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LEARN NETWORK SECRETS

As I was writing this article, Cisco (the parent company of Linksys) just introduced a new line of high speed N routers with software that enables you to create a network in minutes. In other words, Cisco with its new line of routers (Valet and E-series) just made all that I previously wrote (below) obsolete, for those of you who still want to setup a network in the same old way.

Cisco offers software that takes all of the pain out of setting up a network for home users. For instance, their new *Valet*™ router is designed so that you don't have to know anything about networks. You just buy the router, hook it up with the provided ethernet cables, plug in the power cord, as shown in the installation instruction, plug in a USB setup key, and run the software to let the software do all of the grunt work for you. In minutes, your network is working. Where's the pain? Do you really miss it?

The software creates a secure name for your network, assigns a secure working password, selects a speed that your network hardware can support, and creates the network. The whole process can be done in about ten minutes without user intervention. Once you are hooked up, you just sit there and Linksys provides 90 day installation support if you should need it. See www.linksys.com for more information.

A Valet router is designed to do just one thing. That is to enable any user to setup a working network in just a few minutes right out of the box. There is not much that you can customize. However, you get a network that is easy to get working right out of the box. There are two different models, the Valet and the Valet Plus. The plus version has an extended range for larger houses.

Linksys' new E-Series N routers are easy to setup, although not quite as easy as the Valet routers with their automated setup software. Both router lines can be customized for parental controls, give guest access to your network, and can change security settings. The E-Series comes in four router models, the high end of which is optimized for entertainment with dual-band performance.

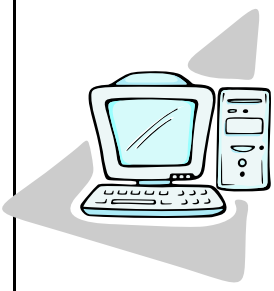
Linksys just happens to be a brand with which I am familiar since I use it in my own home. However, pick the router that best fits your needs, and the size of your house (how far the signals have to travel to your wirelessly connected computers.

NETWORKING BACKGROUND

Are you still with me? The following information is educational. If something goes wrong in the night, you will have a better understanding of what your network entails. Understanding what a network is and how a network connects computers can help you in the future.

A network is the answer if you have two or more computers and you want to share a single internet cable connection (DSL or Cable), to share a single internet account, to share a printer, to share files between your networked computers, or to backup files from one computer to another computer.

Perhaps you have computers in different rooms, and maybe they are on different floors, and the computers are used for different purposes. The computers may be used independently by you and your spouse, or used by guests or other persons. One computer might be a desktop computer and another might be a laptop computer, or even another desktop computer, or additional laptop computers.



In its very simplest form, a network is just a means to electronically connect two or more computers together. They may be connected via an Ethernet cable, connected wirelessly, or even be connected by a USB high-speed data transfer cable.

Things get more complicated when you want to share a DSL or internet cable modem using a router with firewall protection, or to connect some or all of your computers wirelessly.

For many years computers were "networked" simply by copying data to a floppy disk and then walking the floppy disk to another computer to share the data. That was

euphemistically called "Sneaker-net" as in let your tennis sneakers do the walking.

Here is what is involved in different network setups from very simple to much more complex depending upon your needs.

A METHOD STRICTLY FOR DATA TRANSFERS

If your goal is to only transfer data from one computer to another, use a USB data transfer cable (a cable made especially for that purpose, either USB version 1.1 or version 2.0. The cable is Windows plug-and-play ready.

Laplink makes one such cable, but there are many other brands from which to pick. Laplink also makes *PCMover;* a program that enables you to transfer files, email messages, addresses, and settings to your new computer.

USB cable version 1.1 transfers data at up to 12mbps (12 megabits per second) while version 2.0 transfers data at up to 480 mbps (60 megabytes per second). There are eight bits in a byte.

If it is required, you install data management software and then plug one end of the USB cable into a USB port of one computer and the other end of the cable into a USB port of the second computer. The computers must be within about five feet of each other (unless you purchase an extension cable). A USB data transfer cable has a special chip installed in the cable (in the middle of the cable as pictured above).

Advantages: You don't have to open up your computer nor buy additional hardware beyond the data transfer cable. The software is very easy to use and you are up and running in minutes. It is simple to install and simple to use.

Disadvantages: It only works with computers that are no further than about five feet apart (or up to 20 feet apart with an extension cable).

You see a similar split-screen displayed on each computer. On one side of the screen is the source computer and on the opposite side is the target computer (the old computer and the new computer).

Drag and drop files from one computer to the other (in either direction) , or drag whole folders from one computer to another using the split-screen displayed on your computer's screen. Unplug the data transfer cable when you have finished transferring files.

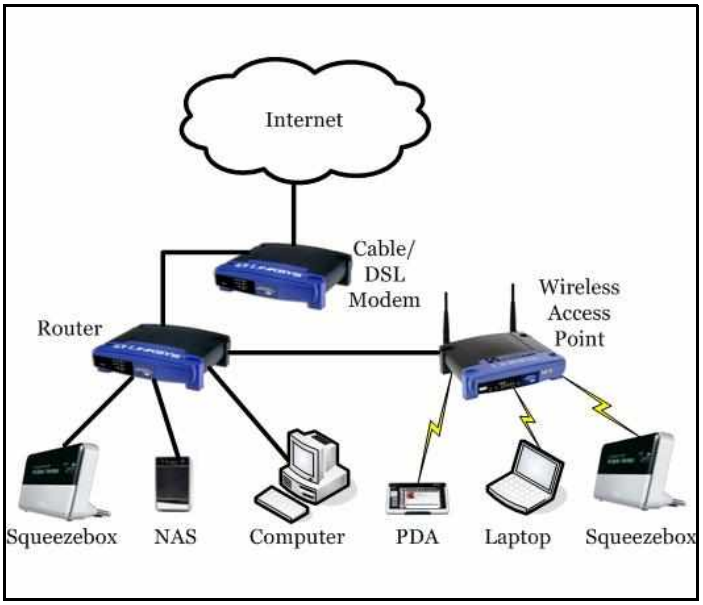
FULL NETWORKING CONNECTIVITY

You get full networking connectivity when you create a wired, wireless, or combination of wired and wireless network with a router with an access point built in. You can buy a combination router/access point that bundles both capabilities into one device. It saves space on your desk.

The diagram below, shows the router and wireless access point as two separate devices to help clarify how internet signals are routed to various end devices.

Typically, home users use a combination of wired and wireless connections. Wired gives you the fastest data transfer speeds. However, wireless gives you the ability to be mobile and to move around from room to room without wires. Wireless is used to connect to the internet while away from home at a “hotspot” (like a coffee shop), or at a hotel or motel with wireless internet support.

With full networking connectivity you can share a single internet connection, share a printer, and share files. You can transfer files, too. You are not restricted to only sharing files.So how does a network work? The cable from your broadband internet service provider is connected directly to your cable modem. An Ethernet cable goes from the WAN (Wide Area Network) port on the back of the cable modem to the WAN port on the back of your router/access point.



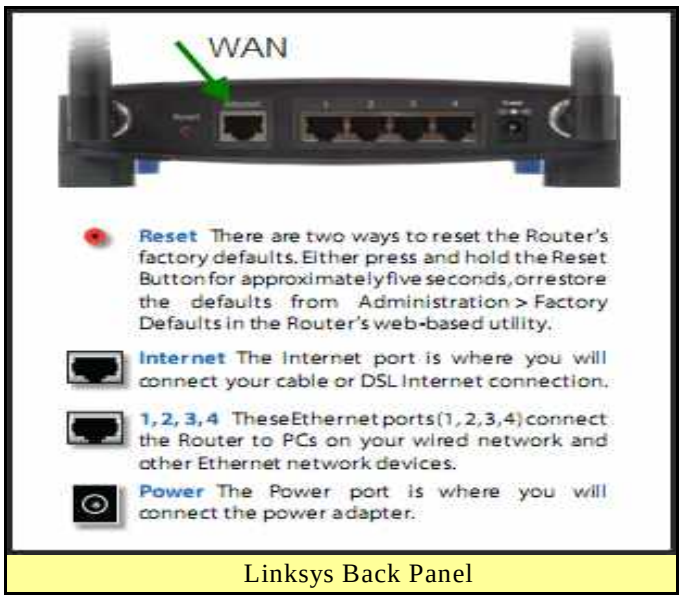
Think of a router as a glorified switch with multiple Ethernet ports (connectors) on the back. If you are connecting other computers via Ethernet cables (wired setup) the router can connect computers to the router equivalent to the number of ports available on the back of the router.

Routers, such as the Linksys™ router shown in the previous column (division of Cisco), have four or eight available ports (not counting the WAN port that connects to the cable modem). A separate Ethernet cable connects computers from the back of the router.

In the case of a combination router and access point, the access point serves as a wireless switch to route internet signals, shared printer jobs, and shared files, wirelessly to computers equipped with a wireless network adapter, such as a Laptop or Netbook computer.

Some of the newer routers hide their antennas inside the router's case. For example some of the new Linksys routers have six antennas built inside their routers.

Shown below is the back view of a Linksys WRT54G router showing the WAN port and four Ethernet Ports. Connect the Ethernet cable from your broadband modem to the WAN (Internet port) on the router. In this example, you can then run a separate Ethernet cable from the router to each of up to four computers that are nearby.



Linksys Back Panel

THE EASY TO THE HARDEST WAYS TO CREATE A NETWORK

If the thought of setting up an old style network sends chills up and down your spine, consider having a professional setup your network for you.

The easiest way to create a network, and to get it up and running, is to buy a router/access point that matches the specifications of your wireless network adapters. That is your network adapters and your router should conform to the same wireless standard be it 802.11a, 80211.b, 802.11g, or 802.11n. (The Valet routers make this choice for you).

It is best if the router and wireless network adapters support the same level of security (WEP, WAP, or best yet, WAP2. WPA stands for Wi-Fi Protected Access. Also, it is best when the router and network adapters support what I think of as the ***same speed rating*** (standard) be it the older and very slow B rating at up to 12 megabits per second, the mid range G rating at up to 54 Gbps, or the newest N rating at up to 128 Gbps.

Although a network will work with a hodgepodge of different wireless standards and security levels, the network will operate at the lowest available speed rating, and only at the lowest security level of the least capable adaptor. Having the same brand of router and network adapters may also simplify operating the network, or at least having the same brand of network adapters. Why make the process more complicated than it already is?

Ideally, if you are setting up your network, you want to buy a router and network adapters that support a variation of one-button setup. That is, once you have physically installed the router and network adapters, you install the software. Then, you simply push a button (or special spot on the router) to complete the network setup. Now, that is truly easy. The new Linksys Valet line of routers makes this even easier).

Your laptop computer(s) probably already have wireless network adapters installed. To determine if that is the case, right click on *My Computer*. Select Properties, Device Manager. Double click on Network Adapter, or click on the diamond or plus sign in front of Network Adapter to expand the dialog.

In a new laptop, the wireless adapter is installed in the back of the laptop behind a removable door. See your manual.

Linksys is one network brand that has one-button setup capability. You pay more initially to get everything setup correctly-right out of the box, or you may pay much more later to fix a host of network problems. Linksys calls their one-button setup *SecureEasySetup* (SES). Linksys bought the right to a nifty program called *Network Magic* that

simplifies setting up a network, including activating file and printer sharing. See this link for more information.

http://www.purenetworks.com/

The above information is still valid for older Linksys routers. However, the new Valet and E-Series Routers from Linksys now include the new and simplfied Cisco Connect software.

Valet M-10

Valet Connector

The Valet USB Connector is for computers that do not have a wireless connection. Just plug it in an available USB slot. It is optimized to work with the Valet router.

RESEARCH BEFORE YOU START

Once you have made a decision to network your computers, take the time to read the literature to see what is involved in your decision. Use your search engine to find articles on how to setup a network. For example, here are a some of links to get your started. Read articles by different writers. One article may click with you while others may confuse you, or might be less clear to you.

http://compnetworking.about.com/od/homenetworking/ht/routerconfigure.htm

http://windows.microsoft.com/en-US/windows-vista/Setting-up-a-home-network

http://computer.howstuffworks.com/question353.htm

http://www.microsoft.com/windowsxp/using/networking/setup/default.mspx

Read router reviews. Be sure to check the dates of the reviews. There are many outdated reviews out there.

Read more than one review while you are figuring out what equipment to buy to create your network. Read the online installation instructions. Are the instructions easy to follow? Do you foresee any problems in your following the instructions?. It is better to identify and to resolve potential problems BEFORE you invest in new hardware, or BEFORE you buy new software.

Are you in your comfort zone, or does this all sound like Greek to you? Admittedly, installing a network the old way can be daunting for those of you who have never setup a network before. If that is the case and you still want to proceed, consider having a professional install your network for you, or buy network hardware and software that automates network setup for you.

SETUP TIPS FOR A SUCCESSFUL NETWORK

1.Turn off password protection in your router until after you have successfully proved that the network works without any possible password problems.

2. Set your router's protocol speed to agree both with the speed supported by your router and by the least capable network adapter hooked up to your network. That is, if you have a high speed N router, but one or more of your laptop adapters only supports 802.11G, then set the router to also support G.

3.Determine the highest level of security that your network adapters will support, based on the least capable network adapter. Set your router to support lowest level of security that your least capable network adapter will support. From lowest security to highest security the levels are WEP, WAP, and WAP2. 128 bit encryption is more secure than 64 bit encryption. However, older routers may not support 128-bit encryption.

4. Make sure that you use the same WORKGROUP name as you run the setup for each computer on the network. XP defaults to the name MSHOME. Vista and Win 7 default to WORKGROUP. You can personalize the name, but use the same name for all of your computers.

4. Run Windows Network Setup Wizard (XP) (Network and Sharing Center in Win 7). Approve file sharing and printer sharing if you want those features to work. Right click on a folder that you want to share and authorize sharing for that folder. Repeat the process for other folders.

5. Normally, setting up a network is a two-step process. You create the physical network and recognize it with your router. Second, you get Windows to recognize your network.

6. Consult the Windows Help file if your network consists of computers with different operating systems

7. When you get your network working, check that you can share files and share your printer. Then, turn back on the security setting in your router.

8. Create a password to open your router's setup. and write it down. Create a passphrase rather than a password and use it for each of your wireless computers. Again, be sure to write down the passphrase somewhere where you can easily find it. A passphrase is more secure than a password. A password is only 6 to 10 characters long. A passphrase is made up of a combination of words, numbers, and special characters.

The valid characters are as follows:

A through Z (uppercase characters)

a through z (lowercase characters)

0 through 9 (numeric characters)

Special characters: ` ~ @ # % ^ & * ( ) - _ = + [ ] { } \ | ; : ' " , . < > / ?

RECOMMENDED READING

Read page 1 and 2 of the March 2009 issue of Bug-Bytes for more detailed information about networks.

TROUBLESHOOTING: WHAT CAN GO WRONG IN YOUR NETWORK SETUP?

Following the Setup Tips above, recheck that you haven't made a mistake somewhere along the line. If so, correct the setting that is wrong.

Sometimes you need to reboot your modem and router after making major changes to your network. At other times, just unplugging and then plugging in again the power cord to the router will restore service.

Do the following. :

- Unplug the power cord from your cable modem.
- Unplug the power cord from your router
- Shutdown your computer and wait about ten seconds or longer.
- Plug the power cord into your cable modem. Wait about 15 seconds for the modem to reinitialize.
- Plug the power cord into you router. Wait about 15 seconds for the router to reinitialize.
- Restart your computer.
- Check to see if your wireless computers now show connectivity.

Still having a problem setting up your network?

Open the network troubleshooter that comes with your version of the operating system. The troubleshooter has gotten progressively better at finding solutions to problems and fixing them automatically from XP to Windows 7.

If you still need help? call your router vendor and have them walk you through the setup steps.

HOW TO STARTUP IN SAFE MODE

If you are having a problem with your computer starting, sometimes you can resolve the problem by starting your computer in Safe Mode. In Safe Mode your computer starts up without any of the hardware drivers loaded.

As your computer starts, press the F8 function key slowly, but repeatedly. If you start doing this early enough, a startup menu will come up. Use the arrow keys to make selections from the menu. First, select the option "Last Known Good Configuration (if that option is available for your version of your operating system. Your computer will restart on its own. If the problem is fixed, you are done.

If not, start again in safe mode and pick Safe Mode with Networking.

Open this link and follow the instructions for your particular version of your operating system.

http://www.bleepingcomputer.com/tutorials/tutorial61.html

HOW TO IMPORT AND EXPORT MAIL MESSAGES AND SETTINGS

This article appeared in the April 2009 issue of Bug-Bytes. I have updated it.

The process for saving your e-mail settings and messages is similar for XP, Vista, and in Windows 7. In those products you open your mail program, click on File, and then on Export or Import. Then you select the message or address book options you

want from pull-down menus. I'll walk you through the process for XP, Vista, and then for Windows 7.

EXPORT

This option lets you save copies of your e-mail messages and your address book (contacts). It is always a good idea to save backup copies of your messages and address book. Your hard drive could crash, your system could fail, or you could accidentally delete , move, or corrupt your important e-mail data. Restoring your data is easy in case something goes wrong. To restore your data in Outlook Express, you click on File, Import, and select your most recent backup of your e-mail data.

Outlook Express in XP will export messages to Microsoft Outlook or to Microsoft Exchange. However, that doesn't help you if you don't own and use Microsoft Outlook (included with Microsoft Office). *See Express Assist for a way to backup OE so you can import the messages back into XP at a later time.*

To manually export and import OE email messages, follow the instructions in this link:

http://www.lancelhoff.com/how-to-backup-outlook-express-e-mail-messages/

AJSYSTEM EXPRESS ASSIST 10

Is there a more elegant and complete backup solution for Outlook Express, Windows Mail, and Windows Live Mail? Yes there is! The answer is *Express Assist*™ from

http://www.ajsystems.com/expressassist/ea.html

Express Assist, (abbreviated EA10), gives you complete control over the following:

Backup all of your mail including attachments

Save or restore only the mail folders that you select

Save all-important registry settings

Save your stationery

Easily restore your mail and mail settings after a system failure

Backup your OE, WM, WLM e-mail accounts and settings

Backup your message rules, options, and preferences

Find messages in your backup that are not in your current message folders. Thus, you can retrieve a single message.

Search for and view messages in your backup files without restoring them.

Backup your Windows contacts (address book)

Backup non mail related files, such as documents, desktop items, and Firefox settings

Backup Now! This is a one-click program that remembers your previous backup preferences.

There is an automatic backup reminder based on the number of days that you select.

Retrieve backed up messages in plain text.

Transfer mail from older e-mail systems to Vista or Windows 7, or vice versa.

Schedule automatic backups.

Works with Win98, 2000, XP, Vista, and Windows 7.

Try the program free for 15 days. If you buy the program, the vendor will send you a license key which will remove the 15-day evaluation restriction. The evaluation product is full featured so you see exactly what you get in the paid product ($39.95). Try it. I think you will like it.