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Welcome

Congratulations on your purchase of the **Uniden evōLO PCW200 802.11b PCI Adapter**. This adapter is designed and engineered to exacting standards for reliability, long life and outstanding performance.

Features

- 11 Mbps High-Speed Transfer Rate
- Interoperable with IEEE 802.11b (DSSS) 2.4GHz-compliant equipment
- Plug-and Play operation provides easy setup.
- Direct Sequence Spread Spectrum compatible to prevent lost connections
- Rugged metal design with external antenna
- Wired Equivalent Privacy (WEP) 64-bit or 128-bit data encryption
- Driver Supports Windows 98, Millennium, NT V4.0 SP6, 2000 and XP

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evōLO® and Your Gateway To The Evolution™ are a trademarks of Uniden America Corporation.
Windows® 98/2000, Millennium, and XP are registered trademarks of Microsoft® in the United States and/or other countries.
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Installation of the PCI Adapter to your Desktop Computer

Hardware Installation

- Turn Off your desktop computer.
- Open your desktop computer's case and locate an available PCI slot in the motherboard.
- Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide the card all the way in. After the card is firmly in place, secure its fastening tab to your computer's chassis with a mounting screw and close your computer's case.
- Power On your desktop computer.
- Insert the driver CD into your CD drive.
- The hardware installation is complete.

Driver Installation

Windows 98 Driver Installation

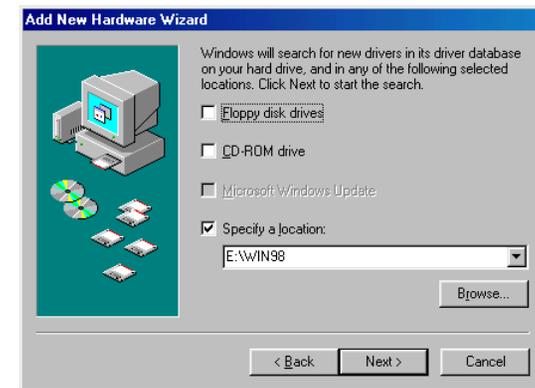
1. Turn On your desktop computer and insert the CD into your CD-ROM drive, if you have not done so already. Windows 98 automatically recognizes a new PCI Network Controller device. Click the **Next** button to continue.



2. Select “**Search for the best driver for your device**” and click the **Next** button to continue.



3. Make sure “**Specify a location**” is selected and click the **Browse** button. At this point, Windows will ask you to browse for the folder. Simply select the CD-ROM drive in which the driver is located, click on the **WIN98** folder and click the **OK** button or you can type in “**E:\WIN98**” (where “E” represents the letter of your CD-ROM drive). Click the **Next** button to continue.



4. Windows is now ready to install the driver. Click the **Next** button to continue.



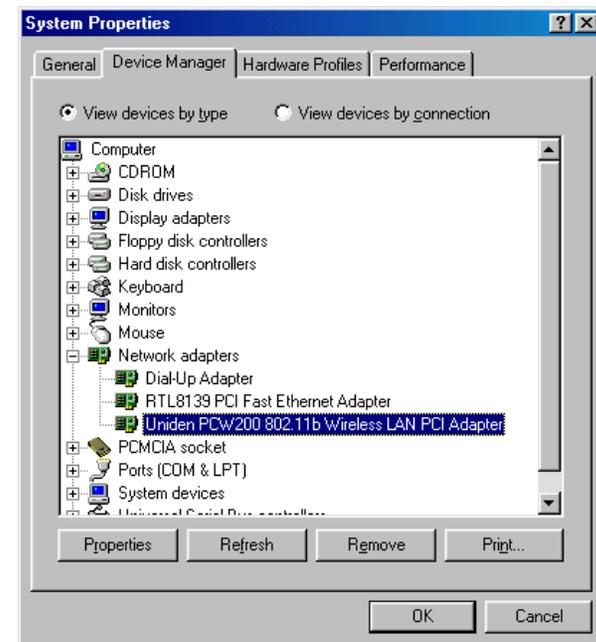
5. Windows has completed installing the driver. Click the **Finish** button to continue.



6. To finish installing the PCI adapter, you must restart your desktop computer. Click the **Yes** button to restart your desktop computer.



7. To verify the drivers were setup correctly, after your desktop computer restarts, place the cursor over the **My Computer** icon and right click your mouse. Select **Properties** then select **Device Manager** and double click on **Network adapters**. You will find the **PCW200 802.11b Wireless LAN PCI Adapter** if it is installed successfully. The PCI adapter driver installation is complete. Click **Cancel** to dismiss this screen.



Windows ME Driver Installation

1. Turn On your desktop computer and insert the CD into your CD-ROM drive, if you have not done so already. Windows automatically recognizes a new PCI Network Controller. Select "**Automatic search for a better driver**". Click the **Next** button to continue.



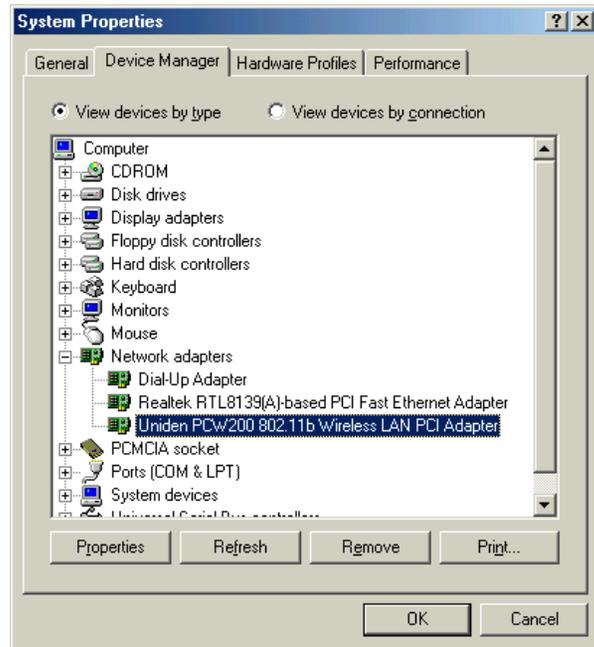
2. Windows will indicate that the installation has been completed. Click the **Finish** button to continue.



3. To finish installing the new hardware, you must restart your desktop computer. Click the **Yes** button to restart your desktop computer.



4. To verify the drivers were setup correctly, after your desktop computer restarts, place the cursor over the **My Computer** icon and right click your mouse. Select **Properties** then select **Device Manager** and double click on **Network adapters**. You will find the **PCW200 Wireless 802.11b LAN PCI Adapter** if it is installed successfully. The PCI adapter driver installation is complete. Click **Cancel** to dismiss this screen.

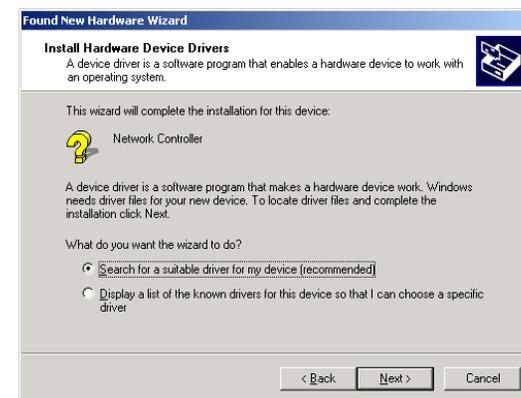


Windows 2000 Driver Installation

1. Turn On your desktop computer and insert the CD into your CD-ROM drive, if you have not done so already. Windows 2000 automatically recognizes the new hardware. Click the **Next** button to continue.



2. Select **“Search for a suitable driver for my device”** and click the **Next** button to continue.



3. Windows will search for the driver. Once the driver is located, the following screen will appear. Click the **Next** button to continue.



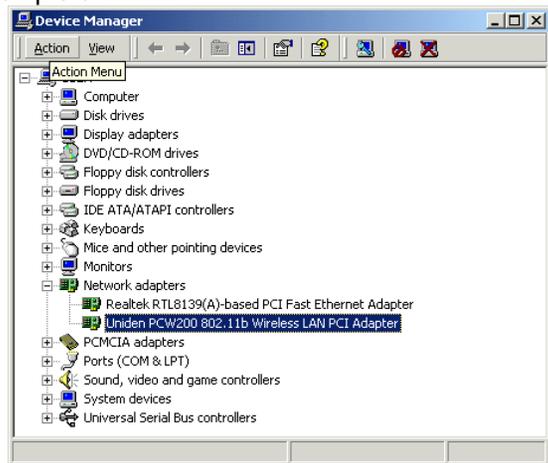
4. The **Digital Signature Not Found** screen is a notification by Windows 2000. However, this does not mean that there is a problem. The **PCW200** has been tested extensively and has been found to work with Windows 2000. Click the **Yes** button to continue.



5. Windows has completed installing the driver. Click the **Finish** button to continue.



6. To verify the drivers were setup correctly, place the cursor over the **My Computer** icon and right click your mouse. Select **Properties** then select **Hardware** then **Device Manager** and double click on **Network adapters**. You will find the **PCW200 Wireless 802.11b PCI adapter** if it is installed successfully. The PCI adapter driver installation is complete.



Windows NT Driver Installation

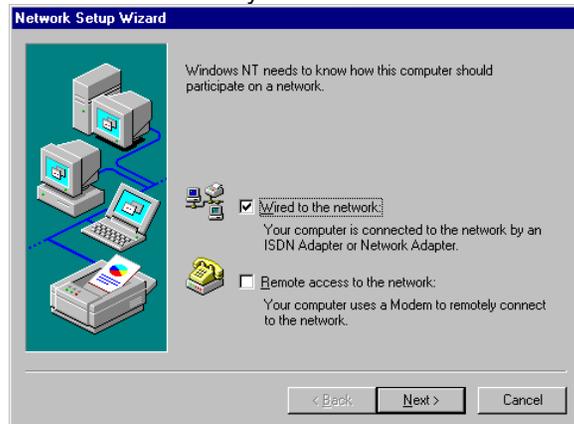
Windows NT will setup the PCI adapter differently depending upon whether you've previously installed network hardware or not. Please follow the instructions appropriate for you.

If You Have Never Installed Network Hardware On Your Desktop Computer

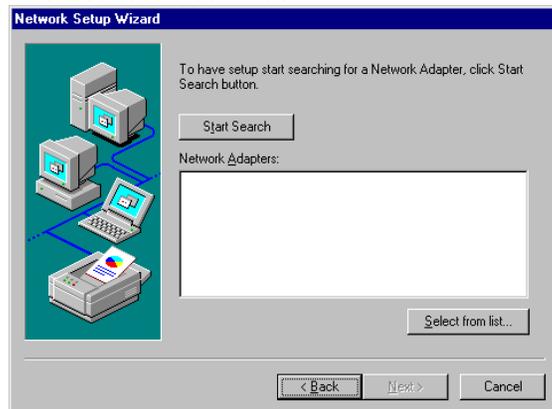
1. Windows NT is not a Plug-and-Play Operating System and will not automatically identify the PCI adapter. To begin setup, select **Settings** from the **Start Menu** and select **Control Panel**. Then double click on the **Network** icon.
2. Windows will notify you that Networking is not installed. Click the **Yes** button to continue.



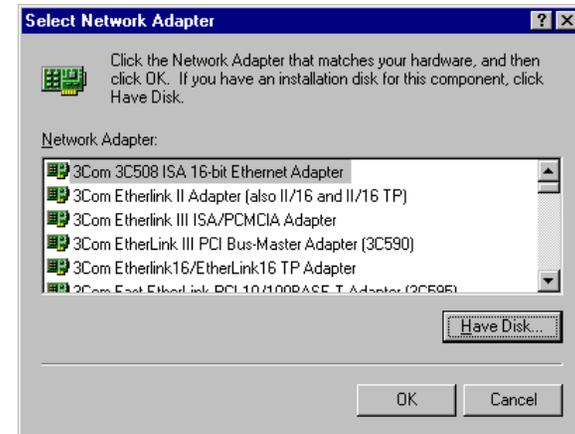
3. Make sure **“Wired to the network”** is selected. Click the **Next** button to continue. Your Wireless PCI card follows wired protocols and the network cannot tell whether you are connected wirelessly or wired.



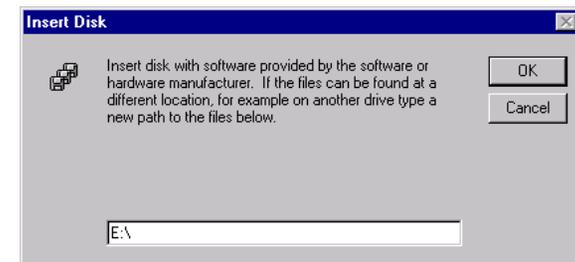
4. The next screen will not show any Network Adapters installed on your system, which signifies that no network hardware has been previously installed. Click the **“Select from list”** button to continue.



5. A list of adapters will appear on the screen. You should not select one of these, as your installation CD has all of the appropriate drivers. Click the **Have Disk** button to continue.



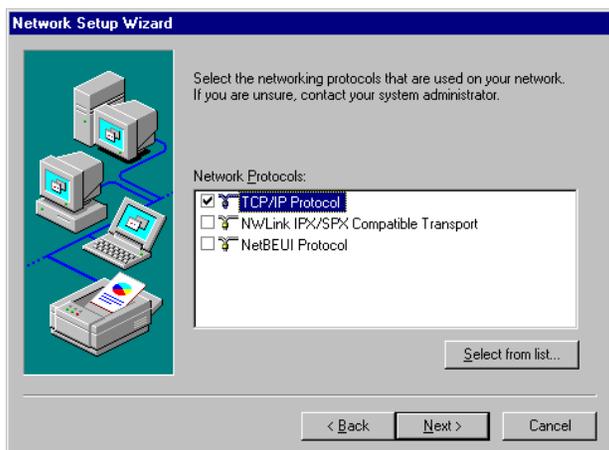
6. On the **Insert Disk** screen, type the driver path in the field provided. Then, click the **OK** button to continue.



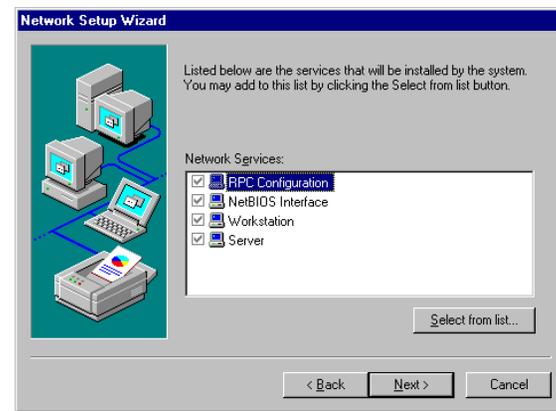
7. The **Select OEM Option** screen will show the **PCW200 Wireless 802.11b PCI Adapter**. Click the **OK** button to continue.



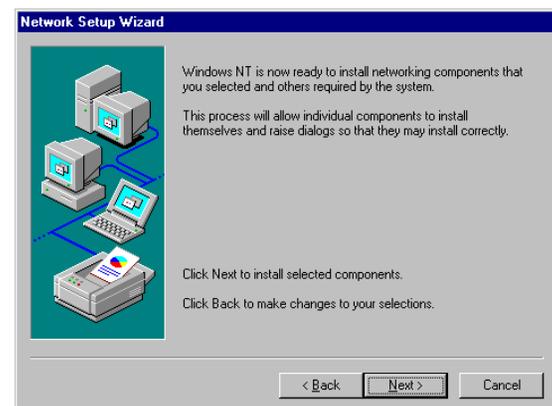
8. This screen will show a list of **Network Protocols**. While the **TCP/IP Protocol** is already selected by default, you should check with your network administrator before installing any network protocols. Click the **Next** button to continue.



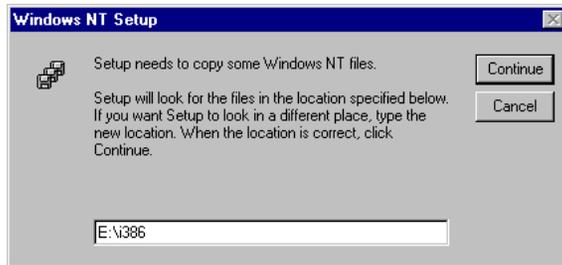
9. On the screen showing the **Network Services**, the selections are automatically made. Click the **Next** button to continue.



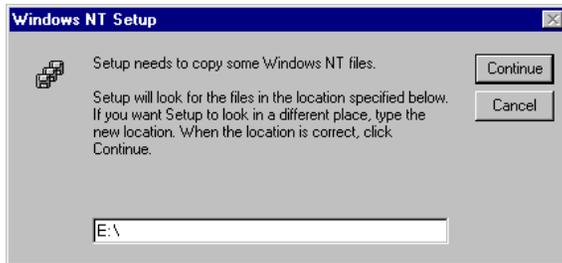
10. At this point, Windows is ready to start installing networking components. Click the **Next** button to continue.



11. Windows may request further files at this point. Insert the **Windows NT** CD into your CD-ROM drive. Type "**E:\i386**" ("E" represents the letter of your CD-ROM drive). Click on the **Continue** button.



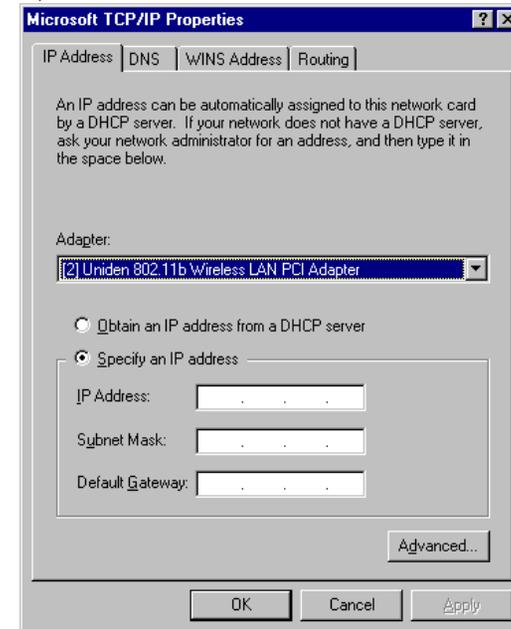
12. If files are still requested, insert your driver CD into your CD-ROM drive and type the path. Then, click the **Continue** button.



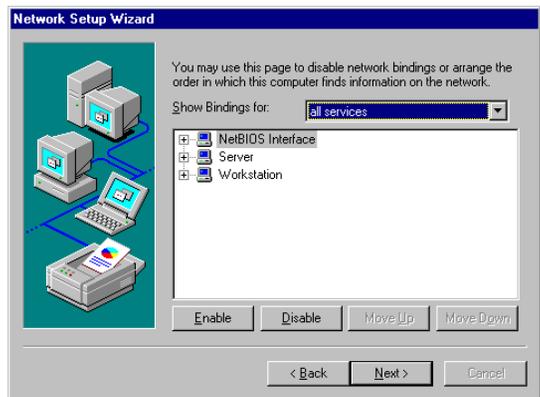
13. At this point, Windows NT will begin installing the network components you previously selected. You may be asked if you would like to configure the protocols with a DHCP server on your network. If this screen appears, check with your network administrator before clicking the **Yes** or **No** button to continue.



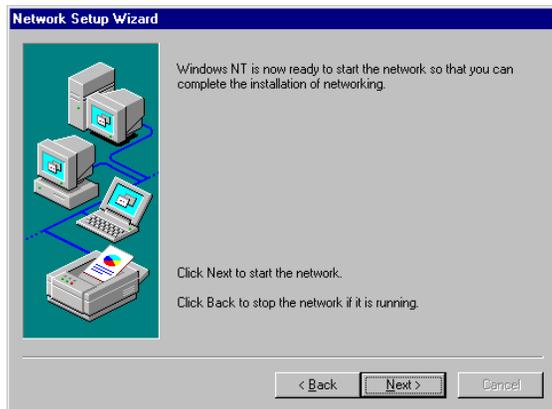
14. Windows will bring you to the **Microsoft TCP/IP Properties** screen. Set the fields on this screen as needed, and then click the **OK** button to continue.



15. Now, the network components will finish installing. You may then see a screen similar to that shown here asking you if you'd like to disable any network bindings. Be sure to check with your network administrator before making ANY changes. Click the **Next** button to continue.



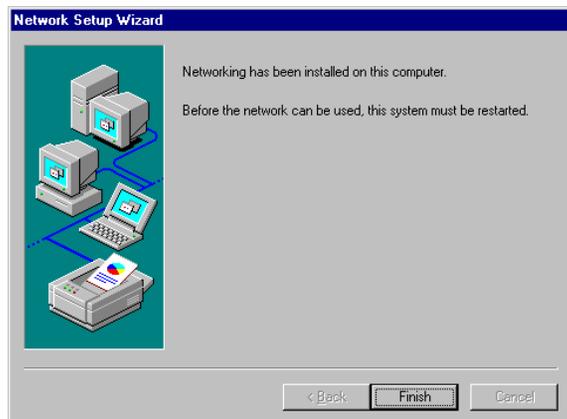
16. At this point, Windows NT will let you know that it is ready to start the network. Click the **Next** button to continue.



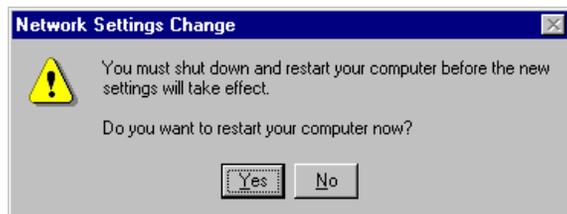
17. On this screen, you will enter your unique desktop computer name, which is how your desktop computer will be identified on the network. You will also assign the desktop computer to either a **Workgroup** or to a **Domain**, whichever is appropriate. (For most home networking environments, Workgroup is the appropriate selection.) Click the **Next** button to continue.



18. Windows NT has completed installing the network. Click the **Finish** button to continue.

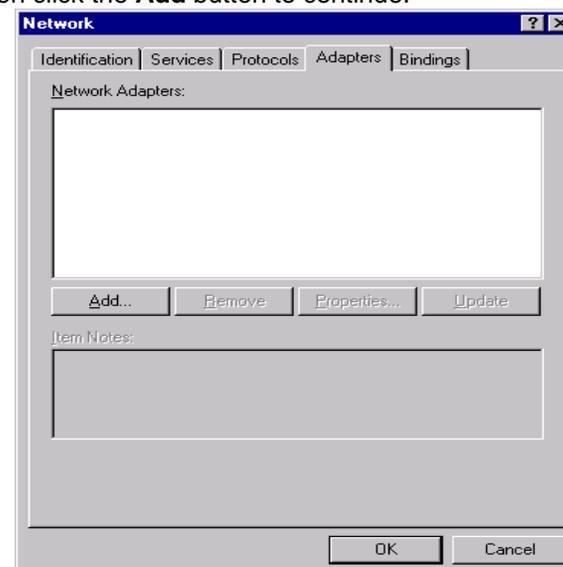


19. Windows will ask you to restart your desktop computer. Click the **Yes** button to restart your desktop computer.

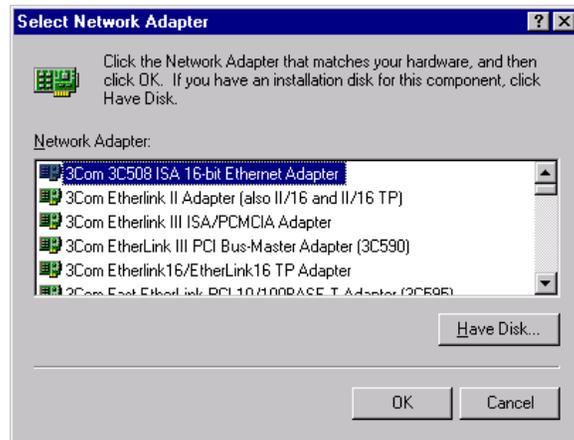


If You Have Installed Network Hardware On Your Desktop Computer

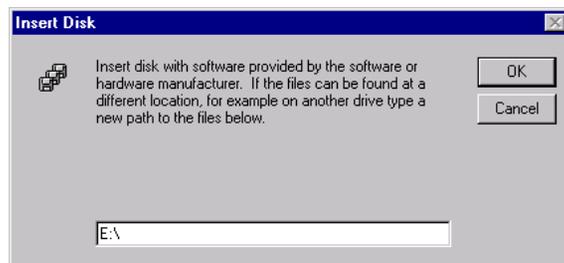
1. Turn On your desktop computer and insert the CD into the CD-ROM drive, if you have not done so already. Windows NT is not a Plug-and-Play Operating System and will not automatically recognize the PCI adapter. To begin setup, select **Settings** from the **Start Menu** and select **Control Panel**. Then double click on the **Network** icon.
2. To add the **Network Adapters**, click the **Adapters** tab and then click the **Add** button to continue.



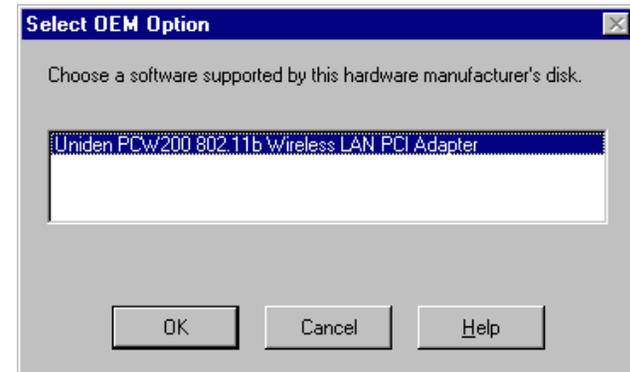
3. A list of adapters will appear on the screen. You should not select one of these, as your installation CD has all of the appropriate drivers. Click the **Have Disk** button to continue.



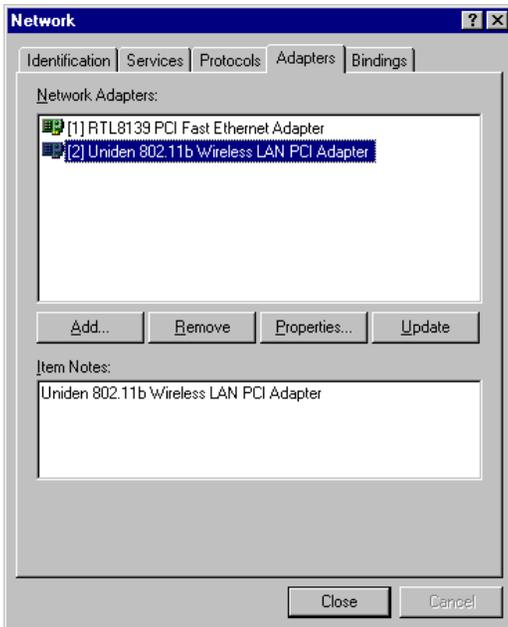
4. On the **Insert Disk** screen, type the driver path in the field provided. Then click the **OK** button to continue.



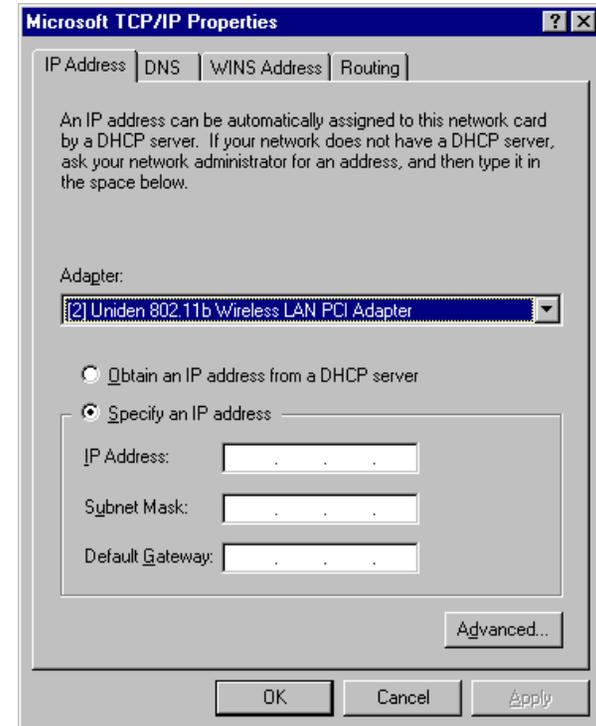
5. The **Select OEM Option** screen will show the **PCW200 Wireless 802.11b PCI Adapter**. Click the **OK** button to continue.



6. Windows NT has completed installing the network. Click the **Close** button to continue.



7. Windows will bring you to the **Microsoft TCP/IP Properties** screen. Set the fields on this screen as needed, and then click the **OK** button to continue.



8. Windows will ask you to restart your desktop computer. Click the **Yes** button to restart your desktop computer.



Windows XP Driver Installation

1. Turn On your desktop computer and insert the CD into your CD-ROM drive if you have not done so already. Windows XP will automatically recognize a new **Network Controller**. Select "**Install the software automatically**". Click the **Next** button to continue.



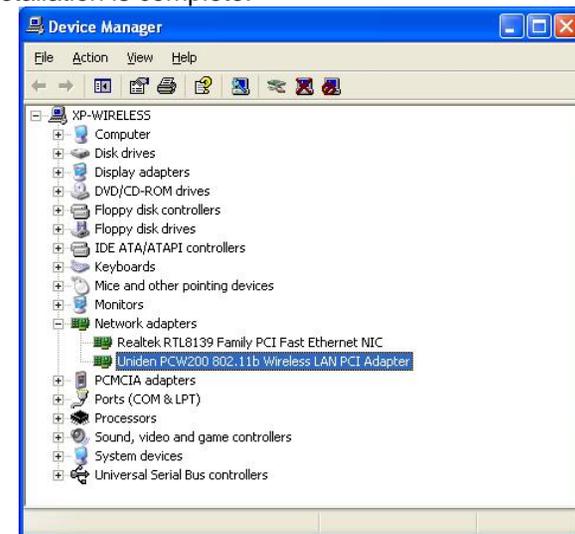
2. Windows will notify you that it has not passed Windows Logo testing to verify its compatibility with Windows XP. This does not mean there is a problem. The **PCW200** has been tested extensively and has been found to work with Windows XP. Click the **Continue Anyway** button.



- Windows has completed installing the driver. Click the **Finish** button to continue.



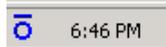
- To verify the drivers were setup correctly, place the cursor over the **My Computer** icon and right click your mouse. Select **Properties** then select **Hardware** and then **Device Manager** and double click on **Network adapters**. You will find the **PCW200 Wireless 802.11 PCI Adapter** if it is installed successfully. The PCI adapter driver installation is complete.



Configuration Utility

The **Configuration Utility** is provided to allow you further customization of the PCI adapter and your wireless network. It is useful for operation with Windows 98, Windows ME, Windows NT and Windows 2000, but is not needed for Windows XP. If you are using Windows XP, please see the instructions starting on page 42.

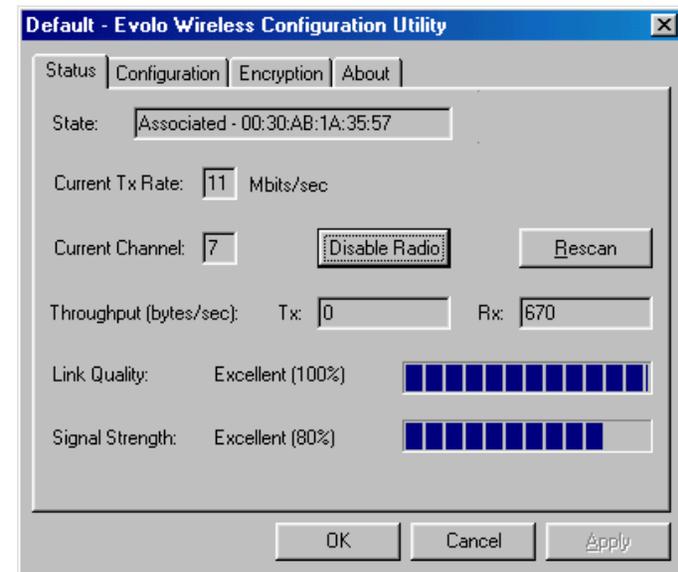
To launch the utility, double click on the icon shown below in your system tray.



Using the Configuration Utility

Status

The **Status** screen provides information about the current link between the PCI adapter and the wireless network.



The **Current Tx Rate** field and **Current Channel** field indicate the transmission rate, and the channel on which the PCI adapter is operating, respectively.

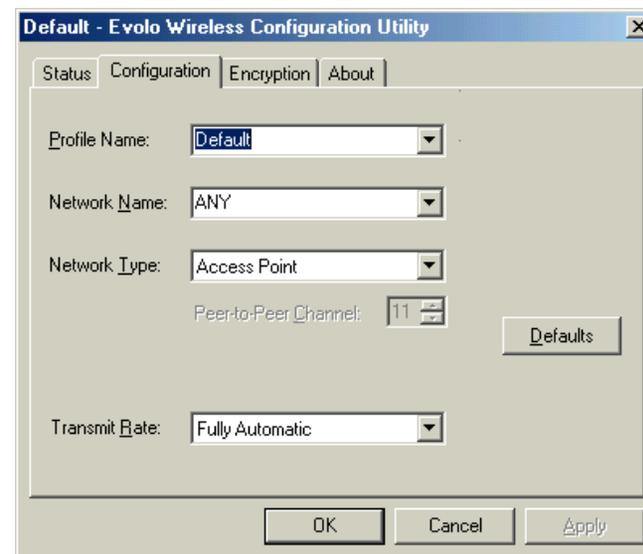
The **Throughput** fields show the rate at which user data is transferred and received.

The **Link Quality and Signal Strength** fields indicate how well your PCI adapter is communicating with other wireless devices.

The **Disable Radio** button is to disable the Radio signal.

Configuration

The **Configuration** screen allows you to customize the settings of the PCI adapter and your wireless network.



The **Network Type** setting determines the architecture of your wireless network. You should select **Access Point** mode or **Peer-to-Peer** mode depending on your network type. **Peer-to-Peer** mode uses 802.11b Ad-Hoc mode for simple networking that allows the sharing of local resources only between computers without needing a wireless **Access Point**. The **Access Point** mode, (also known as "Infrastructure Mode") allows a wireless network to be integrated into an existing wired network through an **Access Point**.

The **Network Name** (also known as the SSID) is the unique name shared among all points in a wireless network. The Network Name must be identical for all points in the network. It is case sensitive and must not exceed 32 characters.

In **Access Point** mode, you may instruct the adapter to select the first available **Access Point** by entering a Network Name of “**ANY**” (all upper case). You should not use a Network Name of “**ANY**” in **Peer-to-Peer** mode.

The **Peer-to-Peer Channel** setting specifies the channel used in wireless communication in 802.11b Ad-Hoc mode and should be set to the same channel as the other points in the wireless network.

Note: You do not need to set the channel when using **Access Point** mode.

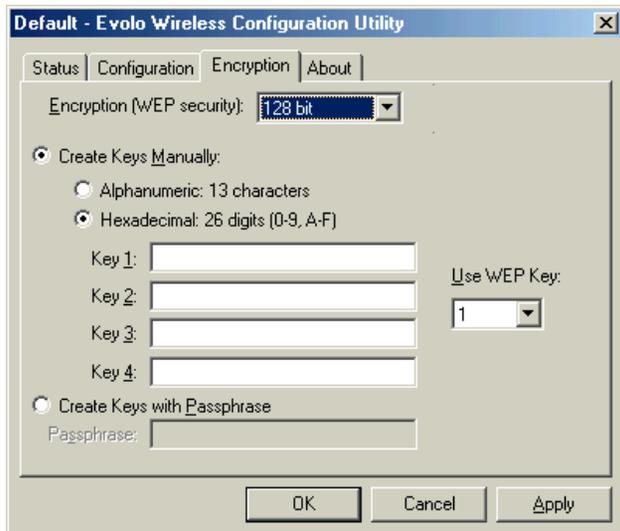
The **Transmit Rate** field allows you to set the transmission rate for the PCI adapter. To optimize performance and range, the Transmit Rate should be set to **Fully Automatic**, which will automatically adjust the transfer speed for best performance and longest range.

Note: If you experience difficulty in transferring data between computers, you should try the following steps:

- Reposition either or both computers or Access Point (if one is being used).
- Keep in mind that closer is not necessarily better for devices of this type. If the devices are too close together, move them apart.
- If you have a consistent problem with many or all wireless devices on your network, you should consider using a different wireless channel for your network operations.

Encryption

To make your network more secure, you may choose to use **Wired Equivalent Privacy (WEP)**. WEP is an encryption scheme used to protect your wireless data communications. WEP uses a combination of 64-bit or 128-bit keys to provide access control to your network and encryption security for every data transmission. To decode a data transmission, each point in a network must use an identical 64-bit or 128-bit key. Your **PCW200 Wireless 802.11b PCI Adapter** supports both 64-bit WEP and 128-bit WEP.



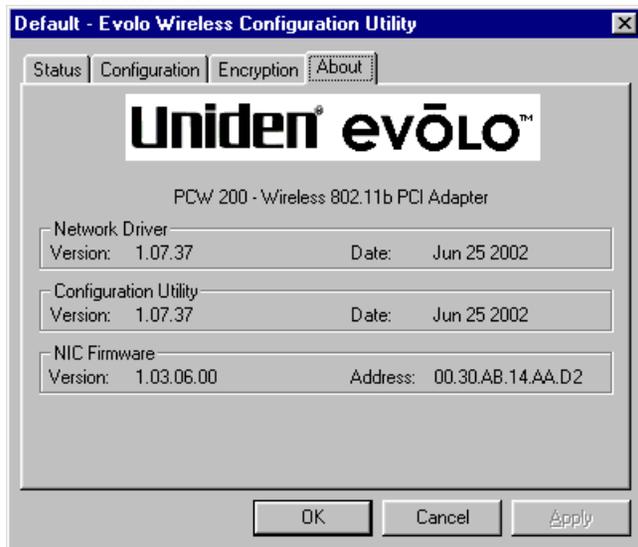
Encryption can be set to **Disabled**, **64-bit** or **128-bit**. Once enabled, you can create an encryption key by using a passphrase, or by entering the key manually.

The **Passphrase** is a case-sensitive text string with a maximum of 127 characters.

Note: Some products refer to 64-bit encryption as “40-bit” encryption. Both are names for the same encryption technology.

About

The **About** screen displays the version of the Configuration Utility and of your **PCW200 Wireless 802.11b PCI Adapter's** drivers and firmware.



The Configuration Utility for Windows XP

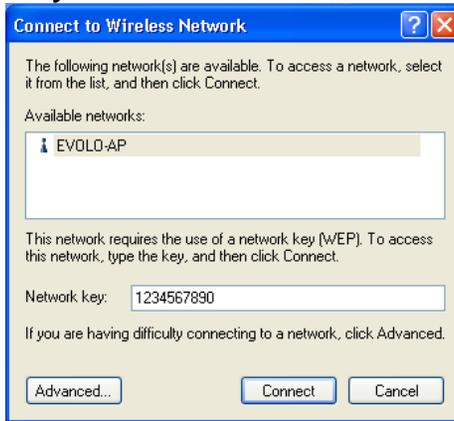
1. If you are using Windows XP, you do not need to install the **Configuration Utility** from the CD-ROM. Instead, right-click the **Wireless Network Connection** icon on the system tray after installing the driver.



2. The **Connect to Wireless Network** screen will appear. Select a network from the list and click **Connect** to continue.



3. If the chosen network requires WEP encryption, you will have to enter the WEP key for your network in the **Network key** field as shown in the screen below.



4. Once your connection is achieved, you will see the following message.



For more information about the Windows XP wireless networking utility, search the Windows XP help files using the keyword “**wireless**”.

Legal Notice

Statement of Conditions

Uniden reserves the right to make changes to the products described in this document without notice.

Uniden does not assume liability due to the user or application of the product(s) or circuit layout(s) described herein.

IC Notice:

This Class B digital apparatus complies with Canadian ICES-003.

FCC Information

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference

will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: (1) Reorient or relocate the receiving antenna, (2) Increase the separation between the equipment and receiver, (3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, (4) Consult the dealer or an experienced radio/TV technician for help.

Federal Communications Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

The FCC Wants You To Know

Changes or modifications to this product not expressly approved by Uniden, or operation of this product in any way other than as detailed by the owner's manual, could void your authority to operate this product and will void any warranty.

Precautions!

Before you read anything else, please observe the following:

Warning!

Uniden America Corporation DOES NOT represent this unit to be waterproof. To reduce the risk of fire, electrical shock, or damage to the unit, DO NOT expose this unit to rain or moisture.

Important Safety Instruction

When using your product, these basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons:

1. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Do not use this product near water; for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the unit.
5. Slots and openings in the cabinet and the back or bottom are provided for ventilation. To protect the product from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
6. If this product includes a cable, do not allow anything to rest on it and do not locate this product where the cable will be damaged by persons walking on it.

7. Do not overload wall outlets and extension cords, as this can result in the risk of fire or electrical shock.
8. Never push objects of any kind into this product through cabinet slots, as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
9. To reduce the risk of electric shock, do not disassemble this product. Take it to qualified service personnel when service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.
10. Unplug this product and refer servicing to qualified service personnel under the following conditions:
 - A. If liquid has been spilled into the product.
 - B. If the product has been exposed to rain or water.
 - C. If the product does not operate normally when following the operating instructions. (Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive repair work by a qualified technician.)
 - D. If the product has been dropped or the cabinet has been damaged.
 - E. If the product exhibits a distinct change in performance.

Important Electrical Considerations

Unplug all electrical appliances when you know an electrical storm is approaching. Lightning can pass through your household wiring and damage any device connected to it. This product is no exception.

Warning!

Please do not attempt to unplug any appliance during an electrical storm.

One Year Limited Warranty

Important: Evidence of original purchase is required for warranty service.

WARRANTOR: UNIDEN AMERICA CORPORATION
("Uniden")

ELEMENTS OF WARRANTY: Uniden warrants, for one year, to the original retail owner, this Uniden Product to be free from defects in materials and craftsmanship with only the limitations or exclusions set out below.

WARRANTY DURATION: This warranty to the original user shall terminate and be of no further effect twelve (12) months after the date of original retail sale. The warranty is invalid if the Product is (A) damaged or not maintained as reasonable or necessary, (B) modified, altered, or used as part of any conversion kits, subassemblies, or any configurations not sold by Uniden, (C) improperly installed, (D) serviced or repaired by someone other than an authorized Uniden service center for a defect or malfunction covered by this warranty, (E) used in any conjunction with equipment or parts or as part of any system not manufactured by Uniden, or (F) installed or programmed by anyone other than as detailed by the owner's manual for this product.

STATEMENT OF REMEDY: In the event that the product does not conform to this warranty at any time while this warranty is in effect, warrantor will either, at its option, repair or replace the defective unit and return it to you without charge for parts, service, or any other cost (except shipping and handling) incurred by warrantor or its representatives in connection with the performance of this warranty. Warrantor, at its option, may replace the unit with a new or refurbished unit. THE LIMITED WARRANTY SET FORTH ABOVE IS THE SOLE AND ENTIRE

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Uniden America Corporation
Parts and Service Division
4700 Amon Carter Blvd
Fort Worth, TX 76155
(800) 775-9060

Appendix: Glossary

Ad.Hoc -- Ad.Hoc mode allows computers equipped with wireless transmitters and receivers to communicate directly with each other, eliminating the need for an access point.

Adapter — Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card (NIC) is the typical adapter that allows the PC or server to connect to the intranet and/or Internet.

Backbone — The part of a network that connects most of the systems and networks together and handles the most data.

Bandwidth — The transmission capacity of a given facility, in terms of how much data the facility can transmit in a fixed amount of time; expressed in bits per second (bps).

Bit — A binary digit. The value 0 or 1 used in the binary numbering system. Also, the smallest form of data.

Boot — To cause the computer to start executing instructions. Personal computers contain built-in instructions in ROM chip that are automatically executed on startup. These instructions search for the operating system, load it, and pass control to it.

Bridge — A device that interconnects different networks together.

Broadband — A data-transmission scheme in which multiple signals share the bandwidth of a single medium. This allows the transmission of voice, data, and video signals over that medium. Cable television uses broadband techniques to deliver dozens of channels over one cable.

Browser — A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web or PC. The word “browser” seems to have originated prior to the Web as a generic term for user interfaces that let you browse text files online.

Cable Modem — A device that connects a computer to the cable television network, which in turn connects to the Internet. Once connected, cable modem users have a continuous connection to the Internet. Cable modems feature asymmetric transfer rates: around 36 Mbps downstream (from the Internet to the computer), and from 200 Kbps to 2 Mbps upstream (from the computer to the Internet).

Data Packet — One frame in a packet-switched message. Most data communication is based on dividing the transmitted message into packets. For example, an Ethernet packet can be from 64 to 1518 bytes in length.

Default Gateway — The routing device used to forward all traffic that is not addressed to a station within the local subnet.

DHCP (Dynamic Host Configuration Protocol) – A protocol that lets network administrators centrally manage and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet's set of protocol (TCP/IP), each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location.

It's especially useful in education and other environments where users change frequently. Using very short leases, DHCP can dynamically reconfigure networks in which there are more computers than there are available IP addresses.

DHCP supports static addresses for computers containing Web servers that need a permanent IP address.

DNS – The Domain Name System (DNS) is the way that Internet domain names are located and translated into an Internet Protocol (IP) address.

A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

Domain – A sub network comprised of a group of clients and servers under the control of one security database. Dividing LANs into domains improves performance and security.

Download – To receive a file transmitted over a network. In a communications session, download means receive, and upload means transmit.

Driver – A workstation or server software module that provides an interface between a network interface card and the upper-layer protocol software running in the computer; it is designed for a specific NIC, and is installed during the initial installation of a network-compatible client or server operating system.

DSSS (Direct-Sequence Spread-Spectrum) – DSSS generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

Dynamic IP Address – An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.

Dynamic Routing – The ability for a router to forward data via a different route based on the current conditions of the communications circuit.

For example, it can adjust for overloaded traffic or failing lines and is much more flexible than static routing, which uses a fixed forwarding path.

Ethernet – IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

Fast Ethernet – A 100 Mbps technology based on the 10Base-T Ethernet CSMA/CD network access method.

Firewall – A firewall is a set of related programs, located at a network gateway server, which protects the resources of a network from users from other networks. (The term also implies the security policy that is used with the programs.) An enterprise with an intranet that allows its workers access to the wider Internet installs a firewall to prevent outsiders from accessing its own private data resources and for controlling what outside resources to which its own users have access. A firewall, working closely with a router, examines each network packet to determine whether to forward it toward its destination.

Firmware – Programming that is inserted into programmable read-only memory, thus becoming a permanent part of a computing device.

Fragmentation – Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

Hardware – Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the “box” and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

Hub – The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

IEEE – The Institute of Electrical and Electronics Engineers. The IEEE fosters the development of standards that often become national and international standards. The organization publishes a number of journals, has many local chapters, and has several large societies in special areas, such as the IEEE Computer Society.

IEEE 802.11 – Industry standard that enables wireless LAN hardware from different manufacturers to communicate.

Infrastructure Mode – Allows all computers on a wired and wireless network to share a peripheral, such as a printer or high speed Internet Access.

IP Address – In the most widely installed level of the Internet Protocol (IP) today, and IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requestor or the e-mail sender and can respond by sending another message using the IP address it received.

IPCONFIG – A utility that provides for querying, defining and managing IP addresses within a network. This utility is commonly used under Windows NT and 2000, for configuring networks with a static IP address.

IPSec – IPSec (Internet Protocol Security) is a developing standard for security at the network or packet-processing layer of network communication. A big advantage of IPSec is that security arrangements can be handled without requiring changes to individual user computers.

IRQ (Interrupt ReQuest) – A hardware interrupt on a PC. There are 16 IRQ lines used to signal the CPU that a peripheral event has started or terminated. Except for PCI devices, two devices cannot use the same line.

ISP – An **ISP** (Internet Service Provider) is a company that provides individuals and companies access to the Internet and other related services such as website building and virtual hosting.

LAN – A local area network (**LAN**) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building).

Latency – The time delay between when the first bit of a packet is received and the last bit is forwarded.

Link Quality – Indicates the Quality of data being received.

MAC Address – The MAC (Media Access Control) address is a unique number assigned by the manufacturer to any Ethernet networking device, such as a network adapter, that allows the network to identify it at the hardware level.

Mbps (Megabits per Second) – One million bits per second; a unit of measurement of the speed of data transmission.

NAT – NAT (Network Address Translation) is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside.

Network – A system that transmits any combination of voice, video, and/or data between users.

NIC (Network Interface Card) – A board installed in a computer system, usually a PC, to provide network communication capabilities to and from that computer system. Also called an adapter.

Packet Filtering – Discarding unwanted network traffic based on its originating address or range of addresses or its type (e-mail, file transfer, etc.).

PCI (Peripheral Component Interconnect) – A peripheral bus commonly used in PCs, Macintoshes and workstations. It was designed primarily by Intel and first appeared on PCs in late 1993. PCI provides a high-speed data path between the CPU and peripheral devices (video, disk, network, etc.).

There are typically three or four PCI slots on the motherboard. In a Pentium PC, there is generally a mix of PCI and ISA slots or PCI and EISA slots.

Early on, the PCI bus was known as a “local bus.”

PCI allows IRQs to be shared, which helps to solve the problem of limited IRQs available on a PC. For example, if there were only one IRQ left over after ISA devices were given their required IRQs, all PCI devices could share it. In a PCI-only machine, there cannot be insufficient IRQs, as all can be shared.

PCMCIA – The PCMCIA (Personal Computer Memory Card International Association) is an industry group organized in 1989 to promote standards for a credit card-size memory or I/O device that would fit into a personal computer, usually a notebook or laptop computer.

Peer-to-Peer Networking – Allows users to share local resources between PCs without needing an access point or router.

Ping (Packet Internet Groper) – An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.

Plug-and-Play – The ability of a computer system to configure expansion boards and other devices automatically without requiring the user to turn off the system during installation.

Port – A pathway into and out of the computer of a network device such as a switch or router. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems, and printers.

PPPoE (Point to Point Protocol over Ethernet) – A method used mostly by DSL providers for connecting personal computers to a broadband modem for Internet access. It is similar to how a dial-up connection works but at higher speeds and quicker access.

PPTP (Point-to-Point Tunneling Protocol) – A protocol (set of communication rules) that allows corporations to extend their own corporate network through private “tunnels” over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network (VPN).

Print Server – A hardware device that enables a printer to be located anywhere in the network.

RIP (Routing Information Protocol) – A simple routing protocol that is part of the TCP/IP protocol suite. It determines a route based on the smallest hop count between source and destination. RIP is a distance vector protocol that routinely broadcasts routing information to its neighboring routers and is known to waste bandwidth. AppleTalk, DECnet, TCP/IP, NetWare, and VINES all use incompatible versions of RIP.

RJ-11 (Registered Jack-11) – A telephone connector that holds up to six wires. The RJ-11 is the common connector used to plug a telephone into a wall.

RJ-45 – A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

Router – Protocol-dependent device that connects sub networks together. Routers are useful in breaking down a very large network into smaller sub networks; they introduce longer delays and typically have much lower throughput rates than bridges.

Server – Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

Signal Strength – Determines the strength of the signal for each wireless channel.

Software – Instructions for the computer. A series of instructions that performs a particular task is called a “program.” The two major categories of software are “system software” and “application software.” System software is made up of control programs such as the operating system and database management system (DBMS). Application software is any program that processes data for the user.

A common misconception is that software is data. It is not, software tells the hardware how to process the data.

SOHO (Small Office/Home Office) – Market segment of professionals who work at home or in small offices.

Static IP Address – A permanent IP address that is assigned to a node in a TCP/IP network.

Static Routing – Forwarding data in a network via a fixed path.

Static routing cannot adjust to changing line conditions as can dynamic routing.

Subnet Mask – The method used for splitting IP networks into a series of subgroups, or subnets. The mask is a binary pattern that is matched up with the IP address to form part of the host ID address field into a field for subnets.

Switch – 1. A data switch connects computing devices to host computers, allowing a large number of devices to share a limited number of ports.

2. A device for making, breaking, or changing the connections in an electrical circuit.

TCP (Transmission Control Protocol) – A method (protocol) used along with the Internet Protocol (IP) to send data in the form of message units between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP keeps track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet.

TCP/IP – Transmission Control Protocol/Internet Protocol (TCP/IP) is the basic communication language or protocol of the Internet. It can also be used as a communication protocol in a private network (either an intranet or an extranet). When you are set up with access to the Internet, your computer is uses the TCP/IP protocol.

TFTP (Trivial File Transfer Protocol) – A version of the TCP/IP FTP protocol that has no directory or password capability.

Throughput – The amount of data moved successfully from one place to another in a given time period.

Topology – A network's topology is a logical characterization of how the devices on the network are connected and the distances between them.

The most common network devices include hubs, switches, routers, and gateways. Most large networks contain several levels of interconnection, the most important of which include edge connections, backbone connections, and wide-area connections.

UDP (User Datagram Protocol) – A communications method (protocol) that offers a limited amount of service when messages are exchanged between computers in a network that uses the Internet Protocol (IP). UDP is an alternative to the Transmission Control Protocol (TCP) and, together with IP, is sometimes referred to as UDP/IP. Like the Transmission Control Protocol, UDP uses the Internet Protocol to actually get a data unit (called a datagram) from one computer to another. Unlike TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end. Specifically, UDP doesn't provide sequencing of the packets that the data arrives in. This means that the application program that uses UDP must be able to make sure that the entire message has arrived and is in the right order. Network applications that want to save processing time because they have very small data units to exchange (and therefore very little message reassembling to do) may prefer UDP to TCP.

Upgrade – To replace existing software of firmware with a newer version.

Upload – To send a file transmitted over a network. In a communications session, upload means transmit, and download means receive.

URL (Uniform Resource Locator) – The address that defines the route to a file on the Web or any other Internet facility. URLs are typed into the browser to access Web pages, and URLs are embedded within the pages themselves to provide the hypertext links to other pages.

VLAN (Virtual LAN) – A logical association that allows users to communicate as if they were physically connected to a single LAN, independent of the actual physical configuration of the network.

Virtual Server – Multiple servers that appear as one server, or one system image, to the operating system or for network administration.

WAN – A communications network that covers a wide geographic area, such as a state or country.

WEP (Wired Equivalent Privacy) – A data privacy mechanism based on 64-bit and 128-bit shared key algorithms, as described in the IEEE802.11 standard.

WINIPCFG – Configuration utility based on the Win32 API for querying, defining, and managing IP addresses within a network. A commonly used utility for configuring networks with static IP addresses.

Workgroup – Two or more individuals that share files and databases.

