

802.11b/g Wireless LAN

USB 2.0 Adapter

**User's Manual**

## **REGULATORY STATEMENTS**

### **FCC Certification**

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

#### **Part15, Class B**

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

- 1) This device may not cause harmful interface.
- 2) This device must accept any interface received, including interface that may cause undesired operation. 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - ə Reorient or relocate the receiving antenna.
  - ə Increase the distance between the equipment and receiver.
  - ə Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

#### **CAUTION:**

- 1) 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.
- 2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users. For laptop installations, the antenna must be installed to ensure that the proper spacing is maintained in the event the users places the device in their lap during use (i.e. positioning of antennas must be placed in the upper portion of the LCD panel only to ensure 20 cm will be maintained if the user places the device in their lap for use) and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as the 2 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

**IMPORTANT NOTE:** In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ADSL modems, certain laptop configurations, and similar equipment). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: {MQ4WUG2660}"/>.

RF Exposure Manual Information That Must be Included

The users manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

Additional Information That Must be Provided to OEM Integrators

The end user should NOT be provided any instructions on how to remove or install the device.

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# INTRODUCTION

The specific product as below, 802.11b/g Wireless LAN USB 2.0 Adapter, with its designed features and specified description, meets special requirements for limited modular approval of FCC public notice DA 00-1407.

The **802.11b+g Wireless LAN USB Adapter** complies with **IEEE 802.11g** standard that offers a data rate up to **54Mbps** in a wireless LAN environment. It is backward compliant with IEEE 802.11b specification. The high-speed wireless network card can plug into your notebook or desktop PC and accesses to the LAN or peer-to-peer networking easily without wires or cables. Whether you're at your desk or in the boardroom, it allows you to share printers, files, and other network resources.

## Features

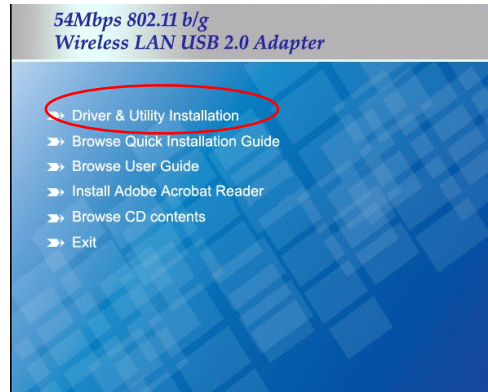
- Ø Complies with IEEE 802.11g standard for 2.4GHz Wireless LAN
- Ø USB 2.0 compliant
- Ø USB Plug & Play
- Ø Interoperable with existing network infrastructure
- Ø Secure information transmission
- Ø Freedom to roam while staying connected
- Ø Compatible with specialty wireless products and services
- Ø Up to 54 Mbps data rate
- Ø Antenna joint is built in the card with LED indication
- Ø Low power consumption
- Ø Easy to install and configure

# SOFTWARE INSTALLATION

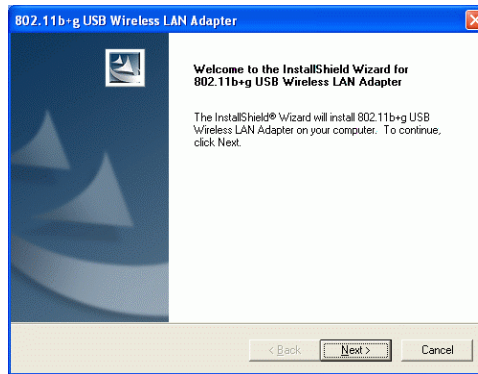
## Step 1: Install the Driver & Utility

### For Windows 98, 2000, ME and XP users

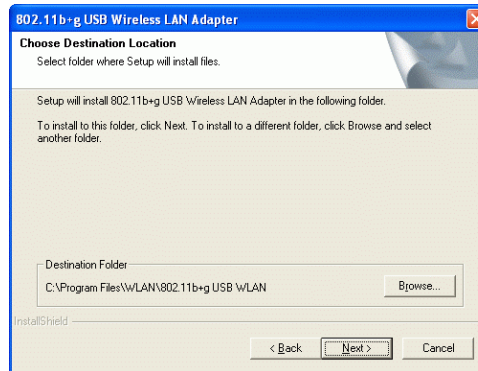
1. Exit all Windows programs. Insert the included CD-ROM into your computer. The CD-ROM will run automatically.
2. When the Main Menu screen appears, click “**Driver & Utility Installation**” to continue.



3. When the Welcome screen appears, click **Next** to continue.

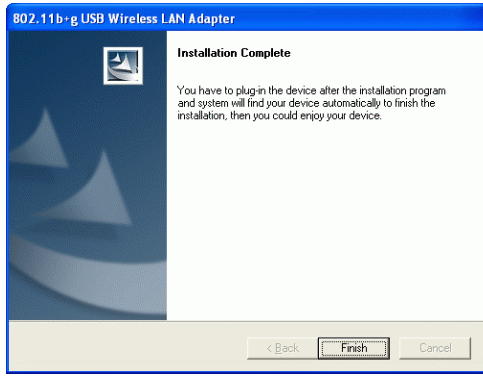


4. The installation program will start running automatically. Follow the on-screen instruction to proceed.



5. Click **Finish** to complete the software installation.



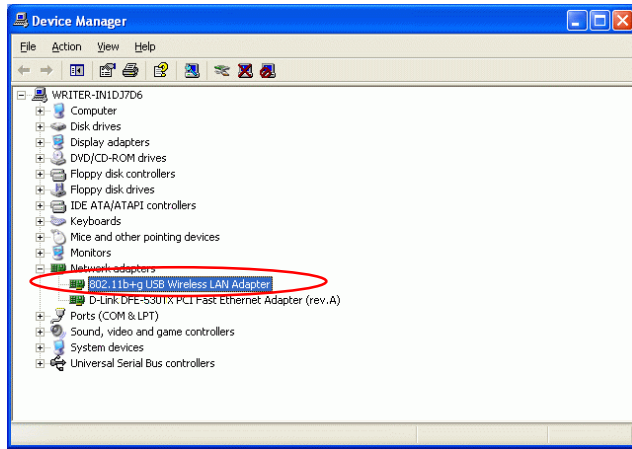


# HARDWARE INSTALLATION

1. Bend the WLAN module securing plate 90 angles.
2. Slide in the module, and make sure it is aligning to the white strip.
3. The WLAN module insert the white strip through the securing plate hole to secure them both.
4. Pull the strip with full strength to make sure it's tight.
5. Repeat steps of 3,4 to secure the 2<sup>nd</sup> strip.
6. Loose the Antenna lock off.
7. Insert the Antenna into the chassis.
8. Pass the Antenna lock through the wire.
9. Secure the Antenna, and bend the Antenna up to 90 angles.
10. Aiming the Antenna cable to the module.  
Attach the Antenna cable onto the connector of WLAN module.
11. Connect the USB connector to USB header.

## Verify

To verify if the device exists in your computer and is enabled, go to **Start à Settings à Control Panel à System (à Hardware) à Device Manager**. Expand the **Network Adapters** category. If the **802.11b+g USB Wireless LAN Adapter** is listed here, it means that your device is properly installed and enabled.

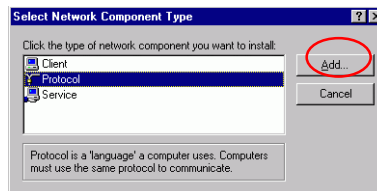


# NETWORK CONNECTION

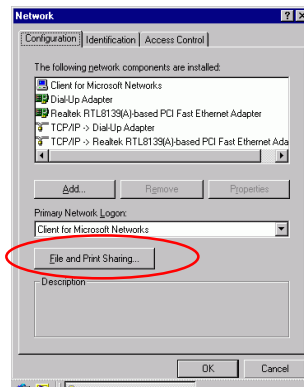
Once the device driver is well installed, a network setting described in the following should be also established.

## In Windows 98SE/ME

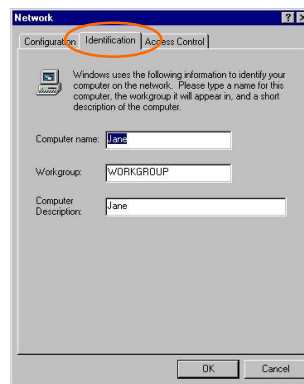
1. Go to **Start à Settings à Control Panel à Network**.
2. Make sure that all the required components are installed. If any components are missing, click on the **Add** button to add them in.



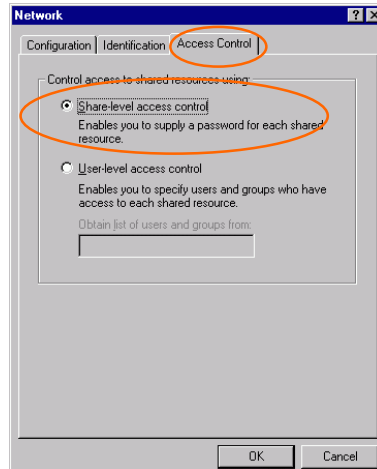
3. For making your computer visible on the network, enable the **File and Print Sharing**.



4. Click the **Identification** tab. Make up a name that is unique from the other computers' names on the network. Type the name of your workgroup, which should be the same used by all of the other PCs on the network.



5. Click the **Access Control** tab. Make sure that “**Share-level access control**” is selected. If connecting to a Netware server, share level can be set to “**User-level access control.**”



6. When finished, restart your computer to activate the new device.

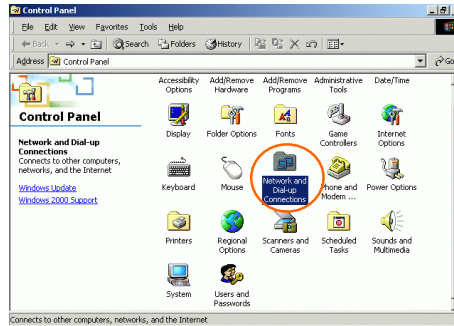
# In Windows 2000/XP

## 1. (In Windows 2000)

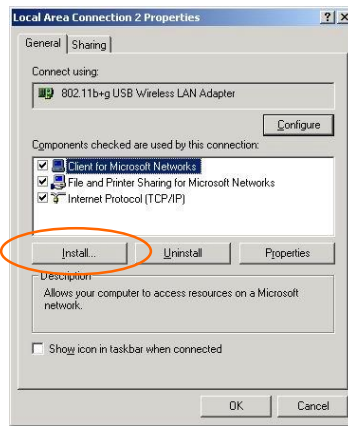
Go to **Start à Settings à Control Panel à Network and Dial-up Connections à Local Area Connection à Properties.**

## (In Windows XP)

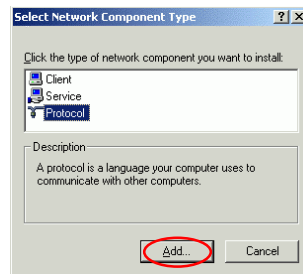
Go to **Start à Control Panel à Network and Internet Connections à Network Connection à Wireless Network Connection Enabled USB Wireless Network Adapter.**



2. Make sure that all the required components are installed.



3. If any components are missing, click on the **Install...** button to select the **Client/Service/Protocol** required. After selecting the component you need, click **Add...** to add it in.



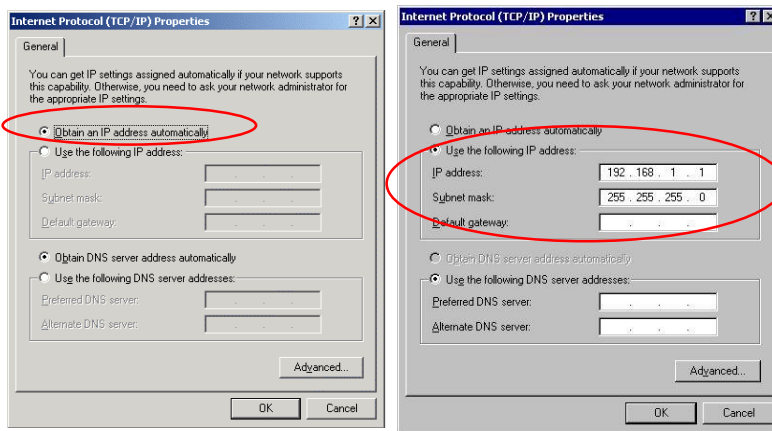
4. For making your computer visible on the network, make sure you have installed **File and Printer Sharing for Microsoft Networks**.



# IP Address

*Note: When assigning IP Addresses to the computers on the network, remember to have the IP address for each computer set on the same subnet mask. If your Broadband Router use DHCP technology, however, it won't be necessary for you to assign Static IP Address for your computer.*

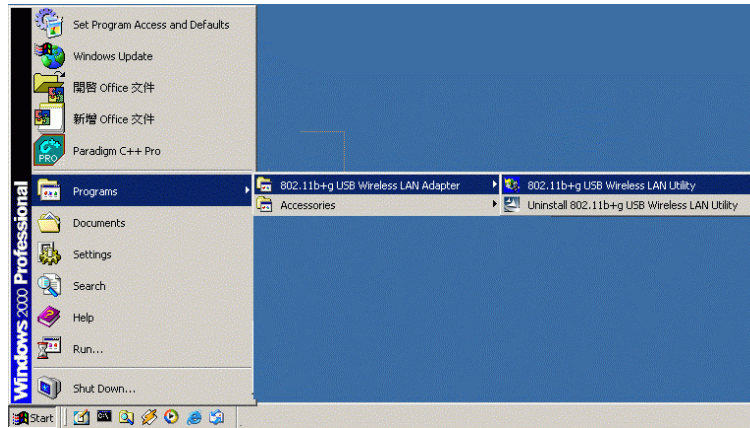
1. To configure a dynamic IP address (i.e. if your broadband Router has the DHCP technology), check the **Obtain an IP Address Automatically** option.
2. To configure a fixed IP address (if you broadband Router is not DHCP supported, or when you need to assign a static IP address), check the **Use the following IP address** option. Then, enter an IP address into the empty field, for example, enter **192.168.1.1** in the IP address field, and **255.255.255.0** for the Subnet Mask.



# Configuration Utility

After the Wireless adapter has been successfully installed, users can use the included Configuration Utility to set their preference.

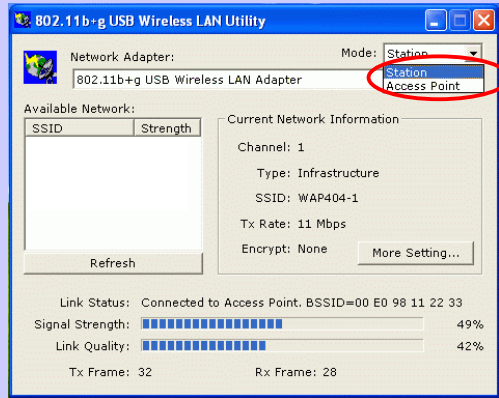
Go to **Start Program 802.11b+g Wireless LAN g 802.11b+g USB Wireless LAN Utility**



For **Windows 2000/XP**, the Configuration Utility icon will also appear in the taskbar. You can open the Configuration Utility by clicking the icon.

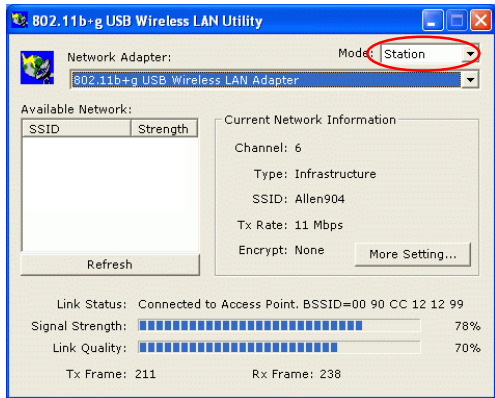


**Note:** There will be two modes – **Station** and **Access Point** for you to switch, you can select the mode you need from the pull-down menu.

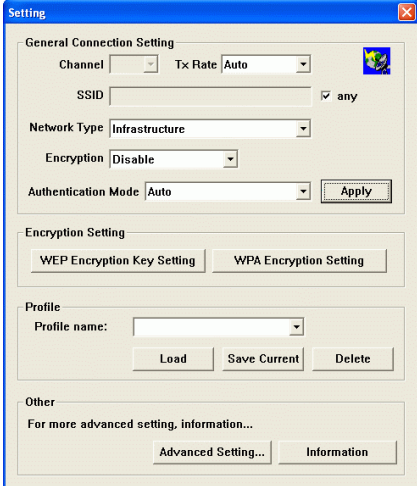


# Station

Select **Station** mode, and you will see the following figure.

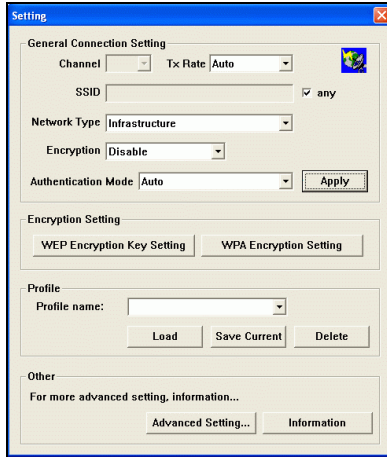


<b>Channel</b>	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
<b>Type</b>	<p>The <b>infrastructure</b> is intended for the connection between wireless network cards and an Access Point. With the wireless adapter, you can connect wireless LAN to a wired global network via an <b>Access Point</b></p> <p>The <b>Ad-hoc</b> lets you set a small wireless workgroup easily and quickly. Equipped with the wireless adapter, you can share files and printers between each PC and laptop.</p>
<b>SSID</b>	<p>The <b>SSID</b> is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.</p> <p>It shows the current SSID setting of the Wireless USB Adapter.</p>

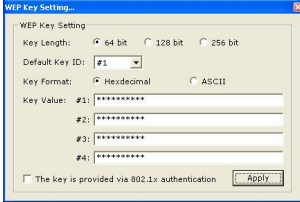
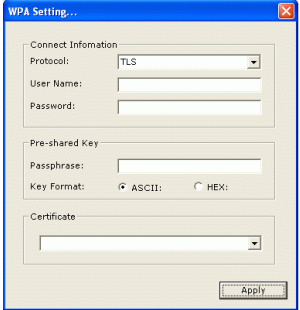
<b>Tx Rate</b>	Click the down arrow ▼ to select the Tx Rate from <b>Auto, 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, 54 Mbps</b> , you can select up to <b>54 Mbps</b> .
<b>Encrypt</b>	WEP is a data privacy mechanism based on a 64-bit/128-bit shared key algorithm.
<b>More Setting...</b>	<p>Click the <b>More Setting</b> button to configure, see the following figure (Refer to the <b>More Setting</b> part on the next page for more information about this figure) :</p> 
<b>Link Status</b>	Displays the information about the status of the communication between the Wireless USB Adapter and the Access Point.
<b>Signal Strength</b>	Displays the signal strength of the connection between the Wireless USB Adapter and the Access Point it connects.
<b>Link Quality</b>	Displays the link quality of the connection between the Wireless USB Adapter and the Access Point it connects.

<b>Tx Frame</b>	The quantities for the wireless network card transmit. (Frame: The unit of packet)
<b>Rx Frame</b>	The quantities for the wireless network card receive. (Frame: The unit of packet)

**More Setting...**

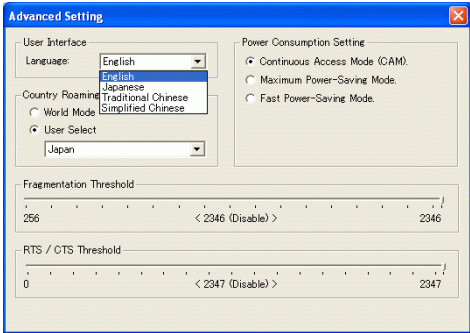
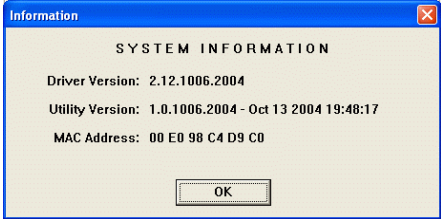


<b>Channel</b>	The Channel will change automatically according to AP's setting.
<b>Tx Rate</b>	Click the down arrow ▼ to select the Tx Rate from <b>Auto, 1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, 54 Mbps</b> , you can select up to <b>54 Mbps</b> .
<b>SSID</b>	The <b>SSID</b> is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.
<b>Any</b>	You may select to have <b>SSID</b> by choosing <b>any</b> , the SSID will be obtained automatically from whichever Access Point with the optimal signal for this device. If <b>any</b> is left unchecked, it means you will have to enter the SSID manually.

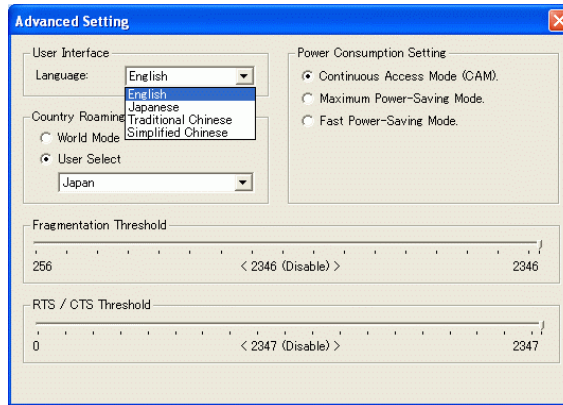
<b>Network Type</b>	<p>The <b>infrastructure</b> is intended for the connection between wireless network cards and an Access Point. With the wireless adapter, you can connect wireless LAN to a wired global network via an <b>Access Point</b></p> <p>The <b>Ad-hoc</b> lets you set a small wireless workgroup easily and quickly. Equipped with the wireless adapter, you can share files and printers between each PC and laptop.</p>
<b>Encryption</b>	<p>You can only set your Security preference when <b>Change</b> is selected and then all fields are active for change. To save settings, press <b>Apply</b> when you are done with the settings. Select from the pull-down menu, there are four options including <b>Disable, WEP, TKIP</b> and <b>AES</b>.</p>
<b>Authentication Mode</b>	<p>You can select the Authentication Mode from the pull-down menu, including <b>Auto, Open System, Shared Key, WPA</b> and <b>WPA PSK</b>.</p>
<b>Encryption Setting</b>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="576 573 873 825"> <p><b>WEP Encryption Setting</b></p>  </div> <div data-bbox="894 573 1192 932"> <p><b>WPA Encryption Setting :</b></p>  </div> </div> <p>You can only set your Security preference when <b>Change</b> is selected and then all fields are active for change. To save settings, press <b>Apply</b> when you are done with the settings.</p> <p><b>WEP Encryption Setting</b></p> <p><b>Key length</b> : You may select the key length between <b>64 (bit), 128 (bit)</b> and <b>256 (bit)</b>.</p>

	<p><b>Default Key ID :</b> You can set your default key ID at #1~#4.</p> <p><b>Key Format :</b> Select <b>Hexadecimal</b> if you are using hexadecimal numbers (<b>0-9, or A-F</b>).</p> <p>Select <b>ASCII</b> if you are using ASCII characters (<b>case-sensitive</b>).</p> <p><b>10 hexadecimal digits</b> or <b>5 ASCII characters</b> are needed if <b>64-bit WEP</b> is used; <b>26 hexadecimal digits</b> or <b>13 ASCII characters</b> are needed if <b>128-bit WEP</b> is used ; <b>58 hexadecimal digits</b> or <b>29 ASCII characters</b> are needed if <b>256-bit WEP</b> is used.</p> <p><b>Key Value:</b>  <b>#1~#4</b> This setting is the configuration key used in accessing the wireless network via WEP encryption. You can specify up to 4 different keys to <i>encrypt</i> or <i>decrypt</i> wireless data.</p> <p><input type="checkbox"/> <b>The Key is provided via 802.1x authentication :</b>  Please query your network manager about the currently used security protocol, if 802.1x authentication is currently used, then you can check this item to enable 802.1x security protocol. The key value will be configured automatically, just click <b>Apply</b> to take effect.</p> <p><b>WPA Encryption Setting</b></p> <p><b>Protocol :</b> This panel enables you to select an authentication protocol.</p> <p><b>User Name :</b> Type in the user name assigned to the certificate.</p> <p><b>Password :</b> This panel is available when EAP-TLS is not selected (either MSCHAP V2 over PEAP is selected with WEP or LEAP is selected for CCX). This panel enables you to enter a login name and password or request that the driver prompt for them when you connect to a network.</p> <p><b>Passphrase :</b> Enter the key that you are sharing with the network for the WLAN connection.</p> <p><b>Key Format :</b> Select <b>Hex</b> if you are using hexadecimal numbers (<b>0-9, or A-F</b>).</p> <p>Select <b>ASCII</b> if you are using ASCII characters.</p>
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	<p><b>Certificate</b> : Please query your network manager about the certificate, select the same certificate as the certification server.</p>
<b>Load</b>	<p>You may select already saved file from the "<b>Profile name</b>" list, and then press "<b>Load</b>". The setting status will then be restored.</p>
<b>Save Current</b>	<p>You may save current setting to profile and add one new item in "<b>Profile name</b>".</p>
<b>Delete</b>	<p>Delete the files in the "<b>Profile name</b>".</p>
<b>Advanced Setting</b>	<p>Click the <b>Advanced Setting</b> button to configure the following figure ( Refer to the <b>Advanced Setting</b> part on the next page to see more information about the <b>Advanced Setting</b> ) :</p> 
<b>Information</b>	<p>Click the Information button to show the Driver Version, Utility Version and MAC Address of the system.</p> 

## Advanced Setting



### User Interface

<b>Language</b>	Select English or Traditional Chinese.
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### Power Consumption Setting

<b>Continuous Access Mode (CAM)</b>	When this mode is selected, the power supply will be normally provided even when there is no throughput.
<b>Maximum Power-Saving Mode</b>	When this mode is selected, this device will stay in power saving mode even when there is high volume of throughput.
<b>Fast Power-Saving Mode</b>	When this mode is selected, the power mode will switch between CAM and Maximum Power-Saving Mode depending on the volume of throughput. The device driver checks the total bytes (only data frame) every 4 seconds to decide the power mode. If the total bytes sent exceed 10k bytes, the device driver will choose "CAM". If the total bytes are less than 10k bytes, however, the device driver will choose "Maximum Power-Saving Mode".

### Country Roaming

<b>World Mode</b>	This function is only enabled and effective with 802.11d standard.
<b>User Select</b>	Enable this function to select the country you are now locating.

<b>Fragmentation Threshold</b>	The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is <b>2346</b> .
<b>RTS/CTS Threshold</b>	<p>RTS/CTS Threshold is a mechanism implemented to prevent the “<b>Hidden Node</b>” problem. If the “Hidden Node” problem is an issue, users have to specify the packet size. <u>The RTS/CTS mechanism will be activated if the data size exceeds the value you set.</u> The default value is <b>2347</b>.</p> <p>This value should remain at its default setting of <b>2347</b>. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.</p>

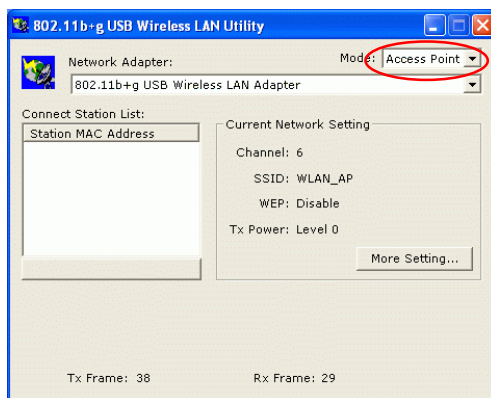
## Access Point

To set your **802.11g Wireless LAN USB Adapter** as an Access Point (AP). In access point mode, the **802.11g Wireless LAN USB Adapter** will function as an access point. This allows you to set up your wireless networks without using a dedicated AP device. Up to 16 wireless stations can associate to the **802.11g Wireless LAN USB Adapter**.

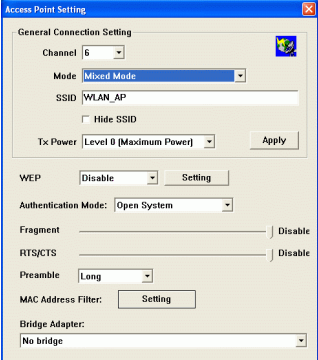
To the **802.11g Wireless LAN USB Adapter** to bridge your wired and wireless network, the following requirements must be met :

1. The **802.11g Wireless LAN USB Adapter** must be installed on a computer connected to the wired network.
2. Either configure network sharing (refer to the appendix for an example) or bridge the two interfaces (wireless and wired) on the computer.
3. Set the wireless station's IP address to be in the same subnet as the computer in which the **802.11g Wireless LAN USB Adapter** is installed. Refer to **Configuring the Wireless Station Computer**.

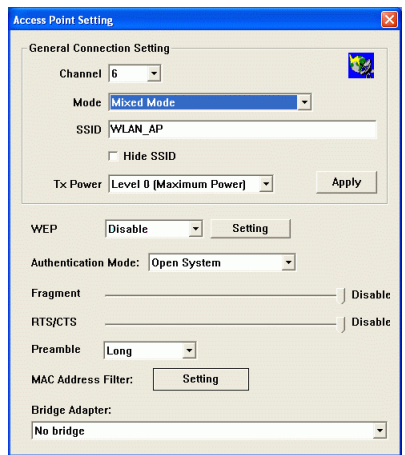
Select the Access Point mode, and you will see the following figure.

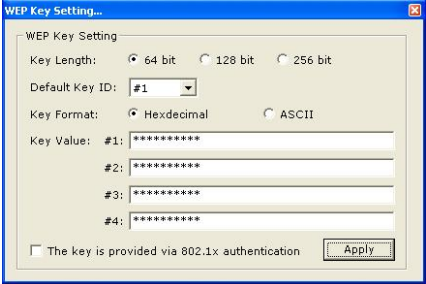


<b>Network Adapter</b>	You can select the network adapter from the pull-down menu, it shows the device itself ( the 802.11g Wireless LAN USB Adapter ) and also shows the devices supported by the 802.11g Wireless LAN USB Adapter.
<b>Connection Station List</b>	It shows the stations which are now connecting to the AP.
<b>Channel</b>	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
<b>SSID</b>	The <b>SSID</b> is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. It shows the current SSID setting of the Wireless USB Adapter.
<b>WEP</b>	The WEP function here has been disabled. If you want to change to Enabled, click <b>More Setting...</b> to configure.
<b>Tx Power</b>	The Tx power here is configured as Level 0, to change the Tx power, click <b>More Setting...</b> to configure.
<b>More Setting...</b>	Click the <b>More Setting...</b> button and the following figure will appear for you to configure ( Refer to the <b>More Setting...</b> part on the next page for more information about this figure. )

	
<b>Tx Frame</b>	<p>The quantities for the wireless network card transmit. (Frame: The unit of packet)</p>
<b>Rx Frame</b>	<p>The quantities for the wireless network card receive. (Frame: The unit of packet)</p>

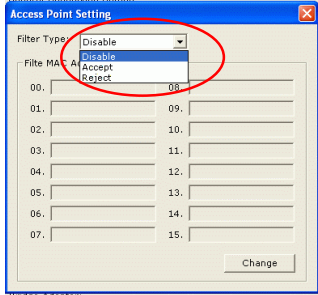
**More Setting...**



<b>Channel</b>	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
<b>Mode</b>	Select <b>Mixed Mode</b> or <b>802.11b only, 802.11g only</b> standard Mode (If you choose this option the device will automatically convert the suitable standard ).
<b>SSID</b>	The <b>SSID</b> is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. It shows the current SSID setting of the Wireless USB Adapter.
<b>Tx Power</b>	Select the Tx power from the pull-down menu, there are four levels including <b>Level 1, Level 2, Level 3 (Minimum)</b> .
<b>Change</b> or <b>Apply</b>	Click <b>Change</b> to set the General Connection Setting. After Completing the setting Click <b>Apply</b> .
<b>WEP</b>	<p>You can select to <b>Enable</b> or <b>Disable</b> the WEP function by selecting from the pull-down men. Click Setting and the following figure will appear.</p> 

<b>Authentication Mode</b>	Select the Authentication mode from the pull-down menu, there are two modes for you to choose, <b>Open System</b> and <b>Shared Key</b> .
<b>Fragment</b>	The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is <b>2346</b> .
<b>RTS/CTS</b>	RTS/CTS Threshold is a mechanism implemented to prevent the “ <b>Hidden Node</b> ” problem. If the “Hidden Node” problem is an issue, users have to specify the packet size. <i>The RTS/CTS mechanism will be activated if the data size exceeds the value you set.</i> The default value is <b>2347</b> . This value should remain at its default setting of <b>2347</b> . Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
<b>Preamble</b>	A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. Select from the pull-down menu to change the Preamble type into <b>Long</b> or <b>Short</b> .



<p><b>MAC Address Filter</b></p>	<p>Click <b>Setting</b> and you will see the following figure. You can select the Filter Type from the pull-down menu.</p> <p><b>Disable</b> : Select to disable the filter function.</p> <p><b>Accept</b> : You can type in 15 MAC addresses by clicking <b>Change</b>. If you select Accept, then the MAC address(es) you type in will be connected to the AP.</p> <p><b>Reject</b> : You can type in 15 MAC addresses by clicking <b>Change</b>. If you select Reject, then the MAC address(es) you type in will not be connected to the AP.</p> 
<p><b>Bridge Adapter</b></p>	<p>The stations will not be allowed to connect to the internet if you select <b>No bridge</b>.</p> <p>The stations will be allowed to connect to the internet if you select the device listed in the pull-down menu.</p>

If you have any trouble with the equipment, please contact the customer care service:

Company Name: Xterasys Corporation

Tel: 909-590-0600

Fax: 909-590-0388

Contact Person: Mr. Larry