

# **IEEE802.11g Wireless PC Card**

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## **User Guide**

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## Regulatory Approvals

### FCC 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.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

This device has been tested and meets the FCC RF exposure guidelines.  
The maximum SAR value reported is 0.071 w/kg

### Channel

The Wireless Channel sets the radio frequency used for communication.

- Access Points use a fixed Channel. You can select the Channel used. This allows you to choose a Channel which provides the least interference and best performance. In the USA and Canada, 11 channels are available. If using multiple Access Points, it is better if adjacent Access Points use different Channels to reduce interference.
- In "Infrastructure" mode, Wireless Stations normally scan all Channels, looking for an Access Point. If more than one Access Point can be used, the one with the strongest signal is used. (This can only happen within an ESS.)
- If using "Ad-hoc" mode (no Access Point), all Wireless stations should be set to use the same Channel. However, most Wireless stations will still scan all Channels to see if there is an existing "Ad-hoc" group they can join.



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## Section 1. Introduction

### 1.1 Overview

This guide explains how to install the following hardware and software on a Microsoft®Windows®based laptop computer:

- CB801M Client Card Adapter
- CB801M Adapter Driver for Windows XP, 2000, 98SE, or ME
- CB801M Wireless Adapter Configuration Utility

### 1.2 Installation

The installation procedure includes four main steps:

1. Install the Driver
2. Install the Configuration Utility

#### 1.2.1 Adapter Windows Driver

The Windows XP, 2000, 98SE, or ME driver for the adapter provides the interface between the CB801M and the desktop or laptop computer.

[Section 2. "Driver Installation"](#) gives detailed instructions on how to install the adapter Windows driver.

#### 1.2.2 Adapter Configuration Utility

The Configuration Utility is used to configure the adapter. [Section 3. "Configuration Utility Installation"](#) explains how to install the utility.

### 1.3 System Requirements

The minimum system requirements for installing and using the adapter are as follows:

- Microsoft Windows XP, 2000, 98SE, or ME Operating System
- 400 MHz or higher CPU
- 128 MB of RAM
- 800 Kbytes of free disk space for installation of the driver and configuration utility
- CD-ROM drive
- Windows Driver User's Manual

### 1.4 Package Contents

The package includes the following items:

- TBD

## Section 2. Driver Installation

This section explains how to install both the adapter and the CB801MWindows@drivers for the adapter in a client card slot of a Windows@based (XP, 2000, 98SE, or ME) PC computer.

### 2.1 Installing the Windows XP Driver

1. When the computer detects the client card, the **Found New Hardware Wizard** dialog box is displayed:



2. Make sure your Installation CD already on the CDROM
3. Check the **Install the software automatically (Recommended)** radio button.
4. Click **Next** to continue.

5. If the **Hardware Installation** dialog box displays a warning that the software has not passed Windows Logo Testing, click **Continue Anyway**.



6. The **Please wait while the wizard installs the software** dialog box is displayed:



7. Click **Next** to continue.
8. The **Completing the Found New Hardware Wizard** dialog box is displayed:



9. Click **Finish** to complete the installation.

## 2.2 Installing the Windows 2000 Driver

1. When the computer detects the Client Card, the **Found New Hardware Wizard** dialog box is displayed:



2. Check the **Install from a list or specific location (Advanced)** radio button.
3. Click **Next** to continue.

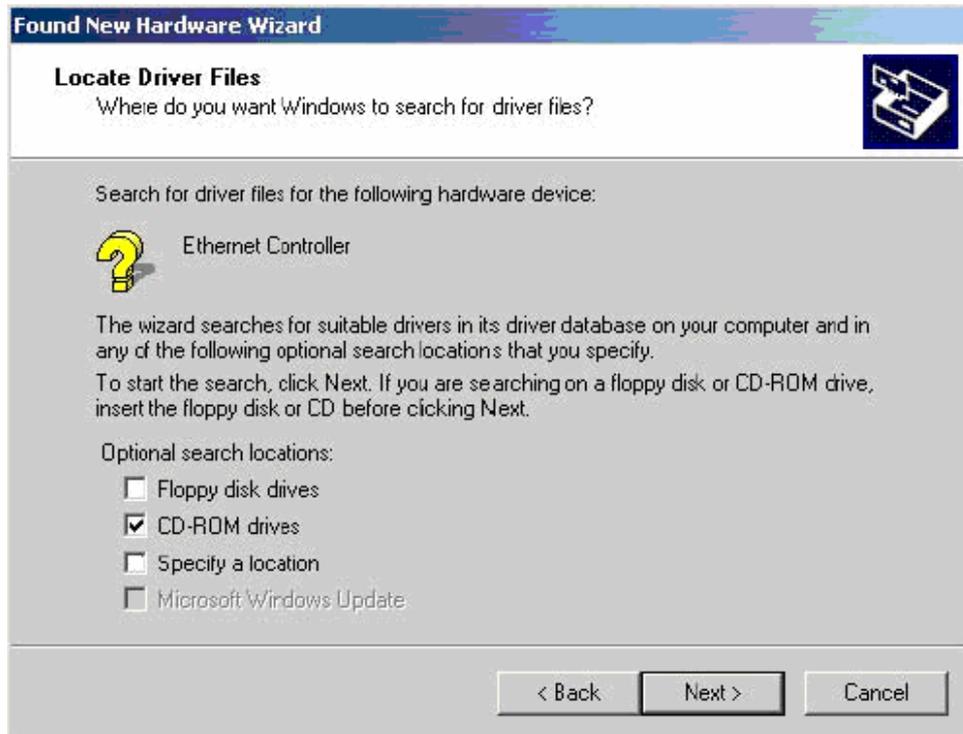


4. The **Install Hardware Device Drivers** dialog box is displayed:



5. Click the **Search for a suitable driver for my device** radio button.
6. Click **Next** to continue.

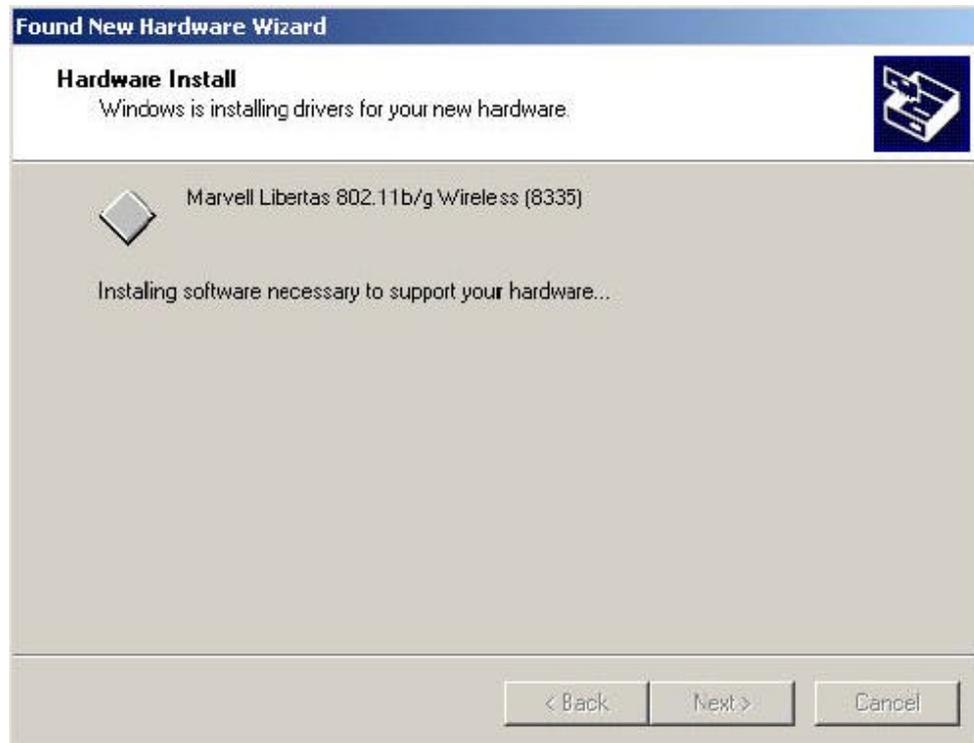
7. The **Locate Driver Files** dialog box is displayed:



8. Choose **CD-ROM drives**.
9. Click **Next** to continue.
10. If the **Digital Signature Not Found** dialog box displays a warning that the software is not Microsoft digitally signed, click **Yes** to continue.



11. The **Hardware Install** dialog box is displayed indicating that installation is in progress. This process may take a few minutes.



12. The **Completing the Found New Hardware Wizard** dialog box is displayed:



13. Click **Finish** to complete the installation.

## 2.3 Installing the Windows 98SE Driver

1. When the computer detects the client card, the first **Add New Hardware Wizard** dialog box is displayed:

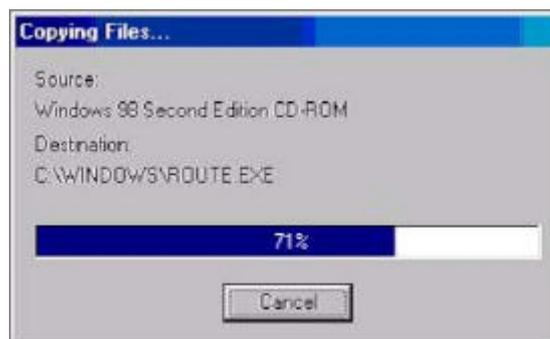


2. Click **Next** to continue.
3. The second **Add New Hardware Wizard** dialog box is displayed:
4. Click the **Search for the best driver for your device** radio button.
5. Click **Next** to continue.

- The next **Add New Hardware Wizard** dialog box is displayed:



- Check the **CD-ROM drive** box.
- Click **Next** to continue.
- The **Copying Files** information box is displayed:



- Click **Next** to continue.
- The final **Add New Hardware Wizard** dialog box is displayed:



12. Click **Finish** to complete the installation.
13. The **System Settings Change** dialog box is displayed:



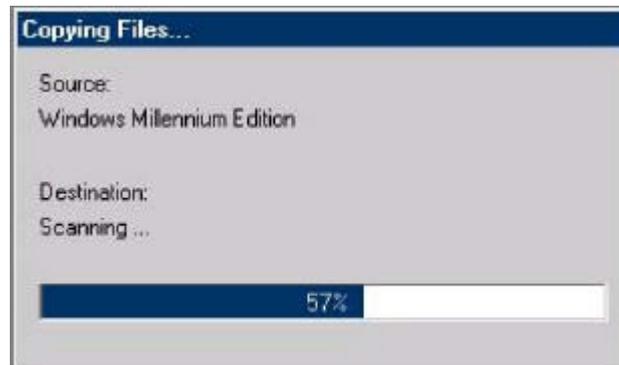
14. Click **Yes** to restart the computer.

## 2.4 Installing the Windows ME Driver

1. When the computer finds the client card, the **Add New Hardware Wizard** dialog box is displayed:



2. Click the **Automatic search for a better driver** radio button.
3. Click **Next** to continue.
4. The **Copying Files** information box is displayed:



5. After the files are copied, the last **Add New Hardware Wizard** dialog box is displayed:



6. Click **Finish** to complete the installation.
7. The **System Setting Change** dialog box is displayed:

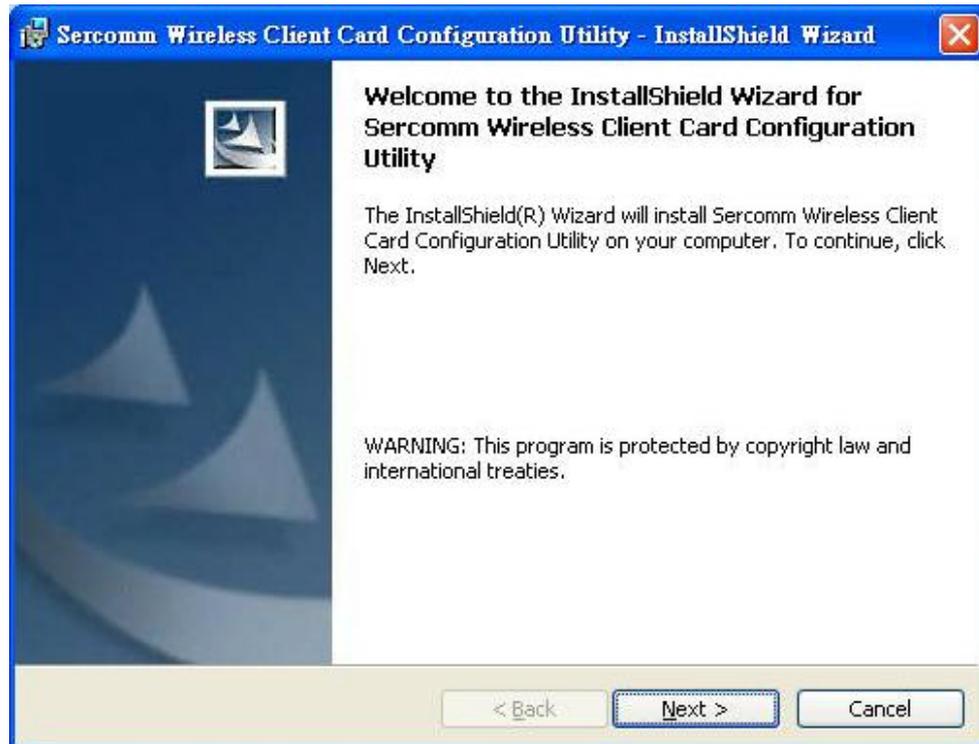


8. To complete the installation, click **Yes** to reboot the system.

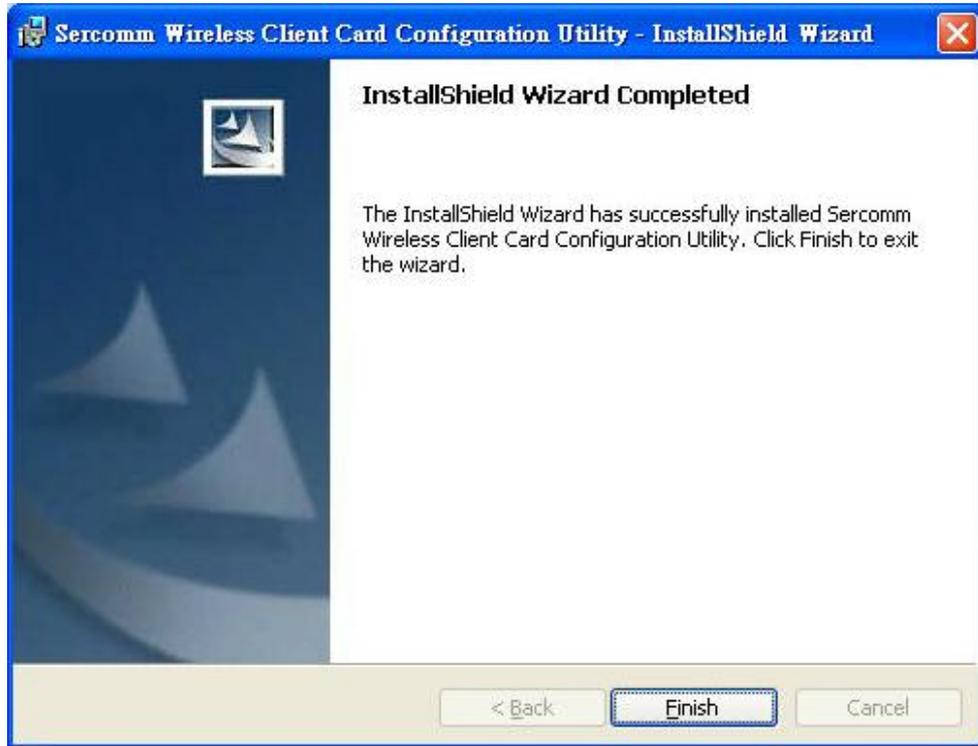
## Section 3. Configuration Utility Installation

### Installing the Configuration Utility

1. Insert the CD-ROM into the drive on your PC.
2. The installation program should start automatically. If it does not, run the SETUP.EXE program.
3. On the screen above, click "Next" to start the installation.



- Step through the procedure until you see the screen below.



- Click "Finish" to close the installation program.

## Section 3. Configuration Utility

### 3.1 Overview

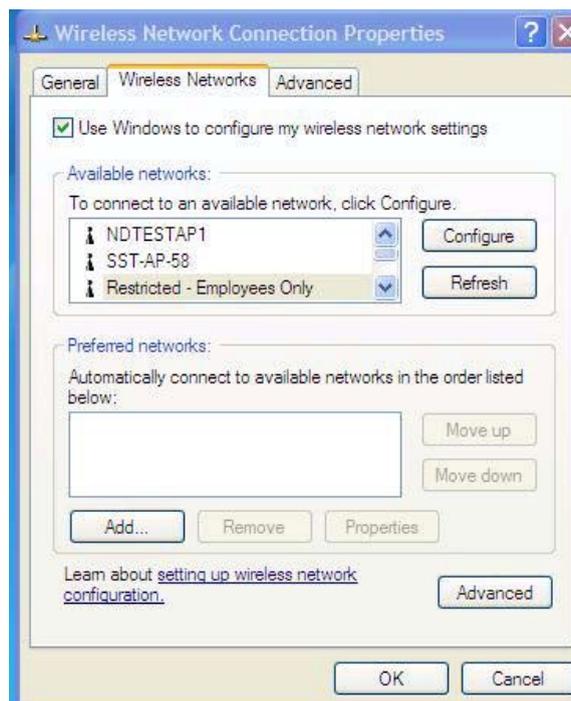
The CB801M Wireless Adapter Configuration Utility is a Microsoft®Windows®application that allows configuration and management of the CB801M client cards. The Configuration Utility sets up profiles and performs other wireless network management tasks. See the *Installation Guide* for instructions on how to install the Configuration Utility.

#### 3.1.1 Windows XP Users

For Windows XP, use either the Zero Configuration Utility or the Marvell Configuration Utility to configure the CB801M wireless adapter cards.

To use the CB801M Configuration Utility:

1. Open the Zero Configuration Utility Window
2. Uncheck the “Use Windows to configure my wireless settings” checkbox.



When the CB801M Configuration Utility is opened, the Windows XP Zero Configuration Utility will be closed automatically by the CB801M Configuration Utility.

Once the user exits the CB801M Configuration Utility, the Windows XP Zero Configuration Utility is restored to managing the wireless configuration.

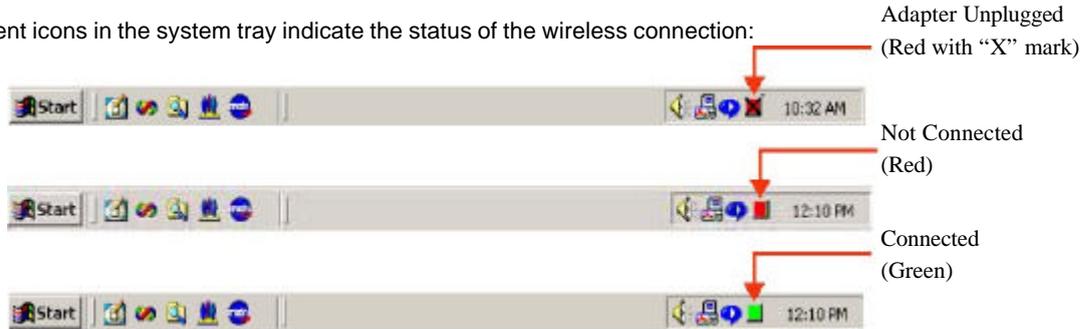
### 3.1.2 Running the Configuration Utility

Once installed, the Configuration Utility is accessed from the Start menu in the following ways:

- **Start > SerComm Client Configuration Manager**
- **Start > Programs > SerComm 802.11g Client > SerComm Client Configuration Manager)**

### 3.1.3 Tray Status Icons

Different icons in the system tray indicate the status of the wireless connection:



### 3.1.4 Configuration Utility Window

The **Configuration Utility** window displays the following tabs:

- **Network Status** – displays the status of the network to which the user is connected. The Configuration Utility initializes on this page. See "[Network Status Tab](#)" for details.
- **Profile Manager** – displays the current profiles and allows the user to set attributes for network type, security options, and protocols, as well as create/modify/delete profiles. See "[Profile Manager Tab](#)" for details.
- **Site Survey** – shows a list of all of the stations within range of the adapter. See "[Site Survey Tab](#)" for details.
- **Statistics** – displays the statistics of the current session. See "[Statistics Tab](#)" for details.
- **Advanced** – allows you to set protocol parameters. See "[Advanced Tab](#)" for details.
- **Admin** – allows you to import and export profiles. See "[Admin Tab](#)" for details.
- **About** – gives the version number for the Configuration Utility. See "[About Tab](#)" for details.

The following subsections explain how to use the Configuration Utility.

### 3.1.5 Auto Link Feature

TBD

### 3.1.6 WPA Configuration

#### 3.1.6.1 Security Infrastructure Setup

Implementing a security infrastructure to monitor physical access to WLAN networks is more difficult than monitoring access on wired networks. Unlike wired networks where a physical connection is required, anyone within range of a wireless Access Point can send and receive frames, as well as listen for frames being sent.

IEEE 802.11 defines a set of standards and protocols for use in minimizing the security risks on wireless networks. Two of the security standards are as follows:

- **802.1x** — 802.1x authentication provides authenticated access to 802.11 wireless networks and

to wired Ethernet networks. 802.1x minimizes wireless network security risks by providing user and computer identification, centralized authentication, and encryption services based on the WEP algorithm. 802.1x supports Extensible Authentication Protocol (EAP). EAP allows the use of different authentication methods, such as smart cards and certificates.

- **Wi-Fi Protected Access (WPA)** — WPA is an implementation based on a subset of the 802.11i standard. WPA provides enhanced security for wireless networks when used with the TKIP and the Message Integrity Check (MIC) algorithms.

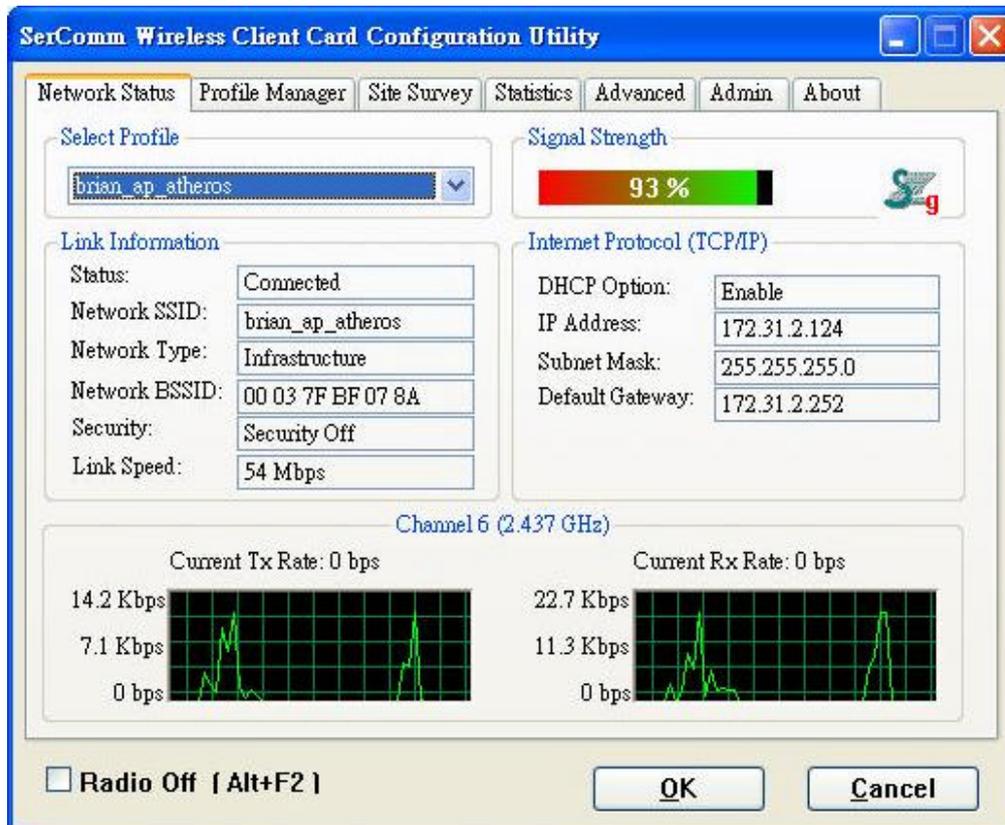
### 3.1.6.2 WPA Connectivity

The CB801M Configuration Utility currently supports the following Authentication Modes:

- WPA-PSK
- 802.1x EAP/TLS
- 802.1x PEAP See "[Security Tab](#)" for details on configuring security options.

### 3.2 Network Status Tab

The **Network Status** tab displays the status of the network. When the **Wireless Client Card Configuration Utility** initializes, it displays the **Network Status** tab:



#### 3.2.1 Select Profile

The Select Profile window displays the name of the profile in use. Additional information about the profile is provided in the **Profile Manager**.

Select one of the profiles previously defined by clicking the **down arrow** and highlighting a profile from the pulldown list.



Profiles are created, modified, and deleted through the **Profile Manager**.

### 3.2.2 Link Information

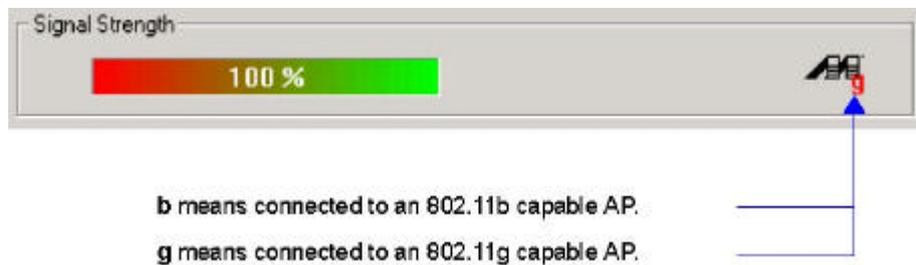
The **Link Information** section contains the current information about the wireless connection:

Link Information	
Status:	Connected
Network SSID:	maybach
Network Type:	Infrastructure
Network BSSID:	00 06 25 B9 5D 0B
Security:	WEP
Link Speed:	54 Mbps

- **Status** – the status of the wireless network connection:
  - **Card Unplugged** – adapter plugged in, but not recognized  
See “[Troubleshooting](#)” on page 39 for possible solutions.
  - **Connected** – card plugged in and connected to a wireless network
  - **Not connected** – card plugged in, but cannot find a wireless network  
See “[Troubleshooting](#)” on page 39 for possible solutions.
  - **No Radio** – card plugged in, but the radio is turned off. Uncheck the **Radio Off** box to turn the radio on.
- **Network SSID** – network SSID label (i.e., Network Name). The Network Name is a text string of up to 32 characters.
- **Network Type** – type of environment to which you are connected The choices are **Infrastructure** mode or **Ad Hoc** mode.
  - **Infrastructure Mode:** In this mode, wireless clients send and receive information through APs. When a wireless client communicates with another, it transmits to the AP. The AP receives the information and rebroadcasts it. Other devices then receive the information. APs are strategically located within an area to provide optimal coverage for wireless clients. A large WLAN uses multiple APs to provide coverage over a wide area. APs can connect to a LAN through a wired Ethernet connection. APs send and receive information from the LAN through the wired connection.
  - **Ad Hoc Mode:** In this mode, wireless clients send and receive information to other wireless clients without using an AP. This type of WLAN only contains wireless clients. Use Ad Hoc mode to network computers at home or in small office, or to set up a temporary wireless network for a meeting.
- **Network BSSID** – Network Basic Service Set Identifier. The BSSID is a 48-bit identity used to identify a particular BSS within an area. In Infrastructure BSS networks, the BSSID is the MAC address of the AP. In independent BSS or Ad Hoc networks, the BSSID is generated randomly.
- **Security** – reports the type and level of security set. The security level is set through the **Profile Setting** of the **Profile Manager** tab. Configure WEP settings also through the **Site Survey** tab when connecting to a network.
- **Link Speed** – connection speed, (i.e., 54 Mbps, 48 Mbps, etc.)

### 3.2.3 Signal Strength / Wireless Mode Indicator

The color-coded **Signal Strength** bar displays the signal strength of the last packet received by the adapter:

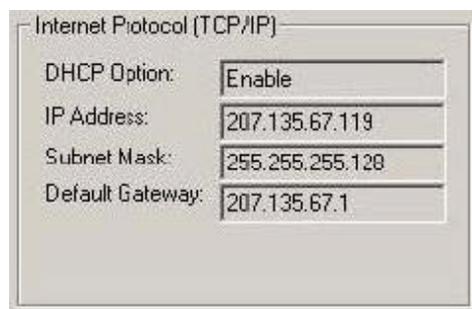


Signal strength is reported as a percentage. A signal in the red indicates a bad connection. A signal in the green indicates a good connection.

The Wireless Mode indicator shows the data rates the client card operates. There are two modes: 802.11b and 802.11g (backward compatible to 802.11b).

### 3.2.4 Internet Protocol (TCP/IP)

The Internet Protocol specifies the format of packets, also called datagrams, and the addressing scheme. Most networks combine IP with a higher-level protocol called TCP, which establishes a virtual connection between a destination and a source.

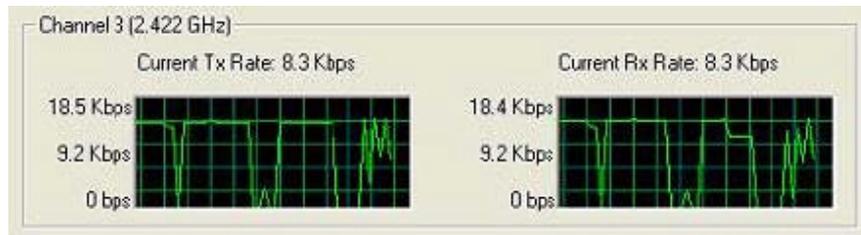


The parameters of the Internet Protocol are:

- **DHCP Option** – Dynamic Host Configuration Protocol. Either enabled or disabled.
- **IP Address** – an identifier for a computer or device on a TCP/IP network. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be 0 to 255.
- **Subnet Mask** – a mask used to determine what subnet an IP address belongs to. An IP address has two components, the network address and the host address. The first two numbers represent the Class B network address, and the second two numbers identify a particular host on this network.
- **Default Gateway** – the default node on a network that serves as an entrance to another network. In enterprises, the gateway is the computer that routes the traffic from a workstation to the outside network that is serving the Web pages. In homes, the gateway is the ISP that connects the user to the internet.

### 3.2.5 Actual Throughput Performance

This section of the **Network Status** tab displays the Current Tx Rate and the Current Rx Rate of the channel being monitored.



#### Note

These are actual throughput diagrams (without the WLAN overhead delivered by the client card).

### 3.2.6 Radio On/Off Box

Clicking the **Radio Off** check box turns off the radio. Unchecking the box turns on the radio:

Radio Off [ Alt+F2 ]

Another way to turn the radio on or off is to right-click the **Configuration Utility** icon in the **System Tray** and click **Turn Radio Off** to turn the radio off. When the radio is off, click **Turn Radio On** to turn the radio back on.

You can also use the system hot key Alt+F2 to turn the radio on/off.

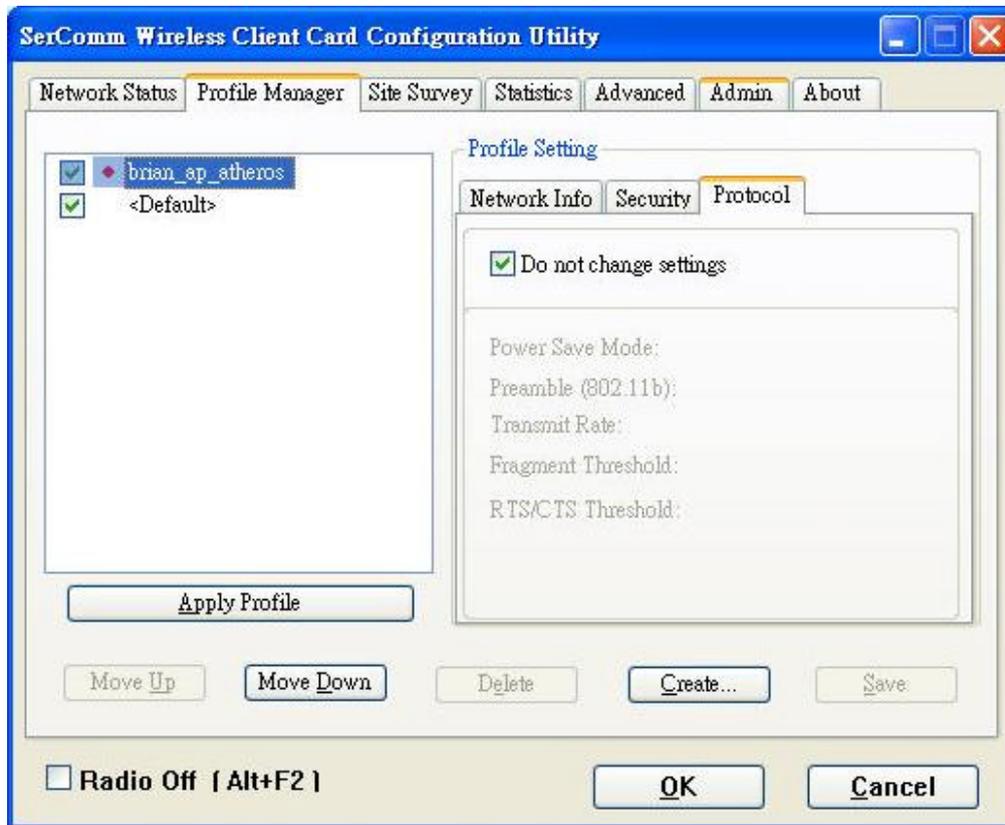


When the radio is off, there is no radio activity, and the following property pages are disabled:

- Site Survey
- Statistics
- Advanced

### 3.3 Profile Manager Tab

Clicking on the **Profile Manager** tab displays the **Profile Manager** dialog box. The Profile Manager displays the profiles available and allows you to create, modify, and delete profiles:



#### Profile List Window

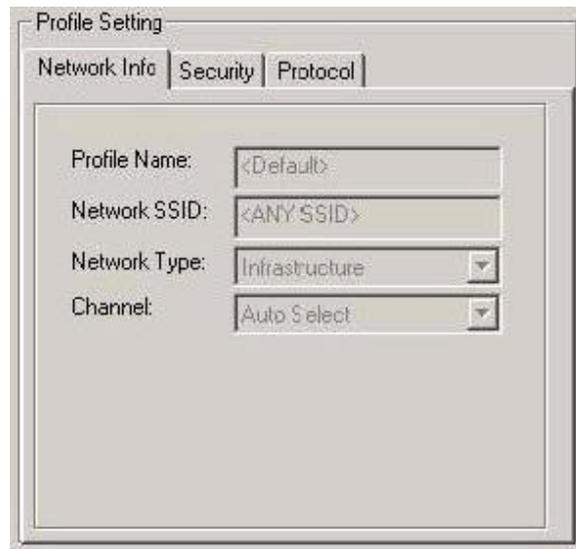
The window on the left side of this tab lists all of the profiles available. Highlighting a profile selects it. If the **Default** box is checked, that profile is used in auto-configuration mode when the link is lost. If it is unchecked, that profile is excluded in auto-configuration. The controls associated with this window are:

- **Apply Profile** – applies the profile selected. Apply the profile by double-clicking on the desired profile.
- **Move Up / Move Down** – move the list up and down in the window. All profiles with the Network Type set to Infrastructure are displayed before the profiles with the Network Type set to Ad Hoc.
- **Delete** – deletes a profile
- **Create** – creates a profile
- **Save** – saves changes made to a selected profile

**Profile Setting** The Profile Settings are used to display information about the profile selected in the **Profile List** window. The information is divided into three tabs: **Network Info**, **Security**, and **Protocol**.

### 3.3.1 Network Info Tab

The **Profile Manager** initially displays the **Network Info** tab:



The image shows a screenshot of a 'Profile Setting' dialog box. At the top, there are three tabs: 'Network Info', 'Security', and 'Protocol'. The 'Network Info' tab is selected. Below the tabs, there are four fields:

- Profile Name:** A text box containing '<Default>'. This field is highlighted with a light blue selection background.
- Network SSID:** A text box containing '<ANY SSID>'. This field is also highlighted with a light blue selection background.
- Network Type:** A dropdown menu with 'Infrastructure' selected.
- Channel:** A dropdown menu with 'Auto Select' selected.

The **Network Info** tab contains the following fields:

- **Profile Name** – the profile selected.
- **Network SSID** – the network SSID label.
- **Network Type** – the type of environment to which you are connected. The choices are **Infrastructure** mode or **Ad Hoc** mode.
- **Channel** – the channel being used.

### 3.3.2 Security Tab

This section describes the Security tab configuration. See [Section 2.1.6 "WPA Configuration"](#) for information on security infrastructure and WPA connectivity . Clicking the **Security** tab displays the security options:



The Security tab contains the following fields:

- **Authentication Mode** – options are Open System, Shared Key, WPA-PSK, WPA 802.1x EAP/TLS, and WPA 802.1x PEAP. To connect to an AP through the Radius Server, the user can select either WPA 802.1x EAP/TLS or WPA 802.1x PEAP as the Authentication Mode.
- **Encryption Method** – options are TKIP, WEP, or Security Off, depending on the Authentication Mode.
- **WEP Key Setting** – if WEP Encryption Method is selected, the WEP keys can be configured:



### 3.3.2.1 Configure WEP Keys

Clicking the **Configure WEP Keys** button displays the **Configure WEP Key** dialog box:

The screenshot shows a dialog box titled "Configure WEP Key". It has a standard Windows-style title bar with a close button. The main area is divided into two sections. The top section contains two dropdown menus: "Key Format" is set to "ASCII Characters" and "Key Size" is set to "40-Bit (5 chars)". The bottom section is a table with two columns: "Transmit Key" and "Key Value". There are four rows, each with a radio button and a text input field. The first row has "Key 1" selected and its input field contains "xxxxxx". The second row has "Key 2" unselected and its input field is empty. The third row has "Key 3" unselected and its input field contains "xxxxxx". The fourth row has "Key 4" unselected and its input field is empty. At the bottom of the dialog are "OK" and "Cancel" buttons.

- **Key Format** – either ASCII characters or hexadecimal digits.
- **Key Size** – 40-bit or 104-bit:
  - 40-bit, 5 character ASCII key size (40-bit, 10 character hexadecimal)
  - 104-bit, 13 character ASCII key size (104-bit, 26 character hexadecimal)
- **Transmit Keys** – there are four transmit keys. The key value is displayed in ASCII or hexadecimal, depending on the format selected. Likewise, the key size shown depends on the key size selected.

### 3.3.2.2 WPA-PSK Support in Infrastructure Mode

The screenshot shows the 'Profile Setting' dialog box with the 'Security' tab selected. The 'Authentication Mode' dropdown menu is open, showing the following options: 'Open System', 'Shared Key', 'WPA-PSK' (which is highlighted), 'WPA (802.1x EAP/TLS)', and 'WPA (802.1x PEAP)'. Below the dropdown, there are four radio buttons labeled 'Key 1 is not set', 'Key 2 is not set', 'Key 3 is not set', and 'Key 4 is not set'. A 'Configure WEP Keys' button is located at the bottom of the dialog.

- In Infrastructure Mode, if WPA-PSK is selected as the Authentication Mode, TKIP is automatically selected as the Encryption Method.
- Enter the network passphrase in the “Passphrase” and “Confirm” fields.
- WPA-PSK is not supported in Ad-Hoc network mode.

The screenshot shows the 'Profile Setting' dialog box with the 'Security' tab selected. The 'Authentication Mode' dropdown menu is set to 'WPA-PSK' and the 'Encryption Method' dropdown menu is set to 'TKIP'. Below these, there are two text input fields: 'Passphrase' (containing six asterisks) and 'Confirm'.

### 3.3.2.3 WPA (802.1x EAP/TLS) Support in Infrastructure Mode

To connect to an AP through the Radius Server, the user can select WPA 802.1x EAP/TLS as the Authentication Mode.

1. In Infrastructure Mode, the user can select TKIP or WEP as the Encryption Method.
2. Click the Configure WPA Radius button to configure security settings.



The 'Profile Setting' dialog box has three tabs: 'Network Infc', 'Security', and 'Protocol'. The 'Security' tab is active. It contains two dropdown menus: 'Authentication Mode' set to 'WPA (802.1x EAP/TLS)' and 'Encryption Method' set to 'TKIP'. A 'Configure WPA Radius' button is located at the bottom center of the dialog.



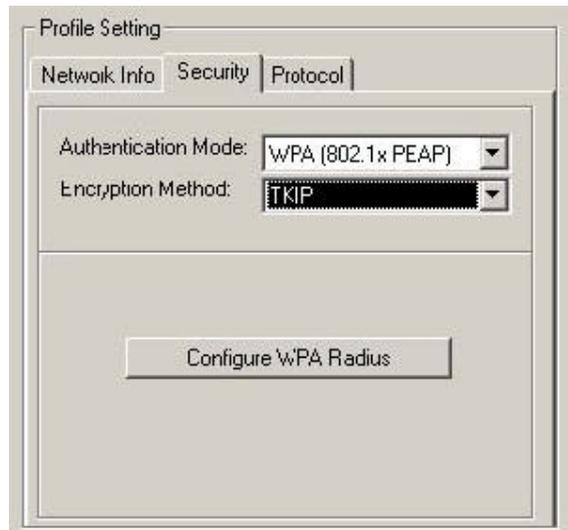
The 'WPA Radius Configuration' dialog box has a blue title bar. It contains several fields: 'Authentication Protocol' is a dropdown menu set to 'EAP/TLS (Use Certificate)'; 'Auth. Method' is an empty text field; 'Login Name' is a text field containing 'test'; 'Password' is an empty text field; 'Domain' is an empty text field; and 'Certificate' is an empty text field. Below these fields are 'View' and 'Browse...' buttons. At the bottom of the dialog are 'OK' and 'Cancel' buttons.



### 3.3.2.4 WPA (802.1x PEAP) Support in Infrastructure Mode

To connect to an AP through the Radius Server, the user can select WPA 802.1x PEAP as the Authentication Mode. In Infrastructure Mode, the user can then select TKIP or WEP as the Encryption Method.

1. Click on the Configure WPA Radius button to configure security settings.
2. Make sure to enter all of the required information.



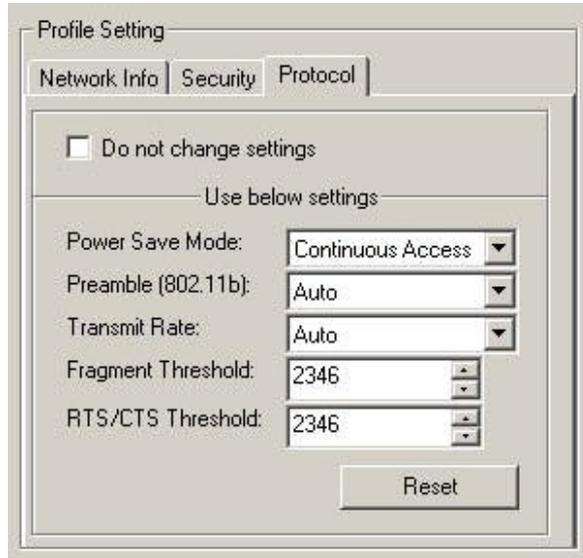
The screenshot shows the 'Profile Setting' dialog box with the 'Security' tab selected. The 'Authentication Mode' dropdown is set to 'WPA (802.1x PEAP)' and the 'Encryption Method' dropdown is set to 'TKIP'. A 'Configure WPA Radius' button is located at the bottom of the dialog.



The screenshot shows the 'WPA Radius Configuration' dialog box. The 'Authentication Protocol' dropdown is set to 'Protected EAP (PEAP)' and the 'Auth. Method' text box contains 'EAP/MS-CHAP V2'. The 'Login Name' text box contains 'test', the 'Password' text box contains 'testing123', and the 'Domain' text box contains 'Marvell'. There are 'View' and 'Browse...' buttons next to the 'Certificate' field, and 'OK' and 'Cancel' buttons at the bottom.

### 3.3.3 Protocol

Set or change protocol information from the Protocol tab.



#### Do not change settings

If this box is checked, the protocol setting is not changed when the profile is applied.

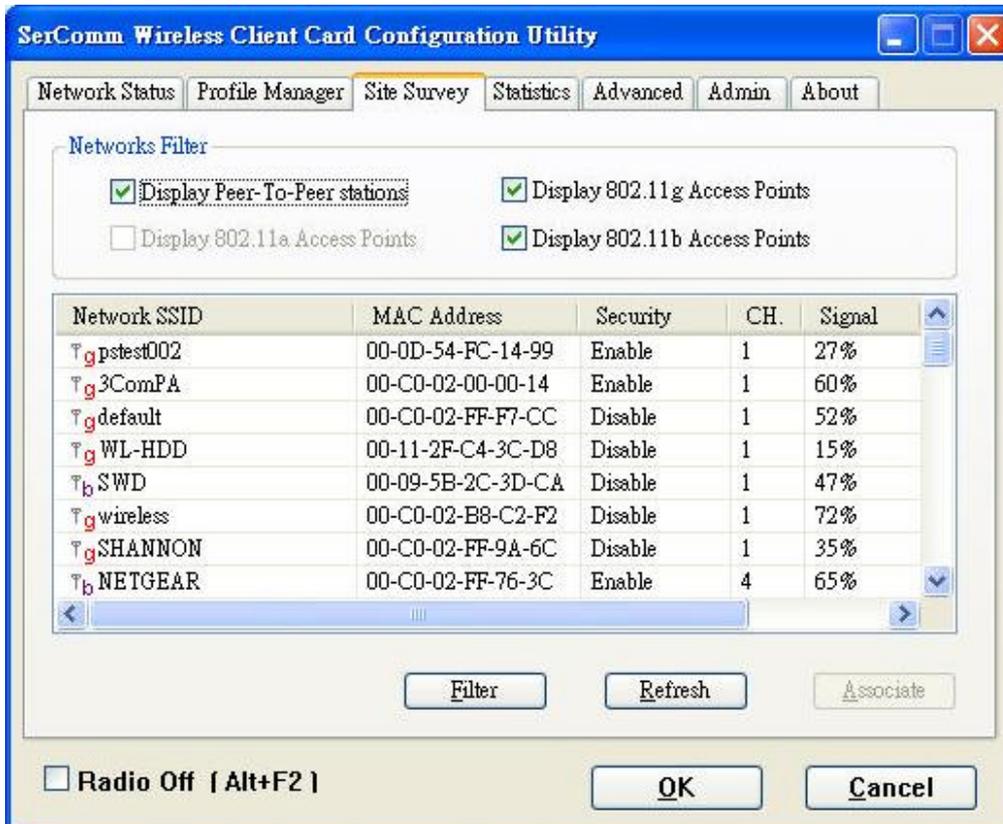
#### Use below settings

Some of the protocol settings below can be changed if the **Do not change setting** box is unchecked:

- **Power Save Mode** – Sets the power mode. Available options are Continuous Access or Max Power Save. The default is Continuous Access.
- **Preamble (802.11b)** – Sets the Radio Preamble to Auto or Long. This option takes effect only when attaching to an 802.11b network.
- **Transmit Rate**– The range of the data rate depends on the type of AP that the client card is connected to. The default setting is **Auto Select**.
- **Fragment Threshold**– Sets the fragmentation threshold (the size that packets are fragmented into for transmission). The default setting is 2346.
- **RTS/CTS Threshold**– Sets the packet size at which the AP issues a Request-To-Send (or Clear-to-Send) frame before sending the packet. The default setting is 2346.
- **Reset button** – Clicking **Reset** returns the protocol settings to their default values.

### 3.4 Site Survey Tab

Clicking on the **Site Survey** tab displays the **Site Survey** dialog box:



This tab shows a list of all of the peer-to-peer and AP stations within range of the adapter.

#### 3.4.1 Access Point Filter

This section lets you customize which sites are displayed in the Site Survey list window:

- **Display Peer-To-Peer stations** – checking this box displays all of the peer-to-peer stations within range.
- **Display 802.11a Access Points** – checking this box displays all of the 802.11a APs within range.
- **Display 802.11g Access Points** – checking this box displays all of the 802.11g APs within range.
- **Display 802.11b Access Points** – checking this box displays all of the 802.11b APs within range.

### 3.4.2 Site Survey List Window

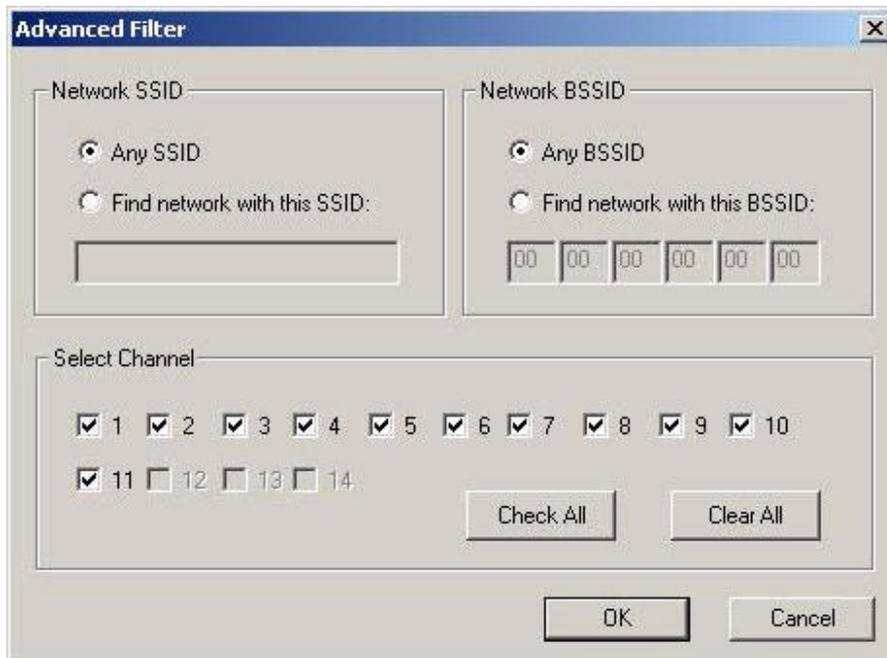
This window reports information on the Ad Hoc or AP stations detected:

Network SSID	MAC Address	Security	CH.	Signal
<sup>b</sup> tsunami	00-40-96-55-E7-17	Enable	8	72%
<sup>g</sup> ToddAP32Test	00-50-43-AC-B3-DF	Disable	11	100%
<sup>g</sup> TSAP31	00-50-43-02-DA-DA	Disable	11	52%
<sup>g</sup> dlinkap	00-80-C8-15-4A-97	Disable	11	100%
<sup>g</sup> USRobotics	00-C0-49-80-13-81	Disable	11	76%
<sup>g</sup> JLinksys	00-06-25-F1-66-BE	Disable	11	8%
<sup>g</sup> /wb31_adhoc	02-FF-78-C1-10-02	Disable	11	8%
<sup>b</sup> Restricted - Employees Only	00-40-96-55-C0-E6	Disable	3	0%
<sup>b</sup> Restricted - Employees Only	00-40-96-54-6F-D2	Disable	3	12%

- **Network SSID** – the network SSID label; i.e., the Network Name. The Network Name is a text string.
- **MAC Address**– the MAC address, a hardware address that uniquely identifies each node of a network.
- **Security**– security enabled or disabled.
- **CH.** – displays the channel used by the detected device.
- **Signal** – displays the signal strength of the detected device as a percentage.
- **Icons** – the following icons may be displayed left of the Network SSID:
  - an antenna icon with a superscript **b** indicates an 802.11b AP.
  - an antenna icon with a superscript **g** indicates an 802.11g AP.
  - a circle around the antenna icon means the adapter is connected to this network.
  - a slash icon indicate an Ad Hoc network.

### 3.4.3 Filter Button

Clicking the **Filter** button displays the **Advanced Filter** dialog box:



#### 3.4.3.1 Network SSID

- **Any SSID** – if selected, any SSID is used.
- **Find network with this SSID** – if selected, the utility searches for the specified SSID.

#### 3.4.3.2 Network BSSID

- **Any SSID** – if selected, any BSSID is used.
- **Find network with this BSSID** – if selected, the utility searches for the specified BSSID.

#### 3.4.3.3 Select Channel

Allows channels to be checked individually or all checked or all cleared.



#### Note

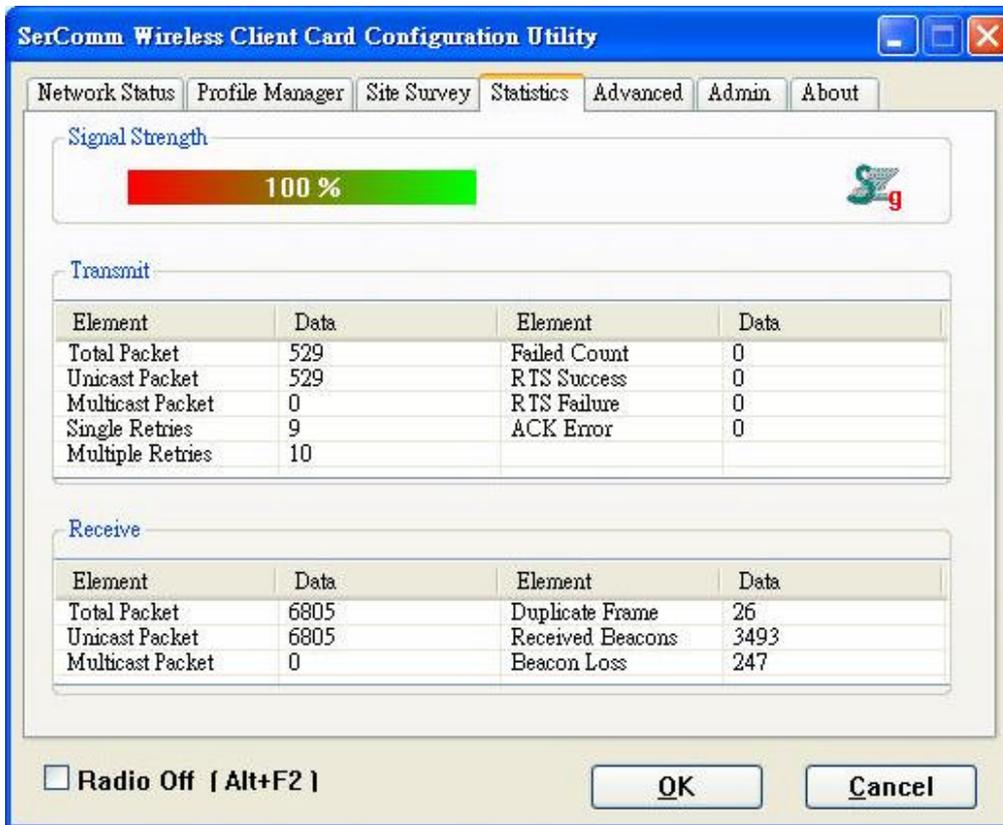
Only the checked channels will be used in the site survey.

#### 3.4.4 Refresh Button

Clicking the **Refresh** button requests a survey of the wireless networks in the area.

### 3.5 Statistics Tab

Clicking on the **Statistics** tab displays the statistics of the current connect session:



#### 3.5.1 Signal Strength

The color-coded Signal Strength bar displays the signal strength of the last packet received by the adapter. Signal strength is reported as a percentage. A signal in the red indicates a bad connection. A signal in the green indicates a good connection.

#### 3.5.2 Transmit Window

The **Transmit** window displays the information on the packets sent:

Transmit			
Element	Data	Element	Data
Total Packet	4850	Failed Count	13
Unicast Packet	4850	RTS Success	122
Multicast Packet	0	RTS Failure	73
Single Retries	0	ACK Error	13
Multiple Retries	0		

- **Total Packet** – reports the total number of packets transmitted.
- **Unicast Packet** – reports the number of packets transmitted by the adapter that were destined for a single network node.
- **Multicast Packet** – reports the number of packets transmitted by the adapter that were destined for more than one network node.
- **Single Retries** – reports the number of packets that require one retry before the adapter received an acknowledgement.



#### Note

After the adapter sends a packet, it waits for an acknowledgement from the receiving radio to confirm that the packet was successfully received. If the acknowledgement is not received within a specified period of time, the adapter retransmits the packet.

- **Multiple Retries** – reports the number of packets that require more than one retry before the adapter received an acknowledgement.
- **Failed Count** – reports the number of packets that were not successfully transmitted because the adapter did not receive an acknowledgement within the specified period of time.
- **RTS Success** – reports the number of RTS attempts that were successful.
- **RTS Failure** – reports the number of RTS attempts that were not successful.
- **ACK Error** – reports the number of unicast transmit attempts for which no ACK was received.

### 3.5.3 Receive Window

The **Receive** window displays the information on the packets received:

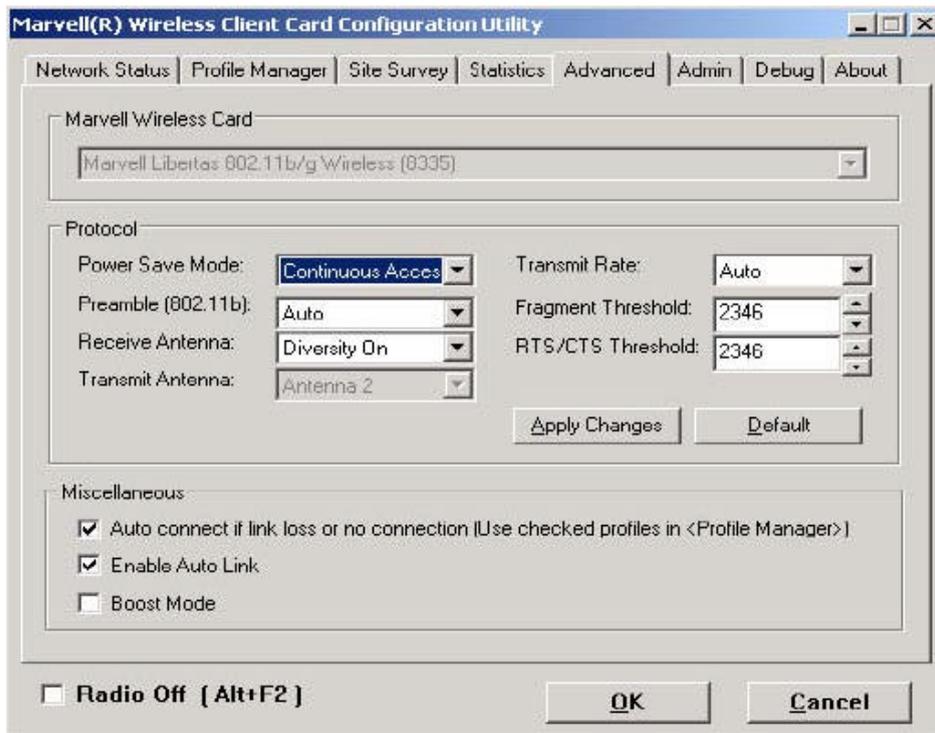
Receive			
Element	Data	Element	Data
Total Packet	5466	Duplicate Frame	21
Unicast Packet	5466	Received Beacons	2434
Multicast Packet	0	Beacon Loss	83

- **Total Packet** – Reports the total number of packets received.
- **Unicast Packet** – Reports the number of packets received by the adapter that were destined for a single network node.
- **Multicast Packet** – Reports the number of packets received by the adapter that were destined for more than one network node.
- **Duplicate Frame** – Reports the number of duplicate frames received.
- **Received Beacons** — Reports the number of beacons received after association is established.
- **Beacon Loss** — Reports the number of missing beacons after association is established.

### 3.6 Advanced Tab

Clicking on the **Advanced** tab displays the **Advanced** dialog box.

This tab displays the advanced parameters available. The major components of this tab are described in the sections which follow.



#### 3.6.1 CB801M Wireless Card

This window reports the type of CB801MWLAN adapter installed.

### 3.6.2 Protocol

This section of the Advanced tab sets the **Protocol** options:

The screenshot shows a window titled "Protocol" with the following settings:

Power Save Mode:	Continuous Access	Transmit Rate:	Auto
Preamble (802.11b):	Auto	Fragment Threshold:	2346
Transmit Antenna:	Antenna 2	RTS/CTS Threshold:	2346
Receive Antenna:	Diversity (Both)		

Buttons: Apply Changes, Default

- **Power Save Mode** – Sets the power mode, either:
  - Continuous Access
  - Max Power Save
- **Preamble (802.11b)** – Set the radio preamble (takes effect only when attaching to 802.11b networks):
  - Auto
  - Long
- **Transmit Antenna** – Transmit Antenna mode is set to Antenna 2
- **Receive Antenna** – sets the Receive Antenna mode, either:
  - Diversity On
  - Diversity Off
- **Transmit Rate**– the range of the data rate depends on the type of AP that the client card is connected to. The default setting is **Auto Select**.
- **Fragment Threshold**– sets the fragmentation threshold (i.e., the size that packets are fragmented into for transmission). The default setting is 2346.
- **RTS/CTS Threshold**– set the packet size at which the AP issues a RTS (or CTS) frame before sending the packet. The default setting is 2346.

The **Apply Changes** or **Default** buttons configure the options according to the changes entered or apply the default values.

### 3.6.3 Miscellaneous

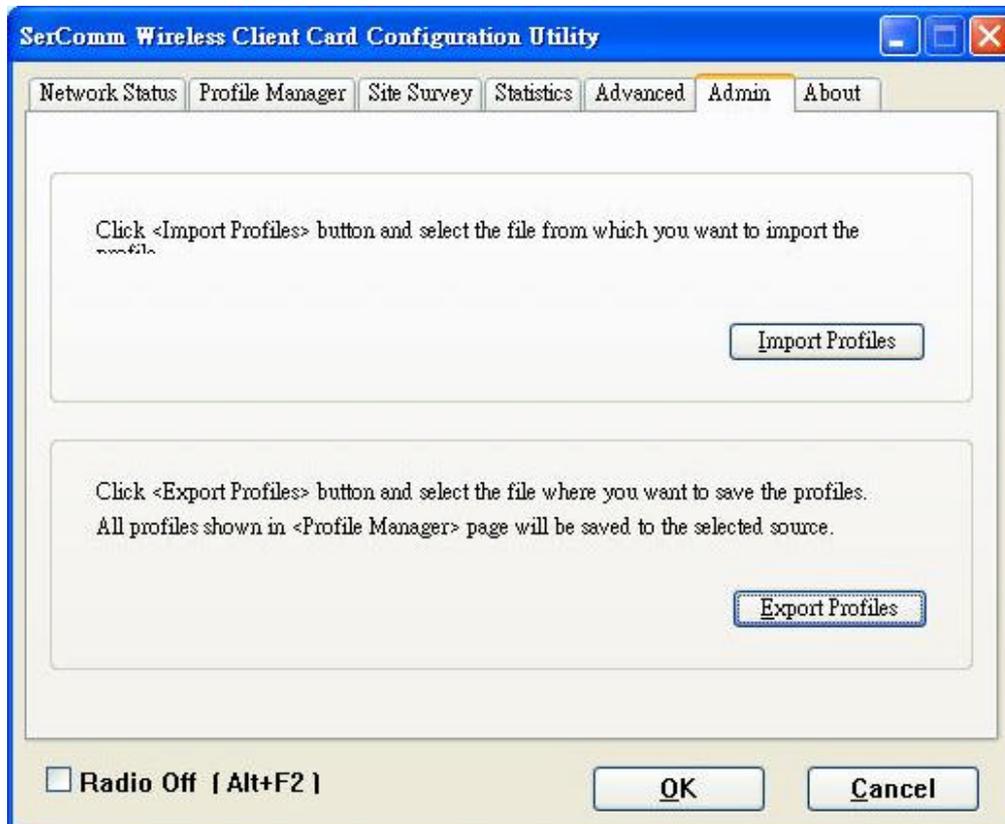
- **Auto connect if link loss or no connection (Use checked profiles in <Profile Manager>)** – Unchecking this box disables the auto-configuration feature. Whenever there is a link loss, auto-configuration tries to establish a connection according to the checked profiles in the Profile Manager.
- **Enable Auto Link** – This option allows the user to enable/disable the Auto Link feature (see “Auto Link” )
- **Boost Mode** – Check the Boost Mode box for performance enhancement.

The screenshot shows a window titled "Miscellaneous" with the following settings:

<input checked="" type="checkbox"/> Auto connect if link loss or no connection (Use checked profiles in <Profile Manager>)
<input checked="" type="checkbox"/> Enable Auto Link
<input type="checkbox"/> Boost Mode

### 3.7 Admin Tab

Clicking the **Admin** tab displays the **Admin** dialog box. This tab allows you to import and export profiles.



#### 3.7.1 Import Profiles

To import a profile:

1. Click the **Import Profiles** button.
2. Select the path and filename of the profile.
3. Click **Open**.

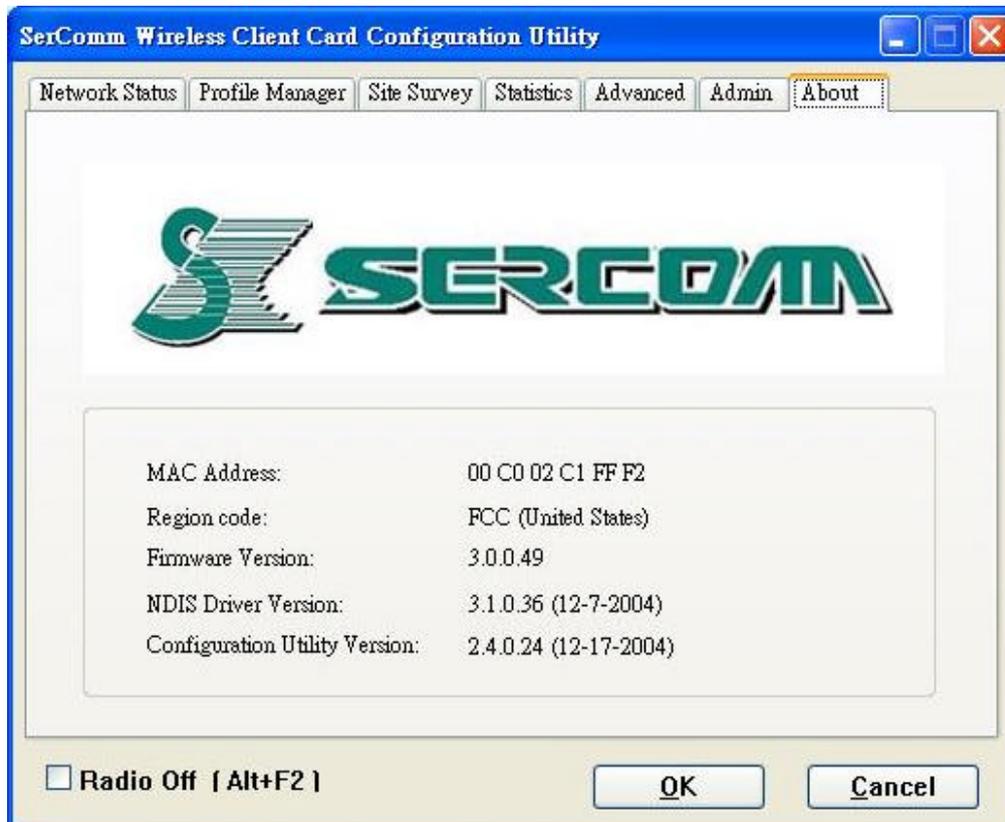
#### 3.7.2 Export Profiles

To export a profile:

1. Click the **Export Profiles** button.
2. Select the path and filename of the profile.
3. Click **Save**.

### 3.8 About Tab

Clicking on the **About** tab displays the **About** dialog box, as shown in the following example.



### 3.9 Auto Link

TBD

## Appendix A Specifications

<b>Chipset:</b>	Marvell 88W8335
<b>RF Chip:</b>	Marvell 88W8010
<b>Bus Type:</b>	CardBus
<b>Data Rates :</b>	54, 48, 36, 24, 18, 12, 9, and 6 Mbps (802.11g)
	11, 5.5, 2, 1 Mbps (802.11b)
<b>Frequency Band :</b>	2.4GHz to 2.462GHz
<b>Wireless Medium :</b>	DSSS and OFDM
<b>Media Access Protocol:</b>	CSMA/CA
<b>Operating Channels:</b>	1-14(FCC:1-11、 ETSI:1-13、 Japan:1-13 )
<b>Operating Range:</b>	<ul style="list-style-type: none"> <li>• Indoors: Up to 328 ft (100 meters)</li> <li>• Outdoors: Up to 1312 ft (400 meters)</li> </ul>
<b>Receive Sensitivity :</b>	
802.11g	54 Mbps: -70 dBm
	48 Mbps: -72 dBm
	36 Mbps: -77 dBm
	24 Mbps: -80 dBm
	18 Mbps: -82 dBm
	12 Mbps: -85 dBm
	9 Mbps: -86 dBm
	6 Mbps: -88 dBm
802.11b	11 Mbps: -86 dBm
	5.5 Mbps: -89 dBm
	2 Mbps: -91 dBm
	1 Mbps: -91 dBm
<b>Wireless Medium:</b>	DSSS (Direct Sequence Spread Spectrum)
<b>Media Access Protocol:</b>	CSMA/CA
<b>Transmit Power:</b>	
802.11g:	14 ± dBm
802.11b:	16 ± dBm
<b>Security :</b>	64/128-bit WEP WPA—Wi-Fi Protected Access
<b>Standards Conformance:</b>	WPA certified, IEEE 802.11g, IEEE 802.11b
<b>EMI:</b>	FCC, CE
<b>Environmental Range:</b>	

Operating temperature:	0° to 40°C (32° to 104°F)
Operating humidity:	0 to 90% non-condensing
<b>System Requirements</b>	Notebook PC must be running Windows 98SE/ME/XP/ 2000