

Broadband Setup from A to Z

Print out all the info below and get to work...have fun!!

A word of caution! It is very important that you SECURE your wireless network using WEP or WPA encryption (password). IF when out of town or in another place, such as local Wi-Fi, where you must sign onto an UNSECURED network...**do not, repeat do not** send out any info of a critical nature such as credit card numbers, bank accounts, your passwords, etc. You never know on an unsecured network who may be picking up your information. Also, when using an unsecured network, you should not have your personal files set for sharing.

1. First you must connect the Comcast modem to your computer using the cable that came with the modem. The cable will plug into the ethernet port on the back of your computer and the ethernet port on the back of the modem.

2. Next, you should have gotten a CD with the modem. REad the instructions in the booklet about installing. You may need to call Comcast to get detail instructions if you don't understand the booklet's instructions. They will walk you through the process.

3. Once you have the modem connected to your computer and you're able to click the Big E and go to web sites, you're ready to setup your HOME network. I assume since you purchased a router that you intend to setup for wireless and perhaps have more than one computer using the Comcast broadband either wireless or via an ethernet cable from the computers to the router.

Below you will find instructions for setting up the HOME network and for protecting your wireless using either WEP or WPA encryption in your router...you didn't tell me the brand of router that you purchased. Since I use Linksys, I will give you the instructions for it.

Basic Glossary of Terms

Packet: Data can be broken into distinct pieces or packets and then reassembled after delivery. Computers on the Internet communicate via packets.

IP address: Four numbers separated by periods, assigned to your computer. Having an IP address enables you to send and receive information.

Private IP address: Also called a nonroutable address, this is an IP address that's not generally reachable from external networks but is acceptable for internal communication.

Static Address: This is an IP address you purchase from your Internet provider that does not change over time. This type of address is the one you would typically want or need to run a server.

Dynamic Address: An IP address you purchase from your Internet provider that may change over time. DHCP is used to dynamically assign an address to your computer.

Globally Routable IP Address: This is a “normal” IP address in the sense that any computer in the world that’s connected to the Internet can contact the computer having one of these IP addresses.

DHCP (Dynamic Host Configuration Protocol): DHCP enables a computer to automatically acquire an IP address on startup when connected to a network. DHCP uses broadcast, so it becomes important to have only one DHCP server on a network.

NAT (Network Address Translation): An IP sharing scheme in which one globally routable IP address is shared among several computers. Each of those computers is given a private, nonroutable address and the NAT device handles the translation. Most current home networking products use the term “router” to describe the ability to share a single IP address.

MAC (Media Access Control) address: Each network card has a unique hardware address. You can use this address to restrict access to only those computers with Ethernet addresses that match a list you supply.

Router: Routers select a path through the Internet so that a packet can reach its destination. “Router” is the term most often used by vendors to describe devices that share an IP address, although “network address translation device” would be more accurate in this case.

Hub: A simple device for sharing network connectivity. When a hub receives a packet on a designated port, it replicates that data to the other ports. In most cases, you’d be better served with a switching hub (“switch”).

Switch: Also called a “switching hub,” a switch reads the destination address of each packet and forwards it to the correct port. For this type of device, a switch is the thing to buy (as opposed to a hub).

AP or Access Point: This is a device that shares a wired connection with wireless clients. Think of an AP as a wireless hub.

Uplink: In satellite communication terminology, this term refers to the connection between the earth station and the satellite. On home network sharing devices, it’s sometimes used to describe the connection between that device and the larger

Internet (i.e., your DSL or cable modem). In the case of Linksys devices, the uplink port is either a standard port (for another device) or it can be used to connect another switch should you need more ports.

WAN Port (Wide Area Network Port): For Linksys devices, this describes the port to connect to your DSL or cable modem in order to connect to the larger Internet.

MDIX (Medium Dependent Interface Crossover): The label for the port you need to connect to the cable-modem or DSL modem. Think of it as the “uplink” for connection to the larger Internet.

SSID (Service Set Identifier): Also called “network name. Client computers must supply the network name to associate with a wireless access point. This can be used as a simple method to help keep unwanted users off your home wireless network.

WEP (Wired Equivalent Privacy): Encryption scheme used to protect wireless networks. Unfortunately, it is not very secure because there is a small device on the market that can hack your WEP code if they are close to your house.

WPA: Encryption provides more security than WEP.

SETUP HOME OR SMALL OFFICE WIRELESS NETWORK

1. Install DSL or Cable modem
2. Install Linksys or D-Link router
3. Plug CAT cable from modem to the router’s Internet port.
4. Plug Ethernet cable from computer to one of the router’s computer ports. (Or install USB wireless adapter)
5. Restart computer
6. Click big E (Internet Explorer), must be able to get online.
7. Go to Control Panel and click Network. This will bring up the network wizard.
8. Select to connect through Other Gateway (that’s the router).
9. Type in a description of the Main Computer, such as JmaxWorkhorse
10. Type in a name for the computer, such as HP6497. The name and description must be **different** for each computer.
11. Type in a name for the work group, such as MSHome (All computers must be given the **same work group name** and do not leave a space in the name).
12. Click Share Printer & Files.
13. A message will suggest making a Network Floppy disk, put a floppy the A; drive and click Yes to make a Network Floppy. (I prefer to not use the floppy disk, but setup each additional computer same as setting the first one above. Just be sure to

give each computer it's own name and description, but every computer must be assigned the same Workgroup name.

Setup up other computers to be a part of the MSHOME.

Home Network

14. Attach an Ethernet cable from router to computer's Ethernet card or install a wireless adapters for each computer to be added to the network.
15. Put the Network Floppy disk (or cd) into next computer to be added to the network, doubleclick the file to run it, setting up the network in each computer.

Note: If you are using XP you don't have to make the Network Floppy, just click on the Network Wizard and set each computer up. Make sure that your Workgroup name is EXACTLY the same on each computer. The names and Id of each computer should be different.

Note2: go into Linksys or D-Link and create a WEP or WPA passcode to prevent anyone else from entering and using your network. While WEP is good security, WPA encryption is even more secure(some older wireless adapters may not be able to set a WPA security).

WEP Wireless security

Question: I have broadband service, a Linksys Cable Modem (model BEFCMU10), and a Linksys WRT54GS wireless router. I currently have a desktop computer (w/USB Wireless B adapter) & two notebooks (no adapter necessary, built in wireless card and all working fine. How can I let a visitor use my network if I have it secured?

Answer: Anyone visiting can have internet access by giving them the passcode/WEP key. The code will only work for them while they are in range of that network.

Question: There seems to be a multitude of security options, (64 bit WEP vs. 128 bit WEP, MAC address filtering, WPA, etc.) Is 128 bit WEP more secure than 64 bit WEP? Which should I use?

Answer: You can use either the 64 or the 128 bit. Sometimes the 128 makes it slower. I suggest you try 128 and if you notice any dragging, switch it to the 64. Keep in mind that if you change from 128 to 64, you must set a new WEP key also. The WPA encryption is more secure, but some older adapters can not setup WPA.

For Linksys

1. Type into Internet Explorer's browser box 192.168.1.1 and press GO.
2. This will bring up the User box, type in the password as supplied in the router booklet and click OK.
3. This will take you to the Linksys site. Now, click Wireless and then Wireless Security.

4. The Wireless Security box should be ENABLED.
5. The most frequently used Security Mode is **WEP** but WPA is more secure.
6. The Default Key select #1.
7. The Encryption Level and be either 64 or 128, whichever works best for you. I set mine for 64.
8. Now, Enter a passphrase, must be at least 8 characters, some alpha,some numerals.
Example: CROW4T610
9. Press the GENERATE button and it will fill the boxes below with numbers and letters. Your encryption key will be #1, but anyone signing onto your wireless network will be required to put in the KEY. You may be able to just put in the passphrase which was used to generate the encryption key for you, but some routers will require the Key that was generated, so write it down but do not store in your computers under the file name My Network Key.

CAUTION: if you set it for Wireless B configuration only "B" cards will be able to connect. I would suggest setting it to "G" because then a "B" or a "G" can connect as long as they have the WEP key. Of course, now there is Wireless N. Write this down somewhere where you'll be able to find it as you may forget it. On a few laptops, when I setup the WEP, I have found that I had to reboot it a few times to get it to work.

IP Address And Home Network Simplified

Each computer connected to the internet is assigned an IP Address by the ISP they use. You will select or be assigned an email address which essentially is a label that is placed over the IP Address to make it easier for you to remember. The IP Address is a set of numbers that is recognized by the ISP server but that would be difficult for you to remember. When you enter your screen name, the ISP recognizes the IP Address (numbers) that belongs to that screen name and with the proper password allows that computer to talk to it's computer.

Now when you set up a home network, a little more is involved. You've now plugged a ROUTER into the modem and sits between the ISP and the other computers connected to the router....the total being, the network.

During setup of the router using what's called DHCP (Dynamic Host Configuration Preotocol), it is the Router that asks the ISP for an IP address. The ISP assigns that Router an IP address. Now when you connect your 1st computer to the router, that computer must ask the router for an IP address so it can connect through the router to the ISP. The router assigns an IP address to each computer...all the IP addresses assigned to various computers will all begin with 192.168... Which indicates a local network.

When you sign onto your computer that is connected to the router that is connected to your DSL or Cable modem it goes something like this:

Computer to router...says, I am IP address 192.168.... ..please get me www.google.com The router recognizes that IP address as the one it assigned.

The router in turn...signals the ISP via the modem ... and says I am IP address 205.188...(incomplete to protect privacy of IP address owner) ...please get me www.google.com

To the internet it appears that the router is making the request and it recognizes the IP address as the one which it assigned to that router, so it says ok...and connects to www.google.com as requested and now computer 192.168.xxx.xxx has google.com appear on it's screen.

To see what your particular IP address is, click START...RUN and type in CMD (if using win XP. Type in COMMAND if using pre-XP windows). Click OK

The MS-DOS screen will appear. At the blinking cursor type in ipconfig and press ENTER

You will get something that looks like this:

```
Connection-specific DNS Suffix
IP Address.....192.168.1.106
Subnet Mask.....255.255.255.0
Default Gateway.....192.168.1.1
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The IP address is the one assigned to your computer by the router.

To see the IP addresses assigned by the router to all the computers connected to the router, type in ipconfig/all and press ENTER
Type Exit to close the screen and return to windows.

Now, in your browser box type <http://www.whatismyip.com> and press GO
You'll get a screen that says YOUR IP ADDRESS IS 206.124.....(incomplete to protect privacy of IP address owner)

This is the IP address assigned to your Router. Regardless of what your particular IP address is for your particular computer, on the internet your computer appears to be the IP address of your router. This is the reason that the router acts a bit like a firewall and helps to protect your computer from hackers.

To see if you can communicate with a particular computer, click START...RUN and type in CMD or COMMAND if using pre-XP windows.
Type Ping (and the name of the other computer) press ENTER.

IF you can communicate, you will get the message x number of packets sent (number of packets of data sent from your computer; then x number of packets received(from the

other computer replying to your ping). IF 0packets received...the other computer is not communicating with your computer.

If you cannot get an answer when pinging the Name of the computers in your network, try pinging their IP address. IF the IP address responds to the ping, but the name doesn't, it usually means a network software failure or just that you failed to put in the correct Name you assigned to that particular computer.

You may need to turn off your firewall to ping your own computers. It may be blocking entrance to them.

To ping your own computer to see if your network software is functioning. Type ping 127.0.0.1 which is the standard loopback address. If your software is working correctly, you should get x packets sent, x packets received meaning that communication is good. IF 0 packets returned, something is wrong with the TCP/IP installation on the computer from which you just pinged 127.0.0.1.

If you are using Wireless technology you MUST secure it via your Router's Security program. This is usually done by setting a WEP or a WPA passcode.

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