

Boadcom 802.11ag WLAN Card User's Guide, BCM94309MP

The TrueMobile Solution

The **TrueMobile** solution accesses wireless local area networks (WLANs), enables the sharing of a local printer and files with others in the network, enables Internet connection sharing, and enables roaming about the office—wire-free. This wireless LAN solution is designed for both the home user and businesses—and it is scalable so that users can be added and new network features can be enabled as networking needs grow.

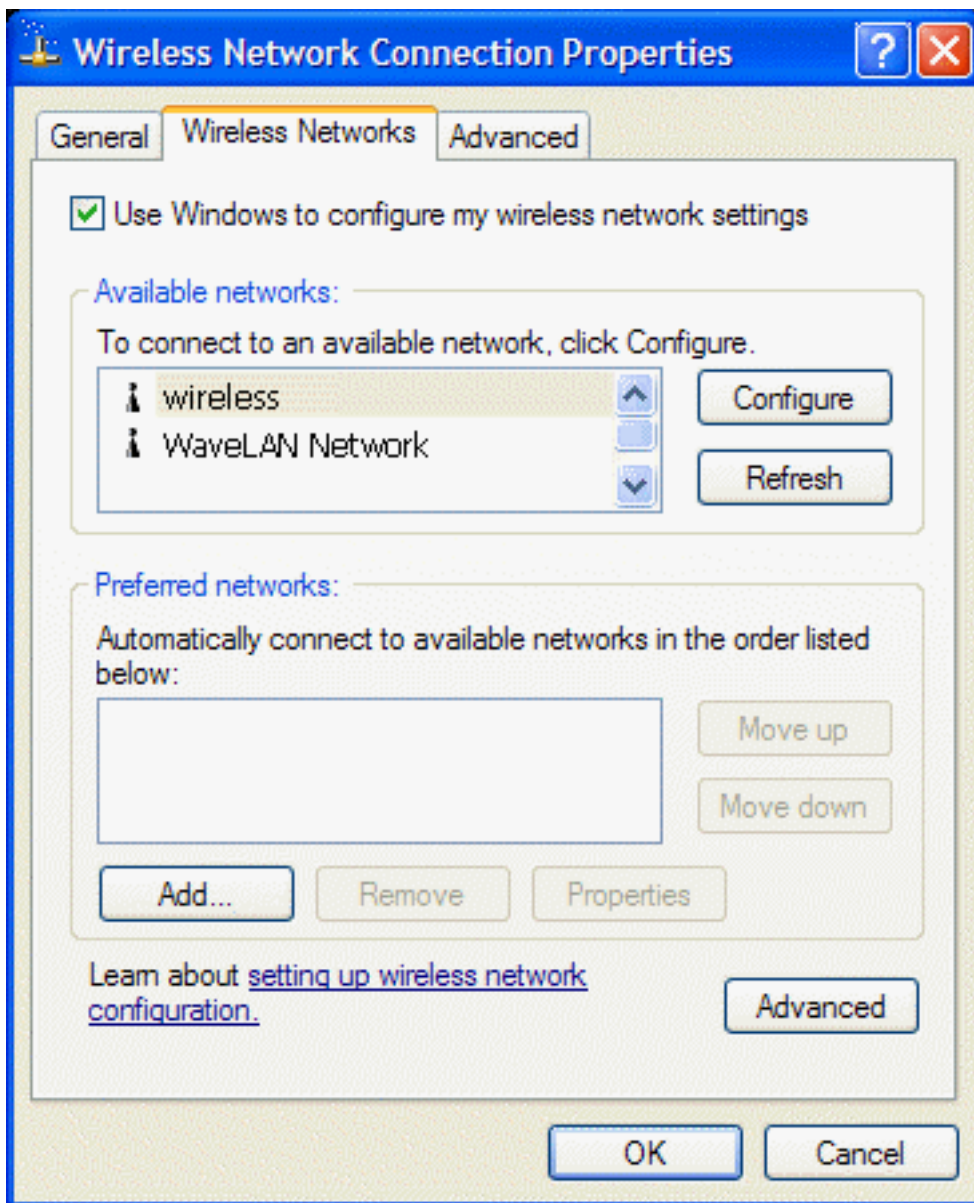
Configuring a Network Profile in Infrastructure Mode (Windows® XP Environment)

Before you can connect to a wireless network, you must configure a network profile for that network on your notebook computer. If you purchased your notebook computer with the **Boadcom WLAN Card** already installed and set up at the factory, follow the network profile configuration instructions provided below. If this is not the case, first verify that the **Boadcom WLAN Card** has been properly installed in your computer according to the installation instructions. Then proceed with the following instructions for configuring your network profiles.

To begin configuring a network profile, open **Wireless Network Connection Properties**.

1. Click **Start**, click **Control Panel**, and then click **Network Connections**.

2. Click **Wireless Network Connection**.
3. Under **Network Tasks**, click **Change settings of this connection**.



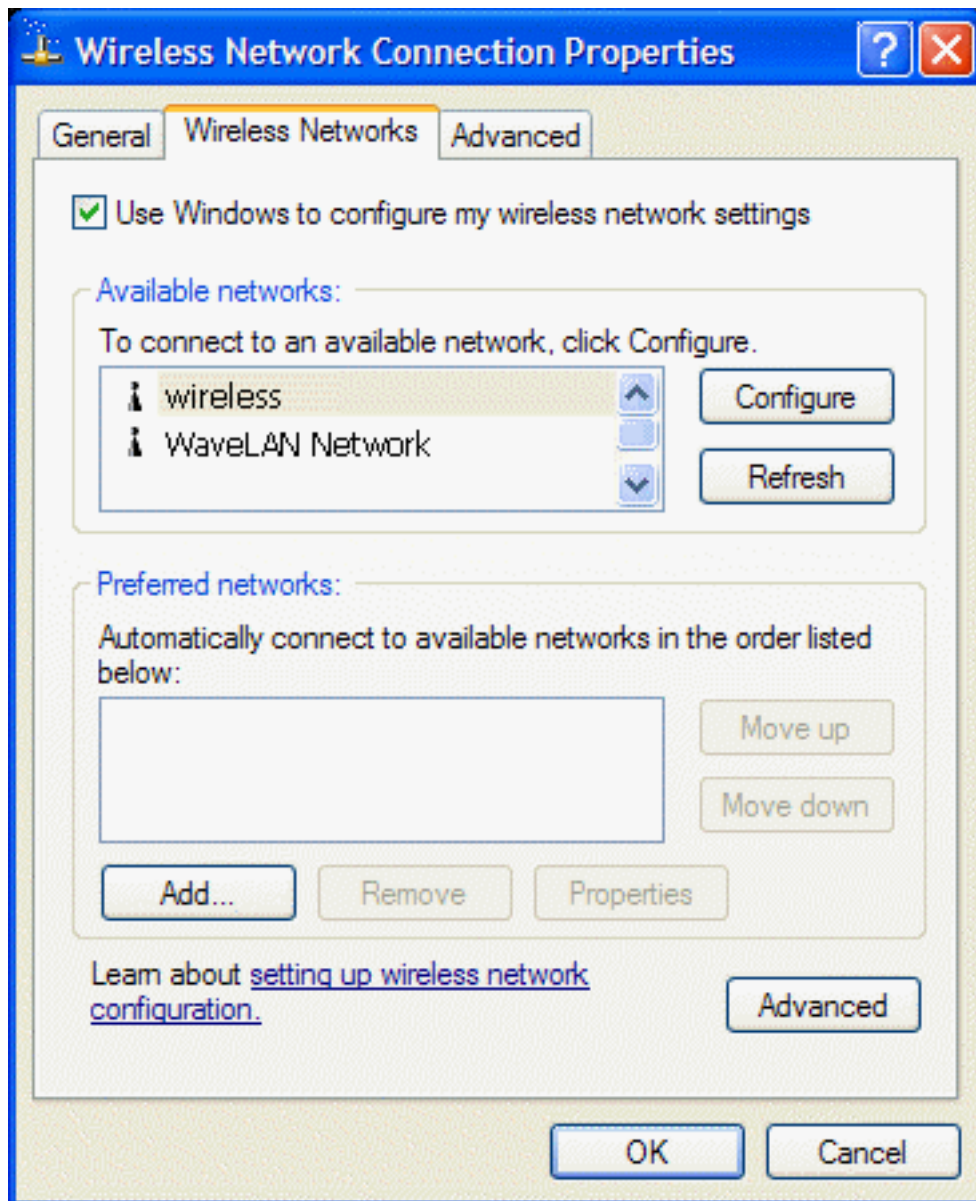
NOTE—For more information on how to configure a network profile and IEEE 802.1x authentication, click **Learn about setting up wireless network configuration**.

You can configure a network profile for networks that are listed under **Available networks** as well as those that are not listed. When you have completed configuring a network profile, the network name and icon appear at the top of the list under **Preferred networks**. Your computer automatically connects to the network at the top of the list. Follow the applicable instruction set below, based on whether or not the network is listed and whether or not the network requires network key information (check with your network administrator or access point (AP) installer to see if network key information is required). **NOTE**—Both the network name and the network key information are case-sensitive.

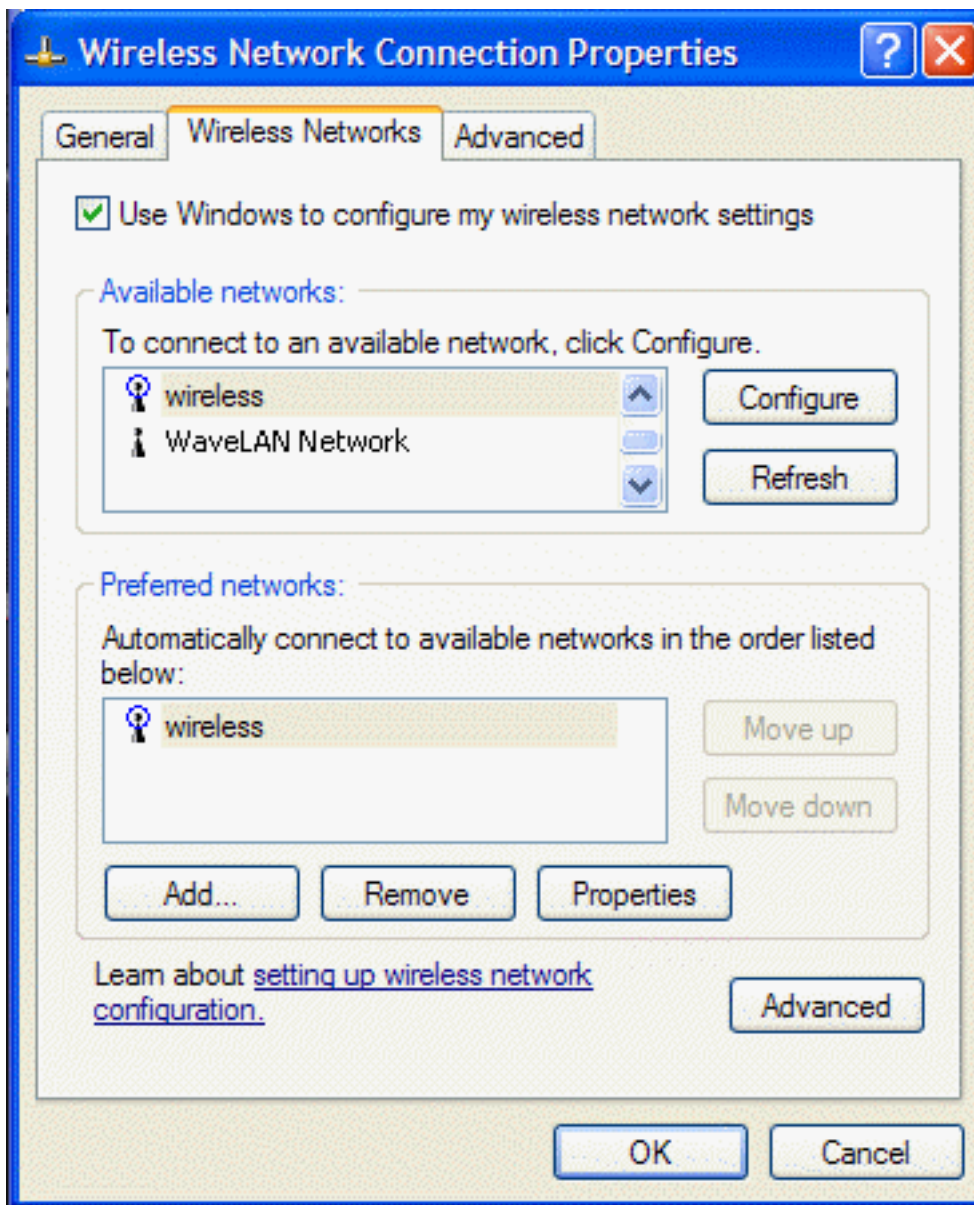
- o [Configuring a Profile for a Listed Network That Does Not Require Network Key Information](#)
- o [Configuring a Profile for a Listed Network That Requires Network Key Information](#)
- o [Configuring a Profile for a Network That Is Not Listed and Does Not Require Network Key Information](#)
- o [Configuring a Profile for a Network That Is Not Listed and Requires Network Key Information](#)


Configuring a Profile for a Listed Network That Does Not Require Network

Key Information (Windows XP Environment)



1. Click the network name under **Available networks** and click **Configure**.
2. Click **OK**. The network name and icon appear at the top of the list under **Preferred networks**.



3. Click **OK** to activate the network connection. To verify that the network connection has been made, reopen **Wireless Network Connection Properties**. The computer is connected to the selected network when a blue bubble appears on top of the icon  for that network. If the bubble does not appear, click **Refresh**. If it still does not appear, try to access a Web page to verify that you are connected to the Internet.

Configuring a Profile for a Listed Network That Requires Network Key Information (Windows XP Environment)

Wired Equivalent Privacy (WEP) Security

Wireless Network Connection Properties

General Wireless Networks Advanced

Use Windows to configure my wireless network settings

Available networks:

To connect to an available network, click Configure.

- WaveLAN Network
- wireless

Configure

Refresh

Preferred networks:

Automatically connect to available networks in the order listed below:

-

Move up

Move down

Add...

Remove

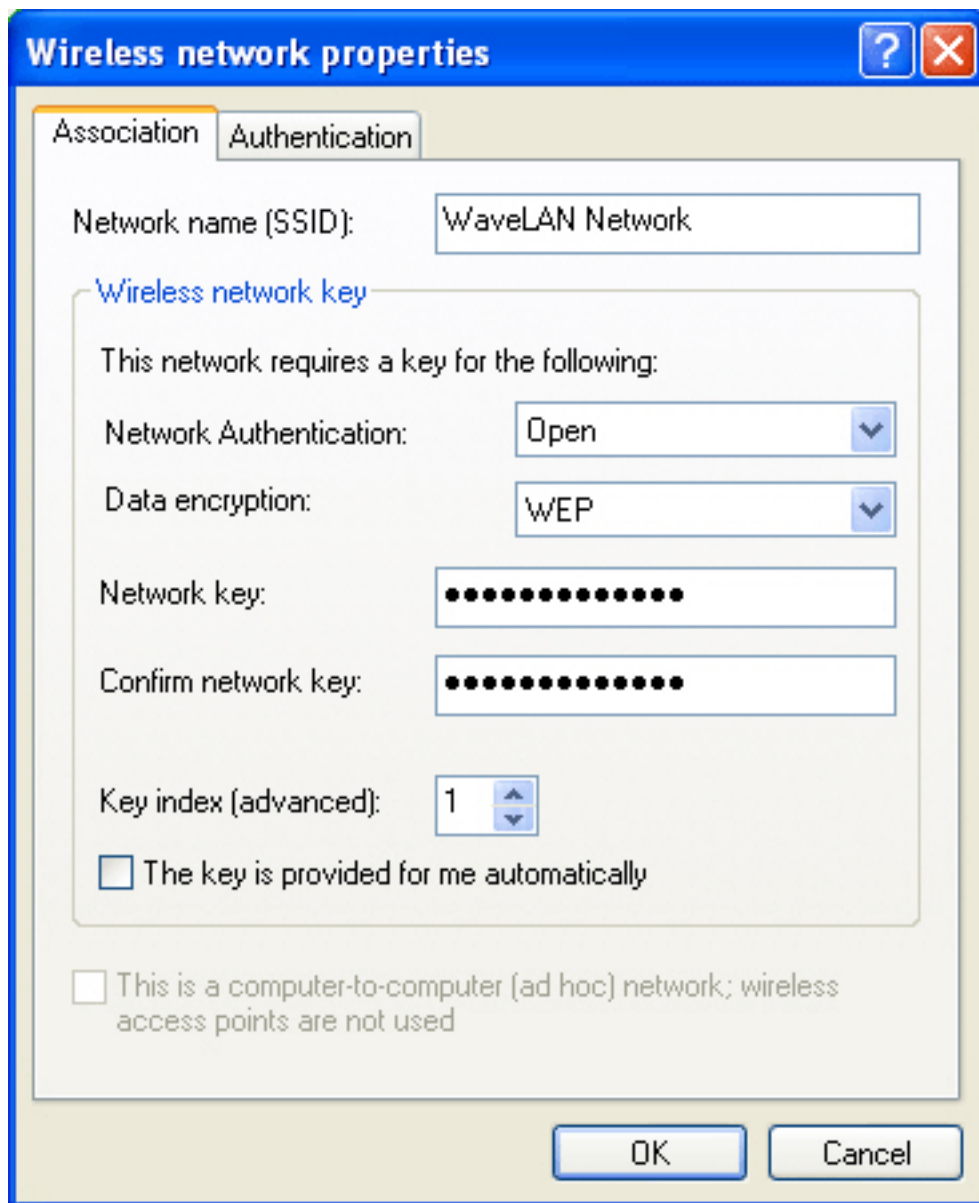
Properties

Learn about [setting up wireless network configuration.](#)

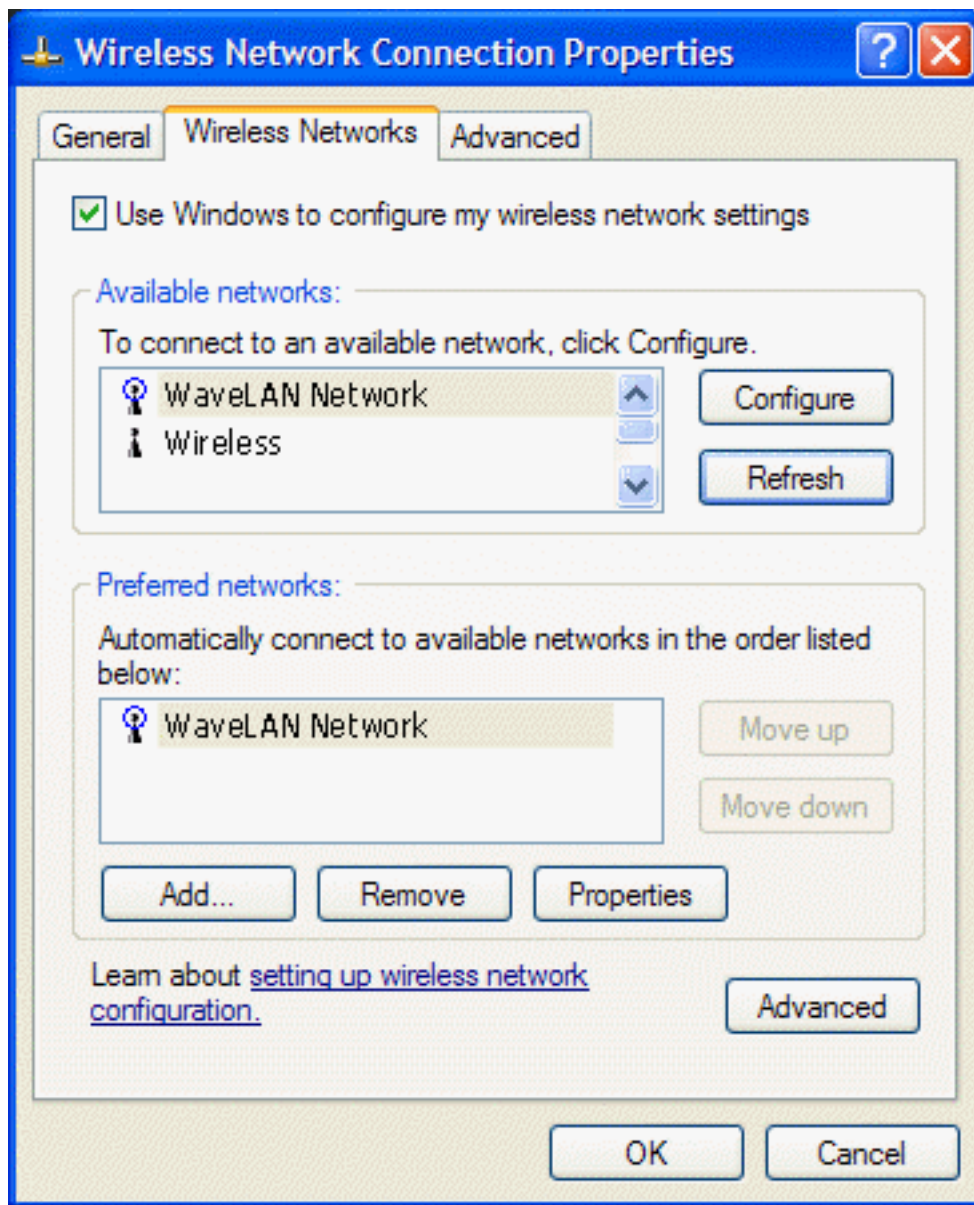
Advanced


OK

Cancel



1. Click the network name under **Available networks** and then click **Configure**.
2. Clear the **The key is provided for me automatically** check box.
3. From the **Network Authentication** list, select **Open**.
4. From the **Data encryption** list, select **WEP**.
5. Type the network key in the **Network key** box and again in the **Confirm network key** box.
6. Click **OK**. The network name and icon appear at the top of the list under **Preferred networks**.



7. Click **OK** to activate the network connection. To verify that the network connection has been made, reopen **Wireless Network Connection Properties**. The computer is connected to the selected network when a blue bubble appears on top of the icon  for that network. If the bubble does not appear, click **Refresh**. If it still does not appear, try to access a Web page to verify that you are connected to the Internet.

Wi-Fi Protected Access (WPA) Security

Encryption

Wireless Network Connection Properties

General Wireless Networks Advanced

Use Windows to configure my wireless network settings

Available networks:

To connect to an available network, click Configure.

- WaveLAN Network
- wireless

Configure

Refresh

Preferred networks:

Automatically connect to available networks in the order listed below:

-

Move up

Move down

Add...

Remove

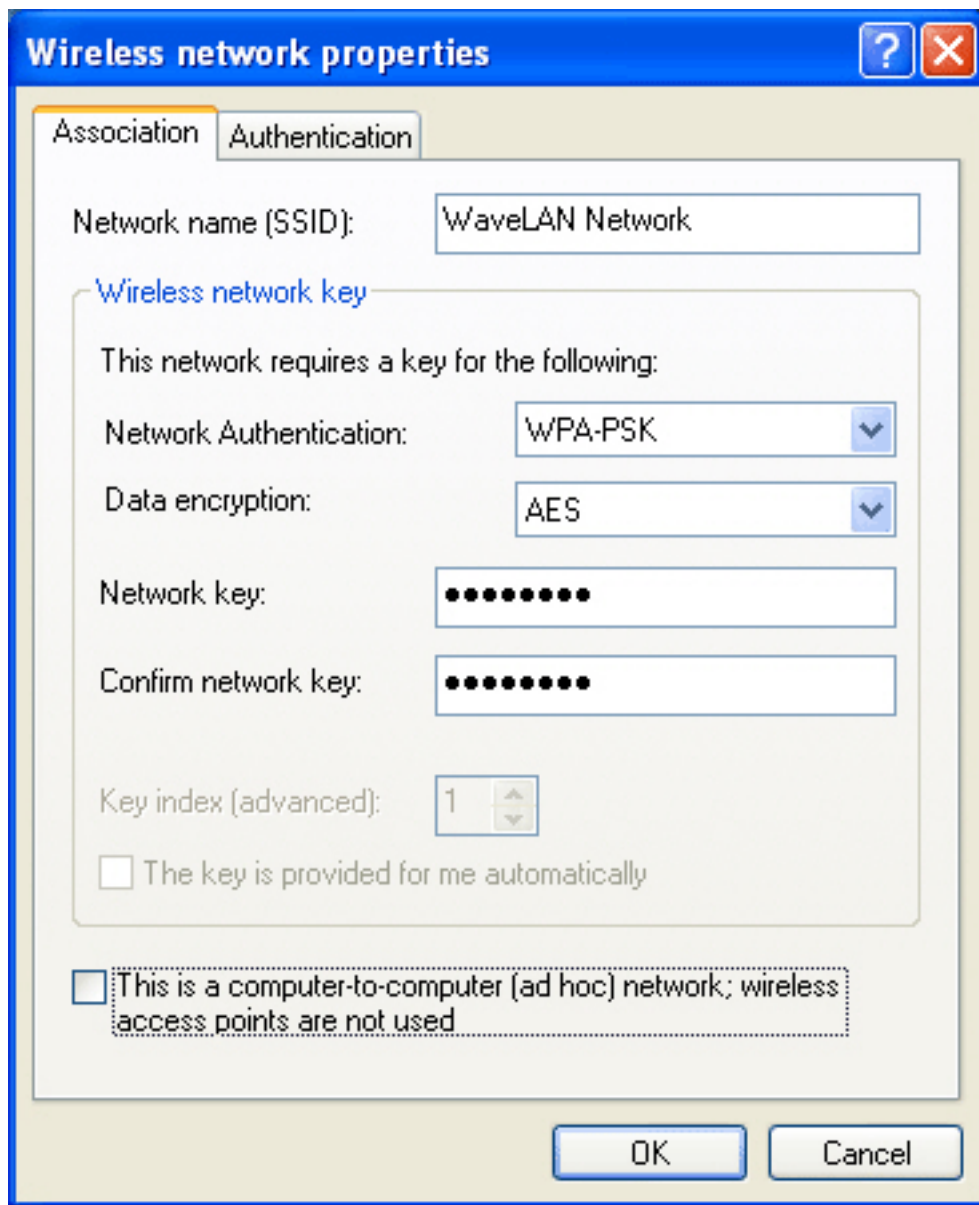
Properties

Learn about [setting up wireless network configuration.](#)

Advanced

OK

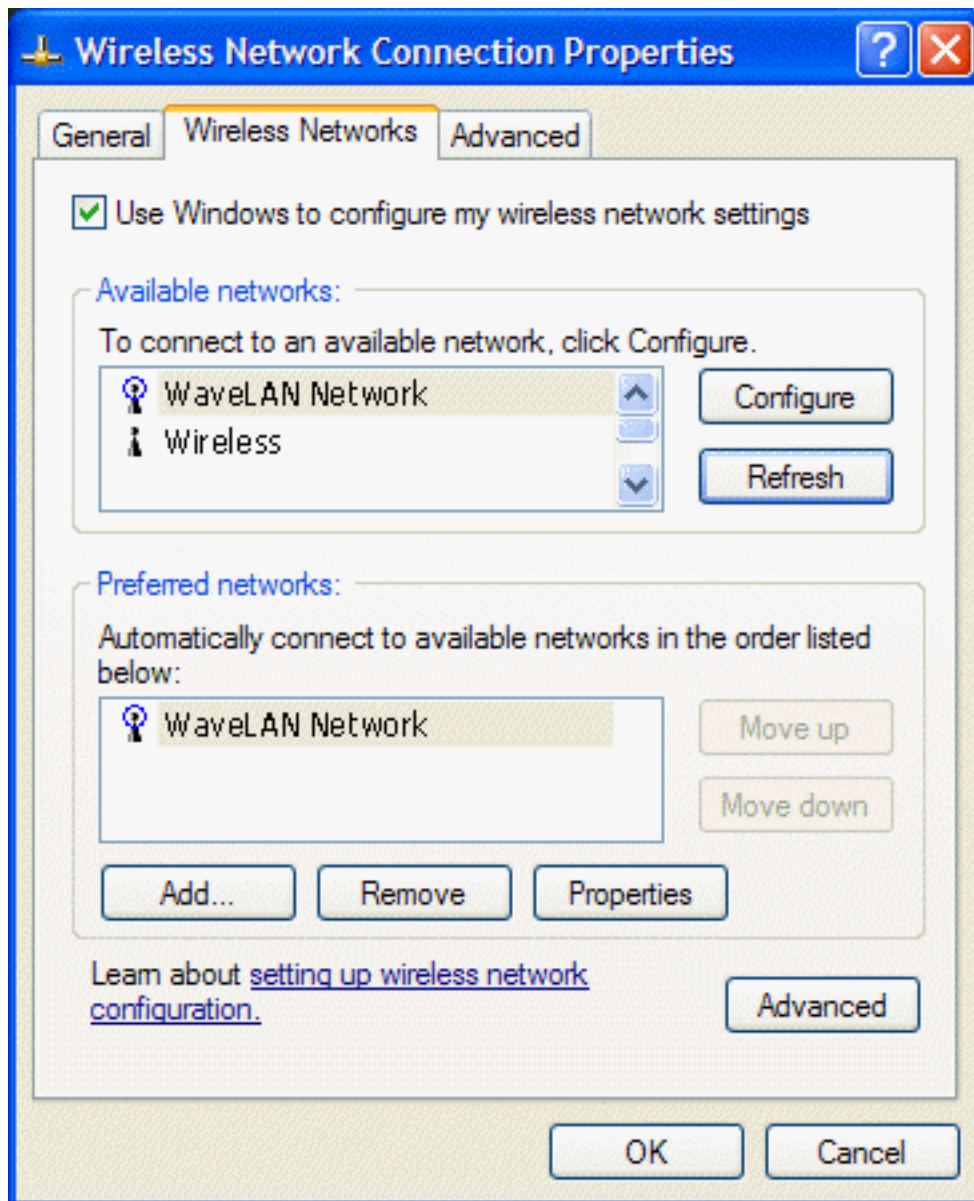
Cancel




1. Click the network name under **Available networks** and then click **Configure**.
2. Clear the **The key is provided for me automatically** check box.
3. From the **Network Authentication** list, select the network authentication type specified by the network administrator/AP installer.
4. From the **Data encryption** list, select the data encryption type specified by the network administrator/AP installer.
5. If required by the network administrator/AP installer, type the network key in the **Network key** box and again in the **Confirm network key** box.

NOTE—A network key is not required for WPA type network authentication.


6. Click **OK**. The network name and icon appear at the top of the list under **Preferred networks**.

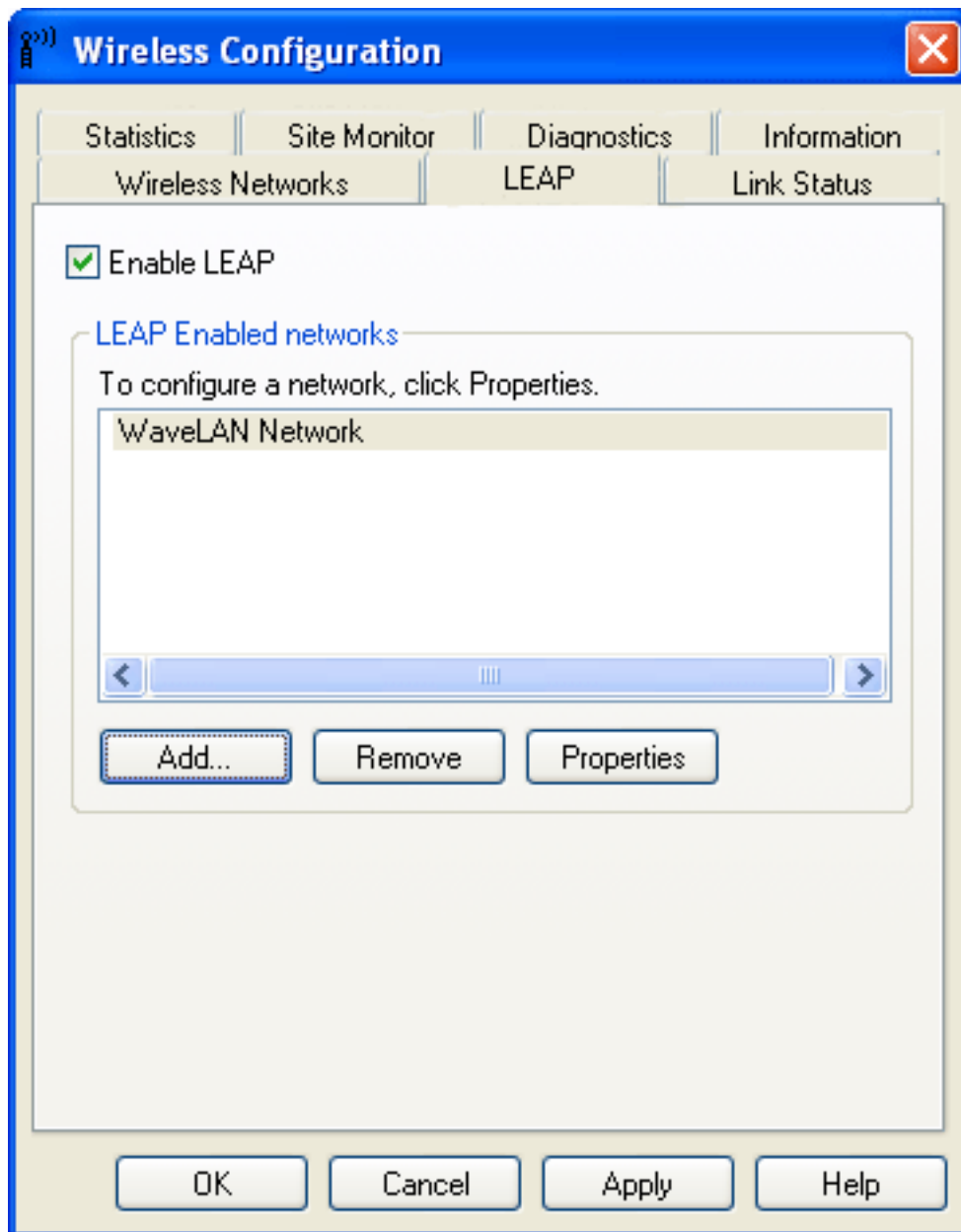


7. Click **OK** to activate the network connection. To verify that the network connection has been made, reopen **Wireless Network Connection Properties**. The computer is connected to the selected network when a blue bubble appears on top of the icon  for that network. If the bubble does not appear, click **Refresh**. If it still does not appear, try to access a Web page to verify that you are connected to the Internet.

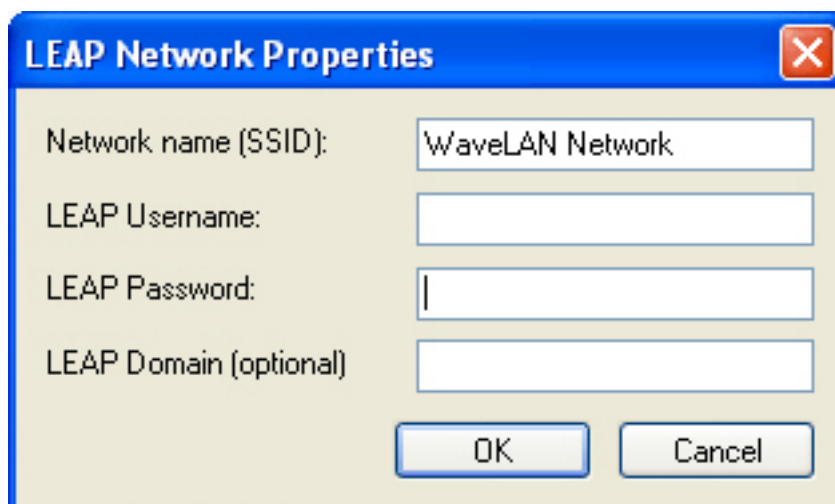
Authentication—Configuring the Network for Light Extensible Authentication Protocol (LEAP) Support

NOTE—Configure the network profile before you begin.

1. Click **Start**, click **Control Panel**, and then click **TrueMobile Wireless Utility** .

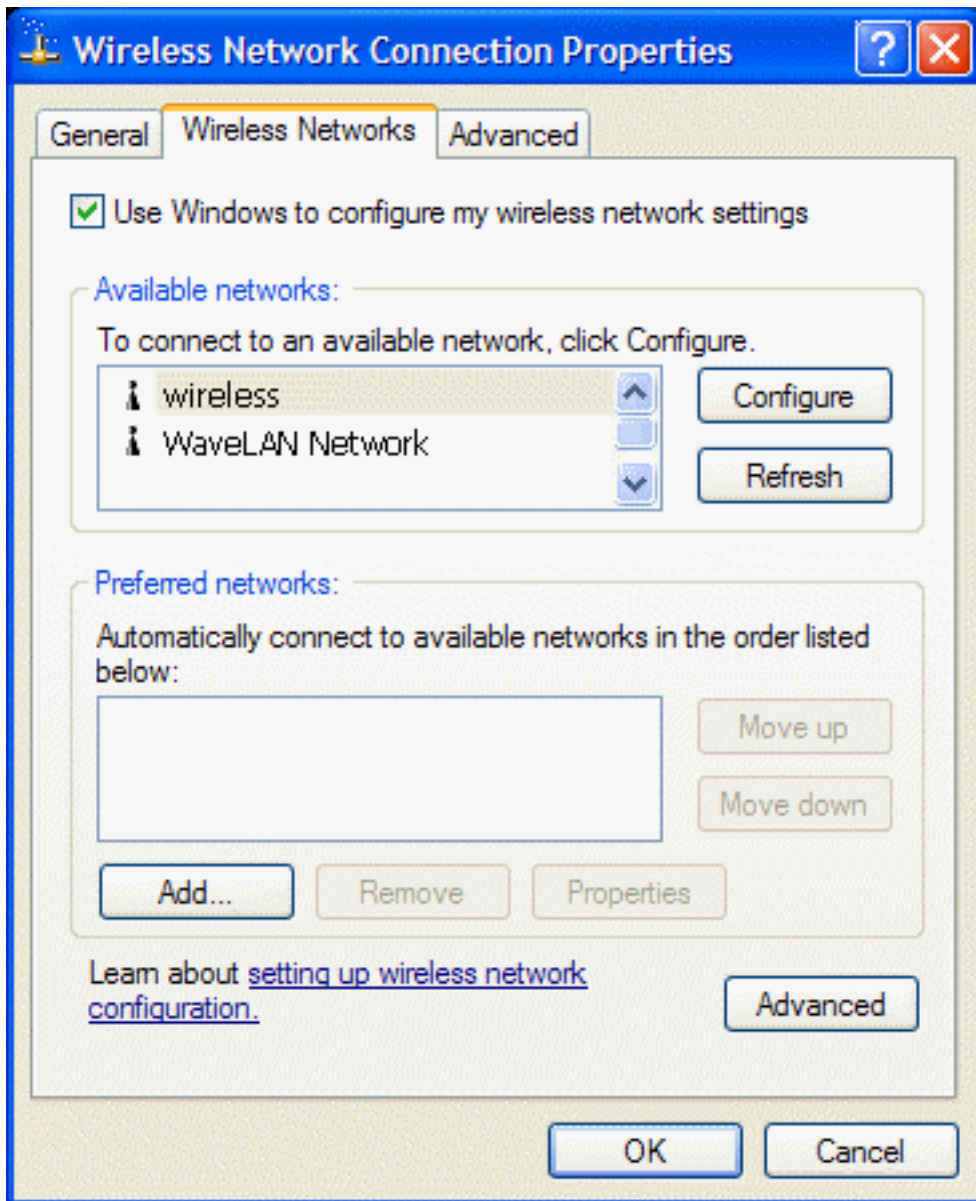


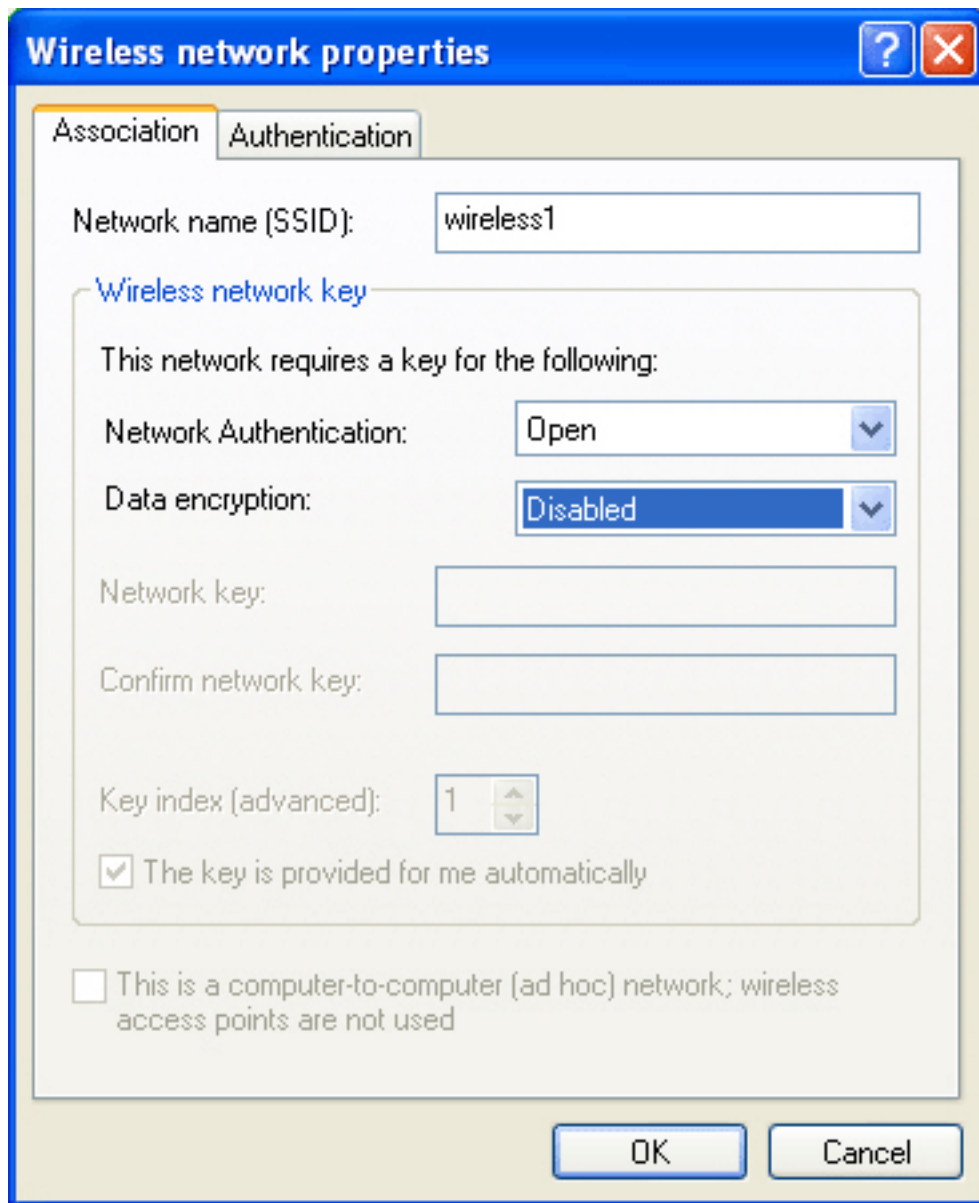
2. Click the **LEAP** tab.
3. Select the **Enable LEAP** check box.
4. Click the network name, and then click **Properties**.



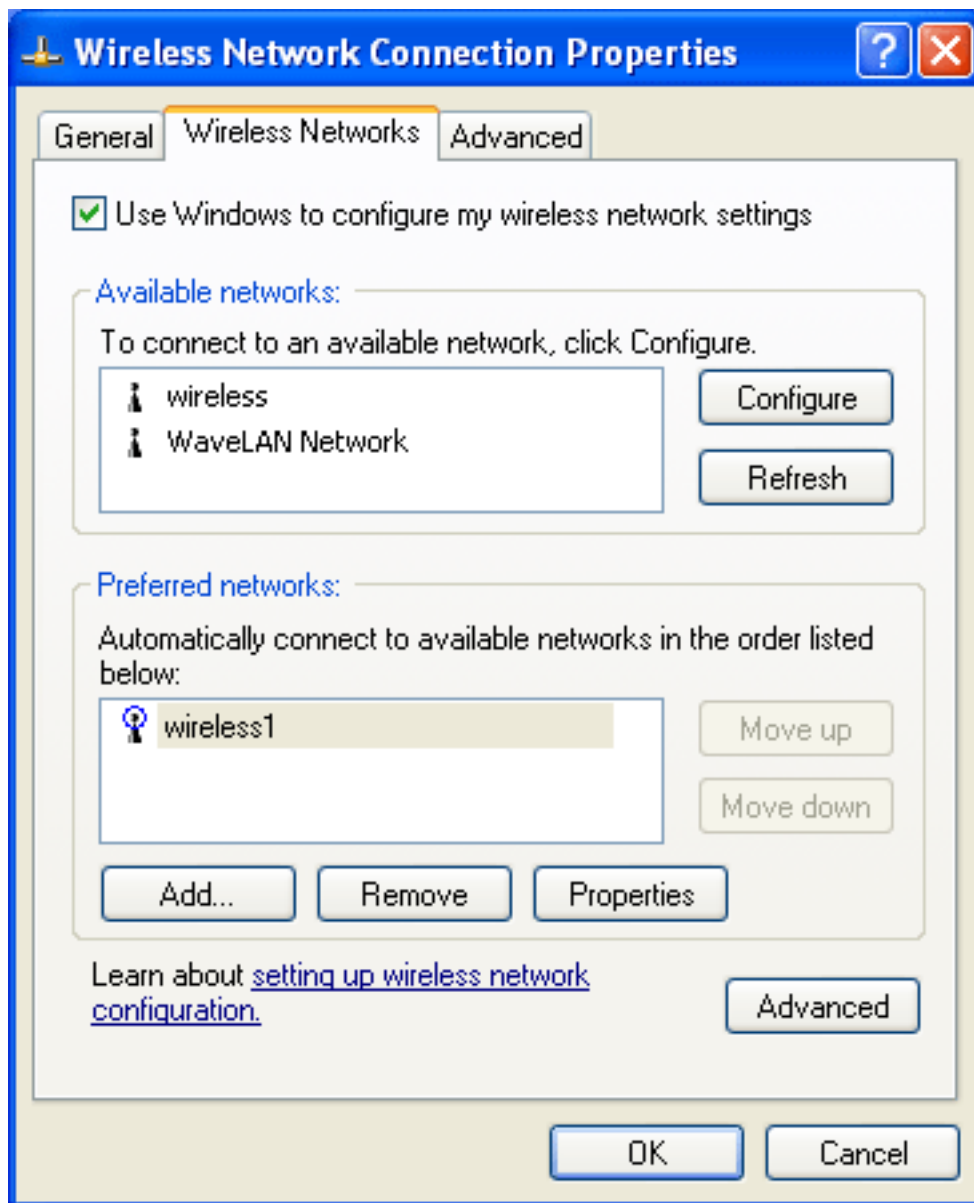
5. Type the network name, LEAP user name, and LEAP password in the respective boxes and click **OK**.


Configuring a Profile for a Network That Is Not Listed and Does Not Require Network Key Information (Windows XP Environment)





1. Under **Preferred networks**, click **Add**.
2. Type the network name in the **Network name (SSID)** box and Click **OK**.

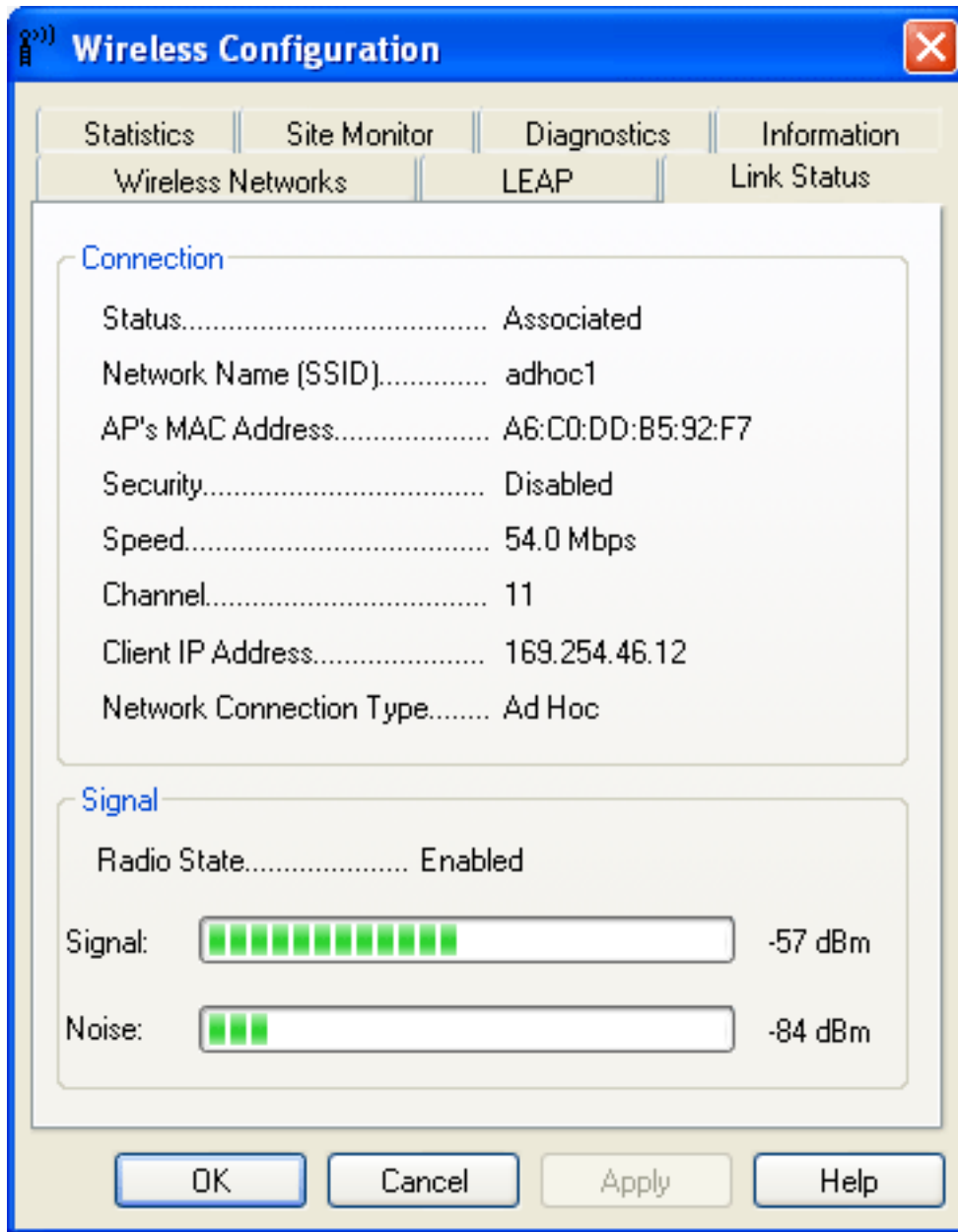


3. Click **OK** to activate the network connection. To verify that the network connection has been made, reopen **Wireless Network Connection Properties**. The computer is connected to the added network when a blue bubble appears on top of the icon  for that network. If the bubble does not appear, click **Refresh**. If it still does not appear, try to access a Web page to verify that you are connected to the Internet.

Using Wireless Utility:


Windows XP Environment

1. Open the [TrueMobile Wireless Utility](#).



2. Click the **Link Status** tab.

The quality of the connection (signal strength and noise) of the particular network you are connected to is indicated by the horizontal bars and the decibel level values that are displayed at the bottom of the **Link Status** tab. The connection quality is also indicated by

the appearance of the utility icon  in the desk top system tray. The description of the signal strength appears when you hover the cursor over the icon.

The table below shows the quality level and suggested action for improving the signal quality for each icon image that may be displayed. If the signal strength indications are anything other than very good or excellent, you should take the appropriate suggested action.



Four vertical green bars indicate that the signal strength is **very good** or **excellent**.



Three vertical green bars indicate that the signal is **good**.



Three vertical yellow bars indicate that the signal strength is **low**.

Suggested action: Move closer to the access point.



Two vertical red bars indicates that the signal strength is **very low**.

Suggested action: Move closer to the access point.



Uncolored vertical bars indicate that there is **no signal** being received.

Probable causes:

- The computer is trying to establish an initial connection but has not yet succeeded.
- You may have moved out of range of the access point.


Suggested action:

- Wait
- Move closer to the access point.




Uncolored vertical bars with a superimposed red letter x indicate that there is **no radio connection**.

Probable cause: The radio is disabled.

Suggested action: Enable the radio. To enable the radio, right-click the utility icon  in the system tray and click **Enable Radio**.

Disabling the Radio

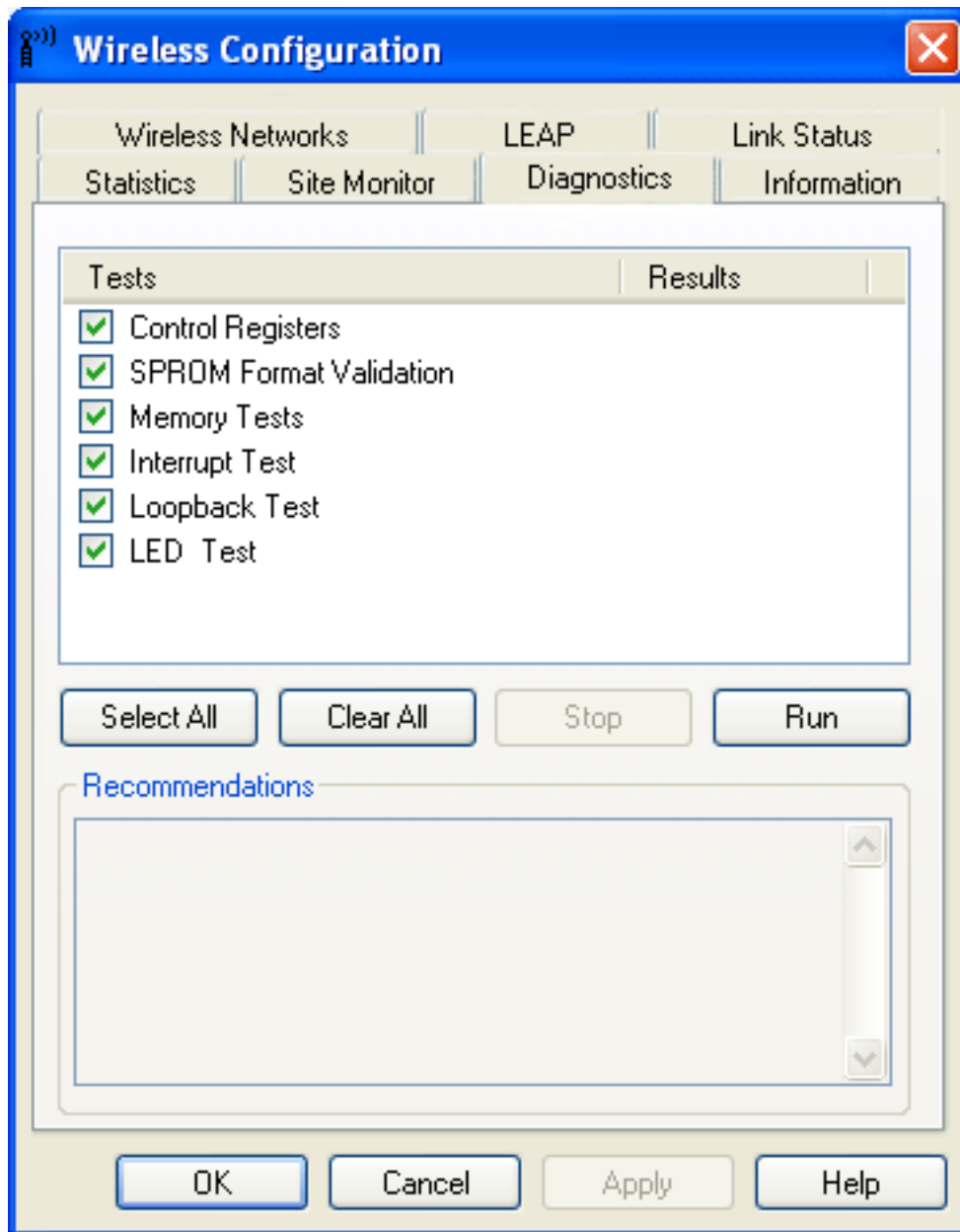
To disable the radio on your **Broadcom WLAN Card**, right-click the utility icon  in the system tray and click **Disable**

Radio. To enable the radio, right-click the icon  and click **Enable Radio**. On newer **Dell TrueMobile** enabled notebooks, the radio can be enabled/disabled by pressing Fn + F2.

Diagnostics

You can run a number of diagnostics on your **Broadcom WLAN Card** to verify its operational and functional status.

NOTE—The network connection is lost when you run the diagnostics. When the test run is over, however, your network connection is automatically reestablished.



Windows XP Environment

1. Open the [TrueMobile Wireless Utility](#).
 2. Click the **Diagnostics** tab.
 3. To see a description of the test, click each test and look in the **Recommendations** area.
 4. All tests are selected by default. To run an individual test or some but not all of the tests, clear the check box for those tests that you do not want to run.
 5. Click **Run Tests**.
 6. If your **Broadcom WLAN Card** fails any of the diagnostics tests, see [Troubleshooting](#).
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Regulatory Information:

[Information for the User](#)

[Regulatory Information](#)

Information for the User

Wireless Interoperability

The **Broadcom WLAN Card** products are designed to be interoperable with any wireless LAN product that is based on direct sequence spread spectrum (DSSS) and orthogonal frequency division multiplexing (OFDM) radio technology and to comply with the following standards:

- IEEE Std 802.11b-1999. Standard on 2.4 GHz Wireless LAN
- IEEE draft Std 802.11g. Standard on 2.4 GHz Wireless LAN
- IEEE Std 802.11a-1999. Standard on 5 GHz Wireless LAN

The Broadcom WLAN Cards and Your Health

The **Broadcom WLAN Cards**, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by these devices, however, is less than the electromagnetic energy emitted by other wireless devices such as mobile phones. The **Broadcom WLAN Card** devices operate within the guidelines found in radio frequency safety standards and recommendations. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature. In some situations or environments, the use of a **Broadcom WLAN Card** wireless device may be restricted by the proprietor of the building or responsible representatives of the applicable organization. Examples of such situations include the following:

- Using the **Broadcom WLAN Card** equipment onboard airplanes, or
- Using the **Broadcom WLAN Card** equipment in any other environment where the risk of interference with other devices or services is perceived or identified as being harmful.

If uncertain of the policy that applies to the use of wireless devices in a specific organization or environment (an airport, for example), ask for authorization to use the **Broadcom WLAN Card** device before turning it on.

Regulatory Information

The **Broadcom WLAN Card** devices must be installed and used in strict accordance with the manufacturer's instructions as

described in the user documentation that comes with the product.

Broadcom is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this **Broadcom WLAN Card** kit, or the substitution or attachment of connecting cables and equipment other than that specified by Broadcom Corporation. The correction of interference caused by such unauthorized modification, substitution, or attachment is the responsibility of the user. Broadcom Corporation and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user's failing to comply with these guidelines.

Canada—Industry Canada (IC)

These devices comply with RSS210 of Industry Canada.

Europe—EU Declaration of Conformity



This equipment complies with the essential requirements of the European Union directive 1999/5/EC.

Cet équipement est conforme aux principales caractéristiques définies dans la Directive européenne RTTE 1999/5/CE.

Die Geräte erfüllen die grundlegenden Anforderungen der RTTE-Richtlinie 1999/5/EG.

Questa apparecchiatura è conforme ai requisiti essenziali della Direttiva Europea R&TTE 1999/5/CE.

Este equipo cumple los requisitos principales de la Directiva 1999/5/CE de la UE, "Equipos de Terminales de Radio y Telecomunicaciones".

Este equipamento cumpre os requisitos essenciais da Directiva 1999/5/CE do Parlamento Europeu e do Conselho (Directiva RTT).

Ο εξοπλισμός αυτός πληροί τις βασικές απαιτήσεις κοινοτικής οδηγίας EU R&TTE 1999/5/E.

Deze apparatuur voldoet aan de noodzakelijke vereisten van EU-richtlijn betreffende radioapparatuur en telecommunicatie-eindapparatuur 1999/5/EG.

Dette udstyr opfylder de Væsentlige krav i EU's direktiv 1999/5/EC om Radio- og teleterminaludstyr.

Dette utstyret er i overensstemmelse med hovedkravene i R&TTE-direktivet (1999/5/EC) fra EU.

Utrustningen uppfyller kraven för EU-direktivet 1999/5/EC om ansluten teleutrustning och ömsesidigt erkännande av utrustningens överensstämmelse (R&TTE).

Tämä laite vastaa EU:n radio- ja telepäätelaitedirektiivin (EU R&TTE Directive 1999/5/EC) vaatimuksia.

This product is intended to be used in all countries of the European Economic Area when operating in IEEE 802.11b and/or IEEE draft 802.11g mode at 2.4 GHz (see [France](#) below). When operating in the IEEE 802.11a mode at 5 GHz, however, the product is restricted further. Refer to Dell's Web site (www.dell.com) for full information.

France

In all Metropolitan départements, wireless LAN frequencies can be used under the following conditions, either for public or private use:

- Indoors with a maximum power (EIRP) of 100 mW across the entire 2400–2483.5 MHz frequency band.
- Outdoors with a maximum power (EIRP) of 100 mW for the 2400–2454 MHz frequency band, and a maximum power (EIRP) of 10 mW for the 2454–2483.5 MHz frequency band.

USA—Federal Communications Commission (FCC)

These devices comply with Part 15 of the FCC Rules. Operation of the devices is subject to the following two conditions:

- The devices may not cause harmful interference.
- The devices must accept any interference that may cause undesired operation.

Interference statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If the equipment is not installed and used in accordance with the instructions, the equipment may cause harmful interference to radio communications. There is no guarantee, however, that such interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by taking one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

Important Note: To comply with FCC RF exposure compliance requirement, the antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other transmitter.

DGT warning statement

根據交通部 低功率管理辦法 規定：

第十四條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十七條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。