

High-Speed 802.11g

Wireless LAN Station ADAPTER



User's Manual

FCC Information

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.

Federal Communications Commission (FCC) Statement

This Equipment has been tested and found to comply with the limits for a Class B and C 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 or more 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 RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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Limited Warranty



Before You Start

Station Adapter

You must have the following items

An Ethernet-enabled device, such as a game console, PC, or network printer will connect to the station adapter.

Checklist

If you discover damaged or missing items, please contact your local reseller.

- ✓ 802.11g Wireless LAN Station Adapter x 1
- ✓ Power Adapter x 1
- ✓ CDx1
- ✓ User's Manual x 1

Character

Ethernet Connector: 10/100BaseTR-45 LAN port with Auto-MDIX

Power Supply: DC 5V/2A

Configuration: WEB-Based utility

Antenna: One External dipole antenna, gain 2dBi, with diversity function

Operation: Station Adapter

Supported Operating systems: Win98SE/ME/2000/XP/Mac OS

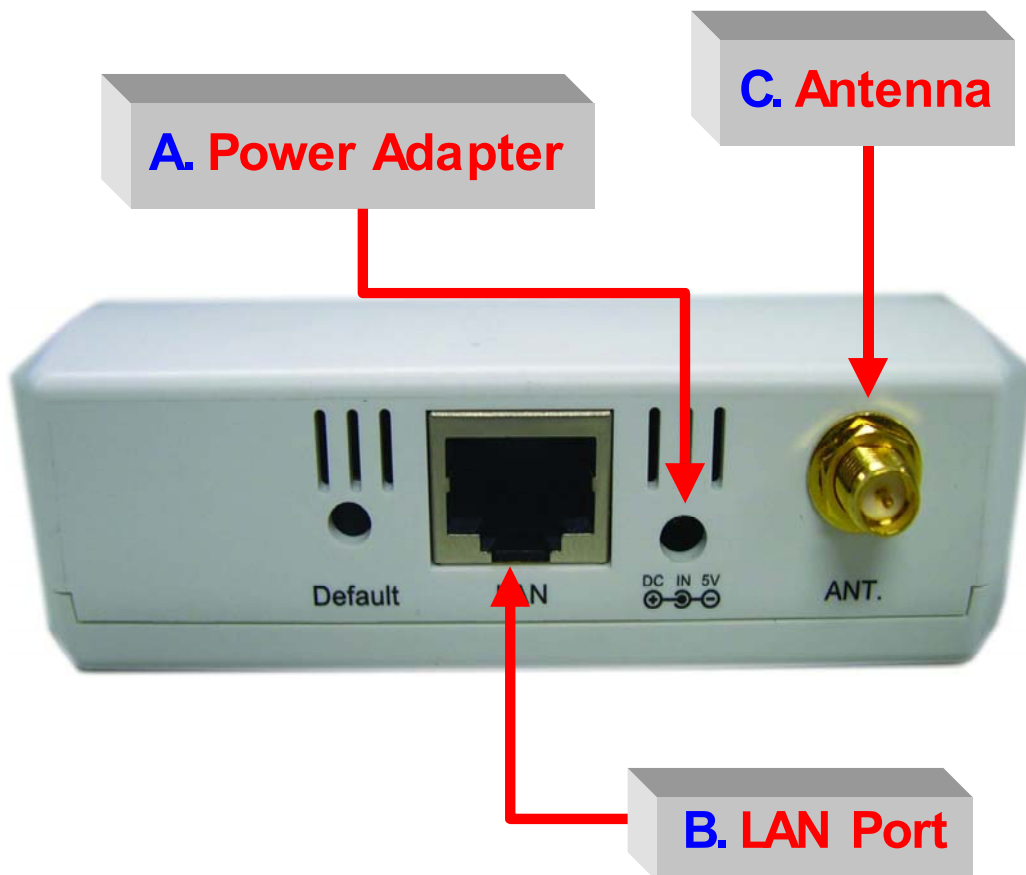
Security: WEP/WPA with PSK

2 Hardware Installation

Station Adapter




Connect the station adapter to your Ethernet-enabled device

- A. Connect the power adapter to the 802.11g Wireless LAN Station Adapter.
- B. Connect one end of an Ethernet cable to the 802.11g Wireless LAN Station Adapter and connect the other end to the Ethernet LAN port located on the device (e.g., a gaming console, laptop, desktop computer, or network printer).
- C. Combine the antenna with the station adapter to wirelessly connect to the 802.11g networks.



Mechanical Description

The following table provides an overview of each LED activity:

LED Definition	Activity	Description
PWR 	Green	Power enabled
WLAN 	Green	Off: No Wireless LAN traffic activity
		On: Associated to the Wireless AP and Wireless LAN traffic activity.
LAN 	Green	Off: No Ethernet traffic activity
		Flashing: Wired LAN traffic activity
		On: Connect to the Ethernet.

Power Socket

Using the power adapter supplied with the Wireless LAN Station will prevent damage to the station adapter and personal injury.



We cannot assume the responsibility for the damage from using with the other power adapter supplier.

LAN Ports

Connect the Wireless LAN Station Adapter to a hub or a PC with Ethernet cable. Please note that, use the Ethernet cable when you directly connect the Wireless LAN Station Adapter to a PC.

Antenna




Notice that you connect tightly the External dipole antenna on the antenna connector of your station adapter. A loosen antenna will reduce the radiant energy or even lose it. In order to improve the RF signal radiation of your antenna, proper antenna placement is necessary. We recommend you mount the antenna attached to access point in the position that can be best covered by its BSS. Try to place the antenna as high as possible to increase the coverage area. If you have further question, please contact your wireless network administrator.

Default

Press the **"default"** button for about 3 seconds until the LEDs go off. This action will restore to the factory default settings of the wireless station adapter and enable you to configure the station adapter via web again. Besides, this is also used when you forget the password.

Connecting One Ethernet-Device (as Station)

The station can be implemented on allowing only one client to access the wireless network using MAC clone functionality. To connect with one client, follow these steps:




1. Connect one end of the Ethernet Cable to the Station Adapter and the other to the Ethernet-enabled device.
2. Connect the power adapter to station adapter's power jack. The power  and the Ethernet status  should light up.
3. Turn on the Ethernet-enabled device. When the station adapter is associated to the Wireless AP and Wireless LAN traffic activity, you will see the wireless LAN status  lights up.



Connecting Multiple Ethernet-Devices (as Bridge)

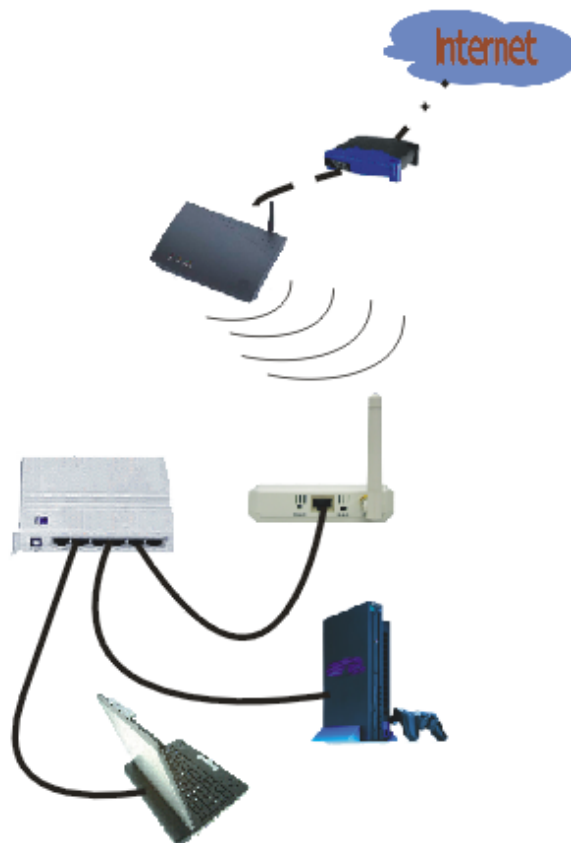
The station can be implemented on allowing multi-clients to join a network. When connecting to the wireless station adapter, the client who first begins to send packet can associate with the access point that responds to the first client's request for connection based on MAC clone functionality. And the others use the MAC address of the first client to join a wireless network. To connect with multi-clients, follow these steps:

1. Connect one end of the Ethernet Cable to the Station Adapter and the other to the hub.
2. Connect the Ethernet Cable between Ethernet-enable devices and the hub.

3. Connect the power adapter to station adapter's power jack. The power  and the Ethernet light  should light up.
4. Connect the power adapter to the hub.
5. Turn on all Ethernet-enabled devices. When the station is associated to the Wireless AP and Wireless LAN traffic activity, you will see the wireless LAN status  lights up.

Note1: A hub could connect with up to 8 Ethernet-devices. However, it would reduce the transmission rate if connected with too many units. (The more units to connect with will produce less transmission rate.)

Note2: If all of your clients do not support TCP/IP protocol, only the first client can connect to the wireless station adapter.

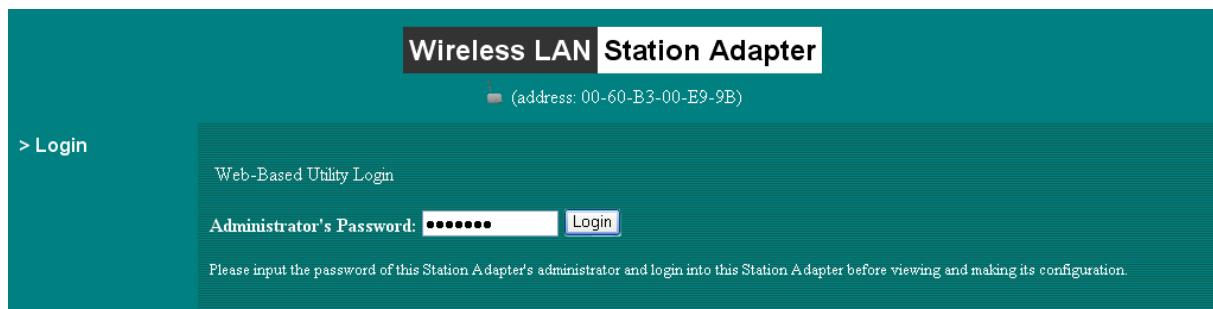


3 Configuring Your Adapter with a web browser

Station Adapter

How to access the web-browser configuration utility? Please do the following:

1. Connect your computer to the wireless station adapter either through wireless or wired connection. Please set a fixed IP address (refer to Appendix), within the range of 192.168.0.X (X can't be 10), to your computer.
2. Activate your browser, then type this Station Adapter's address (e.g. http://192.168.0.10), in the Location (for IE) or Address field and press Enter.
3. Key in the system password (the default setting is "default") and click on the "Login" button. You will see the main page.

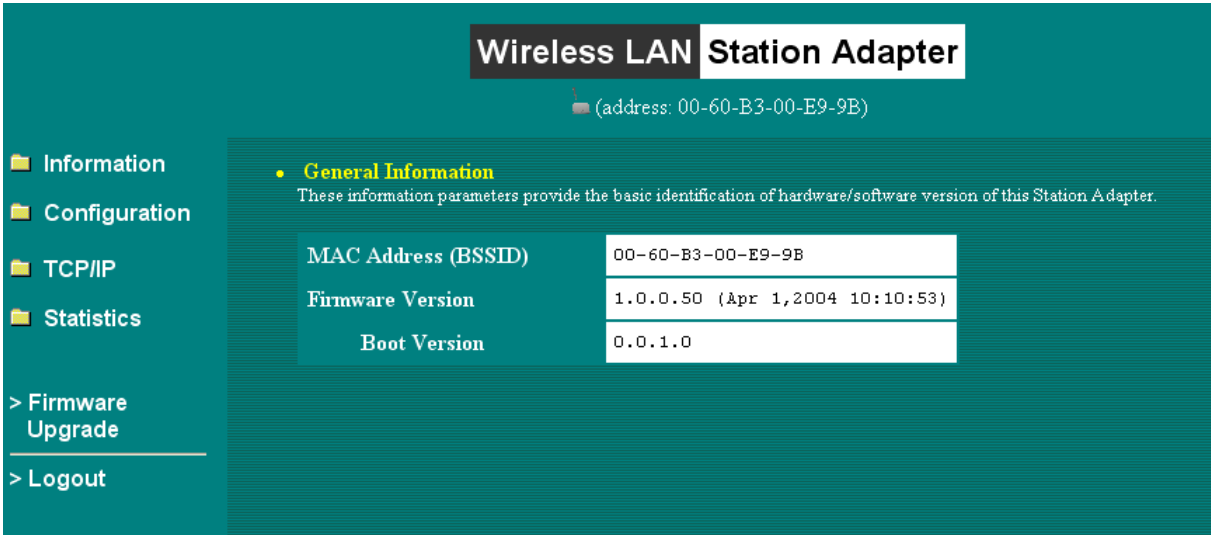


The screenshot shows the web-based utility login page for a Wireless LAN Station Adapter. The page has a teal background. At the top, it says "Wireless LAN Station Adapter" in white text on a dark teal bar. Below that, it shows the MAC address "(address: 00-60-B3-00-E9-9B)". On the left side, there is a navigation menu with "> Login" selected. The main content area is titled "Web-Based Utility Login" and contains a form with the label "Administrator's Password:" followed by a password input field with seven dots and a "Login" button. Below the form, there is a note: "Please input the password of this Station Adapter's administrator and login into this Station Adapter before viewing and making its configuration."

The main window provides 5 items for you to monitor and configure the Wireless LAN Access Point: **Information**, **Configuration**, **TCP/IP**, **Statistics** and **Firmware Upgrade**.

Information

This item shows the current information on the 802.11g Wireless LAN Station Adapter such as MAC Address, Firmware Version as well as Boot Version.



The screenshot displays the 'Wireless LAN Station Adapter' web interface. The title bar shows the device name and its address: 00-60-B3-00-E9-9B. A left-hand navigation menu includes 'Information', 'Configuration', 'TCP/IP', 'Statistics', '> Firmware Upgrade', and '> Logout'. The main content area is titled 'General Information' and contains a table with the following data:

General Information	
These information parameters provide the basic identification of hardware/software version of this Station Adapter.	
MAC Address (BSSID)	00-60-B3-00-E9-9B
Firmware Version	1.0.0.50 (Apr 1, 2004 10:10:53)
Boot Version	0.0.1.0

Configuration

Configuration General
(address: 00-60-B3-00-E9-9B)

- Information**
 - > General
- Configuration**
 - > General
 - > Encryption
 - > System
- TCP/IP**
- Statistics**
- Firmware Upgrade**
- Logout**

- General Parameters**
You can change the identification of your Station Adapter here.
Station Adapter Name:
- IEEE802.11 Parameters**
The IEEE802.11 parameters concern the operation of the wireless LAN protocol. Make sure the configuration of your station adapter is matching to the AP or an IBSS settings. For example, your station should select a correct 'ESSID' as configured below to communicate with the corresponding Access Point and join in the BSS (IBSS or ESS).
ESSID:
Network Type: >Infrastructure(with Access Point)
 >Ad Hoc
Channel:
Mode:
Rate:
Country/Region:
- Administration Parameters**
You can change some parameters for this Station Adapter's administration interface here.
New Password: (Leave it in blank if you don't want to change it.)
Confirm Change: (Make sure your typing is correct..)

General:

Station Adapter Name: In this field, you may enter any name. This will enable you to manage your Station Adapter more easily if you have multiple station adapters on the network. Besides, **Station Adapter Name** can be used to prevent you from forgetting an IP Address and fail to access the website. Try to type the nickname you like to identify the website, then press the button of "**Apply**" to reboot. Whenever you want to get back to the website again, just type the name you login.

ESSID: The ESSID is a unique ID used by Access Points and Stations to identify a wireless LAN. Wireless clients associating to any Access Point must have the same ESSID. The default ESSID is ANY. The ESSID can have up to 32 characters.

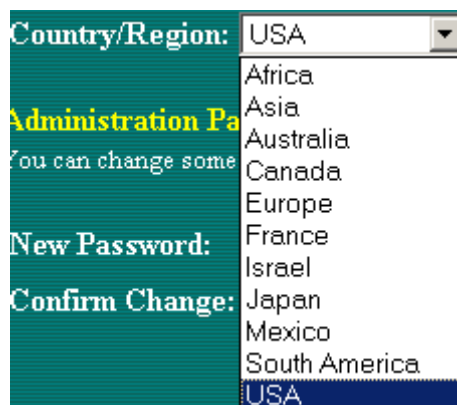
Network Type: There are 2 network types for the wireless station adapter to operate. If you need to access company network or Internet via Access Point, select "**Infrastructure**". To set up a group of wireless stations for files and printer sharing, select "**Ad-Hoc**" (without Access Point). For **Ad-Hoc** operation, the same ESSID is required to set for the wireless stations.

Channel: Select a clear and available channel as an operational channel for your wireless station adapter when it performs as Ad-Hoc mode.

Mode: There are three different wireless modes to operate, "B Only Mode", "G Only Mode", and "B/G Mixed Mode". In B/G Mixed Mode, the wireless station adapter is compatible with a mix of both 802.11g and 802.11b clients. You will see that the factory-set default "B/G Mixed Mod" will prove the most efficient. B Only Mode is compatible with 802.11b clients only. This mode can be used only if you do not allow any 802.11g clients to join a network. G Only Mode is compatible with 802.11g clients only. This mode can be used only if you do not allow any 802.11b clients to access to the network. To switch the mode, select the desired mode form the pull-down menu next to "**Mode**".

Rate: The wireless station adapter provides various data rate options for you to choose. Data rates options include **Auto, 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48 and 54**. The default setting is **Auto**.

Country/Region: Allows you to select country domain in case there is any chances that you would use wireless network in other countries. There are a total of 11 countries for you to select. They are Africa, Asia, Australia, Canada, Europe, France, Israel, Japan, Mexico, South America, and USA. Note that if your AP and station adapter are in different standards, please use the "**Country/Region**" item to switch the standards of the station adapter (For example, if your Access Point is America standard but your station adapter is Japanese standard, you can pull down the "**Country/Region**" option to switch your station adapter from Japanese standard to American standard.).



Password: You may change the default password by entering the new password.

Click "**Apply**" if you have made any changes.

WEP:

The wireless station adapter allows you to create up to 4 data encryption keys to secure your data from being eavesdropping by unauthorized wireless user. To enable the encryption, all devices on the network, such as the Access Point, must share the same WEP selection – either Enable or Disable, and they must share the same WEP key.

Disable: Allows the wireless station adapter to communicate with the Access Point without any data encryption.

WEP40: Requires the wireless station adapter to use data encryption with 40-bit algorithm when communicating with the Access Point.

WEP128: Allows the wireless station adapter to communicate with the Access Point with data 128-bit encryption algorithm.

WPA: Allows the wireless station adapter to communicate with the Access Point with a more secure data protection than the WEP. Here you can select the WPA with PSK mode to improve the data security and privacy during wireless transmission. The present WPA supplied with this station adapter is used in a pre-shared key mode, which does not require an authentication (Radius) server.

Configuration WEP
(address: 00-60-B3-00-E9-9B)

Encryption
The Station A adapter provides an industrial-standard WEP (wired equivalent privacy) or WPA-PSK function which can prevent from data reception by uninvited wireless receivers. Here under are modes and key table to configure the WEP and WPA-PSK encryption.

- Disable** no encryption
- WEP40** 40-bit WEP data encryption
- WEP128** 128-bit WEP data encryption
- WPA** WPA with PSK

Authentication Type:

WPA-PSK: (8 ~ 63 characters)

Key Format: ASCII HEX

Passphrase:

Use	WEP Key
Key1: <input type="radio"/>	<input type="text"/>
Key2: <input type="radio"/>	<input type="text"/>
Key3: <input type="radio"/>	<input type="text"/>
Key4: <input type="radio"/>	<input type="text"/>

Key Format: Ten hexadecimal digits (0-9 or A-F) or five alphabets (ASCII characters, case-sensitive) are needed if 40-bit WEP is used, 26 hexadecimal digits or 13 alphabets are needed if 128-bit WEP is used. Example keys are: 1122334455 or a-b-c-d-e for 40-bit WEP; and 01020304050607080910111213 or a-b-c-d-e-f-g-h-i-j-k-l-m for 128-bit WEP.

For 40bit encryption you may choose:

ASCII: Enter 5 characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. **MyKey**).

Hex: Alternatively, you may enter 10 **hexadecimal digits** in the range of "A-F", "a-f" and "0-9" (e.g. **11AA22BB33**).

For 128bit encryption you may choose:

ASCII: Enter 13 characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. **MyKey12345678**).

Hex: Alternatively, you may enter 26 **hexadecimal digits** in the range of "A-F", "a-f" and "0-9" (e.g. **00112233445566778899AABBCC**).

After entering the WEP keys in the key field, select one key as active key.

Alternatively, you may create encryption keys automatically by using Passphrase. From the Passphrase field, type a character string and click Generate. As you type, the wireless station adapter will use an algorithm to generate 4 keys automatically. Select one key from the 4 WEP keys.

Moreover, the wireless station adapter provides two types of authentication services: Open System and Shared Key. The default authentication type is Open System. If you require higher security for wireless access, you may select Shared Key. Note that when Shared Key is selected, a WEP key is required and must be the same with the key that Shared-Key-enabled AP uses. (The authentication mode will be available soon).

For WPA-PSK mode you may choose:

In the WPA-PSK field, you may enter 8-63 characters ranging from "a-z", "A-Z" and "0-9".

Configuration WEP
(address: 00-60-B3-00-E9-9B)

Information
> General

Configuration
> General
> Encryption
> System

TCP/IP

Statistics

> Firmware Upgrade

> Logout

Encryption
The Station Adapter provides an industrial-standard WEP (wired equivalent privacy) or WPA-PSK function which can prevent from data reception by uninvited wireless receivers. Here under are modes and key table to configure the WEP and WPA-PSK encryption.

- Disable* no encryption
- WEP40* 40-bit WEP data encryption
- WEP128* 128-bit WEP data encryption
- WPA* WPA with PSK

Authentication Type:

WPA-PSK:
Enter the Pre-Shared Key (8 - 63 characters)

Key Format: ASCII HEX

Passphrase:

Use WEP Key

Key1:

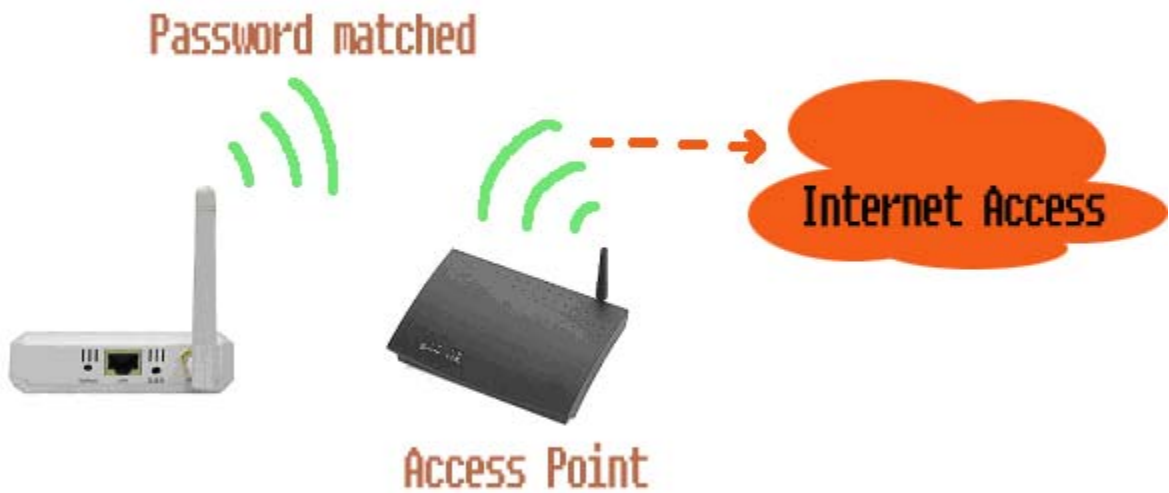
Key2:

Key3:

Key4:

Key Format: Ten hexadecimal digits (0-9 or A-F) or five alphabets (ASCII characters, case-sensitive) are needed if 40-bit WEP is used; 26 hexadecimal digits or 13 alphabets are needed if 128-bit WEP is used. Example keys are: 1122334455 or abcde for 40-bit WEP; and 01020304050607080910111213 or abcdefghijklm for 128-bit WEP.

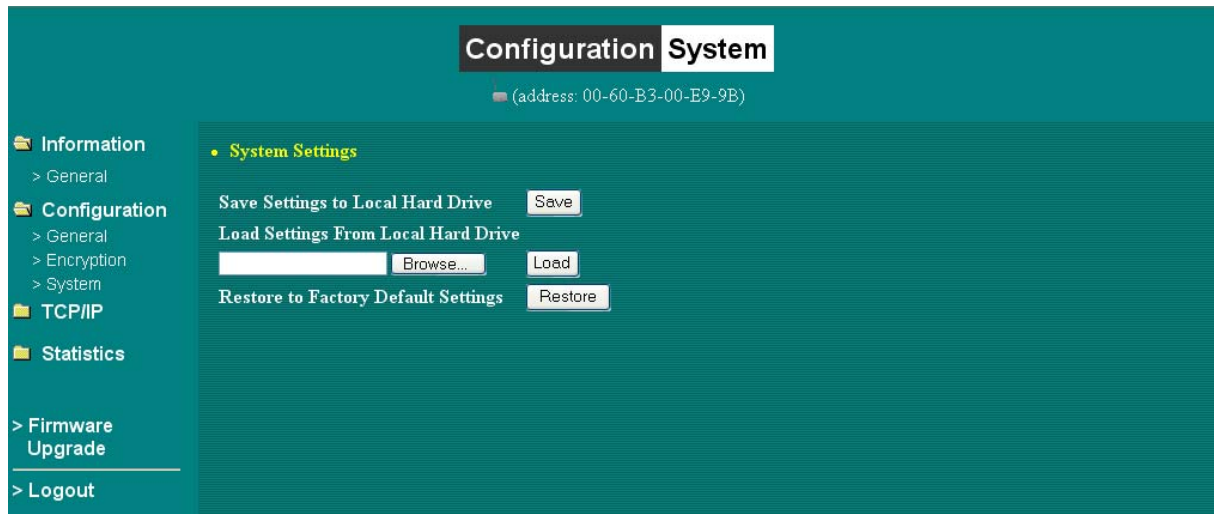
If you require that access to the Internet or other wireless network services is allowed only when the pre-shared key of the station adapter matches that of the AP.



Click the **"Apply"** button on the Configuration tab to make the setting take effect.

Setting:

The system item allows you to save settings to the local hard drive by clicking **"Save"**. When you click the **"Browse"** button, you can select the saved setting files. To click **"Load"**, the saved settings will be loaded back. You also can return to Factory Default Settings by clicking **"Restore"**.



TCP/IP

You may assign a proper IP address to your wireless station adapter manually. If you would like the wireless station to obtain the IP address from the DHCP server on your network automatically, enable the DHCP client function.



Statistics

General:

This item allows you to monitor the general information of the Access Point with which your wireless station is communicating such as Link Status, ESSID, BSSID, Channel, Signal as well as RX/TX from Ethernet packets.

Status and Statistics General
 (address: 00-60-B3-00-E9-9B)

Information

- > General
- Configuration**
 - > General
 - > Encryption
 - > System
- TCP/IP**
 - > General
- Statistics**
 - > General
 - > AP Browser
- > Firmware Upgrade
- > Logout

• Status

Link Status	Connected
ESSID	CTC
BSSID	00-60-b3-17-3f-e8
Channel	CH 11 / 2462MHz
Signal	53

• Statistics

Ethernet Receive		Ethernet Transmit	
Packets	721	Packets	14872

AP Browser:

By clicking the **“Refresh”** button, the **AP Browser** will reload and display the available Access Points around the working environment. Besides showing the BSSID of each Access Point, it also displays ESSID, Channel, Support Rate and Capability.

Status and Statistics AP Browser
 (address: 00-60-B3-00-E9-9B)

Information

- > General
- Configuration**
 - > General
 - > Encryption
 - > System
- TCP/IP**
 - > General
- Statistics**
 - > General
 - > AP Browser
- > Firmware Upgrade
- > Logout

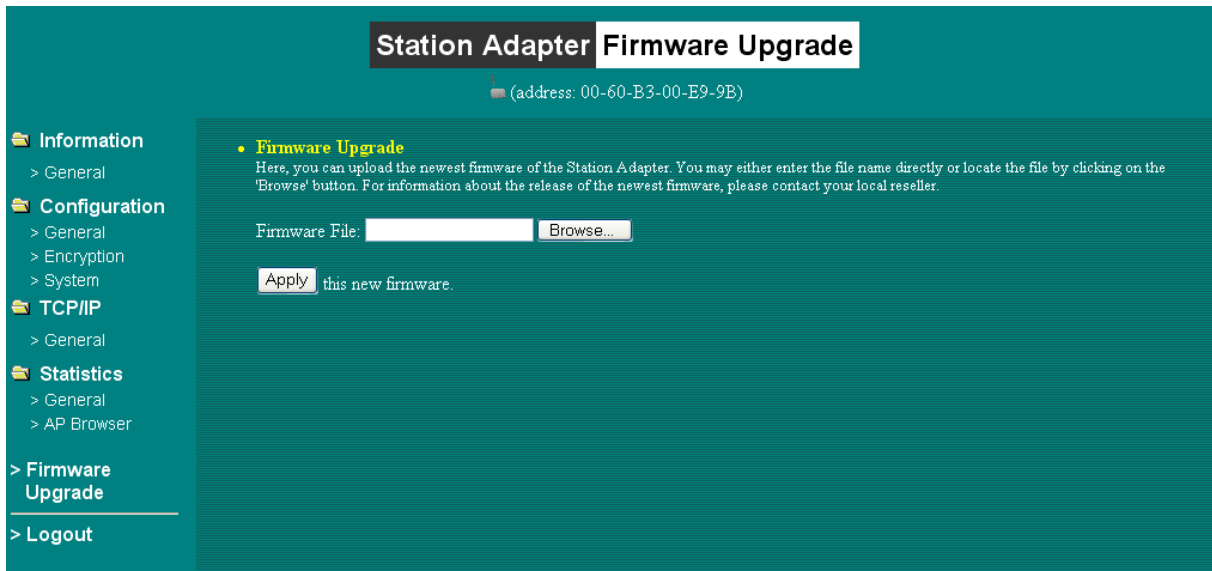
• Statistics

BSSID	ESSID	Channel	Support Rate	Capability
0020a64f27a3	roaming	1	1,2,5,5,11,6,12,24,36,9,18,48,54	AP,WEP ON
000c16000000	showroom	6	1,2,5,5,11,6,9,12,18,24,36,48,54	AP,WEP OFF
0060b3446622	CONNECT2AIR	6	1,2,5,5,11,6,9,12,18,24,36,48,54	AP,WEP OFF
00095b74f370	NETGEAR	8	1,2,5,5,11,6,9,12,18,24,36,48,54	AP,WEP ON
0060b3178fe8	CTC	11	1,2,5,5,11	AP,WEP OFF
00a0b03ea2cb	wng54axptest	11	1,2,5,5,11,6,9,12,18,24,36,48,54	AP,WEP OFF
0007407796a7	airg54	11	1,2,5,5,11,6,9,12,18,24,36,48,54	AP,WEP OFF

Refresh

Firmware Upgrade

Here, you can upload the latest firmware of the wireless station adapter. You may either enter the file name in the entry field or browse the file by clicking the **“Browse”** button. Then click the **“Apply”** button to begin to upgrade the process.



The screenshot shows a web interface for upgrading the firmware of a station adapter. The page title is "Station Adapter Firmware Upgrade" and the device address is "00-60-B3-00-E9-9B". A sidebar on the left contains a navigation menu with the following items: Information (General), Configuration (General, Encryption, System), TCP/IP (General), Statistics (General, AP Browser), Firmware Upgrade (selected), and Logout. The main content area features a "Firmware Upgrade" section with a descriptive paragraph, a "Firmware File:" label, an input field, a "Browse..." button, and an "Apply" button.

Station Adapter Firmware Upgrade
(address: 00-60-B3-00-E9-9B)

- Information**
 - > General
- Configuration**
 - > General
 - > Encryption
 - > System
- TCP/IP**
 - > General
- Statistics**
 - > General
 - > AP Browser
- > Firmware Upgrade**
- > Logout**

Firmware Upgrade
Here, you can upload the newest firmware of the Station Adapter. You may either enter the file name directly or locate the file by clicking on the 'Browse' button. For information about the release of the newest firmware, please contact your local reseller.

Firmware File:

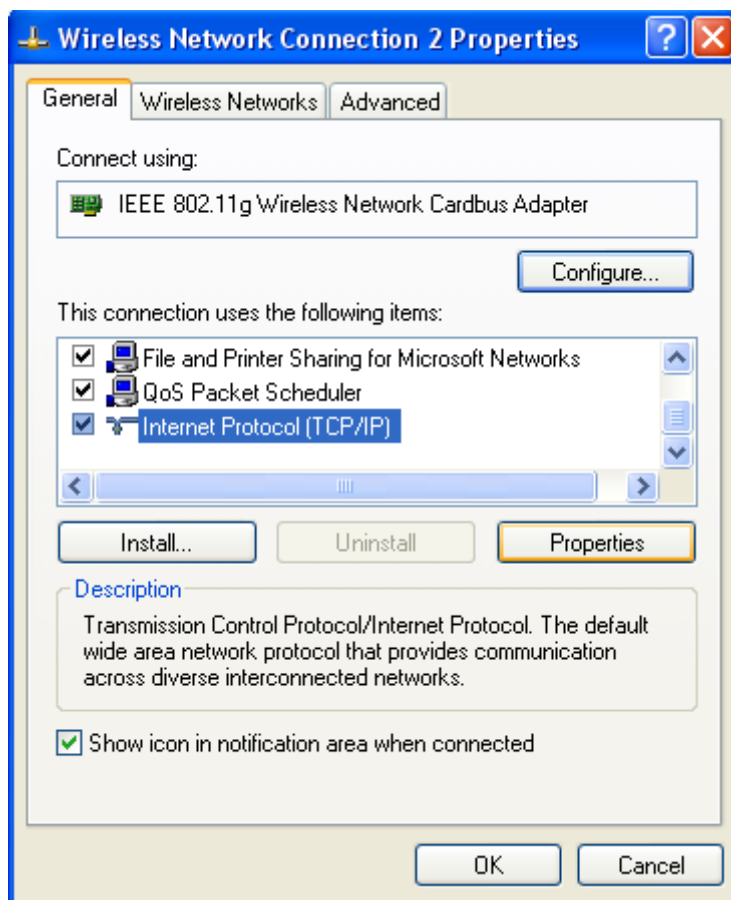
this new firmware.

Appendix

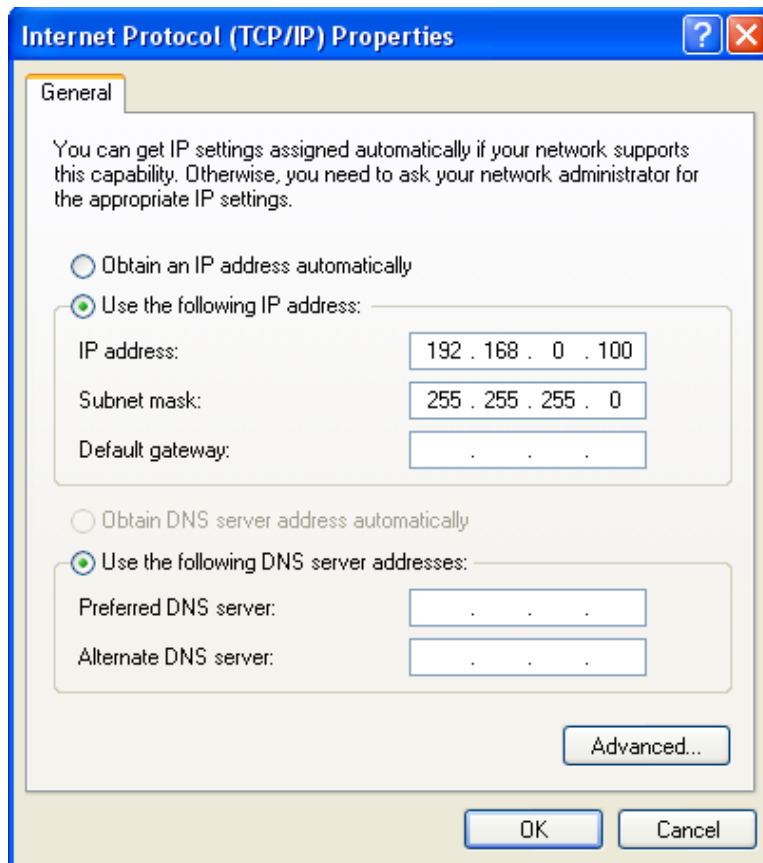
Follow the description if you have any problem during the installation of this wireless station adapter.

How to assign a static IP Address in Windows XP/2000?

1. Go to **"Start"** > Click on **"Control Panel"** > Double-click on **"Network Connections"** > Right-click on **"Local Area Connections"** > Click **"Properties"**
2. Highlight **"Internet Protocol (TCP/IP)"** and then click **"Properties"**.



3. Select **“Use the following IP address”** in the Internet Protocol (TCP/IP) Properties window. Set your **“IP address”** and **“subnet mask”**. (The IP Address must be within the same range as your station adapter. The IP Address of your station adapter is 192.168.0.10. You can assign **192.168.0.100** for your computer. **No** two computers can have the same IP Address. Assign a subnet mask of (255.255.255.0.) and then Click **“OK”** button.



Congratulations! You have now successfully assigned a Static IP Address in Windows XP/2000.

4 Limited Warranty

Station Adapter

This Warranty constitutes the sole and exclusive remedy of any buyer or reseller's equipment and the sole and exclusive liability of the supplier in connection with the products and is in lieu of all other warranties, express, implied or statutory, including, but not limited to, any implied warranty of merchantability of fitness for a particular use and all other obligations or liabilities of the supplier.

In no event will the supplier or any other party or person be liable to you or anyone else for any damages, including lost profits, lost savings or other incidental or consequential damages, or inability to use the software provided on the software media even if the supplier or the other party person has been advised of the possibility of such damages.

The following are special terms applicable to your hardware warranty as well as services you may use during part of the warranty period. Your formal Warranty Statement, including the warranty applicable to our Wireless LAN products, appears in the Quick Installation Guide that accompanies your products.

Duration of Hardware Warranty: One Year

Replacement, Repair or Refund Procedure for Hardware:

If your unit needs a repair or replacement, return it to your dealer/distributor in its original packaging. When returning a defective product for Warranty, always include the following documents:

- The Warranty Repair Card
- A copy of the invoice/proof of purchase, and
- The RMA Report Form (To receive a Return Materials Authorization form (RMA), please contact the party from whom you purchased the product).

Upon proof-of-purchase we shall, at its option, repair or replace the defective item at no cost to the buyer.

This warranty is contingent upon proper use in the application for which the products are intended and does not cover products which have been modified without the reseller's approval or which have been subjected to unusual physical or electrical demands or damaged in any way.

Please complete the information below and include it along with your products.

Name:	
Title:	
Company:	
Telephone:	
Fax:	
Email:	
City/State/Zip code:	
Country:	
Product Name:	
Serial Number:	
MAC Address:	
Invoice Date:	
Product Description:	

If you have any further questions, please contact your local authorized reseller for support.