

# TEW-610APB

108Mbps 802.11g MIMO  
Wireless Access Point

## User's Guide



**TRENDnet**<sup>®</sup>  
TRENDware, USA  
What's Next in Networking

## **Federal Communication Commission Interference Statement**

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 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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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# Getting Started with the TEW-610APB

Congratulations on purchasing the TEW-610APB! This manual provides information for setting up and configuring the TEW-610APB. This manual is intended for both home users and professionals.

The following conventions are used in this manual:



*THE NOTE SYMBOL INDICATES ADDITIONAL INFORMATION ON THE TOPIC AT HAND.*



*THE TIP SYMBOL INDICATES HELPFULL INFORMATION AND TIPS TO IMPROVE YOUR NETWORK EXPERIENCE.*



*THE CAUTION SYMBOL ALERTS YOU TO SITUATIONS THAT MAY DEGRADE YOUR NETWORKING EXPERIENCE OR COMPROMISE*



*LIKE NOTES AND TIPS, THE IMPORTANT SYMBOL INDICATES INFORMATION THAT CAN IMPROVE NETWORKING. THIS INFORMATION SHOULD NOT BE OVERLOOKED.*

## Package Contents

- TEW-610APB 108Mbps 802.11g Wireless MIMO Access Point
- CAT-5 Ethernet Cable ( the TEW-610APB's Ethernet ports is Auto-MDIX)
- Power Adapter (5V DC, 2A)
- CD-ROM with Manual
- Multi-Language Quick Installation Guide



Using a power supply with a different voltage than the one included with your product will cause damage and void the warranty for this product.

## Minimum System Requirements

- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter and CD-ROM.
- Internet Explorer Version 6.0 or Netscape Navigator Version 7.0 and Above

# Introduction

The TEW-610APB Super G Wireless MIMO AP is an 802.11g high-performance, wireless AP that supports high-speed wireless networking at home, at work or in public places.

Unlike most APs, the TEW-610APB provides data transfers at up to 108 Mbps (compared to the standard 54 Mbps) when used with other Super G MIMO products. The 802.11g standard is backwards compatible with 802.11b products. This means that you do not need to change your entire network to maintain connectivity. You may sacrifice some of 802.11g's speed when you mix 802.11b and 802.11g devices, but you will not lose the ability to communicate when you incorporate the 802.11g standard into your 802.11b network. You may choose to slowly change your network by gradually replacing the 802.11b devices with 802.11g devices.

## Features

- Supports IEEE 11b/g 2.4GHz wireless Local Area Network (WLAN) application
- 802.11b/g 2.4GHz WLAN with 2.412 to 2.484GHz frequency band operation
- Provide MIMO advantages
  - Receive combining to focus energy from the intended direction
  - Transmit beam forming to focus energy in the intended direction
- Support OFDM, CCK, DBPSK, and DQPSK modulation
- Data rates of 1,2,5.5,11,6,9,12,18,24,36,48,54Mbps and Turbo Mode offering up to 108Mbps.
- Hardware encryption for the Wi-Fi Protected Access (WPA/WPA2) and Wired Equivalent Privacy (WEP) without performance degradation
- User-friendly configuration
- Web-based interface for Managing and Configuring
- Equipped with one 10/100 Ethernet port, Auto MDI/MDIX

# Hardware Overview

## Real Panel



### DC-IN

The DC power input connector is a single jack socket to supply power to the TEW-610APB. Please use the Power Adapter provided on the TEW-610APB package.

### Auto-MDIX LAN Ports

This port automatically senses the cable type and auto negotiating the speed when connecting to the Router.

### Reset Button

Pressing the reset button restores the AP to its original factory default settings.

## LEDs



### **POWER LED**

A solid light indicates a proper connection to the power supply.

### **LAN LED**

A solid light indicates a connection to a Router on the LAN port. This LED blinks during data transmission.

### **WLAN LED**

A solid light indicates that the wireless segment is ready. This LED blinks during wireless data transmission.

## Installation Considerations

The TEW-610APB Super G Wireless MIMO AP lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

- 1 Keep the number of walls and ceilings between the TEW-610APB and other network devices to a minimum - each wall or ceiling can reduce your wireless product's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
- 2 Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
- 3 Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
- 4 Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.

## Getting Started

For a typical wireless setup at home, please do the following:

1. Plug the power adapter to outlet, and connect the power jack to the TEW-610APB.
2. Connect the Ethernet LAN port of the TEW-610APB to your PC.
3. Open your web browser, and type <http://192.168.0.100> to login TEW-610APB.
4. When the authentication window is popped up, type the **admin** for the username and password, then type enter to login the web page of the TEW-610APB.
5. Configure the desired wireless setting.
6. Connect the Ethernet port of the TEW-610APB to your router.

# Using the Configuration Menu

Whenever you want to configure your TEW-610APB, you can access the Configuration Menu by opening the Web-browser and typing in the IP Address of the TEW-610APB. The TEW-610APB's default IP Address is <http://192.168.0.100> .

- Open the Web browser.
- Type in the **IP Address** of the AP (<http://192.168.0.100> ).



If you have changed the default IP Address assigned to the TEW-610APB, make sure to enter the correct IP Address.

**NOTE**

- Type **admin** in the **User Name** field.
- Type **admin** in the **Password** field.
- Click **Login In**.

# Information

**Information**

Information.

**NOTE:** You may need to reload this page to see the current settings.

**Access Point Information**

Access Point Name:	TEW-610APB
MAC Address:	0011223344BB
Firmware version:	1.0 26 Aug 2005
SSID:	default
Current transmit rate:	Automatic
Current channel:	6
Security:	None
IP address:	192.168.0.100 (Static)

## **Access Point Name**

Model name of this Access Point

## **MAC Address**

The Ethernet ID (MAC address) of the wireless client.

## **Firmware version**

Current firmware version of this Access Point

## **SSID**

When you are browsing for available wireless networks, this is the name that will appear in the list. For security purposes, it is highly recommended to change from the pre-configured network name.

## **Current transmit rate**

Current setting for wireless transmit rate

## **Current channel**

Current setting of wireless channel

## **Security**

Current setting of wireless security mode

## **IP address**

The IP address of the access point.

# Stations

This section shows you a list of MAC address of stations that have associated to this Access Point.

The screenshot shows the configuration page for a TRENDnet 108Mbps 802.11g MIMO Wireless Access Point (TEW-610APB) accessed via a Microsoft Internet Explorer browser. The browser's address bar shows the URL <http://192.168.0.100/>. The page features the TRENDnet logo and product specifications, including 'MIMO TECHNOLOGY 108g' and '8x MIMO 800% 108g NR'. A left-hand navigation menu includes links for Information, Stations, Wireless, WDS, Security, Access, Admin, and Advanced. The main content area is titled 'Associations' and contains the text: 'This is a list of MAC addresses of stations that have associated to the access point.' Below this text is a table with the following header:

MAC address	Mode	Rate	RSSI
-------------	------	------	------

# Wireless

This wireless section is used to configure the wireless settings for your Wireless AP. Please note that changes made on this section may also need to be duplicated on your Wireless Client.

**Information**  
**Stations**  
**Wireless**  
**WDS**  
**Security**  
**Access**  
**Admin**  
**Advanced**

## Basic Wireless

On this page you can configure the basic 802.11g wireless settings. Any new settings will not take effect until the device is rebooted.

Wireless On/Off  ON  OFF  
Enable/Disable wireless port.

Wireless Network Name (SSID)   
This is the wireless network name of this device. Stations that associate to this device should know this name.

Visibility Status  Visible  Invisible  
When Invisibility is selected, this device will not broadcast its SSID in the beacons, so that each wireless client needs to explicitly know and use the SSID (Wireless Network Name).

Transmission rate (Mbits/s)   
This is the speed at which the device will transmit data. Normally you should select 'best' here, although if your wireless network is unusually noisy or quiet you may wish to use a fixed low or high rate. Note that the actual TX rate (values in brackets) is doubled for turbo mode.

802.11 Mode   
This setting controls the types of 802.11 wireless clients or stations that can connect to this AP.

Adaptive Radio Selection   
Check this box to enable Adaptive Radio feature in Dynamic Turbo mode. When this feature is enabled, Access Point stays out of turbo mode whenever it detects any non-turbo traffic on adjacent channels.

Super mode   
Select super mode.

Auto Channel Select   
Check this box to enable Access Point to automatically select the best channel at start up. This may take upto 20 seconds and no clients will be able to associate during this period.

Channel   
This is the radio channel that the access point will use. Note that 802.11g and 802.11b use only 2.4 GHz channels.

## Wireless On/Off

This option turns off and on the wireless connection feature of the AP.

## Wireless Network Name

When you are browsing for available wireless networks, this is the name that will appear in the list (unless Visibility Status is set to invisible, see below). This name is also referred to as the SSID. For security purposes, it is highly recommended to change from the pre-configured network name.

## Visibility Status

The Invisible option allows you to hide your wireless network. When this option is set to Visible, your wireless network name is broadcast to anyone within the range of your signal. If you're not using encryption then they could connect to your network. When Invisible mode is enabled, you must enter the Wireless Network Name (SSID) on the client manually to connect to the network.

## Transmission Rate

By default the fastest possible transmission rate will be selected. You have the option of selecting the speed if necessary.

## 802.11 Mode

If all of your devices can connect in 802.11g Mode, you can change the mode to 802.11g only. If you have some devices that are 802.11b, leave the setting at Mixed.

## Adaptive Radio Selection

Check this box to enable Adaptive Radio feature in Dynamic Turbo mode.

## Super Mode

Super G Turbo Modes must use channel 6 for communication. For Super G with Static Turbo, **802.11 Mode** must be set to 802.11g.

**Super G without Turbo:** Performance enhancing features such as Packet Bursting, FastFrames, and Compression.

**Super G with Static Turbo:** This mode is not backwards compatible with non-Turbo (legacy) devices. This mode should only be enabled when all devices on the wireless network are Static Turbo enabled.

**Super G with Dynamic Turbo:** This mode is backwards compatible with non-Turbo (legacy) devices. This mode should be enabled when some devices on the wireless network are not Turbo enabled but support other Super G features mentioned above.

## Auto Channel Select

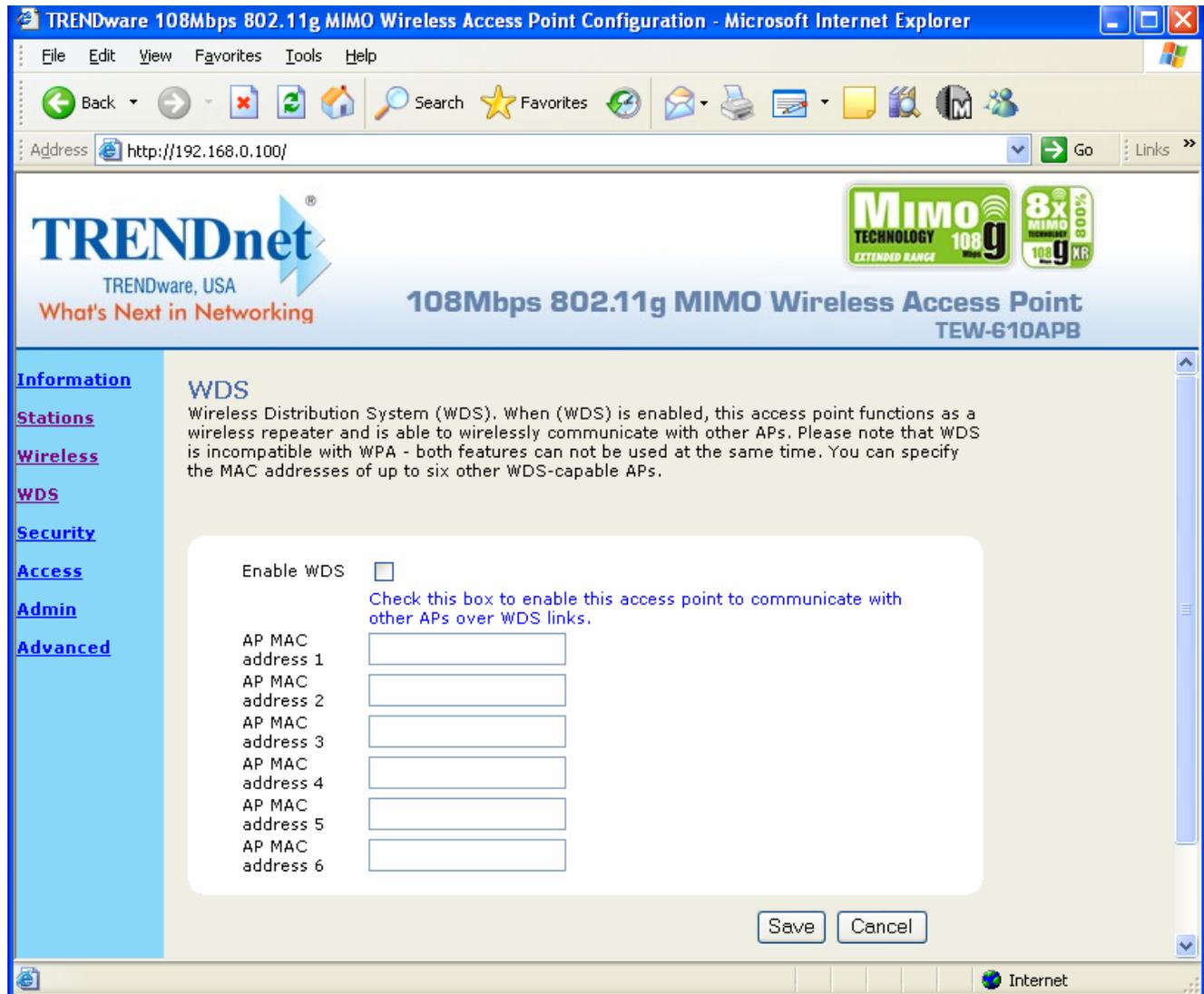
If you select this option, the AP automatically finds the channel with least interference and uses that channel for wireless networking. If you disable this option, the AP uses the channel that you specify with the following **Channel** option.

## Channel

A wireless network uses specific channels in the 2.4GHz wireless spectrum to handle communication between clients. Some channels in your area may have interference from other electronic devices. Choose the clearest channel to help optimize the performance and coverage of your wireless network.

# WDS

Wireless Distribution System (WDS). When WDS is enabled, this access point functions as a wireless bridge and is able to wirelessly communication with other APs.



## Enable WDS

When WDS is enabled, this access point functions as a wireless repeater and is able to wirelessly communicate with other APs via WDS links. Note that WDS is incompatible with WPA -- both features cannot be used at the same time. A WDS link is bidirectional; so this AP must know the MAC Address (creates the WDS link) of the other AP, and the other AP must have a WDS link back to this AP.

## AP MAC Address #

Specifies one-half of the WDS link. The other AP must also have the MAC address of this AP to create the WDS link back to this AP.

# Security

On this section you can set the 802.11g security and encryption options. Any new settings will not take effect until the device is rebooted.

**Information**  
**Stations**  
**Wireless**  
**WDS**  
**Security**  
**Access**  
**Admin**  
**Advanced**

## Security and Encryption Settings

On this page you can set the 802.11g security and encryption options. Any new settings will not take effect until the device is rebooted.

---

### WPA configuration

Enable WPA Authenticator to require stations to use high grade encryption and authentication.

WPA Enable

WPA Mode   
Select the WPA Mode.

Cipher Type   
Select the cipher type.

PSK   
Enter a text pass phrase between 8 and 63 characters. Leave blank to enable 802.1X Authentication.

WPA Group Key Update Interval   
seconds.

---

### 802.1X configuration

When 802.1X authentication is enabled then the AP will authenticate clients via a remote RADIUS server.

802.1X enabled

Authentication timeout (mins)

RADIUS server IP address

RADIUS server port number

RADIUS server shared secret

MAC Address Authentication

RADIUS server IP address

RADIUS server port number

RADIUS server shared secret

MAC Address Authentication

---

### WEP configuration

WEP is the wireless encryption standard. To use it you must enter the same key (s) into the access point and all stations that associate to it. For 64 bit keys you must enter 10 hex digits into each key box. For 128 bit keys you must enter 26 hex digits into each key box. A hex digit is either a number from 0 to 9 or a letter from A to F. If you leave a key box blank then this means a key of all zeros.

Enable WEP   
Check this box to enable WEP. For the most secure use of WEP, also set the authentication type to "Shared Key" when WEP is enabled

Default WEP key to use   
Select the key to be used as the default key. Data transmissions are always encrypted using the default key. The other keys can only be used to decrypt received data.

Authentication   
Select the type of authentication used when connecting to stations. 'Open' is used if anyone can connect to this device. 'Shared key' is used if both devices must know the encryption key.

WEP key lengths   
Select the WEP key size. This length applies to all keys.

WEP key 1

WEP key 2

WEP key 3

WEP key 4

**WPA Enable**

Select to enable WPA function

**WPA Mode**

WPA is the older standard; select this option if the clients that will be used with the AP only support the older standard. WPA2 is the newer implementation of the stronger IEEE 802.11i security standard. With the "WPA2" option, the AP tries WPA2 first, but falls back to WPA if the client only supports WPA. With the "WPA2 Only" option, the AP associates only with clients that also support WPA2 security.

**Cipher Type**

The encryption algorithm used to secure the data communication. TKIP (Temporal Key Integrity Protocol) provides per-packet key generation and is based on WEP. AES (Advanced Encryption Standard) is a very secure block based encryption. With the "TKIP and AES" option, the AP negotiates the cipher type with the client, and uses AES when available.

**PSK**

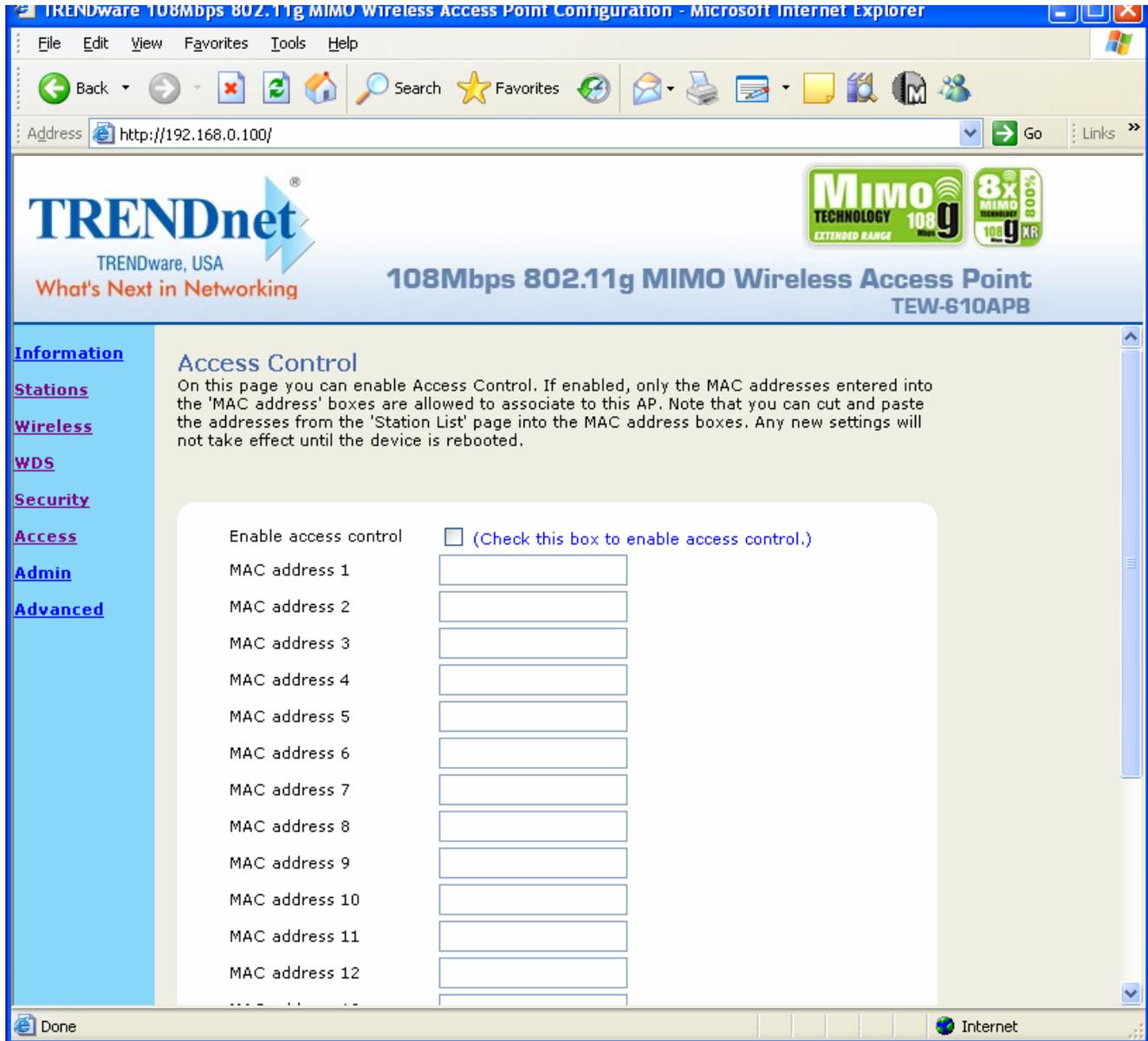
The key is entered as a pass-phrase of up to 63 alphanumeric characters in ASCII (American Standard Code for Information Interchange) format at both ends of the wireless connection. It cannot be shorter than eight characters, although for proper security it needs to be of ample length and should not be a commonly known phrase. This phrase is used to generate session keys that are unique for each wireless client.

**WPA Group Key Update Interval**

The interval defines how frequent the key used for broadcast/multicast will be changed. Unit: second

# Access

On this section you can enable Access Control. If enabled, only the MAC addresses entered into the “MAC address” boxes are allowed to associate to this AP. Note that you can cut and paste the addresses from the “Station List” page into MAC address boxes. Any new settings will not take effect until the device is rebooted.



## Enable Access Control

By default, the Access Control feature is disabled. If you need Access Control, check this option.

## MAC Address #

MAC addresses entered into the “MAC address” boxes are allowed to associate to this AP.

# Admin

On this section you can configure the IP address used by the Web server running on this device. For “static” mode, the IP address settings are given here. For “DHCP” mode, these settings are supplied by a DHCP server on your network. You can also change the password, reboot the device, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot the device for the new settings to take effect.

- [Information](#)
- [Stations](#)
- [Wireless](#)
- [WDS](#)
- [Security](#)
- [Access](#)
- [Admin](#)
- [Advanced](#)

## Administration

On this page you can configure the IP address used by the Web server running on this device. For "static" mode, the IP address settings are given here. For "DHCP" mode, these settings are supplied by a DHCP server on your network. You can also change the password, reboot the device, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot the device for the new settings to take effect.

### Device Control

Clicking the button below will immediately reboot the device. A reboot is necessary in order to change most configuration options.

Clicking the button below will reset all configuration options to their factory default values and the device will reboot. Note that the IP address of the device will also be reset and it may be necessary to change the address in your browser to access this website again.

### Firmware Upgrade

To upgrade the firmware, enter the name of the firmware upgrade file, and click on the upgrade button below.

File to upload:

The upload may take up to 60 seconds.

### Device name

Device name

This is the name that the device will use to identify itself to external configuration and IP-address-finding programs. This is not the same as the SSID. It is okay to leave this blank if you are not using these programs.

### IP settings

IP Address Mode  Static  DHCP

Select 'DHCP' to get the IP settings from a DHCP server on your network. Select 'Static' to use the IP settings specified on this page.

Default IP address

Type the IP address of your device

Default subnet mask

The subnet mask specifies the network number portion of an IP address. The factory default is 255.255.255.0.

Default gateway

This is the IP address of the gateway that connects you to the internet. The factory default is 192.168.1.1.

### Security

User name

This is the user name that you must type when logging in to these web pages.

Administrator password

This is the password that you must type when logging in to these web pages. You must enter the same password into both boxes, for confirmation

## **Firmware Upgrade**

**Note:** Firmware upgrade cannot be performed from a wireless device. To perform an upgrade, ensure that you are using a PC that is connected to the AP by wire.

**Note:** Some firmware upgrades reset the AP's configuration options to the factory defaults.

### **Upload**

Once you have a firmware update on your computer, use this option to browse for the file and then upload the information into the AP.

### **Device name**

This is the name that the device will use to identify itself.

### **IP Address Mode**

Select "DHCP" to get the IP settings from a DHCP server on your network. Select "Static" to use the IP settings specified on this section.

### **Default IP address**

When configure as Static IP address mode, it defines the IP address of your device.

### **Default subnet mask**

When configure as Static IP address mode, it defines the subnet mask specifies the network number portion of an IP address.

### **Default gateway**

When configure as Static IP address mode, it defines the IP address of the gateway that connects you to the internet.

## **Security**

### **User name**

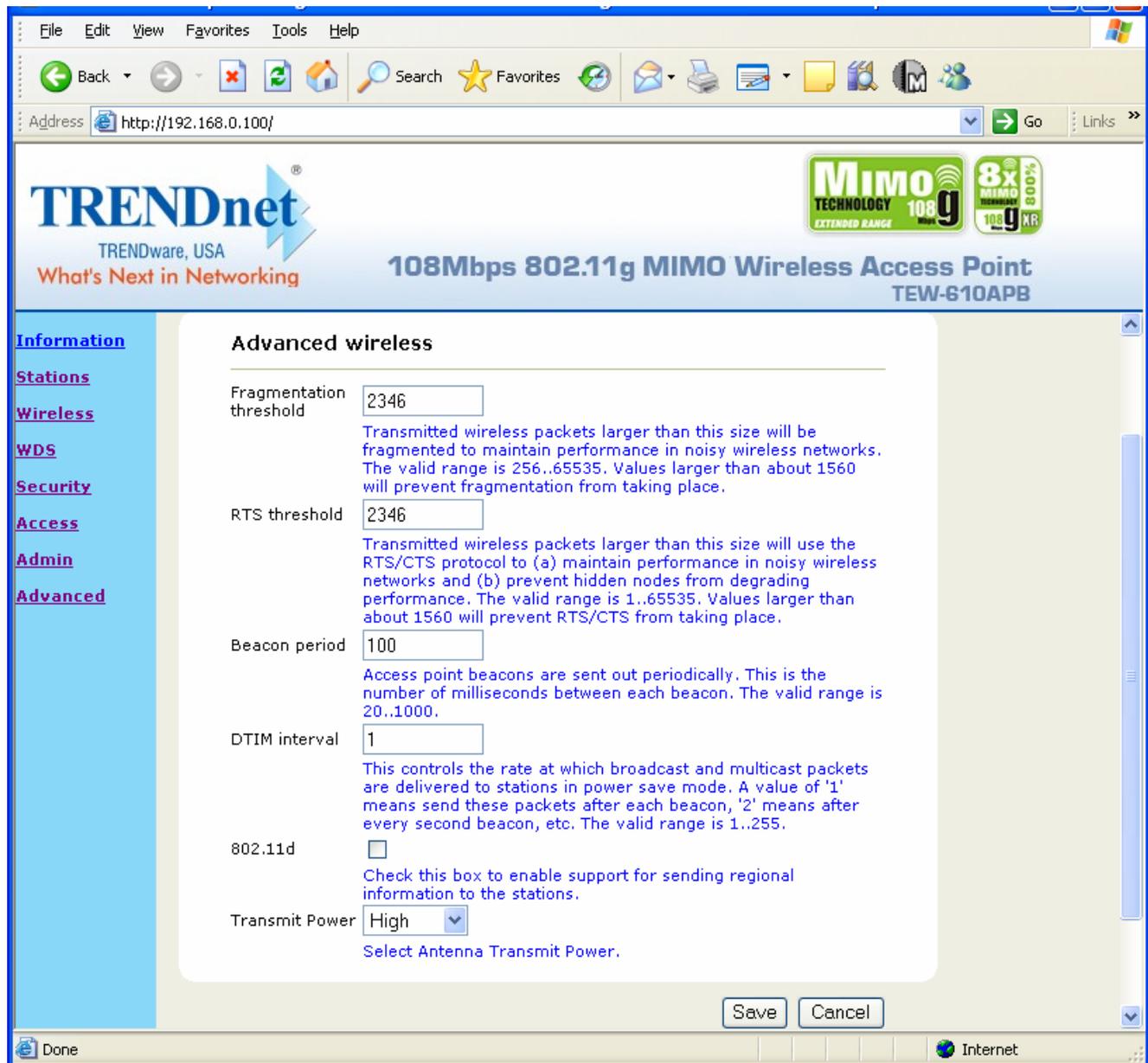
This is the user name that you must type when logging in to these web pages.

### **Administrator password**

This is the password that you must type when logging in to these web pages. You must enter same password into both boxes, for confirmation.

# Advanced

On this section you can configure the advanced 802.11g wireless settings. If you have changed any settings it is necessary to reboot the device for the new settings to take effect.



## Fragmentation Threshold

This setting should remain at its default value of 2346. Setting the Fragmentation value too low may result in poor performance.

## RTS Threshold

This setting should remain at its default value of 2346. If you encounter inconsistent data flow, only minor modifications to the value are recommended.

## **Beacon Period**

Beacons are packets sent by a wireless AP to synchronize wireless devices. Specify a Beacon Period value between 20 and 1000. The default value is set to 100 milliseconds.

## **DTIM Interval**

A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages. When the wireless AP has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Wireless clients detect the beacons and awaken to receive the broadcast and multicast messages. The default value is 1. Valid settings are between 1 and 255.

## **802.11d**

Enables 802.11d operation. 802.11d is a wireless specification for operation in additional regulatory domains. This supplement to the 802.11 specifications defines the physical layer requirements (channelization, hopping patterns, new values for current MIB attributes, and other requirements to extend the operation of 802.11 WLANs to new regulatory domains (countries). The current 802.11 standard defines operation in only a few regulatory domains (countries). This supplement adds the requirements and definitions necessary to allow 802.11 WLAN equipment to operate in markets not served by the current standard. Enable this option if you are operating in one of these "additional regulatory domains".

## **Transmit Power**

Normally the wireless transmitter operates at 100% power. In some circumstances, however, there might be a need to isolate specific frequencies to a smaller area. By reducing the power of the radio, you can prevent transmissions from reaching beyond your corporate/home office or designated wireless area.

# Glossary

## A

### **Access Control List**

ACL. This is a database of network devices that are allowed to access resources on the network.

### **Access Point**

AP. Device that allows wireless clients to connect to it and access the network

### **Ad-hoc network**

Peer-to-Peer network between wireless clients

### **Address Resolution Protocol**

ARP. Used to map MAC addresses to IP addresses so that conversions can be made in both directions.

### **Advanced Encryption Standard**

AES. Government encryption standard

### **Alphanumeric**

Characters A-Z and 0-9

### **Antenna**

Used to transmit and receive RF signals.

### **ASCII**

American Standard Code for Information Interchange. This system of characters is most commonly used for text files

### **Attenuation**

The loss in strength of digital and analog signals. The loss is greater when the signal is being transmitted over long distances.

### **Authentication**

To provide credentials, like a Password, in order to verify that the person or device is really who they are claiming to be

### **Automatic Private IP Addressing**

APIPA. An IP address that that a Windows computer will assign itself when it is configured to obtain an IP address automatically but no DHCP server is available on the network

## B

### **Backward Compatible**

The ability for new devices to communicate and interact with older legacy devices to guarantee interoperability

### **Bandwidth**

The maximum amount of bytes or bits per second that can be transmitted to and from a network device

### **Beacon**

A data frame by which one of the stations in a Wi-Fi network periodically broadcasts network control data to other wireless stations.

### **Bit rate**

The amount of bits that pass in given amount of time

### **Bit/sec**

Bits per second

### **BOOTP**

Bootstrap Protocol. Allows for computers to be booted up and given an IP address with no user intervention

### **Broadcast**

Transmitting data in all directions at once

### **Browser**

A program that allows you to access resources on the web and provides them to you graphically

## **C**

### **CAT 5**

Category 5. Used for 10/100 Mbps or 1Gbps Ethernet connections

### **Client**

A program or user that requests data from a server

### **Collision**

When do two devices on the same Ethernet network try and transmit data at the exact same time.

### **Cookie**

Information that is stored on the hard drive of your computer that holds your preferences to the site that gave your computer the cookie

## **D**

### **Data**

Information that has been translated into binary so that it can be processed or moved to another device

### **Data-Link layer**

The second layer of the OSI model. Controls the movement of data on the physical link of a network

### **dBd**

Decibels related to dipole antenna

### **dBi**

Decibels relative to isotropic radiator

### **dBm**

Decibels relative to one milliwatt

### **Decrypt**

To unscramble an encrypted message back into plain text

### **Default**

A predetermined value or setting that is used by a program when no user input has been entered for this value or setting

### **DHCP**

Dynamic Host Configuration Protocol: Used to automatically assign IP addresses from a predefined pool of addresses to computers or devices that request them

### **Digital certificate:**

An electronic method of providing credentials to a server in order to have access to it or a network

### **Direct Sequence Spread Spectrum**

DSSS: Modulation technique used by 802.11b wireless devices

### **DNS**

Domain Name System: Translates Domain Names to IP addresses

### **Domain name**

A name that is associated with an IP address

### **Download**

To send a request from one computer to another and have the file transmitted back to the requesting computer

### **Duplex**

Sending and Receiving data transmissions at the same time

## **Dynamic IP address**

IP address that is assigned by a DHCP server and that may change. Cable Internet providers usually use this method to assign IP addresses to their customers.

## **E**

### **EAP**

Extensible Authentication Protocol

### **Encryption**

Converting data into cyphertext so that it cannot be easily read

### **Ethernet**

The most widely used technology for Local Area Networks.

## **F**

### **File server**

A computer on a network that stores data so that the other computers on the network can all access it

### **File sharing**

Allowing data from computers on a network to be accessed by other computers on the network with different levels of access rights

### **Firewall**

A device that protects resources of the Local Area Network from unauthorized users outside of the local network

### **Firmware**

Programming that is inserted into a hardware device that tells it how to function

### **Fragmentation**

Breaking up data into smaller pieces to make it easier to store

### **FTP**

File Transfer Protocol. Easiest way to transfer files between computers on the Internet

### **Full-duplex**

Sending and Receiving data at the same time

## **G**

### **Gain**

The amount an amplifier boosts the wireless signal

### **Gateway**

A device that connects your network to another, like the internet

### **Gbps**

Gigabits per second

### **Gigabit Ethernet**

Transmission technology that provides a data rate of 1 billion bits per second

### **GUI**

Graphical user interface

## **H**

### **Half-duplex**

Data cannot be transmitted and received at the same time

### **Hashing**

Transforming a string of characters into a shorter string with a predefined length

### **Hexadecimal**

Characters 0-9 and A-F

### **Hop**

The action of data packets being transmitted from one AP to another

### **Host**

Computer on a network

### **HTTP**

Hypertext Transfer Protocol is used to transfer files from HTTP servers (web servers) to HTTP clients (web browsers)

### **HTTPS**

HTTP over SSL is used to encrypt and decrypt HTTP transmissions

### **Hub**

A networking device that connects multiple devices together

## **I**

### **ICMP**

Internet Control Message Protocol

### **IEEE**

Institute of Electrical and Electronics Engineers

### **IGMP**

Internet Group Management Protocol is used to make sure that computers can report their multicast group membership to adjacent APs

## **IIS**

Internet Information Server is a WEB server and FTP server provided by Microsoft

## **Infrastructure**

In terms of a wireless network, this is when wireless clients use an Access Point to gain access to the network

## **Internet**

A system of worldwide networks which use TCP/IP to allow for resources to be accessed from computers around the world

## **Internet Explorer**

A World Wide Web browser created and provided by Microsoft

## **Internet Protocol**

The method of transferring data from one computer to another on the Internet

## **Internet Protocol Security**

IPsec provides security at the packet processing layer of network communication

## **Internet Service Provider**

An ISP provides access to the Internet to individuals or companies

## **Intranet**

A private network

## **Intrusion Detection**

A type of security that scans a network to detect attacks coming from inside and outside of the network

## **IP**

Internet Protocol

## **IP address**

A 32-bit number, when talking about Internet Protocol Version 4, that identifies each computer that transmits data on the Internet or on an Intranet

## **IPsec**

Internet Protocol Security

## **IPX**

Internetwork Packet Exchange is a networking protocol developed by Novel to enable their Netware clients and servers to communicate

## **ISP**

Internet Service Provider

## **J**

### **Java**

A programming language used to create programs and applets for web pages

## **K**

### **Kbps**

Kilobits per second

### **Kbyte**

Kilobyte

## **L**

### **LAN**

Local Area Network

### **Latency**

The amount of time that it takes a packet to get from the one point to another on a network. Also referred to as delay

### **LED**

Light Emitting Diode

### **Legacy**

Older devices or technology

### **Local Area Network**

A group of computers in a building that usually access files from a server

### **LPR/LPD**

"Line Printer Requestor"/"Line Printer Daemon". A TCP/IP protocol for transmitting streams of printer data.

### **L2TP**

Layer 2 Tunneling Protocol

## **M**

### **MAC address**

A unique hardware ID assigned to every Ethernet adapter by the manufacturer.

### **Mbps**

Megabits per second

**MDI**

Medium Dependent Interface is an Ethernet port for a connection to a straight-through cable

**MDIX**

Medium Dependent Interface Crossover, is an Ethernet port for a connection to a crossover cable

**MIB**

Management Information Base is a set of objects that can be managed by using SNMP

**Modem**

A device that Modulates digital signals from a computer to an analog signal in order to transmit the signal over phone lines. It also Demodulates the analog signals coming from the phone lines to digital signals for your computer

**MPPE**

Microsoft Point-to-Point Encryption is used to secure data transmissions over PPTP connections

**MTU**

Maximum Transmission Unit is the largest packet that can be transmitted on a packet-based network like the Internet

**Multicast**

Sending data from one device to many devices on a network

**N****NAT**

Network Address Translation allows many private IP addresses to connect to the Internet, or another network, through one IP address

**NetBEUI**

NetBIOS Extended User Interface is a Local Area Network communication protocol. This is an updated version of NetBIOS

**NetBIOS**

Network Basic Input/Output System

**Netmask**

Determines what portion of an IP address designates the Network and which part designates the Host

**Network Interface Card**

A card installed in a computer or built onto the motherboard that allows the computer to connect to a network

## **Network Layer**

The third layer of the OSI model which handles the routing of traffic on a network

## **Network Time Protocol**

Used to synchronize the time of all the computers in a network

## **NIC**

Network Interface Card

## **NTP**

Network Time Protocol

## **O**

### **OFDM**

Orthogonal Frequency-Division Multiplexing is the modulation technique for both 802.11a and 802.11g

### **OSI**

Open Systems Interconnection is the reference model for how data should travel between two devices on a network

### **OSPF**

Open Shortest Path First is a routing protocol that is used more than RIP in larger scale networks because only changes to the routing table are sent to all the other APs in the network as opposed to sending the entire routing table at a regular interval, which is how RIP functions

## **P**

### **Password**

A sequence of characters that is used to authenticate requests to resources on a network

### **Personal Area Network**

The interconnection of networking devices within a range of 10 meters

### **Physical layer**

The first layer of the OSI model. Provides the hardware means of transmitting electrical signals on a data carrier

### **Ping**

A utility program that verifies that a given Internet address exists and can receive messages. The utility sends a control packet to the given address and waits for a response.

### **PoE**

Power over Ethernet is the means of transmitting electricity over the unused pairs in a category 5 Ethernet cable

**Port**

A logical channel endpoint in a network. A computer might have only one physical channel (its Ethernet channel) but can have multiple ports (logical channels) each identified by a number.

**PPP**

Point-to-Point Protocol is used for two computers to communicate with each over a serial interface, like a phone line

**PPPoE**

Point-to-Point Protocol over Ethernet is used to connect multiple computers to a remote server over Ethernet

**PPTP**

Point-to-Point Tunneling Protocol is used for creating VPN tunnels over the Internet between two networks

**Preamble**

Used to synchronize communication timing between devices on a network

**Q****QoS**

Quality of Service

**R****RADIUS**

Remote Authentication Dial-In User Service allows for remote users to dial into a central server and be authenticated in order to access resources on a network

**Reboot**

To restart a computer and reload it's operating software or firmware from nonvolatile storage.

**Rendezvous**

Apple's version of UPnP, which allows for devices on a network to discover each other and be connected without the need to configure any settings

**Repeater**

Retransmits the signal of an Access Point in order to extend it's coverage

**RIP**

Routing Information Protocol is used to synchronize the routing table of all the APs on a network

**RJ-11**

The most commonly used connection method for telephones

**RJ-45**

The most commonly used connection method for Ethernet

**RS-232C**

The interface for serial communication between computers and other related devices

**RSA**

Algorithm used for encryption and authentication

**S****Server**

A computer on a network that provides services and resources to other computers on the network

**Session key**

An encryption and decryption key that is generated for every communication session between two computers

**Session layer**

The fifth layer of the OSI model which coordinates the connection and communication between applications on both ends

**Simple Mail Transfer Protocol**

Used for sending and receiving email

**Simple Network Management Protocol**

Governs the management and monitoring of network devices

**SIP**

Session Initiation Protocol. A standard protocol for initiating a user session that involves multimedia content, such as voice or chat.

**SMTP**

Simple Mail Transfer Protocol

**SNMP**

Simple Network Management Protocol

**SOHO**

Small Office/Home Office

**SPI**

Stateful Packet Inspection

**SSH**

Secure Shell is a command line interface that allows for secure connections to remote computers

## **SSID**

Service Set Identifier is a name for a wireless network

## **Stateful inspection**

A feature of a firewall that monitors outgoing and incoming traffic to make sure that only valid responses to outgoing requests are allowed to pass through the firewall

## **Subnet mask**

Determines what portion of an IP address designates the Network and which part designates the Host

## **Syslog**

System Logger -- a distributed logging interface for collecting in one place the logs from different sources. Originally written for UNIX, it is now available for other operating systems, including Windows.

# **T**

## **TCP**

Transmission Control Protocol

## **TCP/IP**

Transmission Control Protocol/Internet Protocol

## **TCP Raw**

A TCP/IP protocol for transmitting streams of printer data.

## **TFTP**

Trivial File Transfer Protocol is a utility used for transferring files that is simpler to use than FTP but with less features

## **Throughput**

The amount of data that can be transferred in a given time period

## **Traceroute**

A utility displays the routes between your computer and specific destination

# **U**

## **UDP**

User Datagram Protocol

## **Unicast**

Communication between a single sender and receiver

## **Universal Plug and Play**

A standard that allows network devices to discover each other and configure themselves to be a part of the network

## **Upgrade**

To install a more recent version of a software or firmware product

## **Upload**

To send a request from one computer to another and have a file transmitted from the requesting computer to the other

## **UPnP**

Universal Plug and Play

## **URL**

Uniform Resource Locator is a unique address for files accessible on the Internet

## **USB**

Universal Serial Bus

## **UTP**

Unshielded Twisted Pair

# **V**

## **Virtual Private Network**

VPN: A secure tunnel over the Internet to connect remote offices or users to their company's network

## **VLAN**

Virtual LAN

## **Voice over IP**

Sending voice information over the Internet as opposed to the PSTN

## **VoIP**

Voice over IP

# **W**

## **Wake on LAN**

Allows you to power up a computer through its Network Interface Card

## **WAN**

Wide Area Network

## **WCN**

Windows Connect Now. A Microsoft method for configuring and bootstrapping wireless networking hardware (access points) and wireless clients, including PCs and other devices.

## **WDS**

Wireless Distribution System. A system that enables the interconnection of access points wirelessly.

## **Web browser**

A utility that allows you to view content and interact with all of the information on the World Wide Web

## **WEP**

Wired Equivalent Privacy is security for wireless networks that is supposed to be comparable to that of a wired network

## **Wi-Fi**

Wireless Fidelity

## **Wi-Fi Protected Access**

An updated version of security for wireless networks that provides authentication as well as encryption

## **Wide Area Network**

The larger network that your LAN is connected to, which may be the Internet itself, or a regional or corporate network

## **Wireless ISP**

A company that provides a broadband Internet connection over a wireless connection

## **Wireless LAN**

Connecting to a Local Area Network over one of the 802.11 wireless standards

## **WISP**

Wireless Internet Service Provider

## **WLAN**

Wireless Local Area Network

## **WPA**

Wi-Fi Protected Access. A Wi-Fi security enhancement that provides improved data encryption, relative to WEP.

## **X**

## **xDSL**

A generic term for the family of digital subscriber line (DSL) technologies, such as ADSL, HDSL, RADSL, and SDSL.

**Y**

**Yagi antenna**

A directional antenna used to concentrate wireless signals on a specific location

**Z**

**#**

**1**

**802.11**

A family of specifications for wireless local area networks (WLANs) developed by a working group of the Institute of Electrical and Electronics Engineers (IEEE).

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