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You can read the recommendations in the user guide, the technical guide or the installation guide for ZYXEL G-202. You'll find the answers to all your questions on the ZYXEL G-202 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ZYXEL G-202
User guide ZYXEL G-202
Operating instructions ZYXEL G-202
Instructions for use ZYXEL G-202
Instruction manual ZYXEL G-202

ZyXEL G-202

802.11g Wireless USB Adapter

User's Guide

Version 2.00
Edition 1
5/2007

ZyXEL



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Manual abstract:

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If this equipment does cause harmful interference to radio/television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1 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. FCC Radiation Exposure Statement · The device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, under 47 CFR 2.

1093 paragraph (d)(2). End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual. · This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. · IEEE 802.

11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11. ! 4 Certifications ZyXEL G-202 User's Guide Notices Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device has been designed for the WLAN 2.4 GHz network throughout the EC region and Switzerland, with restrictions in France. 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.

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Related Documentation · Supporting Disk Refer to the included CD for support documents. · Quick Start Guide The Quick Start Guide is designed to help you get up and running right away. They contain hardware installation/connection information. · ZyXEL Glossary and Web Site Please refer to www.zyxel.com for an online glossary of networking terms and additional support documentation. User Guide Feedback Help us help you. E-mail all User Guide-related comments, questions or suggestions for improvement to techwriters@zyxel.com.tw or send regular mail to The Technical Writing Team, ZyXEL Communications Corp.

, 6 Innovation Road II, Science-Based Industrial Park, Hsinchu, 300, Taiwan. Thank you. Syntax Conventions · "Enter" means for you to type one or more characters. "Select" or "Choose" means for you to use one predefined choice. · Mouse action sequences are denoted using a comma. For example, "In Windows, click Start, Settings and then Control Panel" means first click the Start button, then point your mouse pointer to Settings and then click Control Panel. · "e.g.," is a shorthand for "for instance", and "i.e.

," means "that is" or "in other words". · The ZyXEL G-202 802.11g Wireless USB Adapter may be referred to as the G-202 in this user's guide. Preface 17 ZyXEL G-202 User's Guide Graphics Icons Key Wireless Access Point Computer Notebook Computer Server Modem or Router Wireless Signal Internet Cloud 18 Preface ZyXEL G-202 User's Guide CHAPTER 1 Getting Started This chapter introduces the G-202 and prepares you to use the ZyXEL utility. 1. 1 About Your G-202 The G-202 is an IEEE 802.11b/g compliant wireless LAN adapter. You can also use the ZyXEL utility to turn your G-202 into an access point (AP). The ZyXEL utility is a tool that helps you configure your G-202. See the appendix for detailed product specifications.

1.2 Application Overview This section describes some network applications for the G-202. 1.2.1 Station Mode The G-202 is in wireless station mode by default. When the G-202 works as a wireless station (wireless client), you can either set the network type to Infrastructure and connect to an AP or use Ad-Hoc mode and connect to a peer computer (another wireless device in Ad-Hoc mode). 1.2.1.1 Infrastructure To connect to a network via an access point (AP), set the G-202 network type to Infrastructure.

Through the AP, you can access the Internet or the wired network behind the AP. Chapter 1 Getting Started 19 ZyXEL G-202 User's Guide Figure 1 Application: Infrastructure 1.2.1.2 Ad-Hoc To set up a small independent wireless workgroup without an AP, use Ad-Hoc. Ad-Hoc does not require an AP or a wired network. Two or more wireless clients communicate directly to each other. Figure 2 Application: Ad-Hoc 20 Chapter 1 Getting Started ZyXEL G-202 User's Guide 1.2.2 Access Point Mode You can also set the G-202 to access point mode.

In access point mode, your G-202 functions as an access point. This allows you to set up your wireless networks without using a dedicated AP. The following figure shows a network example. Figure 3 Application: Access Point Mode In the example, the G-202 is installed on computer A and set to operate in access point mode. Computer A provides an Internet connection to the wireless LAN, so wireless stations B and C can access the Internet.

1.2.3 Changing G-202 Mode To change between the modes, select either Station Mode or AP Mode in any ZyXEL utility screens. Figure 4 ZyXEL Utility: Change Modes Note: Wait for about five seconds for the ZyXEL utility to complete the mode change. The current mode is indicated by the color of the check box.

Chapter 1 Getting Started 21 ZyXEL G-202 User's Guide 1.3 G-202 Hardware and Utility Installation Follow the instructions in the Quick Start Guide to install the ZyXEL utility and make hardware connections. 1.3.1 ZyXEL Utility Icon After you install and start the ZyXEL utility, an icon for the ZyXEL utility appears in the system tray. Note: The ZyXEL utility system tray icon displays only when the G-202 is installed properly. When you use the ZyXEL utility, it automatically disables WZC. Figure 5 ZyXEL Utility: System Tray Icon The color of the ZyXEL utility system tray icon indicates the status of the G-202. Refer to the following table for details. Table 1 ZyXEL Utility: System Tray Icon COLOR Red Green Pale Blue DESCRIPTION The G-202 is operating in wireless station mode but is not connected to a wireless network.



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The G-202 is operating in wireless station mode and connected to a wireless network. The G-202 is operating in access point mode. 1.4 Configuration Methods To configure your G-202, use one of the following applications: · Wireless Zero Configuration (WZC) (the Windows XP wireless configuration tool) · ZyXEL Utility (required when you want to use the G-202 as an access point) · Odyssey Client Manager (not supplied) Refer to the Odyssey Client Manager documentation for more information. Note: Do NOT use WZC or the Odyssey Client Manager at the same time you use the ZyXEL utility. 1.4.1 Enabling WZC Note: When you use the ZyXEL utility, it automatically disables WZC. 22 Chapter 1 Getting Started ZyXEL G-202 User's Guide If you want to use WZC to configure the G-202, you need to disable the ZyXEL utility by right-clicking the utility icon () in the system tray and selecting Exit. Figure 6 Enable WZC Refer to the appendices for information on how to use WZC to manage the G-202.

To re-activate the ZyXEL utility, double-click the () icon on your desktop or click Start, (All) Programs, ZyXEL G-202 Wireless Adapter Utility, ZyXEL G-202 Wireless Adapter Software. 1.4.2 Accessing the ZyXEL Utility Double-click on the ZyXEL wireless LAN utility icon in the system tray to open the ZyXEL utility. The ZyXEL utility screens are similar in all Microsoft Windows versions.

Screens for Windows XP are shown in this User's Guide. Note: Click the window. icon (located in the top right corner) to display the online help Chapter 1 Getting Started 23 ZyXEL G-202 User's Guide 24 Chapter 1 Getting Started ZyXEL G-202 User's Guide CHAPTER 2 Tutorial The following sections show you how to join a wireless network using the ZyXEL utility, as in the following diagrams. The wireless client is labeled C and the access point is labeled AP.

Figure 7 Infrastructure Network There are three ways to connect the wireless client (the G-202 in station mode) to a network.

· Configure nothing and leave the wireless client to automatically scan for and connect to any available network that has no wireless security configured. · Manually connect to a network (see Section 2.1 on page 25). · Configure a profile to have the wireless client automatically connect to a specific network or peer computer (see Section 2.2 on page 27). This chapter also includes a simple example of how to configure the G-202 as an AP using the ZyXEL utility. See Section 2.3 on page 30 for more information. 2.1 Connecting to a Wireless LAN This example illustrates how to manually connect your wireless client to an access point (AP) which is configured for WPA-PSK security and connected to the Internet.

Before you connect to the access point, you must know its Service Set IDentity (SSID) and WPA-PSK pre-shared key. In this example, the SSID is "SSID_Example3" and the pre-shared key is "ThisismyWPA-PSKpre-sharedkey" in the AP. After you install the ZyXEL utility and then insert the wireless client, follow the steps below to connect to a network using the Site Survey screen. 1 Open the ZyXEL utility and click the Site Survey tab to open the screen as shown next. Chapter 2 Tutorial 25 ZyXEL G-202 User's Guide Figure 8 ZyXEL Utility: Site Survey 2 The wireless client automatically searches for available wireless networks. Click Scan if you want to search again. If no entry displays in the Available Network List, that means there is no wireless network available within range. Make sure the AP or peer computer is turned on, or move the wireless client closer to the AP or peer computer. See Table 5 on page 45 for detailed field descriptions. 3 To connect to an AP or peer computer, either click an entry in the list and then click Connect or double-click an entry (with a SSID of SSID_Examples3 in this example).

4 When you try to connect to an AP with security configured, a window will pop up prompting you to specify the security settings. Enter the pre-shared key and leave the encryption type at the default setting. Use the Next button to move on to the next screen. You can use the Back button at any time to return to the previous screen, or the Exit button to return to the Site Survey screen. Figure 9 ZyXEL Utility: Security Settings 5 The Confirm Save window appears. Check your settings and click Save to continue. 26 Chapter 2 Tutorial ZyXEL G-202 User's Guide Figure 10 ZyXEL Utility: Confirm Save 6 The ZyXEL utility returns to the Link Info screen while it connects to the wireless network using your settings. When the wireless link is established, the ZyXEL utility icon in the system tray turns green and the Link Info screen displays details of the active connection. Check the network information in the Link Info screen to verify that you have successfully connected to the selected network. If the wireless client is not connected to a network, the fields in this screen remain blank. See Table 3 on page 42 for detailed field descriptions. Figure 11 ZyXEL Utility: Link Info 7 Open your Internet browser and enter <http://www.zyxel.com> or the URL of any other web site in the address bar. If you are able to access the web site, your wireless connection is successfully configured. If you cannot access the web site, check the Troubleshooting section of this User's Guide or contact your network administrator if necessary. 2.2 Creating and Using a Profile A profile lets you automatically connect to the same wireless network every time you use the ZyXEL utility. You can also configure different profiles for different networks, for example if you connect a notebook computer to wireless networks at home and at work. Chapter 2 Tutorial 27 ZyXEL G-202 User's Guide This example illustrates how to set up a profile and connect the wireless client to an access point configured for WPA-PSK security.

In this example, the SSID is "SSID_Example3" and the pre-shared key is "ThisismyWPA-PSKpre-sharedkey" in the AP. You have chosen the profile name "PN_Example3". 1 Open the ZyXEL utility and click the Profile tab to open the screen as shown. Click Add to configure a new profile. Figure 12 ZyXEL Utility: Profile 2 The Add New Profile screen appears. The wireless client automatically searches for available wireless networks, which are displayed in the Scan Info box. You can also configure your profile for a wireless network that is not in the list. Figure 13 ZyXEL Utility: Add New Profile 3 Give the profile a descriptive name (of up to 32 printable ASCII characters). Select Infrastructure and either manually enter or select the AP's SSID in the Scan Info table and click Select. 4 Choose the same encryption method as the AP to which you want to connect (In this example, WPA-PSK). 28 Chapter 2 Tutorial ZyXEL G-202 User's Guide Figure 14 ZyXEL Utility: Profile Security 5 This screen varies depending on the encryption method you selected in the previous screen.



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In this example, enter the pre-shared key and leave the encryption type at the default setting. Figure 15 ZyXEL Utility: Profile Encryption 6 Verify the profile settings in the ready-only screen. Click Save to save and go to the next screen. Figure 16 ZyXEL Utility: Profile Confirm Save 7 Click Activate Now to use the new profile immediately.

Otherwise, click the Activate Later button to go back to the Profile List screen. If you clicked Activate Later you can select the profile from the list in the Profile screen and click Connect to activate it. Chapter 2 Tutorial 29 ZyXEL G-202 User's Guide Note: Only one profile can be activated and used at any given time. Figure 17 ZyXEL Utility: Profile Activate 8 When you activate the new profile, the ZyXEL utility goes to the Link Info screen while it connects to the AP using your settings. When the wireless link is established, the ZyXEL utility icon in the system tray turns green and the Link Info screen displays details of the active connection.

9 Make sure the selected AP in the active profile is connected to the Internet. Open your Internet browser, enter <http://www.zyxel.com> or the URL of any other web site in the address bar and press ENTER. If you are able to access the web site, your new profile is successfully configured. 10 If you cannot access the Internet, go back to the Profile screen. Select the profile you are using and click Edit. Check the details you entered previously. Also, refer to the Troubleshooting section of this User's Guide or contact your network administrator if necessary. 2.

3 Configuring the G-202 as an AP In access point mode, your G-202 allows you to set up your wireless network without using a dedicated AP. Refer to Section 1.2.3 on page 21 and Chapter 5 on page 61 for more information. Note: With WZC, you cannot use the G-202 as an access point. After you install the ZyXEL utility and then insert the G-202, follow the steps below to set up your G-202 as an AP. 1 Select AP Mode in any utility screen and wait for five seconds. The screen changes and displays as next. Under Status, you can view the current settings on the G-202. In the Association List, you can see if any wireless clients have connected to your G-202.

30 Chapter 2 Tutorial ZyXEL G-202 User's Guide Figure 18 ZyXEL Utility: AP: Link Info 2 If you want to change the SSID and enable wireless security for your G-202, click the Configuration tab and refer to Section 5.3 on page 63 for detailed field descriptions. Note: You can only use WEP when the G-202 is in AP mode. Figure 19 ZyXEL Utility: AP: Configuration Chapter 2 Tutorial 31 ZyXEL G-202 User's Guide 32 Chapter 2 Tutorial ZyXEL G-202 User's Guide CHAPTER 3 Wireless LAN Network This chapter provides background information on wireless LAN network. 3.

1 Wireless LAN Overview The following figure provides an example of a wireless network with an AP. See Figure 2 on page 20 for an Ad Hoc network example. Figure 20 Example of a Wireless Network The wireless network is the part in the blue circle. In this wireless network, devices A and B are called wireless clients. The wireless clients use the access point (AP) to interact with other devices (such as the printer) or with the Internet 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. Like radio stations or television channels, each wireless network uses a specific channel, or frequency, to send and receive information. Chapter 3 Wireless LAN Network 33 ZyXEL G-202 User's Guide · Every device in the same wireless network must use security compatible with the AP or peer computer. Security stops unauthorized devices from using the wireless network. It can also protect the information that is sent in the wireless network. 3.2 Wireless LAN Security Wireless LAN security is vital to your network to protect wireless communications.

Configure the wireless LAN security using the Configuration or the Profile Security Setting screen. If you do not enable any wireless security on your G-202, the G-202's wireless communications are accessible to any wireless networking device that is in the coverage area. Note: You can only use WEP encryption if you set the G-202 to Ad-hoc or AP mode. See the appendices for more detailed information about wireless security. 3.2.1 Hide SSID Normally, the G-202 in AP mode acts like a beacon and regularly broadcasts the SSID in the area. You can hide the SSID instead, in which case the G-202 in AP mode 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. 3.2.2 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 characters; 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 G-202 in AP mode 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. 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. 34 Chapter 3 Wireless LAN Network ZyXEL G-202 User's Guide 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. 3.2.3 User Authentication and Encryption You can make every user log in to the wireless network before they can use it.

This is called user authentication. However, every wireless client in the wireless network has to support IEEE 802.1x to do this. 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. 3.2.3.1 WEP 3.

2.3.1.1 Data Encryption WEP (Wired Equivalent Privacy) encryption scrambles all data packets transmitted between the G-202 and the AP or other wireless stations to keep network communications private.



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Both the wireless stations and the access points must use the same WEP key for data encryption and decryption.

There are two ways to create WEP keys in your G-202. · Automatic WEP key generation based on a "passphrase" called a passphrase. The passphrase is case sensitive. You must use the same passphrase for all WLAN adapters with this feature in the same WLAN. For WLAN adapters without the passphrase feature, you can still take advantage of this feature by writing down the four automatically generated WEP keys from the Security Settings screen of the ZyXEL utility and entering them manually as the WEP keys in the other WLAN adapter(s).

· Enter the WEP keys manually. Your G-202 allows you to configure up to four 64-bit, 128-bit or 256-bit WEP keys and only one key is used as the default key at any one time. 3.2.3.1.2 Authentication Type The IEEE 802.11b/g standard describes a simple authentication method between the wireless stations and AP. Three authentication types are defined: Auto, Open System and Shared Key. · Open System mode is implemented for ease-of-use and when security is not an issue.

The wireless station and the AP or peer computer do not share a secret key. Thus the wireless stations can associate with any AP or peer computer and listen to any transmitted data that is not encrypted. Chapter 3 Wireless LAN Network 35 ZyXEL G-202 User's Guide · Shared Key mode involves a shared secret key to authenticate the wireless station to the AP or peer computer. This requires you to enable the wireless LAN security and use same settings on both the wireless station and the AP or peer computer. · Auto authentication mode allows the G-202 to switch between the open system and shared key modes automatically. Use the auto mode if you do not know the authentication mode of the other wireless stations. 3.2.3.2 IEEE 802.

1x The IEEE 802.1x standard outlines enhanced security methods for both the authentication of wireless stations and encryption key management.

Authentication can be done using an external RADIUS server. 3.2.

3.2.1 EAP Authentication EAP (Extensible Authentication Protocol) is an authentication protocol that runs on top of the IEEE 802.1x transport mechanism in order to support multiple types of user authentication. By using EAP to interact with an EAP-compatible RADIUS server, an access point helps a wireless station and a RADIUS server perform authentication.

The type of authentication you use depends on the RADIUS server and an intermediary AP(s) that supports IEEE 802.1x. The G-202 supports EAP-TLS, EAP-TTLS and EAP-PEAP. Refer to Appendix D on page 91 for descriptions. For EAP-TLS authentication type, you must first have a wired connection to the network and obtain the certificate(s) from a certificate authority (CA). A certificate (also called digital IDs) can be used to authenticate users and a CA issues certificates and guarantees the identity of each certificate owner. 3.2.3.3 WPA and WPA2 Wi-Fi Protected Access (WPA) is a subset of the IEEE 802.

11i standard. WPA2 (IEEE 802.11i) is a wireless security standard that defines stronger encryption, authentication and key management than WPA. Key differences between WPA(2) and WEP are improved data encryption and user authentication. Both WPA and WPA2 improve data encryption by using Temporal Key Integrity Protocol (TKIP), Message Integrity Check (MIC) and IEEE 802.1x. WPA and WPA2 use Advanced Encryption Standard (AES) in the Counter mode with Cipher block chaining Message authentication code Protocol (CCMP) to offer stronger encryption than TKIP. If both an AP and the wireless clients support WPA2 and you have an external RADIUS server, use WPA2 for stronger data encryption. If you don't have an external RADIUS server, you should use WPA2-PSK (WPA2-Pre-Shared Key) that only requires a single (identical) password entered into each access point, wireless gateway and wireless client. As long as the passwords match, a wireless client will be granted access to a WLAN.

36 Chapter 3 Wireless LAN Network ZyXEL G-202 User's Guide If the AP or the wireless clients do not support WPA2, just use WPA or WPA-PSK depending on whether you have an external RADIUS server or not. Select WEP only when the AP and/or wireless clients do not support WPA or WPA2. WEP is less secure than WPA or WPA2. 3.3 Introduction to OTIST In a wireless network, the wireless clients must have the same SSID and security settings as the access point (AP) or wireless router (we will refer to both as "AP" here) in order to associate with it.

Traditionally this meant that you had to configure the settings on the AP and then manually configure the exact same settings on each wireless client. OTIST (One-Touch Intelligent Security Technology) allows you to transfer your AP's SSID and WEP or WPA-PSK security settings to wireless clients that support OTIST and are within transmission range. You can also choose to have OTIST generate a WPA-PSK key for you if you didn't configure one manually. 3.3.1 Enabling OTIST You must enable OTIST on both the AP and wireless client before you start transferring settings. We use the P-334WT in this guide as the example AP. Screens may vary slightly for your ZyXEL devices. Note: The AP and wireless client(s) MUST use the same Setup key. 3.3.1.1 AP On the P-334WT, you can enable OTIST using the Reset button or the web configurator. If you use the Reset button, the default (01234567) or previous saved (through the web configurator) Setup key is used to encrypt the settings that you want to transfer. Hold in the Reset button for one or two seconds.

Note: If you hold in the Reset button too long, the device may reset to the factory defaults! In the web configurator, go to the Wireless LAN main screen and then select OTIST. To change the Setup key, enter zero to eight printable characters. To have OTIST automatically generate a WPA-PSK key, select the Yes check box. If you manually configured a WEP key or a WPA-PSK key and you also selected this check box, then the key you manually configured is used.

Chapter 3 Wireless LAN Network 37 ZyXEL G-202 User's Guide 3.3.1.2 Wireless Client Start the ZyXEL utility and click the Adapter tab. Select the OTIST check box, enter the same Setup Key as your AP's and click Save. 3.

3.2 Starting OTIST Note: You must click Start in the AP OTIST web configurator screen and in the wireless client(s) Adapter screen all within three minutes (at the time of writing). You can start OTIST in the wireless clients and AP in any order but they must all be within range and have OTIST enabled. 38

Chapter 3 Wireless LAN Network ZyXEL G-202 User's Guide See the user's guide for more information. 1 In the AP, a web configurator screen pops up showing you the security settings to transfer.

After reviewing the settings, click OK. 2 This screen appears while OTIST settings are being transferred. It closes when the transfer is complete.



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· In the wireless client, you see this screen if it can't find an OTIST-enabled AP (with the same Setup key). Click OK to go back to the ZyXEL utility main screen.

· If there is more than one OTIST-enabled AP within range, you see a screen asking you to select one AP to get settings from. 3.3.3 Notes on OTIST 1 If you enabled OTIST in the wireless client, you see this screen each time you start the utility. Click Yes for it to search for an OTIST-enabled AP. 2 If an OTIST-enabled wireless client loses its wireless connection for more than ten seconds, it will search for an OTIST-enabled AP for up to one minute. (If you manually have the wireless client search for an OTIST-enabled AP, there is no timeout; click Cancel in the OTIST progress screen to stop the search.) 3 When the wireless client finds an OTIST-enabled AP, you must still click Start in the AP OTIST web configurator screen or hold in the Reset button (for one or two seconds) for the AP to transfer settings. 4 If you change the SSID or the keys on the AP after using OTIST, you need to run OTIST again or enter them manually in the wireless client(s). 5 If you configure OTIST to generate a WPA-PSK key, this key changes each time you run OTIST.

Therefore, if a new wireless client joins your wireless network, you need to run OTIST on the AP and ALL the wireless clients again. Chapter 3 Wireless LAN Network 39 ZyXEL G-202 User's Guide 40 Chapter 3 Wireless LAN Network ZyXEL G-202 User's Guide CHAPTER 4 Wireless Station Mode Configuration This chapter shows you how to configure your G-202 in wireless station mode. See Chapter 5 on page 61 for how to configure the G-202 in access point mode. 4.1 Wireless Station Mode Overview To set your G-202 in wireless station mode, select Station Mode in any utility screen (refer to Section 1.2.3 on page 21). 4.1.1 ZyXEL Utility Screen Summary This section describes the ZyXEL utility screens when the G-202 is in station mode.

Figure 21 ZyXEL Utility Menu Summary: Station Mode The following table describes the menus. Table 2 ZyXEL Utility Menu Summary: Station Mode TAB Station Mode Link Info Site Survey Use this screen to see your current connection status, configuration and data rate statistics. Use this screen to · scan for a wireless network · configure wireless security (if activated on the selected network). · connect to a wireless network. Use this screen to add, delete, edit or activate a profile with a set of wireless and security settings.

Use this screen to configure a transfer rate, enable power saving and use OTIST (One-Touch Intelligent Security Technology). DESCRIPTION Profile Adaptor Chapter 4 Wireless Station Mode Configuration 41 ZyXEL G-202 User's Guide 4.2 The Link Info Screen When the ZyXEL utility starts, the Link Info screen displays, showing the current configuration and connection status of your G-202. Figure 22 Station Mode: Link Info The following table describes the labels in this screen. Table 3 Station Mode: Link Info LABEL AP Mode Station Mode Wireless Network Status Profile Name Network Name (SSID) AP MAC Address Network Type This is the name of the profile you are currently using.

The SSID identifies the wireless network to which a wireless station is associated. This field displays the name of the wireless device to which the G-202 is associated. This field displays the MAC address of the AP or peer computer to which the G-202 is associated. This field displays the network type (Infrastructure or Ad-Hoc) of the wireless network. DESCRIPTION Use the check box to set the G-202 to operate in wireless station or access point mode. Refer to Section 1.2.3 on page 21 for more information. Transmission Rate This field displays the current transmission rate of the G-202 in megabits per second (Mbps). @@@@This field displays the authentication method of the G-202.

@@@This field displays the total number of data frames transmitted. This field displays the total number of data frames received. This field displays the signal strength of the G-202. @@The status bar shows the strength of the signal. @@The status bar shows the quality of wireless connection. This refers to the percentage of packets transmitted successfully. @@@@4.3 The Site Survey Screen Use the Site Survey screen to scan for and connect to a wireless network automatically. Figure 24 Station Mode: Site Survey 44 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide The following table describes the labels in this screen. Table 5 Station Mode: Site Survey LABEL Available Network List , , or DESCRIPTION Click a column heading to sort the entries.

@@@@@This field displays the channel number used by each wireless device. This field displays the signal strength of each wireless device. @@Click Connect to associate to the selected wireless device. @@@@This field displays the channel number used by each wireless device. @@This field displays the MAC address of the wireless device.

@@Select an authentication method. Choices are SHARED and OPEN. Refer to Section 3.2.3.

1.2 on page 35 for more information. Enter a passphrase of up to 63 case-sensitive printable characters. @@Refer to Section 3.2.3.1.1 on page 35 for more information. @@Select a default WEP key to use for data encryption. The key displays in the field below.

DESCRIPTION Transmit Key 46 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Table 6 Station Mode: Security Setting: WEP (continued) LABEL DESCRIPTION Key x (where x is a Select this option if you want to manually enter the WEP keys. Enter the WEP key number between 1 in the field provided. and 4) If you select 64 Bits in the WEP field. Enter either 10 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (for example, 11AA22BB33) for HEX key type. or Enter 5 ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (for example, MyKey) for ASCII key type.

If you select 128 Bits in the WEP field, Enter either 26 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (for example, 00112233445566778899AABBCC) for HEX key type or Enter 13 ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (for example, MyKey12345678) for ASCII key type. If you select 256 Bits in the WEP field, Enter either 58 hexadecimal digits in the range of "A-F", "a-f" and "0-9" (for example, 0000111122223333444455556666777788889999AAAABBBBCCCC000011) for HEX key type or Enter 29 ASCII characters (case sensitive) ranging from "a-z", "A-Z" and "0-9" (for example, MyKey1111222233334444555566678) for ASCII key type. Note: The values for the WEP keys must be set up exactly the same on all wireless devices in the same wireless LAN. ASCII WEP keys are case sensitive. Back Next Exit Click Back to go to the Site Survey screen to select and connect to another network.



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Click Next to confirm your selections and advance to the Confirm Save screen. Refer to Section 4.3.2 on page 50. Click Exit to return to the Site Survey screen without saving.

4.3.1.2 WPA-PSK/WPA2-PSK Figure 26 Station Mode: Security Setting: WPA-PSK/WPA2-PSK Chapter 4 Wireless Station Mode Configuration 47 ZyXEL G-202 User's Guide The following table describes the labels in this screen. Table 7 Station Mode: Security Setting: WPA-PSK/WPA2-PSK LABEL Encryption Type DESCRIPTION The encryption mechanisms used for WPA/WPA2 and WPA-PSK/WPA2-PSK are the same.

The only difference between the two is that WPA-PSK/WPA2-PSK uses a simple common password, instead of user-specific credentials. Select the encryption type (TKIP or AES) for data encryption. Refer to Section 3.2.3.3 on page 36 for more information. Type a pre-shared key (same as the AP or peer device) of between 8 and 63 casesensitive ASCII characters (including spaces and symbols) or 64 hexadecimal characters. Click Back to go to the Site Survey screen to select and connect to another network. Click Next to confirm your selections and advance to the Confirm Save screen. Refer to Section 4.

3.2 on page 50. Click Exit to return to the Site Survey screen without saving. Pre-Shared Key Back Next Exit 4.3.1.3 WPA/WPA2 Figure 27 Station Mode: Security Settings: WPA/WPA2 The following table describes the labels in this screen. Table 8 Station Mode: Security Setting: WPA/WPA2 LABEL Encryption Type DESCRIPTION The encryption mechanisms used for WPA/WPA2 and WPA-PSK/WPA2-PSK are the same. The only difference between the two is that WPA-PSK/WPA2-PSK uses a simple common password, instead of user-specific credentials. Select the encryption type (TKIP or AES) for data encryption.

Refer to Section 3.2.3.3 on page 36 for more information. The type of authentication you use depends on the RADIUS server or AP.

Select an authentication method from the drop down list. Options are TLS and PEAP. Enter a user name. This is the user name that you or an administrator set up on a RADIUS server. Authentication Type Login Name 48 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Table 8 Station Mode: Security Setting: WPA/WPA2 LABEL Password Certificate DESCRIPTION This field is not available when you select TLS in the Authentication Type field.

Enter the password associated with the user name above. This field is only available when you select TLS in the Authentication Type field. Click Browse to select a certificate. Note: You must first have a wired connection to a network and obtain the certificate(s) from a certificate authority (CA). Consult your network administrator for more information. Validate Server Certificate PEAP Inner EAP Select the check box to check the certificate of the authentication server. This field is only available when you select PEAP in the Authentication Type field. The PEAP method used by the RADIUS server or AP for client authentication is MS CHAP v2. Click Back to go to the Site Survey screen to select and connect to another network. Click Next to confirm your selections and advance to the Confirm Save screen.

Refer to Section 4.3.2 on page 50. Click Exit to return to the Site Survey screen without saving. Back Next Exit 4.3.1.4 IEEE 802.1x Configure IEEE 802.1x security with various authentication methods in this screen.

Figure 28 Station Mode: Security Setting: 802.1x Chapter 4 Wireless Station Mode Configuration 49 ZyXEL G-202 User's Guide The following table describes the labels in this screen. Table 9 Station Mode: Security Settings: IEEE 802.1x LABEL Authentication Type Login Name Password Certificate DESCRIPTION The type of authentication you use depends on the RADIUS server or AP. Select an authentication method from the drop down list.

Options are TLS and PEAP. Enter a user name. This is the user name that you or an administrator set up on a RADIUS server. This field is not available when you select TLS in the Authentication Type field. Enter the password associated with the user name above.

This field is only available when you select TLS in the Authentication Type field. Click Browse to select a certificate. Note: You must first have a wired connection to a network and obtain the certificate(s) from a certificate authority (CA). Consult your network administrator for more information. Validate Server Certificate PEAP Inner EAP Select the check box to check the certificate of the authentication server. This field is only available when you select PEAP in the Authentication Type field. The PEAP method used by the RADIUS server or AP for client authentication is MS CHAP v2. Click Back to go to the Site Survey screen to select and connect to another network. Click Next to confirm your selections and advance to the Confirm Save screen. Refer to Section 4.

3.2 on page 50. Click Exit to return to the Site Survey screen without saving. Back Next Exit 4.3.2 Confirm Save Screen Use this screen to confirm and save the security settings. 50 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Figure 29 Confirm Save Screen The following table describes the labels in this screen. Table 10 Confirm Save Screen LABEL Security Setting Network Name Network Type Channel Security Back Save Exit This field displays the SSID previously entered. This field displays the network type (Infrastructure or Ad-Hoc) of the wireless device. This field displays the channel number used by the profile.

@@Click Back to return to the previous screen. Click Save to save the changes back to the G-202 and display the Link Info screen. Click Exit to discard changes and return to the Site Survey screen. DESCRIPTION 4.4 The Profile Screen A profile is a set of wireless parameters that you need to connect to a wireless network.

With a profile activated, each time you start the G-202, it automatically scans for the specific SSID and joins that network with the pre-defined wireless security settings. If the specified network is not available, the G-202 cannot connect to a network. If you do not configure and activate a profile, each time you start the G-202, the G-202 uses the default profile to connect to any available network with security disabled. Chapter 4 Wireless Station Mode Configuration 51 ZyXEL G-202 User's Guide The default profile is a profile that allows you to connect to any SSID without security. Click the Profile tab in the ZyXEL utility program to display the Profile screen as shown next.

The profile function allows you to save the wireless network settings in this screen, or use one of the pre-configured network profiles. Figure 30 Station Mode: Profile The following table describes the labels in this screen. Table 11 Station Mode: Profile LABEL Profile List , , or DESCRIPTION Click a column heading to sort the entries. @@@@This is the name of the pre-configured profile. This is the SSID of the wireless network to which the selected profile associate.



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To use and activate a previously saved network profile, select a pre-configured profile name in the table and click Connect. To add a new profile into the table, click Add. Profile Name SSID Connect Add 52 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Table 11 Station Mode:

Profile (continued) LABEL Delete Edit Profile Info Network Type SSID Channel Security DESCRIPTION To delete an existing wireless network configuration, select a profile in the table and click Delete. To edit an existing wireless network configuration, select a profile in the table and click Edit. The following fields display detail information of the selected profile in the Profile List table.

This field displays the network type (Infrastructure or Ad-Hoc) of the profile. This field displays the SSID (Service Set Identifier) of the profile. This field displays the channel number used by the profile. Transmission Rate This field displays the transmission speed of the selected profile in megabits per second (Mbps). 4.4.1 Adding a New Profile Follow the steps below to add a new profile. 1 Click Add in the Profile screen. An Add New Profile screen displays as shown next. Click Next to continue.

Figure 31 Station Mode: Profile: Add a New Profile Chapter 4 Wireless Station Mode Configuration 53 ZyXEL G-202 User's Guide The following table describes the labels in this screen. Table 12 Station Mode: Profile: Add a New Profile LABEL Add New Profile Profile Name SSID Enter a descriptive name in this field. Select an available wireless device in the Scan Info table and click Select, or enter the SSID of the wireless device to which you want to associate in this field manually. Otherwise, enter Any to have the G-202 associate to any AP or roam between any infrastructure wireless networks. Select Infrastructure to associate to an AP.

Select Ad-Hoc to associate to a peer computer. Click Next to go to the next screen. Click Exit to go back to the previous screen without saving. This table displays the information of the available wireless networks within the transmission range. @@@@ This field displays the SSID (Service Set Identifier) of each AP or peer device.

@@ Select an available wireless device in the table and click Select to add it to this profile. Whenever you activate this profile, the G-202 associates to the selected wireless network only. DESCRIPTION Network Type Next Exit Scan Info , or SSID Scan Select 2 If you select the Infrastructure network type in the previous screen, skip to step 3. If you select the Ad-Hoc network type in the previous screen, a screen displays as follows. Select a channel number and wireless LAN mode and click Next to continue. Note: To associate to an ad-hoc network, you must use the same channel as the peer computer. 54 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Figure 32 Station Mode: Profile: Select a Channel The following table describes the labels in this screen. Table 13 Station Mode: Profile: Select a Channel LABEL Wireless Settings Channel Wireless Mode Select a channel number from the drop-down list box. To associate to an ad-hoc network, you must use the same channel as the peer computer. Select Mixed Mode to have the G-202 connect to either an IEEE 802.

11g or IEEE 802.11b wireless device. Select G Only to have the G-202 connect to an IEEE 802.11g wireless device only and vice versa. Select B Only to have the G-202 connect to an IEEE 802.11b wireless device only and vice versa. DESCRIPTION 3 If you select Infrastructure network type in the first screen, select WEP, WPA, WPA2, WPA-PSK, WPA2-PSK or 802.1x from the drop-down list box to enable data encryption. If you select Ad-Hoc network type in the first screen, you can only use WEP encryption method. Otherwise, select DISABLE to allow the G-202 to communicate with the access points or other peer wireless computers without any data encryption and skip to step 5.

Chapter 4 Wireless Station Mode Configuration 55 ZyXEL G-202 User's Guide Figure 33 Station Mode: Profile: Wireless Settings 4 The screen varies depending on the encryption method you select in the previous screen. The settings must be exactly the same on the APs or other peer wireless computers as they are on the G-202. Refer to Section 4.3.1 on page 45 for detailed information on wireless security configuration.

Figure 34 Station Mode: Profile: Security Settings 5 This read-only screen shows a summary of the new profile settings. Verify that the settings are correct. Click Save to save and go to the next screen. Click Back to return to the previous screen. Otherwise, click Exit to go back to the Profile screen without saving. 56 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Figure 35 Station Mode: Profile: Confirm New Settings 6 To use this network profile, click the Activate Now button. Otherwise, click the Activate Later button. You can activate only one profile at a time. Note: Once you activate a profile, the ZyXEL utility will use that profile the next time it is started. Figure 36 Station Mode: Profile: Activate the Profile 4.5 The Adapter Screen To set the advanced features on the G-202, click the Adapter tab. Chapter 4 Wireless Station Mode Configuration 57 ZyXEL G-202 User's Guide Figure 37 Station Mode: Adapter The following table describes the labels in this screen. Table 14 Station Mode: Adapter LABEL Adapter Setting Transmission Rate In most networking scenarios, the factory default Fully Auto setting is the most efficient and allows your G-202 to operate at the highest possible transmission (data) rate. If you want to select a specific transmission rate, select one that the AP or peer wireless device supports. DESCRIPTION Note: With USB1.

0/1.1, the G-202 can only transmit at up to 11Mbps. Preamble Type Preamble is used to signal that data is coming to the receiver. Select the preamble type that the AP uses. Short preamble increases performance as less time sending preamble means more time for sending data. All IEEE 802.11b/g compliant wireless adapters support Long preamble, but not all support short preamble. Select Auto to have the G-202 automatically use short preamble when all access point or wireless stations support it; otherwise the G-202 uses long preamble. Note: The G-202 and the access point or wireless stations MUST use the same preamble mode in order to communicate. Power Saving Mode Select Maximum Power Save or Fast Power Save to save power (especially for notebook computers).

This forces the G-202 to go to sleep mode when it is not transmitting data. When you select Continuous Access Mode, the G-202 will never go to sleep mode.

58 Chapter 4 Wireless Station Mode Configuration ZyXEL G-202 User's Guide Table 14 Station Mode: Adapter (continued) LABEL WMM QoS DESCRIPTION WMM (Wi-Fi MultiMedia) QoS (Quality of Service) allows you to prioritize wireless traffic according to the delivery requirements of individual services.



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