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Technical Specifications and Regulatory Information: Wireless USB Adapter User's Guide

●Regulatory information
●Technical Specification

Information for the User

Wireless Interoperability

The Wireless Network Adapter devices 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 Std 802.11g-2003. Standard on 2.4 GHz Wireless LAN
- IEEE Std 802.11a-1999. Standard on 5 GHz Wireless LAN

Safety Instructions

The Wireless USB Adapter, like other radio devices, emits radio frequency electromagnetic energy. The level of energy emitted by this device, however, is less than the electromagnetic energy emitted by other wireless devices such as mobile phones. The Wireless device operates 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 the wireless devices 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 Wireless equipment on board airplanes,
- Using the Wireless equipment in medical facilities, or
- Using the Wireless equipment in any other environment where the risk of interference with other devices or services is perceived or identified as being harmful.

If you are uncertain of the policy that applies to the use of wireless devices in a specific organization or environment (an airport, for example), you are encouraged to ask for authorization to use the Wireless device before you turn it on.

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Regulatory information

The Wireless network device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. For country-specific approvals, see Radio approvals.

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

Canada-Industry Canada (IC)

This device complies with RSS210 of Industry Canada.

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USA-Federal Communications Commission (FCC)

⚠ **WARNING**: The radiated output power of the Wireless Network Adapter devices is far below the FCC radio frequency exposure limits. Nevertheless, the Wireless Network Adapter devices should be used in such a manner that the potential for human contact during normal operation is minimized. To avoid the possibility of exceeding the FCC radio frequency exposure limits, you should keep a distance of at least 20 cm between you (or any other person in the vicinity) and the antenna that is built into the Wireless Network Adapter.

Radio Frequency Interference Requirements

This device is restricted to indoor use due to its operation in the 5.15 GHz to 5.25 GHz frequency range. The FCC requires this product to be used indoors for the frequency range 5.15 GHz to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High power radars are allocated as primary users of the 5.25 GHz to 5.35 GHz and 5.65 GHz to 5.85 GHz bands. These radar stations can cause interference with this device, or can cause damage to this device, or both.

Interference statement

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

- This device may not cause harmful interference.
- This device must accept any 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. 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:

- Relocate the device.
- Increase the distance between the device and the receiver.
- Connect the deviceto 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.

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Technical Specification

Wireless interoperability

Wireless products are designed to be interoperable with any wireless LAN product that is based on direct sequence spread spectrum (DSSS) radio technology and to comply with the following standards:

- IEEE Std. 802.11b-1999. Standard on Wireless LAN.
- IEEE Std. 802.11g-2003. Standard on Wireless LAN.
- IEEE Std 802.11a-1999. Standard on 5 GHz Wireless LAN
- Wireless Fidelity (WiFi) certification, as defined by the WECA (Wireless Ethernet Compatibility Alliance).
- Cisco Compatibility Extenstions (CCX)

Driver support

- Microsoft Windows XP
- Microsoft Windows 2000

Standards supported

- IEEE Std 802.11b-1999. Standard on 2.4 GHz Wireless LAN
- IEEE Std 802.11g-2003. Standard on 2.4 GHz Wireless LAN
- IEEE Std 802.11a-1999. Standard on 5 GHz Wireless LAN
- USB 2.0

Environment

- Max. Humidity: 95% Non-condensing

Radio specification

Range:

- Per cell indoors approx. 35-100 meters or more
- Per cell outdoors up to 100-300 meters
- The range of your wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also impacted due to "obstacles" in the signal path of the radio that may either absorb or reflect the radio signal.
- In Open Office environments, antennas can "see" each other, i.e. there are no physical obstructions between them.
- In Semi-open Office environments, work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.
- In Closed Office environments, work space is separated by floor-to-ceiling brick walls.

Mobility:

- Seamless roaming across cell boundaries with handover

Specific features

Supported bit rates:

- 54 Mbps
- 48 Mbps
- 36 Mbps
- 24 Mbps
- 18 Mbps
- 12 Mbps
- 11 Mbps
- 9 Mbps
- 6 Mbps
- 5.5 Mbps
- 2 Mbps
- 1 Mbps

Data encryption:

- 64 /128 bit WEP Encryption
- TKIP
- AES

Security:

- Supports PEAP, TLS/Smartcard, WPA, WPA-PSK, EAP - Cisco Wireless (LEAP), MD5 Challenge and TTLS authentication

Utility Software:

- Management utility software

LED indicator:

LED 1	INDICATION
Off	Power is off and the unit is disconnected, or the Windows driver has not loaded
On	Power is on, the unit is connected and the Windows driver has loaded

LED 2	INDICATION
Off	Unit is off or disconnected
On	Radio is on and associated
Slow Flash	Radio is on and scanning for a wireless network
Fast Flash	Radio is on, associated, transmitting and receiving data

Getting Started with your Wireless USB Adapter: Wireless USB Adapter User's Guide

> 📝 **NOTE: If you did not purchase this device with a new system, please start at step 1. If you purchased this device with a new system, please skip to step 2**.

To complete the setup of your Wireless USB Adapter, perform the following 3 steps:

[1. Installing the software (drivers and Wireless Configuration Utility)](#)

[2. Connecting the device to the computer](#)

[3. Connecting to your wireless network](#)

---

1. Installing the Software

> 📝 **NOTE: This installation is required before connecting the device to the system.**

a. Insert the **Wireless USB 2.0 Adapter CD** into the CD or DVD drive of your computer. If the **Main Menu** screen does not appear automatically, select **Start → Run** and then type **x:\setup.exe** (where **x** is your CD-ROM drive letter) and click **OK**.

b. Click on **Install Software**.

c. The wizard will install the Wireless Configuration Utility and the driver for your device.

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2. Connecting the Wireless USB Adapter to Your Computer

a. Connect the small connector of the USB cable to the connector in the **Wireless USB Adapter** as shown in Figure 1.
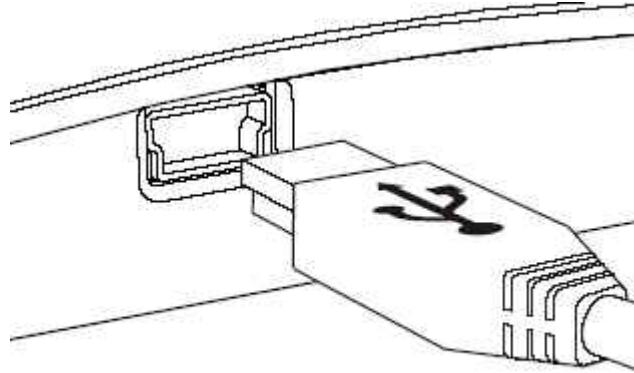

Figure 1

b.   Connect the other end of the USB cable to any USB connector of your desktop computer as shown in Figure 2.
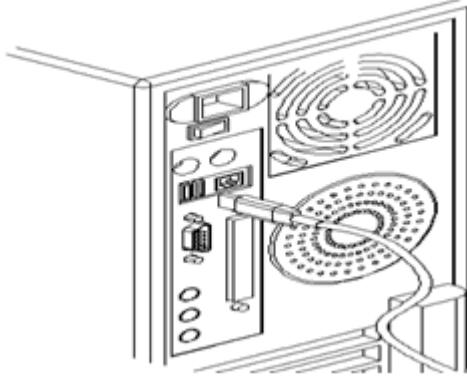
Figure 2

c.   The **Found New Hardware** screen will appear.

d.   The driver for your device will be automatically detected and installed.

e.   Check for the **Green Light** on the device to make sure the USB cable is connected correctly between the device and the system and the Windows driver is loaded.

f.   The **New network device installed** screen will appear on the bottom right corner. Click **X** to close the message. **(XP only)**

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3. Connecting to Your Wireless Network

To connect to the wireless network, the wireless network name (SSID) of the **wireless USB adapter** must match the wireless network name specified by your Wireless Broadband Router. To set the network name, follow the instructions below for Windows XP. For Windows 2000, follow the instructions under **section 3.2**.

3.1 Connecting using Windows® XP

a.   Configure your wireless router. See the documentation that came with your router for instructions.

b.   Right-click on the wireless network connection item on the system tray (located in the lower-right corner of the Microsoft® Windows® operating system desktop).
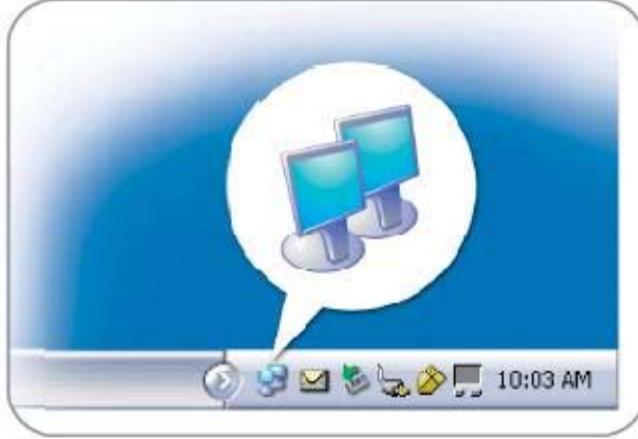
c.   Click **View Available Wireless Networks**.

d.   In the Wireless Network Connection window, click the network you want to join. If you have Windows XP Service Pack 2 installed, click on the **Connect** button.

e.   If this network does not have encrryption enabled, click either the **Allow me to connect to the selected network, even it is not secure** or the **Connect Anyway** button depending on your version of Windows XP Service Pack. If the network uses encryption, enter the encryption key you configured in step a.

f.   Click **Connect**..

NOTE: If you are unable to access the **Internet**, refer to the **Troubleshooting** section of this User's Guide.

3.2 Using the Wireless Configuration Utility for Windows 2000

The Wireless Configuration Utility is a software utility that you can use to:

- Check the quality of your wireless connection.

- View/change the settings of your network connection.

- Monitor your network connection.

Use the following procedure to start the Wireless Configuration Utility:

a.   Click **Start → Programs → Wireless→ USB Wireless Card Utility**.

b.   An icon like this will appear in the system tray (bottom right corner of your screen).

Double click the icon.

c.   Click on the **Wireless Networks** tab.

d.   In the **Available networks** list, you should see the wireless network name that you specified in your wireless broadband router. Select that network name and click **Configure**. (You may see the names of other wireless networks in this list. You only need to set the configuration for your wireless network.)

e.   In the **Wireless Network Properties** box, click **OK** and the window will close. It

may take up to one minute for the network connection to be made.

f.   The network name and icon should now appear at the top of the **Preferred networks** list when you next open the **Wireless Connections** tab in **Wireless Network Properties**. Your computer will be connected to the selected network when you see a blue bubble on top of the icon for that network.

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Securing your Network

Your network administrator may have implemented measures to help make your wireless network secure. If so, you must get the required settings from your administrator to establish a connection to the network. For detailed information on how to change these settings under any of the supported Windows operating systems, please consult the Network Configuration section of your Wireless USB Adapter User's Guide.

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Operation of Your Wireless Configuration Utility: Wireless USB Adapter User's Guide

This section discusses operation of the utility once it has been installed. It describes the system tray icon, the icon menu, and starting the utility.

System Tray Icon

After the installation of the Wireless Configuration Utility, its icon appears in the System Tray in the bottom right corner of your desktop.

The color behind the logo indicates the link status, as follows:

Weak

Marginal

Good

Excellent

Disconnected
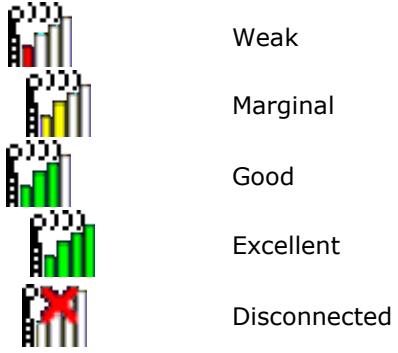
You can also view more complete information on the connection status of the link by placing the cursor over the Configuration Utility icon. When your computer has established a link, placing the cursor over the icon displays the network name, network type (infrastructure or ad-hoc) and connection speed. If your computer has not established a link, placing the cursor over the icon indicates the problem (no network adapter or no available network, for example).

Icon Menu

Clicking the right mouse button on the System Tool Tray Icon displays a menu similar to the following illustration:

Clicking a command in the menu will cause the following action to occur:

About opens the Utility with the **About** tab selected, giving information on your Wireless adapter (its hardware and firmware components) and its associated software (driver and configuration utility).

Help opens the help file.

Hide Systray Icon removes the icon for the utility from the System Tray at the bottom of your screen. When you choose this command, the driver continues to operate the adapter in the last commanded configuration, but to restart the Configuration Utility you must select **Programs** → **Wireless** → **USB Wireless Card Utility** from the **Start** menu.

Link Status opens the Utility with the **Link Status** tab selected. This tab provides information on the details and current quality of your connection to the wireless LAN. The section Link Status explains the information displayed by this tab.

Site Monitor opens the Utility with the **Site Monitor** tab selected. The section titled Site Monitor explains the operation of this tab.

Diagnostics opens the Utility with the **Diagnostics** tab selected. The section titled Diagnostics explains the operation of this tab.

View Available Networks: The window displayed by this command depends on whether your computer operates with the Wireless Zero Configuration service enabled under Windows XP:

- If you are already connected to a wireless network, choosing this command opens the **Wireless Network Connection** window if your computer operates with Wireless Zero Configuration enabled. Otherwise, choosing this command opens the Configuration Utility with the **Link Status** menu displayed.

- If you are not connected to a wireless network, choosing this command opens the **Connect to Wireless Network** window if your computer operates with Wireless Zero Configuration enabled. Otherwise, choosing this command opens the Configuration Utility with the **Wireless Networks** menu displayed.

Exit closes the Utility.

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Starting the Configuration Utility

You can launch the Configuration Utility in one of three ways:

- by simply clicking the left mouse button on the Configuration Utility icon.

- by clicking the right mouse button on the Configuration Utility icon and selecting one of the first five commands in the pop-up menu.

- If the Configuration Utility icon is not displayed in the System Tray, you can restart the Configuration Utility from the Start Menu by selecting **Programs** → **Wireless** → **USB Wireless Card Utility**.

Note: The window displayed by the utility depends on whether your computer runs the Windows XP operating system with the Wireless Zero Configuration service enabled. With this service enabled, many the configuration and security functions of your adapter are controlled by the operating system rather th the Configuration Utility.

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# Connecting to the Wireless Network: Wireless USB Adapter User's Guide

With the Wireless USB Card driver and Configuration Utility installed, your computer automatically scans for wireless networks. You can connect to any of the networks your card sees, and change the parameters of your communications with any of these networks, by starting the Configuration Utility. The facilities provided by the Configuration Utility to accomplish this differ slightly depending on whether or not your computer runs the Windows XP operating system with the Wireless Zero Configuration service enabled.

● **Windows XP With Wireless Zero Configuration Enabled**

● **Windows 2000 or Windows XP With Wireless Zero Configuration Disabled**

Windows XP With Wireless Zero Configuration Enabled

The Wireless Zero Configuration service allows the Windows XP operating system to handle the configuration of your connection to a wireless network. With this service enabled, if you are not connected to a wireless network when you start the Configuration utility, one of the following windows appear on your desktop:


Windows XP and Windows XP with Service Pack 1   **Windows XP with Service Pack 2**

This window lists the networks to which you can connect. To connect to any of these networks, choose it from the list and click the **Connect** button. Once your connection is established, the **Wireless Network Connection** window (shown below) appears on your desktop.

With this service enabled, if you are already connected to a wireless network when you start the Configuration utility, the following window appears on your desktop:
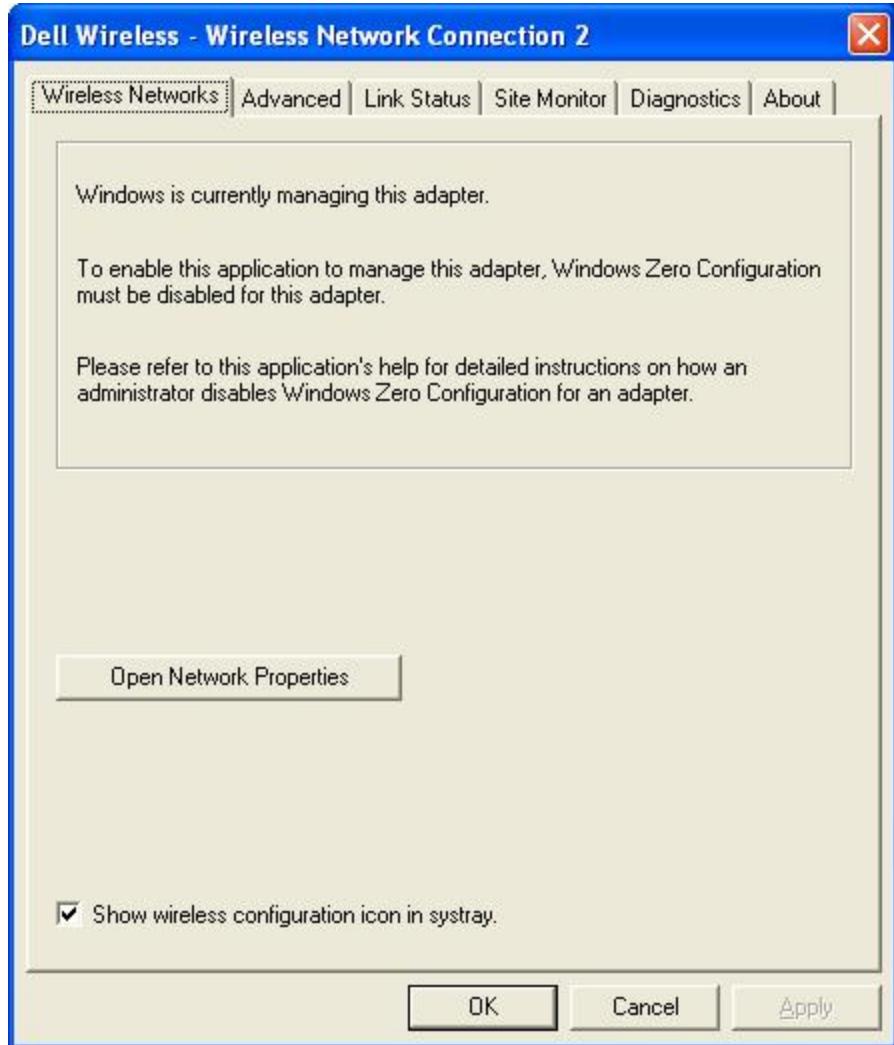
You can click the **Open Network Properties** button to access the tools provided by Windows XP to manage network connections. Consult your operating system documentation for information on using these tools.

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Windows 2000 or Windows XP With Wireless Zero Configuration Disabled

If your computer runs the Windows 2000 operating system or the Windows XP operating system with Wireless Zero Configuration disabled, all configuration of your connection to the wireless network is controlled by the Configuration Utility. You may already be connected to a wireless network when you start the Configuration utility.

When you start the Configuration Utility, the Wireless Networks window appears on your desktop:
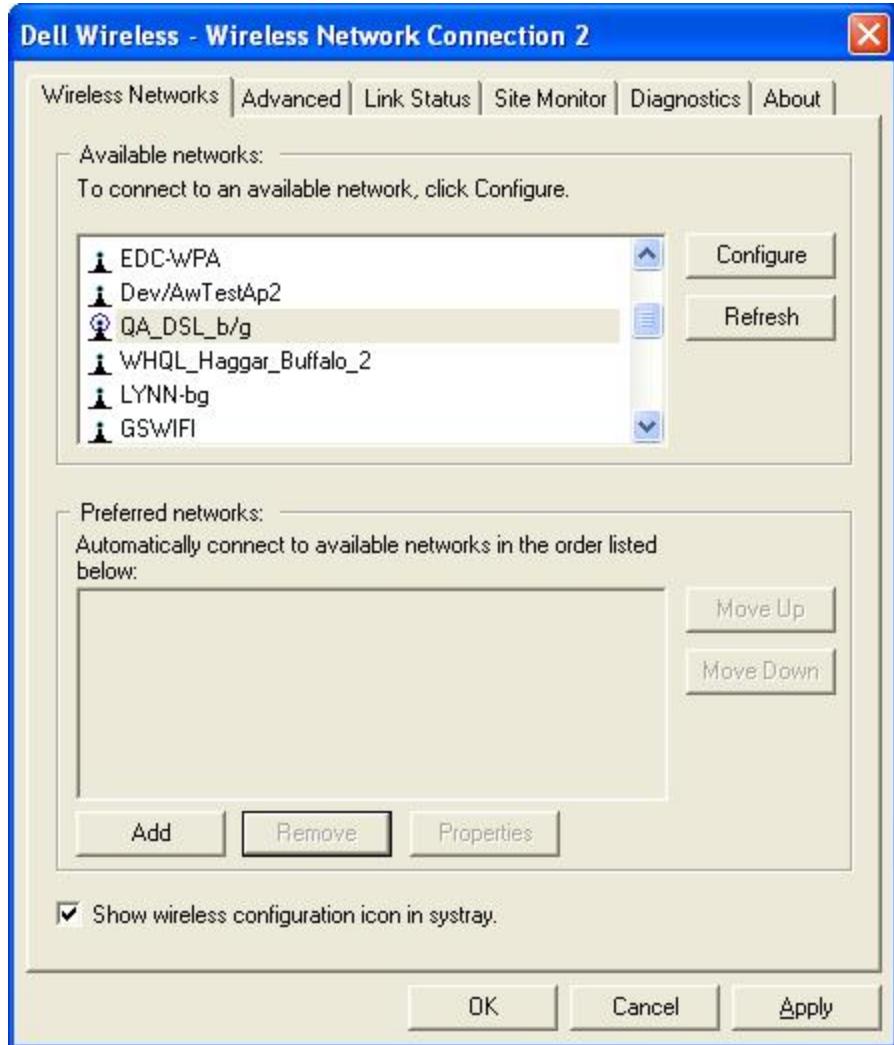
The networks to which you can connect are listed in the window in the **Available networks** section. To connect to any of these networks, choose it from the list and click the **Configure** button to the right of the list. Configuration of a network is explained in the Configuring a Wireless Network section of this manual.

Refer to the Using your Wireless Configuration Utility section for a description of the information displayed by this utility. To connect to a different network, follow the instructions in the Configuring a Wireless Network section of this manual.

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Configuring a Wireless Network:
Wireless USB Adapter User's Guide

The WLAN Configuration Utility allows you to configure the parameters of your communications with the wireless network through the **Wireless Networks** menu. The following topics are covered in this section of the manual:

- The **Wireless Networks** Menu
- Network Configuration
- The Association Tab
- The Authentication Tab

The Wireless Networks Menu
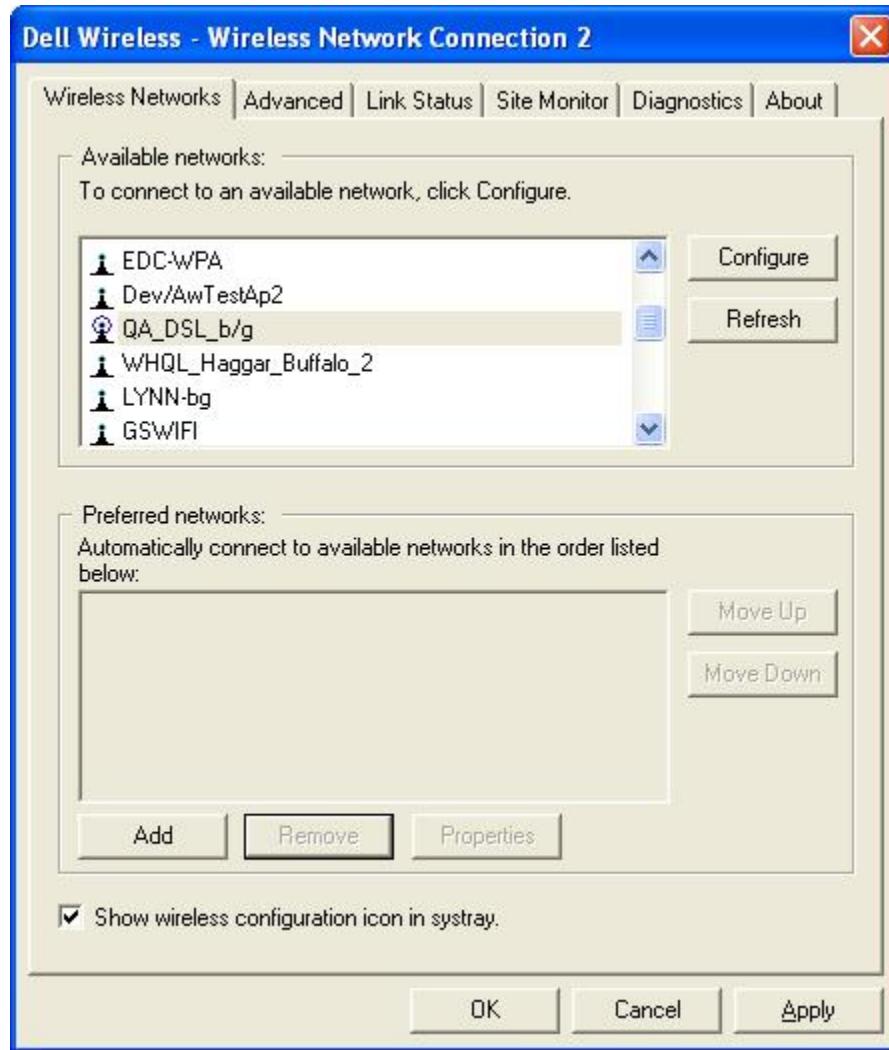
Note: If your computer runs the Windows XP operating system with the Wireless Zero Configuration service enabled, configuration of a wireless connection is controlled by that service. You must disable that service in order to use the

WLAN Configuration Utility to configure wireless communications.

Available Networks: The first section of this menu displays a list of the available wireless networks. If you are associated with a network, a blue bubble appears over the icon for the network in both this list and in the **Preferred networks** list.

The **Configure** button to the right of this list allows you to configure your connection to the highlighted network; refer to Network Configuration for an explanation of this process. The **Refresh** button forces the Configuration Utility to update the list by scanning for available networks.

Preferred Networks: The second section of this menu displays a list of preferred networks. This list shows the order, from top to bottom, of the networks to which your computer will attempt to connect. If your computer is connected to any of these networks, a blue bubble appears over the icon for that network. If your computer cannot find any of these networks when it performs a scan, a crossed-out red bubble appears over the icon for that network

When your computer starts searching for a wireless network, it begins by attempting to connect to the first network in this list. If it cannot connect to this network, it then attempts to connect to the second network in the list. This process continues until the computer establishes a connection with one of these networks. After a connection is established, if a higher priority network becomes available, then the current connection is dropped and the computer connects with the higher priority network.

You can change the order of preferred networks by highlighting a network in this list and clicking the **Move Up** or **Move Down** buttons.

The **Add** button allows you to add a network to the list of preferred networks. The **Properties** button allows you to configure the selected network. Refer to Network Configuration for an explanation of the operation of these buttons. The **Remove** button removes the selected network from the list of preferred networks.

Two items appear beneath the **Preferred networks** section. The **Show wireless configuration icon in systray** field determines whether the icon for the WLAN configuration utility appears in the system tray at the bottom right side of your desktop. If this field is not checked, you can start the Configuration Utility from the Start Menu by selecting **Programs → Wireless → USB Wireless Card Utility**.

At the bottom of the **Wireless networks** menu are three buttons. Clicking the **OK** button applies any changes you made in this or any of the other menus of the Configuration Utility and closes the utility. Clicking the **Cancel** button cancels any changes you made since you last clicked the **Apply** but does not close the utility. Clicking the **Apply** button saves any changes you made in this or any of the other menus of the utility and leaves the utility open.

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Network Configuration

There are three ways to configure a network through the WLAN Configuration Utility:

- by choosing a network in the list of available networks and clicking the **Configure** button.

- by choosing a network in the list of preferred networks and clicking the **Properties** button.

- by clicking the **Add** button beneath the list of preferred networks.

When you click any of these buttons, a window similar to the following appears on your screen:
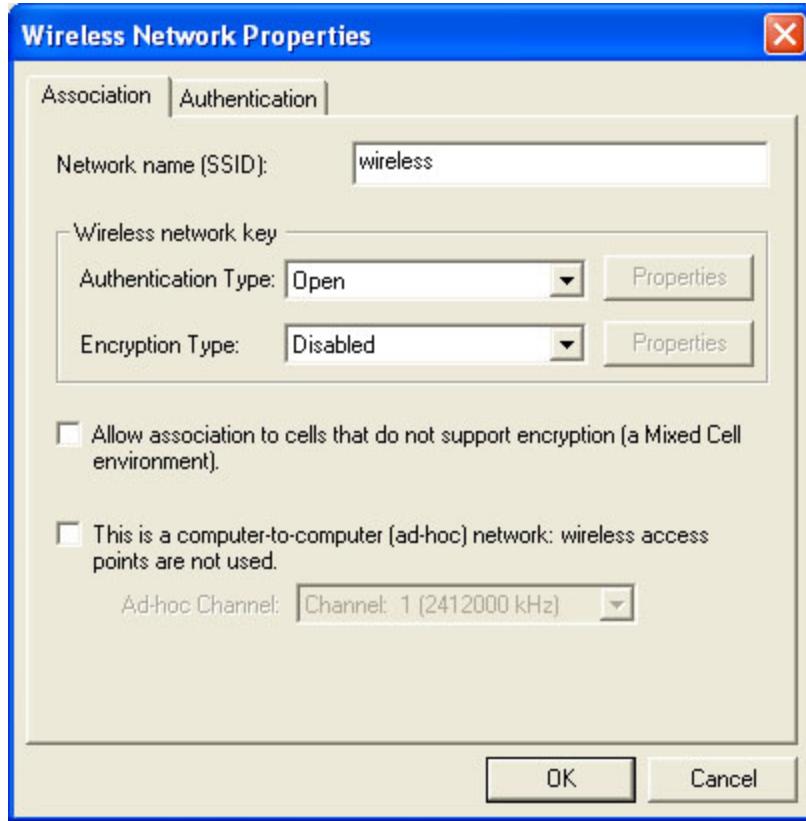
If you clicked the **Configure** or **Properties** button, the name of the network highlighted when you clicked the button appears in the **Network name (SSID)** field. If you clicked the **Add** button to display this menu, this field is blank. To add a network to the list of preferred networks, enter its name in this field.

Two buttons appear at the bottom of this menu. Clicking the **OK** button applies any changes you made in this or any of the other menus of the Configuration Utility. Clicking the **Cancel** button cancels any changes you made since you last clicked the **Apply** button. Clicking either of these buttons returns to the **Wireless networks** menu.

Network configuration consists of specifying values for association and authentication, as explained in the following sections.

Association Tab

Association refers to the ability to join a network, either infrastructure or adhoc. The most basic requirement for associating with a network is specifying the correct network name, or Service Set Identifier (SSID), for the network.

Networks may also require authentication and encryption for access. Authentication is the method used by the network to determine whether you are authorized to join the network. Encryption is the method used to mask data transmitted over the network.

If this is the case for the network you are configuring, you must enter the authentication and encryption types for your network in the **Wireless Network Key** section of this menu. To choose a value for these fields, click the down arrow to the right of the appropriate field and highlight one of the values that appear in the drop-down list.

Authentication

There are four types of authentication:

- **Open** authentication
- **Shared** authentication
- **WPA** authentication
- **WPA-PSK** authentication

Open, **Shared**, and **WPA** authentication require no further configuration.

To use **WPA-PSK** authentication, you must click the **Properties** button next to this field and enter a shared secret key.
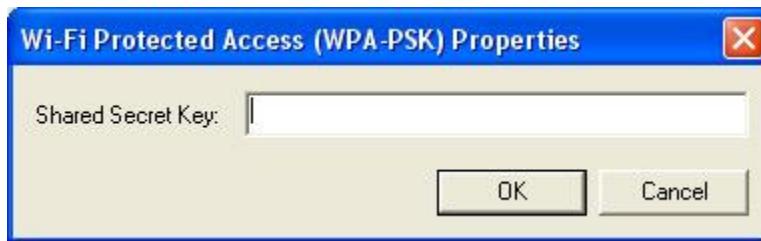
You may type either between 8 and 63 alphanumeric characters or exactly 64 hexadecimal characters.

Encryption

Open and Shared authentication can use **WEP** (Wired Equivalent Privacy) encryption to mask transmitted data. When you specify that WEP is enabled for the network, you must enter the WEP encryption keys by clicking the **Properties** button to the right of the **Encryption Type** field.
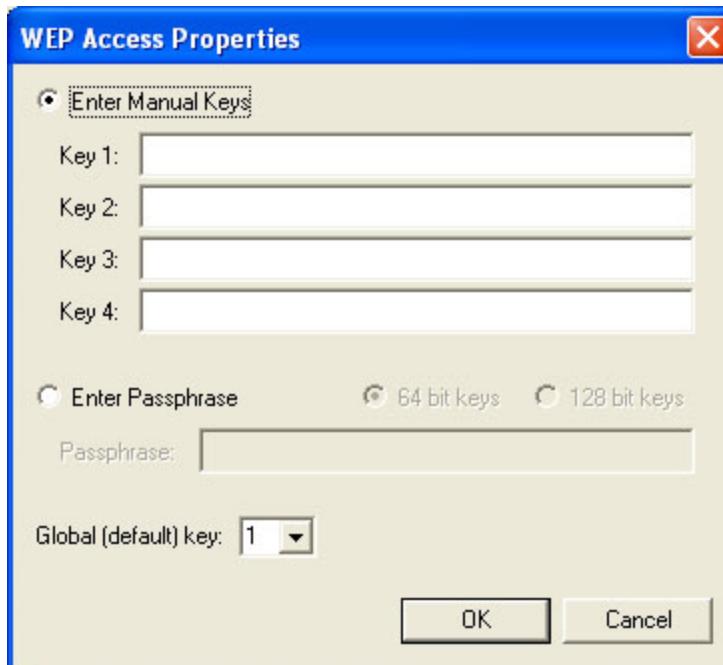
When you click this button, the Configuration Utility selects **Enter Manual Keys**, and allows you to enter keys as either alphanumeric or hexadecimal characters. To enter a key, click in the field for any of the

four WEP keys and begin typing. For 64-bit encryption, you must type exactly 5 alphanumeric or 10 hexadecimal characters in these key fields; for 128-bit encryption, you must type exactly 13 alphanumeric or 26 hexadecimal characters. You then click the **OK** button to create your encryption keys. After you click the **OK** button, the Configuration Utility uses asterisks to mask your keys.

The **Global (default) key** field lets you specify which of the four encryption keys you use to transmit data on your wireless LAN. You can change the default key by clicking on the up or down arrow at the right of this field until the number of the key you want to use appears. As long as the Access Point or computer with which you are communicating has the same key in the same position, you can use any of the keys as the default.

To create encryption keys using a passphrase, click the radio button next to **Enter Passphrase** and type a character string in the **Passphrase** field. As with creating keys manually, you must type exactly 5 alphanumeric or 10 hexadecimal characters for 64-bit encryption, or exactly 13 alphanumeric or 26 hexadecimal characters for 128-bit encryption. After you click the **OK** button, the Configuration Utility generates 4 WEP keys and uses asterisks to mask your keys.

For WPA and WPA-PSK authentication, you can specify either **TKIP** or **AES** encryption. Neither of these encryption methods requires configuration.

Two fields appear at the bottom of the **Association** menu. If you check the first field (by clicking in the box to the left of the field), your computer can associate with Access Points that do not support encryption, provided that the network name used by the AP matches the Network name specified in this menu.

If the network that you are configuring is an ad-hoc network, the second field at the bottom of the **Association** menu is checked. If you are adding an adhoc network, click the check box next to this field. When this field is checked, you specify the channel used in the ad-hoc network by clicking the down arrow to the right of the **Ad-hoc Channel** field and highlighting the appropriate channel.

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Authentication Tab

If the network you are configuring requires authentication, select the **Authentication** tab to continue. Selecting this tab displays a menu similar to the following:
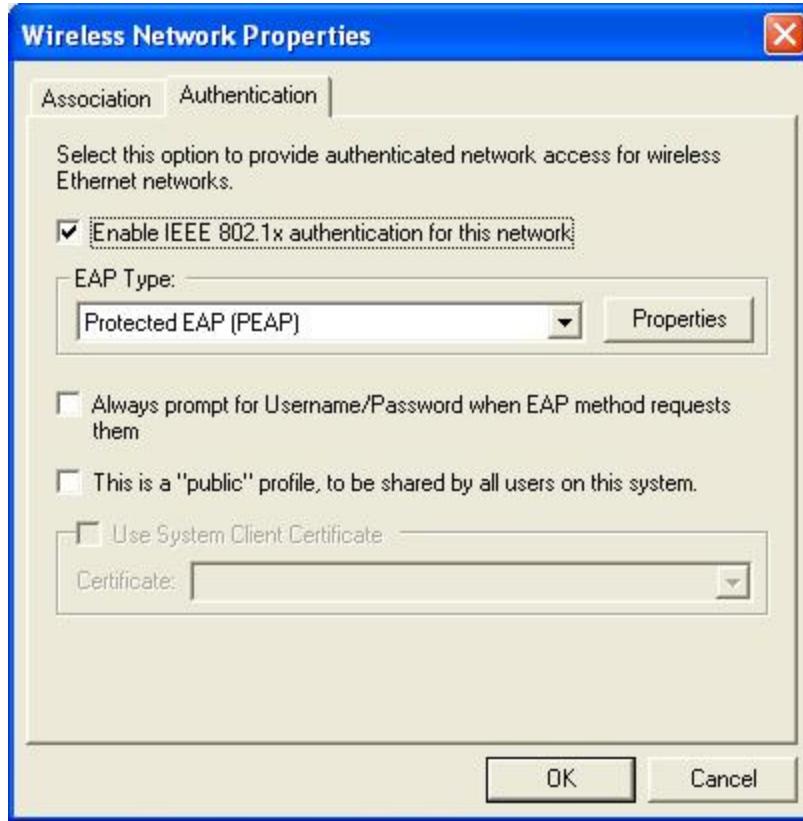
To enable authentication, click the check box next to the **Enable IEEE 802.1x authentication for this network** field. Checking this box activates the fields in the menu, allowing you to specify authentication parameters.

The first field in this menu lets you specify the type of Extensible Authentication Protocol (EAP) used by the network. To choose a type, click the down arrow to the right of this field and choose one of the types from the displayed list.

Beneath this field are three additional fields used to specify other authentication parameters. To enable any of these parameters, click the check box next to the appropriate field.

The **Always prompt for Username/Password when EAP method requests them** checkbox, if enabled, will present a dialog box asking for a username and password, even if they are already configured for this profile. This option is incompatible with the following option.

The **This is a "public" profile, to be shared by all users on this system** checkbox makes this a system-wide profile. The adapter can use this profile regardless of who is logged in or even if there is no user logged into Windows. This option is incompatible with the previous option.

For public profiles, the **Use System Client Certificate** field lets you specify that the computer itself (regardless of who is logged into the computer) must present a certificate to be authenticated on the network. When you enable this field, you must choose a certificate in the following **Certificate** field.


After you choose an EAP type, click the **Properties** button to specify the information required for authentication. The following sections describe configuration of each available EAP type.

- PEAP authentication

- TLS/Smart Card authentication

- EAP - Cisco Wireless (LEAP) authentication

- MD5 Challenge authentication

- TTLS authentication

PEAP Authentication

Clicking the **Properties** button for PEAP authentication displays the following menu:
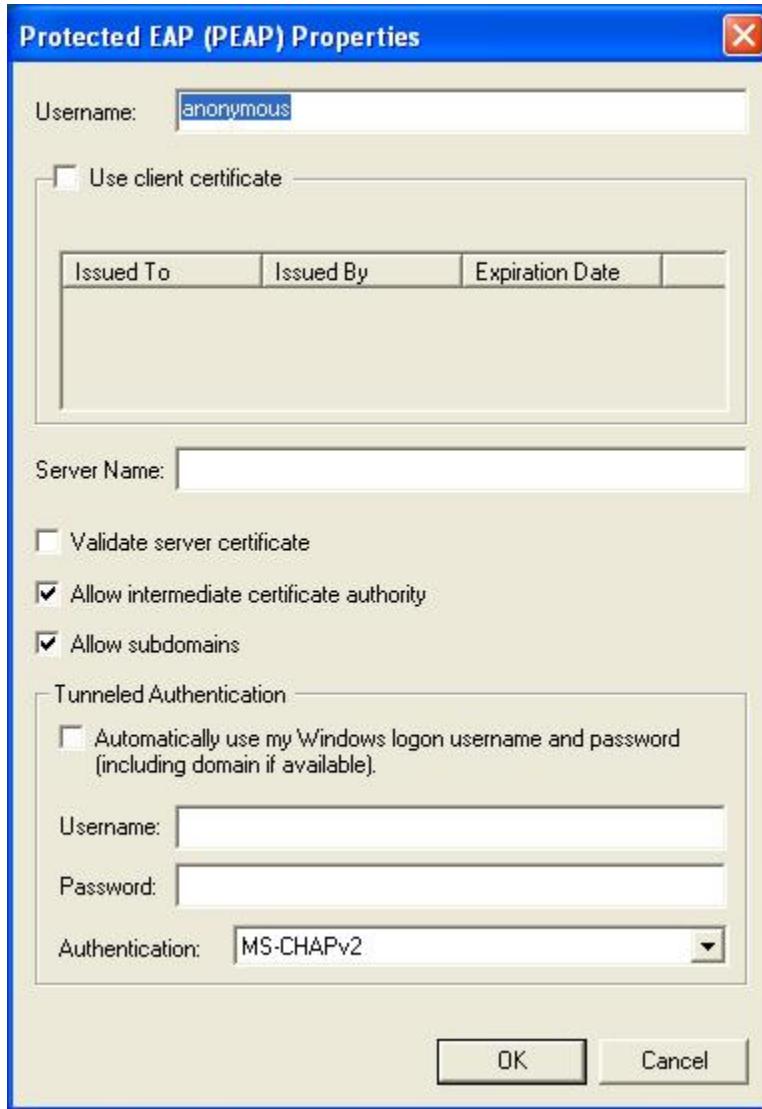
PEAP requires a Username and a Server Name; enter this information in the appropriate fields on your screen. With PEAP, you can use a client certificate for authentication with the server by clicking in the check box next to the **Use client certificate** field and then highlighting a certificate from the list to select it.

Clicking next to the **Validate server certificate** field specifies that the authentication server must correctly identify itself before any client authentication begins.

Clicking next to the **Allow intermediate certificate authority** field lets you receive certification credentials from an authentication server authorized to provide authentication services by the server named in the **Server Name** field. Clicking next to the **Allow subdomains** field allows you to receive certification from an authorized server on any subdomain in your network.

Tunneled authentication requires a Username and Password (which you can enter in the appropriate

fields in this menu). You can also use your Windows username and password for tunneled authentication by checking the box next to **Automatically use my Windows logon and password (including domain if available)**.

Tunneled authentication also requires an authentication method. To choose a method, click the down arrow next to the **Authentication** field, and then click on the method that you wish to use in the displayed list.

To save the information you entered in this menu, click the **OK** button. To discard any changes you made in this information, click the **Cancel** button. Clicking either of these buttons returns to the **Wireless network properties** menu.

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Back to The Authentication Tab

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TLS/Smart Card Authentication

Clicking the **Properties** button for TLS/Smart Card authentication displays the following menu:
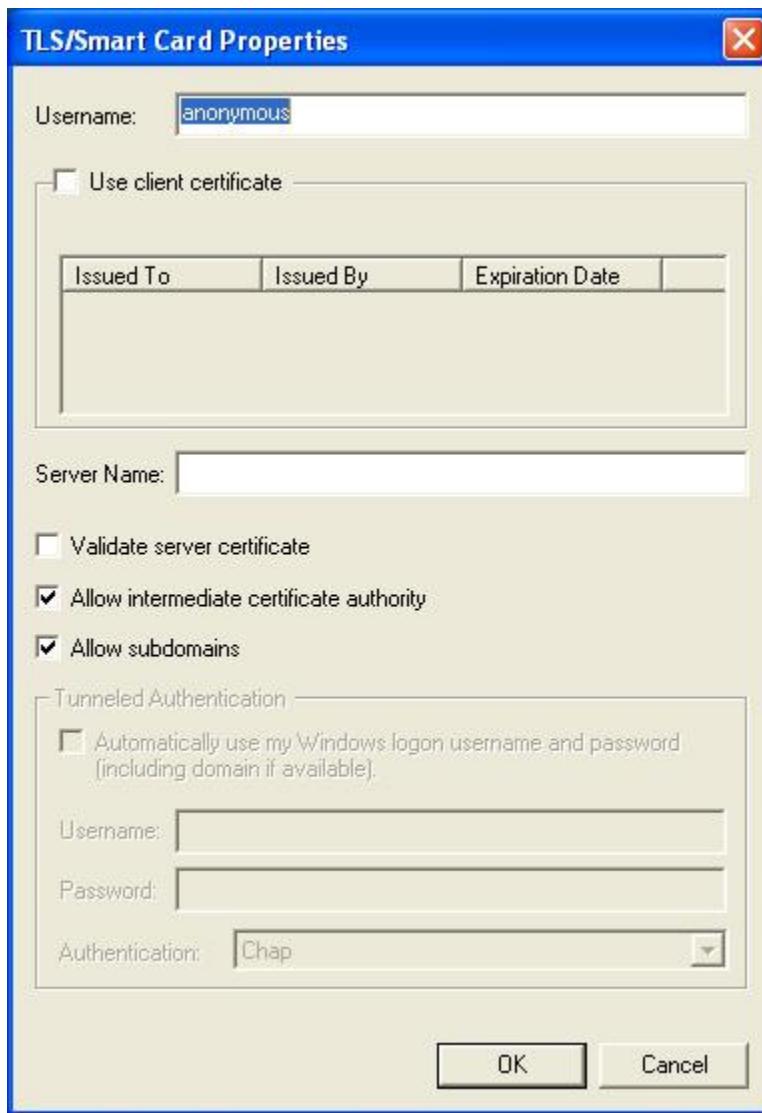
TLS/Smart Card authentication requires a Username and a Server Name; enter this information in the appropriate fields on your screen. With TLS/Smart Card authentication, you can use a client certificate for authentication with the server by clicking in the check box next to the **Use client certificate** field and then highlight a certificate from the list to select it. Certificates located on a smart card must be located in the public area of the card.

Clicking next to the **Validate server certificate** field specifies that the authentication server must correctly identify itself before any client authentication begins.

Clicking next to the **Allow intermediate certificate authority** field lets you receive certification credentials form any authentication server authorized to provide authentication services by the server named in the **Server Name** field. Clicking next to the **Allow subdomains** field allows you to receive certification from an authorized server on any subdomain in your network.

Tunneled authentication requires a Username and Password (which you can enter in the appropriate fields in this menu). You can also use your Windows username and password for tunneled authentication by checking the box next to **Automatically use my Windows logon and password (including domain if available)**.

Tunneled authentication also requires an authentication method. To choose a method, click the down arrow next to the **Authentication** field, and then click on the method that you wish to use in the displayed list.

To save the information you entered in this menu, click the **OK** button. To discard any changes you made in this information, click the **Cancel** button. Clicking either of these buttons returns to the **Wireless network properties** menu.

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EAP - Cisco Wireless (LEAP) Authentication

Clicking the **Properties** button for LEAP authentication displays the following menu:
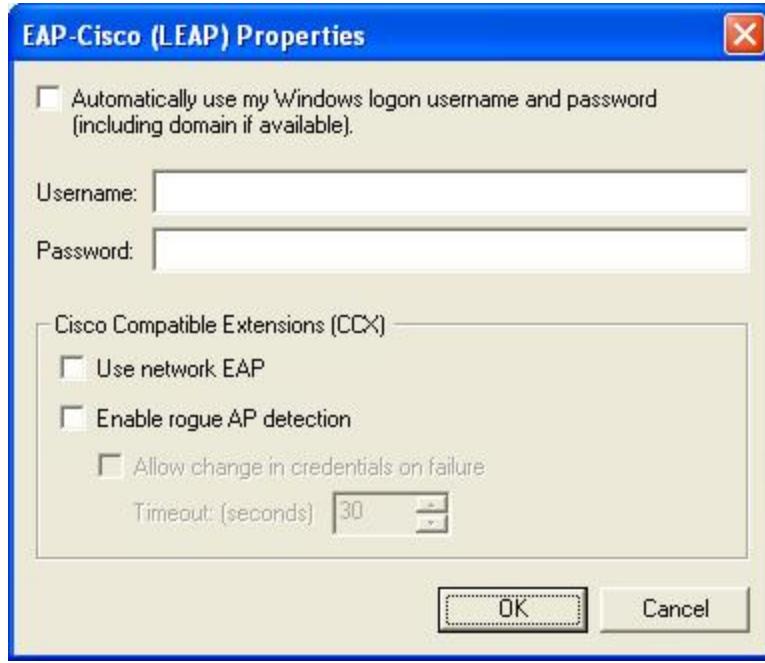
LEAP security requires a Username and Password; enter this information in the appropriate fields on your screen. You can also use your Windows username and password by checking the box next to **Automatically use my Windows logon and password (including domain if available)**.

You can also enable **CCX** (Cisco Compatible Extensions) with LEAP security. Network EAP utilizes an authentication server on the network. To use this facility, click the check box next to **Use network EAP**.

CCX provides a means to avoid associating with unauthorized Access Points. To enable this facility, click the check box next to **Enable rogue AP detection**. With this facility enabled, you can also change authentication credentials if AP authentication fails by clicking the check box next to the **Allow Change in Credentials on Failure** field, and set a time out value for this authentication by clicking the up and down arrows to the right of the **Timeout** field.

To save the information you entered in this menu, click the **OK** button. To discard any changes you made in this information, click the **Cancel** button. Clicking either of these buttons returns to the **Wireless network properties** menu.

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MD5 Challenge Authentication

Clicking the **Properties** button for MD5 Challenge authentication displays the following menu:

MD5 Challenge authentication requires only a Username and Password; enter this information in the appropriate fields on your screen. You can also use your Windows username and password for MD5 Challenge authentication by checking the box next to **Automatically use my Windows logon and password (including domain if available)**.

To save the information you entered in this menu, click the **OK** button. To discard any changes you made in this information, click the **Cancel** button. Clicking either of these buttons returns to the **Wireless network properties** menu.

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TTLS Authentication

Clicking the **Properties** button for TTLS (Tunneled Transport Layered Security) authentication displays the following menu:
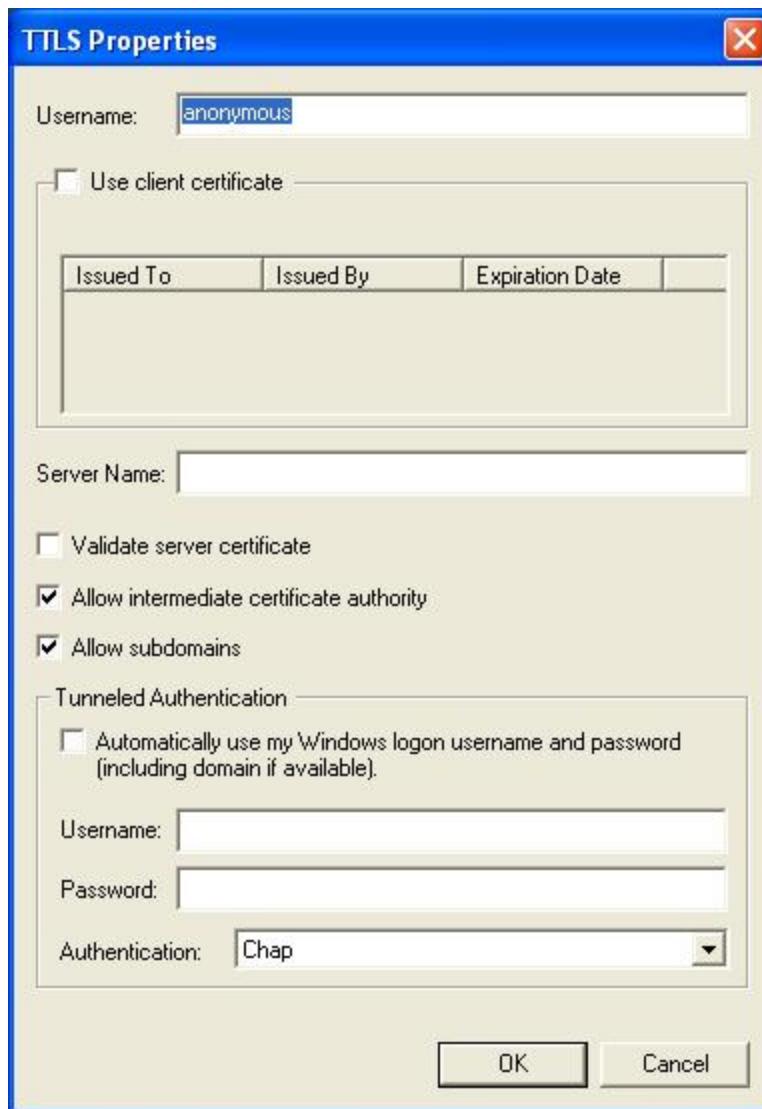
TTLS requires a Username and a Server Name; enter this information in the appropriate fields on your screen. With TTLS, you can use a client certificate for authentication with the server by clicking in the check box next to the **Use client certificate** field and then highlighting a certificate from the list to select it.

Clicking next to the **Validate server certificate** field specifies that the authentication server must correctly identify itself before any client authentication begins.

Clicking next to the **Allow intermediate certificate authority** field lets you receive certification credentials form any authentication server authorized to provide authentication services by the server named in the **Server Name** field. Clicking next to the **Allow subdomains** field allows you to receive certification from an authorized server on any subdomain in your network.

Tunneled authentication requires a Username and Password (which you can enter in the appropriate fields in this menu). You can also use your Windows username and password for tunneled authentication by checking the box next to **Automatically use my Windows logon and password (including domain if available)**.

Tunneled authentication also requires an authentication method. To choose a method, click the down arrow next to the **Authentication** field, and then click on the method that you wish to use in the displayed list.

To save the information you entered in this menu, click the **OK** button. To discard any changes you made in this information, click the **Cancel** button. Clicking either of these buttons returns to the

Wireless network properties menu.

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Link Status:
Wireless USB Adapter User's Guide

The Link Status tab, as the name suggests, displays information on the status and quality of your link to the wireless network. When you click on this tab, the following window appears:
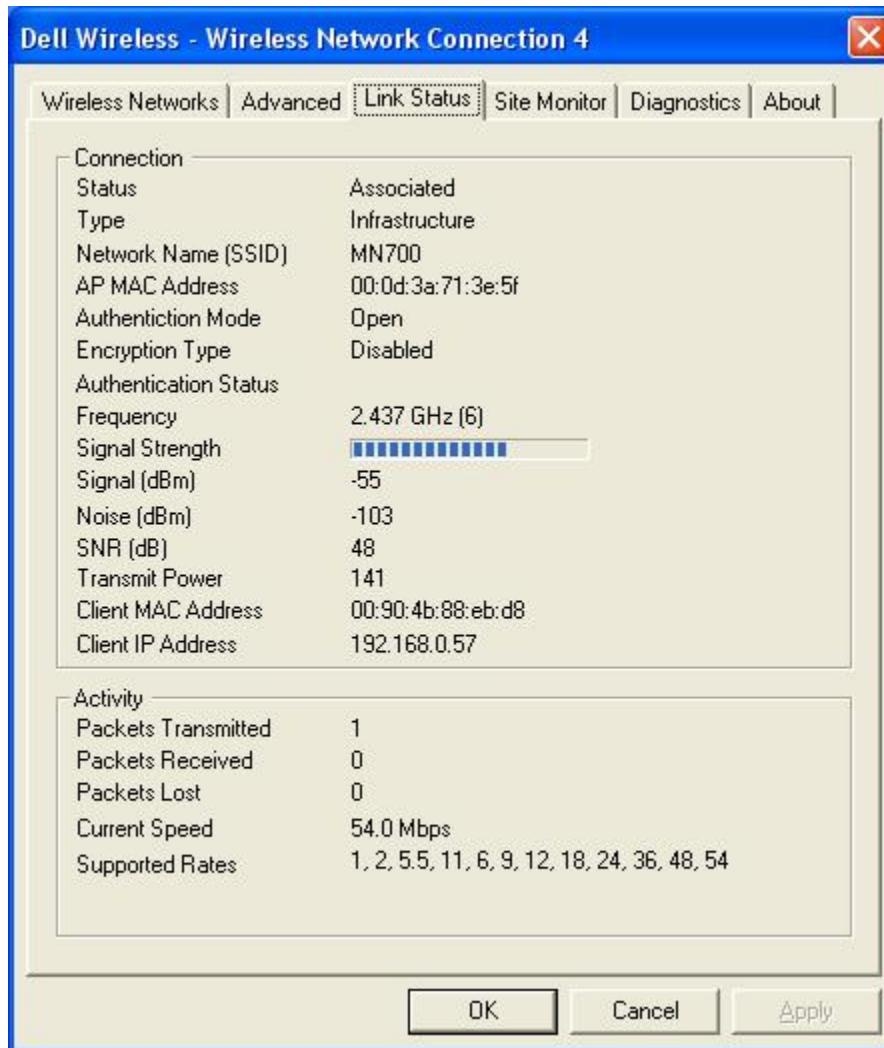
The first section of this window provides the following information on your connection to the wireless network:

Status - The association state of your computer with the wireless LAN. Possible values for this field are:

- **Listening:** Indicates that the adapter is listening on all allowed channels, but has not yet found a network with which to associate.

- **Scanning:** The adapter is scanning for transmissions by other wireless adapters on all channels.

- **Associating:** The adapter is in the process of associating with a network.

- **AdHoc:** The adapter is operating in a computer-to-computer network.

- **Associated:** The adapter is operating in Infrastructure mode.

- **Not Associated:** The adapter has not found any network with which to associate.

Connection Type - The type of wireless network with which you are associated; either Infrastructure (communicating with an Access Point/Broadband Router) or AdHoc (communicating directly with one or more computers).

Network Name (SSID) - The name, or Service Set Identifier, of the network with which you are communicating. For an AdHoc network, this is the MAC address of the computer which established the network.

AP MAC Address - The MAC address of the Access Point in an Infrastructure network.

Frequency - The radio frequency (RF) used to communicate with the network.

Privacy - This indicates whether any security measures are enabled for this connection. You specify security measures when you configure your connection through the **Wireless Networks** tab.

Signal Strength - This sliding graph indicates the composite strength of the RF signal received from the network.

Signal (dBM) - The absolute strength (in decibels) of the RF signal received from the network.

Noise (dBM) - The absolute strength (in decibels) of the background noise received from the network.

SNR (db) - The signal-to-noise ratio (SNR), in decibels, of the signal received from the network.

Client MAC Address - The MAC address of your adapter.

Client IP Address - The Internet Protocol (IP) address of your adapter.

The second section of this window provides cumulative counters of the activity on your connection to the wireless network. The counts of packets transmitted and received, and the current speed of your connection, are continuously updated while this window is displayed.

At the bottom of the **Link Status** menu are three buttons. Clicking the **OK** button applies any changes you made in this or any of the other menus of the Configuration Utility and closes the utility. Clicking the **Cancel** button cancels any changes you made since you last clicked the **Apply** but does not close the utility. Clicking the **Apply** button saves any changes you made in this or any of the other menus of the utility and leaves the utility open.

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The Site Monitor:
Wireless USB Adapter User's Guide

The Site Monitor allows you to monitor available wireless networks, providing information on each network it sees and allowing you to update this information either manually or at regular intervals. When you click on the **Site Monitor** tab, the following window appears:
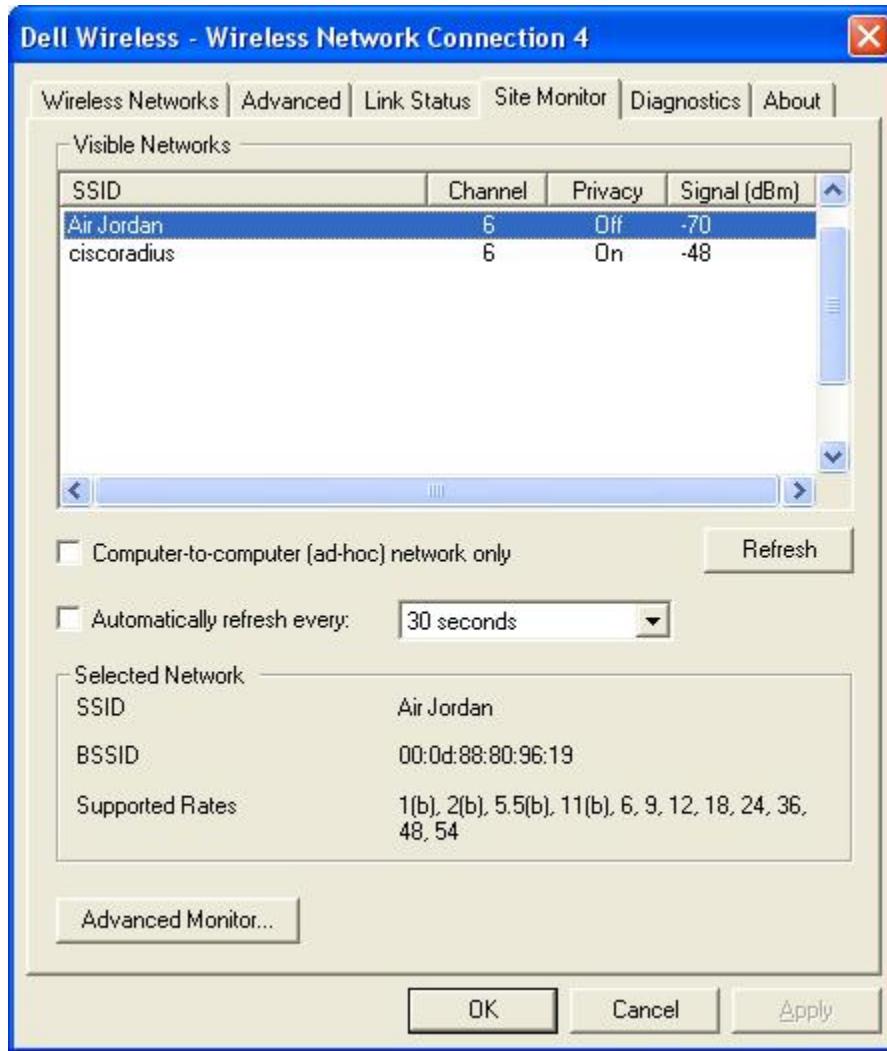

After the utility scans for wireless networks, it lists the networks it has found in the **Visible Networks** window. You can sort the list by any of the information it displays by clicking on the name of the appropriate column in the list.

When you first display the **Site Monitor** menu, the SSID, BSSID, and Supported Rate of the network to which you are connected appear in the **Selected Network** section of this menu. Selecting another network from the list of visible networks displays its information in this section.

You can force the utility to perform a scan by clicking on the **Refresh** button. To cause the utility to scan at regular intervals, click the check box next to the **Automatically refresh every** field. You then choose an interval for the scan by clicking the down arrow in the field to the right. You can also limit the scan to ad-hoc networks by clicking the check box next to the **Computer-to-computer (ad-hoc) network only** field.

You can obtain more information on the visible networks by clicking the **Advanced Monitor...** button,

which displays the following window:
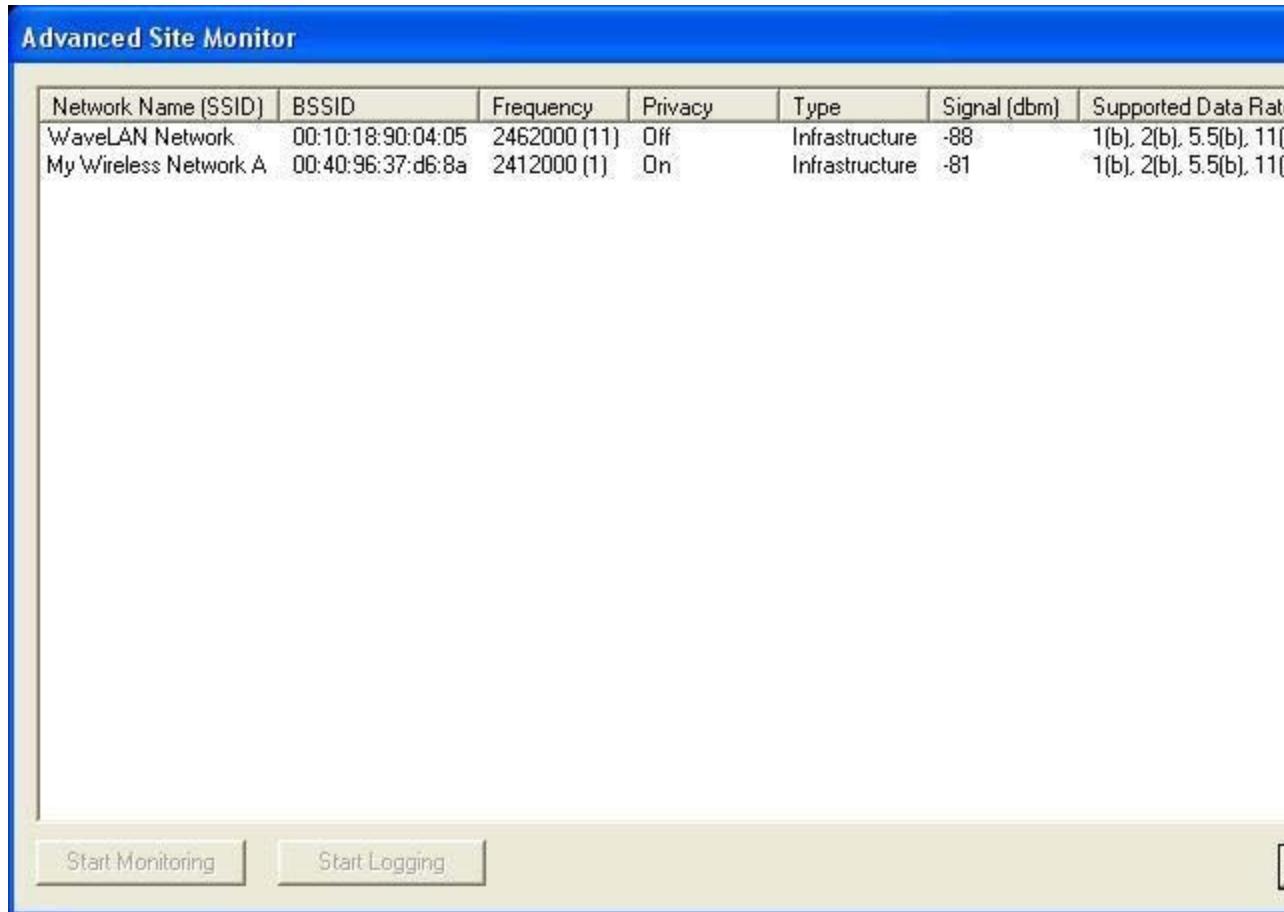
With this screen displayed, the utility continuously montors the available networks and updates the list in this window if you clicked the **Auto Refresh** button in the **Site Monitor** menu. You can start or stop monitoring your site by clicking on the first button to the left at the bottom of this screen.

To capture this information in a file, click the **Start Logging** button, give a name for your log file in the **Save As** window displayed, and click the **Save** button. Click this button again to stop logging.

To close the Advanced Site Monitor (and the log file, if you started logging), click the **Close** button.

At the bottom of the **Site Monitor** menu are three buttons. Clicking the **OK** button applies any changes you made in this or any of the other menus of the Configuration Utility and closes the utility. Clicking the **Cancel** button cancels any changes you made since you last clicked the **Apply** but does not close the utility. Clicking the **Apply** button saves any changes you made in this or any of the other menus of the utility and leaves the utility open.

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Diagnostics:
Wireless USB Adapter User's Guide

The Diagnostics menu provides a suite of tests which you can run to identify problems with your computer's connection to your adapter and to the wireless network. Clicking this tab displays the following window:
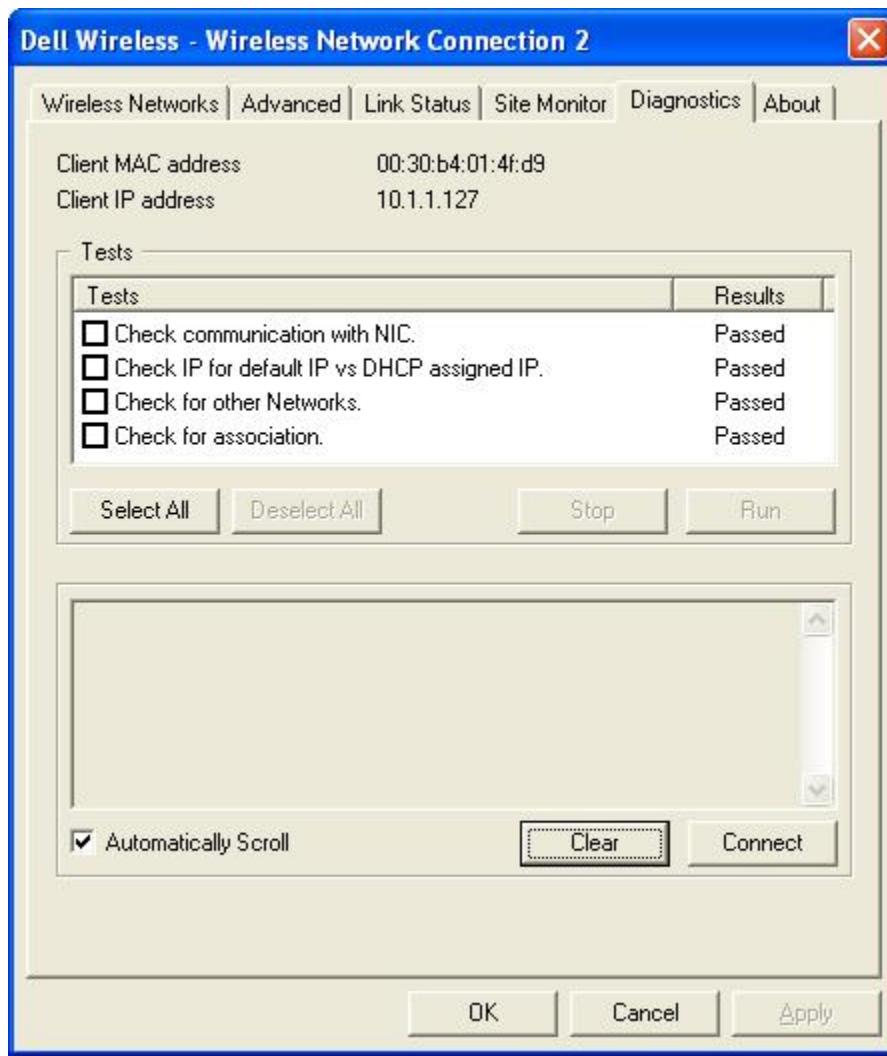
The MAC and IP addresses used by your adapter appear at the top of this window. The **Tests** window below these addresses lists the tests you can perform. Choose the test or tests to perform by clicking the check box next to the desired test(s). You can select all tests by clicking the **Select All** button, or clear all check boxes by clicking the **Deselect All** button.

When the tests you wish to run are selected, click the **Run** button. The Configuration Utility then performs all the tests you have selected and displays the result of the test in the window. You can stop all tests in progress by clicking the **Stop** button. The following section discusses discusses possible causes of test failures and gives suggestions on how to resolve problems.

Beneath the tests window is the connection events window. When you click the **Connect** button, the adapter drops the connection with the wireless network and then attempts to re-establish this connection. As it does so, the window displays the events that take place during this process. If you are having trouble connecting to the network, these messages may help you determine the cause of your problems. If there are more messages than will fit in the window, checking the **Automatically Scroll**

field causes the display in this window to scroll, so that the last event is always displayed. Clicking the **Clear** button clears all messages from this window.

At the bottom of the **Diagnostics** menu are three buttons. Clicking the **OK** button applies any changes you made in this or any of the other menus of the Configuration Utility and closes the utility. Clicking the **Cancel** button cancels any changes you made since you last clicked the **Apply** but does not close the utility. Clicking the **Apply** button saves any changes you made in this or any of the other menus of the utility and leaves the utility open.

Possible Causes of Test Failures and Suggestions to Resolve Them

Check communication with NIC

Failure of this test indicates that the Configuration Utility is unable to communicate with the USB Wireless Adapter.

- Verify that the USB cable is firmly inserted into the connector on the USB Wireless adapter and into a USB connector on your desktop computer.

- Unplug USB cable from the connector on the USB Wireless adapter and plug it back again.

- Restart your computer.

Check IP for default IP vs. DHCP assigned IP

Failure of this test indicates that USB Wireless adapter was unable to obtain an IP addess from a DHCP server.

- Verify that you are connected to a Wireless Network. See the **Connecting to Your Wireless Network** section for details.

- Verify that the DHCP server is enabled in your wireless router. See the documentation that came with your router for instructions.

Check for other networks

Failure of this test indicates that the USB Wireless adapter was unable to locate a wireless network.

- Verify that your wireless router in plugged in and configured properly. See the documentation that came with your router for instructions.

- **Try moving your wireless router or your computer so they are closer to each other.**

Check for association

Failure of this test indicates that your USB Wireless adapter is not connected to an Access Point or to another wireless adapter.

- **See the Connecting to the Wireless Network section for details.**

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