MIH-130A

XRouter Pro
User's Manual

Networking the future

Macsense®
www.macsense.com

Xsense ™
www.xsense.com

Copyright

FCC Notice

This equipment has been tested and found to be FCC Rules certified. These restrictions are designed to provide protection against harmful interference from residential installations. This equipment generates radio frequencies that may cause interference with radio communications if not used in accordance with the instructions. Interference may even occur during proper installation. If this equipment causes interference, the user is suggested to correct the it by one or more of the following:

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 that is separate from the one to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

CE Declaration of Conformity

The equipment complies with the requirements relating to electromanetic compatiblity, the essential protection requirement of Council Directive/EEC on the approximation of the Member States relating to Electromangnetic compatibility.

Trademarks

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I

Safety Precautions

1. Follow all warnings and instructions marked on the product.

2. Slots and openings on the device are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered.

3. Do not use or store this product in the environment that exceeds temperature and humidity specifications. Do not place this product near a radiator or heat register, or in a built-in installation unless adequate ventilation is provided.

4. Before cleaning, unplug this product from wall outlet. Do not use liquid cleansers or aerosol cleansers. Use a damp cloth for cleaning.

5. Do not place cords or cables where they may be walked on or tripped over.

6. Be sure to comply with any applicable local safety standards or regulations.

7. General purpose cables are provided with this product. The use of any other cables or requirements mandated by local authority is user's responsibility.

8. Cables attached to devices in different locations with different power sources and grounding may cause hazardous voltage. Consult a qualified electronic consultant before installing the product to check if this phenomenon exists and, if necessary, take corrective action.

9. Never touch uninsulated telephone wires or terminals unless the line has been disconnected.

10. Avoid using telephone equipment or installing the product during an electrical storm.

11. Never install this product, or any kind of telephone jacks, lines, network cables, and power connections in wet locations.

12. Never spill liquid of any kind on the product.

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1.0 INTRODUCTION

Thanks for purchasing the XRouter Pro MIH-130A Internet Sharing Hub. The XRouter Pro functions as an easy-to-use communication device which allows you to connect a local area network (LAN) to the Internet affordably. With the XRouter Pro you can get as many as 252 Macintosh or PC users online simultaneously through one cable line or DSL, with one ISP account. The XRouter Pro installs quickly and easily, and best of all, it's a breeze to use.

1.1 Sharing Internet Access

The XRouter Pro provides high-speed Internet access to multiple users by splitting the bandwidth from a cable line or from DSL (Digital Subscriber Line) into tiny portions and routing these bandwidth "slices" to almost every Internet users. The fewer the number of users be online at the same time, the faster the information they receive via internet. Internet users on different nodes are not limited to access to the same Web pages. Each node functions independently from the other nodes connected to the XRouter Pro.

1.2 Modems Supported

The XRouter Pro supports both cable modems and DSL modems. It has one WAN (Wide Area Network) port to connect itself to a cable modem or a DSL modem. This provides more than enough bandwidth to accommodate the needs of even large groups of Internet users.

1.3 Built-in DHCP Server

The XRouter Pro's built-in DHCP Server dramatically reduces the amount of efforts needed for configuration and maintenance by allowing you to automatically configure the TCP/IP setting over a local area network.

1.4 4-Port Switched Ethernet Hub Inside

In addition to providing Internet sharing capability, the XRouter Pro also functions as an Switched Ethernet Hub, which offers four 10/100 Mbps switched RJ-45 ports that allow you to connect a series of computers to form a small LAN.

1.5 Easy Configuration

The XRouter Pro can be configured through a Web browser, and it features the web-based management for a simple, intuitive set up.

1.6 Virtual Server

Internet users can set up an in-house web server, such as WWW or FTP, through the XRouter Pro's Virtual Server mapping function. The Virtual Server allows you to select a particular computer within the network for responding to outside Internet requests.

1.7 Security

The XRouter Pro provides firewall-like security through NAT (Network Address Translation) to prevent unauthorized Internet users from accessing internal files. It can also filter out Internet requests from certain nodes on a local network for administrative purposes.

1.8 NAT (Network Address Translation)

The MIH-130A features NAT (Network Address Translation) as a means of translating private IP addresses into a global IP address. NAT masks local IP addresses to the outside world, allowing a group of Internet users to share a single ISP account. (No separate account is needed for each users)

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2.0 BEFORE YOU START

2.1 Package Overview

Prior to setting up your XRouter Pro, make sure your XRouter Pro package includes the following items:

- an XRouter Pro
- a power adapter
- manual
- a Category-5 UTP cable with RJ-45 connectors

2.2 Items Required

- an account from an ISP (Internet Service Provider)
- a cable line or DSL
- a cable modem or DSL modem
- additional UTP cables with RJ-45 connectors (for additional computers)

2.3 System Requirements

- Computer equipped with 10 BASE-T Ethernet connection inter face to support TCP/IP protocol
- Windows 95/98/2000, Windows NT 4.0 or that of later versions
- Mac OS 7.5.3 or later versions
- Netscape Communicator 4.0 or above (Microsoft Internet Explorer 4.0 or later versions is necessary for Web configuration.

Note: For future firmware upgrades, one of the operating systems listed above is needed.

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3.0 EASY INSTALLATION

3.1 Hardware Installation

Prior to connecting the XRouter Pro to LAN, please be certain that your cable or DSL service is active and operating correctly. If you are experiencing difficulties with the cable or DSL service, please contact the service provider before continuing the installation process.

3.1.1 Connecting the XRouter Pro to Your Modem

After verifying that your cable or DSL service is functioning properly, connect the cable modem or DSL modem to the XRouter Pro by following the instructions below:

1. Disconnect the Ethernet cable from the computer that is currently connected to the DSL or cable modem if you have not done so.

2. Plug the RJ-45 connector from this cable into the WAN (Wide Area Network) port on the back panel of the XRouter Pro.
   (See Figure 3.1-1)

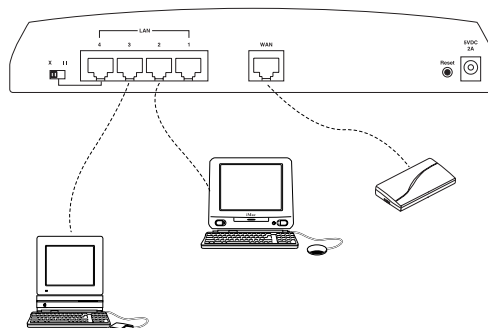3. Leave the other end of this Ethernet cable connected to the DSL modem or cable modem.

Figure 3.1-1

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3.1.2 Connecting Computers to the XRouter Pro

When you complete connecting the XRouter Pro to your DSL or cable modem, now you may connect the Macintosh or PC computers in your local area network to the XRouter Pro. Two methods can be implemented for the connection: (1) plugging computers directly into the XRouter Pro, and (2) connecting the XRouter Pro to your LAN hub.

Connect Computers Directly to the XRouter Pro

NOTE: You will need an Ethernet cable for each additional computer connecting to the XRouter Pro.

1. Plug one RJ-45 connector (of a standard twisted-pair Ethernet cable) to the Ethernet port on your computer.

2. Plug the other end of this cable to one of the XRouter Pro's four LAN ports (located on the left side of the XRouter Pro's rear panel. Refer to Figure 3.1.1)

3. Repeat steps 1 and 2 for each computer you wish to provide Internet access to until all four XRouter Pro LAN ports are filled.

NOTE: To connect more than four computers to the XRouter Pro, simply plug additional computers into a network hub and plug this hub into the XRouter Pro's uplink port. Read below for further instructions.

Switch to left for crossover mode ———————— ⤬ ‖ ———————— Switch to right for normal mode

Figure 3.1.2

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Chapter 3 - EASY INSTALLATION

To connect an existing LAN to the XRouter Pro:

As an alternative to connecting computers directly into the XRouter Pro's LAN ports, you can also connect a pre-existing network of the computer to the XRouter Pro by uplinking your network's central LAN hub to the XRouter Pro's uplink port.   (See Figure 3.1-3)

To connect a LAN hub to the XRouter Pro's uplink port:

1. Set the DIP switch (located on the XRouter Pro's rear panel just left of the No. 4 LAN port) from "straight" to "crossover" mode. (See Figure 3.1-2)

2. Plug one RJ-45 connector (of a standard twisted-pair Ethernet cable) to the XRouter Pro's No. 4 LAN port.

3. Plug the other end of this Ethernet cable into an available port on the network hub.

NOTE: Multiple network hubs can be connected to the XRouter Pro's LAN ports No.1-3 if these hubs are equipped with uplink ports. By daisy-chaining a series of hubs, you can connect up to 252 users to the XRouter Pro.
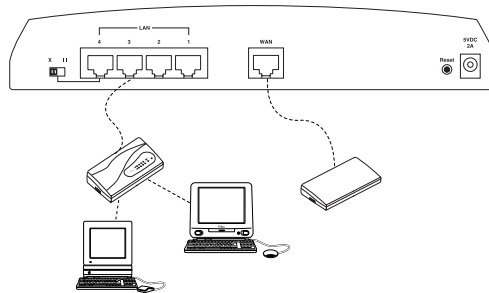
Figure 3.1-3

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3.1.3 Connecting the Power Supply

To provide your XRouter Pro with power:

1. Plug the power adapter of the XRouter Pro into an AC power outlet.

2. Plug the other end of the power adapter cable into the power receptacle on the rear panel of the unit.

3. The Power LED on the XRouter Pro's front panel should be lit immediately.

3.2 Software Configuration

3.2.1 Setting Up TCP/IP

Congratulations on installing the XRouter Pro's hardware! Next we will show you how to enable communication between the XRouter Pro and its managing and client computers.

Part of the process of enabling communication involves setting the IP addresses for the computer. It will manage directly the XRouter Pro's operations and the client computers which receive the Internet access from. These computers must have their IP addresses configured such that they share the same subnet numbering scheme as does the XRouter Pro's default IP address. We will explain this in more detail later in the chapter.

Configuring the IP addresses is a simple task that can be performed through your computer's control panel. We have provided instructions for the configuration process for both Macintosh and PC users. Find the appropriate set of instructions in the following pages.

3.3 Windows 95/98 TCP/IP Configuration of Computers

1. Double-click the **Control Panel** icon in *My Computer* folder.

2. In the Control Panel, double-click the **Network** icon. The network interface card (installed on your computer) appears along with the network protocol on the Configuration list.

3. Double-click **TCP/IP protocol** on the list. If TCP/IP does not appear on the list, you must install the TCP/IP protocol first as illustrated in step 4. Clients with TCP/IP already installed may skip to step 5.
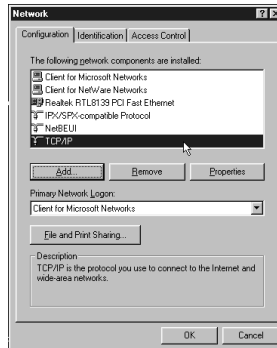
Figure 3.3-1

4. To install the TCP/IP protocol: (See Figure 3.3-1)

   a. Keep your copy of Windows 95/98 CD-ROM on hand. (You will need it for this installation.)

   b. Click the **Add** button from the Configuration list of the Network window. A new window appears.

   c. Double-click **Protocol**. Then, in the *Select Network Protocol* window, choose **Microsoft** on the *Manufacturers list*, and select **TCP/IP** on the right side of the list.   (See Figure 3.3-2)

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d. Follow the instructions on the screen to complete the installation process.
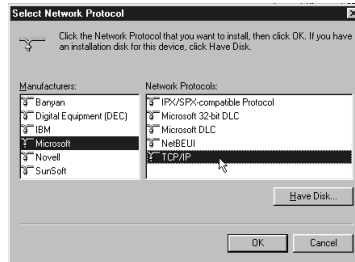
Figure 3.3-2

5. After double-clicking the installed TCP/IP protocol, the *TCP/IP properties* window appears. To automatically assign computer's TCP/IP, the XRouter Pro's DHCP server must perform the following functions:

a. Click the **IP Address** tab from the *TCP/IP properties* window.

b. Select the item **Obtain IP address automatically**. The XRouter Pro automatically assigns values for the computer's Gateway, DNS Configuration, and IP Address. (See Figure 3.3-3)

Figure 3.3-3

6. After specifying the settings of TCP/IP click **OK** and restart Windows to allow the settings to take effect.

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3.3.1 Assigning TCP/IP Values Manually

If you already have a DHCP server on the network, or if you prefer not to use the XRouter Pro's DHCP server to assign TCP/IP values automatically, you can input these values manually.

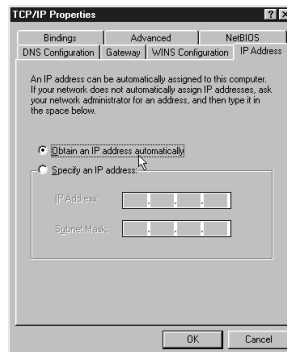To manage computer's address manually, perform the following functions: (See Figure 3.3-4)

1. Click the **IP Address** tab from the *TCP/IP properties* window.

2. In the IP Address field enter **"192.168.1.x"** where x is any variable of your choice ranging from 2 - 252. Enter **"255.255.255.0"** in the Subnet Mask field.

NOTE: No two computers on the LAN is allowed to adopt the same IP address or an IP address conflict will occur.

3. Click the **DNS** tab and enter the DNS IP addresses provided by your ISP in the DNS fields.

4. Click the **Gateway** tab and enter a value in the Gateway IP address field. The Gateway IP address value must be thesame as the XRouter Pro's IP address. (the XRouter Pro's default IP address is **192.168.1.1**).
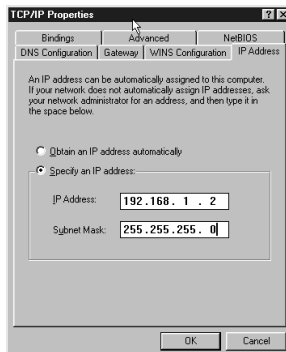

Figure 3.3-4

5. After specifying the settings of TCP/IP click **OK** and restart Windows to allow the set up to take effect.

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3.4 Mac OS TCP/IP Configuration

1. Open the *TCP/IP control panel*.

2. In the *Connect via menu* select the **Ethernet interface** installed on your computer.

3. In the *Configure pull-down menu*, select **Using DHCP Server** to allow the built-in DHCP server of the XRouter Pro to assign an IP address and other TCP/IP configuration information to the client automatically. Do this for every client who needs Internet access through the XRouter Pro.   (See Figure 3.4-1)

Note: The DHCP Client ID field does not require to connect to the XRouter Pro. It is normally used to identify computers in a DHCP network. If you desire to input the name of computer in this field, you may.

4. Close the TCP/IP window and save the changes.
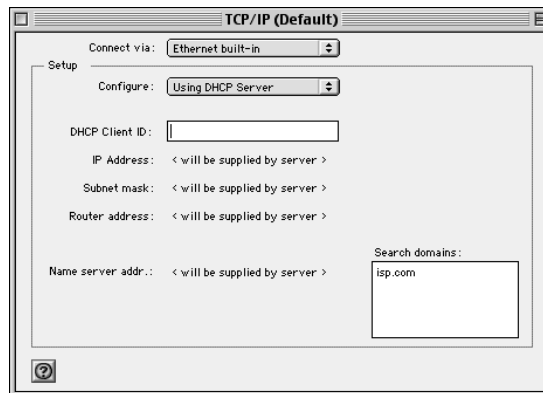

Figure 3.4-1

3.4.1 Assigning TCP/IP Values Manually

If you already have a DHCP server on the network, or if you prefer not to use the XRouter Pro's DHCP server to assign TCP/IP values automatically, you can input these values manually.

Chapter 3 - EASY INSTALLATION

To manage computer's address manually ,perform the following functions:

1. In the *Connect via menu* select the **Ethernet interface** installed in your computer.

2. In the *Configure menu* select **Manually**.   (See Figure 3.4-2)

a). In the <u>IP Address field</u>, enter **"192.168.1.x"** where x is any variable of your choice ranging from 2 - 252.
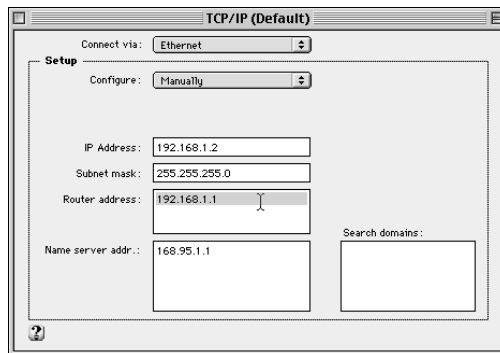
Figure 3.4-2

NOTE: No two computers on LAN is allowed to adopt the same IP address or an IP address confict will occur.

b). In the <u>Subnet Mask field</u> enter **"255.255.255.0"**.

c). In the <u>Router Address field</u> enter **"192.168.1.1"**, the XRouter Pro's default address.

d). In the <u>Name Server Address field</u> enter the DNS information provided by your ISP. In the <u>Search Domains field</u> enter the domain information provided by your ISP.

e). Close the *TCP/IP window* and save the changes.

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3.4.2 Setting Up the XRouter Pro Through a Web Browser

Now that you have completed the configuration of TCP/IP addresses of the client and managing computers, you may begin configuring the XRouter Pro's Internet settings. This can be done through a standard Web browser (such as Netscape Navigator, Netscape Communicator, or Microsoft Internet Explorer).

IMPORTANT: Before you begin, you must find out if your ISP provides one of following IP addressing types:

Dynamic with PPPoE: If your service is dynamic addressing with PPPoE support, you do not need to follow the instructions below. However,you will need to proceed to the **PPPoE Settings** section in the *Advanced Configuration* section of this manual.

Dynamic: If the service is dynamic, you do not need to follow the instructions below because the XRouter Pro automatically configures the TCP/IP information provided by your ISP (you should already have Internet access.)   Now you are done installing the XRouter Pro and can begin accessing the Internet from any of the client computers.

NOTE: The ISPs require the use of a MAC address (hardware address of a network device) for service connection. Then you will need to contact to the service provider and inform them the Public MAC address of your XRouter Pro. It can be found on the OnePage Setup of the XRouter Pro. To access the XRouter Pro's OnePage Setup screen, follow the instructions below.

Static with PPPoE: If the ISP has provided a static IP address or if you would like to make further changes to the advanced features, you will need to enter the Web-based configuration described below to configure the static IP address provided by your ISP. You will also need to use the **PPPoE Settings** section in the *Advanced Configuration* section of this manual.

Static: If your ISP has provided a Static IP address or if you would like to make further changes to the advanced features, you will need to enter the web-based configuration described below to configure the static IP address provided by your ISP.

Enter the Web-based configuration
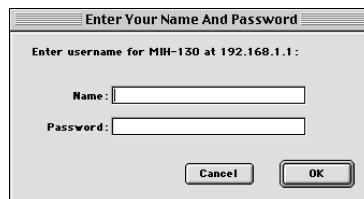
      1. Launch the Web browser.

NOTE: Netscape Communicator 4.0, Internet Explorer 4.0 or above is necessary for configuring the XRouter Pro.)

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2. Type the XRouter Pro's default IP address (**192.168.1.1**) in the URL field. This is the area where you would normally enter a Web site address such as "*www.macsense.com*".

3. Press **Enter**. The Username and Password window will then appear.

4. Leave the User name field blank and type "admin" as the default password for the XRouter Pro. You can change the password through a Web management page later. Click **OK.**

(See Figure 3.4-3)

Figure 3.4-3

Note: It is recommended to change the default "admin" password of your XRouter Pro for security purpose. This can be done in the "Device Admin" page of the web based configuration of the XRouter Pro. For more information ont the "Device Admin" please refer to the Advance Configuration section on this manual.

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5. The *OnePage Setup* window now appears. Note that this page is divided into two basic sections: Private IP Address, and Public IP Address.
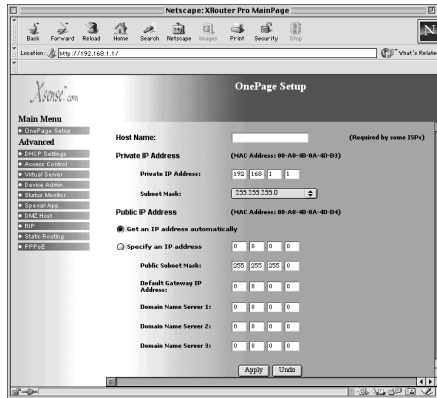
(See Figure 3.4-5)

Host Name: This is an optional section. Some ISPs require a host name in order to be recognized by their systems. Your ISP should provide this if it is needed for the systems.

Private IP Address: This section can be used for the changes in XRouter Pro's internal IP Address. However, we recommend that you do not alter the default IP address **"192.168.1.1"** unless some modifications are necessary to be made for your network environment.

Public IP Address: This section can be used to manually enter IP address information provided by your ISP. You will not need to make any changes to the default values in this section if the ISP automatically assigns IP addresses. However, if it provides you with a static IP address, you will need to enter this information by following the instructions below.

To make changes to the Public IP Address fields:

1. Select **Specify an IP Address**.

2. Enter the static IP address provided by your ISP in the field located immediately to the right of <u>Specify an IP Address</u>.

3. Enter the <u>Public Subnet Mask</u> provided by your ISP.

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4. In the <u>Default Gateway IP Address field</u>, enter the information provided by your ISP. Note that it may refer to "Gateway / Router IP Address." Also note that this number is not the same as the IP Address value that you have entered in step 2.

5. Enter the DNS information provided by your ISP in the <u>Domain Name Server fields</u>. It should provide at least two unique DNS numbers.

4.0 ADVANCED CONFIGURATION

Please refer to the previous chapter on how to enter the Web Management page of the XRouter Pro. The *Advanced Menu* contains mini sub-menus including DHCP Settings, Access Control, Virtual Server, Device Admin, Status Monitor, DMZ Host, RIP, Static Routing and PPPoE.

4.1 DHCP Server Settings

To alter the starting IP Address range, the number of users are automatically assigned to IP addresses on the LAN. To disable the DHCP server, enter the DHCP Settings page to make changes. (See Figure 4.1-1)
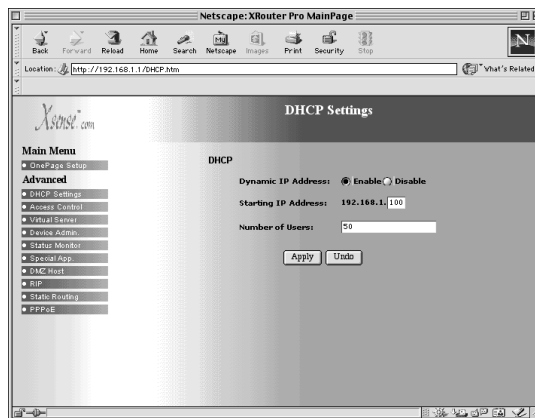

Fi gure 4.1-1

4.2 Access Control

The Access Control page contains two sub pages: *URL Access Setting* and *IP Access Setting*. By default the URL Access sub page should appear. Click the **IP Access Setting Link** located on top to view the *IP Access Setting* sub page.

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4.2.1 URL Access Setting

The *URL Access Setting* page in the XRouter Pro blocks/allows specific web sites on the LAN when enables. For example, if you choose to stop users on the LAN from accessing the web site "*www.yahoo.com*", you would use the *Access Control* page to block URL access to this site.
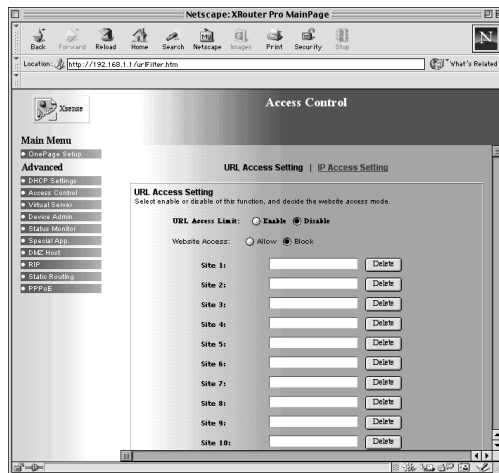
Figure 4.2-1

To Enable or Disable the URL access feature of the XRouter Pro, select either **Enable** or **Disable** from the *URL Access Limit* button.

To block access to a web site, select **Block** from *Website Access* buttons, then type in the specific URL in one of the Site fields.   (See Figure 4.2-1) For example, to block access to http://www.yahoo.com, type in "*www.yahoo.com*" into one of the Site fields. All other web sites would still be accessible.

To only allow access to specific web sites, select **Allow** from the *Website Access* buttons, then type in the specific URL in one of the Site fields. For example, to access to http://www.yahoo.com, type in "*www.yahoo.com*" into one of the Site fields. By using the **Allow** feature, the only web sites entered into the fields will be allowed to access. All other web sites will be blocked.

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4.2.2 IP Access Setting

The IP Access Setting page in the XRouter Pro can block a user defined
IP range from accessing specified ports. This feature is useful when block-
ing Internet services that you do not desire on your network.
(See Figure 4.2-2)
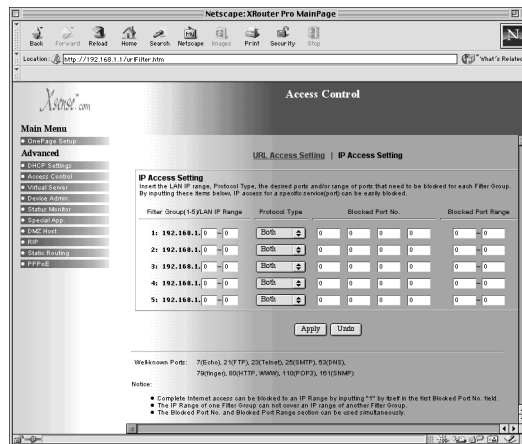
<div align="right">Figure 4.2-2</div>

The *IP Access Setting* sub page contains four sections. To enable the IP
Access Setting feature, you must enter information into the following sec-
tions:

Filter Group (1-5)/LAN IP Range: In this section, you will need to input the range
of LAN IP addresses for which access needs to be blocked. You can have up to 5
Filter Groups.

***NOTE: The IP Range of one Filter Group can not overwrite the IP Range of
another Filter Group.***

Protocol Type: In this section, you will need to select the type of protocol that
needs to be blocked from the pop -up menu. The choices are **TCP**, **UDP**, or
Both. If you are uncertain about the type needs to be blocked, select **Both** from
the menu.

Blocked Port No: In this section, you will need to enter the individual port num-
bers to be blocked. Up to 5 individual ports maybe be entered in this section for
the given IP Range.

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NOTE: Complete Internet access can be blocked in an IP Range by entering "1" in the first Blocked Port No. field.

Blocked Port Range : In this section, you will need to enter the range of ports that need to be blocked.

NOTE: The Blocked Port No. and Blocked Port Range section can be operated simultaneously.

Below is an example of what you shoud type into the IP Access Setting page when blocking web browsing access to specific range of IP addresses on a network.

Filter Group (1-5)/LAN IP Range: 100-150

Protocol Type: TCP

Blocked Port No: 80

Blocked Port Range: 0 - 0

The example above would effectively block web browsing to any user's computer which has an IP address in the range of 192.168.1.100 - 192.168.1.150.

4.3 Virtual Server

It is possible to set up your own Web, FTP, or other type of server on the network from a remote access. External internet users may enter the WAN IP address that has been assigned by your ISP. The XRouter Pro will redirect this request to the specified internal hidden IP address of the TCP port .

NOTE: It will be much more convenient to obtain a fixed address from your ISP. Failure to do so will result in having assigned a different IP address every time the connection to the ISP is reset.)

For example, if you set up the TCP port 80 (HTTP: Hypertext Transfer Protocol) to be redirected to the IP address"192.168.1.2" on the *Virtual Server setting*, the request from the external Internet user via HTTP proto-col (i.e. acquire Web page from browser) will be transferred through the XRouter Pro to the computer with the IP address "192.168.1.2" on your local network.   (See Figure 4.3-1)
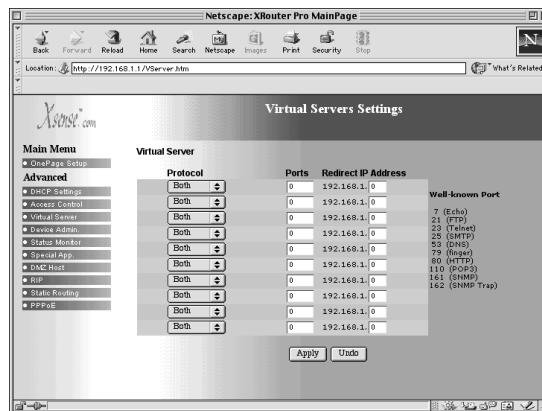
Figure 4.3-1

4.4 Device Administration

This page displays information on the firmware version of the XRouter Pro. You can also change the password, reset the device, disable, or enable external administrative access to the web based configuration of the XRouter Pro, block WAN port scanning and WAN ping responses. (See Figure 4.4-1)
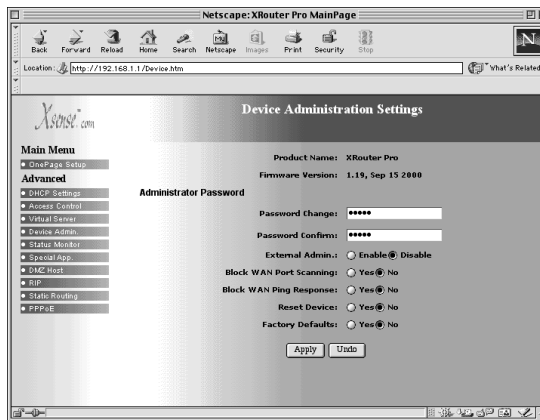
Figure 4.4-1

Block WAN Port Scanning: to block or allow external port scanning of the XRouter Pro, select Yes or No and then click Apply.

Block WAN Ping Response: to block or allow external pinging of the WAN IP of your XRouter Pro, select Enable or Disable and then click Apply.

Restore the XRouter Pro's factory original defaults: select **Yes** and then click **Apply**.

External Admin Access: to enable or disable external admin access to the XRouter Pro, select **Enable** or **Disable**.

NOTE: IT is recommended to change the default "admin" password of your XRouter Pro for the security purpose.   This is especially recommend if you intend to administer the router from outside your network and enable the External Admin feature.

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4.5 Status Monitor

The status monitor provides information on the working status of the
XRouter Pro. It contains the connection information for the WAN side of
the router.   The term WAN (Wide Area Network) refers to the connection
going to the ISP.

For a Static or Dynamic IP Address using PPPoE: (See Figure 4.5-1)
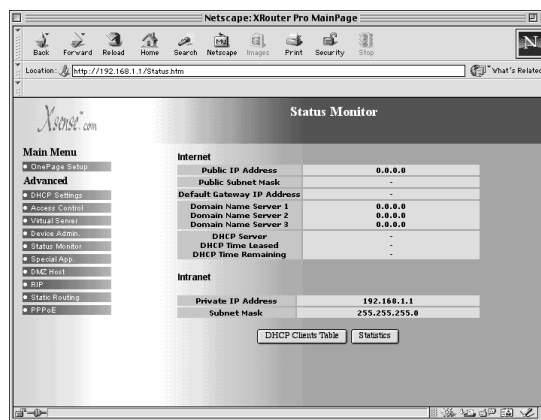
Figure 4.5-1

DHCP Clients Table: This allows you to view the DHCP clients on the LAN side
of the router.

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Statistics: This allows you to view the general traffic on the route, and to display the IP address as well as the number of packets translated for each client.

For a Static or Dynamic IP Address without PPPoE: (See FIgure 4.5-2)

Figure 4.5-2

DHCP Release: This allows you to release the IP address given by your ISP.

DHCP Renew: This allows you to get a new IP address from your ISP.

DHCP Clients Table: This allows you to view DHCP clients on the LAN side of the router.

Statistics: This allows you to view general traffic on the router, display the IP address and the number of packets being translated.

Note: The screens shown above for the Status Monitor do not show actuall connection. Dduring an actual connection, IP address information will be listed.

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4.6 Special APP

The Special App is an advanced feature but is not typically required to use the XRouter Pro. This feature allows you to specify a range for incoming ports to be open to computers on the network upon an outgoing trigger port for special application that need two-way communication. For example, if you wanted to allow Quicktime Streaming for the local network, you need to have the proper entries on this page. However, by default QuickTime and ReaPlayer are enabled but do not require any modifications.   (See Figure 4.6-1)
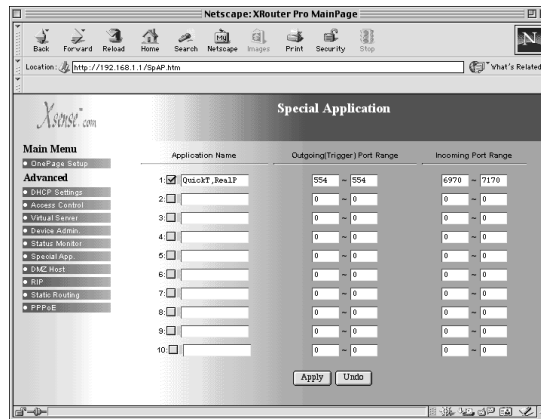
Figure 4.6-1

How the Special App Feature Works

The Special App feature works by monitoring any user defined outgoing trigger ports. When the XRouter Pro receives a request on these outgoing trigger ports it will open a range of user defined incoming ports to the computer that originally sent the request to.   Each computer on the network can use the Special App. Since the Special App feature works upon an outgoing trigger port, the user defined incoming ports are closed before the computer accesses the outgoing trigger port. In other words, incoming ports are closed until a proper internet request is made. Also, the incoming ports will automatically close if the XRouter Pro does not sense any activity for an extended period.

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How to Use the Special App Feature

To sue this feature, you must know what the outgoing trigger ports are for the given application that needs two-way communications. You must also know the incoming ports that are required fo rhte data that needs to come back into the network. For example, QuickTime typically uses port 554 as the initial outgoing communication port. However, the actual data is then sent back through different incoming ports. In the case of QuickTime, ports 6970-6999 need to be open to the computer so that incoming data can reach the computer requesting the QuickTime stream.

To enable Special App feature, click the check box next to the one of the Special entries. The Special App entries consist of the following fields and must be filled in:

Application Name: In this field, you can name the Special Application. This does not have to be a certain name.

Example for QuickTime: *QuickTime*

Outgoing (Trigger) Port Range: In these fields, the outgoing trigger port that the Special App would use to start the communication needs to be inputted. You may select a range of ports or a single port. For a single port, simply input the same port number for both fields.

Example for QuickTime: *554~554*

Incoming Port Range: in these fields the incoming ports that the Special App would use need to be inputted. These are the ports that the returning data would need to be opened. You may select a range of ports or a sinlge port. For a single port, input the same port number for both fields.

Example for QuickTime: *6970~6999*

4.7 DMZ (DeMilitarized Zone) Host

This feature will open all in/out access for one LAN computer. This is useful for machines that host TCP/IP services and is fully exposed to the public network. For example, Internet Gaming, NetMeeting, Timbuktu, or other types of services may require this type of access. Please enter one LAN IP Address below. Activate this feature only when required. (Entering "0" designates inactive)

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4.8 RIP (Routing Information Protocol)

This feature allows your XRouter Pro to send and receive RIP packets to/from other routers on the Internet. RIP is a protocol being used by some routers on the Internet. By sending and receiving RIP packets, your XRouter Pro will learn the routes used by neighboring routers. This can increase your its routing performance. The XRouter Pro supports RIP-1, RIP-1 compatible, and RIP-2.

RIP- 1: RIP 1 is used to exchange RIP packets with older routers which do not support RIP 2.

RIP-1- compatible : RIP-1 compatible allows the broadcast of RIP-1 and RIP-2 multicast packets. It can also receive both types.

RIP-2: RIP-2 is used to exchange RIP packets with newer routers. When using RIP-2, you can only exchange information with RIP-2 routers.

Select the type of RIP you would like to enable from the *TX(transmit)* and *RX(receive) pull-down menus*.

The RIP feature is considered an advance feature, and is not required for the use of XRouter Pro. If you are not familiar with RIP, you may not want to enable this feature. By enabling TX, you can send information about your router to the Internet.

4.9 Static Routing

The Static routing feature of the XRouter Pro allows the LAN to communicate with another router on the LAN and with their respective LAN segment. By setting up static routes, computers on the XRouter Pro's immediate LAN may utilize another router's LAN and XRouter Pro's LAN simultaneously. See the figure below for the setup process.   (See Figure 4.9-1)
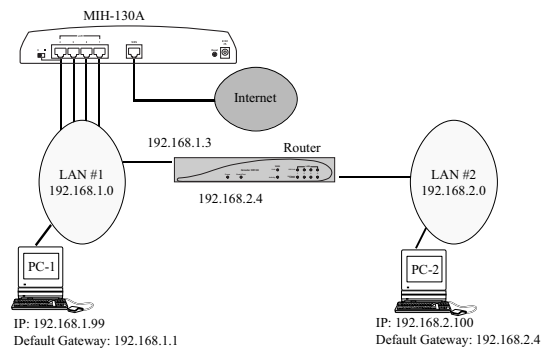
Figure 4.9-1

To achieve th static route in the example above, the following information would be inputted into the XRouter Pro's Static Routing page:

Static Routing: *1--*

Destination LAN IP: *192.168.2.0*

Subnet: *255.255.255.0*

Default Gateway: *192.168.1.3*

Hop Count: *1*

Interface: *LAN*

In the example above, PC-1 would have access to LAN#1, LAN#2 and the Internet. Where as, PC-2 would have access to LAN#1 and LAN#2, but not to Internet. In order for PC-2 to have Internet access, a second XRouter Pro or another similarly configurable router would be needed configuration.

Static Routing is considered an advanced feature but is not required for basic configuration of the XRouter Pro.

4.10 PPPoE Settings

Some ISPs require the use of PPPoE for the network connection. When PPPoE is in use, input the username and password provided by your ISP. (See Figure 4.10-1)

Figure 4.10-1

Username : Enter the username assigned by your ISP.

Password : Enter the password assigned by your ISP. Enter the service name if required.

Connect-on-Demand : This feature allows the router to initiate a connection with ISP when a Internet request is made to the XRouter Pro. If you enable the XRouter Pro's Connect-on-Demand feature, a connection to the Internet will automatically be initiated when you open your browser. 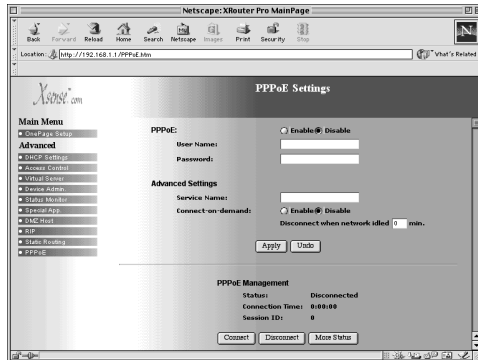We recommend having this feature enabled if you do not wish to enter the web based configuration and access to internet manually.

Service Name : This field is optional and is not needed for all ISPs. Input the Server Name in this field if your ISP requires it.

Disconnect when network idle : This field allows you to enter the amount of idle time (in minutes) required prior to being disconnected from the ISP. For example, if you set the idle to "10", then the XRouter Pro will disconnect your PPP connection after 10 minutes. Enter "0" if no idle time is used.

PPPoE Management : This section provides status information on your PPP connection and allows you manually connect and disconnect the PPP connection. To manually connect click **Connect**, and to manually disconnect, click **Disconnect**.

NOTE: If connection problems occur via PPPoE to your ISP, please verify the that your ISPs connects directly to your Internet line, or if the above settings and cables connect to your XRouter Pro.

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4.11 Firmware Upgrade

Xsense is continually improving the firmware (software programmed on a PROM) in each of its products. The XRouter Pro is shipped with the most up-to-date software available at the time of production. If a firmware upgrade becomes available, it will be posted in the *Service and Support* section on our Web site. To upgrade the XRouter Pro, you will need the TFTP client and the firmware file named "xxxxx.bin." These two files can be found on our Web site at *www.macsense.com*. The following is the upgrade procedure.   (See Figure 4.11-1)
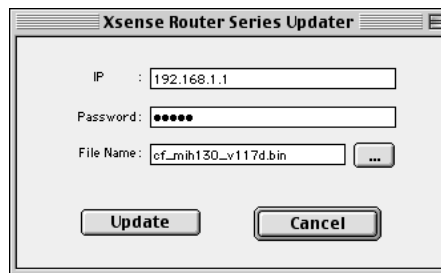
Figrue 4.11-1

1. Download these two files from our Web site: TFTP client, and "xxxxx.bin"

NOTE: These files are actually inside a single compressed folder on our web site. This means that you would only download one file. Once downloaded and decompressed, a folder will contain the needed files.

2. Double click the Xsense Router Series Updater icon to run the pro- gram. Enter both the IP address of the XRouter pro into the <u>IP Field</u> and your password in the <u>Password Field.</u>.

3. Click **File Name** field. A window appears. Select a location of the firmware file "xxxx.bin"

4. Click **Update** button to begin the upgrading process. After the upgrade is complete, reset the XRouter Pro by unplugging the device and plugging it back in.

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NOTE: Keep the firmware file name "xxxx.bin" unchanged, or the TFTP won't recognize it.

5. If the upgrade has failed, the Ready/Test LED will be flashing on the XRouter Pro. If this happens, repeat steps 2 - 4 of this procedure.

5.0 TROUBLESHOOTING

This chapter provides solutions to problems that may occur during the installation and operation of the MIH-130A XRouter Pro.

    1. The Link LED is off.

      -Be sure that all connectors are firmly plugged-in.

      -Be sure that the power adapter is plugged into an electrical out-let.

    2. Can't connect to MIH-130A XRouter Pro via Web browser.

      -Be sure that the IP address "192.168.1.1" has been correctly entered in the URL field.

      -Be sure the network cable connection and LAN LED indicator on the XRouter Pro

      -Check the TCP/IP setup on your client. Type "winipcfg" on DOS prompt under Windows 95 or open the *TCP/IP control panel* on the Mac OS platform. The client should get an IP address of "192.168.1.x" (where "x" is from 1 to 252.)

    3. Can't connect to MIH-130A XRouter Pro to the Internet.

      -Check whether your ISP requires the use of the MAC address for the router. Some ISPs require the MAC address the network connection.   Contact your provider with the correct MAC address if it is necessary.

      -If you are using the Static IP address provides by your ISP, verify that the address is correct and is correctly entered in the *URL field*.

      -Check your cabling among all devices.

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APPENDIX A - Specifications

Standards Compliance
> IEEE 802.3 10BASE-T and IEEE 802.3u 100BASE-TX
> TCP/IP, DHCP, DNS

WAN Interface
> One 10BASE-T RJ-45 port

LAN Interface
> Four 10/100 Mbps RJ-45 ports

Web Management
> Yes

LED Display
> Power, Link/Activity for WAN/LAN ports, Collision/Partition for LAN ports

Environment
Operation Temperature	0°C ~ 45°C (32°F ~ 113°F)
Storage Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Humidity	0% ~ 90%

Dimensions
LxWxH (mm)	142 x 236 x 46
LxWxH (in.)	5.59 x 9.29 x 1.81

Power
> 5VDC, 1A

Certifications
> EMI/EMC - FCC Class A / CE Mark Class A
> Safety - CUL(UL&CSA)/LVD/TÜV

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APPENDIX B - Hardware Description
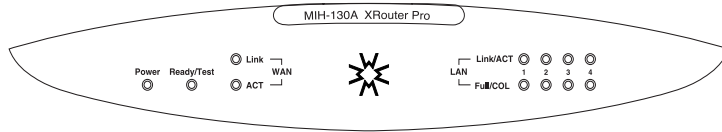
Power
Green   Indicates that there is power to the unit.

Ready/Test
Red   Flashes during boot up

WAN Port

Link
Green   Indicates proper connection with Internet / Ethernet.

Activity
Orange   Flashing LED indicates that data packets are flowing through the
                 WAN port.

LAN Ports

Link/ACT
Green   Solid LED indicates a proper 100BASE-TX connection with a com-
                 puter and a flashing LED indicates that there is activity on this
                 Ethernet port

Orange   Solid LED indicates a proper 10BASE-T connection with a computer
                 and a flashing LED indicates that there is activity on this Ethernet
                 port

Full/Col
Orange   Indicates that the connection is Full Duplex

Red   Indicates that there is severe collision at this port and being isolated
                 from the other ports temporarily.

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Rear Panel Description
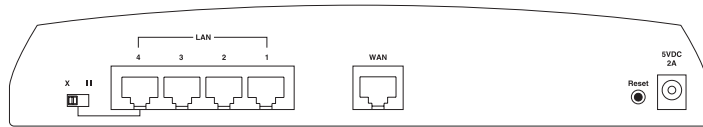
Figure A-B-1

LAN Ethernet Ports

Four 10/100Mbps Enthernet network (RJ-45) ports used for linking hub/computer in a Local Area Network to the XRouter Pro.

WAN Ethernet Port

One Wide Area Network port for connecting the XRouter Pro to the Internet via a cable or DSL modem.

Reset Button

Used for resetting the XRouter Pro's IP Address information and user password to the factory default settings.

5VDC Power Adapter Receptacle

Plug the power adapter cable into this port to supply power to the XRouter Pro unit.

Uplink Switch

Used to determine the configuration of the XRouter's LAN port No. 4. Choose either parallel (normal) for connecting LAN computers to the XRouter Pro or crossover mode (uplink) for daisy-chaining a series of hubs to the XRouter Pro.

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Glossary

Cable Modem

A device that connects your PC to a local TV line and receives data at 1.5Mpbs. One of its connections is connected to your PC and the other one is to the cable wall outlet. It attaches a standard 10BASE-T ethernet card to a computer and modulates between digital and analog signals.

DHCP

DHCP is a protocol for automatic IP configuration. Computers at client premise can get one IP address from DHCP server automatically. Using DHCP can save the effort for setting IP addresses on every LAN computer.

DMZ

Abbreviation for Demilitarized Zone. It is an area between a computer's private network and its outside public network. DMZ prevents the external users from accessing directly to the server that contains company data.

Domain Name

A name that identifies one or more IP addresses. For example, the domain name "microsoft.com" represents many IP addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebope-dia.com/index.html, the domain name is pcwebopedia.com.

DSL

DSL stands for Digital Subscriber Line. DSL transfers high-bandwidth information and data to homes and small businesses through copper telephone lines. It is pre-dicted to replace IDSN in bringing both motion, 3-D, voice and data signals to the users.

Dynamic IP address

A dynamic IP address is an IP address that is given out automatically from a DHCP Server to client computers or routers on a LAN or WAN.

Firewall

A set of related programs that protects inforamtions of private network users from other networks.

Firmware

A program that is inserted into a programmable read-only memory to become a computing device. It is created and tested like a software.

Glossary

Gateway

An entrance to a network. It associates with both router and switch whereas the router gives direction as data arrives at the gateway and the switch, on the other hand, furnishes its actual path in and out of the gateway.

HTTP

The Hypertext Transfer Protocal is an application protocol and a set of rules for file exchange on the World Wide Web.

IEEE

Abbreviation of Institute of Electrical and Electronics Engineers. Founded in 1884, the IEEE is an organization composed of engineers, scientists, and students. The IEEE is best known for developing standards for the computer and electronics industry. In particular, the IEEE 802 standards for local area networks are widely adopted.

Internet

A global network connecting millions computers. As of 1998, the Internet has more than 100 million users worldwide, and that number is still growing rapidly. More than 100 countries are linked to the exchanges of data, news and opinions.

IP

Internet Protocol is meant by sending data from one computer (host) to another on the internet. Each of the host has at least one IP Address which identifies its IP from other computers on the internet.   When sending or receiving messages, the messages are divided into different packets that contain addresses of the senders and the receivers.

IP Address

An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages base on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each ranges from 0 to 255. For example, 1.160.10.240 could be a legal IP address.

ISP

Short for Internet Service Provider, or a company that provides access to the Internet. Paid on a monthly basis, the service provider gives you a software package, username, password and access phone number. Equipped with a modem, you can then log onto the Internet and browse the World Wide Web and USENET, as well as to send and receive e-mails.

Local Area Network (LAN)

A computer network that spans a relatively small area. Most LANs are confined to a single building or a group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A system of

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LANs connected this way is called a wide-area network (WAN)

MAC Address

Short for Media Access Control Address, a hardware address that uniquely identifies each node of a network. In IEEE 802 networks, the Data Link Control (DLC) layer of the OSI Reference Model is divided into two sublayers: the Logical Link Control (LLC) layer and the Media Access Control (MAC) layer. The MAC layer communicate directly with the network media. Consequently, different types of network media require different MAC layer.

NAT

This is an abbreviation for Network Address Translation, or translation of one IP address in a network (inside) to a different IP address in another network (outside). It is included in a router and the firewall of a company

PPPoE (Point to Point Protocol over Ethernet)

PPPoE is short for Point to Point Protocol that uses Ethernet to authenticate and connect a user's computer or router to the ISPs network.

Protocal

A set of rules that end points in a telecommunication use as they communicate. These end points must recognize and observe the protocal in the communication.

RIP

Routing Information Protocol is used to manage router information within a self-contained network. It is considered to be one of the internal gateway protocols.

Server

It is a computer program that provides services to other computer programs in the computer.

Static IP address

A static IP address is an IP address that does not change and is manually set in client computer or router in a LAN or WAN.

Subnet Mask

It defines which bits in the host portion of the IP address can be used to define a subnet.

TCP/IP

Acronym for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect hosts on the Internet.

TFTP

TFTP stands for Trivial File Transfer Protocol.   It is an internet file transfer protocol

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that operates similar to FTP with few resources to run. It uses UDP and requires no login procedures.

UDP

UDP stands for User Datagram Protocol. It's an user interface between applications and the IP in a network.   It has the ability to address a particular appliation process running on a host via a port number without setting up a connetion session.   When using UDP, the entire transmission can be sent in one or two UDP datagrams.

Virtual Server

A server at someone else's location shared by many web site owners.   Users with virtual servers can have their own domain names and IP addresses, administer file directories, add email accounts, manage their own logs and statistic analysis, assign multiple domain names, and maintain passwords.

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