WNIC2010

WIRELESS NETWORK CARD

USER GUIDE

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UTSTARCOM MANUAL PRECAUTIONS (FCC)

Federal Communications Commission (FCC) Requirements, Part 15

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.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE (CO-LOCATED OPERATION)

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.

UTSTARCOM MANUAL PRECAUTION (CE)

R&TTE Regulatory statement

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz; In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

CE Declaration of Conformity

For the following equipment: Wireless LAN Card

CE0984①

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC), Low-voltage Directive (73/23/EEC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/3360EEC.

The equipment was passed. The test was performed according to the following European standards:

- EN 300 328-2 V.1.2.1 (2001-12)
- EN 301 489-1 V.1.4.1 (2002-04) / EN 301 489-17 V.1.2.1 (2002-04)
- EN 50371: 2002
- EN 60950: 2000

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Safety Information ..... **錯誤! 尚未定義書籤。**

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1 Overview

WNIC2010 is an 802.11b/g compliant wireless PCMCIA network card with data rates up to 54Mbps . It utilizes WPA (Wireless Protected Access) technology to enhance network security. Its bus interface is 32-bit miniPCI V1.0. The wireless network card can either be used on a computer by itself, or it can be used in conjunction with the UTStarcom model AP WA3001-P access point to increase performance.

1.1 List of Box Contents

Before installing and using the wireless network card, check the contents in the box. If you find anything missing or if the documentation set is incomplete, contact your local dealer immediately. The following accessories ship with the product:

One CD containing the WNIC2010 driver and Utility Installation program

One WNIC2010 wireless network card

1.2 System Requirements

To ensure the proper installation and operation of the network card, please make sure that the system environment complies with the following requirements:

- Notebook computer includes:
  - 32-bit card bus slot (or desktop with PCMCIA adapter)
  - 32M RAM or more
  - 300MHz processor or higher

- Operating System’s Supported:
  - Microsoft Windows 2000
  - Windows 98 SE
  - Windows XP
  - Windows ME

2 Software Installation/Removal

2.1 Installation on a Windows 2000, 98 or ME System

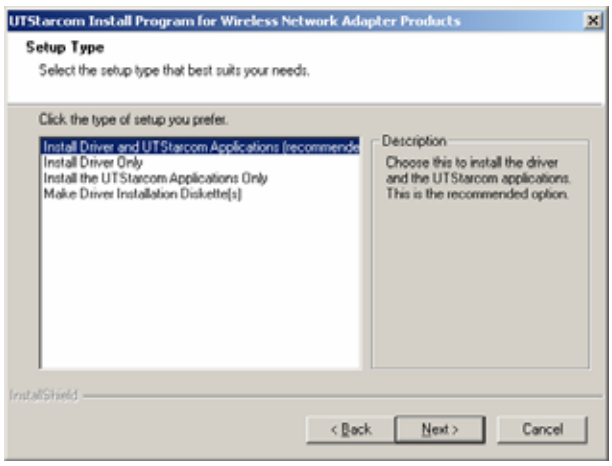
This section describes the installation steps on a PC for the first time only.

Quick Setup Steps: Run the installation program → Insert the WNIC2010 wireless network card → Reboot the System

Detailed Setup Steps: (Note: The following example is for a computer running Windows 2000):

Step 1: Installing the network card driver and the UTStarcom applications.

1. Run the setup program “UTStarcom Installer.exe” in the CD to start the InstallShield Wizard
2. When the opening installation screen appears Click <Next>
3. The License Agreement screen will appear. Carefully read the agreement and if you agree then choose “I accept…”, then click <Next>. The installation Setup Type selection window will appear as follows:



4. Choose a setup type. Install Driver and UTStarcom Applications is the recommended option.
5. Click <Next>
6. Select a path for the installation, then click <Next>
7. Next the “Select Program Folder” screen will appear. Choose an existing program folder name or create a new one. This is the program name that will be created on your Start>Programs menu. Then click <Next>.

Note: If there was a previous installation of any UTStarcom Applications, please close those UTStarcom Applications.

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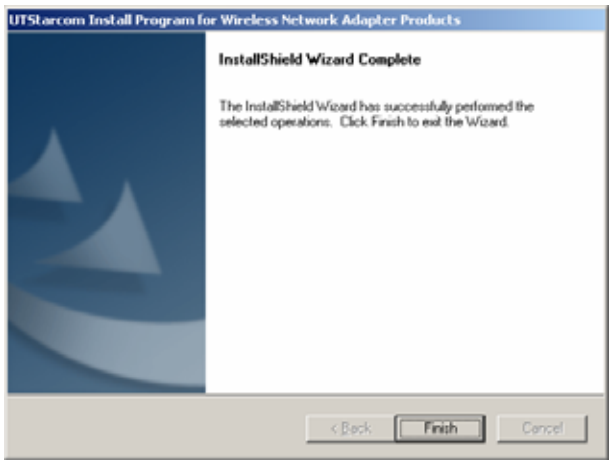
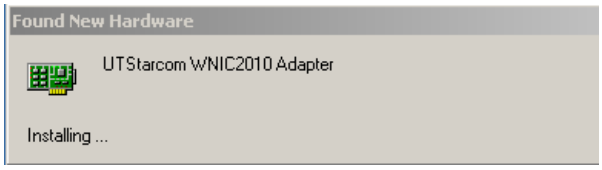
8. Installation will begin. When the installation is completed, the following window will be displayed, then click on the <Finish> button



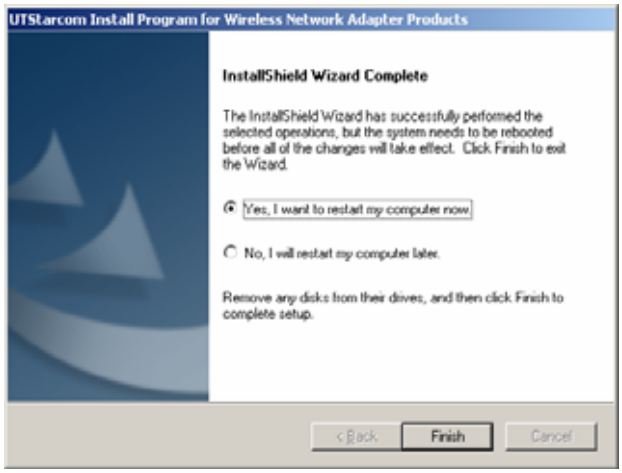
9. Now, the icon is displayed on the Task Bar, which is usually located at the bottom-right corner of the PC screen.

Step 2: Insert the WNIC2010 wireless network card into the computer's PCMCIA card slot.

The following prompt will appear:



Step 3: When the previous prompt disappears, the Network Adapter's Driver installation is complete. Reboot the PC to enable the wireless network card driver.



Note: The Microsoft Authentication window may appear during the installation, click <Yes>, and the window will disappear and installation will continue.

2.2 Installation on a Windows XP System

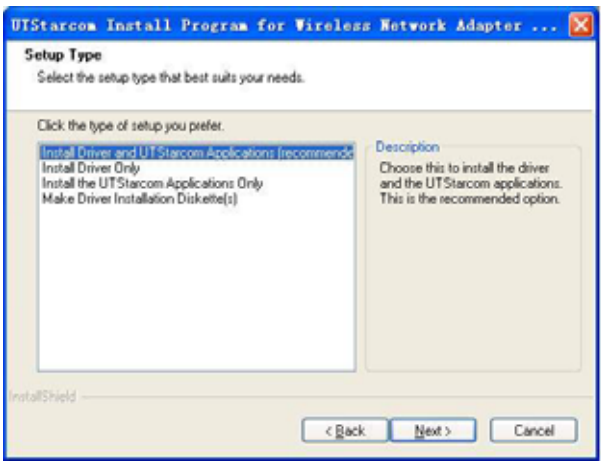
This section describes the installation steps on a PC for the first time only.

Quick Setup Steps: Run the installation program → Prompt to reboot the system → Insert the WNIC2010 wireless network card → On Windows XP systems the network card will automatically install.

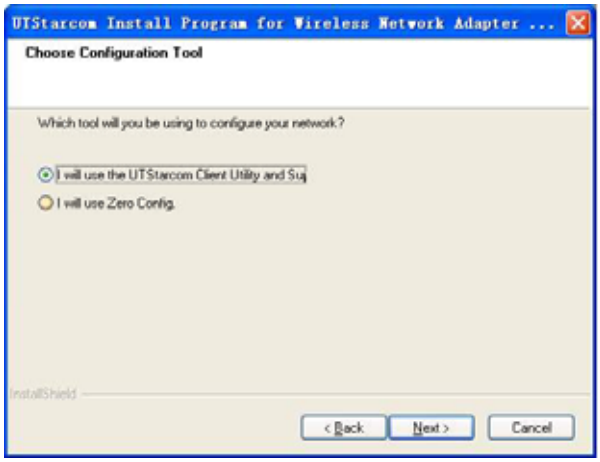
Detailed Setup Steps:

Step 1: Install the network card driver and the UTStarcom applications.

10. Run the setup program “UTStarcom Installer.exe” in the CD to start the InstallShield Wizard
11. When the opening screen appears, Click <Next>
12. The License Agreement screen will appear. Carefully read the agreement and if you agree then choose “I accept…”, then click <Next>. The installation “Setup Type” selection window will appear as shown below:

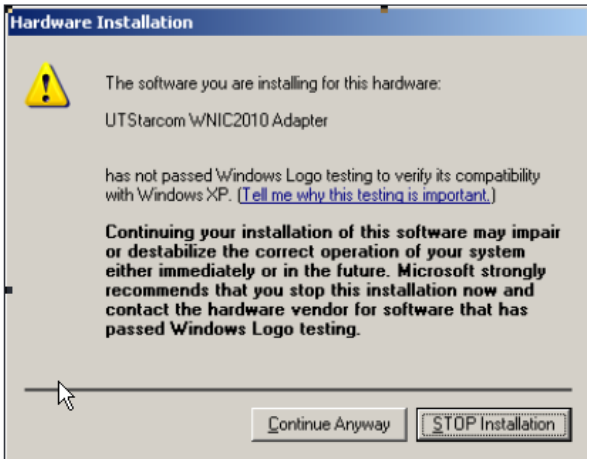


13. Chose a setup type. The “Install Driver and UTStarcom Applications” is the recommended option. Then Click <Next>
14. Select a path for the installation, and click <Next>
15. The “Select Program Folder” screen will appear. Choose an existing program folder name or create a new one. This is the program name that will be created on your Start>Programs menu. Then click <Next>.
16. In the following screen, it is recommended to select “I will use the UTStarcom Client Utility” option. If you select “I will use Zero Config” option, then some features will not be available.



Note: If there was a previous installation of any UTStarcom Applications, please close those UTStarcom Applications.

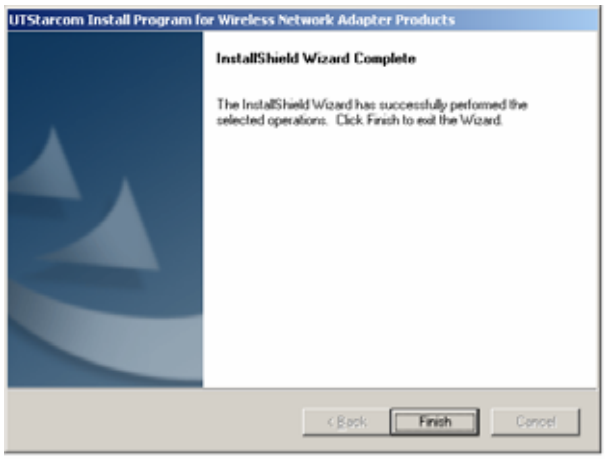
17. The installation will start. During the installation, the following window will appear, then click <Continue Anyway>



18. After the installation is completed, the following window will be displayed. Then click <Finish>

19. If you selected “No, I will restart my computer later”, then the icon will appear on the Task Bar, this is usually located at the bottom-right corner of the PC screen. If you selected “Yes, I want to restart my computer now”, then continue on Step 2.

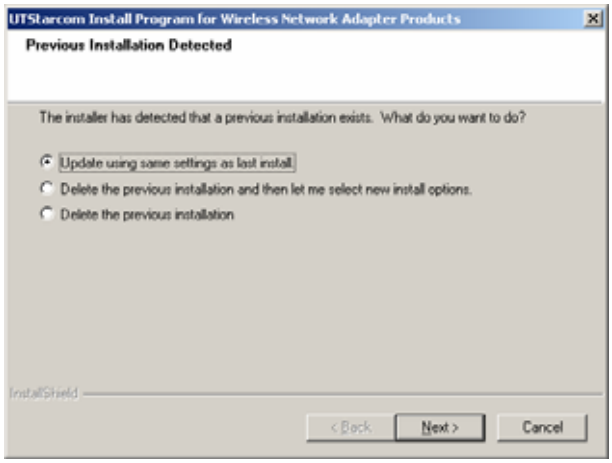
Step 2: Insert the wireless network card WNIC2010 into the PC. The system will automatically complete the installation of the wireless network card driver, and display the following window. Then click <Finish>



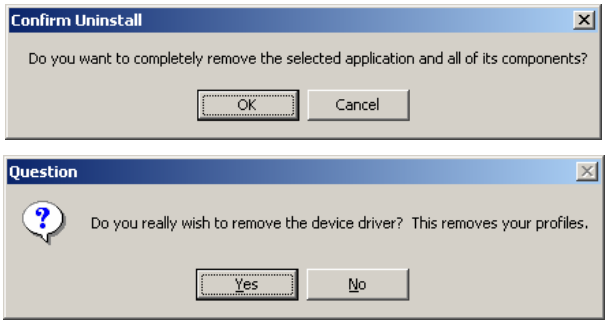
2.3 Remove the UTStarcom Applications and Its Driver

If you want to remove the UTStarcom Applications and the wireless network card driver, please use InstallShield Wizard provided. Follow the steps below:

20. Run the setup program “UTStarcom Application” from the CD to start the InstallShield Wizard



21. The system automatically checks the status of the WNIC2010 installation and displays the list of operations.
22. Select “Delete the previous installation” to confirm previous installation removal, and then click <Next>.
23. The following two dialogue boxes will display. The first dialogue box asks the user to confirm their intention of removing the selected application and all of its components. Click <OK>.
24. The second dialogue box asks the user to confirm if they want to remove the network card driver and related profiles. Click <Yes>.



25. When the removal is complete, the InstallShield Wizard completion window is displayed, then click <Finish>.

3 Utility Configuration

3.1 Client Utility Start Up

Start up the Client Utility to configure the wireless card.

To start the Client Utility program do one of the following:

- Start → Programs → UTStarcom → UTStarcom Client Utility
- The icon should be at the bottom right corner of your PC (on the Task Bar). Double click or right click on the icon then choose the “Open Client Utility” option from the menu to open the Client Utility configuration screen.

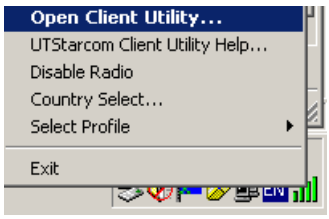


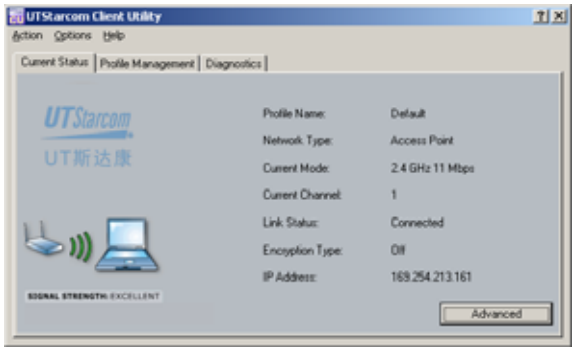
Figure 3-1 Right Click Menu

The following are the descriptions of the right click Utility menu choices:

- *Open Client Utility:* Open the Utility Configuration program

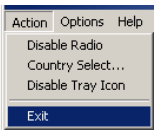
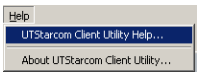
- UTStarcom Client Utility Help: The Client Utility's help file
- *Disable Radio:* Close the Utility Configuration program
- *Country Select:* Select country code
- *Select Profile:* Select the wireless card's configuration profile
- *Exit:* Quit the Client Utility configuration program

3.2 Client Utility Main Screen



Client Utility Interface Description:

Table 3-1 Client Utility Main Menu

Main Menu	Description	Interface
Action	*Disable Radio*: Close Utility *Country Select*: Set Country area code *Disable Tray Icon* *Exit*: Exit Utility	
Options	*Display Settings*: Display configuration settings. See Figure 3-2	
Help	*UTStarcom Client Utility Help*: UTStarcom Client Utility Help File *About UTStarcom Client Utility*: UTStarcom Client Utility version information	

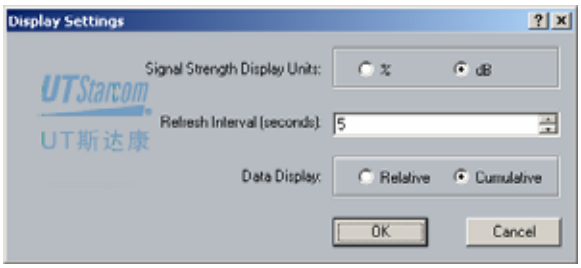


Figure 3-2 Display Settings

- Signal Strength Display Units: The default is dB

- Refresh Interval: Wireless statistics' refresh cycle, the default is 5 seconds. The configuration range is from 1-30 seconds
- Data Display: Two options for data displaying, Relative or Cumulative

3.3 System Status

Clicking the "Current Status" tag, will display system information, for more information click on the "Advanced" button. This information is read-only.

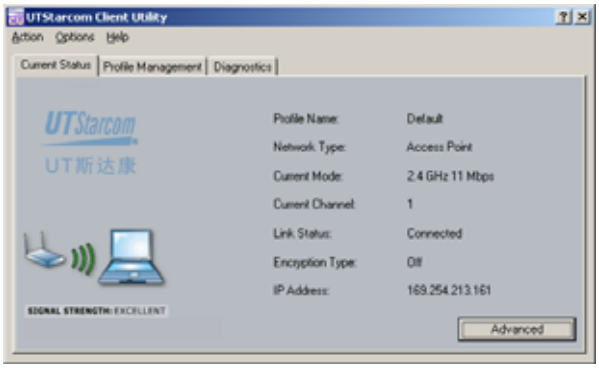


Table 3-2 System Status Information List

Items	Description
Profile Name	The profile name of the Wireless Network Card, the default is "Default"
Network Type	Access point
Wireless Mode	2.4GHz, 54Mbps
Current Channel	A channel currently used

Items	Description
Link Status	Link Status: Connected or Disconnected
Encryption Type	The default is “OFF”
IP Address	The IP address of WNIC2010

3.4 Profile Management

Click the “Profile Management” tag to conduct various profile setups; including regular setup, security setup and advanced setup. See the details below:

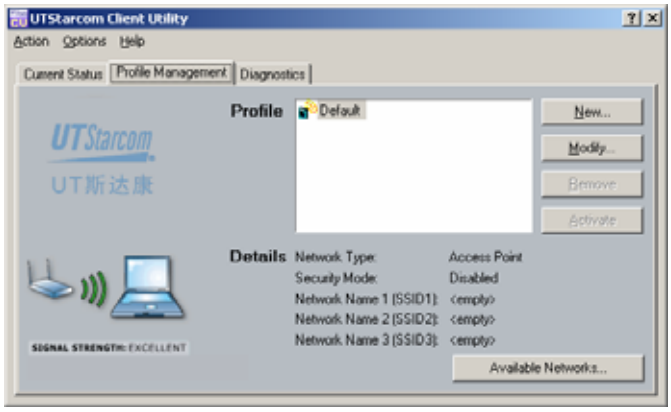


Figure 3-3 Default Profile Management Screen

3.4.1 Profile Configuration

Setup profiles can be configured based on the current network status, or based on future network designs.

- Default Profile

After installation the system automatically creates a default profile that will be used when the WNIC2010 wireless card and UTStarcom application starts up. The application will search for an AP with a stronger signal and the WNIC2010 will automatically establish a wireless connection with this AP.

Note: The user can identify the currently used AP by checking for the *icon located in front of the SSID field of the selected AP through clicking on the "Available Networks" button.*

The user also can configure the default profile and specify the SSID. Each profile can have at the most 3 SSIDs assigned. After assigning the SSID(s), the WNIC2010 will search for the best wireless connection and switch to it automatically. When the connection's signal strength and stability are equal, the WNIC2010 will choose the SSID based on the priority. ie. SSID1 > SSID2 > SSID 3. If SSID1 is null, the system will choose the link with a better performance instead of the priority mentioned above.

- Check Network Status

- Click <Available Networks>, the system will display all AP information found by the Client Utility application.

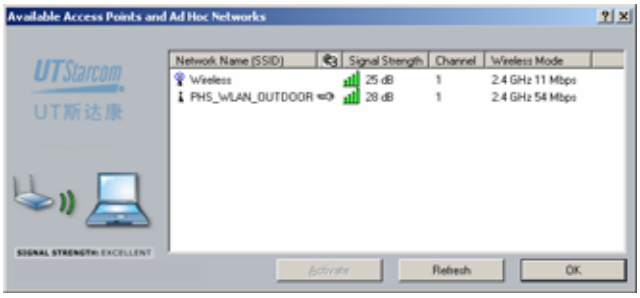


Table 3-3 Network Status Display Searched by the Utility

Status Display Column	Description
Network Name (SSID)	Each AP has a SSID, only the wireless network card with the same SSID as the AP's will connect to the AP. The Icon indicates the active SSID connection
: Icon	If is displayed it means that WEP encryption is activated on the AP
Signal Strength	The connection signal strength e.g. 28dB
Channel	e.g. 1
Wireless Mode	e.g. 2.4GHz 54 Mbps

- Double click or highlight a row where its signal strength is stronger than the others, then click on the <Activate> button. This activates the new connection.

- Add New Profile

There are two ways to add new profiles in the system

- Click <New> to enter “Profile Management” screen, then specify a profile name and a SSID
- On the <Available Networks> screen, double click one of the displayed SSIDs to open the “Add New Profile” screen

- Modify Profile

- On the “Profile Management” tab, select a profile to be modified. Click the <modify> button to enter Profile Management screen.

- Remove Profile

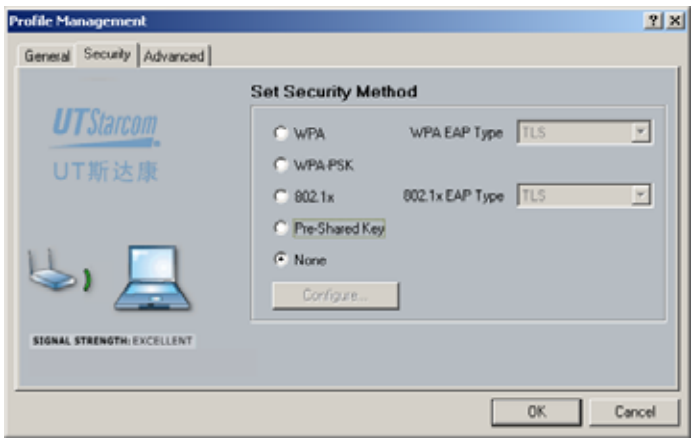
- Choose an inactive profile and Click the <Remove> button
- Note: The currently active profile cannot be removed

- Activate Profile – To activate a new profile do one of the following.

- On the “Profile Management” tab, select a profile to be used. Click the <Activate> button to enable it.
- Or, double click a profile to be activated

3.4.2 Security Configuration

The user can setup security for a Profile during profile creation, or modification.



The default security setting is “None”. The system provides the following security methods.

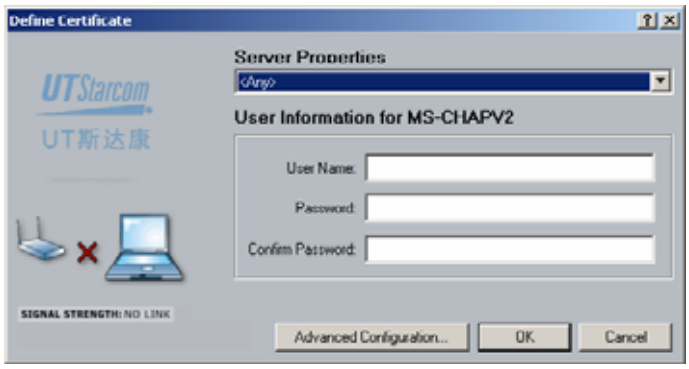
- WPA
- WPA-PSK
- 802.1x
- Pre-Shared Key

3.4.2.1 WPA

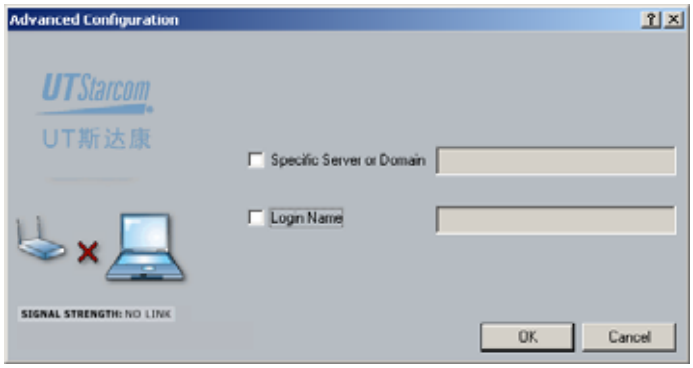
- When the WPA EAP option is “TLS”, the system will display a prompt as below:

The WPA EAP option can only be used when a related certificate is installed on the PC

- When the WPA EAP option is “PEAP”, the system will display the following window when “Configure…” is clicked:

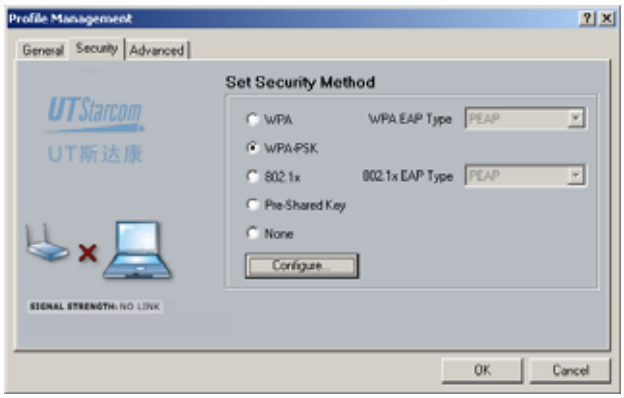


The user needs to select a Certificate Server from the Server Property drop down list. Then enter a user name and password. The user can specify a Server or its Domain name and login name by clicking on the <Advanced Configuration…> button.

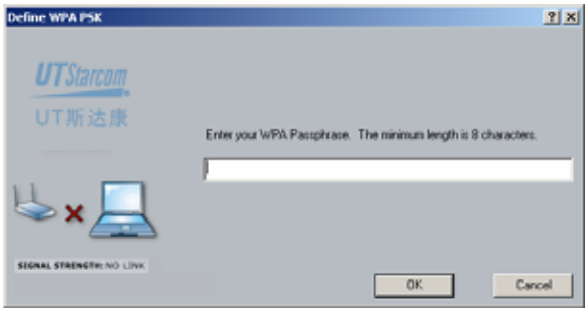


3.4.2.2 WPA-PSK

Only one passphrase is required for any set of WLAN nodes (wireless access base station, wireless router, client's wireless network card, bridge etc). The client will receive access privileges if the passphrase matches. The WPA-PSK method is very common in SOHO



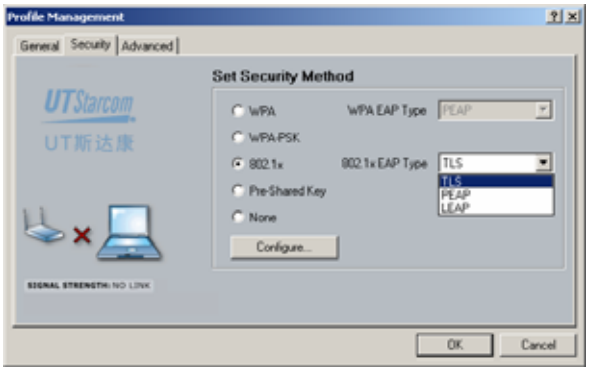
After selecting "WPA-PSK", click on the <Configure…> button to enter your WPA passphrase.



The minimum WPA passphrase length is 8 characters

3.4.2.3 802.1x

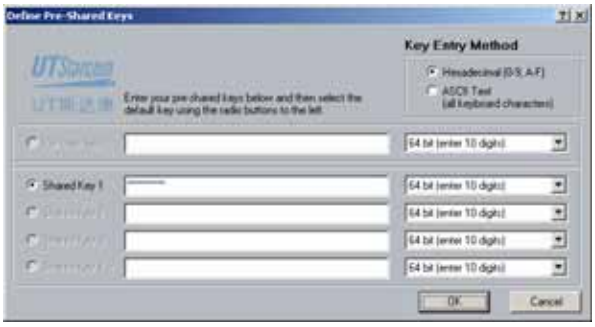
When 802.1x authentication mode is activated, the selectable EAP options are: TLS, PEAP and LEAP



For TLS and PEAP, refer to section 3.4.2.1 for details. The following describes the LEAP configuration. Setting the User Name and Password is the only information required.

3.4.2.4 Pre-Shared Keys

When Pre-Shared keys is selected in the Security settings, the user can configure this encryption method as below:



User can choose one of two encryption modes

- WEP64
- WEP128

The system provides 4 groups of encryption keys. User(s) can choose one of two Key Entry Methods

- Alphabetical

- Hexadecimal

Table 3-4 Specification of WEP Encryption Key Settings

Encryption Methods	Alphabetical	HEX
WEP 64-bit	5 alphanumeric characters in a range of “a-z”, “A-Z”, “0-9”. E.g. MyKey	10 hexadecimal digits in a range of “a-f”, “A-F”, “0-9” with the prefix of “0x”. E.g. 0x11AA22BB33
WEP 128-bit	13 alphanumeric characters, in a range of “a-z”, “A-Z”, “0-9”. E.g. MyKey12345678	26 hexadecimal digits in a range of “a-f”, “A-F”, “0-9” with prefix “ox”. E.g. 0X00112233445566778899AABBCC

3.4.3 Advanced Configuration

User(s) can set up advanced profile configuration during profile creation or modification

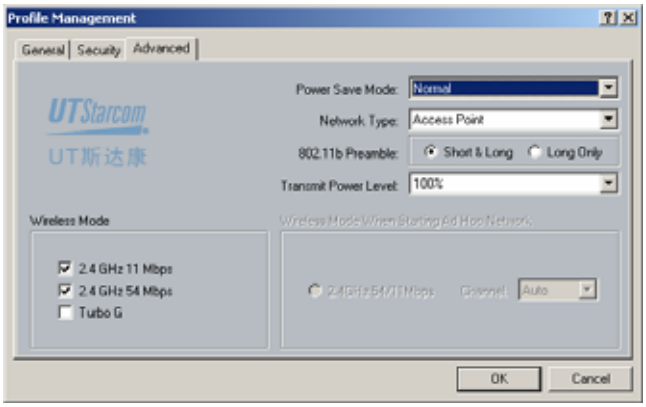
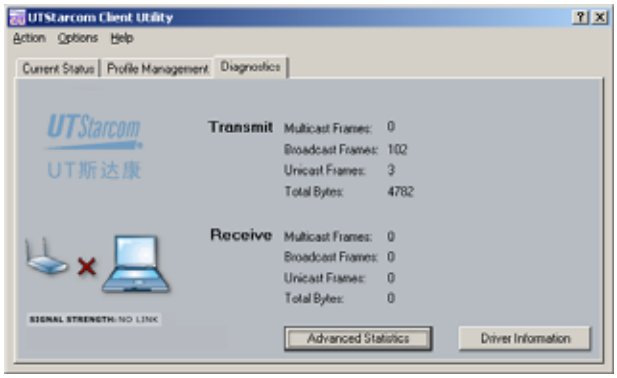


Table 3-5 Spec of the Advanced Profile Configuration

Items	Description
Power Save Mode	Selectable: Maximum，Normal or Off
Network Type	Network type is *AP* or *Ad Hoc*. When the *Ad Hoc* type is activated, user(s) can choose the wireless access point
802.11b Preamble	Short & Long or Long Only
Transmit Power Level	From strong to weak in a selectable range of 100%, 50%, 25%, 12.5% and the lowest level
Wireless Mode	User can choose any one of 3 modes (*b*, *g* or *Turbo G*) or a combination of these modes When WNIC operates in the *Ad Hoc* mode, and the wireless mode is either *B* or standard *G*, or both, then the wireless access point can be set as *Auto* or from channel *Ch1 to Ch11*

3.4.4 Diagnosis

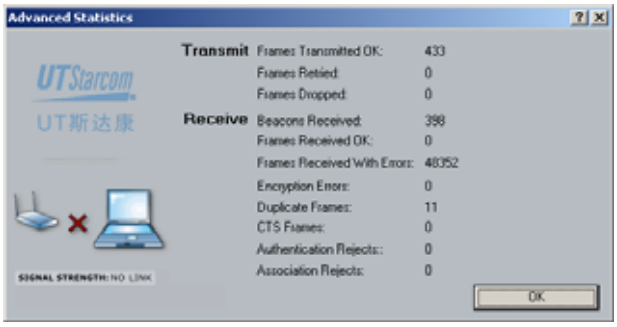
The “Diagnostics” tab is used to view the wireless transmission/reception data.



Transmit and Receive data includes: Multicast, Broadcast, Unicast and Total Bytes of all frames

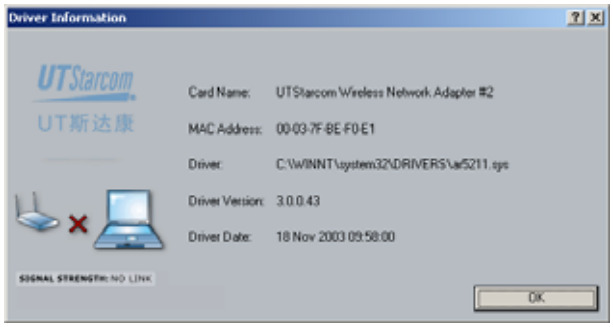
- Advanced Diagnosis

Clicking <Advanced Statistics> shows more Transmit/Receive Frame data and other special frame data.



- Driver Information

To view the current wireless network card driver information, click the <Driver Information> button and the following screen will be displayed



The Driver Information screen displays the following wireless network card's information: Card Name, MAC Address, Driver file location, Driver Version and release date.

4 Trouble Shooting

4.1 Open WMI Namespace Problem

- Problem description

In some Win98 systems, when user starts the “Client Utility Configuration”, a popup message will be displayed as below

“Unable to open WMI namespace. WMI initialization failed. Cannot proceed further.”

- Solution

Run wmi9x.exe from the installation CD to install the WMI namespace.

5 Technical Specification

Model		WNIC2010
Description		2.4GHz(802.11g) 108Mbps CardBus wireless network card
Modulation technique		-IEEE 802.11 -IEEE 802.11b -IEEE 802.11g
Interface	Host Interface	32-bit CardBus (or PC Card 7.1)
Characte ristics	Wireless Transfer Rate	Super G™: 108Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps 802.11b: 11, 5.5, 2, 1Mbps
	Security	64, 128, 152 bits WEP 802.1X (EAP-TLS, PEAP, LEAP) WPA and WPA-PSK（TKIP，AES） WAPI
	Receiving sensitivity	-73dBm @ 108Mbps, PER < 8%, OFDM -73dBm @ 54Mbps, PER < 8%, ODFM -90dBm @ 11Mbps, PER < 8%, CCK -92dBm @ 6Mbps, PER < 8%, OFDM -95dBm @ 1Mbps, PER < 8%, DBPSK
	Frequency range	2.4GHz~2.4835GHz

Model		WNIC2010
	Output power	Typical: 20mW (13.2dBm) (Max)
	Operating System support	Windows 98SE，Me，2000，XP
	Operation mode	Ad-Hoc and Infrastructure
	Network management	Utility
Electric performance	Operation voltage	3.3VDC±5%
	Current consumption	- Transmission mode < 550mA @ 3.3VDC - Receive mode <350mA @3.3VDC - Idle mode <225mA @3.3VDC - Radio disabled mode <10mA @3.3VDC
Physical characteristic	Dimension	118mm (L) x 54mm (W) x 5mm (H)
	Weight	About 50g
	Internal antenna	Dual Antenna
	LED indicator	- WLAN activity indicator - WLAN radio status indicator
Environment attributes	Operational temperature	0℃~ 70℃
	Storage temperature	-25℃~ 75℃
MTBF	>30000 hours	

Model	WNIC2010
Security authentication	- GB9254 B grade - FCC part 15 B grade (USA) - CE (Europe)
Compatibility	- Wi-Fi WECA compliant - WHQL Microsoft XP, Me, 2K compliant - FAA S/W audio On/Off supported

6 Glossary

AC	Access Controller
AS	Authentication Server
CLI	Command Line Interface
DHCP	Dynamic Host Configuration Protocol
EAP	Extensible Authentication Protocol
IEEE	Institute of Electrical and Electronics Engineering
LAN	Local Area Network
MAC	Media Access Control
MD5	Message Digest Algorithm 5
MIB	Management Information Base
MII	Media Independent Interface
NAS	Network Access Server
NMS	Network Management System
OAM	Operation administration and maintenance
PD	Powered Device
PoE	Power over Ethernet
PPPoE	PPP over Ethernet
PSE	Power Sourcing Equipment

SNMP	Simple network management protocol
WEP	Wired Equivalent Privacy
WLAN	Wireless Local Area Network

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