ZyAIR B-620

Mini-PCI 11M Wireless LAN Card

User's Guide

Version 1.0
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ZyXEL
Unleash Networking Power

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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 A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of Industry.

Federal Communications Commission (FCC) Interference Statement

The Wireless LAN Adapter compliance 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. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter

Additional Information to OEM Integrators

The end user should NOT be provided any instructions on how to remove or install the device.

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless

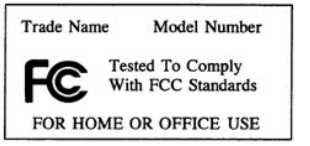
ASDL modems, and similar equipment). The final end product must be labeled in a visible area with the following: Contains TX FCC ID: I88B620

IMPORTANT NOTE

1. In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.
2. To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and 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.



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	+1-714-632-0882 800-255-4101 +1-714-632-0858	www.zyxel.com ftp.zyxel.com	ZyXEL Communications Inc., 1650 Miraloma Avenue, Placentia, CA 92870, U.S.A.
SCANDINAVIA	support@zyxel.dk sales@zyxel.dk	+45-3955-0700 +45-3955-0707	www.zyxel.dk ftp.zyxel.dk	ZyXEL Communications A/S, Columbusvej 5, 2860 Soeborg, Denmark
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Preface

Congratulations on the purchase of your new ZyAIR!

About This User's Guide

A practical and comprehensive tool, this manual provides information about the ZyAIR Wireless LAN Utility. Familiarize yourself with the *Syntax Conventions* listed for better and faster understanding.

The ZyAIR Wireless LAN Utility is common to ZyAIR B-x20 Wireless LAN Adapter series, thus the model name shown in the screens may vary from what you actually purchased.

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.

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.
- Window and command choices are in **Bold Times New Roman** font. Predefined field choices are in **Bold Arial** font.
- The ZyAIR B-620 Mini-PCI 11M Wireless LAN Card is referred to as the ZyAIR in this guide.
- The ZyAIR Wireless LAN Utility may be referred to as the ZyAIR Utility in this guide.

Chapter 1
Wireless Network Basics

This chapter gives you an overview of what a wireless network is, its advantages and applications.

1.1 Introduction

A wireless LAN (WLAN) provides a flexible data communication system that you can use to access various services (navigating the Internet, email, printer services, etc.) on the wired network without additional expensive network cabling infrastructure. In effect, a wireless LAN environment provides you the freedom to stay connected to the wired network while moving in the coverage area.

1.2 Benefits of a Wireless LAN

- Access to network services in areas otherwise hard or expensive to wire, such as historical buildings, buildings with asbestos materials and classrooms.
- Doctors and nurses can access a complete patient's profile on a handheld or notebook computer upon entering a patient's room.
- It allows flexible workgroups a lower total cost of ownership for networks that are frequently reconfigured.
- Conference room users can access the network as they move from meeting to meeting- accessing up-to-date information that facilitates the ability to communicate decisions "on the fly".
- It provides campus-wide networking coverage, allowing enterprises the roaming capability to set up easy-to-use wireless networks that transparently covers an entire campus.

1.3 Applications

Unlike wired networks, you can set up wireless networks in two different modes: infrastructure and ad-hoc. Set up your wireless network depending on your network needs. The following sections describe each network mode.

1.3.1 Ad-hoc

An ad-hoc network consists of two or more computers communicating with one another through the wireless network. No access points (APs) or existing wired networks are needed. An access point acts as a bridge between the wireless and wired networks

Figure 1-1 Ad-hoc Application Example 1

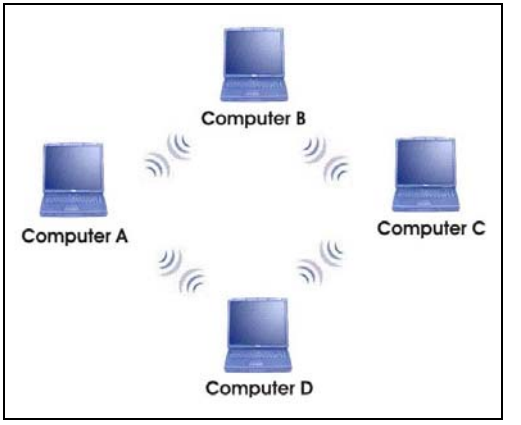

Figure 1-2 Ad-hoc Application Example 2

1.3.2 Infrastructure

When wireless clients wish to access and share resources on the wired network, they should use infrastructure mode. Wireless clients may move from one coverage area to another seamlessly without network interruption. This is called roaming.

The figure below depicts an infrastructure network example

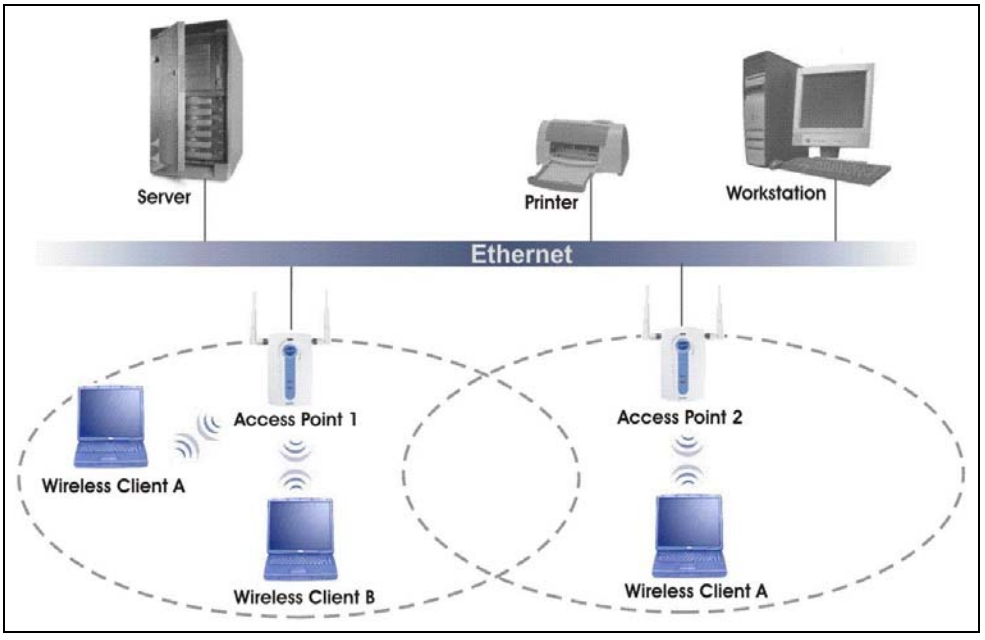

Figure 1-3 Infrastructure Application Example

Chapter 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. Always 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.

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

Figure 2-1 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 on **Network Connections**.

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

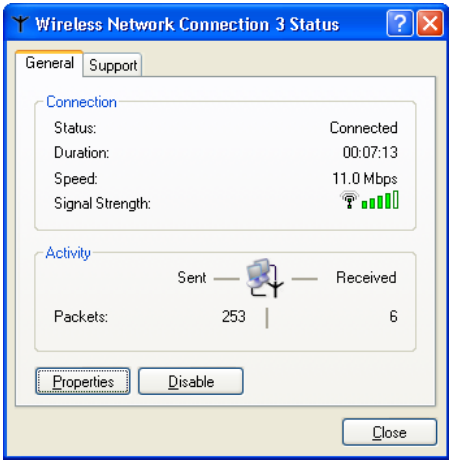

Figure 2-2 Windows XP: Wireless Network Connection Status

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 2-3 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**.

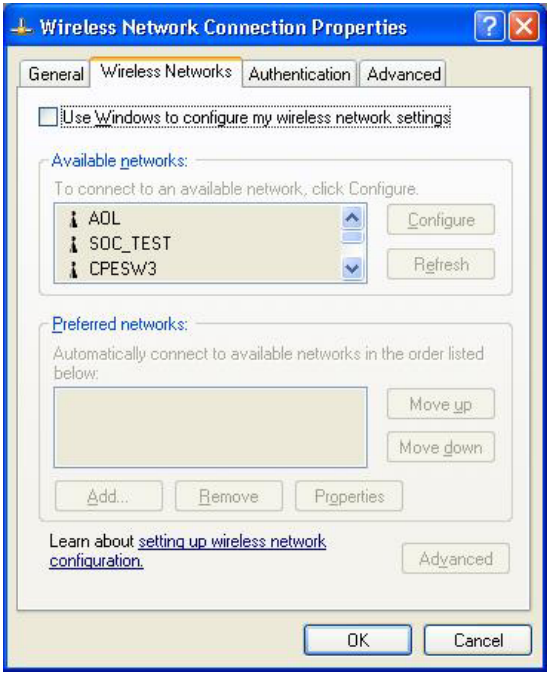

Figure 2-4 Windows XP: Wireless Network Connection Properties

Chapter 3
Using the ZyAIR Utility

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

Install the ZyAIR before you proceed. Refer to the *Quick Installation Guide*.

For Windows XP users: disable the Windows XP wireless configuration tool first before you proceed. Refer to *Chapter 2*.

Screen shots for Windows XP are shown unless otherwise specified.

3.1 Accessing the ZyAIR Utility

Follow the steps below to access 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 3-1 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 3-1 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.

3.2 Viewing Current Configuration

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.

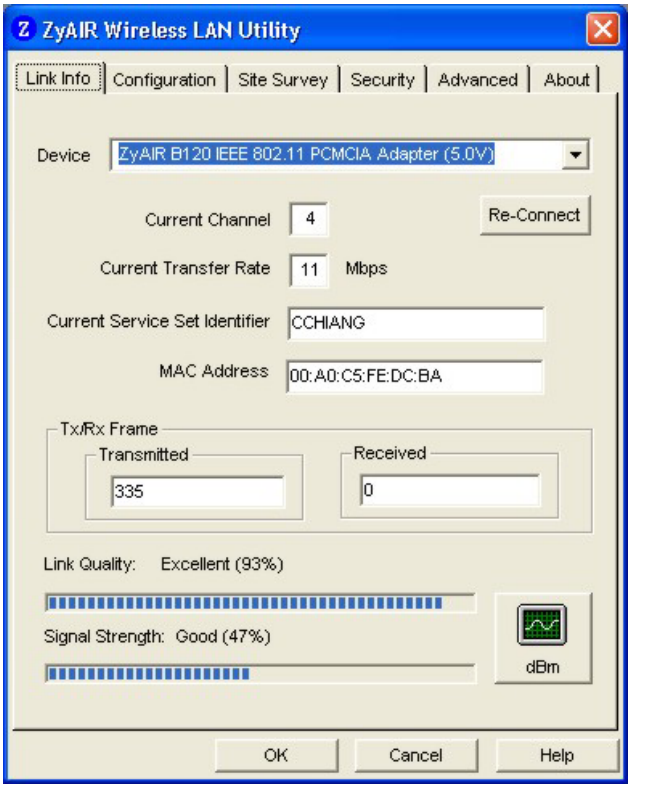

Figure 3-2 ZyAIR Utility: Link Info

The following table describes the fields in this screen.

Table 3-2 ZyAIR Utility: Link Info

LABEL	DESCRIPTION
Device	Select an available wireless card from the drop-down list menu if you have more than one wireless cards in your computer.
Re-Connect	Click **Re-Connect** to re-establish connection to the wireless device 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 3-2 ZyAIR Utility: 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 in dBm in the **Link Strength** field.

3.2.1 Common Screen Command Buttons

The following table describes common command buttons on all ZyAIR Utility screens.

Table 3-3 Common Screen Command Buttons

BUTTON	DESCRIPTION
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.

3.3 The About Screen

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

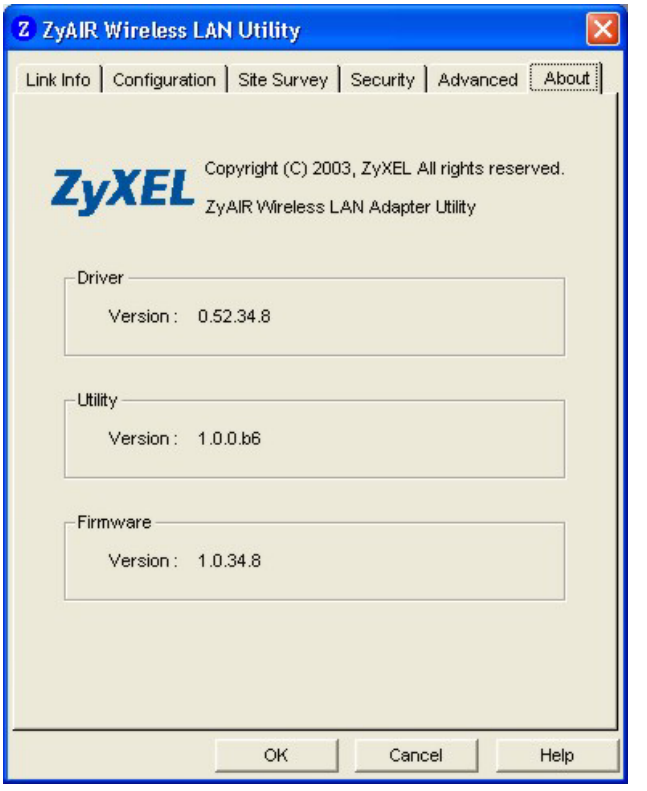

Figure 3-3 ZyAIR Utility: About

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

Table 3-4 ZyAIR Utility: 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.

3.4 Wireless LAN Parameters

This section describes each wireless LAN parameter.

3.4.1 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.

3.4.2 Channel

A range of radio frequencies used by IEEE 802.11b wireless devices is called a channel.

3.4.3 Transmission Rate (Tx Rate)

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** and **11M bit/sec**. 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.

If you wish to balance speed versus reliability, you can select any of the above options **11M bit/sec** or **5.5M bit/sec** is used 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.

3.5 Wireless Network Type

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.

3.5.1 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).

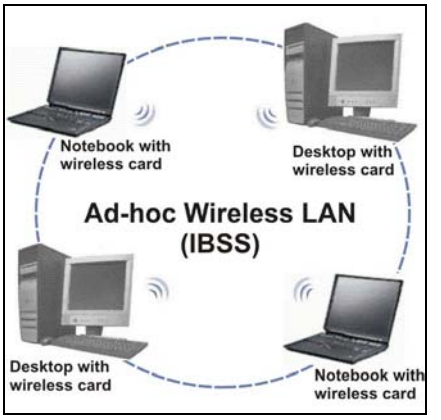

Figure 3-4 Ad-hoc Network Example

To set up an ad-hoc network, configure all wireless clients in ad-hoc network type and use the same SSID and channel.

3.5.2 Infrastructure

When a number of wireless clients are connected using a single AP, you have a Basic Service Set (BSS).

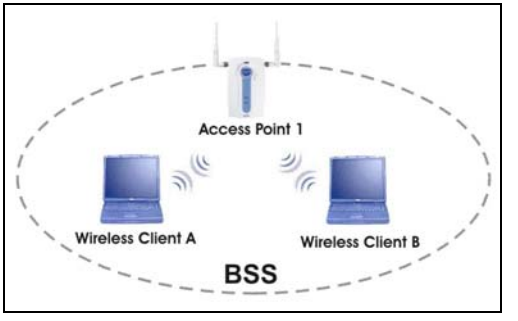

Figure 3-5 BSS Example

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.

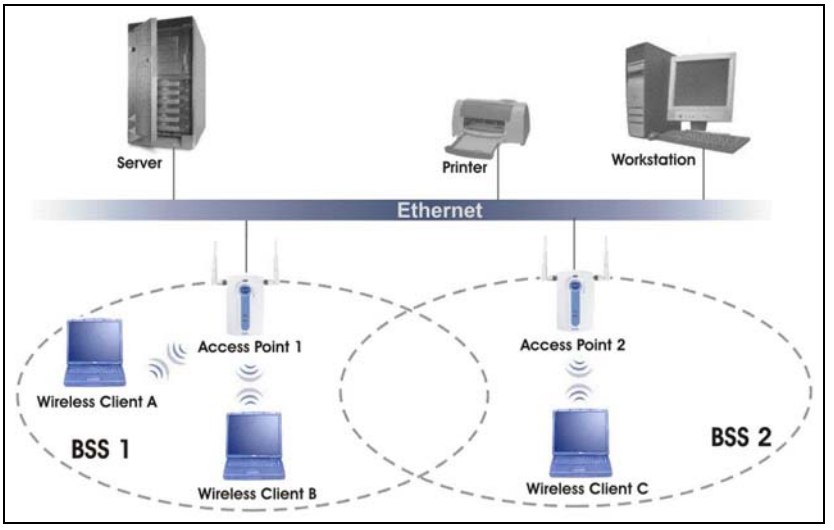

Figure 3-6 Infrastructure Network Example

3.6 Roaming

In an infrastructure network, wireless clients are able to switch from one AP to another as they move between the coverage areas. During this period, the wireless client maintains uninterrupted connection to the network. This is roaming. As the wireless client moves from place to place, it is responsible for choosing 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.

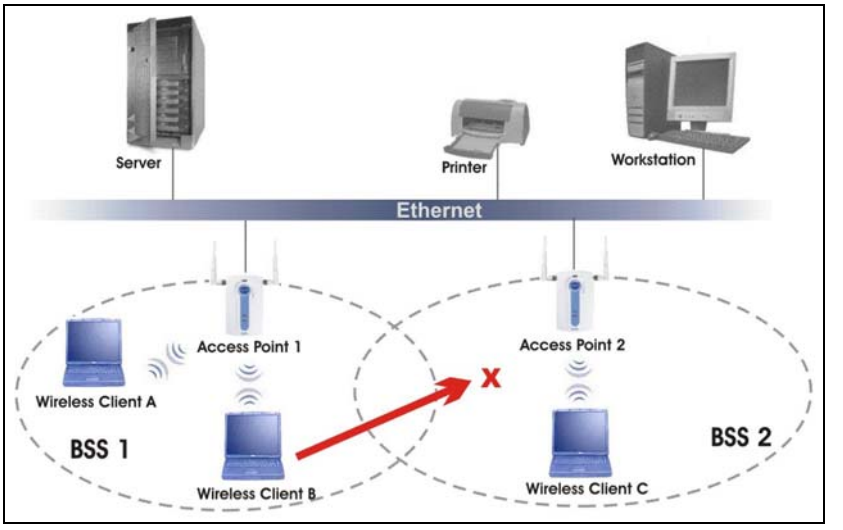

Figure 3-7 Roaming Example

3.7 The Site Survey Screen

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

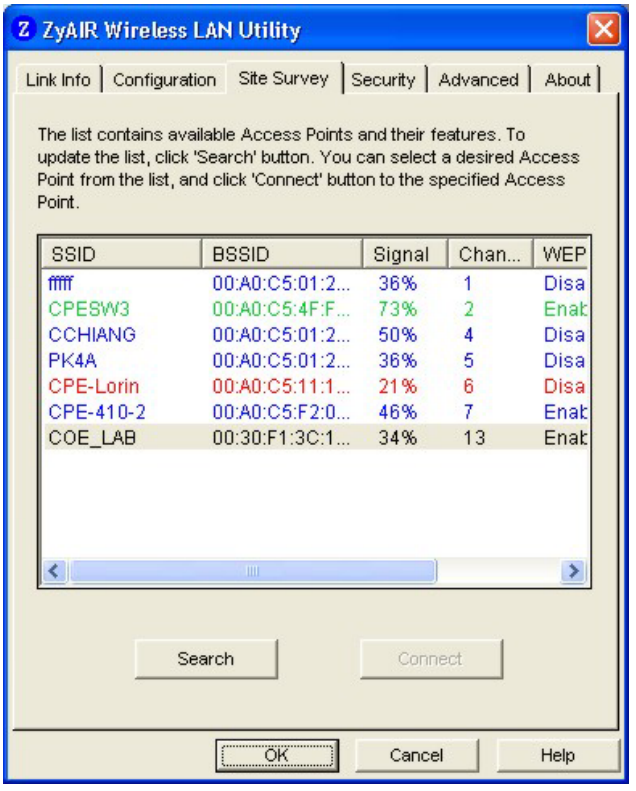

Figure 3-8 ZyAIR Utility: Site Survey

The following table describes the fields in the table.

Table 3-5 ZyAIR Utility: Site Survey

FIELD	DESCRIPTION
SSID	This field displays the SSID (or name) 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 the WEP data encryption is activated (**Enable**) or inactive (**Disable**).
Search	Click **Search** to scan for available wireless device within transmission range.

Table 3-5 ZyAIR Utility: Site Survey

FIELD	DESCRIPTION
Connect	Click **Connect** to associate to the selected wireless device.

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

Table 3-6 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.

3.7.1 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 is **Enable** for the selected wireless network, the following screen displays.

Figure 3-9 Site Survey Warning

Step 4. Click **OK** to display the **Security** screen and refer to *Section 4.2* 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.

3.8 Configuring the ZyAIR Wireless Parameters

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

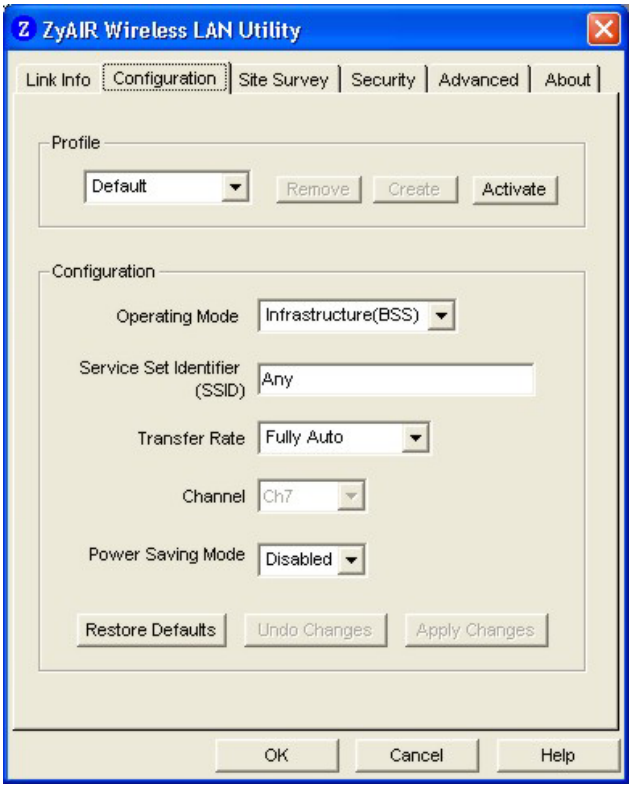

Figure 3-10 ZyAIR Utility: Configuration

Follow the instructions in the table below to configure the wireless LAN related parameters. Refer to the next section for **Profile** field descriptions.

Table 3-7 ZyAIR Utility: Configuration

FIELD	DESCRIPTION
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 ad-hoc computer. Refer to *Section 3.5* for more information.

Table 3-7 ZyAIR Utility: Configuration

FIELD	DESCRIPTION
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 ad-hoc 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** and **11M bit/sec**.
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 ad-hoc computer.
Power Saving Mode	Select **Enable** from the drop-down list menu to save power (especially for laptop 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 ZyAIR.

3.9 Network Configuration Profile Setting

The **Profile** in the **Configuration** screen allows you to save the wireless network settings in the **Configuration** screen, use one of the pre-configured network profiles or reset the settings in the **Configuration** screen to the factory default values.

The configuration Profile **includes the security profiles in the** Security **screen.**

3.9.1 Resetting to Factory Default Values

To reset the fields in the **Configuration** screen back to factory default values select **Default** from the drop-down list menu and click **Activate**.

3.9.2 Saving the Current Setting to a Profile

To save the current settings in the **Configuration** screen to a new profile enter a descriptive name in the field provided and click **Create**.

3.9.3 Using a Pre-configured Profile

To use a previously saved network profile select the profile file name from the drop-down list box and click **Activate**.

3.9.4 Deleting a Profile

To delete an existing wireless network configuration select a profile from the drop-down list box and click **Remove**.

Chapter 4
Wireless LAN Security

This chapter shows you how to set up the wireless LAN security available in the ZyAIR.

4.1 Introduction

Wireless LAN security is vital to your network to protect wireless communication between wireless clients and the wired network.

Configure the wireless LAN security using the **Security** screen. If you do not enable any wireless security on your ZyAIR, communication between the ZyAIR and the wired network is accessible to any wireless networking device that is in the coverage area.

4.2 Data Encryption with WEP

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

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.

4.2.1 Configuring the WEP Encryption on the ZyAIR

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

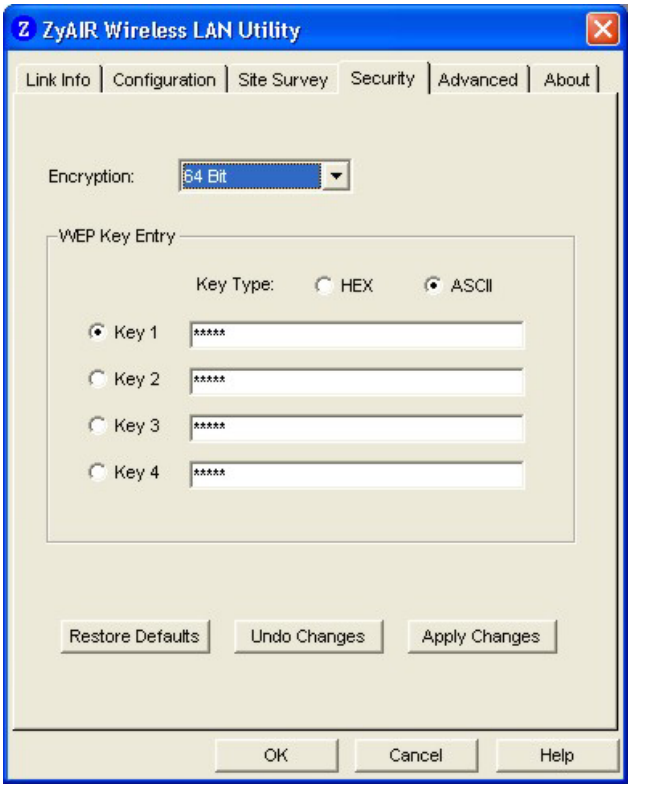

Figure 4-1 ZyAIR Utility: WEP Encryption

Follow the instructions in the table to configure the WEP encryptions.

Table 4-1 ZyAIR Utility: WEP Encryption

FIELD	DESCRIPTION
Encryption	Select either **64 Bit** or **128 Bit** from the drop-down list box to activate WEP encryption and then fill in the related fields. Select **Disable** to deactivate the WEP data encryption.
WEP Key Entry The WEP keys are used to encrypt data before it is transmitted. The values for the keys must be set up exactly the same on the APs or other peer ad-hoc wireless computers as they are on the ZyAIR.	
Key Type	Select either the **HEX** or **ASCII** WEP key type.

Table 4-1 ZyAIR Utility: WEP Encryption

FIELD	DESCRIPTION
Default Key	Select one of the network keys to be the key used for data encryption.
Network Key 1 … 4	Enter the WEP keys in the fields provided. If you select **64 Bit** in the **Key Type** field. ◆ Enter either ten hexadecimal digits in the range of "A-F", "a-f" and "0-9" (e.g. 11AA22BB33) for **HEX** key type or ◆ Enter five 7-bit printable ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (e.g. MyKey) for **ASCII** key type. If you select **128 Bit** in the **Key Type** 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 7-bit printable 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.**
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.

Chapter 5
Advanced Configuration

This chapter shows you how to configure advanced features of the ZyAIR.

5.1 Overview

The following sections introduce the advanced features you can configure.

5.1.1 Threshold Control

RTS/CTS Threshold

The RTS (Request To Send) Threshold prevents collision when there is a hidden node problem. Hidden node problem occurs when two stations are within the range of the same access point, but are not within the range of each other. The following figure illustrates the hidden node problem. Both stations (STA) are within the range of the AP, however, they cannot hear each other. Therefore, they are considered as hidden nodes from each other. When a station starts data transmission with the access point, it might not know that the other station is already using the wireless medium. When these two stations send data at the same time, they might collide when arriving simultaneously at the AP. The collision will most certainly result in a loss of messages for both stations.

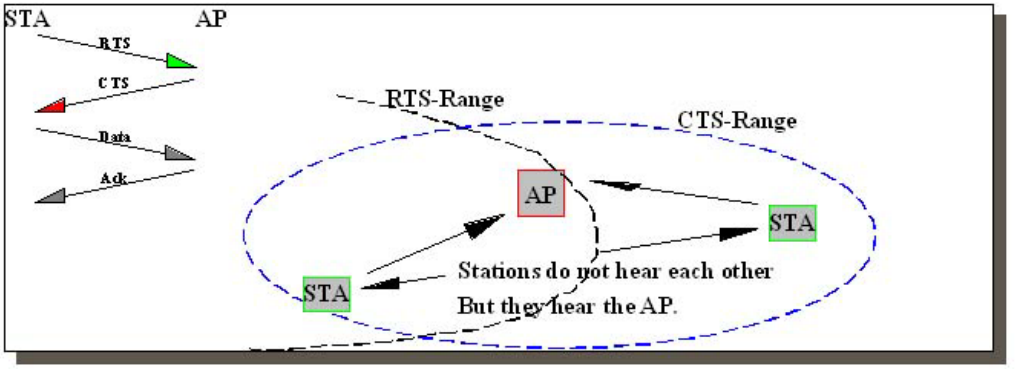

Figure 5-1 RTS Threshold

Thus, RTS Threshold mechanism provides a solution to prevent data collisions. When you enable RTS Threshold on a possible hidden station, this station and its AP will use a Request to Send/Clear to Send protocol (RTS/CTS). The station will send an RTS message to the AP, informing that it is going to transmit the data. Upon receipt, the Access Point will respond with a CTS message to all stations within its range to

notify all other stations to defer transmission. It will also confirm with the requesting station that the AP has reserved it for the time frame of the requested transmission.

The RTS function will be activated if the packet size exceeds the value you set. It is highly recommended that you set the value ranging from 0 to 2305.

Enabling the RTS Threshold causes redundant network overhead that could negatively affect the throughput performance instead of providing a remedy.

Fragmentation Threshold

Fragmentation improves the efficiency when high traffic flows along in the wireless network.

5.1.2 Authentication Mode

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.

5.1.3 Preamble Type

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

Long preamble mode allows more processing time for each transmitted data packet. Short preamble mode allows less processing time for the transmitted data packets.

Using short preamble mode may minimize overhead and maximize network throughput. However, short preamble mode is supported by IEEE 802.11b compliant wireless devices, thus wireless stations using short preamble mode cannot communicate with wireless stations using the original IEEE 802.11 standard.

5.2 The Advanced Screen

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

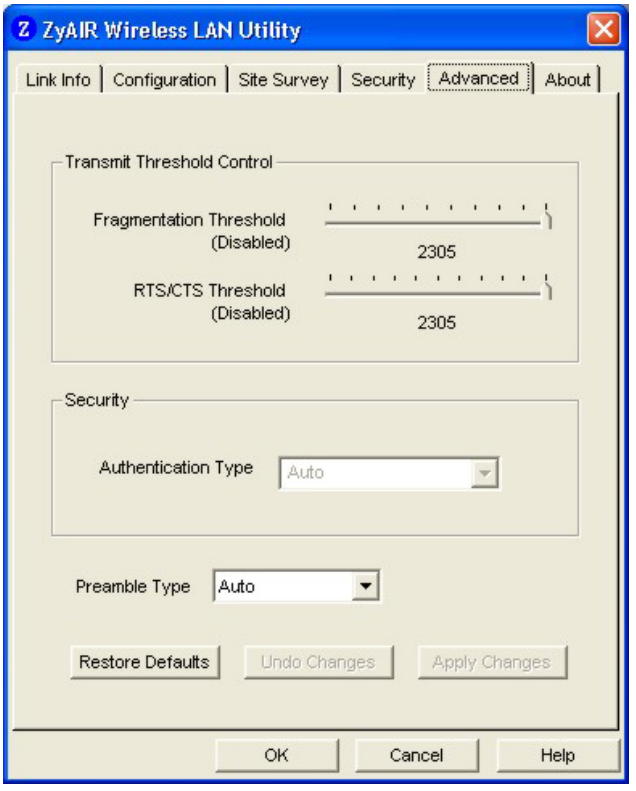

Figure 5-2 ZyAIR Utility: Advanced

The following table describes the fields in this screen.

Table 5-1 ZyAIR Utility: Advanced

FIELD	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.

Table 5-1 ZyAIR Utility: Advanced

FIELD	DESCRIPTION
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	
Shared Mode (Authenticate Access Point)	Select this checkbox to use a shared key to authenticate the access point. Refer to *Section 5.1.2* 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 5.1.3* 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.

Chapter 6
Removing and Upgrading the ZyAIR Utility

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

6.1 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 **Yes** to remove the driver and the utility software.

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

6.2 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 7
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.

7.1 Problems Starting the ZyAIR Utility Program

Table 7-1 Troubleshooting Starting ZyAIR Utility Program

Cannot start the ZyAIR Wireless LAN Utility	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).
	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 *Disable Windows XP Wireless LAN Configuration Tool* chapter to disable the Windows XP wireless configuration tool.

7.2 Problems Communicating With Other Computers

Table 7-2 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.

Table 7-2 Troubleshooting Communication Problems

PROBLEM	CORRECTIVE ACTION
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.

7.3 Problem with the Link Status

Table 7-3 Troubleshooting Link Quality

PROBLEM	CORRECTIVE ACTION
The **Link Quality** is poor all the time.	Move your computer closer to the AP or the peer computer(s) within the transmission range. There is too much radio interference (for example microwave or another AP using the same channel) around your wireless network. Relocate or reduce the radio interference.
The **Link Strength** is poor all the time.	Move your computer closer to the AP or peer computer(s) within the transmission range. There is too much radio interference (for example microwave or another AP using the same channel) around your wireless network. Relocate or reduce the radio interference.
The **Site Survey** screen displays all entries in red.	Move your computer closer to the AP or peer computer(s) within the transmission range. There is too much radio interference (for example microwave or another AP using the same channel) around your wireless network. Relocate or reduce the radio interference.

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Template: C:\Documents and Settings\Administrator\Application Data\Microsoft\Templates\Normal.dot
Title: ZyAIR Wireless LAN Utility
Subject:
Author: cindy
Keywords:
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