WLAN CardBus Adapter

Regulatory notes and statements

Wireless LAN, Health and Authorization for use

Radio frequency electromagnetic energy is emitted from Wireless LAN devices. The energy levels of these emissions however are far much less than the electromagnetic energy emissions from wireless devices like for example mobile phones. Wireless LAN devices are safe for use frequency safety standards and recommendations. The use of Wireless LAN devices may be restricted in some situations or environments for example:

- On board of airplanes, or
- In an explosive environment, or
- In case the interference risk to other devices or services is perceived or identified as harmful

In case the policy regarding the use of Wireless LAN devices in specific organizations or environments (e.g. airports, hospitals, chemical/oil/gas industrial plants, private buildings etc.) is not clear, please ask for authorization to use these devices prior to operating the equipment.

Regulatory Information/disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, of the substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

USA-FCC (Federal Communications Commission) statement

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

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of this device.

FCC Radio Frequency Exposure statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized.

FCC Interference Statement

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. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the equipment and the receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Export restrictions

This product or software contains encryption code which may not be exported or transferred from the US of Canada without an approved US Department of Commerce export license.

Safety Statements

Federal Communications Commission Statement

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

· This device may not cause harmful interference, and

· This device must accept any interference received, including interference that may cause undesired operation.

SAFETY INFORMATION

Your device contains a low power transmitter. When device is transmitted it sends out radio frequency (RF) signal.

Table of Contents

1. Introduction

CardBus (Provides a high-speed link for external devices to connect to a PC, and it has better Plug-and-Play support). With a WLAN(Wireless LAN) (IEEE 802.11b/Bluetooth) CardBus Adapter, a desktop or laptop computer can communicate with another computer in a wireless way. Besides, through a wireless access point or a wireless Internet router, the computer can access resources on an Ethernet LAN or on the Internet. Easy-to-use utilities are bundled with WLAN CardBus Adapter for configuration, monitoring, and diagnosis purposes. After install WLAN CardBus Adapter, you can:

a. Share your Internet access by using just one connection

b. Share printers and other peripheral devices

c. Share data and image files between networked PCs

d. Play multi-player games

WLAN CardBus Adapter can wirelessly transmit and receive data, minimizing the need for wired connections, at a speed of up to eleven megabit per second. With WLAN CardBus Adapter, you can locate your PC wherever you want without wires and cables.

WLAN CardBus Adapter provides LAN users with an access to real-time information anywhere in their organization. The mobility provides productivity and service, which are not available under wired networks.

The WLAN CardBus Adapter configuration is easy to change from peer-to-peer networks, suitable for a small number of users, to full infrastructure networks of thousands of users that allow roaming around a broad area.

Please read this manual to get familiar with the WLAN CardBus Adapter. This manual contains detailed instructions in operation of this product. Please keep this manual for future reference.

1.1 Package Contents

The WLAN CardBus Adapter kit includes the following items:

a. WLAN CardBus Adapter

b. The CD including:

   1. WLAN CardBus Adapter Utility & Driver software

   2. User' s Manual (this document)

c. Quick Installation Guide

1.2 Advantages for Using Wireless Network

Advantages for Using a Wireless Network:

*Hard to wire area*s: WLAN CardBus Adapter provides access to network services in areas otherwise hard or expensive to wire, such as historic buildings with asbestos and classrooms.

*Flexible workgroup*s: Lower total cost of ownership for workspaces that are frequently reconfigured.

*Networked conference room*s: user can access the network as they move from meeting to meeting, getting up to date access to information and the ability to communicate decision while ' on the go'

*Ad hoc networkin*g: on site consultants and small workgroups increase productivity with quick network setup and collaboration software

*Branch office networkin*g: provides an easy to install, use and maintain network for a remote or sales office

Campus-wide network mobility: roaming capabilities allow enterprise to set up easy to use wireless networks that cover the entire campus transparently.

2. Step by step Installation Guide

This section will lead you through the installation of WLAN CardBus Adapter and its software in through details. You may wish to skip to quick installation guide to wireless networking.

To establish your wireless network connection, the following steps should be executed.

1. Install the software using the installation CD.
2. Install the WLAN CardBus Adapter.
3. Install the required network protocols to communicate with your network. Most likely, you will need the TCP / IP protocol.

The product is designed to operate in Windows 98, Windows Me, Windows 2000, and Windows XP. And the installation procedure is almost the same. Please follow up the installation wizard that provided by your system to install the software.

2.1 Install WLAN CardBus Adapter Utility & Driver for *Windows 98SE, ME, 2000, and XP*

Windows 98 installation :

1. Insert the Adapter into the free card slot.
2. When the **Add New Hardware Wizard** dialog box opens, search drivers. Click **Next**.
3. Select the setting **Search for the best driver for your device (Recommended)** then click **Next**.
4. Select **Specify a location** checkbox, and type path **E:\WLAN CARDBUS Adapter** (assume **E:** is the CD-ROM drive). Then click **Next**.

5. Windows should be ready to install selected driver, click **Next** to install this file.
6. During driver installation, you may be prompted to enter a path for Windows 98 files.

   a) Windows 98 files installed on your PC are possibly located in the folder **C:\Windows\Options\Cabs.** Click **OK** to install. If your Windows 98 files are not Installed on your computer, you will need to use the Windows CD-ROM instead.

b) If system prompts you for the Windows CD, insert the Windows CD into the CD-ROM. Type the file path **E:\Win98** (assume **E:** is the CD-ROM drive and **Win98** is the source files folder.)

7. The **Add New Hardware Wizard** window again opens indicating that the installation is complete. Click **Finish**.

8. The driver has been installed, restart computer.

Windows ME installation :

1. Insert the Adapter into the free card slot.

2. When the **Add New Hardware Wizard** dialog box opens, select **Specify the location of the driver (Advanced)** and Click **Next**.

3. Select **Search for the best driver for your device (Recommended)**, check the **Specify a location** checkbox, and type in the location **E:\WLAN CARDBUS Adapter** (assume **E:** is the CD-ROM drive). Then click **Next**.

4. Windows should be ready to install selected driver, click **Next** to install this file.

5. The **Add New Hardware Wizard** window again opens indicating that the installation is complete. Click **Finish**.

6. The driver has been installed, restart computer.

Windows 2000 installation :

1. Insert the Adapter into the free card slot.

2. When the **Found New hardware Wizard** dialog box opens, click **Next**.

3. Select **Search for a suitable driver for my device(recommended)**, and click **Next.**

4. Select the **Specify a location** checkbox and click **Next**.

5. Type the location of driver at **E:\WLAN CARDBUS Adapter**, (assume **E:** is the CD-ROM drive). Then click **OK**.

6. Windows should be ready to install selected driver, click **Next** to install this file.

7. After installation completed, click **Finish** on the **Found New hardware Wizard** dialog box

8. The driver has been installed.

Windows XP installation :

1. Insert the Adapter into the free card slot.

2. When the **Found New hardware Wizard** dialog box opens, select **Install from a list or specific location (Advanced)** then click **Next**.

3. Select **Search for the best driver in these locations;** check the **Include this location in the search** checkbox, and type the location of driver at **E:\WLAN CARDBUS Adapter**, (assume **E:** is the CD-ROM drive). Then click **Next**.

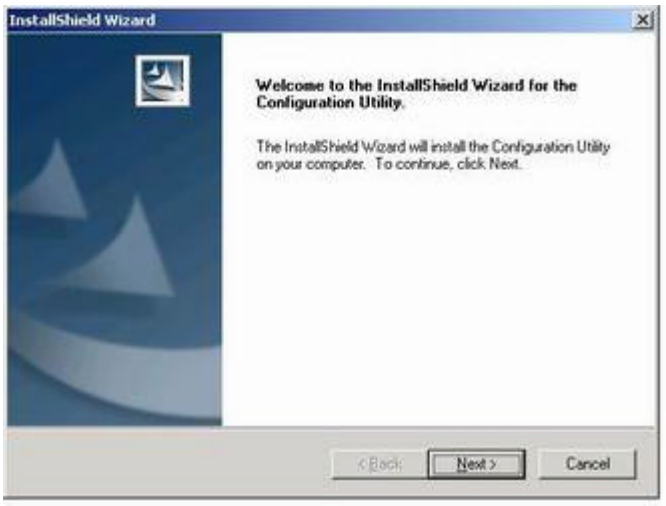
4. After installation completed, click **Finish** on the **Found New hardware Wizard** dialog box

5. The driver has been installed.

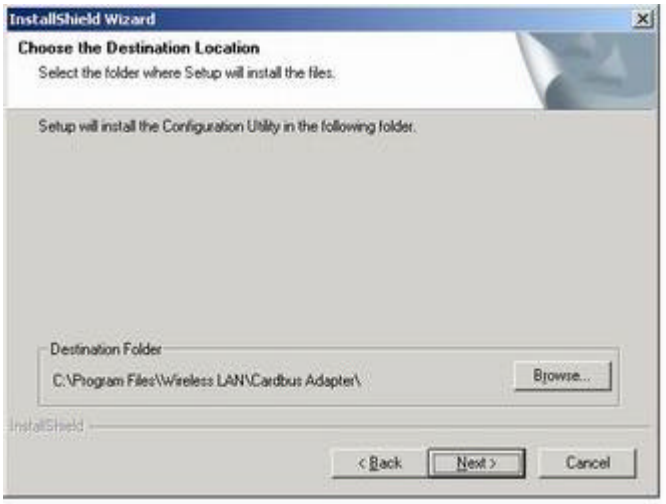
2.2 Install WLAN CardBus Adapter Utility for *Windows 98SE, ME, 2000, XP*

1. Insert the CD ROM of driver into computer and ready to setup. Select ***Run*** from the **Start** menu.
   Type **E:\ WLAN CARDBUS Adapter\Setup.exe** in the **Open** box.
   (assume **E:** is the CD-ROM drive) and click **OK**.

2. InstallShield tool helps you to setup the CardBus adapter utility. Click **Next** to continus.



3. This process asks you to install Wireless LAN into the right folder.



4. When the installation has completed, click **Finish** then reboot your computer then WLAN CardBus adapter is ready to use.

2.3 Wireless LAN Monitor Utility

WLAN CardBus has its own management software. Users can control all functions provided by the application named Wireless LAN CardBus Adapter Configuration Utility. The Utility icon will appear in the taskbar by double clicking this Utility.

The monitor utility includes six tabs: Scan Table, Link Info, Profile, Advanced Settings and About.

In Ad Hoc mode, the Channel and SSID must be the same among stations so that the computers can communicate within the local LAN properly. Moreover, all connected computers should have the same netid and subnetid, you can follow the procedure below to check whether you have the same netid and subnetid among stations:

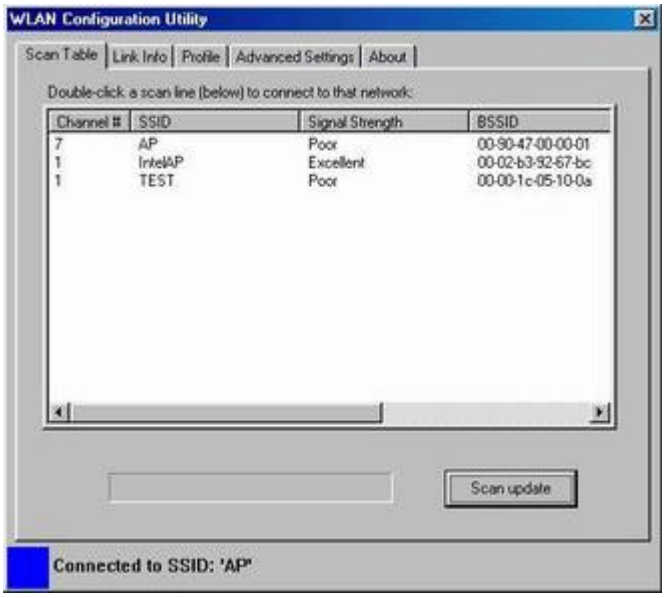
1. Right-click on the Network Neighborhood on your desktop and then click on "Properties".
2. In Configuration, click on "TCP/IP -> Wireless LAN CardBus Adapter" and then click on "Properties".
3. Click on "IP Address".
4. Click on "Specify an IP Address" and make sure having the same netid and subnetid of all the connected computers.

2.3.1 Scan Table

This page will display the surrounding Access Point's information.

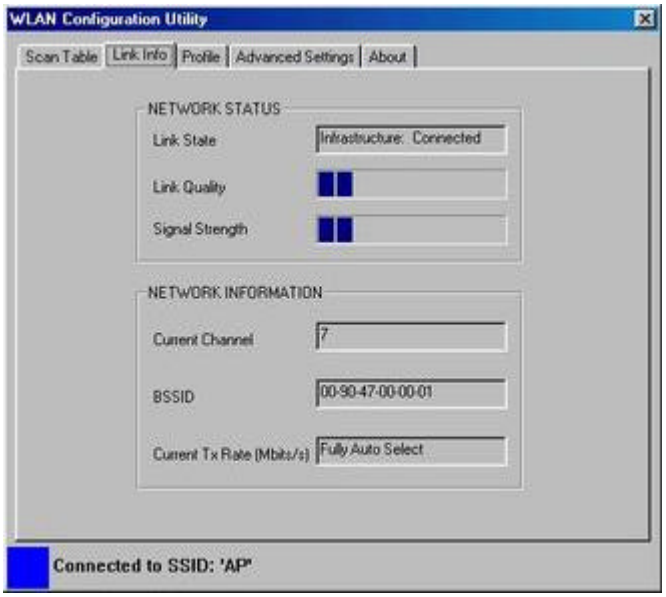
When click **"Scan update"** button, Adapter will rescan surrounding Access Points again.

You can double-click the AP that you want to connect with. Then you can use the default profile name or Save New Profile.



2.3.2 Link Info

This page shows connection status.



NETWORK STATUS

● Link State:

It shows the connect type. It could be infrastructure (connect with Access Point) or Peer to Peer.

● Link Quality / Signal Strength:

The Link Quality and Signal Strength and will be shown in the screen shows the Status of your Wireless CardBus Adapter.

NETWORK INFORMATION

● Channel:

It shows radio channel numbers that used for networking. The Channel number must be the same among stations (or the connected AP), so that computers can communicate within the local LAN.

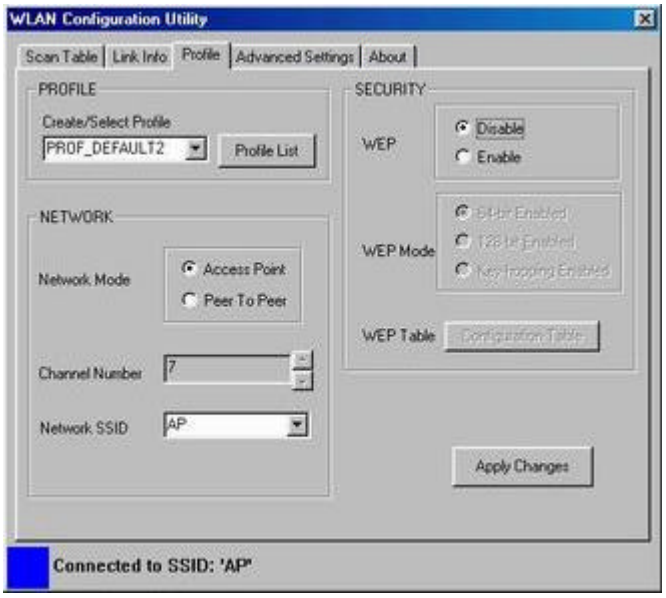
● BSSID:

The BSSID field is a 48-bit field of the same format as an IEEE 802 MAC address. This field uniquely identifies each BSS. The value of this field, in an infrastructure BSS, is the MAC address currently in use by the STA in the AP of the BSS.

● Current Tx Rate (Mbits/s):

It shows the current CardBus Adapter' s Tx rate.

2.2.3 Profile



PROFILE

● Profile List:

NETWORK

● Network Mode :

Select Network Mode : Infrastructure mode or Peer to Peer mode.

● Channel Number:

It shows radio channel numbers that used for networking. The Channel number must be the same among stations (or the connected AP), so that computers can communicate within the local LAN.

● Network SSID:

SSID is the group name that will be shared by every member of your wireless network .You will only be able to connect with an Access Point (AP), which has the same SSID. Note that the SSID will be case sensitive. Please note that when you are in the Ad-hoc mode, the SSID must be the same among stations so that computers can communicate within the local LAN properly.

SECURITY

● WEP :

You may desire an additional measure of security in your wireless network, which can be achieved by using the Encryption function.

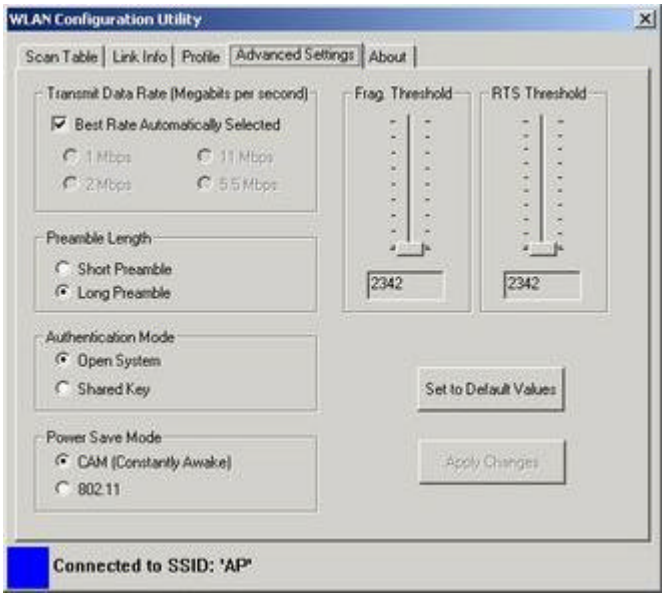
● WEP Mode :

! Caution: WEP Key needs to be the same for all IEEE802.11b stations.

When enable WEP function, there are 64bit/128bit/Key-hopping to select.

Click **"Configuration Table"** button to process WEP configuration.

2.3.4 Advanced Settings



● Preamble Length:

Select Short or Long Preamble Type. Preamble is the first subfield of PPDU, which is the appropriate frame format for transmission to PHY (Physical layer). There are two options, Short Preamble and Long Preamble.

● Authentication Mode:

Open System Authentication algorithm is mostly used. In Shard Key Authentication algorithm, you must have WEP on, the algorithm should be different, and some steps use packets with encryption by transferring a challenge text. In order to choose which authentication algorithm will be used, you must know which one the AP supports first. Most APs only support Open System.

● Power Save Mode:

You can set CardBus Adapter constantly awake or follow stansard power save specification.

● Frag. Threshold:

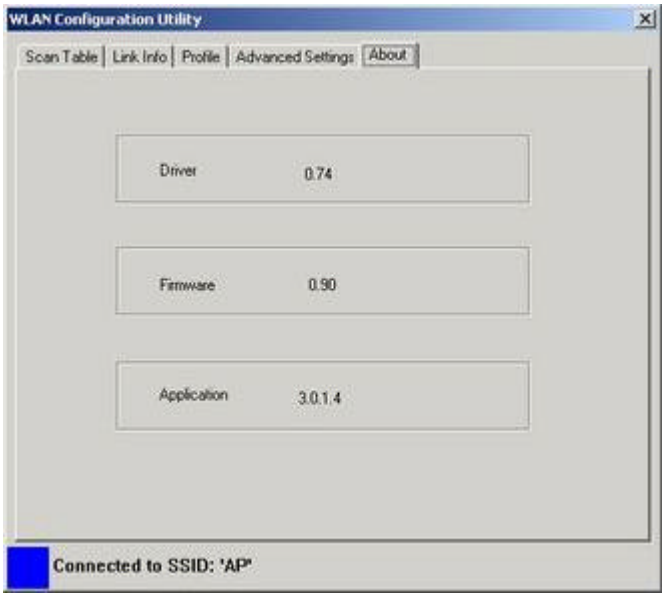
The size at which packets will be fragmented. Choose a setting within a range of 256 to 2346 bytes

● RTS Threshold:

Minimum packet size to require an RTS (Request To Send). For packets smaller than this threshold, an RTS is not sent and the packet is transmitted directly to the WLAN.

2.3.5 Version

The screen shows the version of Driver, Firmware, and Application for WLAN CardBus Adapter.



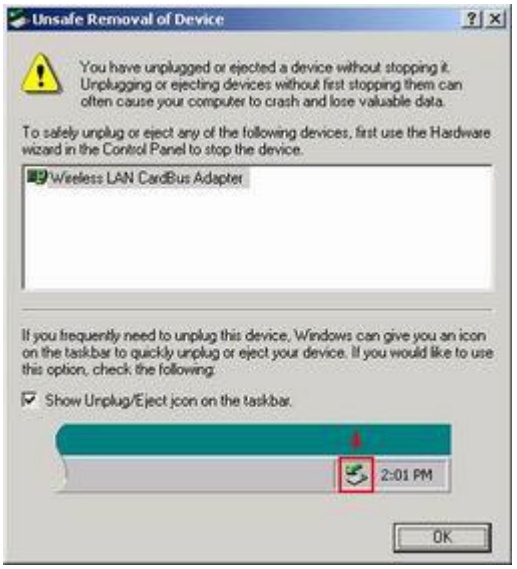
2.4 Remove your WLAN CardBus Adapter

If you do not need the wireless connectivity of your WLAN CardBus adapter, you can unplug your CardBus directly, and follow the procedures mentioned below to remove the CardBus adapter from the socket.

! Caution: When removing the WLAN CardBus Adapter, you will lose your connection to the network. Make sure you have closed all files and network applications (such as e-mail) prior to removing the CardBus Adapter.

Additional Note for Windows 2000

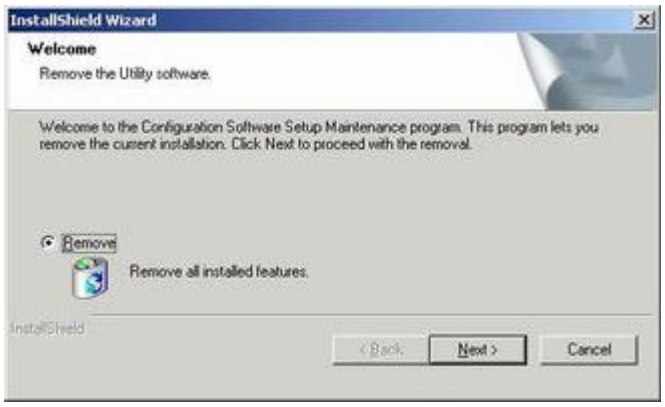
If you directly remove your CardBus Adapter in Windows 2000, a message of unsafe remove device will be prompted as follows. Please click OK.



2.5 Uninstall the WLAN CardBus Adapter Utility / Driver

If you do not need the wireless connectivity of your WLAN CardBus Adapter,

1. First you should remove the WLAN CardBus Adapter.
2. From the Windows start bar, select Start ➔ Settings ➔ Control Panel.
   Double click Add/Remove Programs.
3. Select **"Configuration Software"** and click **Remove**.
4. A wizard window should appear then select **Remove** and select **Next** button.
   The Windows Operation System should now proceed with the uninstallation process.
   Follow the step until the wizard window completes the uninstallation window.



5. Finish, reboot your computer.

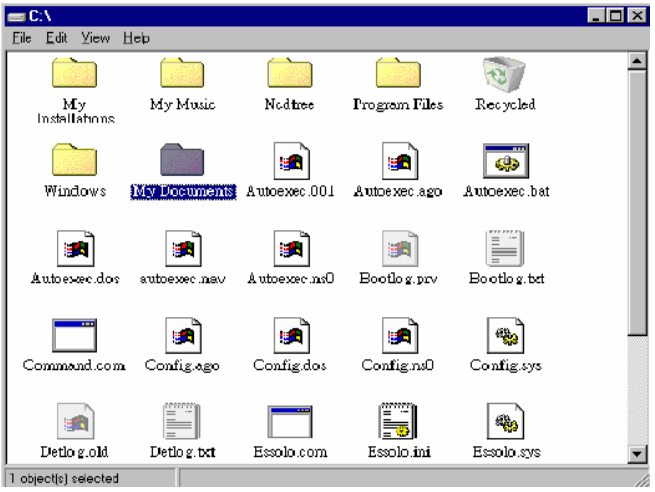
3. Application

To enable the sharing of the Internet access, you should set your WLAN CardBus Adapter mode as " Infrastructure " and connect to the Access Point. When the procedure is completed, an Access Point will appear on the Wireless LAN Neighborhood of WLAN CardBus Adapter Utility. Double-click it to enter the Network Neighborhood folder. This folder contains the links to all the computers in your workgroup on the entire network.

3.1 File Sharing in Microsoft Windows 98

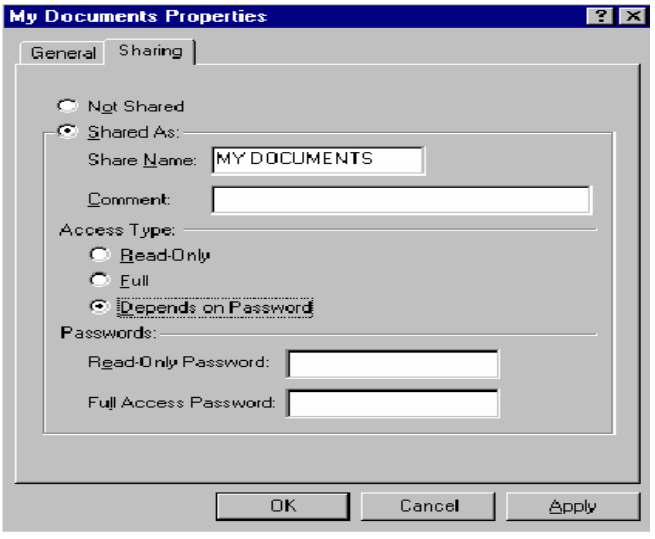
WLAN CardBus Adapter allows the sharing of files between computers that are logged onto the same wireless network. Let' s assume that you want your folder " My Documents " to be shared with other computers and the wireless network:

1. First, locate the folder " My Documents " and right click it.



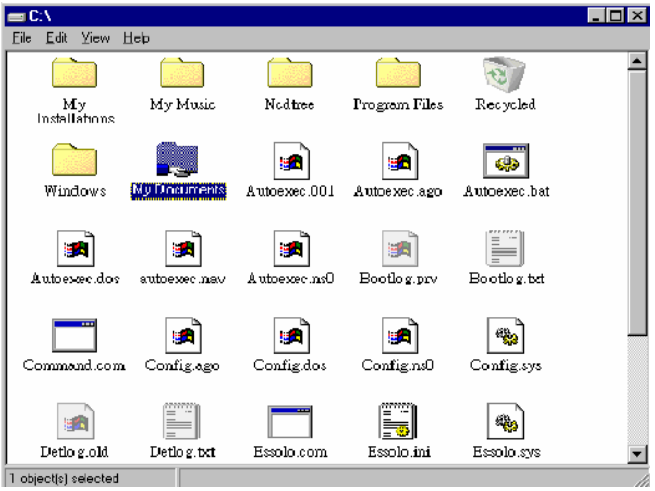
2. Select " Sharing " from the available options.

3. Select " Shared As " to open your folder for file sharing. You can also select and define the level of access you want for your folder.



If “ Read-Only “ is selected, the other users in the wireless network can only copy files from your folder. Copying files into your folder is not allowed. If “ Full “ is selected, the other users in the wireless network have full access into your folder. They can copy to and from your folder as well as modify files. You can also set the option to “ Depends on Password “ wherein the user in the wireless network can access to your folder through a set password.) The set password will determine if the user can only read your folder or has full access to your folder.

4. Click “ Apply “ or “ OK “ to activate the options that you have set. Now you can see the folder “ My Documents “ with a little hand under it. The folder is now open for file sharing.



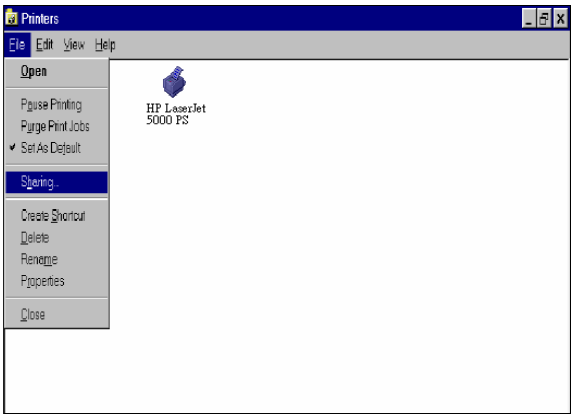
Sharing files in the 802.11b wireless network will be like sharing files on a wired LAN.

3.2 Printer Sharing in Windows 98

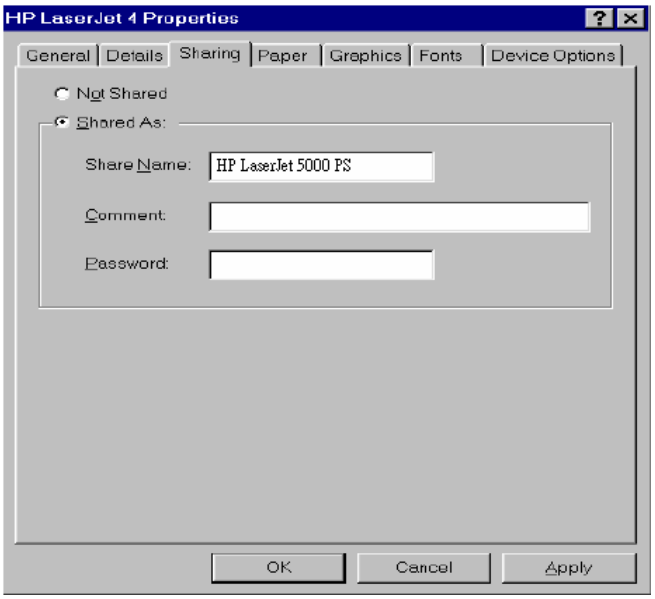
In order the printer can be shared across the network, it has to be set as the network printer.

Follow the instructions below to set a printer as a network printer:

1. Click the " Start " button, point to the " Settings ", and then click " Printers ".
2. In the Printers window, click the printer you want to share.
3. Click " Sharing…" on the " File " menu.



4. Click the Sharing tab, then click " Shared As ", and if necessary, enter a password.



3.3 Using the shared folder

1. Double-click the " Network Neighborhood " icon, and then double-click the computer where the shared folder is located.
2. Double-click the folder you want to connect to.
3. You may want to assign a drive letter for shared folder that you connect to.
4. In the " Network Neighborhood ", double-click the computer where the shared folder is located.
5. Click the folder you want to connect, and click " File " menu, and then click " Map Network Drive ".
6. Select an available drive, and then click "OK".

Note: If a password is required, the Windows will prompt you. Then you need to enter the password that had been assigned to this shared folder.

3.4 Using the Shared Network printer

1. In the " Network Neighborhood ", locate and double-click the computer where the printer you want to use is located.
2. Double-click the printer icon in the window.
3. To set up the printer, follow the instructions on the screen.

Note:

1. After you have set up a network printer, you can use it as if it were attached to your computer.
2. If a password is required, the Windows will prompt you, and you need to enter the password that had been assigned to this shared printer. Whenever printing a document through the network, be sure to select the printer that is set as the network printer.

4. Troubleshooting

If you encounter some problems installing the WLAN CardBus Adapter or you want to confirm whether your card is installed properly or not, refer to the procedure below after you have installed the card.

4.1 Check the Various Properties of the Card

To verify if the driver has been set in your computer properly, you can follow the procedures below.

Right-click " My Computer " and then select " Properties ", then you will enter your system properties. Select the Device Manager and click the Network Adapter. You will find the WLAN CardBus Adapter if it is installed successfully.

If there is Question-mark (?) or Exclamation-mark (!) in yellow on your WLAN CardBus Adapter in previous picture (PC Card Properties & System Properties), please make sure you have inserted the right PC Card, the proper driver and utility have been installed as well. If you are not sure, follow the procedure below to reinstall (update) the driver.

a. Enter "System Properties" and click "Device Manager" on upper menu.
b. Select "Network Adapters" and double click Wireless LAN CardBus Adapter
c. Select "Driver" on the upper menu, then click on " Update Driver" button.
d. Follow the Update Device Driver Wizard to complete the driver update installation.

4.2 Microsoft Networking Checklist

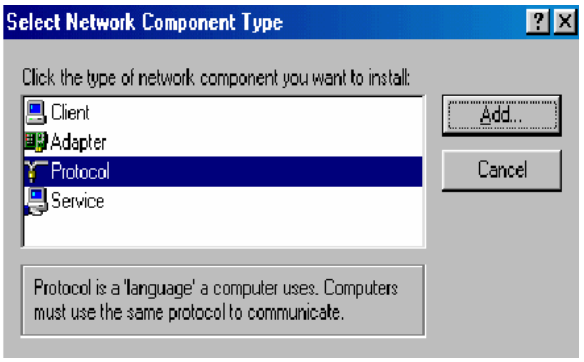
In order to the WLAN CardBus Adapter can run properly, some network items must be presented in the Microsoft " Network Neighborhood " setup. To check and activate the network setup, right-click the "Network Neighborhood" and select "Properties". The following items should be presented in the network setup:

1. WLAN CardBus Adapter
2. IPX / SPX-compatible Protocol -> Wireless LAN CardBus Adapter
3. NetBEUI -> Wireless LAN CardBus Adapter
4. TCP / IP -> Wireless LAN CardBus Adapter
5. File and printer sharing for Microsoft Networks.
6. Client for Microsoft Networks

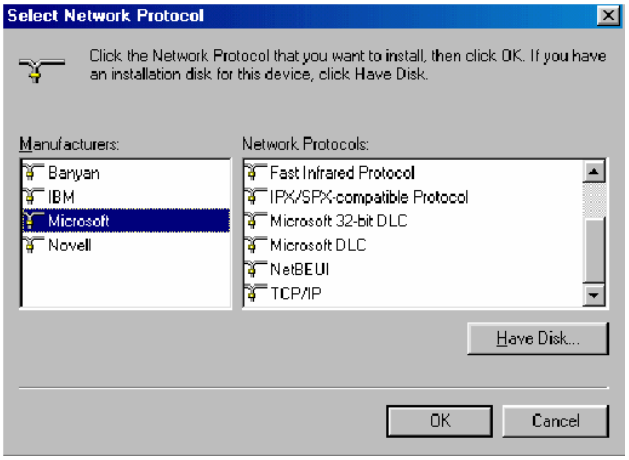
If any of these items are missing, please follow the instructions below to install them properly:

Set up the Network Protocols:

Click " Add " and select " Protocol " on Network " Configuration ".



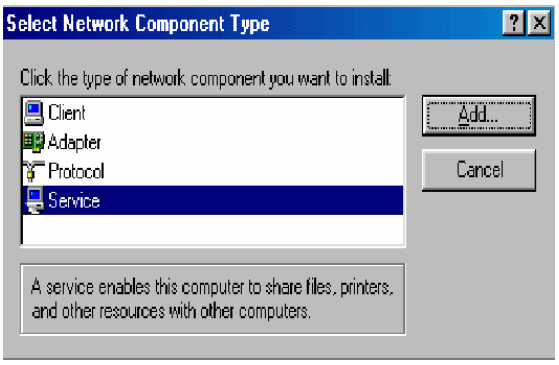
Click " Add " and then choose the network protocol. Select Microsoft as the manufacturer and " NetBEUI ", " TCP/IP ", and " IPX/SPX-compatible " for the network protocols. Then click "OK".



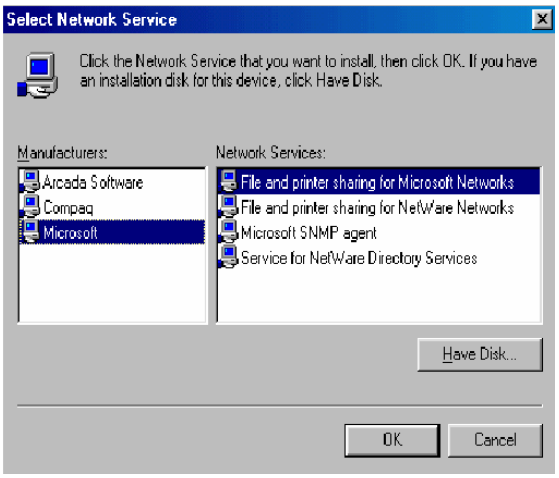
Now your network protocol should be set. Please check if your network needs any special requirements to operate in your office environment.

Network Service for Microsoft Networking:

Click “ Add “ and select “ Service “ .



Select “ Microsoft “ as the manufacturer and choose “ File and printer sharing for Microsoft Networks “ for network service;



Click “ OK “ to set the network service.