APS/Pinnacle West
Telecommuting Guide

Version Information

Version	Date	Comments
1.0	11/6/01	Incorporated Mara's corrections
1.1	11/9/01	Added "Version Information"

Table of Contents

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Getting Started

What is Telecommuting?

Telecommuting is when an employee is working from a location other than their employer's location. Simply put, it is moving the work to the workers, instead of the workers to work. Computers, cellular phones, fax, and advanced communications links such as ISDN and dial-up access have removed the physical barriers that once required workers to be in their offices. Initially driven by environmental concerns, this new work strategy has become a popular tool for meeting a variety of today's business needs.

Advantages of Telecommuting

For the Community

- Decreased rush hour traffic.
- Decreased air pollution.
- Decreased gasoline consumption.
- Decreased dependence on foreign oil.
- Safer neighborhoods.
- Ability to move employment to outlying areas where housing is more affordable.
- Ability to move job opportunities to areas of high unemployment.
- Increased employment opportunities for the home bound.

For the Employer

- Increased productivity.
- Decreased absenteeism and sick leave usage.
- Decreased turnover.
- Competitive advantage in recruitment.
- Increased labor pool.
- Improved managerial techniques.
- Improved employee morale.
- Compliance with Americans with Disabilities Act.

For the Employee

- Decreased stress.
- Decreased commuting time, cost and frustration.
- Increased flexibility to work at personal peak times.
- Improved job satisfaction.
- Improved work environment with fewer distractions.
- Increased safety in the home and community.
- Closer bonds with the family and the community.

Is Telecommuting Right for You?

If you can answer "yes" to either of the following, you probably are a telecommuting candidate:

- Do you have a need to access the Pinnacle West network from your home PC for a few hours after work?
- Does your work schedule require you to work from home eight or more hours a week?

To further help you determine if you fit the telecommuter profile, complete the PNW "Telecommuting Analysis." You can find it online at http://ehs/Telecommute/Analysis.htm.

Telecommuting Options

The type of telecommuter you are depends on the amount of time you need to have access to the PNW network from your home PC.

If you require network access only for a few hours after work, you probably are a "Day Extender."

If you require network access for more than eight hours a week, you most likely are a full "Telecommuter."

Day Extender

The following are examples of tasks a Day Extender might need to perform from home:

- Check your e-mail
- Finish up a Word Document
- Complete your time card
- Run a few Maximo reports in Maximo.

Typically, a Day Extender already owns a PC.

Telecommuter

A Telecommuter typically is online eight or more hours a week and:

- is not required to have face-to-face contact with co-workers or customers;
- is able to copy and carry home all materials and resources that they use on a daily basis;
- has Voice Mail installed on their telephone line;
- has a co-worker providing on-site backup.

A Telecommuter either already owns a PC or has the option to purchase one from the company.

Day Extender Hardware and Software

Hardware

Typically, a Day Extender already owns a PC. If your department wants to purchase one for you, however, refer to the "Telecommuter Hardware and Software" section for more information.

Software

The following software options are available to the Day Extender:

- Windows 98 (required)
- Remote Access Service (RAS) (Available on APS PCs only)
  - Allows you to log into the PNW network and access network drives
  - Allows you to access the PNW
  - Requires applications such as Word and Excel be installed on your home PC
  - Requires RAS license and Defender Key.

  Note: pcAnywhere is available to RAS users on an as-needed basis.

- Microsoft Terminal Server
  - Allows you to connect directly to a special PNW server and run all necessary applications from the server, rather than from your home PC. You also can store all of your work on the server
  - Requires Terminal Server license, Virtual Private Network (VPN) client, and Defender Key.

- Internet Explorer and VISTA Web access
  - Requires Internet access through an Internet Service Provider (ISP)
  - Simplest option for those only needing to read e-mail from home
  - Requires Defender Key.

- PcAnywhere
  - Provides a direct connection from your home PC to your work PC
  - Allows you to run applications from your work PC
  - Every movement you make on your home PC is duplicated on your work PC
  - May pose a security risk since anyone can monitor what you are doing at home by watching your work PC
  - Requires a pcAnywhere license, VPN client, ISP, and Defender Key.

  Note: If you do not have an Internet connection, you must order the RAS/pcAnywhere option.

- Virtual Private Network (VPN)
  - Creates a secure path from your house to the PNW network via the Internet. All data travels in an "encrypted" tunnel, which cannot be intercepted or decoded.

Telecommuter Hardware and Software

Hardware

If you do not already own a PC, you have the option of purchasing one from PNW. PNW offers several different configurations for both new and refurbished desktop systems.

Software

The following software options are available to the Telecommuter:

- Telecommuter Package
  Includes the complete suite of software and licenses you will need to access the PNW network and work productively from home. The package requires that you have
  - a PNW-supplied computer system
  - high-speed access via DSL, VDSL, or Cox@Work
  - a Defender Key.

- Microsoft Terminal Server
  Allows you to connect directly to a special PNW server and run all necessary applications from the server, rather than from your home PC. You also can store all of your work on the server. This option requires that you have the following:
  - a Terminal Server license
  - a VPN client
  - a Defender Key.

Connection Options

Digital Subscriber Line (DSL)

Pinnacle West currently supports Qwest's DSL and VDSL services. To get more information about Qwest DSL, or to find out if your phone line qualifies for the service, visit the Qwest Web site at http://www.qwest.com/jump/dsl/.

For more information about VDSL, visit http://www.qwest.com/pcat/vdsl/product/1,1354,808_7_16,00.html.

Cable Modem

Pinnacle West currently supports the Cox@Work cable-modem option only. For more information, visit the Cox Web site at http://www.cox.com/Phoenix/CoxAtWork/default.asp.

Dial-up

There are two dial-up connection options:

- Using APS/RAS
  - For modems with speeds of 14.4 Kbps and faster
  - Requires an APS PC
  - Allows a direct connection into the APS network
  - Requires APS/RAS and a Defender Key.

- Using an Internet Service Provider (ISP) and modem
  - For modems with speeds up to 56 Kbps
  - VPN access to the APS domain utilizing tunneling and the Internet
  - Requires ISP with standard browser capabilities (not America Online), VPN software, and Defender Key.

Installation and Set-up Options

Do It Yourself

The following configuration information applies only if you have a high-speed direct connection to the Pinnacle West network. We strongly recommend that **only advanced PC users** attempt to install and configure the software and hardware components required for telecommuting. We encourage all others to use our professional installation options.

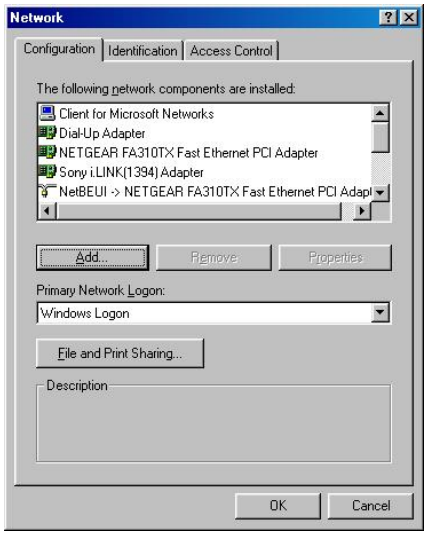
PC owners: If you have your own desktop PC at home, you can install the VPN, and pcAnywhere software from the CD that PNW provides when you complete the sign-up process. After you install the software, check your existing network settings (the ones you use to connect to the Internet via your service provider) to ensure they meet the software's requirements. Select the appropriate instructions from the ones below to validate your PC's network configuration.

APS-owned PC users: If you are using an APS-owned desktop PC, you must follow the instructions below to configure the network settings that are appropriate for your network connection.

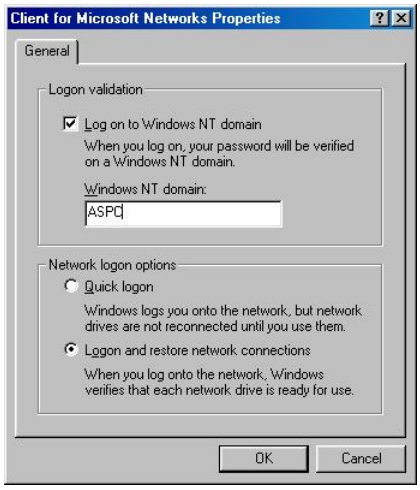
Laptop users: If you are using an APS-owned laptop, you must follow the laptop-specific instructions so that you will be able to use the computer both at work and at home.

- **Desktop PC network settings for Qwest DSL and Cox cable modem users connecting to APSC with VPN:**

  1. Click Start > Settings > Control Panel.
  2. Double-click the "Network" icon. The Network window opens. (**Note:** Your Network Configuration options may differ from those in the illustration.)



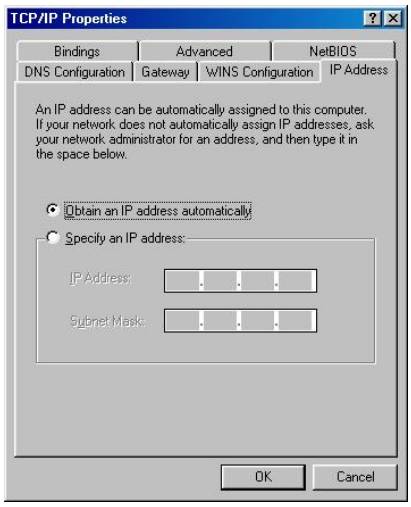
  3. Click the "Configuration" tab.
  4. Highlight the "Client for Microsoft" option and click the "Properties" button. The Client for Microsoft Properties window opens.
  5. In the "Logon Validation" area, click to check mark the "Log on to Windows NT Domain" box.
  6. In the "Windows NT Domain" text field, type **APSC**. The window should look like this:



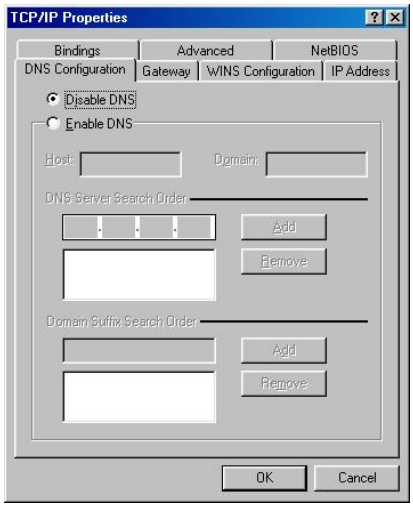
  7. Click the "OK" buttons to save and exit all windows.

Important: Qwest DSL users with an internal modem also must do the following:

1. In the Configuration window, highlight the appropriate "TCP/IP" option and click the "Properties" button. The TCP/IP Properties window opens:



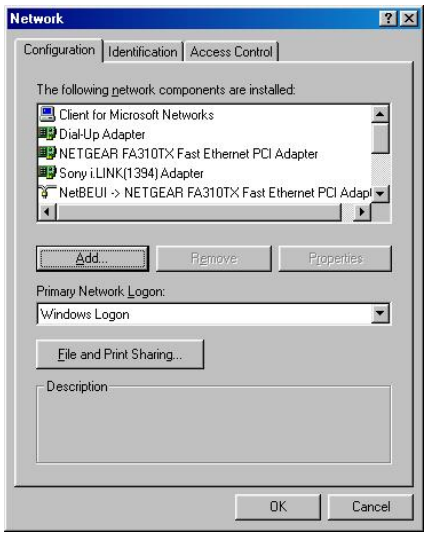
2. Click the "DNS" tab.
3. Ensure that DNS is disabled. The window should look like this:



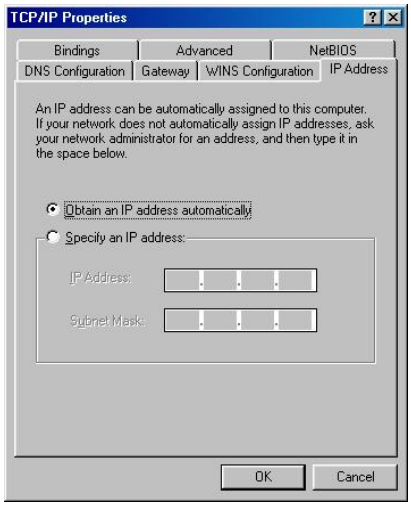
4. Click the "OK" buttons to save and exit all windows.

- **Desktop PC network settings for Cox cable modem users:**

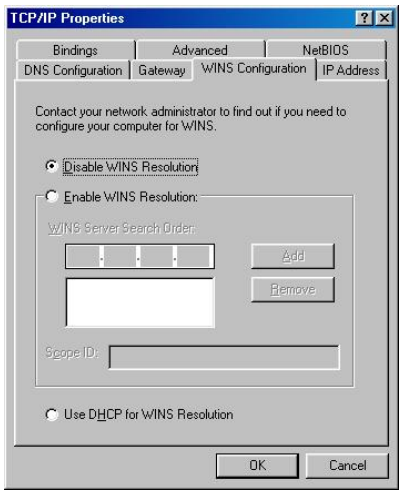
1. Click Start > Settings > Control Panel.
2. Double-click the "Network" icon. The Network window opens:



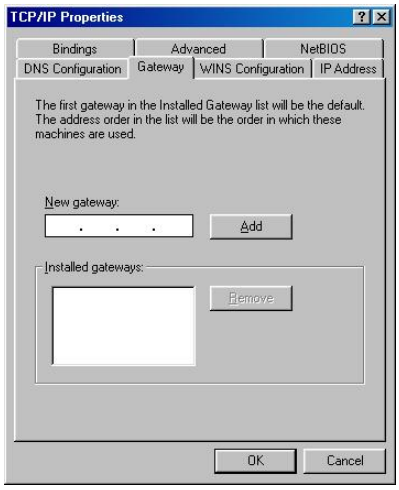
3. Click the "Configuration" tab.
4. Highlight the appropriate "TCP/IP" option and click the "Properties" button. The TCP/IP Properties window opens.
5. Click the "IP Address" tab and select the "Obtain IP address automatically" option. The window should look like this:



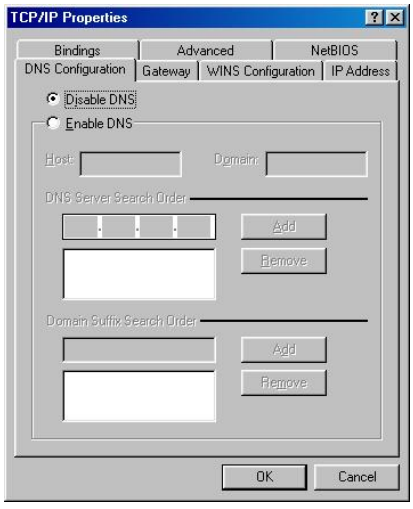
6. Click the "WINS Configuration" tab and ensure that WINS is disabled. The window should look like this:



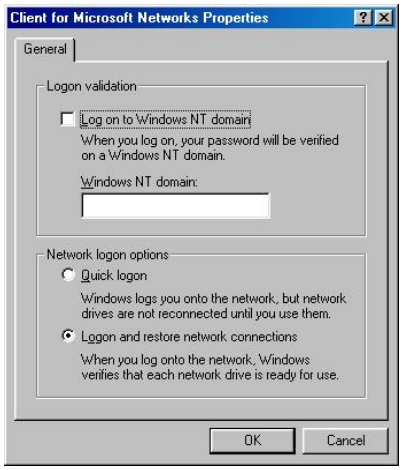
7. Click the "Gateway" tab and ensure that no options are selected. The window should look like this:



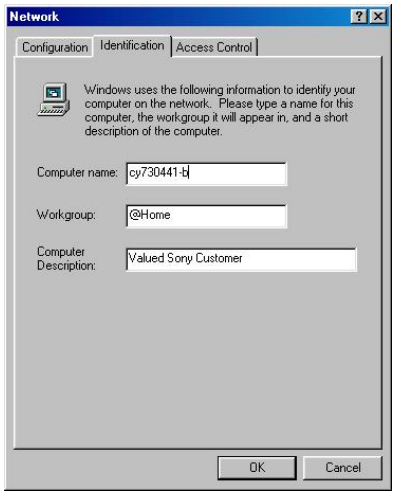
8. Click the "DNS Configuration" tab and ensure that DNS is disabled. The window should look like this:



9. Click "OK" to save and exit the TCP/IP Properties window.
10. In the main Network window, highlight the "Client for Microsoft" option and click the "Properties" button. The Client for Microsoft Properties window opens.
11. In the "Logon Validation" area, ensure that no options are selected. The window should look like this:

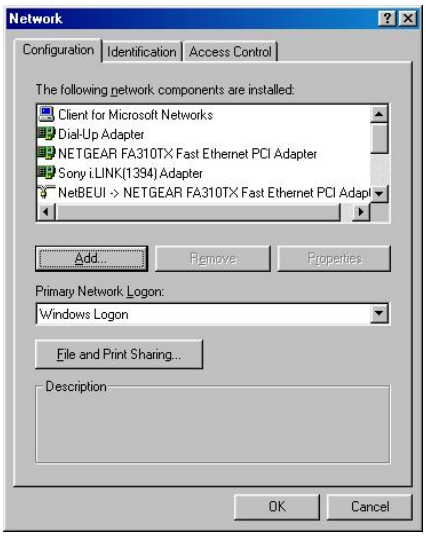


12. Click "OK" to save and close the window.
13. In the main Network window, click the "Identification" tab.
14. Ensure that the "Computer Name" field contains the PC's Cox-assigned ID, which may look something like this: **cy730441-b**.
15. Ensure that the "Workgroup" field contains **@Home**. The window should look like this:

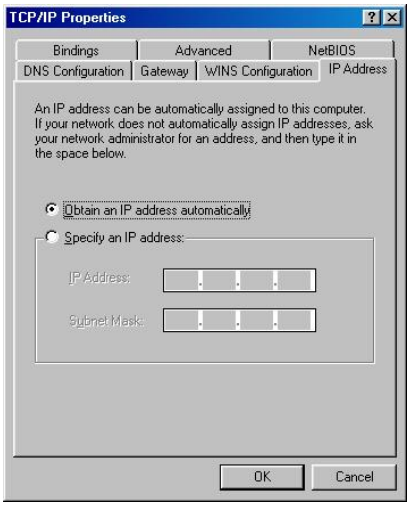


16. Click the "OK" button to save and exit.

- **Laptop network settings for Cox cable modem users:**
  1. Click Start > Settings > Control Panel.
  2. Double-click the "Network" icon. The Network window opens:

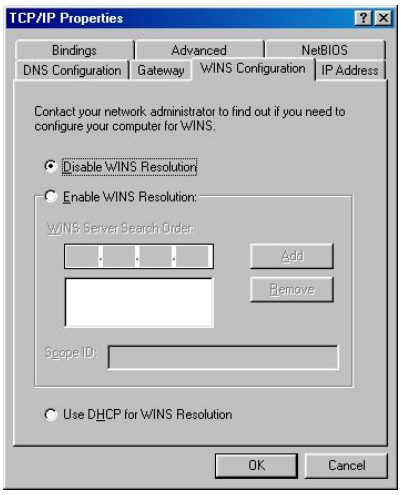


  3. Click the "Configuration" tab.
  4. Highlight the appropriate "TCP/IP" option and click the "Properties" button. The TCP/IP Properties window opens.
  5. Click the "IP Address" tab and select the "Obtain IP address automatically" option. The window should look like this:

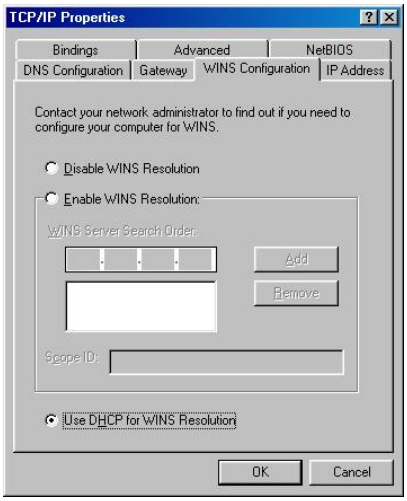


  6. Click the "WINS Configuration" tab. Do one of the following:

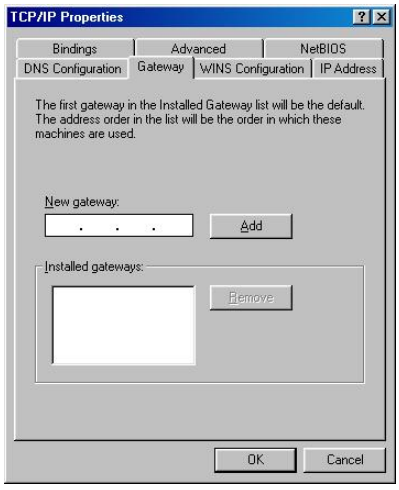
- Cox setting: Select "Disable." The window should look like this:



- APS setting: Select "Use DHCP for WINS Resolution." The window should look like this:

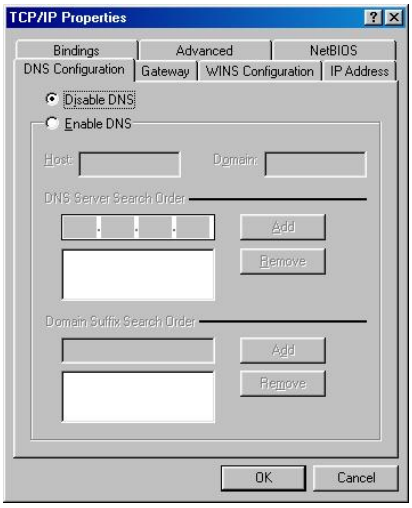


7. Click the "Gateway" tab and ensure that no options are selected. (This applies to both Cox and APS.) The window should look like this:

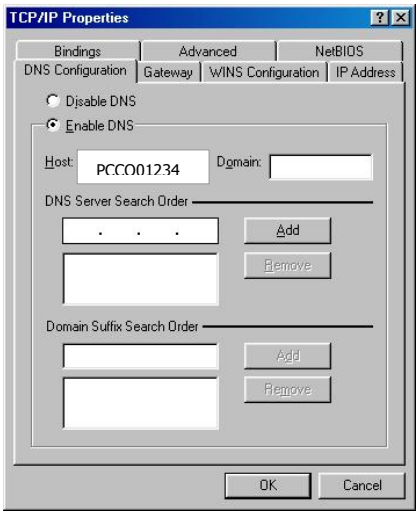


8. Click the "DNS Configuration" tab. Do one of the following:

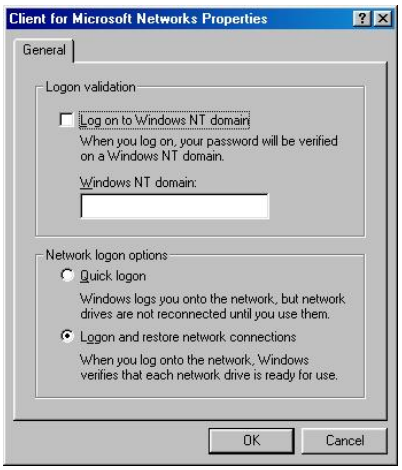
   - Cox setting: Select "Disable." The window should look like this:



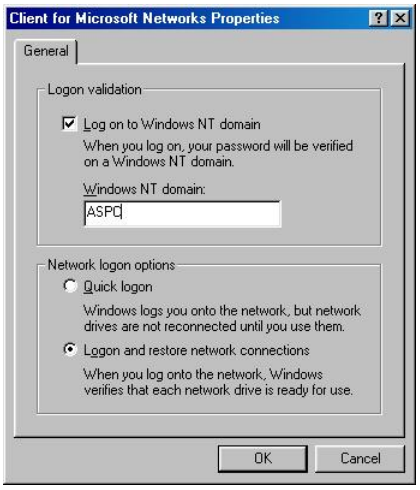
   - APS settings: Select "Enabled" and type your work computer's asset tag number — for example, **PCCO01234 —** into the "Host Name" field. The window should look like this:



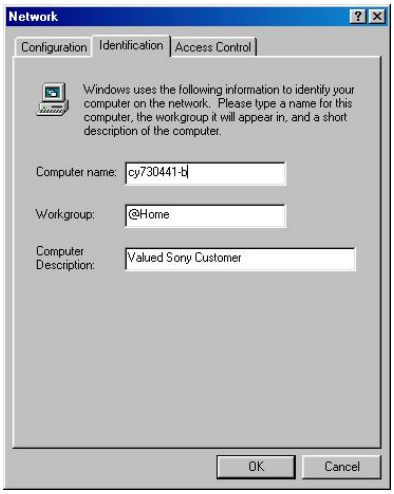
9. Click "OK" to save and close the TCP/IP Properties window.
10. In the main Network window, click the "Configuration" tab.
11. Highlight the "Client for Microsoft" option and click the "Properties" button. The Client for Microsoft Properties window opens.
12. Do one of the following:
    - Cox settings:
        a. In the "Logon validation" area, ensure that no options are selected.
        b. In the "Network logon options" area, select "Logon and restore network connections." The window should look like this:



    - APS settings:
        a. In the "Logon validation" area, click to check mark the "Log on to Windows NT domain" box.
        b. In the "Windows NT domain" text field, type **APSC**. The window should look like this:



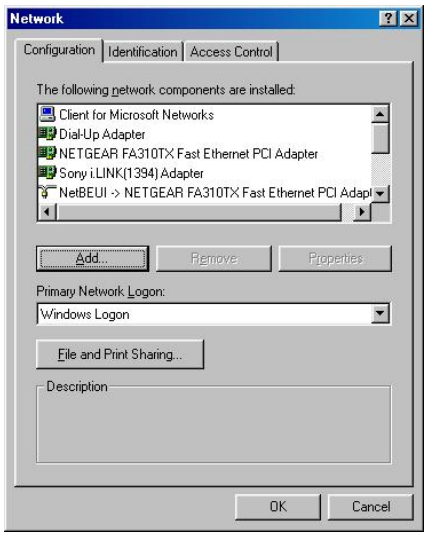
13. Click "OK" to save and close the window.
14. In the main Network window, click the "Identification" tab.
15. Do the following:
    - Cox settings:
        a. Ensure that the "Computer Name" field contains the PC's Cox-assigned ID, which may look something like this: **cy730441-b**.
        b. Ensure that the "Workgroup" field contains **@Home**. The window should look like this:



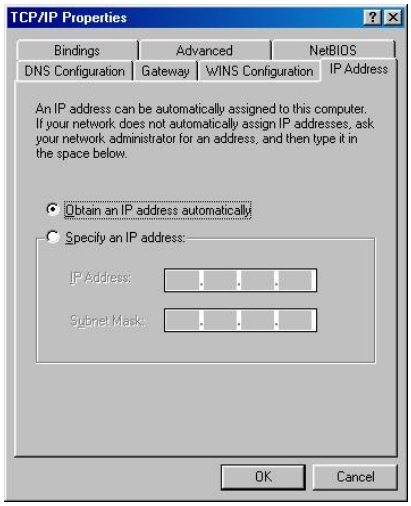
16. Click "OK" to save and exit.

- **Desktop PC network settings for Qwest DSL users:**

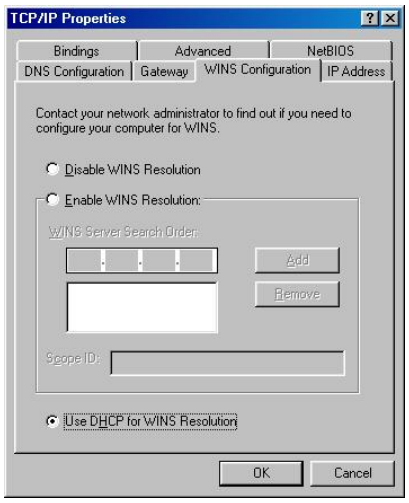
1. Click Start > Settings > Control Panel.
2. Double-click the "Network" icon. The Network window opens:



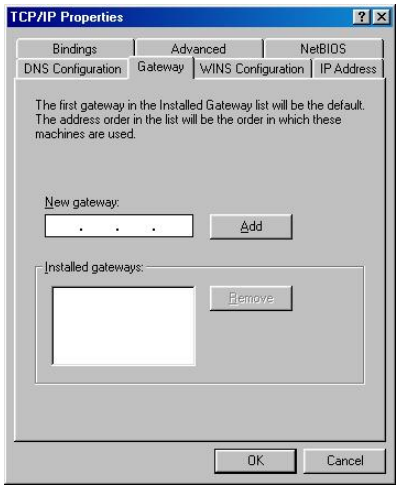
3. Click the "Configuration" tab.
4. Highlight the appropriate "TCP/IP" option and click the "Properties" button. The TCP/IP Properties window opens.
5. Click the "IP Address" tab and select the "Obtain IP address automatically" option. The window should look like this:



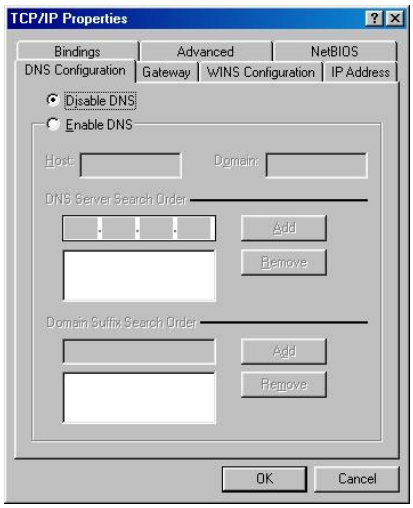
6. Click the "WINS Configuration " tab and select "Use DHCP for WINS Resolution." The window should look like this:



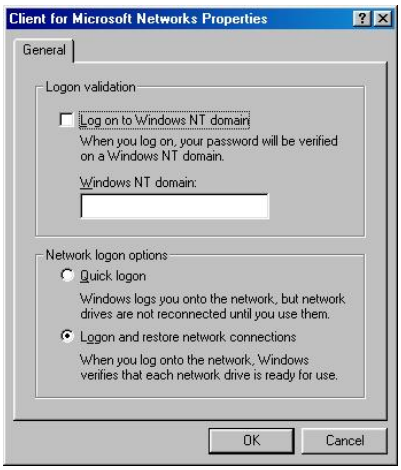
7. Click the "Gateway" tab and ensure that no options are selected. The window should look like this:



8. Click the "DNS Configuration" tab and ensure that DNS is disabled. The window should look like this:



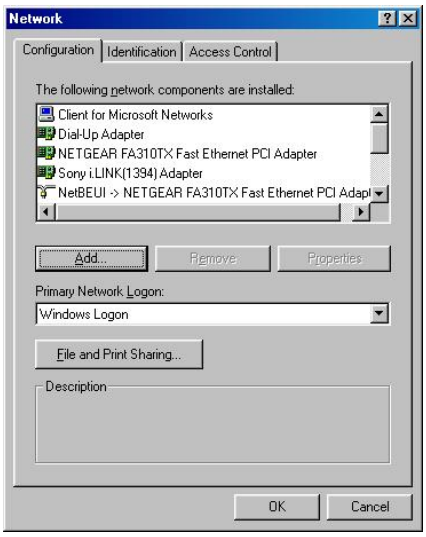
9. Click "OK" to save and exit the TCP/IP Properties window.
10. In the main Network window, click the "Configuration" tab.
11. Highlight the "Client for Microsoft" option and click the "Properties" button. The Client for Microsoft Properties window opens.
12. Do the following:
    a. In the "Logon validation" area, ensure that no options are selected.
    b. In the "Network logon options" area, select "Logon and restore network connections." The window should look like this:



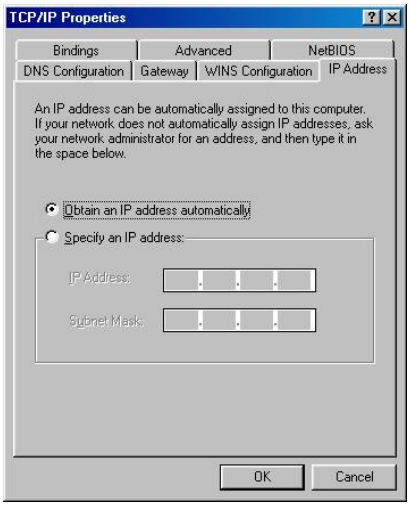
13. Click "OK" to save and exit.

- **Laptop network settings for Qwest DSL users:**

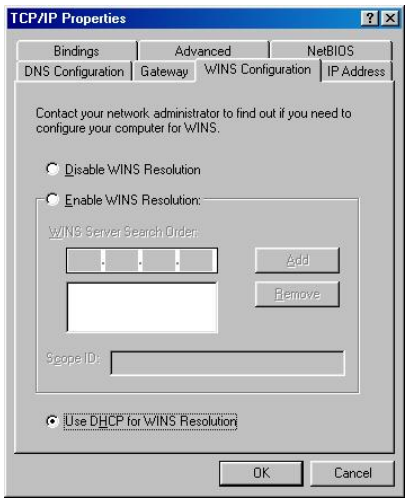
1. Click Start > Settings > Control Panel.
2. Double-click the "Network" icon. The Network window opens:



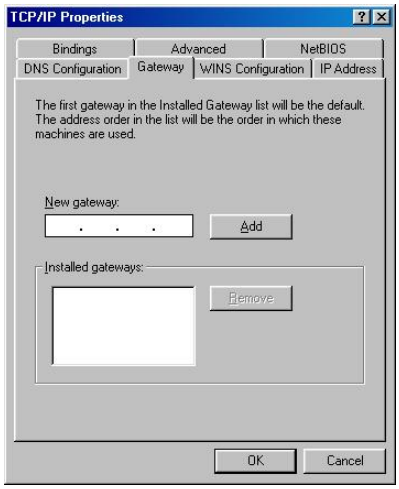
3. Click the "Configuration" tab.
4. Highlight the appropriate "TCP/IP" option and click the "Properties" button. The TCP/IP Properties window opens:
5. Click the "IP Address" tab and select the "Obtain IP address automatically" option. The window should look like this:



6. Click the "WINS" tab and select "DHCP for WINS Resolution." The window should look like this:

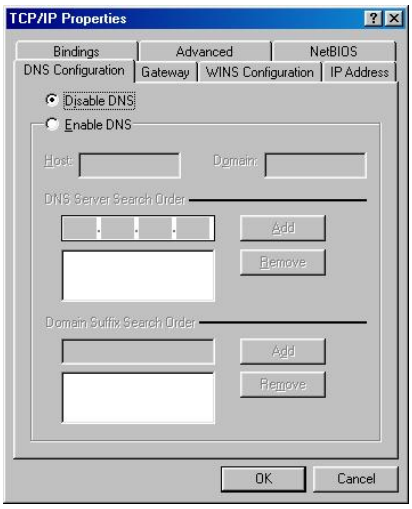


7. Click the "Gateway" tab and ensure that no options are selected. The window should look like this:

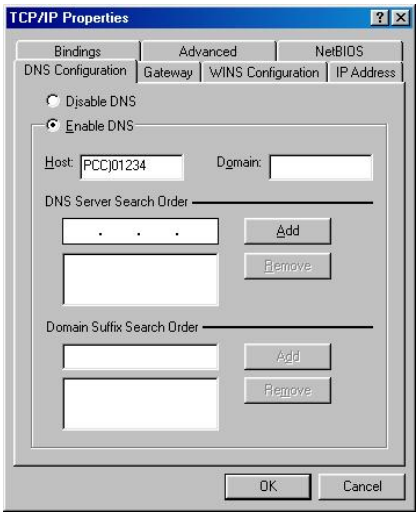


8. Click the "DNS Configuration" tab. Do one of the following:

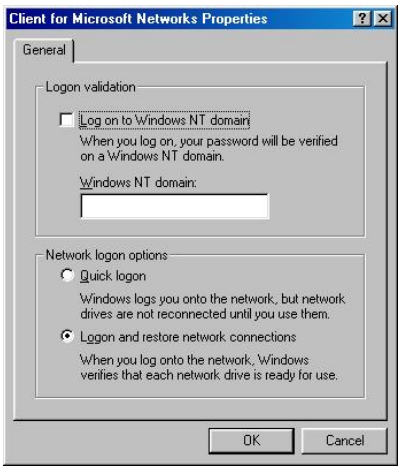
- Qwest setting: Select "Disable." The window should look like this:



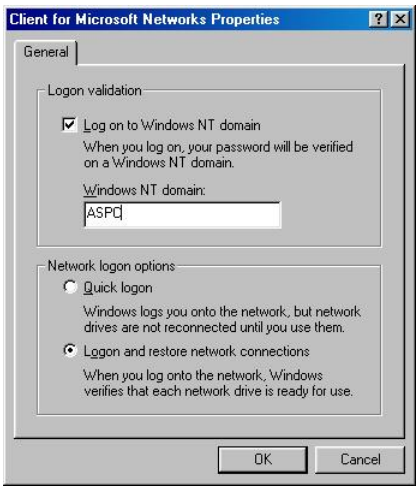
- APS settings: Select "Enabled" and type your work computer's asset tag number — for example, **PCCO01234 —** into the "Host Name" field. The window should look like this:



9. Click "OK" to save and close the TCP/IP window.
10. In the main Network window, click the "Configuration" tab.
11. Highlight the "Client for Microsoft" option and click the "Properties" button. The Client for Microsoft Properties window opens.
12. Do one of the following:
    - Qwest settings:
        a. In the "Logon validation" area, ensure that no options are selected.
        b. In the "Network logon options" area, select "Logon and restore network connections." The window should look like this:



- APS settings:
  a. Click to check mark the "Log on to Windows NT domain" box.
  b. In the "Windows NT domain" text field, type **APSC**. The window should look like this:



13. Click the "OK" buttons to save and exit all windows.

Have PNW Install the System For You

If you want PNW to install the system for you, we offer two professional home-installation packages:

- **Professional installation of a PNW system**
  Metro Phoenix area
  8AM to 5PM*
  $150.00
  (Outside metro Phoenix: $350.00)**
  Services include:
  - Installation of operating system and bench testing
  - Scheduled delivery and installation at the user's home
  - Installation and configuration of user-specific telecommuting software
  - Ensuring a viable Internet connection via Cox, Qwest, or other approved service providers
  - Connectivity and performance testing
  - Home switch network configuration, if needed.

- **Professional installation of a non-PNW system**
  Metro Phoenix area
  8AM to 5PM*
  $135.00
  (Outside metro Phoenix: $335.00)**
  Services include:
  - Installation and configuration of user-specific telecommuting software
  - Ensuring a viable Internet connection via Cox, Qwest, or other approved service providers
  - Connectivity and performance testing.

- **Optional services (PNW and non-PNW systems)**
  8AM to 5PM*
  $35.00/hour (door-to-door, plus $.55 per mile)
  Services include:
  - System backups
  - Training
  - Troubleshooting and performance
  - Antivirus or firewall installation
  - IPS set-up
  - Hardware upgrades
  - Operating systems builds or re-builds.

Installation charges are for labor only. The user is financially responsible for hardware purchases and software licenses.

* After-hours installation is available from 5PM to 10PM, Monday through Friday. Time-and-a-half charges apply.

** Installation services are available statewide. Prices are dependent on location and mileage.

Ordering Information

For your convenience, you can order telecommuting packages online at:

http://cno/remote_comp/page14.htm

Frequently Asked Questions

Q: What applications can I run from my home PC?

A: If you have pcAnywhere installed you can run virtually any application. pcAnywhere allows you to log into the PWCC network and run all the programs that reside on your work PC.

Q: Who supports the applications that I run on pcAnywhere from home?

A: Since you are attaching to a real PWCC PC on the network you will have the same application support as users at work.

Q*:* If pcAnywhere will run all the applications then why do we have all these other options?

A: There is a cost to running pcAnywhere: The connection processes that occur between your home and work PCs and the maintenance of these two systems. pcAnywhere actually is running on your PC at work, not at home.

Q*:* What is the benefit of purchasing a PWCC system and using it at home versus using pcAnywhere on my own home system?

A: This all depends on your specific needs and the type of Internet connection available to your house. Generally speaking, if you have high-speed Internet access via cable modem or DSL, then a PWCC-supplied PC will allow you to run the applications at home with almost the same speed as having a direct connection to the network. Each keystroke with pcAnywhere has to be transmitted to another system at work, which causes a time delay.

Q: Who pays for my telecommuting?

A: Each department has its own guidelines and needs. Contact your supervisor for more information.

Other Helpful Information

The following resources provide additional information about telecommuting:

- **Telecommuting Analysis**
  (http://ehs/Telecommute/Analysis.htm)
- **Telecommuting Workbook**
  (http://ehs/Telecommute/telecommuting_workbook.htm)
- **Pinnacle West Telecommuting Guidelines**
  (http://energycentral/bb/Procedures_-_Corporate/26-04__Telecommuting_Guidelines.htmlSupported Software)
- **Glossary of Telecommuting Terms**
  (See page 26).

Technical Support

The IS Support Center offers technical support for all PNW systems. Call them at 83-3700 (602-371-7300) if you have questions or experience problems.

If you have a non-PNW system, contact the hardware vendor.

Scheduled home-repair service is available for $35.00/hour for PNW systems and $45.00/hour, plus materials, for non-PNW systems.

The Support Center also provides assistance with software issues. For non-PNW system users, assistance is limited to the following:

- PcAnywhere
- Axent VPN client
- NetSwitcher
- Terminal Server.

Glossary of Telecommuting Terms

Cable Modem
A modem that connects a PC or Internet access device to a cable television line instead of a telephone line. Unlike a phone modem, a cable modem connects to the cable company for Internet access and remains connected 24 hours a day.

Digital Subscriber Line (DSL)
Refers to the variety of different types of Digital Subscriber Line protocols – high-speed data transmission protocols that are compatible with regular copper telephone wire. DSL is typically used to provide a continuous, high-speed connection directly to an Internet Service Provider (ISP). There are several different types of DSL (ADSL, SDSL, VDSL, etc.), and many of them make it possible to talk on the telephone and use the Internet at the same time. It is also called High-Speed DSL (HDSL).

Domain
In the Internet's domain name system (DNS), a domain is a name with which name server records are associated that describe subdomains or hosts. For example, mysite.com could be a domain with records for www.mysite.com and www1.mysite.com, and so forth.

Encryption
Putting data into a secret code so it is unreadable except by authorized users.

Enterprise Network
A network for a large business enterprise. This kind of network may comprise a number of local area networks that have to interface with each other as well as a central database management system and many client workstations. The design and management of an enterprise network can be very complex.

Firewall
An electronic boundary that prevents unauthorized users from accessing certain files on a network; or, a computer used to maintain such a boundary.

Hub (or Hublet)
In data communications, a hub is a place of convergence where data arrives from one or more directions and is forwarded out in one or more other directions. A hub usually includes a switch of some kind. (And a product that is called a "switch" could usually be considered a hub as well.) The distinction seems to be that the hub is the place where data comes together and the switch is what determines how and where data is forwarded from the place where data comes together.

Integrated Services Digital Network (ISDN)
Digital telecommunications lines that can transmit both voice and digital network services, and are much faster than the highest-speed modem. Many telephone companies offer ISDN lines.

Internet Service Provider (ISP)
A company that provides individuals and other companies access to the Internet at speeds ranging from 300bps to OC-3, and other related services such as Web-site building and hosting.

Kilobits per second (Kbps)
A measure of data transmission or network speed equaling one thousand bits per second.

PcAnywhere
An off-the-shelf software program that allows a remote PC to run the applications that reside on a host PC. For example, the program allows you to run all the applications you have loaded on your PC at work from your home PC.

Remote Access Service (RAS)
Remote access is the ability to get access to a computer or a network from a remote distance. A remote access server is the computer and associated software that is set up to handle users seeking access to network remotely. Sometimes called a communication server, a remote access server usually includes or is associated with a firewall server to ensure security and a router that can forward the remote access request to another part of the corporate network.

Telecommute
To work at home or some other location remote from one's place of employment, making use of a computer, telephone, fax, and/or modem to receive job assignments and send in completed work.

Terminal Server
A concept similar to pcAnywhere except the applications you access from your home PC are installed on and executed from a server at your work location.

Very-high Digital Subscriber Line (VDSL)
The newest of the DSL technologies, VDSL can offer speeds up to 25 Mbps downstream and 3 Mbps upstream. Similar to SDSL, the gain in speed can be achieved only at short distances. These maximum speeds can be achieved only up to 1,000 feet. Sometimes also called broadband digital subscriber line (BDSL).

Virtual Private Network (VPN)
An Internet-based system for information communication and enterprise interaction. A VPN uses the Internet for network connections between people and information sites. However, it includes stringent security mechanisms so that sending private and confidential information is as secure as in a traditional closed system.

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