

Chapter 18 – Part 2

Lecture notes

Wireless LANS

- **IEEE 802.11B** – generally referred to as WI-FI
 - Called AirPort by Apple computers
 - Uses the frequency range of 2.4GHz
 - Range is up to 100 meters
 - 11Mbps maximum data rate
 - **IEEE 802.11A**
 - Uses a frequency of 5.0Ghz
 - Range is up to 50 meters
 - 54Mbps maximum data rate
 - **IEEE 802.11G**
 - Uses the frequency range of 2.4GHz
 - backwards compatible with 801.11B.
 - 54Mbps maximum data rate
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WiFi Security

WiFi hotspots can be open or secure. If a hotspot is open, then anyone with a WiFi card can access the hotspot. If it is secure, then the user needs to know a **WEP key** to connect.

WEP stands for Wired Equivalent Privacy, and it is an encryption system for the data that 802.11 sends through the air. WEP has two variations: 64-bit encryption (really 40-bit) and 128-bit encryption (really 104-bit). 40-bit encryption was the original standard but was found to be easily broken. 128-bit encryption is more secure and is what most people use if they enable WEP.

For a casual user, any hotspot that is using WEP is inaccessible unless you know the WEP key.

If you already have several computers hooked together on an Ethernet network and want to add a wireless hotspot to the mix, you can purchase a **Wireless Access Point** and plug it into the Ethernet network.

NICS and MACS

- Wireless Network Interface Card
 - Every NIC card (wireless or not) has a unique MAC number
 - USB NICs
 - PCI NICs
 - preferred for desktop
 - PCCard NICs

Configuring your Wireless Access Point.

- Find the IP of your Access Point / Wireless Router.
- Enable WEP
- Enter your WEB numbers
- Enable MAC filtering
- Enter all the MACs that will be on your network.

Chapter 19**Lecture notes****How the Internet works.**

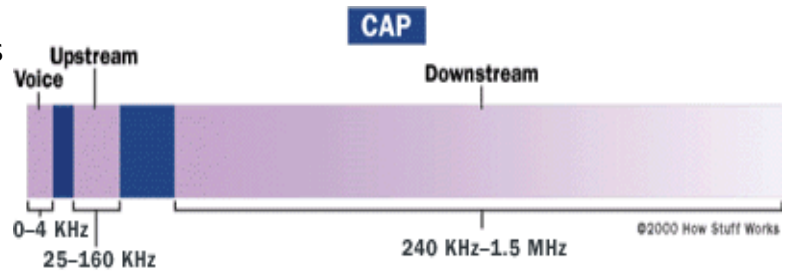
- TCP/IP
 - The protocol of the Internet
 - Uses IP numbers to identify computers.
 - Uses port numbers to identify individual services
 - Common Ports:
 - 21 FTP (transfer files)
 - 80 HTTP (web)
 - 23,25 SMTP & POP3 (Email)
 - Firewalls block ports or redirect ports.
 - How do you configure a hardware firewall?

Internet Utilities in Windows

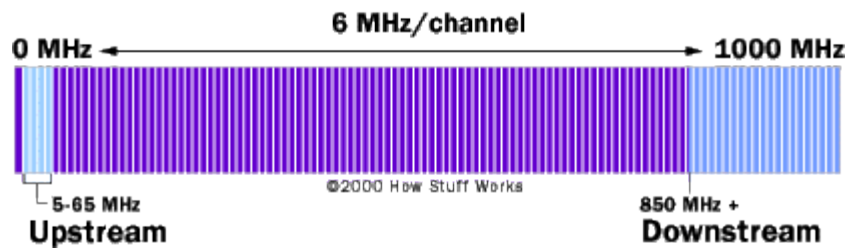
- Getmac (new in XP) Gets the MAC address
- IPCONFIG Displays the IP addresses
- FTP Text Based File Transfer
- Netstat Displays information about ports
- Ping Verifies connections
- tracert traces the route through the internet

Ways of Connecting to the Internet

- DIAL-UP -- enough said!!!!
- DSL
 - Uses existing phone lines



- Cable Modems



Quiz:

1. What is the IP address of your computer? _____
2. What is the MAC number of your computer? _____
3. Which is the fastest wireless networking protocol? _____
4. Wireless networks can be secure? (T/F)
5. What is the maximum distance an 802.11B networks supports? _____
6. Windows firewall is always on? (T/F)
7. What port number does a web server use ? _____