IEEE802.11b

Wireless LAN m ini-PCI Module

Software Installation Manual

Version 1.0

2003/6 /26

REGULATION INFORMATION

The Wireless mini-PCI module must be installed and used in strict accordance with the manufacturer's instructions. This device complies with the following radio frequency and safety standards.

FCC (Federal Communications Commission)

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

1. This device may not cause harmful interference.
2. This device must accept any interference that may cause undesired operation.

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 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 instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment dose 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.

Notice: The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency. Any changes or modification not expressly approved by the party responsible could void the user's authority to operate the device.

R&TTE Directive

This device complies with the specifications listed below:
• ETS 301-489 -1&-17 General EMC requirements for Radio equipment.
• ETS 300-328 Technical requirements for Radio equipment.
• EN60950 Safety Requirements for Radio equipment

The channel identifiers, channel center frequencies, and regulatory domains of each 22-MHz-wide channel are shown in following Table.

Channel Identifier	Center Frequency (MHZ)	Regulatory Domains		
		Japan	ETSI	North America
1	2412	ˇ	ˇ	ˇ
2	2417	ˇ	ˇ	ˇ
3	2422	ˇ	ˇ	ˇ
4	2427	ˇ	ˇ	ˇ
5	2432	ˇ	ˇ	ˇ
6	2437	ˇ	ˇ	ˇ
7	2442	ˇ	ˇ	ˇ
8	2447	ˇ	ˇ	ˇ
9	2452	ˇ	ˇ	ˇ
10	2457	ˇ	ˇ	ˇ
11	2462	ˇ	ˇ	ˇ
12	2467	ˇ	ˇ	
13	2472	ˇ	ˇ	
14	2484	ˇ		

Table of Contents

1 Introduction

You are about to install a networking system that is not only fast and powerful, but also easy to set up and simple to maintain. In a short time you and those in your network will be able to share a local printer and files, access the Internet, and roam about the office wire-freely.

Using radio frequency (RF) technology, WLAN devices 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.

This wireless networking solution has been designed for both large and small businesses, and it is scalable so that you can easily add more users and new network features as your business grows.

This software installation guide will assist you in installing Wireless mini-PCI module application.

2 Wireless LAN Basics

Wireless LAN network defined by IEEE 802.11b standard committee could be Configure as: **Ad Hoc wireless LAN** or **Infrastructure wireless LAN.**
Ad Hoc network is a group of notebooks with wireless LAN adapter, called a BSS (Basic Service Set). These notebooks use their wireless LAN adapter to communicate with each other directly.
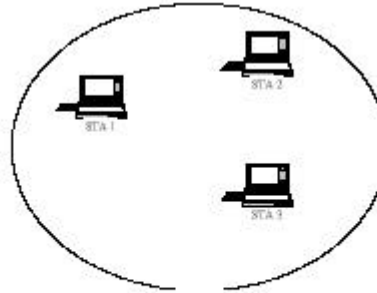

Figure 2-1 Ad Hoc wireless network

The most obvious differentiation between **Infrastructure** wireless network and **Ad Hoc** wireless network is that the notebooks in **Infrastructure** wireless network can make use of the resource in the Internet through **Access Point**.
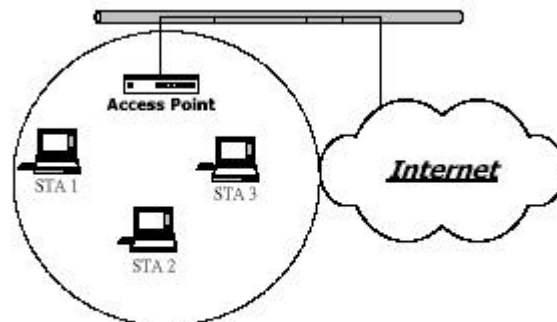

Figure 2-2 Infrastructure wireless network

To set up your notebook's network as the type of "**Ad Hoc**" or "**Infrastructure**" wireless network depends completely on your requirement. Generally, if your network environment has an **Access Point**, it's recommend that you set it as "**Infrastructure**" mode to connect to the **Internet**.

3 Drivers and Utility Installation

This section describes the procedures for installing Wireless mini-PCI module.

Before You Start

Before installation, please check your system in advance and make sure that the Mini PCI is installed with your Notebook. Consult to your dealer for the existence, compatibility or installation of Mini PCI module with your Notebook.

Note: To prevent potential problems during installation, please use the auto-run installation tool on the CD to finish the driver installation before you plug The WLAN Module into the computer.

All drivers and supporting software for Wireless mini-PCI module must be installed and configured.

Ask your system administrator for the following information, which you may need during driver installation:

- Your Wireless LAN SSID.
- Your computer's unique client name and workgroup name
- For your network account, your user name and password.
- Your IP address, gateway address, and subnet mask. (If you're not using a DHCP server)
- Every computer on a network is identified by a unique network address. There are two methods to assign network addresses to computers on a TCP/IP network:
- Static IP addressing
- Dynamic IP addressing (DHCP)

In networks with **static IP** addressing, the network administrator manually assigns an IP address to each computer. Once a static IP address is assigned, a computer uses the same IP address every time it reboots and logs on to the network. You may manually change the IP address in the ***Network Properties dialog box***. Networks using static IP addresses are easy to set up and do not require additional network management software.

In networks with **dynamic IP** addressing, a DHCP server in the network dynamically assigns IP addresses to all clients every time they log on to the network. Network using dynamic IP addresses require setting up and running a DHCP Server.

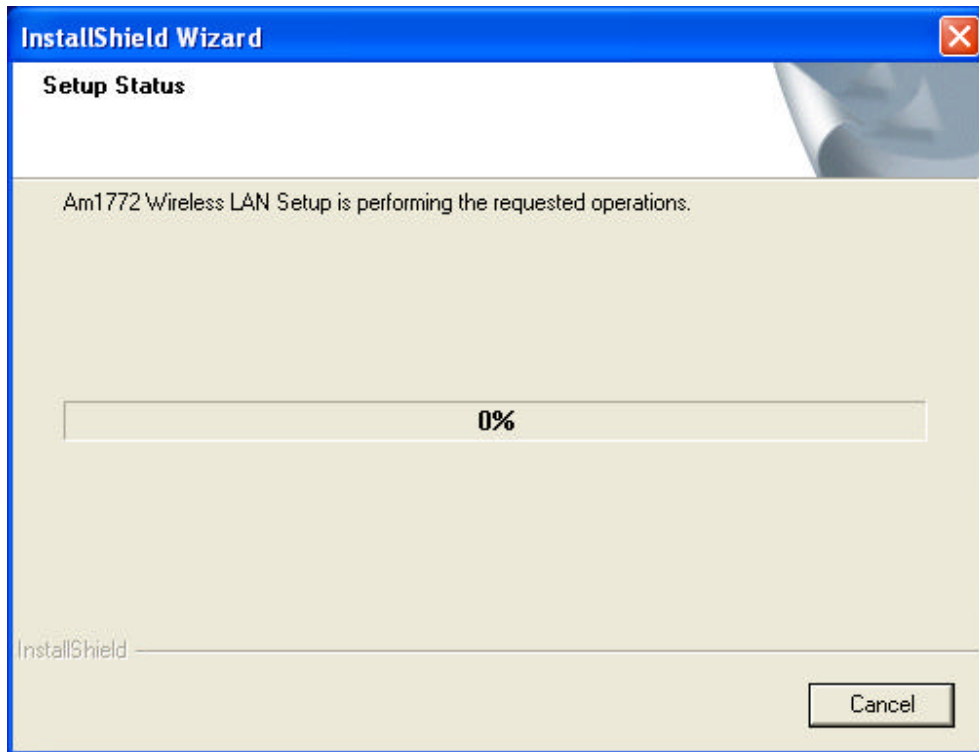1.Insert the installation & driver CD to your CD-ROM, It will auto run installation
program.
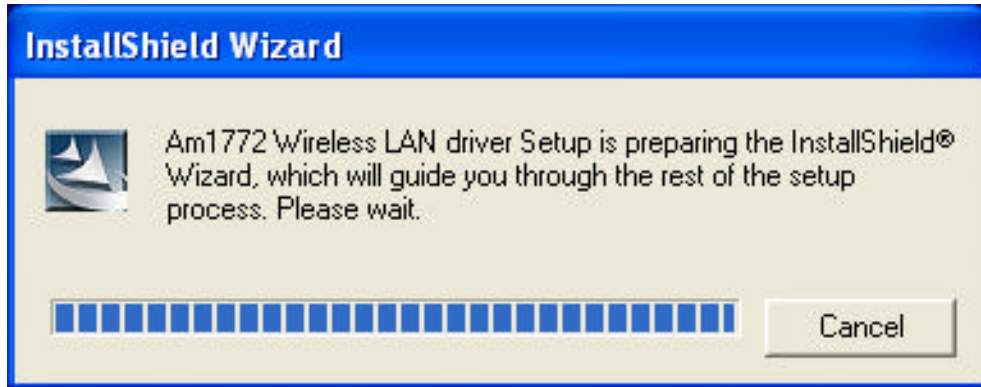
2. Click "Next" to install
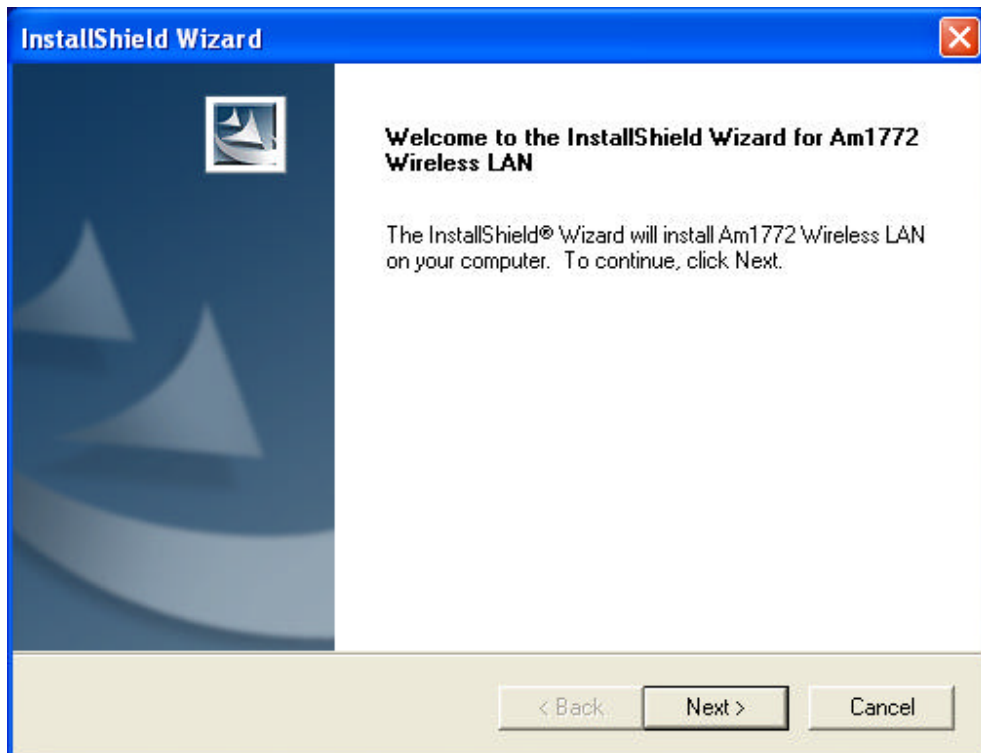
3.. Setup Status window will pop up

4. choose one options and click **OK** to finish setup.
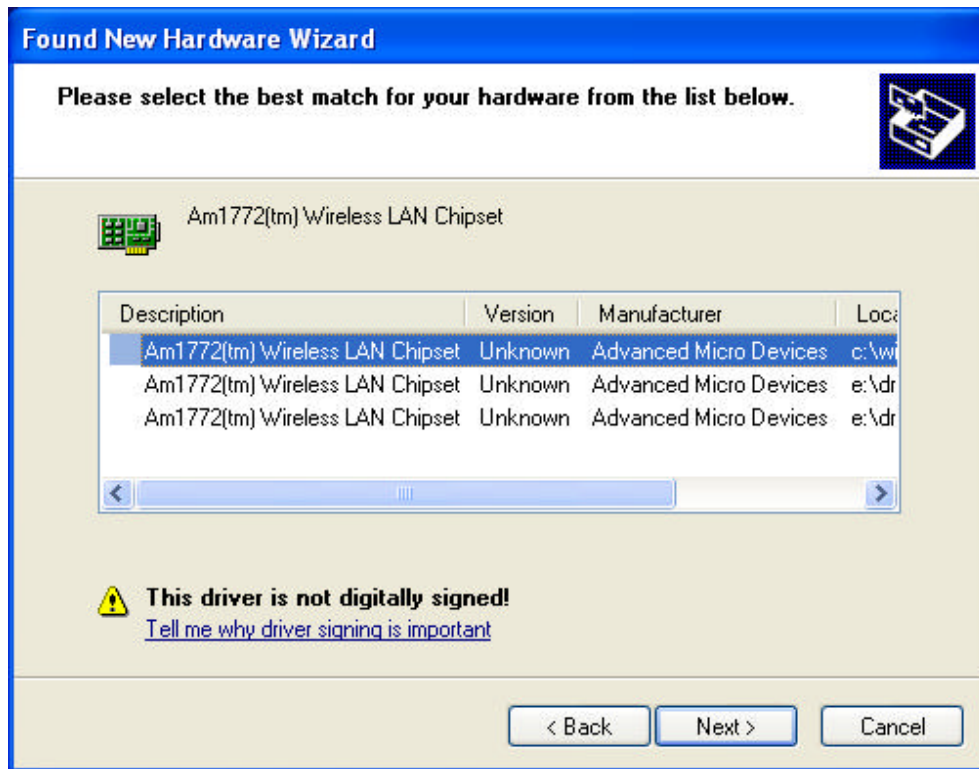   (before you can use the program, you must reset your computer)

5. When Windows is ready to configure the new hardware, it opens the **Found New Hardware Wizard** dialog box as shown below. Select "**Install the software automatically (Recommended)**" and click "**Next**" to continue.

6. The Wizard is searching the driver.
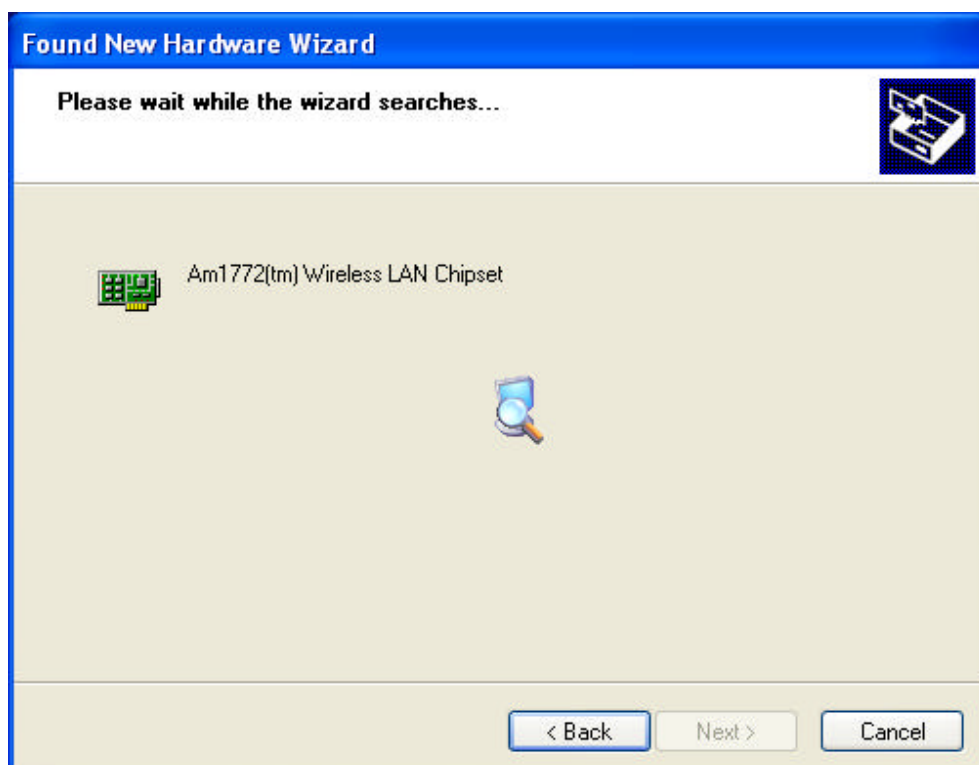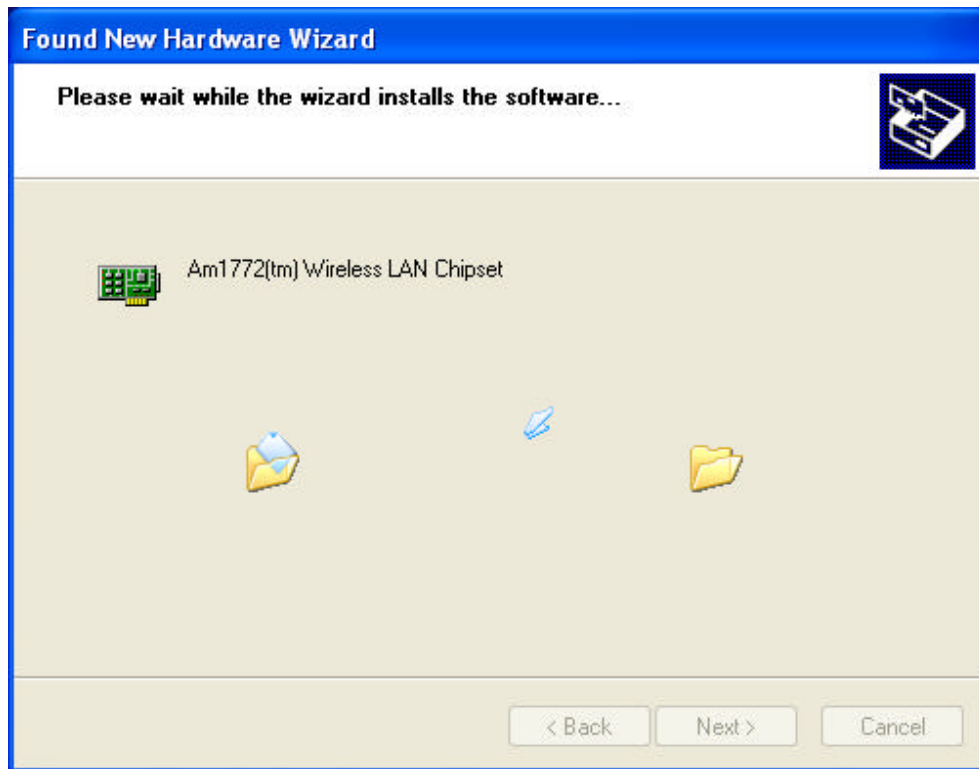
7. Click "**Next**"

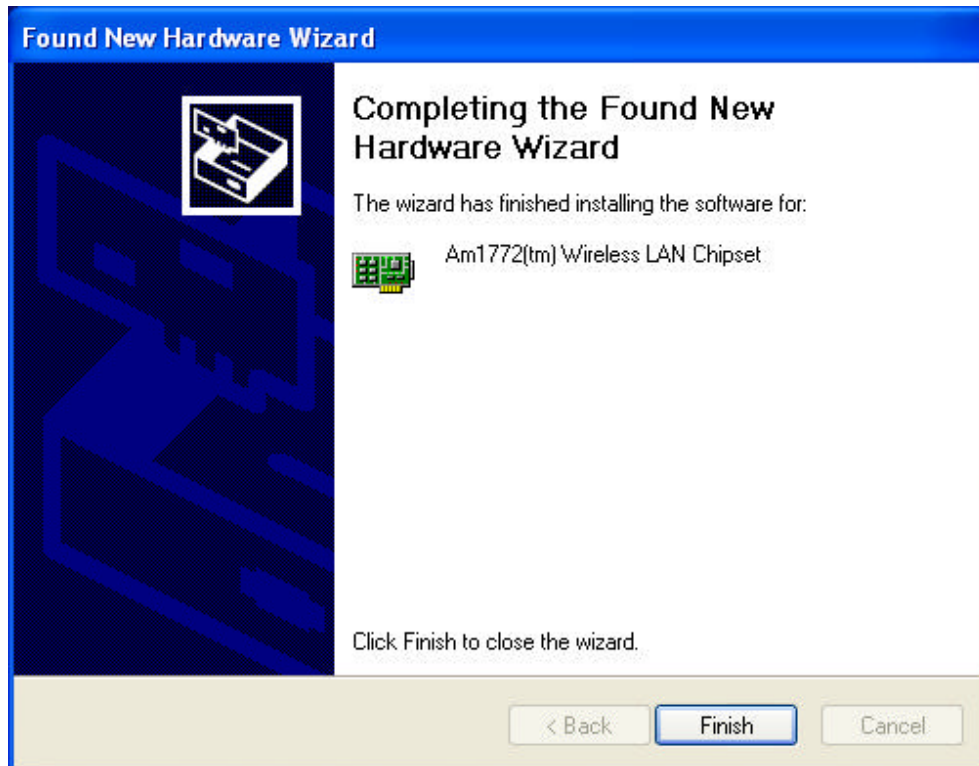

8.Click "**Continue Anyway.**"

Note: Driver should be compliance with Windows XP and should the message appear
on figure 8 is due to pending driver approval from Microsoft.

9. Start copying the driver


10. Click "**Finish**" to complete the Setup.

4. Wireless Network Configuration

Wireless mini-PCI module uses its own management software. All functions controlled by users are provided by this application., a new icon, , should appear in the Windows System Tray automatically. If the icon isn' t in green, it means that Wireless LAN mini-PCI configuration is invalid or incomplete.

Double click that icon and the configuration window will pop up as shown below.
The Configuration Tool contains several fields where operating parameters of the driver can be viewed or changed. Changes to any of the parameters in this panel can be applied to the driver without a need to restart the computer.

1."**wireless Networks**" shows the SSID of available network. just choose correct Networks to "Network Profiles" and click "Connect New" button to build valid connection.
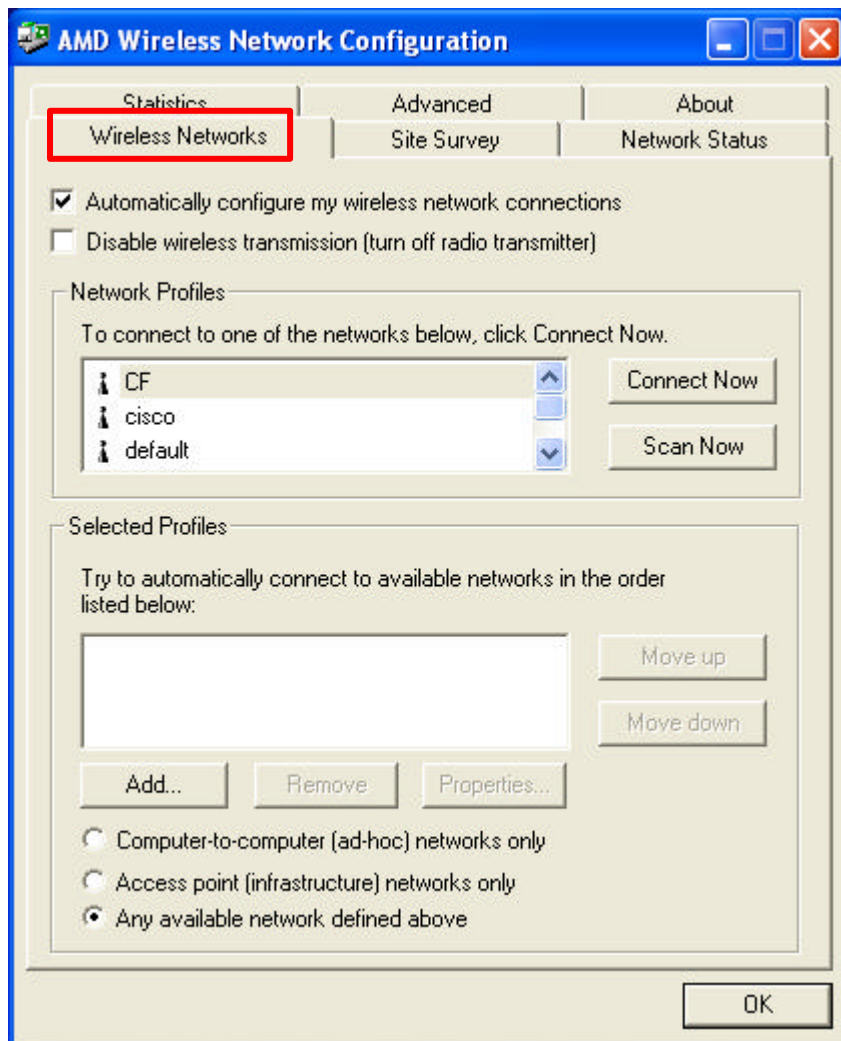
2."**Site survey**" shows available networks Information .
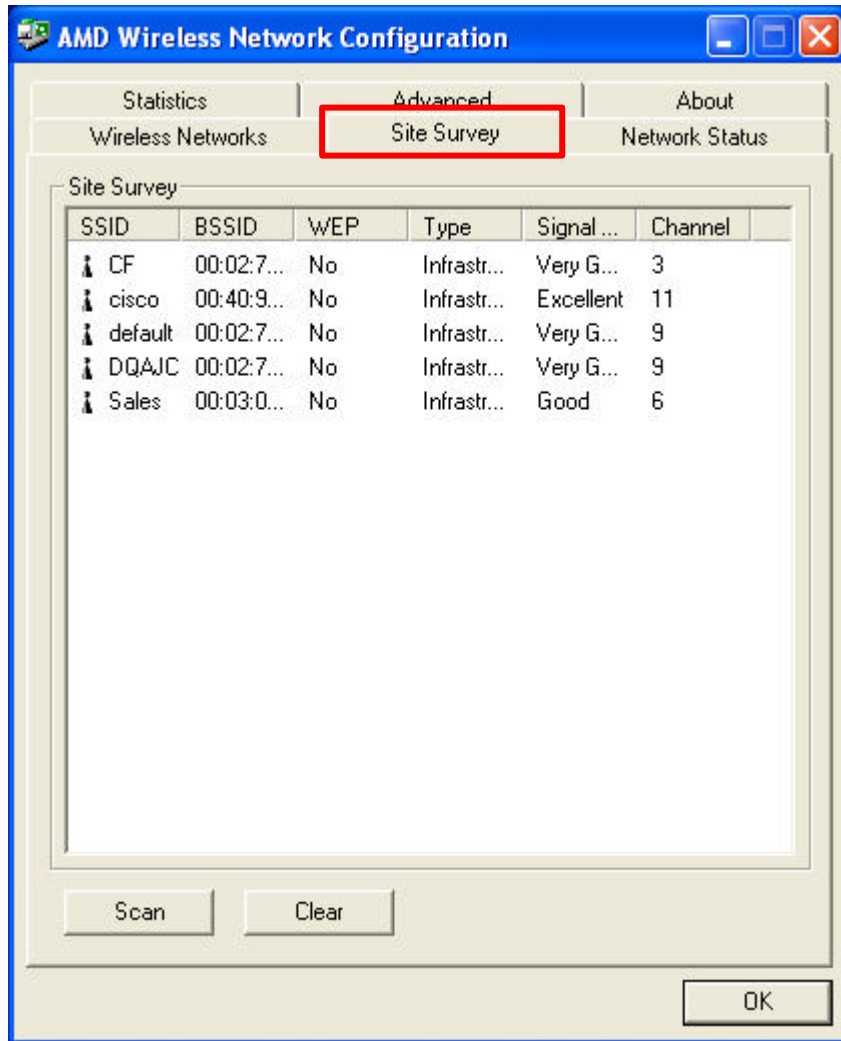
3. "**Network Status**" shows the link quality and signal strength are displayed

The Link Quality and Signal Strength bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality and strength of the link between the node and its Access Point. Link Quality is a measurement of receiving and transmitting errors over the radio.

Tx/Rx Frame displays the instantaneous wireless Transmit and Receive throughput in bytes per second. These values are updated every two seconds.
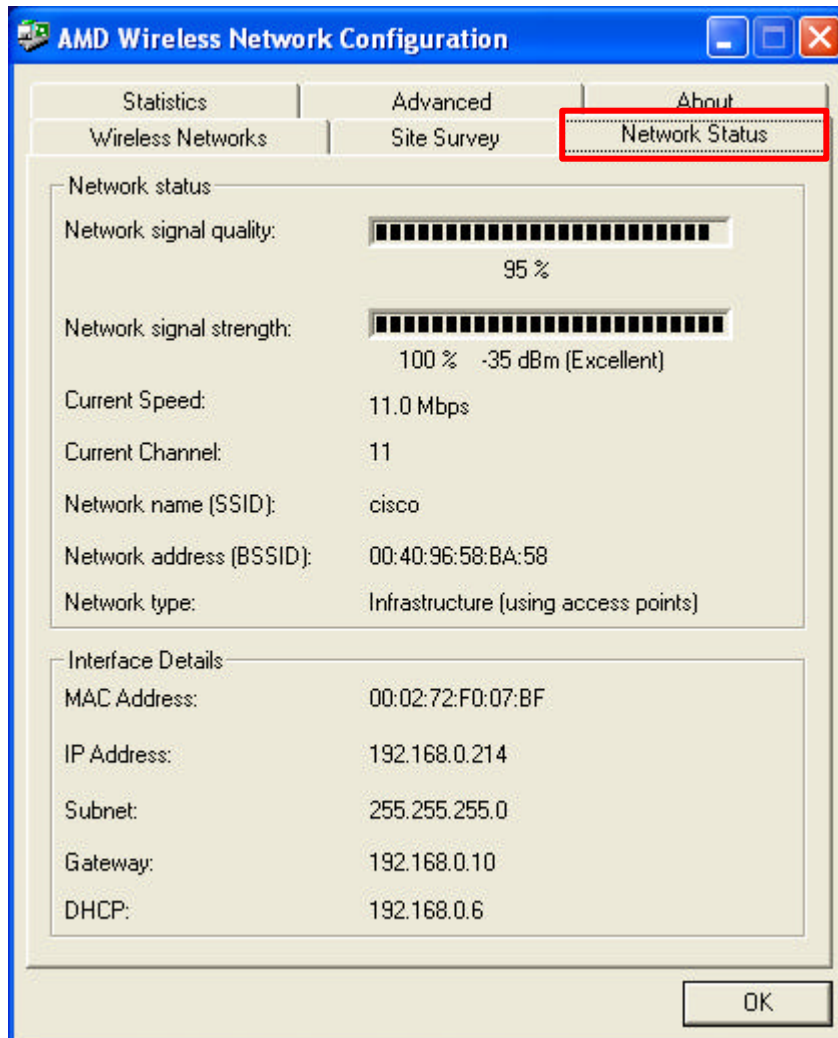
4. Trending towards "**Advanced**". setting, In this panel, you can modify the general network connection setting, enable/disable the WEP, load/modify profile and other setting. Through this control panel, you will be able to access the corporate wireless LAN or hot spots such as hotel, airport, and conference hall.
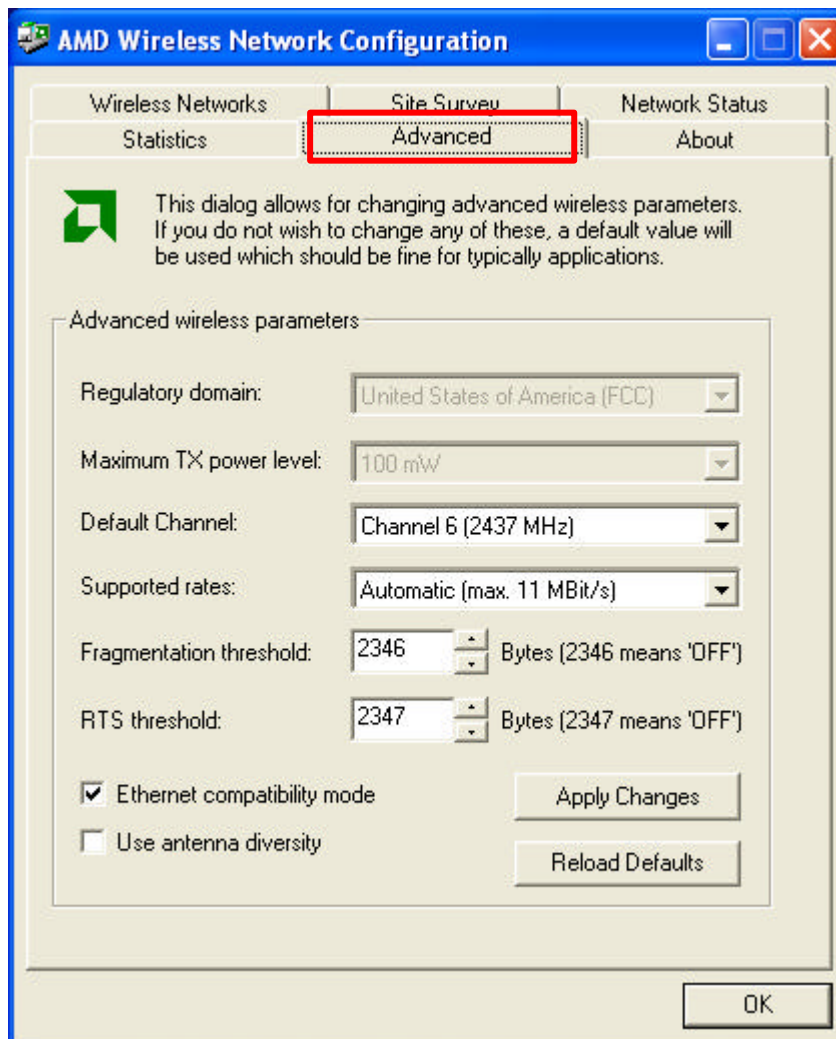
5. Click "**About** " and the pop-up window will show the Driver Version, Firmware Version, of this Wireless LAN mini-PCI Module Information
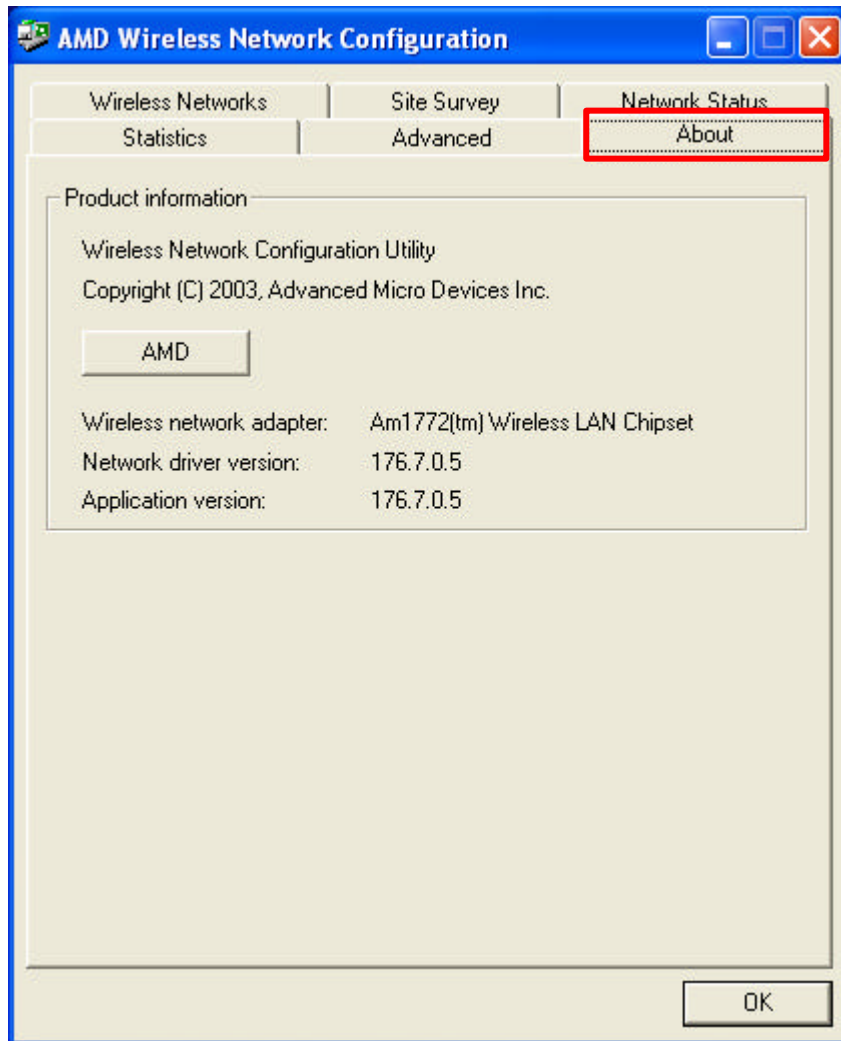
5.Specifications of Wireless LAN mini-PCI Module

ITEMS	SPECIFICATION
Product Name	WLAN MiniPCI Module
IEEE Standard Support	802.11b compliant
Frequency Bands	ISM-band (24000MHz . 2484MHz)
Modulation Method	CCK@11/5.5Mbps, DQPSK@2Mbps, DBPSK@1Mbps
Spread Spectrum	DSSS (Direct Sequence Spread Spectrum)
Variable Data Rates	1,2, 5.5 and 11 Mbps (long and short header modes)
Security Support	WEP 40- and 128-bit, TKIP + WPA
Output Power	15dBm at antenna connector
Receive Sensitivity (8% PER)	-87dBm (@11Mbps) -90dBm (@5.5Mbps) -92dBm (@2.0Mbps) -95dBm (@1.0Mbps)
System Current Consumption	Tx mode: 232mA Rx mode: 134mA Listen mode: 106mA Sleep mode: 18mA
Power Supply	3.3V from Mini PCI bus
Host Interface	Type IIIb Mini PCI, Single Sided
Environment	Operating Temperature:0℃ to 60℃ Storage Conditions:-20℃ to 70℃ Maximum Humidity　　95%

6.Glossary

IEEE 802.11 Standard

The IEEE 802.11 Wireless LAN standards subcommittee, which is formulating a standard for the industry.

Access Point

An internetworking device that seamlessly connects wired and wireless networks together.

Ad Hoc

An Ad Hoc wireless LAN is a group of computers, each with a WLAN adapter, connected as an independent wireless LAN. Ad Hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

BSSID

A specific Ad Hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSSID.

DHCP

Dynamic Host Configuration Protocol - a method in which IP addresses are assigned by server dynamically to clients on the network. DHCP is used for Dynamic IP Addressing and requires a dedicated DHCP server on the network.

Direct Sequence Spread Spectrum

This is the method the wireless adapters use to transmit data over the frequency spectrum. The other method is frequency hopping. Direct sequence spreads the data over one frequency range (channel) while frequency hopping jumps from one narrow frequency band to another many times per second.

ESSID

An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while served as a continuous connection to the network wireless stations and Access Points within an ESS must be configured with the same ESSID and the same radio channel.

Ethernet

Ethernet is a 10/100Mbps network that runs over dedicated home/office wiring. Users must be wired to the network at all times to gain access.

Gateway

A gateway is a hardware and software device that connects two dissimilar systems, such as a LAN and a mainframe. In Internet terminology, a gateway is another name for a router. Generally a gateway is used as a funnel for all traffic to the Internet.

IEEE

Institute of Electrical and Electronics Engineers

Infrastructure

An integrated wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

ISM Band

The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the so-called ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high-speed wireless capabilities in the hands of users around the globe.

Local Area Network (LAN)

A LAN is a group of computers, each equipped with the appropriate network adapter adapter connected by cable/air that share applications, data, and peripherals. All connections are made via cable or wireless media, but a LAN does not use telephone services. It typically spans a single building or campus.

Network

A network is a system of computers that is connected. Data, files, and messages can be transmitted over this network. Networks may be local or wide area networks.

Protocol

A protocol is a standardized set of rules that specify how a conversation is to take place, including the format, timing, sequencing and/ or error checking.

SSID

A Network ID unique to a network. Only clients and Access Points that share the same SSID are able to communicate with each other. This string is case-sensitive.

Simple Network Management Protocol (SNMP)

Simple Network Management Protocol is the network management protocol of TCP/IP. In SNMP, agents-which can be hardware as well as software-monitor the activity in the various devices on the network and report to the network console workstation. Control information about each device is maintained in a structure known as a management information block.

Static IP Addressing

A method of assigning IP addresses to clients on the network. In networks with Static IP address, the network administrator manually assigns an IP address to each computer. Once a Static IP address is assigned, a computer uses the same IP address every time it reboots and logs on to the network, unless it is manually changed.

Transmission Control Protocol / Internet Protocol (TCP/IP)

TCP/IP is the protocol suite developed by the Advanced Research Projects Agency (ARPA). It is widely used in corporate Internet works, because of its superior design for WANs. TCP governs how packet is sequenced for transmission the network. The term "TCP/IP" is often used generically to refer to the entire suite of related protocols.

Transmit / Receive

The wireless throughput in Bytes per second averaged over two seconds.

Wide Area Network (WAN)

A WAN consists of multiple LANs that are tied together via telephone services and / or fiber optic cabling. WANs may span a city, a state, a country, or even the world.