Recap/

Home network basics

Home networks consist of at least of 2 networks

The public network from ISP - router connected to internet

Also most likely the router is equipped with both wired and wireless capabilities

**A home network Is a small LAN with devices that usually connect to an integrated router and to each other in order to exchange info**

**Wireless technology is fairly easy and inexpensive to install**

**Its advantages** are **mobility, scalability, flexibility, cost savings, reduced installation time** and **reliability in harsh environments**

In addition to an router there are many different types of devices on a home network, example: PC, laptop, smart tv, gaming system, phone, sucurity cameras,…

**Routers have usually 2 ports ethernet ports and internet ports, in addition to wired ports many have radio antenna and a built-in wireless access points**

Network technologies in the home

**Wireless technologies use electromagnetic waves to carry information between devices**

Not all of electromagnetic spectrum can be used for data transfer

**Most of them are in the 2.4GHz and 5GHz frequency range** (Wi-Fi)

**Bluetooth uses 2,4GHz** also

And modern wireless LAN technologies that conform to the various IEEE 802.11 standards

Much better range and higher power usage then bluetooth

There are still exceptions where devices benefit from wired connection

Most common is the Ethernet protocol

Wired devices usually use ehternet patch cable usually unshielded twisted pair

Wireless standards

**The IEEE 802.11 standard governs the WLAN environment**

**They use 2.4GHz and 5GHz frequency bands**

**They are referred to as Wi-Fi**

The wifi alliance is responsible for testing wireless LAN devices from different manufacturers

**These devices following the 802.11 standards have multiple settings that have to be configured** they include:

Network mode  
 **determines the type of technology that must be supported**  
 (802.11b 802.11g, 802.11n, mixed)

Network name (SSID)

**Used to identify WLAN**

Standard channel

**Specifies the channel over which communication will occur**

By default this is set to auto to allow the access point to determine the optimum channel to use

SSID broadcast

**Determines if the SSID will be broadcast to all devices within range**

By default, set to enable

The 802.11 protocol can provide increased throughput based on the wireless network environment

- If all **devices are connected with same 802.11 standard, maximum speeds can be obtained**

- If **access point is configured to accept only one 802.11 standard , devices that do not support it wont be able to join**

- **mixed mode** can **include devises that are older but wont achieve the max speeds**

When building a wireless network, it is important that the wireless components **connect to the appropriate WLAN this is done using the SSID**. Its **used to tell wireless devices which WLAN they belong to and which other devices they are connected to.**

When its disabled u will need to manually enter the SSID on wireless device

Set up a home router

Many routers for home use havean automatic setup utility

- To connect to the router using wired connection, plug ethernet patch cable into the network port on the router and the other port in LAN port on the router

- after that the link lights on the NIC indicate a working condition, computer needs a IP. Most network reouters are set up so that the computer receives an IP address automatically with DHCP

- before entering configuration utility, or manually through web browser, you should consider how your network will be used, consider the name, what devices will connect. DON’T INCLUDE IN SSID THE DEVICE MODEL OR BRAND

- the decision regarding who can access your home network should determine by how you plan to use the network, many routers enable MAC address filtering with this you can identify who is allowed in the network. Some routers can enable a guest access