The
New York Society Library
Presents:

Upgrade Your PC

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<u>REMOVE UNNECESSARY STARTUP PROGRAMS</u>
Click Start → Run. Type msconfig and tab to Startup
Cost: free

The System Tray is located in the bottom right-hand corner of the screen and includes all programs that your computer runs at startup (virus scanners, sound programs, display information, etc.). None of these programs are essential for your computer to run, and many actually slow your computer down at startup. To remove unwanted programs from the system tray, click Start→ run. Type msconfig and select Startup to uncheck the appropriate box (you can always reload it later). Keep your Antivirus software & your CD-burning tools. Restart your computer to set the changes.
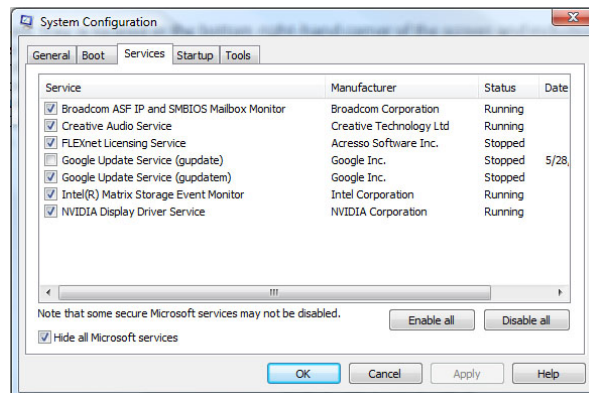
<u>REMOVE UNNECESSARY SYSTEM SERVICES</u>
Click Start → Run. Type msconfig and tab to Startup
Cost: free

The system services also start when your computer boots up.   Be careful about disabling Microsoft Services – some of them are necessary for your computer to start. Check the "Hide all Microsoft Services" box and look at the remaining services.   Keep your antivirus software, and investigate the other services. Each time you uncheck a box and restart your PC, you'll get a warning that you've used the System Configuration Utility to disable a program from starting automatically. If you don't want to see that warning, disable it by checking the box in the dialog itself.
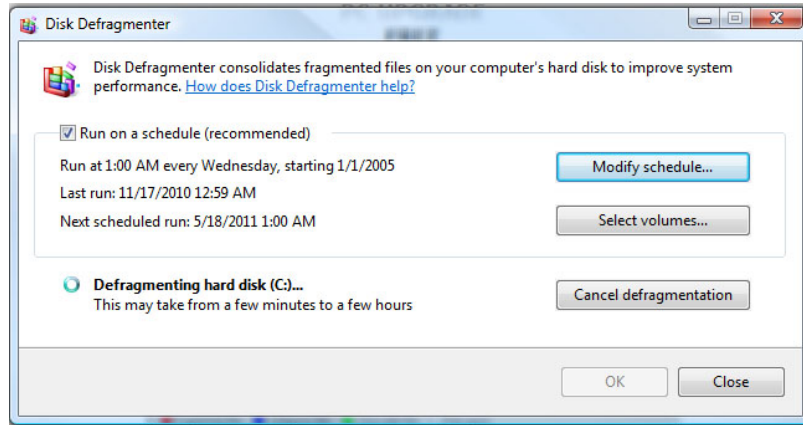
DEFRAGMENT YOUR HARD DRIVE:
**Click Start→ Programs→ Accessories→ System Tools→ Disk Defragmenter**
Cost: free

Defragmenting your hard drive takes all the programs installed on your computer and puts their data files next to each other, freeing up space and speeding up the computer (the computer spends less time looking for all sections of the program). This program is useful to do once a month or after you've installed or removed new programs on your computer.

1. Open Disk Defragmenter (under Start→ Programs→ Accessories→ System Tools→ Disk Defragmenter). Click "Analyze" (for Windows XP). In a few minutes, it'll return a message that will tell you whether or not you need to defragment your hard drive. Click "Defragment" if the analysis tells you to defragment the hard drive.

2. If you're on a Vista machine or higher, you'll be able to automatically schedule a disk defragment.

3. Allow the defragmentation to continue without using your computer; the defragmentation will continue for several minutes or hours until it is completed.

4. Note: If the defragmentation takes a very long time, you may need to turn off your screensaver. Do this by going to Start→ Settings→ Control Panel→ Display and selecting (None) under "Screen Saver".
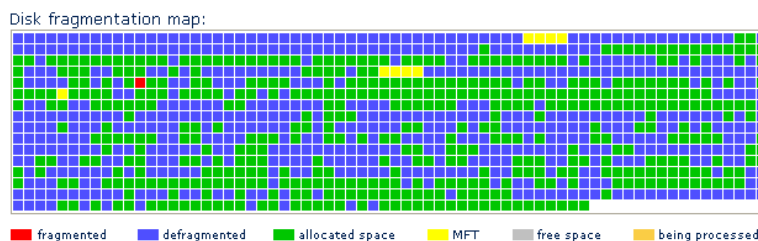
Sample Fragmented Hard Drive

MEMORY (Moderate)

UPGRADE YOUR RAM
Cost: $20-90

RAM (Random Access Memory) will give your computer more space to run programs. Add more RAM if you run multiple programs and they seem to slow your computer down. To find out your computer's current RAM, right-click on Computer and choose "Properties". Look for System (Memory) RAM.

HOW MUCH RAM DO I NEED?

512 MB	= minimum for Windows 2000 & XP (Home & Professional),
1 GB	= minimum for Vista & 7 (32-bit)
2 GB	= minimum for Vista & 7 (64-bit)
1-2 GB	= casual users
2-4 GB	= frequent users
4-8 GB	= power user
8-16 GB	= gamers & graphic designers

PURCHASING RAM:

Dell has a great memory guide (including computers other than Dell machines) at: http://accessories.us.dell.com/sna/memconfig.aspx or visit your computer manufacturer's website to see if they have a guide to memory upgrades. Amazon.com also sells RAM.

INSTALLING RAM:

1. Turn off and unplug your machine. Remove the battery if you're working on a laptop. Ground yourself by touching something metal to prevent static from destroying the chip.
2. Open up your computer and find the next available empty memory socket.
3. Align the memory chip with the proper notches and insert at a 30 degree angle to the slot.
4. Gently slide the chip in place and lock down.
5. Replace the cover and turn on your computer.
6. You should see the updated memory in the system startup.   If your computer does not start up, the memory is either incompatible or inserted improperly. You'll need to power down your machine and recheck (or remove) the chip
7. If the machine starts up properly, you can confirm the memory addition by right-clicking "My Computer" and selecting "Properties".

CPU (Difficult)

CENTRAL PROCESSING UNIT UPGRADE
Cost: $80-600 (and up)

A new CPU will make your computer run faster. Upgrade your CPU if your computer has been working at maximum capacity and you'd like a faster machine.

PURCHASING A NEW PROCESSOR:
> Visit your computer manufacturer's website to see if they have a guide to your processor type. Do some research and see if there is an available upgrade for your processor.
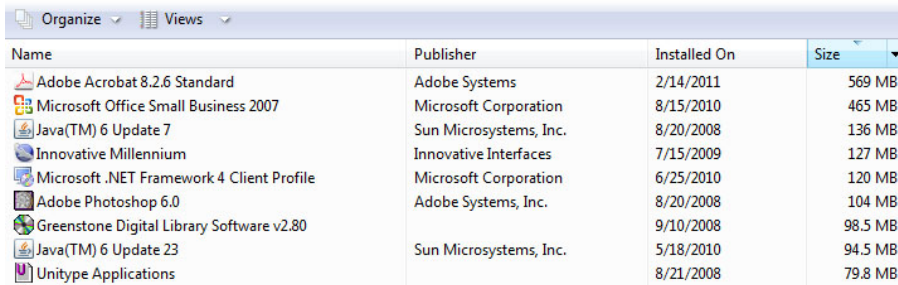
INSTALLING A NEW PROCESSOR:
1. Turn off and unplug your machine. Remove the battery if you're working on a laptop. Ground yourself by touching metal to prevent static buildup.
2. Open up your computer and remove the old CPU unit. There is a metal lever that you will need to lift up to eject the processor.
3. Insert the new processor and lock down into place.
4. With newer processors, you will also need to install a cooling fan. Make sure you connect the fan to the motherboard with the included cable.
5. Replace the cover and turn on your computer
6. If your computer does not start up, the processor is either incompatible or inserted improperly. You'll need to power down and recheck the installation.

Uninstall or change a program

To uninstall a program, select it from the list and then click "Uninstall", "Change", or "Repair".

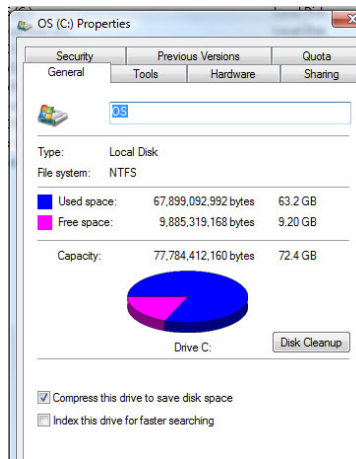| Name	Publisher	Installed On	Size
Adobe Acrobat 8.2.6 Standard	Adobe Systems	2/14/2011	569 MB
Microsoft Office Small Business 2007	Microsoft Corporation	8/15/2010	465 MB
Java(TM) 6 Update 7	Sun Microsystems, Inc.	8/20/2008	136 MB
Innovative Millennium	Innovative Interfaces	7/15/2009	127 MB
Microsoft .NET Framework 4 Client Profile	Microsoft Corporation	6/25/2010	120 MB
Adobe Photoshop 6.0	Adobe Systems, Inc.	8/20/2008	104 MB
Greenstone Digital Library Software v2.80		9/10/2008	98.5 MB
Java(TM) 6 Update 23	Sun Microsystems, Inc.	5/18/2010	94.5 MB
Unitype Applications		8/21/2008	79.8 MB

REMOVE UNUSED PROGRAMS
Click Start→ Settings→ Control Panel→ Programs and Features
or Add or Remove Programs
Cost: free

All the extra software programs installed on your computer take up space. To clean up and remove unwanted programs, find software that you no longer need and click "Remove" to uninstall it from your computer. Restart your computer after you're done removing the unused programs.

OS (C:) Properties

Security | Previous Versions | Quota
General | Tools | Hardware | Sharing

OS

Type: Local Disk
File system: NTFS

Used space: 67,899,092,992 bytes 63.2 GB
Free space: 9,885,319,168 bytes 9.20 GB

Capacity: 77,784,412,160 bytes 72.4 GB

Drive C: Disk Cleanup

☑ Compress this drive to save disk space
☐ Index this drive for faster searching

CLEAN UP YOUR HARD DRIVE
Double-click Computer. Right-click C: Drive and choose Properties
Cost: free

This will tell you how much space you have left on your hard drive. Click on "Disk Cleanup" to calculate how much space you're able to free up on the C: drive. Ignore "compress old files" unless you drastically need to add more space to your hard drive. Check the other boxes and click "OK" to remove these files.   Keep at least 15% of your hard drive free to prevent it from filling up and crashing.

HARD DRIVE (Difficult)

REPLACE YOUR HARD DRIVE
Cost: $40-80

A new hard drive will offer more storage and a quieter computer.   You will need to reinstall the operating system, all software and all personal files onto the new drive.

PURCHASING A NEW HARD DRIVE:

> Unlike memory chips and processors, hard drives are more forgiving about what will work with your machine. Visit your computer manufacturer's website to get a few tips about which models will work best with your machine.

INSTALLING A NEW HARD DRIVE:

1. Back up all documents that you've created onto an external hard drive or memory key.
2. Turn off and unplug your machine. Remove the battery if you're working on a laptop. Ground yourself by touching metal to prevent static buildup.
3. Open up your computer and see how the hard drive is connected to the motherboard. Check the power cable and jumper configuration on the original hard drive. If you have an extra connection, you might wish to use this for the secondary hard drive.
4. You will need to attach power (red/yellow/black cables) and data connectivity (long, flat gray cable) to the new hard drive. Often times, new hard drives come with extra cables.
5. You will also need to use jumper settings and mark your new hard drive as the primary (master) drive, and your old hard drive as the secondary (slave) drive.   If you are using cable-select, make sure your new hard drive is in the first slot (A) instead of the second.

6. Screw the hard drive firmly in place and reboot your machine.
7. If your hardware installation was successful, you'll need to reinstall the operating system on the new hard drive.   If not, check your cabling (remember, you can undo everything at any time)
8. Insert the installation CDs in your CD-ROM drive and reinstall your operating system onto the new hard drive.
9. Reboot your computer. See if it recognizes your old hard drive (D: or E:) on boot.
10. Copy program files and personal files onto the new hard drive.

APPEARANCE (Easy to Moderate)
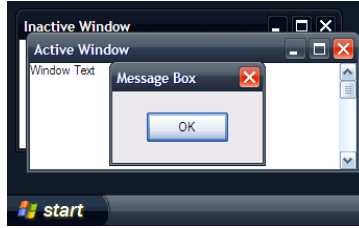
CUSTOMIZE DESKTOP
Right-click desktop and choose "Personalize" or "Properties"
Cost: free

The desktop is your working area of the computer. To change the desktop theme (colors and fonts of the windows), click on "Theme" and select a new theme. To change the desktop background (the picture behind your work space), click on "Desktop Background" and select a different picture.   For beautiful, free wallpapers for your background, search Google for "Microsoft desktop background" and click on the first link.
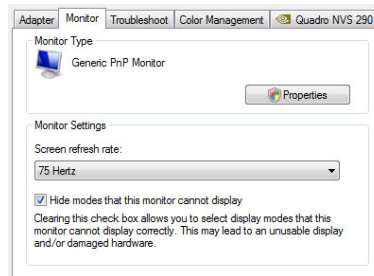
SCREEN REFRESH RATE
Right-click desktop and choose "Personalize" or "Properties"
Cost: free

The screen refresh rate affects the brightness and sharpness of your screen. The higher the refresh rate, the clearer the screen.   To change your screen refresh rate, enter Display Settings (or Settings) and click on Advanced Settings (or Advanced).   Under "Monitor", make sure your screen refresh rate is the highest it can go (make sure you select "Hide modes that the monitor cannot display").
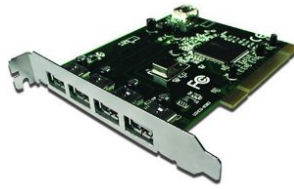

REPLACE YOUR VIDEO CARD
Cost: $35-170

Add a new video card if you if you wish to use more graphics-heavy programs (gamers and graphic designers).   The computer graphics card will use up one of your internal PCI slots inside your desktop computer. To buy a video card, search Amazon.com for "video card."

USB (Moderate to Easy)

ADD A USB PORT: DESKTOP
Cost: $3-33

Open up your desktop computer to see how many available ISA and PCI slots you have before you perform this upgrade.   ISA (Industry Standard Architecture) slots are older and longer. PCI (Peripheral Component Interconnect) slots are newer and shorter. If at all possible, buy PCI cards and use your PCI slots for new hardware additions.   Make sure you turn off and unplug your computer and ground yourself first before installing these cards. You will need a Philips-head screwdriver to free up available slots. To buy an internal PCI card, search Amazon.com for "USB 2.0 PCI card"

ADD A USB PORT: LAPTOP
Cost: $10-50

Using your PC card slot (formerly known as PCMCIA - personal computer memory card international association), you can add additional internal devices to your laptop without having to open your machine. All PC Card devices use an identical 68 pin dual row connecting interface. The card type (I to IV) is determined by the thickness of the PC card. To buy a PC card slot, search Amazon.com for "USB 2.0 PCMCIA"

ADD A USB HUB
Cost: $2-20

Add a USB hub to any existing USB port to add 2-10 more ports. Handy if you're running out of USB slots. To buy a USB hub, search Amazon.com for "USB hub"

USB STORAGE (Easy)

ADD A FLASH DRIVE
Cost: $5-50

Small portable hard drives are easy, cheap and convenient. They're known as memory keys, memory sticks, flash drives, USB drives or thumb drives. These devices plug into your USB port and add additional storage. They're also completely portable - move documents easily from machine to machine.   To buy a flash drive, search Amazon.com for "USB flash drive"

ADD AN EXTERNAL HARD DRIVE
Cost: $50-200

For a more permanent storage solution, consider adding a stationary second hard drive. Much like USB flash drives, these can be moved from computer to computer, but are most likely stationary at your main computer. They're larger than flash drives and can store more information.   To buy an external hard drive, search Amazon.com for "External Hard Drive." Prices vary on the size and amount of storage; the example above is a La Cie 1TB (terabyte) hard drive.

USB HARDWARE (Easy)

Using your USB port(s), you can add external hardware to your computer or laptop. All of these devices below are portable and can be moved between computers and laptops or old and new machines.

Search Amazon.com for any of the following peripheral devices:

- USB Floppy Drive: $12-20   (read old floppy discs)
- USB CD-ROM Drive: $10-40   (read/write information to CDs)
- USB DVD Drive: $13-40   (play movies and/or read/write to DVDs)

- USB Sound Card: $10-60   (play music on your computer)
- USB Modem/Fax: $20-43   (turn your computer into a fax machine)
- USB Television Tuner: $50-80   (turn your computer into a television)

- USB Ethernet Card: $10-27   (connect to the Internet - hardwired)
- USB Wireless Card: $12-30   (connect to the Internet - wireless)

- USB Scanner: $55-88   (add pictures/documents to your computer)
- USB Barcode Reader: $28-62   (scan book barcodes for library inventory)
- USB Printer: $60-200   (print documents, photos and web information)

- USB Webcam: $25-30   (chat face-to-face with friends or record video)
- USB VCR to PC: $97   (convert your old videotapes to your computer)

USB FUN (Easy)

Visit ThinkGeek.com and search for USB for a look at the fun hardware you can add to your computer via the USB port.

Here are some of the current listings:

- $6   USB Aromatherapy Oil Burner
- $8   USB LED Desktop Lamp
- $14   USB LED Christmas Lights

- $20   MP3 Retro Speaker Amp
- $20   USB LED Beverage Cooler
- $25   USB Heated Blanket
- $25   USB Drum Kit

- $40   USB Fishquarium
- $60   TapeExpress USB Cassette Player
- $80   Ion Profile Pro USB Turntable
- $99   Lilliput Mini USB Monitor

NOTES: