

# NETGEAR RangeMax Next Wireless-N Express Card WN711 User Manual



## NETGEAR

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202-10259-01  
April 2007

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NETGEAR, INC. Support Information

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## Statement of Conditions

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## Maximum Wireless Signal Rate Derived from IEEE Standard 802.11 Specifications

Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

## Safety and Regulatory Notices

### FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

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 according to 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 is found 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 a dealer or an experienced radio/TV technician help.

FCC Caution: Any change or modification to the product not expressly approved by NETGEAR could void the user's authority to operate the device.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

For product available in the USA market, only channel 1~11 can be operated. Selection of other channels is not possible.

## FCC RF Radiation Exposure and SAR Statements

### RF Exposure Information

The radio module has been evaluated under FCC Bulletin OET 65C (01-01) and found to be compliant to the requirements as set forth in CFR 47 Sections, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. This model meets the applicable government requirements for exposure to radio frequency waves. The highest SAR level measured for this device was 0.486 W/kg.

### Canadian Department of Communications Industry Canada (IC) Notice

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210. Cet appareil numérique de la classe B est conforme à la norme NMB-003 et CNR-210 du Canada.

“To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.”

“Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit être utilisé à l'intérieur et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal. Si le matériel (ou son antenne d'émission) est installé à l'extérieur, il doit faire l'objet d'une licence.”

### Europe - EU Declaration of Conformity

A printed copy of the EU Declaration of Conformity certificate for this product is provided in the WN711 product package.

Ěesky [Czech]	NETGEAR, Inc. tímto prohlašuje, že tento NETGEAR RangeMax Next Wireless-N Express Card WN711 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede NETGEAR, Inc. erklærer herved, at følgende udstyr NETGEAR RangeMax Next Wireless-N Express Card WN711 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erkläre NETGEAR, Inc., dass sich das Gerät NETGEAR RangeMax Next Wireless-N Express Card WN711 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.

Eesti [Estonian]	Käesolevaga kinnitab NETGEAR, Inc. seadme NETGEAR RangeMax Next Wireless-N Express Card WN711 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, NETGEAR, Inc., declares that this NETGEAR RangeMax Next Wireless-N Express Card WN711 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente NETGEAR, Inc. declara que el NETGEAR RangeMax Next Wireless-N Express Card WN711 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ NETGEAR, Inc. ΔΗΛΩΝΕΙ ΟΤΙ NETGEAR RangeMax Next Wireless-N Express Card WN711 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]	Par la présente NETGEAR, Inc. déclare que l'appareil NETGEAR RangeMax Next Wireless-N Express Card WN711 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente NETGEAR, Inc. dichiara che questo NETGEAR RangeMax Next Wireless-N Express Card WN711 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo NETGEAR, Inc. deklarē, ka NETGEAR RangeMax Next Wireless-N Express Card WN711 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo NETGEAR, Inc. deklaruoja, kad šis NETGEAR RangeMax Next Wireless-N Express Card WN711 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart NETGEAR, Inc. dat het toestel NETGEAR RangeMax Next Wireless-N Express Card WN711 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, NETGEAR, Inc., jiddikjara li dan NETGEAR RangeMax Next Wireless-N Express Card WN711 jikkonforma mal-tijiet essenzjali u ma provvedimenti orajn rilevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, NETGEAR, Inc. nyilatkozom, hogy a NETGEAR RangeMax Next Wireless-N Express Card WN711 megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]	Niniejszym NETGEAR, Inc. oświadczam, że NETGEAR RangeMax Next Wireless-N Express Card WN711 jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	NETGEAR, Inc. declara que este NETGEAR RangeMax Next Wireless-N Express Card WN711 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Slovensko [Slovenian]	NETGEAR, Inc. izjavlja, da je ta NETGEAR RangeMax Next Wireless-N Express Card WN711 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	NETGEAR, Inc. týmto vyhlasuje, že NETGEAR RangeMax Next Wireless-N Express Card WN711 spáda základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	NETGEAR, Inc. vakuuttaa täten että NETGEAR RangeMax Next Wireless-N Express Card WN711 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar NETGEAR, Inc. att denna [utrustningstyp] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

## Product and Publication Details

<b>Model Number:</b>	WN711
<b>Publication Date:</b>	April 2007
<b>Product Family:</b>	Wireless Adapter
<b>Product Name:</b>	NETGEAR RangeMax Next Wireless-N Express Card WN711
<b>Home or Business Product:</b>	Home
<b>Language:</b>	English
<b>Publication Part Number:</b>	202-10259-01



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# About This Manual

The *NETGEAR® RangeMax™ Next Wireless-N ExpressCard WN711 User Manual* describes how to install, configure, and troubleshoot the NETGEAR RangeMax Next Wireless-N Express Card WN711. The information in this manual is intended for readers with intermediate computer and Internet skills.

## Conventions, Formats and Scope


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The conventions, formats, and scope of this manual are described in the following paragraphs:

- **Typographical Conventions.** This manual uses the following typographical conventions:

<i>Italics</i>	Emphasis, books, CDs, URL names
<b>Bold</b>	User input

- **Formats.** This manual uses the following formats to highlight special messages:

	<b>Note:</b> This format is used to highlight information of importance or special interest.
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	<b>Tip:</b> This format is used to highlight a procedure that will save time or resources.
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- **Scope.** This manual is written for the Wireless Express Card according to these specifications:

Product Version	NETGEAR RangeMax Next Wireless-N Express Card WN711
Manual Publication Date	April 2007

For more information about network, Internet, firewall, and VPN technologies, see the links to the NETGEAR website in [Appendix B, “Related Documents”](#).








**Note:** Product updates are available on the NETGEAR, Inc. website at <http://kbserver.netgear.com/products/WN711.asp>.

## How to Use This Manual

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The HTML version of this manual includes the following:

- Buttons,  and , for browsing forwards or backwards through the manual one page at a time
- A  button that displays the table of contents and an  button. Double-click on a link in the table of contents or index to navigate directly to where the topic is described in the manual.
- A  button to access the full NETGEAR, Inc. online knowledge base for the product model.
- Links to PDF versions of the full manual and individual chapters.

## How to Print this Manual

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To print this manual you can choose one of the following several options, according to your needs.

- **Printing a Page in the HTML View.**

Each page in the HTML version of the manual is dedicated to a major topic. Use the *Print* button on the browser toolbar to print the page contents.

- **Printing a Chapter.**



**Tip:** If your printer supports printing two pages on a single sheet of paper, you can save paper and printer ink by selecting this feature.

Use the *PDF of This Chapter* link at the top left of any page.

- Click the *PDF of This Chapter* link at the top left of any page in the chapter you want to print. The PDF version of the chapter you were viewing opens in a browser window.
- Your computer must have the free Adobe Acrobat reader installed in order to view and print PDF files. The Acrobat reader is available on the Adobe Web site at <http://www.adobe.com>.
- Click the print icon in the upper left of the window.

- **Printing the Full Manual.**

Use the *Complete PDF Manual* link at the top left of any page.

- Click the Complete PDF Manual link at the top left of any page in the manual. The PDF version of the complete manual opens in a browser window.
- Click the print icon in the upper left of the window.



# Chapter 1

## Basic Setup

The NETGEAR RangeMax Next Wireless-N Express Card WN711 lets you connect a computer to wireless networks. It is designed for laptop computers running Microsoft Windows. For information about product features and compatible NETGEAR products, see the NETGEAR website at <http://www.netgear.com>.

This chapter describes how to install your Wireless Express Card and set up basic wireless connectivity on your Wireless Local Area Network (WLAN). Advanced wireless network settings are covered in [Chapter 2, “Network Connections and Wireless Security”](#) in this manual.

### What You Need Before You Begin

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You must verify that your computer meets the minimum system requirements and identify the wireless network settings of the wireless network where you will connect before you can set up your wireless Express Card and connect.

### Verify System Requirements

Before installing the Wireless Express Card, make sure that these minimum requirements have been met. You must have a computer with:

- A Pentium 300 MHz or higher compatible processor with an available Express card slot.
- A CD drive.
- 105 Mbytes of free hard disk space.
- Microsoft Vista, Windows XP Home, XP Professional, or Windows 2000

Some versions of Windows may ask for the original Windows operating system installation files to complete the installation of the WN711 driver software.

## Observe Wireless Location and Range Guidelines

Computers can connect over wireless networks indoors at a range that can vary significantly based on the location of the computer with the Wireless Express Card. For best results, avoid potential sources of interference, such as:

- Large metal surfaces
- Microwave ovens
- 2.4 GHz cordless phones

In general, wireless devices can communicate through walls. However, if the walls are constructed with concrete, or have metal, or metal mesh, the effective range will decrease if such materials are between the devices. For more detailed information, see [Chapter 3, “Wireless Network Performance”](#).

## What Is in the Box

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The product package should contain the following items:

- NETGEAR RangeMax Next Wireless-N Express Card WN711
- *Resource CD*, including:
  - Driver and Utility Software
  - *NETGEAR RangeMax Next Wireless-N Express Card WN711 User Manual* (this document)
  - Animated Network Properties Configuration Tutorial
  - PC Networking Tutorial
- Warranty card
- Support information card


If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair.

## Default Wireless Settings

If this is a new wireless network installation, use the factory default settings to set up the network and verify wireless connectivity. If this is an addition to an existing wireless network, you need the wireless network and wireless security settings that are already defined.

Your Wireless Express Card factory default basic settings are:

- Network Name Service Set Identification (SSID): **Any**

	<b>Note:</b> In order for the Wireless Express Card to communicate with a wireless access point or wireless adapter, all devices must be set up to use the same wireless network name (SSID).
---	---

- Network Mode (Infrastructure or Ad-hoc): **Infrastructure**
- Data security WEP, WPA2-PSK, or WPA-PSK encryption: **Disabled**

## Installation

---

The instructions in this chapter explain how to install the WN711 to connect to a network with an access point or router. Wireless security, advanced settings, and Computer-to-Computer (Ad Hoc) instructions are covered in [Chapter 2, “Network Connections and Wireless Security”](#).

To install the Wireless Express Card:

1. First, install the WN711 software.

Insert the NETGEAR CD. If the CD main page does not appear, double click Autorun.exe on the CD.

- a. Click Install the Software. The Check for Updates window opens.



Figure 1-1

- b. If you are connected to the Internet, click Check for Updates. If not, you can choose to install from the CD.
  - c. Follow the onscreen instructions for the InstallShield wizard and the NETGEAR Smart Wizard.
    - For Windows XP or Windows 2000 if a Windows logo testing message appears, click Continue Anyway.
    - If a message that Windows Vista cannot verify the publisher of this driver appears, click Install this driver software anyway.
  - d. When the Installation Complete message appears, click Next.
2. Now, insert the Wireless Express Card.



**Figure 1-2**

- a. Locate an available Express card slot in your computer.
- b. Insert the Wireless Adapter into the slot.
- c. For Windows XP and Windows 2000 computers, the Found New Hardware Wizard opens. Follow the wizard prompts.
- d. For Windows Vista the Express Card is automatically added with the installed driver.



3. Windows 2000 users go to Step 4. Windows XP or Vista users can set up the wireless adapter with the NETGEAR Smart Wizard (recommended) or the Windows configuration utilities.



Figure 1-3

- **NETGEAR Smart Wizard:** Reveals more information about each network and makes it easier to troubleshoot network connection problems. See “[Smart Wizard Status Bar](#)” on page 1-8 and “[Connecting to Wireless Networks and the Internet](#)” on page 1-7.
  - **Windows configuration utilities:** See the Windows documentation or <http://documentation.netgear.com/reference/enu/winzerocfg/index.htm>.
4. Use the Smart Wizard to set up your Wireless Express Card.
    - a. When prompted, click Next to let the wizard help you connect to a network (recommended).



Figure 1-4

- b. Select the wireless network from the drop-down list, and the wizard records your choice.

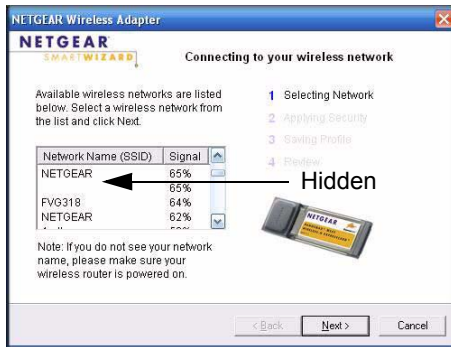


Figure 1-5

Hidden networks do not broadcast the Network Name (SSID). These networks are in the drop-down list, but the Network Name (SSID) is blank. If the network uses security, the Smart Wizard detects it.

- c. Follow the Wizard steps for Security (if used) and for saving a Profile.
- d. After you have reviewed the settings, click Finish.


The WN711 icon  appears in the system tray and on the desktop. The wizard initiates your wireless connection. It could take up to a minute to establish your wireless connection. The Smart Wizard Settings page opens.




Figure 1-6

- 5. Use the status bar to verify your wireless connectivity. See [“Connecting to Wireless Networks and the Internet”](#) on page 1-7.




## Connecting to Wireless Networks and the Internet

The WN711 has indicators in three locations that show the status of your connection to a wireless network and to the Internet:


-  **Icon:** After you install the software, this icon appears on the desktop and in the lower right of the Windows task bar. It is color coded to show the status of the connection. See [“Smart Wizard Status Bar” on page 1-8](#).
- Smart Wizard Status Bar:** Click the WN711 icon to open the Smart Wizard. The status bar at the bottom of the page shows details about your wireless and Internet connection.
- Wireless Express Card LED:** The LED on the Wireless Express Card shows the network connection. Solid indicates a connection. The LED blinks when the Wireless Express Card is transferring data.

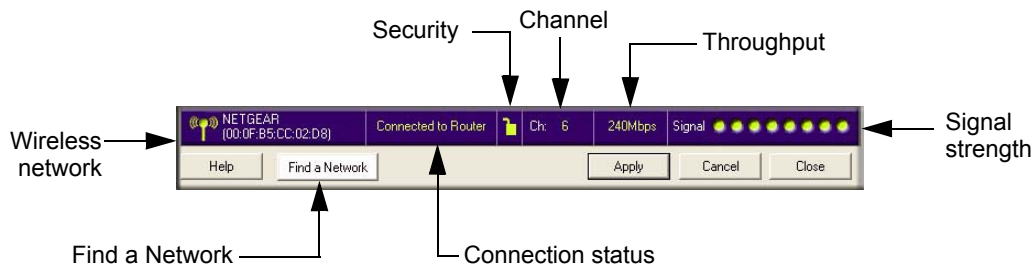
### WN711 Icon Colors

The WN711 icon is on the desktop and in the Windows System Tray. The System Tray is located on one end of the taskbar in the Microsoft Windows desktop.

Color	Condition	Description
Red 	The wireless Express Card has no connection to any other wireless node.	The wireless Express Card cannot link to any other wireless node or the link is lost. Check your configuration or try moving to a location where the wireless signal quality is better.
Yellow 	The wireless Express Card has a connection with another wireless node.	The wireless link is weak. You may need to move to a better spot, such as closer to the wireless access point. Also, look for possible interference such as a 2.4 GHz cordless phone or large metal surface.
Green 	The wireless Express Card has a connection with another wireless node.	The wireless Express Card has established good communication with an access point and the signal quality is strong.

## Smart Wizard Status Bar

Click the  icon to open the Smart Wizard so you can view the status bar. The Smart Wizard Settings page opens. The status bar is located at the bottom of the Settings page.



**Figure 1-7**

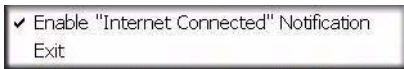
The following table describes how to interpret the Smart Wizard status bar.

Understanding the Status Bar	
Wireless network	Identifies which wireless network you have joined.
Security	<ul style="list-style-type: none"> <li>• Locked: security enabled.</li> <li>• Unlocked: security not enabled.</li> </ul>
Channel	The wireless channel used by the network. If many wireless networks in your area use the same channel they can interfere with one another.
Throughput	Wireless throughput measured in Mega bits per second.
Signal strength	More dots indicates a stronger signal. Usually, you will experience higher throughput when the signal is strongest.
Find a Network	Click <b>Find a Network</b> to open the Connection Wizard.
Connection status	Identifies the status of your network connection. <ul style="list-style-type: none"> <li>• <b>Connected to Internet:</b> Wireless Internet connection is OK.</li> <li>• <b>Connected to Router:</b> Wireless connection to the router is OK but the router is not connected to the Internet.</li> <li>• <b>169.254.x.x or _____.____.____.____ :</b> The wireless connection to the router is OK but there is a problem with the router. See <a href="#">Chapter 4, "Troubleshooting"</a>.</li> </ul>

**Note:** To optimize throughput, connect to a network with a high-speed router or access point, and a high-speed Internet connection. For more information about optimizing wireless performance, and network bandwidth, see ["Optimizing Wireless Performance" on page 3-1](#) and ["Optimizing Your Network Bandwidth" on page 3-2](#).

The Connection status is useful in isolating a problem. For example, if you are connected to a router, but not to the Internet, then check the router's Internet connection.

If you right-click the system tray icon, you can disable the Internet notification feature by clearing the check mark enabling notification, as shown in [Figure 1-8](#). If you do so, then only the IP address is shown.



**Figure 1-8**

In Vista, there is one more option: Enable NETGEAR Smart Wizard.



**Figure 1-9**

If you clear the check mark for Enable NETGEAR Smart Wizard, the NETGEAR Smart Wizard will be disabled and you will need to setup the wireless adapter with Vista Auto configuration.

## Removing the WN711 Software

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If necessary, you can remove the wireless adapter software in these ways:

- Navigate the Windows Start menu to the NETGEAR WN711 Smart Wizard program group, select the uninstall option, and follow the screen prompts.
- For Windows 2000 or Windows XP, navigate the Windows Start menu to the Control Panel Add or Remove Program item and follow the screen prompts.
- For Vista, navigate the Windows Start menu to the Control Panel Programs and Features item. Then select the NETGEAR WN711 wireless adapter option, and follow the screen prompts.

## Upgrading the WN711 Software

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Upgrades may be available at the NETGEAR website.

To install an upgrade:

1. Write down the settings for any profiles that you want to save. They will not be retained.
2. Download the upgrade from the NETGEAR website Support page.
3. Remove the WN711 software from your computer.
4. Remove the Wireless Express Card adapter from your computer, and if prompted restart your computer.
5. Run the installer that you downloaded (the file ends in .exe).
6. Follow the installer instructions, and if prompted, then restart your computer.

# Chapter 2

## Network Connections and Wireless Security

This chapter explains how to use your Wireless Express Card to connect to your Wireless Local Area Network (WLAN) and how to set up wireless security for the Wireless Express Card so that it matches the wireless security settings for your network.

If you chose the Windows XP Zero configuration during installation, and now you want to use the Smart Wizard, then you need to disable the Windows utility. If you are working with the Vista configuration utility, see the online document:

<http://documentation.netgear.com/reference/enu/winzerocfg/index.htm>

### Disabling the Windows XP Zero Configuration Utility

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To disable the Windows Zero Configuration utility:

1. Insert the wireless adapter into an Express card slot in your computer.
2. Go to Windows Start menu and select Network Connections.
3. On the Network connections page, select the Wireless Network Connection and right-click to choose the Properties option.

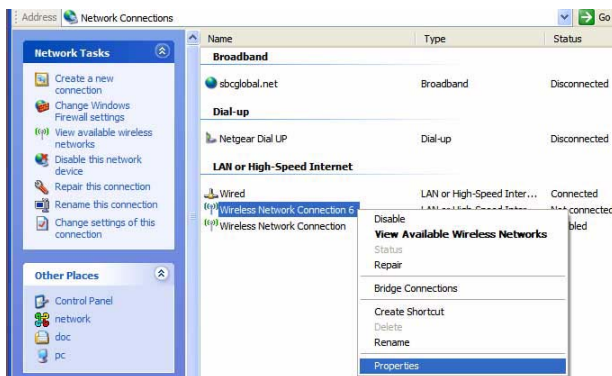



Figure 2-1

4. Click the Wireless Networks tab. Then clear the “Use Windows to configure my wireless settings” check box.

## Understanding the Smart Wizard

---

These instructions explain how to use the NETGEAR WN711 Smart Wizard to change the Wireless Express Card wireless settings.

When you have installed the software from the *NETGEAR CD*, the  icon appears on your desktop and in the Windows System Tray. The Windows System Tray is located on the Windows taskbar. You can either double-click this icon on the desktop, or click it in the System Tray at any time, to use the Smart Wizard. This software automatically restarts when you reboot your computer.

The Smart Wizard provides a complete and easy to use set of tools to:

- View details about wireless networks in your area.
- Choose the network that you want to use.
- Configure wireless settings for your wireless connection.
- Save your wireless network settings in profiles.
- Remove or reinstall the wireless adapter software.


The following sections in this chapter explain how to use the Smart Wizard.

## Viewing Wireless Networks in Your Area

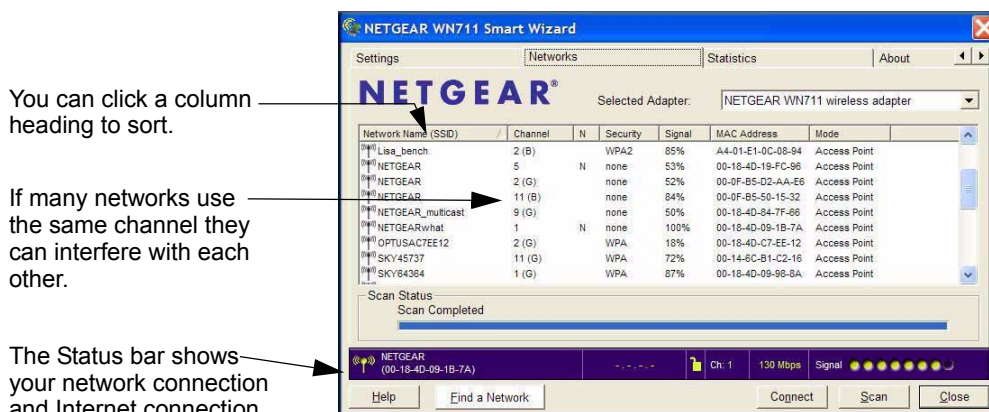
---

You can use the Networks tab to view all available wireless networks in your area. You can also scan to search for wireless networks and refresh the page.

To view information about wireless networks:

1. Use the  icon to open the Smart Wizard. The Settings tab page opens.
2. Click the Networks tab to view the following page:





**Figure 2-2**

The screen shows the following information for each network scanned:

- **Network Name (SSID):** The name assigned to a wireless network. This is the same as the SSID or ESSID configuration parameter. Note that as a security measure, some wireless access points do not broadcast their SSID. In such cases, the SSID field will be blank even though the rest of the information will still be displayed.
- **Channel:** The channel determines which operating frequency will be used.
- **N:** The router supports wireless N mode.
- **Security:** Identifies whether the wireless network uses security settings such as WEP, WPA2-PSK, or WPA-PSK.
- **Signal:** Identifies the signal strength of the communications.
- **MAC Address:** Identifies the hardware address (MAC Address) of the wireless device broadcasting this information.
- **Mode:** Identifies the type of wireless network — Access Point (Infrastructure) or Computer-to-Computer (Ad Hoc)

The buttons located at the bottom of the Networks tab are:

- **Help:** Display online help.
- **Find a Network:** Find and connect to a network. See “Finding a Network” on page 2-4.
- **Connect:** Connect to the network that you selected.
- **Scan:** Check for wireless networks. Clicking Scan refreshes the page.
- **Close:** Close the window of the Wizard.


## Finding a Network

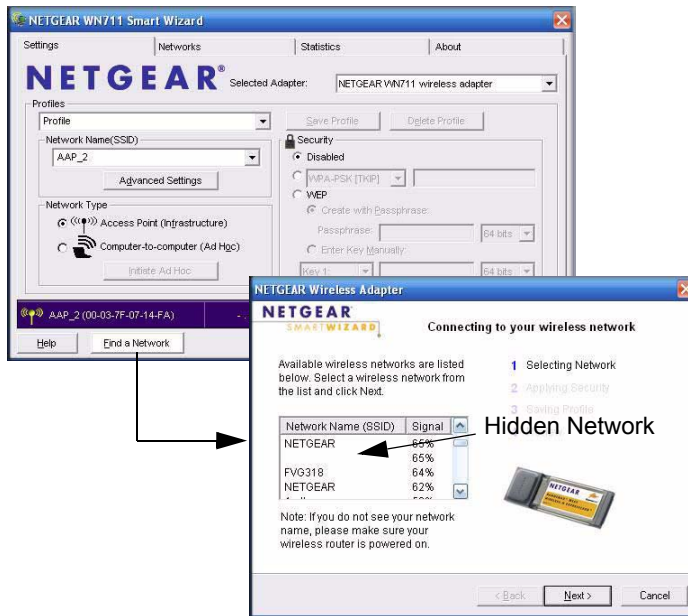
During the WN711 software installation, the Smart Wizard lists the available networks. After installation you can use the Find a Network button on the Network tab at any time to view the available networks and select the one that you want to use.



**Note:** Make sure that you know the security settings for the network that you want to use. For example, if Wired Equivalent Privacy (WEP) is used then you need to know the WEP key. If you use secure networks frequently, set up profiles for each network with the wireless network and security settings.

To find a network:

1. Use the  icon to open the Smart Wizard.  
The Settings tab page opens.
2. On the Networks tab page, click Find a Network.



**Figure 2-3**

3. Select a network from the drop-down list. If you select a hidden network then you must enter the SSID. Click Next.

4. Follow the steps of the wizard to specify the wireless security if used, and to create a profile.
5. Review you settings, and click Finish.

The Smart Wizard initiates your wireless connection. You can use the Status Bar to verify your network connection. For more information, see “[Smart Wizard Status Bar](#)” on page 1-8.

## Profiles

---

The WN711 Smart Wizard uses profiles to store all the settings for a particular wireless network. There are two special profile names: Default and Profile.

**Default:** The Profile named Default automatically scans for any available network. You cannot change this profile name.

**Profile:** If you do not enter a name in the Profile Name box, then the name Profile is used to save your settings. If you do this more than once then you will be asked if you want to replace the previous settings stored in Profile.

## Adding Profiles

You can store multiple profiles and recall the one which matches the network you want to join.

If you use your computer to connect to different wireless networks, you can create a profile for each wireless network. Then, you can easily load the profile that has all the settings that you need to join the network you are using at the time.

There are two types of wireless network profiles that you can set up:

- **Access Point (Infrastructure)** — connect to an access point or router with the 802.11 infrastructure mode.
- **Computer-to-Computer (Ad Hoc)** — connect directly to another computer with the 802.11 ad hoc mode.

For more information on 802.11 wireless network modes, see the wireless reference document at: <http://documentation.netgear.com/reference/enu/wireless/index.htm>

## Setting up a Profile to Connect to an Access Point or Router

Follow these instructions to set up the Wireless Express Card to connect to a wireless access point or router.

1. Use the  icon to open the Smart Wizard. The Settings page opens.



Figure 2-4

2. Enter the network settings.
  - a. In the Network Type section, be sure that Access Point (Infrastructure) is selected.
  - b. In the Profile box, type the name of the profile.
  - c. In the Network Name (SSID) field select a network or enter the SSID.



**Note:** You will not get a wireless network connection unless the SSID that you enter exactly matches the SSID used by the access point.

3. Save your settings in a Profile.
  - a. Click the Save Profile button.

All the configuration settings are saved in this profile.
  - b. Click **Apply**.
  - c. Click Close to exit the wizard, or Cancel to return to the previous settings.

#### 4. Verify wireless connectivity to your network.

Use a browser to connect to the Internet, or check for file and printer access on your network. You can check the status bar in the Smart Wizard for the current connection status.



**Note:** If you cannot connect, see [Chapter 4, “Troubleshooting](#). Also, for problems with accessing network resources, the Windows Client and File and Print Sharing software might not be installed and configured properly on your computers. Refer to [“Internet Networking and TCP/IP Addressing:”](#) on page B-1.

## Setting up a Computer-to-Computer (Ad Hoc) Profile

The Computer-to-Computer setting uses Ad Hoc mode. Ad Hoc mode is an 802.11 networking framework in which devices or computers communicate directly with each other, without the use of an access point. For example, this mode is used when two Windows computers are configured with file and print sharing enabled and you want to exchange files directly between them.



**Note:** Ad Hoc mode will not work using DHCP settings. It requires either static IP addresses (such as **192.168.0.1**) or the IPX protocol. For help with static IP addresses on Windows PCs, see the PC Networking Tutorial on the *NETGEAR CD*.

To create an Ad Hoc mode profile:


1. Use the  icon to open the Smart Wizard. The Settings page opens.



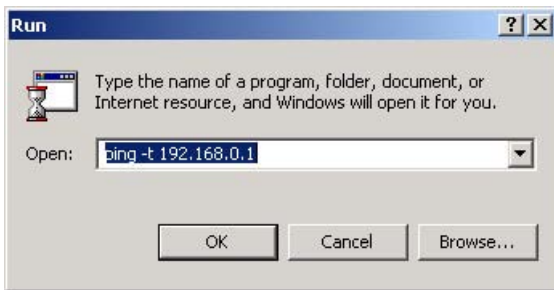
Figure 2-5

2. Enter the network settings.
  - a. Select Computer-to-Computer (Ad Hoc) for the Network Type.
  - b. Select or enter the Network Name (SSID) for the Ad Hoc network.
  - c. In the Profile box, type the name of the profile.
  - d. Click **Apply**.
3. Save your settings in a Profile.
  - a. Click the Save Profile button.

The configuration settings are saved in this profile.
  - b. Click **Apply**, and then click Close to exit the Smart Wizard, or Cancel to return to the previous settings.
4. Configure the PC network settings.
  - a. Configure each PC with either a static IP address or with the IPX protocol.

	<b>Note:</b> For instructions on configuring static IP addresses, refer to the networking tutorial on your <i>NETGEAR CD</i> .
---	--

- b. Restart the PCs.
5. Verify wireless connectivity between your peer devices with the Ping program:
  - a. On the Windows taskbar click the Start button, and then click Run.



**Figure 2-6**

- b. Assuming the target PC is configured with 192.168.0.1 as its IP address, type `ping -t 192.168.0.1` and then click OK.

- c. This will cause a continuous ping to be sent to the device with the 192.168.0.1 static IP address. The ping response should change to “reply.”

```
Request timed out.
Request timed out.
Reply from 192.168.0.1: bytes=32 time=40ms TTL=127
Reply from 192.168.0.1: bytes=32 time=41ms TTL=127
Reply from 192.168.0.1: bytes=32 time=30ms TTL=127
```

**Figure 2-7**

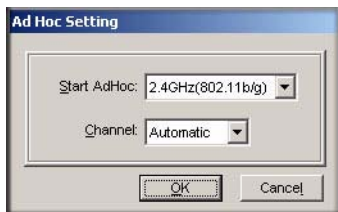
At this point the connection is established.



**Note:** If you cannot connect, see [“Connecting to Wireless Networks and the Internet” in Chapter 1](#). For problems with accessing network resources, the Windows Client and File and Print Sharing software might not be installed and configured properly on your computers. See the link to [“Internet Networking and TCP/IP Addressing:” on page B-1](#).

## Starting a Computer-to-Computer (Ad Hoc) Network Connection

1. On the Settings tab page of the Smart Wizard, select or type the Network Name (SSID).
2. Select the Computer-to-Computer (Ad Hoc) network type.
3. Click Initiate Ad Hoc. The Ad Hoc Setting dialog box opens:



**Figure 2-8**

4. In the Start Ad Hoc field, choose the wireless standard 802.11b, or 802.11g) for your Ad Hoc computer-to-computer network.
5. In the Channel field, Automatic should work. If there is interference with another wireless device, select a channel that is not being used by any other wireless networks near your wireless adapter. Use the Networks tab page to view the channels in use in your area.

6. Click OK.



**Note:** The channel number differs depending on the country. The connection speed automatically defaults to the highest speed.

## Wireless Security

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Many networks use wireless security to encrypt wireless data communications. If you try to connect to a network with wireless security the Smart Wizard detects it. Before you can use that network you must set up the Wireless Express Card with exactly the same kind of wireless security settings. The Wireless Express Card supports the following types of wireless security:

- Wi-Fi Protected Access 2 Pre-Shared Key (WPA2-PSK)
- Wi-Fi Protected Access Pre-Shared Key (WPA-PSK)
- Wired Equivalent Privacy (WEP)

For more information about wireless security, see the wireless reference document at:

<http://documentation.netgear.com/reference/enu/wireless/index.htm>

In addition to the wireless security features, networks should use LAN network security features such as requiring a user name and password to access the shared resources in the network.

## Using Wireless Security Features

---

You can strengthen the security of your wireless connection by enabling Wired Equivalent Privacy (WEP) encryption of the wireless data communications. Or, you can use Wi-Fi Protected Access Pre-Shared Key (WPA-PSK) encryption. For more information about wireless security, see the online document <http://documentation.netgear.com/reference/enu/wireless/index.htm>

In addition to the Wireless Express Card wireless security features, you should also configure appropriate LAN network security features such as requiring a user name and password to access the shared resources in your network.



## Wireless Network Name (SSID) and Security Settings

Print this page, fill in the configuration details, and keep it in a safe place for future reference. For an existing wireless network, the person who set up the network will be able to provide this information.

- **Network Name (SSID):** The Service Set Identification (SSID) identifies the wireless local area network. **Any (First available network)** is the default wireless network name (SSID). You may customize it using up to 32 alphanumeric characters. Write your customized wireless network name (SSID) on the line below:



**Note:** You must configure your Wireless Express Card with the SSID used by the wireless access point. Otherwise the Wireless Express Card and the access point will not be able to communicate with each other.

Wireless network name (SSID): \_\_\_\_\_

- If WEP Authentication is Used.
  - **WEP Encryption key size.** Select one: 64-bit or 128-bit. The encryption key size must be the wireless network settings.
  - **Data Encryption (WEP) Keys.** There are two methods for creating WEP data encryption keys. Whichever method you use, record the key values in the spaces below.
    - **Passphrase method.** \_\_\_\_\_ These characters *are* case sensitive. Enter a word or group of printable characters and click the Generate Keys button. Not all wireless devices support the passphrase method.
    - **Manual method.** These values *are not* case sensitive. For 64-bit WEP, enter 10 hex digits (any combination of 0-9 or a-f). For 128-bit WEP, enter 26 hex digits.
 


Key 1: \_\_\_\_\_ Key 2: \_\_\_\_\_

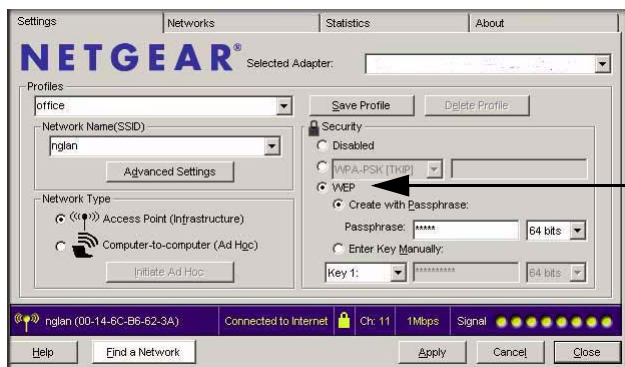
Key 3: \_\_\_\_\_ Key 4: \_\_\_\_\_
- If WPA2-PSK or WPA-PSK Authentication is Used.
  - **Passphrase:** \_\_\_\_\_ These characters *are* case sensitive. Enter a word or group of printable characters. When you use WPA-PSK, the other devices in the network will not connect unless they are set to WPA-PSK as well and are configured with the correct Passphrase.

## Setting up WEP Encryption Security

---


Follow the steps below to configure WEP Encryption Security.

1. Run the Smart Wizard.
  - a. Make sure the NETGEAR software is installed and the Wireless Express Card is fully inserted in the Express card slot in your computer.
  - b. Use the  icon to open the Smart Wizard. The Settings tab page opens.



**Figure 2-9**


2. Configure the Security settings.
  - a. In the Profile box, select the profile or type in a profile name.
  - b. In the Network Name (SSID) field select the network, or enter the SSID.

	<p><b>Note:</b> You will not get a wireless network connection unless the network SSID matches exactly what is configured in the access point.</p>
---	--


- c. In the Security section, select WEP.

4. Select the WEP encryption strength you will use:

- 64-bit WEP data encryption
- 128-bit WEP data encryption

	<b>Note:</b> Larger encryption keys require more processing and may slow the communications response times.
---	---

3. Select Create with Passphrase and enter the passphrase. The configuration utility will automatically generate the WEP keys.

	<b>Note:</b> The characters are case sensitive. Be sure to use the same passphrase for all the wireless devices in the network.
---	---

If the passphrase method is not available in the other devices, you must manually enter the keys to match exactly what is in the access point and other 802.11n, 802.11b, or 802.11g wireless devices.

4. Save your settings in a Profile.

- a. Click the Save Profile button. All the configuration settings are saved in this profile.
- b. Click **Apply**.
- c. Click Close to exit the configuration utility.

## Setting up WPA2-PSK Security

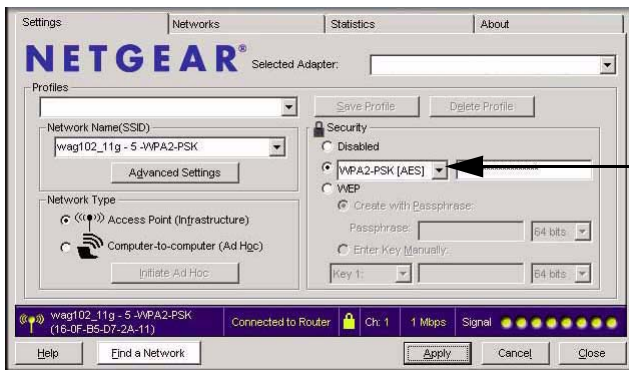
---

Follow the steps below to configure WPA2-PSK Security.

1. Run the Smart Wizard.


- a. Make sure the NETGEAR software is installed and the Wireless Express Card is fully inserted in the Express card slot in your computer.

- b. Use the  icon to open the Smart Wizard. The Settings tab page opens.



**Figure 2-10**

2. Configure the Security settings.
  - a. In the Profile box, select the profile or type in a profile name.
  - b. In the Network Name (SSID) field select the network, or enter the SSID.

	<b>Note:</b> You will not get a wireless network connection unless the SSID that you enter exactly matches the SSID used by the access point
---	--


- c. In the Security section, select WPA2-PSK [AES].

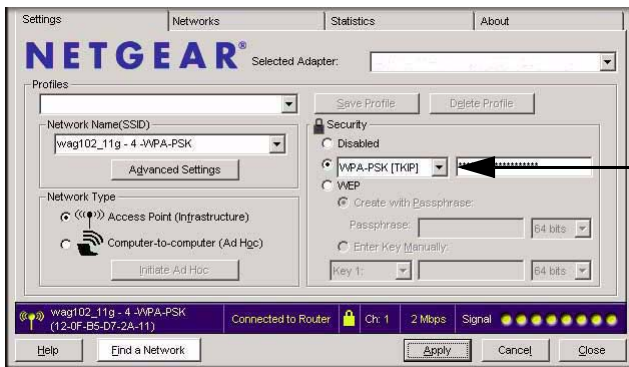
For more information about WPA2-PSK security, see the online document:  
<http://documentation.netgear.com/reference/enu/wireless/index.htm>.

3. Save your settings in a Profile.
  - a. Click the Save Profile button. All the configuration settings are saved in this profile.
  - b. Click **Apply**.
  - c. Click Close to exit the Smart Wizard.

## Setting up WPA-PSK Security


Follow the steps below to configure WPA-PSK Security.

1. Run the Smart Wizard.
  - a. Make sure the NETGEAR software is installed and the Wireless Express Card is fully inserted in the Express card slot in your computer.
  - b. Use the  icon to open the Smart Wizard. The Settings tab page opens.



**Figure 2-11**

2. Configure the Security settings.
  - a. In the Profile box, select the profile or type in a profile name.
  - b. In the Network Name (SSID) field select the network, or enter the SSID.

	<p><b>Note:</b> You will not get a wireless network connection unless the SSID that you enter exactly matches the SSID used by the access point</p>
---	---

- c. In the Security section, select WPA-PSK [TKIP].

For more information on WPA security, see the online document:  
<http://documentation.netgear.com/reference/enu/wireless/index.htm>.

3. Save your settings in a Profile.
  - a. Click the Save Profile button. All the configuration settings are saved in this profile.
  - b. Click **Apply**, and then click Close to exit the Smart Wizard.

## Advanced Settings

---

The Advanced Settings normally work in their default settings. To view them, click the Advanced Settings button on the Settings tab. Changing these settings is only recommended for advanced users who have a specific reason to adjust them. Use the Help button to understand these options.

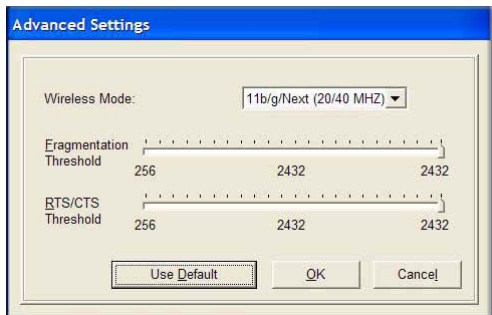


Figure 2-12

## Statistics Page

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The Statistics page provides real-time and historical trend information on the data traffic and performance of your wireless adapter.

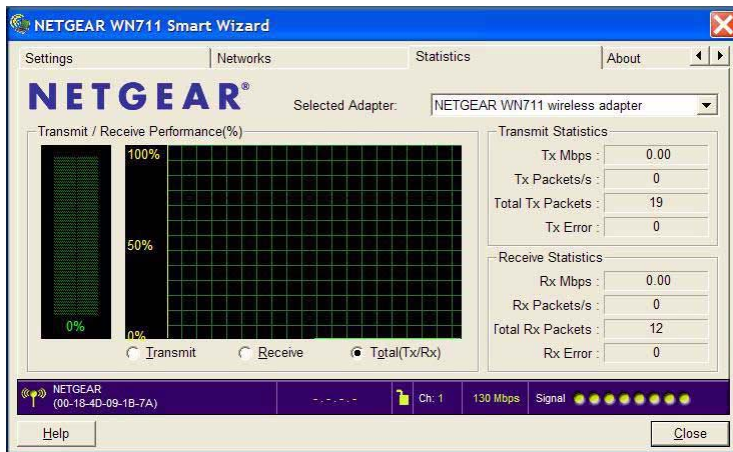


Figure 2-13

The Statistics tab shows the following information:

- **Transmit/Receive Performance (%):** A real-time graph identifying the total, receive, and transmit utilization as a percentage of the total possible.
- **Transmit, Receive, and Total (TxRx):** Radio buttons let you select whether to display the transmit performance, the receive performance, or both in the same graph.
- **Transmit Statistics:** Identifies transmit megabits per second (Mbps), transmit packets per second (Tx Packets/s), total transmitted packets, and transmit errors.
- **Receive Statistics:** Identifies receive megabits per second (Mbps), receive packets per second (Rx Packets/s), total received packets, and reception errors.

## About Page

The About page displays the current software version information.

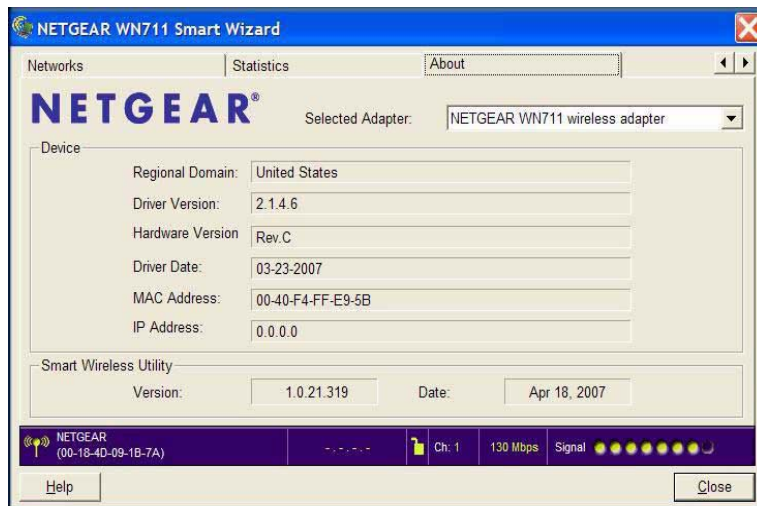


Figure 2-14

The following information is displayed in the About page:

- **Regional Domain:** This is the region setting for the wireless adapter. The approved channels for the region are automatically scanned. Governments regulate the channels used for wireless transmission. Operating the wireless adapter in a different region may violate local laws.
- **Driver Version:** The wireless adapter driver version.
- **Hardware Version:** The wireless adapter hardware version.

- **Driver Date:** The wireless adapter driver release date.
- **MAC Address:** The MAC address of the adapter. The Media Access Control address is a unique 48-bit hardware address assigned to every network interface card. Some wireless networks will restrict access based on a list of known MAC addresses. If you are communicating with such a network, you would have to provide the address shown here to the network administrator before you would be allowed to connect. Restricting access by MAC address adds an obstacle against unwanted access to your network. However, unless you use data encryption security, the data broadcast over the wireless link is fully exposed.
- **IP Address:** The IP address assigned to this adapter.
- **Smart Wireless Utility:** The version and release date of the Smart Wizard.



# Chapter 3

## Wireless Network Performance

This chapter explains how to use your Wireless Express Card to connect to your Wireless Local Area Network (WLAN) and how to set up wireless security for the Wireless Express Card so that it matches the wireless security settings for your network.

### Optimizing Wireless Performance

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The speed and operating distance or range of your wireless connection can vary significantly based on the location of the wireless router. You should choose a location for your router that will maximize the network speed.

The following list describes how to optimize wireless router performance.

- Identify critical wireless links.  
If your network has several wireless devices, decide which wireless devices need the highest data rate, and locate the router near them. Many wireless products have automatic data-rate fallback, which allows increased distances without losing connectivity. This also means that devices that are further away may be slower. Therefore, the most critical links in your network are those where the traffic is high and the distances are great. Optimize those first.
- Choose placement carefully.  
For best results, place your router:
  - Near the center of the area in which your computers will operate.
  - In an elevated location such as a high shelf where the wirelessly connected computers have line-of-sight access (even if through walls).
- Avoid obstacles to wireless signals.
  - Keep wireless devices at least two feet from large metal fixtures such as file cabinets, refrigerators, pipes, metal ceilings, reinforced concrete, and metal partitions.
  - Keep away from large amounts of water such as fish tanks and water coolers.
- Reduce interference.  
Avoid windows unless communicating between buildings.  
Place wireless devices away from various electromagnetic noise sources, especially those in the 2400–2500 MHz frequency band. Common noise-creating sources are:

- Computers and fax machines (no closer than one foot)
- Copying machines, elevators, and cell phones (no closer than 6 feet)
- Microwave ovens (no closer than 10 feet)
- Choose your settings.
  - Use a scanning utility to determine what other wireless networks are operating nearby, and choose an unused channel.
  - Turn off SSID Broadcast, and change the default SSID. Other nearby devices may automatically try to connect to your network several times a second, which can cause significant performance reduction.

## Optimizing Your Network Bandwidth

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The speed of network connections depends on the type of equipment that you use. Try to use high-speed technologies for network connections with the heaviest traffic to avoid lower-speed bottlenecks in the path. The following figure shows a home network that includes many different connection speeds.

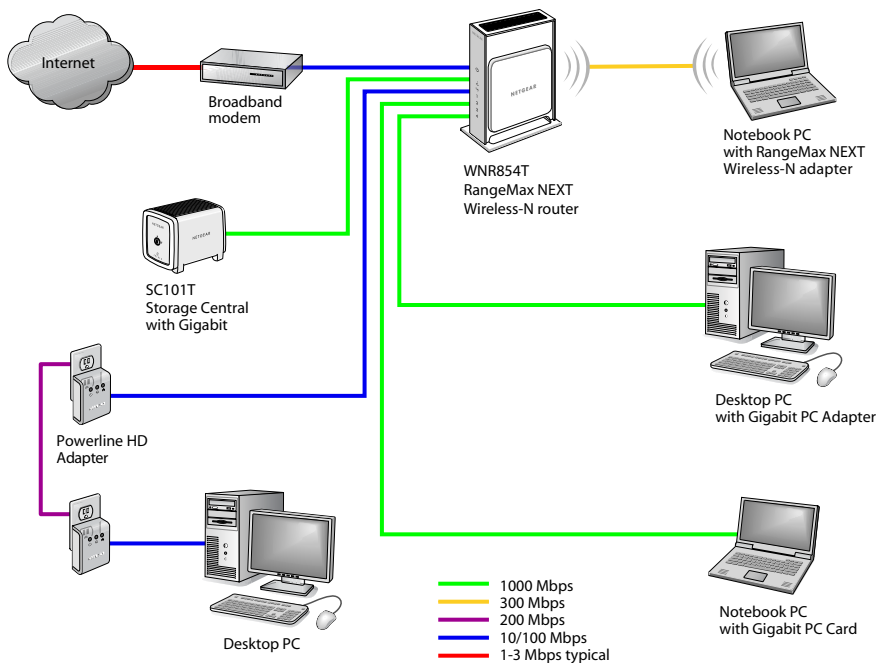


Figure 3-1

In the network shown in [Figure 3-1](#), the two PCs with gigabit (1000 Mbps) Ethernet adapters have a gigabit connection through the router to the storage server. With a high-speed router this connection allows for extremely fast backups or quick access to large files on the server. The PC connected through a pair of Powerline HD adapters is limited to the 200 Mbps speed of the Powerline HD connection. Although any of the links in this example would be sufficient for high-traffic applications such as streaming HD video, the use of older devices such as 10 Mbps Ethernet or 802.11b wireless would create a significant bottleneck.

In planning your network, think about which tasks will have the heaviest traffic flow between them. Examples are:

- A media center in one room streaming high-definition video from a server in another room
- A storage device that is used for backing up your computers

## Overview of Home and Small Office Networking Technologies

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Common connection types and their speed and security considerations are:

- **Broadband Internet**

Your Internet connection speed is determined by your modem type, such as ADSL or cable modem, as well as the connection speed of the sites to which you connect, and general Internet traffic. ADSL and cable modem connections are asymmetrical, meaning they have a lower data rate *to* the Internet (upstream) than *from* the Internet (downstream). Keep in mind that when you connect to someone else who also has an asymmetrical connection, the data rate between your sites is limited by each side's upstream data rate. A typical residential ADSL or cable modem connection provides a downstream throughput of about one to three megabits per second (Mbps). Newer technologies such as ADSL2+ and Fiber to the Home (FTTH) will increase the connection speed to tens of Mbps.

- **Wireless**

A high-speed wireless router can provide a wireless data throughput of up to 300 Mbps using technology called Multiple-Input Multiple-Output (MIMO), in which multiple antennas transmit multiple streams of data. The use of multiple antennas also provides excellent range and coverage. With the introduction of the newer WPA and WPA2 encryption and authentication protocols, wireless security is extremely strong.

To get the best performance, use newer adapters such as RangeMax adapters for your computers. A high-speed router may be compatible with older 802.11b and 802.11g adapters, but the use of these older wireless technologies in your network can result in lower throughput overall (typically less than 10 Mbps for 802.11b and less than 40 Mbps for 802.11g). In addition, many older wireless products do not support the latest security protocols, WPA and WPA2.

- **Powerline**

For connecting rooms or floors that are blocked by obstructions or are distant vertically, consider networking over your building's AC wiring. NETGEAR's Powerline HD family of products delivers up to 200 Mbps to any outlet, while the older generation XE family of products delivers 14 Mbps or 85 Mbps. Data transmissions are encrypted for security, and you can configure an individual network password to prevent neighbors from connecting.

The Powerline HD family of products can coexist on the same network with older generation XE family products or HomePlug 1.0 products, but they are not interoperable with these older products.

- **Wired Ethernet**

As Gigabit Ethernet ports become common on newer computers, wired Ethernet remains a good choice for speed, economy, and security. Gigabit Ethernet can extend up to 100 meters with twisted-pair wiring of CAT-5e or better. A wired connection is not susceptible to interference, and eavesdropping would require a physical connection to your network.



**Note:** Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, can lower actual data throughput rate.

## Assessing Your Speed Requirements

Because your Internet connection is likely to operate at a much lower speed than your local network, faster local networking technologies may not improve your Internet experience. However, many emerging home applications require high data rates. For example:

- Streaming HD video requires 10 to 30 Mbps per stream. Because latency and packet loss can disrupt your video, plan to provide at least twice the capacity you need.
- Streaming MP3 audio requires less than 1 Mbps per stream and does not strain most modern networks. Like video, however, streaming audio is also sensitive to latency and packet loss, so a congested network or a noisy link can cause problems.

- Backing up computers over the network has become popular due to the availability of inexpensive mass storage. [Table 3-1](#) shows the time to transfer one gigabyte (1 GB) of data using various networking technologies.

**Table 3-1. Theoretical Transfer Time for 1 Gigabyte**

Network Connection	Theoretical Raw Transfer Time
Gigabit Wired Ethernet	8 seconds
RangeMax NEXT Wireless-N	26 seconds
Powerline HD	40 seconds
100 Mbps Wired Ethernet	80 seconds
802.11g wireless	150 seconds
802.11b wireless	700 seconds
10 Mbps Wired Ethernet	800 seconds
Cable Modem (3 Mbps)	2700 seconds
Analog Modem (56 kbps)	144,000 seconds (40 hours)



# Chapter 4

## Troubleshooting

This chapter provides information about troubleshooting your Wireless Express Card. For information about connecting to wireless networks and the Internet, see “[Connecting to Wireless Networks and the Internet](#)” in Chapter 1.

### Troubleshooting Tips

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Use the information below to solve common problems you may encounter. Also, refer to the knowledge base on the NETGEAR website at <http://www.netgear.com/support/main.asp>.

**Table 4-1. Troubleshooting Tips**

Problem	Action
I cannot connect to an access point. The access point is available and there is good signal strength.	<ul style="list-style-type: none"><li>• If the access point is WPA-PSK protected, you need the correct WPA-PSK passphrase. Otherwise, the WN711 will still be connected to the previous access point and you will not be able to change to the WPA-PSK access point.</li><li>• If the access point is WEP protected (either 64 or 128 bit encryption), you will be prompted to enter the WEP encryption security information.</li></ul>
Throughput is only 54 Mbps.	The Wireless Express Card can operate at faster speeds. You are probably connecting to a standard 802.11g network. See <a href="#">Chapter 3, “Wireless Network Performance”</a> for help in understanding how to get the best performance from your Wireless Express Card.
The Smart Wizard keeps asking me to save settings.	If you change the settings the Smart Wizard offers you the chance to save the changes. To avoid this prompt, simply click <b>Apply</b> before you close the Smart Wizard.
Two WN711 icons are in the system tray.	You have an older software version installed on your system and it needs to be removed. See “ <a href="#">Removing the WN711 Software</a> ” in Chapter 1 or “ <a href="#">Upgrading the WN711 Software</a> ” in Chapter 1.

**Table 4-1. Troubleshooting Tips (continued)**

Problem	Action
I can connect to the access point, but not the other computers on the network or to the Internet.	<p>This could be a physical layer problem or a network configuration problem.</p> <ol style="list-style-type: none"> <li>1. Check to make sure that the access point is physically connected to the Ethernet network.</li> <li>2. Make sure that the IP addresses and the Windows networking parameters are all configured correctly. See the link to <a href="#">“Internet Networking and TCP/IP Addressing:”</a> in <a href="#">Appendix B</a>.</li> <li>3. Restart the cable or DSL modem, router, access point, and computer.</li> </ol>
Viewing the IP address.	To view the Wireless Express Card IP address, click the WN711 icon to open the Smart Wizard. Then check the IP address in the About page.
No IP address is assigned to the Wireless Express Card.	<p>This may occur if you upgraded your Wireless Express Card software and did not reboot your system.</p> <ul style="list-style-type: none"> <li>• Either restart your computer, or connect to a different access point.</li> <li>• It does not usually help to shut down the Smart Wizard or disable/enable the card.</li> </ul>

## Ad Hoc Mode Is Not Working Correctly

You need to click the Initiate Ad Hoc button before you click **Apply**. Here is how you start an Ad Hoc network:

1. Fill in the Network Name (SSID).
2. Select the Computer-to-Computer (Ad Hoc) Network Type.
3. Click Initiate Ad Hoc.
4. Accept the default settings or make your changes and click OK.
5. Click **Apply**.



**Note:** Be sure all computers in your Ad Hoc network are configured with static IP addresses in the same subnet.



# Appendix A

## Default Configuration Settings and Technical Specifications

### Default Configuration Settings

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The following table lists the default settings of your Wireless Adapter.

Feature	Description
Smart Wizard	Enabled
<b>Wireless</b>	
Wireless Communication	Enabled
Wireless Network Name (SSID)	Any (first available network)
Security	Disabled
Network Type	Infrastructure
Transmission Speed	Auto*
Country/Region	United States (varies by region)
Operating Mode	802.11n, 802.11g and 802.11b
Data Rate	up to 270 Mbps

\*. Maximum wireless signal rate (IEEE Standard 802.11n draft specification). Actual throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

## Technical Specifications

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This table below describes technical specifications for the NETGEAR RangeMax Next Wireless-N Express Card WN711.

Antennas	2 separate PCB internal antennas
Standards	802.11n, 802.11g, 802.11b
Radio Data Rate	1, 2, 5.5, 6, 6.5, 9, 11, 12, 13, 13.5, 18, 19.5, 24, 26, 27, 36, 39, 40.5, 48, 52, 54, 58.5, 65, 78, 81,104, 108, 117, 121.5, 130, 135, 162, 216, 243, and 270 Mbps
Frequency	2.4GHz to 2.5GHz CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM Modulations
LED	Single LED <ul style="list-style-type: none"><li>• solid indicates connected to network</li><li>• blinking indicates transferring data</li></ul>
Power	3.3V bus powered
Emissions	FCC Part 15 Class B, CE, C-Tick, VCCI Class B, TELEC
Bus interface	Express card 3.3V
Provided drivers	Microsoft Vista, Windows XP, and Windows 2000
Operating Environment	Operating temperature: 0 to 45 degree C
Encryption	40-bit (also called 64-bit) and 128-bit WEP data encryption, WPA2-PSK, and WPA-PSK
Warranty	Limited 1-year warranty

# Appendix B

## Related Documents

This appendix provides links to reference documents you can use to gain a more complete understanding of the technologies used in your NETGEAR product.

Document	Link
Windows XP and Vista Wireless Configuration Utilities	<a href="http://documentation.netgear.com/reference/enu/winzerocfg/index.htm">http://documentation.netgear.com/reference/enu/winzerocfg/index.htm</a>
Internet Networking and TCP/IP Addressing:	<a href="http://documentation.netgear.com/reference/enu/tcpip/index.htm">http://documentation.netgear.com/reference/enu/tcpip/index.htm</a>
Wireless Communications:	<a href="http://documentation.netgear.com/reference/enu/wireless/index.htm">http://documentation.netgear.com/reference/enu/wireless/index.htm</a>
Preparing a Computer for Network Access:	<a href="http://documentation.netgear.com/reference/enu/wsdhcp/index.htm">http://documentation.netgear.com/reference/enu/wsdhcp/index.htm</a>
Virtual Private Networking (VPN):	<a href="http://documentation.netgear.com/reference/enu/vpn/index.htm">http://documentation.netgear.com/reference/enu/vpn/index.htm</a>
Glossary:	<a href="http://documentation.netgear.com/reference/enu/glossary/index.htm">http://documentation.netgear.com/reference/enu/glossary/index.htm</a>

