

TEW-224UB
802.11b Wireless
USB Adapter

User Guide

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.

Part 15, 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 interference, and
- 2) This device must accept any interference received, including interference 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:
 - ? Reorient or relocate the receiving antenna.
 - ? Increase the distance between the equipment and receiver.
 - ? 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.

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Introduction

A wireless LAN links network users to LAN services without the hassle of cabling or wiring, which significantly brings mobile workers the freedom of staying connected to the network while roaming around a building or multiple buildings maintaining access to the Internet, e-mail, networked applications, and print services.

This device is the perfect solution for your wireless network applications based on the IEEE 802.11b standard that offers a data rate up to 11Mbps in a wireless LAN environment. It is a high-speed wireless network card that plugs 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.

The USB adapter is designed for a USB type A port of a laptop or desktop computer for creating a wireless workstation.

Features

- ?? Compliant with IEEE802.11b standard for 2.4GHz Wireless LAN
- ?? USB 1.1 compliant
- ?? USB Plug & Play
- ?? Interoperable with existing network infrastructure
- ?? Secure information transmission
- ?? Freedom to roam while staying connected
- ?? Compatible with specialty wireless products and services
- ?? Up to 11Mbps data rate
- ?? External Antenna is built in the card with LEDs indication
- ?? Supports Window 98SE/2000/ME/XP

- ?? Low power consumption
- ?? Easy to install and configure

LED Indicators

Rx (receive): Green, on

Tx (transmit): Green, on

Power: Green, on

Hardware Installation

1. Rotate the antenna counter-clockwise. Plug the square end (**Type B**) of USB cable into the adapter's USB port.
2. Plug the rectangle end (**Type A**) of USB cable into the PC's USB port

After installing the Wireless USB Adapter, follow below sections to install the adapter's software.

Under Windows 98SE

For Windows 98SE users: As you perform the installation, have your system operating CD-ROM at hand. You may be asked to insert the OS CD-ROM for the system to download a specific driver.

1. In **Add New Hardware Wizard**, click **Next**.



2. Select **Search for the best driver for your device (Recommended)**. Click **Next**.



3. Insert the device driver CD-ROM into the CD-ROM drive. Select **Specify a location:** and click **Browse** to provide the appropriate path (e.g. **E:\Win9xMe**). Click **Next**.



4. Click **Next**, Windows will copy all the necessary files to your system.



5. Insert **Windows 98SE** CD-ROM, and then click **OK**.



6. Click **Finish** to complete the installation.



7. When Windows prompts you to restart your computer, click **Yes**.



Under Windows ME

1. Select **Specify the location of the driver (Advanced)**, click **Next**.



2. Insert the device driver CD-ROM into the CD-ROM drive. Select **Search for the best driver for your device (Recommended)** and click **Browse** to provide the appropriate path (e.g. **E:\Win9xMe**). Click **Next**.



3. Click **Next**, Windows will copy all the necessary files to your system.



4. Click **Finish** to complete the installation.



5. When Windows prompts you to restart your computer, click **Yes**.

Under Windows 2000

1. In **Found New Hardware Wizard**, click **Next**.



2. In **Install Hardware Device drivers**, select **Search for a suitable driver for my device (recommended)**.



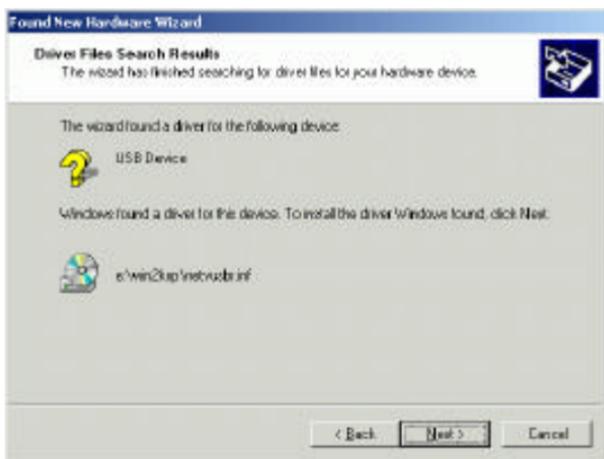
3. Insert the device driver CD-ROM into the CD-ROM drive. Select **Specify a location**.



4. Click **Browse** to provide the appropriate path (e.g. **E:\Win2kXP**). Click **OK**.



5. Click **Next**, Windows will copy all the necessary files to your system.



6. In **Digital Signature Not Found** window, click **Yes** to continue.



7. Click **Finish** to complete the installation.



8. Restart your computer.

Under Windows XP

1. Once the device is well connected to your computer, Windows XP will automatically detect the new device. Select **Install from a list or specific location (Advanced)** and click **Next**.



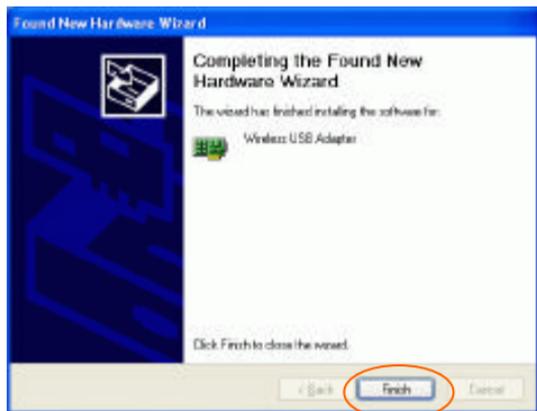
2. Insert the **Setup Utility CD-ROM** into the CD-ROM drive. Select **Include this location in the search:** and click **Browse** to provide the appropriate path (e.g. **E:\Win2kXP**). Click **Next**.



3. Click **Continue Anyway** to proceed.

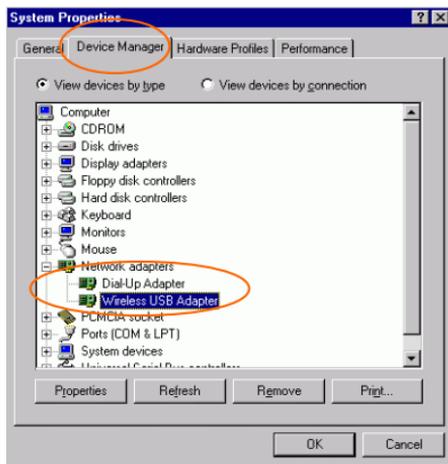


4. Click **Finish** to continue the installation.



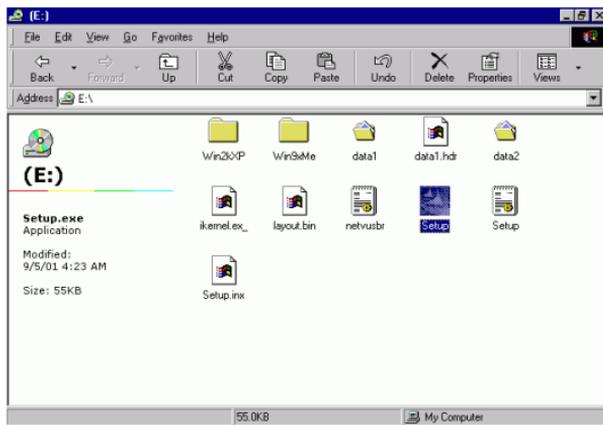
Verify

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

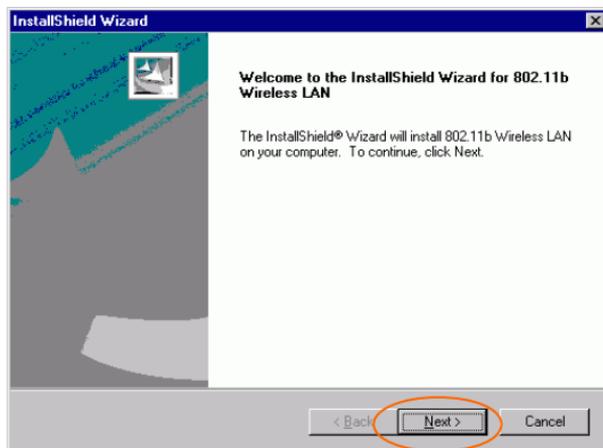


Install the Utility

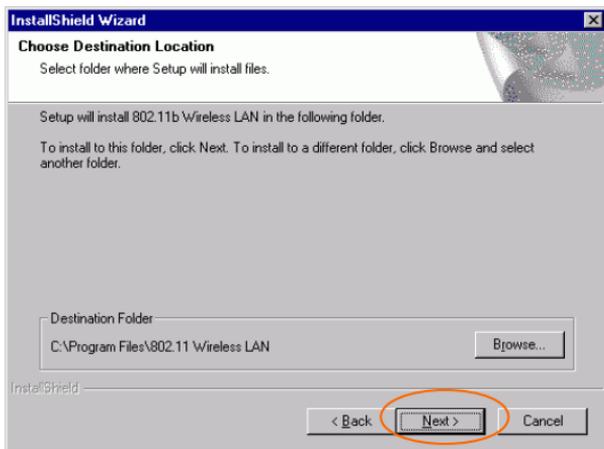
1. Insert the **Setup Utility CD-ROM** into the CD-ROM drive and double click on **Setup.exe** to install the Configuration & Monitor Utility.



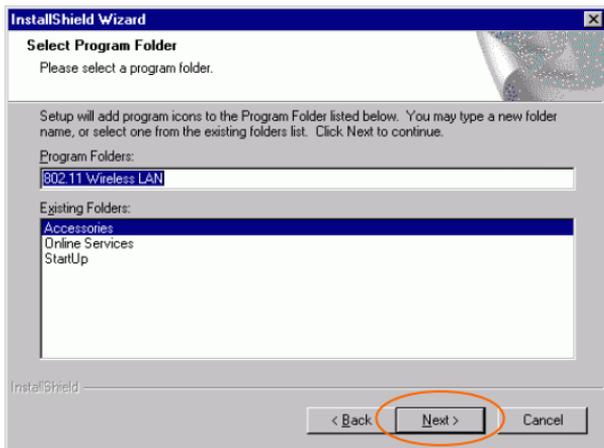
2. When the Welcome screen appears, click **Next** to continue.



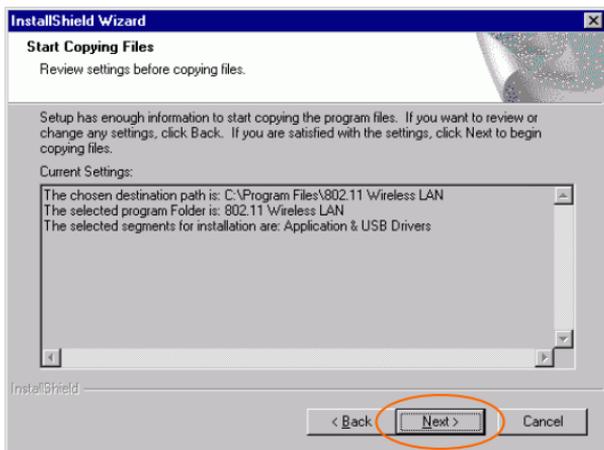
3. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.



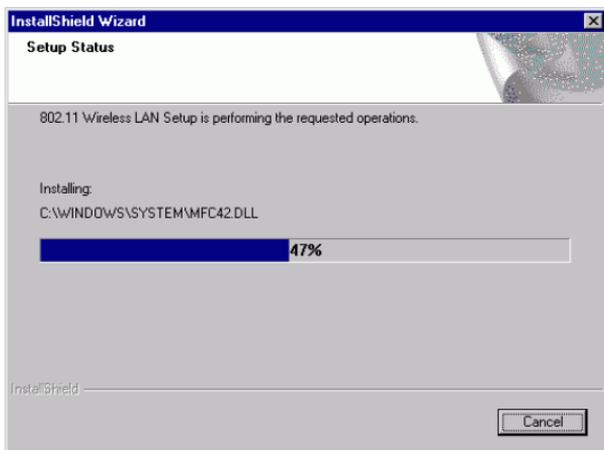
4. In **Select Program Folder**, click **Next** to continue.



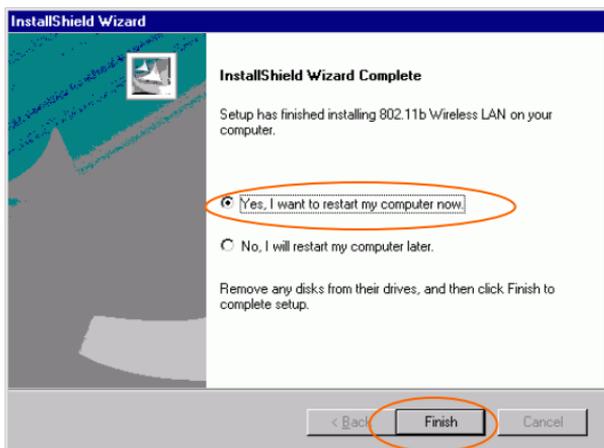
5. In **Start Copying Files**, click **Next** to continue.



6. In **Setup Status**, the InstallShield Wizard will begin copying the files.



7. After the Configuration Utility has been successfully installed, select **Yes, I want to restart my computer now**, and then click **Finish** to restart.

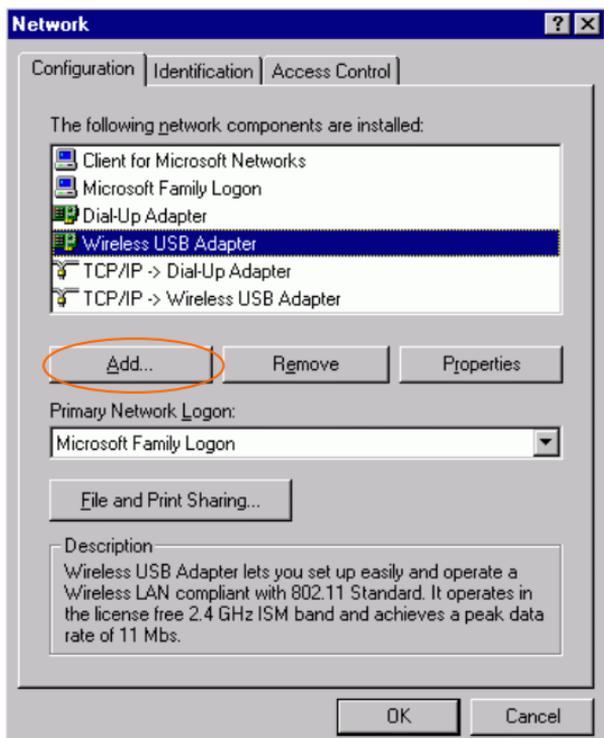


Network Connection

Once the driver has been installed, you must make some changes to your network settings.

Under Windows 98SE/ME

1. Go to **Start** *≡* **Settings** *≡* **Control Panel** *≡* **Network**.
2. Make sure that you have all the following components installed.



≡ **Wireless USB Adapter**

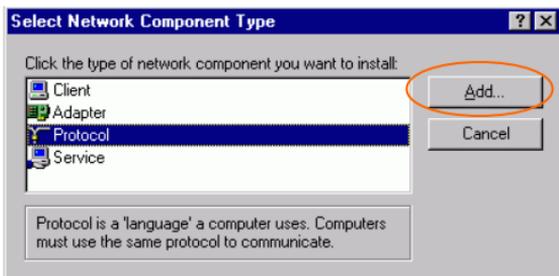
~~///~~ **IPX/SPX-compatible Protocol**

~~///~~ **NetBEUI**

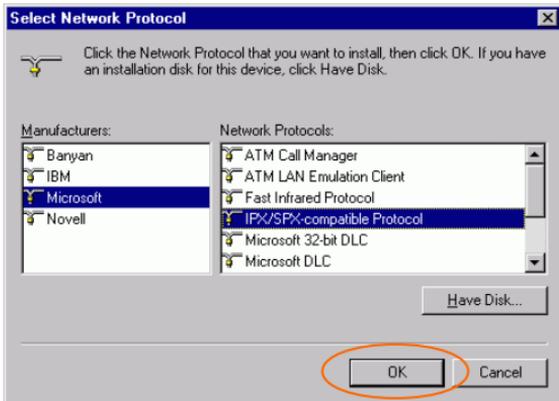
~~///~~ **TCP/IP**

If any components are missing, click on the **Add** button to add them in. All the protocols and clients required listed above are provided by Microsoft.

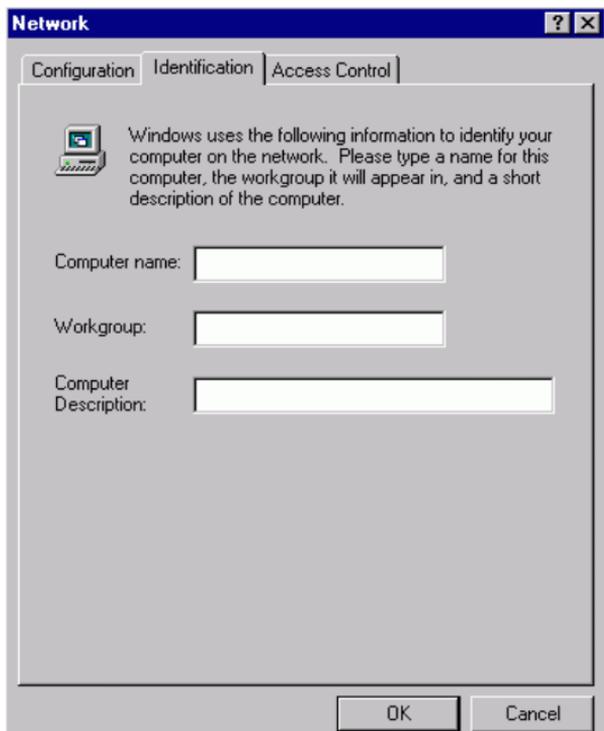
3. After clicking **Add**, highlight the component you need, click **Add**.



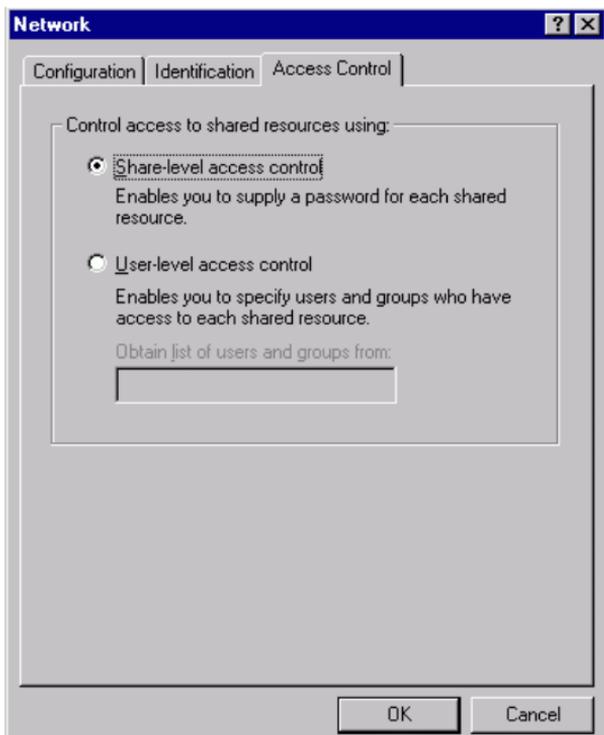
4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.



5. For making your computer visible on the network, enable the **File and Print Sharing**.
6. 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.



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



8. When finished, reboot your computer to activate the new device.
9. Once the computer has restarted and Windows has booted up, a **Logon** window will appear and require you to enter a username and password. Make up a username and password and click **OK**. Do not click the **Cancel** button, or you won't be able to log onto the network.
10. Double-click the **Network Neighborhood** icon on the Windows desktop, and you should see the names of the other PCs on the network.

Under Windows 2000/XP

1. (For Windows 2000)

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

(For Windows XP)

Go to **Start** ⌘ **Control Panel** ⌘ **Network Connections** ⌘ **Wireless Network Connection Enabled Wireless USB Adapter** ⌘ **Properties**.



2. Make sure that you have all the following components installed.

⌘ **Client for Microsoft Networks**

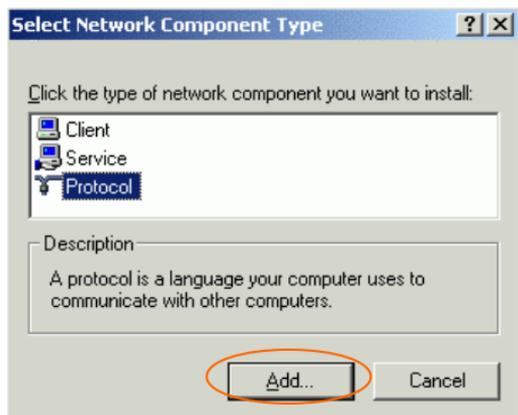
⌘ **NWLink NetBIOS**

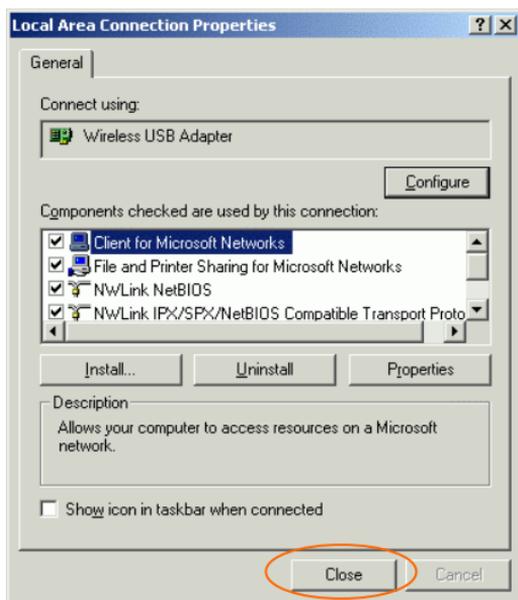
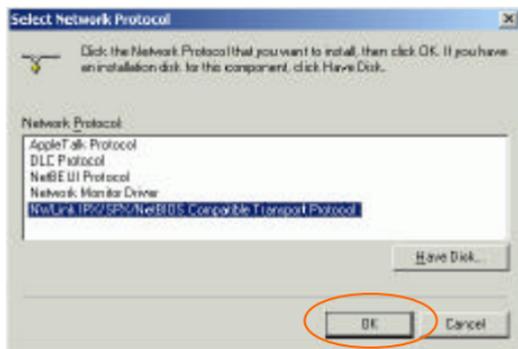
⌘ **NWLink IPX/SPX/NetBIOS Compatible Transport Protocol**

⌘ **Internet Protocol (TCP/IP)**



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**.
5. When finished, you must restart your computer to complete installation.

Configuration

Note: For Windows XP users, you have two options to configure the Wireless settings:

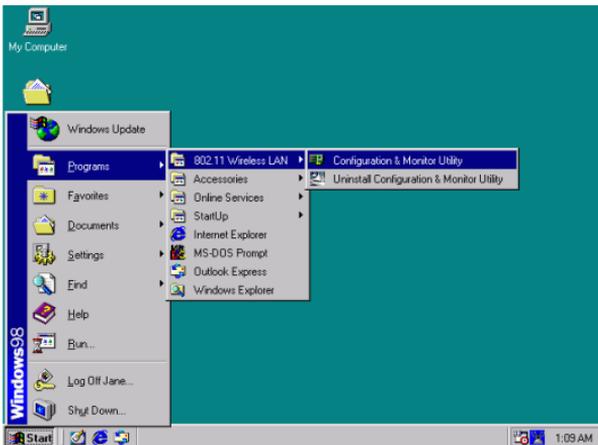
1) **Use Manufacturer's Configuration and Monitor Utility**

Please go to **Use Manufacturer's Configuration Utility** section to disable the Windows XP's wireless configuration.

2) **Use Windows XP's Wireless Configuration.** Please go to **Use Windows XP's Wireless Configuration Utility** section to use the configuration.

Use Manufacturer's Configuration and Monitor Utility

After installing the device successfully, go to **Start** \bowtie **Programs** \bowtie **802.11 Wireless LAN** \bowtie **Configuration & Monitor Utility**.



The **Wireless LAN Monitor Utility** icon will appear in the taskbar every time the device is running. You can open it by double-clicking on this icon.



Icon Status

Mode	Icon	Link Status
Access Point mode		Red. The station is not associated to an Access Point.
		Blue. The station associates itself to an Access Point.
Peer-to-Peer mode		Red. The color is red only when the card is during resetting and initialization procedure.
		Blue. Peer-to-Peer mode is activated.

All settings are categorized into 7 tabs:

Monitor

Statistics

Site Survey

Encryption

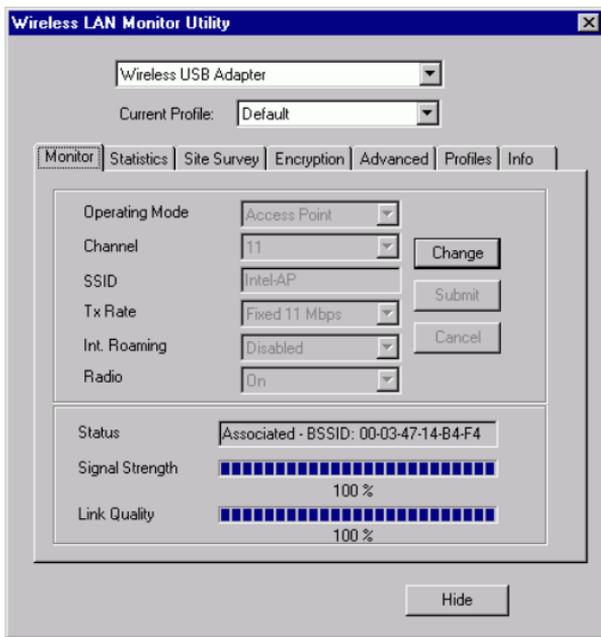
Advanced

Profiles

Info

Monitor

The **Monitor** tab will display the current status of the Wireless USB Adapter.



Item	Description
Operating Mode	It displays the current operating mode. (Access Point or Peer-to-Peer).
Channel	It shows the selected channel that is currently used. (There are 14 channels available, depends on the country.)
SSID	The SSID is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting

Item	Description
	to connect to the same network. It shows the current SSID setting of the Wireless USB Adapter.
Tx Rate	It shows the current transfer rate. (Fixed 1 Mbps, Fixed 2 Mbps, Fixed 5.5 Mbps, Fixed 11Mbps or Auto)
Int. Roaming	It displays the current roaming status. (Disabled or Enabled)
Radio	It displays the current status of the Radio Module of the Wireless USB Adapter. (On or Off)
Status	It displays the information about the status of the communication (the BSSID of the Access Point to which the card is associated).
Signal Strength	It displays the signal strength of the connection between the Wireless USB Adapter and the Access Point it connects.
Link Quality	It displays the link quality of the connection between the Wireless USB Adapter and the Access Point it connects.
Change	Click Change to change the configuration parameters such as Operating Mode, SSID and Tx Rate . (In Peer-to-Peer mode, Channel button is enabled; In Access Point mode, Int. Roaming button is enabled).
Submit	Click Submit to save the changes.
Cancel	Click Cancel to ignore the previous setting.
Hide	Click Hide to exit the application.

Statistics

This option shows you to view the available statistic information (**Data packets, Management Packets and Rejected packets**). Press the **Clear** button to renew or update this list of statistics.

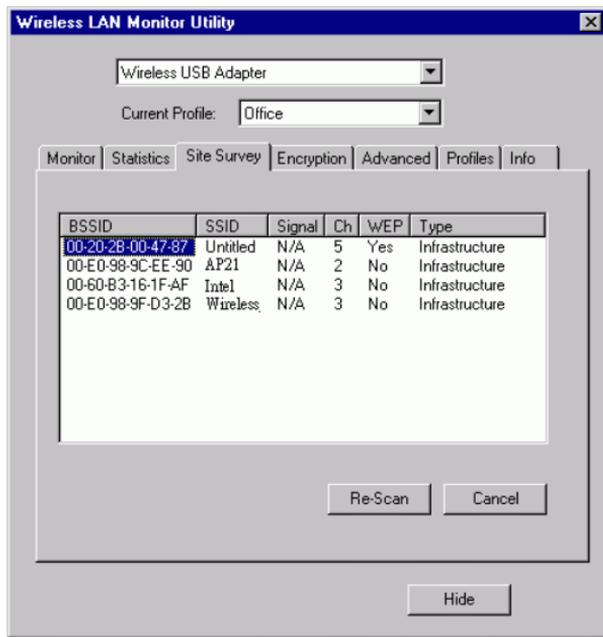
The screenshot shows the 'Wireless LAN Monitor Utility' window with the 'Statistics' tab selected. At the top, there are two dropdown menus: 'Wireless USB Adapter' and 'Current Profile: Default'. Below these are several tabs: 'Monitor', 'Statistics', 'Site Survey', 'Encryption', 'Advanced', 'Profiles', and 'Info'. The main content area displays a table of statistics with columns for 'Tx' and 'Rx'.

	Tx	Rx
Data Packets		
Successful	18	411
Unsuccessful	0	0
Mgmt Packets		
Successful	7	921
Unsuccessful	0	212
Rejected Packets	0	0

At the bottom right of the main content area is a 'Clear' button, and at the very bottom center is a 'Hide' button.

Site Survey

The **Site Survey** tab shows all the available Access Points or Peer-to-Peer types and their features.



Item	Description
BSSID	A set of wireless stations is referred to as a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.
SSID	The SSID 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.

Item	Description
Signal	It displays the signal strength of the connection between the Wireless USB Adapter and the Access Point it connects.
Ch	It shows the selected channel that is currently used.
WEP	It displays the status of WEP Encryption.
Type	<p>It displays the type of Basic Service Set.</p> <p>Access Point: allows the Adapter to communicate with a wired network which employing an Access Point.</p> <p>Peer-to-Peer: allows PC-to-PC, station-to-station communication without employing an Access Point.</p>
Re-Scan	Search for all available networks. Clicking on the button, the device will start to rescan and list all available sites.
Cancel	Click Cancel to ignore the previous setting. (Do not press Cancel while Re-Scan is working.)
Hide	Click Hide to exit the application.

Encryption

WEP (Wired Equivalent Privacy) encryption can be used to ensure the security of your wireless network.



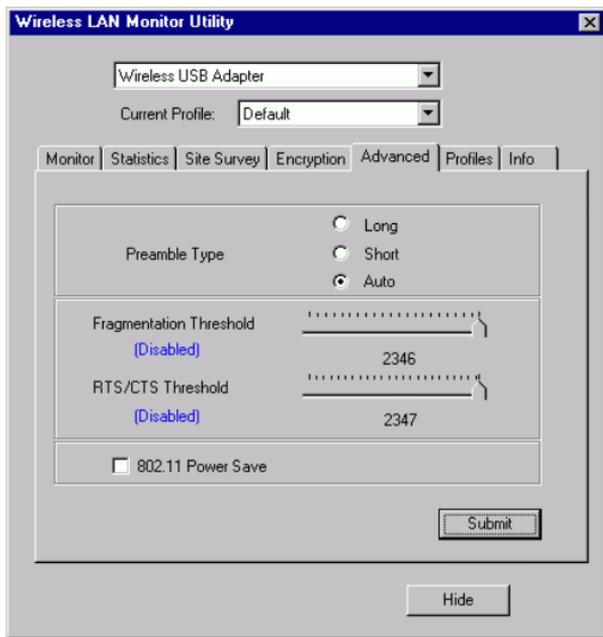
Item	Description
Encryption	WEP is a data privacy mechanism based on a 64-bit/128-bit shared key algorithm. Under the drop-down box, you can choose to have WEP encryption Disabled , 64 Bit , or 128 Bit .
Key #1/Key #2/ Key #3/Key #4	This setting is the configuration key used in accessing the wireless network via WEP encryption. To generate an encryption key: 1. Select 64 Bit or 128 Bit. 2. Click "Key1" or "Key2" or "Key3" or "key4" item, then fill in the appropriate value/phrase.
Default Key to use	You can specify up to 4 different keys to <i>decrypt</i> wireless data. Select the Default key setting from the drop-down menu.

Item	Description
WEP Mode	<p>Two WEP modes are available as below: Mandatory and Optional. Mandatory: WEP Encryption is required to establish connection with other stations within the wireless network. Optional: Your station can communicate with other stations within the wireless network regardless if they use WEP or not.</p>
Authentication Type	<p>The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards.</p> <p>You may choose between Open System, Shared Key, and Auto. Open System: If the Access Point is using "Open System" authentication, then the wireless adapter will need to be set to the same authentication type. Shared Key: Shared Key is when both the sender and the recipient share a secret key. Auto: Select Auto for the USB adapter to select the Authentication type automatically depending on the Access Point Authentication type.</p>
Submit	Click Submit to save the changes.
Hide	Click Hide to exit the application.

Note: You must use the same value/phrase or WEP key settings for all wireless computers in order for the wireless network to function well.

Advanced

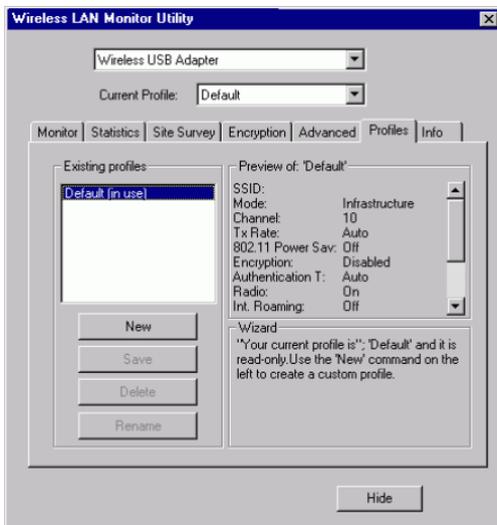
You can change advanced configuration settings, such as the **Preamble Type**, **Fragmentation Threshold** and **RTS/CTS Threshold**



Item	Description
<p data-bbox="126 154 308 186">Preamble Type</p> <p data-bbox="187 358 280 386">☞ Long</p>	<p data-bbox="347 154 895 340">A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. (Note: Checking the setting of AP prior to changing the Preamble type is recommended.)</p> <p data-bbox="347 358 895 417">If in a "noisy" network environment, the Preamble Type should be set to Long.</p>
<p data-bbox="182 436 285 464">☞ Short</p> <p data-bbox="187 610 280 638">☞ Auto</p>	<p data-bbox="347 436 895 589">The Short preamble is intended for applications where minimum overhead and maximum performance is desired. If in a "noisy" network environment, the performance would be decreased.</p> <p data-bbox="347 610 895 697">Select Auto for the USB adapter to select the Preamble type automatically depending on the Access Point Preamble type.</p>
<p data-bbox="126 716 308 781">Fragmentation Threshold</p>	<p data-bbox="347 716 895 902">To fragment MSDU or MMPDU into small sizes of frames for increasing the reliability of frame (The maximum value of 2346 means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.</p>
<p data-bbox="126 919 254 984">RTS/CTS Threshold</p>	<p data-bbox="347 919 895 1043">This value should remain at its default setting of 2347. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.</p>
<p data-bbox="126 1059 263 1096">Power Save</p>	<p data-bbox="347 1059 895 1155">Check the box to allow the Adapter to go to sleep mode, during which data communication could be interrupted.</p>
<p data-bbox="126 1171 223 1208">Submit</p>	<p data-bbox="347 1171 728 1199">Click Submit to save the changes.</p>
<p data-bbox="126 1234 192 1271">Hide</p>	<p data-bbox="347 1234 728 1262">Click Hide to exit the application.</p>

Profiles

You can create frequently used setting as a profile. Then, you can select the saved Profile from the pull-down list of the **Current Profile**.



Item	Description
New	Click New to create a new profile.
Create	Click Create to type the name of the new profile.
Cancel	Click Cancel to ignore creating new profile.
Save	Once you have changed the setting of the current profile, click Save to save the changes.
Delete	Click Delete to delete the current profile.
Rename	Click Rename to rename the current profile.
Hide	Click Hide to exit the application.

How to create a new Profile:

1. Select an AP or Station that is frequently used.
2. Follow below steps. (Please refer to Fig.1 ~ Fig.3)

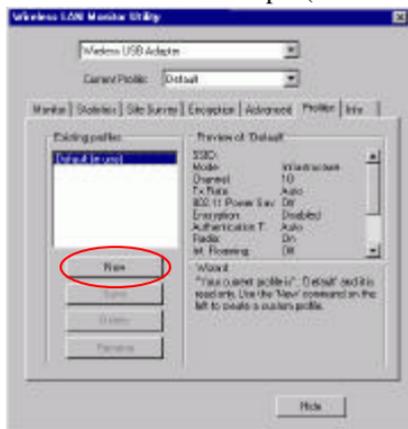


Fig.1

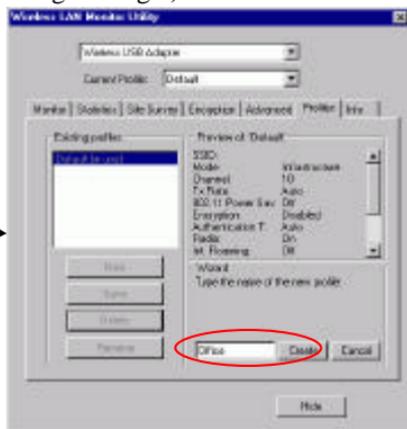


Fig.2

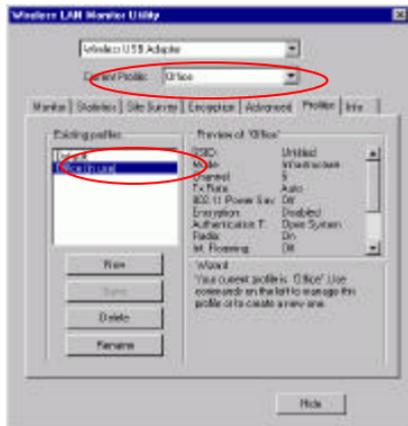


Fig.3

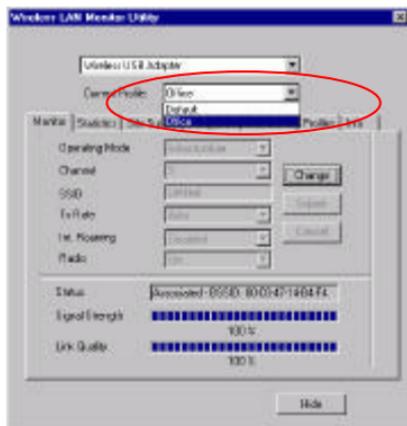
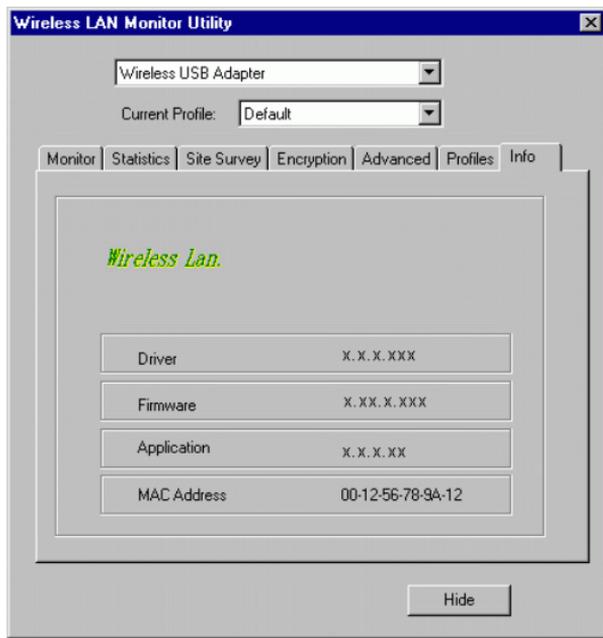


Fig.4

3. The new profile will be added in the pull-down list of **Current Profile**. (Please refer to Fig.4)

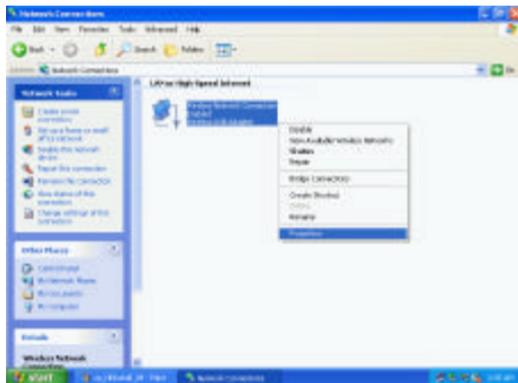
Info

You can view basic information about the Utility like the **Driver**, **Firmware** and **Application** Version. Use the **Hide** button to exit the application.

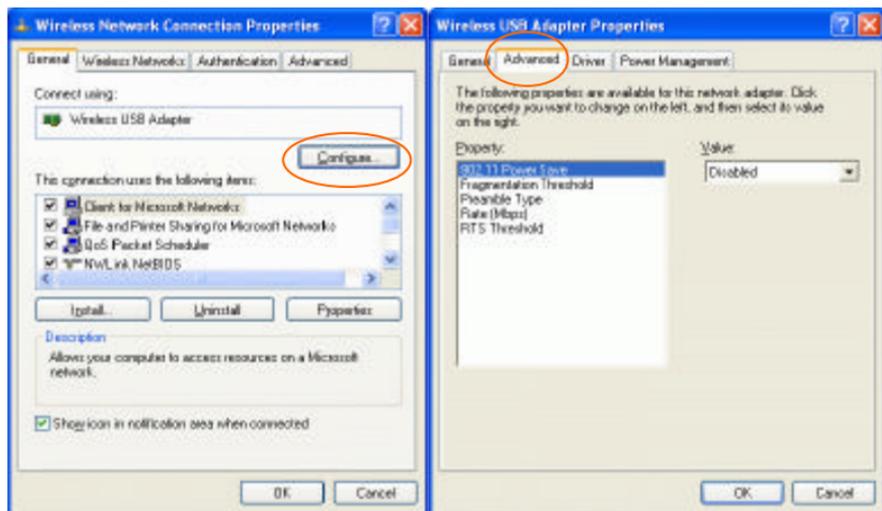


Use Windows XP's Wireless Configuration Utility

1. Go to **Start** \sphericalangle **Control Panel** \sphericalangle **Network and Internet Connections** \sphericalangle **Network Connections**.
2. In **Network Connections** window, right-click the **Wireless Network Connection Enabled Wireless USB Adapter** icon, and select **Properties**.

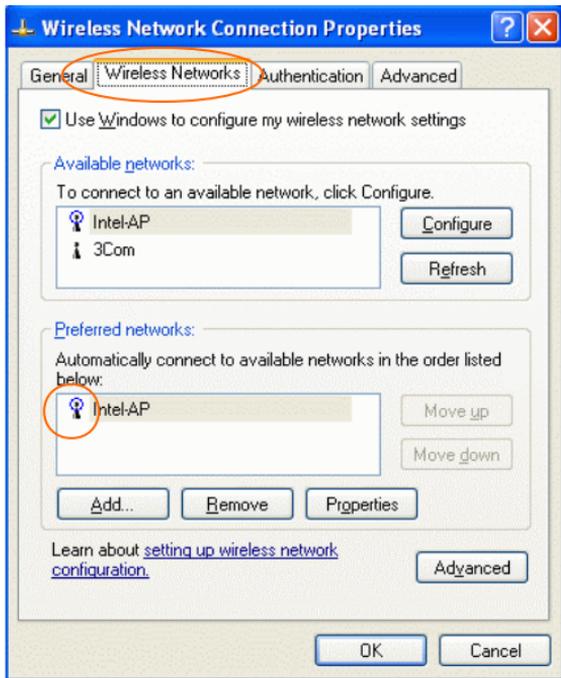


3. In **Wireless Network Connection Properties** window, select the **General** tab. Click **Configure** to enable Windows configuration.



Property	Description
802.11 Power Save	Enable the function to allow the Adapter to go to sleep mode, during which data communication could be interrupted. (Disabled or Enabled)
Fragmentation Threshold	To fragment MSDU or MMPDU into small sizes of frames for increasing the reliability of frame (The maximum value of 2346 means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.
<p data-bbox="128 471 308 501">Preamble Type</p> <p data-bbox="187 673 280 702">⌘ Long</p> <p data-bbox="184 753 283 782">⌘ Short</p> <p data-bbox="187 921 280 950">⌘ Auto</p>	<p data-bbox="349 471 896 655">A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. (Note: Checking the setting of AP prior to changing the Preamble type is recommended.)</p> <p data-bbox="349 673 896 733">If in a "noisy" network environment, the Preamble Type should be set to Long.</p> <p data-bbox="349 753 896 897">The Short preamble is intended for applications where minimum overhead and maximum performance is desired. If in a "noisy" network environment, the performance would be decreased.</p> <p data-bbox="349 921 896 1013">Select Auto for the USB adapter to select the Preamble type automatically depending on the Access Point Preamble type.</p>
Rate (Mbps)	It shows the current transfer rate. (1, 2, 5.5, or 11Mbps or Auto)
RTS Threshold	This value should remain at its default setting of 2347 . Should you encounter inconsistent data flow, only minor modifications of this value are recommended.

4. In **Wireless Network Connection Properties** window, select the **Wireless Networks** tab.



Use Windows to configure...

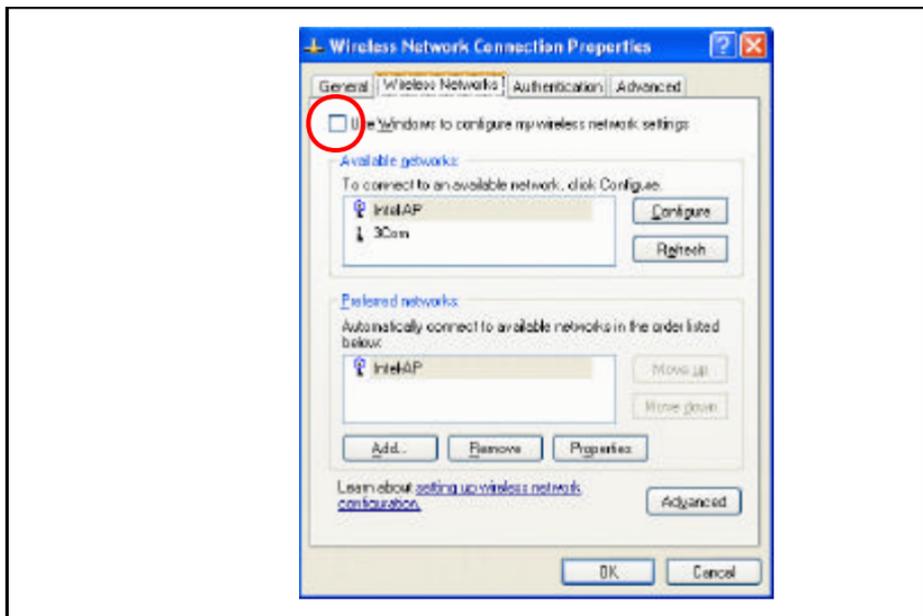
Check the box to enable Windows configuration.

* Use Windows to configure

Note: Once you enable windows configuration, you can use Windows XP's Wireless Configuration Utility to configure the wireless settings.

* Use Manufacturer's Configuration and Monitor Utility

Note: If you want to use manufacturer's configuration utility to configure the wireless settings, make sure the check box is **not** enabled then click the Network Status icon in the taskbar. (Please refer to below figure)

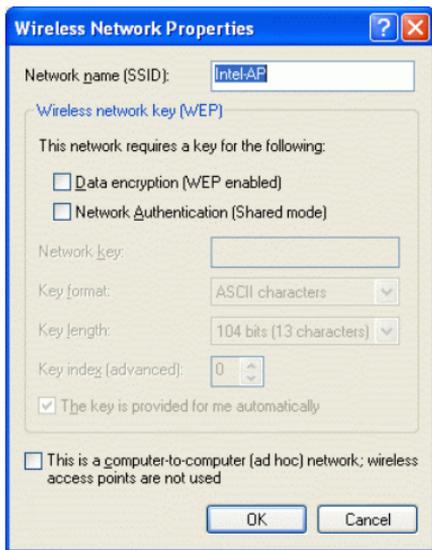


Available networks

Displays all available networks.

Configure

Click the button to set up a new network or WEP configuration as illustrated as below.



Refresh

Click the button to refresh and search for all available networks.

Preferred networks

From available network(s) listed above, you can select preferred one(s) in an order that you can arrange.

The marked one is the currently used network.

Move up

Move the selected network forward one position.

Move down

Move the selected network back one position

Add...

Click the button and the **Wireless Network Properties** window will appear. In the **Network name** field, enter your desired network name listed in the above **Available networks** box, and click **OK**.

Note: The new settings will be active only after you click on **OK** in the **Wireless Network Connection Properties** window.

Remove

Highlight the unwanted network listed in the **Preferred networks** box, and click the button to remove it.

Properties

Highlight the network listed in the above **Preferred networks** box, and click the button to display its properties.

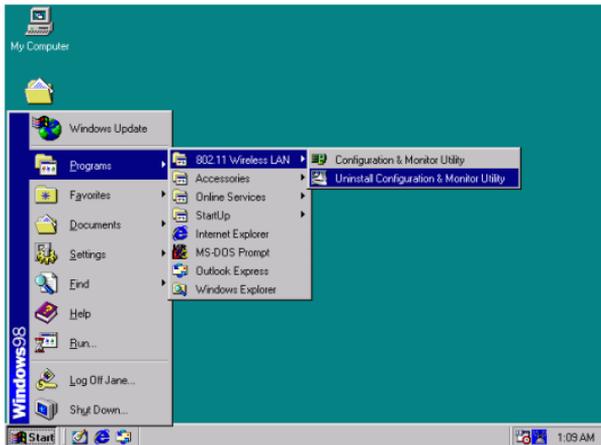
Once network configuration is done, make sure to click **OK**. The new parameters will be saved and active only after doing so.

Uninstallation

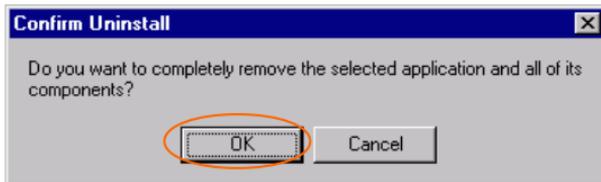
If you need to uninstall the Manufacturer's Configuration Utility or the device itself, please refer to below section.

Uninstall the Manufacturer's Configuration Utility

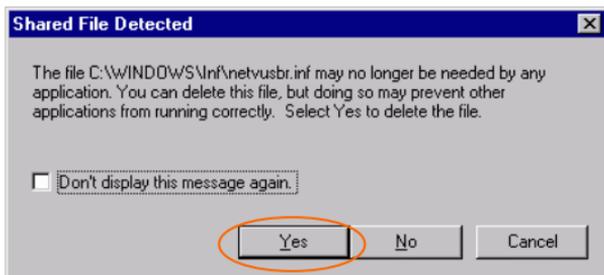
1. Go to **Start** \searrow **Programs** \searrow **802.11 Wireless LAN** \searrow **Uninstall Configuration & Monitor Utility**.



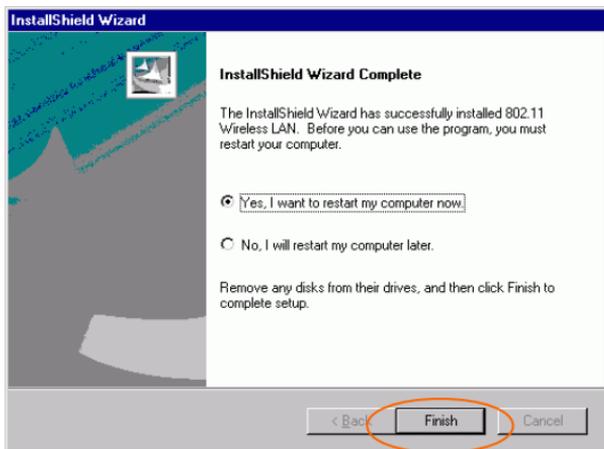
2. Click **OK** to continue.



3. Click **Yes**.

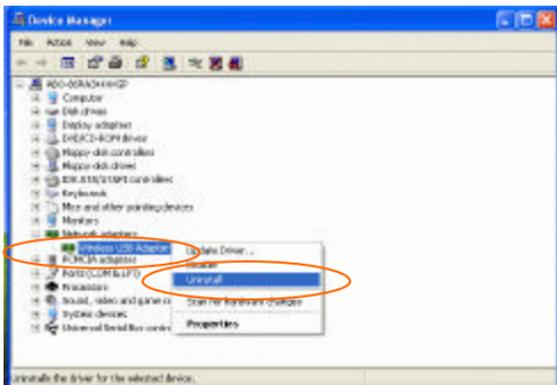


4. Select **Yes, I want to start my computer now**. Click **Finish** to complete the uninstalled procedure.



Uninstall the device

1. Right-click **My Computer ? Properties ? Hardware ? Device Manager**.
2. Right-click **Wireless USB Adapter** then click **Uninstall (or Remove)**.



3. Click **OK** to uninstall the device.



4. The system may prompt you to restart your computer. Click **Yes**.

Specifications

Standards	IEEE 802.11b, Wi-Fi compliant
Host Interface	USB 1.1
Physical	Weight: 50 g Dimension: 110(L) x 60 (W) x 2.5(H) mm
Antenna	External Antenna, rotating angle 0° to 90°
LED Indicators	Power: Green, ON Rx (Receive): Green, ON Tx (Transmit): Green, ON
Power Requirement	Operating Voltage: 5V DC TX consumption: 450mA (Max) RX consumption: 300mA (Max)
Frequency Range	2.412GHz ~ 2.4835GHz
Number of Selectable Channels	USA, Canada: 11 channels Japan: 14 channels Europe: 13 channels
Modulation Technique	Direct Sequence Spread Spectrum (CCK, DQPSK, DBPSK)
Security	0/64/128 bit WEP
Spreading	11 chip Barker sequence
Bit Error rate	Better than 10^{-5}
Media Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Supported OS	Windows 98SE/ ME/ 2000/ XP
EMC Certification	FCC Part 15 in US EN300328 and EN300826 (301489-17) in Europe