



# **BiPAC 3010A**

## **Wireless-AC Dual-Band USB Adapter**

### **User Manual**

**Version: 1.01  
(April, 2014)**

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# Federal Communication Commission Interference Statement

## FCC 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.

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

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: The manufacturer is not responsible for any Radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

## **Federal Communication Commission (FCC) Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment has been SAR-evaluated for use in hand. SAR measurements are based on a 5mm spacing from the body and that compliance is achieved at that distance.

# **R&TTE Compliance Statement**

This equipment complies with all the requirements of DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

## **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

## **EU Countries Intended for Use**

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

## **EU Countries Not intended for use**

None.

## ▶ RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard for wireless device employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg. \*Tests for SAR are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

SAR compliance has been established in the host product(s) (laptop computers), tested at 5mm separation distance to the human body, and tested with USB slot configurations including Horizontal-UP, Horizontal-Down, Vertical-Front, Vertical-Back. This device can be used in host product(s) with substantially similar physical dimensions, construction, and electrical and RF characteristics.

The highest SAR value, tested per FCC RF exposure guidelines for USB dongle, as described in this user guide, is 1.19 W/kg. The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of [www.fcc.gov/oet/ea/fccid](http://www.fcc.gov/oet/ea/fccid) after searching on FCC ID: NDD9578221212.

This USB dongle transmitter is approved for use in typical laptop computers. To comply with FCC RF exposure requirements, this USB dongle should not be used in other devices or certain laptop and tablet computer configurations where the USB connectors on the host computer are unable to provide or ensure the necessary operating configurations intended for the device and its users or bystanders to satisfy RF exposure compliance requirements. This USB dongle should be installed and operated with minimum distance 5mm between the radiator & your body.

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# CHAPTER I: Product Information

## 1-1 Introduction

Thank you for purchasing this extreme high-speed 802.11a/b/g/n/ac dual band wireless network adapter! Excepting common wireless standards 802.11a/b/g/n, this wireless network adapter is also 802.11ac compatible - data transfer rate is 867Mbps. 802.11ac also provides wider wireless coverage, so you don't have to worry if your computer is far from your wireless access point.

With easy-to-install Super Speed USB 3.0 interface - a very common expansion port of computers - plug this wireless network adapter into any empty USB 3.0 port of your computer, just that simple!

*Other features of this router including:*

- IEEE 802.11a/b/g/n/ac compatible.
- Extreme High transfer data rate – 11ac up to 867Mbps, 11n up to 300Mbps.
- Support WMM wireless QoS feature.
- Support 64/128-bit WEP, WPA, WPA2 with IEEE 802.1x functions for high level of security.
- Support the most popular operating system: Windows XP / Vista / 7 / 8 / 8.1 / Linux / Mac OS.
- Support WPS (Wi-Fi Protected Setup) hardware button for easy connection.
- Support USB 3.0/2.0 interface. (11ac mode use USB 3.0 is required )
- Portable dongle type design.

## 1-2 Safety Information

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

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

2. DO NOT put this network adapter at or near hot or humid places, like kitchen or bathroom. Also, do not left this wireless network adapter in the car in summer.

3. This network adapter is small enough to put in a child's mouth, and it could cause serious injury or could be fatal. If they throw the network adapter, the adapter will be damaged. PLEASE KEEP THIS NETWORK ADAPTER OUT THE REACH OF CHILDREN!

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

5. There's no user-serviceable part inside the network adapter. If you found that the network adapter is not working properly, please contact your dealer of purchase and ask for help. DO NOT disassemble the network adapter by yourself, warranty will be void.

6. If the network adapter falls into water, DO NOT USE IT AGAIN BEFORE YOU SEND THE ADAPTER TO THE DEALER OF PURCHASE FOR INSPECTION.

7. If you smell something strange or even see some smoke coming out from the network adapter, switch the computer off immediately, and call dealer of purchase for help.

### **1-3 System Requirements**

- An empty USB 3.0/2.0 port (11ac mode use Super Speed USB 3.0 is required ) (May not be able work with USB 1.1 port, and performance will be greatly reduced)
- Windows XP, Vista, Windows 7, Windows 8, Windows 8.1, Linux, Mac OS operating system
- CD-ROM drive
- At least 100MB of available disk space

## 1-4 Package Contents

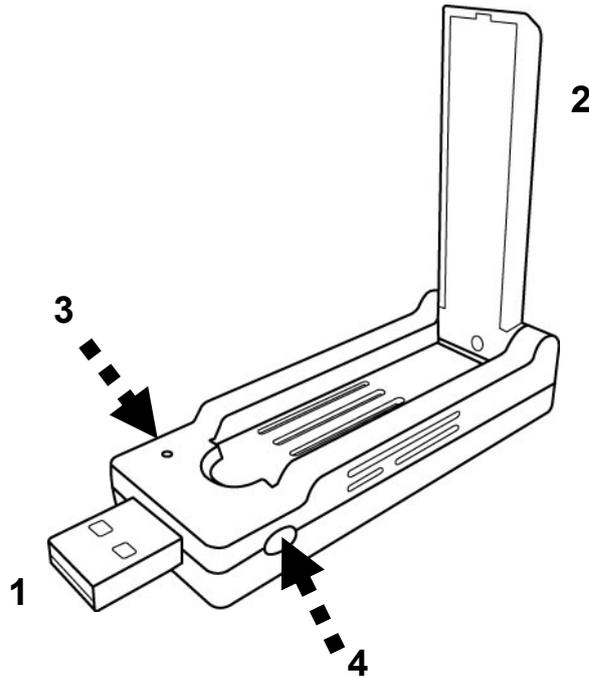
Before you starting to use this wireless network adapter, please check if there is any of the items missing in the package, and contact your dealer of purchase to claim for missing items:

- USB Wireless Network Adapter (1 pcs)
- Quick Installation Guide (1 pcs)
- Driver/User Manual CD-ROM (1 pcs)



## 1-5 Familiar with your new wireless network adapter

1. USB Connector
2. External Wireless Antenna
3. Power/Activity/WPS LED
4. WPS Button (Press 2 seconds to activate WPS pairing mode)



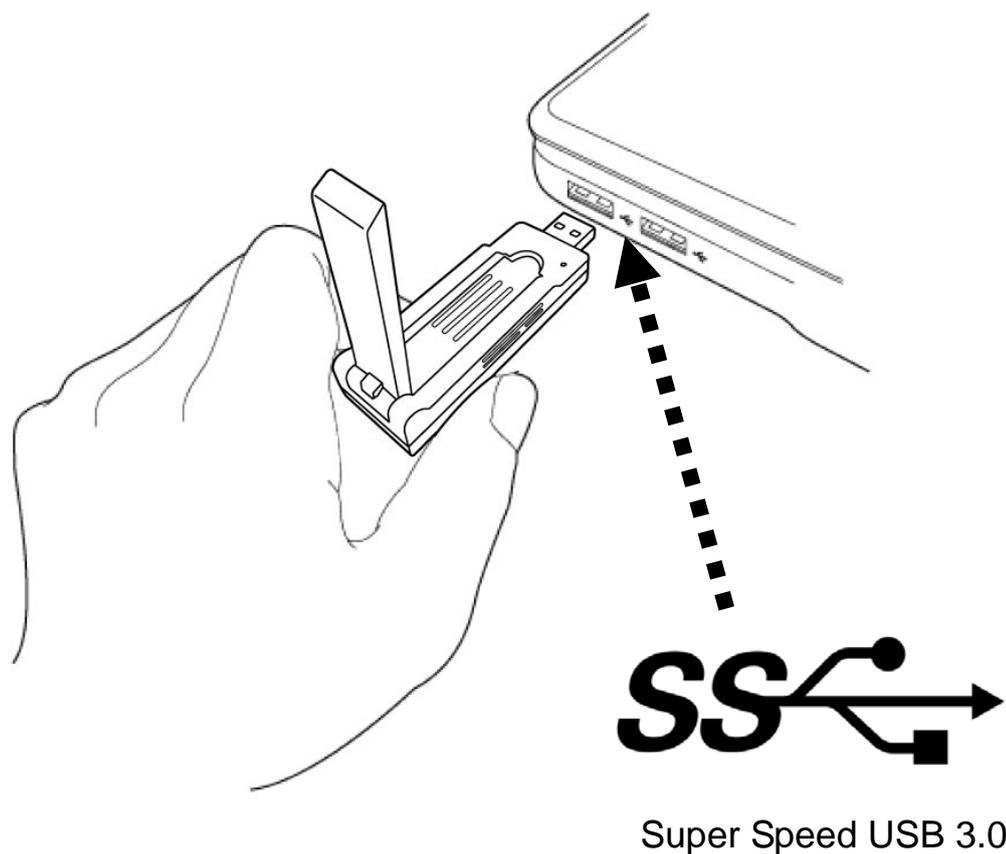
LED Name	Light Status	Description
Power/ Activity/ WPS	Off	1. No wireless network adapter is installed 2. Radio off mode.
	On	1. Wireless network adapter is normally installed. 2. Radio on mode.
	Blinking	1. Transferring or receiving data. 2. Slow Blinking one time per seconds means WPS is activated. The network adapter will wait for 2 minutes to establish WPS connection. 3. Fast Blinking 30 seconds, then Solid light 15 seconds, means WPS connection is established successfully.

## CHAPTER II: Driver Installation and Configuration

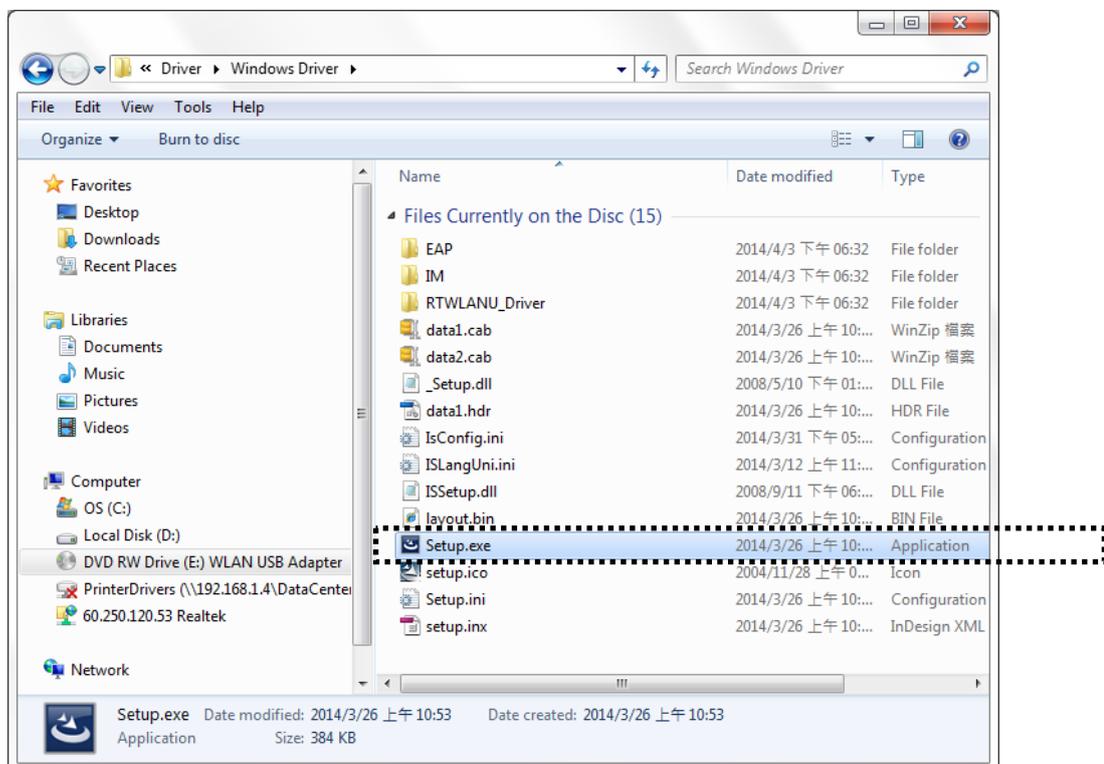
### 2-1 Network Adapter Installation

Please follow the following instructions to install your new USB wireless network adapter:

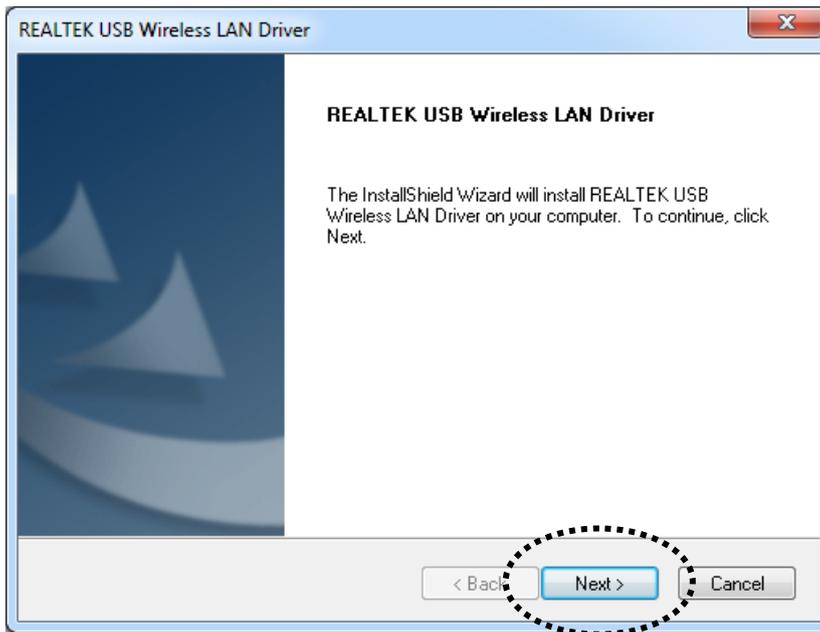
1. Insert the USB wireless network adapter into an empty **Super Speed USB 3.0** port of your computer when computer is switched on. Never use force to insert the adapter, if you feel it's stuck, flip the adapter over and try again.



2. Insert device driver CD-ROM into the CD/DVD ROM drive of your computer, and click on the button of Billion's CD menu to install the software program. Or you can optionally select "Windows Driver" folder and execute 'Setup.exe' program this folder.

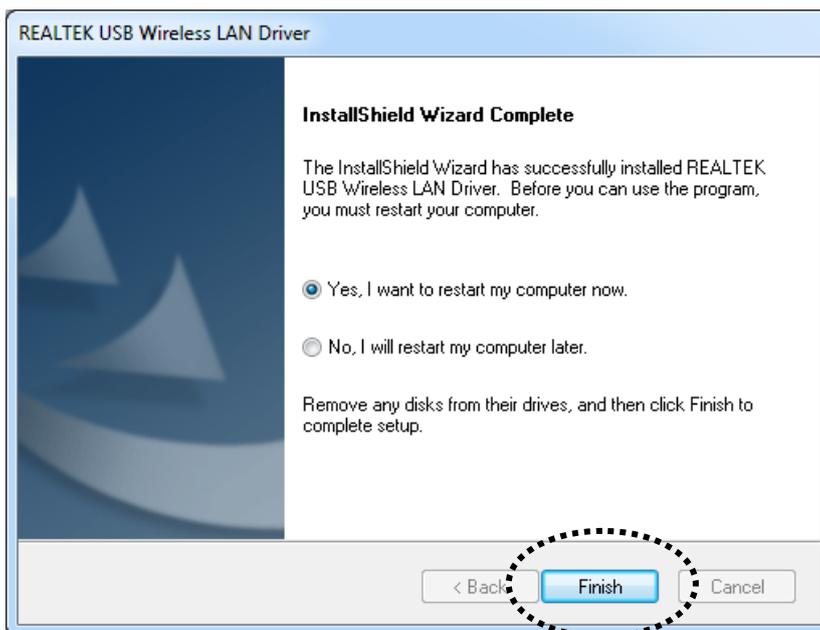


3. Click 'Next' to continue.



Click 'Next' to start installation. Installation procedure needs few minutes to complete, please be patient.

4. Click 'Finish' to restart your computer to complete installation procedure. If you don't want to restart computer now, select 'No, I will restart my computer later' option and click 'Finish'. Please note you have to restart your computer before you can use your new USB wireless network adapter.



5. After installation is complete, wireless icon will be shown in the desktop of your computer automatically. You will also see an icon at the bottom-right corner of your windows system. You can click the icon by left mouse key, and select the configuration utility you want to use.



## 2-2 Connect to Wireless Access Point

To use wireless network, you have to connect to a wireless access point first. You can use Windows Zero Configuration utility (comes with Windows operating system).

Windows has a built-in wireless network configuration utility, called as 'Windows Zero Configuration' (WZC). You can use WZC to configure your wireless network parameter:

1. You will see an icon at the bottom-right corner of your windows system. You can click the icon by left mouse key, and select the configuration utility you want to use.

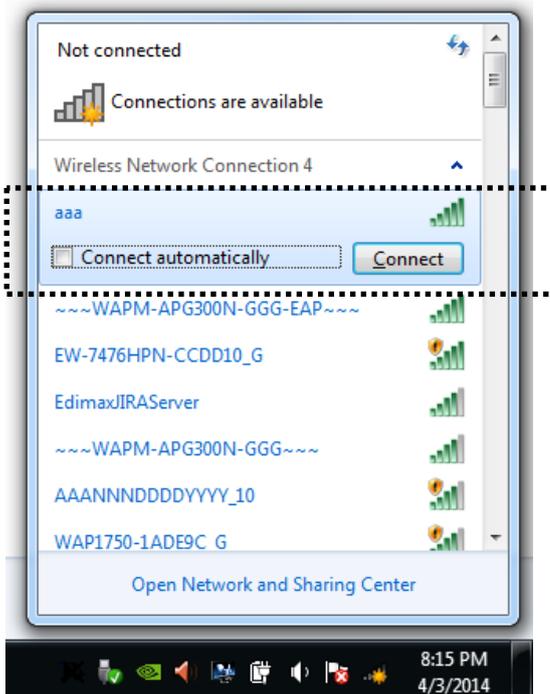


2. Wireless utility will appear. Click  'Refresh' button to search for wireless access points nearby.



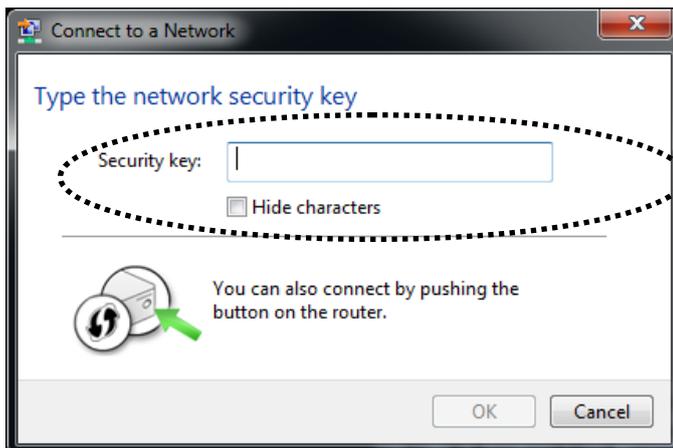
3. Please wait for a while, and all wireless access points which can be reached by this wireless network adapter will be displayed here.

- (1). Please select the access point you want to connect.
- (2). If the wireless access point you want to connect does not show here, please click  'Refresh'.



4. If the access point is protected by encryption, you have to input its security key or passphrase here. 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.

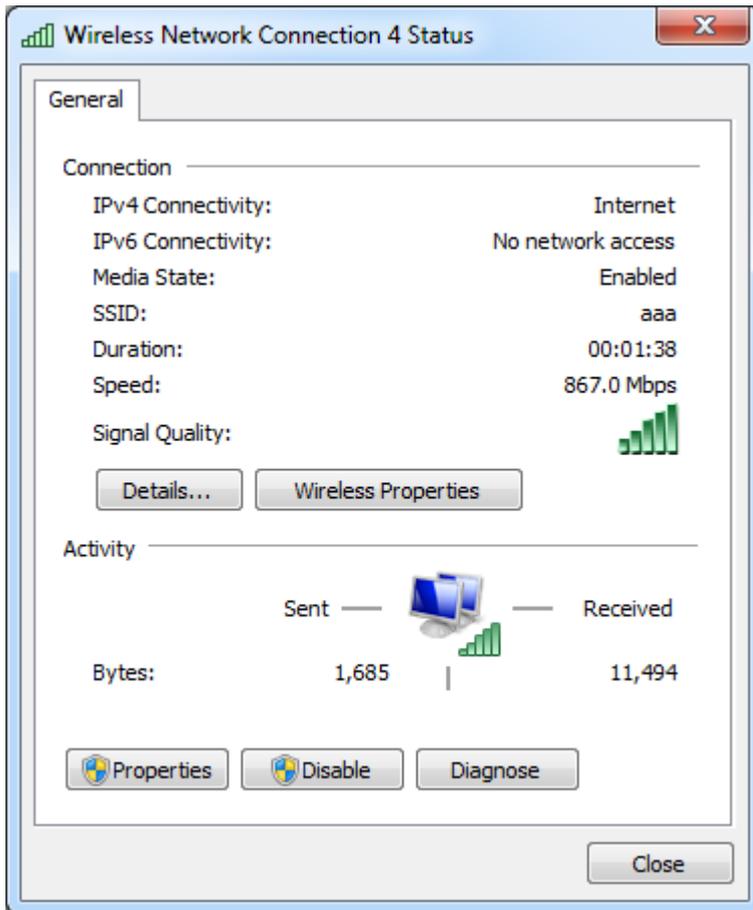


5. The network adapter will attempt to connect to access point now, this may require few seconds to minutes, please be patient. When the 'wireless icon' become  , your computer is connected to access point you selected.

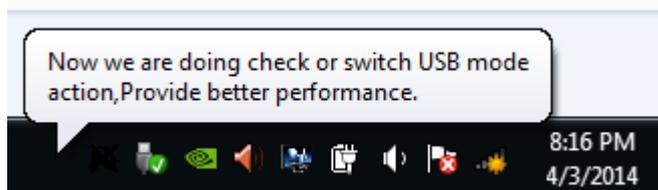


**HERE!**

6. If you want to see 'Wireless Network Connection Status' information, You can click your access point by right mouse key, and select "status", you can see the status information of your wireless network connection.



***NOTE: If you insert the USB wireless network adapter into an USB 3.0 port and connect to an 11ac AP, device driver will doing auto USB mode switch and shown the message as below photo, or you will heard sounds of USB insert or unplug, this is the normal states.***



# CHAPTER III: Appendix

## 3-1 Hardware Specification

Standards: IEEE 802.11a/b/g/n/ac

Interface: USB 3.0 (USB 2.0 Compatible)

Frequency Band: 2.4000~2.4835GHz (subject to local regulations)

5.150~5.825GHz (subject to local regulations)

Data Rate:

11a: 6/9/12/24/36/48/54Mbps

11b: 1/2/5.5/11Mbps

11g: 6/9/12/24/36/48/54Mbps

11n (20MHz): up to 144Mbps

11n (40MHz): up to 300Mbps

11ac (80MHz): up to 867Mbps

Securities: WEP 64/128, WPA, WPA2 and IEEE 802.1x

Antenna: 2 internal PIFA antennas (2.4G/5G 2dBi)

Drivers: Windows XP / Vista / 7 / 8 / 8.1/ Linux / Mac OS

LED: Link/Act/WPS

TX Power: 2.4GHz: 11b(11M):  $16\pm 1.5$  dBm , 11g(54M):  $14\pm 1.5$  dBm

11n(20MHz, MCS7):  $14\pm 1.5$  dBm,

11n(40MHz, MCS7):  $12\pm 1.5$  dBm

5GHz: 11a(54M):  $12\pm 1.5$  dBm,

11n(20MHz, MCS7):  $10\pm 1.5$  dBm,

11n(40MHz, MCS7):  $10\pm 1.5$  dBm

11ac(80MHz, VHTMCS9):  $10\pm 1.0$  dBm

RX Sensitivity: 2.4GHz: 11b(11M):  $-79\pm 2$  dBm, 11g(54M):  $-65\pm 2$ dBm

11n(20MHz, MCS7):  $-64\pm 2$ dBm,

11n(40MHz, MCS7):  $-61\pm 2$ dBm

5GHz: 11a(54M):  $-70\pm 2$ dBm,

11n(20MHz, MCS7):  $-67\pm 2$ dBm,

11n(40MHz, MCS7):  $-64\pm 2$ dBm,

11ac(80MHz, VHTMCS9):  $-51\pm 2$ dBm

Dimension: 87.1 (L) x 27.2 (W) x 17.2 (H) mm

Temperature: Operating: 32~104°F (0~40°C)

Storage: -4~140°F (-20~60°C)

Humidity: Operating: 0~90% (Non-Condensing)

Storage: Max. 95% (Non-Condensing)

Certification: FCC, CE

### 3-2 Troubleshooting

If you encounter any problem when you're using this wireless network adapter, don't panic! Before you call your dealer of purchase for help, please check this troubleshooting table, the solution of your problem could be very simple, and you can solve the problem by yourself!

Scenario	Solution
I can't find any wireless access point / wireless device in 'Site Survey' function.	<ol style="list-style-type: none"><li>1. Click 'Rescan' for few more times and see if you can find any wireless access point or wireless device.</li><li>2. Please move closer to any known wireless access point.</li><li>3. 'Ad hoc' function must be enabled for the wireless device you wish to establish a direct wireless link.</li><li>4. Please adjust the position of network adapter (you may have to move your computer if you're using a notebook computer) and click 'Rescan' button for few more times. If you can find the wireless access point or wireless device you want to connect by doing this, try to move closer to the place where the wireless access point or wireless device is located.</li></ol>
Nothing happens when I click 'Open Config Utility'	<ol style="list-style-type: none"><li>1. Please make sure the wireless network adapter is inserted into your computer's USB port.</li><li>2. Reboot the computer and try again.</li></ol>

	<ol style="list-style-type: none"> <li>3. Remove the adapter and insert it into another USB port.</li> <li>4. Remove the driver and re-install.</li> <li>5. Contact the dealer of purchase for help.</li> </ol>
<p>I cannot establish connection with a certain wireless access point</p>	<ol style="list-style-type: none"> <li>1. Click 'Add to Profile' for few more times.</li> <li>2. If the SSID of access point you wish to connect is hidden (nothing displayed in 'SSID' field in 'Site Survey' function), you have to input correct SSID of the access point you wish to connect. Please contact the owner of access point to ask for correct SSID.</li> <li>3. You have to input correct passphrase / security key to connect an access point with encryption. Please contact the owner of access point to ask for correct passphrase / security key.</li> <li>4. The access point you wish to connect only allows network adapters with specific MAC address to establish connection. Please go to 'Status' menu and write the value of 'MAC Address' down, then present this value to the owner of access point so he / she can add the MAC address of your network adapter to his / her access point's list.</li> </ol>
<p>The network is slow / having problem when transferring large files</p>	<ol style="list-style-type: none"> <li>1. Move closer to the place where access point is located.</li> <li>2. There could be too much people using the same radio channel. Ask the owner of the access point to change the channel number.</li> </ol> <p>Please try one or more solutions listed above.</p>

## 3-3 Glossary

### 1. What is the IEEE 802.11g standard?

802.11g is the new IEEE standard for high-speed wireless LAN communications that provides for up to 54 Mbps data rate in the 2.4 GHz band. 802.11g is quickly becoming the next mainstream wireless LAN technology for the home, office and public networks.

802.11g defines the use of the same OFDM modulation technique specified in IEEE 802.11a for the 5 GHz frequency band and applies it in the same 2.4 GHz frequency band as IEEE 802.11b. The 802.11g standard requires backward compatibility with 802.11b.

The standard specifically calls for:

- A. A new physical layer for the 802.11 Medium Access Control (MAC) in the 2.4 GHz frequency band, known as the extended rate PHY (ERP). The ERP adds OFDM as a mandatory new coding scheme for 6, 12 and 24 Mbps (mandatory speeds), and 18, 36, 48 and 54 Mbps (optional speeds). The ERP includes the modulation schemes found in 802.11b including CCK for 11 and 5.5 Mbps and Barker code modulation for 2 and 1 Mbps.
- B. A protection mechanism called RTS/CTS that governs how 802.11g devices and 802.11b devices interoperate.

### 2. What is the IEEE 802.11b standard?

The IEEE 802.11b Wireless LAN standard subcommittee, which formulates the standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

### 3. What does IEEE 802.11 feature support?

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge Protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS Feature
- Fragmentation
- Power Management

### 4. What is Ad-hoc?

An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

**5. What is Infrastructure?**

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

**6. What is BSS ID?**

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

**7. What is WEP?**

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802 .11 standard.

**8. What is TKIP?**

TKIP is a quick-fix method to quickly overcome the inherent weaknesses in WEP security, especially the reuse of encryption keys. TKIP is involved in the IEEE 802.11i WLAN security standard, and the specification might be officially released by early 2003.

**9. What is AES?**

AES (Advanced Encryption Standard), a chip-based security, has been developed to ensure the highest degree of security and authenticity for digital information, wherever and however communicated or stored, while making more efficient use of hardware and/or software than previous encryption standards. It is also included in IEEE 802.11i standard. Compare with AES, TKIP is a temporary protocol for replacing WEP security until manufacturers implement AES at the hardware level.

**10. Can Wireless products support printer sharing?**

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows 2000, or other LAN operating systems to support printer or file sharing.

**11. Would the information be intercepted while transmitting on air?**

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

**12. What is DSSS? What is FHSS? And what are their differences?**

Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single

logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip is, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

### **13. What is Spread Spectrum?**

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

### **14. What is WPS?**

WPS stands for Wi-Fi Protected Setup. It provides a simple way to establish unencrypted or encrypted connections between wireless clients and access point automatically. User can press a software or hardware button to activate WPS function, and WPS-compatible wireless clients and access point will establish connection by themselves. There are two types of WPS: PBC (Push-Button Configuration) and PIN code.