READY NET GO ... NEWS

January 2005   http://www.readynetgo.net   **610-856-0990**

Tip of the Month

PDF Tips

A) Opening a PDF

When you open a PDF on a website, the PDF may open in the browser rather than opening with Adobe Reader or Adobe Acrobat. You can change this so that whenever you click a PDF link, the Adobe program will open the file.
To do this:

1. Open Adobe Reader or Adobe Acrobat
2. Click Edit – Preferences
3. Click on Internet in the list on the left
4. Uncheck the box Display PDF in browser
5. Click OK

B) Hiding the splash screen

When Adobe programs start, they automatically show a splash screen that takes a few seconds to load. If you don't want to view this splash screen every time the program opens, follow these steps:

1. Open Adobe Reader or Adobe Acrobat
2. Click Edit – Preferences
3. Click on Start Up in the list on the left
4. In the bottom box, deselect the option Display Splash Screen
5. Click OK

Help! I Can't Get On the Internet

As computers and applications become more advanced, the chances for errors, incompatibilities and glitches increase. Understanding the basics of how your computer works will help you fix problems quickly and with a firm foundation in place, will make learning new material easier.

Nearly everyone uses the Internet and nearly everyone experiences problems connecting at some point so this month's newsletter will discuss how the Internet works, how you can fix connection problems when they arise and when all else fails, knowing when to call in the reinforcements.

Scenario:
As a SOHO user (Small Office / Home Office), you sit down at your desk and turn your computer on. You open Internet Explorer and the first page you try doesn't appear. You click your Refresh button (since websites get hung up sometimes) but no luck. You try a few more reliable sites but all you see are "The Page Cannot be Displayed" error screens.

So what do you do now?

Although not all computer problems are easy to fix, there are some basic troubleshooting steps you can take before you call for help. Nearly everyone who works on a computer can do these steps so fear not and jump in …

WWW (Websites Worth Watching)

1. www.geocaching.com – Go on a treasure hunt anywhere in the world – great for kids and adults.

2. www.charitynavigator.org – Nonprofit that analyzes charities and provides information to donors so they can make informed decisions.

3. www.give.org – BBB Wise Giving Alliance; another nonprofit group that analyzes and distributes information about national charities. Click on Charity Reports for their online listings.

NOTE: *The steps listed in this newsletter are for PC's running Windows XP or 2000 with a cable/DSL router and cable/DSL modem. If your network is different, contact us for troubleshooting.*

If you cannot access the internet, it is usually because of one of the following reasons:

1. Cables are unplugged (one pin unseated will prevent a good connection) or a device is off or broken (ex: no lights on the modem)

2. Your Internet browser is not working properly

3. TCP/IP is not configured properly on your computer (TCP/IP is the protocol that allows your computer to access the Internet)

4. Your Internet Service Provider's (ISP) Domain Name Service (DNS) is not working properly or your ISP's network is down.

Steps to take if you can't access the Internet:

Find out if the problem is on your end (inside the router), if it is the connection to your ISP, or if it is with your ISP (outside the router) →

1. Make sure all **cables are connected** properly and all device lights are on and functioning.

2. **Restart your computer**.

3. If restarting doesn't solve the problem try accessing known sites such as microsoft.com, readynetgo.net, or novell.com. [Ex: http://www.microsoft.com] If you can't get access to these sites by their domain name, you'll have to dig deeper. Type in the **IP address** of some known sites like Ready Net Go → http://216.65.71.181 or Home Depot → http://207.11.7.60 in your browser address bar. If you can get online by typing in an IP address, then you know the problem lies with DNS (Domain Name System – described later in this newsletter).

4. To verify that there is a problem with DNS, **open a DOS box** (follow the instructions on page 6 of this newsletter) and **ping the DNS servers**. If you cannot get a response by pinging the DNS servers, then you have to call your ISP to verify the correct DNS addresses and to verify that their servers are online.

5. If you cannot access any site by either typing in a known domain name or known IP address, open a DOS box, type in **ipconfig /all** and **ping the Default Gateway** (see page 6). The Default Gateway is the first step that your request takes when trying to access a website [see glossary for explanation of ipconfig /all]. If you do not get a response, then you cannot communicate with your router and the problem lies with your computer's configuration or the internal network. If you get a response, then you know you can access the router (the edge of your inside (private) network). The next step is to find and ping the outside (public) IP address (see discussion of public and private IP addresses).

6. To find your public address, open your router's configuration screen by typing the private IP address (Default Gateway) in a browser address bar. [Ex: http://10.0.10.1] The information screen for your router will appear. Click on a tab for **Status** or **Setup** (depending on router model) to find the WAN (Wide Area Network) settings. The WAN IP address is how your router connects to your ISP's network. (see Figure 1 on page 3)

7. Locate the **WAN IP address** and then **ping this address in a DOS box**. If you get a response, call your ISP and tell them you cannot browse the Internet and your network and PC are working fine. If you do not get a response, the problem is occurring with your router or computer configuration. Try restarting the router; unplug it, then plug it back in. If you still can't connect, call us or call your ISP for further troubleshooting.
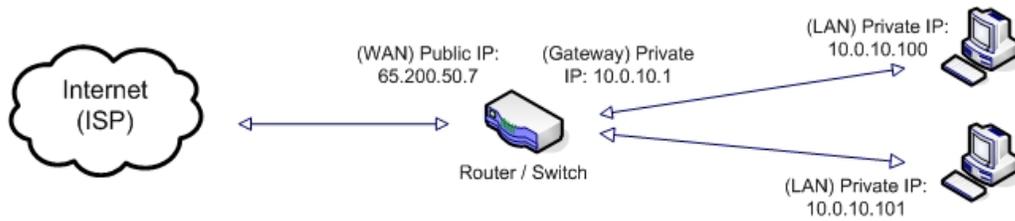
Figure 1. Sample Network Configuration

The Internet is like your Post Office

Think of the Internet like a giant post office that runs in hyper-speed. Your IP address is like your street address, a unique way of identifying who and where you are. Your post office and all the ones around the country are equivalent to your ISP and the network of Internet servers. The website you want to visit is equivalent to your family, friends or anyone else you need to contact.

When you want to send a letter, you drop it off at the post office or have your mailperson pick it up for you. The post office then routes your letter by truck or plane to the address listed on the envelope. When the recipient receives the letter, it may take 2 or more days to get a response (if the recipient is super efficient). With letter in hand, the post office reads the address on the envelope and delivers it directly to your door. Even if you move, the post office can still track where you are and deliver your mail to your new address (like when you have an IP address assigned automatically). With the internet though, all of this happens within a few seconds.

Mailing a Letter	Browsing the Internet
Send out a letter with a **return address**	Contact your ISP via **IP address**
Post office **routes** your letter to the recipient	ISP **routes** your request over networks which contact the recipient
The recipient **sends a letter back** with your requested information	The website you wanted to reach allows you access to their site by **creating a link** from their public IP address to your ISP's network which routes the information to your router and your PC

Glossary

TCP/IP – *Transmission Control Protocol / Internet Protocol* – this is the language of the Internet. If you want to browse websites, you have to have this protocol installed on your computer.

IP address – A series of numbers assigned to a device that connects to a network or to the Internet. Ex: 10.0.10.1 or 65.213.20.2   Since a computer understands data as numbers, IP addressing was devised so that computers can communicate with one another easily. Every computer connected to the Internet must have a **distinguishing number** so that information can be sent directly to your machine. There are two types of IP addresses and two ways of assigning IP addresses:

  A) **Private IP addresses** – are assigned in the following ranges under IPv4:
    Class A: 10.0.0.0 *thru* 10.255.255.255

    Class B: 172.16.0.0 *thru* 172.31.255.255

    Class C: 192.168.0.0 *thru* 192.168.255.255

Private IP addresses cannot communicate with the Internet. Thousands of computers can have the same private IP address but there can only be one public address assigned to each device directly accessing the internet. (*Note: there is a new protocol called IPv6 which does not use class descriptions.*)

B) Public IP addresses – range from 001.001.001.001 to 255.255.255.255 (exceptions include the values listed above, as well as a few other ranges designated for the localhost and specific organizations like the IANA – Internet Assigned Numbers Authority). Public IP addresses are assigned by your Internet provider and given out in blocks to organizations. <u>A public IP address is necessary to access the Internet and external networks</u>. **A router has two IP addresses** – one that communicates with your computer (private) and one that communicates with your ISP (public). The function of the router for SOHO users is to 1) connect two different networks (your private LAN and your ISP's private network) and 2) translate requests from your private IP to a public IP.

Two ways of assigning IP addresses:

A) **Dynamic**: If you configure your computer for dynamic IP addressing, each time you want to connect to the Internet, your computer **will be given an unused IP address** allotted to you or your company.
B) **Static**: If you configure your computer with a static IP address, you will **always use the same IP address** every time you connect. Common uses for static IP are: mail servers, web servers, and FTP servers. These servers all need to be accessible 24/7 at the same address.

ipconfig /all – {IP Configuration /all}   When you enter this string in a DOS box (Windows XP or 2000 computer), all of your PC's current IP settings are listed. These values are necessary for troubleshooting Internet-related problems. For a screen shot, see page 6 of this newsletter.

DHCP server – Dynamic Host Configuration Protocol; this protocol automatically assigns IP addresses to a computer or other network device;
   • When DHCP is used on the inside network (private LAN), it doles out IP addresses to the client computers. The DHCP server can be the router itself or it can be another server.
   • When DHCP is used on the public network, your router is assigned a public IP address from your ISP's DHCP server.

Subnet Mask – An IP address has two components: a network address ID and host (PC, server, or other network device) address ID. A subnet is a logical grouping of similar hosts used to increase security and performance of the larger network. The required subnet mask is a filter that determines to which part of a network an IP address belongs.   A common subnet mask is: 255.255.255.0

DNS – Domain Name Service – an Internet service that translates domain names into IP addresses. People remember names a lot easier than numbers but computers only understand numbers. DNS was devised so that people can continue to use names while computers can transmit information by numbers. You could surf the web with IP addresses although many sites configure their websites optimally for the domain address rather than the IP address.

Concepts Explained

How DNS works?

When you type in a domain name, like www.readynetgo.net, a domain service must look up the name readynetgo.net and find the corresponding IP address before it can process the request. If the domain

name service is not working properly, you will undoubtedly get an error message. If you type in an IP address in your browsers address bar and the website appears, you know where the problem lies – with DNS.   Think of DNS as a giant phone book – If you need to contact someone, you search by last name or business name but you dial your phone with numbers. Same thing with the Internet – you type in a name in a browser but the computer communicates with an IP address.

How surfing the web works? *(another way of understanding the Internet)*

Say you want to access amazon.com. When you type in www.amazon.com in the address bar of a browser, your computer (& router) will create a packet of information with your computer's IP address and the IP address of the site you want to visit.   This packet of information is sent to your ISP's router. Your ISP's router will then send a packet to other routers until it reaches Amazon's server. When Amazon's server receives the request, it repeats the process back to your ISP. (If Amazon's server could talk it would say, "Of course, 65.213.20.2 can access our site – Happy Shopping!") In most cases, this communication happens in less than a second but you can see why some websites may take longer given the distance and number of routers and servers that must handle your request. If a transmission glitch occurs, the process is stopped and you'll get that annoying "The Page Cannot Be Displayed" error message. If you hit the **Refresh** button, you will initiate the process again and if everything is configured properly, you will connect instantaneously.

What happens if you hit Refresh and you still get that error message?

Try another website – the website you're trying to access may be down for repairs or they may be receiving an overload of requests. If you can access other websites, try accessing it again in an hour.

If you cannot get any website to appear, follow the steps on page 2 of this newsletter.

Pinging the Router

Everyone can do this – it's safe, easy and quick.   It's also the first step in analyzing where the problem is occurring. Click **Start**; scroll up to **Run** and in the box type **cmd**. This brings up the old fashioned DOS box. You'll see a drive letter and a blinking cursor.

Next to the drive letter type: ping {name of website}   Ex: T:\ping readynetgo.net

A moment will pass and then you'll see several lines of text similar to the following:

> **Sample response from the Command box (DOS box)**
>
> T:\ping readynetgo.net
>
> Pinging readynetgo.net [216.65.171.181] with 32 bytes of data:
>
> Reply from 216.65.171.181: bytes=32 time=79ms TTL=114
> Reply from 216.65.171.181: bytes=32 time=80ms TTL=114
> Reply from 216.65.171.181: bytes=32 time=80ms TTL=114
> Reply from 216.65.171.181: bytes=32 time=79ms TTL=114
>
> Ping statistics for 216.65.171.181:
>   Packets sent = 4, Received = 4, Lost = 0 (0% Loss)
> Approximate round trip times in milli-seconds:
>   Minimum = 79ms, Maximum = 80ms, Average = 79 ms

If you don't get a response, i.e., if the statistics line reads Packets = 4, Received = 0, Lost = 4 (100% loss) it could mean one of two things:

1) The website you're trying to reach won't accept ping requests (and will never respond); or
2) Your computer cannot reach the intended recipient.

If you get a positive response but still can't access the website in IE, the browser is most likely the problem. You may have Malware or a virus on your PC that is preventing your browser from functioning properly. Internet Explorer may be corrupted as well. Try using another browser such as Mozilla Firefox or Opera to see if you can connect. If you cannot access any sites, perform a thorough scan using anti-spyware and anti-virus software. You may have to reinstall IE if the problem is not resolved.

> **NOTE:** *It is a good idea to have a backup browser installed, like Firefox or Opera, to aid in troubleshooting. Even if you like using IE, if the program becomes corrupt, you won't be able to download another browser or surf the web until you reinstall IE.*

Example of result when you type ipconfig /all (Win XP / 2000) in a **Command box**:
>   [Note: for Windows 98 machines, type **winipcfg]**

>   T:\ipconfig /all

>   Ethernet Adapter Local Area Connection

>   Connection-specific DNS suffix ……   : readynetgo.office
>   Description …   : Intel Pro 100+ management adapter
>   Physical Address ……   : 00-90-27- BO-AE-ED
>   Dhcp enabled ……   : Yes
>   Auto Configuration Enabled ……   : Yes
>   IP address ……   : 10.0.10.100
>   Subnet Mask ……   : 255.255.255.0
>   Default Gateway ……   : 10.0.10.1
>   DHCP Server ……   : 10.0.10.1
>   DNS Servers ……   : 198.6.1.122
>   Primary WINS server ……   : 198.6.1.181
>   Lease Obtained ……   : {Today's date}
>   Lease Expires ……   : {Future Date – usually same day or in one week}

>   So if I wanted to ping my DNS servers, I would type the following:

>   T:\ping 198.6.1.122   (or 198.6.1.181)

>   To ping the default gateway, type the following:

>   T:\ping 10.0.10.1

If the ping statistics come back with 4 packets received, 0 packets lost, then you know that your computer can access the router. Next figure out the public IP address (by typing the private IP address listed above in a browser address bar) and ping that series of numbers. If you can ping the public address, this means that you can see past your router (i.e., your computer and router are functioning properly). If you still can't browse the Internet, call your ISP – something is wrong on their end.