Wireless Network Card Series

User's Guide

Version 1

Federal Communication Commission 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 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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Industry Canada statement:

This device complies with RSS-210 of the Industry Canada 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.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device has been designed to operate with an antenna having a maximum gain of **3** dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

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Contents

1. Introduction	5
2. Wireless LAN Basics	6
3. Installation for Windows platform	7
3.1. Installation Overview	8
3.2. Install Procedure for Windows	9
3.3 Uninstall Procedure	14
4. Configuration Utility	15
4.1 Link Information	16
4.2 AP List	18
4.3 Profile Setting	19
4.4 About	
5. Appendix	24

1. Introduction

Thank you for purchasing your Wireless LAN Adapter. This User's Guide will assist you with the installation procedure.

The package you have received should contain the following items:

- Wireless LAN Adapter
- Quick Installation Guide
- CD containing Wireless network adapter utility & drivers and User's Guide Note: if anything is missing, please contact your vendor

Note: This manual is valid for all Wireless LAN adapters, such as PC Card, USB, mini-USB, PCI

adapter, mini-PCI...etc.

2. Wireless LAN Basics

Wireless LAN (Local Area Networks) systems offer a great number of advantages over a traditional, wired system. Wireless LANs (WLANs) are more flexible, easier to setup and manage and often more cost effective than their wired equivalence.

Using radio frequency (RF) technology, WLANs transmit and receive data over the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs.

With wireless LANs, users can access shared information without looking for a place to plug in and network managers can set up or augment networks without installing or moving wires. Wireless LANs offer the following productivity, convenience and cost advantages over traditional wired networks:

- Mobility Wireless LAN systems can provide LAN users with access to real-time information anywhere in their organization. This mobility supports productivity and service opportunities not possible with wired networks.
- Installation Speed and Simplicity Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.
- Installation Flexibility Wireless technology allows the network to go where wires cannot go.
- Reduced Cost-of-Ownership While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.
- Scalability Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer to full infrastructure networks, also allow roaming over a broad area.

3. Installation for Windows platform

The following section will assist you in installing wireless LAN Adapter successfully. You will first install software (Utility) and then insert / attach the Wireless LAN Adapter to your system, and finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The Wireless LAN card can easily be installed and used, without bothering to connect cables for keeping your computer to use network resources.

3.1. Installation Overview

Here are some steps you will perform in establishing your wireless network connection:

- **%** Install the Access Point at first. AP is needed in case of Infrastructure network mode.
- # Install the software using the Install CD.
- # Install the Wireless LAN Card.
- Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

3.2. Install Procedure for Windows

Note: Do not insert the **WLAN Adapter** until you are asked to do so, failure of which may result in unsuccessful installation of your WLAN device.

1. Insert the given Installation CD in the CD-ROM, then browse the CD content and find a file which be named **Setup.exe**, double click it for beginning the installation.

Follow the instruction to finish the installation.

InstallShield Wizard		8
5	Wireless Card Installation	
	Welcome to the Wireless Card Setup	
	Next >	Cancel

2. After complete the procedure, insert your WLAN card into PCMCIA/PCI slot or USB connector of your system, and then system will detect new hardware.



Select "Install the software automatically (Recommended) ", and then click Next to continue.

Once your system detected the driver, Microsoft will show a warning message as below.



Click " Continue Anyway " for next step.

After copy the file to your system, then the setup is finish.

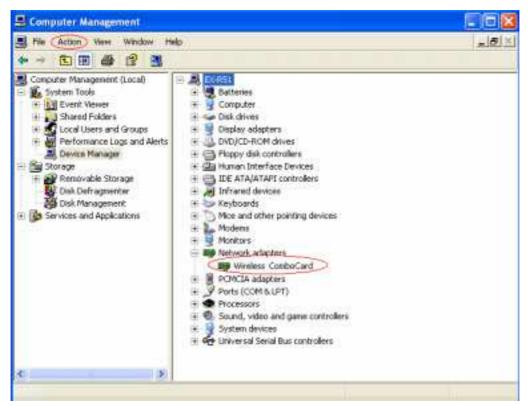
3. Insert your wireless network card into your computer.

Note: If the wireless network card is PCI interface, then you should shut down your computer first and power on your computer after you complete the card insertion.

4. Click the right button of mouse on **My Computer** earrow Manage
earrow Device Manager.

Check whether it has WLAN adapter in one of the sockets or not. If you find **Wireless ComboCard** in one of the sockets, it means the card is detected properly.

If you cannot find this card on device manager, please click the **Action** \cancel{P} **Scan for hardware changes** for research again. If this card is shown with yellow exclamation mark, please remove it and click the **Action** \cancel{P} **Scan for hardware changes** for research this hardware again for proper hardware installation.



5. Click Start A Settings A Network Connections or right click mouse on the My Network Places

(Network Neighborhood) for TCP/IP setting.



User's Guide

6. Click **Properties** from the pop up menu. Select the **Internet Protocol(TCP/IP)** and click Properties button.

Connect using:					
🛒 Wireless 🛛	ComboCard	ł			
			ſ	Configure.	
This connection	uses the fo	ollowing items:	L		
🗹 🔒 QoS Pa	icket Sche	duler			^
AEGIS I			3.2.0.3		
🗹 🔭 Internet	Protocol (TCP/IP)			1
				10	~
<		iiii		>	
Install		Uninstall		Properties	4
Description					
Transmission (CONTRACTOR OF STREET	i.
wide area net		col that provid ected network		inication	
	Antercorn				
	notification	n area when c	onnected		
Show icon in					

7. You can select either Obtain an IP address automatically or Use the following IP address setting. If your choice is the second one then entering the IP address, Subnet mask, Default-gateway and DNS. After setting these parameters appropriately, click OK to return to back menu.

	automatically if your network supports ed to ask your network administrator fo
🔿 Obtain an IP address autom	atically
Use the following IP addres	8
IP address:	192.168.1.100
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 1 . 254
🔵 Obtain DNS server address	automatically
Use the following DNS serv	er addresses:
Preferred DNS server:	192 . 168 . 1 . 254
Alternate DNS server:	

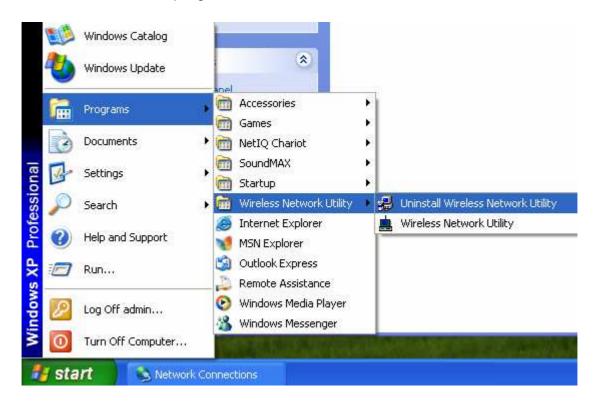
3.3 Uninstall Procedure

Step 1:

If you want to uninstall the WLAN adapter, just simply click

Start A Program A Wireless Network UtilityA Uninstall

It shall uninstall all related programs.



Step 2:

Restart your Computer.

4. Configuration Utility

Wireless network adapter uses its own management software. All functions controlled by user are provided by this application. Usually this application starts automatically,

or click 📕 icon from Start Menu to start the Utility application.

A new icon - should appear in your Icon tray if your WLAN adapter is working properly. If the icon is in red color, it means that WLAN adapter is under poor signal or the connection is unavailable.



User can navigate through "sheets", by clicking tabs. "X" button will minimize window.

To provide more information, click "More..." button. Below description explains the usage of this utility.



4.1 Link Information

Connected To Network

Wireless	Monitor 🛛 🛛
− Wireless Information	
Connect To Network :	1590 [00:90:4B:63:47:13]
Network Type :	Access Point
Channel :	1
Encryption :	64 bits
Link Speed :	48 Mbits / sec
Signal Strength	Link Quality
- IP Information	
DHCP Status :	Enable
Current IP :	210.66.97.125
Subnet Mask :	255.255.255.0
Default Gateway :	210.66.97.17
DNS Server :	168.95.1.1
	Back

This field is used to display the current status of connection. The state shows "Connected to Network" means normal flow of operation in Infrastructure mode. The PC is connected to access point. Networking is available.

A state of "Scanning" means that the node is searching for available Access Point within effective range. This field will also display an error message for some reason if the driver fails to initial.

Network Type

Infrastructure Mode - The driver will scan all available channels continuously until it finds one or more Access Points that match its SSID. At that point it will try and authenticate and associate with the Access Point.

Peer to Peer Mode - The driver will scan for 5 seconds looking for an existing Ad Hoc network using the same SSID.

Channel

The current channel that be used for this WLAN adapter will be shown in this field.

Encryption

All encryption status will be shown in this field.

• Link Speed

The current transmit rate will be shown in this field.

Signal Strength

The signal strength bar graph is only active when the node is in infrastructure mode. The bar graph displays normalized signal strength as reported by the radio, averaged over all frames over 100 bytes long that are received from the AP.

Link Quality

The Link Quality bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality of the link between the node and Access Point.

4.2 AP List

× Wireless Monitor 🔊 Link Information <table-of-contents> AP List 🌈 Profile Setting 🦹 About - Site Information Network Name | Band | Signal | **9-**1590 60% Network Type : Access Point 🕯 optech В 55% Channel : 1 👍 103 i G 20% Encryption : On 55% 🛵 ap11g G 👗 Gemtek-N G 70% 👗 Atheros Wi... A 45% Surveyed at : λ KEN В 25% 00:90:4B:63:47:13 👗 KENG01 G 20% Connect Refresh

The Connections Tab shows current status of available APs within the network.

User may select profile or ESSID from above list, click "Connect" to connect with the AP.

Click "**Refresh**" to rescan the network, this utility with site survey function, it will detect and list all available AP's within network.

4.3 Profile Setting

Profile Setting allows user to create profiles for different network environments.



Click "Add" button to create new profiles.

"Edit" for editing current exist profile.

Click "Delete" button if you wish to delete profiles.

Network Name

The name of Profile, users can define it by themselves.

Network Type

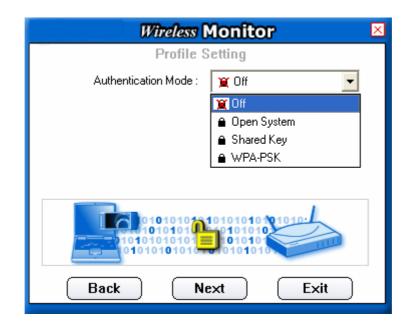
This field allows you to select from a list of supported Network "Modes". The modes displayed will have two values: "Peer to Peer" and "Access Point".

Wireless	Monitor 🛛 🛛
Profile S	Setting
Network Name :	1590
Network Type :	🗼 Access Point 📃 💌
Transfer Rate :	Automatic
Back N	ext Exit

Peer to Peer - This is 802.11 peer-to-peer mode. In 802.11 Ad Hoc, only one wireless "cell" is supported for each different SSID. All communication is done from Client to Client without the use of an Access Point. 802.11 Ad Hoc networking uses the same SSID for establishing the wireless connection.

Access Point - This mode of operation requires the presence of an 802.11 Access Point. All communication is done via the Access Point, which relays packets to other wireless Clients in the BSS as well as to nodes on a wired network such as Ethernet.

- Transmit Rate The transmission rate at which client of AP transmits the data packets. You may set this to fixed 1Mbps, fixed 2 Mbps, fixed 5.5 Mbps or higher or Automatic for 802.11 AP.
- Authentication Mode You may desire an additional measure of security on your WLAN which can be achieved by using WEP or WPA encryption.



This panel allows to entry for 64/128-bit encryption according to WEP function select. To be written to the driver and registry, such as Hexadecimal format, each key must consist of hex digits, which means that only digit 0-9 and letters A-F are valid entries. If entered format is incorrect, the utility will not accept it.

WPA pre-shared key is one advanced security for wireless network. There are 2 types algorithm could be supported – one is TKIP, and the other is AES.

To use WPA Pre-Shared Key, enter a password in the WPA Shared Key field between 8 and 63 characters long.

Wireless	Monitor 🛛 🛛
Profile S	Setting
Input Method : Key :	Hex Hexadecimal (0-9, A-F 💌
Key Index :	⊈ >(1) ▼
Back	ext Exit

To enable IP Setting function, please select enable.

Wireless Monitor	×
Profile Setting	
IP Setting : 📴 Enable 🔽	
IP:#.#.## Subnet Mask:#.#.## DNS:#.#.#	
Back Next Exit	

Please define if the current Profile IP setting will be assign by a DHCP Server or just assign by a fixed IP that is determinate by the Network Administrator.

Wireless N	1onitor 🛛 🛛
Profile S	etting
DHCP Status :	🔹 Disable 📃 🔻
IP Address :	● Enable
Subnet Mask :	Disable
Default Gateway :	
DNS Server :	
IP:#.#.# Subnet Mask:#.#.#.# DNS:#.#.#.#	0101010 0101010 010101010
Back Com	plete Exit

When the DHCP Status is Enable, the TCP/IP information will be assigned by a DHCP $% \left({{\left({T_{\rm{A}} \right)} \right)} \right)$

Server. Or otherwise please fill up with the correspondence data of the IP settings.

4.4 About



"About" tab shows the product version including the detail of Driver, Application and firmware versions. Users must use this version number when reporting their problems to technical support.

5. Appendix

5.1 Using WinXP Wireless Zero configuration for WPA setup

Step1:

Check and make sure that the Wireless Zero Configuration service is running. Click Start $rac{e}$ Settings $rac{e}$ Control Panel $rac{e}$ Administrative Tools $rac{e}$ Services

Action Vers	1940 2055 (1977) • 11 • 11 • 1						
Service (Local)	Services (Lecal)						
	Wenters Zero Configuration	Reve //	Description	Saus	Saturfige	Log On As	
		Street Handware Extension		Sater	Automatic	Local System	
	Bag the service	Single Mail Transfer Protocol (SMTP)	Transports	Setar	Automatic	Local Byekeen	
	Easthart the service	Shewt Card	Managent a		Nation	Local Service	
		Steart Card Holper	English st		Marinal	Lood Service	
	Description:	The 130P Decovery Service	Engliles do	Satel.	Manual	Local Service	
	Provides automatic configuration for the	The System Event Month action	Tradis cost	Satel	According	Local Vestern	
	R02.11 adapters	System Redore Service	Ferfories s	Satel	Autometic	tuical System	
		Ren Tank Scheitkänn	Enables a	Sales	Aubshaltic	Local Sydney	
		TOTOR Net BLOS Halave	Exables as	Sates	Autometer	Local Service	
		Telephory	Provides T.	Sates	Manual	Local System	
		Solder.	Engèles ar	00000225	Manual	Local System	
		Soloryaid Sorrans	Mons rult	Statel	Marical	Local System	
		Theres	Provider u	Stated	Automatic	Local Tysteen	
		SUninterroptate Power Supply	Malager a	Second 1	Manual	Local Service	
		Christmal Phag and Play Davise I that	Provider 8		Marsiel	Local Service	
		Cubbed Hanager	Manager a	Salar	Automatic	Local Tystem	
		TO USE2 DG Weeken Service	Witness L.	1000	Advention	Local System	
		Thingre Aufhoritation Service	Authorites.	diated.	Autometic	Local System	
		This and the Det Of Service	DHOP serve	Second Second	Automatic	Local System	
		The influence NAVI Service	Network &	Barted	Advantig	Local System	
		Greekene Shather Copy	Harison A.		Margad	Local System	
		Rev Hob Clark	Enables WL.	Dated	Adomatic	Local Service	
		Sale of release Aught	Manager a.	CODE COM	Advanuels	Local System	
		Windows In see Acquistors (W14)	Provides ins.		Marinal	Local System	
		S windows bistalier	Dotals, w		Manual	Local System	
		Senindovic Management (schunenta	Provides a		Automatic	Local Tystem	
		Sendore: Management Instrumenta	Provide a.	-and	Manual	Local System	
		Windows Time	Maintains d.	States	Automatic	Local Tythem	
		By Western Zaro Configuration	Forvider a	Stated	Actomatic	Local System	
		Sa MPE Performance Adaptor	Provide p.	- search	Normal	Local System	
		Monistation	Creatives an	Nated	Adverter	Local System	
		Swalt wate web Publishing	Provides W	1200	Address	Local System	
	Extended & Standard /	SCOMPTINE OFFICE	13122-13023	1000	1000	0.0223303	

Since WPA security standard has been defined after Windows XP lunch date, then you should also update your current Wireless Zero Configuration utility version to the latest. In order to do so, you must run the patch file which be included the CD or please visit the following website for download it.

http://www.microsoft.com/downloads/details.aspx?displaylang=en&familyid=009D8425-CE2B-47A4-ABEC-274845DC9E91

Once the above steps are complete, please proceed to the following page.

Step2:

Open the Wireless utility

Wireless Network Con	nection	? 🛛
The following weeless network, select it is	from the list, and then o	
Available wireless petwork	5	
This weeless network requ access this network, type to frameric type		
Epidem remains low	Tic wither diculton for th connecting to a networ	
(Advanced)	Connect	Cancel

Click Advanced and the following screen will appear. Over the Wireless Networks tab, click Configure.

ieneral	Wireless Networks	Advanced	
🔽 Use	Windows to configur	e my wireless ne	twork settings
- Availa	able networks:		
Toco	onnect to an available	e network, click (Configure.
Ŷ	ap11g		<u>Configure</u>
3373	NASA3F		
1 1 1 1	1000		
Prefe	1590 rred networks: natically connect to a «	vailable network	s in the order listed
Prefer Autor	rred networks: natically connect to a	vailable network	
Prefer Autor	rred networks: natically connect to a	vailable network	s in the order listed
Autor	rred networks: natically connect to a		s in the order listed Move up Move down
Prefe Autor belov	rred networks: natically connect to a v:	we Prope	s in the order listed Move up Move down

Step3:

Verify that the Network Authentication is WPA and the Data encryption is TKIP or AES. (The encryption type should match the WPA setting of your Access Point.)

ireless ne	twork propertie	25	?
Association	Authentication		
Network <u>n</u> a	ame (SSID):	511 <u>5</u>	
Wireless	network key		
This netv	vork requires a key f	or the following:	
Network Authentication:		WPA	~
Data encryption:		TKIP	~
Network	key:		
Confirm n	ietwork key:		
Key inde	s (advanced): 1		
[☑] T <u>h</u> e k	ey is provided for m	e automatically	
	a <u>computer-to-comp</u> u points are not used	iter (ad hoc) network	; wireless
		ОК	Cancel

Step4:

Click Authentication tab to select EAP type. (The EAP type should match the authentication server before access the authenticated network.)

Wireless network properties				
Association	Authentication			
	option to provide hemet networks.	authenticated network access for		
Enable	IEEE 802,1x auth	nentication for this network		
EAP <u>t</u> ype:	Smart Card or o Protected EAP Smart Card or o	other Certificate (PEAP) ther Certificate		
	icate as guest wł	er when computer information is ava		
		OK Car	ncel	

After clicking OK, the Wireless workstation will be able to associate with the AP previously get authentication by an authentication Server.