



Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ZYXEL NBG-419N. You'll find the answers to all your questions on the ZYXEL NBG-419N in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ZYXEL NBG-419N
User guide ZYXEL NBG-419N
Operating instructions ZYXEL NBG-419N
Instructions for use ZYXEL NBG-419N
Instruction manual ZYXEL NBG-419N

NBG-419N

Wireless N Home Router

User's Guide

Default Login Details

IP Address	http://192.168.1.1
Password	1234

Firmware Version 1.0
Edition 2, 5/2009



www.zyxel.com

ZyXEL

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Manual abstract:

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 NBG-419N User's Guide 3 About This User's Guide Customer Support In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a ZyXEL office for the region in which you bought the device.

See http://www.zyxel.com/web/contact_us.php for contact information. Please have the following information ready when you contact an office.

· Product model and serial number. · Warranty Information. · Date that you received your device. Brief description of the problem and the steps you took to solve it. 4 NBG-419N User's Guide 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. Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations. Syntax Conventions · The NBG-419N may be referred to as the "NBG-419N", the "device", the "product" or the "system" 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. · "e.g.," is a shorthand for "for instance", and "i.e.," means "that is" or "in other words". NBG-419N User's Guide 5 Document Conventions Icons Used in Figures Figures in this User's Guide may use the following generic icons. The NBG-419N icon is not an exact representation of your device. NBG-419N Computer Notebook computer Server Modem Firewall Telephone Switch Router 6 NBG-419N User's Guide Safety Warnings Safety Warnings · 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 the power adaptor or cord 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 power outlet. · 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. Your product is marked with this symbol, which is known as the WEEE mark. WEEE stands for Waste Electronics and Electrical Equipment. It means that used electrical and electronic products should not be mixed with general waste. Used electrical and electronic equipment should be treated separately. NBG-419N User's Guide 7 Safety Warnings 8 NBG-419N User's Guide Contents Overview Contents Overview

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Bandwidth management features allow you to prioritize time-sensitive or highly important applications such as Voice over the Internet (VoIP). 1. 2 Applications You can create the following networks using the NBG-419N: · Wired. You can connect network devices via the Ethernet ports of the NBG419N so that they can communicate with each other and access the Internet. · Wireless. Wireless clients can connect to the NBG-419N to access network resources. · WAN.

Connect to a broadband modem/router for Internet access. Figure 1 NBG-419N Network NBG-419N User's Guide 21 Chapter 1 Getting to Know Your NBG-419N 1.3 Ways to Manage the NBG-419N Use any of the following methods to manage the NBG-419N. · Web Configurator. This is recommended for everyday management of the NBG419N using a (supported) web browser. · Wireless switch. You can use the built-in switch of the NBG-419N to turn the wireless function on and off without opening the Web Configurator. · WPS (Wi-Fi Protected Setup) button. You can use the WPS button or the WPS section of the Web Configurator to set up a wireless network with your ZyXEL Device. 1.4 Good Habits for Managing the NBG-419N Do the following things regularly to make the NBG-419N more secure and to manage the NBG-419N 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. · 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 NBG-419N to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the NBG-419N. You could simply restore your last configuration. 1.5 LEDs Figure 2 Front Panel 22 NBG-419N User's Guide Chapter 1 Getting to Know Your NBG-419N The following table describes the LEDs and the WPS button. Table 1 Front Panel LEDs and WPS Button LED POWER COLOR Green STATUS On Off DESCRIPTION The NBG-419N is receiving power and functioning properly. The NBG-419N is not receiving power. The NBG-419N is ready, but is not sending/receiving data through the wireless LAN. The NBG-419N is sending/receiving data through the wireless LAN.

The wireless LAN is not ready or has failed. WPS is enabled. The NBG-419N is negotiating a WPS connection with a wireless client. The wireless LAN is not ready or has failed. The NBG-419N has a successful 10/100MB WAN connection.

The NBG-419N is sending/receiving data through the WAN. The WAN connection is not ready, or has failed. The NBG-419N has a successful 10/100MB Ethernet connection. The NBG-419N is sending/receiving data through the LAN. The LAN is not connected. WLAN Green On Blinking Off WPS Green On Blinking Off WAN Green On Blinking Off LAN 1-4 Green On Blinking Off NBG-419N User's Guide 23 Chapter 1 Getting to Know Your NBG-419N 24 NBG-419N User's Guide CHAPTER 2.1 Overview 2 Connection Wizard This chapter provides information on the wizard setup screens in the Web Configurator. The Web Configurator's wizard setup helps you configure your device to access the Internet. Refer to your ISP for your Internet account information. Leave a field blank if you don't have that information. 2.2 Accessing the Wizard Launch your web browser and type "http://192.168.1.1" as the website address.

Type "1234" (default) as the password and click Login. Note: The Wizard appears when the NBG-419N is accessed for the first time or when you reset the NBG-419N to its default factory settings. The Wizard screen opens. Choose your Language and click Connect to Internet. Figure 3 Welcome NBG-419N User's Guide 25 Chapter 2 Connection Wizard 2.3 Connect to Internet The NBG-419N offers five Internet connection types. They are Static IP, DHCP, PPPoE, PPTP or L2TP. The wizard attempts to detect which WAN connection type you are using. Figure 4 Detecting your Internet Connection Type If the wizard does not detect a connection type, you must select one from the drop-down list box. Check with your ISP to make sure you use the correct type. Note: If you get an error message, check your hardware connections. Make sure your Internet connection is up and running. The following screen depends on your Internet connection type. Enter the details provided by your Internet Service Provider (ISP) in the fields (if any). Figure 5 Internet Connection Type Your NBG-419N detects the following Internet Connection type.

Table 2 Internet Connection Type CONNECTION TYPE Static IP DHCP DESCRIPTION Select the Static IP if an administrator assigns the IP address of your computer. Select the DHCP (Dynamic Host Configuration Protocol) option when the WAN port is used as a regular Ethernet. 26 NBG-419N User's Guide Chapter 2 Connection Wizard Table 2 Internet Connection Type CONNECTION TYPE PPPoE PPTP DESCRIPTION Select the PPPoE (Point-to-Point Protocol over Ethernet) option for a dial-up connection. Select the PPTP (Point-to-Point Tunneling Protocol) option for a dial-up connection, and your ISP gave you an IP address and/or subnet mask. Select the L2TP (Layer 2 Tunnel Protocol) if you are connecting to another device over another network (like the Internet or VPN).

L2TP 2.3.1 Connection Type: DHCP Choose DHCP as the Internet Connection Type when the WAN port is used as a regular Ethernet. Click Next. Figure 6 Internet Connection Type: DHCP Note: If you get an error screen after clicking Next, you might have selected the wrong Internet Connection type. Click Back, make sure your Internet connection is working and select the right Connection Type. Contact your ISP if you are not sure of your Internet Connection type. NBG-419N User's Guide 27 Chapter 2 Connection Wizard 2.3.2 Connection Type: Static IP Choose Static IP as the Internet Connection Type if your ISP assigned an IP address for your Internet connection.

Click Next. Figure 7 Internet Connection Type: Static IP The following table describes the labels in this screen. Table 3 Internet Connection Type: Static IP LABEL Internet Connection Type IP Address Subnet Mask Default Gateway Primary DNS DESCRIPTION Select the Static IP option. Enter the IP address provided by your ISP. Enter the IP subnet mask in this field. Enter the gateway IP address in this field. DNS (Domain Name System) is for mapping a domain name to its corresponding IP address and vice versa. @@The NBG-419N uses a system DNS server (in the order you specify here) to resolve domain names for DDNS and the time server. Enter the primary DNS server's IP address in the fields provided. Secondary DNS Exit Back Next Enter the secondary DNS server's IP address in the fields provided.



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Click this to close the wizard screen without saving. Click this to return to the previous screen. Click this to continue. 2.3.

3 Connection Type: PPPoE Point-to-Point Protocol over Ethernet (PPPoE) functions as a dial-up connection. PPPoE is an IETF (Internet Engineering Task Force) standard specifying how a host 28 NBG-419N User's Guide Chapter 2 Connection Wizard personal computer interacts with a broadband modem (for example DSL, cable, wireless, etc.) to achieve access to high-speed data networks. For the service provider, PPPoE offers an access and authentication method that works with existing access control systems (for instance, RADIUS). One of the benefits of PPPoE is the ability to let end users access one of multiple network services, a function known as dynamic service selection.

This enables the service provider to easily create and offer new IP services for specific users. Operationally, PPPoE saves significant effort for both the subscriber and the ISP/ carrier, as it requires no specific configuration of the broadband modem at the subscriber's site. By implementing PPPoE directly on the NBG-419N (rather than individual computers), the computers on the LAN do not need PPPoE software installed, since the NBG-419N does that part of the task. Furthermore, with NAT, all of the LAN's computers will have Internet access. Figure 8 Internet Connection Type: PPPoE The following table describes the labels in this screen. Table 4 Internet Connection Type: PPPoE LABEL Internet Connection Type Dynamic IP Static IP IP Address User Name Password Exit DESCRIPTION Select the PPPoE option for a dial-up connection. Select this radio button if your ISP did not assign you a fixed IP address. Select this radio button, provided by your ISP to give the NBG-419N a fixed, unique IP address. Type the name of your service provider. Type the user name given to you by your ISP.

Type the password associated with the user name above. Click this to close the wizard screen without saving. NBG-419N User's Guide 29 Chapter 2 Connection Wizard Table 4 Internet Connection Type: PPPoE LABEL Back Next DESCRIPTION Click this to return to the previous screen. Click this to continue. 2.3.4 Connection Type: PPTP Point-to-Point Tunneling Protocol (PPTP) is a network protocol that enables transfers of data from a remote client to a private server, creating a Virtual Private Network (VPN) using TCP/IP-based networks. PPTP supports on-demand, multi-protocol, and virtual private networking over public networks, such as the Internet. Refer to the appendix for more information on PPTP. The NBG-419N supports one PPTP server connection at any given time.

Figure 9 Internet Connection Type: PPTP The following table describes the fields in this screen Table 5 Internet Connection Type: PPTP LABEL Internet Connection Type Dynamic IP Static IP PPTP Address PPTP Subnet Mask DESCRIPTION Select PPTP from the drop-down list box. To configure a PPTP client, you must configure the User Name and Password fields for a PPP connection and the PPTP parameters for a PPTP connection. Select this radio button if your ISP did not assign you a fixed IP address. Select this radio button, provided by your ISP to give the NBG-419N a fixed, unique IP address. Type the (static) IP address assigned to you by your ISP.

Type the subnet mask assigned to you by your ISP (if given). 30 NBG-419N User's Guide Chapter 2 Connection Wizard Table 5 Internet Connection Type: PPTP LABEL PPTP Gateway IP Address PPTP Server IP Address User Name Password Exit Back Next DESCRIPTION Type the gateway IP address of the PPTP server. Type the server IP address of the PPTP server. Type the user name given to you by your ISP. Type the password associated with the User Name above.

Click this to close the wizard screen without saving. Click this to return to the previous screen. Click this to continue. 2.3.5 Connection Type: L2TP The Layer 2 Tunneling Protocol (L2TP) works at layer 2 (the data link layer) to tunnel network traffic between two peer devices over another network (like the Internet).

Figure 10 Internet Connection Type: L2TP The following table describes the fields in this screen Table 6 Internet Connection Type: L2TP LABEL Internet Connection Type Dynamic IP Static IP L2TP Address L2TP Subnet Mask DESCRIPTION Select L2TP from the drop-down list box. Select this radio button if your ISP did not assign you a fixed IP address. Select this radio button, provided by your ISP to give the NBG-419N a fixed, unique IP address. Type the (static) IP address assigned to you by your ISP.

Type the subnet mask assigned to you by your ISP (if given). NBG-419N User's Guide 31 Chapter 2 Connection Wizard Table 6 Internet Connection Type: L2TP LABEL L2TP Gateway IP Address L2TP Server IP Address User Name Password Exit Back Next DESCRIPTION Type the gateway IP address of the L2TP server. Type the server IP address of the L2TP server. Type the user name given to you by your ISP. Type the password associated with the User Name above. Click this to close the wizard screen without saving. Click this to return to the previous screen. Click this to continue. The NBG-419N connects to the Internet. Figure 11 Connecting to the Internet Note: If the Wizard successfully connects to the Internet, it proceeds to the next step.

If you get an error message, go back to the previous screen and make sure you have entered the correct information provided by your ISP. 32 NBG-419N User's Guide Chapter 2 Connection Wizard 2.4 Router Password Change the login password in the following screen. Enter the new password and retype it to confirm. Click Next to proceed with the Wireless Security screen.

Figure 12 Router Password 2.5 Wireless Security Configure Wireless Settings. Configure the wireless network settings on your NBG419N in the following screen. The fields that show up depend on the kind of security you select. 2.

5.1 Wireless Security: No Security Choose No Security in the Wireless Security screen to let wireless devices within range access your wireless network.

Figure 13 Wireless Security: No Security NBG-419N User's Guide 33 Chapter 2 Connection Wizard The following table describes the labels in this screen. Table 7 Wireless Security: No Security LABEL Wireless Network Name (SSID) Security mode DESCRIPTION Enter a descriptive name (up to 32 printable 7-bit ASCII characters) for the wireless LAN. If you change this field on the NBG-419N, make sure all wireless stations use the same SSID in order to access the network. Select a Security level from the drop-down list box. Choose None to have no wireless LAN security configured. If you do not enable any wireless security on your NBG-419N, your network is accessible to any wireless networking device that is within range. Click this to close the wizard screen without saving. Click this to return to the previous screen.

Click this to continue.



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Exit Back Next 2.5.2 Wireless Security: WPA-PSK/WPA2-PSK Choose WPA-PSK or WPA2-PSK security in the Wireless Security screen to set up a password for your wireless network. Figure 14 Wireless Security: WPA-PSK/WPA2-PSK 34 NBG-419N User's Guide Chapter 2 Connection Wizard The following table describes the labels in this screen. Table 8 Wireless Security: WPA-PSK/WPA2-PSK LABEL Wireless Network Name (SSID) Security mode DESCRIPTION Enter a descriptive name (up to 32 printable 7-bit ASCII characters) for the wireless LAN. If you change this field on the NBG-419N, make sure all wireless stations use the same SSID in order to access the network. Select a Security level from the drop-down list box. Choose WPA-PSK or WPA2-PSK security to configure a Pre-Shared Key. Choose this option only if your wireless clients support WPA-PSK or WPA2PSK respectively. Type from 8 to 63 case-sensitive ASCII characters. You can set up the most secure wireless connection by configuring WPA in the wireless LAN screens. Wireless password Verify Password Exit Back Next Retype the password to confirm. Click this to close the wizard screen without saving. Click this to return to the previous screen.

Click this to continue. Congratulations! Open a web browser, such as Internet Explorer, to visit your favorite website. Note: If you cannot access the Internet when your computer is connected to one of the NBG-419N's LAN ports, check your connections. Then turn the NBG-419N off, wait for a few seconds then turn it back on. If that does not work, log in to the web configurator again and check you have typed all information correctly.

See the User's Guide for more suggestions. Figure 15 Congratulations You can also click ZyGO to open the Easy Mode Web Configurator of your NBG419N. NBG-419N User's Guide 35 Chapter 2 Connection Wizard You have successfully set up your NBG-419N to operate on your network and access the Internet. You are now ready to connect wirelessly to your NBG-419N and access the Internet. 36 NBG-419N User's Guide CHAPTER 3.1 Overview 3 Introducing the Web Configurator This chapter describes how to access the NBG-419N Web Configurator and provides an overview of its screens. The Web Configurator is an HTML-based management interface that allows easy setup and management of the NBG-419N via Internet browser. Use Internet Explorer 6.0 and later or Netscape Navigator 7.0 and later versions or Safari 2.

0 or 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). Refer to the Troubleshooting chapter (Chapter 31 on page 217) to see how to make sure these functions are allowed in Internet Explorer. 3.2 Accessing the Web Configurator 1 Make sure your NBG-419N hardware is properly connected and prepare your computer or computer network to connect to the NBG-419N (refer to the Quick Start Guide). Launch your web browser.

Type "http://192.168.1.1" as the website address. Your computer must be in the same subnet in order to access this website address.

2 3 NBG-419N User's Guide 37 Chapter 3 Introducing the Web Configurator 3.2.1 Login Screen Note: If this is the first time you are accessing the Web Configurator, you may be redirected to the Wizard. Refer to Chapter 2 on page 25 for the Connection Wizard screens. The Web Configurator initially displays the following login screen.

Figure 16 Login screen The following table describes the labels in this screen. Table 9 Login screen LABEL Password Language DESCRIPTION Type "1234" (default) as the password. Select the language you want to use to configure the Web Configurator. Click Login. This shows the current weather, either in celsius or fahrenheit, of the city you specify in Section 3.2.3.1 on page 40. This shows the time (hh:mm:ss) and date (yyyy:mm:dd) of the timezone you select in Section 3.2.

3.2 on page 41 or Section 26.3 on page 201. The time is in 24-hour format, for example 15:00 is 3:00 PM. 38 NBG-419N User's Guide Chapter 3 Introducing the Web Configurator 3.2.2 Password Screen You should see a screen asking you to change your password (highly recommended) as shown next. Figure 17 Change Password Screen The following table describes the labels in this screen. Table 10 Change Password Screen LABEL New Password Retype to Confirm Apply Ignore DESCRIPTION Type a new password. Retype the password for confirmation.

Click Apply to save your changes back to the NBG-419N. Click Ignore if you do not want to change the password this time. Note: The management session automatically times out when the time period set in the Administrator Inactivity Timer field expires (default five minutes; go to Chapter 24 on page 197 to change this). Simply log back into the NBG-419N if this happens. 3.

2.3 Home Screen If you have previously logged into the Web Configurator but did not click Logout, you may be redirected to the Home screen. You can also open this screen by clicking Home (Mode or Expert mode screens.) in the Easy NBG-419N User's Guide 39 Chapter 3 Introducing the Web Configurator The Home screen displays as follows. Figure 18 Home Screen The following table describes the labels in this screen.

Table 11 Home Screen LABEL Go Language DESCRIPTION Click this to open the Easy mode Web Configurator. Select a language to go to the Easy mode Web Configurator in that language and click Login. (This is just an example). This shows the current weather, either in celsius or fahrenheit, of the city you specify in Section 3.2.3.1 on page 40. (This is just an example). This shows the time (hh:mm:ss) and date (yyyy:mm:dd) of the timezone you select in Section 3.2.

3.2 on page 41 or Section 26.3 on page 201. 3.2.3.1 Weather Edit You can change the temperature unit and select the location for which you want to know the weather. Click the icon to change the Weather display. Figure 19 Change Weather 40 NBG-419N User's Guide Chapter 3 Introducing the Web Configurator The following table describes the labels in this screen. Table 12 Change Weather LABEL o DESCRIPTION Choose which temperature unit you want the NBG-419N to display.

Select the location for which you want to know the weather. If the city you want is not listed, choose one that is closest to it. Click this to apply the settings and refresh the date and time display. C or F o Change Location Finish 3.2.

3.2 Time/Date Edit One timezone can cover more than one country. You can choose a particular country in which the NBG-419N is located and have the NBG-419N display and use the current time and date for its logs. Click the icon to change the Weather display. Figure 20 Change Password Screen The following table describes the labels in this screen.



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Table 13 Change Password Screen LABEL Change time zone Finish DESCRIPTION Select the specific country whose current time and date you want the NBG-419N to display. Click this to apply the settings and refresh the weather display. Note: You can also edit the timezone in Section 26.3 on page 201. 3.3 Resetting the NBG-419N If you forget your password or IP address, or you cannot access the Web Configurator, you will need to use the RESET button at the back of the NBG-419N to reload the factory-default configuration file. This means that you will lose all configurations that you had previously saved, the password will be reset to "1234" and the IP address will be reset to "192.168.1.1".

NBG-419N User's Guide 41 Chapter 3 Introducing the Web Configurator 3.3.1 Procedure to Use the Reset Button 1 2 3 Make sure the power LED is on. Press the RESET button for longer than 1 second to restart/reboot the NBG-419N. Press the RESET button for longer than five seconds to set the NBG-419N back to its factory-default configurations. 42 NBG-419N User's Guide CHAPTER 4.1 Overview 4 Monitor This chapter discusses read-only information related to the device state of the NBG-419N. Note: To access the Monitor screens, you can also click the links in the Summary table of the Status screen to view the bandwidth consumed, packets sent/ received as well as the status of clients connected to the NBG-419N. 4.2 What You Can Do · Use the BW MGMT Monitor screen (Section 4.

3 on page 43) to view the amount of network bandwidth that applications running in the network are using. · Use the DHCP Table screen (Section 4.4 on page 44) to view information related to your DHCP status. · use the Packet Statistics screen (Section 4.5 on page 45) to view port status, packet specific statistics, the "system up time" and so on.

· Use the WLAN Station Status screen (Section 4.6 on page 46) to view the wireless stations that are currently associated to the NBG-419N. 4.3 BW MGMT Monitor The Bandwidth Management (BW MGMT) Monitor allows you to view the amount of network bandwidth that applications running in the network are using. The bandwidth is measured in kilobits per second (kbps).

NBG-419N User's Guide 43 Chapter 4 Monitor The monitor shows what kinds of applications are running in the network, the maximum kbps that each application can use, as well as the percentage of bandwidth it is using. Figure 21 Summary: BW MGMT Monitor 4.4 DHCP Table DHCP (Dynamic Host Configuration Protocol, RFC 2131 and RFC 2132) allows individual clients to obtain TCP/IP configuration at start-up from a server. You can configure the NBG-419N's LAN as a DHCP server or disable it. When configured as a server, the NBG-419N provides the TCP/IP configuration for the clients. If DHCP service is disabled, you must have another DHCP server on that network, or else the computer must be manually configured. Click the DHCP Table (Details...) hyperlink in the Status screen.

Read-only information here relates to your DHCP status. The DHCP table shows current DHCP client information (including IP Address, Host Name and MAC Address) of all network clients using the NBG-419N's DHCP server. Figure 22 Summary: DHCP Table 44 NBG-419N User's Guide Chapter 4 Monitor The following table describes the labels in this screen. Table 14 Summary: DHCP Table LABEL # MAC Address DESCRIPTION This is the index number of the host computer. This field shows the MAC address of the computer with the name in the Host Name field. Every Ethernet device has a unique MAC (Media Access Control) address which uniquely identifies a device. The MAC address is assigned at the factory and consists of six pairs of hexadecimal characters, for example, 00:A0:C5:00:00:02. IP Address Expires in Refresh This field displays the IP address relative to the # field listed above. This field displays the time when the IP address and MAC address association ends. Click Refresh to renew the screen.

4.5 Packet Statistics Click the Packet Statistics (Details...) hyperlink in the Status screen.

Readonly information here includes port status, packet specific statistics and the "system up time". The Poll Interval(s) field is configurable and is used for refreshing the screen. Figure 23 Summary: Packet Statistics NBG-419N User's Guide 45 Chapter 4 Monitor The following table describes the labels in this screen. Table 15 Summary: Packet Statistics LABEL Port Status DESCRIPTION This is the NBG-419N's port type. For the LAN ports, this displays the port speed and duplex setting or Down when the line is disconnected.

For the WAN port, it displays the port speed and duplex setting if you're using Ethernet encapsulation and Idle (line (ppp) idle), Dial (starting to trigger a call) and Drop (dropping a call) if you're using PPPoE or PPTP encapsulation. This field displays Down when the line is disconnected. For the WLAN, it displays the maximum transmission rate when the WLAN is enabled and Down when the WLAN is disabled. TxPkts RxPkts Collisions Tx B/s Rx B/s Up Time System Up Time Poll Interval(s) Set Interval Stop This is the number of transmitted packets on this port. This is the number of received packets on this port. This is the number of collisions on this port. This displays the transmission speed in bytes per second on this port. This displays the reception speed in bytes per second on this port. This is the total time the NBG-419N has been for each session. This is the total time the NBG-419N has been on.

Enter the time interval in seconds for refreshing statistics in this field. Click this button to apply the new poll interval you entered in the Poll Interval(s) field. Click Stop to stop refreshing statistics. 4.6 WLAN Station Status Click the WLAN Station Status (Details...) hyperlink in the Status screen. View the wireless stations that are currently associated to the NBG-419N in the Association List. Association means that a wireless client (for example, your network or computer with a wireless network card) has connected successfully to the AP (or wireless router) using the same SSID, channel and security settings.

Figure 24 Summary: Wireless Association List 46 NBG-419N User's Guide Chapter 4 Monitor The following table describes the labels in this screen. Table 16 Summary: Wireless Association List LABEL # MAC Address Association Time Refresh 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 time a wireless station first associated with the NBG-419N's WLAN network. Click Refresh to reload the list.

NBG-419N User's Guide 47 Chapter 4 Monitor 48 NBG-419N User's Guide CHAPTER 5.1 Overview 5 NBG-419N Modes This chapter introduces the different modes available on your NBG-419N.



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First, the term "mode" refers to two things in this User's Guide. · Web Configurator mode. This refers to the Web Configurator interface you want to use for editing NBG-419N features.

· Device mode. This is the operating mode of your NBG-419N, or simply how the NBG-419N is being used in the network. 5.1.1 Web Configurator Modes This refers to the configuration interface of the Web Configurator, which has two modes: · Easy. The Web Configurator shows this mode by default. Refer to Chapter 6 on page 51 for more information on the screens in this mode. This interface may be sufficient for users who just want to use the device. · Expert. Advanced users can change to this mode to customize all the functions of the NBG-419N.

Click Expert Mode after logging into the Web Configurator. The User's Guide Chapter 3 on page 37 through Chapter 30 on page 213 discusses the screens in this mode. 5.1.2 Device Modes This refers to the operating mode of the NBG-419N, which can act as a: · Router. This is the default device mode of the NBG-419N. Use this mode to connect the local network to another network, like the Internet. Go to Section 7.3 on page 64 to view the Status screen in this mode. · Access Point.

Use this mode if you want to extend your network by allowing network devices to connect to the NBG-419N wirelessly. Go to Section 8.4 on page 74 view the Status screen in this mode. · WISP mode. Use this mode if there is an existing wireless router or access point in the network to which you want to connect your local network.

Go to Section 9.4 on page 81 to view the Status screen in this mode. NBG-419N User's Guide 49 Chapter 5 NBG-419N Modes The following figure is a simple illustration of the device configuration modes of the NBG-419N. Figure 25 Device Mode Example For more information on these modes and to change the mode of your NBG-419N, refer to Chapter 30 on page 213. The menu for changing device modes is available in Expert mode only.

Note: Choose your Device Mode carefully to avoid having to change it later. When changing to another mode, the IP address of the NBG-419N changes. The running applications and services of the network devices connected to the NBG419N can be interrupted. In WISP mode, you should know the SSID and wireless security details of the access point to which you want to connect. 50 NBG-419N User's Guide CHAPTER 6.1 Overview 6 Easy Mode The Web Configurator is set to Easy Mode by default. You can configure several key features of the NBG-419N in this mode. This mode is useful to users who are not fully familiar with some features that are usually intended for network administrators. When you log in to the Web Configurator, the following screen opens. Figure 26 Easy Mode: Network Map Navigation Panel Network Map Go to Status Screen Control Panel NBG-419N User's Guide 51 Chapter 6 Easy Mode Click Status to open the following screen screen.

Figure 27 Easy Mode: Status Screen Navigation Panel Go to Network Map Screen Status Screen Control Panel 6.2 What You Can Do You can do the following in this mode: · Use this Navigation Panel (Section 6.4 on page 53) to opt out of the Easy mode. · Use the Network Map screen (Section 6.5 on page 53) to check if your NBG419N can ping the gateway and whether it is connected to the Internet. · Use the Control Panel (Section 6.6 on page 54) to configure and enable NBG419N features, including wireless security, wireless scheduling and bandwidth management and so on. · Use the Status Screen screen (Section 6.7 on page 61) to view read-only information about the NBG-419N, including the WAN IP, MAC Address of the NBG-419N and the firmware version. 6.

3 What You Need to Know Between the different device modes, the Control Panel (Section 6.6 on page 54) changes depending on which features are applicable to the mode: · Router Mode: All Control Panel features are available. 52 NBG-419N User's Guide Chapter 6 Easy Mode · Access Point Mode: Only Power Saving and Wireless Security are available. · WISP Mode: The available features for this mode are Game Console, Content Filter, Bandwidth MGMT, and Firewall. 6.

4 Navigation Panel Use this navigation panel to opt out of the Easy mode. Figure 28 Control Panel The following table describes the labels in this screen. Table 17 Control Panel ITEM Home Expert Mode Logout DESCRIPTION Click this to go to the Login page. Click this to change to Expert mode and customize features of the NBG-419N. Click this to end the Web Configurator session.

6.5 Network Map Note: The Network MAP is viewable by Windows XP (need to install patch), Windows Vista and Windows 7 users only. For Windows XP (Service Pack 2) users, you can see the network devices connected to the NBG-419N by downloading the LLTD (Link Layer Topology Discovery) patch from the Microsoft Website. Note: Don't worry if the Network Map does not display in your web browser. This feature may not be supported by your system. You can still configure the Control Panel (Section 6.6 on page 54) in the Easy Mode and the NBG-419N features that you want to use in the Expert Mode. NBG-419N User's Guide 53 Chapter 6 Easy Mode When you log into the Network Configurator, the Network Map is shown as follows. Figure 29 Network Map The line connecting the NBG-419N to the gateway becomes green when the NBG419N is able to ping the gateway. It becomes red when the ping initiating from the NBG-419N does not get a response from the gateway.

The same rule applies to the line connecting the gateway to the Internet. You can also view the devices (represented by icons indicating the kind of network device) connected to the NBG-419N, including those connecting wirelessly. Rightclick on the NBG-419N icon to refresh the network map and go to the Wizard. Right click on the other icons to view information about the device. 6.6 Control Panel The features configurable in Easy Mode are shown in the Control Panel. Figure 30 Control Panel Switch ON to enable the feature. Otherwise, switch OFF. If the feature is turned on, the green light flashes. If it is turned off, the red light flashes.

Additionally, click the feature to open a screen where you can edit its settings. 54 NBG-419N User's Guide Chapter 6 Easy Mode The following table describes the labels in this screen. Table 18 Control Panel ITEM Game Engine DESCRIPTION Switch ON to maximize bandwidth for gaming traffic in your network. Otherwise, switch OFF. Refer to Section 6.

6.1 on page 55 to see this screen. Power Saving Click this to schedule the wireless feature of the NBG-419N. Disabling the wireless function helps lower the energy consumption of the NBG-419N. Switch ON to apply wireless scheduling. Otherwise, switch OFF. Refer to Section 6.6.2 on page 56 to see this screen. Content Filter Click this to restrict access to certain websites, based on keywords contained in URLs, to which you do not want users in your network to open.



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Switch ON to apply website filtering. Otherwise, switch OFF. Refer to Section 6.6.3 on page 57 to see this screen.

Bandwidth Mgmt Click this to edit bandwidth management for predefined applications. Switch ON to have the NBG-419N management bandwidth for uplink and downlink traffic according to an application or service. Otherwise, switch OFF. Refer to Section 6.6.4 on page 58 to see this screen. **Firewall** Switch ON to ensure that your network is protected from Denial of Service (DoS) attacks. Otherwise, switch OFF. Refer to Section 6.6.

5 on page 58 to see this screen. **Wireless Security** Click this to configure the wireless security, such as SSID, security mode and WPS key on your NBG-419N. Refer to Section 6.6.6 on page 59 to see this screen.

6.6.1 Game Engine When this feature is enabled, the NBG-419N maximizes the bandwidth for gaming traffic that it forwards out through an interface. Figure 31 **Game Engine NBG-419N User's Guide 55 Chapter 6 Easy Mode** Note: When this is switched on, the Game Console tab in the Bandwidth Mgmt screen is automatically positioned on top. Turn this off if your network is not using gaming.

Click OK to close this screen. **6.6.2 Power Saving** Use this screen to set the day of the week and time of the day when your wireless LAN is turned on and off. **Wireless LAN** scheduling is disabled by default. Disabling the wireless capability lowers the energy consumption of the of the NBG419N. Figure 32 **Power Saving** The following table describes the labels in this screen. Table 19 **Power Saving LABEL WLAN Status DESCRIPTION** Select On or Off to specify whether the Wireless LAN is turned on or off (depending on what you selected in the WLAN Status field). This field works in conjunction with the Day and Except for the following times fields. Select Everyday or the specific days to turn the Wireless LAN on or off.

If you select Everyday you can not select any specific days. This field works in conjunction with the Except for the following times field. Day 56 **NBG-419N User's Guide Chapter 6 Easy Mode Table 19 Power Saving LABEL** For the following times (24-Hour Format) DESCRIPTION Select a begin time using the first set of hour and minute (min) drop down boxes and select an end time using the second set of hour and minute (min) drop down boxes. If you have chosen On earlier for the WLAN Status the Wireless LAN will turn on between the two times you enter in these fields. If you have chosen Off earlier for the WLAN Status the Wireless LAN will turn off between the two times you enter in these fields. In this time format, midnight is 00:00 and progresses up to 24:00. For example, 6:00 PM is 18:00. Apply **Reset** Click Apply to save your changes back to the NBG-419N. Click **Reset** to begin configuring this screen afresh. 6.

6.3 Content Filter Use this screen to restrict access to certain websites, based on keywords contained in URLs, to which you do not want users in your network to open. Figure 33 **Content Filter** The following table describes the labels in this screen. Table 20 **Content Filter LABEL Add DESCRIPTION** Click Add after you have typed a keyword. Repeat this procedure to add other keywords.

Up to 64 keywords are allowed. Note: The NBG-419N does not recognize wildcard characters as keywords. When you try to access a web page containing a keyword, you will get a message telling you that the content filter is blocking this request. Delete Highlight a keyword in the text box and click Delete to remove it. The keyword disappears from the text box after you click Apply.

NBG-419N User's Guide 57 Chapter 6 Easy Mode Table 20 Content Filter LABEL Apply Cancel DESCRIPTION Click Apply to save your changes. Click Cancel to close this screen without saving any changes. **6.6.4 Bandwidth MGMT** Use this screen to set bandwidth allocation to pre-defined services and applications for bandwidth allocation. The NBG-419N uses bandwidth management for incoming and outgoing traffic. Rank the services and applications by dragging them accordingly from High to Low and click Apply. Click Cancel to close the screen. Figure 34 **Bandwidth MGMT** Use your mouse to drag the items according to how you want to prioritize them. Left-click and slide up or down.

6.6.5 Firewall Enable this feature to protect the network from Denial of Service (DoS) attacks. The NBG-419N blocks repetitive pings from the WAN that can otherwise cause systems to slow down or hang. Figure 35 **Firewall** Click OK to close this screen. 58 **NBG-419N User's Guide Chapter 6 Easy Mode 6.6.6**

Wireless Security Use this screen to configure security for your the Wireless LAN. You can enter the SSID and select the wireless security mode in the following screen. Note: You can enable the Wireless function of your NBG-419N by first turning on the switch in the back panel. Figure 36 **Wireless Security** The following table describes the general wireless LAN labels in this screen. Table 21 **Wireless Security LABEL Wireless Network Name (SSID) DESCRIPTION (Service Set IDentity)** The SSID identifies the Service Set with which a wireless station is associated. Wireless stations associating to the access point (AP) must have the same SSID. Enter a descriptive name (up to 32 keyboard characters) for the wireless LAN. The default SSID is NBG-419N.

Security mode Select WPA-PSK or WPA2-PSK to add security on this wireless network. The wireless clients which want to associate to this network must have same wireless security settings as this device. After you select to use a security, additional options appears in this screen. Select No Security to allow any client to connect to this network without authentication. **Wireless password** This field appears when you choose wither WPA-PSK or WPA2-PSK as the security mode.

Type a pre-shared key from 8 to 63 case-sensitive keyboard characters. Verify password Apply Cancel **WPS** Type the password again to confirm. Click Apply to save your changes back to the NBG-419N. Click Cancel to close this screen. Click this to configure the WPS screen. You can transfer the wireless settings configured here (Wireless Security screen) to another wireless device that supports WPS. **NBG-419N User's Guide 59 Chapter 6 Easy Mode 6.6.7 WPS** Use this screen to add a wireless station to the network using WPS. Click WPS in the Wireless Security to open the following screen.

Figure 37 **Wireless Security: WPS** The following table describes the labels in this screen. Table 22 **Wireless Security: WPS LABEL Wireless Security WPS DESCRIPTION** Click this to go back to the Wireless Security screen. Create a secure wireless network simply by pressing a button. The NBG-419N scans for a WPS-enabled device within the range and performs wireless security information synchronization. Note: After you click the WPS button on this screen, you have to press a similar button in the wireless station utility within 2 minutes.



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To add the second wireless station, you have to press these buttons on both device and the wireless station again after the first 2 minutes. Register Create a secure wireless network simply by entering a wireless client's PIN (Personal Identification Number) in the NBG-419N's interface and pushing this button. Type the same PIN number generated in the wireless station's utility. Then click Register to associate to each other and perform the wireless security information synchronization. Exit Click Exit to close this screen.

60 NBG-419N User's Guide Chapter 6 Easy Mode 6.7 Status Screen in Easy Mode In the Network Map screen, click Status to view read-only information about the NBG-419N. Figure 38 Status Screen in Easy Mode The following table describes the labels in this screen. Table 23 Status Screen in Easy Mode ITEM Name DESCRIPTION This is the name of the NBG-419N in the network. You can change this in the Maintenance > General screen in Section 24.3 on page 197. This is the current system date and time. The date is in YYYY:MM:DD (Year-Month-Day) format. The time is in HH:MM:SS (Hour:Minutes:Seconds) format. Time WAN IP MAC Address Firmware Version This is the IP address of the WAN port.

This is the MAC address of the NBG-419N. This shows the firmware version of the NBG-419N. The firmware version format shows the trunk version, model code and release number. Wireless Network Name Security This shows the SSID of the wireless network. You can configure this in the Wireless Security screen (Section 6.6.6 on page 59; Section 11.3.1.1 on page 101).

This shows the wireless security used by the NBG-419N. NBG-419N User's Guide 61 Chapter 6 Easy Mode 62 NBG-419N User's Guide CHAPTER 7.1 Overview 7 Router Mode The NBG-419N is set to router mode by default. Routers are used to connect the local network to another network (for example, the Internet). In the figure below, the NBG-419N connects the local network (LAN1 ~ LAN4) to the Internet. Figure 39 NBG-419N Network Modem Note: The Status screen is shown after changing to the Expert mode of the Web Configurator. It varies depending on the device mode of your NBG-419N. 7.2 What You Can Do Use the Status screen (Section 7.3 on page 64) to view read-only information about your NBG-419N.

NBG-419N User's Guide 63 Chapter 7 Router Mode 7.3 Status Screen Click to open the status screen. Figure 40 Status Screen: Router Mode The following table describes the icons shown in the Status screen. Table 24 Status Screen Icon Key: Router Mode ICON DESCRIPTION Click this icon to view copyright and a link for related product information. Click this icon to go to Easy Mode.

See Chapter 6 on page 51. Click this to go to the Home page. See Chapter 4 on page 43. Select a number of seconds or None from the drop-down list box to refresh all screen statistics automatically at the end of every time interval or to not refresh the screen statistics. Click this button to refresh the status screen statistics.

64 NBG-419N User's Guide Chapter 7 Router Mode Table 24 Status Screen Icon Key: Router Mode (continued) ICON DESCRIPTION Click this icon to see the Status page. The information in this screen depends on the device mode you select. Click this icon to see the Monitor navigation menu. Click this icon to see the Configuration navigation menu. Click this icon to see the Maintenance navigation menu. The following table describes the labels shown in the Status screen. Table 25 Status Screen: Router Mode LABEL Logout Device Information Host Name Firmware Version Sys OP Mode WAN Information - MAC Address - IP Address - IP Subnet Mask - Default Gateway - DHCP LAN Information - MAC Address - IP Address - IP Subnet Mask - DHCP WLAN Information - WLAN OP Mode - MAC Address - Status - Name (SSID) - Channel - Operating Channel - Security Mode This is the device mode (Section 5.1.2 on page 49) to which the NBG419N's wireless LAN is set - Access Point Mode. This shows the wireless adapter MAC Address of your device.

This shows the current status of the Wireless LAN - ON or OFF. This shows a descriptive name used to identify the NBG-419N in the wireless LAN. This shows the channel number which you select manually. This shows the channel number which the NBG-419N is currently using over the wireless LAN. This shows the level of wireless security the NBG-419N is using. This shows the LAN Ethernet adapter MAC Address of your device. This shows the LAN port's IP address. This shows the LAN port's subnet mask. This shows the LAN port's DHCP role - Server or None. This shows the WAN Ethernet adapter MAC Address of your device.

This shows the WAN port's IP address. This shows the WAN port's subnet mask. This shows the WAN port's gateway IP address. This shows the LAN port's DHCP role - Client or Server. This is the System Name you enter in the Maintenance > General screen.

It is for identification purposes. This is the firmware version and the date created. This is the device mode (Section 5.1.2 on page 49) to which the NBG419N is set - Router Mode.

DESCRIPTION Click this at any time to exit the Web Configurator. NBG-419N User's Guide 65 Chapter 7 Router Mode Table 25 Status Screen: Router Mode LABEL - 802.11 Mode - WPS DESCRIPTION This shows the wireless standard. This displays Configured when the WPS has been set up. This displays Unconfigured if the WPS has not been set up. Click the status to display Network > Wireless LAN > WPS screen. System Status Item Data System Up Time Current Date/Time System Resource - CPU Usage This displays what percentage of the NBG-419N's processing ability is currently used. When this percentage is close to 100%, the NBG-419N is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications (for example, using bandwidth management.) This shows what percentage of the heap memory the NBG-419N is using.

This shows whether the firewall is enabled or not. This shows whether the bandwidth management is enabled or not. This shows whether UPnP is enabled or not. This shows the web configurator mode you are viewing - Expert. This displays the NBG-419N port types. The port types are: WAN, LAN and WLAN. For the LAN and WAN ports, this field displays Down (line is down) or Up (line is up or connected). For the WLAN, it displays Up when the WLAN is enabled or Down when the WLAN is disabled. Rate For the LAN ports, this displays the port speed and duplex setting or N/A when the line is disconnected. For the WAN port, it displays the port speed and duplex setting if you're using Ethernet encapsulation and Idle (line (ppp) idle), Dial (starting to trigger a call) and Drop (dropping a call) if you're using PPPoE or PPTP encapsulation.

This field displays N/A when the line is disconnected.



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