

# **CU-108R USB Wireless LAN ADAPTER**

## **User's Manual**

**Inventec @ppliances Corp.**

### ***IMPORTANT***

This document contains important Information, please read it carefully before using this product.  
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**Inventec**

Revision: 0.1

# CU-108R USB Wireless LAN adapter User's Manual

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## Revision History

Date	By	Revision	Comments
02/10/2003	Brad Yeh Rober Lin Kevin Hung	Draft	

## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

### Federal Communications Commission Statement

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

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If this equipment is not installed and used in accordance with the manufacturer's instructions, it 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 to 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 use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### 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 and your body.

### Manufacturer's Disclaimer Statement

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## **CU-108R USB Wireless LAN adapter User's Manual**

Date: 2/13/2003

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# Contents

<b>1 About the USB Wireless LAN adapter</b> .....	6
<a href="#">1-1 Features</a> .....	6
<a href="#">1-2 Applications</a> .....	7
<a href="#">1-3 Product Package</a> .....	8
<b>2 Getting Started</b> .....	9
<a href="#">2-1 Before Installation</a> .....	10
<a href="#">2-2 Insert the 11Mbps USB Wireless LAN Adapter</a> .....	11
<b>3 Install Driver for Windows</b> .....	12
<a href="#">3-1 Set up USB Wireless LAN Adapter for Windows XP</a> .....	13
<a href="#">3-2 Set up USB Wireless LAN Adapter for Windows 2000/98/ME</a> .....	20
<b>4 Installing &amp; Navigating the Network Configuration Utility Tool</b> .....	25
4-1 Installation of the Network Configuration Utility Tool.....	25
4-2 Navigation of the Network Configuration Utility Tool.....	25
<b>Appendix A Troubleshooting</b> .....	29
<b>Appendix B Glossary</b> .....	30
<b>Product Specifications for USB Wireless LAN adapter</b>	

# **1 About the USB Wireless LAN adapter**

The 11Mbps IEEE 802.11b USB Wireless LAN Adapter is a standard USB adapter that fits into any standard USB slot via a USB cable in a notebook computer. Its 11Mbps data rate gives equivalent Ethernet speed to access corporate network or the Internet in a wireless environment. In addition, an integrated antenna version is specifically designed for system integrator application. When installed, 11Mbps USB Wireless Adapter is able to communicate with any 802.11 and 802.11b compliant products.

## **1-1 FEATURES**

- Supports up to 11 Mbps data rate
- Working range of up to 300 ft. in an open environment enhances mobility
- Supports point-to-point and point-to-multipoint access which provides increased flexibility
- Seamless connectivity to wired Ethernet and PC network LANs allowing quick, trouble-free integration with existing networks
- Direct Sequence Spread Spectrum (DSSS) technology provides secure, interference-resistant wireless connection
- Eliminate the hassle and cost of cabling
- Supports a wide range of LAN (Local Area Network) Network Operating Systems (NOS)
- Easy Plug and Play installation
- Omni-directional antenna included
- Greater flexibility to locate or move networked PCs
- Supports a variety of operating systems (Win98/ME/2000/XP)
- 64-bit and 128-bits WEP encryption capable
- Provides Window-based Diagnostic Tools, most notably, Site Survey, Link Quality Test and Access Point Browser.

## **1-2 APPLICATION**

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11Mbps USB Wireless LAN Adapter offers a fast, reliable, cost-effective solution for wireless client access to the network in applications like these:

**1. Remote access to corporate network information**

E-mail, file transfer and terminal emulation.

**2. Difficult-to-wire environments**

Historical or old buildings, asbestos installations, and open area where wiring is difficult to deploy.

**3. Frequently changing environments**

Retailers, manufacturers and those who frequently rearrange the workplace and change location.

**4. Access to database for mobile workers**

Doctors, nurses, retailers, accessing their database while being mobile in the hospital, retail store or office campus.

**5. SOHO (Small Office and Home Office) users**

SOHO users need easy and quick installation of a small computer network.

**6. High security connection**

The secure wireless network can be installed quickly and provide flexibility. (Please refer to page for encryption configuration.)

# CU-108R USB Wireless LAN adapter User's Manual

## 1-3 PRODUCT PACKAGE

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11Mbps USB Wireless LAN Adapter comes with the following items. Please go through each item below. If any of listed items appears to be damaged or missing, please contact your local dealer.

### 11Mbps USB Wireless LAN Adapter

- 11Mbps USB Wireless LAN Adapter..... x 1
- USB Cable..... x 1
- 11Mbps USB Wireless LAN Adapter Software and Documentation  
CD..... x 1



## **2 Getting Start**

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This chapter describes the instructions that guide you through the proper installation of your 11Mbps USB Wireless LAN Adapter for the Windows XP/2000/ME/98 operating systems.

The complete installation of the 11Mbps USB Wireless LAN Adapter consists of the following steps:

STEP 1: Insert your USB Wireless LAN Adapter into your computer.

STEP 2: Install the corresponding driver and utility.

STEP 3: Set basic settings.

STEP 4: Finish Installation.

## CU-108R USB Wireless LAN adapter User's Manual

### **2-1 Before Installation**

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In addition to the items shipped with the client adapter, you will also need the following in order to install the adapter:

1. A computer equipped with a USB port services compliant with revision 1.10 of the USB specification (or higher).
2. Windows XP/2000/98/ME (with a Windows installation CD-ROM, diskettes for use during installation)
3. Minimum 500 Kbytes free disk space for installing driver and utility program.

## **2-2 Insert the USB Wireless LAN Adapter**

To install the USB Wireless LAN Adapter, please do the following:

1. Find an available USB port on your computer.
2. Insert the USB Wireless Adapter, with its label facing up, into the USB port via a USB cable on your computer.



**CAUTION:** Do not force the client adapter into the port. Forcing it will damage both the client adapter and the port. If the client adapter does not go in easily, remove the card and reinsert it.

## 3 Install Driver for Windows

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This section describes the installation of the 11Mbps USB Wireless LAN Adapter driver for the Windows 98/ME/2000 and Windows XP operating systems. The installation procedures for Windows XP refer to **3-1 Set up USB Wireless LAN Adapter for Windows XP**; for Windows 2000 please see **3-2 Set up USB Wireless LAN Adapter for Windows 2000**; for Windows 98/ME refer to **3-3 Set up USB Wireless LAN Adapter for Windows 98/ME**.



**Note:** Before you start the installation, you are advised to keep the Windows CD-ROM in case you might need certain system files.

## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

### 3-1 Set up USB Wireless LAN Adapter for Windows XP

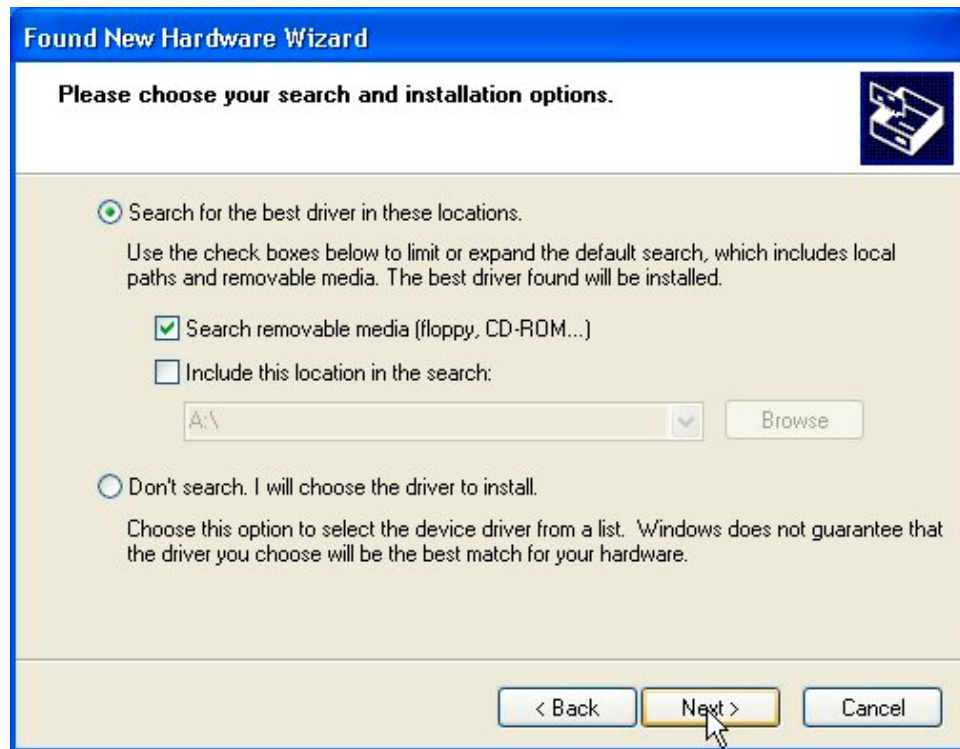
**Step 1:** After inserting the 11Mbps USB Wireless LAN Adapter into the USB port on your notebook, the Windows will auto-detect the USB Wireless LAN Adapter and a "Found New Hardware Wizard" window will show up. Select "**Install from a list or specific (Advanced)**" to install the driver.



## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

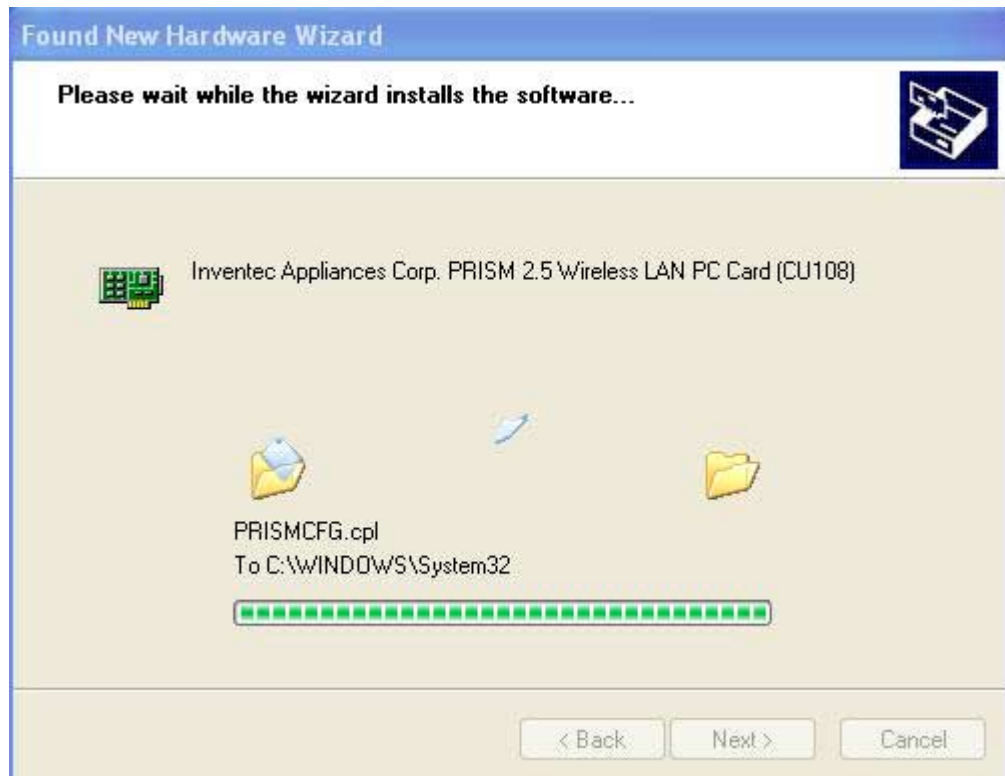
**Step 2:** Insert the Product CD-ROM into the CD-ROM drive. Check the “**Search removable media (floppy, CD-ROM...)**” check box and click on **Next** to install the driver.



## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

**Step 3:** The windows will find “**USB Wireless LAN Adapter**” and start copying corresponding files into the system. Click on **Next** to continue.



**Step 4:** Click **Finish** to complete the installation.

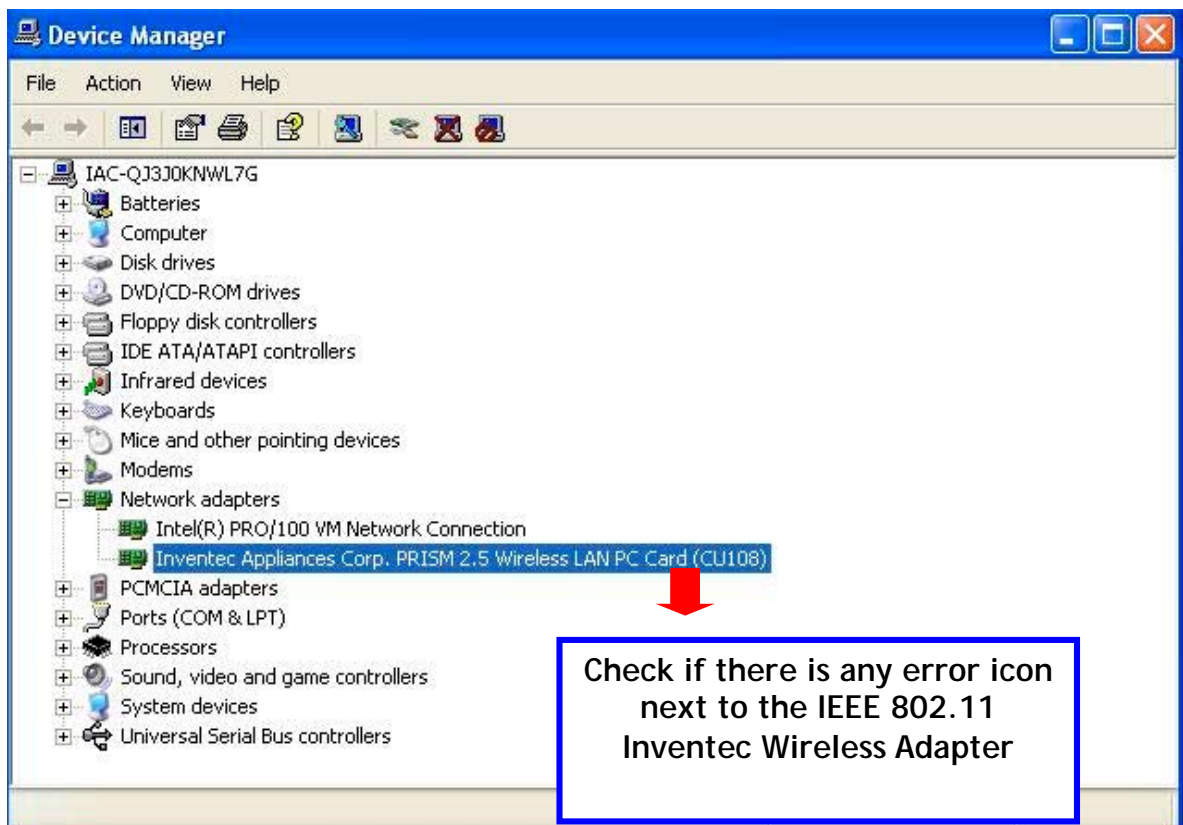




## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

**Step 5:** Right click "My Computer" from **Start**, select **Properties**, go to the **Hardware** tab and click the **Device Manager** button to see if any error icon appears next to the **Network Adapter/USB Wireless LAN Adapter**. If no, your 11Mbps USB Wireless LAN Adapter is working well.



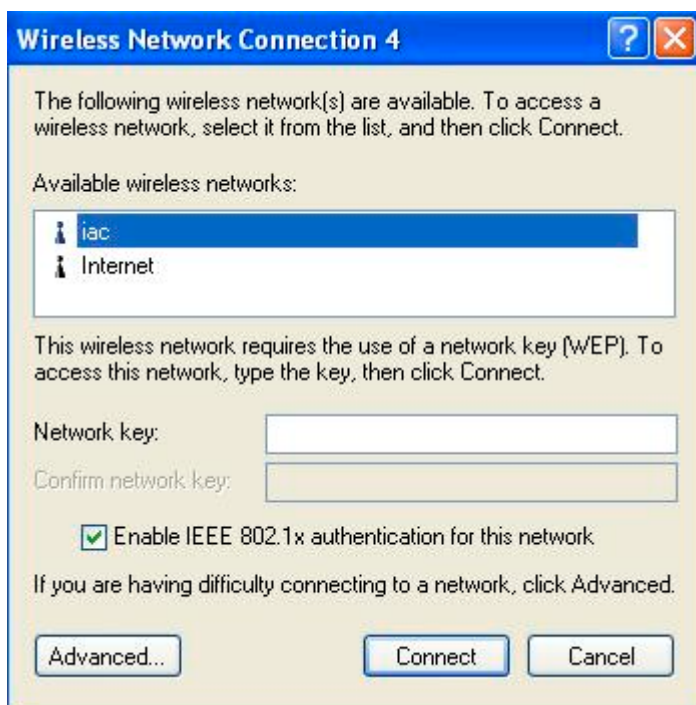
## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

**Step 5:** After installing the USB Wireless LAN Adapter, the Windows XP will display a "Wireless Network Connection #" message.

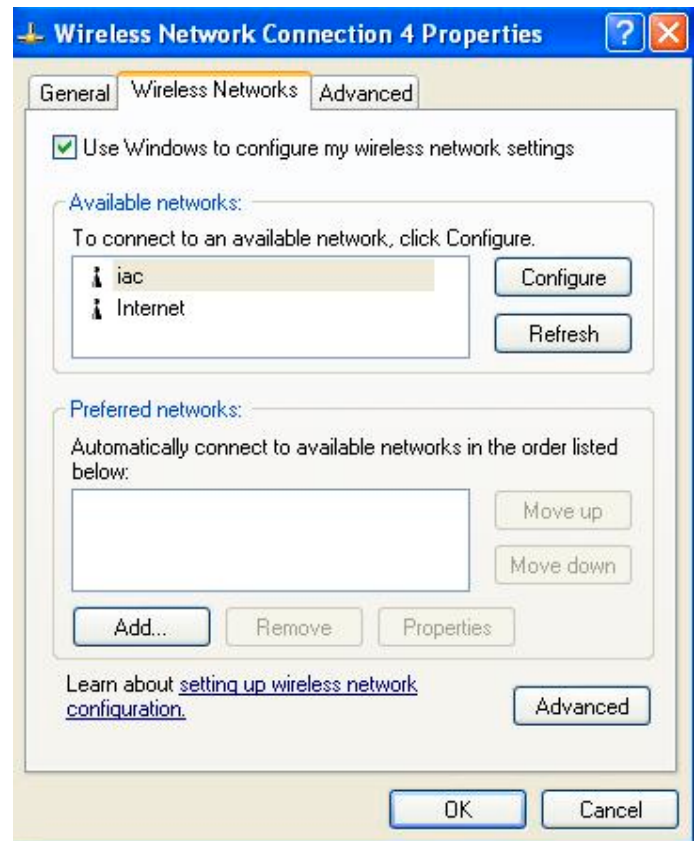


Click on the message and the "Automatic Wireless Network Configuration" will then appear automatically and allow use to choose to connect a wireless infrastructure network (Access Point), shown as the below figure. You may click the **Advanced** button to make advanced configuration for the Wireless LAN CF Card, shown as below.



For more information on using the automatic wireless network configuration please refer to Windows XP **Help** file.

If you desire to use our WLAN Utility, you need to disable the Windows XP *Automatic Wireless Network Configuration* first by un-checking this check box.



However, the WLAN Utility, which comes with the USB Wireless LAN Adapter, provides you more tools to configure the USB Wireless LAN Adapter and monitor the wireless connection. For more information on installing and using the WLAN utility, please refer to the following sections “*Installation of the WLAN Utility*” on page 18 and “*Usage of the WLAN Utility*” on page 20.



**Note:** To use the WLAN utility under Windows XP, you need to disable the **Automatic Wireless Network Configuration** first. Steps are described as follows:

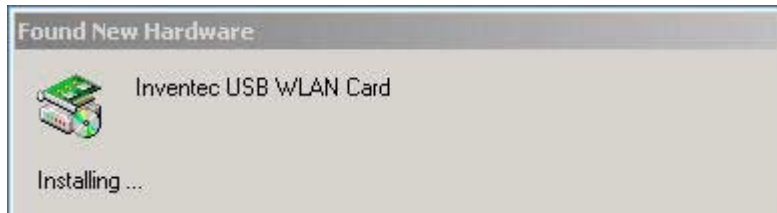
- Right click the **Network Connections** icon. Select **Properties**.
- Go to the **Wireless Networks** tab.
- Uncheck the “**Use Windows to configure my wireless network settings**” check box and click the **OK** button (see the above picture).

## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

### 3-2 Set up USB Wireless Adapter for Windows 2000/98/ ME

**Step 1:** After inserting the 11Mbps USB Wireless Adapter into the USB slot on your computer, Windows will auto-detect new hardware and will display an “**Add New Hardware Wizard**” window. Click **Next** to continue.



## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

**Step 2:** Select “**Search for a suitable driver for my device (Recommended)**” and click **Next** to proceed.



## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

**Step 3:** Insert the Product CD-ROM into the CD-ROM drive. Select the “**CD-ROM drive**” check box and click on **Next** to install the driver.

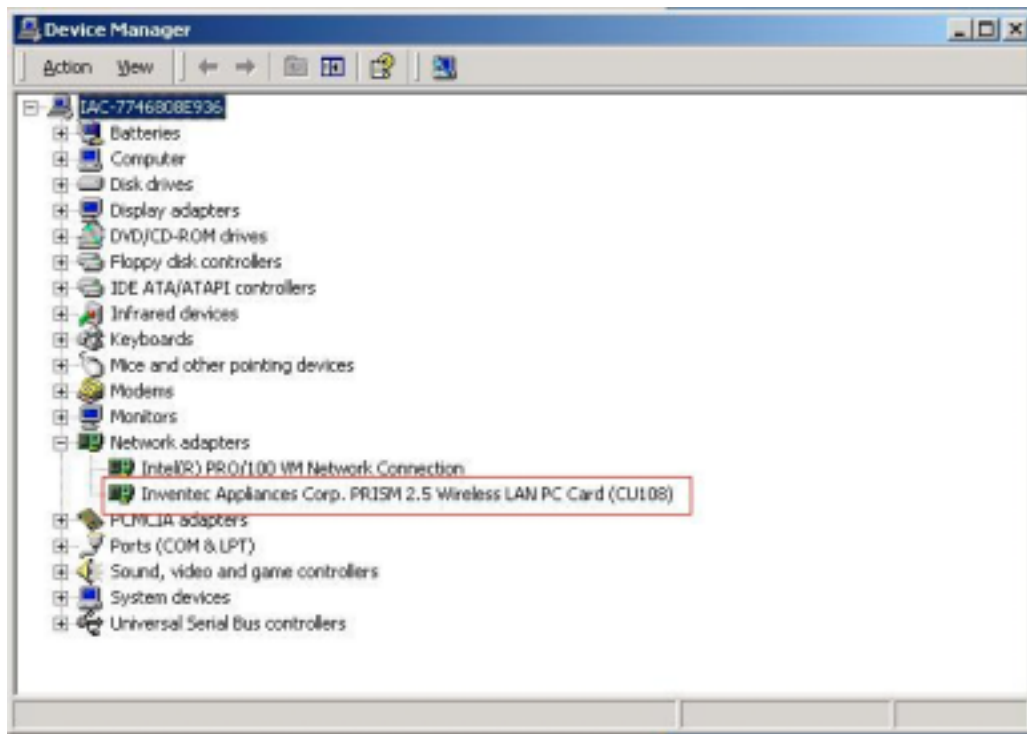


**Step 4:** Windows has finished installing the software for this device. Please click the “Finish”.



## CU-108R USB Wireless LAN adapter User's Manual

**Step 5:** Open **Control Panel/System/Device Manager**, and check **Network Adapters** to see if any error icon appears next to the IEEE 802.11 USB Wireless LAN Adapter. If no, your 11Mbps USB Wireless LAN Adapter is working well.





## 4-1 INSTALLATION OF THE NETWORK CONFIGURATION UTILITY TOOL

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1. Insert the Installation CD into the CD-ROM drive. Click Windows Start and then click Run. In the Run dialog box, type **D:\utility\setup.exe**. If your CD-ROM drive uses a different letter, type that letter in place of "D."
2. Follow the on-screen instructions to finish the installation process. After the installation is complete, an icon for the configuration utility will appear in the taskbar on the right side by the clock.



## 4-2 NAVIGATION OF THE NETWORK CONFIGURATION UTILITY TOOL

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The following section describes the various functions of the Network Configuration Utility. This utility provides quick access to all adapter settings. The configuration settings will be set by default to the correct values. Only advanced users should change any of the following settings.

After installation is complete, a Utility Tool icon will appear in the taskbar on the right side near the clock. Double-clicking the icon in the Quick Launch bar will open the Utility Tool main menu, providing quick access to all adapter settings.

**Link Info:** The Link Info menu provides information about the current link between the adapter and the base station.

**Configuration:** Selecting this tab opens the Configuration menu. This is where you will find options for configuring your adapter.

## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003



### Description of Settings

The following are explanations of each adapter setting in the Configuration menu.

**Mode:** The Mode setting determines the architecture of your wireless LAN. Choose Ad-Hoc or Infrastructure Mode, depending on your network type. A brief explanation of each mode follows.

- **Ad-Hoc:** This mode is used for a simple peer-to-peer network. This type of network only allows the sharing of local resources between wireless clients without a wireless Access Point.
- **Infrastructure:** This mode allows a wireless LAN to be integrated into an existing wired network through an Access Point. Infrastructure type networks also permit roaming between Access Points while maintaining the connection to all network resources. Infrastructure mode provides additional features, such as WEP security, power saving, and extended range.

**SSID (Service Set Identifier):** SSID is the unique name that is shared among all clients and Access Points in a wireless network. The SSID must be identical for all clients or Access Points participating in the same network. The SSID is case sensitive and must not exceed 30 characters.

**Tx Rate (transmit rate):** Tx Rate selects the allowable transfer rates of the wireless client. To optimize performance and range, the Tx Rate should be set to Fully Automatic. This will automatically adjust the transfer speed for the best performance and longest range.

**WEP (Wired Equivalent Privacy):** WEP is an encryption scheme that is used to protect your wireless data communications. WEP uses a combination of 64-bit keys or 128-bit keys to provide access control to your network and encryption security for every data transmission. To decode a data transmission, each wireless client on the network must use an identical 64-bit or 128-bit key.

## CU-108R USB Wireless LAN adapter User's Manual

Date: 2/13/2003

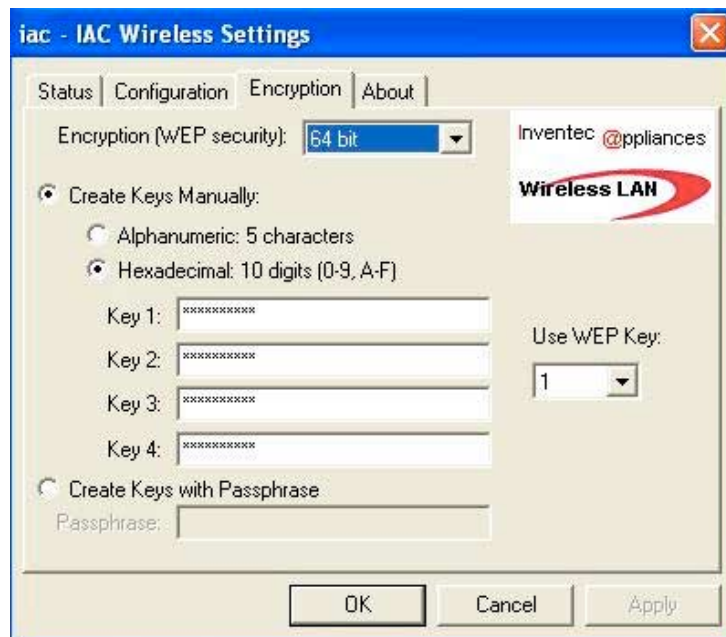
**Changing the Channel** : Changing the channel is only effective in Ad-Hoc networks. Networks that are operating in Infrastructure mode automatically scan for a channel. The following table contains the operational channel frequency for several countries.

### Regulatory Channel Frequency

Channel	Frequency (Mhz)	FCC	Canada	ETSI	France	Spain	Japan
1	2412	X	X	X			
2	2417	X	X	X			
3	2422	X	X	X			
4	2427	X	X	X			
5	2432	X	X	X			
6	2437	X	X	X			
7	2442	X	X	X			
8	2447	X	X	X			
9	2452	X	X	X			
10	2457	X	X	X	x	X	
11	2462	x	X	X	X	X	
12	2467			X	X		
13	2472			x	X		
14	2484						X

**Encryption** : The Encryption tab allows you to create new WEP keys.

## CU-108R USB Wireless LAN adapter User's Manual



The 64-bit or 128-bit WEP keys can be generated from a user-defined pass-phrase. The pass-phrase is any text string with a maximum of 32 characters. To generate encryption keys for each client that is communicating in the wireless network, perform the following steps:

1. Enter the same case-sensitive text in the Passphrase entry field for each client.
2. Click Generate to create the encryption keys. The passphrase generates four unique keys.
3. Select the same default key in the drop-down box for each client. This is the key the clients will use to encrypt data.
4. Click Write to store the information in the registry.
5. Select the Configuration tab and choose Mandatory in the WEP option.
6. Click Apply Changes and then click OK.

## Appendix A Troubleshooting

*My computer does not recognize the Wireless USB adapter*

Possible Solution:

The USB Wireless LAN adapter not fully inserted into the USB port.

*The Wireless LAN USB adapter does not work properly.*

Possible Solution:

Check the USB adapter services and be certain the Wireless LAN USB adapter is not in use before removing it. The laptop will lock up if the USB Wireless LAN adapter is in use and is removed. Reinstall the Wireless LAN USB adapter. You will hear a beep if the card is properly inserted into the USB port.

The power LED indicator will be solidly lighted or flashing if the cable is properly connected. For Windows 2000, NT, and ME, ensure that a USB adapter service driver is installed in your computer. Perform the following steps to check for the service driver:

Click Control Panel and then Wireless LAN USB adapter Check to see if it has the Wireless LAN USB adapter in one of the USB port. If you see a yellow question mark, there are conflicting resources or the driver is not correctly installed.

*My computer does not recognize the USB wireless LAN adapter after I changed the settings.*

Possible Solution:

Ensure that the LAN Configuration utility is installed. Ensure that you are contacting the correct USB wireless LAN adapter and using the correct MAC address. Ensure that the correct pass-phrase and encryption option are being used. If you changed the settings in the configuration of the USB wireless LAN adapter, you must also change the settings of USB wireless LAN adapter attached to this network. The settings of the LAN configuration must match the new settings of the USB wireless LAN adapter

*My computer is not acknowledging my USB wireless LAN adapter.*

Possible Solution:

Make sure that the USB wireless LAN adapter is plugged into USB port and is properly installed. It may be necessary to remove the associated programs, uninstall the Access Point, and repeat the installation procedure. Unplug the USB wireless LAN adapter to clear the information and then plug the Access Point back in.

## Appendix B Glossary

**Access Point** - An inter-networking device that seamlessly connects wired and wireless networks together.

**Ad-Hoc** - An Ad-Hoc wireless LAN is a group of computers each with wireless adapters, connected as an independent wireless LAN.

**Backbone** – This is the core infrastructure of a network; the portion of the network that transports information from one central location to another central location. The information is then off-loaded onto a local system.

**Base Station** - In mobile telecommunication, a base station is the central radio transmitter/ receiver that maintains communication with the mobile radio telephone sets within range. In cellular and personal communications applications, each cell or microcell has its own base station; each base station in turn is interconnected with other cells' bases.

**Bridge** - An internetworking function that incorporates the lowest two layers of the OSI network protocol model.

**BSS** - An acronym for Basic Service Set, this is an Access Point that is associated with several wireless stations.

**ESS** - An acronym for Extended Service Set, this is a roaming domain. More than one BSS can be configured as an Extended Service Set.

**Ethernet** - A popular local area data communications network that accepts transmission from computers and terminals. An Ethernet operates on a 10-Mbps baseband transmission over shielded coaxial cable or over shielded, twisted-pair telephone wire.

**Infrastructure** - This is an integrated wireless and wired LAN configuration.

**CU-108R USB Wireless LAN adapter User's Manual**

Date: 2/13/2003

**Product Specifications for USB Wireless LAN adapter:**

<b>Radio:</b>	Complies with IEEE 802.11b
<b>Frequency Band:</b>	2400 ~ 2483.5MHz (for US, Canada, and ETSI) 2400 ~ 2497MHz (for Japan)
<b>Modulation Type:</b>	CCK, BPSK, QPSK
<b>Operating Channels:</b>	IEEE 802.11b compliant 11 channels (US, Canada) 13 channels (ETSI) 14 channels (Japan)
<b>Radio Technology:</b>	Direct Sequence Spread Spectrum
<b>Data Rate:</b>	1 / 2 / 5.5 / 11-Mbps
<b>Output Power:</b>	> +13dBm
<b>Receive sensitivity:</b>	Min. -76dBm for 11Mbps; Min. -80dBm for 5.5/2/1 Mbps: (@BER 10E-5)
<b>Antenna Type:</b>	Dipole
<b>Current Consumption:</b>	3.3 V/5 V , Tx mode 350 m A (Max.) ; Rx mode 230 m A (Max.);
<b>Package:</b>	USB
<b>Certification:</b>	<b>USA</b> FCC CFR47 part15.247 CFR47 part15.249 <b>European Union</b> ETS 300 328 ETSI EN 301 489-1/-17
<b>Driver:</b>	Windows 98/2000/NT/ME/XP

Please complete the information below and include it along with your products.

Name:	
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**CU-108R USB Wireless LAN adapter User's Manual**

Date: 2/13/2003

Title:	
Company:	
Telephone:	
Fax:	
Email:	
City/State/Zipcode:	
Country:	
Product Name:	
Serial Number:	
MAC Address:	
Invoice Date:	
Product Description:	

If you have any further questions, please contact your local authorized reseller for support.