

SchoolNova



IT101

Welcome

- Dear Student,
- We would like to take the opportunity to welcome you to the School Nova IT101 class. Hopefully you have enjoyed a wonderful summer vacation.
- This year you will learn the basic principles of computer programming in the Internet age. In the first semester we will start with introduction to Internet architecture, basics of web development, styles and scripting, focusing on HTML, CSS and JavaScript technologies. You will work on individual web page projects targeted to your interests and complexity level.
- The second semester will be dedicated to more complex subjects, such as Java, Object Oriented Design and web services. You will work in a team and use real life project examples as an exercise.

Sincerely,

Serge and Maxim Baduk

<serge@schoolnova.org>

<itta@schoolnova.org>

Anatomy of a Computer

- **Motherboard** - The Motherboard is a large printed circuit board that almost all other components plug into. It can be best described as the nervous system of the PC as information is passed from one component to another via a labyrinth of circuits and soldered highways.

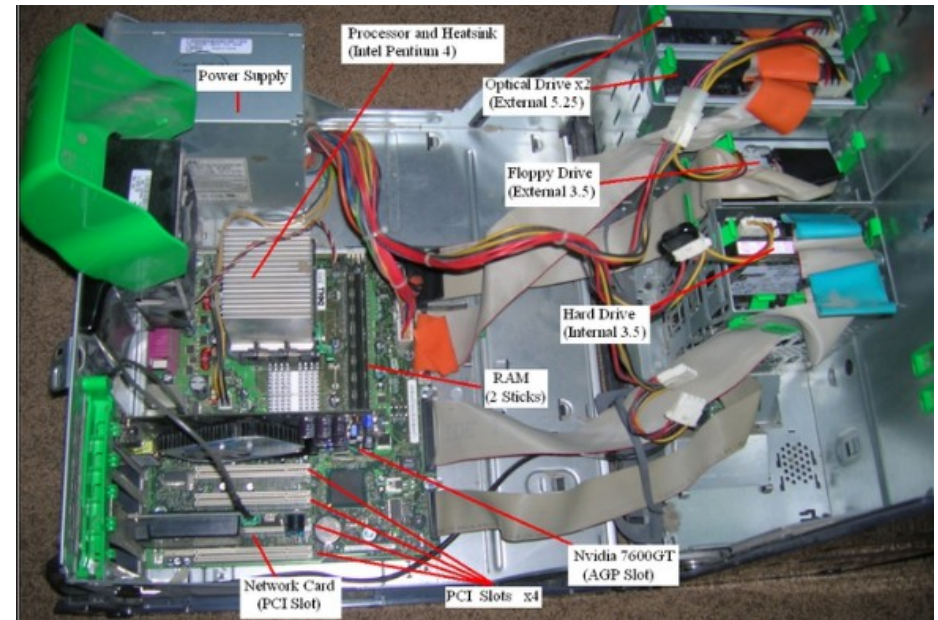
- **Processor (CPU)** - Central Processing Unit. If the Motherboard is the nervous system then the CPU (central processing unit) is the brain; this is the chip that will do all the number crunching. The CPU itself contains millions of microscopic circuits and, as a consequence of those millions of circuits, produces an enormous amount of heat - hence the need for the heat sink and fan. The heat sink helps dissipate the heat while the fan draws cooler air from outside the PC case, blowing it down onto the heat sink and CPU to moderate the CPU's temperature.

- **Hard Disk Drive** - This is where your files will be stored. This is equivalent to the Micro SD Card of your mobile phone.

- **Memory** - Just like a human brain has memory cells so does a PC; however, in the PC it is referred to as RAM (Random Access Memory.) The CPU, RAM and Hard Drive work harmoniously together with the RAM acting as a temporary store for information passed from the CPU. In the event of the RAM exceeding its capacity as a storage vessel, the data is subsequently passed from RAM to a section of the Hard Drive designated by the operating system as a form of Virtual memory. The PC's memory (RAM) usually only gets stressed when you have multiple programs running.

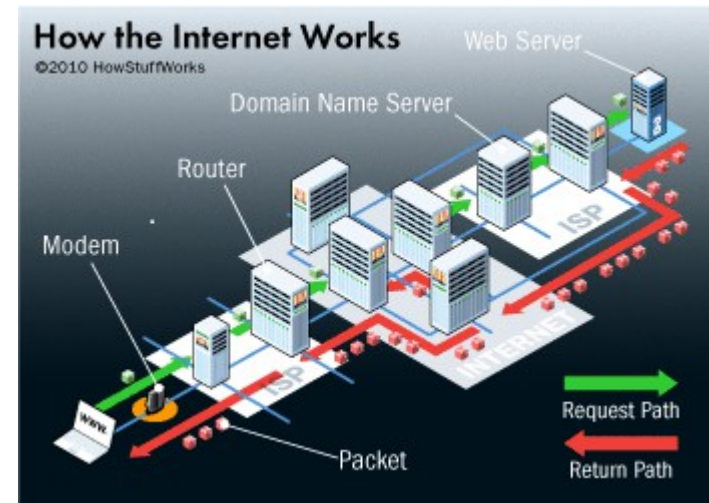
- **Power Supply** - The Power Supply is the heart of the Computer. It is basically the one that provides "power" to the entire system. It's too easy to remember... "Power Supply - supplies the power".

- **Video Card** - The video card is the set of circuitry that creates the picture on your PC monitor. Without a video card you would see nothing on your computer screen.



How Internet Works

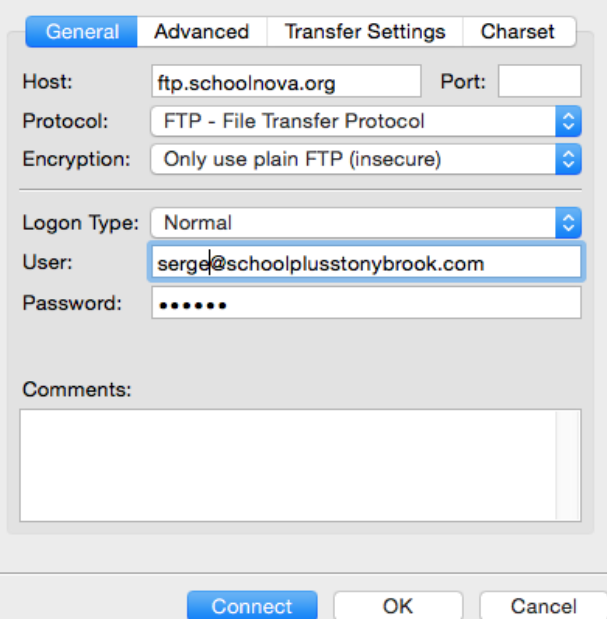
- **Internet** is not a bubble cloud. Internet is a wire buried in the ground: fiber optics, copper, satellite or cellphone network. Internet is useful because two computers, connected to the wire, can communicate.
- **Servers** are special computers connected to the Internet. **Web pages** are files on the server's hard drive. Computers that you have in class or at home are not servers, they are **clients**, connected to the Internet through Internet **Service Provider (ISP)**.
- Every server has a unique address: **Internet Protocol (IP) address**. IP addresses help computers find each other. In fact, everything connected to the Internet has an IP address: clients, servers, cellphones and everything in between.
- Humans don't remember IP addresses well, so we give these servers **domain names**, such as google.com and schoolnova.org
- **Domain Name Servers (DNS)** turn a user-friendly domain name like "schoolnova.org" into an IP address like 184.154.164.202 that computers use to identify each other on the network.
- When information travels through the Internet, computers break the information into small chunks called **packets**. When the information reaches its destination, the recipient computer reassembles the packets in the original order to make a picture, email, web page or Tweet.
- **Routers** are special devices that route (help transfer) each packet to its destination.



Your Server is SchoolNova.org

- Download and install a File Transfer Protocol (FTP) program from <https://filezilla-project.org/download.php>
- Open FileZilla and log in to your School Nova directory:
 - ◆ Host: ftp.schoolnova.org
 - ◆ User Name: <your user id>@schoolnova.org
 - ◆ Password: <your password>
- On the right hand side of Filezilla you will see your personal directory where all your IT101 files will be stored.

Note: FTP does not work from the SchoolNova Wolfie-Guest wireless network, therefore you will have to either do it from home, or use another wireless network.



The image shows the 'General' tab of the FileZilla settings dialog box. The 'Host' field is set to 'ftp.schoolnova.org'. The 'Protocol' is set to 'FTP - File Transfer Protocol'. The 'Encryption' is set to 'Only use plain FTP (insecure)'. The 'Logon Type' is set to 'Normal'. The 'User' field contains 'serge@schoolplusstonybrook.com'. The 'Password' field is masked with dots. There is a 'Comments' text area at the bottom. At the bottom right, there are 'Connect', 'OK', and 'Cancel' buttons.

Field	Value
Host	ftp.schoolnova.org
Port	
Protocol	FTP - File Transfer Protocol
Encryption	Only use plain FTP (insecure)
Logon Type	Normal
User	serge@schoolplusstonybrook.com
Password
Comments	

Your First Web Page

- Open Notepad and type in some sample text, surrounded by <h1> tags, for example:
 - ◆ <h1>This is my first web page</h1>
- Create a directory on your laptop and save the file:
 - ◆ File name: index.html
 - ◆ Save as type: All Files
- Upload the file to the server using FileZilla (drag and drop will work).
- Open a browser and go to
 - ◆ <http://www.schoolnova.org/schoolnova.org/<your user name>/index.html>
- Congratulations, your first web page is on the Internet!

Homework

- Install FileZilla on your home computer.
- Log into your server directory.
- Using a plain text editor, such as Notepad, add more content to your web page.
- Upload the page back to the server.
- Optional: add an image to your web page
(http://www.w3schools.com/html/html_images.asp)