ASRock WiFi-802.11n Module

Operation Guide

1. Introduction

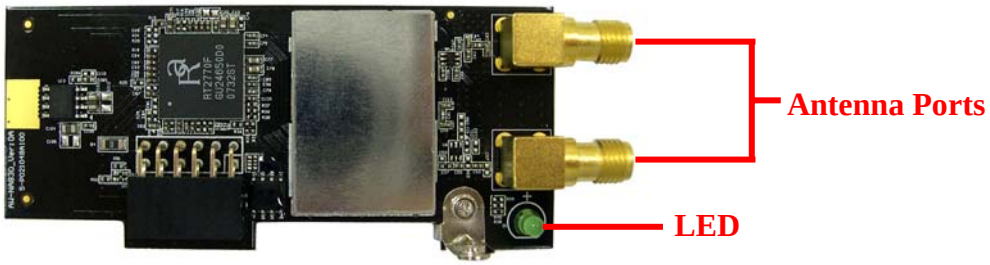
ASRock WiFi-802.11n module is an easy-to-use wireless local area network (WLAN) adapter to support WiFi+AP function. With ASRock WiFi-802.11n module, you can easily create a wireless environment and enjoy the convenience of wireless network connectivity. Therefore, from anywhere within the signal range, you will be able to play LAN games, connect to the internet, access and share printers, and make Internet phone calls easily. Please read this operation guide carefully before you start to set up ASRock WiFi-802.11n module.

1.1 Specifications

Standard	- IEEE 802.11n
Data Rate	- 15, 30, 45, 60, 90, 120, 135, 150Mbps
Security	- AES, TKIP, WEP
Network Architecture Types	- Access Point mode (AP mode) - Station mode: Infrastructure mode and Ad-Hoc mode
Frequency Band	- 2.4GHz ISM radio band
Operating Range	- Indoor: 330ft (100m) - Outdoor: 980ft (300m) * The range varies in different environments
Number of Connected Devices (AP Mode)	- up to 16 stations
Antenna	- ASRock WiFi-802.11n omni-directional antenna
LED	- Green data transmission (AIR) LED
Support OS	- Windows® XP / XP 64-bit / Vista™ / Vista™ 64-bit
Compatibility	- Full compatible with IEEE 802.11n standard products
Software Support	- ASRock WiFi-802.11n Wizard

1.2 LED Indicators and Antenna Ports

ASRock WiFi-802.11n module has a green LED for transmission status mounted onboard, and two antenna ports for connection to the external antennas.



LED Status	Indication
On	Power on, transmit/receive/site survey
Off	Power off, no wireless connection

1.3 Signal Range

The signal range of ASRock WiFi-802.11n module varies from the operating environment. Obstacles such as walls and metal barriers could reflex and absorb ratio signals. Devices like microwave ovens may also interfere with the wireless network greatly.

Signal range:
Indoor 330ft (100m), outdoor 980ft (300m)

By default, ASRock WiFi-802.11n module should automatically adjust the data rate. The closer the wireless stations are the better the signal and transmission speed they will receive.

Note:
* To reach higher data rate, we advise users to adjust the channel bandwidth of Wireless AP to 40MHz instead of 20MHz. However, under the circumstances of a noisy environment, users may adjust the setting back to 20MHz, which may get less interference.

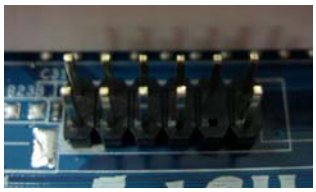
2. Hardware & Software Installation

2.1 System Requirements

Before installing ASRock WiFi-802.11n module to your motherboard, please make sure your system satisfies the following requirements.

1. ASRock motherboard with a USB/WiFi (yellow), WiFi (black) or WiFi/E (black) header. (Please refer to ASRock motherboard manual for the location of USB/WiFi, WiFi or WiFi/E header.)

USB/WiFi Header (2 x 6 Pin)



WiFi Header (2 x 6 Pin)

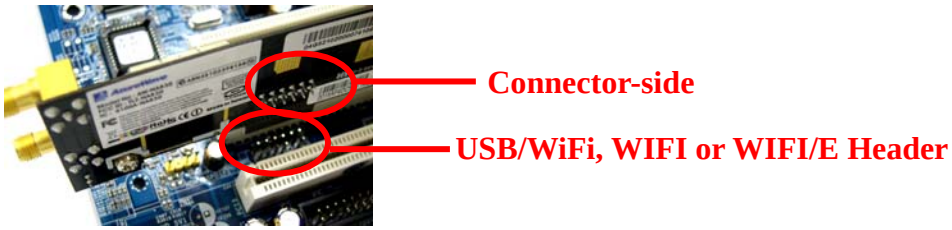
WiFi/E Header (2 x 8 Pin)

2. A minimum of 256MB system memory
3. Operating system: Windows® XP / XP 64-bit / Vista™ / Vista™ 64-bit
4. An optical drive / CD-ROM for driver and utility installation

2.2 Installing ASRock WiFi-802.11n Module and Antennas

After you make sure your system satisfies the requirements above, please follow below steps for installing your ASRock WiFi-802.11n module. If the motherboard you purchase is equipped with ASRock WiFi-802.11n module, which is screwed next to the audio jack of the I/O panel, please skip step 2 to 6.

1. Shut off the PC before installing ASRock WiFi-802.11n module.
2. Move out your motherboard from the chassis.
3. Fasten the bracket to the proper position of the chassis with screws.
4. Plug ASRock WiFi-802.11n module with its connector-side to the USB/WiFi (yellow), WiFi (black) or WiFi/E (black) header on the motherboard. (The location of the USB/WiFi, WiFi or WiFi/E header may vary on motherboard models. Please refer to your motherboard manual for the motherboard layout.)



5. Fasten ASRock WiFi-802.11n module to the motherboard with screws.

6. Place your motherboard to the chassis.
7. Connect the cable-end from the antennas to the antenna ports on ASRock WiFi-802.11n module.

8. Place the antennas at an elevated location. A wide and open position will enhance the operating range.

Note:

* You may connect two antennas to ASRock WiFi-802.11n module. However, please place the two antennas apart for a distance of at least 50cm and put them on different elevation of height to avoid interference of each others.

2.3. Driver and Utility Installation

After you finish the hardware installation, you need to install WiFi driver and utility to your system. Please boot your system and follow below steps to install the WiFi driver and utility.

1. Insert ASRock motherboard support CD to the optical drive.
2. The system will automatically display the driver menu. Click “ASRock WiFi-802.11n Driver and Utility” and follow screen instructions to finish the driver installation.

After above steps, the WiFi driver and utility are installed to your system simultaneously.

Note:

* Microsoft® had released a hotfix to improve the connectivity and performance of wireless network in Windows® Vista-based system. To download the hotfix, please go to: http://support.microsoft.com/kb/928152/en-us

* Microsoft® had also released three hotfix to improve the connectivity for transferring large file in Windows® Vista-based system. Please go to:

- http://support.microsoft.com/kb/932045/en-us to download the necessary hotfix when this

situation happened: "The connection has been lost" – this error message may occur when you try to copy a large file from one Windows® Vista-based computer to another Windows Vista-based computer.

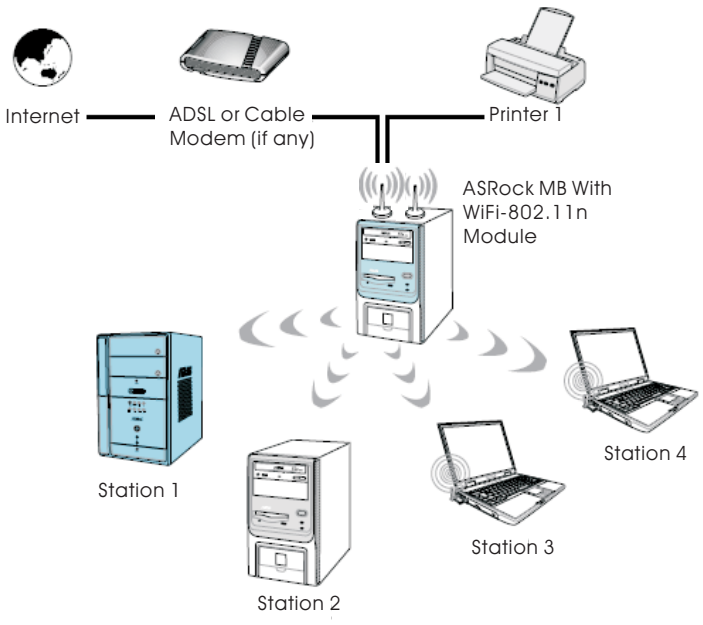
- http://support.microsoft.com/kb/932170/en-us to download the necessary hotfix when this situation happened: When you copy large files to or from earlier operating systems, the copy operation may be slower than expected on some Windows® Vista-based computers.
- http://support.microsoft.com/kb/931770/en-us to download the necessary hotfix when this situation happened: The copy process may stop responding when you try to copy files from a server on a network to a Windows® Vista-based computer.

2.4 Utility Setup

After you have installed the driver and utility to your system, now you are ready to set up the utility in your network. ASRock WiFi-802.11n module supports two kinds of wireless network mode: Access Point Mode (AP Mode) and Station Mode. Please refer to below introduction and select the most appropriate mode when setting it up.

A. Access Point Mode (AP Mode)

If you want to share the Internet access with the wireless stations in your environment, such as PC, notebook and other devices, you can configure ASRock WiFi-802.11n module in an access point mode (AP mode). In this mode, ASRock WiFi-802.11n module becomes the wireless access point that provides local area network and Internet access for your wireless stations. The AP Mode feature is ideal for home/SOHO networks with several computers, a shared printer, and a shared Internet connection.

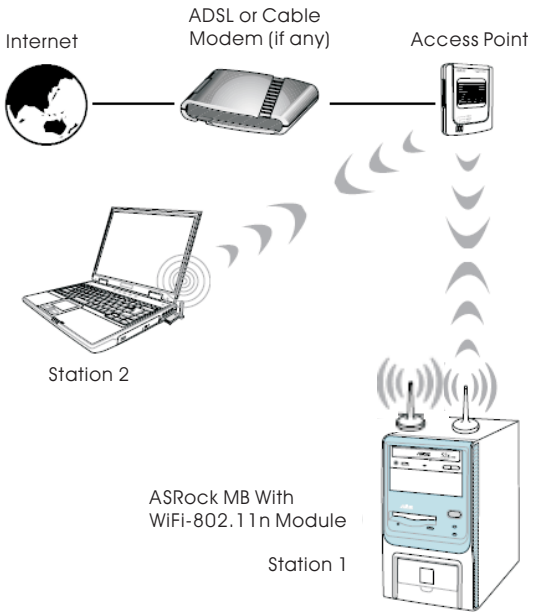


B. Station Mode

If you do not plan to use AP function with ASRock WiFi-802.11n module, but just want to use the wireless function to connect the access point (AP), or connect with other stations in the wireless range instead, please set up ASRock WiFi-802.11n module in station mode. There are two choices provided in station mode: Infrastructure mode and Ad-hoc mode. Please read below introduction for the differences of these two modes.

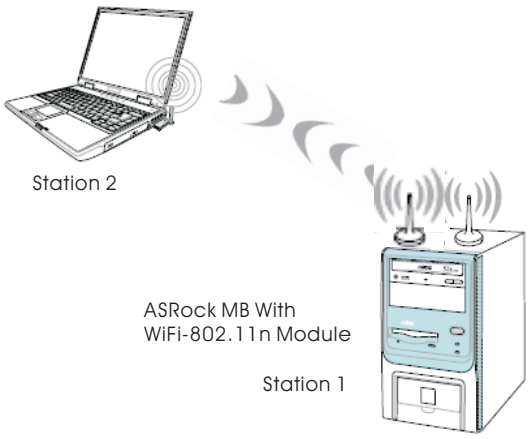
B-1. Infrastructure Mode

If you have a present access point (AP) in your wireless network environment for this station to join, you can set up ASRock WiFi-802.11n module in Infrastructure mode. In this mode, ASRock WiFi-802.11n module acts as a wireless adapter. In other words, it is centered on an AP that provides Internet access and LAN communication for the wireless stations, such as PC, notebook and other devices.



B-2. Ad-hoc Mode

If you don't have a present access point in your wireless network environment, you can set up ASRock WiFi-802.11n module in Ad-hoc mode. The wireless network brings together workstations, PC, notebook and other devices for wireless communication.


Station 2
ASRock MB With
WiFi-802.11n Module
Station 1

3. General Setup with ASRock WiFi-802.11n Wizard

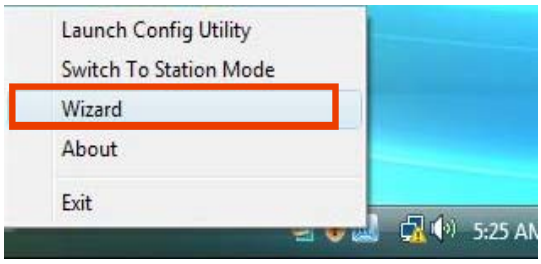
If you want to easily set up ASRock WiFi-802.11n for general use, please use ASRock WiFi-802.11n Wizard and follow below procedures according to the mode you choose.

Here we take Windows® Vista™ for example in the following pictures. Since the setup procedures are quite similar in different operating systems, please refer to below procedures when setting up ASRock WiFi-802.11n wizard under other operating systems.

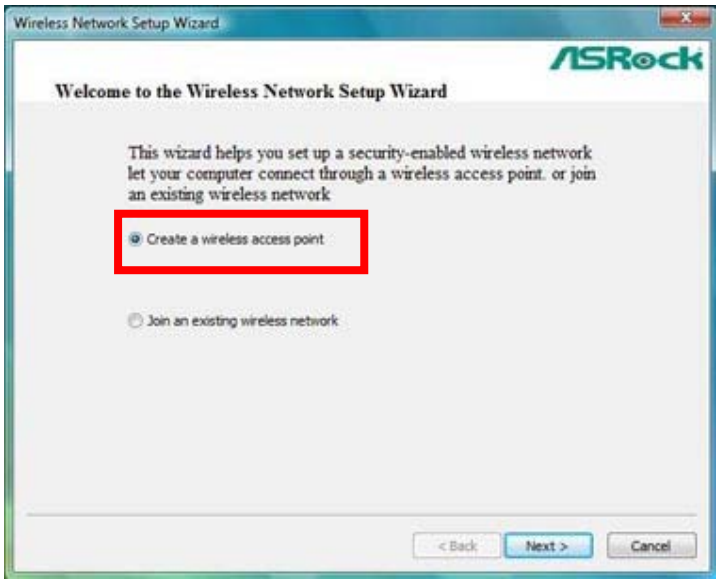
3.1 Setting up the AP Mode

1. Move your mouse cursor to the  icon on the Windows® taskbar and right-click the icon.

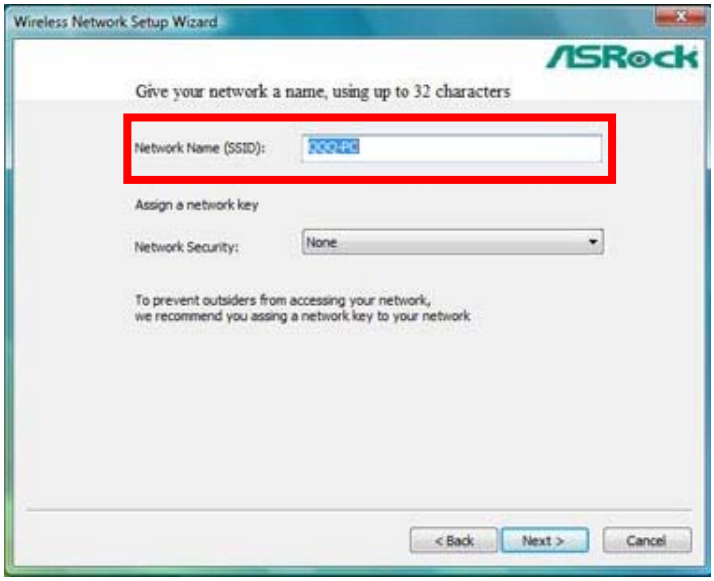
2. Select **Wizard** to launch the WiFi setup wizard.



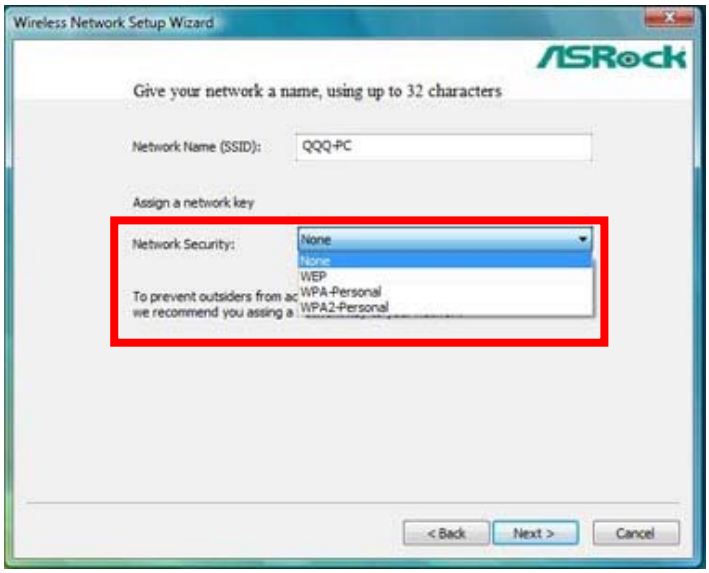
3. Select **Create a wireless access point** and click **Next**.



4. The system will automatically generate a SSID for the AP mode. You can rename the SSID if you want.



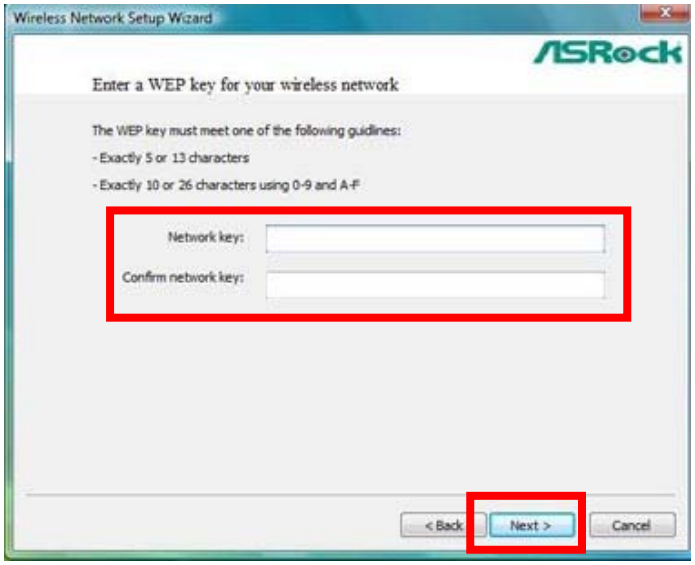
5. Select a Network Security level for your AP mode. The configurable options are **None**, **WEP**, **WPA-Personal** and **WPA2-Personal**. Select an appropriate level and click **Next**.



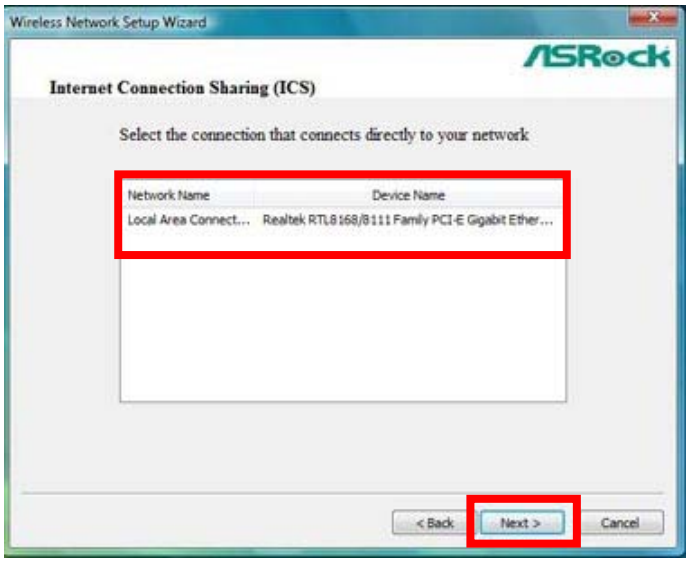
Note:

* If your operating system is Windows® XP with Service Pack 2, it is required to install the Microsoft hotfix in order to support **WPA2-Personal** function. Please go to this link to download the necessary hotfix: http://www.microsoft.com/downloads/details.aspx?familyid=662BB74D-E7C1-48D6-95EE-1459234F4483&displaylang=en

6. If you select **WEP**, **WPA-Personal** or **WPA2-Personal**. You need to input a password. Follow the wizard guidelines for key entry rules. Then click **Next** to continue.



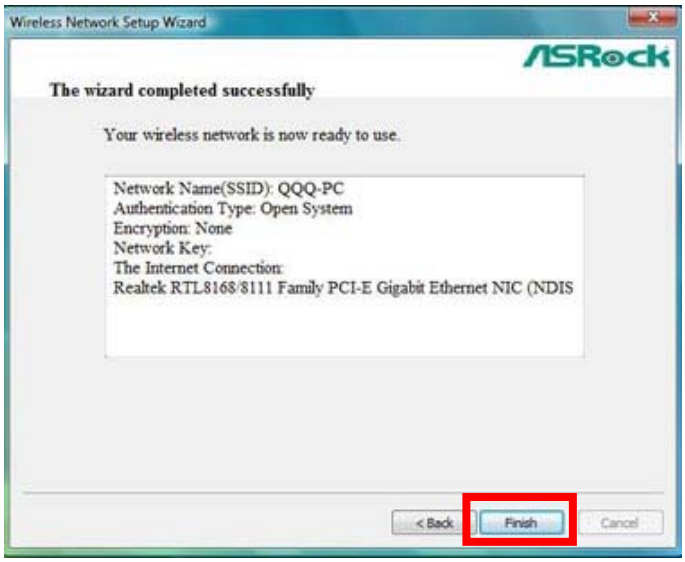
7. Select your Internet connection and click **Next**.



Note:

* You need to have another LAN connector connected to your ADSL / cable modem, and already set it up for Internet access. Please refer to the manual from your ISP for detailed setup steps.

8. The AP mode configuration is complete. Record the setup information on your note and click **Finish** to quit the wizard.



3.2 Setting up the Station Mode

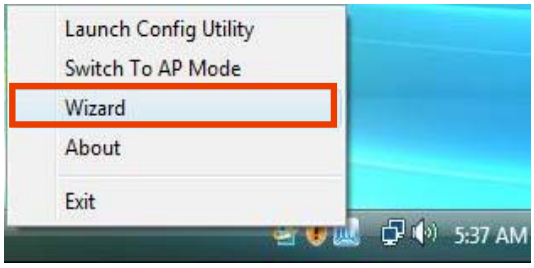
Note:

* Please be noted that the wizard for WiFi-802.11n Module does not provides Ad-Hoc mode. If you want to set up Ad-Hoc mode, please refer to page 26 - page 36 for advanced setup.

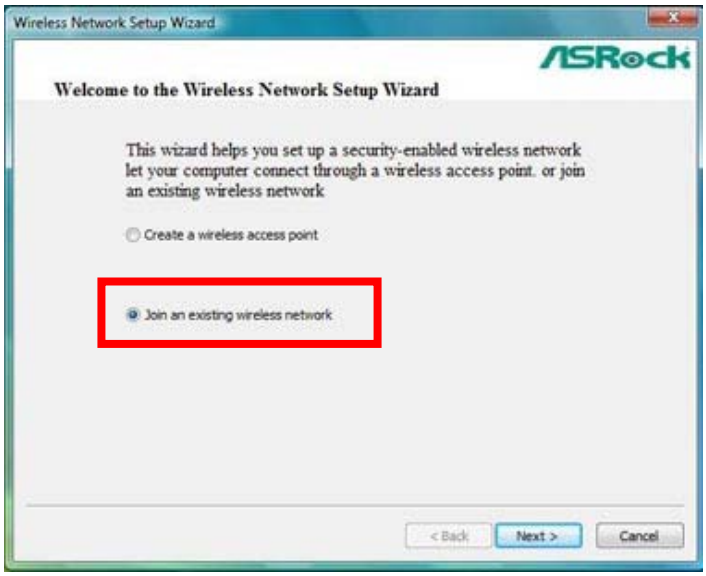
3.2.1 Setting up the Infrastructure Mode

1. Move your mouse cursor to the  icon on the Windows® taskbar and right-click the icon.

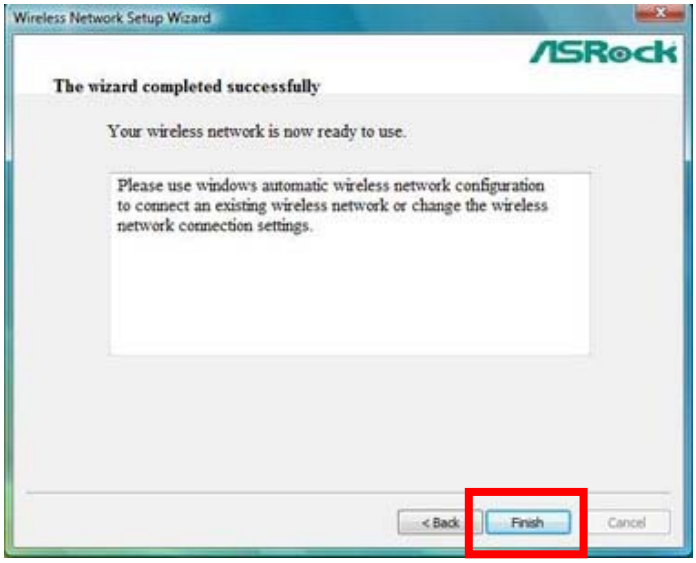
2. Select **Wizard** to launch the WiFi setup wizard.



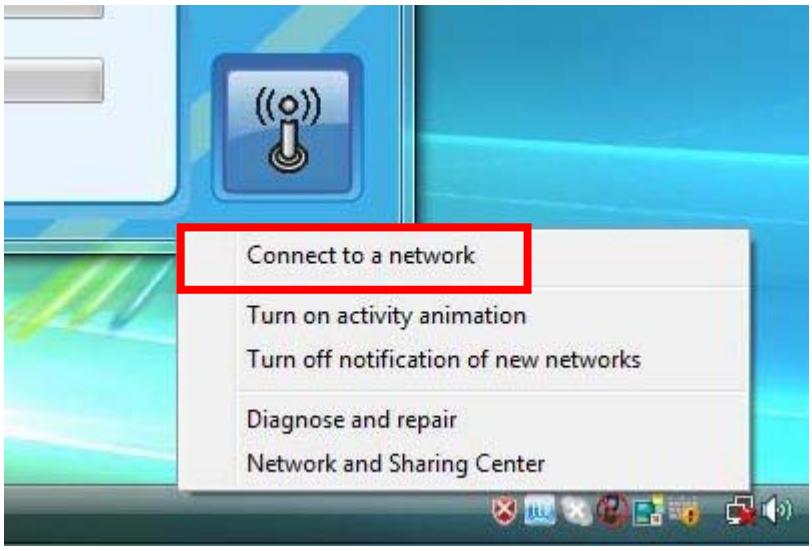
3. Select **Join an existing wireless network** and click **Next**.



4. Click **Finish** to exit the wizard.



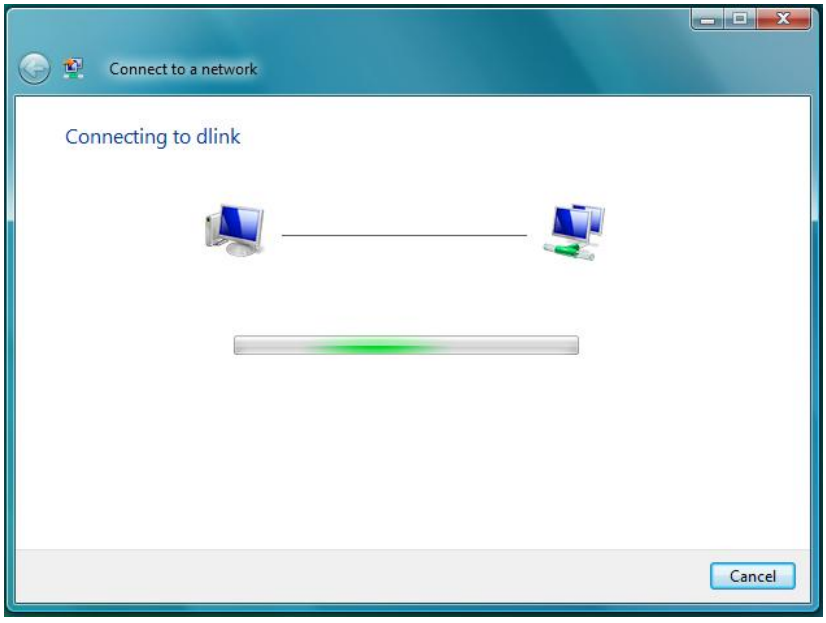
5. Move your mouse cursor to the **Wireless Network Connection** icon  on the Windows® taskbar and right-click the icon. Click **Connect to a network** to select available internet network.



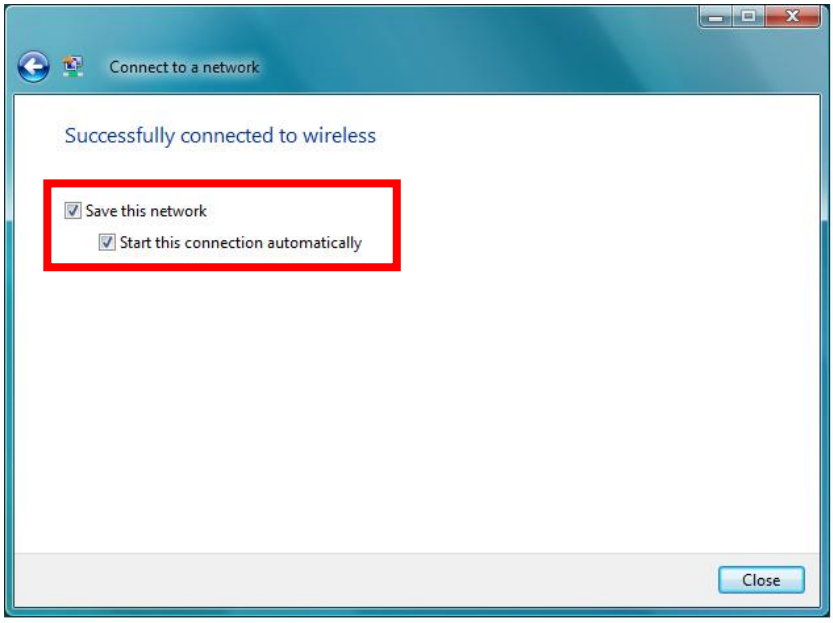
6. Choose an available internet network and click **Connect**.

* If you choose a security-enabled wireless network, you have to input the network key.

7. Your system is now connecting to a network.



8. You have connected to internet wireless network successfully. If you want to start the connection automatically next time, you may save the network by checking **Save this network** box, and click Close.


Connect to a network
Successfully connected to wireless
Save this network
Start this connection automatically
Close

4. Advanced Setup in ASRock WiFi-802.11n Utility

If you want to set up ASRock WiFi-802.11n module for advanced use, please follow below procedures according to the mode you choose. For general users, it is unnecessary to read below advanced setup of ASRock WiFi-802.11n module. Here we take Windows® Vista™ for example in the following pictures. Since the setup procedures are quite similar in different operating systems, please refer to below procedures when setting up ASRock WiFi-802.11n wizard under other operating systems.

4.1 Setting up the AP Mode

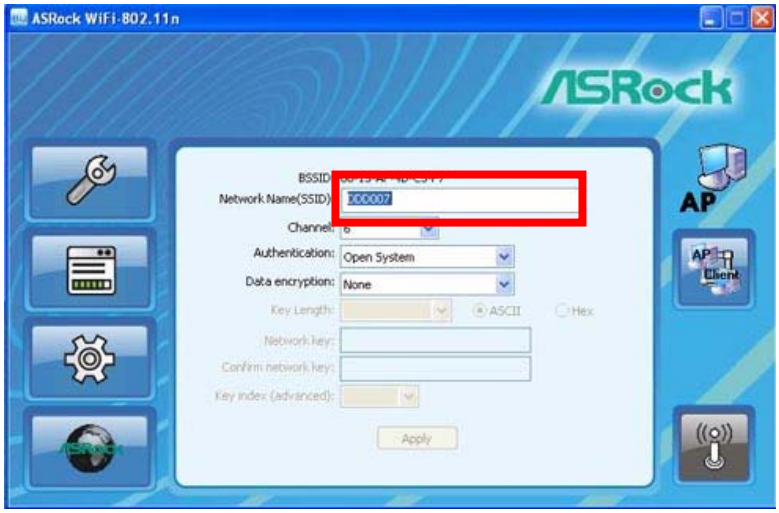
If you want to set up ASRock WiFi-802.11n module for advanced use in AP mode, please use ASRock WiFi-802.11n utility and follow below steps according to the operating system you install.

1. Double-click the utility shortcut 

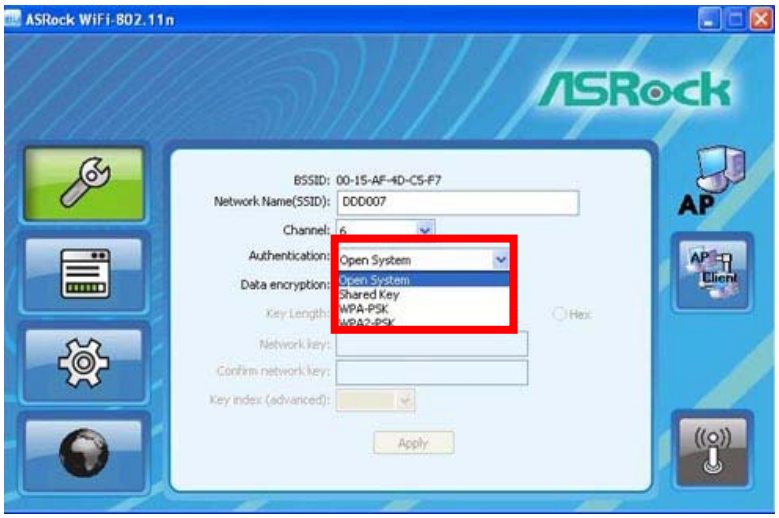
on the desktop or double-click the  icon on your Windows® taskbar to open the setup utility.

2. Refer to the mode indicator on the top-right corner of the main window to know which mode ASRock WiFi-802.11n is in. If it is in station mode, click the mode switch button to switch it to AP mode.

3. The system will automatically generate a SSID for the AP mode. You can rename the SSID if you want.



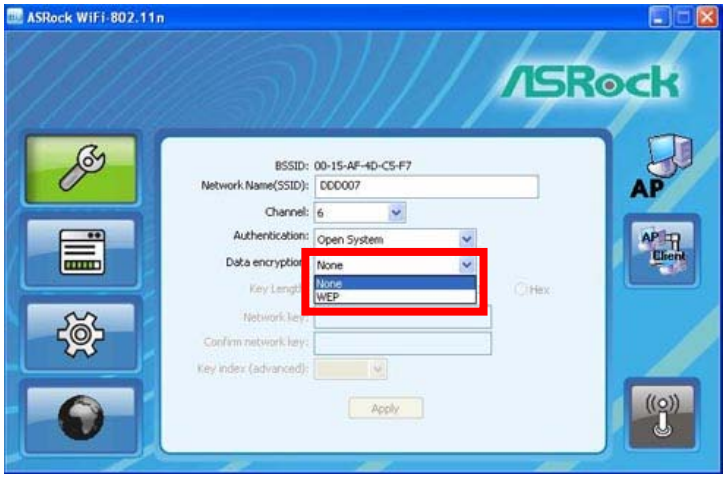
4. Select a Network Authentication for your AP mode. The configurable options are **Open System**, **Shared Key**, **WPA-PSK** and **WPA2-PSK**. Select an appropriate one.



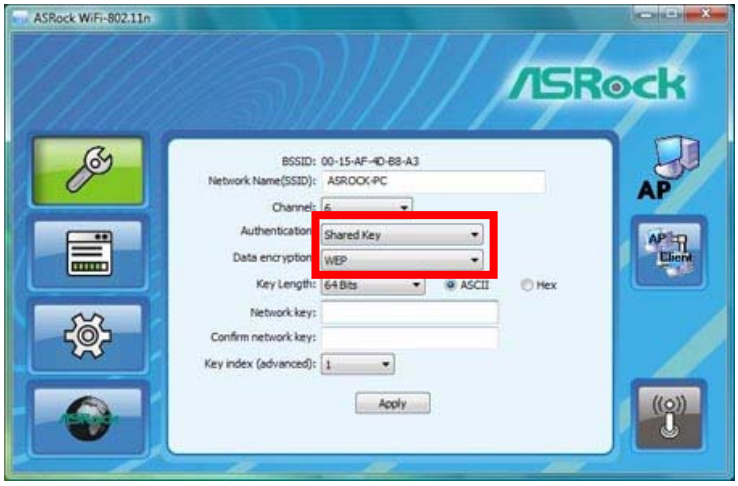
Note:

* If your operating system is Windows® XP with Service Pack 2, it is required to install the Microsoft hotfix in order to support **WPA2-Personal** function. Please go to this link to download the necessary hotfix: http://www.microsoft.com/downloads/details.aspx?familyid=662BB74D-E7C1-48D6-95EE-1459234F4483&displaylang=en

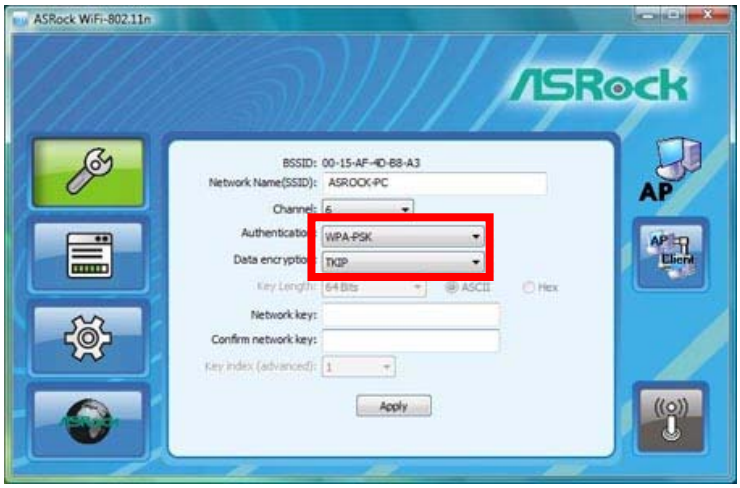
5. If you select **Open System**, the configurable options of Data Encryption are **None** and **WEP** for you to choose. This option allows you to select Key Length.



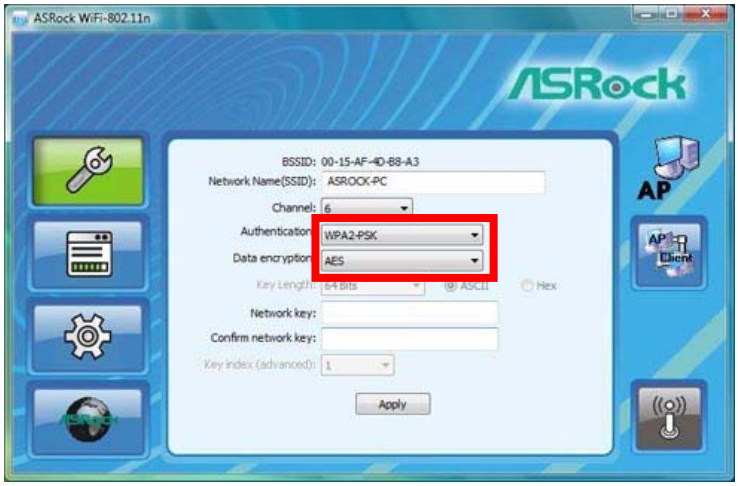
6. If you select **Shared Key**, the configurable options of Data Encryption is **WEP** only. This option allows you to select Key Length.



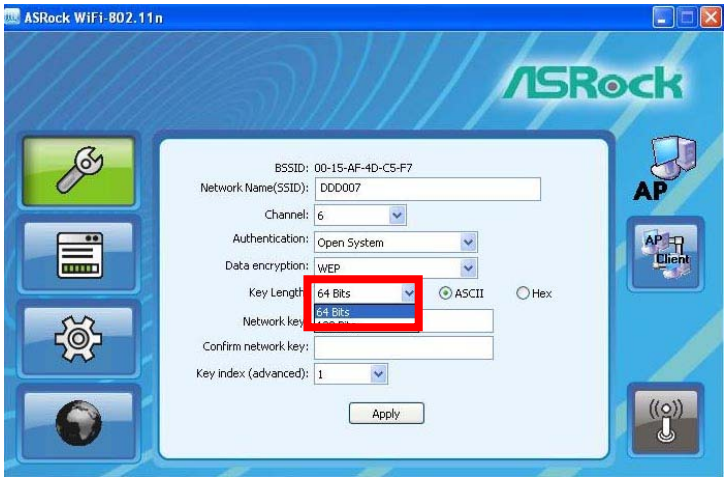
7. If you select **WPA-PSK**, the configurable option of Data Encryption is **TKIP** only. You can't select Key Length in this option.



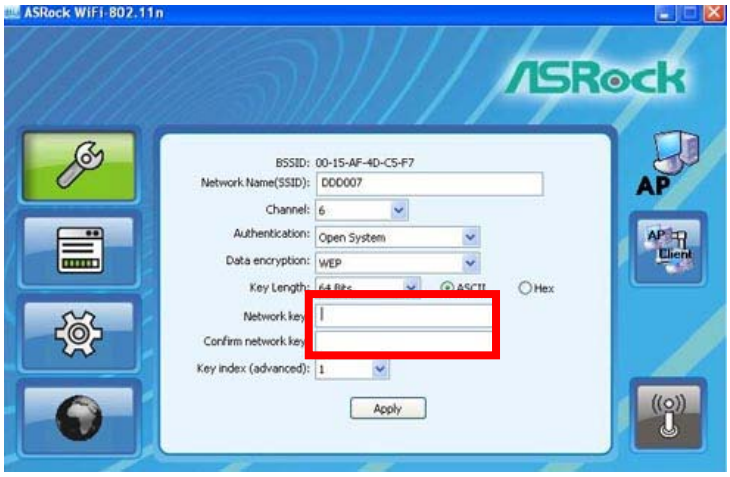
8. If you select **WPA2-PSK**, the configurable option of Data Encryption is **AES** only. You can't select Key Length in this option either.



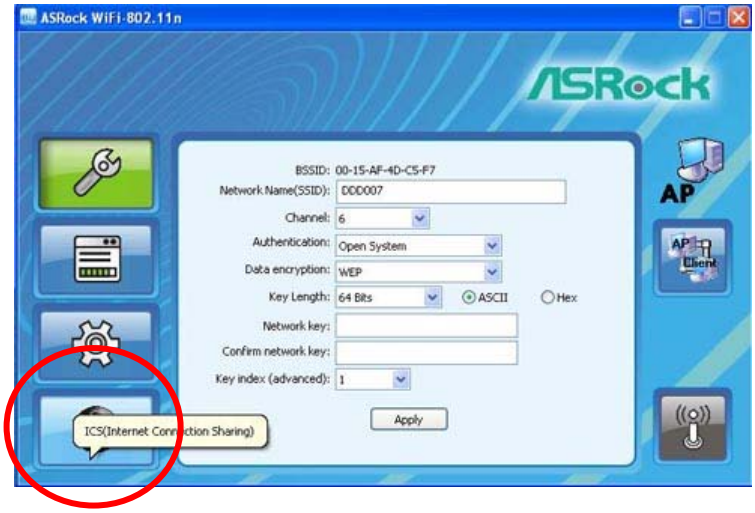
9. In this case, we select **Open System** for the rest of the setups. If you select WEP, please select the Key Length. The configurable options are **64 Bits** and **128 Bits**. (However, if you select **None** in the **Data Encryption**, you will not be able to choose the Key Length.)



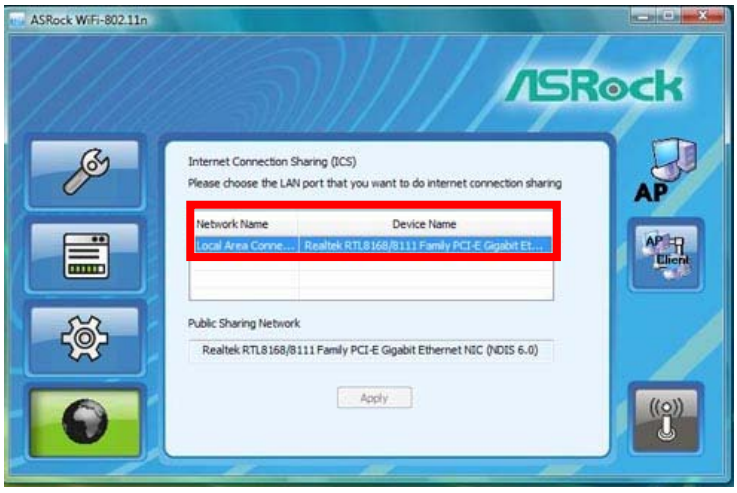
10. Key in the Network password and click **Apply** to confirm.



11. Click **ICS** (Internet Connection Sharing) button on the left-bottom corner of the main window.



12. Select the correct internet connection and click **Apply**.



Note:

* You need to have another LAN connector connected to your ADSL / cable modem, and already set it up for Internet access. Please refer to the manual from your ISP for detailed setup steps.

13. The AP mode configuration is completed.

4.2 Setting up the Station Mode

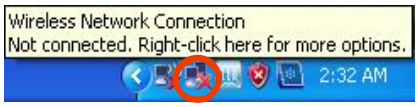
There are two choices provides in station mode: **Infrastructure mode** and **Ad-hoc mode**. For the differences of Infrastructure mode and Ad-hoc mode, please refer to page 5 and 6 for details.

If you want to set up ASRock WiFi-802.11n module for advanced use in station mode, please use Windows® configuration and follow below steps according to the mode you choose and the operating system you install.

4.2.1 Setting up the Infrastructure Mode

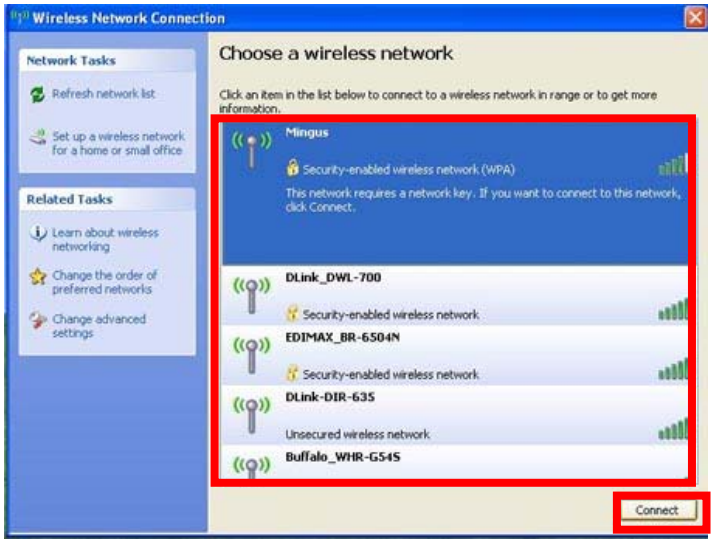
For Windows® XP / XP 64-bit:

1. Move your mouse cursor to **Wireless Network Connection** icon  on the Windows® taskbar and right-click the icon.



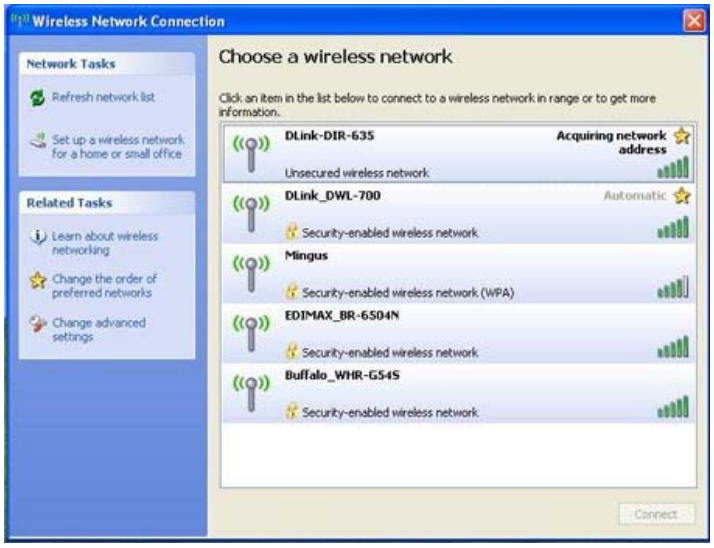
2. Select **View Available Wireless Networks**.

3. Choose an available wireless network. Click **Connect**.



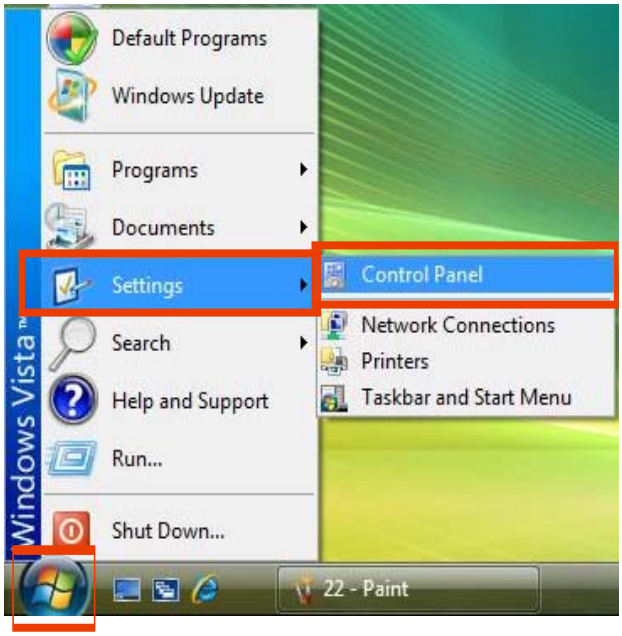
4. If you choose a security-enabled wireless network, input the network key and click **Connect**.

5. You are now connected to a internet wireless network successfully.

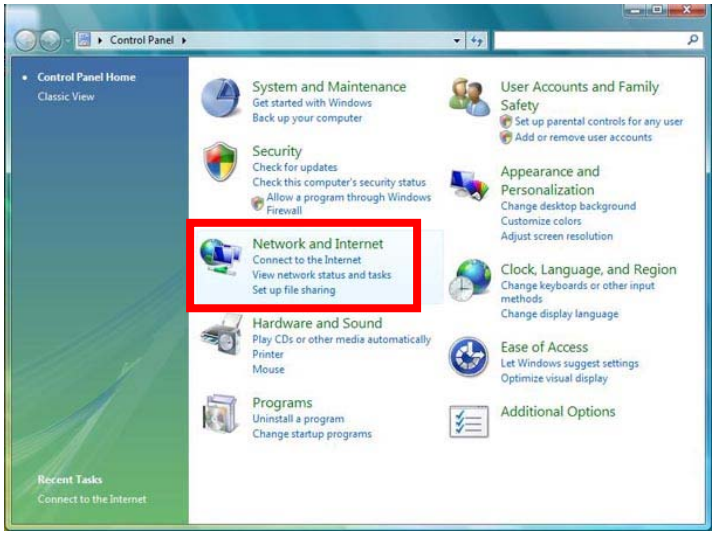


For Windows® Vista™ / Vista™ 64-bit:

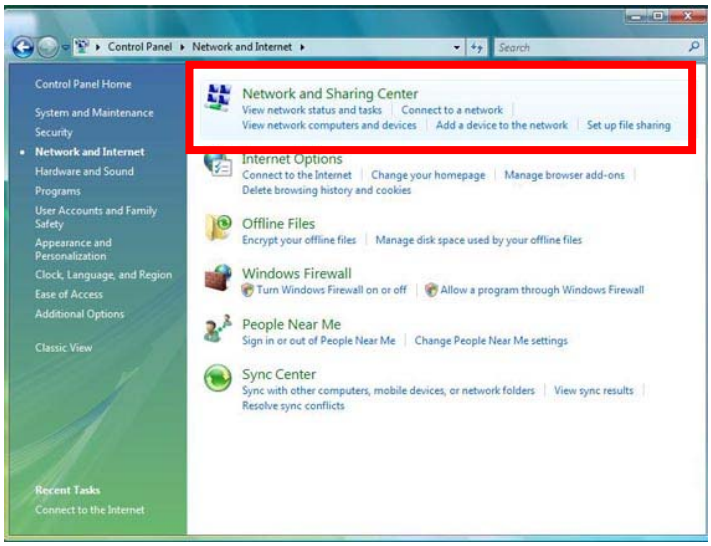
1. Click **Start**. Click **Settings**. And select **Control Panel**.



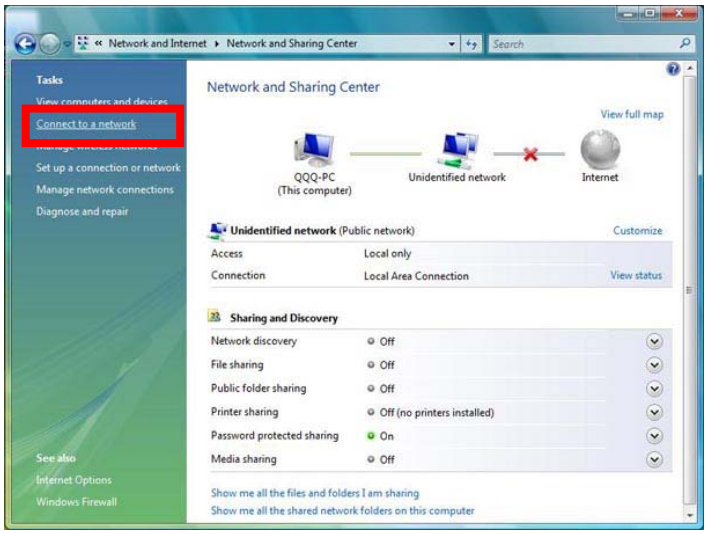
2. Click **Network and Internet**.



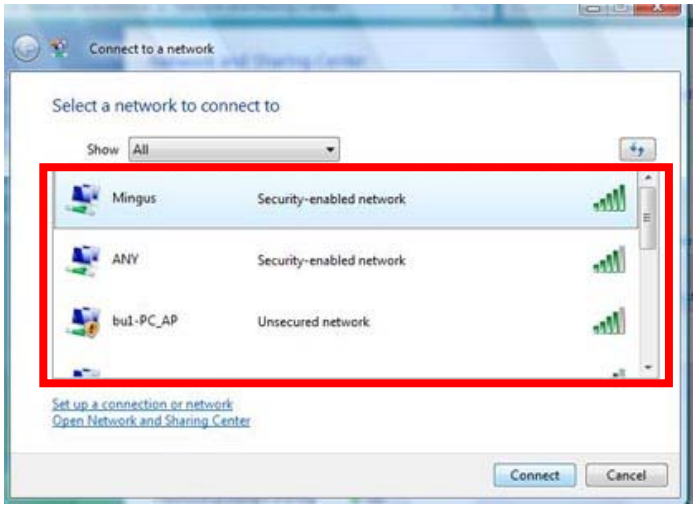
3. Click **Network and Sharing Center**.



4. Click **Connect to a network**.

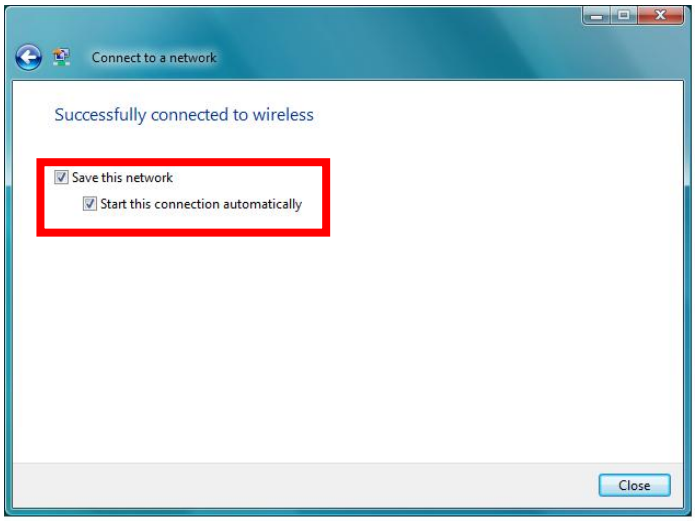


5. Choose an available network and click **Connect**.



6. If you choose a security-enabled wireless network, input the network key and click **Connect**.

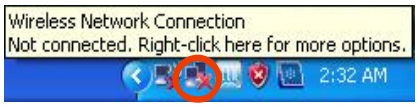
7. You have connected to internet wireless network successfully. If you want to start the connection automatically next time, you may save the network by checking **Save this network** box, and click Close.



4.2.2 Setting up the Ad-hoc Mode

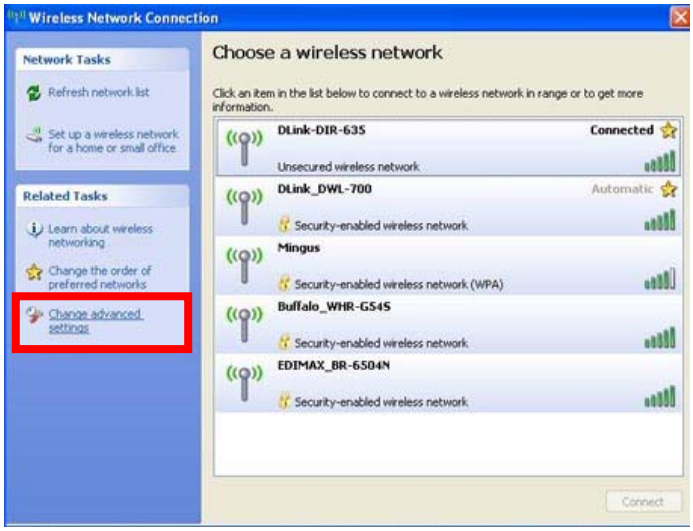
For Windows® XP / XP 64-bit:

1. Move your mouse cursor to **Wireless Network Connection** icon  on the Windows® taskbar and right-click the icon.

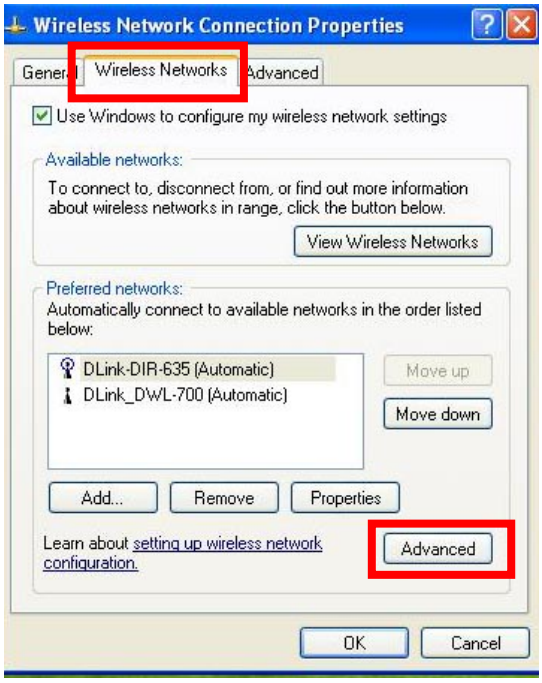


2. Select **View Available Wireless Networks**.

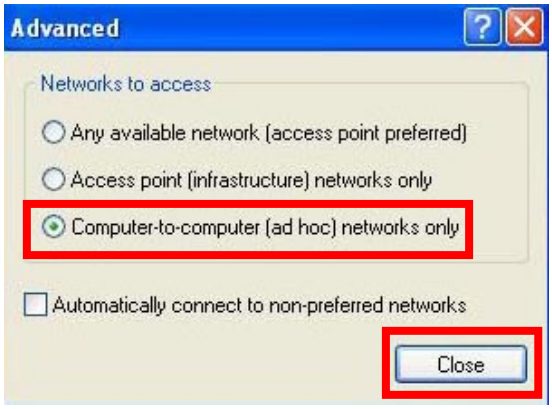
3. Click **Change advanced settings**.



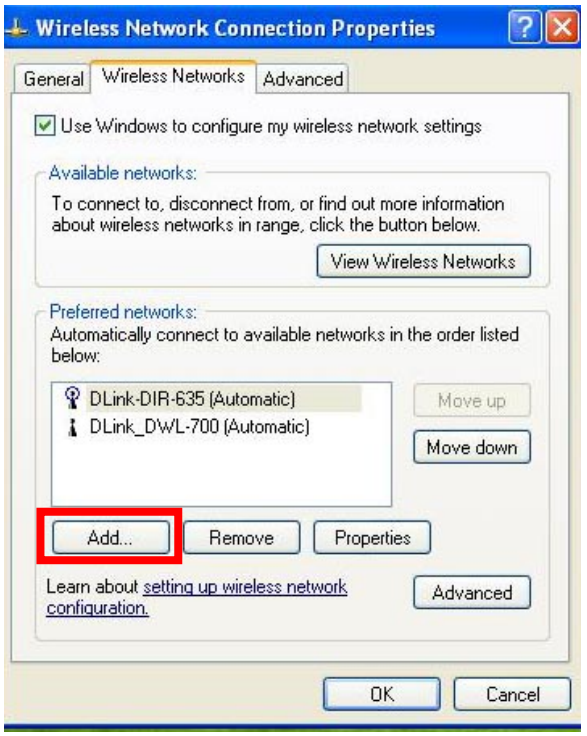
4. Switch to **Wireless Networks** tab and click **Advanced**.

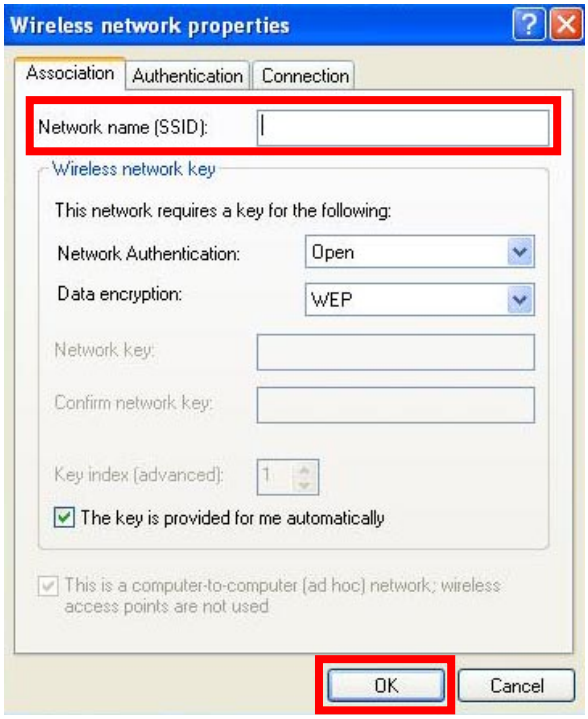


5. Select **Computer-to-computer (ad hoc) networks only** and clear the **Automatically connect to non-preferred networks** box if it is selected. Click **Close**.

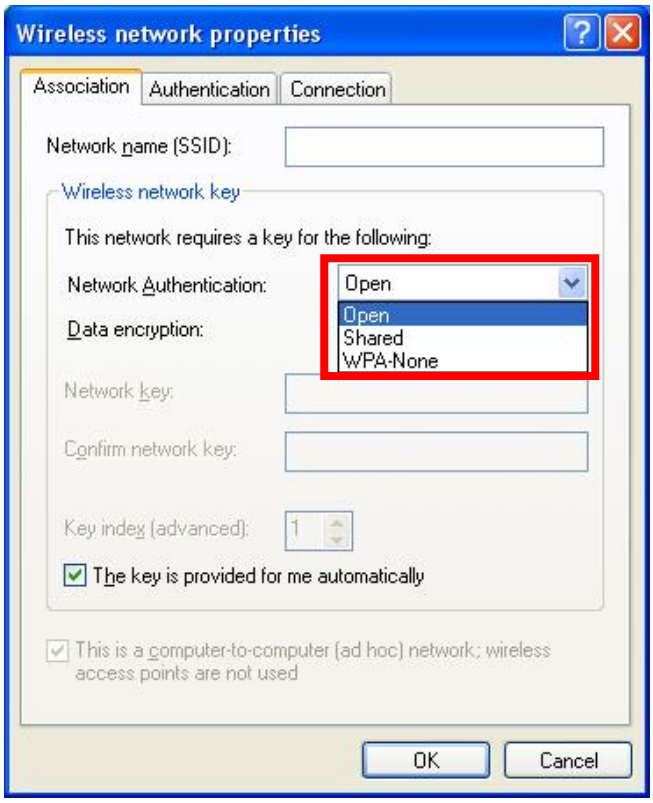


6. On the **Wireless Networks** tab, click **Add**. In the **Wireless Network Properties** dialog box, specify a Network name (SSID). Click **OK** to close all dialog boxes.

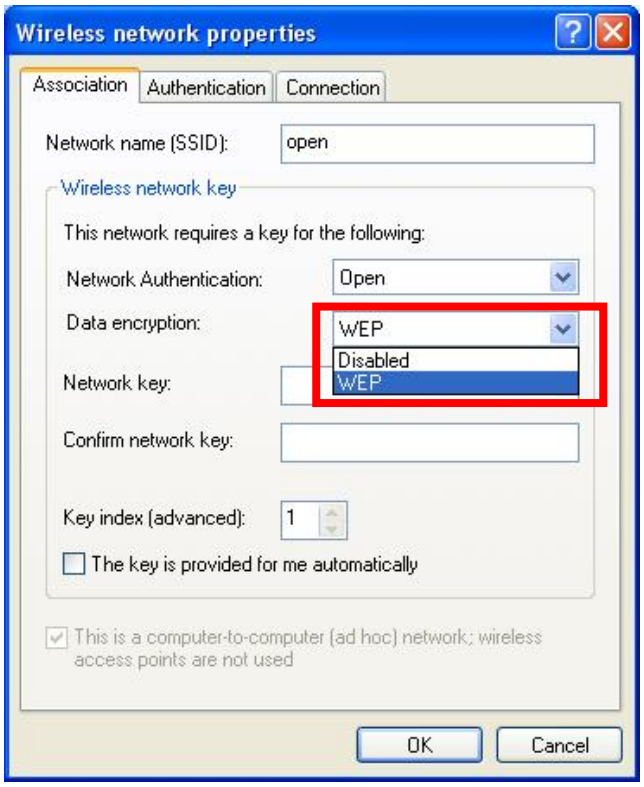




7. Select the **Network Authentication** for advanced setups. The configurable options are **Open**, **Shared** and **WPA2-None**. Select an appropriate one.

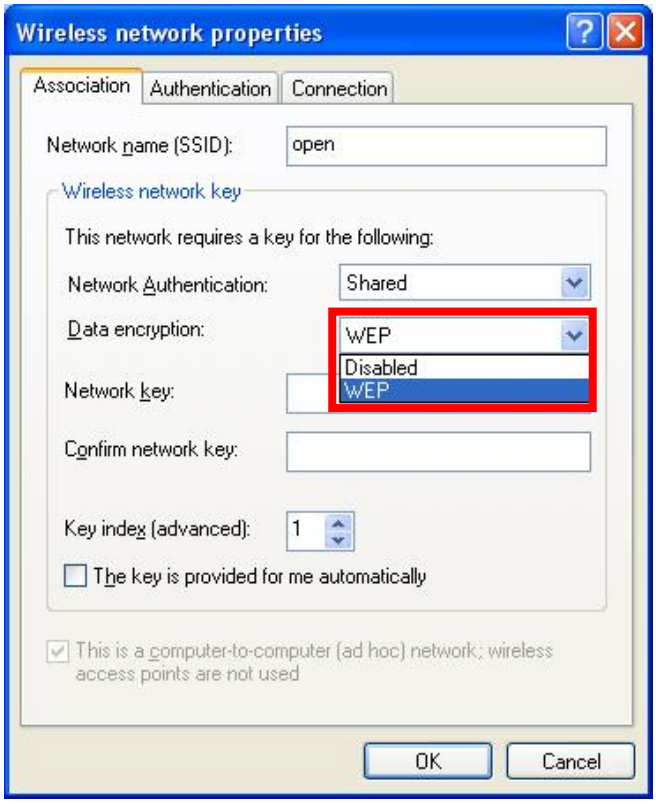


8. If you select **Open**, the configurable option of Data Encryption is **WEP** only. You may select **Disabled** or **WEP**. This option allows you to select Key Index.

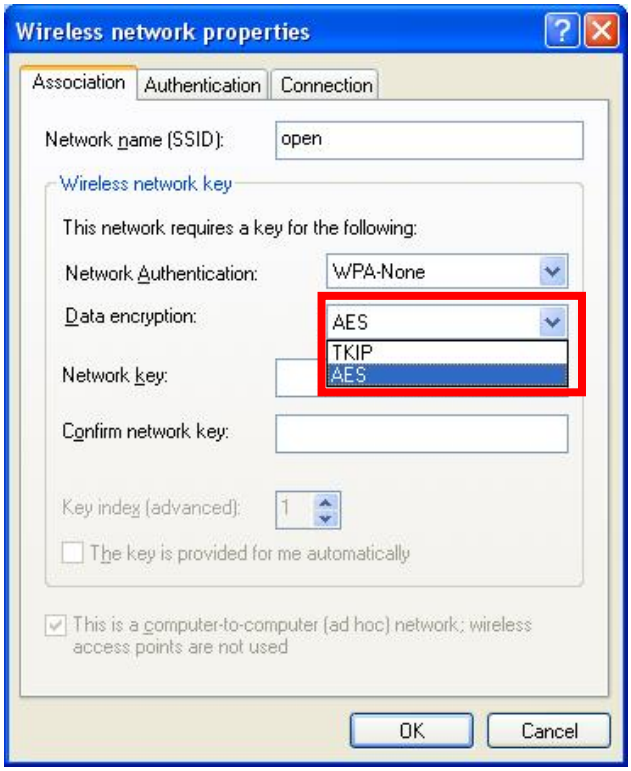


9. If you select **Shared**, the configurable option of Data Encryption is **WEP** only. You

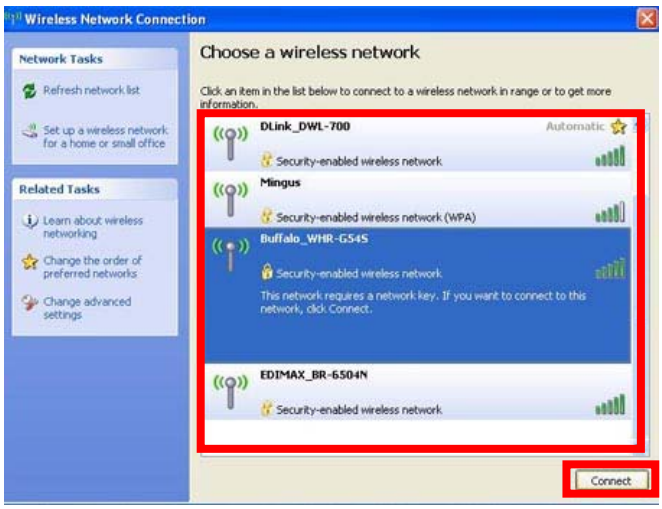
may select **Disabled** or **WEP**. This option allows you to select Key Index.



10. If you select **WPA-None**, the configurable options of Data Encryption are **TKIP** and **AES**. You may select either **TKIP** or **AES**. You can't select Key index in this option.

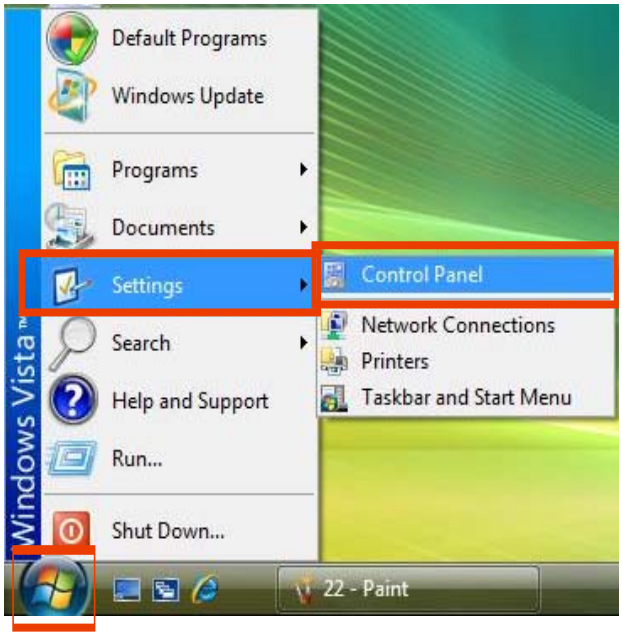


11. Launch **View Available Wireless Networks** again. You are now in Ad-hoc network, you may wait for other users to connect you or you may select the desired ad-hoc network and click **Connect**.

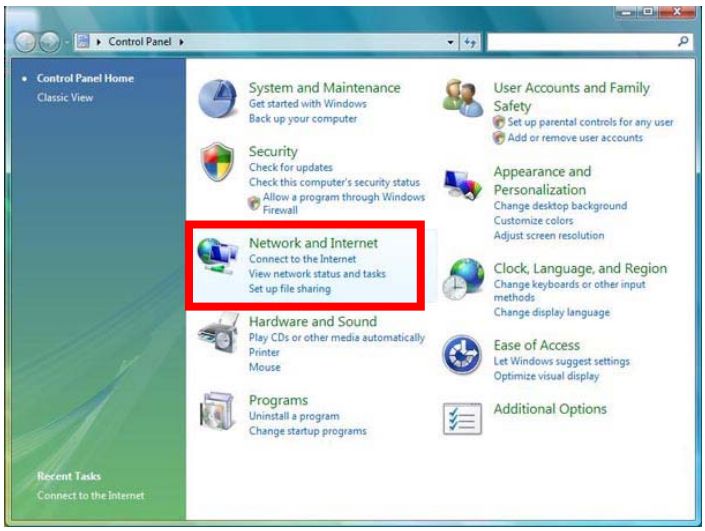


For Windows® Vista™ / Vista™ 64-bit:

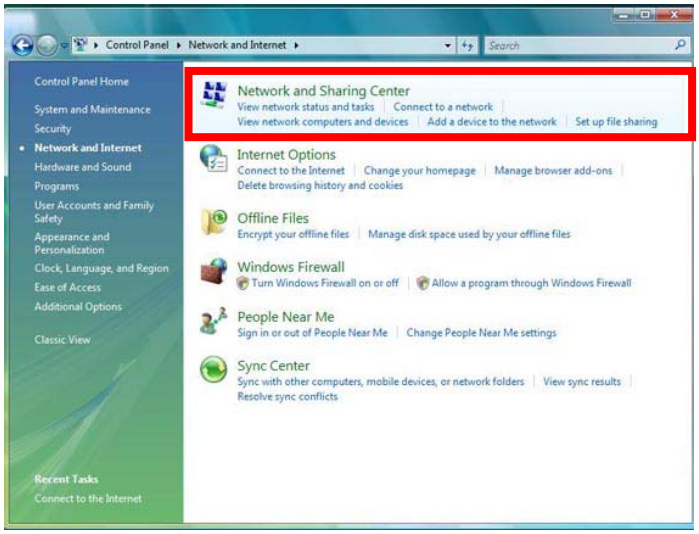
1. Click **Start**. Click **Settings**. And select **Control Panel**.



2. Click **Network and Internet**.

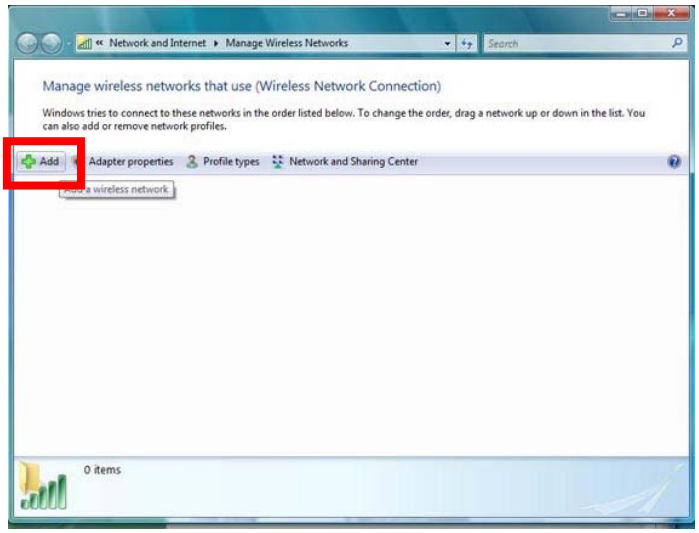


3. Click **Network and Sharing Center**.

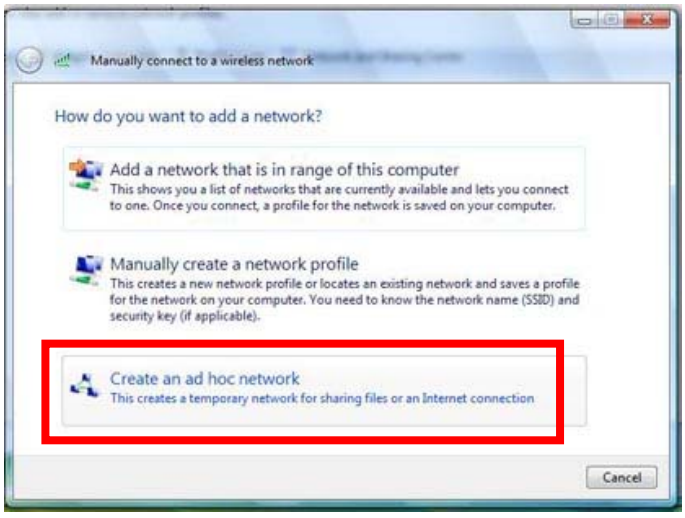


4. Click **Manage wireless networks**.

5. In the **Manage wireless networks that use (Wireless Network Connection)** window, click **Add**.

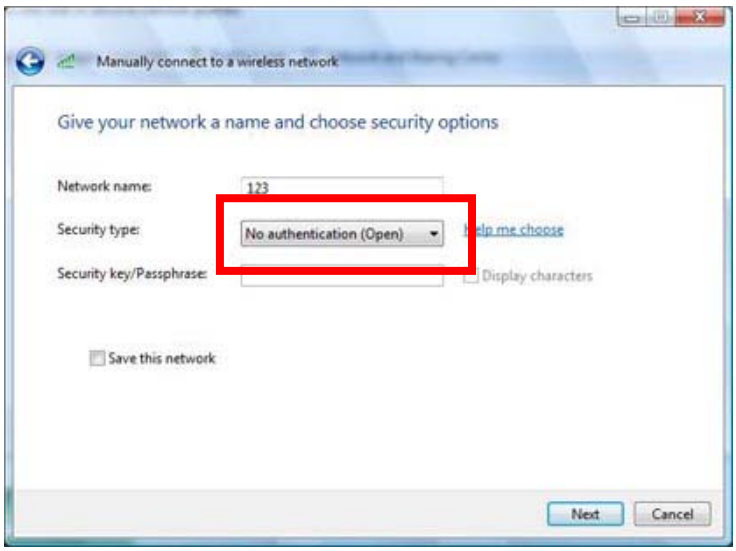


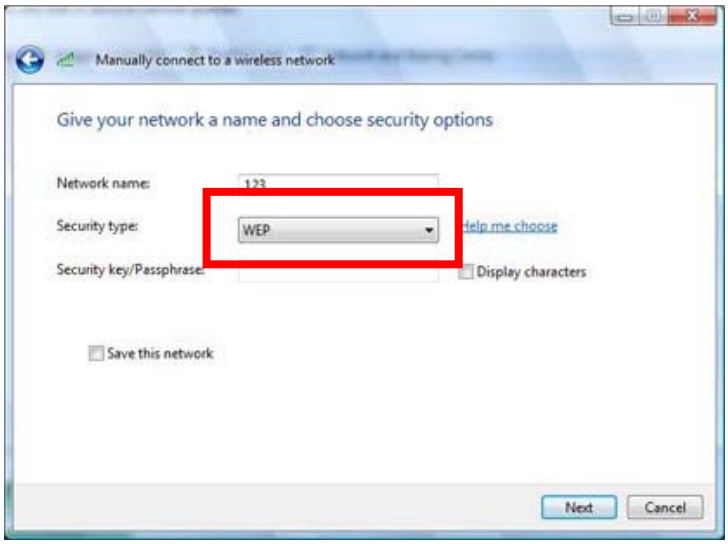
6. Click **Create an ad hoc network**.

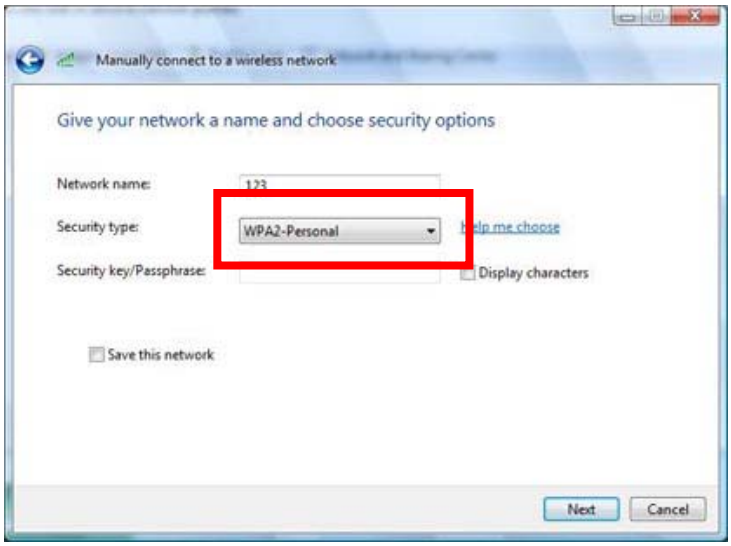


7. In the **Set up a wireless ad hoc network** window, click **Next**.

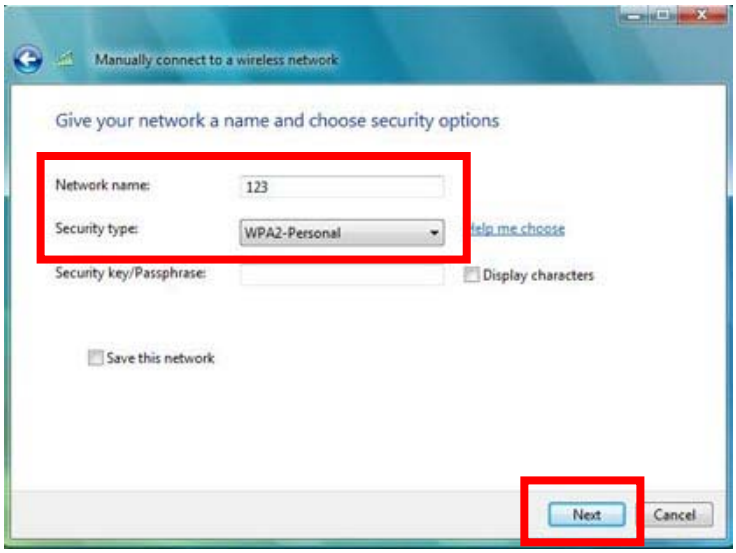
8. Specify a network name, select the security type. The configurable options are **No Authentications (Open)**, **WEP** and **WPA2-Personal**.



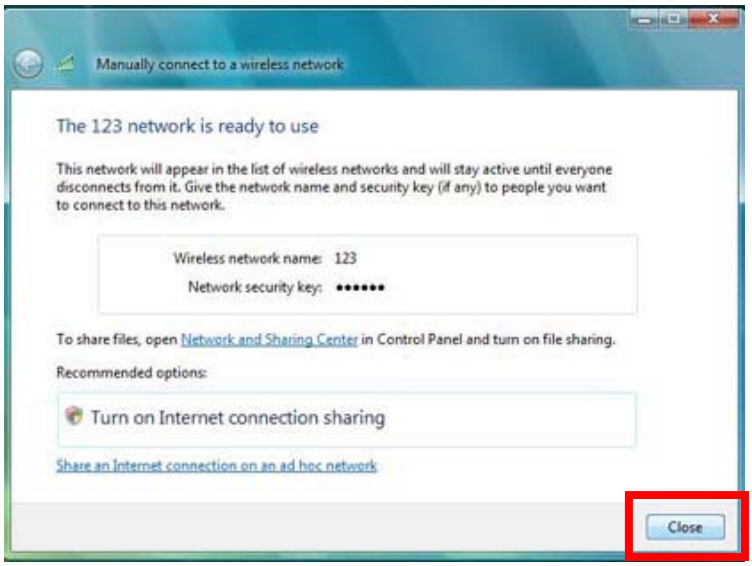




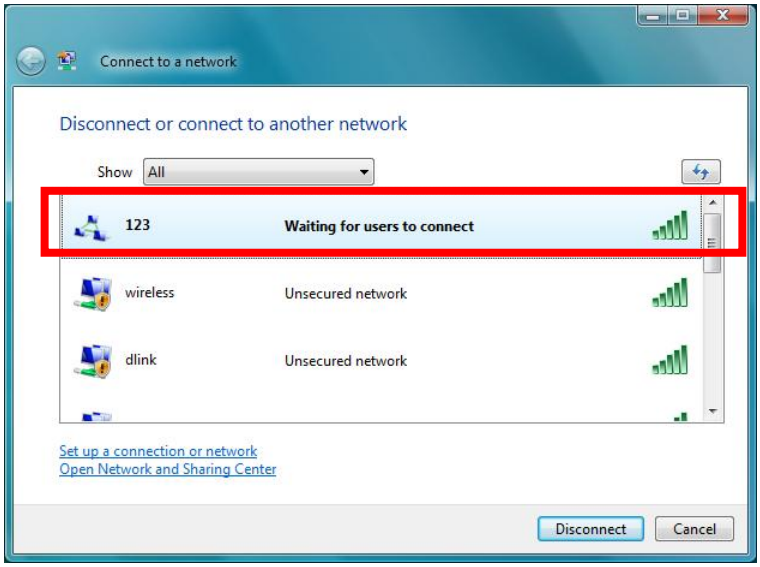
9. Select an appropriate one, and key in the security password. Then click **Next**.



10. You have completed setting up an Ad-hoc network. Click **Close** to exit.



11. You are now in Ad-hoc network, you may wait for other users to connect you or you may select the desired ad-hoc network.


Connect to a network
Disconnect or connect to another network
Show
All
123
Waiting for users to connect
wireless
Unsecured network
dlink
Unsecured network
Set up a connection or network
Open Network and Sharing Center
Disconnect
Cancel