

NETGEAR 108 Mbps Wireless PC Card WG511T User Manual



NETGEAR®

NETGEAR, Inc.
4500 Great America Parkway
Santa Clara, CA 95054 USA

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Technical Support

Please refer to the support information card that shipped with your product. By registering your product at <http://www.netgear.com/register>, we can provide you with faster expert technical support and timely notices of product and software upgrades.

NETGEAR, INC. Support Information

Phone: 1-888-NETGEAR, for US & Canada only. For other countries, see your Support information card.

E-mail: support@netgear.com

Website: <http://www.netgear.com>

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice.

NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

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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

The WG51IT has been tested and complies with the specifications for a Class B digital device, pursuant to 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.

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 or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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

FCC RF Radiation Exposure Statement

To comply with the FCC and ANSI C95.1 RF exposure limits, the antenna(s) for this device must comply with the following: Products with 2.4 GHz or 5 GHz integrated antenna must operate with a separation distance of at least 20 cm from all persons using the cable provided and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users must be provided with specific operations for satisfying RF exposure compliance. Note: Dual antennas used for diversity operation are not considered co-located.

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 WG511T product package.

Ěesky [Czech]	NETGEAR, Inc. tímto prohlašuje, že tento NETGEAR 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erkläre NETGEAR, Inc., dass sich das Gerät NETGEAR 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, NETGEAR, Inc., declares that this NETGEAR 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T 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 108 Mbps Wireless PC Card WG511T è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo NETGEAR, Inc. deklarā, ka NETGEAR 108 Mbps Wireless PC Card WG511T atbilst Direktīvas 1999/5/ΕΚ būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
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Slovensky [Slovak]	NETGEAR, Inc. týmto vyhlasuje, že NETGEAR 108 Mbps Wireless PC Card WG511T spáda základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	NETGEAR, Inc. vakuuttaa täten että NETGEAR 108 Mbps Wireless PC Card WG511T tyypinen 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

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About This Manual

The *NETGEAR® Prosafe™ SSL VPN Concentrator 25 SSL312 Reference Manual* describes how to install, configure and troubleshoot the NETGEAR 108 Mbps Wireless PC Card WG511T. The information in this manual is intended for readers with intermediate computer and Internet skills.


Conventions, Formats and Scope


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
Bold	User input

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

	Note: This format is used to highlight information of importance or special interest.
---	--

	Tip: This format is used to highlight a procedure that will save time or resources.
---	--

- **Scope.** This manual is written for the WG511T Wireless PC Card according to these specifications:

Product Version	NETGEAR 108 Mbps Wireless PC Card WG511T
Manual Publication Date	January 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/WG511T.asp>.

How to Print this Manual

To print this manual you can choose one of the following several options.

- **Printing a Chapter.**

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 website at <http://www.adobe.com>.
- Click the print icon in the upper left of the window.



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.

- **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.



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.

Chapter 1

Basic Setup

The NETGEAR 108 Mbps Wireless PC Card WG511T lets you connect a PC computer to wireless networks. It is designed for PC 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 WG511T Wireless PC 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

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

Verify System Requirements

Before installing the NETGEAR 108 Mbps Wireless PC Card WG511T, make sure that these minimum requirements have been met. You must have a laptop computer with:

- A Pentium® class or processor with an available CardBus slot.
- A CD drive.
- 5 MB of free hard disk space.
- Windows XP Home, XP Professional, Vista, or Windows 2000.
- Some versions of Windows may ask for the original Windows operating system installation files to complete the installation of the WG511T driver software.

Observe Wireless Location and Range Guidelines

Computers can connect over wireless networks indoors at a range which vary significantly based on the physical location of the computer with the NETGEAR 108 Mbps Wireless PC Card WG511T. For best results, avoid potential sources of interference, such as:

- Large metal surfaces
- Microwaves
- 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 information, see the link to [“Wireless Communications” in Appendix B](#).

What Is in the Box

The product package should contain the following items:

- NETGEAR 108 Mbps Wireless PC Card WG511T
- *Installation Guide for the NETGEAR 108 Mbps Wireless PC Card WG511T*
- NETGEAR CD, including:
 - Driver and Smart Wizard Software
 - NETGEAR 108 Mbps Wireless PC Card WG511T User Manual
- 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.

WG511T 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 will need to identify the wireless network and wireless security settings that are already defined.

Your NETGEAR 108 Mbps Wireless PC Card WG511T factory default basic settings are:

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



Note: In order for the WG511T Wireless PC 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 or WPA-PSK encryption: **Disabled**

Installation

The instructions in this chapter explain how to install the WG511T 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 WG511T Wireless PC Card:

1. First, install the WG511T 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. When the Installation Complete message appears, click Next.
2. Now, insert the wireless PC card.

You will be prompted to choose the country where you are located. Select it from the list.

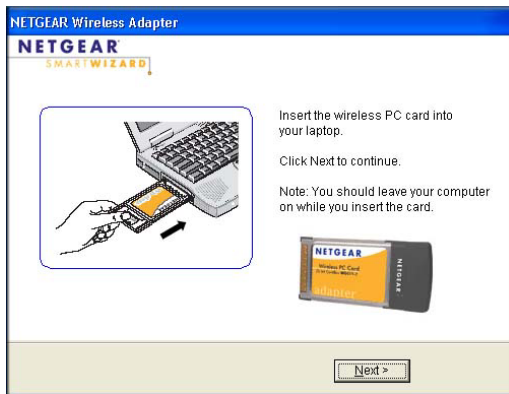


Figure 1-2

3. Use the Smart Wizard to set up your wireless PC card.
 - a. Windows 2000 users go to Step b. Windows XP or Vista users can set up the wireless adapter either 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 [“Viewing Wireless Networks in Your Area”](#) in Chapter 2.
- **Windows Zero Configuration Utility:** See the Windows documentation or see the link to [“Windows XP and Vista Wireless Configuration Utilities”](#) in Appendix B.

- b. Click Next to accept the NETGEAR Smart Wizard.



Figure 1-4

You will be prompted to let the wizard help you connect to a network (recommended).

- c. Click Finish to accept.
4. Connect to a wireless network.
- a. Select the wireless network from the drop-down list, and the wizard records your choice.

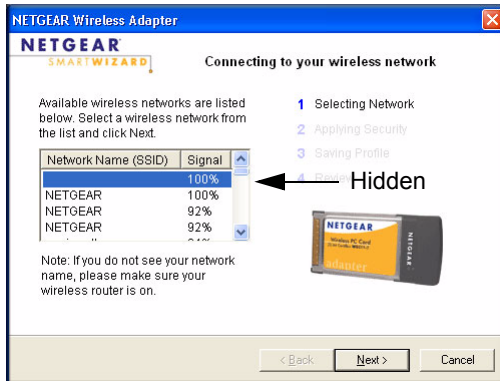




Figure 1-5

 **Note:** 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.

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

The WG511T icon  appears in the system tray and on the desktop. The wizard initiates your wireless connection. It could take up to a minute for your wireless connection to be established.

The Smart Wizard Settings page opens.

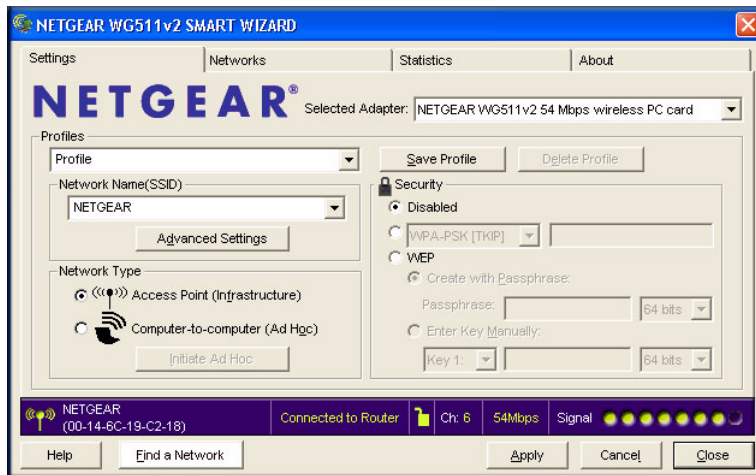



Figure 1-6

- 5. Use the status bar to verify your wireless connectivity.

For more details about connecting, see [“Connecting to Wireless Networks and the Internet”](#) on page 1-7.




Connecting to Wireless Networks and the Internet

The WG511T has indicators in three locations that show the status of your connection to a wireless network and to the Internet:

- **WG511T Icon:** After you install the WG511T software, the  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.
- **Smart Wizard Status Bar:** Clicking on the system tray icon opens the Smart Wizard. The status bar at the bottom of the page shows details about your wireless and Internet connection. See [“Smart Wizard Status Bar” on page 1-8](#)
- **WG511T Wireless PC Card LEDs:** The two LEDs on the wireless card show the speed of the network connection.

WG511T Icon Colors

The WG511T icon is on the desktop and in the Windows System Tray (SysTray). The System Tray resides on one end of the taskbar in the Microsoft Windows desktop.

Color	Condition	Description
Red 	The wireless PC Card has no connection to any other wireless node.	The wireless PC Card is not able to 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 PC 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 PC Card has a connection with another wireless node.	The wireless PC Card has established good communication with an access point and the signal quality is strong.

Smart Wizard Status Bar

Click the WG511T icon. The Smart Wizard Settings page opens. The status bar is located at the bottom of the Settings page.

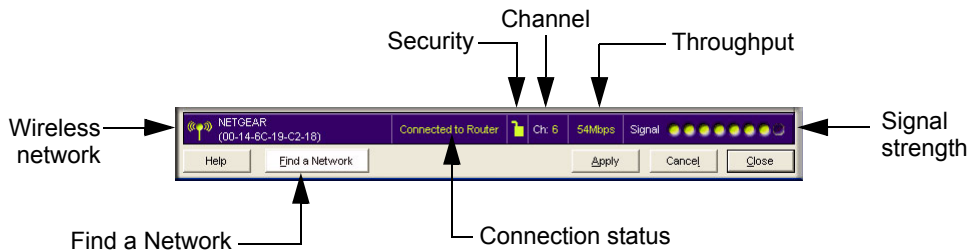


Figure 1-7

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	Locked: security enabled. Unlocked: security not enabled.
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 Find a Network to open the Connection Wizard.
Connection status	Identifies the status of your network connection. <ul style="list-style-type: none"> • Connected to Internet: Wireless Internet connection is OK. • Connected to Router: Wireless connection to the router is OK but the router is not connected to the Internet. • 169.254.x.x or _____.____.____.____: The wireless connection to the router is OK but there is a problem with the router. See Chapter 2, "Network Connections and Wireless Security" or Chapter 3, "Troubleshooting".

If you right-click in the system tray icon, you can disable the Internet notification feature by clearing check mark. If you do so, then only the IP address is shown.

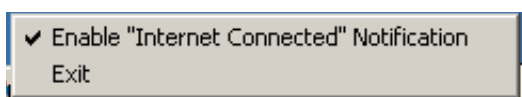


Figure 1-8

WG511T LEDs

The two LEDs on the WG511T Wireless PC Card indicate the condition of wireless link.



Figure 1-9

LED	Description
Link – Green	<ul style="list-style-type: none">• On: The WG511T is plugged in to the notebook PC.• Blinking: The WG511T is trying to establish a connection but is unable to do so.
Activity – Amber	<ul style="list-style-type: none">• On/Blinking: The WG511T has a connection and is transmitting or receiving data.• Off: There is no data transmission on the wireless network.

Removing the WG511T Software

You can remove the wireless adapter software in these two ways:

- Navigate the Windows Start menu to the WG511T Wireless PC Card program group, select the uninstall option, and follow the screen prompts.
- Navigate the Windows Start menu to the Control Panel Add or Remove Program item, select the WG511T Wireless PC Card option, and follow the screen prompts.

Upgrading the WG511T Software

Upgrades may be available at the NETGEAR website. To install an upgrade, follow these steps.

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 WG511T software from your laptop computer.
4. Remove the WG511T adapter from your laptop computer and, if prompted, restart your laptop computer.
5. Run the installer that you downloaded (the file ends in .exe).
6. Follow the installer instructions and, if prompted, restart your laptop computer.

Chapter 2

Network Connections and Wireless Security

This chapter explains how to use your WG511T Wireless PC Card to connect to your Wireless Local Area Network (WLAN) and how to set up wireless security for the WG511T Wireless PC Card so that it matches the wireless security settings for your network.

Disabling the Windows Zero Configuration Utility

If you chose the Windows XP or Windows Vista Zero Configuration utility during installation, and now you want to use the Smart Wizard, then you need to disable the Windows utility.

To disable the Windows Zero Configuration utility:

1. Attach the wireless adapter to a USB port for 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.

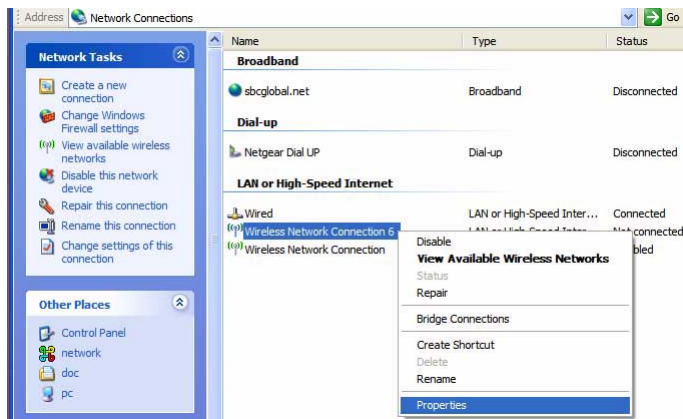



Figure 2-1

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 WG511T Smart Wizard to change the WG111v2 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 PC card
- 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.

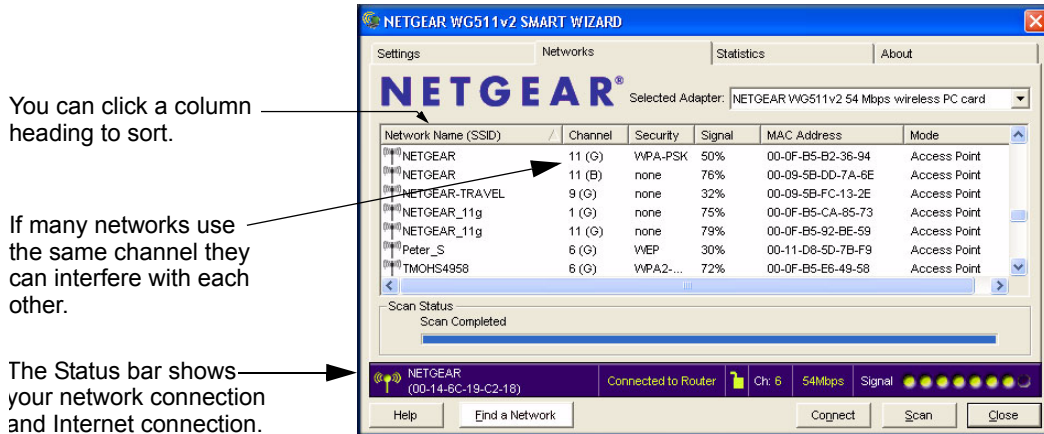


Figure 2-2

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.
- **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 WG511T 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 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.

Follow the steps below 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**..

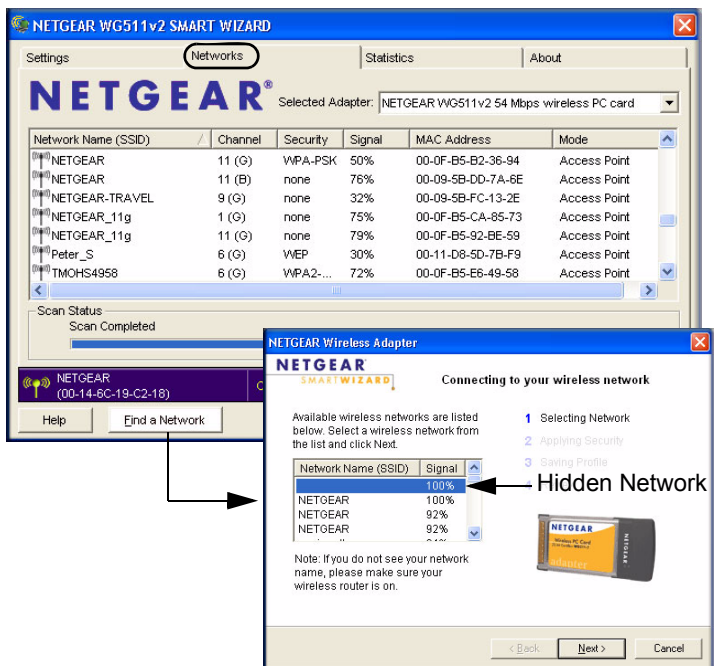


Figure 2-3

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 WG511T 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 NETGEAR 108 Mbps Wireless PC Card WG511T to connect to a wireless access point or router.

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

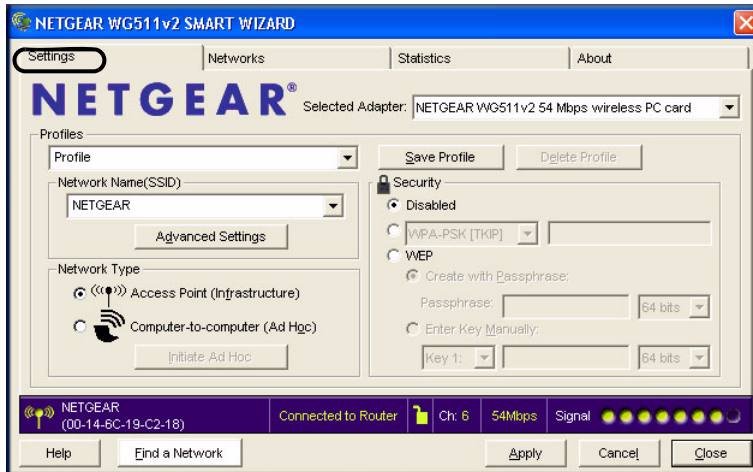


Figure 2-4

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 network SSID matches exactly 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.
Verify connectivity by using a browser such as Netscape or Internet Explorer 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 3, “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. See the link 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 of the WG511T uses Ad Hoc mode. Ad Hoc mode is an 802.11 networking framework in which devices or computers communicate directly with each other, without an access point. For example, you can use this mode for two Windows computers with file and print sharing enabled when you want to exchange files directly between them.

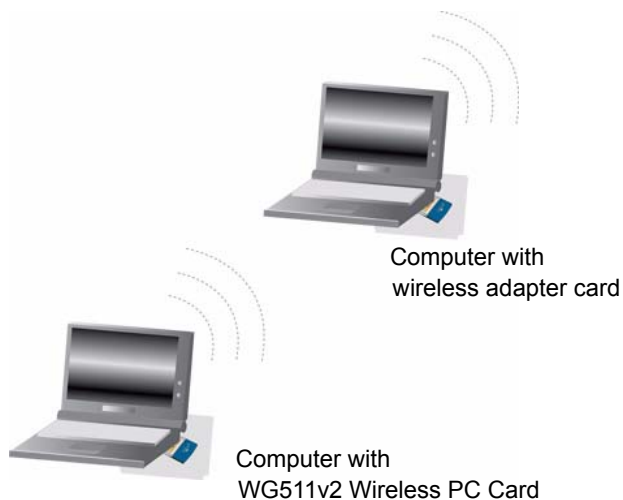



Figure 2-5



Note: Ad Hoc mode will not work using DHCP settings. Ad Hoc mode requires either static IP addresses (such as 192.168.0.1) or the IPX protocol. For instructions on setting up static IP addresses on a Windows PC, refer to the PC Networking Tutorial included on the NETGEAR CD.

To create an Ad Hoc mode profile:

1. Run the WG511T Smart Wizard.
 - a. Make sure the WG511T software is installed and the WG511T is fully inserted in an available CardBus slot in your PC.
 - b. Use the  icon to open the Smart Wizard. The Settings page opens.

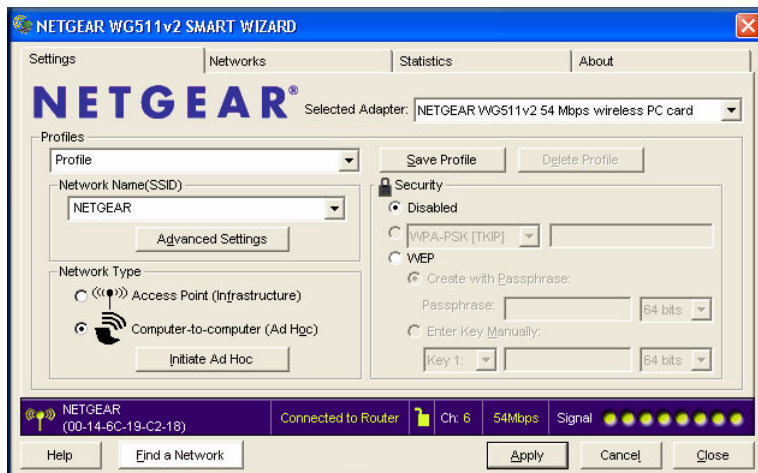
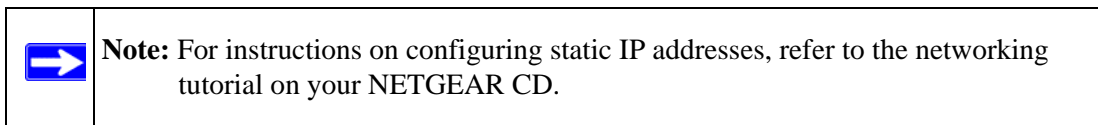


Figure 2-6

- c. Select Computer-to-Computer (Ad Hoc) for the Network Type.
 - d. Select or enter the Network Name (SSID) for the Ad Hoc network.
 - e. In the Profile box, type the name of the profile.
 - f. Click **Apply**.
2. 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, or Cancel to return to the previous settings.
3. Configure the PC network settings.
 - a. Configure each PC with either a static IP address or with the IPX protocol.



- b. Restart the PCs.
4. Verify wireless connectivity between your peer devices.

Verify connectivity by using the Ping program:

- a. On the Windows taskbar click the Start button, and then click Run.

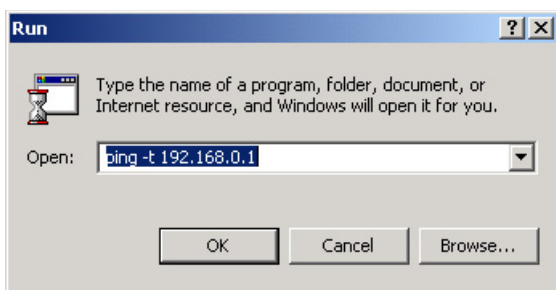


Figure 2-7

- 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 2-8

At this point the connection is established.

You may need to reboot in certain Windows operating systems such as Windows 98SE.



Note: If you cannot connect, see [“Removing the WG511T Software”](#) on page 1-9. 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. 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:

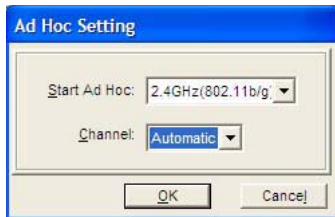


Figure 2-9

4. In the Start Ad Hoc field, choose the wireless standard (802.11a, 802.11b, or 802.11g) for your Ad Hoc computer-to-computer network.
5. In the Channel field, Automatic should work. If you notice interference problems with another nearby wireless device, select a channel that is not used by other wireless networks near your wireless adapter. Use the Networks tab 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

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 WG511T with exactly the same kind of wireless security settings. The main types of wireless security used for home networks are:

- Wi-Fi Protected Access 2 Pre-Shared Key (WPA2-PSK)
- Wi-Fi Protected Access Pre-Shared Key (WPA-PSK)
- Wi-Fi Protected Access (WPA)
- 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.

The procedures below explain how to configure the wireless encryption settings of your NETGEAR 108 Mbps Wireless PC Card WG511T.

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 WPA-PSK (Wi-Fi Protected Access Pre-Shared Key) encryption. For more information about wireless security, see the Web link to [“Wireless Communications” on page B-1](#).

In addition to the WG511T 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.

The procedures below show how to set up the WEP encryption settings of your NETGEAR 108 Mbps Wireless PC Card WG511T.

Wireless Network Name (SSID) and Security Settings

Print this form, fill in the configuration parameters and put it in a safe place for possible 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 WG511T 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: The SSID in the wireless access point is the SSID you configure in the wireless PC card. For the access point and wireless nodes to communicate with each other, all must be configured with the same SSID.

Wireless network name (SSID): _____

- **If WEP Authentication is Used.**
 - **WEP Encryption key size.** Identify 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.

Use the procedures below to set up basic security settings in the WG511T.

Setting up WEP Encryption Security

Follow the steps below to configure WEP Encryption Security.

1. Run the WG511T Smart Wizard.
 - a. Make sure the WG511T software is installed and the WG511T is fully inserted in an available CardBus slot in your laptop computer.
 - b. Use the  icon to open the Smart Wizard. The Settings tab page opens.

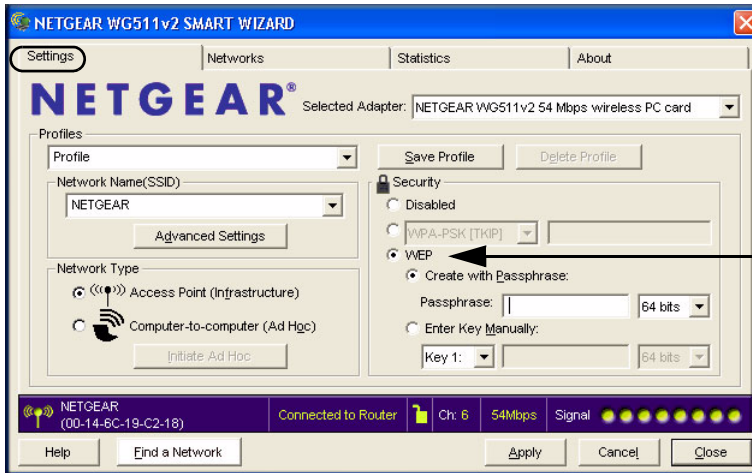



Figure 2-10

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.

	<p>Note: 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.
3. Select the WEP encryption strength you will use.

The choices are:

- 64-bit WEP data encryption

- 128-bit WEP data encryption



Note: Larger encryption keys require more processing and may slow the communications response times.

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



Note: 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 802.11b wireless devices.

5. 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 WG511T Smart Wizard.
 - a. Make sure the WG511T software is installed and the WG511T is fully inserted in an available CardBus slot in your laptop 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.

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

- c. In the Security section, select WPA2-PSK [AES].
For more information about WPA2-PSK security, see the Web link to [“Wireless Communications” on page B-1.](#)
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.


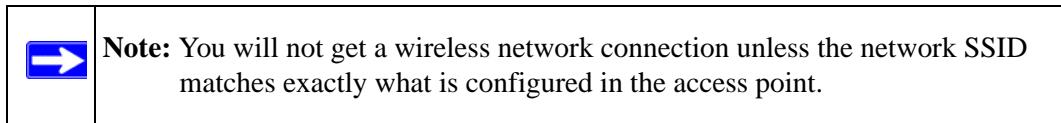
1. Run the WG511T Smart Wizard.
 - a. Make sure the WG511T software is installed and the WG511T is fully inserted in an available CardBus slot in your laptop computer.
 - b. Use the  icon to open the Smart Wizard. The Settings tab page opens.



Figure 2-12

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.



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

For more information on WPA security, see the Web link to [“Wireless Communications”](#) on page B-1.

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.

Advanced Settings

The Advanced Settings should normally work in their default settings. On the Settings tab click the Advanced Settings button to display the following dialog box.

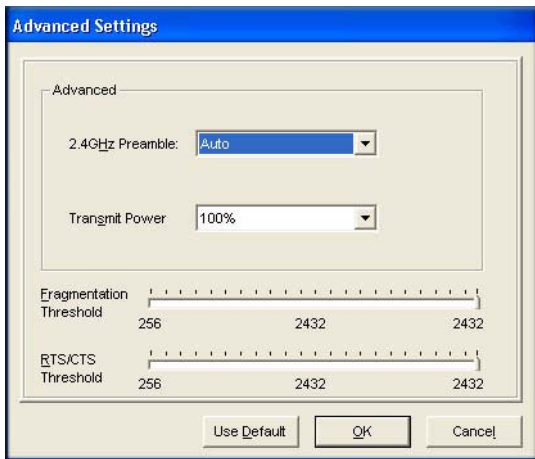


Figure 2-13

Statistics Page

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

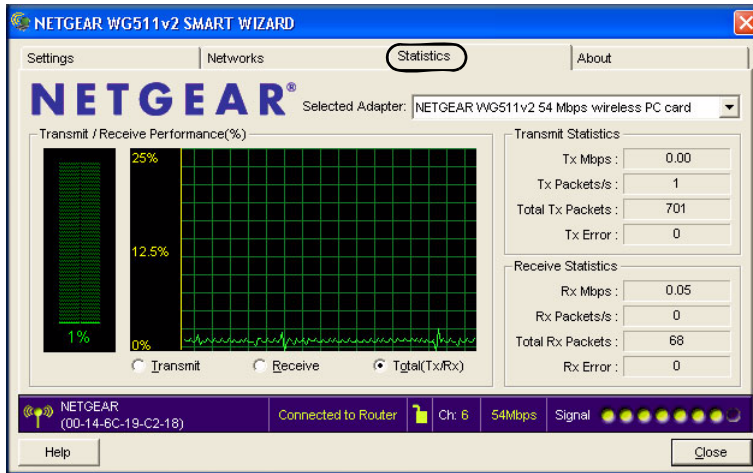


Figure 2-14

- **Transmit/Receive Performance (%):** A real time graph identifying the total, receive, and transmit utilization as a percentage 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.

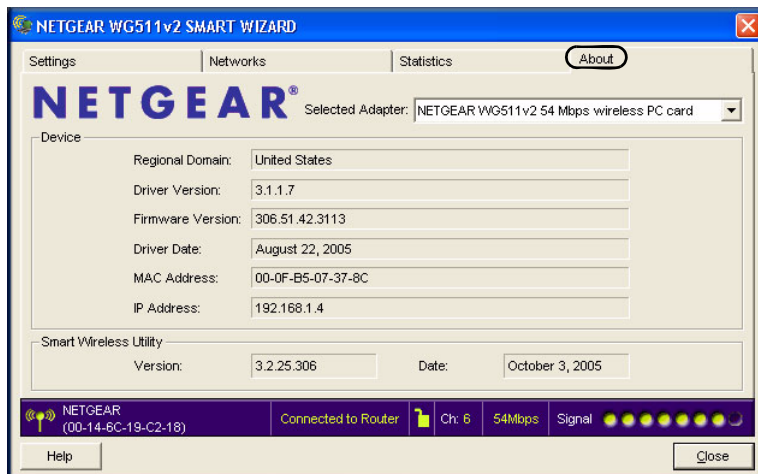


Figure 2-15

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.
- **Firmware Version:** The wireless adapter firmware 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 Wizard Wireless Utility:** The version and release date of the Smart Wizard.

Chapter 3

Troubleshooting

This chapter provides information about troubleshooting your NETGEAR 108 Mbps Wireless PC Card WG511T. For information about connecting to wireless networks and the Internet, see [“Connecting to Wireless Networks and the Internet” on page 1-7](#).

Troubleshooting Tips

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 3-1. Troubleshooting Tips

Problem	Action
The WG511T LEDs are not lit.	The WG511T is not inserted into the slot properly or the WG511T software is not loaded. <ul style="list-style-type: none">• Remove and reinsert the WG511T.• Check the Windows device manager to see if the PC Card is recognized and enabled. Reload the WG511T software, if necessary.
The LEDs blink alternately and the WG511T is not connected to an access point.	The WG511T is trying to connect to an access point, but cannot. <ul style="list-style-type: none">• The access point may not be powered on.• Or, the access point and the PC card are not configured with the same wireless parameters. Check the SSID and WEP settings.
I cannot connect to an access point. The access point is available and there is good signal strength.	<ul style="list-style-type: none">• If the access point is WPA-PSK protected, you need the correct WPA-PSK passphrase. Otherwise, the WG511T will still be connected to the previous access point and you will not be able to change to the WPA-PSK access point.• If the access point is WEP protected (either 64 or 128 bit encryption), you will be prompted to enter the WEP encryption security information.
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 Apply before you close the Smart Wizard.

Table 3-1. Troubleshooting Tips (continued)

Problem	Action
Two WG511T icons are in the system tray.	You have an older software version installed on your system and it needs to be removed. See “Removing the WG511T Software” on page 1-9 or “Upgrading the WG511T Software” on page 1-10 .
I can connect to the access point, but not the other computers on the network or to the Internet.	This could be a physical layer problem or a network configuration problem. <ol style="list-style-type: none">1. Check to make sure that the access point is physically connected to the Ethernet network.2. Make sure that the IP addresses and the Windows networking parameters are all configured correctly. See the link to “Internet Networking and TCP/IP Addressing” in Appendix B.3. Restart the cable or DSL modem, router, access point, and computer.
Viewing the IP address.	To view the WG511T Wireless PC Card IP address, click the WG511T icon to open the Smart Wizard. Then check the IP address in the About page.
No IP address is assigned to the WG511T Wireless PC Card.	This may occur if you upgraded your WG511T Wireless PC Card software and did not reboot your system. <ul style="list-style-type: none">• Either restart your computer, or connect to a different access point.• It does not usually help to shut down the Smart Wizard or disable/enable the card.

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.

Windows XP Occasional Connection Problems

Windows XP users who apply Windows XP Hotfix (SP2) Q815485 from the Windows XP Update Service may not be able to connect to the Internet, may have dropped wireless connections, or both when using the WG511T Wireless PC Card. You can delete this Hotfix from the Add or Remove Program utility in the Control Panel.

To delete Windows XP Hotfix (SP2) Q815485:

1. Click Start, point to Control Panel, and then double click Add/Remove Programs.
2. Click Windows XP Hotfix (SP2) Q815485, and then click Remove.
 - You may receive an error message that states that some program on the computer may not work correctly if the update is removed.
 - You can ignore this error message, and then click Yes to remove the update.
3. Restart your computer and rerun the Smart Display Setup Wizard.

This should solve your connection issue. You can restore this hotfix by following the link below:

<http://microsoft.com/downloads/details.aspx?FamilyId=009D8425-CE2B-47A4-ABEC-274845DC9E91&displaylang=en>

Appendix A

Technical Specifications

This appendix provides technical specifications for the NETGEAR 108 Mbps Wireless PC Card WG511T.

Antenna	2 Integrated internal diversity antennae
Radio Data Rate	1, 2, 5.5, 6, 9, 12, 18, 24, 36, 48, and 54 Mbps (Auto Rate Sensing)
Frequency	2.4GHz to 2.5GHz CCK and OFDM Modulation)
Power Consumption	3.3V DC, typically 450mA in full Transmit (TX), 300mA in full Receive (RX), and 70mA in power save mode
Regulatory Compliance	FCC, CE, TELEC
Bus interface	Cardbus
Provided drivers	Microsoft Windows XP, Vista, and Windows 2000
Dimensions	L: 120mm W: 54 mm H: 7 mm
Weight	40 g
Operating Environment	Operating temperature: 0 to 55 degrees C
Encryption	WPA2-PSK, WPA-PSK, and 40-bit (also called 64-bit) and 128-bit WEP data encryption

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	http://documentation.netgear.com/reference/enu/winzerocfg/index.htm
Internet Networking and TCP/IP Addressing	http://documentation.netgear.com/reference/enu/tcpip/index.htm
Wireless Communications	http://documentation.netgear.com/reference/enu/wireless/index.htm
Preparing a Computer for Network Access	http://documentation.netgear.com/reference/enu/wsdhcp/index.htm
Virtual Private Networking (VPN)	http://documentation.netgear.com/reference/enu/vpn/index.htm
Glossary	http://documentation.netgear.com/reference/enu/glossary/index.htm

