Wireless-N CardBus Adapter
Quick Installation Guide

Introducing the *Wireless-N CardBus Adapter*

The *Wireless-N CardBus Adapter* is designed to add 802.11n wireless network to your notebook computer for fast internet access.

Features and Benefits

- Compliant with 802.11n draft 2.0, 802.11g and 802.11b standards
- Supports QoS-WMM, WMM-PS
- Supports 64/128-bit WEP, WPA (TKIP with IEEE 802.1x), WPA2 (AES with IEEE 802.1x) functions for high level of security
- Three internal antenna with 2T3R feature enhances data throughput with increased transmitting range for all compatible legacy bands (802.11 a/b/g)
- Farther coverage, less dead spaces and higher throughput with MIMO technology

System Requirements

- PC computer with an available Cardbus interface
- Windows® 2000 / XP (32-/64-bit) / Server 2003 (32-/64-bit) / Vista (32-/64-bit)

Package Contents

- *Wireless-N CardBus Adapter*
- Driver CD
- Quick Installation Guide

Layout

Figure 1: Layout

Activity LED

Flashing: Transferring/receiving data

Off: No wireless activity

Link LED

On: Linked to a wireless access point/transferring data

Off: No wireless activity

Safety Information

In order to keep the safety of users and your properties, please follow the following safety instructions:

1. This wireless network card is designed for indoor use only. DO NOT expose this network card to direct sun light, rain, or snow.

2. DO NOT put this network card at or near hot or humid places, like kitchen or bathroom. Also, do not leave this inside a hot car.

3. This network adapter will become warm when being used for long time (*This is normal and is not a malfunction)*. DO NOT put the network card on paper, cloth, or other flammable objects after the network card has been used for a long time.

Hardware Installation

General instructions for installing the cardbus are provided below. Since the design of portable computers vary, refer to your system's reference manual for further information, if needed.

1. Power off your notebook computer and any other connected devices.

2. Insert the Cardbus adapter into the cardbus slot of your PC with its 68-pin connector facing the slot. Make sure it is inserted all the way in for a solid connection.

3. Power on your notebook computer.

> **Note**: In most system it is not necessary to turn off the notebook before inserting the cardbus adapter into the cardbus slot.

Driver Installation

Windows 2000/XP/2003 Server

1. At the **Found New Hardware Wizard**, click **Cancel**.
2. Insert the driver CD, Click **Start**, **Run**. Type **D:\CardBus\setup.exe**, click **OK**. (Change **D:** to match your CD-ROM drive letter)
3. Choose **I accept the terms of the license agreement**, then click **Next**.
4. Choose **Install driver and Ralink WLAN utility**, then click **Next**.
5. Choose **Ralink Configuration Tool**, then click **Next**.

> **Note**: Skip this step and continue to step 6 if you have Windows 2000.

6. Click **Install**.
7. Click **Finish**. Restart your system to complete the installation.

Windows Vista™

1.   At the **Found New Hardware** window, click **Cancel**.

2.   Insert the driver CD. Click **Start**, in the Start Search box, type **D:\CardBus\setup.exe**, press **Enter**. (Change the **D:** to match your CD-ROM drive letter)

3.   Click **Allow**.

4.   Choose **I accept the terms of the license agreement**, then click **Next**.

5.   Choose **Install driver and Ralink WLAN utility**, then click **Next**.

6.   Click **Install**.

7.   Click **Finish**. Restart your system to complete the installation.

8.   A new icon will appear at lower-right corner of your computer desktop shown in **Figure 2**, you can put the mouse cursor on the icon, and the status of wireless card will be displayed as a popup balloon. When you want to configure your wireless connection, please right click on this icon, and a popup menu will appear. You can click **Launch Config Utilities** to start configuration program.

Ralink Wireless LAN Card
Disconnected

2:07 PM

Figure 2

If you stopped config utility by **Exit** function, you will not be able to maintain the wireless link to the access point you wish to use. In this case, you can start config utility again by clicking **Start, All Programs, Ralink Wireless**, **Ralink Wirelss Utility**.

Connecting to Wireless Access Point

After the driver is correctly installed, it will try to connect to any unencrypted wireless access point automatically. If you want to connect to a specific wireless access point, or the access point you wish to connect uses encryption, you have to configure the wireless network card and input required parameters, to get connected to the wireless access point you wish to connect. There are two ways you can configure your wireless network card to connect to wireless access point: using the Ralink configuration utility which comes with wireless card driver, and using built-in windows zero configuration utility.

Using Ralink Utility

Please follow the following instructions to use Ralink configuration utility to connect to wireless access point.

1. Right-click the Ralink configuration utility icon located at lower-right corner of computer desktop, then click **Launch Config Utilities**, shown in **Figure 3** in the next page.
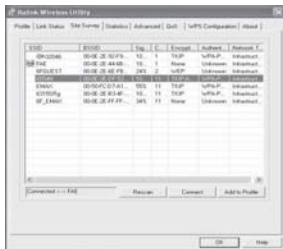
Figure 3

2. Configuration utility will scan for all wireless access points automatically. Scan results will be displayed here, please check if the wireless access point with the SSID (the name of wireless access point) you preferred is shown in **Figure 4**. If the wireless access point you wish to connect does not show here, please click **Rescan** to try again, until the one you preferred is displayed. You may have to click **Rescan** several times before you can see the access point you wish to use. If you still can not see the access point you wish to use after clicking **Rescan** for more than five times, please move your computer closer to the location where the wireless access point is.
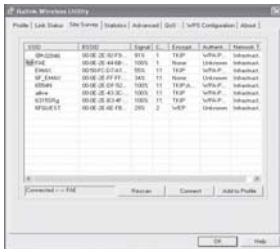
Figure 4

3.   Click the wireless access point or network device you wish to connect to, then click **Connect**, shown in **Figure 5** below.
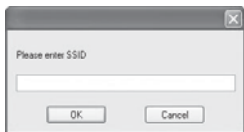

Figure 5

The non-encrypted access point (The **Encryption** field indicate **None)** will connected within one minute. Please jump to step 5 on page 9 if the access point you selected enables encryption, otherwise proceed to next step.

4.   If the wireless access point does not have SSID, you'll be prompted to input it here. Please ask the owner of wireless access point and input the exact SSID here, then click **OK** when ready. If the SSID you provided here is wrong, you'll not be able to connect to this access point.

If the wireless access point you selected have SSID, please skip this step, shown in **Figure 6**.
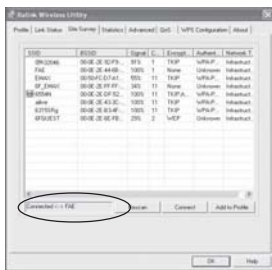

Figure 6

5. If the wireless access point uses encryption, you have to input WEP passphrase or WPA preshared key. Shown on **Figure 7**, please ask the owner of the wireless access point to obtain the correct passphrase/preshared key and enter here, then click **OK**. If the value you inputted here is wrong, you will not be able to connect to this wireless access point. Authentication type is selected automatically, please don't change it.

If the access point you selected does not enable encryption and does not require authentication, please skip this step.

Figure 7

6.   You'll see **Connected <-> SSID (SSID** is the SSID of the wireless access point or wireless device you connected to) message displayed at lower-left corner of configuration utility, congratulations, you're successfully connected to the access point or wireless device you selected, shown in **Figure 8**.

Figure 8

SSID: The Service Set IDentifier of wireless access point or other network device. You can think it as the name of access point of wireless device.

BSSID: The MAC address of wireless access point or other network device. Unlike SSID, BSSID of every access point or network device is unique, and will not be the same with others.So you can identify a single access point or wireless device from others by BSSID, if they all have the same SSID.

Signal: Shows the signal strength of access point or wireless device. Larger number means better radio strength.

Channel: Shows the channel number that access point or wireless device uses.

Encryption: Shows the encryption method that access point or wireless device uses. If the wireless access point does not enable encryption, you'll see **None** displayed here.

Authentication: Shows the authentication mode that access point or wireless device uses. If the wireless access point does not require authentication, you'll see **Unknown** displayed here.

Network Type: Shows the type of wireless connection. If it's a wireless access point, **Infrastructure** will be displayed here; if it's a computer or network device, **AdHoc** will be displayed here.

> **Note**: Wireless access point (Infrastructure) is a network device which acts as a bridge, to let wired and wireless network devices communicate with each other.
>
> **AdHoc** is another connection type. A computer or network device can establish a direct wireless link with other computer or network device directly, without the help of wireless access point.

Using Windows Zero Configuration

Windows XP and Vista has a built-in wireless network configuration utility called **Windows Zero Configuration** (WZC). You can use WZC to configure your wireless network adapter.

1. Right-click Ralink configuration utility icon and select **Use Zero Configuration as Configuration utility, shown in** Figure 9.

Figure 9

2. Click **Start**, **Control Panel**, then click **Network and Internet Connections**.
3. Click **Network Connections**.
4. Right-click **Wireless Network Connection** (it may have a number as suffix if you have more than one wireless network card, please make sure you right click the **Ralink 802.11n Wireless LAN Card**), then select **View Available Wireless Networks,** shown in **Figure 10** in the next page.
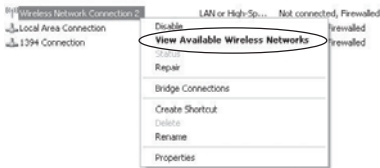
Figure 10

5. All wireless access points in proximity will be displayed here. If the access point you want to use is not displayed here, please move your computer closer to the access point, or you can click **Refresh network list** to rescan access points. Click the access point you want to use if it's shown, then click **Connect,** shown in **Figure 11**.

Figure 11

6. If the access point is protected by encryption, you have to input its security key or passphrase. It must match the encryption setting on the access point. If the access point you selected does not use encryption, you'll not be prompted for security key or passphrase.

7.   If you can see **Connected** message, the connection
      between your computer and wireless access point
   is successfully established.

Soft-AP Function

In addition to being a wireless client of other wireless
access points, this wireless card can act as a wireless service
provider. You can switch this wireless card's operating
mode to **AP** mode to simulate the function of a real
wireless access point by software, therefore, all other
computers and wireless devices can connect to your
computer wirelessly, even share the internet connection
you have.

Switch to AP Mode and Basic Configuration

The operating mode of the wireless card is **Station Mod**e
(becoming a client of other wireless access points) by
default. If you want to switch to AP mode, please right click
the Ralink utility icon, and select **Switch to AP Mod**e,
shown in **Figure 12**.
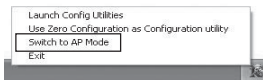
Figure 12

After you select **Switch to AP Mode**, the Ralink utility icon will indicated the wireless card is operating in AP mode now. If you want to switch the wireless card back to station mode (become a client of other wireless access points), click **Switch to Station Mode**.

Config

Figure 13

SSID: Please input the SSID (the name used to identify this wireless access point) here. Up to 32 numerical characters can be accepted here, excepting space.

TX Rate: Please select the data transfer rate here. The maximum TX rate you can select here depends on the wireless mode you're using. It's safe to select **Auto** to let wireless card select a proper TX rate according to the strength and quality of radio signal. When the wireless mode is set to **802.11 B/G/N Mix**, TX Rate will be set to **Auto** and cannot be changed.

Channel: Please select the wireless channel you wish to use. The number of channels available here will vary depends on the setting of **Country Region Code**.

Wireless Mode: Please select the wireless operating mode. You can limit the type of wireless client to 802.11b or 802.11g only, or allow 802.11b/g, and 802.11b/g/n clients. It's safe to select **802.11 B/G/N mix** to allow all kinds of wireless client to connect to your computer, unless you want to limit the type of wireless client allowed to connect to your computer.

Use Mac Address: Click this button to use the MAC address of the wireless card as SSID. A prefix of **AP** will be added.

Security Setting: Set the security options (wireless data encryption). Please refer to chapter 3-2 **Security Settings** for details.

Wireless Protection: Wireless protection will prevent data collision when there are both 802.11b and 802.11g clients. You can select **Auto** to let configuration utility to decide to use wireless protection or not. You can select **ON** or **OFF** to force the use of wireless protection or not.

Country Region Code: Available options are 0-7, which will affect the available wireless channels you can use, please see below.

0: FCC (US, Canada, and other countries uses FCC radio communication standards)

1: ETSI (Europe)

2: SPAIN

3: FRANCE

4: MKK

5: MKKI (TELEC)

6: ISRAEL (Channel 3 to 9)

7: ISRAEL (Channel 5 to 13)

Beacon(ms): You can define the time interval that a beacon signal should be send. Default value is 100. Do not modify this value unless you know what will be affected.

Idle Time: Select the idle time of your wireless network card. Default value is 300. Do not modify this value unless you know what will be affected.

No forwarding among wireless clients: Check this box and wireless clients will not be able to exchange data with each other.

Hide SSID: Check this box and the SSID will not be broadcasted to the public. Your wireless clients must know the exact SSID to be able to connect to your computer. This option is useful to enhance security level.

Allow BW 40 MHz: Check this box to allow BW 40MHz capability.

Default: Click this button to restore all settings in this page back to default value.

Apply: Click this button to activate current settings.

Security Settings

This wireless card supports wireless encryption in AP mode, which will encrypt the data being transferred over the air to enhance data security level. It's recommended to enable data encryption unless you wish to open your computer (and its internet connection) to the public. When you click **Security Setting** in Ralink configuration utility, shown in **Figure 14**.
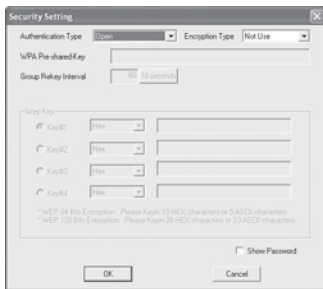
Figure 14

Authentication Type: Please select a wireless authentication type you wish to use. Available options are **Open**, **Shared**, WPA-PSK, **WPA2-PSK**, and **WPA-PSK / WPA2-PSK**. If you want to disable wireless data encryption, you must select **Open** or **Shared**.

Encryption Type: Please select an encryption mode. The available options in this setting item will vary depending on the authentication type you select. If you select **Not Use**, data will not be encrypted and people with some networking knowledge will be able to read the data you transfer with proper tool.

> **Note**: WPA encryption is safer than WEP, however, some older wireless clients don't support WPA encryption.

WPA Pre-shared Key: Please input the WPA pre-shared key here. Only clients with the same pre-shared key you inputted here will be able to connect to your computer. This setting is only available when you select one of WPA encryptions.

Group Rekey Interval: You can specify the time interval to re-issue the key to your wireless clients here. You can click the button **10 seconds** or **Kpackets** to change the unit of time interval. (every 10 seconds or a thousand data packets times the value you specified in **Group Rekey Interval** field)

Wep Key #1~#4: Please input the WEP encryption key here when you select **WEP** as encryption type. There are 2 types of WEP keys: Hex (number 0 to 9, and ASCII characters A to F) and ASCII (all alphanumerical characters plus symbols). Please select the type of WEP key first, and then input the WEP key according to the type of WEP key you selected.

If you want to use WEP 64 bit encryption, please input 10 characters; if you select HEX, or input 5 characters if you select ASCII; If you want to use WEP 128bit encryption, please input 26 characters if you select HEX, or input 13 characters if you select ASCII. 128 bit encryption is safer then 64 bit, but the data transfer speed will be slightly reduced.

Show Password: Check this box and the WPA pre shared key or WEP key you inputted will be shown, but not replaced by asterisk (*).

OK: Click this button to save changes you made in this page.

Cancel: Click this button to discard all changes you made in this window.

Access Control

If you're not going to open your computer and wireless resources to the public, you can use MAC address filtering function to enforce your access control policy, so only wireless clients with MAC address you defined by this function can be connected to your software access point.

Figure 15

Access Policy: Select the policy type of your access rule:

Disable: Allow any wireless client with proper authentication settings to connect to this access point.

Allow All: Only allow wireless clients with MAC address listed here to connect to this access point. Reject All: Reject wireless clients with MAC address listed here to be connected to this access point.

MAC address: Input the MAC address of the wireless client you you wish to allow or reject here. No colon (:) or hyphen (-) required.

Add: Add the MAC address you inputted in **MAC address** field to the list.

Delete: Please select a MAC address from the list, then click **Delete** button to remove it.

Remove: Delete all MAC addresses in the list.

Apply: Save and apply changes you made.

Mac Table

Show the list all wireless clients connected to this access point, shown in **Figure 16.**

Figure 16

MAC Address: Displays the MAC address of this wireless client.

AID: The serial number of this wireless connection.

Power Saving Mode: Displays the capability of power saving function of this wireless client.

Status: Displays additional information of this wireless connection, like current wireless operating mode and data transfer rate.

Event Log

This software access point will log all wireless-related activities as a log, shown in **Figure 17**.

Figure 17

You can click **Clear** to remove all entries in the log.

Statistics

This page shows detailed information about how your software access point works, shown in **Figure 18**.

Figure 18

You can click **RESET COUNTERS** button to reset all counters to zero.

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Technical Support and Warranty

QUESTIONS? SIIG's **Online Support** has answers! Simply visit our web site at *www.siig.com* and click **Support**. Our online support database is updated daily with new drivers and solutions. Answers to your questions could be just a few clicks away. You can also submit questions online and a technical support analysts will promptly respond.

SIIG offers a 5-year manufacturer warranty with this product. Please see our web site for more warranty details. If you encounter any problems with this product, please follow the procedures below.

If it is within the store's return policy period, please return the product to the store where you purchased from. If your purchase has passed the store's return policy period, please follow these steps to have the product repaired or replaced.

Step 1: Submit your RMA request.

Go to **www.siig.com**, click **Support**, then **RMA** to submit a request to SIIG RMA. If the product is determined to be defective, an RMA number will be issued.

Step 2: After obtaining an RMA number, ship the product.

- Properly pack the product for shipping. All accessories that came with the original package must be included.

- Clearly write your RMA number on the top of the returned package. SIIG will refuse to accept any shipping package, and will not be responsible for a product returned without an RMA number posted on the outside of the shipping carton.

- You are responsible for the cost of shipping. Ship the product to the following address:

    SIIG, Inc.
    6078 Stewart Avenue
    Fremont, CA 94538-3152, USA
    RMA #: _____

- SIIG will ship the repaired or replaced product via Ground in the U.S. and International Economy outside of the U.S. at no cost to the customer.

About SIIG, Inc.

Founded in 1985, SIIG, Inc. is a leading computer upgrade manufacturer of I/O connectivity products, including PCI & ISA serial and parallel ports, USB, Serial ATA & UltraATA controllers, FireWire (1394a/b), networking, sound cards, and other accessories. SIIG is the premier one-stop source of upgrades.

SIIG products offer comprehensive user manuals, many user-friendly features, and are backed by an extensive manufacturer warranty. High-quality control standards are evident by the overall ease of installation and compatibility of our products, as well as one of the lowest defective return rates in the industry. SIIG products can be found in computer retail stores, mail order catalogs, through major distributors, system integrators, and VARs in the Americas and the UK, and through e-commerce sites.

PRODUCT NAME

Wireless-N CardBus Adapter

FCC RULES: TESTED TO COMPLY WITH FCC PART 15, CLASS B
OPERATING ENVIRONMENT: FOR HOME OR OFFICE USE

FCC COMPLIANCE STATEMENT:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

THE PARTY RESPONSIBLE FOR PRODUCT COMPLIANCE

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