



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ZYXEL ZYAIR G-4100. You'll find the answers to all your questions on the ZYXEL ZYAIR G-4100 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ZYXEL ZYAIR G-4100
User guide ZYXEL ZYAIR G-4100
Operating instructions ZYXEL ZYAIR G-4100
Instructions for use ZYXEL ZYAIR G-4100
Instruction manual ZYXEL ZYAIR G-4100

ZyAIR G-4100

802.11g Wireless Hotspot Gateway

User's Guide

Version 1.00
11/2005

ZyXEL



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Manual abstract:

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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. Antenna Warning! This device meets ETSI and FCC certification requirements when using the included antenna(s). Only use the included antenna(s).

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. Certifications 1. Go to www.zyxel.com. 2. 3. Select your product from the drop-down list box on the ZyXEL home page to go to that product's page. Select the certification you wish to view from this page.

FCC iii ZyAIR G-4100 User's Guide This product has been designed for the WLAN 2.4 GHz network throughout the EC region and Switzerland, with restrictions in France. iv Copyright ZyAIR G-4100 User's Guide 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. Connect the power cord to the right supply voltage (110V AC in North America or 230V AC in Europe). Place connecting cables carefully so 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.

The PoE (Power over Ethernet) devices that supply or receive power and their connected Ethernet cables must all be completely indoors. 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.

Safety Warnings v ZyAIR G-4100 User's Guide ZyXEL Limited Warranty ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in materials or workmanship for a period of up to two years from the date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions. Note Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. ZyXEL shall in no event be held liable for indirect or consequential damages of any kind to the purchaser. To obtain the services of this warranty, contact ZyXEL's Service Center for your Return Material Authorization number (RMA). Products must be returned Postage Prepaid. It is recommended that the unit be insured when shipped.

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Date that you received your device. Brief description of the problem and the steps you took to solve it. METHOD LOCATION CORPORATE

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20-1 20.2 Bandwidth Configuration

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20-1 Chapter 21 Wireless LAN

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.....21-1 21.1 Wireless LAN Overview ..

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..22-1 22.2 View System Information..

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..22-1 22.3 Account List

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..22-4 22.4 Account Log ..

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..22-4 22.5 Current Users

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.22-6 22.6 DHCP Clients

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*.....22-6 22.
7 Session List.....*

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.. 23-1 23.2 Configuration File Maintenance ..

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..... 23-1 23.2.1 23.2.

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.23-1 Backup Configuration Using TFTP

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.....23-3 Restore Configuration Using HTTP ..

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.....23-4 Restore Configuration Using TFTP .

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..23-5 Manual Firmware Upgrade Using the Web Configurator

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.....23-6 Manual Firmware Upgrade via TFTP Server .

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.....23-7 Manual Boot Code Upgrade Using the Web Configurator....

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...23-8 Scheduled Firmware Upgrade.....

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....23-9 Firmware Upgrade

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... 24-6 24.5 SSL Certificate Download .

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. 24-6 Chapter 25 Ping Command

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.... 25-1 25.1 About Ping Command....

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..... 25-1 25.

2 Using Ping Command

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.... 25-1 Chapter 26 Restart.....

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. 26-1 26.1 Restart ...

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26-1 Chapter 27 Troubleshooting

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.. 27-1 27.1 Using LEDs to Diagnose Problems.....

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1.2 27.1.3 27.2 27.
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.....27-1 The LAN Port LEDs ..

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...27-1 The WAN Port LED

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.....27-1 Web Configurator ..

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..... 27-1 Internet Access..

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... 27-2 Statement Printer..

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.BB Power and Cable Specifications.....

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..... 1-5 Figure 1-2 Application: Internet Access in Public Areas....

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. 1-5 Figure 2-1 Entering ZyAIR IP Address in Internet Explorer.....

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2-1 Figure 2-2 Web Configurator: Login

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..... *2-2 Figure 2-3 Web Configurator Navigation*

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... *2-3 Figure 2-4 WIZARD Submenu.....*

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..... 2-3 Figure 2-5 Quick View ...

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... 2-5 Figure 2-6 SYSTEM TOOLS: SYSTEM ACCOUNT ..

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. 2-8 Figure 2-7 Side Panel....

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..... 2-10 Figure 2-8 Reset to Default Settings ..

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.. 2-10 Figure 2-9 Restart

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.... 2-11 Figure 2-10 Logging Out .

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..... 2-11 Figure 3-1 SYSTEM.....

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3-3 Figure 4-1 WAN/LAN.....

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.. 4-4 Figure 4-2 SERVER

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.. 4-7 Figure 5-1 AUTHENTICATION.....

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... 5-1 Figure 5-2 Redirect Page Sample Code

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.... 5-3 Figure 6-1 RADIUS.

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..... 6-2 Figure 7-1 BILLING.....

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..... 7-2 Figure 8-1 ACCOUNTING

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..... 8-2 Figure 8-2 Charge By Levels Example.....

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..... 8-4 Figure 8-3 Account Generator Panel

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. 8-5 Figure 8-4 Web-based Account Generator Printout Preview Example.....

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..... 8-6 Figure 8-5 Web-based PC-connected Printout Preview Example.....

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..... 8-6 Figure 8-6 Account List ...

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.. 8-7 Figure 9-1 CREDIT CARD

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. 9-1 Figure 10-1 KEYPAD.....

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.. 10-1 Figure 10-2 Select Pre-Paid Billing ...

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.. 10-2 Figure 10-3 Define Pre-Paid Billing Profiles...

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... 10-3 Figure 10-4 Billing Profiles 1 and 2 Examples

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. 10-3 Figure 10-5 Select Post-Paid Billing.....

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..... 10-4 Figure 10-6 Define Post-Paid Billing Plan.....

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10-4 Figure 10-7 Post-Paid Account Printout Example

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..... 11-4 Figure 11-4 Login Page: Redirect....

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.... 11-4 Figure 11-5 Login Page: Redirect Code.....

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... 11-5 Figure 11-6 Login Page: Advanced ..

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..... 11-6 Figure 11-7 Login Page: Color Grid ..

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11-9 Figure 11-12 Customization: Information Windows

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.. 11-10 Figure 11-13 Account Printout ...

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.. 11-12 Figure 11-14 Preview of PC-connected Printer Example ...

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.. 11-14 Figure 11-15 Preview of Account Generator Printer Example

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.....11-18 Figure 11-20 Credit Card Service Selection Page Preview

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...11-20 Figure 11-21 Credit Card Successful Page

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.....11-21 Figure 11-22 Credit Card Successful Page Preview

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.....11-22 Figure 11-23 Credit Card Service Fail Page

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.11-22 Figure 11-24 Credit Card Failed Page Preview

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..11-23 Figure 12-1 PASS THROUGH

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....12-2 Figure 13-1 FILTERING.....

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.....13-1 Figure 14-1 SHARE

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.....14-1 Figure 15-1 PORTAL PAGE.....

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.15-1 Figure 15-2 ADVERTISEMENT

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15-2 Figure 15-3 WALLED GARDEN

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.....17-3 Figure 17-3 LAN Devices: Example 1 ..

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....17-3 Figure 17-4 LAN Device Remote Management Example 2.

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.....17-4 Figure 17-5 LAN Devices: Example 2 ..

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.....17-4 Figure 18-1 Syslog.

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19-2 Figure 20-1 BANDWIDTH.....

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...20-1 Figure 21-1 IBSS (Ad-hoc) Wireless LAN ..

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..21-1 Figure 21-2 Basic Service set

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.....21-1 Figure 21-3 Extended Service Set ...

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.....21-2 Figure 21-4 RTS/CTS.....

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..21-4 Figure 21-5 WIRELESS

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23-2 Figure 23-2 Configuration Backup: File Download

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.23-2 Figure 23-3 Configuration Backup: Save As...

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...23-3 Figure 23-4 CONFIGURATION: Backup Using TFTP.....

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...23-3 Figure 23-5 Configuration Backup: Using TFTP Successful ..

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.....23-7 Figure 23-11 Manual Boot Code Upgrade Using the Web Configurator

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....23-8 Figure 23-12 System Restart

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23-8 Figure 23-13 Scheduled Firmware Upgrade.....

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...23-9 Figure 23-14 Synchronization Check File Example ..

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..23-10 Figure 24-1 System Settings: Server Configuration: Enable SSL Security ...

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.....24-1 Figure 24-2 Installing the SSL Security Certificate: First Security Alert ..

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.....24-2 Figure 24-3 Installing the SSL Security Certificate: Second Security Alert...

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..24-2 Figure 24-4 Installing the SSL Security Certificate: View Certificate

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.....24-3 Figure 24-5 Installing the SSL Security Certificate: Certificate Import Wizard

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...24-3 Figure 24-6 Certificate Import Wizard: Location

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.....24-4 Figure 24-7 Certificate Import Wizard: Finish ..

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.. 2-4 Table 2-2 Quick View...

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2-5 Table 2-3 SYSTEM TOOLS: SYSTEM ACCOUNT.....

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2-8 Table 2-4 Reset to Default Settings

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..... 2-11 Table 3-1 SYSTEM

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... 4-4 Table 4-2 SERVER.....

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..... 4-7 Table 5-1 AUTHENTICATION...

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..... 5-1 Table 6-1 RADIUS ..

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6-3 Table 7-1 BILLING

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. 7-2 Table 8-1 ACCOUNTING....

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.. 8-3 Table 8-2 Charge By Levels Example

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8-5 Table 8-3 Account List

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. 8-7 Table 9-1 CREDIT CARD.....

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.. 9-2 Table 10-1 KEYPAD...

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..... 10-2 Table 11-1 Login Page: Standard.

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..... 11-3 Table 11-2 Login Page: Redirect ..

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..... 11-4 Table 11-3 Login Page: Advanced...

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.... 11-6 Table 11-4 Subscriber Login Screen: Frame

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..... 11-8 Table 11-5 Logo.....

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11-9 Table 11-6 Customization: Information Windows.....

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. 11-10 Table 11-7 Account Printout.....

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..... 11-13 Table 11-8 Credit Card: Standard Login Page

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.. 11-17 Table 11-9 Credit Card Service Selection Page ...

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.. 11-19 Table 11-10 Credit Card Successful Page...

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. 11-21 Table 11-11 Credit Card Service Fail Page.....

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... 11-22 Table 12-1 PASS THROUGH ..

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. 12-2 Table 13-1 FILTERING

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..... 13-2 Table 14-1 SHARE ..

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... 14-1 Table 15-1 PORTAL PAGE ..

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.... 15-1 Table 15-2 ADVERTISEMENT.....

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.... 15-2 Table 15-3 WALLED GARDEN.....

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... 15-3 Table 16-1 DDNS

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16-2 Table 17-1 LAN DEVICES

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.. 17-2 Table 18-1 Syslog

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.... 18-1 Table 18-2 Log Settings.

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..... 18-3 Table 18-3 Log Formats...

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Getting to Know Your ZyAIR 1-1 ZyAIR G-4100 User's Guide PPTP Support Point-to-Point Tunneling Protocol (PPTP) is a network protocol that enables secure transfer of data from a remote client to a private server, creating a Virtual Private Network (VPN) using a TCP/IP based network. PPTP supports on-demand, multi-protocol and virtual private networking over public networks, such as the Internet. Use PPTP to connect to a broadband modem to achieve access to high-speed data networks via a familiar "dial-up networking" user interface. PPPoE Support (RFC2516) PPPoE (Point-to-Point Protocol over Ethernet) emulates a dial-up connection. It allows your ISP to use their existing network configuration with newer broadband technologies such as ADSL. The PPPoE driver on the ZyAIR is transparent to the computers on the LAN, which see only Ethernet and are not aware of PPPoE thus saving you from having to manage PPPoE clients on individual computers. Network Address Translation (NAT) NAT (Network Address Translation - NAT, RFC 1631) allows the translations of multiple IP addresses used within one network to different IP addresses known within another network. DHCP Support DHCP (Dynamic Host Configuration Protocol) allows the individual computers (DHCP clients) to obtain TCP/IP configuration at start-up from a centralized DHCP server.

The ZyAIR has built-in DHCP server capability. It can assign IP addresses, an IP default gateway and DNS servers to DHCP clients. The ZyAIR can also act as a surrogate DHCP server (DHCP Relay) where it relays IP address assignment from the actual real DHCP server to the DHCP clients. E-mail Forwarding The ZyAIR is able to forward and retrieve e-mail messages when the subscriber's default email server is down or behind a firewall. DNS Proxy With DNS proxy, the ZyAIR provides DNS redirection when a subscriber's configured DNS server is behind a firewall or located in a private Intranet. Local Subscriber Database The ZyAIR allows you to maintain a subscriber database on the ZyAIR without setting up an external RADIUS server. Subscriber accounting and authentication are done using the local subscriber database. RADIUS The ZyAIR can use an external RADIUS (Remote Authentication Dial In User Service defined in RFC2138 and 2139) server for subscriber authentication and accounting. Accounting The ZyAIR has a built-in accounting feature for keeping track of subscriber Internet usage time. 1-2 Getting to Know Your ZyAIR ZyAIR G-4100 User's Guide iPass The iPass company provides connectivity services for mobile Internet users.

The ZyAIR can authenticate iPass clients through an external RADIUS server that is Wi-Fi based Wireless Internet Service Provider roaming (WISPr) compliant. Local Content and Advertising Links Once connected to the network, the ZyAIR directs the subscriber to a specified web site and display advertisement links. This can be a source of extra online advertising revenues and increased business exposure. Access Control (Walled Garden) With the walled garden feature, subscribers are able to access predetermined web sites without logging in. The ZyAIR blocks full Internet access until the subscribers log in.

Subscriber Login Page Customization You can customize the subscriber login page according to your business needs. The advanced settings allow you to include welcome messages, company logo and basic formatting. Web Configurator Management The ZyAIR comes with an embedded web-based configurator. It offers advanced management features and allows you to manage the ZyAIR remotely using Internet Explorer. SNMP SNMP (Simple Network Management Protocol) is a protocol used for exchanging management information between network devices.

SNMP is a member of the TCP/IP protocol suite. Your ZyAIR supports SNMP agent functionality, which allows a manager station to manage and monitor the ZyAIR through the network. The ZyAIR supports SNMP version 2c (SNMPv2c). Watchdog The ZyAIR can continue working by resetting itself after a system crash. Upgrade Firmware The firmware of the ZyAIR can be upgraded via the web configurator. Syslog The ZyAIR's syslog function allows network administrators to monitor the usage status of subscribers from a remote site. You can set up a syslog server to receive the log of information on current loggedin subscribers that the ZyAIR sends periodically. IEEE 802.11g Wireless LAN Standard The ZyAIR complies with the IEEE 802.11g wireless standard, which supports data speeds of up to 54 Mbps.

IEEE 802.11b Wireless LAN Standard The ZyAIR is also fully compatible with the 802.11b standard. This means an IEEE 802.11b radio card can interface directly with the ZyAIR (and vice versa) at 11 Mbps or lower depending on range. Getting to Know Your ZyAIR 1-3 ZyAIR G-4100 User's Guide Antennas The ZyAIR is equipped with two reverse SMA connectors and two detachable omni-directional 2dBi antennas to provide a clear radio signal between the wireless stations and the access points. Refer to the Antennas appendix for more information. 4-Port Switch A combination of switch and Internet gateway makes your ZyAIR a cost-effective and viable network solution. You can connect up to four computers to the LAN ports on the ZyAIR without the cost of a hub. To connect more than four Ethernet devices, attach a hub or switch.

10/100M Auto-negotiating Ethernet/Fast Ethernet Interface This auto-negotiating feature allows the ZyAIR to detect the speed of incoming transmissions and adjust appropriately without manual intervention. It allows data transfer of either 10 Mbps or 100 Mbps in either half-duplex or full-duplex mode depending on your Ethernet network. Reset Button Use the reset button to restore the ZyAIR back to its factory defaults. Statement Printer A statement printer allows you to generate subscriber accounts on the ZyAIR and print out the account information on-site without using a computer. The statement printer is also known as an "account generator", "three-button printer" or "exclusive printer".

Ease of Installation Your ZyAIR is designed for quick, intuitive and easy installation. It can be mounted on a desktop or a wall. 1.3 Applications The following sections describe network application examples in which the ZyAIR is used. 1 1.

3.1 Internet Access for LAN Networks With a broadband modem or router (A), the ZyAIR allows the attached computers to enjoy high speed Internet access. The total number of concurrent WLAN users allowed is 24. The total number of concurrent users (WLAN and Wired) allowed is 100 1-4 Getting to Know Your ZyAIR 1 ZyAIR G-4100 User's Guide Figure 1-1 Application: Internet Access for LAN Networks 1.3.2 Internet Access in Public Areas In public areas, such as a hotel, the ZyAIR provides high speed Internet access to subscribers. Account billing and authentication can be done using a statement printer (B) and the built-in billing function and local subscriber database.



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The ZyAIR functions as an access point (AP) to bridge the wired and the wireless network allowing wireless stations to access the Internet through the ZyAIR. Figure 1-2 Application: Internet Access in Public Areas Getting to Know Your ZyAIR 1-5 ZyAIR G-4100 User's Guide Chapter 2 The Web Configurator This chapter introduces how to access the web configurator to perform general system configuration. 2.

1 Introducing the Web Configurator The web configurator is best viewed with Internet Explorer (version 4.0 or above) or Netscape Navigator (version 6.0 or above). Your browser must have JavaScript support enabled. 2.2 Accessing the Web Configurator Follow the steps below to access the web configurator. The ZyAIR allows only one web configurator session at a time. Step 1. Make sure your ZyAIR is properly connected (refer to instructions in the Quick Start Guide on hardware installation and connections). Step 2.

Launch your web browser and type the WAN or LAN IP address of the ZyAIR as the web address (it is recommended that you connect your computer to the LAN and use the LAN IP address for initial configuration). 192.168.1.1 is the default IP address for the LAN port.

If you are using a different port number (between 8000 and 8099) for the web server, you must also append the port number to the LAN IP address separated with a colon ":", for example, http://192.168.1.1:8080. Figure 2-1 Entering ZyAIR IP Address in Internet Explorer Step 3.

A login screen displays. Type "admin" (default) as the user name and "1234" (default) as the password and click Login. The user name and password are case sensitive. The Web Configurator 2-1 ZyAIR G-4100 User's Guide Figure 2-2 Web Configurator: Login Step 4. You should see the first screen of the Wizard Setup. Refer to the Quick Start Guide for more information on configuring the Wizard Setup screens. The ZyAIR automatically logs you out if there is no activity for longer than five minutes after you log in. If this happens, simply log back in again. You can change the time period in the ADVANCED SERVER screen's Administrator Inactivity Timer field. 2.

3 Wizard Setup Screens The Wizard Setup screens display when you first access the ZyAIR. Refer to the Quick Start Guide for information on how to configure the Wizard Setup screens. 2.4 Navigating the Web Configurator After you finish the Wizard Setup screens, you first see the Quick View screen after login. Click the icon (located in the top right corner of most screens) to view online help. 2-2 The Web Configurator ZyAIR G-4100 User's Guide These are the navigation panel links. Quick View is selected. Figure 2-3 Web Configurator Navigation Click a navigation panel link to open a submenu of links to individual screens. For example, click WIZARD to display the following submenu. Figure 2-4 WIZARD Submenu 2.

5 Screens Overview The following table lists the various web configurator screens. The Web Configurator 2-3 ZyAIR G-4100 User's Guide Table 2-1 Web Configurator Screens Overview WIZARD INTERNET WIRELESS E-MAIL AUTHENTICATION BILLING PRINTER ACCOUNTING SYSTEM ADVANCED SYSTEM WAN/LAN SERVER AUTHENTICATION RADIUS BILLING ACCOUNTING CREDIT CARD KEYPAD CUSTOMIZATION Login Page Logo Information Windows Account Printout Credit Card PASS THROUGH FILTERING SHARE PORTAL PAGE ADVERTISEMENT WALLED GARDEN DDNS LAN DEVICES SYSLOG Syslog Log Settings SESSION TRACE BANDWIDTH WIRELESS SYSTEM STATUS SYSTEM ACCOUNT LIST ACCOUNT LOG CURRENT USER DHCP CLIENT SESSION LIST LAN DEVICES SYSTEM TOOLS CONFIGURATION FIRMWARE Manual Firmware Upgrade Scheduled Firmware Upgrade SYSTEM ACCOUNT SSL CERTIFICATE PING COMMAND RESTART 2-4 The Web Configurator ZyAIR G-4100 User's Guide Figure 2-5 Quick View The following table describes the labels in this screen. Table 2-2 Quick View LABEL System Refresh System/Host Name Firmware Version Location Name Domain Name System Time System Up Time Click Refresh to update this screen. This field displays the description name of the ZyAIR for identification purposes. This field displays the version of the firmware on the ZyAIR.

This field displays the device's geographical location. This field displays the domain name of the ZyAIR. This field displays the ZyAIR's current time. This field displays the how long the ZyAIR has been operating since it was last started. DESCRIPTION The Web Configurator 2-5 ZyAIR G-4100 User's Guide Table 2-2 Quick View LABEL WAN MAC Address LAN MAC Address Network WAN Status WAN Type WAN IP Address WAN Subnet Mask LAN IP Address LAN Subnet Mask Default Gateway DNS Wireless Wireless Service ESSID Wireless Channel Encryption This field displays the status of the ZyAIR's wireless LAN.

This field displays the ZyAIR's Extended Service Set IDentity. This field displays the channel that the ZyAIR is using. This field displays the type of data encryption that the ZyAIR is using. WEP displays if the ZyAIR is using WEP data encryption. WPA displays if ZyAIR is using WPA data encryption. Disable displays if the ZyAIR is not using data encryption. Traffic WAN LAN Wireless This field displays traffic statistics for the ZyAIR's WAN connection. This field displays traffic statistics for the ZyAIR's LAN connection. This field displays traffic statistics for the ZyAIR's wireless LAN connection. This field displays the status of the ZyAIR's connection to the Internet (Established or Not Established).

This field displays the DHCP mode of the WAN port. It displays DHCP Client, Static IP Setting, PPPoE, or PPTP. This field displays the IP address and the subnet mask of the WAN port on the ZyAIR. DESCRIPTION This field displays the MAC address of the ZyAIR on the WAN. This field displays the MAC address of the ZyAIR on the LAN. This field displays the IP address and the subnet mask of the LAN port on the ZyAIR. This field displays the IP address of the default gateway of the WAN port on the ZyAIR. This field displays the IP address of the DNS server that the ZyAIR is using. 2.6 Login Accounts There are four system accounts that you can use to log in to the ZyAIR: administrator, account manager, supervisor and super subscriber.

The administrator account allows you full access to all system configurations. The default administrator user name is "admin" and the default password is "1234". The account manager account is used for proprietary subscriber account management only. No system configuration is allowed. This account is useful for front desk personnel (such as in a hotel) for setting up subscriber accounts without tampering with the system configuration.

The account manager default user name and password are "account". With the supervisor account, you can only view the system status and change the supervisor account password. This account is useful for allowing a manager to view the device's status and lists of accounts and logged in subscribers without changing the system configuration.



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The default supervisor account user name and password is "supervisor". 2-6 The Web Configurator ZyAIR G-4100 User's Guide Use the super subscriber account to test the Internet connection between the ZyAIR and the ISP.

The ZyAIR does not impose time limitations or charges on this account. Thus, anyone who logs in with this account is able to gain Internet access for free. The default super subscriber user name and password are "super". You can only log in using the super subscriber account in the subscriber login screen.

2.6.1 Changing Login Account Usernames and Passwords It is recommended you change the account passwords. Click SYSTEM TOOLS and SYSTEM ACCOUNT. The Web Configurator 2-7 ZyAIR G-4100 User's Guide Figure 2-6 SYSTEM TOOLS: SYSTEM ACCOUNT The account user names and passwords are case sensitive. Table 2-3 SYSTEM TOOLS: SYSTEM ACCOUNT LABEL Administrator Account Username Password Confirm Enter the user name for the administrative account.

The default is admin. Enter a new administrative account password. Enter the new administrator password again for confirmation. DESCRIPTION Web-based Accounting Manager Username Password Enter the user name for the account manager account. The default is account. Enter a new account manager password. 2-8 The Web Configurator ZyAIR G-4100 User's Guide Table 2-3 SYSTEM TOOLS: SYSTEM ACCOUNT LABEL Confirm Supervisor Account Username Password Confirm Super Subscriber Account Enter the user name for the supervisor account. The default is supervisor. Enter a new supervisor password. Enter the new supervisor password again for confirmation.

DESCRIPTION Enter the new account manager password again for confirmation. You can only log in using the super subscriber account in the subscriber login screen. Username Password Confirm Apply Enter the user name for the super subscriber account. The default is super. Enter a new super subscriber account password.

Enter the new super subscriber account password again for confirmation. Click Apply to save the changes back to the ZyAIR. 2.7 Methods of Restoring Factory-Defaults There are two methods you can use to erase the current configuration and restore factory defaults. 2.

7.1 Using the Reset Button to Restore Factory-Defaults The reset button is located on the side panel. Use a pointed object to press this button in once to reset the ZyAIR back to the factory defaults. All of your custom configuration including the local subscriber database will be erased. The Web Configurator 2-9 ZyAIR G-4100 User's Guide RESET Button Figure 2-7 Side Panel 2.7.2 Using the Web Configurator to Restore Factory-Defaults To reset the ZyAIR back to the factory defaults, click SYSTEM TOOLS and CONFIGURATION to display the screen as shown next. Figure 2-8 Reset to Default Settings The following table describes the labels in this screen. 2-10 The Web Configurator ZyAIR G-4100 User's Guide Table 2-4 Reset to Default Settings LABEL Reset the system back to factory defaults Keep subscriber profile Apply Select this option to reset the system configuration back to the factory default but retain subscriber account information. All other custom configuration is erased.

Click Apply to reset system configuration back to the factory defaults. DESCRIPTION 2.8 Restarting the ZyAIR You must restart the ZyAIR every time you change the system IP address or upload a firmware or configuration file. Click SYSTEM TOOLS, RESTART and then Apply. Figure 2-9 Restart When the ZyAIR restarts, all connections will be terminated. Anyone using a system account will need to log in again. The subscribers may also need to log in again.

2.9 Logging Out of the Web Configurator Click LOGOUT to exit from the web configurator. Figure 2-10 Logging Out The Web Configurator 2-11 ZyAIR G-4100 User's Guide Chapter 3 General System Setup This chapter describes how to configure the SYSTEM advanced setup screens.

3.1 3.2 General System Setup System Name Use this screen to configure administrative and system-related general settings for your ZyAIR. System Name is for identification purposes. However, because some ISPs check this name you should enter your computer's "Computer Name".

In Windows 95/98 click Start, Settings, Control Panel, Network. Click the Identification tab, note the entry for the Computer Name field and enter it as the System Name. In Windows 2000, click Start, Settings and Control Panel and then double-click System. Click the Network Identification tab and then the Properties button. Note the entry for the Computer name field and enter it as the System Name.

In Windows XP, click Start, My Computer, View system information and then click the Computer Name tab. Note the entry in the Full computer name field and enter it as the ZyAIR System Name. 3.3 Domain Name The Domain Name entry is what is propagated to the DHCP clients on the LAN. If you leave this blank, the domain name obtained by a DHCP server is used. While you must enter the host name (System Name), the domain name can be assigned from the ZyAIR via DHCP. 3.4 iPnP Traditionally, you must set the IP addresses and the subnet masks of a computer and the ZyAIR to be in the same subnet to allow the computer to access the Internet (through the ZyAIR). In cases where your computer is required to use a static IP address in another network, you may need to manually configure the network settings of the computer every time you want to access the Internet via the ZyAIR. With the iPnP feature and NAT enabled, the ZyAIR allows a computer to access the Internet without changing the network settings (such as IP address and subnet mask) of the computer, when the IP addresses of the computer and the ZyAIR are not in the same subnet.

Whether a computer is set to use a dynamic or static (fixed) IP address, you can simply connect the computer to the ZyAIR and access the Internet. The following figure depicts a scenario where a computer is set to use a static private IP address in the corporate environment. In a residential house where a ZyAIR is installed, you can still use the computer to access the Internet without changing the network settings, even when the IP addresses of the computer and the ZyAIR are not in the same subnet. General System Setup 3-1 ZyAIR G-4100 User's Guide The iPnP feature does not apply to a computer using either a dynamic IP address or a static IP address that is in the same subnet as the ZyAIR's IP address. You must enable NAT to use the iPnP feature. 3.4.1 How iPnP Works Address Resolution Protocol (ARP) is a protocol for mapping an Internet Protocol address (IP address) to a physical machine address, also known as a Media Access Control or MAC address, on the local area network. IP routing table is defined on IP Ethernet devices (the ZyAIR) to decide which hop to use, to help forward data along to its specified destination.



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The following lists out the steps taken, when a computer tries to access the Internet for the first time through the ZyAIR.

1. When a computer (which is in a different subnet) first attempts to access the Internet, it sends packets to its default gateway (which is not the ZyAIR) by looking at the MAC address in its ARP table.
2. When the computer cannot locate the default gateway, an ARP request is broadcast on the LAN.
3. The ZyAIR receives the ARP request and replies to the computer with its own MAC address.
4. The computer updates the MAC address for the default gateway to the ARP table. Once the ARP table is updated, the computer is able to access the Internet through the ZyAIR.
- 5.

When the ZyAIR receives packets from the computer, it creates an entry in the IP routing table so it can properly forward packets intended for the computer.

After all the routing information is updated, the computer can access the ZyAIR and the Internet as if it is in the same subnet as the ZyAIR.

3.5 General System Settings Click **ADVANCED** and then **SYSTEM** to open this screen.

3-2 General System Setup ZyAIR G-4100 User's Guide Figure 3-1 SYSTEM General System Setup 3-3 ZyAIR G-4100 User's Guide The following table describes the labels in this screen.

Table 3-1 SYSTEM LABEL	System/Host Name
Domain Name	DESCRIPTION Enter a descriptive name (up to 40 characters) for identification purposes. Enter the domain name (if you know it) here. If you leave this field blank, the ZyAIR may obtain a domain name from a DHCP server. The domain name entered by you is given priority over the DHCP server assigned domain name.
Location Information	Location Name Address City State/Province ZIP/Postal Code Country Contact Name Contact Telephone Contact FAX Contact Email Date/Time Get from my Computer Get from NTP server Use NTP (Network Time Protocol) Time Server Server IP/Domain Name Time Zone Update Time Daylight Saving Time Enter the device's geographical location.

Enter the street address of the device's location. Enter the city of the device's location. Enter the state or province of the device's location. Enter the zip code or postal code for the device's location. Enter the country of the device's location. Enter the name of the person responsible for this device. Enter the telephone number of the person responsible for this device. Enter the fax number of the person responsible for this device. Enter the e-mail address of the person responsible for this device. Set the system date and time by selecting the appropriate choices from the drop-down list boxes.

Click this button to set the time and date on the ZyAIR to be the same as the management computer. Click this button to set the time and date on the ZyAIR to be the same as the management computer. Select this check box to set the ZyAIR to get time and date information from an NTP (Network Time Protocol) time server. Enter the IP address or URL of your time server. Check with your ISP/network administrator if you are unsure of this information.

Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT). Enter a number to determine how often the ZyAIR uses the NTP server to update the time and date. Select this option if you use daylight savings time. Daylight saving is a period from late spring to early fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening.

Select the month and day that your daylight-savings time starts on if you selected Daylight Saving Time. Select the month and day that your daylight-savings time ends on if you selected Daylight Saving Time. Enable NAT to have the ZyAIR translate Internet protocol addresses used within one network (for example a private IP address used in a local network) to a different IP address known within another network (for example a public IP address used on the Internet).

See the LAN Devices chapter for more on NAT. Start Date End Date NAT (Network Address Translation) 3-4 General System Setup ZyAIR G-4100 User's Guide Table 3-1 SYSTEM LABEL IP Plug and Play (iPnP Technology) DESCRIPTION Select this option to activate the iPnP feature. This allows a computer to access the Internet without changing the network settings (such as IP address and subnet mask) of the computer, even when the IP addresses of the computer and the ZyAIR are not in the same subnet. When you disable the iPnP feature, only computers with dynamic IP addresses or static IP addresses in the same subnet as the ZyAIR's LAN IP address can connect to the ZyAIR or access the Internet through the ZyAIR. DNS Fake IP Reply Some subscribers' Internet browsers may be set to use an HTTP proxy with a private domain. Select this option to have the ZyAIR send a default IP address (169.254.

1.1) in response to DNS queries. This way the subscribers' computers can send HTTP requests that the ZyAIR can redirect so the subscribers can login. You must enable NAT to use this feature. User Session Limited Select Unlimited to not place any restriction on the number of sessions that each user connected to the ZyAIR can use. Select the other radio button and type a number (from 1 to 1024) if you want to specify how many sessions each user connected to the ZyAIR can use. Layer 2 Isolation Security If you activate NAT, select Enable in this field to prevent communication between subscribers. This is the default selection. Select Disable, to deactivate layer 2 security and allow communication between subscribers. Secure administrator IP addresses Select Any to use any computer to access the web configurator on the ZyAIR.

Select Specify and then enter the IP address(es) or ranges of IP addresses of the computer(s) that are allowed to log in to configure the ZyAIR. The addresses can be on the LAN or the WAN. Select Enable to allow multicast traffic to pass through the ZyAIR. This may affect your network performance. Select Disable to prevent any multicast traffic from passing through the ZyAIR.

This is the default setting. Allow remote user to ping the device This feature affects the security of the ZyAIR's WAN port. Ping (Packet INternet Groper) is a protocol that sends out ICMP echo requests to test whether or not a remote host is reachable. Select Enable to have the ZyAIR respond to incoming Ping requests from the WAN. This is less secure since someone on the Internet can see that the ZyAIR is there by pinging it.

Select Disable to have the ZyAIR not respond to incoming Ping requests from the WAN. This is more secure since someone on the Internet cannot see that the ZyAIR is there by pinging it. SSL Certificate Secure Socket Layer (SSL) security allows you to create secure connections between the ZyAIR and the management or subscriber computer(s). Select Default to use the default system-generated SSL certificate. Select Customer Certificate to use a certificate obtained from a certificate authority.



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Refer to the SSL (Secure Socket Layer) Security chapter for more information. Apply Click Apply to save the changes. Multicast Pass Through General System Setup 3-5 ZyAIR G-4100 User's Guide Chapter 4 WAN, LAN and Server Setup This chapter shows you how to configure LAN and WAN ports and server settings. 4.1 Factory Ethernet Defaults · · Dynamic WAN IP address.

LAN IP address of 192.168.1.1 with subnet mask of 255.255.255.0 DHCP server enabled on the LAN with a 253 client IP address pool starting from 192.168.1.2.

The Ethernet parameters of the ZyAIR are preset to the following values: These parameters should work for the majority of installations. If you wish to change the factory defaults or to learn more about TCP/IP, please read on. 4.2 LANs and WANs A LAN (Local Area Network) is a computer network limited to the immediate area, usually the same building or floor of a building. A WAN (Wide Area Network), on the other hand, is an outside connection to another network or the Internet.

4.3 IP Address Assignment A static IP is a fixed IP that the ZyAIR obtains from a DHCP server on a network. A dynamic IP is not fixed; the DHCP server provides an IP address to the ZyAIR each time it connects to the network. When an Ethernet device is configured to obtain a dynamic IP address from a DHCP server, it is known as a DHCP client. 4.

4 DHCP Configuration DHCP (Dynamic Host Configuration Protocol) allows the individual clients (Ethernet device) to obtain the TCP/IP configuration at start-up from a centralized DHCP server. The ZyAIR has built-in DHCP server capability, which means it can assign IP addresses, an IP default gateway and DNS servers to computer systems that support the DHCP client when this feature is activated. The ZyAIR can also act as a surrogate DHCP server where it relays IP address assignment from the actual DHCP server to the clients. 4.4.1 IP Address and Subnet Mask Like houses on a street that share a common street name, the computers on a LAN share one common network number. Where you obtain your network number depends on your particular situation. If the ISP or your network administrator assigns you a block of registered IP addresses, follow their instructions in selecting the IP addresses and the subnet mask. The Internet Assigned Number Authority (IANA) reserved a block of addresses specifically for private use (refer to Section 4.4.

2); please do not use any other number unless you are told otherwise. Let's WAN, LAN and Server Setup 4-1 ZyAIR G-4100 User's Guide say you select 192.168.1.0 as the network number; which covers 254 individual addresses, from 192.168.1.1 to 192.168.1.

254 (zero and 255 are reserved). In other words, the first three numbers specify the network number while the last number identifies an individual computer on that network. The subnet mask specifies the network number portion of an IP address. 4.4.

2 Private IP Addresses Every machine on the Internet must have a unique address. If your networks are isolated from the Internet, for example, only between your two branch offices, you can assign any IP addresses to the hosts without problems. However, the Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of IP addresses specifically for private networks: 10.0.0.0 172.16.0.0 192.168.0.0 -- -- 10.255.255.255 172.

31.255.255 192.168.255.255 You can obtain your IP address from the IANA, from an ISP or it can be assigned from a private network. If you belong to a small organization and your Internet access is through an ISP, the ISP can provide you with the Internet addresses for your local networks. On the other hand, if you are part of a much larger organization, you should consult your network administrator for the appropriate IP addresses. Regardless of your particular situation, do not create an arbitrary IP address; always follow the guidelines above. For more information on address assignment, please refer to RFC 1597, Address Allocation for Private Internets and RFC 1466, Guidelines for Management of IP Address Space.

4.5 DNS Server Address DNS (Domain Name System) is for mapping a domain name to its corresponding IP address and vice versa. The DNS server is extremely important because without it, you must know the IP address of a machine before you can access it. The DNS server addresses that you enter in the DHCP setup are passed to the client machines along with the assigned IP address and subnet mask. There are two ways that an ISP disseminates the DNS server addresses.

The first is for an ISP to tell a customer the DNS server addresses, usually in the form of an information sheet, when s/he signs up. The second is to obtain the DNS server information automatically when a computer is set as a DHCP client. 4.6 PPPoE Point-to-Point Protocol over Ethernet (PPPoE) functions as a dial-up connection. PPPoE is an IETF (Internet Engineering Task Force) standard specifying how a host personal computer interacts with a broadband modem (for example DSL, cable, wireless, etc.

) to achieve access to high-speed data networks. For the service provider, PPPoE offers an access and authentication method that works with existing access control systems (for instance, RADIUS). One of the benefits of PPPoE is the ability to let end users access one of multiple network services, a function known as dynamic service selection. This enables the service provider to easily create and offer new IP services for specific users. 4-2 WAN, LAN and Server Setup ZyAIR G-4100 User's Guide Operationally, PPPoE saves significant effort for both the subscriber and the ISP/carrier, as it requires no specific configuration of the broadband modem at the subscriber's site. By implementing PPPoE directly on the ZyAIR (rather than individual computers), the computers on the LAN do not need PPPoE software installed, since the ZyAIR does that part of the task. Furthermore, with NAT, all of the LAN's computers will have Internet access. 4.6.1 PPP MTU 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 any 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. 4.6.2 TCP MSS 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. 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). 4.7 PPTP Point-to-Point Tunneling Protocol (PPTP) is a network protocol that enables transfers of data from a remote client to a private server, creating a Virtual Private Network (VPN) using TCP/IP-based networks.



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