Using your NUUO surveillance solution safely and correctly

1. **Please refer to NUUO online calculator for hardware requirements estimation when building a NUUO server: http://www.nuuo.com/calculator/**

2. **The average CPU loading should not exceed 80%.**

3. **If the servers are not Intel Sandy Bridge, Ivy Bridge or Haswell platform, an independent graphic card (512MB or above) is highly recommended in order to provide stable video performance.**

4. **Do not use NAS devices as recording storage.**

5. **Do not change the time of OS when recording has started.**

6. **Virtual machines are not supported.**

7. **To avoid license activation failure or error, do not build RAID configuration on OS HDD.**

8. **Do not use WD Caviar Green series hard drive.**
   After testing, we found green series or energy-efficiency hard drives couldn't provide a stable and good performance under the circumstance of record on motion and record on event. Because the hard drive doesn't read and write all the time, this kind of green series hard drive enters power saving mode which may result in dropping frame on recorded video. We do not recommend any WD Caviar Green series hard drives on any of our systems.

9. **Install Sufficient RAM.**
   Sufficient RAM is required to improve performance. Installing 3GB RAM for system with 32 or more video channels is recommended. Please refer the recommended result per NUUO online calculator.

10. **Separate OS and Video Storage Disk into Different Hard Drives.**
    In most cases, Windows is installed in Drive C. Mainconsole is installed in Drive C, too. Since Windows and Mainconsole may access Drive C intensively, it is recommended to record video files into other hard drives. Please note that creating multiple partitions on single hard drive produces no performance gain.

11. **Set Recycle Conditions Properly.**
    Setting recycle condition properly is crucial for recording video files correctly. Almost-full hard drives operate inefficient and may fail to record video files correctly. Set the recycle criteria above 10% is recommended for all size of hard drives.

12. **Disable Defragmentation Tasks.**
    Disk defragmenter will cost extra loading on your hard drives and impact HDD performance. It is recommended to disable the disk defragmentation. Please refer to below link for setup:
    http://www.serverninjas.com/how-to-disable-windows-disk-defragmenter-in-windows-7

13. **Optimize visual effects.**
    Most of the applications that are running are set to improve the aesthetic look of the Windows by Visual Effects and are not necessarily adjusted for performance. If you have low memory (RAM) in your PC, you may want to change these settings from best appearance to best performance or you may want to choose settings manually. For more information please refer to below link:
    http://support.microsoft.com/kb/815069/en-us

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14. Optimize System Performance.

Through these settings, system resources such as CPU, memory, and Disk I/O access can be saved and improve overall performance.

(a) Turn off Automatic Update: by default, this task will reboot Windows on 3:00AM and interrupt video files recording.

(b) Turn off System Restore on all drives: doing this can save disk space and CPU time for monitoring disks.

(c) Disable Screen Saver: some Screen Saver will utilize Direct3D resources, which may affect the display performance

(d) Disable Hibernation: the server computer should not be in stand-by mode and hibernation should be disabled.

15. Check the CPU loading and virtual memory size are within comfortable range after software and hardware are properly installed and configured.

(a) The average CPU loading should less than 80%.

(b) The average virtual size (virtual memory) of Mainconsole should less than 1.6G on 32 bit system while should less than 3.6G on 64 bit OS. Refer below to check the index. (View→Select Columns→Check to show the index)

*Please download the procexp.exe and run to check virtual memory size.
ftp://nuuo:nuuo7788@nuuo.dnsalias.com/Quick_Start_Tip/
ftp://nuuo.dnsalias.com/Quick_Start_Tip/   ID: nuuo / PW: nuuo7788

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