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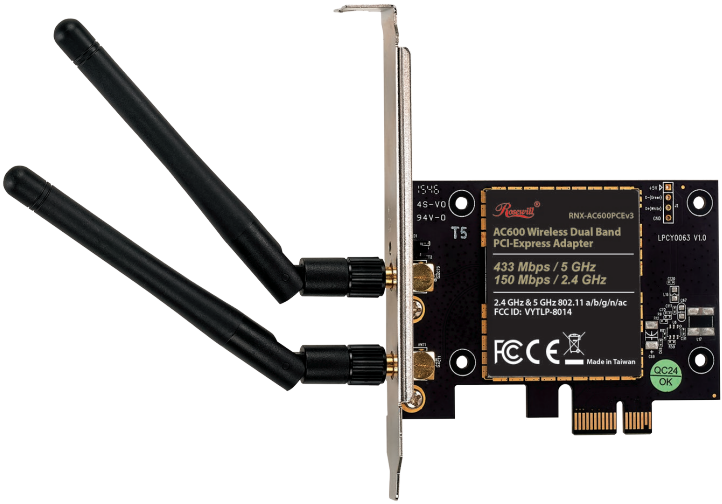

AC600 Wireless Dual Band PCI-Express Adapter

RNX-AC600PCEv3

User Manual

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FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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.

FCC RF 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.

CE 1588 ⓘ

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reason/remark
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use limited to 10 mW EIRP within the band 2454-2483.5 MHz	Military Radiolocation use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy	None	If used outside of own premises, general authorization is required
Luxembourg	None	General authorization required for network and service supply (not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation	None	Only for indoor applications

Note: Please don't use the product outdoors in France.

Canadian Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux norms CNR exemptes de licence d'Industrie Canada.

Le fonctionnement est soumis aux deux conditions suivantes:

(1) cet appareil ne doit pas provoquer d'interférences et

(2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 5 dBi. Antennas not included in this list or having a gain greater than 5 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that permitted for successful communication.

Industry Canada Statement

Complies with the Canadian ICES-003 Class B specifications.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
This device complies with RSS 210 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.
Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

EAC

Safety Information

- When product has power button, the power button is one of the ways to shut off the product; when there is no power button, the only way to completely shut off power is to disconnect the product or the power adapter from the power source.
- Don't disassemble the product or make repairs yourself. You run the risk of electric shock and voiding the limited warranty. If you need service, please contact us.
- Avoid water and wet locations.

This product can be used in the following countries:

AT	BG	BY	CA	CZ	DE	DK	EE
ES	FI	FR	GB	GR	HU	IE	IT
LT	LV	MT	NL	NO	PL	PT	RO
RU	SE	SK	TR	UA	US		

Table of Contents

Table of Contents 01
Package Contents 02

SECTION 1: Product Overview 03
1.1 Introduction 03
1.2 Features 03
1.3 LED Status 03

SECTION 2: Installation 04
2.1 Hardware Installaton 04
2.2 Software Installation 05

SECTION 3: Connect to a Wireless Network 07
Connect Using Windows Built-In Wireless Utility 07
3.1 In Windows XP 07
3.2 In Windows 7 08
3.3 In Windows 8.1 09
3.4 In Windows 10 10

Appendix A: Specifications 12
Appendix B: Glossary 13
FAQ 15

Package Contents

• 1 x RNX-AC600PCEv3 AC600 Wireless Dual Band PCI-Express Adapter
• 2 x 3 dBi Detachable Antenna
• 1 x Low-Profile Bracket
• 1 x Quick Installation Guide
• 1 x Resource CD
Make sure that the above items are within the package. If any of the above items are damaged or missing, please contact us.

Note:
The 'adapter' mentioned in this User Manual refers to RNX-AC600PCEv3 Wireless Dual Band PCI-Express Adapter.

SECTION 1: Product Overview

1.1 Introduction

The adapter is an 802.11ac client device designed to deliver a high-speed wireless performance for your desktop. With a faster wireless connection, you can get a better internet experience, such as downloading, gaming, and video streaming.

The adapter provides high speed wireless connection with other wireless clients. The incredible speed makes it ideal for handling multiple data streams at the same time, which ensures your network remains stable and smooth. It is also compatible with all IEEE 802.11b, IEEE 802.11g, IEEE 802.11n products.

The adapter supports WEP, and WPA/WPA2 encryption to prevent outside intrusion and protect your personal information from being exposed.

With unmatched wireless performance, reception, and security protection, the RNX-AC600PCEv3 is the best choice for easily adding or upgrading wireless connectivity to your desktop computer.

1.2 Features

- Wireless Dual Band Connectivity (2.4 GHz 150 Mbps + 5 GHz 433 Mbps)
- Standard IEEE 802.11b/g/n/ac Networks
- Wireless Security with 64/128-bit WEP, WPA/WPA2 and TKIP/AES 802.1x
- Detachable External Antennas for Increased Coverage and Stability
- Supports Windows XP, Windows 7, Windows 8, Windows 8.1, Windows 10 (32/64-bit) and Windows Server 2012

1.3 LED Status

Status	Working Status
On	• The adapter has been installed. • Data is being transmitted or received at a high data rate.
Off	The adapter has been removed or not detected.

SECTION 2: Installation

Please install the PCI-Express adapter into your computer before installing the driver from the Resource CD.

2.1 Hardware Installation

1. Turn off your computer and unplug the power cord from the computer.
2. Remove the metal slot cover on the back of the PC. Keep the screws. Turn to your computer manufacturer for instructions if needed.
3. Insert the PCI-Express adapter into the PCI-Express slot. Make sure that all of its pins have touched the slot's contacts. Once the adapter has been firmly inserted, screw its fastening tab. Then close your PC case.
4. Insert the power cable back into the computer and turn on your computer.

Note:

When the hardware has been successfully installed on your computer, you may be prompted by the Found New Hardware Wizard (Figure 2-1). Please click "Cancel", then follow the Software Installation steps to install Driver and Utility for your adapter.

Figure 2-1 Found New Hardware Wizard in Windows XP

2.2 Software Installation

The adapter's Setup Wizard will guide you through the installation procedures for Windows XP, Windows 7, Windows 8, Windows 8.1 and Windows 10. The procedures in different systems are similar, therefore we have presented the procedures in Windows 10 as an example.

Important Notice:

In order to install the driver successfully, please uninstall other Wi-Fi drivers before installing the RNX-AC600PCEv3 driver. Installing two or more Wi-Fi adapter drivers in one PC may cause conflicts between the drivers and cause the Wi-Fi adapter to fail to work. You can find the installed Wi-Fi adapter drivers and uninstall from the Control Panel -> Install and Uninstall Software.

If the PC has an integrated Wi-Fi adapter, turn it off before installing the RNX-AC600PCEv3 driver. Otherwise, the system will not show which Wi-Fi adapter is working and it may cause conflicts between the adapters.

Follow the steps below to install the RNX-AC600PCEv3 driver on your Windows PC:

1. Insert the Resource CD into your CD-ROM drive; AutoRun window will pop up (Figure 2-2). Click the "Driver Installation" button to start
   the installation procedure. If AutoRun does not work, browse the CD, open the folder and double-click "Setup.exe" to begin.

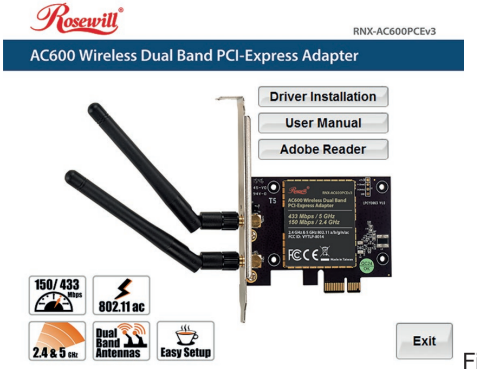

Figure 2-2

2. The InstallShield Wizard will pop up (Figure 2-3) and start installing the driver automatically. This process may take 1-3 minutes (Figure 2-4). Do not click the "Cancel" button, otherwise the installation will stop.

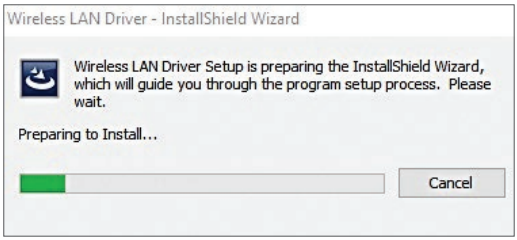

Figure 2-3

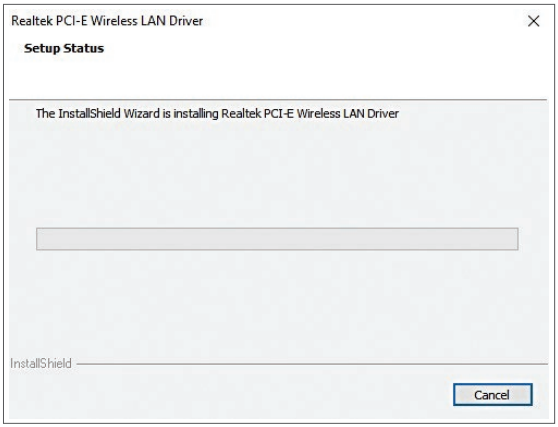

Figure 2-4

3. After the Wireless LAN driver is installed successfully, you must restart your computer. Select "Yes" and click "Finish" (Figure 2-5).

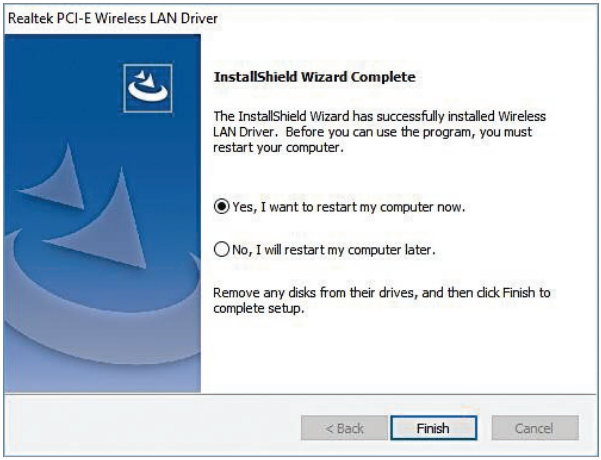

Figure 2-5

4. After restarting the computer, the (Wi-Fi icon) will appear at the right button side in your system tray.
   To connect to a network, please refer to Section 3: Connect to a Wireless Network.

SECTION 3: Connect to a Wireless Network

With both the hardware and software successfully installed into your computer, you can quickly connect to a wireless network using the following method.

Connect Using Windows Built-In Wireless Utility

Windows users may use the built-in wireless utility to connect to a wireless network.

3.1 In Windows XP

Windows XP users may use the built-in wireless utility. Follow the steps below:

1. Right-click on the utility icon in your system tray (lower-right corner). Select "Switch to Windows wireless configuration tool" (Figure 3-1).

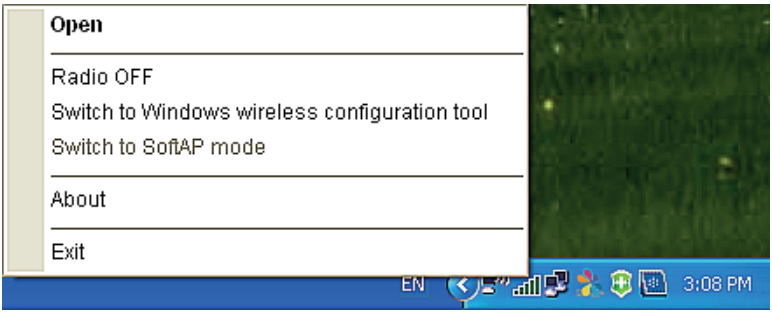

Figure 3-1

2. Right-click on the wireless computer icon in your system tray (lower-right corner). Select "View Available Wireless Networks" (Figure 3-2).

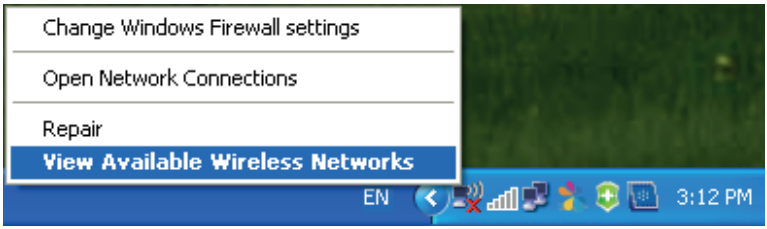

Figure 3-2

3. The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the "Connect" button.
4. If the network is security-enabled, you will be prompted to enter the key as shown below (Figure 3-3). If not, you will connect to the network directly without entering a key.

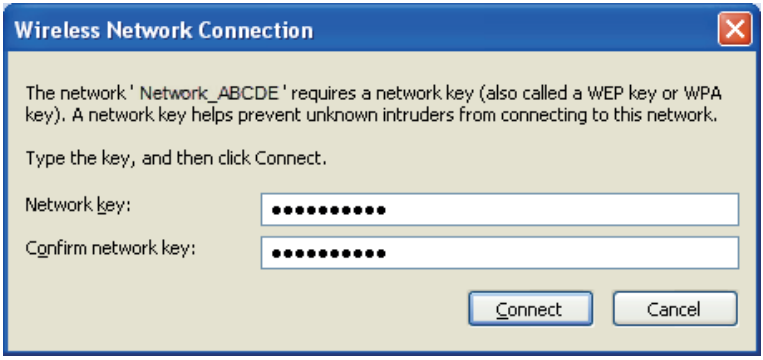

Figure 3-3

3.2 In Windows 7

Windows 7 users may use the built-in wireless utility. Follow the steps below:

1. Click the wireless icon in your system tray (lower-right corner). The utility will display any available wireless networks in your area. Highlight the wireless network (displayed using the SSID) to be connected and then click "Connect".
2. If the network you selected is encrypted, enter the same security key or passphrase that is on your router. If the network is not secured, the connection will be established without entering a key.
3. When "Connected" appears behind the SSID, you have successfully connected to the target network.

3.3 In Windows 8.1

Windows 8.1 users may use the built-in wireless utility. Follow the steps below:

1. Click the icon at the bottom of your screen, and a network list will appear at the right side of your screen. Select your target network, and then click "Connect" (Figure 3-4).

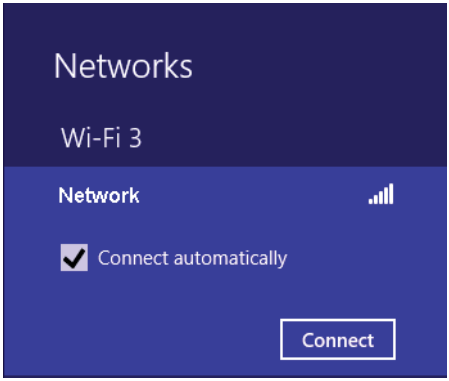

Figure 3-4

2. If the network is unencrypted, you will directly connect to it.
   If the network is encrypted, enter the password (network security key) and then click "Next" to continue (Figure 3-5).

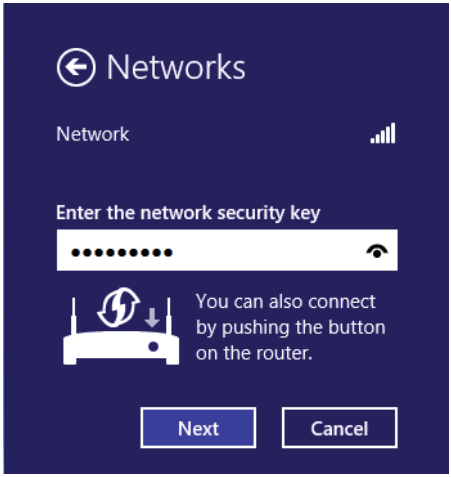

Figure 3-5

3. When "Connected" appears behind the SSID (Figure 3-6), you have successfully connected to the target network.

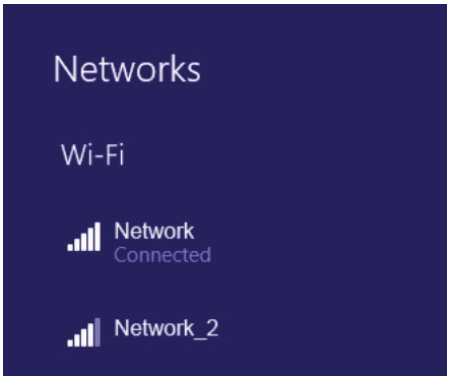

Figure 3-6

3.4 In Windows 10

Windows 10 users may use the built-in wireless utility. Follow the steps below:

1. Click the icon at the bottom of your screen, and a network list will appear at the right side of your screen. Select your target network, and then click "Connect" (Figure 3-7).

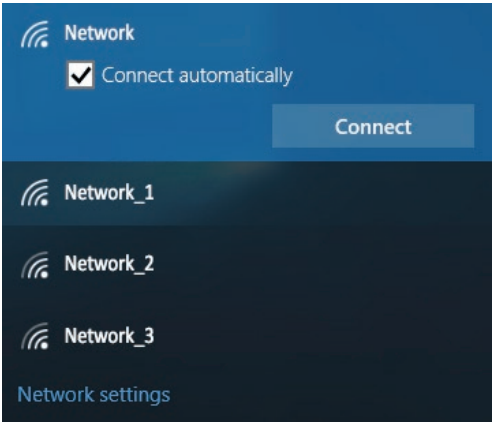

Figure 3-7

2. If the network is unencrypted, you will directly connect to it.
   If the network is encrypted, enter the password (network security key) and then click "Next" to continue (Figure 3-8).

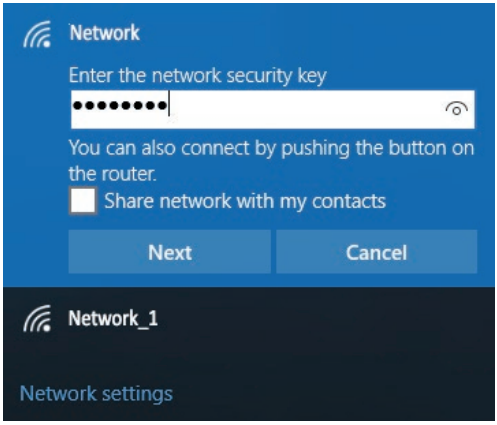

Figure 3-8

3. When "Connected" appears behind the SSID (Figure 3-9), you have successfully connected to the target network.

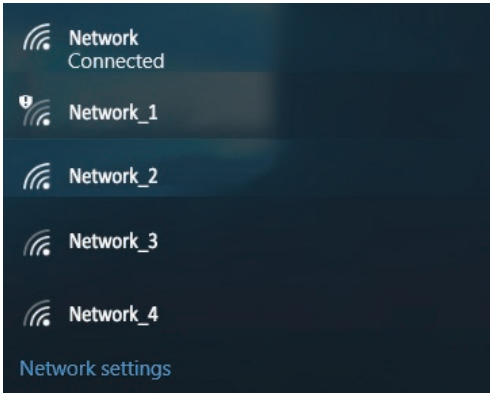

Figure 3-9

Appendix A: Specifications

Normal	
Interface	1 x PCI-Express
Standards	IEEE802.11b; IEEE802.11g; IEEE802.11n; IEEE802.11ac
Operating System	Windows XP/7/8/8.1/10; Windows Server 2012
Radio Data Rate	11b: 1/2/5.5/11 Mbps 11g: 6/9/12/18/24/36/48/54 Mbps 11n: 150 Mbps (2.4 GHz) 11ac: 433 Mbps (5 GHz)
Modulation	11b: CCK 11g: CCK/OFDM/BPSK/QPSK/16-QAM/64-QAM 11n: OFDM/BPSK/QPSK/16-QAM/64-QAM 11ac: OFDM/BPSK/QPSK/16-QAM/64-QAM/256-QAM
Media Access Protocol	CSMA/CA with ACK
Data Security	64/128-bit WEP, WPA/WPA2 (TKIP/AES 802.1x)
Frequency* Band	2.412-2.462 GHz; 5.180-5.825 GHz
Spread Spectrum	Direct Sequence Spread Spectrum (DSSS)
Certifications	FCC, CE
Antenna	2 x 3 dBi Omni-Directional Detachable Antennas

Environmental and Physical	
Working Temperature	0˚C to 40˚C (32˚F to 104˚F)
Storage Temperature	-10°C to 70°C (14°F to 158°F)
Working Humidity	10% to 90% RH, Non-Condensing
Storage Humidity	5% to 95% RH, Non-Condensing

* Only 2.412 to 2.462 GHz is allowed to be used in the USA, which means only channel 1 to 11 is available for American users to choose.

Appendix B: Glossary

- **802.11b** - The 802.11b standard specifies a wireless product networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4 GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.

- **802.11g** - specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4 GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.

- **802.11n** - Builds upon previous 802.11 standards by adding MIMO (multiple-input multiple-output). MIMO uses multiple transmitter and receiver antennas to allow for increased data throughput via spatial multiplexing and increased range by exploiting the spatial diversity, perhaps through coding schemes like Alamouti coding. The Enhanced Wireless Consortium (EWC) was formed to help accelerate the IEEE 802.11n development process and promote a technology specification for interoperability of next-generation wireless local area networking (WLAN) products.

- **Ad-Hoc Network** - An ad-hoc network is a group of computers, each with a Wireless Adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.

- **DSSS** (Direct-Sequence Spread Spectrum) - DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need of retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

- **FHSS** (Frequency Hopping Spread Spectrum) - FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.

- **Infrastructure Network** - An infrastructure network is a group of computers or other devices, each with a Wireless Adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

- **SSID** (Service Set Identification) - A thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name. See also Wireless Network Name and ESSID.

- **WEP** (Wired Equivalent Privacy) - A data privacy mechanism based on a 64 or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard. To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange - alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember.
  The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.

- **Wi-Fi** - A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA; see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.

- **WLAN** (Wireless Local Area Network) - A group of computers and associated devices communicating with each other wirelessly, which network serving users are limited in a local area.

- **WPA** (Wi-Fi Protected Access) - A wireless security protocol using TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.

FAQ

This section provides solutions to problems that may occur during the installation and operation of the Wireless PCI-Express Wi-Fi Adapter.

1. I cannot communicate with the other computers linked via Ethernet in the Infrastructure configuration.

- Make sure that the PC to which the adapter is associated is powered on.
- Make sure that your adapter is configured on the same channel and with the same security options as with the other computers in the Infrastructure configuration.

2. What should I do when the computer with the Adapter installed is unable to connect to the wireless network and/or the Internet?

- Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.
- Check that the LED indicators on the wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network.
- In Infrastructure mode, make sure the same Service Set Identifier (SSID) is specified on the settings for the wireless clients and access points.
- In Ad-Hoc mode, both wireless clients will need to have the same SSID. Please note that it might be necessary to set up one client to establish a BSS (Basic Service Set) and wait briefly before setting up other clients. This prevents several clients from trying to establish a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with multiple clients associated to it.
- Check that the Network Connection for the wireless client is configured properly.
- If Security is enabled, make sure that the correct encryption keys are entered on both the Adapter and the access point.

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Technical Support Information

techsupport@rosewill.com 1-800-575-9885

Thank you for purchasing a quality Rosewill product.
Please register your product at www.rosewill.com
for complete warranty information and support for your product.