ZyAIR B-2000

Wireless LAN Gateway with 4-Port Switch

Quick Installation Guide

Version 3.50

October 2002

ZyXEL

TOTAL INTERNET ACCESS SOLUTION

Table of Contents

Introduction

About Your ZyAIR B-2000 Wireless LAN Gateway with 4-Port Switch

The ZyAIR B-2000 is a wireless sharing router with an integrated 4-port switch designed for telecommuters and home offices to access the Internet via cable or DSL modem. With a built-in IEEE 802.11b wireless access point, users enjoy wireless mobility to the wired network.

By integrating IEEE 802.1x and NAT the ZyAIR provides not only ease of installation and Internet access, but also a complete security solution that protects your network and efficiently manages data traffic on your network.

The embedded web configurator provides easy network management and is totally independent of your operating system.

Packaging List

The following items come with your ZyAIR.

- This Quick Installation Guide
- One 12 VDC power adapter
- One supporting CD (includes a User's Guide and Support Notes)
- One straight-through Ethernet cable
- Two 2dBi Omni antennas
- One console cable
- Desktop holder

Online Registration

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

WARNING!
USE ONLY THE INCLUDED POWER ADAPTER!
INAPPROPRIATE OPERATION WITH ANOTHER POWER ADAPTER MIGHT DAMAGE YOUR DEVICE.

Hardware Installation

Attaching Antennas

Refer to the *User's Guide* for more information about the supplied antennas.

Follow the steps below to connect the supplied antennas.

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

Step 2. Screw the antennas clockwise onto the antenna connectors.

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

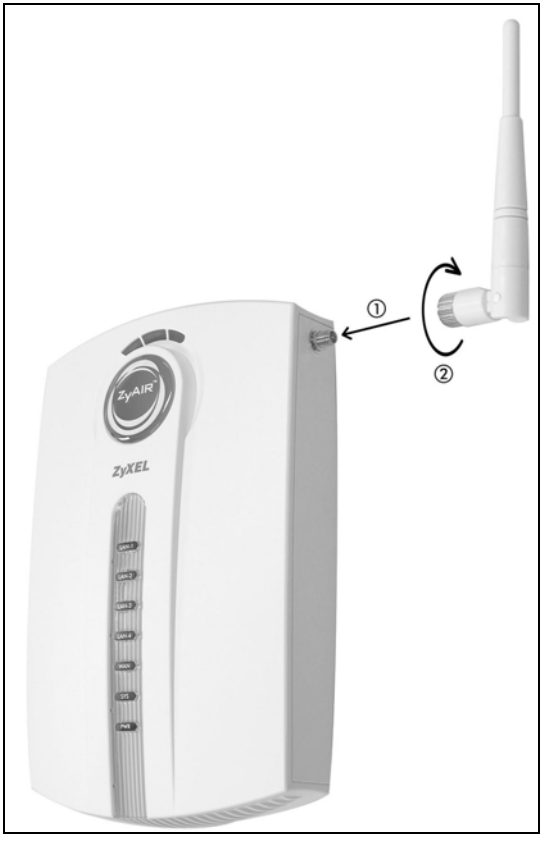


Diagram 1 Attaching Antenna

Hardware Mounting Installation

Free-standing

Place your ZyAIR on a flat, level surface (on a desk or shelf) that is sturdy enough to support the weight of the ZyAIR with connection cables.

With the Desktop Holder

The included desktop holder helps you organize the ZyAIR's connection cables.

Step 1. Secure the desktop holder to the back of the ZyAIR with the included screw.

Step 2. Turn the desktop holder up to the right.

Step 3. Refer to the *Hardware Connections* section. Connect the cables to the ports on the ZyAIR through the desktop holder.

Step 4. Turn the desktop holder down and place the unit on a flat, sturdy surface (on a desk or shelf).

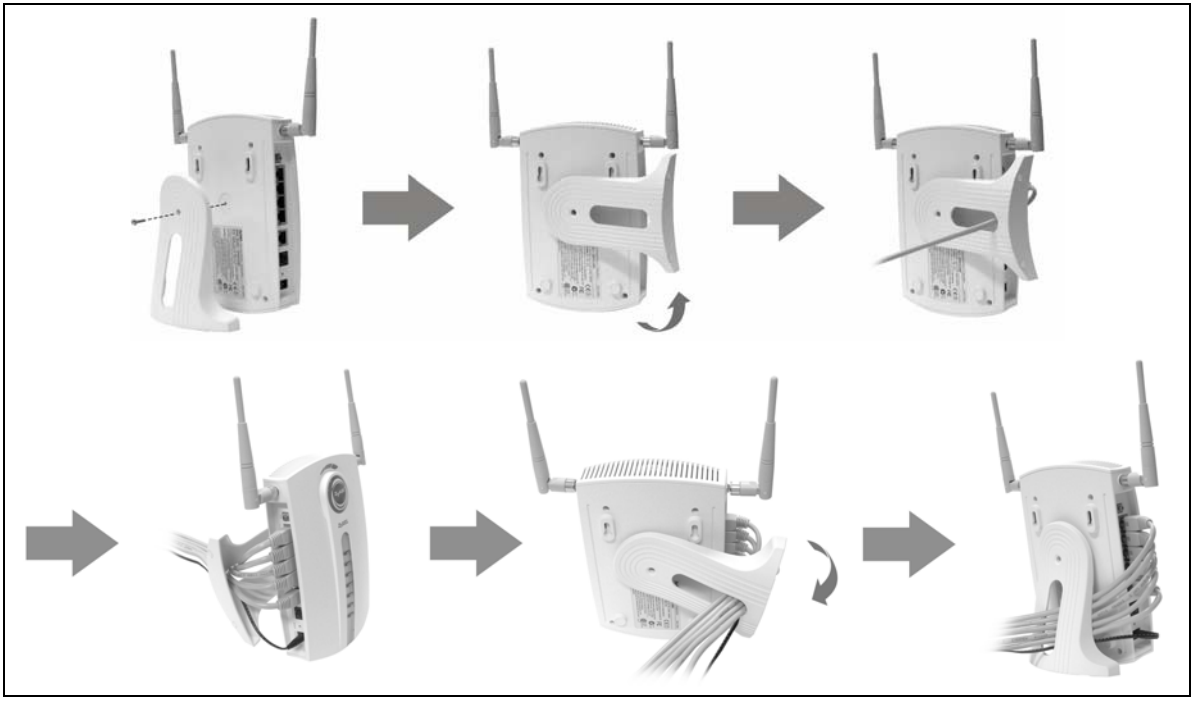


Diagram 2 Instructions using the Desktop Holder

Wall-mounted

Follow the steps to attach your ZyAIR to a wall.

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

Step 2. Secure two screws in the wall **80 mm** 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.

Failure to use the proper screws may damage the unit.

Make sure the screws are sturdy enough to hold the weight of the ZyAIR with the connection cables.

Step 3. Align the holes on the back of the ZyAIR with the screws on the wall. Hang the ZyAIR on the screws.

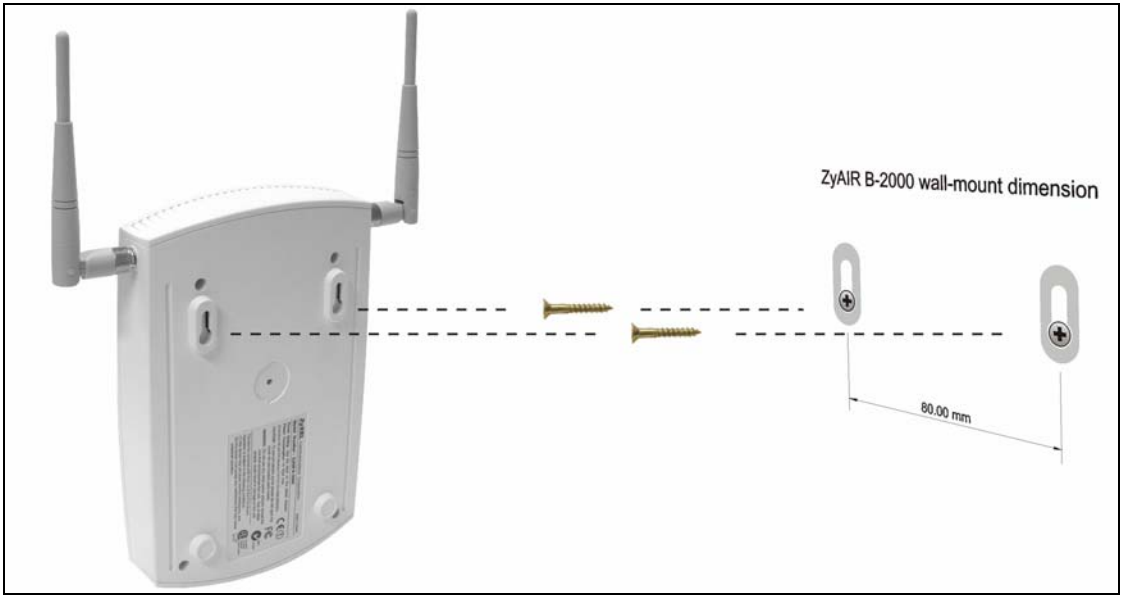


Diagram 3 Wall Mount your ZyAIR

Additional Installation Requirements

1. A computer(s) with an installed Ethernet NIC (Network Interface Card) or an IEEE 802.1b-compliant PCMCIA wireless LAN card.
2. To enable remote RADIUS authentication for wireless clients, you need
   - A wireless client computer running IEEE 802.1x-compliant client software. Currently, this is offered in Windows XP.
   - A network RADIUS server for remote user authentication and accounting.
3. A computer equipped with communications software (for example, Hyper Terminal in Windows) configured to the following parameters:
   - VT100 terminal emulation.
   - 9600 baud rate.
   - Parity set to none, 8 data bits, 1 stop bit.
   - Flow control set to none.
4. A cable/DSL modem and an ISP account.

Hardware Connections

Side Panel and Connections

CONNECTION	DESCRIPTION AND FUNCTION
POWER	This supplies the power to the unit. Connect the supplied power adaptor to the wall outlet and insert the small plug from the power adaptor to this socket.
RESET	This button resets the unit.
CONSOLE	This port is used for configuration and administration of the ZyAIR. Connect your administration computer to this port via an RS-232 cable.
WAN	Connect your Cable/DSL modem to this port.
LAN 1-4	These auto-sensing LAN ports are used to connect the ZyAIR to local computers or to an external hub. All LAN ports are auto-sensing. This means that these ports automatically adjust according to the type of cable, for example, Straight-through Ethernet cable or Crossover Ethernet cable.
F.G.	Ground the ZyAIR by connecting a grounded wire to the Frame Ground (F.G) terminal.

Warning!
Use only the supplied power adapter!

Using the RESET Button

Step 1. Use a pointed object to press the **RESET** button for 5-10 seconds (the SYS LED flashes), then release it.

Step 2. If the SYS LED flashes within 30 seconds, the factory defaults have been restored and the ZyAIR restarts. Otherwise, go to step 3.

Step 3. Turn the ZyAIR off.

Step 4. While pressing the **RESET** button, turn the ZyAIR on.

Step 5. Continue to hold the **RESET** button for about 30 seconds. The ZyAIR restarts.

Step 6. Release the **RESET** button and wait about ten seconds for the ZyAIR to finish restarting or until the SYS LED stops flashing.

The Front Panel

The LEDs on the front panel indicate the operational status of the ZyAIR.

Description of the LEDs

LED	COLOR	STATUS	DESCRIPTION
LINK	Green	On	The wireless card on the ZyAIR is working properly.
		Off	The wireless card on the ZyAIR is not ready or has a malfunction.
ZyAIR (WLAN ACK)	Blue	On (dim)	The ZyAIR is ready, but is not sending/receiving data through the wireless LAN.
		Breathing	The ZyAIR is sending/receiving data through the wireless LAN.
LAN 1-4	Green	On	The ZyAIR has a successful 10Mbps Ethernet connection.
		Blinking	The ZyAIR is sending/receiving data.
		Off	The ZyAIR does not have 10Mbps Ethernet connection.
	Orange	On	The ZyAIR has a successful 100Mbps Ethernet connection.
		Blinking	The ZyAIR is sending/receiving data.
		Off	The ZyAIR does not have 100Mbps Ethernet connection.
WAN	Green	On	The ZyAIR has successful 10Mbps WAN connection.
		Blinking	They ZyAIR is sending/receiving data.
		Off	The ZyAIR does not have 10Mbps WAN connection.
	Orange	On	The ZyAIR has successful 100Mbps WAN connection.
		Blinking	They ZyAIR is sending/receiving data.
		Off	The ZyAIR does not have 100Mbps WAN connection.
SYS	Green	On	The ZyAIR is functioning properly.
		Blinking	The ZyAIR is rebooting.
		Off	The ZyAIR is not ready or has malfunctioned.
PWR	Green	On	The ZyAIR is receiving power.
		Off	The ZyAIR is not receiving power.

Internet Account Checklist

Your ISP (Internet Service Provider) should have given you most of the following information. You do not need to fill in every blank.

REQUIRED INFORMATION		
Your device's WAN IP Address (if given): _____		
Encapsulation:		
☐ **Ethernet**	Service Type: _____	
	Login Server IP Address: _____	
	User Name: _____	Password: _____
☐ **PPTP**	User Name: _____	Password: _____
	Your WAN IP Address: _____	PPTP Server IP Address: _____
	Connection ID (if required): _____	
☐ **PPPoE**	(PPPoE) Service Name: _____	
	User Name: _____	Password: _____

Setting Up the ZyAIR Using the Easy Setup Wizard

The support CD contains the Easy Setup Wizard to help you set up your ZyAIR and your wireless LAN quickly for Internet access. You may also use the embedded web-based configurator (as discussed in the next section).

Follow the steps below to start the Easy Setup Wizard.

Step 1. Insert the support CD into the CD-ROM drive on your computer.

Step 2. The installation wizard will auto-run and the screen shown below should appear. If it does not, click **Start**, **Run**, and then type **d:\Easy_Setup_Wizard.exe** (where "**d**" is your computer CD-ROM drive) and then click **OK**.

Step 3. Click **Set up ZyAIR for Internet Access** and follow the online instruction.

Internet Access Setup Using the Web Configurator Wizard

The web configurator provides user-friendly setup for your ZyAIR.

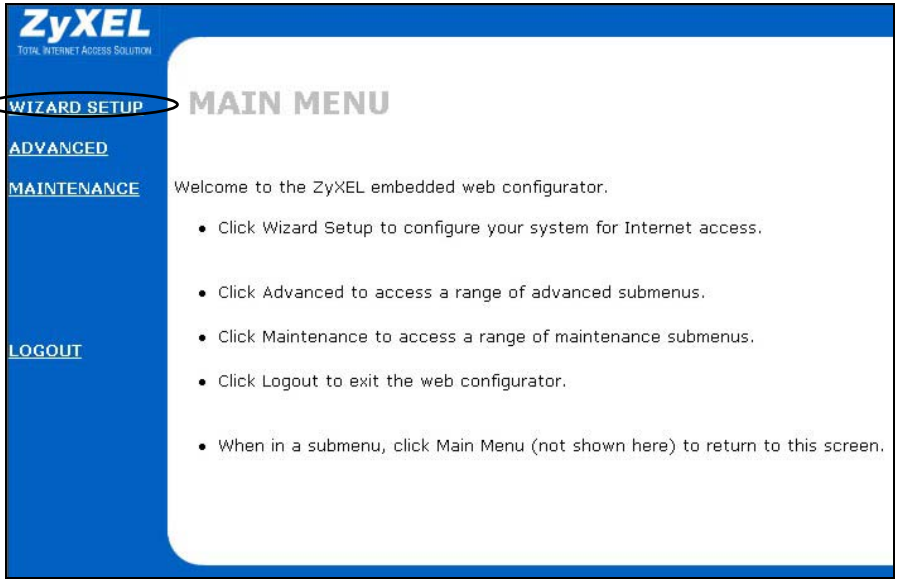
Step 1. Make sure your computer IP address and the ZyAIR IP address are on the same subnet. Refer to the section on *Preparing Your Network*.

Step 2. Launch your web browser and enter 192.168.1.1 (default) as the URL.

Step 3. Enter "1234" (default) as the password and click **Login**. You should see a screen asking you to change your password (highly recommended).

Step 4. Either enter a new password (and retype it to confirm) and click **Apply** or click **Ignore**.

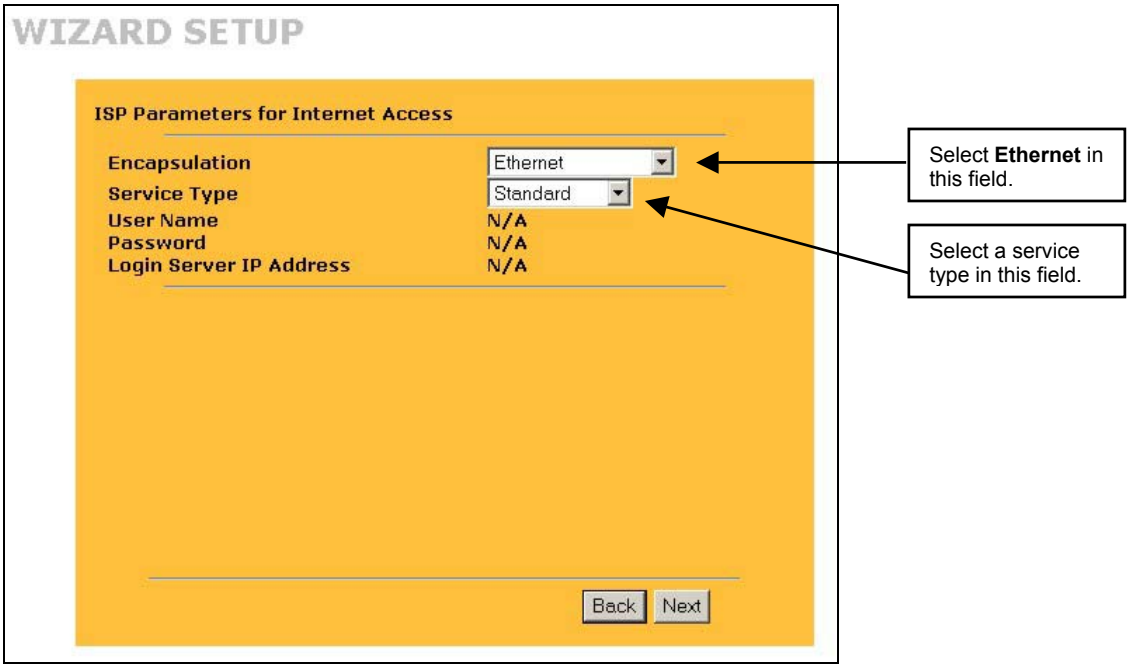
Step 5. Click **WIZARD SETUP** in the **MAIN MENU** screen.



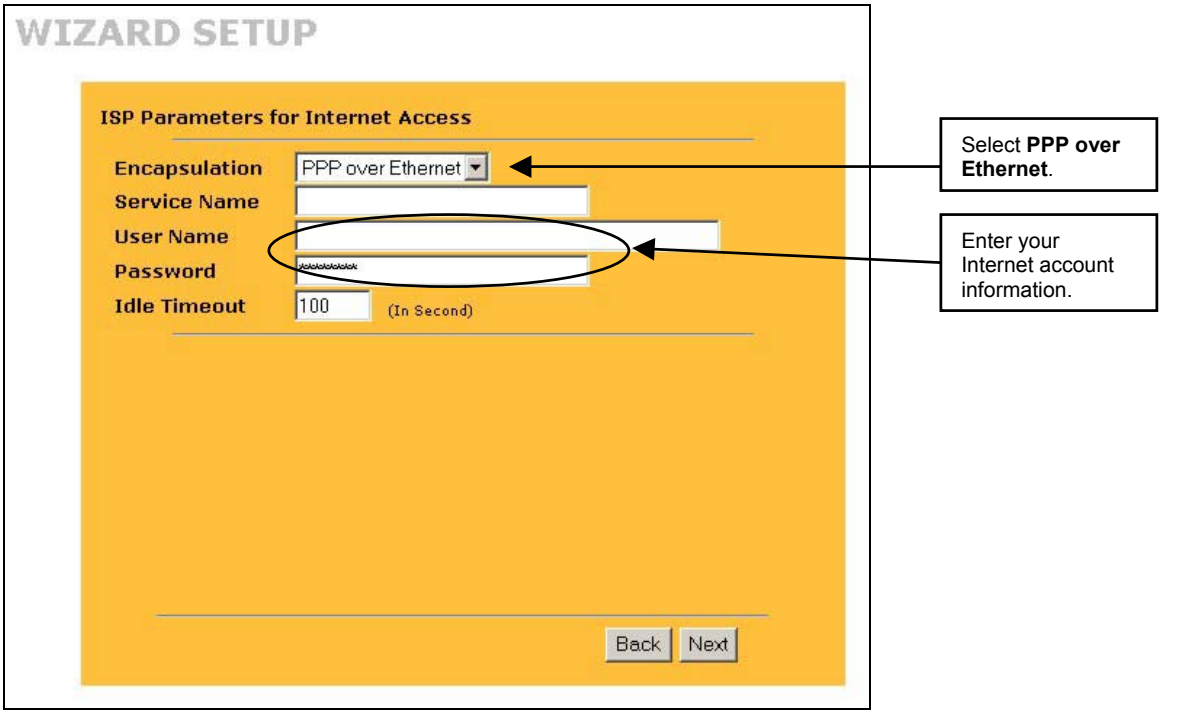
Step 5. Follow the online instruction to enter the fields in the screen displayed and click **Next**.

Step 6. Select encapsulation type and/or enter your Internet account information.

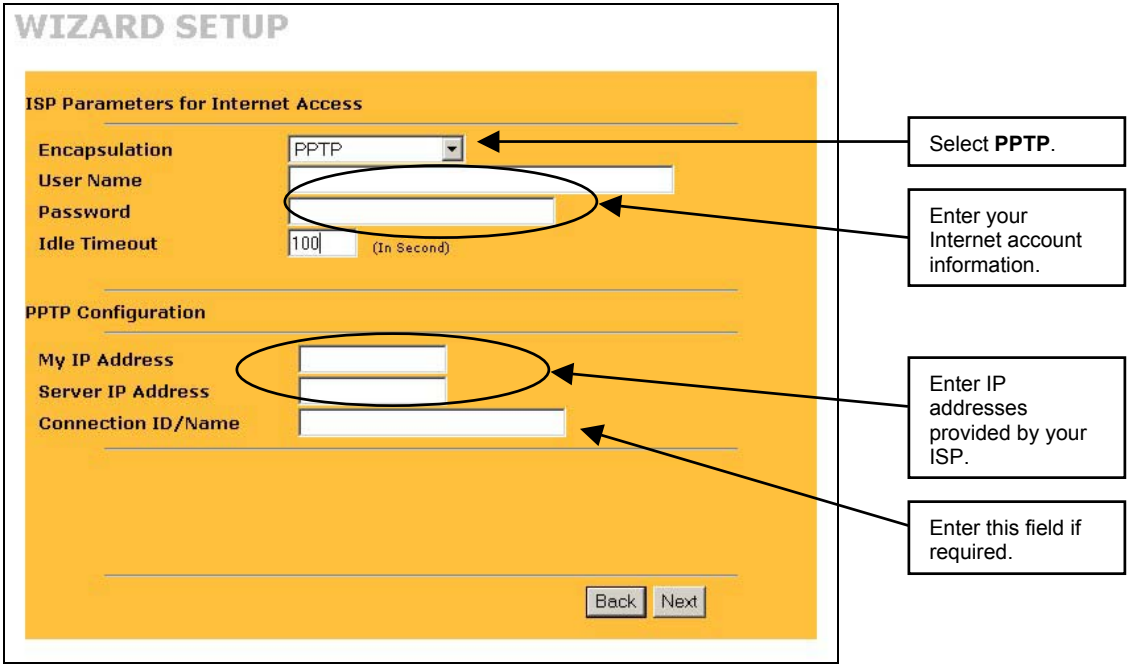
Case A: Internet Setup with Ethernet



Case B: Internet Setup with PPPoE



Case C: Internet Connection with PPTP

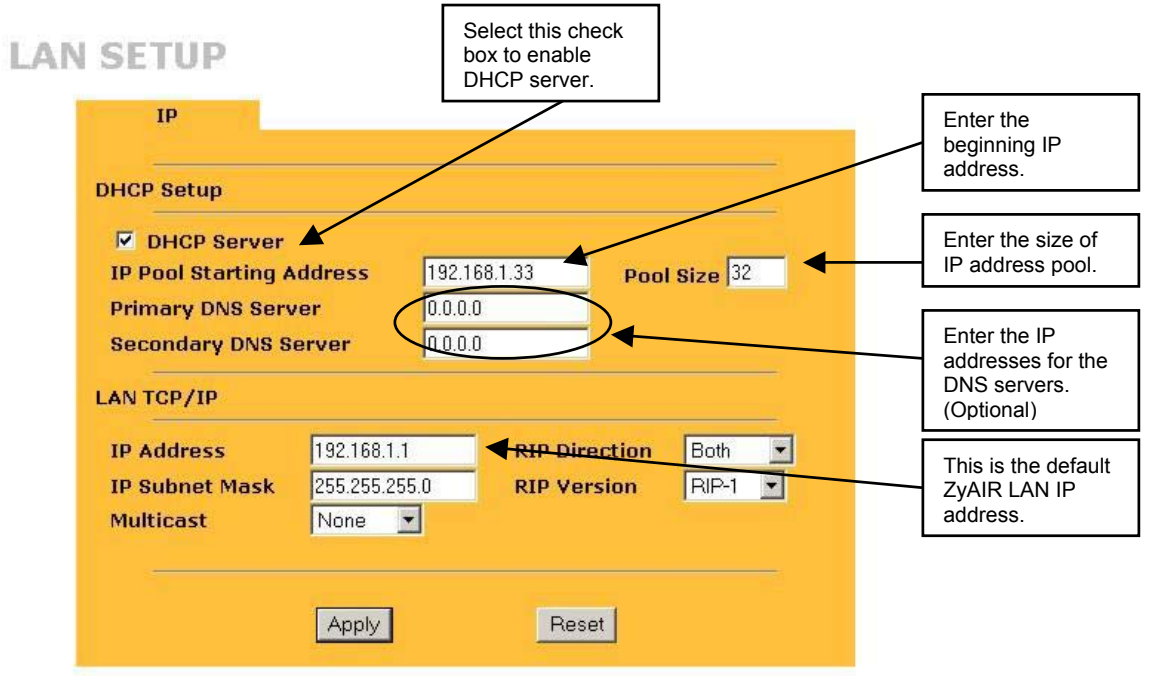


Configuring DHCP

The ZyAIR has built-in DHCP (Dynamic Hot Configuration Protocol) server capability, enabled by default. This allows the ZyAIR to assign IP addresses, an IP default gateway and DNS servers to Windows that support the DHCP client.

DNS (Domain Name System) is for mapping a domain name to its corresponding IP address and vice versa. If the **Primary/Secondary DNS Server** fields in **DHCP Setup** are not specified, for instance, left as 0.0.0.0, the ZyAIR tells the DHCP clients that it itself is the DNS server.

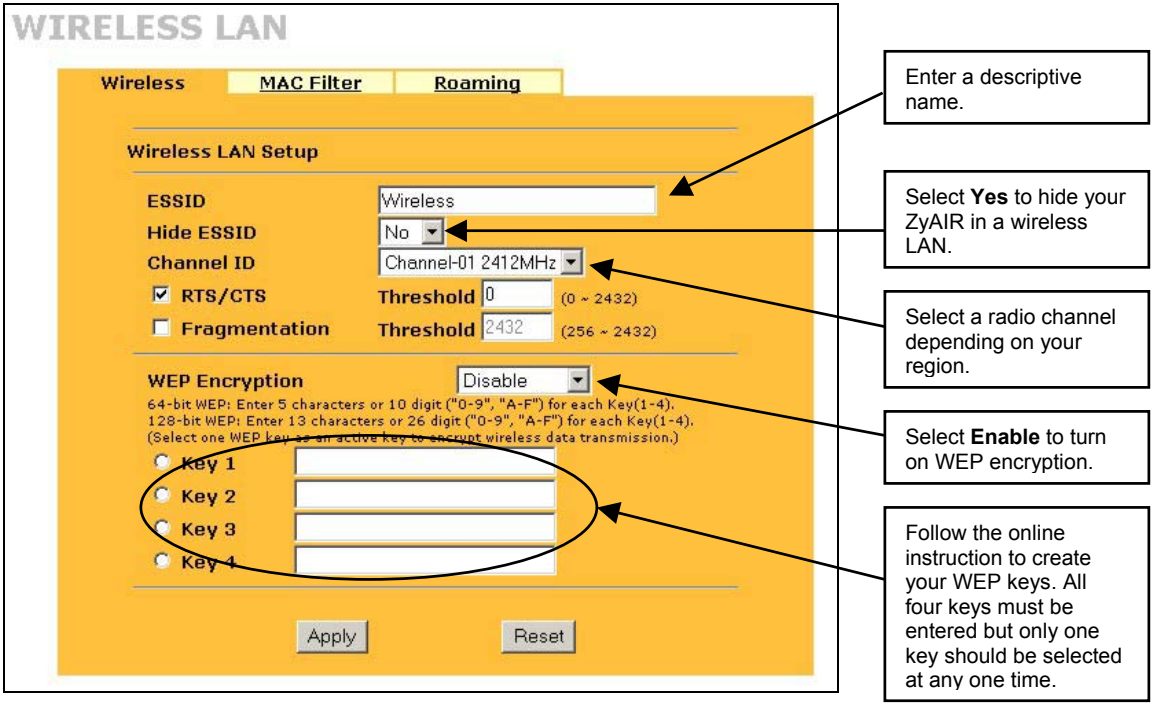
From the **MAIN MENU** screen, click on **ADVANCED** and then **LAN** to configure DHCP on the ZyAIR.



Make sure the IP pool starting address and the ZyAIR LAN IP address are on the same subnet.

Wireless LAN Setup

From the **MAIN MENU** screen, click on **ADVANCED** and then **WIRELESS** to configure wireless LAN settings on the ZyAIR.

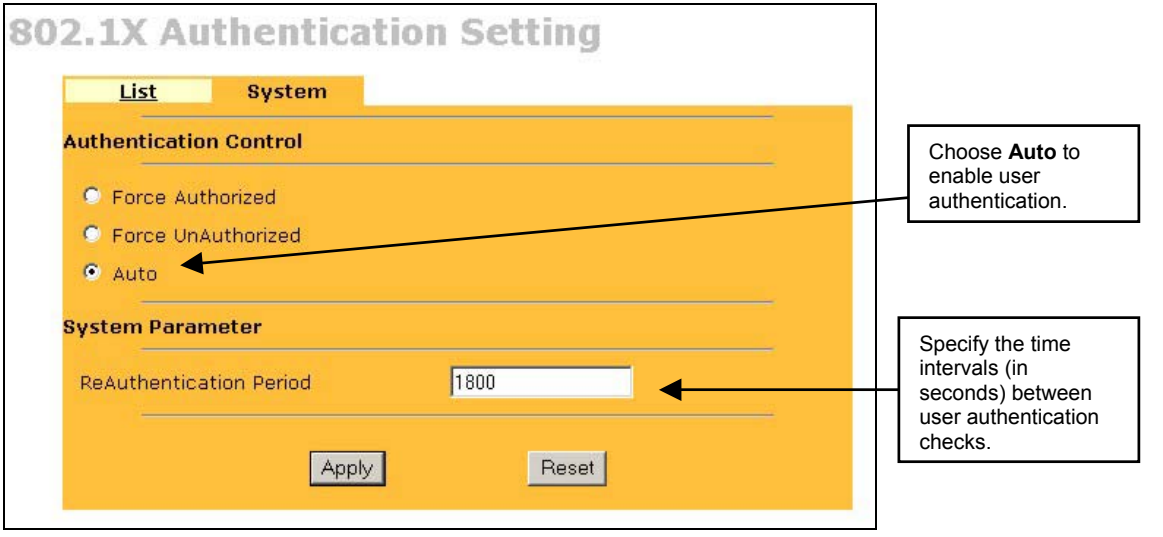


The wireless clients and ZyAIR must use the same ESSID, Channel ID and WEP encryption key (if WEP is enabled) for wireless communication.

Activating User Authentication

Before a wireless client can communicate on your network through your ZyAIR, it must be authenticated by the ZyAIR and your network.

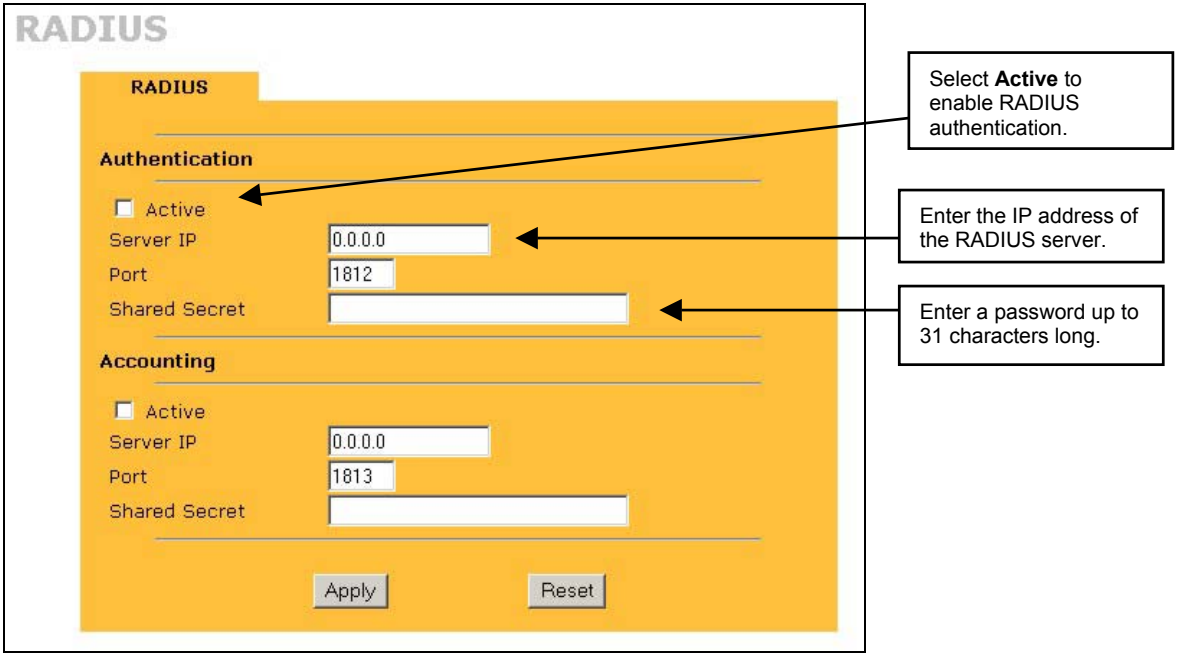
From the **MAIN MENU**, click on **ADVANCED**, **802.1x** and then click on the **System** tab.



Once you enable user authentication, you need to specify an external RADIUS server or create user accounts.

Setting External RADIUS Server

RADIUS (Remote Authentication Dial In User Service) server enables authentication, authorization and accounting for your network.



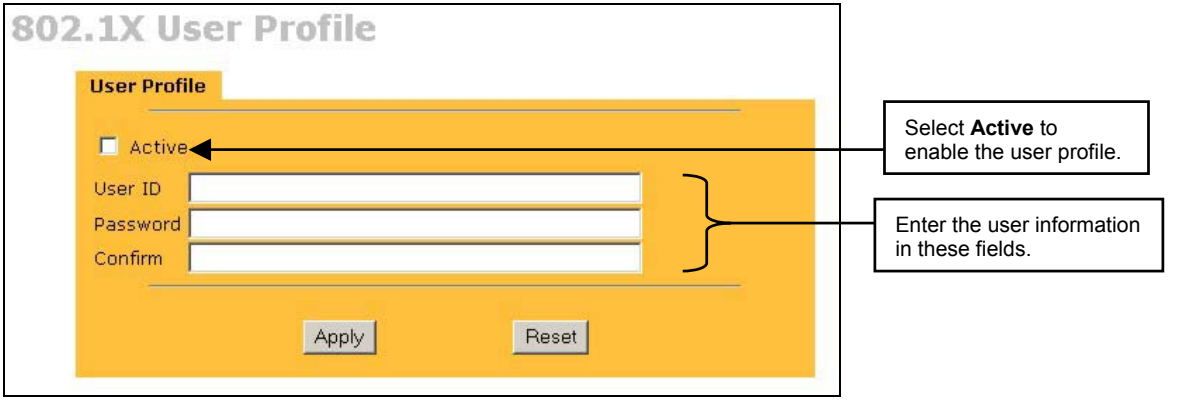
If you do not enable the RADIUS authentication, ZyAIR will authenticate wireless clients using local user profile.

The Shared Secret **must be the same on the ZyAIR and the external RADIUS server.**

Creating User Profiles on the ZyAIR

By storing user profiles locally, your ZyAIR is able to authenticate wireless users without interacting with a network RADIUS server. You can set up to 32 user profiles on the ZyAIR.

From the **MAIN MENU** screen, click **802.1x**, then select a user and click **Edit**.

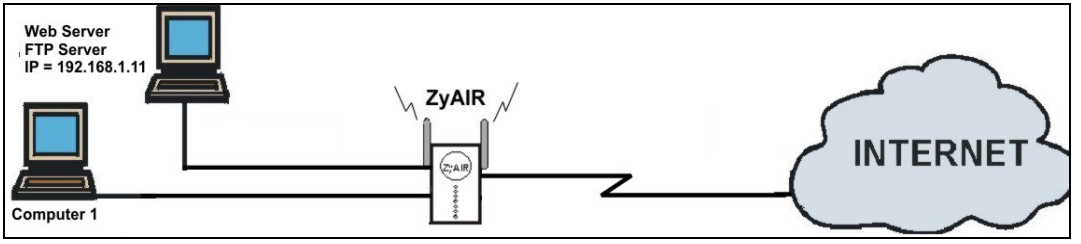


Port Forwarding

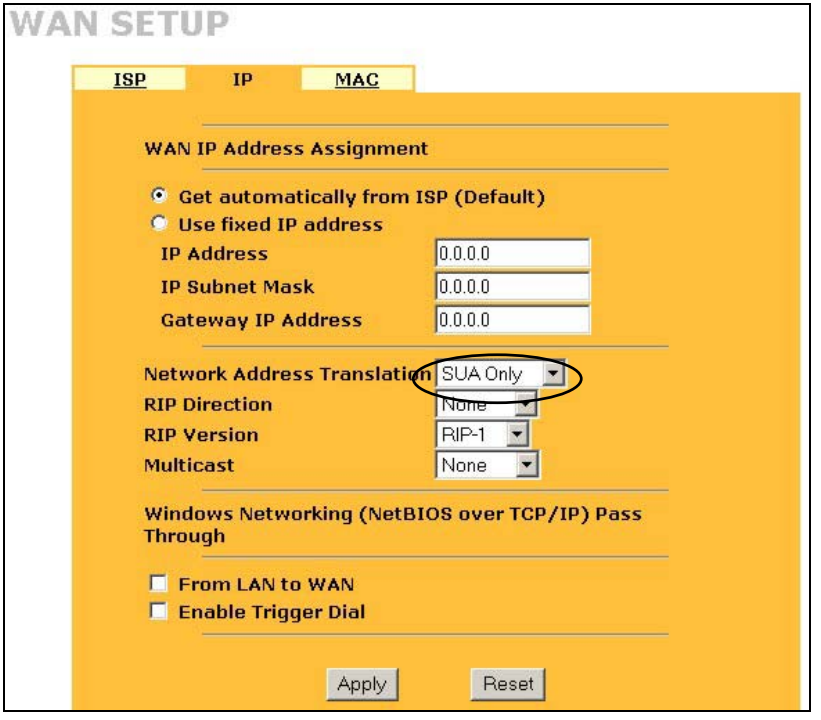
A NAT server set is a list of inside (behind NAT on the LAN) servers, for example, web or FTP, that you can make visible to the outside world.

A port number identifies a service. Port forwarding forwards incoming service requests to the server(s) on your local network. Refer to the *User's Guide* for port numbers used for common services.

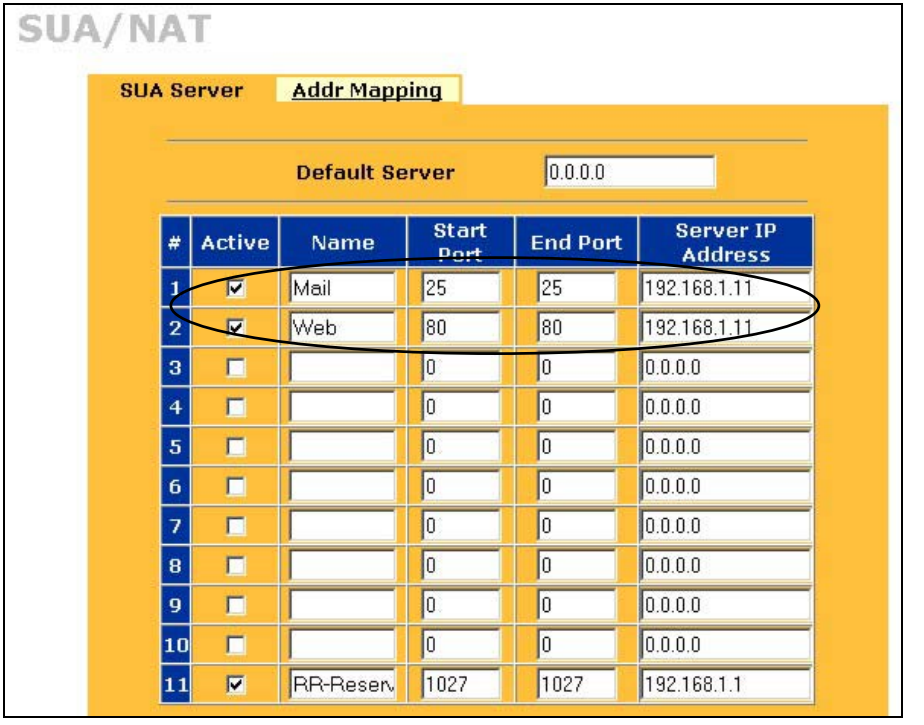
Example: Internet Access with Inside Servers



Step 1. In the **WAN Setup – IP** screen, select **SUA Only** in the **Network Address Translation** field.



Step 2. In the **SUA Server** screen, enter the port numbers (for the services) and IP address of the inside server.



Preparing Your Network

All computers must have a 10M or 100M Ethernet adapter 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.

Windows 95/98/Me/NT/2000/XP, Macintosh OS 7 and later operating systems and all versions of UNIX/LINUX include the software components you need to install and use TCP/IP on your computer. Windows 3.1 requires the purchase of a third-party TCP/IP application package.

After the appropriate TCP/IP components are installed, configure the TCP/IP settings in order to "communicate" with your network.

The ZyAIR assigns these factory default values if you configure TCP/IP using DHCP:

- IP address: between 192.168.1.33 and 192.168.1.64
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1 (the ZyAIR)

These procedures are for dynamic IP addresses. Do not assign an arbitrary IP address or subnet mask to your computer, if you do, you will not be able to access the Internet.

Setting up Your Windows 95/98/Me Computer

Configuring TCP/IP

1. Click **Start**, **Settings, Control Panel** and double-click the **Network** icon.
2. In the **Network** window **Configuration** tab, select your network adapter's **TCP/IP** entry and click **Properties**.
3. Click the **IP Address** tab. Click **Obtain an IP address automatically**.
4. Click the **DNS Configuration** tab. Select **Disable DNS**.
5. Click the **Gateway** tab. Highlight any installed gateways and click **Remove** until there are none listed.
6. Click **OK** to save and close the **TCP/IP Properties** window.
7. Click **OK** to close the **Network** window.
8. Turn on your ZyAIR and restart your computer when prompted. Insert the Windows CD if prompted.

Verifying TCP/IP Properties

1. Click **Start** and then **Run**. In the **Run** window, type "winipcfg" and then click **OK** to open the **IP Configuration** window.
2. Select your network adapter. You should see your computer's IP address, subnet mask and default gateway.

Setting up Your Windows NT/2000/XP Computer

Configuring TCP/IP

1. Click **Start**, **Settings**, **Network and Dial-up Connections** and right-click **Local Area Connection** or the connection you want to configure and click **Properties**. For Windows XP, click **start**, **Control Panel**, **Network and Internet Connections** and then **Network Connections**. Right-click the network connection you want to configure and then click **Properties**.
2. Select **Internet Protocol (TCP/IP)** (under the **General** tab in Win XP) and click **Properties**.
3. The **Internet Protocol TCP/IP Properties** window opens. Click **Obtain an IP address automatically**.
4. Click **Obtain DNS server automatically**.
5. Click **Advanced**, **IP Settings** tab and remove any installed gateways, then click **OK**.
6. Click **OK** to save and close the **Internet Protocol (TCP/IP) Properties** window.
7. Click **OK** to close the **Local Area Connection Properties** window.
8. Turn on your ZyAIR and restart your computer (if prompted).

Verifying TCP/IP Properties

1. Click **Start**, **Programs**, **Accessories** and then **Command Prompt**.
2. In the **Command Prompt** window, type "ipconfig" and then press **ENTER**. The window displays information about your IP address, subnet mask and default gateway.

Setting up Your Macintosh Computer

Configuring TCP/IP Properties

1. Click the **Apple** menu, **Control Panel** and double-click **TCP/IP** to open the **TCP/IP Control Panel**.
2. Select **Ethernet** from the **Connect via** list.
3. Select **Using DHCP Server** from the **Configure** list.
4. Close the **TCP/IP Control Panel**.
5. Click **Save** if prompted, to save changes to your configuration.
6. Turn on your ZyAIR and restart your computer (if prompted).

Verifying TCP/IP Properties

Check your TCP/IP properties in the **TCP/IP Control Panel**.

Troubleshooting

PROBLEM	CORRECTIVE ACTION
The PWR LED is off.	Make sure you are using the correct power adapter and the power adapter is plugged into an adequate power supply. Turn the ZyAIR off and on. If the error persists, you may have a hardware problem. In this case, you should contact your vendor.
The LAN LED won't turn on.	Check the cable connection to the ZyAIR LAN port. Make sure your computer NIC (Network Interface Card) is working properly.
I cannot access the SMT menu.	The default SMT password is "1234". If you have changed the password and have now forgotten it, you will need to upload the default configuration file (see *User's Guide*).
I cannot access the web configurator.	Check that your computer IP address and the ZyAIR IP address are on the same subnet. The default password is "1234". If you have changed the password and have now forgotten it, you will need to upload the default configuration file (see *User's Guide*). If you changed the ZyAIR default LAN IP address then enter the new one as the URL. Remove any filters you have applied in menu 3.1 (LAN) or in menu 11.5 (WAN) to block web service.
I cannot ping any computer on the LAN.	If all of the 10/100M LAN LEDs are off, check the cables between the ZyAIR and your computer or hub. Verify that the IP address and the subnet mask of the ZyAIR and the computers are on the same subnet. Check the TCP/IP configuration on your computer. Make sure that the IP address and the subnet mask of the ZyAIR and the computers are on the same subnet.
I cannot get a WAN IP address from the ISP.	The WAN IP is provided after the ISP verifies the MAC address, host name or user ID. Find out the verification method used by your ISP and configure the corresponding fields.
I cannot access the Internet.	Make sure the ZyAIR is turned on and connected to the network. Make sure you entered your user name correctly. A username may be case-sensitive.
Internet connection disconnects	Check the schedule rules in SMT menu 26. If you use PPPoE encapsulation, check the idle time-out setting in SMT menu 11.5. Contact your ISP.

Cut out this page to mark the points on the wall for the screws.