ZyAIR

Wireless LAN Utility

User's Guide

Version 2.1
December 2003

ZyXEL
Unleash Networking Power

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Online Registration

Register online at www.zyxel.com for free future product updates and information.

Information for Canadian Users

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective operation and safety requirements. The Industry Canada does not guarantee that the equipment will operate to a user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

For their own protection, users should ensure that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution

Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

Note

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of Industry.

Federal Communications Commission (FCC) Interference Statement[1]

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

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operations.

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 commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

If this equipment does cause harmful interference to radio/television reception, which can be determined 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:

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

Notice 1

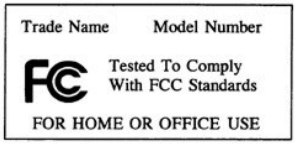
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Certifications

Refer to the product page at www.zyxel.com.



[1] Refer to the *Quick Installation Guide* for model specificFCC statement(s) and the procedure to view the product's certification(s).

Customer Support

When contacting your Customer Support Representative, please have the following information ready:

- Product model and serial number.
- Warranty Information.
- Date you received your product.
- Brief description of the problem and the steps you took to solve it.

METHOD LOCATION	E-MAIL SUPPORT/SALES	TELEPHONE/FAX	WEB SITE/ FTP SITE	REGULAR MAIL
WORLDWIDE	support@zyxel.com.tw sales@zyxel.com.tw	+886-3-578-3942 +886-3-578-2439	www.zyxel.com www.europe.zyxel.com ftp.europe.zyxel.com	ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu 300, Taiwan
NORTH AMERICA	support@zyxel.com sales@zyxel.com	+1-800-255-4101	www.us.zyxel.com ftp.zyxel.com	ZyXEL Communications Inc., 1130 N. Miller St. Anaheim, CA 92806, U.S.A.
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GERMANY	support@zyxel.de sales@zyxel.de	+49-2405-6909-0 +49-2405-6909-99	www.zyxel.de	ZyXEL Deutschland GmbH. Adenauerstr. 20/A2 D-52146 Wuerselen, Germany

Table of Contents

List of Figures

List of Tables

Preface

Congratulations on the purchase of your new ZyAIR!

About This User's Guide

This manual provides information about the ZyAIR Wireless LAN Utility.

This guide is for ZyAIR wireless LAN adapters that use the ZyAIR Wireless LAN Utility for configuration, thus the model name shown in the screens may vary from what you actually purchased.

Syntax Conventions

- "Type" or "Enter" means for you to type one or more characters. "Select" or "Choose" means for you to use one of the predefined choices.
- Mouse action sequences are denoted using a comma. For example, "click the Apple icon, **Control Panels** and then **Modem**" means first click the Apple icon, then point your mouse pointer to **Control Panels** and then click **Modem**.
- Window and command choices are in **Bold Times New Roman** font. Predefined field choices are in **Bold Arial** font.
- The ZyXEL ZyAIR wireless LAN adapter is referred to as the ZyAIR in this guide.
- The ZyAIR Wireless LAN Utility may be referred to as the ZyAIR WLAN Utility or, simply, as the ZyAIR Utility in this guide.

Related Documentation

- Support Disk

  Refer to the included CD for support documents and device drivers.

- Quick Installation Guide

  Our Quick Installation Guide is designed to help you get your ZyAIR up and running right away. It contains a detailed easy-to-follow connection diagram and information on installing your ZyAIR.

- ZyXEL Glossary and Web Site

  Please refer to www.zyxel.com for an online glossary of networking terms and additional support documentation.

User Guide Feedback

Help us help you. E-mail all User's Guide-related comments, questions or suggestions for improvement to techwriters@zyxel.com.tw or send regular mail to The Technical Writing Team, ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu, 300, Taiwan. Thank you.

Graphics Icons Key

 ZyWALL	 Computer	 Notebook computer
 Server	 Modem	 Firewall
 Telephone	 Switch	 Router
 DSLAM	 Wireless Access Point	 Wireless Signal

Chapter 1
Getting Started

This chapter prepares you to using the ZyAIR Utility.

1.1 ZyAIR Hardware and Utility Installation

Follow the instructions in the *Quick Installation Guide* to install the ZyAIR Utility and driver and make hardware connections.

1.2 Disable Windows XP Wireless LAN Configuration Tool

Windows XP includes a configuration tool for wireless devices.

DO NOT use the Windows XP configuration tool and the ZyAIR Utility at the same time. It is recommended that you use the ZyAIR Utility to configure the ZyAIR.

Follow the steps below to disable the configuration tool in Windows XP after you install the ZyAIR Utility. Refer to the *Quick Installation Guide* for more information.

Step 1. Double-click the network icon for wireless connections in the system tray. If the icon is not present, proceed to *Step 2*. Otherwise skip to *Step 5*.

Figure 1-1 Windows XP: System Tray Icon

Step 2. If the icon for the wireless network connection is not in the system tray, click **Start**, **Control Panel** and double-click **Network Connections**.

Step 3. Double-click on the icon for wireless network connection to display a status window as shown next.

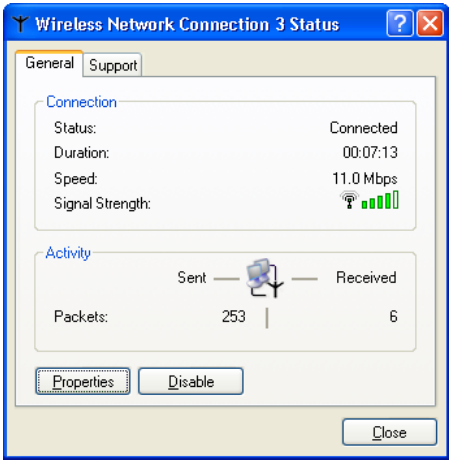

Figure 1-2 Windows XP: Wireless Network Connection Status

Step 4. Click **Properties** and click the **Wireless Networks** tab. Then skip to *Step 6*.

Step 5. When a **Connect to Wireless Network** window displays, click **Advanced…**.

Figure 1-3 Windows XP: Connect to Wireless Network

Step 6. In the **Wireless Network Connection Properties** window, make sure the **Use Windows to configure my wireless network settings** check box is *not* selected. Click **OK**.

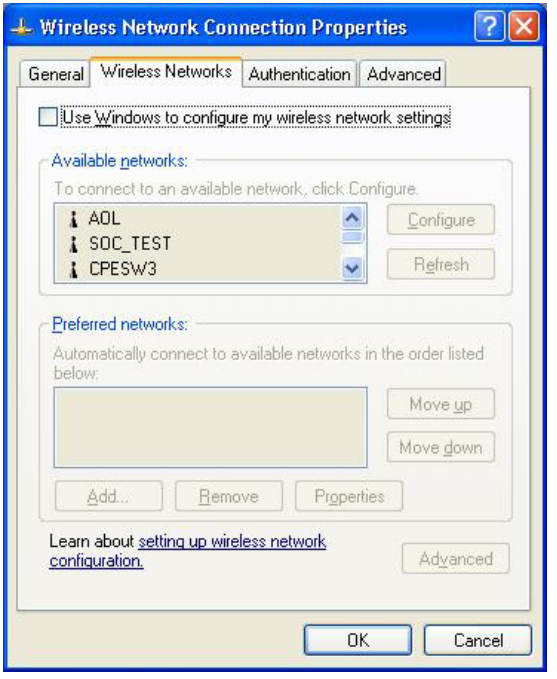

Figure 1-4 Windows XP: Wireless Network Connection Properties

1.3 Accessing the ZyAIR Utility

After you installed the ZyAIR Utility, an icon for the ZyAIR Utility appears in the system tray.

When the ZyAIR Utility system tray icon displays, the ZyAIR is installed properly.

Figure 1-5 ZyAIR Utility: System Tray Icon

The color of the ZyAIR Utility system tray icon indicates the status of the ZyAIR. Refer to the following table for details.

Table 1-1 ZyAIR Utility: System Tray Icon

COLOR	DESCRIPTION
Red	The ZyAIR is working properly but is not connected to any AP or wireless station.
Blue	The ZyAIR is connected to a wireless network.

Double click on the ZyAIR Wireless LAN Utility icon in the system tray to open the ZyAIR Utility.

Chapter 2
Using the ZyAIR Utility

This chapter shows you how to perform basic ZyAIR wireless LAN configuration using the ZyAIR Utility.

2.1 About Wireless LAN Network

This section describes the wireless LAN network terms and applications.

2.1.1 SSID

The SSID (Service Set Identity) is a unique name shared among all wireless devices in a wireless network. Wireless devices must have the same SSID to communicate with each other.

2.1.2 Channel

A radio frequency used by a wireless device is called a channel.

2.1.3 Transmission Rate (Tx Rate)

The ZyAIR provides various transmission (data) rate options for you to select. Options include **Fully Auto**, **1 M bit/sec**, **2 M bit/sec**, **5.5M bit/sec**, **11M bit/sec**, **16.5M bit/sec** and **27.5M bit/sec**[2]. In most networking scenarios, the factory default **Fully Auto** setting proves the most efficient. This setting allows your ZyAIR to operate at the maximum transmission (data) rate. When the communication quality drops below a certain level, the ZyAIR automatically switches to a lower transmission (data) rate. Transmission at lower data speeds is usually more reliable. However, when the communication quality improves again, the ZyAIR gradually increases the transmission (data) rate again until it reaches the highest available transmission rate.

You can select any of the above options. If you wish to balance speed versus reliability, select **11M bit/sec** or **5.5M bit/sec** in a networking environment where you are certain that all wireless devices can communicate at the highest transmission (data) rate. **1M bit/sec** or **2M bit/sec** are used often in networking environments where the range of the wireless connection is more important than speed.

[2] The transmission rate of 27.5M bit/sec is not available at the time of writing.

For ZyAIR B122 and ZyAIR B-320, you may select the proprietary transmission rates of 16.5M bit/sec **or** 27.5M bit/sec **if you are connecting to another ZyAIR B-320, ZyAIR B-122 client or ZyAIR B-500 AP and vice versa.** [3]

2.1.4 Wireless Network Application

Wireless LAN works in either of the two modes: ad-hoc and infrastructure.

To connect to a wired network within a coverage area using Access Points (APs), set the ZyAIR operation mode to **Infrastructure(BSS)**. An AP acts as a bridge between the wireless stations and the wired network. In case you do not wish to connect to a wired network, but prefer to set up a small independent wireless workgroup without an AP, use the **Ad-hoc (IBSS)** (Independent Basic Service Set) mode.

Ad-Hoc (IBSS)

Ad-hoc mode does not require an AP or a wired network. Two or more wireless clients communicate directly to each other. An ad-hoc network may sometimes be referred to as an Independent Basic Service Set (IBSS).

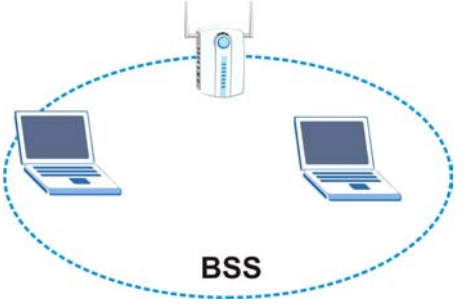

Figure 2-1 BSS Example

A series of overlapping BSS and a network medium, such as an Ethernet forms an Extended Service Set (ESS) or infrastructure network. All communication is done through the AP, which relays data packets to other wireless clients or devices connected to the wired network. Wireless clients can then access resource, such as the printer, on the wired network.

[3] At the time of writing, the proprietary transmission rates are only available for ZyAIR B-122, ZyAIR B-320 and ZyAIR B-500.

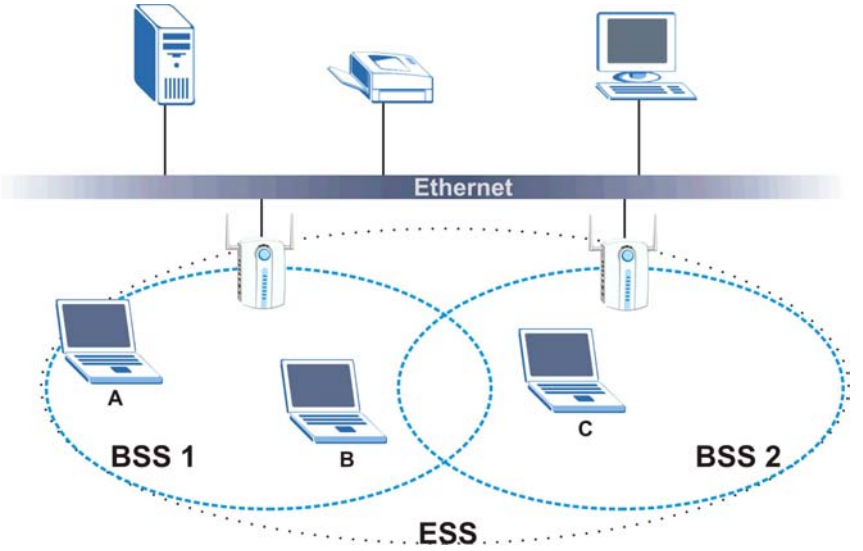

Figure 2-2 Infrastructure Network Example

2.1.5 Roaming

Roaming is where in an infrastructure network, wireless clients are able to switch from one BSS to another as they move between coverage areas. During this period, the wireless client maintains an uninterrupted connection to the network. As the wireless client moves from place to place, it scans for the most appropriate AP depending on the signal strength, network utilization or other factors.

The following figure depicts a roaming example. When wireless client B moves to position X, the ZyAIR in wireless client B automatically switches the channel to the one used by access point 2 in order to stay connected to the network.

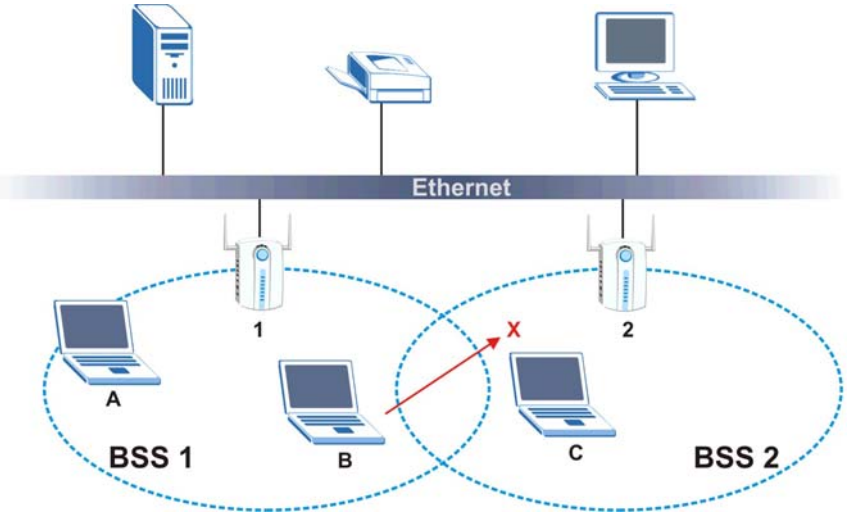

Figure 2-3 Roaming Example

2.2 The Link Info Screen

When the ZyAIR Utility starts, the **Link Info** screen displays, showing the current configuration of your ZyAIR. The model name shown in the screens may vary depending on the model you are using.

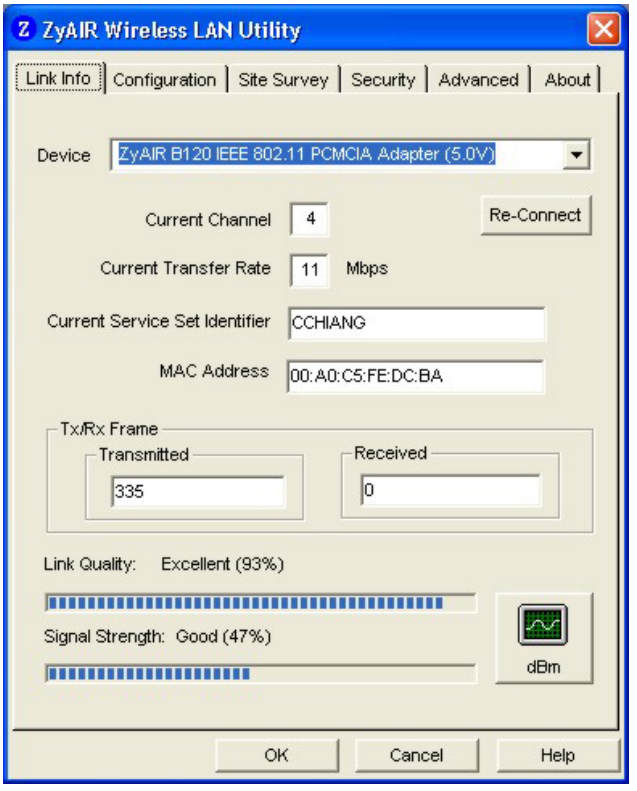

Figure 2-4 Link Info

The following table describes the labels in this screen.

Table 2-1 Link Info

LABEL	DESCRIPTION
Device	Select an available wireless card from the drop-down list menu if you have more than one wireless card in your computer.
Re-Connect	Click **Re-Connect** to re-establish the connection to the wireless network whose SSID is shown in the **Current Service Set Identifier** field.
Current Channel	This field displays the radio channel the ZyAIR is currently using.
Current Transfer Rate	This field displays the current transmission rate of the ZyAIR in megabits per second.

Table 2-1 Link Info

LABEL	DESCRIPTION
Current Service Set Identifier	This field displays the name of the wireless device to which the ZyAIR is associated.
Tx/Rx Frame	
Transmitted	This field displays the number of data frames transmitted.
Received	This field displays the number of data frames received.
Link Quality	The status bar and the percentage number show the quality of the signal.
Link Strength	The status bar and the percentage number or a number in dBm show the strength of the signal.
Percent/dBm	Click this button to display either percentages in the **Link Quality** and **Link Strength** fields or a number of dBm in the **Link Strength** field.
OK	Click **OK** to save all changes and close the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.
Help	Click **Help** to display on-line help window.

2.3 The Configuration Screen

Click **Configuration** in the ZyAIR Utility program to display the **Configuration** screen as shown next.

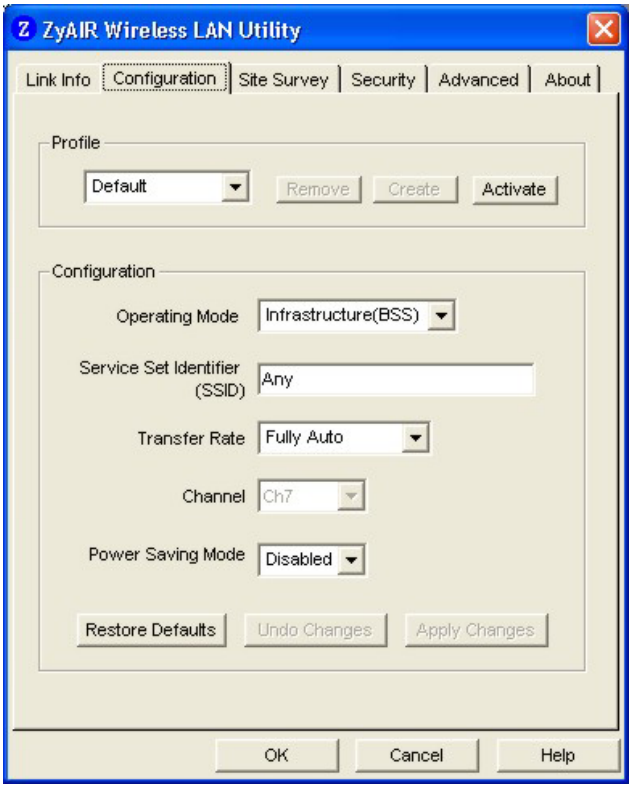

Figure 2-5 Configuration

The following table describes the labels in this screen.

Table 2-2 Configuration

LABEL	DESCRIPTION
Profile The Profile function allows you to save the wireless network settings in this screen, use one of the pre-configured network profiles or reset the settings in this screen to the factory default values.	
Remove	To delete an existing wireless network configuration, select a profile from the drop-down list box and click **Remove**.
Create	Enter a descriptive name in the drop-down list box and click **Create** to save the current settings in the **Configuration** screen to a new profile,

Table 2-2 Configuration

LABEL	DESCRIPTION
Activate	To use a previously saved network profile, select the profile file name from the drop-down list box and click **Activate**.
Configuration	
Operating Mode	Select **Infrastructure(BSS)** or **Ad-Hoc(IBSS)** from the drop-down list box. Select **Infrastructure(BSS)** to associate to an AP. Select **Ad-Hoc(IBSS)** to associate to a peer computer.
Service Set Identifier (SSID)	Enter the SSID of the AP or the peer ad-hoc computer to which you want to associate in this field. To associate to an ad-hoc network, you must enter the same SSID as the peer computer. Enter **Any** to associate to or roam between any infrastructure wireless networks. This is the default setting.
Transfer Rate	Select a transmission speed from the drop-down list box. Choose from **Fully Auto** (default), **1M bit/sec**, **2M bit/sec**, **5.5M bit/sec**, **11M bit/sec**, **16.5M bit/sec** and **27.5M bit/sec**[4]. For ZyAIR B-122 and ZyAIR B-320, the proprietary transmission rates of **16.5M bit/sec** and **27.5M bit/sec** are available from the drop-down list. Select one of the options only if you are connecting to another ZyAIR B-122, ZyAIR B-320 clients or ZyAIR B-500 and vice versa[5].
Channel	Select the channel number from the drop-down list box. To associate to an ad-hoc network, you must use the same channel as the peer computer.
Power Saving Mode	Select **Enable** from the drop-down list menu to save power (especially for notebook computers). This forces the ZyAIR to go to sleep mode when it is not transmitting data. When you select **Disable**, the ZyAIR will never go to sleep mode.
Restore Default	Click **Restore Default** to reset all fields back to factory default values.
Undo Changes	Click **Undo Changes** to start configuring the fields again.
Apply Changes	Click **Apply Changes** to save the changes back to the ZyAIR.
OK	Click **OK** to save all changes and close the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.

[4] The transmission rate of 27.5M bit/sec is not available at the time of writing.

[5] At the time of writing, the proprietary transmission rates are only available for connection with another ZyAIR B-122, ZyAIR B-320 or ZyAIR B-500.

Table 2-2 Configuration

LABEL	DESCRIPTION
Help	Click **Help** to display the on-line help window.

2.4 The Site Survey Screen

Use the **Site Survey** screen to scan for and connect to a wireless network automatically.

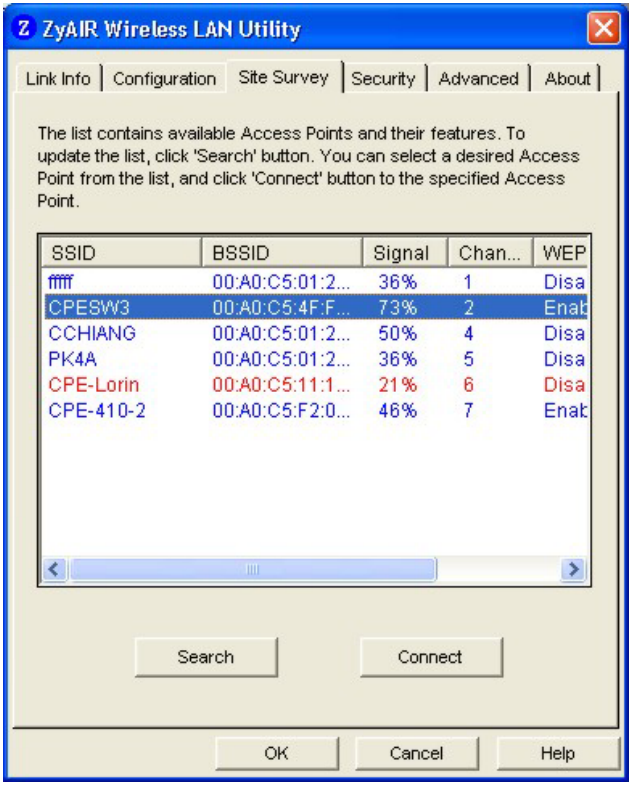

Figure 2-6 Site Survey

The following table describes the labels in this screen.

Table 2-3 Site Survey

LABEL	DESCRIPTION
SSID	This field displays the SSID (Service Set IDentifier) of each wireless device.
BSSID	This field displays the MAC address of the wireless device.
Channel	This field displays the channel number used by each wireless device.
Signal	This field displays the signal strength of each wireless device.
WEP	This field shows whether WEP data encryption is activated (**Enable**) or inactive (**Disable**).
Search	Click **Search** to scan for available wireless device within transmission range.
Connect	Click **Connect** to associate to the selected wireless device.
OK	Click **OK** to save all changes and closes the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.
Help	Click **Help** to display the on-line help window.

The following table describes the colors used for the entries in the **Site Survey** screen.

Table 2-4 Color Indicator for Link Quality/Link Strength

COLOR	DESCRIPTION
Green	Excellent link quality or link strength.
Blue	Good link quality or link strength.
Red	Poor link quality or link strength.

2.4.1 Connecting to a Network

Follow the steps below to connect to a network.

Step 1. Click **Search** to scan for all available wireless networks within range.

Step 2. To join a network, either click an entry in the table to select a wireless network and then click **Connect** or double-click an entry.

Step 3. If the **WEP** field displays **Enable** for the selected wireless network, the following screen displays.

Figure 2-7 Site Survey Warning

Step 4. Click **OK** to display the **Security** screen and refer to *Section 2.6* to set up WEP keys. Otherwise click **Cancel** and connect to another wireless network without WEP encryption.

Step 5. To verify that you have successfully connected to the selected network, check the network information in the **Link Info** screen.

2.5 Wireless LAN Security

Wireless LAN security is vital to your network to protect wireless communications.

Configure the wireless LAN security using the **Security** screen. If you do not enable any wireless security on your ZyAIR, the ZyAIR's wireless communications are accessible to any wireless networking device that is in the coverage area.

2.5.1 Data Encryption with WEP

WEP (Wired Equivalent Privacy) encryption scrambles all communication transmitted between the ZyAIR and the AP or other wireless stations to keep network communications private. Both the wireless clients and the access points must use the same WEP key for data encryption and decryption.

There are two ways to create WEP keys in your ZyAIR.

- Automatic WEP key generation based on a "password phrase" called a passphrase. The passphrase is case sensitive. You must use the same passphrase for all WLAN adapters with this feature in the same WLAN.
  For WLAN adapters without the passphrase feature, you can still take advantage of this feature by writing down the four automatically generated WEP keys from the **Encryption** screen of the ZyAIR Utility and entering them manually as the WEP keys in the other WLAN adapter(s).
- Enter the WEP keys manually.

Your ZyAIR allows you to configure up to four 64-bit or 128-bit WEP keys but only one key can be enabled at any one time.

2.6 The Security Screen

Click the **Security** tab to display the **Security** screen as shown next.

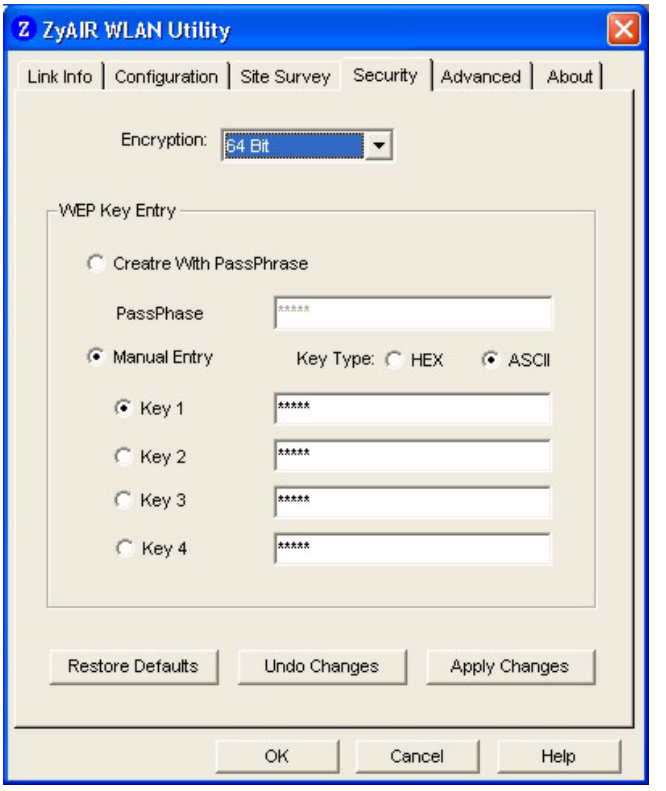

Figure 2-8 Security

The following table describes the labels in this screen.

Table 2-5 Security

LABEL	DESCRIPTION
Encryption (WEP)	Select either **64 Bits** or **128 Bits** from the drop-down list box to activate WEP encryption and then fill in the related fields. Select **Disable** to deactivate the WEP encryption.
WEP Key Entry The WEP keys are used to encrypt data before transmitting. The values for the keys must be set up exactly the same on the APs or other peer wireless computers as they are on the ZyAIR.	
Create with PassPhrase	Select this option if you want the ZyAIR to automatically generate a WEP key based on the passphrase specified in the **PassPhrase** field.

Table 2-5 Security

LABEL	DESCRIPTION
PassPhrase	When you select the **Create with PassPhrase** option, enter the passphrase. As you enter the passphrase, the ZyAIR automatically generates four different WEP keys and displays them in the key fields below. Refer to *Section 2.5.1* for more information.
Manual Entry	Select this option if you want to manually enter the WEP keys.
Key Type	Select either the **HEX** or **ASCII** WEP key type.
Key 1 … 4	Enter the WEP keys in the fields provided. If you select **64 Bits** in the **Encryption** field. ◆ Enter either 10 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (e.g. 11AA22BB33) for HEX key type or ◆ Enter 5 ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. MyKey) for ASCII key type. If you select **128 Bits** in the **Encryption** field, ◆ Enter either 26 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (for example, 00112233445566778899AABBCC) for HEX key type or ◆ Enter 13 ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (for example, MyKey12345678) for ASCII key type. **You *must* configure all four WEP keys the first time you use the ZyAIR.** **ASCII WEP keys are case sensitive.** **Select a default WEP key to use for data encryption.**
Restore Default	Click **Restore Default** to reset all fields back to factory default values.
Undo Changes	Click **Undo Changes** to start configuring the fields again.
Apply Changes	Click **Apply Changes** to save the changes back to ZyAIR.
OK	Click **OK** to save all changes and close the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.
Help	Click **Help** to display the on-line help window.

2.7 Advanced Wireless LAN Parameters

The following sections describe the wireless LAN parameters in the **Advanced** screen.

2.7.1 Fragmentation Threshold

A **Fragmentation Threshold** is the maximum data fragment size (between 256 and 2432 bytes) that can be sent in the wireless network before the ZyAIR will fragment the packet into smaller data frames.

A large **Fragmentation Threshold** is recommended for networks not prone to interference while you should set a smaller threshold for busy networks or networks that are prone to interference.

If the **Fragmentation Threshold** value is smaller than the **RTS/CTS Threshold** value (see previously) you set then the RTS (Request To Send)/CTS (Clear to Send) handshake will never occur as data frames will be fragmented before they reach **RTS/CTS Threshold** size.

2.7.2 RTS/CTS Threshold

A hidden node occurs when two stations are within range of the same access point, but are not within range of each other. The following figure illustrates a hidden node. Both stations are within range of the access point (AP) or wireless gateway, but out-of-range of each other, so they cannot "hear" each other, that is they do not know if the channel is currently being used. Therefore, they are considered hidden from each other.

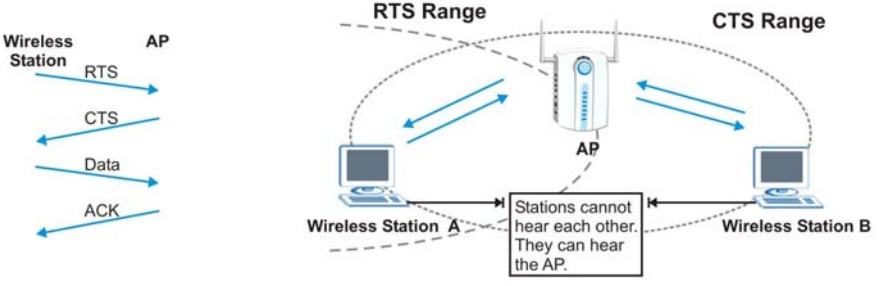

Figure 2-9 RTS Threshold

When station A sends data to the AP, it might not know that the station B is already using the channel. If these two stations send data at the same time, collisions may occur when both sets of data arrive at the AP at the same time, resulting in a loss of messages for both stations.

RTS/CTS Threshold is designed to prevent collisions due to hidden nodes. An **RTS/CTS Threshold** defines the biggest size data frame you can send before an RTS (Request To Send)/CTS (Clear to Send) handshake is invoked.

When a data frame exceeds the **RTS/CTS Threshold** value you set (between 0 to 2432 bytes), the station that wants to transmit this frame must first send an RTS (Request To Send) message to the AP for permission to send it. The AP then responds with a CTS (Clear to Send) message to all other stations within

its range to notify them to defer their transmission. It also reserves and confirms with the requesting station the time frame for the requested transmission.

Stations can send frames smaller than the specified **RTS/CTS Threshold** directly to the AP without the RTS (Request To Send)/CTS (Clear to Send) handshake.

You should only configure **RTS/CTS Threshold** if the possibility of hidden nodes exists on your network and the "cost" of resending large frames is more than the extra network overhead involved in the RTS (Request To Send)/CTS (Clear to Send) handshake.

If the **RTS/CTS Threshold** value is greater than the **Fragmentation Threshold** value (see next), then the RTS (Request To Send)/CTS (Clear to Send) handshake will never occur as data frames will be fragmented before they reach **RTS/CTS Threshold** size.

Enabling the RTS Threshold causes redundant network overhead that could negatively affect the throughput performance.

2.7.3 Authentication Type

The IEEE 802.11b standard describes a simple authentication method between the wireless clients and AP. Three authentication modes are defined: Auto, Open and Shared.

Open authentication mode is implemented for ease-of-use and when security is not an issue. The wireless station and the AP do *not* share a secret key. Thus the wireless stations can associate with any AP and listen to any data transmitted plaintext.

Shared authentication mode involves a shared secret key to authenticate the wireless station to the AP. This requires you to enable a security feature and specify a shared secret key (usually the WEP encryption and WEP key) on both the wireless station and the AP.

Auto authentication mode allows the ZyAIR to switch between the open and shared key authentication modes automatically. Use the auto mode if you do not know the authentication mode of the other wireless clients.

2.7.4 Preamble Type

A preamble is used to synchronize the transmission timing in your wireless network. There are two preamble modes: **Long Preamble** and **Short Preamble**.

Short preamble takes less time to process and minimizes overhead, so it should be used in a good wireless network environment when all wireless clients support it.

Select **Long Preamble** if you have a 'noisy' network or are unsure of what preamble mode the access point or the other wireless clients support as all IEEE 802.11b compliant wireless adapters must support long preamble. However, not all wireless adapters support short preamble. Use long preamble if you are unsure what preamble mode the wireless adapters support, to ensure interpretability between the ZyAIR and the access point/wireless stations and to provide more reliable communication in 'noisy' networks.

Select **Auto** to have the ZyAIR automatically use short preamble when all access point/wireless stations support it, otherwise the ZyAIR uses long preamble.

The ZyAIR and the access point/wireless stations MUST use the same preamble mode in order to communicate.

2.8 The Advanced Screen

To set the advanced features on the ZyAIR, click the **Advanced** tab.

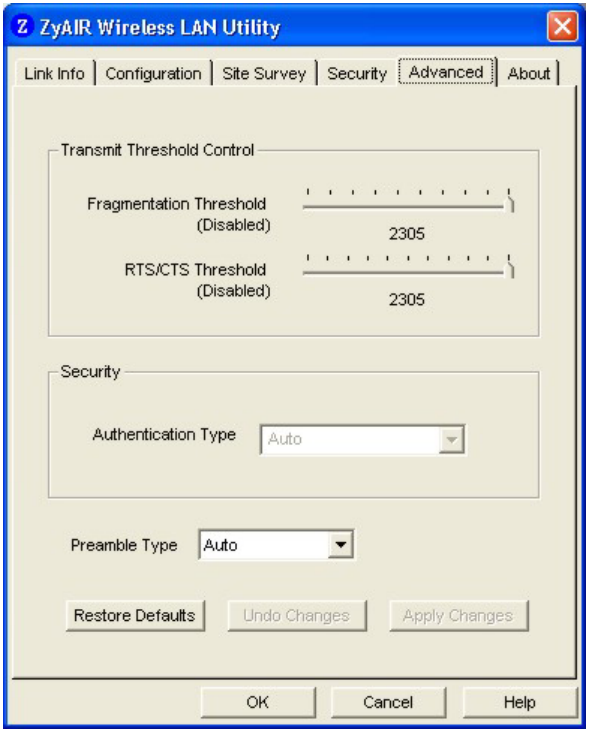

Figure 2-10 Advanced

The following table describes the labels in this screen.

Table 2-6 Advanced

LABEL	DESCRIPTION
Transmit Threshold Control	
Fragmentation Threshold	The threshold (number of bytes) for the fragmentation boundary for directed messages. It is the maximum data fragment size that can be sent. Move the slider to set the fragmentation threshold.
RTS/CTS Threshold	Data with its frame size larger than this value will perform the RTS/CTS handshake. Setting this attribute to be larger than the maximum MSDU (MAC service data unit) size turns off the RTS/CTS handshake. Setting this attribute to zero turns on the RTS/CTS handshake. Move the slider to set the RTS/CTS threshold.
Security	
Authentication Type	Select this checkbox to select an authentication method. Choices are **Auto**, **Shared** and **Open**. Refer to *Section 2.7.3* for more information.
Preamble Type	Select a preamble type from the drop-down list menu. Choices are **Long Preamble**, **Short Preamble** and **Auto**. The default setting is **Auto**. Refer to *Section 2.7.4* for more information.
Restore Default	Click **Restore Default** to reset all fields back to factory default values.
Undo Changes	Click **Undo Changes** to start configuring the fields again.
Apply Changes	Click **Apply Changes** to save the changes back to ZyAIR.
OK	Click **OK** to save all changes and close the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.
Help	Click **Help** to display the on-line help window.

2.9 The About Screen

The **About** screen displays related version numbers of the ZyAIR.

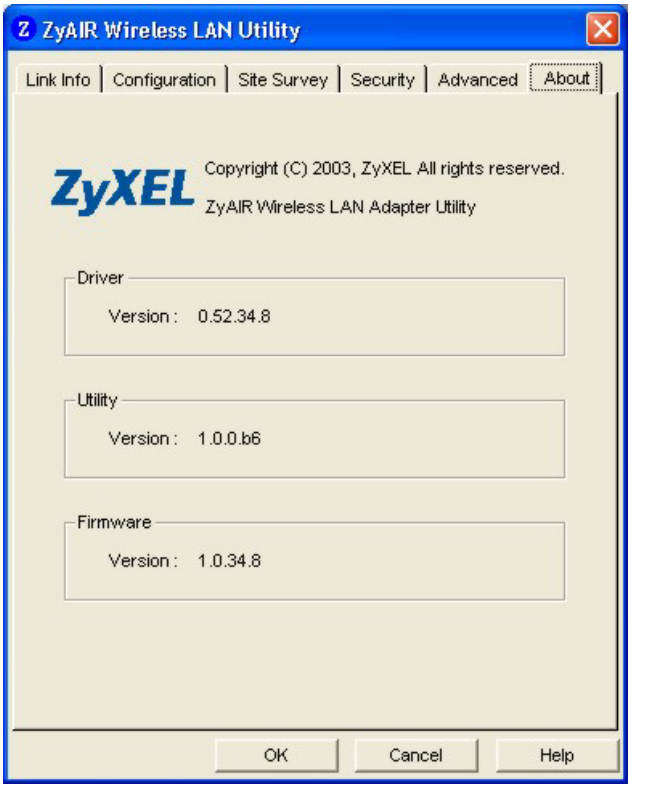

Figure 2-11 About

The following table describes the read-only fields in this screen.

Table 2-7 About

FIELD	DESCRIPTION
Driver Version	This field displays the version number of the ZyAIR wireless card driver.
Utility Version	This field displays the version number of the ZyAIR Utility.
Firmware Version	This field displays the version of the firmware on which the driver and the utility are based.
OK	Click **OK** to save all changes and close the ZyAIR Utility.
Cancel	Click **Cancel** to discard changes and close the ZyAIR Utility.
Help	Click **Help** to display the on-line help window.

Chapter 3
Maintenance

This chapter describes how to uninstall or upgrade the ZyAIR Utility.

3.1 Removing the ZyAIR Utility

Follow the steps below to remove (or uninstall) the ZyAIR Utility from your computer.

Step 1. Click **Start**, **Programs**, **ZyAIR Wireless LAN Utility**, **Uninstall**.

Step 2. When prompted, click **OK** to remove the driver and the utility software.

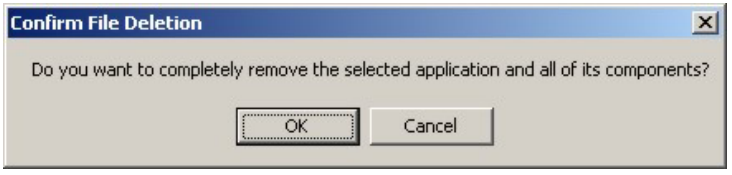

Figure 3-1 Confirm File Deletion

Step 3. When prompted to restart your computer, click **Yes** and then click **Finish**.

3.2 Upgrading the ZyAIR Utility

Before you uninstall the ZyAIR Utility, save the current network configuration.

To perform the upgrade, follow the steps below.

Step 1. Download the latest version of the utility from the ZyXEL web site and save the file on your computer.

Step 2. Follow the steps in the *Removing the ZyAIR Utility* section to remove the current ZyAIR Utility from your computer.

Step 3. Restart the computer when prompted.

Step 4. After restarting, refer to the procedure in the *Quick Installation Guide* to install the new utility software.

Step 5. Check the version numbers in the **About** screen to make sure the new utility is installed properly.

Chapter 4
Troubleshooting

This chapter covers potential problems and the possible remedies. After each problem description, some instructions are provided to help you to diagnose and to solve the problem.

4.1 Problems Starting the ZyAIR Utility Program

Table 4-1 Troubleshooting Starting ZyAIR Utility Program

Cannot start the ZyAIR Wireless LAN Utility	Make sure the ZyAIR is properly inserted and the LED(s) is on. Refer to the *Quick Installation Guide* for the LED descriptions.
	Use the **Device Manager** to check for possible hardware conflicts. Click **Start**, **Settings**, **Control Panel**, **System**, **Hardware** and **Device Manager**. Verify the status of the ZyAIR under **Network Adapter**. (Steps may vary depending on the version of Windows).
	Install the ZyAIR in another computer.
	If the error persists, you may have a hardware problem. In this case, you should contact your local vendor.
The ZyAIR Wireless LAN Utility displays only three tabs.	When the ZyAIR Wireless LAN Utility displays only three tabs, you are using the Windows XP wireless configuration tool at the same time. Refer to the *Section 1.2* to disable the Windows XP wireless configuration tool.

4.2 Problems Communicating With Other Computers

Table 4-2 Troubleshooting Communication Problems

PROBLEM	CORRECTIVE ACTION
The ZyAIR computer cannot communicate with the other computer.	
A. **Infrastructure**	Make sure that the AP and the associated computers are turned on and working properly. Make sure the ZyAIR computer and the associated AP use the same SSID. Change the AP and the associated wireless clients to use another radio channel if interference is high. Make sure that the computer and the AP share the same security option and key. Verify the settings in the **Security** screen.
B. **Ad-Hoc (IBSS)**	Verify that the peer computer(s) is turned on. Make sure the ZyAIR computer and the peer computer(s) are using the same SS ID and channel. Make sure that the computer and the peer computer(s) share the same security option and key. Change the wireless clients to use another radio channel if interference is high.

4.3 Problem with the Link Status

Table 4-3 Troubleshooting Link Quality

PROBLEM	CORRECTIVE ACTION
The link quality and/or signal strength is poor all the time.	Search and connect to another AP with a better link quality using the **Site Survey** screen. Move your computer closer to the AP or the peer computer(s) within the transmission range. There may be too much radio interference (for example microwave or another AP using the same channel) around your wireless network. Relocate or reduce the radio interference.

Index

R

S

T

U

W

Z