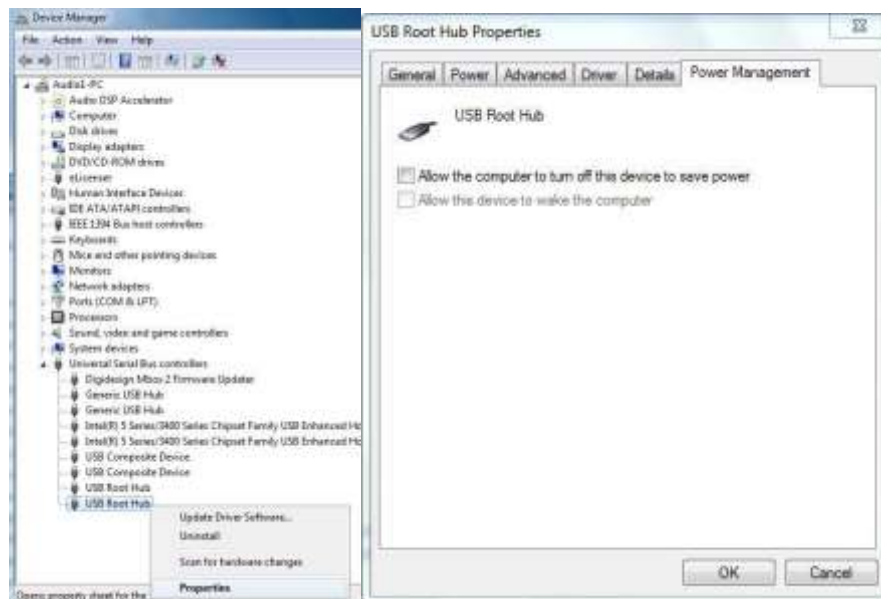


For internal drives, use the settings on the left, for external drives use settings on the right

Configure USB and Audio Hardware

Let's use Device Manager to check our USB configuration. Make sure that your DAC is connected and turned on.

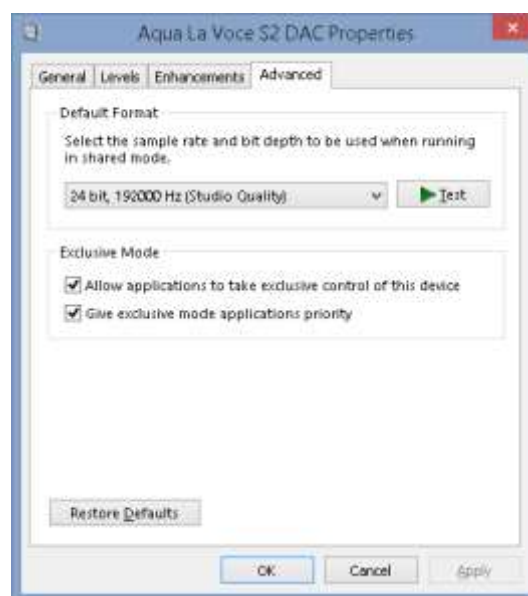
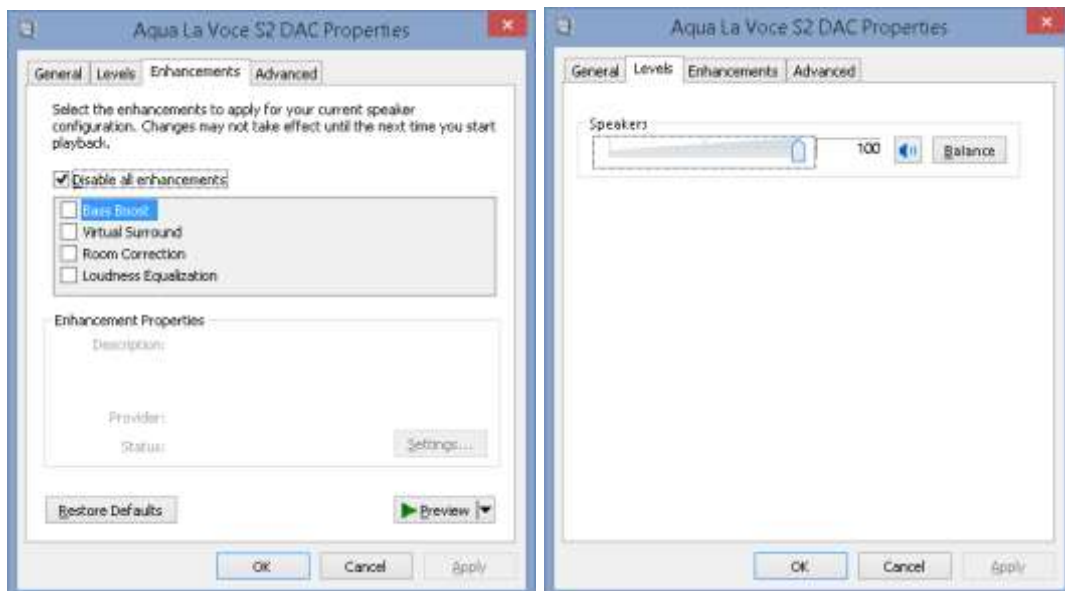
- Right-click the Start icon on the desktop and select **Device Manager** from the menu.
- Go to the **View** menu and select **Devices by connection**.
- Expand **ACPI x64-based PC, Microsoft ACPI-Compliant System** and **PCI Express Root Complex**.
- Now expand each USB host controller one by one until you find your DAC. Make a note of the controller's identifier, which is usually a four digit code shown at the end of the controller's description in Device Manager.
- Double-click each USB hub listed under the controller to which your DAC is connected, switch to the **Power Management** tab, de-select **Allow the computer to turn off this device to save power** and click **OK**. Note that you must run Device Manager as a local administrator to be able to see the Power Management tab.
- Close Device Manager.



Configure the DAC for “Exclusive Mode”

We should also set the DAC for exclusive mode, meaning that once your audio playback software starts to play music, no other software is able to share the DAC.

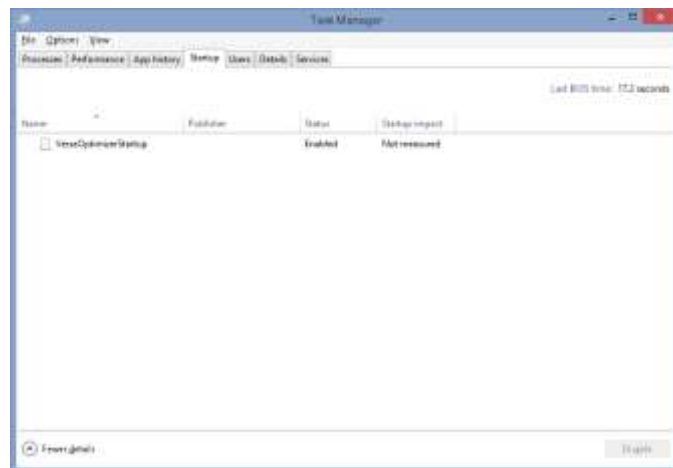
- Switch to the Start screen, type **control panel** and press **Enter**.
- In the Control Panel, click **Hardware and Sound**.
- Under Sound, click **Manage audio devices**.
- In the Sound control panel applet, find your DAC on the playback tab and double click it.
- In the Speaker Properties window, switch to the Levels tab and increase the audio output to 100.
- Switch to the Enhancements tab and check **Disable all sound effects**.
- Finally, click the **Advanced** tab and check both **Allow applications to take exclusive control of this device** and **Give exclusive mode applications priority**.
- Click **OK** to complete the procedure.



Disable Startup Items

These settings will make PC boot lighting fast and give computer the much needed overhead power to run more plugins.

1. Click the Windows Start button and in the search box, type msconfig, then press ENTER
2. Go to the Startup Tab and choose 'disable all' in the bottom right corner except *VerseOptimizerStartup*



3. Next, navigate to the Services tab. Check the box at the bottom to “hide all Microsoft Services”
4. Disable All on the bottom right corner
5. Click OK and reboot the computer.

Enable Remote Desktop Control

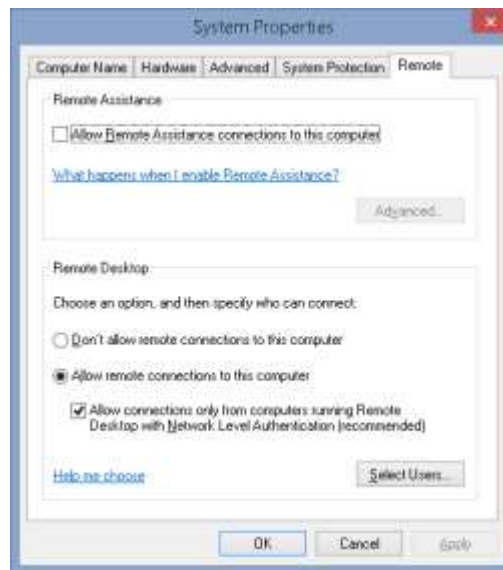
By default remote desktop connection is blocked in Windows 8.1 or 8 computers. It will not accept any incoming RDP connections until it is enabled manually. Firstly as troubleshooting method, do **allow the incoming remote desktop connection or verify whether it's enabled already**.

To do that, Open Control Panel -> System -> Allow Remote Access

Uncheck -> Allow Remote Assistance connections to this computer

Check -> Allow remote connections to this computer

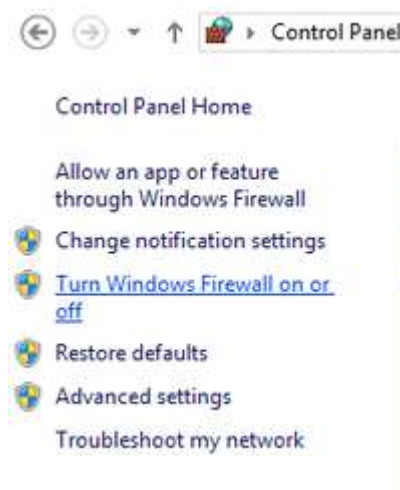
Check -> Allow Connections only from computers running Remote Desktop with Network Level Authentication



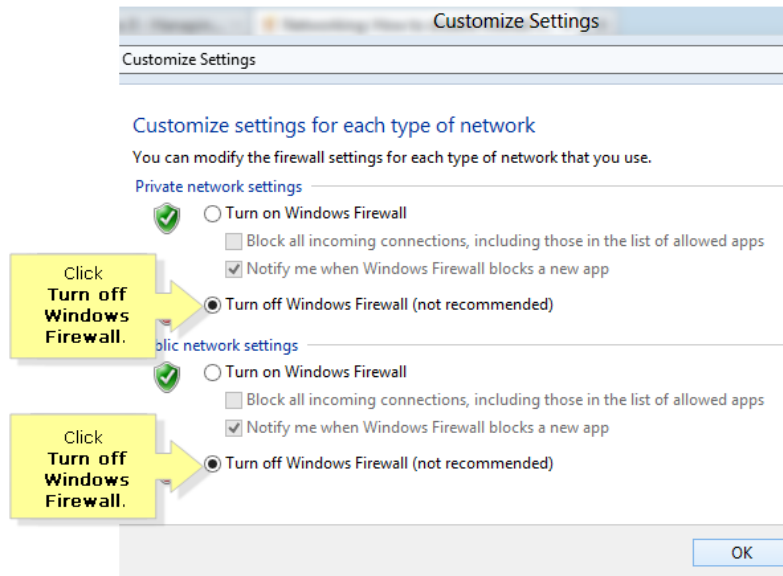
Remote Desktop connection works through TCP port 3389 which is blocked in recent Windows Operating Systems by default.

Disable Windows Firewall

- Open the *Control Panel* (Windows key + X > Control Panel).
- Go to *Windows Firewall*.
- Click on *Turn Windows Firewall on or off*.

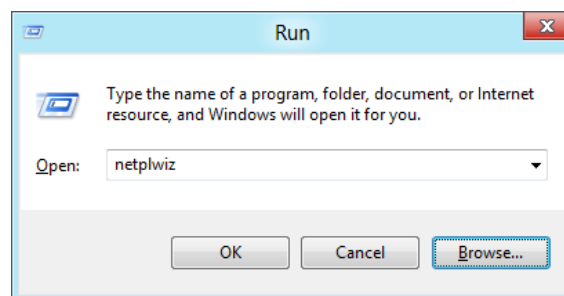


- Select *Turn Windows Firewall off* and click on OK to validate.

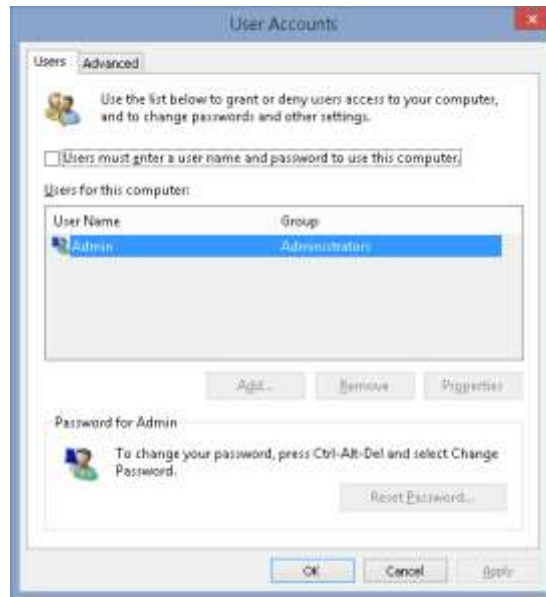


Set Automatic Logon

Press the Windows + R keyboard combination to bring up a run box, when it appears type netplwiz and hit enter.



This will open the User Accounts dialog box, which will display a list of all the users on your computer.

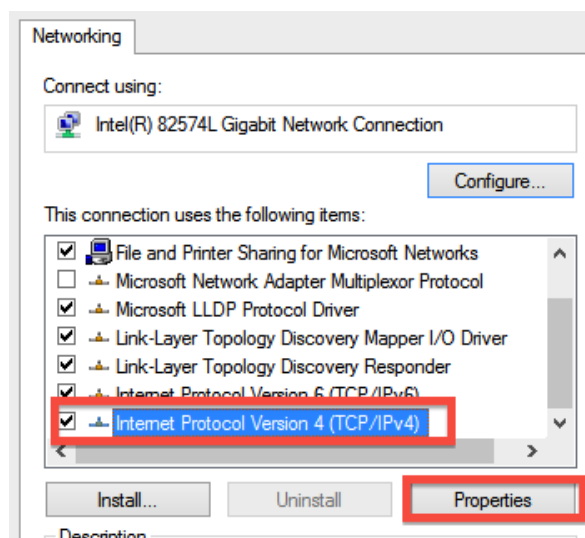


Select your user account from the list, then uncheck the “Users must enter a user name and password to use this computer” checkbox then click the apply button.

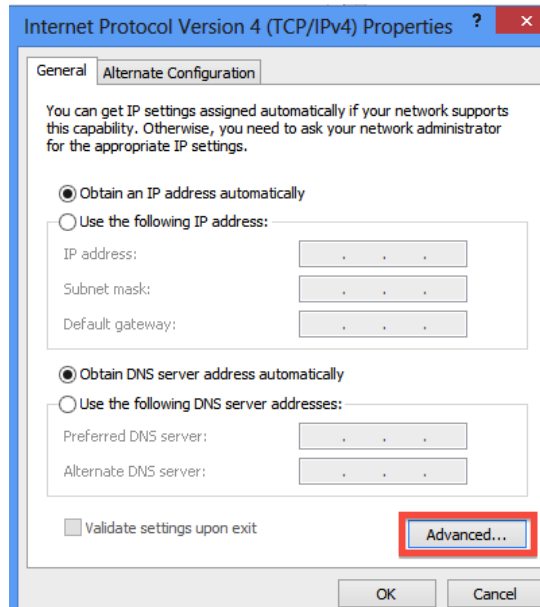
This will bring up the Automatically Sign In dialog, where you will need to input your password then click OK.

Disable NetBios over TCP/IP

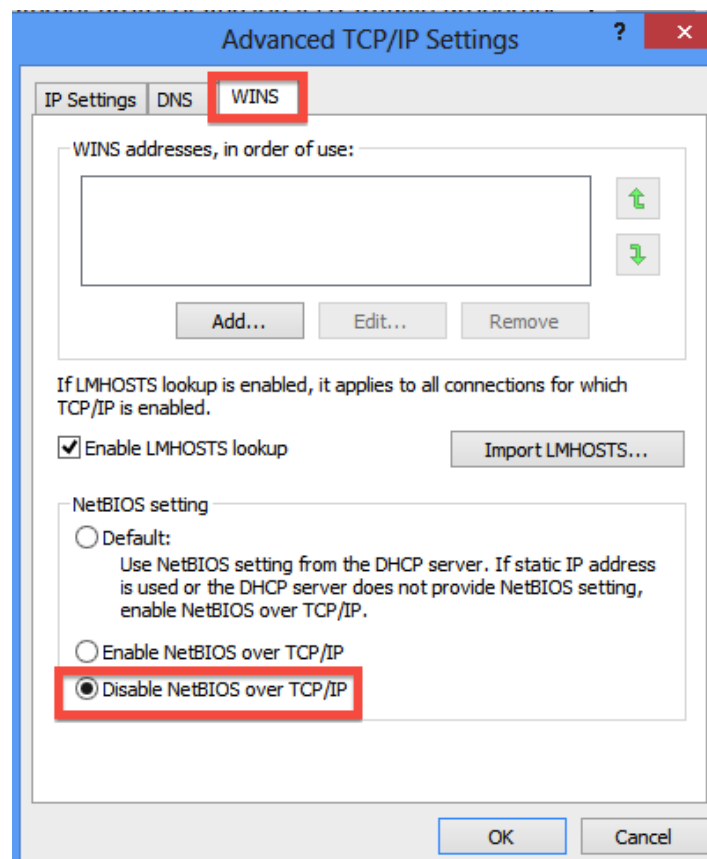
Select Internet Protocol Version 4(TCP/Ipv4) and click on Properties



Click on Advanced on properties window



Click on WINS tab and select Disable NetBIOS over TCP/IP



Disable Hibernation

On the Control Panel window, click the System and Security category.

On the **System and Security** window that opens up, click the **Power Options** category.

On the **Power Options** window, from the left pane, click the **Choose what the power buttons do** option.

On the next window that appears, click the **Change the settings that are currently unavailable** option from the top.

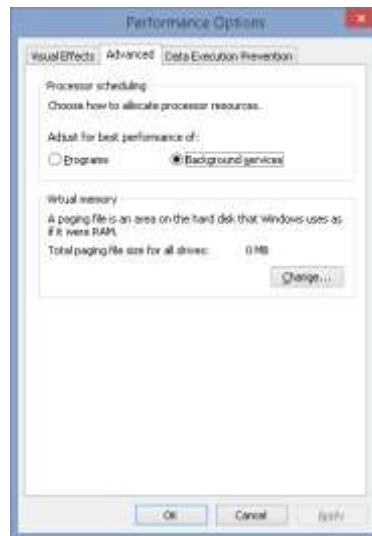
Once done, under the **Shutdown settings** section, uncheck the **Hibernate** checkbox and the “**Turn On Fast Startup**”.



Optimizing Processor Resource scheduling for background processes

To begin the process, type **sysdm.cpl** in Run box and hit Enter to open the **System Properties**. Select the **Advanced** tab and under **Performance**, click on **Settings**. In the **Performance Options** box, select the **Advanced** tab again. You will see a section **Processor Scheduling**.

Adjust for best performance of Background Services.



Enable HPET (high precision event timer)

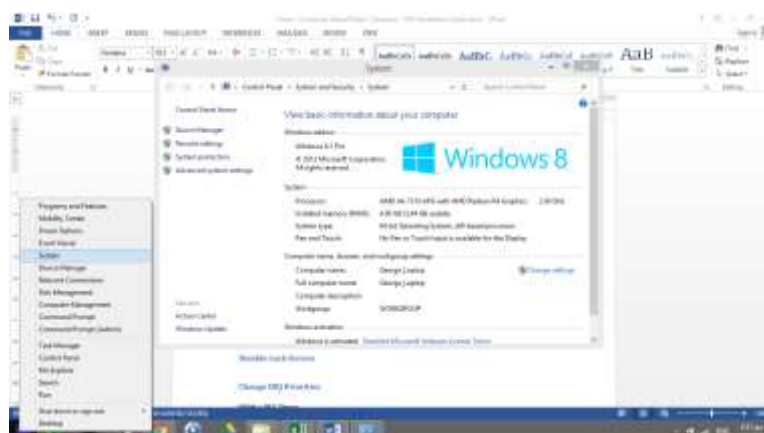
Enable HPET in Windows by giving this command in CMD as Administrator (command shell) :

```
bcdedit /set useplatformclock true
```

Disable Data Execution Prevention

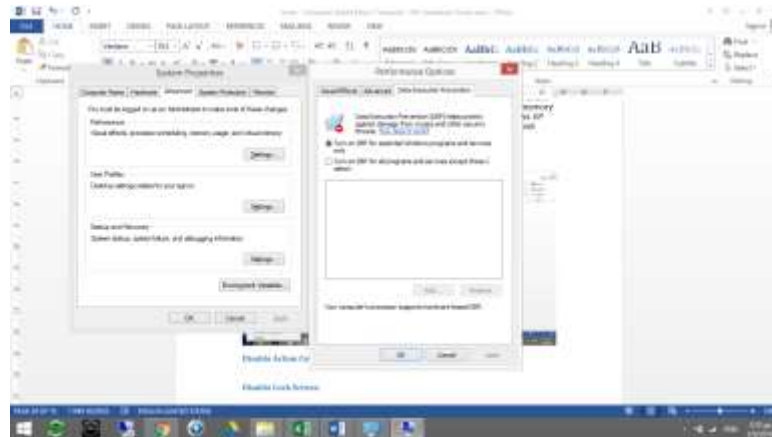
DEP– Data Execution Prevention is a security feature and is included in most of the modern operating systems. It is available in Microsoft Windows, Linux, Mac OS X, iOS and Android operating systems. It is implemented to prevent an application or service from executing code from a non-executable memory region. Data Execution Prevention (DEP) was started first with Windows XP and Windows 2003 Server, its main purpose was to provide system–level memory protection feature.

Right-click on **Start** icon on the desktop and click **System**
Click on **Advanced System Settings**.



Now, click on the **settings** button under the **Performance** label.

In the Performance Options window select the Data Execution Prevention tag. Enable/Disable the DEP and click OK.



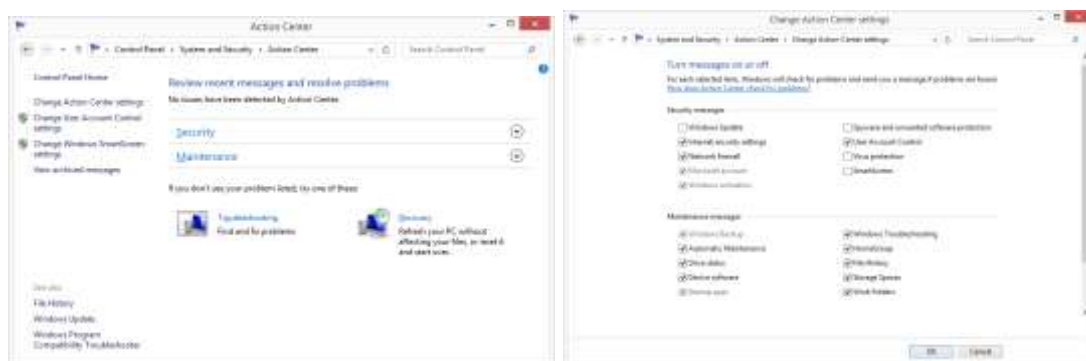
Or

Start command shell (CMD) as Administrator and give the following command:

bcdedit.exe /set nx AlwaysOff

Disable Action Center

Go to Control Panel – > System and Security –> Change Action Center Actions



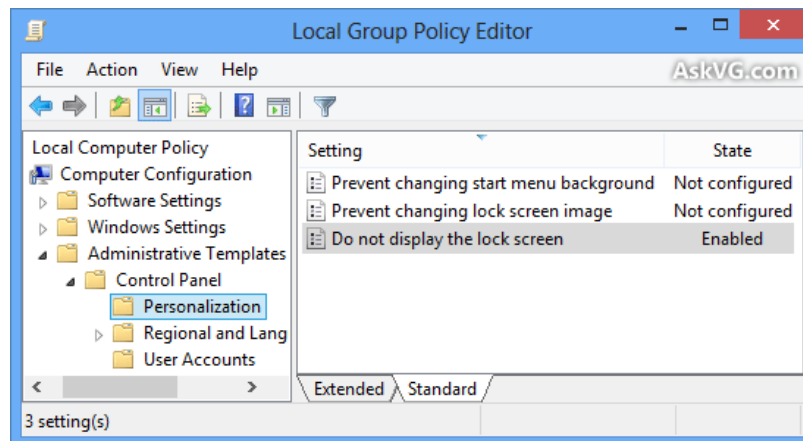
Disable Lock Screen

Press "WIN+R" key combination to launch RUN dialog box then type **gpedit.msc** and press Enter. It'll open **Group Policy Editor**.

Now go to:

Computer Configuration -> Administrative Templates -> Control Panel -> Personalization

In right-side pane, double-click on "Do not display the lock screen" option and set its value to "Enabled".



Change IRQ Priorities

IRQ8 = RTC Timer (1)

IRQ0 = System Timer (150)

IRQ12 = Mouse PS/2 (151)

IRQ13 = Numeric Data Processor (152)

IRQ1 = Keyboard (153)

Give priority to the System CMOS/real time clock (IRQ 8), and deprioritize the keyboard, PS/2 mouse, Numeric Data Processor and the System timer.

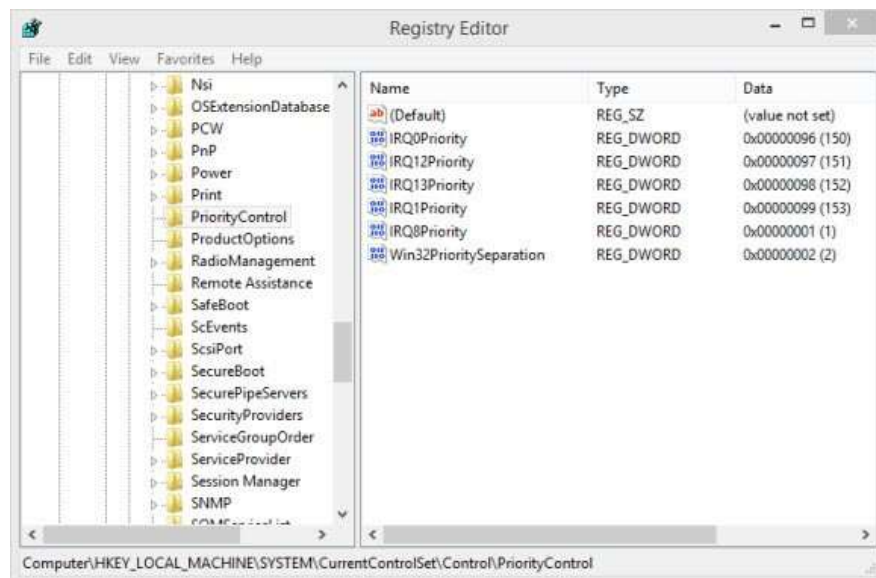
- Switch to the Start menu and type **regedit**.
- Make sure that *regedit* is selected in the search results and press **CTRL+SHIFT+ENTER** to start Registry Editor with administrative privileges. Give consent or enter administrative credentials if prompted.
- In the Registry Editor window, expand **HKEY_LOCAL_MACHINE, SYSTEM, CurrentControlSet, and Control**, in the left pane.
- Under Control, find **PriorityControl** and right click it, selecting **New, DWORD (32-bit Value)** from the menu.
- In the new value box on the right, type **IRQ0Priority** and press **Enter**.

- Double click the new value on the right and in the *Edit DWORD (32-bit) Value* dialog, click **Decimal**, type **150** in the Value data box and click **OK**.

Repeat this procedure and create the following DWORD values with associated data (decimal).

Registry value	Registry data	Associated device
IRQ0Priority	150	System timer
IRQ1Priority	153	Keyboard
IRQ8Priority	1	System CMOS/real time clock
IRQ12Priority	151	Mouse PS/2
IRQ13Priority	152	Numeric Data Processor

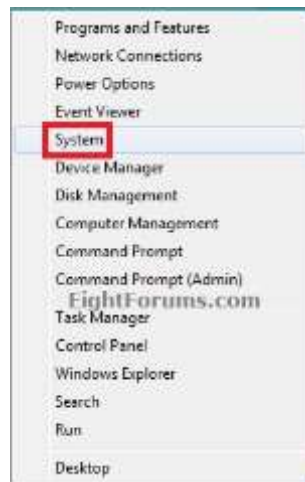
- Reboot the computer for the IRQ priority settings to take effect.



Check priority values for IRQs in the registry.

Turn off all visual Effects

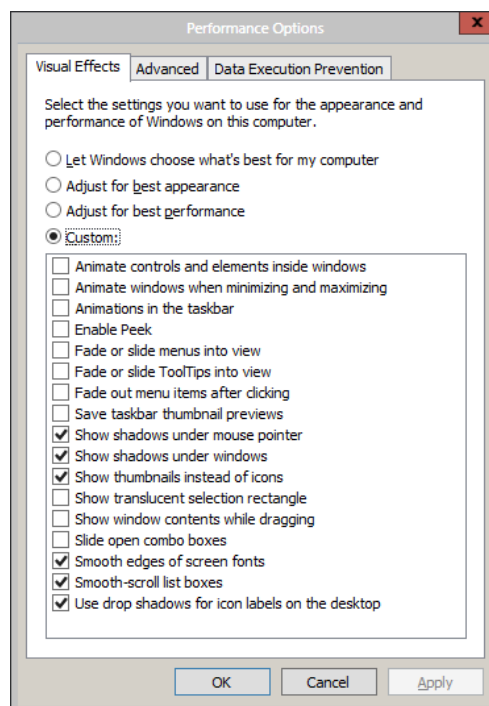
Open the Power User Tasks menu, click/tap on System



*In the left pane, click/tap on the **Advanced system settings** link. (see screenshot below)*

*In the **Advanced** tab, click/tap on the **Settings** button under **Performance**.*

*From here choose **Custom**, uncheck all **Visual Effects**, and click/tap on **Apply***



Disable all Windows 8.1 Features except for search

Disable all Windows 8.1 Packages:

Feature Name	Display Name	Description
ClientForNFS-Infrastructure	Client for NFS	Enables the computer to gain access to files on UNIX-based computers.
DirectoryServices-ADAM-Client	Active Directory Lightweight Directory Services	Installs Active Directory Lightweight Directory Services (AD LDS).
DirectPlay	DirectPlay	Enables the installation of DirectPlay on demand.
FaxServicesClientPackage	Windows Fax and Scan	Enables fax and scan tasks on the computer.
IIS-ApplicationDevelopment	Application Development Features	Installs web server application development features.
IIS-ApplicationInit	Application Initialization	Application Initialization performs extensive web application initialization tasks before serving web pages.
IIS-ASP	ASP	Enables a web server to host Classic ASP applications.
IIS-ASPNET	ASP.NET 3.5	Enable a web server to host ASP.NET v3.5 applications.
IIS-ASPNET45	ASP.NET 4.5	Enable a web server to host ASP.NET v4.5 applications.
IIS-BasicAuthentication	Basic Authentication	Requires a valid Windows user name and password for connection.
IIS-CertProvider	Centralized SSL Certificate Support	Centralized SSL Certificate Support lets you centrally manage SSL server certificates by using a file share. Maintaining SSL server certificates on a file share simplifies management since there is one place to manage them.
IIS-CGI	CGI	Enables support for CGI executables.
IIS-ClientCertificateMappingAuthentication	Client Certificate Mapping Authentication	Authenticates client certificates with Active Directory accounts.
IIS-CommonHttpFeatures	Common HTTP Features	Installs support for Web server content such as HTML and image files.

IIS-CustomLogging	Custom Logging	Enables support for custom logging for Web servers, sites, and applications.
IIS-DefaultDocument	Default Document	Allows you to specify a default file to load when users do not specify a file in a request URL.
IIS-DigestAuthentication	Digest Authentication	Authenticates clients by sending a password hash to a Windows domain controller.
IIS-DirectoryBrowsing	Directory Browsing	Allows clients to see the contents of a directory on a web server.
IIS-FTPExtensibility	FTP Extensibility	Lets you customize FTP publishing by writing your own software extensions.
IIS-FTPServer	FTP Server	Enables a server to transfer files by using the FTP protocol.
IIS-FTPSvc	FTP Service	Enables FTP publishing on a web server.
IIS-HealthAndDiagnostics	Health and Diagnostics	Lets you monitor and manage server, site, and application health.
IIS-HostableWebCore	Internet Information Services Hostable Web Core	Lets you program your application to serve HTTP requests by using core IIS functionality.
IIS-HttpCompressionDynamic	Dynamic Content Compression	Compresses dynamic content before returning it to a client.
IIS-HttpCompressionStatic	Static Content Compression	Compresses static content before returning it to a client.
IIS-HttpErrors	HTTP Errors	Allows you to customize the error messages that are returned to clients.
IIS-HttpLogging	HTTP Logging	Enables logging of web site activity for the server.
IIS-HttpRedirect	HTTP Redirection	Redirects client requests to a specific destination.
IIS-HttpTracing	Tracing	Enables tracing for ASP.NET applications and failed requests.
IIS-IIS6ManagementCompatibility	IIS 6 Management Compatibility	Lets you use existing IIS 6.0 APIs and scripts to manage a IIS 8.5 web server
IIS-IISCertificateMappingAuthentication	IIS Client Certificate	Maps client certificates 1-to-1 or many-to-1 to a Windows security identity.

	Mapping Authentication	
IIS-IPSecurity	IP Security	Allows or denies content access based on an IP address or domain name.
IIS-ISAPIExtensions	ISAPI Extensions	Allows ISAPI extensions to handle client requests.
IIS-ISAPIFilter	ISAPI Filters	Allows ISAPI filters to modify web server behavior.
IIS-LegacyScripts	IIS 6 Scripting Tools	Installs IIS 6.0 configuration scripts.
IIS-LegacySnapIn	IIS 6 Management Console	Installs the IIS 6.0 Management Console. Provides support for administration of remote IIS 6.0 servers from the computer.
IIS-LoggingLibraries	Logging Tools	Installs IIS 8.5 logging tools and scripts.
IIS-ManagementConsole	IIS Management Console	Installs Web server Management Console which supports management of local and remote Web servers.
IIS-ManagementScriptingTools	IIS Management Scripts and Tools	Manages a local Web server with IIS configuration scripts.
IIS-ManagementService	IIS Management Service	Allows the web server to be managed remotely from another computer by using the Web server Management Console.
IIS-Metabase	IIS Metabase and IIS 6 configuration compatibility	Installs IIS metabase and compatibility layer to allow metabase calls to interact with an IIS 8.5 configuration store.
IIS-NetFxExtensibility	.NET Extensibility 3.5	Enables a web server to host .NET Framework 3.5 applications.
IIS-NetFxExtensibility45	.NET Extensibility 4.5	Enables a web server to host .NET Framework v4.5 applications.
IIS-ODBCLogging	ODBC Logging	Enables support for logging to an ODBC-compliant database.
IIS-Performance	Performance Features	Installs performance features.
IIS-RequestFiltering	Request Filtering	Configures rules to block selected client requests.
IIS-RequestMonitor	Request Monitor	Monitors server, site, and application health.

IIS-Security	Security	Enables additional security features to secure servers, sites, applications, vdirs, and files.
IIS-ServerSideIncludes	Server-Side Includes	Serves .stm, .shtm, and .shtml files from a Web site.
IIS-StaticContent	Static Content	Serves .htm, .html, and image files from a Web site.
IIS-URLAuthorization	URL Authorization	Authorizes client access to the URLs that comprise a web application.
IIS-WebDAV	WebDAV Publishing	Publishes and manages files on a web server by using the HTTP protocol.
IIS-WebServer	World Wide Web Services	Installs the IIS 8.5 World Wide Web Services. Provides support for HTML web sites and optional support for ASP.NET, Classic ASP, and web server extensions.
IIS-WebServerRole	Internet Information Services	Provides support for Web and FTP servers, along with support for ASP.NET web sites, dynamic content such as Classic ASP and CGI, and local and remote management.
IIS-WebSockets	WebSocket Protocol	IIS 8.5 and ASP.NET 4.5 support writing server applications that communicate over the WebSocket Protocol.
IIS-WindowsAuthentication	Windows Authentication	Authenticates clients by using NTLM or Kerberos.
IIS-WMICompatibility	IIS 6 WMI Compatibility	Installs IIS 6.0 WMI scripting interfaces.
Indeo_OC_update	Intel Indeo Video Codecs	Enables the installation of Intel Indeo Video Codecs on demand.
Internet-Explorer-Optional-amd64	Internet Explorer 11	Finds and displays information and Web sites on the Internet.
IS-WebServerManagementTools	Web Management Tools	Installs web management console and tools.
LegacyComponents	Legacy Components	Controls legacy components in Windows.
MediaPlayback	Media Features	Controls media features such as Windows Media Player and Windows Media Center.

Microsoft-Hyper-V	Hyper-V Platform	Provides the services that you can use to create and manage virtual machines and their resources.
Microsoft-Hyper-V-All	Hyper-V	Provides services and management tools for creating and running virtual machines and their resources.
Microsoft-Hyper-V-Management-Clients	Hyper-V GUI Management Tools	Includes the Hyper-V Manager snap-in and Virtual Machine Connection tool.
Microsoft-Hyper-V-Management-PowerShell	Hyper-V Module for Windows PowerShell	Includes Windows PowerShell cmdlets for managing Hyper-V.
Microsoft-Hyper-V-Tools-All	Hyper-V Management Tools	Includes GUI and command-line tools for managing Hyper-V.
Microsoft-Windows-MobilePC-Client-Premium-Package-net	Network Projection	
Microsoft-Windows-MobilePC-LocationProvider-INF	Windows Location Provider	Determines the location of the computer.
MicrosoftWindowsPowerShellV2	Windows PowerShell 2.0 Engine	Adds or removes the Windows PowerShell 2.0 Engine.
MicrosoftWindowsPowerShellV2Root	Windows PowerShell 2.0	Adds or removes Windows PowerShell 2.0.
MSMQ-ADIntegration	MSMQ Active Directory Domain Services Integration	Enables publishing of queue properties to Active Directory Domain Services, out-of-the-box authentication and encryption of messages using certificates registered in Active Directory Domain Services, and routing of messages across Windows sites. This feature becomes operational only when the computer joins a domain.
MSMQ-Container	Microsoft Message Queue (MSMQ) Server	
MSMQ-DCOMProxy	MSMQ DCOM Proxy	The DCOM proxy feature enables MSMQ applications to use MSMQ DCOM API to connect to a remote MSMQ Server.

MSMQ-HTTP	MSMQ HTTP Support	The HTTP Support feature allows you to expose a queue to the internet such that applications can send messages to the queue using HTTP protocol. This feature requires Internet Information Server.
MSMQ-Multicast	Multicasting Support	The Multicast support feature enables you to send messages to a Multicast IPAddress. Queues can be associated with a Multicast IPAddress. Messages sent to a Multicast IPAddress are delivered to the queues that are associated with that IPAddress.
MSMQ-Server	Microsoft Message Queue (MSMQ) Server Core	This feature installs the core components of MSMQ which enables you to perform basic Message queuing functions. This feature is a minimum requirement.
MSMQ-Triggers	MSMQ Triggers	Message Queue Triggers enables the invocation of a COM component or an executable depending on the filters that you define for the incoming messages in a given queue.
MSRDC-Infrastructure	Remote Differential Compression API Support	Installs Remote Differential Compression (RDC) support for use in third-party applications.
NetFx3	.NET Framework 3.5 (includes .NET 2.0 and 3.0)	
NetFx4-AdvSrvs	.NET Framework 4.5 Advanced Services	
NetFx4Extended-ASPNET45	ASP.NET 4.5	
NFS-Administration	Administrative Tools	Provides tools for managing Services for NFS on local and remote computers.
Printing-Foundation-Features	Print and Document Services	Enables print, fax, and scan tasks on this computer.

Printing-Foundation-InternetPrinting-Client	Internet Printing Client	Enables clients to use HTTP to connect to printers on Web print servers.
Printing-Foundation-LPDPrintService	LPD Print Service	Makes your Windows computer work as a Line Printer Daemon (LPD) and Remote Line Printer client.
Printing-Foundation-LPRPortMonitor	LPR Port Monitor	Enables clients to print to TCP/IP printers connected to a Unix (or VAX) server.
Printing-XPSServices-Features	XPS Services	Enables printing to XPS documents.
Qdv_OC_update	DirectShow Digital Video	Enables the installation of DirectShow Digital Video on demand.
RasCMAK	RAS Connection Manager Administration Kit (CMAK)	Creates profiles for connecting to remote servers and networks on computers running 32-bit versions of Windows.
RasRip	RIP Listener	Listens for route updates sent by routers that use the Routing Information Protocol version 1 (RIPv1).
ScanManagementConsole	Scan Management	Manages distributed scanners, scan processes, and scan servers.
SearchEngine-Client-Package	Windows Search	Provides content indexing, property caching, and search results for files, e-mail, and other content.
ServicesForNFS-ClientOnly	Services for NFS	Allows you to access files using the Network File System (NFS) protocol.
SimpleTCP	Simple TCPIP services (i.e. echo, daytime etc)	Installs Simple TCPIP services.
SMB1Protocol	SMB 1.0/CIFS File Sharing Support	Provides support for the SMB 1.0/CIFS file sharing protocol, and the Computer Browser protocol.
SNMP	Simple Network Management Protocol (SNMP)	Includes Simple Network Management Protocol agents that monitor the activity in network devices and report to the network console workstation.

TelnetClient	Telnet Client	Allows you to connect to other computers remotely.
TelnetServer	Telnet Server	Allows other computers to connect to your computer remotely.
TFTP	TFTP Client	Transfers files by using the Trivial File Transfer Protocol.
TIFFFilter	Windows TIFF IFilter	Enables the indexing and searching of Tagged Image File Format (TIFF) files using Optical Character Recognition (OCR).
VCM_OC_update	Video Compression Manager Codecs	Enables the installation of Video Compression Manager Codecs on demand.
WAS-ConfigurationAPI	Configuration APIs	Install managed code configuration APIs.
WAS-NetFxEnvironment	.NET Environment	Installs the .NET Environment for supporting managed code activation.
WAS-ProcessModel	Process Model	Installs Process Model for the Windows Process Activation Service.
WAS-WindowsActivationService	Windows Process Activation Service	Installs Windows Process Activation Service.
WCF-HTTP-Activation	Windows Communication Foundation HTTP Activation	
WCF-HTTP-Activation45	HTTP Activation	
WCF-MSMQ-Activation45	Message Queuing (MSMQ) Activation	
WCF-NonHTTP-Activation	Windows Communication Foundation Non-HTTP Activation	
WCF-Pipe-Activation45	Named Pipe Activation	
WCF-Services45	WCF Services	
WCF-TCP-Activation45	TCP Activation	
WCF-TCP-PortSharing45	TCP Port Sharing	
Windows-Defender-Default-Definitions		

Windows-Identity-Foundation	Windows Identity Foundation 3.5	Windows Identity Foundation (WIF) 3.5 is a set of .NET Framework classes that can be used for implementing claims-based identity in your .NET 3.5 and 4.0 applications. WIF 3.5 is superseded by WIF classes that are provided as part of .NET 4.5. We recommend that you use .NET 4.5 to support claims-based identity in your applications.
WindowsMediaPlayer	Windows Media Player	
WMISnmpProvider	WMI SNMP Provider	Enables WMI clients to consume SNMP information through the CIM model as implemented by WMI.
Xps-Foundation-Xps-Viewer	XPS Viewer	Allows you to read, copy, print, sign, and set permissions for XPS documents.

Open a Command Shell (run as Administrator) and execute (copy and paste) the following commands:

```
Dism /online /Disable-Feature /FeatureName:ClientForNFS-Infrastructure /NoRestart
Dism /online /Disable-Feature /FeatureName:DirectoryServices-ADAM-Client /NoRestart
Dism /online /Disable-Feature /FeatureName:DirectPlay /NoRestart
Dism /online /Disable-Feature /FeatureName:FaxServicesClientPackage /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ApplicationDevelopment /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ApplicationInit /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ASP /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ASPNET /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ASPNET45 /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-BasicAuthentication /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-CertProvider /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-CGI /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ClientCertificateMappingAuthentication /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-CommonHttpFeatures /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-CustomLogging /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-DefaultDocument /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-DigestAuthentication /NoRestart
```

```

Dism /online /Disable-Feature /FeatureName:IIS-DirectoryBrowsing /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-FTPExtensibility /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-FTPService /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-FTPSvc /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HealthAndDiagnostics /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HostableWebCore /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpCompressionDynamic
/NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpCompressionStatic /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpErrors /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpLogging /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpRedirect /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-HttpTracing /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-IIS6ManagementCompatibility
/NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-
IISCertificateMappingAuthentication /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-IPSecurity /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ISAPIExtensions /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ISAPIFilter /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-LegacyScripts /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-LegacySnapIn /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-LoggingLibraries /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ManagementConsole /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ManagementScriptingTools
/NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ManagementService /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-Metabase /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-NetFxExtensibility /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-NetFxExtensibility45 /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ODBCLogging /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-Performance /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-RequestFiltering /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-RequestMonitor /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-Security /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-ServerSideIncludes /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-StaticContent /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-URLAuthorization /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WebDAV /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WebServer /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WebServerRole /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WebSockets /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WindowsAuthentication /NoRestart
Dism /online /Disable-Feature /FeatureName:IIS-WMICompatibility /NoRestart
Dism /online /Disable-Feature /FeatureName:Indeo_OC_update /NoRestart

```

```

Dism /online /Disable-Feature /FeatureName:Internet-Explorer-Optional-amd64
/NoRestart
Dism /online /Disable-Feature /FeatureName:IS-WebServerManagementTools
/NoRestart
Dism /online /Disable-Feature /FeatureName:LegacyComponents /NoRestart
Dism /online /Disable-Feature /FeatureName:MediaPlayback /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Hyper-V /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Hyper-V-All /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Hyper-V-Management-
Clients /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Hyper-V-Management-
PowerShell /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Hyper-V-Tools-All
/NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Windows-MobilePC-Client-
Premium-Package-net /NoRestart
Dism /online /Disable-Feature /FeatureName:Microsoft-Windows-MobilePC-
LocationProvider-INF /NoRestart
Dism /online /Disable-Feature /FeatureName:MicrosoftWindowsPowerShellV2
/NoRestart
Dism /online /Disable-Feature /FeatureName:MicrosoftWindowsPowerShellV2Root
/NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-ADIntegration /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-Container /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-DCOMProxy /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-HTTP /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-Multicast /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-Server /NoRestart
Dism /online /Disable-Feature /FeatureName:MSMQ-Triggers /NoRestart
Dism /online /Disable-Feature /FeatureName:MSRDC-Infrastructure /NoRestart
Dism /online /Disable-Feature /FeatureName:NetFx3 /NoRestart
Dism /online /Disable-Feature /FeatureName:NetFx4-AdvSrvs /NoRestart
Dism /online /Disable-Feature /FeatureName:NetFx4Extended-ASPNET45
/NoRestart
Dism /online /Disable-Feature /FeatureName:NFS-Administration /NoRestart
Dism /online /Disable-Feature /FeatureName:Printing-Foundation-Features
/NoRestart
Dism /online /Disable-Feature /FeatureName:Printing-Foundation-InternetPrinting-
Client /NoRestart
Dism /online /Disable-Feature /FeatureName:Printing-Foundation-LPDPrintService
/NoRestart
Dism /online /Disable-Feature /FeatureName:Printing-Foundation-LPRPortMonitor
/NoRestart
Dism /online /Disable-Feature /FeatureName:Printing-XPSServices-Features
/NoRestart

```

```

Dism /online /Disable-Feature /FeatureName:Qdv_OC_update /NoRestart
Dism /online /Disable-Feature /FeatureName:RasCMAK /NoRestart
Dism /online /Disable-Feature /FeatureName:RasRip /NoRestart
Dism /online /Disable-Feature /FeatureName:ScanManagementConsole /NoRestart
Dism /online /Disable-Feature /FeatureName:SearchEngine-Client-Package
/NoRestart
Dism /online /Disable-Feature /FeatureName:ServicesForNFS-ClientOnly /NoRestart
Dism /online /Disable-Feature /FeatureName:SimpleTCP /NoRestart
Dism /online /Disable-Feature /FeatureName:SMB1Protocol /NoRestart
Dism /online /Disable-Feature /FeatureName:SNMP /NoRestart
Dism /online /Disable-Feature /FeatureName:TelnetClient /NoRestart
Dism /online /Disable-Feature /FeatureName:TelnetServer /NoRestart
Dism /online /Disable-Feature /FeatureName:TFTP /NoRestart
Dism /online /Disable-Feature /FeatureName:TIFFIFilter /NoRestart
Dism /online /Disable-Feature /FeatureName:VCM_OC_update /NoRestart
Dism /online /Disable-Feature /FeatureName:WAS-ConfigurationAPI /NoRestart
Dism /online /Disable-Feature /FeatureName:WAS-NetFxEnvironment /NoRestart
Dism /online /Disable-Feature /FeatureName:WAS-ProcessModel /NoRestart
Dism /online /Disable-Feature /FeatureName:WAS-WindowsActivationService
/NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-HTTP-Activation /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-HTTP-Activation45 /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-MSMQ-Activation45 /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-NonHTTP-Activation /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-Pipe-Activation45 /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-Services45 /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-TCP-Activation45 /NoRestart
Dism /online /Disable-Feature /FeatureName:WCF-TCP-PortSharing45 /NoRestart
Dism /online /Disable-Feature /FeatureName:Windows-Defender-Default-
Definitions /NoRestart
Dism /online /Disable-Feature /FeatureName:Windows-Identity-Foundation
/NoRestart
Dism /online /Disable-Feature /FeatureName:WindowsMediaPlayer /NoRestart
Dism /online /Disable-Feature /FeatureName:WMISnmpProvider /NoRestart
Dism /online /Disable-Feature /FeatureName:Xps-Foundation-Xps-Viewer
/NoRestart

```

Turn off Windows logs

Open a Command Shell (run as Administrator) and execute (copy and paste) the following commands:

```

wevtutil.exe sl Microsoft-Windows-Diagnosis-DPS/Operational /e:false
wevtutil.exe sl Microsoft-Windows-Diagnostics-Performance/Operational /e:false

```

```
wevtutil.exe sl Microsoft-Windows-GroupPolicy/Operational /e:false  
wevtutil.exe sl Microsoft-Windows-ReadyBoost/Operational /e:false  
wevtutil.exe sl Microsoft-Windows-ReliabilityAnalysisComponent/Operational  
/e:false  
wevtutil.exe sl Microsoft-Windows-TaskScheduler/Operational /e:false  
reg add "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CrashControl"  
/v LogEvent /t REG_DWORD /d 0 /f
```

Open a Command Shell (run as Administrator) and execute (copy and paste) the following commands:

Turn off all Startup Event Trace Session Logs

```
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\AITEv  
entLog" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\Audio  
" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\Circul  
ar Kernel Context Logger " /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\DiagL  
og" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\EventL  
og-Application" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\EventL  
og-Security" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\EventL  
og-System" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\LwNet  
Log" /v Start /t REG_DWORD /d 1 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\Micro  
soft-Windows_Setup" /v Start /t REG_DWORD /d 0 /f  
reg add  
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\NBSM  
BLOGGER" /v Start /t REG_DWORD /d 0 /f
```



```

reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\NtfsLo
g" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\PEAut
hLog" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\RAC_P
S" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\RdrLo
g" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\Ready
Boot" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\SQL
ogger" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\TCPIP
LOGGER" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\Tpm"
/v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\UBPM"
/v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\WdiCo
ntextLog" /v Start /t REG_DWORD /d 0 /f
reg add
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WMI\Autologger\WFP-
IPsec Trace" /v Start /t REG_DWORD /d 0 /f

```

Disable Unused Windows Drivers

Name	Description	Group
1394ohci	1394 OHCI Compliant Host Controller	Firewire Drivers
3ware	LSI 3ware SCSI Storport Driver by LSI	Rest Drivers
ADP80XX	PMC-Sierra Storport Driver For SPC8x6G SAS/SATA controller by PMC-Sierra.	Rest Drivers
agp440	440 NT AGP Filter by Microsoft Corporation	Rest Drivers

AmdK8	AMD K8 Processor Driver	AMD Processor
AmdPPM	AMD Processor Driver	AMD Processor
amdsata	AMD SATA Controller Driver	AMD Processor
amdsbs	AMD Technology AHCI Compatible Controller Driver for Windows – AMD64 platform	AMD Processor
amdxata	AMD Storage Filter Driver	AMD Processor
Beep	System beep sounds	Rest Drivers
BthAvrcpTg	Bluetooth Audio/Video Remote Control HID	Rest Drivers
BthHFEnum	Bluetooth Hands-Free Audio and Call Control HID	Rest Drivers
bthhfhid	Bluetooth Hands-Free Call Control HID	Rest Drivers
BTHMODEM	Bluetooth Serial Communications Driver	Rest Drivers
cdfs	CD/DVD File System Reader	Rest Drivers
cdrom	SCSI CD-ROM Driver by Microsoft Corporation	Rest Drivers
circlass	Consumer IR Class Driver for eHome by Microsoft Corporation	Rest Drivers
Dfsc	Client driver for access to DFS Namespaces.	Rest Drivers
drmkaud	Microsoft Kernel DRM Audio Descrambler Filter by Microsoft Corporation.	Rest Drivers
ErrDev	Error Device Driver by Microsoft Corporation.	Rest Drivers
fdc	Floppy Disk Controller Driver by Microsoft Corporation.	Rest Drivers
Filetrace	ETW File Trace Filter. (The Filetrace service is a file system driver)	Rest Drivers
flpydisk	Floppy Driver by Microsoft Corporation.	Rest Drivers
HidBatt	Hid Battery Driver by Microsoft Corporation.	Rest Drivers
HidBth	Bluetooth Miniport Driver for HID Devices by Microsoft	Rest Drivers
HidIr	Infrared Miniport Driver for Input Devices by Microsoft	Rest Drivers
HyperVideo	Microsoft VMBus Video Device Miniport Driver by Microsoft	Rest Drivers
intelide	Intel IDE/ATA HDD Driver	IDE/ATA Drivers
IpFilterDriver	IP Traffic Filter Driver.	Rest Drivers
IPMIDRV	WMI IPMI DRIVER by Microsoft Corporation.	Rest Drivers
IRENUM	IR Bus Enumerator.	Rest Drivers
iScsiPrt	Microsoft iSCSI Initiator Driver by Microsoft Corporation.	Rest Drivers
LSI_SAS	LSI Fusion-MPT SAS Driver (StorPort) by LSI Corporation.	Rest Drivers

LSI_SAS2	LSI SAS Gen2 Driver (StorPort) by LSI Corporation.	Rest Drivers
LSI_SAS3	LSI SAS Gen3 Driver (StorPort) by LSI Corporation.	Rest Drivers
LSI_SSS	LSI SSS PCIe/Flash Driver (StorPort) by LSI Corporation.	Rest Drivers
megasas	MEGASAS RAID Controller Driver for Windows by LSI Corporation.	Rest Drivers
Megasr	LSI MegaRAID Software RAID Driver by LSI Corporation, Inc.	Rest Drivers
Modem	Modem Driver	Rest Drivers
mpsdrv	Windows Firewall Authorization Driver is a kernel mode driver that provides deep inspection services on inbound and outbound network traffic.	Rest Drivers
MRxDAV	Network Redirector that provides WebDAV file access for the WebClient service.	Rest Drivers
NativeWifiP	NativeWiFi Filter	WiFi Drivers
NdisTapi	Remote Access NDIS TAPI Driver.	Rest Drivers
Ndisuio	NDIS Usermode I/O Protocol	WiFi Drivers
NdisWan	NDIS WAN miniport drivers	WiFi Drivers
Null		Rest Drivers
nvstor	NVIDIA® nForce(TM) Sata Performance Driver by NVIDIA Corporation.	Rest Drivers
Parport	Parallel Port Driver by Microsoft Corporation.	Rest Drivers
pcmcia	PCMCIA Bus Driver by Microsoft Corporation.	Rest Drivers
PEAUTH	Protected Environment Authentication and Authorization Export Driver by Microsoft Corporation.	Rest Drivers
QWAVEdrv	Quality Windows Audio/Video Experience component driver.	Rest Drivers
RasAcid	Remote Access Auto Connection Driver.	Rest Drivers
RasPppoe	Remote Access PPPOE Driver.	Rest Drivers
scfilter	Smart card reader filter driver enabling smart card PnP.	Rest Drivers
secdrv	Security Driver	Rest Drivers
Serenum	Serial Port Enumerator by Microsoft Corporation.	Rest Drivers
Serial	Serial Device Driver by Microsoft Corporation.	Rest Drivers
sermouse	Serial Mouse Filter Driver by Microsoft Corporation.	Rest Drivers
sfloppy	SCSI Floppy Driver by Microsoft Corporation.	Rest Drivers
SiSRaid2	SiS RAID Stor Miniport Driver by Silicon Integrated Systems Corp.	Rest Drivers
SiSRaid4	SiS AHCI Stor-Miniport Driver by Silicon Integrated Systems.	Rest Drivers
stexstor	Promise SuperTrak EX Series Driver for Windows x86 by Promise Technology, Inc.	Rest Drivers
TCPv6	Microsoft IPv6 Protocol Driver.	Rest Drivers
tcpipreg	Provides compatibility for legacy applications which interact with TCP/IP through the registry. If this	Rest Drivers

	service is stopped, certain applications may have impaired functionality.	
uagp35	MS AGPv3.5 Filter by Microsoft Corporation.	Rest Drivers
udfs	Reads/Writes UDF 1.02,1.5,2.0x,2.5 disc formats, usually found on C/DVD discs. (Core) (All pieces).	Rest Drivers
uliagpkx	ULi AGPv3.0 Filter for K8/9 Processor Platforms by Microsoft Corporation.	Rest Drivers
usbcir	USB Consumer IR Driver for eHome by Microsoft Corporation.	Rest Drivers
usbprint	USB Printer driver by Microsoft Corporation.	Rest Drivers
vhdmp	VHD Miniport Driver by Microsoft Corporation.	Rest Drivers
vwifibus	Virtual Wireless Bus Driver	WiFi Drivers
WIMMount	WIM Image mount service driver.	Rest Drivers
WudfPf	Windows Driver Foundation – User-mode Driver Framework Platform Driver by Microsoft Corporation	Rest Drivers
WUDFRd	Windows Driver Foundation – User-mode Driver Framework Reflector by Microsoft Corporation	Rest Drivers

Open a Command Shell (run as Administrator) and execute (copy and paste) the following commands:

```
sc config 1394ohci start= disabled
sc config 3ware start= disabled
sc config ADP80XX start= disabled
sc config agp440 start= disabled
sc config AmdK8 start= disabled
sc config AmdPPM start= disabled
sc config amdsata start= disabled
sc config amdsbs start= disabled
sc config amdxtata start= disabled
sc config Beep start= disabled
sc config BthAvrcpTg start= disabled
sc config BthHFFEnum start= disabled
sc config bthhfhid start= disabled
sc config BTHMODEM start= disabled
sc config cdfs start= disabled
sc config cdrom start= disabled
sc config circlass start= disabled
sc config Dfsc start= disabled
sc config drmkaud start= disabled
sc config ErrDev start= disabled
sc config fdcc start= disabled
```

sc config Filetrace start= disabled
sc config flpydisk start= disabled
sc config HidBatt start= disabled
sc config HidBth start= disabled
sc config Hidlr start= disabled
sc config HyperVideo start= disabled
sc config intelide start= disabled
sc config IpFilterDriver start= disabled
sc config IPMIDRV start= disabled
sc config IRENUM start= disabled
sc config iScsiPrt start= disabled
sc config LSI_SAS start= disabled
sc config LSI_SAS2 start= disabled
sc config LSI_SAS3 start= disabled
sc config LSI_SSS start= disabled
sc config megasas start= disabled
sc config Megasr start= disabled
sc config Modem start= disabled
sc config mpsdrv start= disabled
sc config MRxDAV start= disabled
sc config NativeWifiP start= disabled
sc config NdisTapi start= disabled
sc config Ndisuio start= disabled
sc config NdisWan start= disabled
sc config Null start= disabled
sc config nvstor start= disabled
sc config Parport start= disabled
sc config pcmcia start= disabled
sc config PEAUTH start= disabled
sc config QWAVEdrv start= disabled
sc config RasAcd start= disabled
sc config RasPppoe start= disabled
sc config scfilter start= disabled
sc config secdrv start= disabled
sc config Serenum start= disabled
sc config Serial start= disabled
sc config sermouse start= disabled
sc config sfloppy start= disabled
sc config SiSRaid2 start= disabled
sc config SiSRaid4 start= disabled
sc config stexstor start= disabled

```

sc config TCPIP6 start= disabled
sc config tcpipreg start= disabled
sc config uagp35 start= disabled
sc config udfs start= disabled
sc config uliagpkx start= disabled
sc config usbcir start= disabled
sc config usbprint start= disabled
sc config vhdmp start= disabled
sc config vwifibus start= disabled
sc config WIMMount start= disabled
sc config WudfPf start= disabled
sc config WUDFRd start= disabled

```

Disable Services

There are some services that are vital to disable because of the high amount of disk I/O and CPU activity they generate. These include:

Windows 8.1 Start Mode			
Display Name	Name	Mode	Description
ActiveX Installer (AxInstSV)	AxInstSV	Manual	Provides User Account Control validation for the installation of ActiveX controls from the Internet and enables management of ActiveX control installation based on Group Policy settings. This service is started on demand and if disabled the installation of ActiveX controls will behave according to default browser settings.
Application Experience	AeLookupSvc	Manual	Processes application compatibility cache requests for applications as they are launched.

Application Management	AppMgmt	Manual	Processes installation, removal, and enumeration requests for software deployed through Group Policy. If the service is disabled, users will be unable to install, remove, or enumerate software deployed through Group Policy. If this service is disabled, any services that explicitly depend on it will fail to start.
Background Intelligent Transfer Service	BITS	Automatic	Transfers files in the background using idle network bandwidth. If the service is disabled, then any applications that depend on BITS, such as Windows Update or MSN Explorer, will be unable to automatically download programs and other information.
Bluetooth Support Service	bthserv	Manual	The Bluetooth service supports discovery and association of remote Bluetooth devices. Stopping or disabling this service may cause already installed Bluetooth devices to fail to operate properly and prevent new devices from being discovered or associated.
BranchCache	PeerDistSvc	Manual	This service caches network content from peers on the local subnet.

Certificate Propagation	CertPropSvc	Manual	Copies user certificates and root certificates from smart cards into the current user's certificate store, detects when a smart card is inserted into a smart card reader, and, if needed, installs the smart card Plug and Play minidriver.
CNG Key Isolation	KeyIso	Manual	The CNG key isolation service is hosted in the LSA process. The service provides key process isolation to private keys and associated cryptographic operations as required by the Common Criteria. The service stores and uses long-lived keys in a secure process complying with Common Criteria requirements.
Computer Browser	Browser	Manual	Maintains an updated list of computers on the network and supplies this list to computers designated as browsers. If this service is stopped, this list will not be updated or maintained. If this service is disabled, any services that explicitly depend on it will fail to start.
Device Association Service	DeviceAssociationService	Automatic	Enables pairing between the system and wired or wireless devices.
Device Setup Manager	DsmSvc	Manual	Enables the detection, download and installation of device-related software. If this service is disabled,

			devices may be configured with outdated software, and may not work correctly.
Diagnostic Policy Service	DPS	Automatic	The Diagnostic Policy Service enables problem detection, troubleshooting and resolution for Windows components. If this service is stopped, diagnostics will no longer function.
Diagnostic Service Host	WdiServiceHost	Manual	The Diagnostic Service Host is used by the Diagnostic Policy Service to host diagnostics that need to run in a Local Service context. If this service is stopped, any diagnostics that depend on it will no longer function.
Distributed Link Tracking Client	TrkWks	Automatic	Maintains links between NTFS files within a computer or across computers in a network.
Distributed Transaction Coordinator	MSDTC	Manual	Coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail. If this service is disabled, any services that explicitly depend on it will fail to start.
DNS Client	Dnscache	Automatic	The DNS Client (Dnscache) service resolves and caches Domain Name System (DNS) names for the computer. The DNS

			Client service must run on every computer that performs DNS name resolution
Family Safety	WPCSvc	Manual	This service is a stub for Windows Parental Control functionality that existed in Vista. It is provided for backward compatibility only.
File History Service	fhsvc	Manual	Protects user files from accidental loss by copying them to a backup location.
Function Discovery Provider Host	fdPHost	Manual	The FDPHOST service hosts the Function Discovery (FD) network discovery providers. These FD providers supply network discovery services for the Simple Services Discovery Protocol (SSDP) and Web Services - Discovery (WS-D) protocol. Stopping or disabling the FDPHOST service will disable network discovery for these protocols when using FD. When this service is unavailable, network services using FD and relying on these discovery protocols will be unable to find network devices or resources.
Function Discovery Resource Publication	FDResPub	Manual	Publishes this computer and resources attached to this computer so they can be discovered over the network. If this service is stopped, network resources will

			no longer be published and they will not be discovered by other computers on the network.
Health Key and Certificate Management	hkmsvc	Manual	Provides X.509 certificate and key management services for the Network Access Protection Agent (NAPAgent). Enforcement technologies that use X.509 certificates may not function properly without this service.
HomeGroup Listener	HomeGroupListener	Manual	The HomeGroup Listener service makes local computer changes that are associated with configuring and maintaining computers that are joined to a homegroup. If this service is stopped or disabled, the computer will not work properly in a homegroup and the homegroup might not work properly
HomeGroup Provider	HomeGroupProvider	Manual	The HomeGroup Provider service performs networking tasks that are associated with configuring and maintaining homegroups. If this service is stopped or disabled, the computer will be unable to detect other homegroups, and the homegroup might not work properly
Hyper-V Data Exchange Service	vmickvpexchange	Manual	Provides a mechanism to exchange data between the virtual machine and

			the operating system running on the physical computer.
Hyper-V Guest Service Interface	vmicguestinterface	Manual	Provides an interface for the Hyper-V host to interact with specific services running inside the virtual machine
Hyper-V Guest Shutdown Service	vmicshutdown	Manual	Provides a mechanism to shut down the operating system of this virtual machine from the management interfaces on the physical computer.
Hyper-V Heartbeat Service	vmicheartbeat	Manual	Monitors the state of this virtual machine by reporting a heartbeat at regular intervals. This service helps you identify running virtual machines that have stopped responding.
Hyper-V Remote Desktop Virtualization Service	vmicrdv	Manual	Provides a platform for communication between the virtual machine and the operating system running on the physical computer.
Hyper-V Time Synchronization Service	vmictimesync	Manual	Synchronizes the system time of this virtual machine with the system time of the physical computer.
Hyper-V Volume Shadow Copy Requestor	vmicvss	Manual	Coordinates the communications that are required to use Volume Shadow Copy Service to back up applications and data on this virtual machine from the operating system on the physical computer.

Internet Connection Sharing (ICS)	SharedAccess	Disabled	Provides network address translation, addressing, name resolution and/or intrusion prevention services for a home or small office network.
IP Helper	iphlpvc	Automatic	Provides tunnel connectivity using IPv6 transition technologies (6to4, ISATAP, Port Proxy, and Teredo), and IP-HTTPS. If this service is stopped, the computer will not have the enhanced connectivity benefits that these technologies offer.
Link-Layer Topology Discovery Mapper	lltdsvc	Manual	Creates a Network Map, consisting of PC and device topology (connectivity) information, and metadata describing each PC and device. If this service is disabled, the Network Map will not function properly.
Microsoft Account Sign-in Assistant	wlidsvc	Manual	Enables user sign-in through Microsoft account identity services. If this service is stopped, users will not be able to logon to the computer with their Microsoft account.
Microsoft iSCSI Initiator Service	MSiSCSI	Manual	Manages Internet SCSI (iSCSI) sessions from this computer to remote iSCSI target devices. If this service is stopped, this computer will not be able to login or access iSCSI targets. If this service is disabled, any

			services that explicitly depend on it will fail to start.
Netlogon	Netlogon	Manual	Maintains a secure channel between this computer and the domain controller for authenticating users and services. If this service is stopped, the computer may not authenticate users and services and the domain controller cannot register DNS records. If this service is disabled, any services that explicitly depend on it will fail to start.
Network Access Protection Agent	napagent	Manual	The Network Access Protection (NAP) agent service collects and manages health information for client computers on a network. Information collected by NAP agent is used to make sure that the client computer has the required software and settings. If a client computer is not compliant with health policy, it can be provided with restricted network access until its configuration is updated. Depending on the configuration of health policy, client computers might be automatically updated so that users quickly regain full network access without

			having to manually update their computer.
Network List Service	netprofm	Manual	The Network List Service (netprofm) identifies the networks to which the computer has connected, collects and stores properties for these networks, and notifies applications when these properties change. This service, along with the Network Location Awareness service, enables the display of the status of network connections in the notification area. This service is part of the Network Diagnostics Framework.
Network Location Awareness	nlasvc	Automatic	The Network Location Awareness (NlaSvc) service collects and stores network configuration information, such as IP address and domain name changes, in addition to location change information. This service notifies compatible applications when this information changes so that they can reconfigure themselves to use the current network connection

Offline Files	CscService	Automatic	The Offline Files (CscService) service performs maintenance activities in the Offline Files cache, responds to user logon and logoff events, and dispatches events to accounts or logs that are configured to receive events related to Offline Files activities and changes in cache state.
Optimize Drives	defragsvc	Manual	Helps the computer run more efficiently by optimizing files on storage drives.
Peer Name Resolution Protocol	PNRPsvc	Manual	Enables serverless peer name resolution over the Internet using the Peer Name Resolution Protocol (PNRP). If disabled, some peer-to-peer and collaborative applications, such as Remote Assistance, may not function.
Peer Networking Grouping	p2psvc	Manual	Enables multi-party communication using Peer-to-Peer Grouping. If disabled, some applications, such as HomeGroup, may not function.
Peer Networking Identity Manager	p2pimsvc	Manual	Provides identity services for the Peer Name Resolution Protocol (PNRP) and Peer-to-Peer Grouping services. If disabled, the Peer Name Resolution Protocol (PNRP) and Peer-to-Peer Grouping services may not function, and some applications, such as

			HomeGroup and Remote Assistance, may not function correctly.
PNRP Machine Name Publication Service	PNRPAutoReg	Manual	This service publishes a machine name using the Peer Name Resolution Protocol. Configuration is managed via the netsh context 'p2p pnrp peer'.
Portable Device Enumerator Service	WPDBusEnum	Manual	Enforces group policy for removable mass-storage devices. Enables applications such as Windows Media Player and Image Import Wizard to transfer and synchronize content using removable mass-storage devices.
Print Spooler	Spooler	Automatic	This service spools print jobs and handles interaction with the printer. If you turn off this service, you won't be able to print or see your printers.
Printer Extensions and Notifications	PrintNotify	Manual	This service opens custom printer dialog boxes and handles notifications from a remote print server or a printer. If you turn off this service, you won't be able to see printer extensions or notifications.
Program Compatibility Assistant Service	PcaSvc	Automatic	This service provides support for the Program Compatibility Assistant (PCA). PCA monitors programs installed and run by the user and detects known compatibility problems.

			If this service is stopped, PCA will not function properly.
Quality Windows Audio Video Experience	QWAVE	Manual	Quality Windows Audio Video Experience (qWave) is a networking platform for Audio Video (AV) streaming applications on IP home networks. qWave enhances AV streaming performance and reliability by ensuring network quality-of-service (QoS) for AV applications. It provides mechanisms for admission control, run time monitoring and enforcement, application feedback, and traffic prioritization.
Remote Access Auto Connection Manager	RasAuto	Manual	Creates a connection to a remote network whenever a program references a remote DNS or NetBIOS name or address.
Remote Access Connection Manager	RasMan	Manual	Manages dial-up and virtual private network (VPN) connections from this computer to the Internet or other remote networks. If this service is disabled, any services that explicitly depend on it will fail to start.
Remote Procedure Call (RPC) Locator	RpcLocator	Manual	In Windows 2003 and earlier versions of Windows, the Remote Procedure Call (RPC) Locator service manages the RPC name service database. In Windows

			Vista and later versions of Windows, this service does not provide any functionality and is present for application compatibility.
Remote Registry	RemoteRegistry	Disabled	Enables remote users to modify registry settings on this computer. If this service is stopped, the registry can be modified only by users on this computer. If this service is disabled, any services that explicitly depend on it will fail to start.
Routing and Remote Access	RemoteAccess	Disabled	Offers routing services to businesses in local area and wide area network environments.
Secondary Logon	Seclogon	Manual	Enables starting processes under alternate credentials. If this service is stopped, this type of logon access will be unavailable. If this service is disabled, any services that explicitly depend on it will fail to start.
Security Center	WCSVC	Automatic	The WSCSVC (Windows Security Center) service monitors and reports security health settings on the computer. The health settings include firewall (on/off), antivirus (on/off/out of date), antispyware (on/off/out of date), Windows Update (automatically/manually download and install updates), User Account Control (on/off), and

			<p>Internet settings (recommended/not recommended). The service provides COM APIs for independent software vendors to register and record the state of their products to the Security Center service. The Action Center (AC) UI uses the service to provide systray alerts and a graphical view of the security health states in the AC control panel. Network Access Protection (NAP) uses the service to report the security health states of clients to the NAP Network Policy Server to make network quarantine decisions. The service also has a public API that allows external consumers to programmatically retrieve the aggregated security health state of the system.</p>
Sensor Monitoring Service	SensrSvc	Manual	<p>Monitors various sensors in order to expose data and adapt to system and user state. If this service is stopped or disabled, the display brightness will not adapt to lighting conditions. Stopping this service may affect other system functionality and features as well.</p>

Shell Hardware Detection	ShellHWDetection	Automatic	<p>The Shell Hardware Detection (ShellHWDetection) service monitors and provides notification for AutoPlay hardware events. AutoPlay is a feature that detects content such as pictures, music, or video files on a removable storage device. AutoPlay then automatically starts applications to play or display that content, which simplifies the use of specialized peripheral devices such as MP3 players and digital photo readers. The service also makes it easier for users because they do not need to know beforehand what software applications are needed to access various content types</p>
Smart Card	SCardSvr	Disabled	<p>Manages access to smart cards read by this computer. If this service is stopped, this computer will be unable to read smart cards. If this service is disabled, any services that explicitly depend on it will fail to start.</p>
Smart Card Device Enumeration Service	ScDeviceEnum	Manual	<p>Creates software device nodes for all smart card readers accessible to a given session. If this service is disabled, WinRT APIs will not be able to enumerate smart card readers.</p>

Smart Card Removal Policy	SCPolicySvc	Manual	Allows the system to be configured to lock the user desktop upon smart card removal.
			Receives trap messages generated by local or remote Simple Network Management Protocol (SNMP) agents and forwards the messages to SNMP management programs running on this computer. If this service is stopped, SNMP-based programs on this computer will not receive SNMP trap messages. If this service is disabled, any services that explicitly depend on it will fail to start.
SNMP Trap	SNMPTRAP	Manual	
			Discovers networked devices and services that use the SSDP discovery protocol, such as UPnP devices. Also announces SSDP devices and services running on the local computer. If this service is stopped, SSDP-based devices will not be discovered. If this service is disabled, any services that explicitly depend on it will fail to start.
SSDP Discovery	SSDPSRV	Manual	
Storage Service	StorSvc	Manual	Enforces group policy for storage devices.
Superfetch	SysMain	Automatic	Maintains and improves system performance over time.
System Events Broker	SystemEventsBroker	Automatic	Coordinates execution of background work for WinRT application. If this service is stopped or

			disabled, then background work might not be triggered.
Task Scheduler	Schedule	Automatic	Enables a user to configure and schedule automated tasks on this computer. The service also hosts multiple Windows system-critical tasks. If this service is stopped or disabled, these tasks will not be run at their scheduled times. If this service is disabled, any services that explicitly depend on it will fail to start.
TCP/IP NetBIOS Helper	lmhosts	Automatic	Provides support for the NetBIOS over TCP/IP (NetBT) service and NetBIOS name resolution for clients on the network, therefore enabling users to share files, print, and log on to the network. If this service is stopped, these functions might be unavailable. If this service is disabled, any services that explicitly depend on it will fail to start.
Telephony	TapiSrv	Manual	Provides Telephony API (TAPI) support for programs that control telephony devices on the local computer and, through the LAN, on servers that are also running the service.
Themes	Themes	Automatic	Provides user experience theme management.

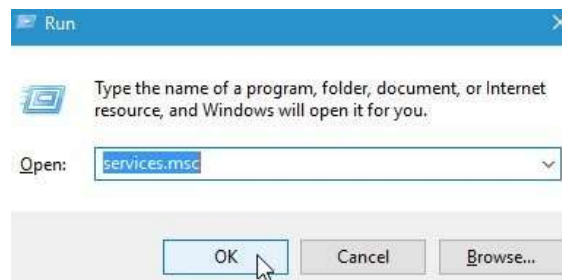
Time Broker	TimeBroker	Manual	Coordinates execution of background work for WinRT application. If this service is stopped or disabled, then background work might not be triggered.
Windows Biometric Service	WbioSrv	Manual	The Windows biometric service gives client applications the ability to capture, compare, manipulate, and store biometric data without gaining direct access to any biometric hardware or samples. The service is hosted in a privileged SVCHOST process.
Windows Connect Now – Config Registrar	wcnscvc	Manual	WCNCSVC hosts the Windows Connect Now Configuration which is Microsoft's Implementation of Wi-Fi Protected Setup (WPS) protocol. This is used to configure Wireless LAN settings for an Access Point (AP) or a Wi-Fi Device. The service is started programmatically as needed.
Windows Connection Manager	Wcmsvc	Manual	Makes automatic connect/disconnect decisions based on the network connectivity options currently available to the PC and enables management of network connectivity based on Group Policy settings.
Windows Defender Service	WinDefend	Automatic	Helps protect users from malware and other potentially unwanted software.

Windows Driver Foundation – User-mode Driver Framework	wudfsvc	Manual	Creates and manages user-mode driver processes. This service cannot be stopped.
Windows Firewall	MpsSvc	Automatic	Windows Firewall helps protect your computer by preventing unauthorized users from gaining access to your computer through the Internet or a network.
Windows Font Cache Service	FontCache	Automatic	Optimizes performance of applications by caching commonly used font data. Applications will start this service if it is not already running. It can be disabled, though doing so will degrade application performance.
Windows Image Acquisition (WIA)	StiSvc	Manual	Provides image acquisition services for scanners and cameras.
Windows Media Player Network Sharing Service	WMPNetworkSvc	Manual	Shares Windows Media Player libraries to other networked players and media devices using Universal Plug and Play.
Windows Search	WSearch	Automatic	Provides content indexing, property caching, and search results for files, e-mail, and other content.
Windows Store Service (WSService)	WSService	Manual	Provides infrastructure support for Windows Store. This service is started on demand and if disabled applications bought using Windows Store will not behave correctly.

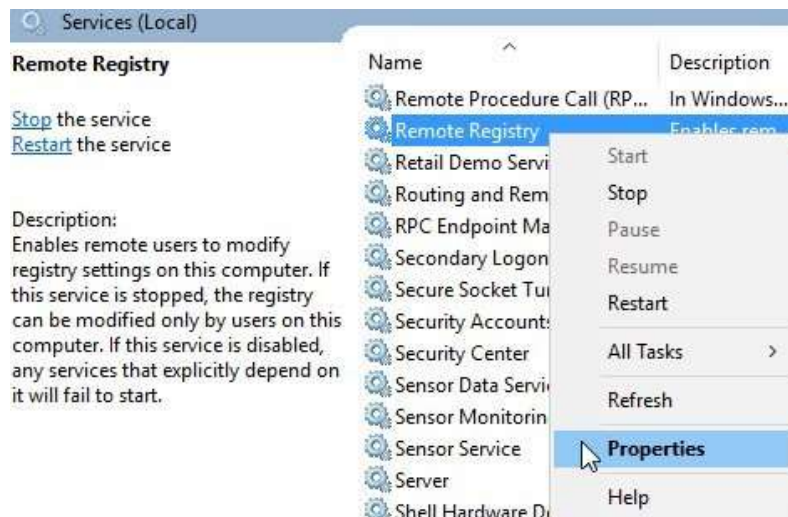
Windows Time	W32Time	Manual	Maintains date and time synchronization on all clients and servers in the network. If this service is stopped, date and time synchronization will be unavailable. If this service is disabled, any services that explicitly depend on it will fail to start.
Windows Update	wuauserv	Manual	Enables the detection, download, and installation of updates for Windows and other programs. If this service is disabled, users of this computer will not be able to use Windows Update or its automatic updating feature, and programs will not be able to use the Windows Update Agent (WUA) API.
WinHTTP Web Proxy Auto-Discovery Service	WinHttpAutoProxySvc	Manual	WinHTTP implements the client HTTP stack and provides developers with a Win32 API and COM Automation component for sending HTTP requests and receiving responses. In addition, WinHTTP provides support for auto-discovering a proxy configuration via its implementation of the Web Proxy Auto-Discovery (WPAD) protocol.
WLAN AutoConfig	WlanSvc	Manual	The WLAN AutoConfig (Wlansvc) service provides the logic that is required to configure, discover, connect to, and

			disconnect from a wireless local area network (WLAN) as defined by IEEE 802.11 standards
WWAN AutoConfig	WwanSvc	Manual	The WWAN AutoConfig (WwanSvc) service manages mobile broadband (GSM and CDMA) data card and embedded module adapters and connections by automatically configuring the networks. It is strongly recommended that this service be kept running for the best user experience of mobile broadband devices.

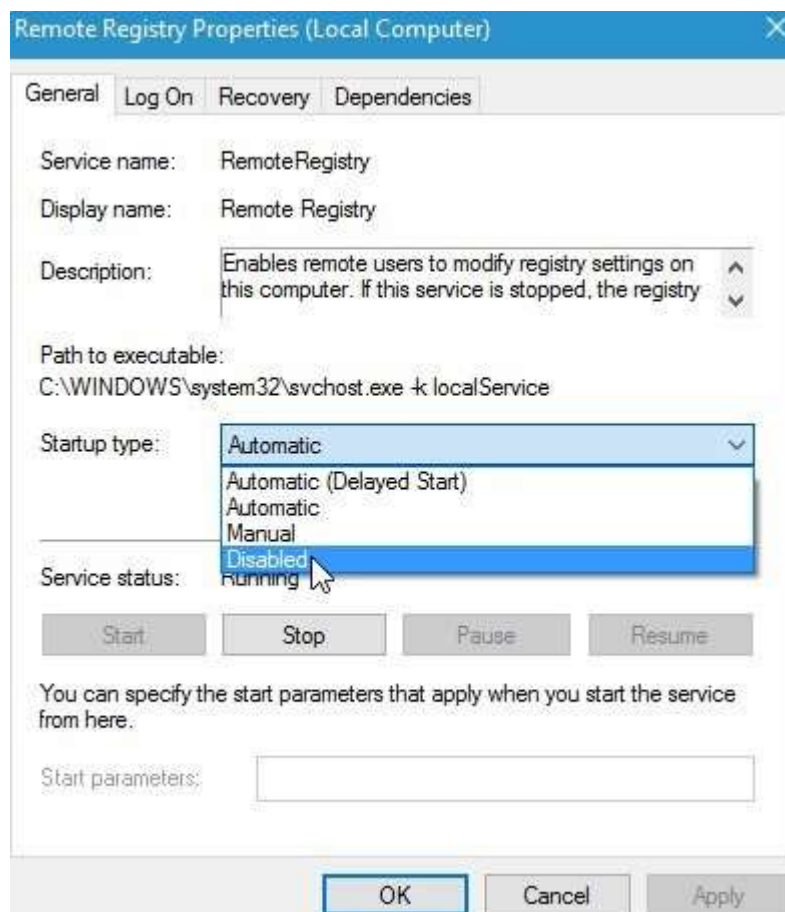
Start -> Right Click -> Run -> type services.msc



Press Shift+Ctrl+Enter -> locate each of the above Services in the list, Right click -> Properties



Set startup mode to "Disable"



After Logon Actions and Optimizations (VerseOptimizer.exe)

StartupFolder : VerseOptimizerStartup.bat

C:\Optimizer\VerseOptimizer.exe (run as administrator)

VerseOptimizer.exe is a customized C# program that runs every time the Transport (PC) boots. It starts minimServer in High Priority and applies the following tweaks to Windows 8.1:

- Disable User Account Control (UAC)
- Turn Page File Off and Remove Existing Page File
- Disable Hibernation
- Optimizing Processor Resource Scheduling for Background Processes
- Enable HPET (High Precision Event Timer) (1st Time Only)
- Disable Data Execution Prevention (1st Time Only)
- Disable USB Power Management
- Disable Action Center
- Disable Lock Screen
- Turn off all Visual Effects
- Change IRQ Priorities (1st Time Only)
- Turn off all Startup Event Trace Session Logs (1st Time Only)
- Disable All Add-on Windows 8.1 Features/Packages
- Turn Off All Windows 8.1 Logs
- Power Plan : Set power scheme to HIGH PERFORMANCE
- Power Plan : Disable USB Selective Suspend settings
- Power Plan : Pause Desktop Background settings slide show
- Power Plan : Disable PCI Express Link State Power Management
- Power Plan : Set system cooling to passive
- Power Plan : Turn off display after 1 minute
- Power Plan : Never turn hard disk off
- Power Plan : Never allow the computer to go to sleep
- Power Plan : Turn CPU Parking OFF
- Stop all unused device drivers/services described in paragraph "Disable Unused Windows Drivers" above
- Turn Off all the services listed in paragraph (Disable Services) above
- Turn Off Intel(R) Management and Security Application
- Turn Off Intel(R) Dynamic Application Loader Host Interface
- Turn Off System Event Notification Service (SENS – Monitors system events and notifies subscribers to COM+ Event System of these events)

- Turn Off Plug and Play (PlugPlay – Enables a computer to recognize and adapt to hardware changes with little or no user input)
- Turn Off COM+ Event System (EventSystem – Supports System Event Notification Service (SENS), which provides automatic distribution of events to subscribing Component Object Model (COM) components)
- Turn Off Base Filtering Engine (BFE – The Base Filtering Engine (BFE) is a service that manages firewall and Internet Protocol security (IPsec) policies and implements user mode filtering)
- Turn Off Windows Management Instrumentation process and service (Winmgmt – Provides a common interface and object model to access management information about operating system, devices, applications and services.)
- Turn Off IKE and AuthIP IPsec Keying Modules (The IKEEXT service hosts the Internet Key Exchange (IKE) and Authenticated Internet Protocol (AuthIP) keying modules. These keying modules are used for authentication and key exchange in Internet Protocol security (IPsec).)
- Turn Off Cryptographic Services (CryptSvc – Provides three management services: Catalog Database Service, which confirms the signatures of Windows files and allows new programs to be installed; Protected Root Service, which adds and removes Trusted Root Certification Authority certificates from this computer; and Automatic Root Certificate Update Service, which retrieves root certificates from Windows Update and enable scenarios such as SSL)
- Turn Off Shell Hardware Detection (ShellHWDetection – Provides notifications for AutoPlay hardware events)
- Turn Off WASAPI Audio Services
- Turn Off Multimedia Class Scheduler

Windows Services Left Running

Name	Description
BrokerInfrastructure	Coordinates execution of background work for WinRT applications
DcomLaunch	<p>The DCOM Server Process Launcher (DCOMLaunch) service launches COM and DCOM servers in response to object activation requests. This service is installed by default and its startup type is Automatic. When the DCOM Server Process Launcher service is started in its default configuration, it logs on by using the Local System account.</p> <p>If the DCOM Server Process Launcher service stops, remote procedure calls and DCOM requests on the local computer do not function properly. In particular, the Windows Firewall service fails if this service stops. This service is required and cannot be stopped from the Services console. If this service stops, the computer restarts.</p>

	<p>The Remote Procedure Call (RPC) service is dependent upon the DCOM Server Process Launcher service.</p>
Dhcp	<p>The DHCP Client (Dhcp) service manages network configuration. It registers and updates IP addresses and Domain Name System (DNS) names for the computer. You do not have to manually change the IP settings for a client computer, such as a portable computer, that connects from different locations throughout the network. The client computer is automatically given a new IP address, regardless of the subnet that it reconnects to (if a DHCP server is accessible from the subnets). There is no need to manually configure settings for DNS or WINS. The DHCP server can provide these settings to the client computer if the DHCP server is configured to issue such information. To enable this option on the client computer, click Obtain DNS Server Address Automatically. No conflicts are caused by duplicate IP addresses.</p> <p>If the DHCP Client service stops, the computer does not receive dynamic IP addresses and automatic DNS updates stop being registered on the DNS server.</p> <p>By default this service is installed by default and its startup type is Automatic. When the DHCP Client service is started in its default configuration, it logs on by using the Local Service account.</p> <p>The DHCP Client service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Ancillary Function Driver for Winsock Net I/O Legacy TDI Support Drive TCP/IP Protocol Driver Network Store Interface Service NSI proxy service driver <p>The WinHTTP Web Proxy Auto-Discovery Service is dependent upon the DHCP Client Service.</p>
gpsvc	<p>The Group Policy Client (gpsvc) service is responsible for applying settings that are configured by administrators for the computer and users through Group Policy. If the service is stopped or disabled, the settings are not applied, and applications and components cannot be managed through Group Policy. Components or applications that depend on Group Policy might not function if this service is stopped or disabled.</p> <p>The Group Policy Client service is installed by default and its startup type is Automatic. When the Group Policy Client service is started in its default configuration, it logs by on using the Local System account. The service cannot be disabled or modified through the Services snap-in console.</p> <p>The Group Policy Client service is dependent upon on the following system components:</p> <ul style="list-style-type: none"> Mup Remote Procedure Call (RPC)

	DCOM Server Process Launcher RPC Endpoint Mapper
JplayService	
JplayStreamer	
LanmanServer	Supports file, print, and named-pipe sharing over the network for this computer. If this service is stopped, these functions will be unavailable. If this service is disabled, any services that explicitly depend on it will fail to start
LanmanWorkstation	<p>The Workstation (LanmanWorkstation) service creates and maintains client network connections and communications. The Workstation service is a user-mode wrapper for the Microsoft Networks redirector. It loads and performs configuration functions for the redirector, supports network connections to remote servers, supports the WNet APIs, and provides redirector statistics.</p> <p>This service is installed by default, and its startup type is Automatic.</p> <p>If the Workstation service stops, clients cannot establish connections to remote servers or access files through named pipes. Clients and programs cannot access files and printers on other remote computers, but TCP/HTTP connectivity is not affected. Internet browsing and Web Client access still work.</p> <p>The Workstation service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Browser Support Driver Network Store Interface Service NSI proxy service driver SMB 1.x MiniRedirector SMB 2.0 MiniRedirector SMB MiniRedirector Wrapper and Engine Redirected Buffering Sub System Mup <p>The following system components are dependent on the Workstation service:</p> <ul style="list-style-type: none"> Computer Browser Netlogon Remote Desktop Configuration
LSM	Local Session Manager – Core Windows Service that manages local user sessions. Stopping or disabling this service will result in system instability

nsi	<p>The Network Store Interface Service (nsi) delivers network notification to client computers. The service keeps track of the network interfaces that are available on the computer, stores routing information for each interface, and communicates this information with other services that require it. Stopping this service causes loss of network connectivity.</p> <p>This service is installed by default and its startup type is Automatic.</p> <p>When Network Store Interface Service is started in its default configuration, it logs on by using the Local Service account.</p> <p>The Network Store Interface service is dependent upon the following system component:</p> <ul style="list-style-type: none"> NSI proxy service driver <p>The following system components are dependent upon the Network Store Interface service:</p> <ul style="list-style-type: none"> DHCP Client WinHTTP Web Proxy Auto-Discovery Service DNS Client IP Helper Network Connections Internet Connection Sharing (ICS) Network Location Awareness Network List Service HomeGroup Provider WWAN Autoconfig Workstation Computer Browser Netlogon Remote Desktop Configuration
Power	<p>The Power service manages the power policy and power policy notification delivery.</p> <p>This service is installed by default, and its startup type is Automatic on Windows 7 and Manual on Windows Server 2008 R2.</p> <p>When the Power service is started in its default configuration, it logs on by using the Local System account.</p> <p>This service is not dependent on any other system service, nor is any service dependent on it.</p>
ProfSvc	<p>The User Profile Service (ProfSvc) is responsible for loading and unloading user profiles. If this service is stopped or disabled, users cannot successfully log on or log off, applications may have problems getting to users' data, and components that are registered to receive profile event notifications do not receive them. This service should not be stopped or disabled.</p> <p>This service is installed by default and its startup type is Automatic.</p> <p>When the User Profile Service is started in its default configuration, it logs on by using the Local System account.</p> <p>The User Profile Service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Remote Procedure Call (RPC) DCOM Server Process Launcher RPC Endpoint Mapper

	<p>The following system component is dependent on the User Profile Service:</p> <p>Application Information</p>
RpcEptMapper	<p>The RPC Endpoint Mapper (RpcEptMapper) service resolves RPC interface identifiers to transport endpoints. You cannot stop or disable the RPC Endpoint Mapper service. The service runs under the Network Service account. If this service is not available, the operating system does not load.</p> <p>This service is installed by default and its startup type is Automatic.</p> <p>The RPC Endpoint Mapper service is not dependent on any other system components.</p> <p>The following system components are dependent on the RPC Endpoint Mapper service:</p> <ul style="list-style-type: none"> ActiveX Installer Application Identity Application Information Background Intelligent Transfer Service Base Filtering Engine Bluetooth Support Service Certificate Propagation CNG Key Isolation COM+ Event System COM+ System Application Computer Browser Credential Manager Cryptographic Services Disk Defragmenter Distributed Link Tracking Client Distributed Transaction Coordinator Encrypting File System (EFS) Extensible Authentication Protocol Fax Function Discovery Provider Host Function Discovery Resource Publication Group Policy Client Health Key and Certificate Management HomeGroup Listener HomeGroup Provider IIS Admin Service IKE and AuthIP IPsec Keying Modules Indexing Service

Internet Connection Sharing (ICS)
 IP Helper
 IPsec Policy Agent
 KtmRm for Distributed Transaction Coordinator
 Link-Layer Topology Discovery Mapper
 LPD Service
 Media Center Extender Service
 Message Queuing
 Message Queuing Triggers
 Microsoft FTP Service
 Microsoft Software Shadow Copy Provider
 Net.Msmq Listener Adapter
 Net.Pipe Listener Adapter
 Net.Tcp Listener Adapter
 Network Access Protection Agent
 Network Connections
 Network List Service
 Network Location Awareness
 Offline Files
 Parental Controls
 Performance Logs & Alerts
 PnP-X IP Bus Enumerator
 Portable Device Enumerator Service
 Print Spooler
 Program Compatibility Assistant Service
 Protected Storage
 Quality Windows Audio Video Experience
 Remote Access Auto Connection Manager
 Remote Access Connection Manager
 Remote Desktop Configuration
 Remote Desktop Services
 Remote Desktop Services UserMode Port Redirector
 Remote Procedure Call (RPC)
 Remote Registry
 RIP Listener
 Routing and Remote Access
 Security Accounts Manager
 Security Center
 Server
 Shell Hardware Detection
 Smart Card Removal Policy
 Software Protection
 SPP Notification Service
 Superfetch
 System Event Notification Service
 Tablet PC Input Service
 Task Scheduler
 Telephony
 Telnet
 User Profile Service
 Virtual Disk
 Volume Shadow Copy
 Windows Audio
 Windows Backup
 Windows Biometric Service
 Windows Color System

	<p>Windows Connect Now-Config Registrar</p> <p>Windows Defender</p> <p>Windows Firewall</p> <p>Windows Image Acquisition (WIA)</p> <p>Windows Installer</p> <p>Windows Live Family Safety</p> <p>Windows Management Instrumentation</p> <p>Windows Media Center Scheduler Service</p> <p>Windows Process Activation Service</p> <p>Windows Remote Management (WS-Management)</p> <p>Windows Search</p> <p>Windows Update</p> <p>Wired AutoConfig</p> <p>WLAN AutoConfig</p> <p>World Wide Web Publishing Service</p> <p>WWAN AutoConfig</p>
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RpcSs

The Remote Procedure Call (RPCSS) service is an interprocess communication (IPC) mechanism that enables data exchange and solicits functionality from another process. That process can be on the same computer, on the local area network, or across the Internet. The Remote Procedure Call (RPC) service serves as the RPC endpoint mapper and COM Service Control Manager (SCM).

You cannot stop or disable the Remote Procedure Call (RPC) service. The service runs under the Network Service account. If this service is not available, the operating system does not load.

The Remote Procedure Call (RPC) service is dependent on the following system components:

- DCOM Server Process Launcher
- RPC Endpoint Mapper

The following system components are dependent on the Remote Procedure Call (RPC) service:

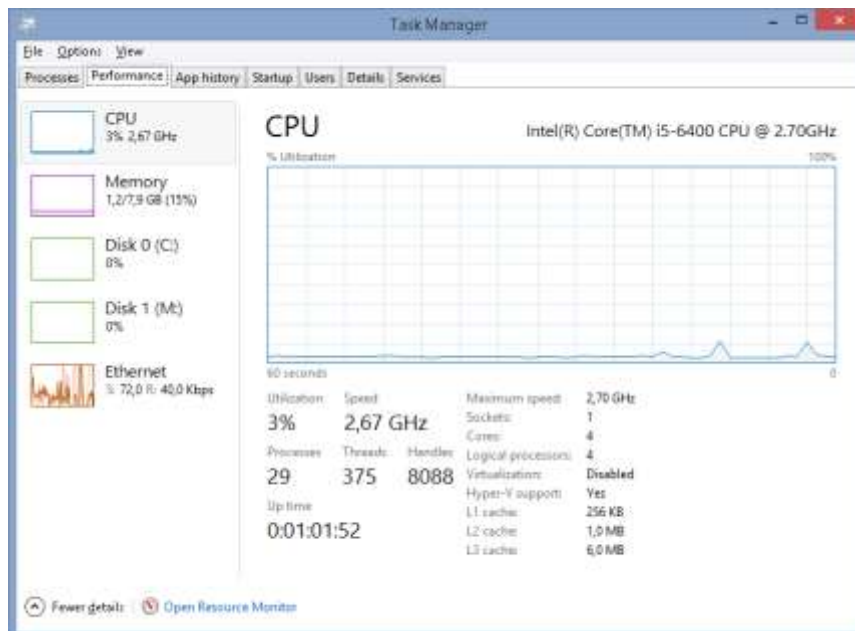
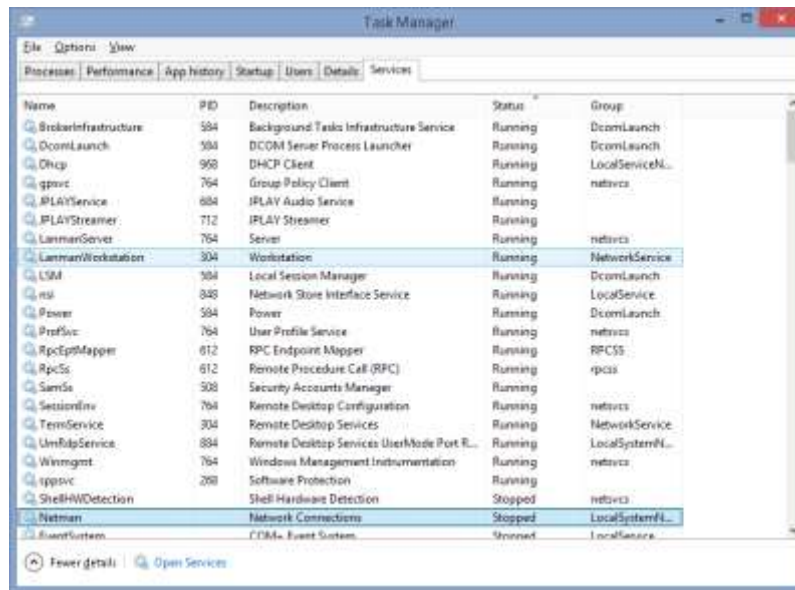
- ActiveX Installer
- Application Identity
- Application Information
- Background Intelligent Transfer Service
- Base Filtering Engine
- Bluetooth Support Service
- Certificate Propagation
- CNG Key Isolation
- COM+ Event System
- COM+ System Application
- Computer Browser
- Credential Manager
- Cryptographic Services
- Disk Defragmenter
- Distributed Link Tracking Client
- Distributed Transaction Coordinator
- Encrypting File System (EFS)
- Extensible Authentication Protocol
- Fax
- Function Discovery Provider Host
- Function Discovery Resource Publication
- Group Policy Client
- Health Key and Certificate Management
- HomeGroup Listener
- HomeGroup Provider
- IIS Admin Service
- IKE and AuthIP IPsec Keying Modules
- Indexing Service
- Internet Connection Sharing (ICS)
- IP Helper
- IPsec Policy Agent
- KtmRm for Distributed Transaction Coordinator
- Link-Layer Topology Discovery Mapper
- LPD Service
- Media Center Extender Service
- Message Queuing
- Message Queuing Triggers

Microsoft FTP Service
Microsoft Software Shadow Copy Provider
Net.Msmq Listener Adapter
Net.Pipe Listener Adapter
Net.Tcp Listener Adapter
Network Access Protection Agent
Network Connections
Network List Service
Network Location Awareness
Offline Files
Parental Controls
Performance Logs & Alerts
PnP-X IP Bus Enumerator
Portable Device Enumerator Service
Print Spooler
Program Compatibility Assistant Service
Protected Storage
Quality Windows Audio Video Experience
Remote Access Auto Connection Manager
Remote Access Connection Manager
Remote Desktop Configuration
Remote Desktop Services
Remote Desktop Services UserMode Port Redirector
Remote Registry
RIP Listener
Routing and Remote Access
Security Accounts Manager
Security Center
Server
Shell Hardware Detection
Smart Card Removal Policy
Software Protection
SPP Notification Service
Superfetch
System Event Notification Service
Tablet PC Input Service
Task Scheduler
Telephony
Telnet
User Profile Service
Virtual Disk
Volume Shadow Copy
Windows Audio
Windows Backup
Windows Biometric Service
Windows Color System
Windows Connect Now-Config Registrar
Windows Defender
Windows Firewall
Windows Image Acquisition (WIA)
Windows Installer
Windows Live Family Safety
Windows Management Instrumentation
Windows Media Center Scheduler Service
Windows Process Activation Service
Windows Remote Management (WS-Management)

	<p>Windows Search</p> <p>Windows Update</p> <p>Wired AutoConfig</p> <p>WLAN AutoConfig</p> <p>World Wide Web Publishing Service</p> <p>WWAN AutoConfig</p>
SamSs	<p>The Security Accounts Manager (SamSs) service is a protected subsystem that manages user and group account information. The startup of the Security Accounts Manager service signals to other services that it is ready to accept requests.</p> <p>Do not attempt to disable this service. If you disable this service, other services in the computer may not start correctly.</p> <p>This service is installed by default and its startup type is Automatic.</p> <p>When the Security Accounts Manager service is started in its default configuration, it logs on by using the Local System account.</p> <p>The Security Accounts Manager service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Remote Procedure Call (RPC) DCOM Server Process Launcher RPC Endpoint Mapper <p>The following system components are dependent upon the Security Accounts Manager service:</p>

	Distributed Transaction Coordinator KtmRm for Distributed Transaction Coordinator Server Computer Browser HomeGroup Listener
SessionEnv	<p>The Remote Desktop Configuration (SessionEnv) service is responsible for all Remote Desktop Services and Remote Desktop-related configuration and session maintenance activities that require SYSTEM context. These include per-session temporary folders, remote desktop themes, and remote desktop certificates.</p> <p>This service is installed by default and its startup type is Manual.</p> <p>When the Remote Desktop Configuration service is started in its default configuration, it logs on by using the Local System account.</p> <p>The Remote Desktop Configuration service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Remote Procedure Call (RPC) DCOM Server Process Launcher RPC Endpoint Mapper Workstation Browser Support Driver Network Store Interface Service NSI proxy service driver SMB 1.x MiniRedirector SMB MiniRedirector Wrapper and Engine Redirected Buffering Sub System Mup SMB 2.0 MiniRedirector

TermService	<p>The Remote Desktop Services (TermService) service allows users to connect interactively to a remote computer. To prevent remote use of this computer: in the Control Panel, in System properties, clear the check boxes on the Remote tab.</p> <p>This service is installed by default and its startup type is Manual.</p> <p>When the Remote Desktop Services service is started in its default configuration, it logs on by using the Local System account.</p> <p>The Remote Desktop Services service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Remote Procedure Call (RPC) DCOM Server Process Launcher RPC Endpoint Mapper Terminal Device Driver <p>The following system components are dependent on the Remote Desktop Services service:</p> <ul style="list-style-type: none"> Remote Desktop Remote Desktop Session Host Server Media Center Extender Service Remote Desktop Services UserMode Port Redirector
UmRdpService	<p>The Remote Desktop Services UserMode Port Redirector (UmRdpService) service allows the redirection of printers, drives, and ports for Remote Desktop connections.</p> <p>This service is installed by default with Windows 7 Professional, Windows 7 Ultimate, and Windows 7 Enterprise in addition to all versions of Windows Server 2008 R2. It is not available on Windows 7 Starter, Windows 7 Home Basic, or Windows 7 Home Premium.</p> <p>Its service startup type is Manual.</p> <p>When started in the default configuration it will log on using the Local System account.</p> <p>The Remote Desktop Services UserMode Port Redirector service is dependent upon the following system components:</p> <ul style="list-style-type: none"> Remote Desktop Services Remote Procedure Call (RPC) DCOM Server Process Launcher RPC Endpoint Mapper Terminal Device Driver Terminal Service Device Redirector Driver Redirected Buffering Sub System Mup



Appendix 1: BIOS Settings for ASUS Z170m-Plus

UEFI BIOS Utility – > Advanced Mode –> Advanced –> CPU Configuration

Hyper-Threading : Disabled

Intel Virtualization Technology : Disabled

CPU Performance

Intel SpeedStep : Disabled

Turbo Mode : Disabled

CPU C-States : Disabled

UEFI BIOS Utility – > Advanced Mode –> Advanced –> OnBoard Devices Configuration

HD Audio Controller : Disabled

Serial Port Configuration –> Serial Port : Off

Parallel Port Configuration –> Parallel Port : Off

UEFI BIOS Utility –> Advanced Mode –> Ai Tweaker –> Internal CPU Power Management

Intel SpeedStep: Disabled

Turbo Mode : Disabled

UEFI BIOS Utility –> Advanced Mode –> APM Configuration

Power On By PCI – EPCI : Enabled (to support Wake On Lan (WOL))

UEFI BIOS Utility –> Advanced Mode –> Boot Menu

Boot Logo Display : Disabled

Setup Mode : Advanced Mode

QFan Control (F6)

CPU Fan Manual Operating Speed –> 0

CHA1 Fan Manual Operating Speed -> 0

CHA2 Fan Manual Operating Speed -> 0

Appendix 2 : Netgear WiFi Router Configuration

