



- A web server stores, processes, and delivers web pages to clients using HTTP
 - Definition and diagrams of a web server:
<http://www.pcmag.com/encyclopedia/term/54342/web-server>
- The leading web server software is the Apache HTTP Server
 - Information on Apache:
http://httpd.apache.org/ABOUT_APACHE.html



Source: <http://upload.wikimedia.org/wikipedia/commons/f/f6/SunFire-X4200.jpg>

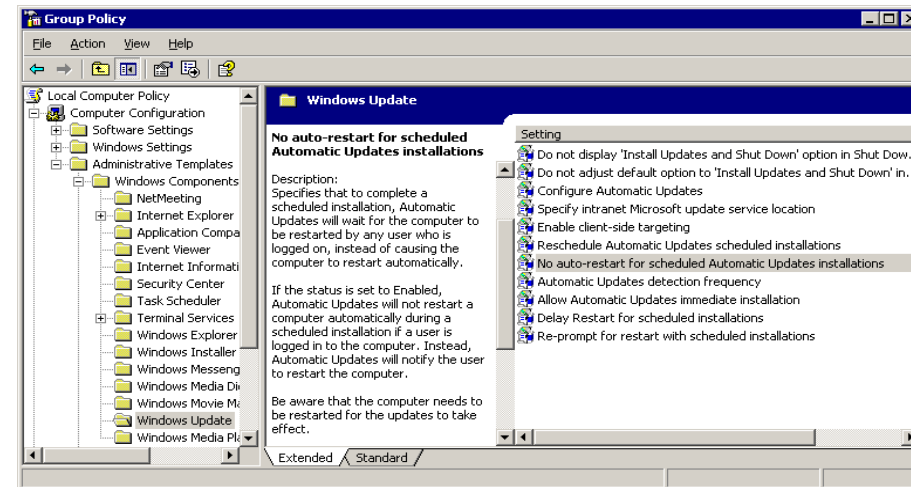


- Windows operating systems typically use one of two file systems to organize data on hard discs
 - FAT32
 - Used in older operating systems such as Windows 95 and 98
 - NTFS
 - Modern file system currently used in Windows XP onward
- Comparison of FAT32 and NTFS:
<http://windows.microsoft.com/en-us/windows-vista/comparing-ntfs-and-fat-file-systems>

Ubuntu Tip: Linux systems use the Ext2, Ext3, or Ext4 file systems:
<https://help.ubuntu.com/community/LinuxFilesystemsExplained>



- Group Policy: Settings for groups of users and computers, including those regarding registry-based policy, security, computer startup and shutdown, and logon and logoff
 - Details on Microsoft group policy: <http://technet.microsoft.com/en-us/library/bb742376.aspx>
- Some useful settings may be:
 - Not displaying last user name on login screen
 - How to: <http://support2.microsoft.com/kb/310125>
 - Requiring Ctrl Alt Del before signing on
 - How to: <http://support.microsoft.com/kb/308226>



Source:

<http://blog.codinghorror.com/content/images/uploads/2005/05/6a0120a85dcdcae970b0128776f8e89970c-pi.png>

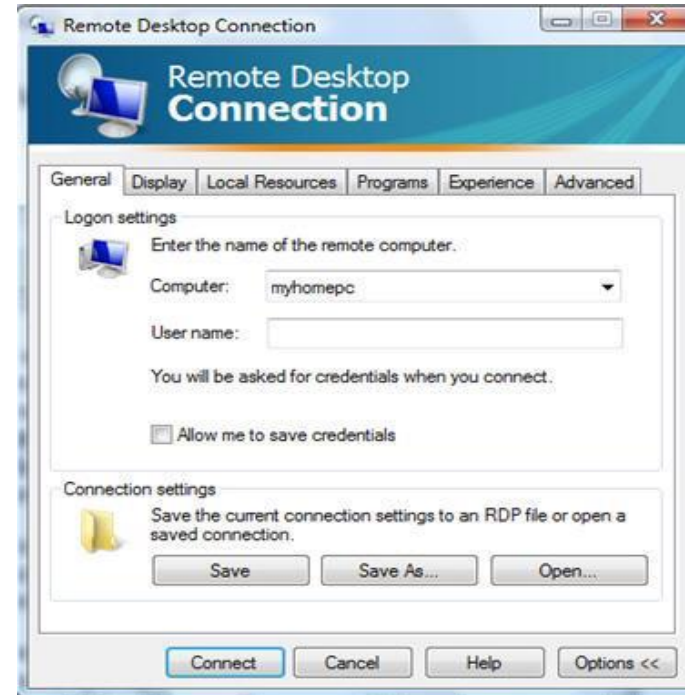


- Authentication protocol
 - Authentication protocol confirms the identity of any user logging on to a domain or access network resources
 - NTLM is a Microsoft authentication protocol:
[http://msdn.microsoft.com/en-us/library/windows/desktop/aa378749\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa378749(v=vs.85).aspx)
- Password hashing
 - Method of taking a variable-length password and creating a cryptic, fixed-length password from it
 - Details on password hashing:
<http://security.blogoverflow.com/2013/09/about-secure-password-hashing/>
 - LanMan Hash is a password hashing function of NTLM
 - Details on the security risk of LanMan Hash:
http://www.microsoft.com/security/sir/strategy/default.aspx#!password_hashes

Ubuntu Tip: Ubuntu 8.10 and later use salted SHA-512 based password hashes: <https://wiki.ubuntu.com/Security/Features>



- Remote connections are ways of sharing systems.
- Examples:
 - Virtual Network Computing (VNC)
 - VNC allows you to share and give control of your desktop to another user
 - VNC variants and applications:
http://ipinfo.info/html/vnc_remote_control.php
 - Remote Desktop
 - Similar to VNC, Remote Desktop Protocol (RDP), allows a user to control a remote system
 - Using RDP: <http://windows.microsoft.com/en-us/windows/connect-using-remote-desktop-connection#connect-using-remote-desktop-connection=windows-7>



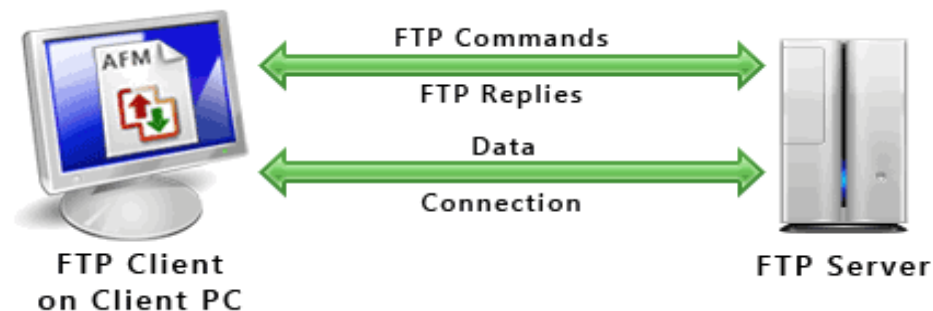
Source: <http://blog.tmcnet.com/blog/tom-keating/images/remote-desktop-general-tab.jpg>

Ubuntu Tip: If using a Gnome desktop, Remote desktop is easy in Ubuntu:

<http://www.makeuseof.com/tag/ubuntu-remote-desktop-builtin-vnc-compatible-dead-easy/>



- The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another over the Internet
 - FTP FAQ: <http://windows.microsoft.com/en-us/windows-vista/file-transfer-protocol-ftp-frequently-asked-questions>
- Secure File Transfer Protocol works similarly to FTP but is more secure
 - How to use SFTP: <https://www.digitalocean.com/community/tutorials/how-to-use-sftp-to-securely-transfer-files-with-a-remote-server>
- Trivial File Transfer Protocol (TFTP) is a simplified version of FTP
 - Details on TFTP: <http://compnetworking.about.com/od/ftpfiletransfer/g/tftp-trivial-file-transfer-protocol.htm>





The **File Transfer Protocol (FTP)** is a standard network protocol used for the transfer of computer files between a client and server on a computer network.

SSH File Transfer Protocol (also **Secure File Transfer Protocol**, or **SFTP**) is a network protocol that provides file access, file transfer, and file management over any reliable data stream.

Trivial File Transfer Protocol (TFTP) is a simple lockstep File Transfer Protocol which allows a client to get a file from or put a file onto a remote host

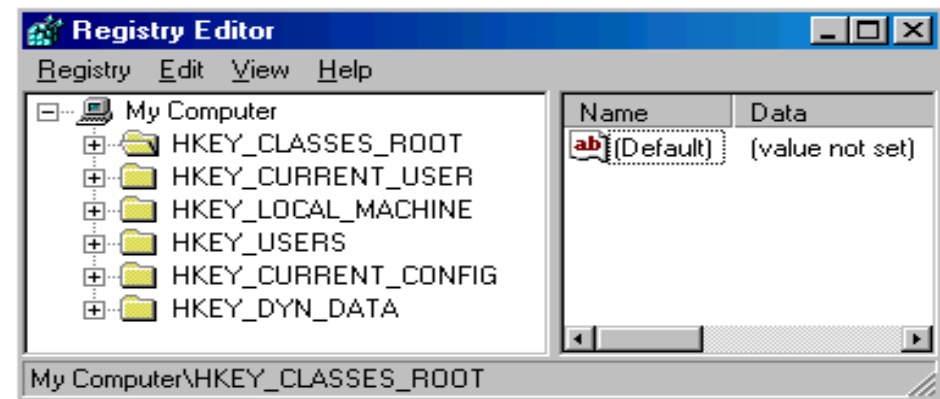
FTP – Port 21

TFTP – Port 69

SFTP – Port 22



- The registry is a hierarchical database that stores configuration settings and options
 - **WARNING:** If you do not know what you are doing, editing the registry can cause serious problems that may require you to **reinstall Windows**
 - Explanation of the registry and how to make edits:
<http://pcsupport.about.com/od/termsr/p/registrywindows.htm>
 - Managing remote access to the registry:
<http://support2.microsoft.com/kb/314837>



Source: <http://www.computerhope.com/reg1.gif>

Ubuntu Tip: There is no registry in Ubuntu *per se*, but if using a GNOME desktop, dconf is similar: <https://wiki.gnome.org/action/show/Projects/dconf?action=show&redirect=dconf>



- Like Linux, the command line in Windows allows you to enter commands without a GUI.
- Sample commands are:
 - `Ipconfig` is used to view or modify a computer's IP addresses
 - `Bcdedit` is used to view or make changes to Boot Configuration Data
 - `Cmd` starts a new instance of the command line interpreter
 - `Convert` is used to change FAT32 formatted volumes to NTFS
 - `Nslookup` is used to display the hostname of an entered IP address
- Opening the command prompt: <http://windows.microsoft.com/en-us/windows-vista/open-a-command-prompt-window>
- Detailed list of commands: <http://pcsupport.about.com/od/commandlinereference/tp/windows-7-commands-p1.htm>



- TCP/IP is a set of communication protocols
 - Transmission Control Protocol (TCP) provides reliable, ordered, and error-checked delivery of data
 - User Datagram Protocol (UDP) uses a simple connectionless transmission model
- TCP/IP applications send data to specific ports to help computer systems understand what to do with the data that flows into them,
- Examples of common ports and protocols:

Service	Protocol	Port
FTP	TCP	20, 21
TFTP	UDP	69
HTTP	TCP	80
HTTPS	TCP	443
RDP	TCP	3389

- Open ports can be a security risk by allowing attackers into your system
 - Firewalls typically block unnecessary ports, but it is unwise to blindly rely on one
 - Information on determining which ports are open and which should be closed:
<http://www.techrepublic.com/article/lock-it-down-develop-a-strategy-for-securing-ports-on-your-servers/>



- A DMZ acts as a gateway to the public internet that acts as an additional layer of security to an organizations local area network
 - An external attacker only has direct access to equipment in the DMZ
- A typical DMZ may look like the following (the unlabeled green icon in the center is a firewall):

