ZyAIR G-4100

802.11g Wireless Hotspot Gateway

Quick Start Guide

Version 1.00
8/2005

ZyXEL

Table of Contents

1 Introducing the ZyAIR

The ZyAIR Hot Spot Gateway combines an IEEE 802.11g wireless access point, router, 4-port switch and service gateway in one box. If you have an "exclusive printer", you can connect it directly to the ZyAIR, allowing you to easily print subscriber statements. The ZyAIR is ideal for offices, coffee shops, libraries, hotels and airport terminals catering to subscribers that seek Internet access. You should have an Internet account already set up and have been given usernames, passwords etc. required for Internet access.

1.1 Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions.

- ➤ Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact your vendor for further information.

- ➤ Use ONLY the dedicated power supply for your device. Connect the power cord or power adaptor to the right supply voltage, that is, 110V AC for North America or 230V AC for Europe.

- ➤ Do NOT use the device if the power supply is damaged as it might cause electrocution.

- ➤ If the power supply is damaged, remove it from the power outlet.

- ➤ Do NOT attempt to repair the power supply. Contact your local vendor to order a new power supply.

- ➤ Place connecting cables carefully so that that no one will step on them or stumble over them. Do NOT allow anything to rest on the power cord and do NOT locate the product where anyone can walk on the power cord.

- ➤ If you wall mount your device, make sure that no electrical, gas or water pipes will be damaged.

- ➤ Do NOT install nor use your device during a thunderstorm. There may be a remote risk of electric shock from lightning.

- ➤ Do NOT expose your device to dampness, dust or corrosive liquids.

- ➤ Do NOT use this product near water, for example, in a wet basement or near a swimming pool.

- ➤ Make sure to connect the cables to the correct ports.

- ➤ Do NOT obstruct the device ventilation slots, as insufficient airflow may harm your device.

- ➤ Do NOT store things on the device.

- ➤ Connect ONLY suitable accessories to the device.
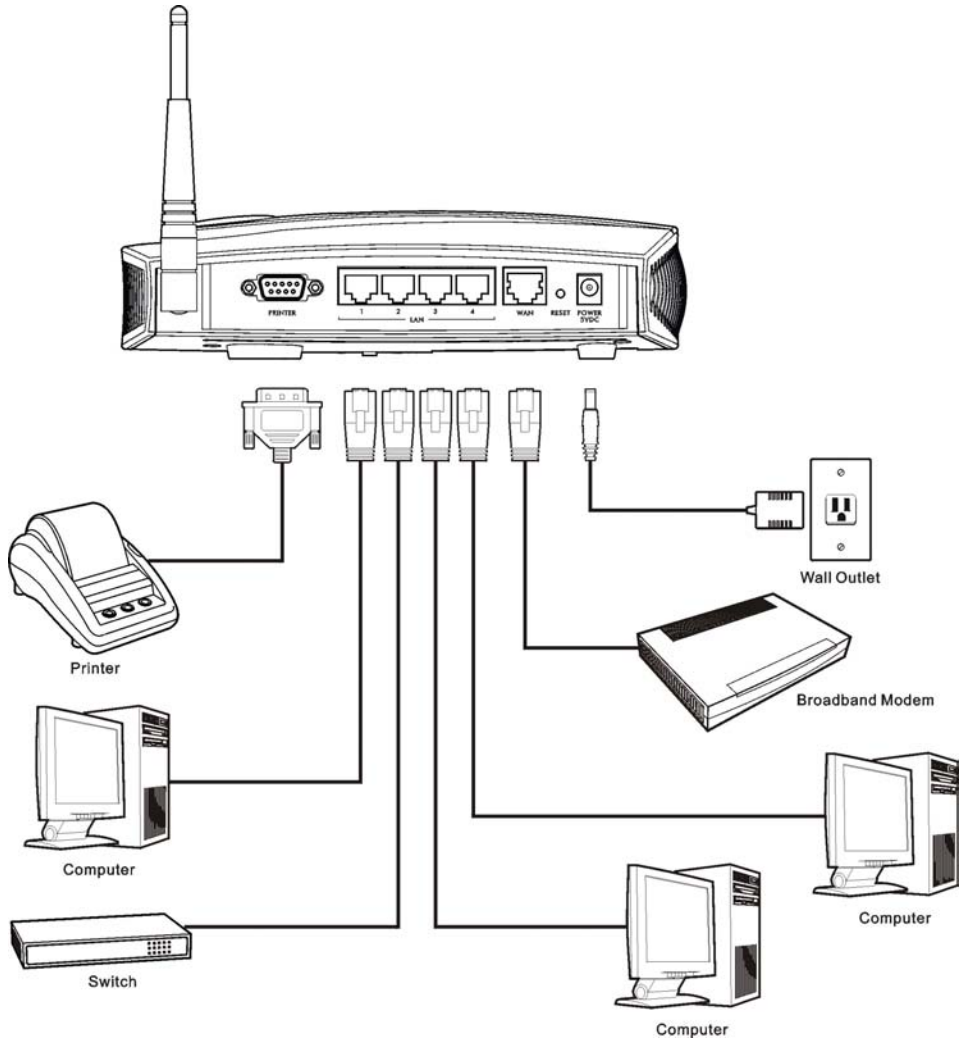
1.2 Side Panel Connections

Figure 1 ZyAIR Side Panel Connections

Table 1 Side Panel Connections

LABEL	DESCRIPTION
PRINTER	Use the printer cable to connect an "exclusive printer" to this port.
LAN 1-4	These ports are auto-crossover, ("auto MDI/MDI-X") which means you can use either a straight-through or crossover Ethernet cable to connect the ZyAIR to a computer or a hub.
WAN	Connect your broadband modem to this port with the Ethernet cable that came with your modem.
RESET	You only need to use this button if you've forgotten the ZyAIR's password. It returns the ZyAIR to the factory defaults (password is 1234, LAN IP address 192.168.1.1).
POWER 5VDC	After you've made the above connections, connect the ZyAIR's included power adaptor to the ZyAIR's power socket. Use only the included power adaptor. The **PWR** LED turns on. The **LAN** and **WAN** LEDs flash and then turn on if they have proper connections. The **ZyAIR** LED turns on for 20 seconds and then turns off. The **SYS** LED turns on. The **ZyAIR** LED turns back on and blinks if the wireless connection is active.

1.3 The Front Panel LEDs

Figure 2 ZyAIR Front Panel

Table 2 Front Panel LEDs

LED	STATUS	DESCRIPTION
ZyAIR	On (Blue)	The ZyAIR is ready, but is not sending/receiving data through the wireless LAN.
	Blinking (Blue)	The ZyAIR is sending/receiving data through the wireless LAN.
LAN (1-4)	On (Green)	The port is connected to a 10/100Mbps Ethernet device.
	Blinking (Green)	The port is receiving or sending data.
	Off	The port is not connected to a 10/100Mbps Ethernet device.
WAN	On (Green)	The WAN port has a connection to your cable or DSL modem.
	Blinking (Green)	The WAN port is sending or receiving packets.
	Off	The WAN link is not ready, or has failed.
SYS	On (Green)	The ZyAIR is ready and running.
	Off	The ZyAIR is not ready or has failed.
PWR	On (Green)	The ZyAIR is receiving power.
	Off	The ZyAIR is not receiving power.

1.4 Factory Defaults

Table 3 Factory Defaults

Username	"admin" (case sensitive)	WAN IP Address	DHCP Client (dynamic WAN IP)
Password	"1234"	LAN IP Address	192.168.1.1
		LAN DHCP	Server

2 Setting Up Your Computer's IP Address

Skip this section if your computer is already set up to accept a dynamic IP address. This is the default for most new computers.

The ZyAIR is already set up to assign your computer an IP address. Use this section to set up your computer to receive an IP address or assign it a static IP address in the 192.168.1.2 to 192.168.1.254

range with a subnet mask of 255.255.255.0. This is necessary to ensure that your computer can communicate with your ZyAIR.

Your computer must have an Ethernet card and TCP/IP installed. TCP/IP should already be installed on computers using Windows NT/2000/XP, Macintosh OS 7 and later operating systems.

2.1 Windows 2000/NT/XP

1. In Windows XP, click **start**, **Control Panel**. In Windows 2000/NT, click **Start**, **Settings**, **Control Panel**.

2. In the **Control Panel**, double-click **Network Connections** (**Network and Dial-up Connections** in Windows 2000/NT).

3. Right-click **Local Area Connection** and then click **Properties**.

4. Select **Internet Protocol (TCP/IP)** (under the **General** tab in Win XP) and click **Properties**.

5. The **Internet Protocol TCP/IP Properties** screen opens (the **General tab** in Windows XP).

    - To have your computer assigned a dynamic IP address, click **Obtain an IP address automatically**.

    If you know your DNS sever IP address(es), type them in the **Preferred DNS server** and/or **Alternate DNS server** fields.

    -To configure a static IP address, click **Use the following IP Address** and fill in the **IP address** (choose one from 192.168.1.2 to 192.168.1.254), **Subnet mask** (255.255.255.0), and **Default gateway** (192.168.1.1) fields.

    Then enter your DNS server IP address(es) in the **Preferred DNS server** and/or **Alternate DNS server** fields.

    If you have more than two DNS servers, click **Advanced**, the **DNS** tab and then configure them using **Add**.
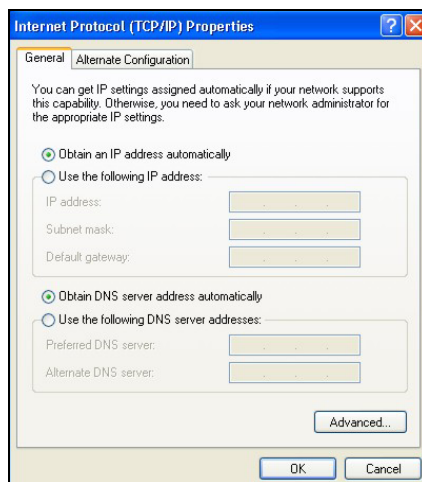
6. Click **Advanced**. Remove any previously installed gateways in the **IP Settin**gs tab and click **OK** to go back to the **Internet Protocol TCP/IP Properties** screen.
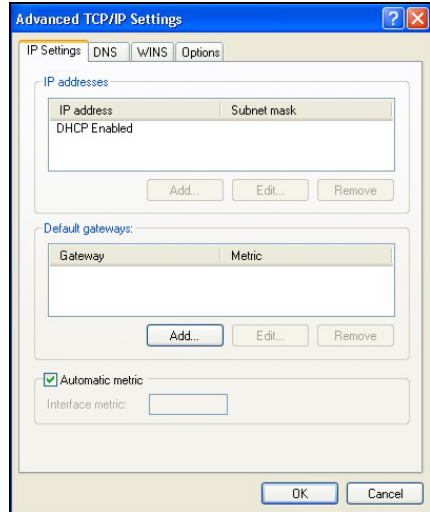
7. Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

8. Click **Close** (**OK** in Windows 2000/NT) to close the **Local Area Connection Properties** window.

9. Close the **Network Connections** window (**Network and Dial-up Connections** in Windows 2000/NT).

2.2 Checking/Updating Your Computer's IP Address

1. In the computer, click **Start**, (**All) Programs**, **Accessories** and then **Command Prompt**.

2. In the **Command Prompt** window, type "ipconfig" and then press **ENTER** to verify that your computer's IP address is in the correct range (192.168.1.2 to 192.168.1.255) with subnet mask 255.255.255.0. This is necessary in order to communicate with the ZyAIR.

Refer to your *User's Guide* for detailed IP address configuration for other Windows and Macintosh computer operating systems.

2.3 Testing the Connection to the ZyAIR

1. Click **Start**, (**All**) **Programs**, **Accessories** and then **Command Prompt**.

2. In the **Command Prompt** window, type "ping" followed by a space and the IP address of the ZyAIR (192.168.1.1 is the default).

3. Press **ENTER** and the following screen displays.

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=10ms TTL=254
Reply from 192.168.1.1: bytes=32 time<10ms TTL=254
Reply from 192.168.1.1: bytes=32 time<10ms TTL=254
Reply from 192.168.1.1: bytes=32 time<10ms TTL=254

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  10ms, Average =  2ms
```

Your computer can now communicate with the ZyAIR using a **LAN** port.

3 Configuring Your ZyAIR

This guide shows you how to use the web configurator for initial configuration. See your *User's Guide* for background information on all other ZyAIR features.

3.1 Accessing Your ZyAIR Via Web Configurator

1. Your web browser must have JavaScript support enabled. Launch your web browser. Enter "192.168.1.1" as the web site address.
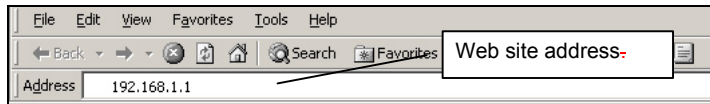
Figure 3 Entering ZyAIR LAN IP Address in Internet Explorer

2. A login screen displays. Enter the user name ("admin" is the default), password ("1234" is the default) and click **Getting Started**. The user name is case sensitive, so enter "admin" exactly as shown. If you make an incorrect entry, refresh your browser and try again. Only one administrator can log in at one time. The ZyAIR logs you out after five minutes of no management using the web configurator, so you then have to log in again.

Figure 4 Web Configurator: Login Screen

3.2 Internet Connection Wizard

The Wizard Setup screens appear by default after login only the first time you access the ZyAIR and run the wizard. After that, the **SYSTEM QUICK VIEW** screen appears after login.

1. The first Wizard screen displays after your initial login. This first screen varies depending on the type of Internet connection you use.
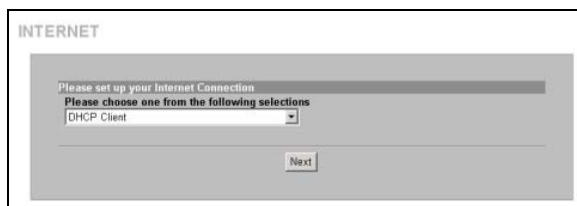
Select **DHCP Client** if your ISP did not assign you a fixed IP address. Your ISP assigns the ZyAIR's WAN port a dynamic IP address. This is the default selection.

Click **Next** to continue to *Figure 9*.

Figure 5 Internet Connection: DHCP Client

Select **Static IP Setting** If the ISP assigned a fixed IP address.

Enter the WAN IP address, subnet mask, gateway IP address and DNS server address(s) that your ISP assigned you.

Click **Next** to continue to *Figure 9*.

Figure 6 Internet Connection: Static IP

Select **PPPoE** If the ISP uses PPPoE for your account (PPPoE simulates a dial-up connection).

Enter the user name and password *exactly* as your ISP assigned them.

A maximum transmission unit (MTU) is the largest size packet or frame, specified in octets (eight-bit bytes) that can be sent in a packet- or frame-based network. The Transmission Control Protocol (TCP) uses the MTU to determine the maximum size of each packet in a transmission. Too large an MTU size may mean retransmissions if the packet encounters a router that can't handle that large a packet. Too small an MTU size means relatively more header overhead and more acknowledgements that have to be sent and handled.

The maximum segment size (MSS) is the largest amount of data, specified in bytes, that a computer or communications device can handle in a single, unfragmented piece.

Figure 7 Internet Connection: PPPoE

For optimum communications, the number of bytes in the data segment and the header must add up to less than the number of bytes in the maximum transmission unit (MTU).

Enter the name of your PPPoE server, in the **Service Name** field if provided; otherwise leave it blank.

Select **Connect on Demand** when you don't want an "always-on" connection and specify an inactivity time limit (in minutes) in the **Max Idle Time** field.

Select **Keep Alive** if you want an "always-on" connection. The **Redial Period** is how long the ZyAIR waits before reconnecting in the event of a disconnect. Click **Next** to continue to *Figure 9*.

Select **PPTP** if your service provider uses a DSL terminator with PPTP login. The ZyAIR must have a static IP address (**My IP Address**) in this case. Your ISP may also provide a subnet mask (**My Subnet Mask**) and a gateway IP address (**Gateway IP address**).

Enter the DSL terminator IP address (**PPTP Server IP Address**) and the username and associated password exactly as your ISP assigned them.

See the description of the PPPoE encapsulation screen for information on **PPP MTU**, **PPP MSS**, **Connect On Demand** and **Keep alive**.

If your ISP has provided a connection ID name, enter it in the **Connection ID/Name** field.

Click **Next** to continue to *Figure 9*.
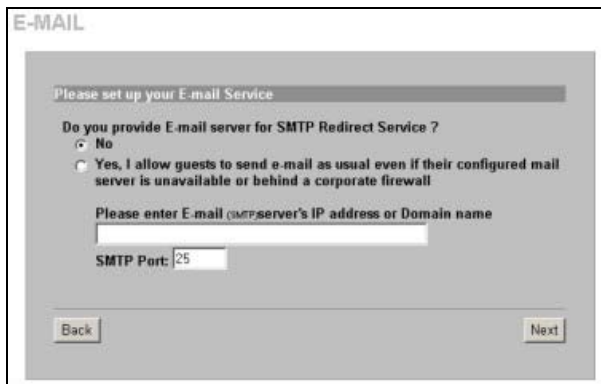
Figure 8 Internet Connection: PPTP

2. Use the second wizard screen to set up the wireless LAN.
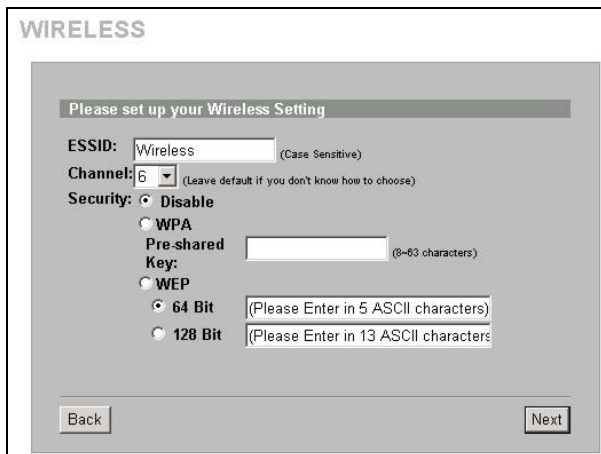
Figure 9 Wireless Settings

Click **Next** to continue.

ESSID is a unique name to identify the ZyAIR in the wireless LAN. Enter a descriptive name.

Select a channel (range of radio frequencies used by IEEE 802.11g wireless devices) from the drop-down list box.

Select **Disable** under **Security** to allow wireless devices to communicate with the ZyAIR without any data encryption.

Select **WPA** to have the ZyAIR perform user authentication and data encryption. WPA's data encryption is stronger than WEP. Type a pre-shared key from 8 to 63 case-sensitive ASCII characters (including spaces and symbols). Use the advanced wireless setup screen if you want to use WPA with a RADIUS server (see the User's Guide for details).

Select the **WEP** (Wired Equivalent Privacy) check box to have the ZyAIR encrypt data frames before transmitting them over the wireless network. Select **64 Bit** or **128 Bit WEP** encryption and enter a key of the length described in the field.

3. Use the third wizard screen to configure a backup e-mail server in the event that the subscriber's e-mail server is unreachable from the ZyAIR.

**Figure 10 E-mail Service Setup**

Click **Next** to continue.

Select **No** to not have the ZyAIR redirect e-mail in the event that a subscriber's e-mail server is unreachable from the ZyAIR.

Select **Yes** to have the ZyAIR redirect subscribers' e-mail to the designated SMTP server (must be reachable from the ZyAIR) in the event that the subscriber's own e-mail server is unreachable from the ZyAIR. E-mail recipients see messages as if they came from the subscriber's regular e-mail server not the "backup" e-mail server.

When you select **Yes**, enter the e-mail (SMTP) server's domain name (up to 50 characters) or IP address.

Enter the port number (25, or between 2500 and 2599) for the mail server.

4. Use this screen to set whether or not the ZyAIR authenticates users before allowing them to access the Internet.
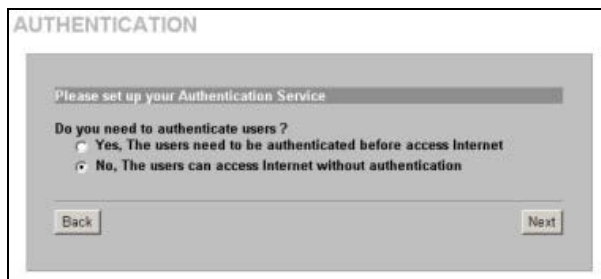
Figure 11 Authentication Service Setup

Select **Yes** to require the ZyAIR to authenticate subscribers before allowing Internet access. This wizard configures authentication and accounting settings for the ZyAIR's built-in local subscriber database. Use the advanced RADIUS setup screen if you want to configure the ZyAIR to use an external RADIUS server for accounting and authentication (see the User's Guide for details).

Select **No** to allow Internet access for all subscribers without authentication.

Click **Next** to continue.

5. Use the next wizard screen to set up a billing profile for the ZyAIR to use when generating subscriber accounts.

Select **Time to Finish** to allow subscribers a one-time login. Once a subscriber logs in, the system starts counting down the pre-defined usage even if the subscriber stops the Internet access before the time period finishes. If a subscriber logs out before the allocated time expires, the subscriber does not have to enter the user name and password to access the Internet again.

Select **Accumulation** to allow each subscriber multiple re-login until the time allocated is used up. If a subscriber logs out and accesses the Internet again within the time period specified in the **Idle Timeout** field, the subscriber does not have to enter the user name and password again to log in.

Enter the appropriate currency unit or currency symbol. Define the number of decimal places (up to 3) to be used for billing.

Enter a name (up to 12 characters) for each billing profile.

Figure 12 Billing Setup

Set the duration of each billing period. When this period expires, the subscriber's access will be stopped.

Select a time period (**minutes**, **hours**, or **days**) and enter the time unit in the field provided to define each "profile's" maximum Internet access time.

Click **Next** to continue.

6. Use the next wizard screens to set up the ZyAIR to use either an "exclusive printer" to generate and print subscriber statements or generate them in the web configurator and print them from there. An "exclusive printer" attaches directly to the ZyAIR. It can have the ZyAIR generate subscriber statements and then print them.

Select **Yes** to use an "exclusive printer" when you generate and print subscriber statements.

Select **No** to generate subscriber statements in the web configurator and print them from there. The **Web-based Account Generator Panel Settings** screen then appears next (*Figure 17*).

Click **Next** to continue.

Figure 13 Printer Selection

Select a subscriber billing profile for each button on the "exclusive printer". The billing profile defines the maximum Internet access time and charge per time unit.

Set how many subscriber statement copies you want to print (1 is the default).

Click **Customize printout text** to open the **Customize Printout Text** screen (see *Figure 15*) to tailor subscriber statements.

Click **I want to setup the web-based accounting now if exclusive printer cannot work** to configure the **Web-based Account Generator Panel Settings** screen (*Figure 17*).

Click **Next** to continue.

Figure 14 Accounting Setup

Figure 15 Customize Printout Text

Select **Logo** to print your logo on the account statement when using a network-connected printer. See the *User's Guide* for how to upload a logo file.

Enter a title for the statement printout in the **Title** field. Enter a subtitle for the printout.

Type **Username** and **Password** labels that appear in the statement here.

Enter the label name for the field displaying the method for billing.

Enter the label name for the field displaying the name for the billing profile used.

Enter the label name for the field displaying the number of time units purchased.

Type a label name for the maximum time allowed for a subscriber to access the Internet via the ZyAIR in the **Usage Time** field.

Select the **Price** check box and type a label for the field displaying the total charge to the subscriber in the statement.

Enter a label name for the field displaying the tax and another label name for the field displaying the sum of the price and the tax.

Type a label name for the field displaying the wireless LAN's Extended Service Set Identifier (**ESSID**). Type a label name for the field displaying the **WPA Encryption** key.

Type a label name for the field displaying the **WEP Encryption** key.

Select **Additional Label**(es) to display the specified label name(s) for the field(s) displaying any other information.

Select **Print out Time** to display the time an account is printed. Select date and time formats from the drop-down list boxes.

Select **Expiration Time** to display (in the statement) the ending subscription validity date and time and then select a date and time format from the drop-down list boxes. Enter an explanation for the subscriber about the account's activation deadline. With accumulation billing, you can also explain the deadline for using the purchased time.

Select **Ending** and then type a message to appear at the end of the printout in the text box.

Click a preview link to display a sample of the statement layout (*Figure 16*). Click **Apply** to save the changes.
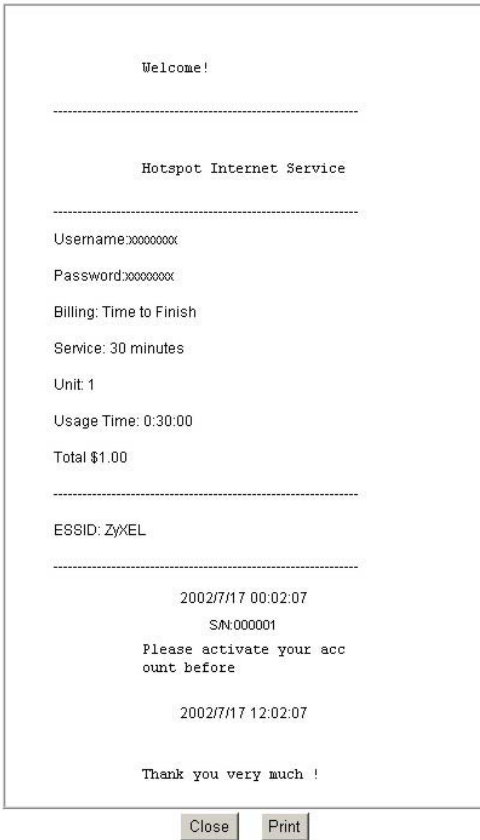
This screen shows how your custom statement printout will look. Close the window when you are finished viewing it.

```
                  Welcome!

-------------------------------------------------------------


              Hotspot Internet Service

-------------------------------------------------------------
Username:xxxxxxxx

Password:xxxxxxxx

Billing: Time to Finish

Service: 30 minutes

Unit: 1

Usage Time: 0:30:00

Total $1.00

-------------------------------------------------------------

ESSID: ZyXEL

-------------------------------------------------------------
                  2002/7/17 00:02:07
                      S/N:000001
              Please activate your acc
              ount before

                  2002/7/17 12:02:07


              Thank you very much !
```

Close   Print

Figure 16 Printout Example

Figure 17 Web-based Accounting Setup

Figure 18 Account Generator Panel

Click **Preview/Operate** to open the **Account Generator Panel** (see *Figure 18*).

A "button" represents a subscriber billing profile defining maximum Internet access time and charge per time unit. The buttons correspond to the buttons displayed in the **Account Generator Panel**. These button settings also apply to the buttons on the "exclusive printer".

Select how many copies of subscriber statements you want to print (1 is the default).

Click **Customize printout text** to open the **Customize Printout Text** screen (see *Figure 15*) to tailor subscriber statements.

Type a user name and password for the web-based accounting system manager. Retype the password for confirmation in the **Confirm** field.

Click **Next** to continue.

Click **Preview/Operate** in *Figure 17* to display this pop-up screen.

Each button is the subscriber "profile" you defined. These button settings also apply to the buttons on the "exclusive printer".
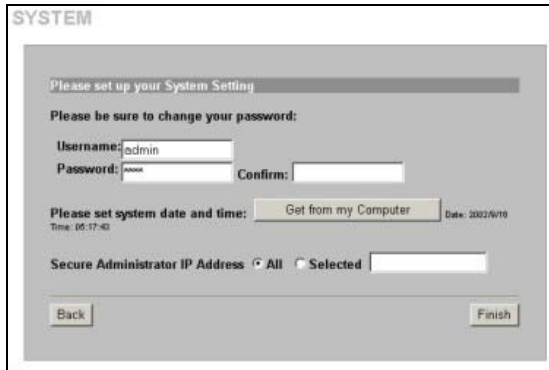
Click the **View Account List** link in this screen to display another pop-up screen showing current account information (*Figure 19*). Close this pop-up screen when finished.
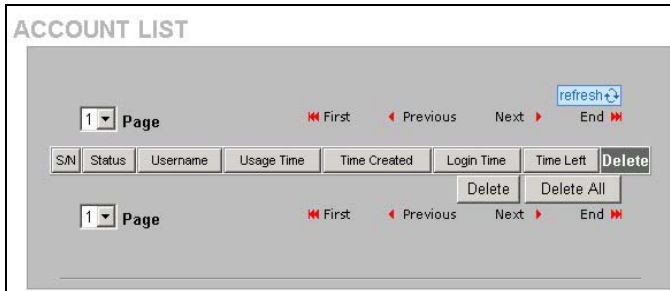
Close this pop-up screen when you have finished viewing it.

Figure 19 Account List

7. It is highly recommended you change the default user name and password.

Figure 20 System Setting

Type your new user name and password in the **Username** and **Password** fields; type the password again in the **Confirm** field

Click **Get from my Computer** to have the ZyAIR retrieve the date and time from your computer.

Select **All** if you want to allow management of the ZyAIR from any IP address.

Select **Selected** and type the IP address of a "trusted" computer to allow access to the ZyAIR web configurator from that computer only. If the computer you are currently using is not the "trusted" computer, you will not be able to access the ZyAIR web configurator again from your current computer.

Click **Finish** to save your settings to the ZyAIR. Wait 30 seconds while the ZyAIR restarts.

3.3 Introducing the Web Configurator

Click a navigation panel link to open that link's list of links to individual screens. After you run the wizard, you first see the **SYSTEM QUICK VIEW** screen after login.
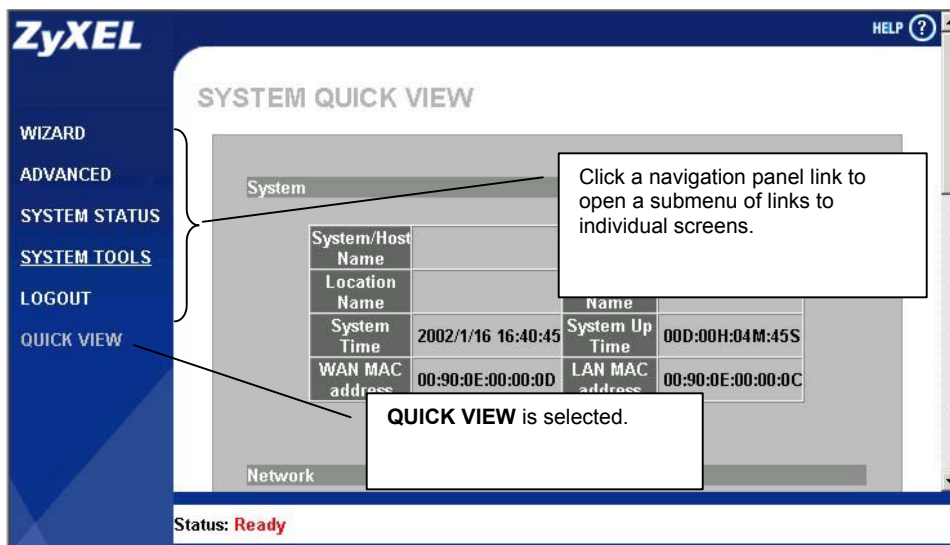

Figure 21 Quick View

3.4 Resetting the ZyAIR

To reset the ZyAIR back to the factory defaults, click **SYSTEM TOOLS** and **CONFIGURATION** to display the screen as shown next.

Select **Keep subscriber profiles** to set the system configuration back to the factory defaults but retain subscriber account information. All other custom configuration is erased.

Under **Reset the system back to factory defaults** Click **Apply** to reset the ZyAIR's configuration back to the factory defaults (*Table 3*).

Figure 22 Default Settings

3.5 Test Your Internet Connection

Launch your web browser and navigate to www.zyxel.com. Internet access is just the beginning. Refer to the *User's Guide* for more detailed information on the complete range of ZyAIR features. If you cannot access the Internet, open the web configurator again to confirm that the Internet settings you configured in the Wizard Setup are correct.
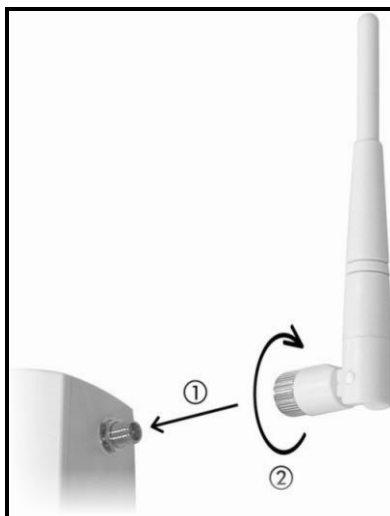
4 Hardware Installation

4.1 Attaching Antennas

Follow the steps below to connect the supplied antennas.

1. Locate the antenna connectors on the sides of your ZyAIR.

2. Screw the antennas clockwise onto the antenna connectors. The antennas should be perpendicular to the ground and parallel to each other.

Make sure the antennas are securely screwed onto the antenna connectors.

Figure 23 Attaching Antennas

4.2 Hardware Mounting Installation

In general, the best location for the access point is at the center of your intended wireless coverage area. For better performance, mount the ZyAIR high up free of obstructions.

The following sections describe the different installation options.

Leave adequate space on the rear and sides of the ZyAIR during hardware installation and do not block the ventilation holes.

Free-standing

Place your ZyAIR on a flat, level surface (on a desk or shelf) that is strong enough to support the weight of the ZyAIR with connection cables.
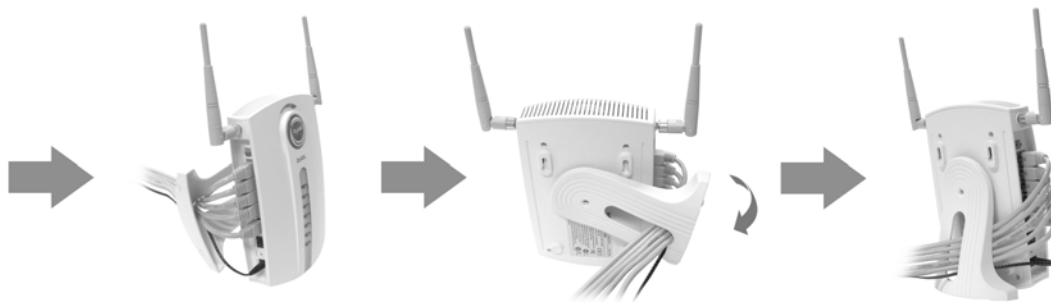
1. Follow the steps to position your ZyAIR on a level surface. You can use the diagrams below for instructions on how to do this.

2. Connect the screw (included) to the support holder.

3. Connect the support holder to the ZyAIR but do not tighten the screw.

4. Twist the support holder to the side.

5. Run the connection wires through the gap in the support holder

Figure 24 Support Holder Connections

6. Twist the support holder back to the vertical position and tighten the screw that connects the support holder to the ZyAIR.

Figure 25 Support Holder Connection Pass Through

Wall-mounted

Follow the steps to attach your ZyAIR to a wall.

1. Locate a high position on the wall that is free of obstructions.

2. Use the included screws (or other screws with 6mm ~7.5mm (0.24" ~ 0.30") wide heads). Install the two screws in the wall 80mm (3.15") apart. Do not screw the screws all the way into the wall. Leave a small gap between the head of the screws and the wall.

Make sure the screws are securely fixed to the wall and strong enough to hold the weight of the ZyAIR with the connection cables.

3. Adjust the cables.

4. Align the holes on the back of the ZyAIR with the screws on the wall. Hang the ZyAIR on the screws.
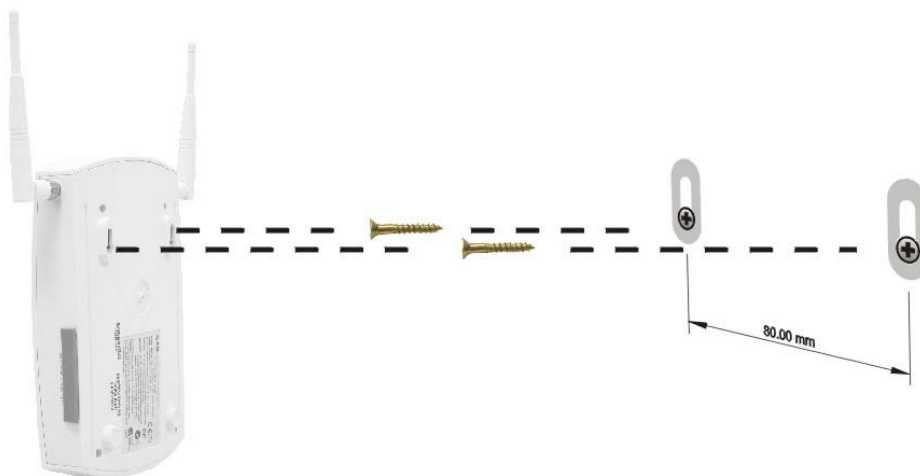
Figure 26 Wall Mounting the ZyAIR

5 Troubleshooting

Table 4 Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LEDs turn on when you turn on the ZyAIR.	Make sure that you have the correct power adaptor connected to the ZyAIR and plugged in to an appropriate power source. Check all cable connections.
	If the LEDs still do not turn on, you may have a hardware problem. In this case, you should contact your local vendor.
Cannot access the ZyAIR from the LAN.	Check the cable connection between the ZyAIR and your computer or hub. Refer to section *1.2* for details.
	Ping the ZyAIR from a LAN computer. Make sure your computer's Ethernet adapter is installed and functioning properly.
	Make sure that the IP address and the subnet mask of the ZyAIR and your computer(s) are on the same subnet.
Cannot get a WAN IP address from the ISP.	Check your Internet connection settings (refer to section *3.2*).
	You need a user name and password if you're using PPPoE or PPTP encapsulation. Make sure that you have entered the correct **Service Name** (PPPoE encapsulation only), username and password (the username and password are case sensitive). Refer to section *3.2* for more information.
Cannot access the Internet.	Check your Internet connection settings (refer to section *3.2*).
	Make sure you entered the correct user name and password.
	For wireless clients, check that both the ZyAIR and wireless client(s) are using the same ESSID, channel and WEP keys (if WEP encryption is activated).

Procedure to View Your Product's Certifications

1. Go to www.zyxel.com.

2. Select your product from the drop-down list box on the ZyXEL home page to go to that product's page.

3. Select the certification you wish to view from this page.