ZyAIR B-4000

Hot Spot Gateway

Quick Installation Guide

Version 1.04
March 2004

ZyXEL
Unleash Networking Power

Table of Contents

1 Introducing the ZyAIR

The ZyAIR Hot Spot Gateway combines an 802.11b wireless access point, router, 4-port switch and service gateway in one box. An "exclusive printer" connects 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.
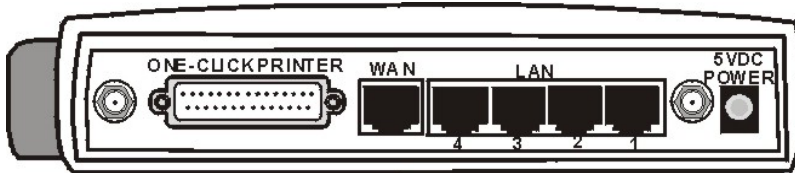
1.1 Rear Panel Connections

Figure 1 ZyAIR Rear Panel

Table 1 Rear Panel Connections

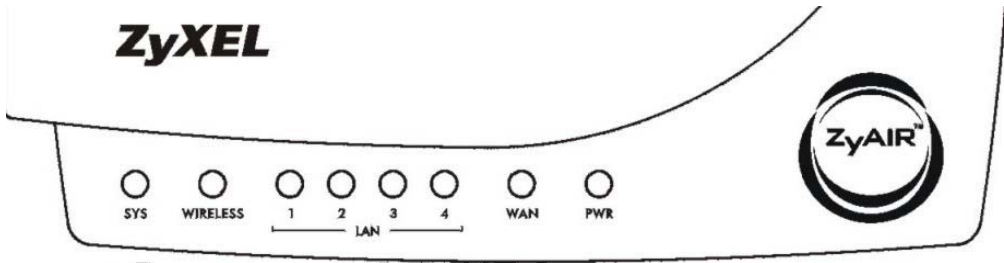| LABEL	DESCRIPTION
ONE-CLICK PRINTER	Use the printer cable to connect the included printer ("exclusive printer") to this port.
WAN	Connect your broadband modem to this port with the Ethernet cable that came with your modem.
LAN 1-4	These ports are auto-crossover, ("auto MDI/MDI-X") which means you can use either a straight-through or crossover Ethernet cable to connect the ZyAIR to a computer or a hub.
Power	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 **SYS** LED blinks while performing system testing and then turns steady on if the testing is successful. A **LAN** LED turns on if a LAN port is properly connected. Refer to the following table for more detailed LED descriptions.

1.2 The Front Panel LEDs

Figure 2 ZyAIR Front Panel

Table 2 Front Panel LEDs

LED	STATUS	DESCRIPTION
PWR	On (Green)	The ZyAIR is receiving power.
	Off	The ZyAIR is not receiving power.
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.
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.
WIRELESS	On (Green)	The ZyAIR has established a wireless LAN connection.
	Blinking (Green)	The ZyAIR is sending/receiving data through the wireless LAN.
SYS	On (Green)	The ZyAIR is ready and running.
	Blinking (Green)	The ZyAIR is upgrading its firmware.
	Off	The ZyAIR is not ready or has failed.

1.3 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 Windows XP, click **Network Connections**.

    In Windows 2000/NT, click **Network and Dial-up Connections**.

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 from192.168.1.2 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**.
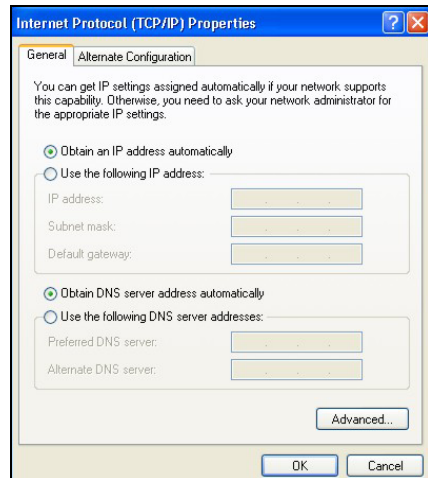
6. Click **Advanced**. Remove any previously installed gateways in the **IP Settin**gs tab and click **OK** to go back to the **Internet Protocol TCP/IP Properties** screen.
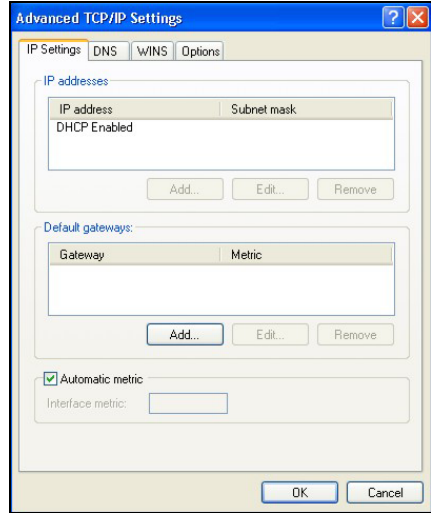
7. Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

8. Click **OK** to close the **Local Area Connection Properties** window.

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.
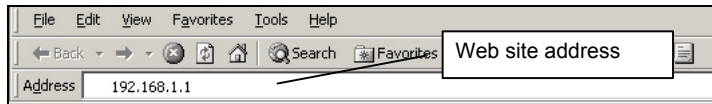

Figure 3 Entering ZyAIR LAN IP Address in Internet Explorer

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.
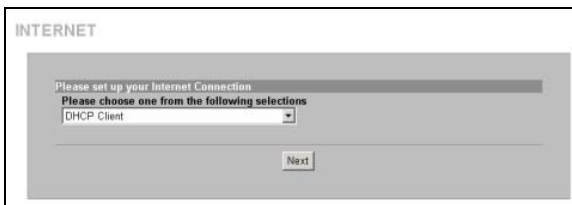
Select **DHCP Client** if your ISP did not assign you a fixed IP address. Your ISP assigns the ZyAIR's WAN port a dynamic IP address. This is the default selection.

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

Figure 5 Internet Connection: DHCP Client

Select **Static_IP** 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, and a subnet mask (**My IP Subnet Mask**) if provided by your ISP.

Enter the DSL terminator IP address (**PPTP Server IP Address**) and a username with an associated password.

See the description of the PPPoE encapsulation screen for information on **PPP MTU**, **TCP 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.

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 802.11b wireless devices) from the drop-down list box.

WEP (Wired Equivalent Privacy) encrypts data frames before transmitting them over the wireless network.

Select **64 Bit**, **128 Bit or 256 Bit** from the **WEP Encryption** and enter a key of the appropriate length to activate WEP encryption. Select **Disable** to turn off WEP data encryption.

Click **Next** to continue.

Figure 9 Wireless Settings

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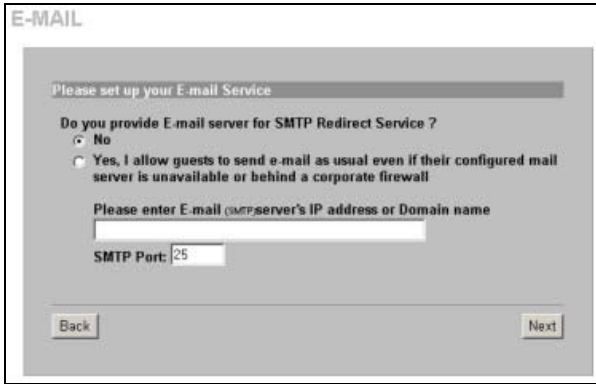
Select **No** to not have the ZyAIR redirect e-mail in the event that a subscriber's e-mail server is unreachable from the ZyAIR.

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.

Figure 10 E-mail Service Setup

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

Click **Next** to continue.

4. Use this screen to set whether or not the ZyAIR authenticates users before allowing them to access the Internet.
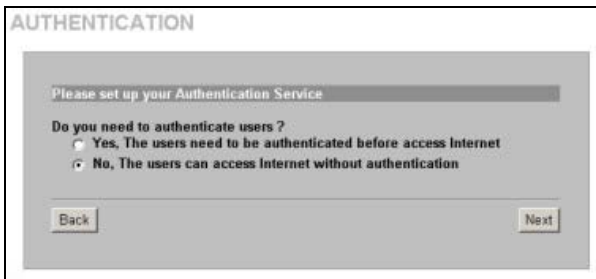
Select **Yes** to require the ZyAIR to authenticate subscribers before allowing Internet access.

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

Click **Next** to continue.

Figure 11 Authentication Service Setup

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

Figure 12 Billing Setup

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.

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 the "exclusive printer" to generate and print subscriber statements or generate them in the web configurator and print them from there. The "exclusive printer" is the printer that attaches directly to the ZyAIR. It can have the ZyAIR generate subscriber statements and then print them.
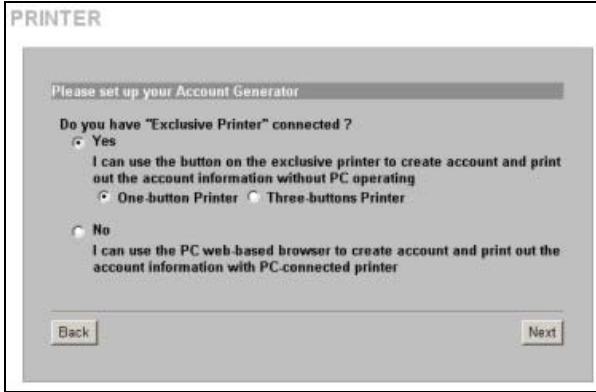
Select **Yes** to use the "exclusive printer" when you generate and print subscriber statements. Select the type of printer that you have (one-button or three-button).

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 18*).

Click **Next** to continue.
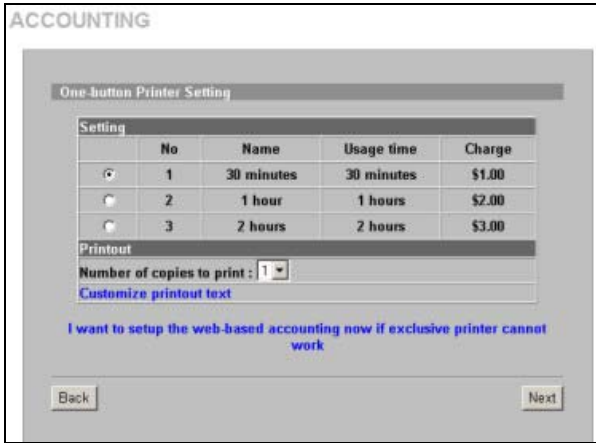
Figure 13 Printer Selection

Select a subscriber "billing profile" for the 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 16*) 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 18*).
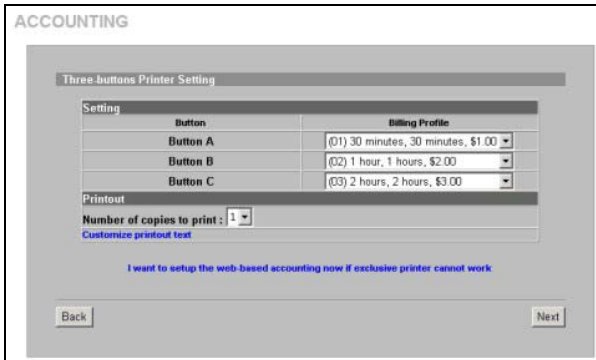
Click **Next** to continue.

Figure 14 Accounting Setup: One-button

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 16*) 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 18*).

Figure 15 Accounting Setup: Three-button

Click **Next** to continue.

Figure 16 Customize Printout Text

Select this check box to display your logo on the subscriber login screen. See the *User's Guide* for how to upload a logo file.

Enter a title (up to 24 characters) for the statement printout in the **Title** field.

Enter a subtitle (up to 80 characters) 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.

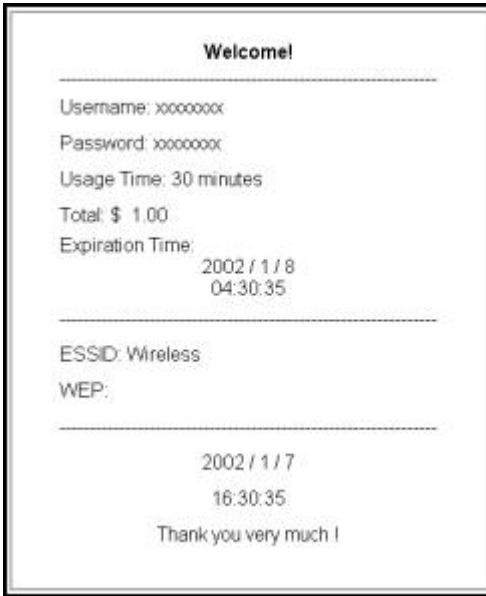Enter the label name for the field displaying the name for the billing profile used.

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.

Enter a 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 Wired Equivalent Privacy (**WEP Encryption**) key.

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

Select **Print out Time** to display the time an account is printed out. 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 expiration.

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 in a new window (*Figure 17*).

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.

Figure 17 Printout Example

Figure 18 Web-based Accounting Setup
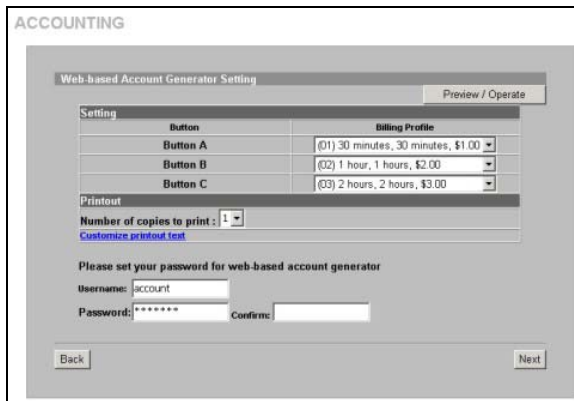
Click **Preview/Operate** to open the **Account Generator Panel** (see *Figure 19*).

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

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 16*) 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.
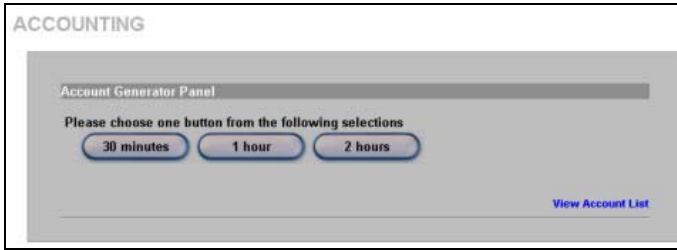
Click **Preview/Operate** in *Figure 18* to display this pop-up screen.

Each button is the subscriber "profile" you defined. The button 1 settings also apply to the button on the "exclusive printer".

Click the **View Account List** link in this screen to display another pop-up screen showing current account information (*Figure 20*). Close this pop-up screen when finished.

Figure 19 Account Generator Panel

Figure 20 Account List

Close this pop-up screen when you have finished viewing it.

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

Figure 21 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.
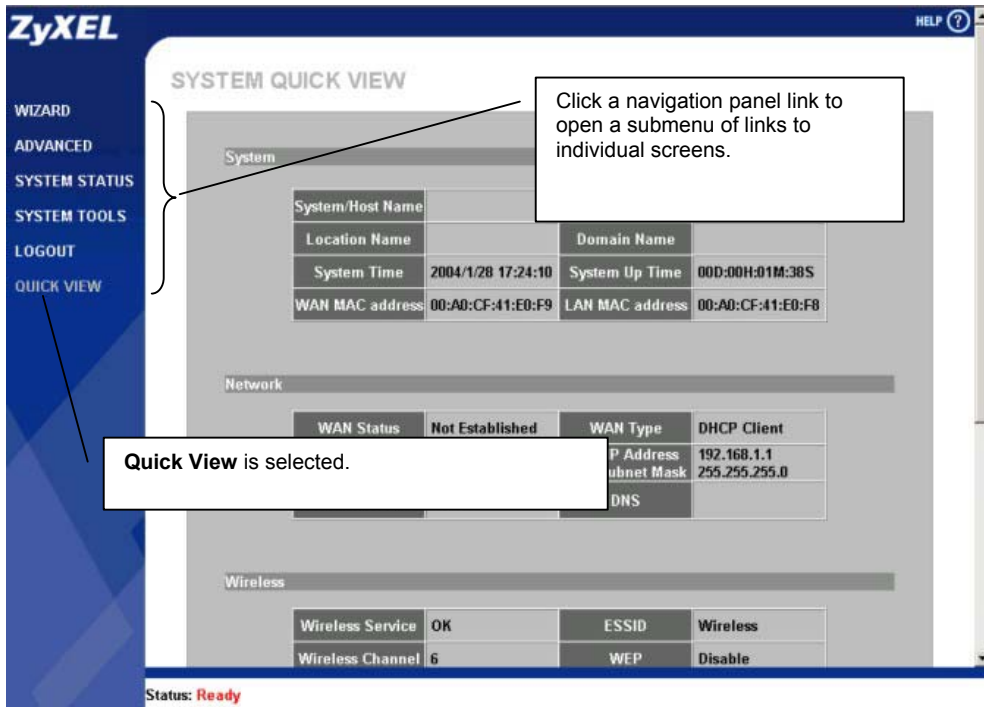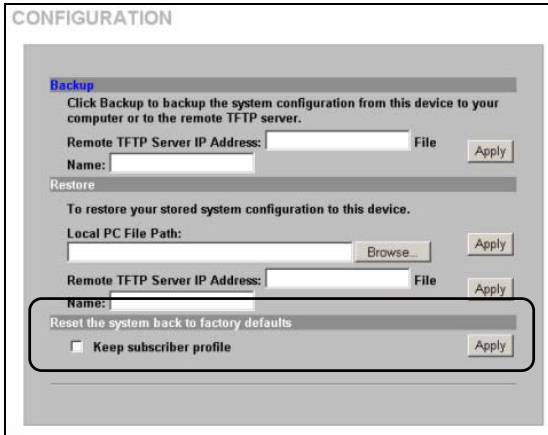
Figure 22 Quick View

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 23 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

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.**

4.1 Desktop Installation

1. Make sure the ZyAIR is clean and dry. Set the ZyAIR on a smooth space strong enough to support the weight of the ZyAIR and the connected cables. Make sure there is a power outlet nearby.

2. Make sure there is enough clearance around the ZyAIR to allow air circulation and the attachment of cables and the power cord.

4.2 Wall-mount Installation

Follow these steps to attach your ZyAIR to a wall.

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

2. Install two screws in the wall 123mm apart. Use screws with 6mm ~ 8mm (0.24" ~ 0.31") wide heads. Do not screw the screws all the way in to the wall. Leave a small gap between the head of the screw and the wall. The gap must be big enough for the screw heads to slide into the screw slots and the connection cables to run down the back of the ZyAIR.

> **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.

　　a. Run the connection cables down the back of the ZyAIR or

　　b. Run the connection cables upward and along the edge of the ceiling.

4. Align the holes on the back of the ZyAIR with the screws on the wall. Hang the ZyAIR on the screws.
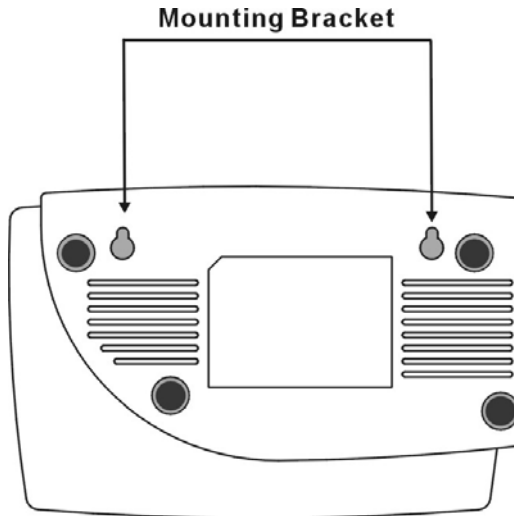
Mounting Bracket

Figure 24 Wall-mount Brackets

4.3 Attaching Antennas

Follow the steps below to connect the supplied antennas.

1. Locate the antenna connectors on the rear 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.

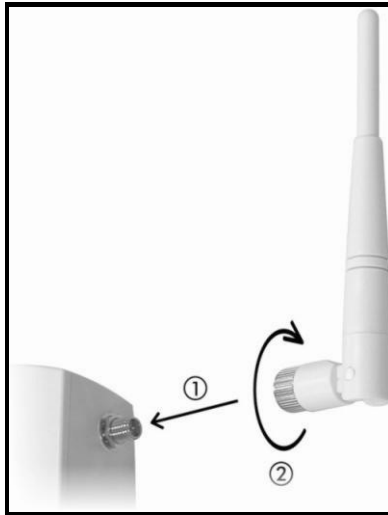**Make sure the antennas are securely screwed onto the antenna connectors.**

Figure 25 Attaching Antennas

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.

Table 4 Troubleshooting

PROBLEM	CORRECTIVE ACTION
Cannot access the ZyAIR from the LAN.	Check the cable connection between the ZyAIR and your computer or hub. Refer to section *1.1* 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 ping any computer on the LAN.	If the LAN LEDs are all off, check the cable connections between the ZyAIR and your LAN computers. Verify that the IP address, subnet mask of the ZyAIR and the LAN computers are in the same IP address range.
Cannot ping any computer on the WLAN	Make sure the wireless card is properly inserted in the ZyAIR and the **WIRELESS** LED is on. Make sure the wireless card on the wireless client is working properly. Check that both the ZyAIR and wireless client(s) are using the same ESSID, channel and WEP key (if WEP encryption is activated).
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 PPPoA encapsulation. Make sure that you have entered the correct **Service Name** (PPPoE encapsulation only), **User Name** 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).