



**Wireless 802.11b  
11Mbps Series**

**User's Manual**

KWL-320    Access Point

*Version : A    (July. 2002)*

**Warning :**

**Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.**



**Caution :**

- 1. 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.**
- 2. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.**
- 3. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.**

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# 1 Introduction

Thank you for purchasing the W@LK LAN 11Mbps Wireless Access Point and welcome to the world of wireless networking. Now you can take advantage of this great new technology and gain the freedom you need around the home or office without using cables. The W@LK LAN AP acts as a bridge between your existing wired network and your wireless equipped computers. The easy installation and setup will have you networking wirelessly in minutes. Please be sure to read through this manual completely to be sure that you are getting the most out of your W@LK LAN AP.

## **Key Features**

### ***Wide Area Coverage at High Speeds***

The W@LK LAN AP provides coverage over an indoor area up to 300 feet in radius and an outdoor area over 1,800 feet in radius.

### ***Up to 128-bit Security Encryption***

Your W@LK LAN AP is capable of encrypting (scrambling) the transmitted radio waves so you can be sure that your data is secure. The optional encryption feature allows you to encrypt at 64-bits or 128-bits using a key that you enter yourself.

### ***MAC Address Filtering***

For added security, you can set up a list of MAC addresses (unique client identifiers) that are allowed access to your wireless network. Every computer equipped with a wireless network adapter has its own MAC address. Simply enter these MAC addresses into a list using the W@LK LAN Wireless 802.11b Network Manager software, and access to your network through the W@LK LAN AP is restricted to only those MAC addresses.

## **Applications**

- **Wireless roaming with a laptop around the home or office**

Gain the freedom you need around the home or office with no cables.

- **Difficult-to-wire environments**

For use in buildings with solid or finished walls or open areas where wiring is difficult to employ.

- **Frequently Changing Environments**

Offices or environments that frequently rearrange the workplace and change location.

- **Temporary LANs for special projects or peak time**

Trade shows, exhibitions, and construction sites that need a network on a temporary basis.

Companies that need additional workstations for a peak activity period.

- **SOHO (Small Office/Home Office)**

SOHO users who need easy and quick setup.

## **Package Contents**

- W@LK LAN Wireless Network Access Point
- Power Adapter
- User Manual
- Cross Cable

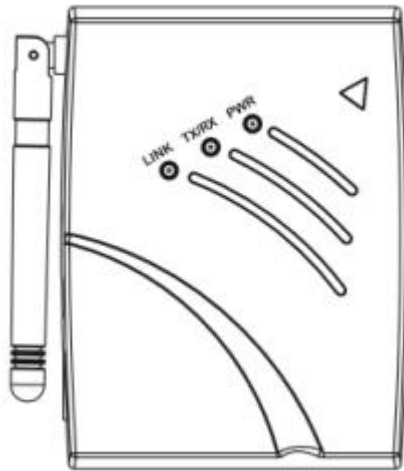
## **System Requirements**

- At least one computer equipped with an 802.11b compliant wireless Ethernet adapter
- TCP/IP networking protocol installed on each computer

## 2 Specifications

<b>Technical Specification</b>	
<b>Standards</b>	IEEE 802.11b for Wireless LAN IEEE 802.3 for Wired LAN
<b>Ports</b>	RJ-45, 10 BASE-T POWER 5V DC 1A
<b>Management Utility</b>	Web Base Management
<b>Transport Protocols</b>	TCP/IP IPX/SPX NetBEUI BOOTP SNMP Telnet DHCP FTP
<b>Data Security</b>	64/128-bit WEP (Wired Equivalent Privacy) Encryption
<b>Frequency Range</b>	2.4GHz-2.4835GHz ISM Band
<b>Modulation</b>	Direct Sequence Spread Spectrum ( DSSS )
<b>Data Rate and Modulation</b>	@1Mbps - DBPSK @2Mbps - DQPSK @5Mbps - CCK @11Mbps - CCK
<b>Reception Sensitivity</b>	@1Mbps -89.0 dBm, 8% PER @5.5Mbps -87.0 dBm, 8% PER @11Mbps -82.0 dBm, 8% PER
<b>Transmit Power</b>	+15dBm typical
<b>Antenna</b>	One External 2dB gain antenna
<b>Operating Modes</b>	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)
<b>LED Indicators</b>	Power (RED) Link (Green) TX/RX(Green)
<b>Temperature</b>	Operating Temperature: 0°C to 55°C
<b>Certification</b>	FCC CE
<b>Safety</b>	UL

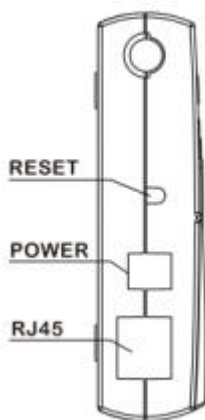
### 3 About W@LK LAN Access Point



#### LED Indicators

The Wireless Access Point includes three status LED indicators, as described in the following figure and table.

LED	Status	Description
<b>Power (Red)</b>	On	Indicates the power is being supplied
<b>TX/RX</b> Wireless Link/Activity (Green)	On	Indicates a valid wireless link.
	Flashing	Indicates that the Access Point is transmitting or receiving data on the Wireless LAN. Blinking rate is proportional to your network activity.
<b>LINK</b> Ethernet Link/Activity (Green)	On	Indicates a valid 10Mbps Ethernet cable link.
	Flashing	Indicates that the Access Point is transmitting or receiving data on the 10Mbps Ethernet LAN. Blinking rate is proportional to your network activity.



#### Reset

Restore to the default numeric.

#### Power Jack

Connect the 5V DC connector from the power supply to this jack.

#### RJ45 Ethernet Jack

For Connection: See the Installation in this manual.

## 4 Installation

### Selecting an appropriate site for your W@LK LAN AP

Selecting an appropriate site for your W@LK LAN AP will ensure the best performance.

First, a few rules of thumb:

- Avoid locating the W@LK LAN AP near metal objects such as appliances like refrigerators, ovens, and washer/dryers. Keep in mind that your appliances may be on the other side of the wall in the area that you may be considering to locate the W@LK LAN AP.
- For best performance, locate the W@LK LAN AP as close to the center of the area that you will be covering. Keep in mind that radio waves radiate outward from the W@LK LAN AP in a circular pattern. Typical range is 100-150 feet indoors at 11Mbps. If the area you wish to cover is smaller than 200-300 feet wide, then locating the W@LK LAN AP in the center of the area becomes less critical.
- Normally, the higher that you locate the W@LK LAN AP, the better the performance and range will be. However, in an area such as an average-sized house or small office, height is less critical.
- Remember that many things can cause a degrade of the radio signal such as brick walls, metal-reinforced concrete, the metal housing of appliances, or even wiring in the walls.

### Connecting the W@LK LAN AP to a cable/DSL router, Ethernet switch, or hub

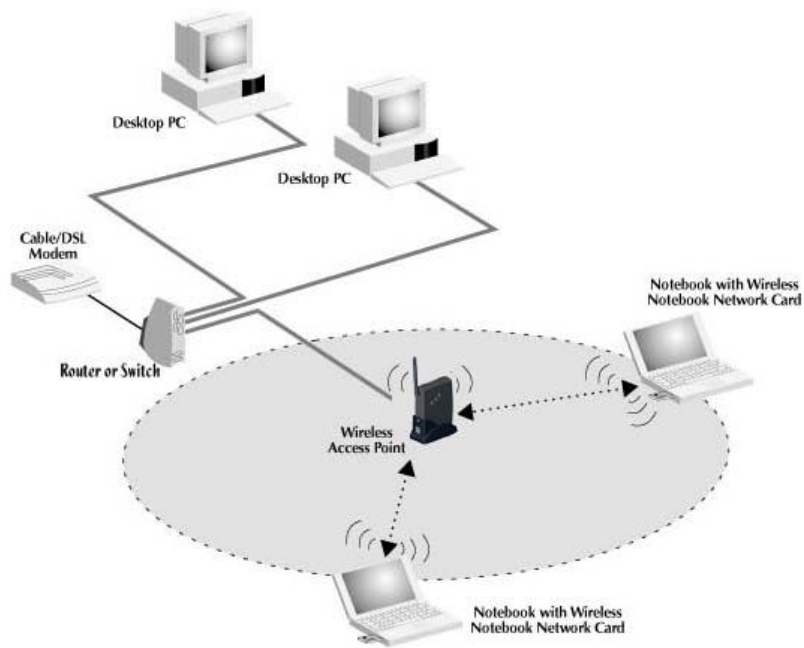
Select a suitable site for your W@LK LAN AP.

Connect a CAT5 cable between the W@LK LAN AP and your cable/DSL router's LAN port, Ethernet switch, or hub by plugging one end of the cable into the RJ45 jack on the W@LK LAN AP and the other end into an open RJ45 jack on the cable/DSL router, Ethernet switch, or hub.

Connect the power supply to the W@LK LAN AP by plugging the round DC connector into the DC jack on the W@LK LAN AP. Plug the power supply into the wall. Verify that the Power LED and the Link LED are illuminated. If both LEDs are illuminated, this indicates that the W@LK LAN AP is connected properly.

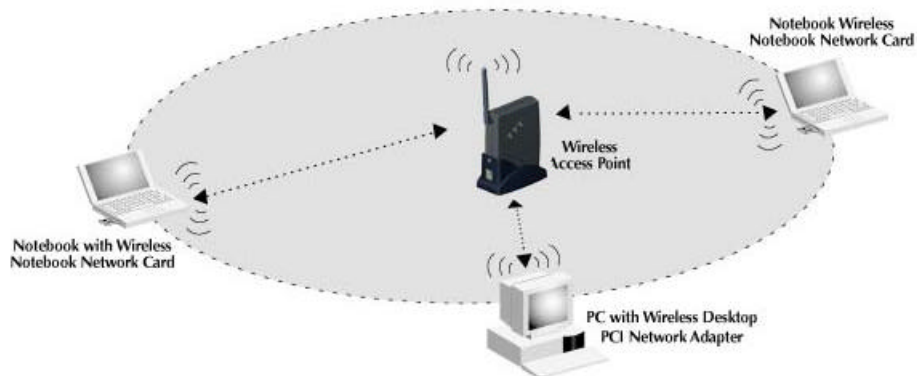
Place the W@LK LAN AP on a desktop or mount it to a wall in the location that you have chosen. Next, swivel the antennas so they are both pointing up.





### Using the W@LK LAN AP to expand local coverage

The W@LK LAN AP can act as a central point of communication of your wireless-equipped computers without connecting it to a wired network. Using the W@LK LAN AP in this manner will effectively double the range between your wireless-equipped computers by relaying the data from one computer to another. Simply locate the W@LK LAN AP in the center of the area you will be operating your network. The diagram below illustrates this concept.



## 5 Before You Configuration

The W@LK LAN offers a platform-independent, HTML-based GUI (graphical user interface) to simplify the setup and configuration of your W@LK LAN using your PC's web browser.

Before you start configuring your W@LK LAN, you must connect cross cable between your PC and W@LK LAN AP.

Configure your PC's TCP/IP on the network adapter, either an Ethernet or a Wireless Adapter, that you use to connect to your PC to the W@LK LAN. Follow the steps below to configure your TCP/IP Properties:

- For Windows95/98/ME users:
    - ◆ Click Start/ Settings /Control Panel.
    - ◆ Double-click Network.
    - ◆ Double-click TCP/IP / XXXX Ethernet/Wireless Adapters ("XXX" is the maker of your Ethernet card)
    - ◆ Select the radio button next to Obtain an IP address 192.168.1.XX
    - ◆ Click the Gateway tab and remove all previously installed gateways and click OK.
    - ◆ Click OK again.
  
  - For Windows2000 users:
    - ◆ Click Start/ Settings /Control Panel.
    - ◆ Double-click Network and Dial-up Connections
    - ◆ Double-click Local Area Connection
    - ◆ Double-click Internet Protocol (TCP/IP)
    - ◆ Select the radio button next to Obtain an IP address 192.168.1.XX and click OK.
    - ◆ Click OK again.
4. Restart your computer
  5. Power on your Cable/DSL modem
  6. Power on your W@LK LAN AP
  7. Verify your PC's IP address. It must be 192.168.1.XX (but not 192.168.1.90)

Your W@LK LAN AP is now fully configure. To configure advanced features, please reference the installation section.

<b>W@LK LAN AP Parameter</b>	<b>Default Value</b>
SSID	Null
Channel	1
RTS Threshold	2346
IP Address	192.168.1.90
Subnet Mask	255.255.255.0
Static	Enabled
Encryption	Disabled
MAC Address Filter	Disabled

## 6 Configuring Your W@LK LAN AP

The steps below help you configure your W@LK LAN AP on the LAN using the Web GUI. Launch a web browser (i.e. Internet Explorer or Netscape Navigator) from your computer. Enter the default URL `http://192.168.1.90` and press Enter

### 1. Password

Enter your User name and Password, or “Enter” to Next Step.



Connect to 192.168.1.90

802.11b Access Point

User name:

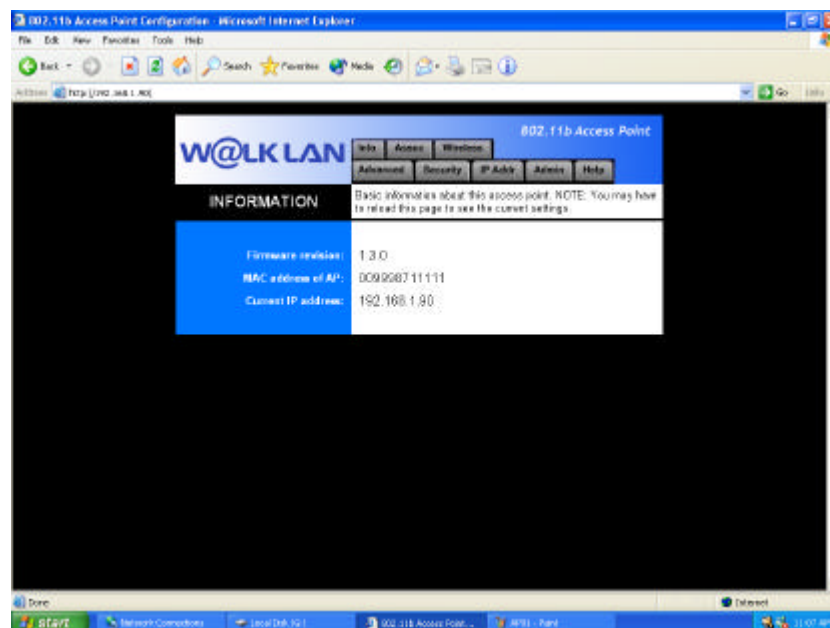
Password:

Remember my password

OK Cancel

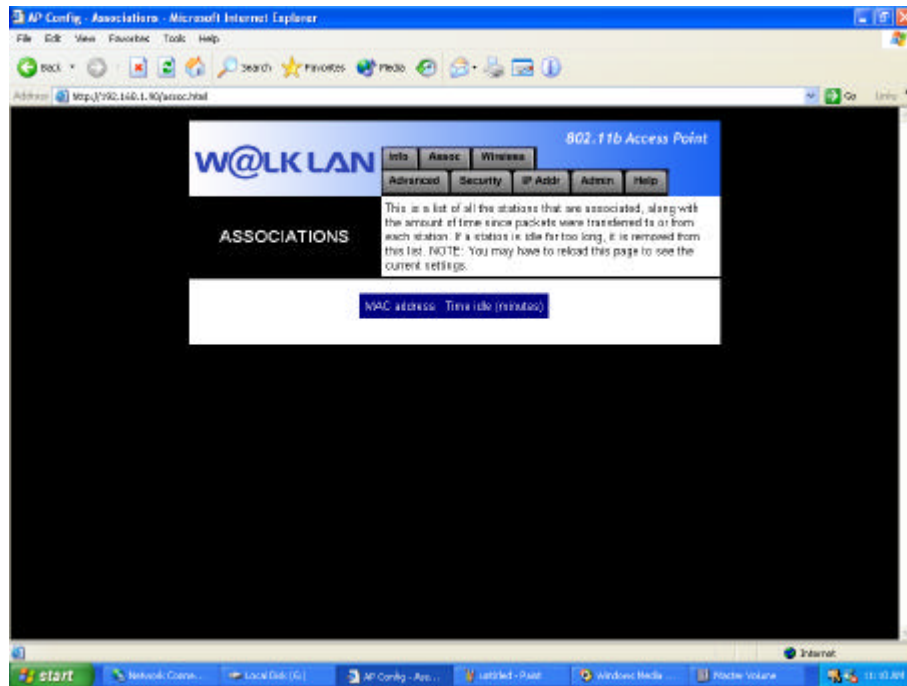
### 2. Information

By choosing this option, you can view basic information about the Utility like the Firmware Version, MAC address and current IP address.



### 3. Associations

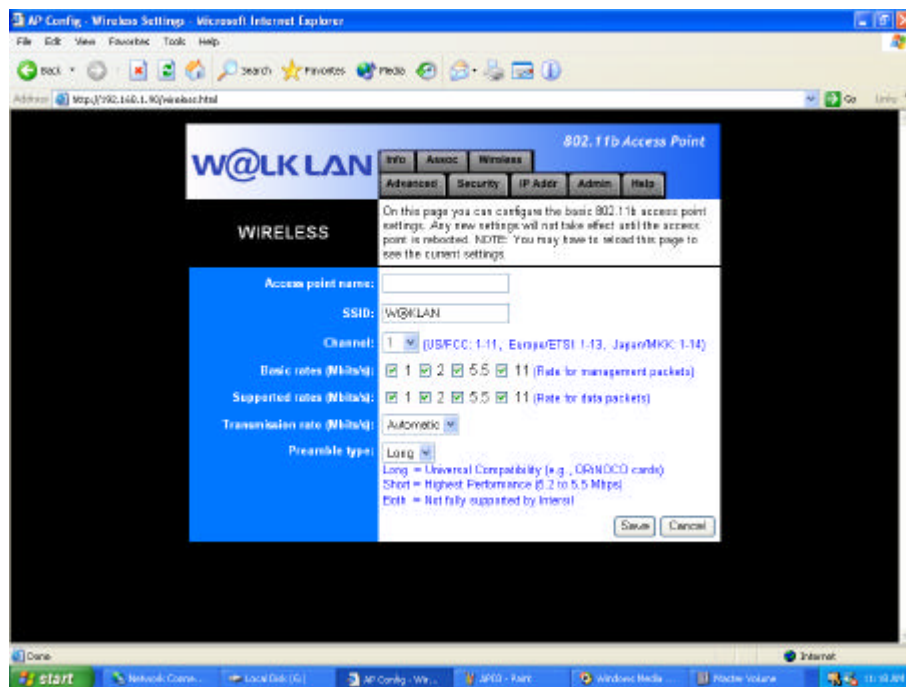
This is a list of all the stations that are associated, along with the amount of time since packets were transferred to or from each station. If a station is idle for too long, it is removed from this list.



#### 4. **Wireless**

This page allows you to configure the following parameters:

- **Access point name**
- **SSID**
- **Channel**
- **Basic rates**
- **Supported rates**
- **Transmission rate**
- **Preamble Type**



#### **AP Name**

The AP Name is used to help identify an W@LK LAN AP when multiple APs are being used. For nstance, in a large building using 20 APs, the names may be "AP 1:WEST ROOM", or in a large house, "AP 5:Kitchen". To enter a name, click in the name field and enter a name. When finished making changes, click "Save" for the changes to take effect.

#### **SSID**

The Service Set Identifier (SSID) is like a name for the wireless network and is sometimes called the "Network Name". All W@LK LAN APs in a wireless network should be set to the same SSID to enable clients to roam from W@LK LAN AP to W@LK LAN AP. The wireless-equipped computers in the wireless network should also be set to the same SSID to gain access to the network. The default setting is "WLAN" (Wireless Local Area Network).

To change the SSID, simply click in the SSID field and enter a new SSID. When finished making changes, click "Save" for the changes to take effect.

### ***Channel***

The 802.11b wireless standard supports up to 14 channels. The number of available channels are limited to local regulations that determine which channels are available. (FCC/IC: Channels 1-11; ETSI: Channels 1-13; Japan/MKK: Channels 1-14.)

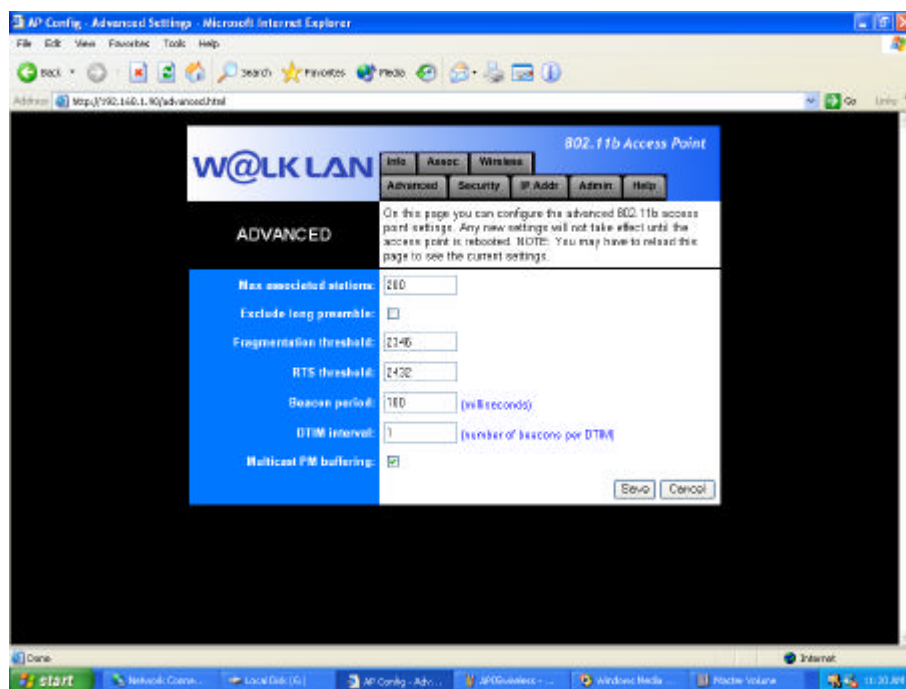
The default channel is 1. To change the channel, click the UP/DOWN arrows next to the channel field. When finished making changes, click "Save" for the changes to take effect.

### ***Transmission rate***

Select "Automatic" from the drop-down list to optimize the data transfer speed for your network. (Default: Automatic)

## 5. Advanced

On this page you can configure the advanced 802.11b access point settings. Any new settings will not take effect until the access point is rebooted.



### ***Max associated stations:***

This indicates the number of wireless clients (computers) connected to the W@LK LAN AP. A total of 64 wireless clients can be connected at a single time.

### ***RTS threshold***

This is the rate at which errors are checked. We recommend not changing this.

### ***Beacon period***

Set the interval value of beacon between synchronized frames. These synchronous frames also contain indication of frames that need to transmit to the power-saved stations. (Default: 100)

### ***DTIM interval***

Set the Delivery Traffic Indication Message (DTIM) interval value. The DTIM indicates how often the MAC layer forwards multicast traffic. This parameter is necessary to accommodate stations using Power Save mode. In order to maximize the utilization of channels, broadcast data is not transmitted every beacon for stations in Power Save mode. These power-saved stations must wake up to receive broadcast data at the DTIM interval. The DTIM is the interval between two synchronous frames with broadcast information. If



you set the value to 2, the access point will save all multicast frames for the BSS and forward them after every second beacon. Having smaller DTIM intervals delivers multicast frames in a more timely manner, causing stations in Power Save mode to wake up more often and drain power faster. Having higher DTIM values, though, delays the transmission of multicast frames. (Default: 1)

## 6. Security

On this page you can set the 802.11b security and encryption options, and also enable MAC address filtering. Any new settings will not take effect until the access point is rebooted.

For secure data transmissions, the W@LK LAN AP is capable of encrypting, or "scrambling", the information that is sent over the air between your computers. The W@LK LAN AP uses a form of encryption called WEP (Wired Equivalent Privacy). There are two levels of WEP encryption—64-bit and 128-bit. As the numbers imply, 128-bit encryption is more secure than 64-bit encryption. However, using 128-bit encryption can slow down the rate at which data is sent between the wireless-equipped computers and the W@LK LAN AP. WEP encryption uses keys to scramble and unscramble the data that is being sent between wireless-equipped computers and the W@LK LAN AP. The W@LK LAN AP and the computers must use the same key to be able to communicate using encryption.



### **WEP Configuration**

Wired Equivalent Privacy (WEP) is implemented in this device to prevent unauthorized access to your wireless network. The WEP setting must be the same on each client in your wireless network. For more secure data transmission, you may set the WEP to prevent unauthorized access to your wireless network. (Default: Disable )

### **WEP key Setup**

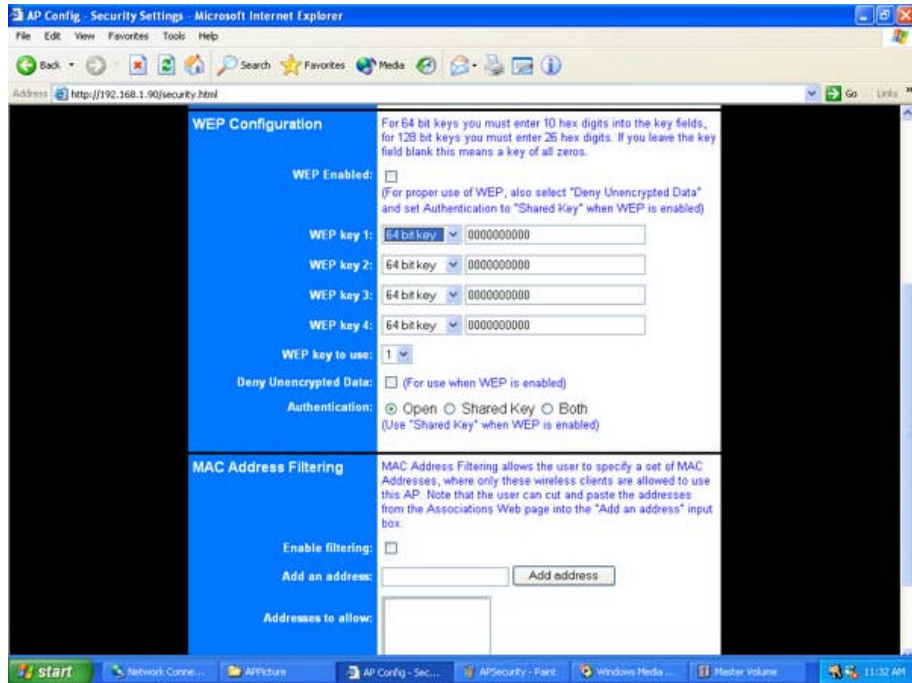
For more secure data transmission, click on the "Enable" radio button to ensure wireless network security. Then select one WEP key (1 ~ 4) and the proper key size.

- 64-Bit Manual Entry

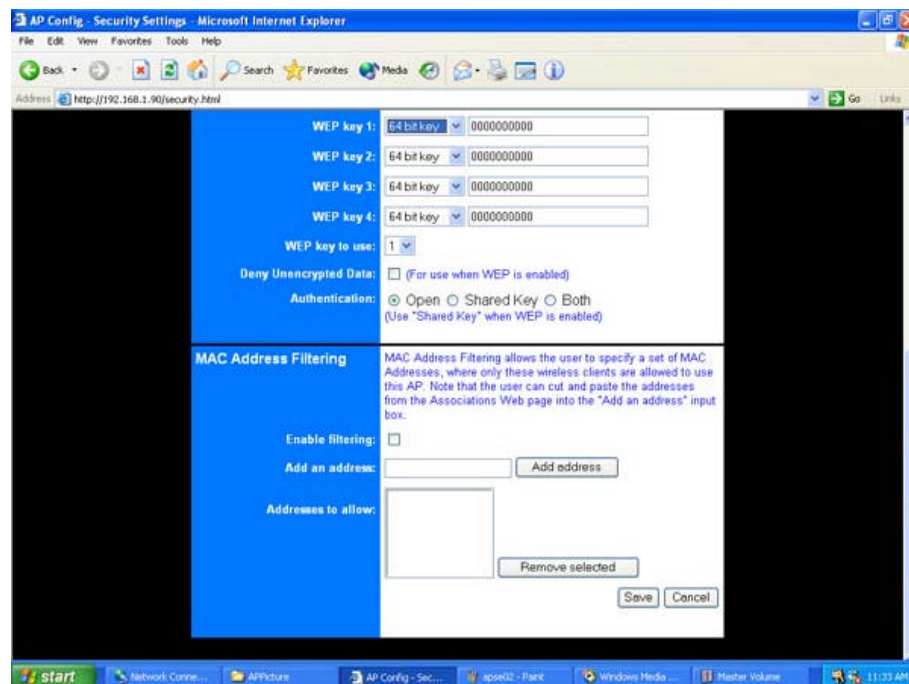
Key 1~4 - Each Key ID contains 10 HEX digits. All wireless devices must have the same Key ID values to communicate.

- 128-Bit Manual Entry

Key ID contains 26 HEX digits. All wireless devices must have the same Key ID values to communicate.



Wired Equivalent Privacy (WEP) is implemented in this device to prevent unauthorized access to your wireless network. The WEP setting must be the same on each client in your wireless network.

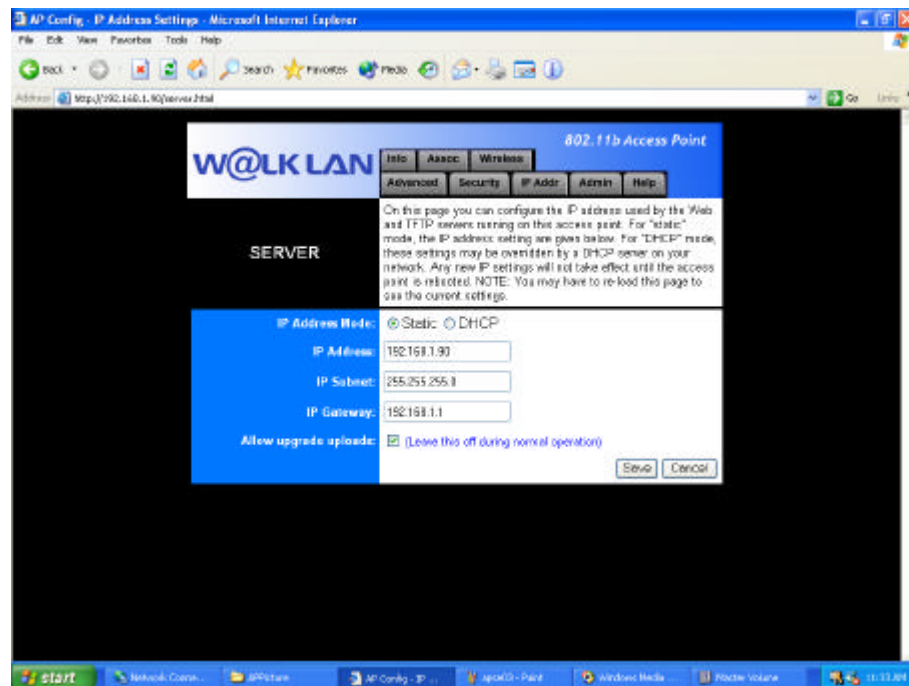


### ***MAC Address Filtering***

The W@LK LAN AP can be programmed with a list of MAC addresses that are allowed to connect to the W@LK LAN AP. A MAC address is a unique "serial number" that is assigned to every wireless adapter. For instance, if you own a W@LK LAN F5D6020 Wireless Notebook Network Adapter for your laptop, it has been assigned its own MAC address at the factory. The MAC address is located on a small sticker on the bottom of the product. Programming the W@LK LAN AP with this MAC address and enabling the MAC address filtering feature lets you manage which computers are allowed to connect to the W@LK LAN AP.

## 7. Server

On this page you can configure the IP address used by the Web and PHCP servers turning on this access point.



### **Static Mode:**

#### **IP Address**

An IP address can be manually entered. The default IP address is 192.168.1.90. To enter the IP address, click in the "IP Address" field and enter the IP address.

#### **IP Subnet**

A Subnet Mask can be manually entered. The default Subnet Mask is 255.255.255.0. To enter the Subnet Mask, click in the "Subnet Mask" field and enter the Subnet Mask.

#### **IP Gateway**

A Default Gateway address can be manually entered. The Default Gateway address is 192.168.1.1. To enter a Default Gateway address, click in the "Subnet Mask" field and enter the Default Gateway address.

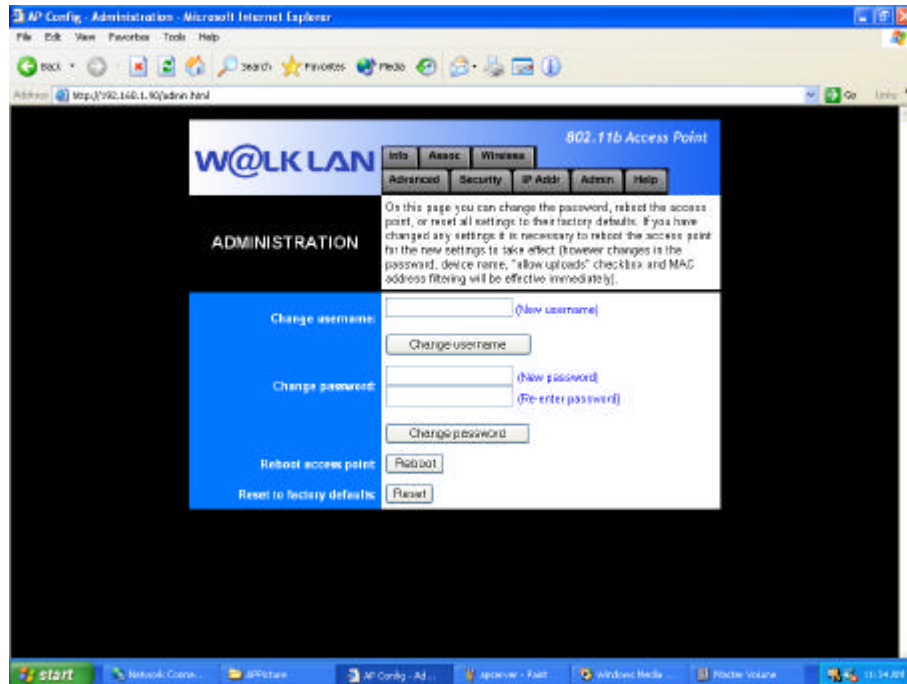
### **DHCP Mode:**

The W@LK LAN AP can obtain an IP address, Subnet Mask, and Default Gateway information automatically in a dynamic network environment. The default setting is "Enabled". If the W@LK LAN AP is connected to a network that does not employ DHCP,

the default IP address, Subnet Mask, and Default Gateway will be used. To enable or disable the DHCP Client, click on the down arrow and select "Enabled" or "Disabled". When finished making changes, click "Save" for the changes to take effect.

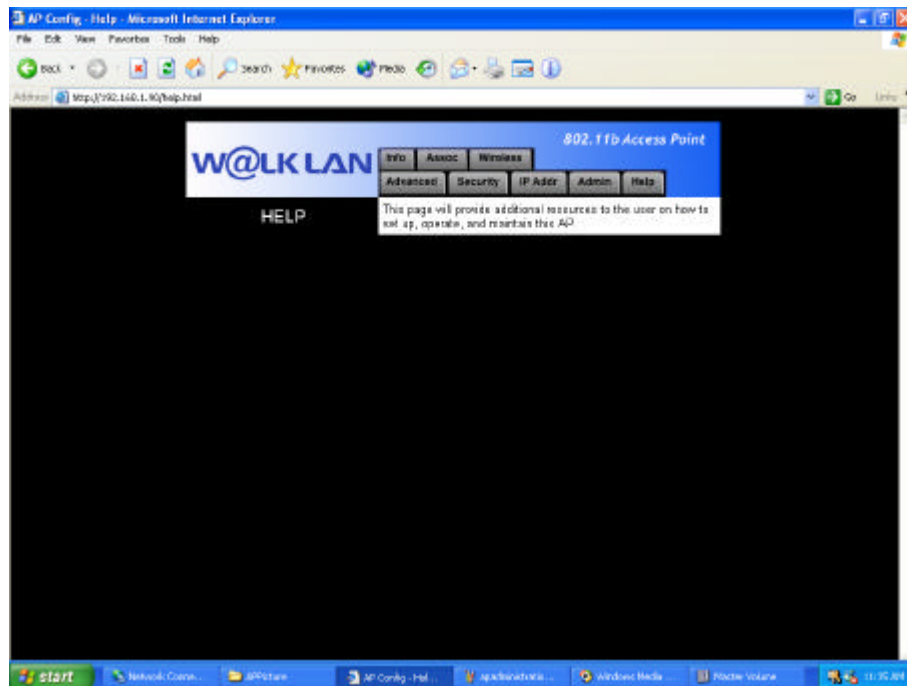
## 8. Administration

On this page you can change the password, reboot the access point, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot the access point for new settings to take effect. (however changes in the password, device name, "allow uploads" checkbox and MAX address filtering will be effective immediately).



## 9. Help

This page will provide additional resources to the user on how to set up, operate, and maintain this AP.





## 7 Troubleshooting

Problem	Solution
Wireless users (clients) do not have access to the network through the W@LK LAN AP.	<ul style="list-style-type: none"><li>● Make sure that each wireless client is configured to the same encryption setting.</li><li>● Make sure that each wireless client is configured to connect to the SSID of the W@LK LAN AP</li></ul>
The range is poor	<ul style="list-style-type: none"><li>● See “Selecting an Appropriate Site for your Wireless Access Point” in the “Installation” section of this manual.</li></ul>

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