Wireless

USB Adapter

User Manual

Doc. No.: 041902-01

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, and

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:

- 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 exposurecompliance 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 98/2000/ME/XP
- Low power consumption
- Easy to install and configure

LED Indicators

Power: Green, on

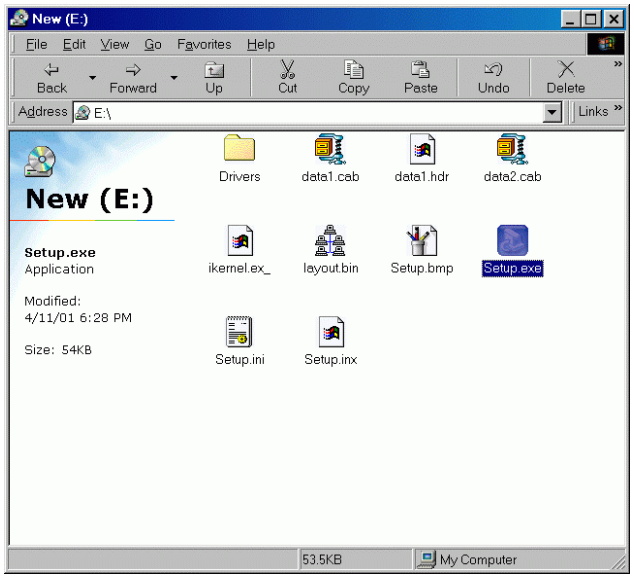
Receive: Green, on

Transmit: Green, on

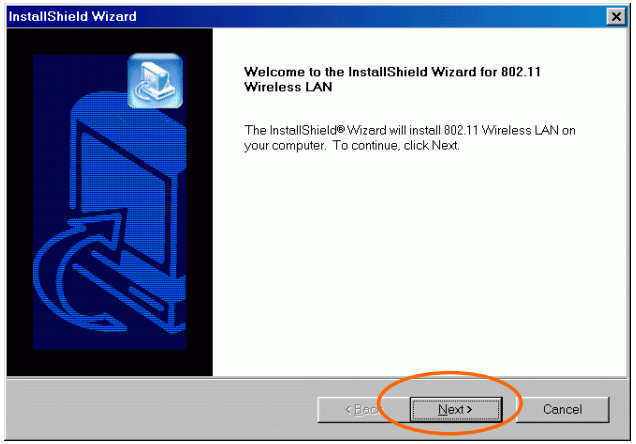
Installation the Utility under Win 98/ME/2000

Precaution for Windows 98, 2000, and ME users: You must install the Adapter's software before installation of the hardware.

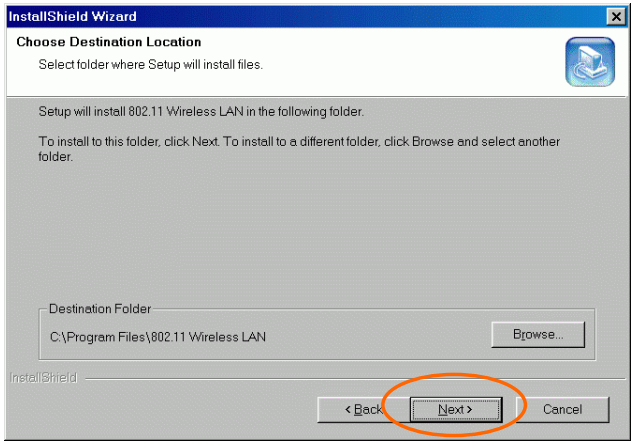
1. Insert the **Setup Utility CD-ROM** into the CD-ROM drive and double click on **Setup.exe** to install the Configuration & Monitor Utility.



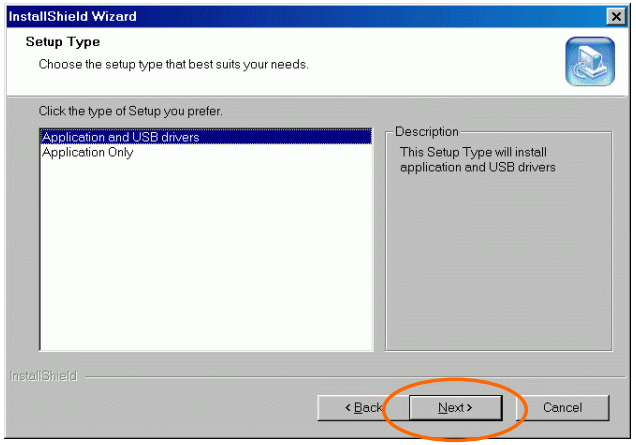
2. When the Welcome screen appears, click **Next** to continue.



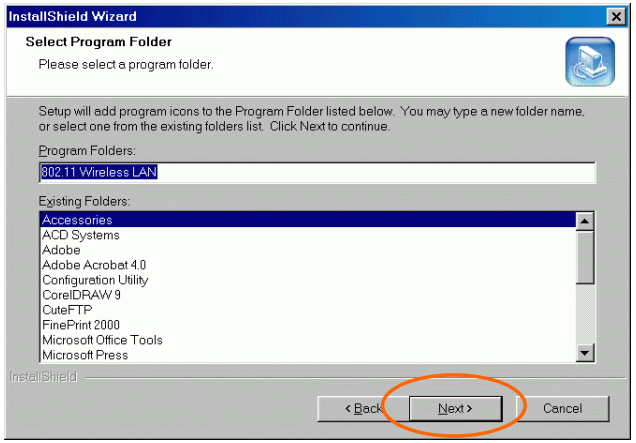
3. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.



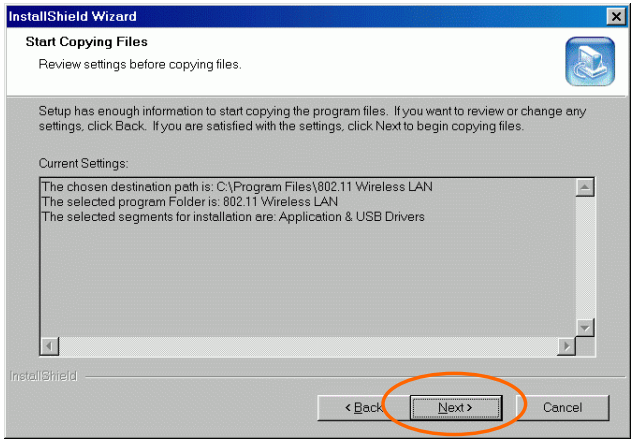
4. In **Setup Type**, choose **Application and USB drivers** and then click **Next**.



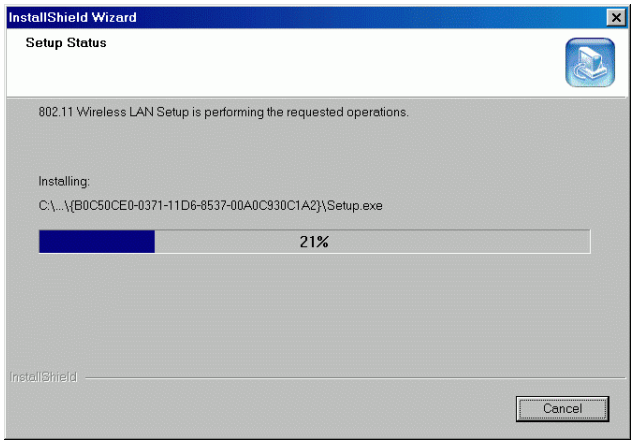
5. Follow the instruction to select the program folder. Click **Next** to continue.



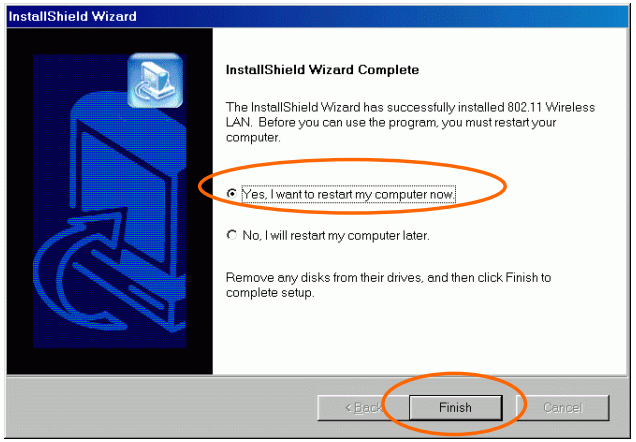
6. In **Start Copying Files**, click **Next** to continue.



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



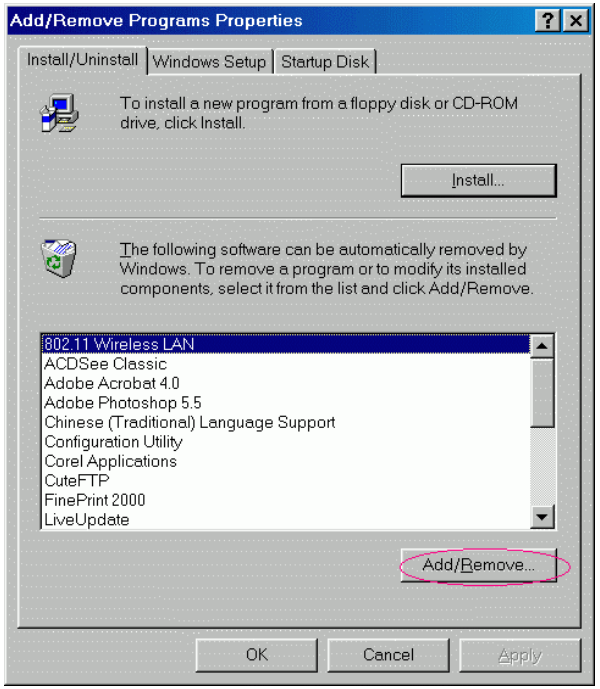
8. After the Configuration Utility has been successfully installed, select **Yes, I want to restart my computer now**, and then click **Finish** to restart.



Uninstall Procedure Under Windows 98/ME

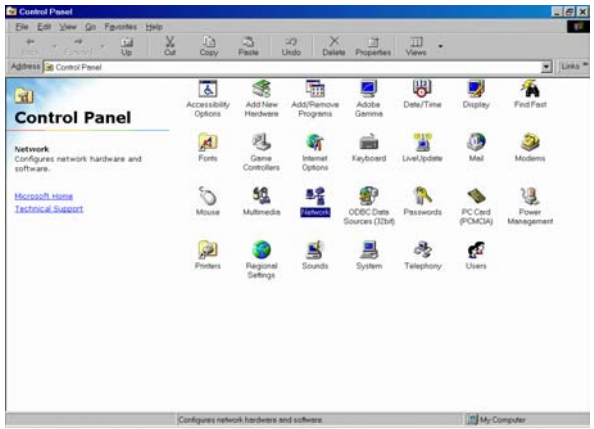
Uninstall the Configuration Utility

1. Go to **Start → Settings → Control Panel → Add/Remove Program**.
2. Select **802.11 Wireless LAN** then click **Add/Remove** to continue.

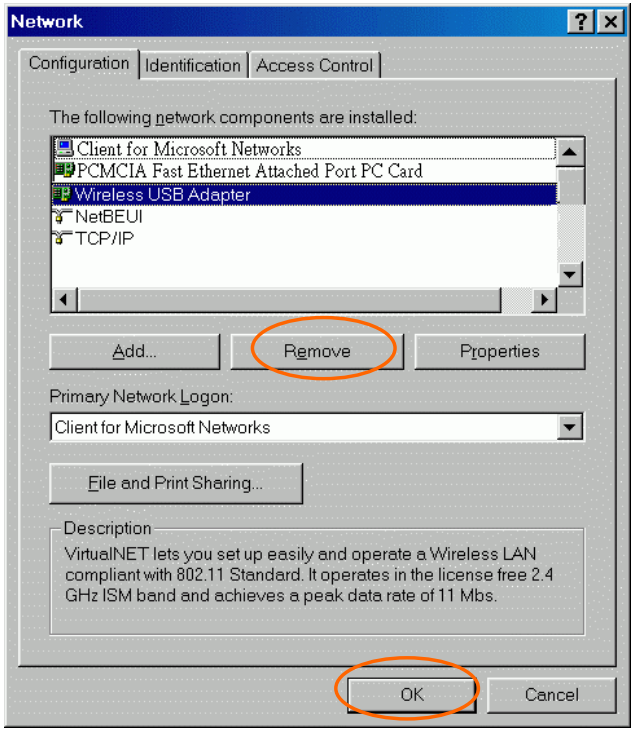


Uninstall the Device

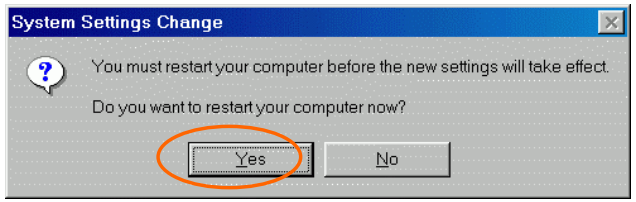
1. Go to **Start → Settings → Control Panel → Network**.



2. Select **Wireless USB Adapter** then click **Remove**. Click **OK**.

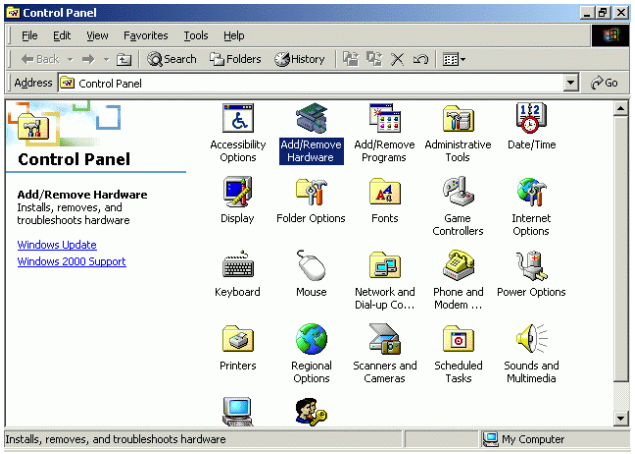


3. The system will prompt you to restart your computer. Click **Yes**.

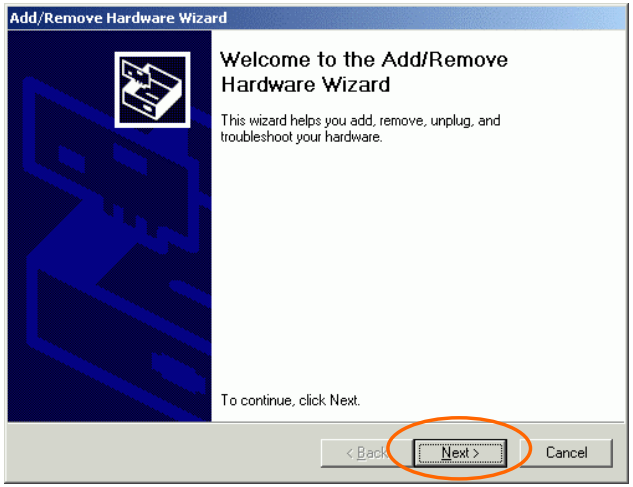


Uninstall Procedure Under Windows 2000

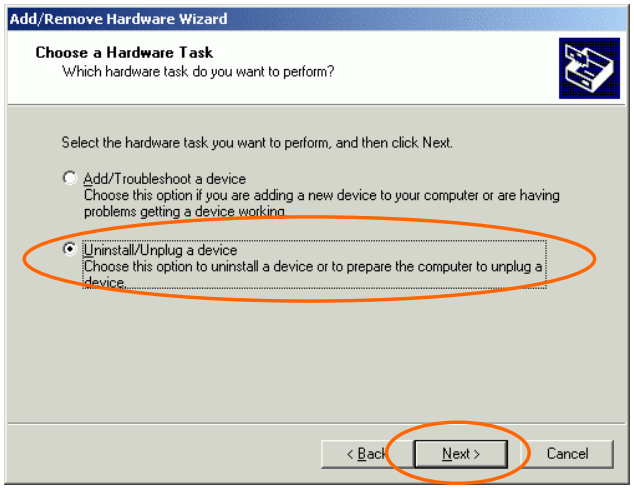
1. Go to **Start** → **Control Panel** → **Add/Remove Hardware**.



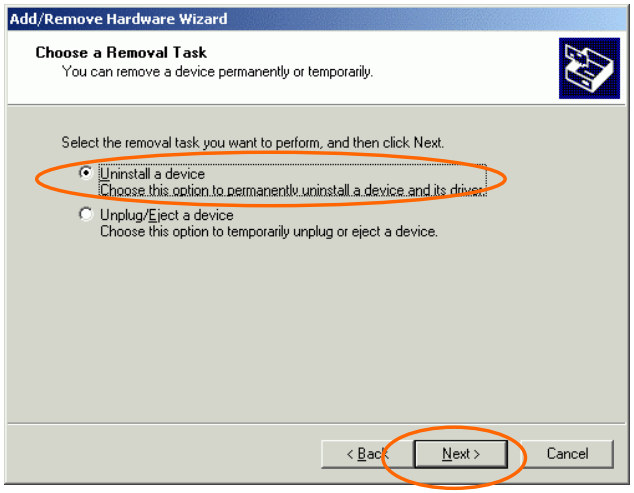
2. When the Welcome screen appears, click **Next** to continue.



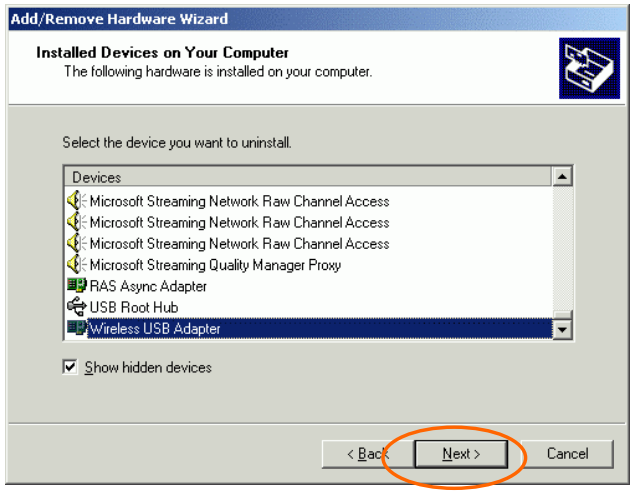
3. In **Choose a Hardware Task**, select **Uninstall/Unplug a device** and click **Next** to continue.



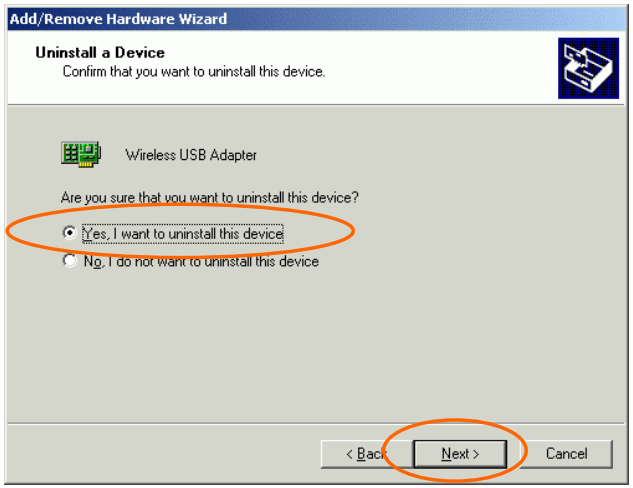
4. In **Choose a Removal Task**, select **Uninstall a device** and click **Next**.



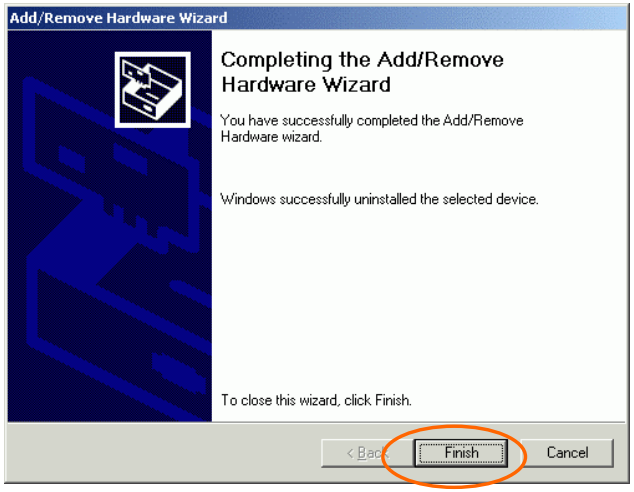
5. Check the **Show hidden devices** check box and locate the device in the device list. Select the device and click **Next**.



6. Select **Yes, I want to uninstall this device** and click **Next**.



7. Click **Finish** to complete the uninstalled procedure.



Hardware Installation

Precaution for Windows 98, 2000, and ME users: Please do NOT install the hardware until the Application setup in Installation the Utility under Win98/ME/2000 has been completed.

1. Plug the USB's square end (Type B) into the adapter's USB port.

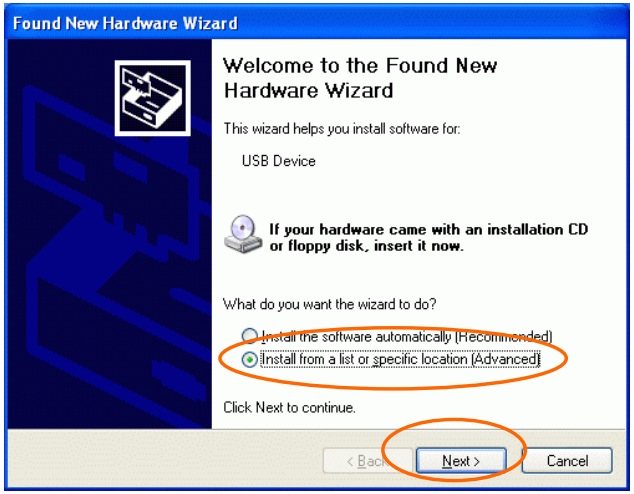
2. Plug the USB's rectangle end (Type A) into the PC's USB port.

After the device has been connected to your computer, Windows will detect the new hardware and then automatically copy all of the files needed for networking.

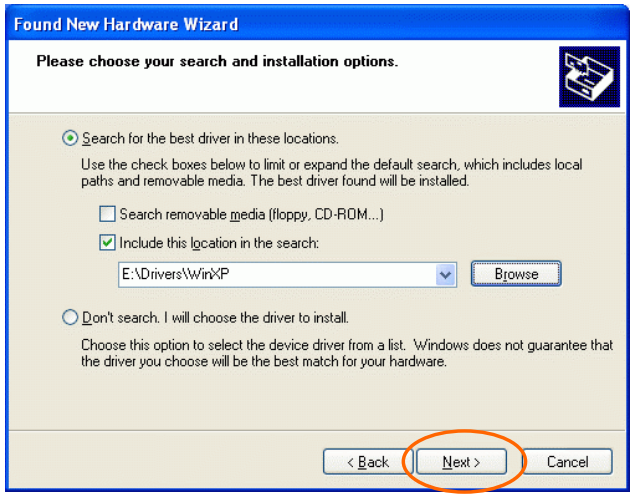
Precaution for Windows XP users: You must install the Adapter's hardware, and then go to Installation of the USB Adapter for Win XP.

Installation of the USB Adapter for Win XP

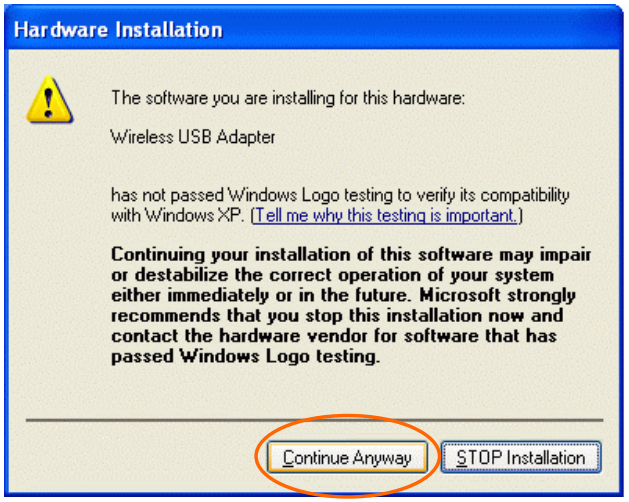
1. Once the device is well connected to your computer, Windows XP will automatically detect the new device. Click **Install from a list…** and click N**ext.**



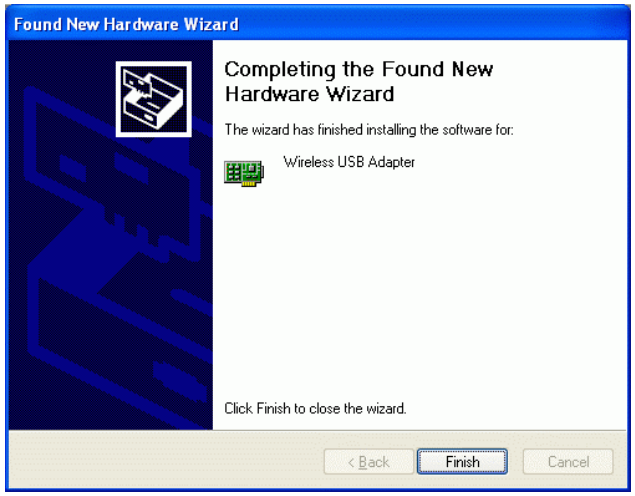
2. Insert the **Setup Utility CD-ROM** into the CD-ROM drive. Select **Include this location in the search:** and click Browse to provide the appropriate path (e.g. **E:\Drivers\WinXP**). Click **Next**.



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



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

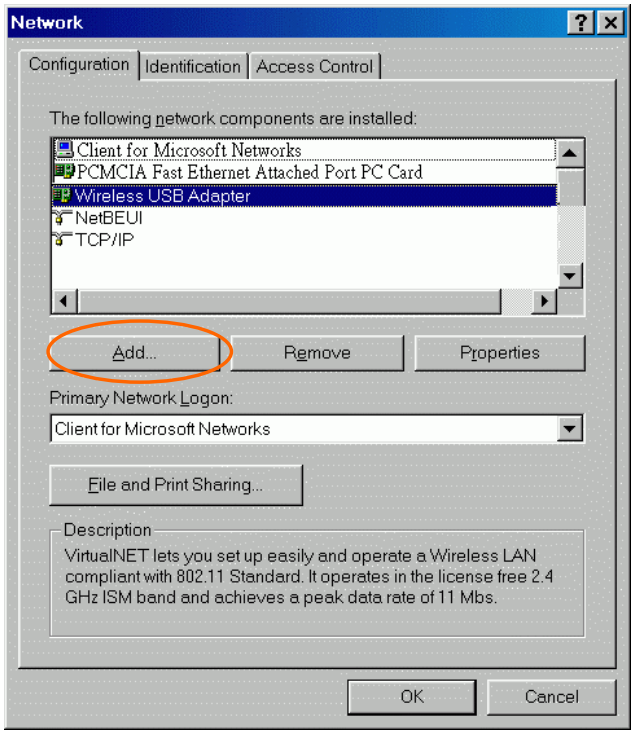


Network Connection

Configuring the Network Protocols for Windows 98/ME

1. Once the driver has been installed, you must make some changes to your network settings. Click **Start → Settings → Control Panel → Network.**

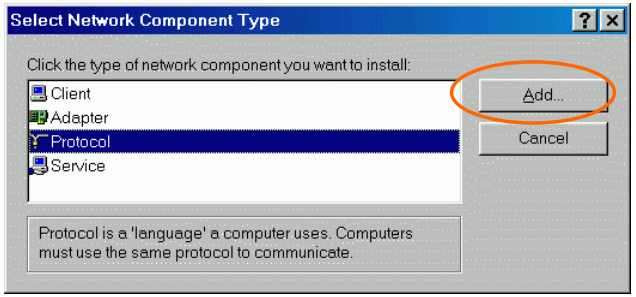
2. Make sure that you have all the following components installed.



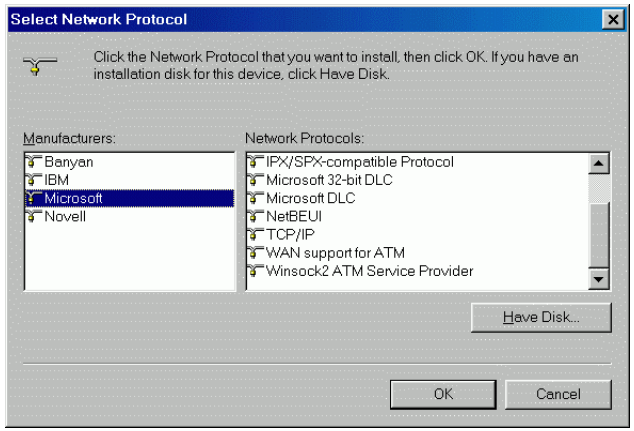
- **Wireless USB Adapter**
- **NetBEUI**
- **TCP/IP**

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

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

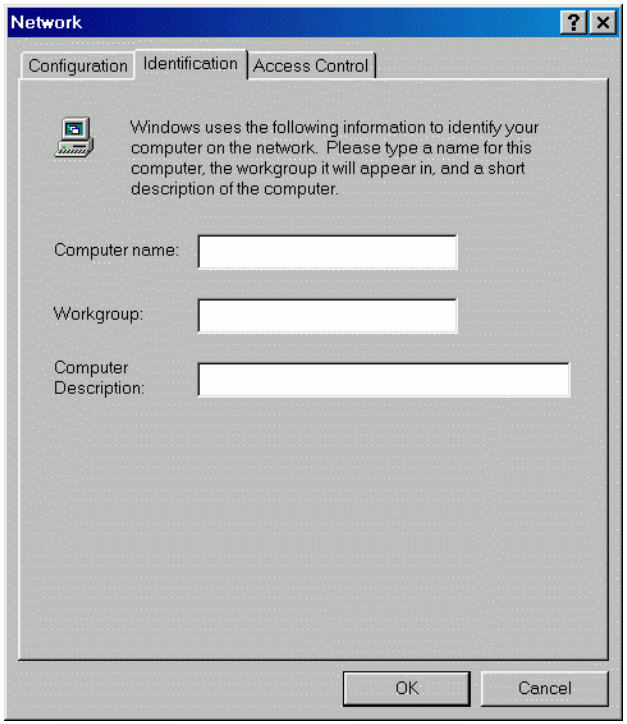


4. Highlight **Microsoft**, and then double click on the item you want to add.

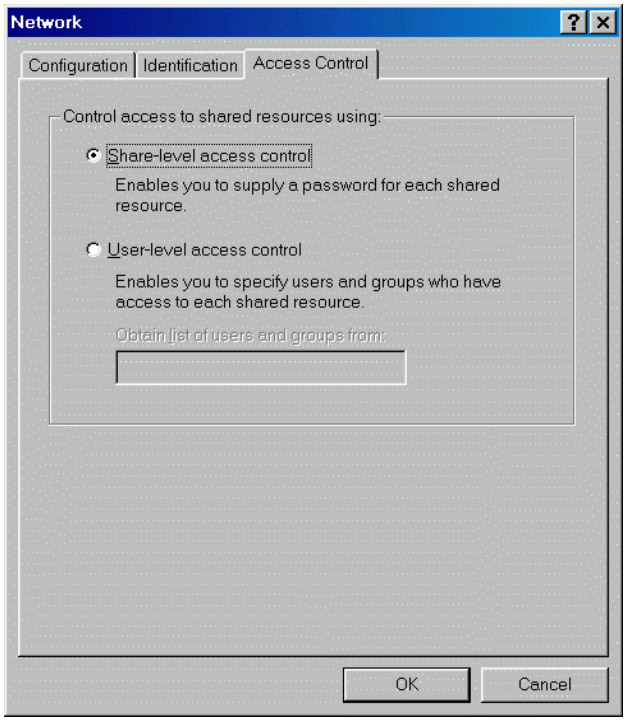


5. For making your computer visible on the network, enable the **File and Printer Sharing**.

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.

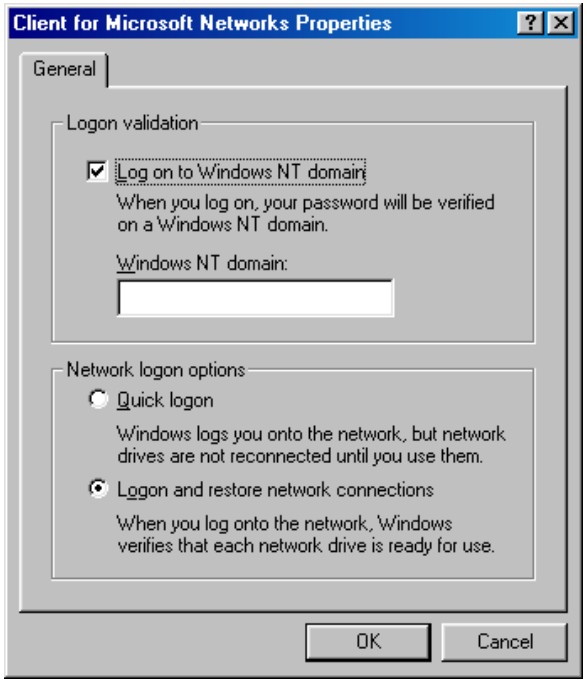
10. Double-click the **Network Neighbourhood** icon on the windows desktop, and you should see the names of the other PCs on the network.

Client Setup for Windows 2000 and XP

If you are not using NT or Novell with Windows, skip the next two sections. Perform the following procedures to prepare your computer to be used with any file servers that may be on the network.

Connecting to a Windows NT Domain

1. Click **Start→Settings→Control Panel**. Double-click **Network**.
2. Change the **Primary Network Logon** to **Client for Microsoft Networks**.

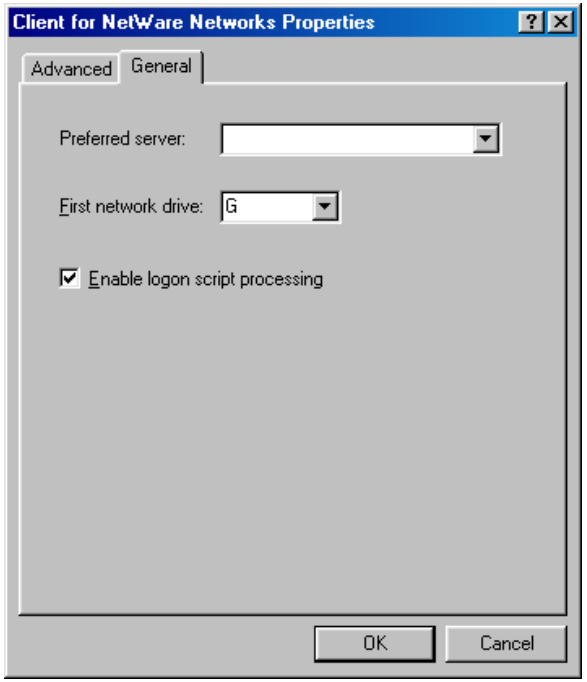


3. Double-click the **Client for Microsoft networks**.
4. Select the **Log on to Windows NT domain** box. Put your NT domain name in the Windows NT domain area.
5. Click **OK** and restart your computer.

Connecting to a NetWare File Server

1. Click **Start→Settings→Control Panel**. Double-click **Network**.

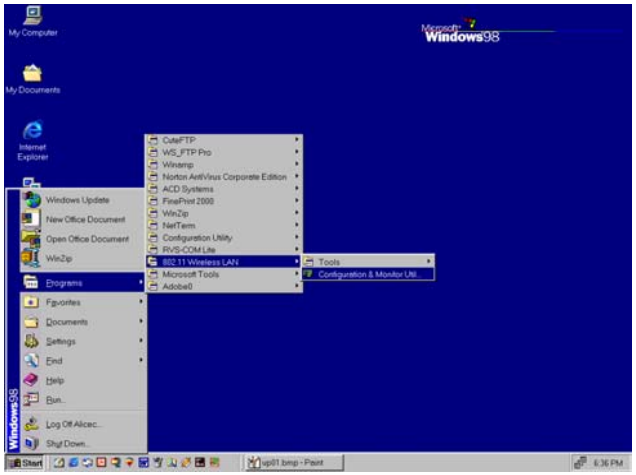
2. Change the **Network Logon** to **Client for NetWare Network.**



3. Double-click the **Client for NetWare networks**. Put your server's name in the Preferred Server box. Click in the **Enable Logon Script Processing** box.
4. Click **OK** and restart your computer.

Configuration and Monitor Utility for Windows 98/ME/2000

After installing the device successfully, go to **Start → Programs → 802.11 Wireless LAN → Configuration and 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
Infrastructure mode		Red. The station is not associated to an Access Point.
		Blue. The station associates itself to an Access Point.
Ad-Hoc mode		Red. The color is red only when the card is during resetting and initialization procedure.
		Blue. The color is always blue, except when the card is during resetting and initialization procedure.

Note: Except for the following configuration utility, using Windows to configure the wireless network settings in the **Windows XP** is recommended. (Please skip to the **Configuration for Windows XP** section)

All settings are categorized into 6 tabs:

Status

Statistics

Site Survey

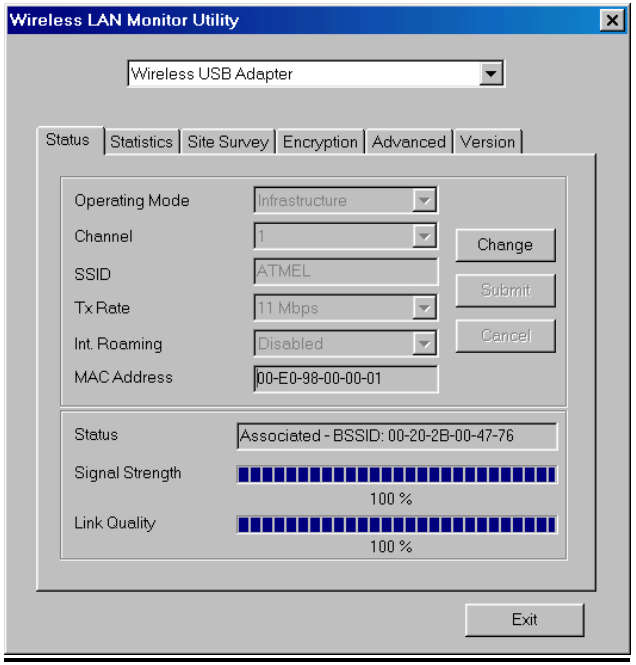
Encryption

Advanced

Version

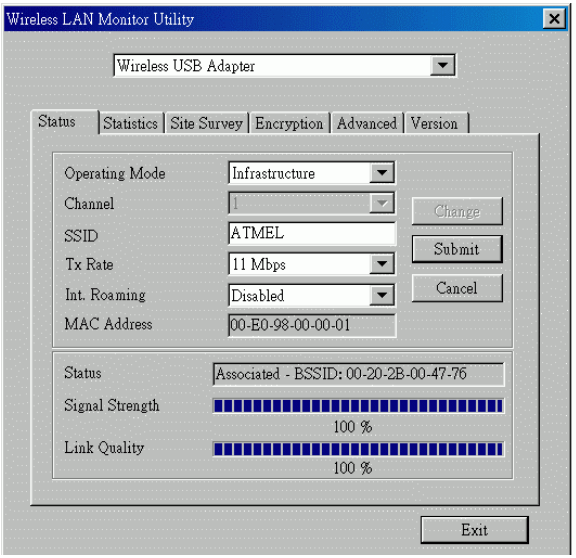
Status

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



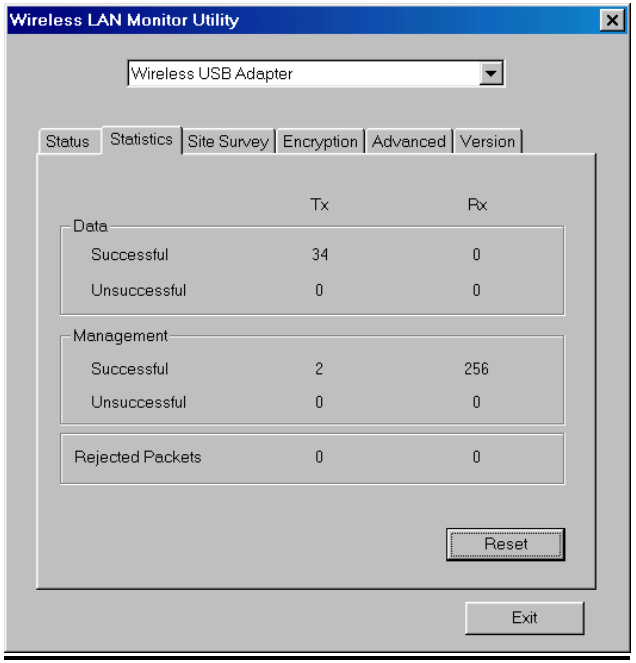
Item	Description
Operating Mode	It displays the current operational mode. (**Ad-Hoc** or **Infrastructure**)
Channel	It shows the selected channel that is currently used. (from 1 ~ 11)
SSID	The **SSID** is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. It shows the current SSID setting of the Wireless USB Adapter.
Tx Rate	It shows the current transfer rate. (**1, 2, 5.5, or 11Mbps** or **Auto**)
Int Roaming	It displays the current roaming status. (read-only)
MAC Address	It displays the MAC address of the Wireless USB Adapter.
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.

Item	Description
Change	Click **Change** to change the configuration parameters such as **Operating Mode**, **Channel**, **SSID** and **Tx Rate**. (Refer to below page)
Submit	Click **Submit** to save the changes.
Cancel	Click **Cancel** to ignore the previous setting.



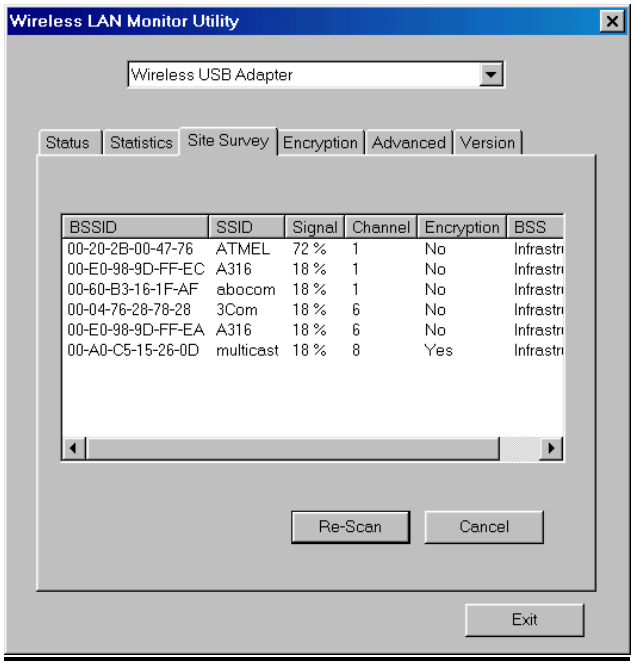
Statistics

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



Site Survey

The **Site Survey** tab shows all the available Access Points and their features.

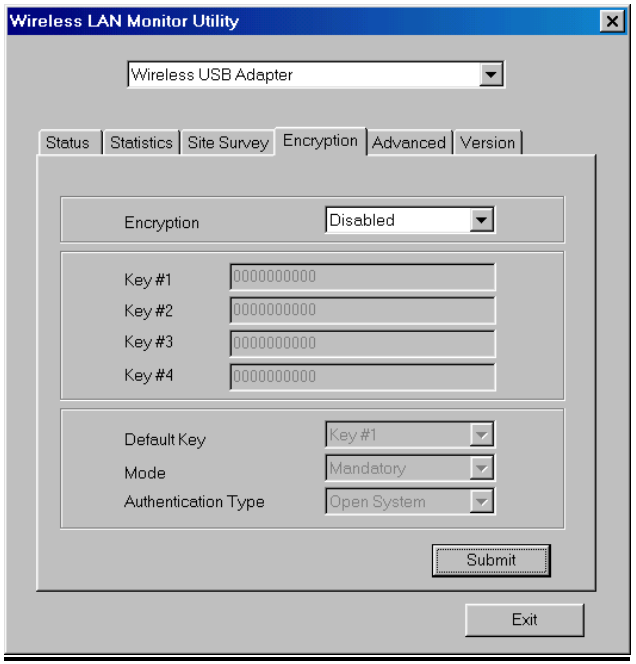


Item	Description
BSSID	When one Access Point (AP) is connected to wired network and a set of wireless stations it is referred to as a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.
SSID	The **SSID** is the unique name shared among all points in your wireless network.

Item	Description
	The name must be identical for all devices and points attempting to connect to the same network.
Signal	It displays the signal strength of the connection between the Wireless USB Adapter and the Access Point it connects.
Channel	It shows the selected channel that is currently used.
Encryption	It displays the status of WEP Encryption.
BSS	When one Access Point (AP) is connected to wired network and a set of wireless stations it is referred to as a Basic Service Set (BSS).
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.
Exit	Click **Exit** 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**.

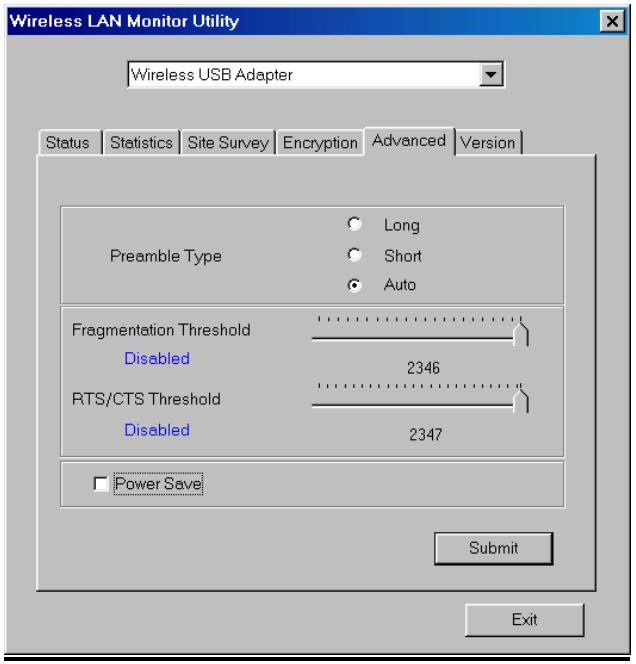
Key1/Key2/ Key3/Key4	This setting is the configuration key used in accessing the wireless network via WEP encryption. To generate an encryption key: 1. Select 64 Bit or 128 Bit. 2. Click "Key1" or "Key2" or "Key3" or "key4" item, then fill in the appropriate value/phrase.
Default Key	You can specify up to 4 different keys to *decrypt* wireless data. Select the Default key setting from the pull-down menu.
Mode	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.
Authentication Type	The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. 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.
Submit	Click **Submit** to save the changes.
Exit	Click **Exit** 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**.

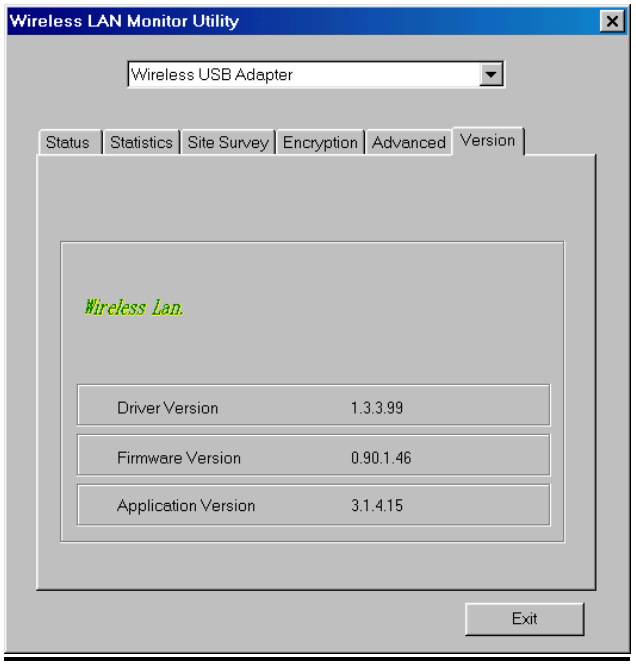


Item	Description
Preamble Type	This value defines the length of the CRC block for communication between the Wireless Access Point and the roaming wireless network card. ⦿ **Long:** The mandatory supported "Long preamble as well as header" as specified in IEEE 802.11b that allows

	interoperation with the current 1Mbits/sec and 2Mbit/sec DSS (Direct Sequence Spread Spectrum) specification. ⊙ **Short:** The optional "Short preamble and header" is intended for applications where maximum throughput is desired and interoperability with legacy and non-short preamble capable equipment is not a consideration. ⊙ **Auto:** Select **Auto** for the USB adapter to select the Preamble type automatically depending on the Access Point Preamble type.
Fragmentation Threshold	This value indicates how much of the Access Point's resources are devoted to recovering packet errors. The value should remain at its default setting of **2346**. Only minor modifications of this value are recommended.
RTS/CTS 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.
Power Save	
Submit	Click **Submit** to save the changes.
Exit	Click **Exit** to exit the application.

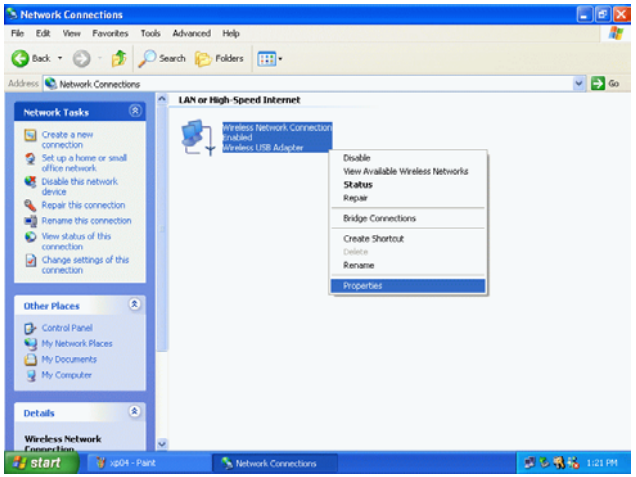
Version

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

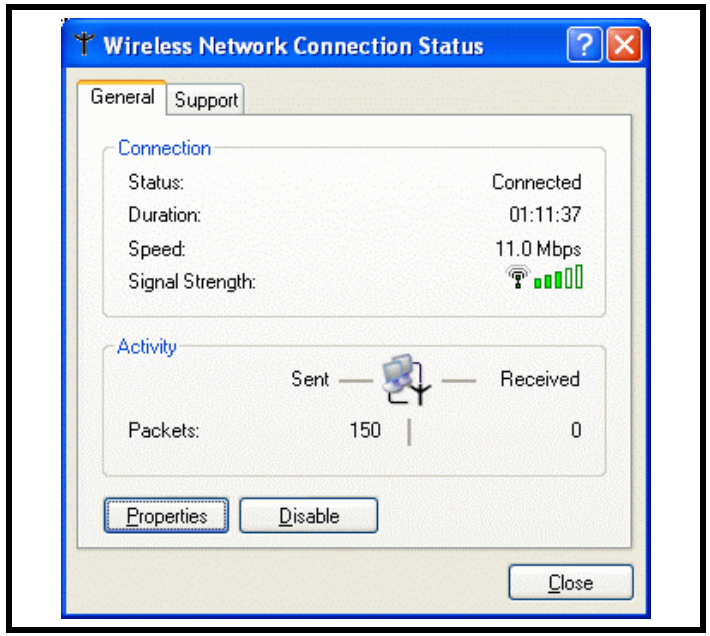


Configuration for Windows XP

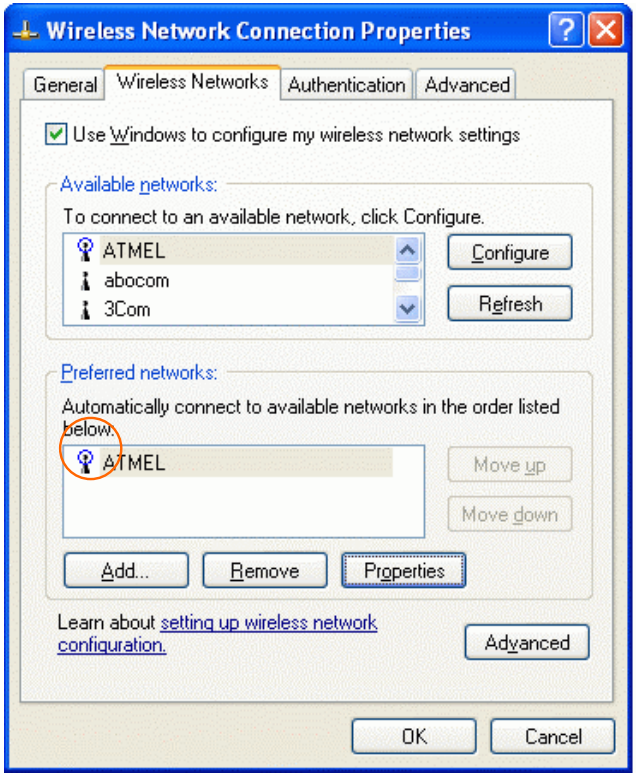
1. Go to **Start → Control Panel → Network Connections**.
2. In **Network Connections** window, right-click the **Wireless Network Connections** icon, and select **Properties**.



Note: Double-click the **Wireless Network Connection** icon and you can see the status of the wireless PC Card as described below.



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



☐Use Windows to configure…

Check the box to enable windows configuration.

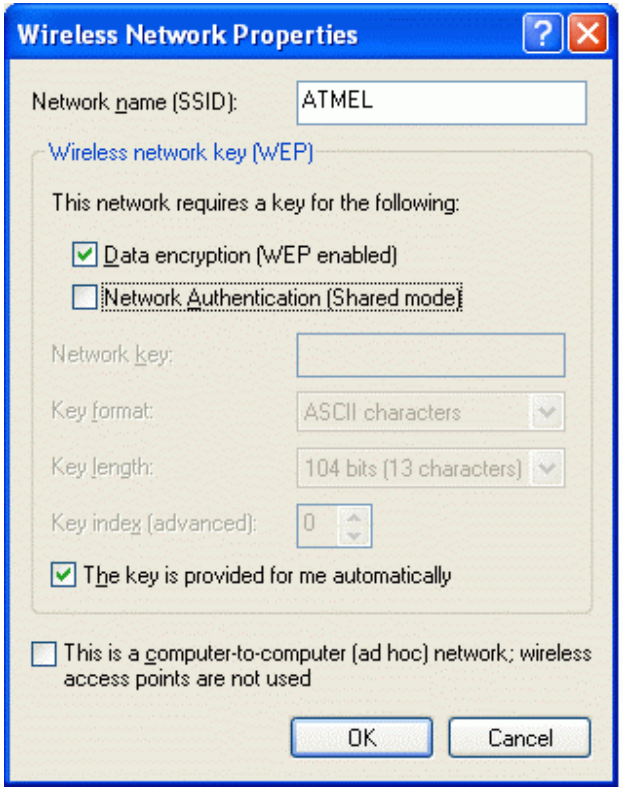
> ***Note***: Once you enable windows configuration, there will be only two tabs, **Status** and **About**, left in the Configuration Utility. You cannot use this utility to configure the wireless settings.

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.

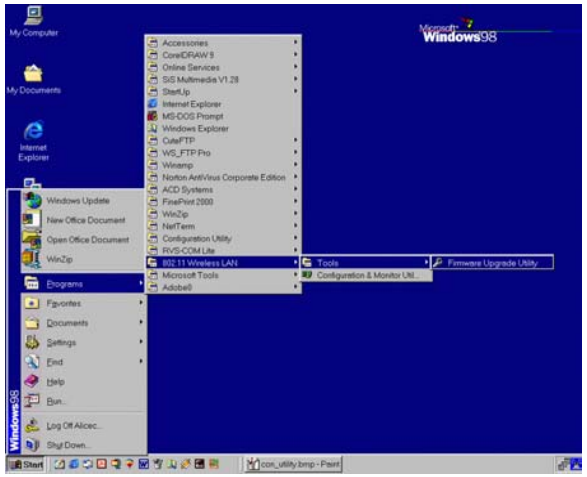
Firmware Upgrade Utility

> ***Note***: Please **DO NOT** use this utility unless you have got new binary files from the vendor. Otherwise, you may damage your card.

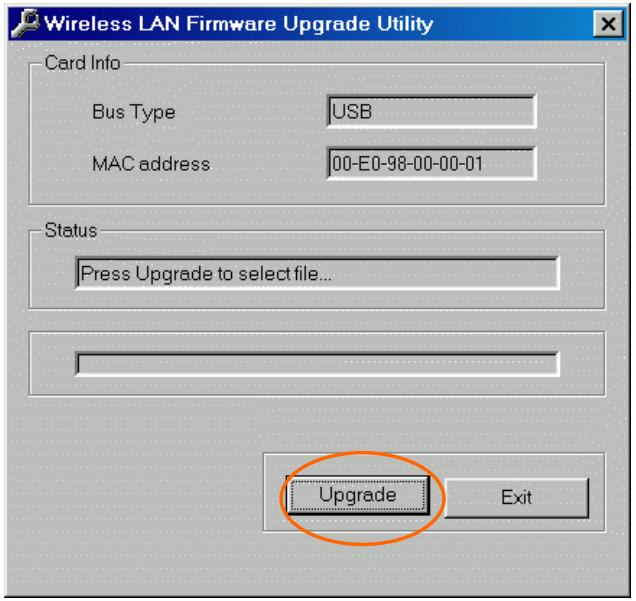
The Firmware Upgrade Utility allows you to upgrade the firmware of your card while your card is running. It will download the new firmware and it will reset your card in order to start operating with the new firmware.

The Firmware Upgrade Utility is for Windows 98, Windows ME, and Windows 2000 only.

1. Go to **Start → Programs → 802.11 Wireless LAN → Tools → Upgrade Firmware Utility.**



2. Press the "**Upgrade**" button in order for a file selection window to appear. Browse for the xxx.rom file that contains the new firmware.



3. After you have located and selected the file, the firmware upgrade process will begin.
4. When the firmware has been upgraded, you will see a notification from the Firmware Upgrade Utility. Press "**OK**" to complete the upgrade.

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 Receive (Rx): Green, ON Transmit (Tx): 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 98/ ME/ 2000/XP
EMC Certification	FCC Part 15, Class B in US EN300328 and EN300826 (301489-17) in Europe JATE-Telec in Japan