## Wireless Network Adapter

# **User's Manual**

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- This device complies with Part 15 of the FCC Rules. Operation is
- subject to the following two conditions:
- (1) This device may not cause harmful interference.
- (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 the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

---Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

### **Contents of Package:**

- Wireless network Cardbus/PCI adapter
- Manual, Drivers and Utility on CD
- Quick Installation Guide

If any of the above items are missing, please contact your reseller.

## Before you begin

You must have at least the following:

- A laptop computer/desktop PC with an available 32-bit Cardbus/PCI slot
- At least a 300MHz processor and 32MB of memory
- Windows 98SE, ME, 2000, XP
- A CD-ROM Drive
- Cardbus/PCI controller properly installed and working in the laptop computer
- An 802.11g or 802.11b Access Point (for infrastructure Mode) or another 802.11g or 802.11b wireless adapter (for Ad-Hoc; Peer-to-Peer networking mode.)

### Chapter 1 Introduction

#### 1.1 Welcome

The Wireless Network Adapter is a powerful 32-bit Cardbus/PCI Adapter that installs quickly and easily into PCs. The Adapter can be used in Ad-Hoc mode to connect directly with other cards for peer-to-peer file sharing or in Infrastructure mode to connect with a wireless access point or router for access to the Internet in your office or home network.

The Wireless Cardbus/PCI Adapter connects you with 802.11g networks at up to an incredible 54Mbps! And for added versatility, it can also interoperate with all the up to 11Mbps 802.11b products found in homes, businesses, and public wireless hotspots around the country. And in either mode, your wireless communications are protected by industrial-strength WPA, so your data stays secure.

#### **1.2 About This Guide**

This User Manual contains information on how to install and configure your Wireless Broadband Router to get your network started accessing the Internet. It will guide you through the correct configuration steps to get your device up and running.

**Note** and **Caution** in this manual are highlighted with graphics as below to indicate important information.



Note

Contains related information that corresponds to a topic.



Represents essential steps, actions, or messages that should not be ignored.

Caution

#### **1.3 Copyright statement**

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, whether electronic, mechanical, photocopying, recording, or otherwise without the prior writing of the publisher.

### **Chapter 2 Hardware Description**

The wireless Cardbus/PCI Adapter supports up to 54 Mbps connections. This card is fully compliant with the specifications defined in IEEE802.11g standard. It is designed to complement PCI Local Bus computers and supports Windows 98SE/Me/2000/XP.

#### 2.1 Cardbus adapter



#### Figure 1-1

LEDs

The two status LED indicators of the Cardbus wireless adapter are described in the following figure and table.

LED	Status	Description	
PWR	ON (Green)	Indicates the Adapter is ready	
Lnk/Act	ON (Green)	Indicates a valid connection	
	Flashing	Indicates the the Adapter is transmitting	
		or receiving data.	

#### 2.2 PCI adapter



LEDs

The Wireless PCI Adapter includes a status LED indicators, as described in the following table.

LED	Status	Description	
Lnk/Act	ON (Green)	Indicates a valid connection	
	Flashing	Indicates the Adapter is transmitting or	
		receiving data.	

## **Chapter 3 Hardware Installation**

#### 3.1 Before you begin

You must have at least the following:

✓ A laptop computer/desktop PC with an available 32-bit Cardbus/PCI slot

- ✓ At least a 300MHz processor and 32MB of memory
- ✓ Cardbus/PCI controller properly installed and working in the computer
- ✓ A CD-ROM Drive
- ✓ An 802.11g or 802.11b Access Point (for infrastructure Mode) or another 802.11g or 802.11b wireless adapter (for Ad-Hoc; Peer-to-Peer networking mode.)

#### 3.2 Cardbus Adapter:

- Power on your notebook, let the operating system boot up completely, and log in as needed.
- Hold the dapter with the LOGO facing up and insert it into a Cardbus slot. After a short delay, the Found New Hardware Wizard displays.



#### 3.3 PCI Adapter:

- Turn off your desktop PC.
- Open your PC case and locate an available PCI on the motherboard.
- Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide the adapter all the way in. after the adapter is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then close your PC.
- Attach the external antenna to the adapter's antenna port.
- Power on your desktop PC.



Figure 1-2 You have now completed the hardware installation for the Adapter.

## **Chapter 4 Install Driver**

#### 4.1 Windows 98SE, Me and 2000

Please follow the steps below to install driver:

1. Windows will automatically detect the Adapter. The screen in Figure 2-1 should appear. Then click the **Next** button.

Found New Hardware Wizard		
	Welcome to the Found New Hardware Wizard         This wizard helps you install a device driver for a hardware device.         To continue, click Next.	Cancel
	Eigure 2-1	
	Figure 2-1	

2. Click the radio button **Search for suitable driver for my device(recommended).** Then click the **Next** button.

Found New Hardware Wizard			
Install Hardware Device Drivers A device driver is a software program that enables a hardware device to work with an operating system.			
This wizard will complete the installation for this device:			
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next. What do you want the wizard to do?			
Search for a suitable driver for my device (recommended)			
Usplay a list of the known drivers for this device so that I can choose a specific driver			
<pre>&lt;<u>Back Next&gt; Cancel</u></pre>			
Figure 2-2-			

- Insert the Driver and Utility CD-ROM into the CD-ROM drive.
   Choose the CD-ROM drives, Then click the Next button.

Found New Hardware Wizard			
Locate Driver Files Where do you want Windows to search for driver files?			
Search for driver files for the following hardware device:			
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.			
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.			
Optional search locations:			
Floppy <u>disk</u> drives			
CD-ROM drives			
Specify a location			
Microsoft Windows Update			
< <u>B</u> ack <u>N</u> ext > Cancel			

Figure 2-3

5. Windows find the adapter drivers, then click the **Next** button.

Found New Hardware Wizard		
Driver Files Search Results The wizard has finished searching for driver files for your hardware device.		
The wizard found a driver for the following device:		
Windows found a driver for this device. To install the driver Windows found, click Next.		
g:\driver\winxp_2k\netmw125.inf		
< <u>B</u> ack Cancel		
Figure 2-4-		

6. click the **Finish** button, You have now completed the driver installation for the adapter.



Figure 2-5

#### 4.2 Windows XP

Please follow the steps below to install your adapter driver:

1. Windows XP will automatically detect the Adapter. The screen in Figure 2-6 should appear. Click the radio button next **install from a list or specific location (Advanced).** Then click the **Next** button.

Found New Hardware Wizard			
	Welcome to the Found New Hardware Wizard		
	This wizard helps you install software for:		
	Ethernet Controller		
	If your hardware came with an installation CD or floppy disk, insert it now.		
	What do you want the wizard to do?		
	<ul> <li>Install the software automatically (Recommended)</li> <li>Install from a list or specific location (Advanced)</li> </ul>		
	Click Next to continue.		
	< <u>B</u> ack <u>N</u> ext > Cancel		

#### Figure 2-6

- 2. Insert the Driver and Utility CD-ROM into the CD-ROM drive.
- 3. Choose Search removable media (floppy, CD-ROM...), then click the Next button.

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
H:\ Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< <u>B</u> ack <u>N</u> ext > Cancel

Figure 2-7 4. Windows find the driver from the CD-ROM, then click the **Next** button.

Found New Hardware Wizard		
Please select the best match for your hardware from the list below.		
802.11g/b Wireless LAN Client Adapter		
Description Version Manufacturer Location		
802.11g/b Wireless LAN Client Adapter 3.2.3.2 Customer h:\driver\win		
This driver is not digitally signed!		
< <u>B</u> ack <u>N</u> ext > Cancel		

Figure 2-8

5. Then click **Finish.** You have now completed the driver installation for the adapter.



Figure 2-9

## **Chapter 5 Install Driver Install Utility**

- 1. insert the **Driver and Utility CD-ROM** into the CD-ROM drive.
- The Wizard should run automatically, and Figure 3-1 should appear. If it dose not, click the Start button and choose Run. In the field that appears, enter D:\autorun.exe (if "D" is the letter of your CD-ROM drive).



Figure 3-1

3. Click Install Utility on the Wireless Client Configuration Utility screen.

覺 Wireless Client Configuration Utility		×
Destination Location		
Setup will install Wireless Client Configuration To install into a different folder, click Browse,	n Utility in the following folder. , and select another folder.	
You can choose not to install Wireless Client Setup.	Configuration Utility by clicking Cancel to exit	
– Destination Folder C:\Program Files	Biowse	]
Wise Installation Wizard?	< <u>B</u> ack ( <u>Next</u> ) Canc	el

Figure 3-2

4. Follow the Install Shield Wizard steps, and click **Finish** when done.



Figure 3-3

## **Chapter 5 Configuration your wireless**

## adapter

1. After install the Utility **Wireless Client Configuration Utility** icon will appear in your system desktop. Double-click the icon (see Figure 4-1)



Figure 4-1 2. The Wireless Client Configuration Utility screen (Figure 4-2) will appear.

Wireless Client Config	guration Utility		_ <b>_</b> X
Advanced Network Status	Auto Link Profile Manager	Admin Site Survey	About Statistics
-Select Profile -		Signal Strength-	
Link Information Status: Network SSID: Network Type: Network BSSID: Security: Link Speed:	No Connection	Internet Protocol DHCP Option: IP Address: Subnet Mask: Default Gateway:	(TCP/IP)
Cumura	Channel Po	erformance	. P.4.:
6.3 Kbps 3.2 Kbps 0 bps		0 bps	
□ Radio Off (A	.lt+F2 )	<u>0</u> K	<u>C</u> ancel
	Figu	re 4-2	

3. Click the **Site Survey** tab, then click the **Refresh** button to search for available wireless networks (Figure 4-3)

Wireless Client Configuration L	Jtility					<u> </u>
Advanced Auto Network Status Prof Networks Filter Display Peer-To-Peer Display 802.11a Acce	Link Gile Manager Stations 🔽 SS Points 🔽	Admin Site Sur Display 802 Display 802	vey . 11g Ac . 11b Ac	Abou  Sta cess Po cess Po	ut atistics pints pints	:
Network SSID	MAC Address	Sec.	YMM	Сн	Si	Ne
🖓 Wireless AP-Router	00-E0-4C-81	Enable	N	10	75%	In
	-					F
<u>F</u> ilter <u>R</u> efresh <u>A</u> ssociate						
□ Radio Off (Alt+F2)		9	<u>D</u> K		<u>C</u> anc	el
	Figure	4-3				

4. To connect to one of the networks on the list, select the wireless network, and click **Associate** button.

## **Chapter 6 Using the Wireless Client**

## **Configuration Utility**

Use the *Wireless Client Configuration Utility* to check the link information, search for available wireless networks, or create profiles that hold different configuration settings. You can double-click the icon on your system desktop start it. Another way to start the *Configuration Utility* is to click on *Start>Programs>Wireless Client Configuration Utility>WirelessCfg.* 

If you are using Windows XP, you can use either the Zero Configuration Utility or the *Wireless Client Configuration* 

### 6.1 Network Status

reless Client Conf	iguration Utility		_ []
Advanced Vetwork Status	Auto Link Profile Manager	Admin   Site Survey	About Statistics
-Select Profile Wireless AP-Rot	iter 🔽	Signal Strength-	
Link Informatic Status: Network SSID: Network Type: Network BSSID: Security: Link Speed:	Connected Wireless AP-Router Infrastructure OO EO 4C 81 86 D1 WEP 54 Mbps	Internet Protocol DHCP Option: D IP Address: 1 Subnet Mask: 2 Default Gateway: 1	(TCP/IP) isable 92.168.1.22 55.255.255.0 92.168.2.10
Channel 10 (2. 457 GHz) Current Tx Rate: 0 bps 9. 3 Kbps 4. 7 Kbps 0 bps 0 bps 0 bps 0 bps 0 bps 0 bps 0 bps			
🗖 Radio Off (	Alt+F2 )	<u>0</u> K	<u>C</u> ancel
	Figu	ire 6-1	

The Network Status tab displays signal strength and link information, Internet Protocol (TCP/IP).

1. Link Information

- **Status:** The status of the wireless network connection.
- Network SSID: The unique name of the wireless network.
- Network Type: The mode of the wireless network currently in use.
- Network BSSID: The MAC address of the wireless network's access point.
- **Security:** The status of the encryption security feature.
- Link Speed: The data transfer rate of the current connection.
- **Channel:** The channel to which the wireless network devices are set.
- 2. Internet Protocol (TCP/IP)
  - **DHCP Option:** The status of the DHCP client.
  - **IP Address:** The IP Address of the Adapter.
  - Subnet Mask: The Subnet Mask of the Adapter.
  - **Default Gateway:** The Default Gateway address of the Adapter.

### 6.2 Site Survey

The *Site Survey* tab (Figure 6-2), displays a list of infrastructure and ad-hoc networks available for connection.

ireless Client Configuration Utility					×
Advanced Auto : Network Status Prof:	Link Admin ile Manager Site	e Survey	Abou Sta	it atistics	
Networks Filter          Image: Display Peer-To-Peer stations       Image: Display 802.11g Access Points         Image: Display 802.11a Access Points       Image: Display 802.11b Access Points					
Network SSID	MAC Address	Sec	WMM	СН. Si	
₽gWireless AP-Router	00-E0-4C-81-86-D1	Enable	N	10 80%	
•					
	Filter	<u>R</u> efresh		<u>A</u> ssociate	
🗖 Radio Off (Alt+F2)		<u>0</u> K		<u>C</u> ancel	

Figure 6-2

The section of the window displays the Available Networks. Highlight the network to which you wish to connect. Click on the *Associate* button.

onfigure Network	×
Security	
Authentication Mode: Open System 💌 Encryption Method: WEP	
-WEP Key Setting	
C Key 2 is not set	
C Key 4 is not set	
Configure WEP Keys	
<u>O</u> K <u>C</u> ano	el

Figure 6-3

Choose the Authorization modes and Encryption modes in the drop-down box. If the wireless network uses a **Passphrase**, enter the **Passphrase** in the **Passphrase** field. If the wireless network uses a **WEP** key, enter the **WEP** key in the Key field.

Click the **OK** button to complete the network connection and return to the *Site Survey* screen, or click the **Cancel** button the cancel the network connection and return to the *Site Survey* screen.

## 6.3 Admin

The Admin tab screen (Figure 6-4) lets you import or export profiles.

Wireless Client Configu	ration Utility		_ <b>_</b> X
Network Status Advanced	Profile Manager   Auto Link	Site Survey Admin	Statistics About
Click ⟨Import ; to import the ;	Profiles> button and s profile.	elect the file fro	m which you want
Click (Export ) save the profil	Profiles> button and s les.	elect the file whe	re you want to
All profiles s. selected sourc	nown in Arofile manag e.	er/ page will de s	Export Profiles
Radio Off (Alt	+F2 )	<u>0</u> K	<u>C</u> ancel

Figure 6-4

#### **Export Profile**

To save the profile(s) in a different location, click the **Export Profile** button. On the screen that appear (Figure 6-5), direct Windows to the appropriate folder and click the **OK** button.

Save As					? ×
Save in: 🕒 My Doo	uments	• 6	1	••	
My Music					
My Pictures					
File <u>n</u> ame:				<u>S</u> ave	
Save as type: cfg File	es (*.cfg)		•	Cance	

Figure 6-5

#### **Import profile**

Click the **Import Profile** button to import a profile that has been saved in another location. From the screen that appears (shown in Figure 6-6), select the appropriate file, and click the **Open** button.

Open	?	×
Look in: [	My Documents 📃 🕥 🏂 📂 🖽 -	
My Music		1
My Pictures	5	
File name:	Open	1
nio <u>n</u> amo.		
Files of <u>type</u> :	cfg Files (*.cfg)	
	C Open as read-only	
		11.
	Figure 6-6	

## 6.4 Profile Manager

Wireless Client Configur	ation Utility			
Advanced Network Status	Auto Link Profile Mana; uter	Admin ger Site Su Profile Setting Network Info Su Profile Name: Network SSID: Network Type: Wireless Mode:	About rvey Statist ecurity Protocol Wireless AP-Route Wireless AP-Route Infrastructure Auto	i cs
Apply Prof	file	D <u>e</u> lete (	<u>G</u> reate	lVe
🗖 Radio Off (Alt+	F2 ]		<u>O</u> K <u>C</u> a	incel

Figure 6-7 On the Profile Manager tab, shown in Figure 6-7, click the Create button to create a new profile.

Network Info		×
Please enter the network	information:	
Profile Name:	Wireless AP-Router	
Network SSID:	Wireless AP-Router	
Network Type:	Infrastructure 💌	
MITELESS MODE.	Auto 💌	
	< <u>B</u> ack <u>N</u> ext > 0	Cancel

Figure 6-8

When the *Network Info* screen appears (Figure 6-8), enter a name for the new profile. Enter the Network SSID. Choose the **Infrastructure Mode** in the Network Type drop-down box if you want your wireless computers to communicate with computers on your wired network via a wireless access point. Choose the **Ad-Hoc** Mode in the Network Type drop-down box if you want multiple wireless computers to communicate directly with each other. Click the Next button to continue or the Back button to return to the previous screen.

#### **Ad-Hoc Mode**

If you choose **Ad-Hoc Mode**, select the Wireless Mode from the drop-down menu. Then, select the correct operating channel for your network form the **Prefer Channel** drop-down menu. Click the **Next** button.

Network Info		×
Please enter the network	information:	
Profile Name:	Wireless AP-Penter	
Network SSID:	Wireless AP-Router	
Network Type:	Ad-Hoc	
When starting AdHoc n	etwork	
Wireless Mode: 8	02.11g	
Prefer Channel:	uto Select 💌	
	< <u>B</u> ack <u>N</u> ext > C	Cancel

Figure 6-9

#### Infrastructure Mode

If you choose Infrastructure Mode, click the Next button.

	259-23
Authentication Mode: Open System	•
Encryption Method: Security Off	
WEP Key Setting	
C Keu 1 is not set	
C Key 2 is not set	
C Key 3 is not set	
C Key 4 is not set	
Configure V/ER Kous	
Conligure with Keys	

#### Figure 6-10

The *Security* screen (Figure 6-10) will appear. Choose the **Authentication Mode** and **Encryption Method** from the drop-down menu. To use WEP encryption (recommended to increase network security), select 64 bits or 128 bits WEP from the drop-down menu, and enter either a Passphrase or WEP key. Then click **Next** button.

Protocol	×
Please enter the wireless settings:	
Do not change settings (Ke	eep original settings)
Power Save Mode: Preamble (802.11b): Transmit Rate: Fragment Threshold: RTS/CTS Threshold:	Continuous Access
	< Back Next > Cancel

Figure 6-11

The *Protocol* screen will appear. Select **Do not change settings**, then, click **Next** button.



Figure 6-12

The *Complete* Screen will appear. Click **Finish** button. **You have successfully created a connection profile.** 

## **Chapter 7 Troubleshooting**

This chapter provides solutions to problems that may occur during the installation and operation of the Wireless Cardbus/PCI Adapter. Read the descriptions below to solve your problems.

#### 1. The Wireless Cardbus/PCI Adapter does not work properly.

- Reinsert the Wireless Cardbus/PCI Adapter into your PC's PCI slot/Cardbus slot.
- Right click on My Computer and select Properties. Select the device manager and click on the Network Adapter. You will find the Adapter if it is installed successfully. If you see the yellow exclamation mark, the resources are conflicting. You will see the status of the Adapter. If there is a yellow question mark, please check the following:
- Make sure that your PC has a free IRQ (Interrupt ReQuest, a hardware interrupt on a PC.)
- Make sure that you have inserted the right adapter and installed the proper driver. If the Adapter does not function after attempting the above steps, remove the adapter and do the following:
- Uninstall the driver software from your PC.
- Restart your PC and repeat the hardware and software installation as specified in this User Guide.

- 2. I cannot communicate with the other computers linked via Ethernet in the Infrastructure configuration.
  - Make sure that the PC to which the Adapter is associated is powered on.
  - Make sure that your Adapter is configured on the same channel and with the same security options as with the other computers in the Infrastructure configuration.
- **3.** What should I do when the computer with the Adapter installed is unable to connect to the wireless network and/or the Internet?
  - Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.
  - Check that the LED indicators on the wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.
  - Check that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network.
  - In Infrastructure mode, make sure the same Service Set Identifier (SSID) is specified on the settings for the wireless clients and access points.
  - In Ad-Hoc mode, both wireless clients will need to have the same SSID. Please note that it might be necessary to set up one client to establish a BSS (Basic Service Set) and wait briefly before setting up other clients. This prevents several clients from trying to establish a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with multiple clients associated to it.
  - Check that the **Network Connection** for the wireless client is configured properly.
  - If **Security** is enabled, make sure that the correct encryption keys are entered on both the Adapter and the access point.

## **APPENDIX A Specifications**

Standards: IEEE 802.11g, IEEE 802.11b Modulation: 802.11b: CCK (11 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps); 802.11g: OFDM Channels: 11 Channels (USA) 13 Channels (Europe) 14 Channels (Japan) Network Protocol: TCP/IP, IPX, NDIS 4, NDIS 5, NDIS 5.1, NetBEUI Interface: Cardbus/PCI Transmit Power: 13 dBm Sensitivity: -80 dBm LED: PWR, LNK/ACT WEP Key Bits: 64-Bit and 128-Bit **Dimensions:** Cardbus: 118.3 × 5 × 54.5mm 120 × 40mm (Non-Bracket) PCI: Unit Weight: Cardbus: 55g PCI: 50g Cardbus: 3.3V Power: PCI: 5V

Certifications: FCC CE Operating Temp.: 0°C to 40°C Storage Temp.: -20°C to 70° C Operating Humidity: 10% to 85%, Non-Condensing Storage Humidity: 5% to 90%, Non-Condensing