



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ZYXEL NWA-570N. You'll find the answers to all your questions on the ZYXEL NWA-570N in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ZYXEL NWA-570N
User guide ZYXEL NWA-570N
Operating instructions ZYXEL NWA-570N
Instructions for use ZYXEL NWA-570N
Instruction manual ZYXEL NWA-570N

NWA570N

Wireless N Access Point/Bridge

User's Guide

Version 1.00
10/2007
Edition 1

DEFAULT LOGIN

IP Address <http://192.168.1.2>
Password 1234

ZyXEL
www.zyxel.com



[You're reading an excerpt. Click here to read official ZYXEL NWA-570N user guide](http://yourpdfguides.com/dref/3685494)
<http://yourpdfguides.com/dref/3685494>

Manual abstract:

It is recommended you use the web configurator to configure the ZyXEL Device. · Supporting Disk Refer to the included CD for support documents. · ZyXEL Web Site Please refer to www.zyxel.com for additional support documentation and product certifications. User Guide Feedback Help us help you. Send all User Guide-related comments, questions or suggestions for improvement to the following address, or use e-mail instead. Thank you! The Technical Writing Team, ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu, 300, Taiwan. E-mail: techwriters@zyxel.com.tw

ZyXEL NWA570N User's Guide 3 Document Conventions Document Conventions Warnings and Notes These are how warnings and notes are shown in this User's Guide. Warnings tell you about things that could harm you or your device. Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations. Syntax Conventions · The NWA570N may be referred to as the "ZyXEL Device", the "device", the "system" or the "product" in this User's Guide.

· Product labels, screen names, field labels and field choices are all in bold font. · A key stroke is denoted by square brackets and uppercase text, for example, [ENTER] means the "enter" or "return" key on your keyboard. · "Enter" means for you to type one or more characters and then press the [ENTER] key.

"Select" or "choose" means for you to use one of the predefined choices. · A right angle bracket (>) within a screen name denotes a mouse click.

For example, Maintenance > Log > Log Setting means you first click Maintenance in the navigation panel, then the Log sub menu and finally the Log Setting tab to get to that screen. · Units of measurement may denote the "metric" value or the "scientific" value. For example, "k" for kilo may denote "1000" or "1024", "M" for mega may denote "1000000" or "1048576" and so on. 4 ZyXEL NWA570N User's Guide Document Conventions Icons Used in Figures

Figures in this User's Guide may use the following generic icons. The ZyXEL Device icon is not an exact representation of your device. ZyXEL Device Computer Notebook computer Server DSLAM Firewall Telephone Switch Router ZyXEL NWA570N User's Guide 5 Safety Warnings Safety Warnings For your safety, be sure to read and follow all warning notices and instructions. · Do NOT use this product near water, for example, in a wet basement or near a swimming pool. · Do NOT expose your device to dampness, dust or corrosive liquids. · Do NOT store things on the device. · Do NOT install, use, or service this device during a thunderstorm.

There is a remote risk of electric shock from lightning. · Connect ONLY suitable accessories to the device. · 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 should service or disassemble this device. Please contact your vendor for further information. · Make sure to connect the cables to the correct ports. · Place connecting cables carefully so that no one will step on them or stumble over them. · Always disconnect all cables from this device before servicing or disassembling. · Use ONLY an appropriate power adaptor or cord for your device.

Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe). · Do NOT allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord. · Do NOT use the device if the power adaptor or cord is damaged as it might cause electrocution. · If the power adaptor or cord is damaged, remove it from the device and the power source. · Do NOT attempt to repair the power adaptor or cord.

Contact your local vendor to order a new one. · Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning. · Do NOT obstruct the device ventilation slots, as insufficient airflow may harm your device. · Antenna Warning! This device meets ETSI and FCC certification requirements when using the included antenna(s).

Only use the included antenna(s). · If you wall mount your device, make sure that no electrical lines, gas or water pipes will be damaged. This product is recyclable. Dispose of it properly. 6 ZyXEL NWA570N User's Guide Safety Warnings ZyXEL NWA570N User's Guide 7 Safety Warnings 8 ZyXEL NWA570N User's Guide Contents Overview Contents Overview Introduction and Wizards

.....

.....

.....

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.....

.....

.....

.....

.....

.....

.....

.....

..... 21 Introducing the ZyXEL Device

.....

.....

.....

.....

.....

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.....

.....

.....

.....
.....
23

.....
.....
.....

.....
.....
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.....
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.....

.....
.....
.....

.....
.....
.. 30 *Introducing the Web Configurator* ...

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....

.....
.....
. 31 *Wizard*

.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
. 35 *Advanced*

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... *43 Status Screen* ..

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... *45 System Screen* ..

.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

51 Wireless Screens

.....

.....
.....
.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.... *55 Management Screens* .

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... *83 Troubleshooting and Product Specifications*

.....

.....

.....

.....

.....

.....

.....

.... *89 Troubleshooting* .

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

91 Product Specifications and Wall-Mounting Instructions

.....

.....
.....
.....
.....

.....
.....
. 95 Appendices and Index

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

. 101 ZyXEL NWA570N User's Guide 9 Contents Overview 10 ZyXEL NWA570N User's Guide Table of Contents Table of Contents About This User's Guide

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

.. 3 Document Conventions...

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... 4 Safety Warnings.....

.....
.....
.....
.....

.....
.....

.....
.....
.....

.....
.....
.....

..... 6 Contents Overview

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

9 Table of Contents.....

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....

..... 11 List of Figures

.....
.....
.....

.....
.....
.....

.....
.....

.....
.....
.....
.....
.....
..... 15 List of Tables...

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

19 Part I: Introduction and Wizards.....

.....
.....
.....

.....
.....
.....

..... 21 Chapter 1 Introducing the ZyXEL Device .

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.... 23 1.1 Overview

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

. 23 1.2 Applications for the ZyXEL Device ...

.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... 23 1.2.

1 Access Point for Internet Access

.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 23 1.

2.2 Corporate Network Access Application

.....
.....
.....

.....
.....
.....
.....

. 24 1.2.3 Wireless Client Application ..

.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.. 24 1.2.4 Bridge / Repeater .

.....
.....

.....
.....

.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 25 1.2.5 Access Point and Repeater .

.....
.....
.....

.....
.....
.....

.....
.....
.....

..... 27 1.3 Ways to Manage the ZyXEL Device ..

.....
.....
.....

.....
.....
.....

.....
.....
.....

.. 27 1.4 Good Habits for Managing the ZyXEL Device

.....
.....
.....

.....
.....
.....

.. 27 1.5 LEDs

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....
.....

28 1.6 Management Computer Setup

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

... 29 1.6.

1 Wired Connection

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

... 29 1.6.2 Wireless Connection

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

... 29 1.7 Restarting the ZyXEL Device .

.....
.....

.....
.....
.....
.....

.....

.....
.....
.....

.....
.....
..... 30 1.

8 Resetting the ZyXEL Device

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 30 1.8.1 Methods of Restoring Factory-Defaults ..

.....
.....
.....
.....

.....
.....
.....
.....

..... 30 ..

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
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.....
.....
.....
.....

.....
.....
.....
.....

.... 30 Chapter 2 Introducing the Web Configurator

.....
.....
.....

.....
.....
.....

.....
.....
.....
.....

.. 31 2.1 Web Configurator Overview

.....
.....

.....
.....
.....

.....
.....
.....

31 ZyXEL NWA570N User's Guide 11 Table of Contents 2.2 Accessing the Web Configurator

.....
.....

.....
.....
.....

.....
.....
.....

31 Chapter 3 Wizard

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.... 35 3.1 Using the Wizard

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....

.....

..... 35 3.1.

1 Wizard: Basic Settings

.....
.....
.....

.....
.....
.....

.....

.....

.....

..... 35 3.1.2 Wizard: Wireless Settings ...

.....
.....
.....

.....
.....
.....

.....

.....

.....

..... 36 3.1.3 Wizard: Security Settings .

.....
.....
.....

.....
.....
.....

.....

.....

.....

37 3.1.4 Wizard: Confirm Your Settings

.....

.....

.....

.....

.....

.....
.....

..... 40 3.1.5 Auto-Configuration ...

.....
.....
.....

.....
.....
.....

.....
.....
.....

..... 41 Part II: Advanced..

.....
.....
.....

.....
.....
.....

.....
.....
.....

.. 43 Chapter 4 Status Screen

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.... 45 4.1 Status Screen

.....
.....
.....

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

78 6.6 MAC Filter

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 78 6.7 WPS Settings

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 81 Chapter 7 Management Screens

.....
.....
.....
.....

.....
.....
.....
.....

.....

.....
.....
.....

.....
... 83 7.1 Maintenance Overview .

.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 83 7.2 Password .

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.... 83 7.3 Logs

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

... 84 7.4 Configuration File .

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

. 85 7.4.1 Backup Configuration ..

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

85 7.4.2 Restore Configuration

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... 86 7.4.

3 Back to Factory Defaults

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



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<http://yourpdfguides.com/dref/3685494>

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.....
.....
.....
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.....
.....
.....
.....

.....
.....
.....
.....

.. 87 Part III: Troubleshooting and Product Specifications

.....
.....
.....

. 89 Chapter 8 Troubleshooting....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.... 91 8.

1 Power, Hardware Connections, and LEDs

.....
.....
.....
.....
.....

.....
.....
.....
.....

..... 91 8.

2 NWA570N Access and Login

.....
.....
.....

.....
.....
.....
.....

.....
.....

.....
.....
.... 92 8.3 Internet Access

.....
.....
.....
.....
.....

.....
.....
.....
.....
.....

. 94 Chapter 9 Product Specifications and Wall-Mounting Instructions

.....
.....
.....
.....
.....

... 95 9.1 Standards Supported

.....
.....
.....
.....
.....

.....
.....
.....
.....

. 97 Part IV: Appendices and Index

.....
.....
.....
.....
.....

101 Appendix A Setting up Your Computer's IP Address.....

.....
.....
.....
.....
.....

. 103 Appendix B Pop-up Windows, JavaScripts and Java Permissions

.....
.....

119 ZyXEL NWA570N User's Guide 13 Table of Contents Appendix C Wireless LANs

.....
.....
.....

.....
.....
.....

.....
.....

..... 125 Appendix D Customer Support.

.....
.....
.....

.....
.....
.....

.....
.....
.....

... 139 Appendix E Legal Information

.....
.....

.....
.....
.....

.....
.....
.....

..... 145 Index..

.....
.....
.....

.....
.....
.....

.....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

... 149 14 ZyXEL NWA570N User's Guide List of Figures List of Figures Figure 1 Internet Access Application

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 24 Figure 2 Corporate Network Application

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

.. 24 Figure 3 Wireless Client Application ...

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 25 Figure 4 Bridge Application

.....
.....
.....

.....

.....

.....

.....

.....

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.....

.....

. 26 Figure 5 Bridge Repeater Application

.....

.....

.....

.....

.....

.....

.....

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.. 26 Figure 6 AP+Repeater Application

.....

.....

.....

.....

.....

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.....

.....

.. 27 Figure 7 LEDs ...

.....

.....

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.....

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.....

.....
.....
.....
.....

... 28 *Figure 8 Wired Connection*

.....
.....

.....
.....
.....

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.....
.....

.....
.....
.....

. 29 *Figure 9 Wireless Connection*

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

... 29 *Figure 10 Web Configurator Address*

.....
.....
.....

.....
.....
.....

.....
.....
.....

... 32 *Figure 11 Login Screen*

.....
.....
.....

.....
.....

.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 32 Figure 12 Language Screen

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

. 32 Figure 13 Select Wizard or Advanced Setup Screen

.....
.....
.....
.....
.....
.....
.....
.....
.....

... 33 Figure 14 Wizard: Basic Settings ..

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 36 Figure 15 Wizard: Wireless Settings

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.. 37 Figure 16 Setup Wizard 3: Disable ...

.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.. 38 Figure 17 Wizard 3: WEP

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

. 39 Figure 18 Wizard 3: WPA(2)-PSK

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....

.....
.. 40 Figure 19 Wizard: Confirm Your Settings ...

.....

.....

.....

.....

.....

.....

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.....

.....

.....

.....

.....

.. 41 Figure 20 Wizard Configuration

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....
.. 41 Figure 21 Status Screen ...

.....

.....

.....

.....

.....

.....

.....

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.....

.....

.....

.....

.....
... 45 Figure 22 Status Screen Details ..

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....
.....
.....
.....

.. 46 Figure 23 Status: View Statistics

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....

. 48 Figure 24 Status: View Association List

.....
.....
.....

.....
.....
.....

.....
.....

..... 49 Figure 25 Status: View Association List: Wireless Client Mode .

.....
.....
.....

.....
.....
.....

. 50 Figure 26 System Settings

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

..... 52 *Figure 27 Example of a Wireless Network ..*

.....
.....
.....

.....
.....
.....

.....
.....
.....

. 55 *Figure 28 Wireless Settings: AP*

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

59 *Figure 29 Wireless Settings: Wireless Client*

.....
.....
.....

.....
.....
.....

.....
.....
.....

62 *Figure 30 Bridging Example*

.....
.....
.....

.....
.....
.....

.....
.....

.....
.....

64 Figure 31 Bridge Loop: Two Bridges Connected to Hub

.....
.....
.....
.....
.....

..... 65 Figure 32 Bridge Loop: Bridge Connected to Wired LAN ...

.....
.....
.....

.....
.....
.....
.....
.....
.....

..... 65 Figure 33 Wireless Settings: Bridge ..

.....
.....
.....
.....
.....
.....
.....
.....
.....

. 66 Figure 34 Wireless Settings: AP+Repeater

.....
.....
.....
.....
.....
.....
.....

... 69 Figure 35 Wireless Security: Disable

.....
.....
.....
.....

.....
.....
.....
.....
.....
.....
.....
.....

..... 72 Figure 36 Wireless Security: WEP

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

73 Figure 37 Wireless Security: IEEE 802.1x

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 75 Figure 38 Wireless Security: WPA(2)

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 77 ZyXEL NWA570N User's Guide 15 List of Figures Figure 39 Wireless Security: WPA(2)-PSK

.....
.....
.....
.....

.....
.....
.....

.....
.....
.....
.....

..... 78 *Figure 40 MAC Filter* .

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....

80 *Figure 41 Management: Password*

.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

83 *Figure 42 Management: Logs*

.....
.....
.....

.....
.....
.....

.....
.....
.....

.....
.....
.....

... 84 Figure 43 Management: Configuration File

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 85 Figure 44 Configuration Upload Successful

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 86 Figure 45 Network Temporarily Disconnected

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 86 Figure 46 Configuration Upload Error

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... 87 Figure 47 Reset Warning Message

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

.... 87 Figure 48 Management: F/W Upload .

.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

87 Figure 49 Firmware Upgrading Screen

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... 88 Figure 50 Network Temporarily Disconnected ..

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... 88 Figure 51 Firmware Upload Error

.....
.....
.....

.....
.....

.....
.....

.....
.....
.....

.....
.....
.....

... 88 Figure 52 Wall-mounting Example

.....
.....
.....

.....
.....
.....

.....
.....
.....

..... 99 Figure 53 Windows 95/98/Me: Network: Configuration .

.....
.....
.....

.....
.....
.....

.....
.....
.....

. 104 Figure 54 Windows 95/98/Me: TCP/IP Properties: IP Address

.....
.....
.....

.....
.....
.....

. 105 Figure 55 Windows 95/98/Me: TCP/IP Properties: DNS Configuration

.....
.....
.....

..... 106 Figure 56 Windows XP: Start Menu .

.....
.....
.....

.....
.....
.....

.....
.....
.....
.....

. 107 Figure 57 Windows XP: Control Panel

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....
.....

..... 107 Figure 58 Windows XP: Control Panel: Network Connections: Properties ..

.....
.....
.....
.....

.....
.....
.....
.....

. 108 Figure 59 Windows XP: Local Area Connection Properties

.....
.....
.....
.....

.....
.....
.....
.....

. 108 Figure 60 Windows XP: Internet Protocol (TCP/IP) Properties

.....
.....
.....
.....

.....
.....
.....
.....

. 109 Figure 61 Windows XP: Advanced TCP/IP Properties

.....
.....
.....
.....

.....
.....
.....
.....

110 Figure 62 Windows XP: Internet Protocol (TCP/IP) Properties

.....
.....
.....
.....
.....
.....
.....

.111 *Figure 63 Macintosh OS 8/9: Apple Menu*

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

....112 *Figure 64 Macintosh OS 8/9: TCP/IP*

.....
.....
.....
.....
.....
.....
.....
.....
.....

....112 *Figure 65 Macintosh OS X: Apple Menu* .

.....
.....
.....
.....
.....
.....
.....
.....
.....

....113 *Figure 66 Macintosh OS X: Network* .

.....
.....
.....
.....
.....
.....
.....

.....
.....
.....
.....

114 Figure 67 Red Hat 9.0: KDE: Network Configuration: Devices

.....
.....

.....
.....
.....

..115 Figure 68 Red Hat 9.0: KDE: Ethernet Device: General

.....
.....

.....
.....
.....

..115 ...

.....
.....

.....
.....

.116 ...

.....
.....

.....
.....

.....117 Figure 69 Red Hat 9.0: KDE: Network Configuration: DNS

.....
.....

.....
.....
.....

...116 Figure 70 Red Hat 9.0: KDE: Network Configuration: Activate Figure 71 Red Hat 9.0: Dynamic IP Address Setting in ifconfig-eth0

.....
.....

.....
.....

.....117 Figure 72 Red Hat 9.0: Static IP Address Setting in ifconfig-eth0 Figure 73 Red Hat 9.0: DNS Settings in resolv.conf Figure 74 Red Hat 9.0: Restart Ethernet Card Figure 75 Red Hat 9.0: Checking TCP/IP Properties

.....117

.....118 .

...117 Figure 76 Pop-up Blocker

.119 Figure 77 Internet Options: Privacy

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... 120 Figure 78 Internet Options: Privacy ..

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..... 121 Figure 79 Pop-up Blocker Settings

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..... 121 Figure 80 Internet Options: Security ..

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.... 122 Figure 81 Security Settings - Java Scripting .

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..... 126 Figure 86 Infrastructure WLAN ..

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.. 127 Figure 87 RTS/CTS ...

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... 128 Figure 88 WPA(2) with RADIUS Application Example

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..... 135 Figure 89 WPA(2)-PSK Authentication

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..... 46 Table 4 Status ...

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.... 46 Table 5 Screens Summary .

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... 48 Table 7 Status: View Association List

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.... 49 Table 8 Status: View Association List: Wireless Client Mode .

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.... 50 Table 9 Private IP Address Ranges .

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... 51 Table 10 System Settings

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.. 52 Table 11 Types of Encryption for Each Type of Authentication

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..... 57 Table 12 Additional Wireless Terms

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.... 58 Table 13 Wireless Settings: AP .

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..... 59 Table 14 Wireless Settings: Wireless Client .

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63 Table 15 Wireless Settings: Bridge

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..... 66 Table 16 Wireless Settings: AP + Repeater

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..... 69 Table 17 Wireless Security: Disable ...

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73 Table 18 Wireless Security: WEP

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... 75 Table 20 Wireless Security: WPA(2)

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. 77 Table 21 Wireless Security: WPA-PSK

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..... 78 Table 22 MAC Filter

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... 80 Table 23 WPS Settings

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. 97 Table 32 Power Adaptor Specifications

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..... 98 Table 33 IEEE 802.

11g

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You can also use it as a wireless client to access a wired network through another AP. The ZyXEL Device uses IEEE 802.

1x, WEP data encryption, WPA (Wi-Fi Protected Access), WPA2 and MAC address filtering to give mobile users highly secured wireless connectivity. IEEE 802.11b, IEEE 802.11g and IEEE 802.11n draft 2.0 compliant wireless devices can associate with the ZyXEL Device. The ZyXEL Device is also Wi-Fi Protected Setup (WPS) enabled, allowing you to quickly add other WPS enabled devices to your wireless network at the touch of a button or the entry of a PIN. 1.2 Applications for the ZyXEL Device Here are some application examples of how you can use your ZyXEL Device. 1.

2.1 Access Point for Internet Access The ZyXEL Device is an ideal access solution for wireless Internet connection. A typical Internet access application for your ZyXEL Device is shown as follows. ZyXEL NWA570N User's Guide 23 Chapter 1 Introducing the ZyXEL Device Figure 1 Internet Access Application 1.2.2 Corporate Network Access Application In situations where users need to access corporate network resources and the Internet, the ZyXEL Device is an ideal solution for wireless stations to connect to the corporate network without expensive network cabling. Stations A, B and C can access the wired network through the ZyXEL Devices. The following figure depicts a typical application of the ZyXEL Device in an enterprise environment. The three computers with wireless adapters are allowed to access the network resource through the ZyXEL Device after account validation by the network authentication server. Figure 2 Corporate Network Application 1.

2.3 Wireless Client Application The ZyXEL Device can function as a wireless client to connect to a network via an Access Point (AP). The AP provides access to the wired network and the Internet. 24 ZyXEL NWA570N User's Guide Chapter 1 Introducing the ZyXEL Device Figure 3 Wireless Client Application 1.2.

4 Bridge / Repeater The ZyXEL Device can act as a wireless network bridge and establish wireless links with other APs. The ZyXEL Devices in the following example are using bridge mode with a star configuration. A, B, C and D are connected to independent wired networks and have bridge connections at the same time (B, C and D can communicate with A). ZyXEL NWA570N User's Guide 25 Chapter 1 Introducing the ZyXEL Device Figure 4 Bridge Application A ZyXEL Device in bridge mode without an Ethernet connection can function as a repeater. It transmits traffic from one AP to another AP without using a wired connection.

C in the following graphic repeats wireless traffic between A and B. Figure 5 Bridge Repeater Application 26 ZyXEL NWA570N User's Guide Chapter 1 Introducing the ZyXEL Device 1.2.5 Access Point and Repeater Set the ZyXEL Device to AP+Repeater mode to have it simultaneously provide access for wireless clients and use the repeater function. This allows you to extend the coverage of your wireless network without installing Ethernet cable to connect the ZyXEL Device. In the following figure, B is in AP+Repeater mode. B functions as an AP for wireless clients C and D. B also repeats traffic between the wireless clients and AP A which is connected to the wired network. You could also set AP A to AP+Repeater mode so that wireless clients could connect to A as well. Figure 6 AP+Repeater Application 1.

3 Ways to Manage the ZyXEL Device Use any of the following methods to manage the ZyXEL Device. · Web Configurator. This is recommended for everyday management of the ZyXEL Device using a (supported) web browser. · Command Line Interface. Line commands are mostly used for troubleshooting by service engineers. · FTP. Use File Transfer Protocol for firmware upgrades and configuration backup/restore. 1.4 Good Habits for Managing the ZyXEL Device Do the following things regularly to make the ZyXEL Device more secure and to manage the ZyXEL Device more effectively. · Change the password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters. · Write down the password and put it in a safe place. ZyXEL NWA570N User's Guide 27 Chapter 1 Introducing the ZyXEL Device · Back up the configuration (and make sure you know how to restore it). Restoring an earlier working configuration may be useful if the device becomes unstable or even crashes. If you forget your password, you will have to reset the ZyXEL Device to its factory default settings.

If you backed up an earlier configuration file, you would not have to totally re-configure the ZyXEL Device. You could simply restore your last configuration.

1.5 LEDs Figure 7 LEDs The following table describes the LEDs on the ZyXEL Device. Table 1 Front Panel LED Description LED POWER COLOR Green STATUS Blinking On Off ETHERNET Green Blinking On Amber Blinking On Off WLAN Green Blinking On WPS Green On Blinking Off DESCRIPTION The ZyXEL Device is not ready or booting.

The ZyXEL Device has booted successfully and is receiving power. The ZyXEL Device is not receiving power. The ZyXEL Device is sending/receiving data. The ZyXEL Device has a successful 10 Mbps Ethernet connection. The ZyXEL Device is sending/receiving data. The ZyXEL Device has a successful 100 Mbps Ethernet connection. The ZyXEL Device does not have an Ethernet connection. The ZyXEL Device is sending or receiving data through the wireless LAN. The ZyXEL Device is ready, but is not sending/receiving data. The ZyXEL Device has a WPS connection with another WPS-enabled device.

The ZyXEL Device is setting up a WPS connection with another WPS-enabled device. The ZyXEL Device has no WPS connection or has failed to set up a WPS connection with another WPS-enabled device. 28 ZyXEL NWA570N User's Guide Chapter 1 Introducing the ZyXEL Device 1.6 Management Computer

Setup You can connect a computer to the ZyXEL Device for management purposes either using an Ethernet connection (recommended for a first time management session) or wirelessly. 1.6.1 Wired Connection You must prepare your computer/computer network to connect to the ZyXEL Device if you are using a wired connection. Your computer's IP address and subnet mask must be on the same subnet as the ZyXEL Device. This can be done by setting up your computer's IP address. See the appendix for details on how to set up your IP address.

The following figure shows an example of accessing your ZyXEL Device via a wired connection with an Ethernet cable. Figure 8 Wired Connection Default IP Address: 192.168.1.2 192.

168.1.3 1.6.2 Wireless Connection Ensure that the wireless stations have a compatible wireless card/adaptor with the same wireless settings as the ZyXEL Device.

The following figure shows how you can access your ZyXEL Device wirelessly. Figure 9 Wireless Connection SSID: ZyXEL NWA570N Channel: 6 Encryption: Disable The wireless stations and the ZyXEL Device must use the same SSID, channel and wireless security settings for wireless communication.



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ZyXEL NWA570N User's Guide 29 Chapter 1 If you do not enable any wireless security on your ZyXEL Device, your network traffic is visible to any wireless networking device that is within range. 1.7 Restarting the ZyXEL Device Press and immediately release the RESET button to restart the ZyXEL Device. Holding the RESET button in for five seconds or longer resets the device to the factory-default settings. 1.8 Resetting the ZyXEL Device If you forget the ZyXEL Device's IP address or your password, to access the ZyXEL Device, you will need to reload the factory-default using the RESET button. Resetting the ZyXEL Device replaces the current configuration file with the factory-default configuration file. This means that you will lose all configurations that you had previously.

The following parameters will be reset to the default values. Table 2 Factory Defaults PARAMETER IP Address Password Wireless Security SSID DEFAULT VALUE 192.168.1.2 1234 Disabled ZyXEL NWA570N 1.8.1 Methods of Restoring Factory-Defaults You can erase the current configuration and restore factory defaults in two ways: 1 Use the RESET button on the ZyXEL Device to upload the default configuration file (hold this button in for at least five seconds). 2 Use the web configurator. Click System > Management > Configuration File. From here you can restore the ZyXEL Device to its factory default settings.

30 ZyXEL NWA570N User's Guide CHAPTER This chapter describes how to configure the ZyXEL Device using the Wizard. 2 Introducing the Web Configurator 2.1 Web Configurator Overview The web configurator is an HTML-based management interface that allows easy ZyXEL Device setup and management via Internet browser. Use Internet Explorer 6.0 and later or Netscape Navigator 7.0 and later versions. The recommended screen resolution is 1024 by 768 pixels. In order to use the web configurator you need to allow: · Web browser pop-up windows from your device. Web pop-up blocking is enabled by default in Windows XP SP (Service Pack) 2. · JavaScripts (enabled by default). · Java permissions (enabled by default). See the Troubleshooting chapter for details on how to make sure these functions are allowed in Internet Explorer or Netscape Navigator. 2.2 Accessing the Web Configurator Follow the steps below to access the web configurator, select a language, change your login password and choose a configuration method from the status screen. 1 Make sure your ZyXEL Device hardware is properly connected (refer to the Quick Start Guide). 2 Prepare your computer/computer network to connect to the ZyXEL Device (refer to the appendix on setting up your IP address). 3 Launch your web browser. 4 Type the IP address of the ZyXEL Device (192.168.1.

2 is the default) in the URL bar. Press Enter. ZyXEL NWA570N User's Guide 31 Chapter 2 Introducing the Web Configurator Figure 10 Web Configurator Address 5 Type "1234" (default) as the password and click Login. Figure 11 Login Screen Default password is 1234. 6 Select your language and click Apply. Figure 12 Language Screen 7 The following screen displays. Select Go Wizard Setup and click Apply to use the wizard setup screens for initial configuration (see Chapter 3 on page 35). Select Go Advanced Setup and click Apply to go directly to the advanced screens (see Chapter 1 on page 45). 32 ZyXEL NWA570N User's Guide Chapter 2 Introducing the Web Configurator Figure 13 Select Wizard or Advanced Setup Screen ZyXEL NWA570N User's Guide 33 Chapter 2 Introducing the Web Configurator 34 ZyXEL NWA570N User's Guide CHAPTER 3.1 Using the Wizard 3 Wizard This chapter shows you how to configure the ZyXEL Device's basic features using the wizard.

The wizard consist of a series of screens to help you configure your ZyXEL Device for wireless stations to access your wired LAN. Use the following buttons to navigate the Wizard: Back Next Click Back to return to the previous screen. Click Next to continue to the next screen. No configuration changes will be saved to the ZyXEL Device until you click Finish. 3.

1.1 Wizard: Basic Settings First, log into the ZyXEL Device as shown in Section 2.2 on page 31. Click Wizard Setup to display the first wizard screen shown next. Refer to the System Screens chapter for more background information.

1 Enter a descriptive name to identify the device in the Ethernet network. 2 Select Obtain IP Address Automatically if you want to put the device behind a router that assigns an IP address. If you select this by mistake, use the RESET button to restore the factory default IP address. 3 Select Use fixed IP Address to give the device a static IP address. The IP address you configure here is used for management of the device (accessing the web configurator). 4 Enter a Subnet Mask appropriate to your network and the Gateway IP Address of the neighboring device, if you know it. If you do not, leave the Gateway IP Address field as 0.0.0.0.

ZyXEL NWA570N User's Guide 35 Chapter 3 Wizard Figure 14 Wizard: Basic Settings Do not select this unless you have a router that can assign the ZyXEL Device an IP address. 3.1.2 Wizard: Wireless Settings Use this wizard screen to set up the wireless LAN. See the chapter on the wireless screens for background information. 1 The SSID is a unique name to identify the device in a wireless network. Enter up to 32 printable characters. Spaces are allowed. If you change this field on the device, make sure all wireless stations use the same SSID in order to access the network. 2 A wireless device uses a channel to communicate in a wireless network.

Select a channel that is not already in use by a neighboring wireless device. The wireless stations and this device must use the same SSID, channel and wireless security settings for wireless communication. 36 ZyXEL NWA570N User's Guide Chapter 3 Wizard Figure 15 Wizard: Wireless Settings 3.1.3 Wizard: Security Settings Use this screen to configure security for your wireless LAN.

The screen varies depending on what you select in the Encryption Method field. Select Disable to have no wireless security configured, select WEP, or select WPA-PSK if your wireless clients support WPA-PSK. Select WPA2-PSK if your wireless clients support WPA2-PSK Go to Wireless > Security if you want WPA2, WPA or 802.1x. See Chapter 6 on page 55 for background information.

3.1.3.1 Disable Select Disable to have no wireless LAN security configured. If you do not enable any wireless security on your device, your network is accessible to any wireless networking device that is within range. With no wireless security a neighbor can access and see traffic in your network. ZyXEL NWA570N User's Guide 37 Chapter 3 Wizard Figure 16 Setup Wizard 3: Disable 3.1.3.2 WEP 1 WEP (Wired Equivalent Privacy) encrypts data frames before transmitting over the wireless network.

Select 64-bit, 128-bit or 152-bit from the WEP Encryption dropdown list box and then follow the on-screen instructions to set up the WEP keys.



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2 Choose an encryption level from the drop-down list. The higher the WEP encryption, the higher the security but the slower the throughput. 3 You can generate or manually enter a WEP key. · If you selected 64-bit or 128-bit WEP, you can enter a Passphrase (up to 32 printable characters) and click Generate. The device automatically generates WEP keys. One key displays in the Key 1 field. Go to Wireless > Security if you want to see the other WEP keys. or · Enter a manual key in the Key 1 field. 38 ZyXEL NWA570N User's Guide Chapter 3 Wizard Figure 17 Wizard 3: WEP Use Passphrase to automatically generate keys or manually enter a key in the Key 1 field.

3.1.3.3 WPA(2)-PSK Only select WPA-PSK or WPA2-PSK if your wireless clients support it. Type a pre-shared key from 8 to 63 ASCII characters (including spaces and symbols). This field is case-sensitive. ZyXEL NWA570N User's Guide 39 Chapter 3 Wizard Figure 18 Wizard 3: WPA(2)-PSK 3.1.4 Wizard: Confirm Your Settings This read-only screen shows the status of the current settings. Use the summary table to check whether what you have configured is correct. Click Finish to complete the wizard configuration and save your settings. 40 ZyXEL NWA570N User's Guide Chapter 3 Wizard Figure 19 Wizard: Confirm Your Settings 3.1.5 Auto-Configuration The Wizard automatically configures the ZyXEL Device. Figure 20 Wizard Configuration For more detailed background information, see the rest of this User's Guide. ZyXEL NWA570N User's Guide 41 Chapter 3 Wizard 42 ZyXEL NWA570N User's Guide PART II Advanced Status Screen (45) System Screen (51) Wireless Screens (55) Management Screens (83) 43 44 CHAPTER This chapter describes the Status screen. 4 Status Screen 4.1 Status Screen The Status screen display a snapshot of your device's settings. You can also view network statistics and a list of wireless stations currently associated with your device. Note that these labels are READ-ONLY and are meant to be used for diagnostic purposes.

You can reach this by clicking on Advanced after logging in, or by clicking on the Status tab (A) from any screen. Figure 21 Status Screen A ZyXEL NWA570N User's Guide 45 Chapter 4 Status Screen 4.1.1 Status Screen Icons The following table describes the global web configurator icons (in the upper right corner of most screens). Table 3 Global Icon Key ICON DESCRIPTION Click the Wizard icon to open the setup wizard. Click the About icon to view copyright information. Click the Logout icon at any time to exit the web configurator. Make sure you save any changes before you log out. 4.1. 2 Status Screen Details The status screen provides details on your ZyXEL Device, wireless settings, IP settings, as well as statistics and associated device details. Figure 22 Status Screen Details The following table describes the labels in this screen. Table 4 Status LABEL Refresh Interval Refresh Now Device Information Device Name Operation Mode MAC Address This is the same as the device name you entered in the first wizard screen if you entered one there. It is for identification purposes. This field shows whether the device is functioning as an access point, a wireless client, a bridge or an access point and repeater. This field displays the MAC address of the device. The MAC (Media Access Control) or Ethernet address on a LAN (Local Area Network) is unique to your computer. A network interface card such as an Ethernet adapter has a hardwired address that is assigned at the factory. This address follows an industry standard that ensures no other adapter has a similar address. DESCRIPTION Use the drop-down list box to select how often you want the device to renew the information on this screen. Click this button to have the device renew the information on this screen. 46 ZyXEL NWA570N User's Guide Chapter 4 Status Screen Table 4 Status LABEL Firmware Version IP Settings IP Address Subnet Mask Gateway IP Address Wireless Settings SSID Channel Encryption Method This is the descriptive name used to identify the device in a wireless network. This field displays the radio channel the device is currently using. This field shows the type of data encryption that is enabled on the wireless network: WEP (WEP or 802.1x) TKIP (WPA or WPA-PSK) AES (WPA2 or WPA2-PSK) TKIP + AES (WPA & WPA2 or WPA-PSK & WPA2-PSK) or Disable (no security) This field shows whether MAC filter is enabled or not. With MAC filtering, you can allow or deny access to the device based on the MAC addresses of the wireless stations. Click View Statistics to see performance statistics such as number of packets sent and number of packets received. Click View Association List to show the wireless stations that are currently associated to the device. This is the Ethernet port IP address. This is the Ethernet port subnet mask. This is the IP address of a gateway. Leave this field as 0.0.0.0 if you do not know it. DESCRIPTION This is the firmware version and the date the firmware was created. MAC Filter View Statistics View Association List 4.1.3 Navigation Panel After you enter the password, use the links on the navigation panel to go to the various screens. The following table describes the sub-menus. Table 5 Screens Summary LINK Status TAB FUNCTION This screen shows the ZyXEL Device's general device, system and interface status information. Use this screen to access the wizard, and summary statistics tables. Use this screen to configure the device name and IP address assignment settings. Wireless Settings Security MAC Filter WPS settings Use this screen to configure the wireless LAN. Use this screen to configure the wireless LAN's security settings. Use the MAC filter screen to configure the ZyXEL Device to block or allow only certain devices to associate with the ZyXEL Device. This shows the status of Wi-Fi Protected Setup (WPS) on your device. System Wireless ZyXEL NWA570N User's Guide 47 Chapter 4 Status Screen Table 5 Screens Summary LINK Manage ment TAB Password Logs Configuration F/W Upload FUNCTION Use this screen to configure the administrator password. Use this screen to view logs and alert messages. Use this screen to backup and restore the configuration or reset the factory defaults to your ZyXEL Device. Use this screen to upload firmware to your ZyXEL Device. 4.2 System Status 4.2.1 Statistics Click View Statistics in the Status screen. This screen displays read-only information including port status and packet specific statistics. Also provided are "system up time" and "poll interval(s)". The Poll Interval(s) field is configurable. Figure 23 Status: View Statistics The following table describes the labels in this screen. Table 6 Status: View Statistics LABEL Ethernet Packets Bytes Wireless Unicast Packets This row displays the numbers of unicast packets received and transmitted by the wireless adapter.



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This row displays the numbers of packets received and transmitted by the Ethernet port. This row displays the numbers of bytes received and transmitted by the Ethernet port. DESCRIPTION 48 ZyXEL NWA570N User's Guide Chapter 4 Status Screen Table 6 Status: View Statistics LABEL Broadcast Packets Multicast Packets Total Packets Total Bytes System Up Time Poll Interval(s) Set Interval Stop DESCRIPTION This row displays the numbers of broadcast packets received and transmitted by the wireless adapter. This row displays the numbers of multicast packets received and transmitted by the wireless adapter. This row displays the numbers of all types of packets received and transmitted by the wireless adapter. This row displays the numbers of bytes received and transmitted by the wireless adapter. This is the total time the device has been on. Enter the time interval for refreshing statistics. Click this button to apply the new poll interval you entered above. Click this button to stop refreshing statistics.

4.2.2 Association List Click Status and then the View Association List button to display the Association List screen. When the device is not in wireless client mode, this screen displays which wireless stations are currently associated to the device in the Association List screen. Figure 24 Status: View Association List The following table describes the labels in this screen.

Table 7 Status: View Association List LABEL # MAC Address IP Address Signal Strength Status Rescan DESCRIPTION This is the index number of an associated wireless station. This field displays the MAC address of an associated wireless station. This field displays the IP address of an associated wireless station. This field displays the signal strength of each associated wireless station. This field displays Associated for associated wireless stations.

Click Rescan to check for associated wireless stations. When the device is in wireless client mode, this screen displays details of the access point to which the ZyXEL Device is associated. ZyXEL NWA570N User's Guide 49 Chapter 4 Status Screen Figure 25 Status: View Association List: Wireless Client Mode The following table describes the labels in this screen. Table 8 Status: View Association List: Wireless Client Mode LABEL # MAC Address IP Address Signal Strength Status Rescan DESCRIPTION This is the index number of an associated access point. This field displays the MAC address of the associated access point. This field displays the IP address of the associated access point. This field displays the signal strength of the associated access point. This field displays Associated for an associated access point. Click Rescan to check for associated wireless stations. See the rest of this User's Guide for configuration details and background information on all features using the web configurator.

50 ZyXEL NWA570N User's Guide CHAPTER This chapter provides information on the System screen. 5 System Screen 5.1 TCP/IP Parameters 5.1.1 IP Address Assignment Every computer on the Internet must have a unique IP address. If your networks are isolated from the Internet, for instance, 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. Table 9 Private IP Address Ranges 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 have it assigned by 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.

5.1.2 IP Address and Subnet Mask Similar to the way houses on a street share a common street name, computers on a LAN share one common network number. ZyXEL NWA570N User's Guide 51 Chapter 5 System Screen 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. If the ISP did not explicitly give you an IP network number, then most likely you have a single user account and the ISP will assign you a dynamic IP address when the connection is established. The Internet Assigned Number Authority (IANA) reserved this block of addresses specifically for private use; please do not use any other number unless you are told otherwise. Let's 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. Once you have decided on the network number, pick an IP address that is easy to remember, for instance, 192.168.

1.2, for your device, but make sure that no other device on your network is using that IP address. The subnet mask specifies the network number portion of an IP address. Your device will compute the subnet mask automatically based on the IP address that you entered. You don't need to change the subnet mask computed by the device unless you are instructed to do otherwise. 5.2 System Settings Click System to open the System Settings screen. Figure 26 System Settings The following table describes the labels in this screen. Table 10 System Settings LABEL Device Name IP Address Assignment DESCRIPTION This name can be up to 30 printable characters long. Spaces are allowed.

52 ZyXEL NWA570N User's Guide Chapter 5 System Screen Table 10 System Settings LABEL Obtain IP Address Automatically Use fixed IP address IP Address Subnet Mask Gateway IP Address Apply Reset DESCRIPTION Select this option to have your device use a dynamically assigned IP address from a router each time. Select this option to have your device use a static IP address. When you select this option, fill in the fields below. Enter the IP address of your device in dotted decimal notation. Enter the subnet mask. Type the IP address of the gateway. The gateway is a router or switch on the same network segment as the device. The gateway helps forward packets to their destinations. Leave this field as 0.0.

0.0 if you do not know it. Click Apply to save your changes back to the device. Click Reset to reload the previous configuration for this screen. ZyXEL NWA570N User's Guide 53 Chapter 5 System Screen 54 ZyXEL NWA570N User's Guide CHAPTER 6 Wireless Screens This chapter discusses how to configure the wireless network settings in your NWA570N.



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See the appendices for more detailed information about wireless networks. 6.1 Wireless Network Overview The following figure provides an example of a wireless network. Figure 27 Example of a Wireless Network The wireless network is the part in the blue circle. In this wireless network, devices A and B use the access point (AP) to interact with the other devices (such as the printer) or with the Internet.

Your NWA570N is the AP. Every wireless network must follow these basic guidelines. · Every device in the same wireless network must use the same SSID. The SSID is the name of the wireless network. It stands for Service Set IDentity. · If two wireless networks overlap, they should use a different channel. ZyXEL NWA570N User's Guide 55 Chapter 6 Wireless Screens Like radio stations or television channels, each wireless network uses a specific channel, or frequency, to send and receive information. · Every device in the same wireless network must use security compatible with the AP. Security stops unauthorized devices from using the wireless network. It can also protect the information that is sent in the wireless network.

6.2 Wireless Security Overview The following sections introduce different types of wireless security you can set up in the wireless network. 6.2.1 SSID Normally, the NWA570N acts like a beacon and regularly broadcasts the SSID in the area. You can hide the SSID instead, in which case the NWA570N does not broadcast the SSID. In addition, you should change the default SSID to something that is difficult to guess. This type of security is fairly weak, however, because there are ways for unauthorized wireless devices to get the SSID. In addition, unauthorized wireless devices can still see the information that is sent in the wireless network. 6.

2.2 MAC Address Filter Every device that can use a wireless network has a unique identification number, called a MAC address. 1 A MAC address is usually written using twelve hexadecimal characters²; for example, 00A0C5000002 or 00:A0:C5:00:00:02. To get the MAC address for each device in the wireless network, see the device's User's Guide or other documentation. You can use the MAC address filter to tell the NWA570N which devices are allowed or not allowed to use the wireless network.

If a device is allowed to use the wireless network, it still has to have the correct information (SSID, channel, and security). If a device is not allowed to use the wireless network, it does not matter if it has the correct information. This type of security does not protect the information that is sent in the wireless network. Furthermore, there are ways for unauthorized wireless devices to get the MAC address of an authorized device. Then, they can use that MAC address to use the wireless network.

6.2.3 User Authentication Authentication is the process of verifying whether a wireless device is allowed to use the wireless network. You can make every user log in to the wireless network before they can use it. However, every device in the wireless network has to support IEEE 802.1x to do this. For wireless networks, you can store the user names and passwords for each user in a RADIUS server. This is a server used in businesses more than in homes. If you do not have a RADIUS server, you cannot set up user names and passwords for your users. 1.

2. Some wireless devices, such as scanners, can detect wireless networks but cannot use wireless networks. These kinds of wireless devices might not have MAC addresses. Hexadecimal characters are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F. 56 ZyXEL NWA570N User's Guide Chapter 6 Wireless Screens Unauthorized wireless devices can still see the information that is sent in the wireless network, even if they cannot use the wireless network. Furthermore, there are ways for unauthorized wireless users to get a valid user name and password. Then, they can use that user name and password to use the wireless network. 6.2.4 Encryption Wireless networks can use encryption to protect the information that is sent in the wireless network.

Encryption is like a secret code. If you do not know the secret code, you cannot understand the message. The types of encryption you can choose depend on the type of authentication. (See Section 6.2.

3 on page 56 for information about this.) Table 11 Types of Encryption for Each Type of Authentication NO AUTHENTICATION Weakest No Security Static WEP WPA-PSK Strongest WPA2-PSK WPA2 RADIUS SERVER WPA For example, if the wireless network has a RADIUS server, you can choose WPA or WPA2. If users do not log in to the wireless network, you can choose no encryption, Static WEP, WPA-PSK, or WPA2-PSK. Usually, you should set up the strongest encryption that every device in the wireless network supports. For example, suppose you have a wireless network with the NWA570N and you do not have a RADIUS server.

Therefore, there is no authentication. Suppose the wireless network has two devices. Device A only supports WEP, and device B supports WEP and WPA. Therefore, you should set up Static WEP in the wireless network. It is recommended that wireless networks use WPA-PSK, WPA, or stronger encryption. The other types of encryption are better than none at all, but it is still possible for unauthorized wireless devices to figure out the original information pretty quickly. When you select WPA2 or WPA2-PSK in your NWA570N, you can also select an option (WPA compatible) to support WPA as well. In this case, if some of the devices support WPA and some support WPA2, you should set up WPA2-PSK or WPA2 (depending on the type of wireless network login) and select the WPA compatible option in the NWA570N. Many types of encryption use a key to protect the information in the wireless network. The longer the key, the stronger the encryption.

Every device in the wireless network must have the same key. ZyXEL NWA570N User's Guide 57 Chapter 6 Wireless Screens 6.3 Additional Wireless Terms The following table describes wireless network terms and acronyms used in the NWA570N's Web Configurator. Table 12 Additional Wireless Terms TERM Intra-BSS Traffic DESCRIPTION This describes direct communication (not through the NWA570N) between two wireless devices within a wireless network. You might disable this kind of communication to enhance security within your wireless network. In a wireless network which covers a large area, wireless devices are sometimes not aware of each other's presence. This may cause them to send information to the AP at the same time and result in information colliding and not getting through. By setting this value lower than the default value, the wireless devices must sometimes get permission to send information to the NWA570N. The lower the value, the more often the devices must get permission. If this value is greater than the fragmentation threshold value (see below), then wireless devices never have to get permission to send information to the NWA570N.



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A preamble affects the timing in your wireless network. There are two preamble modes: long and short. If a device uses a different preamble mode than the NWA570N does, it cannot communicate with the NWA570N. The process of verifying whether a wireless device is allowed to use the wireless network. Enable this to improve the performance of both pure IEEE 802.

11g and mixed IEEE 802.11b/g networks. Maximum Frame Burst sets the maximum time that the NWA570N transmits IEEE 802.11g wireless traffic only. A small fragmentation threshold is recommended for busy networks, while a larger threshold provides faster performance if the network is not very busy. If you have two or more NWA570Ns (or other wireless access points) on your wireless network, you can enable this option so that wireless devices can change locations without having to log in again. This is useful for devices, such as notebooks, that move around a lot. RTS/CTS Threshold Preamble Authentication Max. Frame Burst Fragmentation Threshold Roaming 6.4 Configuring Wireless Click Wireless to display the Wireless Settings screen. The screen varies depending upon the operation mode you select. 6.4.1 Access Point Mode Select Access Point in the Operation Mode field to display the screen as shown next. This mode has the device act as an access point (AP) through which wireless stations can communicate and/or access a wired network.

58 ZyXEL NWA570N User's Guide Chapter 6 Wireless Screens Figure 28 Wireless Settings: AP The following table describes the labels in this screen. Table 13 Wireless Settings: AP LABEL Basic Settings Operation Mode SSID Select the operating mode from the drop-down list. @@Wireless stations associating to the access point (AP) must have the same SSID. Enter a descriptive name (up to 32 printable characters) for the wireless LAN. Spaces are allowed.

DESCRIPTION Note: If you are configuring the device from a computer connected to the wireless LAN and you change the device's SSID, channel or security settings, you will lose your wireless connection when you press Apply to confirm. You must then change the wireless settings of your computer to match the device's new settings. Hide SSID Channel Select this check box to hide the SSID in the outgoing beacon frame so a station cannot obtain the SSID through passive scanning using a site survey tool. The range of radio frequencies used by IEEE 802.11b/g wireless devices is called a channel.

@@ ZyXEL NWA570N User's Guide 59 Chapter 6 Wireless Screens Table 13 Wireless Settings: AP (continued) LABEL Wireless Mode DESCRIPTION @@Select 802.11n/g to allow IEEE 802.11n and IEEE 802.11g compliant WLAN devices to associate with the device. Select HT protect if you have devices on your wireless network that support IEEE 802.

1b/g standards but not the IEEE 802.11n draft 2.0 standard. HT protect Advanced Settings Beacon Interval A beacon transmits important information to stations on the wireless network. Set the number of milliseconds that should pass between the sending out of beacons.

Selecting a low number increases the frequency of beacons. This increases network overhead, but improves wireless device association and roaming. However, it also reduces power saving as wireless stations in sleep mode must awaken more often. Selecting a high number reduces the frequency of beacons, reducing network overhead, increasing data transmission rates and increasing power savings. However, association of wireless devices and roaming becomes more difficult. A Basic Service Set (BSS) exists when all communications between wireless clients or between a wireless client and a wired network client go through one access point (AP). Intra-BSS traffic is traffic between wireless stations in the same BSS. Enable Intra-BSS Traffic to allow wireless stations connected to the device to communicate with each other. Disable Intra-BSS Traffic to only allow wireless stations to communicate with the wired network, not with each other. This option is more secure.

See Appendix C on page 125 for more information. Set the interval for wireless clients in sleep mode to wake up and check for multicast or broadcast traffic.

The AP includes a Delivery Traffic Indication Message (DTIM) in the beacon to notify wireless clients in sleep mode that there is a multicast or broadcast packet awaiting delivery. The DTIM interval is a multiple of the beacon interval. For example, if the beacon interval is 100 milliseconds and the DTIM interval is 2, the AP includes a DTIM with every second beacon (or every 200 milliseconds). Use this field to set a maximum number of wireless stations that may connect to the device. Enter the number (from 1 to 32) of wireless stations allowed. Turn on the wireless adapter to allow wireless communications between the device and other IEEE 802.11b/g and IEEE 802.11n draft 2.

0 compliant wireless devices. Turn off the wireless adapter to stop wireless communications between the device and other IEEE 802.11b/g and IEEE 802.11n draft 2.0 compliant wireless devices.

@@@ Intra-BSS Traffic DTIM Interval Number of Wireless Stations Allowed to Associate: Radio Enable A-MPDU aggregation A-MSDU aggregation RIFS 60 ZyXEL NWA570N User's Guide Chapter 6 Wireless Screens Table 13 Wireless Settings: AP (continued) LABEL Short GI DESCRIPTION Select Yes or No to enable or disable GI (Guard Interval). @@@@Set the output power of the device in this field. The options are Full, 50%, 25%, 12% and Min.

Full is recommended. @@@@The options are Auto, 1 ~ 54M, or MCS0-7.

2[15] ~ MCS15-144.4[300]. @@If you are not certain of what setting to choose, choose Auto. Alternatively select a maximum data transfer rate from 1 to 54 Mbps. @@@@The MCS lists data transfer speeds given a set of factors affecting network data transfer rates. Such factors include GI and bandwidth. The "MCS0" in the MCS0-7.2[15] option refers to the first set of network conditions and so on. So MCS0-7.2[15] is appropriate for network conditions which provides data transfer rates of 7.

2 Mbps and 15 Mbps at bandwidths of 20 Mhz and 40 Mhz respectively. For more information on the MCS see the IEEE802.11n draft 2.0 specifications.

Output Power Management Data Rate Management Channel Mode Select whether the NWA570N uses a wireless channel bandwidth of 20 or 40 MHz. A standard 20 MHz channel offers transfer speeds of up to 150Mbps whereas a 40MHz channel uses two standard channels and offers speeds of up to 300 Mbps. Because not all devices support 40 MHz channels, select 20/40MHZ to allow the NWA570N to adjust the channel bandwidth automatically. Extension channel protection mode If you have only IEEE wireless 802.11n draft 2.0 compatible devices on your network, select None.

If you have devices that are not compatible with IEEE wireless 802.11n draft 2.0 and you have selected a Channel Mode of 40 Mhz, select CTS to self. CTS to self and RTS-CTS are both kinds of protection mechanisms, similar to HT protect. Both decrease data transfer speeds but CTS to self is more efficient.



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Preamble is used to signal that data is coming to the receiver. Short preamble increases performance as less time sending preamble means more time for sending data. All IEEE 802.11b compliant wireless adapters support long preamble, but not all support short preamble. Select Long preamble if you are unsure what preamble mode the wireless adapters support, and to provide more reliable communications in busy wireless networks.

Select Dynamic to have the device automatically use short preamble when all wireless clients support it, otherwise the device uses long preamble. Preamble Type Note: The device and the wireless stations MUST use the same preamble mode in order to communicate. ZyXEL NWA570N User's Guide 61 Chapter 6 Wireless Screens Table 13 Wireless Settings: AP (continued) LABEL RTS/CTS Threshold DESCRIPTION RTS/CTS is designed to prevent collisions due to hidden nodes. You should only configure RTS/CTS if the possibility of hidden nodes exists on your network and the "cost" of resending large frames is more than the extra network overhead involved in the RTS (Request To Send)/CTS (Clear to Send) handshake. Enter a value between 0 and 65535. Data with a frame size larger than this value will perform the RTS/CTS handshake. If the RTS/CTS value is greater than the Fragmentation value, then the RTS/CTS handshake will never occur as data frames will be fragmented before they reach RTS/CTS size. See Appendix C on page 125 for more information. Fragmentation Enter a value between 256 and 65534. It is the maximum data fragment size that can be sent.

A large Fragmentation Threshold is recommended for networks not prone to interference while you should set a smaller threshold for busy networks or networks that are prone to interference. See Appendix C on page 125 for more information. Apply Reset Click Apply to save your changes back to the device.

Click Reset to begin configuring this screen afresh. 6.4.2 Wireless Client Mode Select Wireless Client in the Operation Mode field to display the screen as shown next. This mode has the device act as wireless client to connect to a wireless network. WPA, WPA2 and IEEE 802.1x wireless security are not available when you use Wireless Client, Bridge or AP+Repeater mode.

Figure 29 Wireless Settings: Wireless Client 62 ZyXEL NWA570N User's Guide Chapter 6 Wireless Screens The following table describes the labels in this screen. Table 14 Wireless Settings: Wireless Client LABEL Basic Settings Operation Mode SSID Select the operating mode from the drop-down list.

@@ Wireless stations associating to the access point (AP) must have the same SSID. Enter a descriptive name (up to 32 printable characters) for the wireless LAN. Spaces are allowed.

DESCRIPTION Note: If you are configuring the device from a computer connected to the wireless LAN and you change the device's SSID, channel or security settings, you will lose your wireless connection when you click Apply to save your settings. You must then change the wireless settings of your computer to match the device's new settings. Advanced Settings Manual MAC Cloning Every Ethernet-capable device is issued with a unique Media Access Control (MAC) address at the factory. This address is used to identify the device across a network. Your NWA570N is capable of "cloning", or emulating, the MAC addresses of one or more other devices.

Select the check box and enter the MAC address you want to clone. Turn on the wireless adapter to allow wireless communications between the device and other IEEE 802.11b and IEEE 802.11g compliant wireless devices. @@Preamble is used to signal that data is coming to the receiver. Short preamble increases performance as less time sending preamble means more time for sending data. All IEEE 802.11b compliant wireless adapters support long preamble, but not all support short preamble. Select Long preamble if you are unsure what preamble mode the wireless adapters support, and to provide more reliable communications in busy wireless networks. Select Dynamic to have the device automatically use short preamble when all wireless clients support it, otherwise the device uses long preamble.

Radio Enable Preamble Type Note: The device and the wireless stations MUST use the same preamble mode in order to communicate. RTS/CTS Threshold RTS/CTS is designed to prevent collisions due to hidden nodes. You should only configure RTS/CTS if the possibility of hidden nodes exists on your network and the "cost" of resending large frames is more than the extra network overhead involved in the RTS (Request To Send)/CTS (Clear to Send) handshake. Enter a value between 0 and 65535. Data with a frame size larger than this value will perform the RTS/CTS handshake. If the RTS/CTS value is greater than the Fragmentation value, then the RTS/CTS handshake will never occur as data frames will be fragmented before they reach RTS/CTS size. See Appendix C on page 125 for more information. ZyXEL NWA570N User's Guide 63 Chapter 6 Wireless Screens Table 14 Wireless Settings: Wireless Client (continued) LABEL DESCRIPTION Fragmentation Enter a value between 256 and 65534. It is the maximum data fragment size that can be sent. A large Fragmentation Threshold is recommended for networks not prone to interference while you should set a smaller threshold for busy networks or networks that are prone to interference.

See Appendix C on page 125 for more information. Apply Reset Click Apply to save your changes back to the device. Click Reset to begin configuring this screen afresh. 6.4.

3 Bridge Mode The device can act as a wireless network bridge and establish wireless links with other APs. You need to know the MAC address of the peer device, which also must be in bridge mode. When two devices connect in Bridge mode, they form a WDS (Wireless Distribution System) allowing the computers in one LAN to connect to the computers in another LAN. See the following example. WPA, WPA2 and IEEE 802.

1x wireless security are not available when you use Wireless Client, Bridge or AP+Repeater mode. You can use only WEP or WPA2-PSK keys to encrypt traffic between APs. Figure 30 Bridging Example 64 ZyXEL NWA570N User's Guide Chapter 6 Wireless Screens Be careful to avoid bridge loops when you enable bridging in the NWA570N. Bridge loops cause broadcast traffic to circle the network endlessly, resulting in possible throughput degradation and disruption of communications. The following examples show two network topologies that can lead to this problem: If two or more NWA570Ns (in bridge mode) are connected to the same hub as shown next. Figure 31 Bridge Loop: Two Bridges Connected to Hub If your NWA570N (in bridge mode) is connected to a wired LAN while communicating with another wireless bridge that is also connected to the same wired LAN as shown next. Figure 32 Bridge Loop: Bridge Connected to Wired LAN To prevent bridge loops, ensure that your NWA570N is not set to bridge mode while connected to both wired and wireless segments of the same LAN.



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