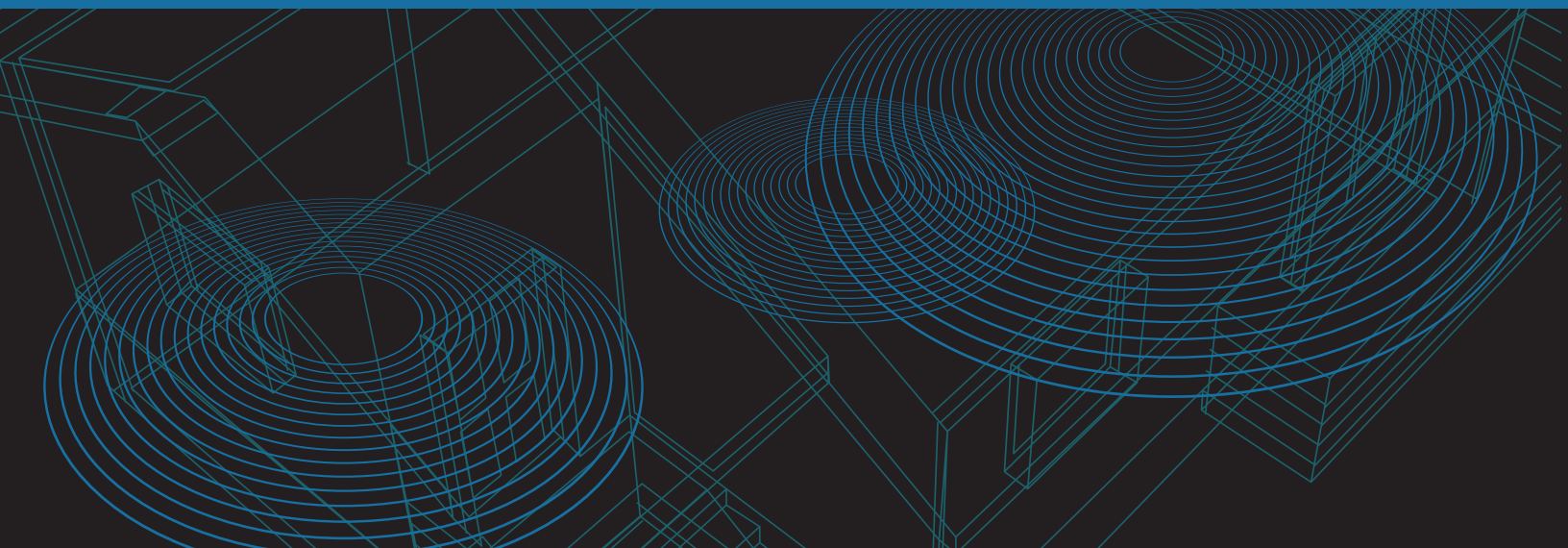




Wireless-1200AC USB Adapter

HW12ACU



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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate

equipment.

Federal Communication Commission (FCC) Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

The equipment version marketed in US is restricted to usage of the channels 1-11 only.

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.

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Chapter I: Product Information

1-1 Introduction and safety information

Thank you for purchasing the HW12ACU Wireless-1200AC USB Adapter! Excepting common wireless standards 802.11a/b/g/n, this wireless network card is also 802.11ac compatible – Wireless-AC data transfer rate is 900Mbps, and that's six times faster than a 802.11n wireless network!

Other features of this router including:

- High-efficiency antenna expands the scope of your wireless network.
- High-speed data transfer rate - Up to 900Mbps.
- Supports Wave-2 compliant MU-MIMO
- WMM Wireless QoS function: control the bandwidth required for different applications.
- Compatible with 802.11a/b/g/n wireless networks.
- Supports major encryption methods like WEP, WPA, and WPA2 encryption.
- WPS configuration - You don't need an experienced computer technician to help you to get connected. Utilizing the software program of the card, you can get your computer connected by pushing a button or entering an 8-digit code. Pressing the button on the network card, the WPS connection can be activated as well.
- USB 3.0 interface - you can get it installed on your computer in just few seconds!

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 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 left this wireless network card in the car in summer.
3. This network card 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 card, the card will be damaged. **PLEASE KEEP THIS NETWORK CARD OUT THE REACH OF CHILDREN!**
4. This network card will become hot when being used for long time (***This is normal and is not a malfunction***). **DO NOT** put the network card on a paper, cloth, or other flammable objects after the network card has been used for a long time.
5. There's no user-serviceable part inside the network card. If you found that the network card is not working properly, please contact your dealer of purchase and ask for help. **DO NOT** disassemble the network card by yourself, warranty will be void.
6. If the network card falls into water, **DO NOT USE IT AGAIN BEFORE YOU SEND THE CARD TO THE DEALER OF PURCHASE FOR INSPECTION.**
7. If you smell something strange or even see some smoke coming out from the network card, switch the computer off immediately, and call dealer of purchase for help.

1-3 System Requirements

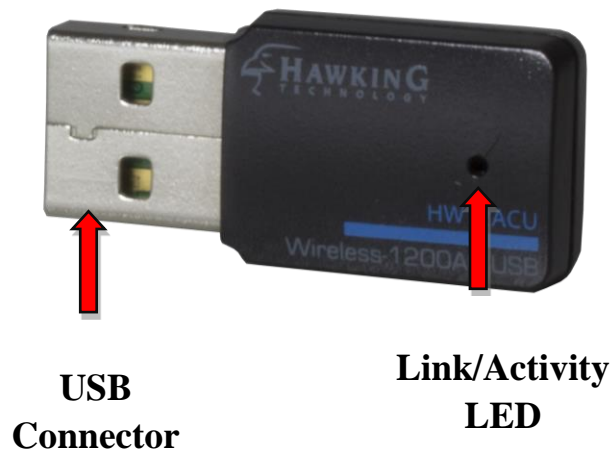
- An empty USB 2.0 port (May not be able work with USB 1.1 port, and performance will be greatly reduced)
- Windows 7+
- Mac OS 10.6+
- CD-ROM drive
- At least 100MB of available disk space

1-4 Package Contents

Before you starting to use this wireless network card, please check if there's anything missing in the package, and contact your dealer of purchase to claim for missing items:

- USB Wireless Network Card
- Driver/Utility/Quick Guide/User Manual CD-ROM
- Quick Installation Guide

1-5 Hardware Overview



LED Name	Light Status	Description
Link/ Activity	Off	No wireless network card is installed.
	On	Solid light 5 seconds means WPS connection is established successfully.
	Blinking	Wireless network card is normally installed /Linked to a wireless access point / Transferring or receiving data. Fast Blinking three times per second means WPS is activated. The network card will wait for 2 minutes to establish WPS connection.

CHAPTER II: Driver Installation and Configuration

2-1 Windows: Network Card Installation

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

1. Insert the USB wireless network card into an empty USB port of your computer when computer is switched on. Never use force to insert the card, if you feel it's stuck, flip the card over and try again.
2. Insert device driver CDROM into the CD/DVD ROM drive of your computer. An installation utility should load.

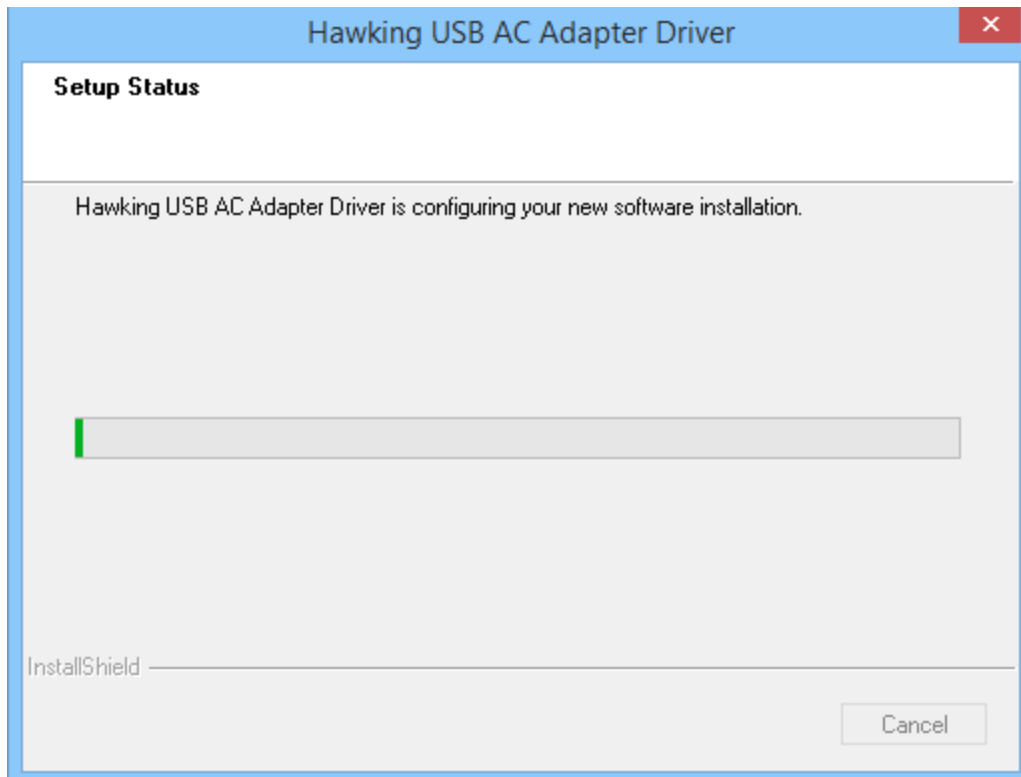


3. Click "Start Here" to begin installation of the driver/software

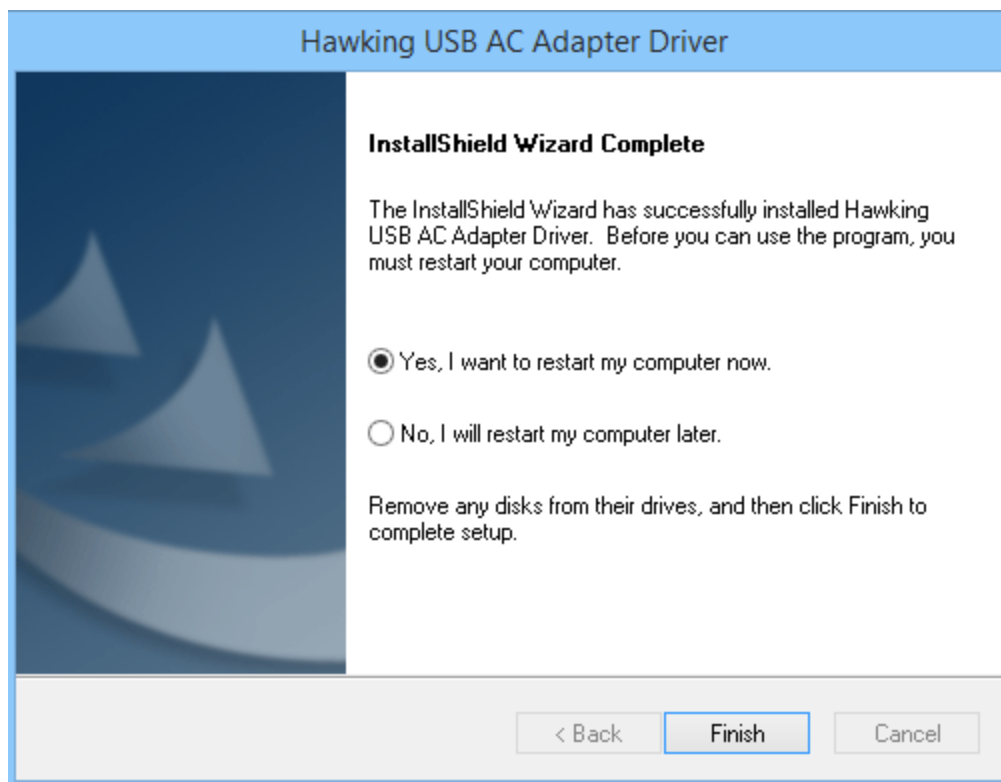
4. Click 'Next' to continue.



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



6. If prompted, click 'Finish' to reboot your computer to complete installation procedure. If you don't want to reboot computer now, select 'No, I'll restart my computer later' option and click 'Finish'. Otherwise go to step 7.



7. A new icon will appear near the clock of system tray:



2-2 Windows: Connect to Wireless Access Point

To use wireless network, you have to connect to a wireless access point first.

Windows 7 and 8 and 10 has a built-in wireless network configuration utility. You can also use this to configure your wireless network parameter:

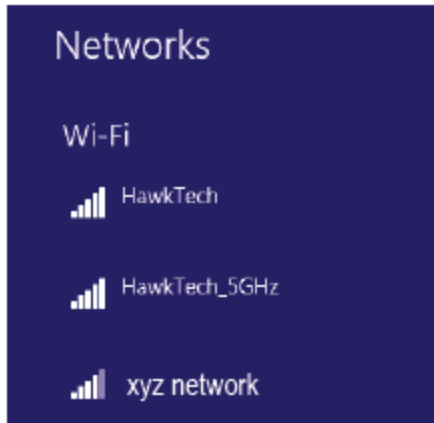
1. On the lower right corner of your taskbar, next to the time, you should see a wireless icon. Clicking on the icon should show you all available wireless networks. All wireless access points in proximity will be displayed here. If the access point you want to use is not displayed here, please try to 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'.
On Windows 7, it looks like this.



On Windows 8 and 10, it would appear like so

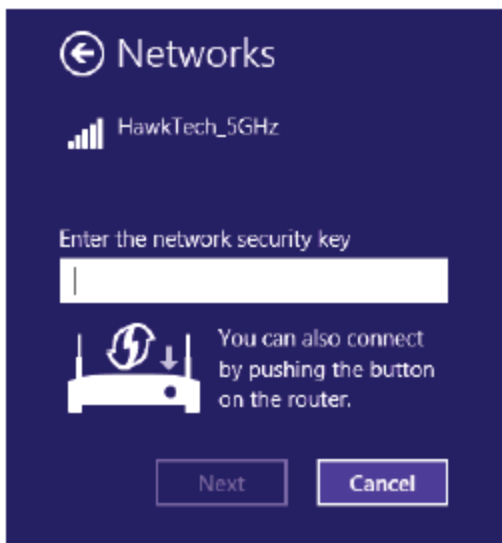


With a list of networks above it

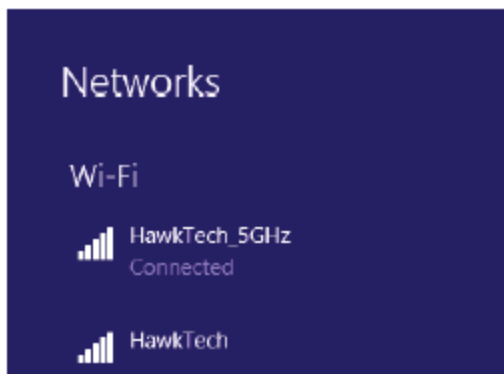


2. If the access point is protected by encryption, you have to input its security key or passphrase here. It must match the encryption setting on the access point.

If the access point you selected does not use encryption, you'll not be prompted for security key or passphrase.



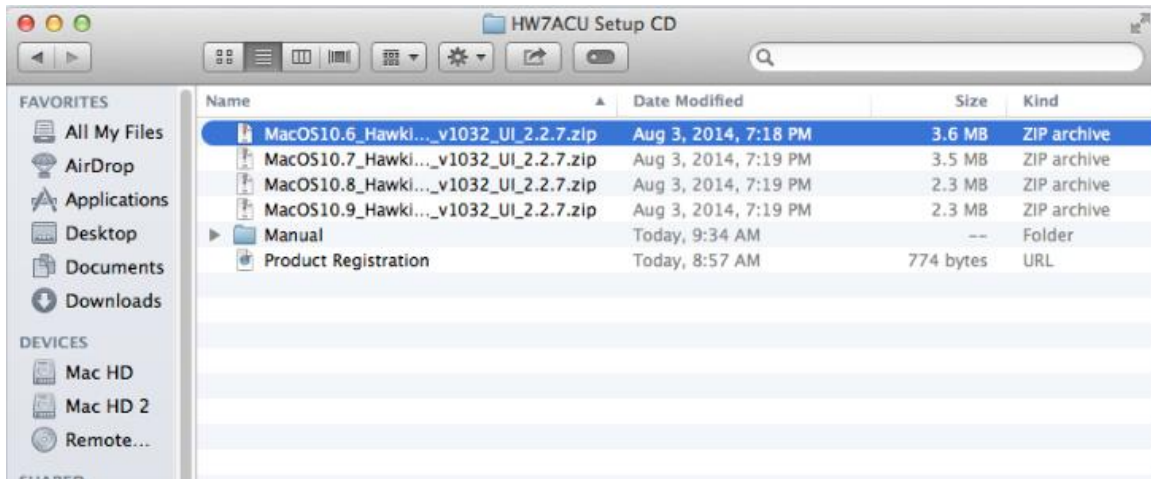
3. If you can see 'Connected' message, the connection between your computer and wireless access point is successfully established.



2-3 Mac: Network Card Installation and Setup

Please follow the following instructions to install your new wireless network card on a Mac:

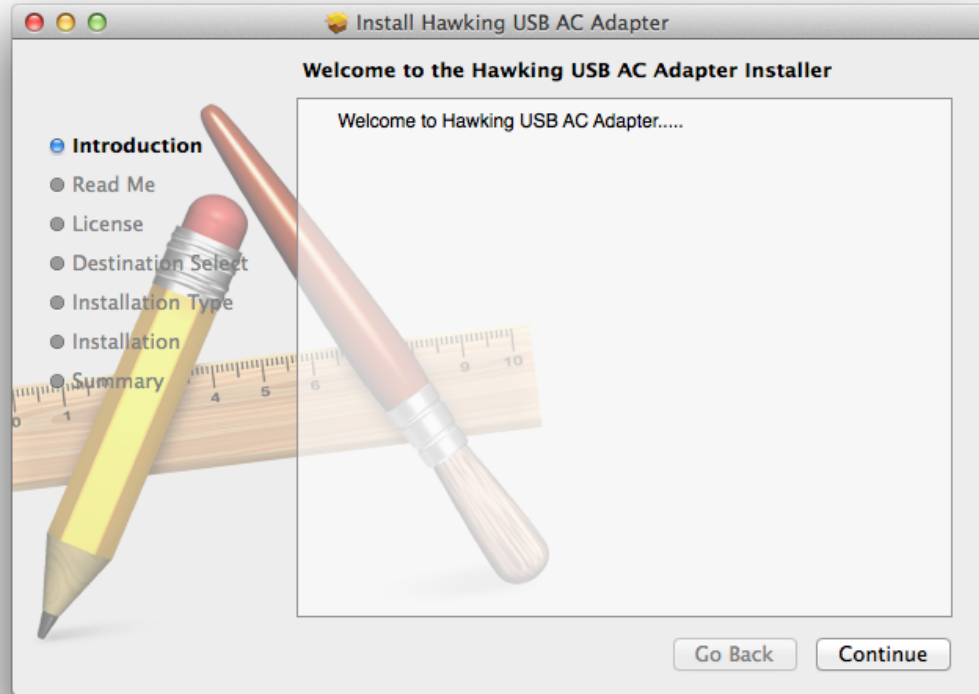
- 1) Insert the CD into the computer. A CD icon should show up on the desktop, double click on it. You should see a list of files. Select your Mac OS Version



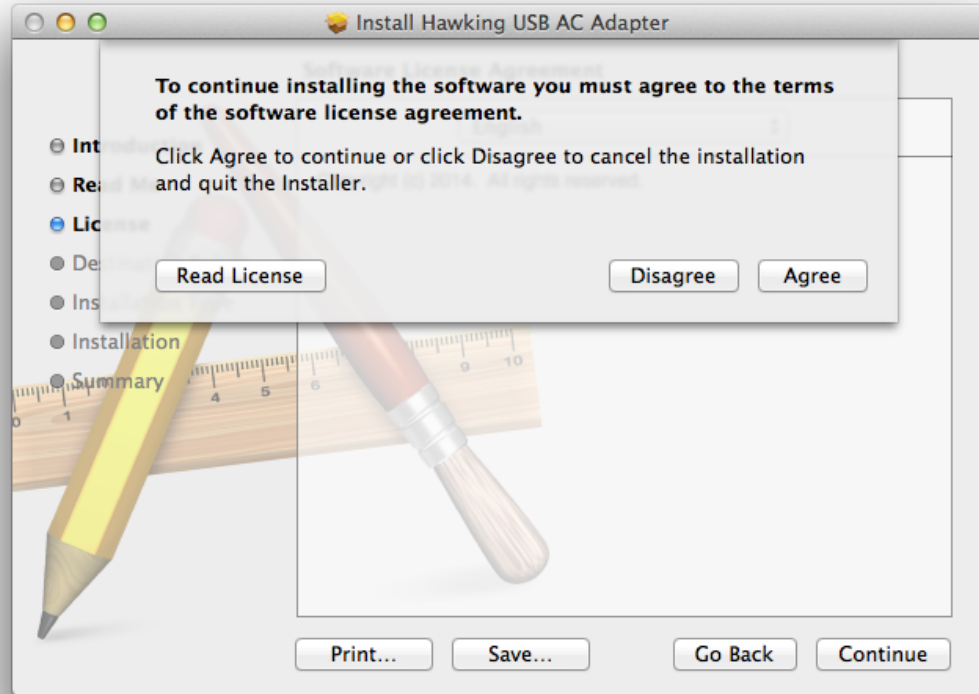
- 2) It should open a folder. You can double click on Installer.pkg



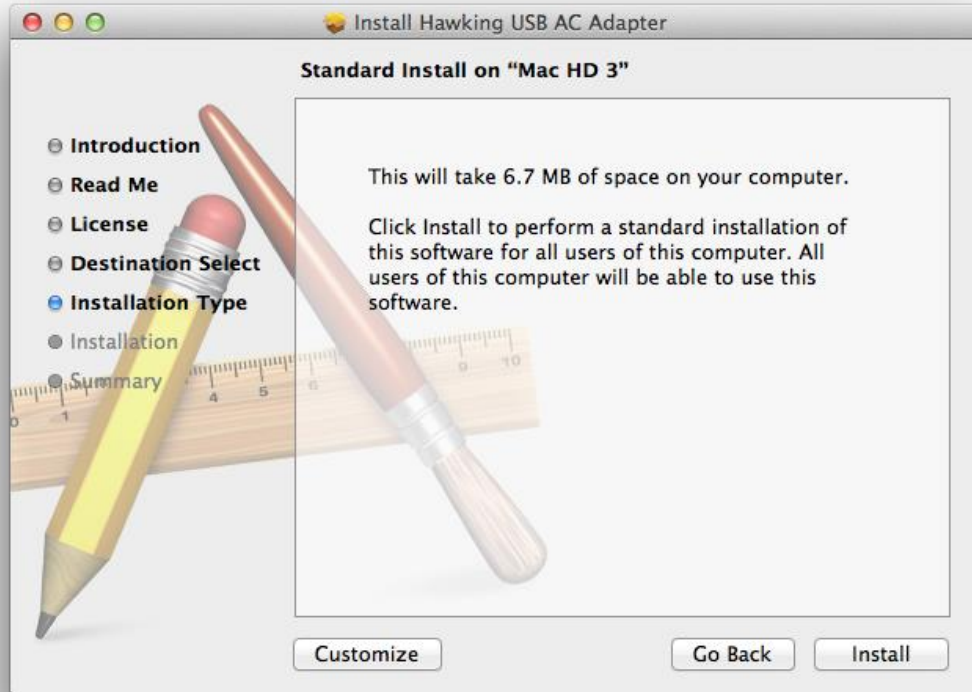
- 3) Our install program should now load. Click "Continue"



4) Please click “Agree” when it prompts you for the license agreement.



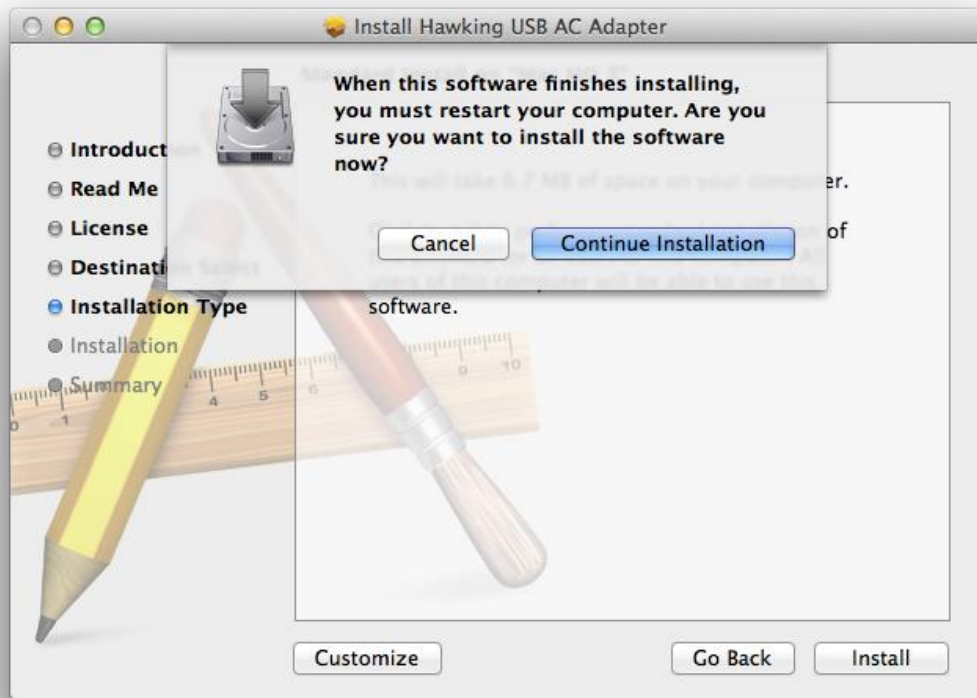
5) Please click install



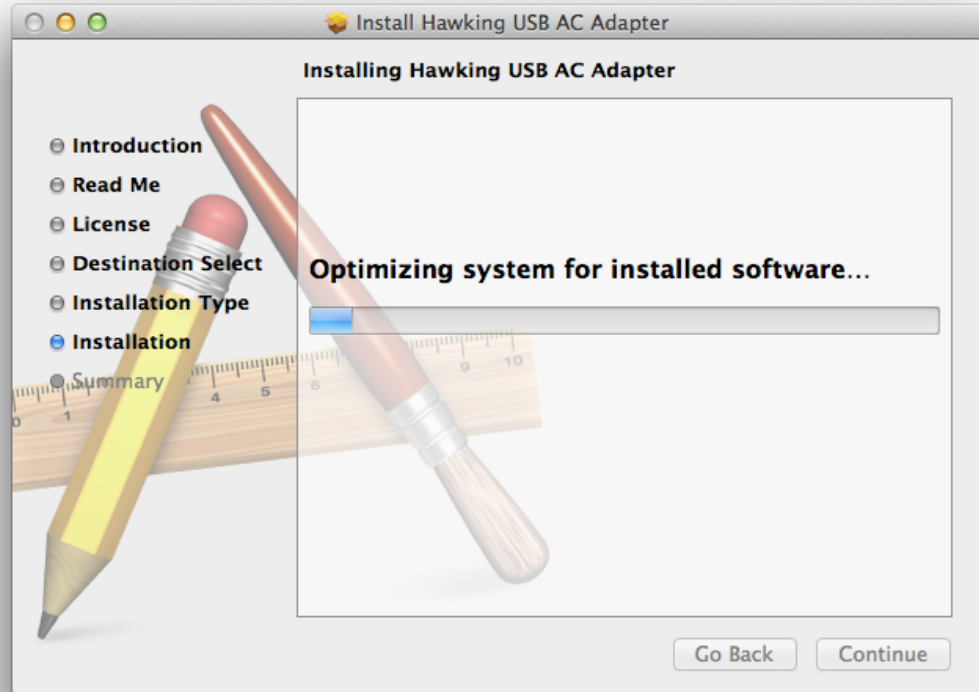
6) Please type in your Mac User Account Password



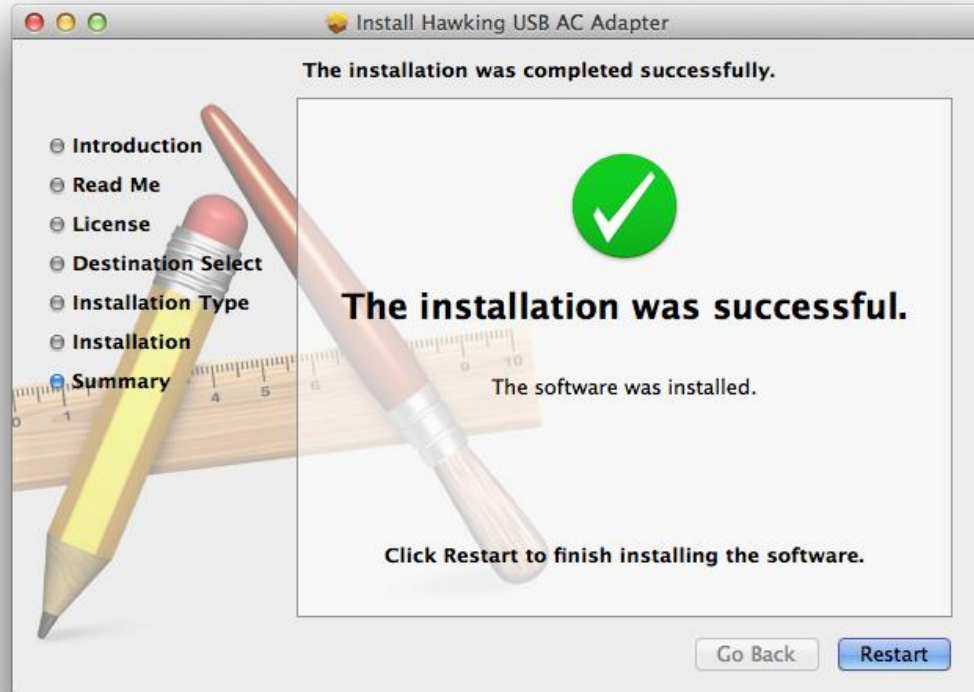
7) Click “Continue Installation”



8) The software should now install



- 9) After the software completes, the program will prompt you to restart. Click "Restart"

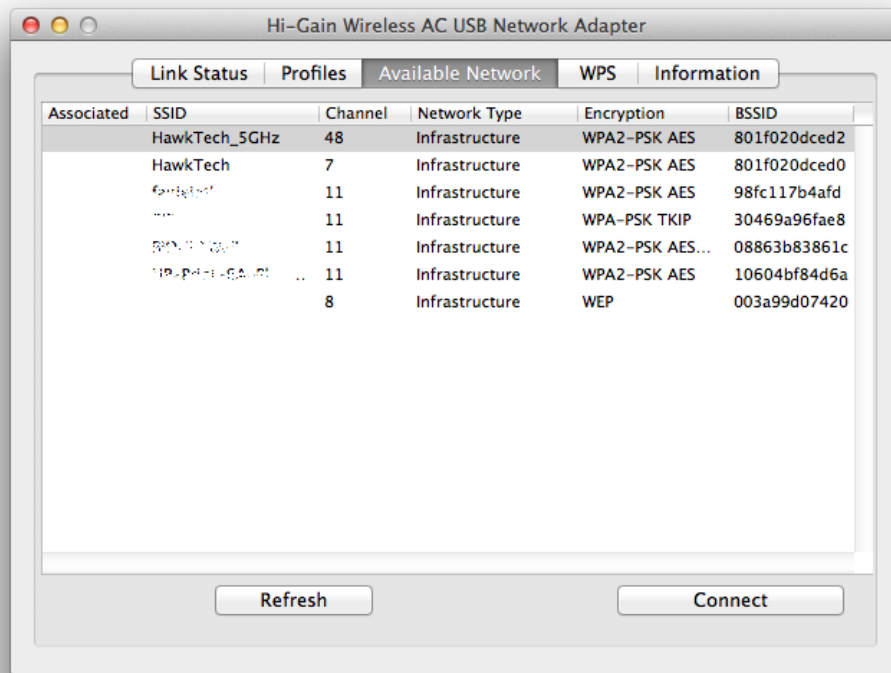


After the computer reboots and you are back on your desktop, please plug the HW12ACU into any available USB port. After a short while, you should see a WiFi icon appear in your dock. (Note, on some older operating systems, a prompt will come up asking to enable the adapter in system preferences. Go to system preferences, click on network and click apply, the adapter will then be enabled)

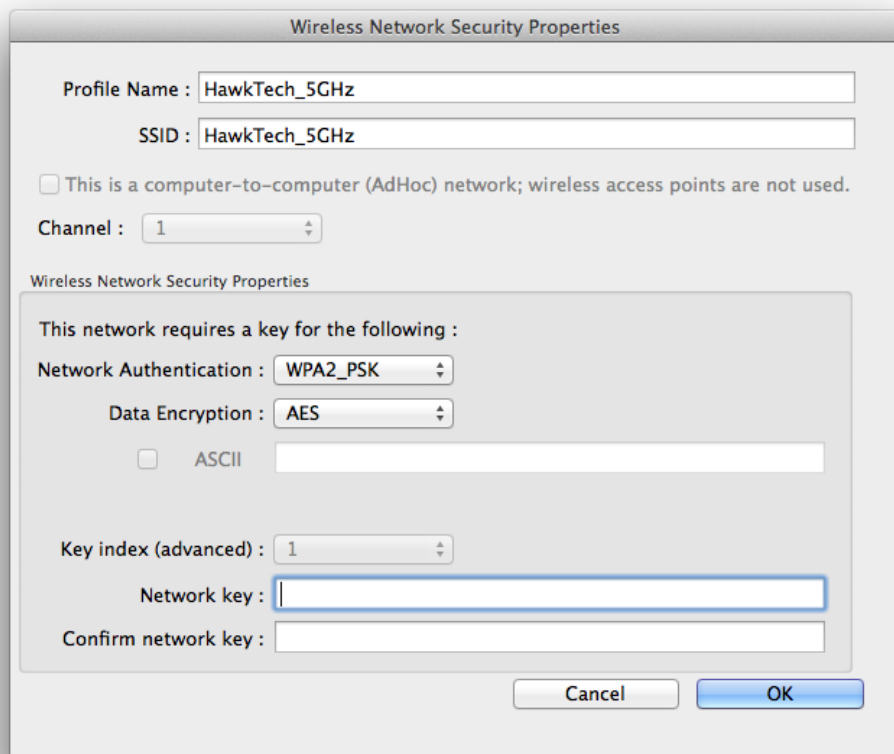


Double click on that and our Wireless utility should appear. Click on the

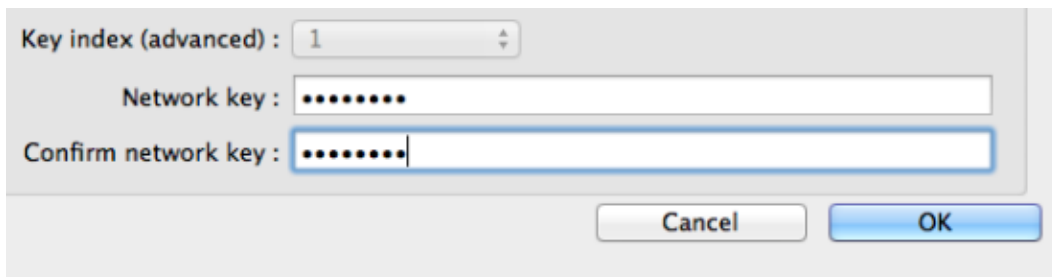
“Available Network” tab for a list of all available wireless networks in the area. Select your network and click “Connect”



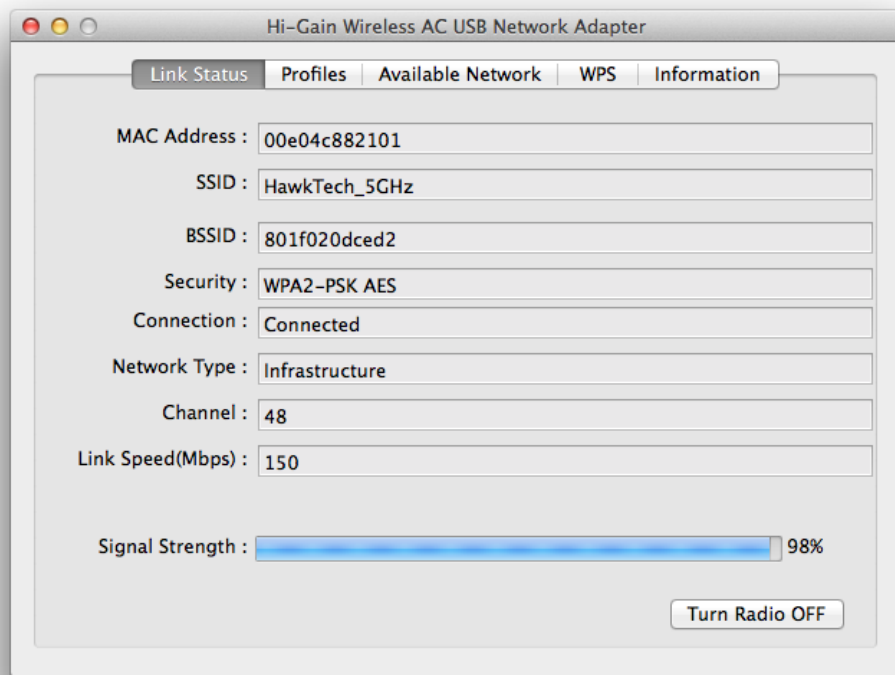
You will be taken to a Profile and Security page. Type in your password if your network requires one, otherwise, click “OK”



If your WiFi Network has a password, please be sure to enter it “Network Key” and again in “Confirm Network key” Click “OK” when done



If all is successful, you will see “Link Status”. If the connection is successful, it should say “Connected”. Congratulations, you have finished configuration of the HW12ACU.



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 (Industrial Scientific Medical Band)
 - 5.1500 ~ 5.8250GHz (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): MCS0-7 (up to 144Mbps)
 - 11n (40MHz): MCS0-7 (up to 300Mbps)
 - 11ac (80MHz): VHTMCS0-9 (up to 867Mbps)
- Output Power:
 - (2.4GHz)
 - 11b (11M): 14 ± 1.5 dBm
 - 11g (54M): 12 ± 1.5 dBm
 - 11n (20MHz, MCS7): 12 ± 1.5 dBm
 - 11n (40MHz, MCS7): 12 ± 1.5 dBm
 - (5GHz)
 - 11a (54Mbps): 10 ± 1.5 dBm
 - 11n (20MHz, MCS7): $10 \text{dBm} \pm 1.5 \text{dBm}$
 - 11n (40MHz, MCS7): $10 \text{dBm} \pm 1.5 \text{dBm}$
 - 11ac (80MHz, MCS9): $9 \text{dBm} \pm 1.5 \text{dBm}$
- Receive Sensitivity
 - (2.4GHz)
 - 11b: -79 ± 2 dBm
 - 11g(54M) -65 ± 2 dBm
 - 11n(20MHz, MCS7): -64 ± 2 dBm
 - 11n(40MHz, MCS7): -61 ± 2 dBm
 - (5GHz)

11a(54M): $-65\pm 2\text{dBm}$

11n(20MHz, MCS7): $-65\pm 2\text{dBm}$

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

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

- Securities: WEP 64/128, WPA, WPA2
802.1x Support
- Antenna: Internal Printed Antenna (2T2R)
- Drivers: Windows 7+, Mac OS 10.6+
- LED: Link/Activity
- Dimension: 1.5(H) x 0.5(W) x 0.5(D) in.
- Temperature: 32~104°F
- Humidity: 10-95% (NonCondensing)

3-2 Troubleshooting

If you encounter any problem when you're using this wireless network card, 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">1. Click 'Rescan' for few more times and see if you can find any wireless access point or wireless device.2. Please move closer to any known wireless access point.3. 'Ad hoc' function must be enabled for the wireless device you wish to establish a direct wireless link.4. Please adjust the position of network card (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.
The network is slow / having problem when transferring large files	<ol style="list-style-type: none">1. Move closer to the place where access point is located.2. There could be too much people using the same radio channel. Ask the owner of the access point to change the channel number. <p>Please try one or more solutions listed above.</p>

3-3 Glossary

1. **What is the IEEE 802.11ac standard?**

2.4GHz Wireless 802.11b/g/n is the most commonly used wireless standard. Because of this popularity, interference and lag are common in the 2.4GHz network, especially in areas with a lot of wireless networks. 5GHz Wireless-AC was designed to get past this interference. Using a different frequency allows 5GHz Wireless-AC to maintain high speeds and throughput. The tradeoff of 5GHz Wireless-AC is the range is reduced when compared to 2.4GHz wireless networks.

Wireless-AC is built on a Dual-Band standard. Dual-Band Technology provides maximum flexibility allowing selection of the popular 2.4GHz frequency for long range applications or selection of the faster, less-crowded 5GHz frequency for data intensive applications.

2. **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.

3. **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.

4. 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

5. What is Ad-hoc?

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

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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).

15. 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.

16. What is WMM Wireless QoS?

When enabled on your supported router, gives priority to voice and video traffic over WiFi. Any WiFi devices that are video messaging or watching streaming video will have higher priority over other internet traffic. This should allow a smoother and clearer video for the user.

17. What is Wave-2 Compliant Mu-MIMO?

Multi-User, Multiple-input, multiple-output technology allows a supported router to communicate with multiple devices such as smartphones, tablets, smart-tvs, computers simultaneously. This should drastically improve your WiFi performance. The HW12ACU will operate faster because all devices on the network have less time to wait to get data from the router, thus reducing lag and buffering when watching video, playing games, etc.