Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for NETGEAR DGND3700. You'll find the answers to all your questions on the NETGEAR DGND3700 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual NETGEAR DGND3700
User guide NETGEAR DGND3700
Operating instructions NETGEAR DGND3700
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Instruction manual NETGEAR DGND3700

NETGEAR

N600 Wireless Dual Band
Gigabit ADSL2+ Modem
Router DGND3700
User Manual

350 East Plumeria Drive
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Manual abstract:

@@@@@@And/or its subsidiaries in the United States and/or other countries. Information is subject to change without notice. Other brand and product names are registered trademarks or trademarks of their respective holders. Statement of Conditions To improve internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the products described in this document without notice. NETGEAR does not assume any liability that may occur due to the use, or application of, the product(s) or circuit layout(s) described herein. 82 Connect to the USB Drive from a Remote Computer. 83 Connect to the USB Drive with Microsoft Network Settings . 151 Test the Path from Your Computer to a Remote Device . Hardware Setup Getting to know your wireless router 1 The NETGEAR N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 is the Ultimate Integrated ADSL Networking Gateway. It offers concurrent dual-band technology that allows devices to avoid interference and also ensures top speeds and the greatest range for demanding applications, such as streaming HD video and multiplayer gaming.

Complete with a built-in ADSL modem, it is compatible with all major ADSL Internet service providers. The Gigabit port on the WAN side also has an option to connect to a fiber/cable modem. â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ All-in-one. Built-in ADSL2+ modem and WAN Gigabit Ethernet port for cable/fiber combined with a wireless router create the ultimate integrated home gateway. concurrent dual band.

Ensures top speeds and the greatest range while minimizing interference. Two (2) ports for ReadySHAREÂ® USB storage access provide fast and easy shared access to an external USB storage device. live Parental Controls. Keep your Internet experience safe. guest network access.

Provides separate security and access restrictions for guests using the network. secured connection. Push 'N' Connect ensures a quick and secure network connection. Product specifications Package Contents â¢ â¢ â¢ â¢ N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Ethernet cable Phone cable and filter Power adapter, localized to country of sale 8 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Warranty â¢ NETGEAR 1-year warranty System Requirements â¢ Broadband Internet service â¢ â¢ â¢ ADSL broadband Internet service Cable or fiber: Connects to cable modem or fiber termination node through the Gigabit Ethernet WAN port 802. 4, or later Use with an N600 Wireless Dual Band USB Adapter (WNDA3100 for maximum performance) Standards â¢ â¢ â¢ â¢ â¢ IEEE 802. High-speed ADSL2+ modem (built-in) and WAN Gigabit Ethernet port for cable/fiber Powerful dual-core (400 MHz each) processor High-speed access to external USB storage using two USB 2. 0 ports Memory: 128 MB flash and 128 MB RAM Five (5) (1 WAN , 4 LAN) Gigabit Ethernet ports Advanced Quality of Service (QoS) Security â¢ â¢ â¢ Wi-Fi Protected AccessÂ® (WPA/WPA2âPSK) and WEP Double firewall protection (SPI and NAT firewall) Denial-of-service (DoS) attack prevention Ease of Use â¢ â¢ Easy installation. Connect to PC and open your browser to install Push 'N' Connect using Wi-Fi Protected SetupÂ® (WPS) Physical Specifications â¢ Dimensions: 223 x 153 x 31 mm (8. Two (2) ports for ReadySHAREÂ® USB storage access. Multiple SSID guest networks (separate security and access restrictions).

Power On/Off button 80% recycled packaging CEC (California Efficiency) RoHS WEEE If you have not already set up your new router using the installation guide that comes in the box, this chapter walks you through the hardware setup. Chapter 2, Router Internet Setup, explains how to set up your Internet connection. This chapter contains the following sections: â¢ â¢ â¢ â¢ â¢ â¢ â¢ Unpack Your New Router Hardware Features Position Your Wireless Router ADSL Microfilters Cable Your N600 Wireless Modem Router Verify the Cabling For More Information NETGEAR Green Features Hardware Setup 10 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Unpack Your New Router Your box should contain the following items: â¢ â¢ â¢ â¢ â¢ â¢ N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 AC power adapter (plug varies by region) Category 5 (Cat 5) Ethernet cable Telephone cable with RJ-11 connector Microfilters and splitters (quantity and type vary by region) Installation guide with cabling and router setup instructions If any of the parts are incorrect, missing, or damaged, contact your NETGEAR dealer. Keep the carton, including the original packing materials, in case you need to return the product for repair. See Position Your Wireless Router on page 17 for information about where to place and how to position your router. aDSL Phone ADSL filter N600 Wireless Modem Router Ethernet cable Line Phone cable Power adapter Figure 1. Box contents Hardware Setup 11 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Hardware Features Before you cable your router, take a moment to become familiar with the label and the front and back panels. Pay particular attention to the LEDs on the front panel. Label The label on the bottom of the wireless modem router shows the routerâs Restore Factory Settings button, WPS security PIN, MAC address, and serial number. wPS Security PIN MAC address Restore Factory Settings Figure 2.

Label on router bottom Serial number See Factory Settings on page 156 for information about the Restore Factory Settings button and the factory setting values. Hardware Setup 12 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Back Panel The back panel has the Power On/Off button and port connections shown in the figure: 1. Back panel port connections Viewed from left to right, the rear panel contains the following elements: 1. RJ-11 asynchronous DSL (ADSL) port for connecting the wireless modem router to an ADSL line Note: An ADSL port is capable of sending data over an ADSL line at one speed and receiving it at another speed. 2.

Ethernet WAN port for connecting the wireless modem router to a fiber/cable modem Note: You can use either the ADSL or Gigabit Ethernet port for WAN connectivity. 3. Four Ethernet RJ-45 LAN ports for cabling the wireless modem router to the local computers Hardware Setup 13 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 4. AC power adapter input Front Panel The wireless modem router front panel has the 10 status LEDs, icons, and ports shown in the figure.

Note that the Wireless and WPS icons are buttons.

Front panel LEDs The following tables describe the LEDs, icons, and buttons on the front panel from top to bottom. table 1. WPS button and LED Icon LED Activity Solid green Blinking green Off Description Indicates that wireless security has been enabled. For information about the use of this button, see Wi-Fi Protected Setup (WPS) Method on page 40. hardware Setup 14 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Table 2. Wireless button Icon Description For information about the use of this button, see Turn Off Wireless Connectivity on page 38. Internet LED Icon LED Activity Solid green Description You have an Internet connection. If this connection is dropped due to an idle time-out but the connection is still present, the light stays green. If the Internet connection is dropped for any other reason, the light turns off. the Internet (IP) connection failed.

See No ISP Connection on page 148 for troubleshooting information. Data is being transmitted over the Internet connection. No Internet connection is detected or the device is in bridge mode (an external device handles the ISP connection). solid red Blinking green Off Table 5. DSL LED Icon LED Activity Solid green Description You have an ADSL connection. In technical terms, the ADSL port is synchronized with an ISPâs network-access device. Indicates that the wireless modem router is negotiating the best possible speed on the ADSL line. The unit is off or there is no IP connection. blinking green Off Hardware Setup 15 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Table 6. 5 GHz Wireless LED Icon LED Activity Solid blue Blinking blue Off Description There is wireless connectivity.

Data is being transmitted or received over the 5 GHz wireless link. there is no wireless connectivity. You can still plug an Ethernet cable into one of the LAN ports to get wired connectivity. 4 GHz Wireless LED Icon LED Activity Solid green Blinking green Off Description There is wireless connectivity. Data is being transmitted or received over the 2.

You can still plug an Ethernet cable into one of the LAN ports to get wired connectivity. table 8. USB LED Icon LED Activity Solid green Blinking green Off Description A USB port has detected a USB device. LAN LED Icon LED Activity Solid green Blinking green Off Description A LAN port has detected an Ethernet link with a device. Power On/Off LED Icon LED Activity Solid green Solid red Off Restore Factory Settings Description Power is supplied to the router.

pOST (power-on self-test) failure or a device malfunction has occurred. Power is not supplied to the router. Light blinks momentarily when the Restore Factory Settings button on the bottom of the unit is pressed for 6 seconds. The Power LED then blinks red three times when the Restore Factory Settings button is released and then turns green as the gateway resets to the factory defaults. Position Your Wireless Router The wireless modem router lets you access your network from virtually anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection can vary significantly depending on the physical placement of your router. For example, the thickness and number of walls the wireless signal passes through can limit the range. For best results, place your router: â¢ â¢ â¢ â¢ Near the center of the area where your computers and other devices operate, and preferably within line of sight to your wireless devices. So it is accessible to an AC power outlet and near Ethernet cables for wired computers. In an elevated location such as a high shelf, keeping the number of walls and ceilings between the wireless modem router and your other devices to a minimum.

Away from electrical devices that are potential sources of interference, such as ceiling fans, home security systems, microwaves, PCs, or the base of a cordless phone or 2. 4 GHz cordless phone. Away from any large metal surfaces, such as a solid metal door or aluminum studs. Large expanses of other materials such as glass, insulated walls, fish tanks, mirrors, brick, and concrete can also affect your wireless signal. â¢ Note: The DGND3700 should be put in a vertical position only. Also be aware that when you use multiple access points, it is better if adjacent access points use different radio frequency channels to reduce interference. The recommended channel spacing between adjacent access points is five channels (for example, use Channels 1 and 6, or 6 and 11). Hardware Setup 17 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ADSL Microfilters If this is the first time you have cabled a wireless router between an ADSL phone line and your computer or laptop, you might not be familiar with ADSL microfilters. If you are, you can skip this section and proceed to Cable Your N600 Wireless Modem Router on page 20. An ADSL microfilter is a small in-line device that filters ADSL interference out of stanion about the topics covered in this manual, visit the support website at http://support.

Router Internet Setup Connecting to the network 2 This chapter explains how to set up your Internet connection using one of two methods: Setup Wizard or manual setup. If you have already set up your router using one of these methods, the initial router setup is complete. Refer to this chapter if you want to become familiar with the router menus, view or adjust the initial settings, or change the router password and login time-out. This chapter contains the following sections: â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ â¢ Router Setup Preparation Log In to the N600 Modem Router Upgrade Router Firmware Router Interface Setup Wizard Manual Setup (Basic Settings) ADSL Settings Unsuccessful Internet Connection Change Password and Login Time-Out Log Out Manually Types of Logins 22 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Router Setup Preparation You can set up your wireless modem router with the Setup Wizard as described in Setup Wizard on page 27 or manually as described in Manual Setup (Basic Settings) on page 28. However, before you start the setup process, you need to have your ISP information on hand and make sure the laptops, PCs, and other devices in the network have the settings described here.

Note: If you have a Macintosh or Linux system, you have to use the manual setup method. Use Standard TCP/IP Properties for DHCP If you configured your computer to use a static IP address, you need to change the settings back so that it uses Dynamic Host Configuration Protocol (DHCP). See Appendix A, Supplemental Information for more information. Replace an Existing Router To replace an existing router, disconnect it completely from your network and set it aside before starting the router setup.

Adapters and Security Settings A wireless adapter is the wireless radio in your PC or laptop that lets the PC or laptop connect to a wireless network. Most PCs and laptops come with an adapter already installed, but if it is outdated or slow, you can purchase a USB adapter to plug into a USB port. Make sure the wireless adapter in each computer in your wireless network supports the same security settings as the wireless modem router. See Wireless Security Requirements and Recommendations on page 37 for information about the router's security settings. Note: If you connect devices to your modem router using WPS as described in Wi-Fi Protected Setup (WPS) Method on page 40, those devices assume the security settings of the router. Gather ISP Information You need the following information to set up your wireless modem router and to check that your Internet configuration is correct. Your Internet service provider (ISP) should have provided you with all of the information needed to connect to the Internet. If you cannot locate Router Internet Setup 23 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 this information, ask your ISP to provide it. When your Internet connection is working, you no longer need to launch the ISP's login program on your computer to access the Internet. When you start an Internet application, your wireless modem router automatically logs you in. â¢ â¢ Active Internet service provided by an ADSL account The ISP configuration information for your ADSL account ISP login name and password ISP Domain Name Server (DNS) addresses Fixed or static IP address Host and domain names Depending on how your ISP set up your Internet account, you could need to know one or more of these settings for a manual setup: Virtual path identifier (VPI) and virtual channel identifier (VCI) parameters Multiplexing method Host and domain names Log In to the N600 Modem Router Log in to the wireless modem router to view or change settings or to set up the wireless modem router.

1 in the address field of your browser and press Enter to display the login window. You can also enter either of these addresses to access the wireless modem router: http://www. When prompted, enter admin for the router user name and password for the router password, both in lowercase letters, and click OK. Router Internet Setup 24 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Note: The router user name and password are probably different from the user name and password for logging in to your Internet connection. See Types of Logins on page 34 for more information. The router screens display, where you can do things like changing settings or adding other devices to your network. For a brief description of the available functionality, see Router Interface on page 26. For information about adding devices to your network, see Wi-Fi Protected Setup (WPS) Method on page 40. If you do not see the login prompt: 1. Check the LEDs on the router front panel to make sure that the modem router is plugged into an electrical outlet, its power is on, and the Ethernet cable between your computer and the router is connected to a LAN port.

2. If you connected the Ethernet cable and quickly launched your browser and typed in the router URL, your computer might need a minute or two to recognize the LAN connection. Relaunch your browser and try again. 3. If you are having trouble accessing the router wirelessly, NETGEAR recommends that during setup you use an Ethernet cable to connect your computer so that you can log in to the wireless modem router.

Note: If you cannot connect to the wireless router, check the Internet Protocol (TCP/IP) properties in the Network Connections section of your PC Control Panel. They should be set to obtain both IP and DNS server addresses automatically. Upgrade Router Firmware When you log in and if you are connected to the Internet, the Firmware Upgrade Assistant screen displays so you can upgrade to the latest available firmware. For more information about upgrading firmware, see Chapter 5, Network Maintenance. The modem router checks the NETGEAR database for new firmware.

You can check for new firmware later. 3. If new firmware is available, click Yes to upgrade the router with the latest firmware. After the upgrade, the router restarts. Router Internet Setup 25 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 CAUTION: Do not try to go online, turn off the router, shut down the computer, or do anything else to the router until the router finishes restarting. You cannot upgrade firmware until you have established your Internet connection as described in Setup Wizard on page 27. Router Interface The router interface gives you access to the router's current settings so you can view or change them (if needed). The left column has the router menus, and the right column provides online help. The middle column is the screen for the current menu option. figure 9.

Router interface Setup Wizard Specify the language and location, and automatically detect the Internet connection. see Setup Wizard on page 27. Add WPS Client Add WPS-compatible wireless devices and other equipment to your wireless network. see Add Clients (Devices) to Your Network on page 40. Router Internet Setup 26 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Setup Menu Set, upgrade, and check the ISP and wireless network settings of your router. see Manual Setup (Basic Settings) on page 28 and ADSL Settings on page 32. See also Chapter 3, Wireless Settings, for information about preset and basic security settings. Content Filtering Menu View and configure the router firewall settings to prevent objectionable content from reaching your PCs. Advanced Menu Set the router up for unique situations such as when remote access by IP or by domain name from the Internet is needed. Web Support Go to the NETGEAR support site to get information, help, and product documentation.

These links work once you have an Internet connection. Setup Wizard You have to log in to the modem router to set the country, language, and Internet connection. router Internet Setup 27 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ï To use the Setup Wizard: 1. Select Setup Wizard from the top of the router menus to display the following screen: Figure 10. Country and language settings in Setup Wizard 2. select your country and language: â¢ Country. It is important to specify the location where the wireless modem router operates so that the Internet connection works correctly. You can select another language if you prefer. 3. Select either Yes or No, I want to configure the Router myself. With automatic Internet detection, the Setup Wizard searches your Internet connection for servers and protocols to determine your ISP configuration. note: The Setup Wizard cannot detect a Point-to-Point Tunneling Protocol (PPTP) connection. If your ISP uses PPTP, you have to set your Internet connection through the screen described in Manual Setup (Basic Settings) on page 28.

manual Setup (Basic Settings) The Basic Settings screen displays when you select No. I want to configure the Router myself in the Setup Wizard and is also available from the router menus. it is where you view or change ISP information. The fields that display vary depending on whether or not your Internet connection requires a login. Note: Check that the country and language are set as described Setup Wizard on page 27 before proceeding with the manual setup. router Internet Setup 28 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ï To set up the basic settings manually: 1. Select Set Up > Basic Settings and select Yes or No depending on whether or not your ISP requires a login.

Figure 11, Basic Settings screen without (left) and with (right) login shows both forms of the Basic Settings screen. â¢ Yes. Select the encapsulation method and enter the login name. If you want to change the login time-out, enter a new value in minutes. â¢ No. Enter the account and domain names, as needed. 2. Enter the settings for the IP address and DNS server. The default ADSL settings usually work fine. If you have problems with your connection, check the ADSL settings and see ADSL Settings on page 32 for more information.

3. If no login is required, you can specify the MAC Address setting. If the NETGEAR website does not appear within 1 minute, and see Troubleshooting on page 145. Router Internet Setup 29 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ISP does not require login ISP does require login Figure 11. Basic Settings screen without (left) and with (right) login The following table explains all of the possible fields in the Basic Settings screen. Note that which fields appear in this screen depends on whether or not a login is required. Description â¢ Yes â¢ No Enter the account name provided by your ISP. This might also be called the host name. Enter the domain name provided by your ISP. These fields display only if no login is required. account Name (If required) Domain Name (If required) Router Internet Setup 30 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Table 11. Basic Settings Screen Description Settings These fields display only if your ISP requires a login. The choices are: â¢ PPPoE (PPP over Ethernet) â¢ PPPoA (PPP over ATM) The login name provided by your ISP. This is often an email address. The password that you use to log in to your ISP. If you want to change the login timeout, enter a new value in minutes. This determines how long the wireless modem router keeps the Internet connection active after there is no Internet activity from the LAN. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses. â¢ Use Static IP Address.

Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISPâs wireless modem router to which your wireless modem router will connect. This field displays only if no login is required. Enter the IP address, IP subnet mask, and gateway IP addresses that your ISP assigned. The DNS server is used to look up site addresses based on their names. â¢ Get Automatically from ISP. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address. â¢ Use These DNS Servers. If you know that your ISP does not automatically transmit DNS addresses to the wireless modem router during login, select this option, and enter the IP address of your ISPâs primary DNS server. If a secondary DNS server address is available, enter it also. This disables NAT, but leaves the firewall active. Disable NAT only if you are sure you do not need it. When NAT is disabled, only standard routing is performed by this router. Classical routing lets you directly manage the IP addresses that the wireless modem router uses.

Classical routing should be selected only by experienced users. 1 â¢ Disable firewall. This disables the firewall in addition to disabling NAT. With the firewall disabled, the protections usually provided to your network are disabled. The Ethernet MAC address used by the wireless modem router on the Internet port. Some ISPs register the MAC address of the network interface card in your computer when your account is first opened. They will then accept traffic only from the MAC address of that computer. This feature allows your wireless modem router to use your computerâs MAC address (this is also called cloning). The wireless modem router will capture and use the MAC address of the computer that you are now using. You must be using the one computer that is allowed by the ISP. â¢ Use This MAC Address. Enter the MAC address that you want to use. These fields display only if no login is required. router MAC Address 1. Disabling NAT reboots the wireless modem router and resets its configuration settings to the factory defaults.

Disable NAT only if you plan to set up the wireless modem router in a setting where you will be manually administering the IP address space on the LAN side of the router. ADSL Settings ADSL settings of your wireless modem router work fine for most ISPs. However, some ISPs use a specific multiplexing method and virtual circuit number for the virtual path identifier (VPI) and virtual channel identifier (VCI). Note: You must use the Setup Wizard to select the correct country for the default ADSL settings to work. Router Internet Setup 32 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ï If your ISP provided you with a multiplexing method or VPI/VCI number, enter the setting: 1. For the VPI, type a number between 0 and 255. The default is 8 for the U. s. Version, 0 for the worldwide version, and 1 for the German version. 4. For the VCI, type a number between 32 and 65535. The default is 35 for the U. s. Version, 38 for the worldwide version, and 32 for the German version. Review your settings to be sure you have selected the correct options and typed everything correctly. 2. Contact your ISP to verify that you have the correct configuration information. If problems persist, register your NETGEAR product and contact NETGEAR technical support. Note: If you cannot connect to the wireless router, check the Internet Protocol (TCP/IP) properties in the Network Connections section of your PC Control Panel. They should be set to obtain both IP and DNS server addresses automatically. Change Password and Login Time-Out For security reasons, the wireless modem router has its own user name and password that default to admin and password. You can and should change this password to a secure password that is easy to remember. The ideal password contains no dictionary words from any language and is a mixture of uppercase and lowercase letters, numbers, and symbols. it can be up to 30 characters. Router Internet Setup 33 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Note: The router user name and password are not the same as the user name and password for logging in to your Internet connection.

See Types of Logins on page 34 for more information about login types. Change the login time-out to a value between 1 and 99 minutes if the default value of 5 minutes does not meet your needs. The administrator's login to the wireless modem router configuration times out after a period of inactivity to prevent someone else from accessing the router interface when you step away. After changing the password, you are required to log in again to continue the configuration. If you have backed up the wireless modem router settings previously, you should do a new backup so that the saved settings file includes the new password.

See Back Up on page 67 for information about backing up your network configuration. Log Out Manually The router interface provides a Logout command at the bottom of the router menus. Log out when you expect to be away from your computer for a relatively long period of time. Types of Logins There are three separate types of logins that have different purposes. It is important that you understand the difference so that you know which login to use when. • Router login logs you in to the router interface. See Log In to the N600 Modem Router on page 24 for details about this login. Router Internet Setup 34 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 • ISP login logs you in to your Internet service. Your service provider has provided you with this login information in a letter or some other way. If you cannot find this login information, contact your service provider.

Wi-Fi network name and passphrase logs you in to your wireless network. This login is preconfigured and can be found on the label on the bottom of your unit. See Chapter 3, Wireless Settings, for more information. • Router Internet Setup 35 3. Wireless Settings Protecting your wireless network 3 This chapter describes how to use the Wireless Settings screen to view and change (if needed) your wireless network settings.

Security features to prevent objectionable content from reaching your PCs are covered in Chapter 4, Security Settings. This chapter contains the following sections: • • • • Wireless Security Requirements and Recommendations Wireless Security Basics Add Clients (Devices) to Your Network Wireless Settings Screen Note: If you use the Internet for activities like purchases or banking, those Internet sites use a highly secure data encryption protocol called Secure Sockets Layer (SSL). If a website uses SSL, the address begins with https instead of http. If you do not see https, it is more secure to do your business in person or over the phone. 36 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Wireless Security Requirements and Recommendations You should set the following security: • Wi-Fi network name (SSID) identifies your network so devices can find it.

The default SSID for the 5 GHz wireless is NETGEAR-5G. Security option is the type of security protocol applied to your wireless network. The security protocol in force encrypts data transmissions and ensures that only trusted devices receive authorization to connect to your network. The recommended security option is WPA-PSK/WPA2-PSK mixed mode, described in Wireless Security Options on page 38. passphrase controls access to your network. Devices that know the SSID and the passphrase can find your wireless network and connect. Use a passphrase for the 2. 4 GHz wireless network that is easy for you to remember, but hard for others to guess. For maximum security, use a different passphrase for the 5 GHz wireless network that is easy for you to remember, but hard for others to guess. • Note: Your network names (SSIDs) and passphrases are case-sensitive.

Your network name, security method, and passphrase has to be the same for all the wireless devices connected to your router on a network. Wireless Security Basics Unlike wired network data, wireless data transmissions extend beyond your walls and can be received by any device with a compatible wireless adapter (radio). For this reason, it is very important to maintain the preset security and understand the other security features available to you. Besides the preset security settings described earlier, your wireless modem router has the security features described here and in Chapter 4, Security Settings. • • • • Turn off wireless connectivity Disable SSID broadcast Restrict access by MAC address Wireless security options Wireless Settings 37 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Turn Off Wireless Connectivity You can completely turn off the wireless connectivity of the wireless modem router by pressing the Wireless On/Off button on its front panel . For example, if you use your notebook computer to wirelessly connect to your wireless modem router and you take a business trip, you can turn off the wireless portion of the modem router while you are traveling. Other members of your household who use computers connected to the wireless modem router through Ethernet cables can still use the wireless modem router. Disable SSID Broadcast By default, the wireless modem router broadcasts its Wi-Fi network name (SSID) so devices can find it. If you change this setting to not allow the broadcast, wireless devices will not find your wireless modem router unless they are configured with the same SSID. See Wireless Access Point Settings on page 44 for the procedure.

Note: Turning off SSID broadcast nullifies the wireless network discovery feature of some products such as Windows XP, but the data is still fully exposed to a determined snoop using specialized test equipment like wireless sniffers. If you allow the broadcast, be sure to keep wireless security enabled. Restrict Access by MAC Address You can enhance your network security by allowing access to only specific PCs based on their Media Access Control (MAC) addresses. You can restrict access to only trusted PCs so that unknown PCs cannot wirelessly connect to the wireless modem router. MAC address filtering adds an obstacle against unwanted access to your network, but the data broadcast over the wireless link is fully exposed (unencrypted).

The Wireless Station Access List determines which wireless hardware devices are allowed to connect to the wireless modem router by MAC address. See Wireless Station Access List Settings on page 44 for the procedure. Wireless Security Options A security option is the type of security protocol applied to your wireless network. The security protocol in force encrypts data transmissions and ensures that only trusted devices receive authorization to connect to your network. there are two types of encryption: Wired Equivalent Privacy (WEP) and Wi-Fi Protected Access (WPA).

WPA has several options including pre-shared key (PSK) encryption and 802. 1x encryption for enterprises. This section presents an overview of the security options and provides guidance on when to use which option.

Wireless Settings 38 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 WEP Encryption WEP uses an old encryption method and can be easily decoded with today's powerful computers. Use this mode only when you have a very old legacy wireless client that does not support WPA-PSK. The Wi-Fi alliance highly recommends against using WEP and plans to make it obsolete. If you do decide to use WEP, see Set WEP Encryption and Passphrase: on page 46 for the procedure. WPA Encryption WPA encryption is built into all hardware that has the Wi-Fi-certified seal. This seal means the product is authorized by the Wi-Fi Alliance (http://www. wi-fi.

Org/) because it complies with the worldwide single standard for high-speed wireless local area networking. For information about how to use the WPA home options, see Change WPA Security Option and Passphrase: on page 46. WPA-PSK uses a much stronger encryption algorithm than WEP so it is harder to decode. This option uses a passphrase to perform the authentication and generate the initial data encryption keys. Then it dynamically varies the encryption key. wPA-PSK uses Temporal Key Integrity Protocol (TKIP) data encryption , implements most of the IEEE 802. 11i standard, and is designed to work with all wireless network interface cards, but not all wireless access points. It is advertised to be theoretically indecipherable due to the greater degree of randomness in encryption keys that it generates. WPA2-PSK gets higher speed because it is usually implemented through hardware, while WPA-PSK is usually implemented through software. wPA2-PSK uses a passphrase to authenticate and generate the initial data encryption keys.
Then it dynamically varies the encryption key. WPS-PSK + WPA2-PSK mixed mode is the preconfigured security mode on the wireless modem router. NETGEAR recommends mixed mode because it provides broader support for all wireless clients. WPA2-PSK clients get higher speed and security, and WPA-PSK clients get decent speed and security. The product documentation for your wireless adapter and WPA client software should have instructions about configuring their WPA settings.
wPA-802. 1x is enterprise-level security and requires an authentication server to recognize and authorize client access. The authentication server is called Remote Authentication Dial In User Service (RADIUS). Every wireless client has a user login on the RADIUS server, and the wireless modem router has a client login on the RADIUS server. Data transmissions are encrypted with an automatically generated key.
For information about how to use the WPA enterprise option, see Set WPA-802. 1x Server and Passphrase: on page 46. Wireless Settings 39 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Add Clients (Devices) to Your Network Choose either the manual or the WPS method to add wireless devices, including guest devices, and other equipment to your wireless network. manual Method ï To add clients (devices) to your network manually: 1. Open the software that manages your wireless connections on the wireless device (laptop computer, gaming device, iPhone) that you want to connect to your router. This software scans for all wireless networks in your area. 2. Look for your network and select it. If you did not change the name of your network during the setup process, look for the default Wi-Fi network name (SSID) and select it. The default Wi-Fi network name (SSID) is located on the product label on the bottom of the router.

The default wireless modem router passphrase is located on the product label on the bottom of the router. 4. Repeat steps 1–3 to add other wireless devices. Wi-Fi Protected Setup (WPS) Method Wi-Fi Protected Setup (WPS) is a standard for easily adding computers and other devices to a home network while maintaining security. To use WPS, make sure that all wireless devices to be connected to the network are Wi-Fi certified and support WPS. During the connection process, the client gets the security settings from the router so that every device in the network has the same security settings. Note: However, if you find that the router is generating new security settings for each added device, it means that the default value for Keep Existing Wireless Settings has changed. See WPS Settings on page 131 for more information about this setting. All Wi-Fi-certified and WPS-capable products are compatible with the NETGEAR products that have Push 'N' Connect, which is based on WPS. 1 For information about how to view a list of all wireless and wired devices connected to your modem router, see View Attached Devices on page 72.
Note: WEP security does not support WPS. If you try to use WPS to connect a WEP device to your network, it will not connect. 1. For a list of other Wi-Fi-certified products available from NETGEAR, go to http://www. Wireless Settings 40 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 You can use the WPS (Push 'N' Connect) or router interface method to add wireless devices and other equipment to your wireless network.
WPS (Push 'N' Connect) Method ï If your wireless device supports WPS (Push 'N' Connect), follow these steps: 1. Press the WPS button on the router front panel . 2. Within 2 minutes, press the WPS button on your wireless device, or follow the WPS instructions that came with the device. The device is now connected to your router.
3. Repeat steps 1–2 to add other WPS wireless devices. router Interface Method ï To add clients (devices) using the router interface: 1. Select Add WPS Client at the top of the router menus. If you cannot select Add WPS Client, select Setup > Wireless Settings and make sure that WPS is selected. The following screen lets you select the method for adding the WPS client. With either method, the client wireless device attempts to detect the WPS signal from the wireless modem router and establish a wireless connection in the time allotted. The PIN method displays this screen so you can enter the client security PIN number: Figure 15. Add WPS Client with PIN number method â¢ While the wireless modem router attempts to connect to a WPS-capable device, the WPS LED on the front of the wireless modem router blinks green. When the wireless modem router establishes a WPS connection, the LED is solid green.

Repeat to add another WPS client to your network. Wireless Settings 41 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Wireless Settings Screen The Wireless Settings screen lets you view or configure the wireless network configuration. Once you have established basic wireless connectivity, you can enable security settings appropriate to your needs. Note: If you use a wireless computer to change the wireless network name (SSID) or other wireless security settings, you are disconnected when you click Apply. To avoid this problem, use a computer with a wired connection to access the modem router. Consider Every Device on Your Network Before you begin, check the following: â¢ â¢ Every wireless computer has to be able to obtain an IP address by DHCP from the router as described in Use Standard TCP/IP Properties for DHCP on page 23.

Each computer or wireless adapter in your network has to have the same SSID and wireless mode (bandwidth/data rate) as the router. Check that the wireless adapter on each computer can support the mode and security option you want to use. The security option on each wireless device in the network has to match the router. For example, if you select a security option that requires a passphrase, be sure to use same passphrase for each wireless computer in the network.

Make any changes that are needed, and click Apply when done to save your settings. Note: The screen sections, settings, and procedures are explained in the following sections. 3. After you finish adjusting settings and click Apply, configure and test your computers for wireless connectivity: Wireless Settings 43 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 a. Program the wireless adapter of your computers to have the same SSID and channel that you specified in the router.

b. Check that the adapters have a wireless link and can obtain an IP address by DHCP from the wireless modem router. wireless Network Settings Name (SSID). The SSID is also known as the wireless network name. Enter a 32-character (maximum) name in this field.

The location where the wireless modem router is used. It might not be legal to operate the wireless modem router in a region other than the regions listed. channel. The wireless channel used by the gateway: 1 through 13. Do not change the channel unless you experience interference (shown by lost connections or slow data transfers). If this happens, experiment with different channels to see which is the best. When this check box is selected, the router accepts wireless clients. When the check box is not selected, the router accepts wired clients only. This check box is selected by default. allow Broadcast of Name (SSID).

This setting allows the wireless modem router to broadcasts its SSID so wireless stations can see this wireless name (SSID) in its scanned network list. This check box is selected by default. To turn off the SSID broadcast, clear the Allow Broadcast of Name (SSID) check box and click Apply. wireless Isolation. When this check box is selected, wireless stations cannot communicate with each other or with stations on the wired network. This check box is not selected by default. Wireless Station Access List Settings The Wireless Stations Access List lets you restrict access to your network to a specific list of devices based on their MAC addresses. This section explains how to set up the list. ï To set up the wireless station access list: 1. On the Wireless Settings screen, click the Setup Access List button to display the Wireless Station Access List screen shown in the figure that follows and introduced here: â¢ The Turn Access Control On check box at the top is not selected by default to allow any computer configured with the correct wireless network name (SSID) and passphrase to access the network.

â¢ Trusted Wireless Stations lists the trusted computers that have access to your network. Wireless Settings 44 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 â¢ Available Wireless Stations lists the currently untrusted computers that are connected to your network. Select the Turn Access Control On check box to enable access restriction by MAC address. 3. In the Add New Station Manually section, click Add to add your computerâs MAC address so you do not lose your wireless connection when you click Apply.

If you lose your wireless connection, you have to access the wireless modem router from a wired computer or from a wireless computer that is on the access control list. 4. If a wireless station that you want to add to the Trusted Wireless Stations list is connected to the network, select it from the Available Wireless Stations list and click Add. 5. If the wireless station is not currently connected, you can enter its address manually.

The MAC address is usually printed on the wireless card, or it might appear in the wireless modem routerâs DHCP table. The MAC address is 12 hexadecimal digits. You can also copy and paste the MAC addresses from the wireless modem routerâs Attached Devices screen (see View Attached Devices on page 72) into the MAC Address field. To do this, configure each wireless computer to obtain a wireless link to the wireless modem router. The computer should then appear in the Attached Devices screen. 6. Click Apply to save your settings and return to the Wireless Settings screen. Security Options Settings The Security Options section of the Wireless Settings screen lets you change the security option and passphrase. See Wireless Security Options on page 38 for an explanation of the security options and when to use which one. Please note that NETGEAR recommends that you not change the security option or passphrase, but if you want to change these settings, this section explains how.

In the Security Options sections, select the WPA options you want. In the Passphrase field that displays when you select a WPA security option, enter the network keys (passphrases) that you want to use. They are text strings from 8 to 63 characters (in the preceding figure, HomeNetwork1 and HomeNetwork2 are used as examples). In the Radius Server Name/IP Address field, enter the name or IP address of the RADIUS server on your LAN. In the Radius Port field, enter the port number used for connections to the RADIUS server. In the Shared Key field, enter the RADIUS server passphrase for client logins. The router has to have this passphrase to log in to the RADIUS server as a client. Ï Set WEP Encryption and Passphrase: When configuring WEP from a wireless computer, you lose your wireless connection when you click Apply. You have to either configure your wireless adapter to match the wireless modem router WEP settings or access the wireless modem router from a wired computer. wireless Settings 46 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 1.

In the Security Options section, select WEP to display the following screen: Figure 20. Other choices are Open System (any client can authenticate itself to the network) and Shared Key (a passphrase and a four-way challenge is needed for authentication). 3. Select the encryption strength setting, either 64 bit or 128 bit. 4.

Enter the four data encryption keys either manually or automatically. These values have to be identical on all computers and access points in your network. â¢ Automatic. Enter a word or group of printable characters in the Passphrase field, and click Generate. The four key fields are automatically populated with key values.

â¢ Manual. The number of hexadecimal digits that you enter depends on the encryption strength setting: For 64-bit WEP, enter 10 hexadecimal digits (any combination of 0â9, aâf, or AâF). For 128-bit WEP, enter 26 hexadecimal digits (any combination of 0â9, aâf, or AâF).

5. Select the radio button for the key you want to make active. Make sure that you understand how the WEP key settings are configured in your wireless adapter. Wireless adapter configuration utilities such as the one in Windows XP allow one key entry, which has to match the default key you set in the wireless modem router. 6. Click Save to save your settings or click Apply so your changes to take effect immediately. wireless Settings 47 4.

Security Settings Keeping unwanted content out of your network 4 This chapter explains how to use the basic firewall features of the wireless modem router to prevent objectionable content from reaching the PCs and other devices connected to your network. This chapter contains the following sections: â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ Keyword Blocking of HTTP Traffic Firewall Rules to Control Network Access Configure Services Set the Time Zone Schedule Firewall Services Enable Security Event Email Notification Log the Network Activity 48 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Keyword Blocking of HTTP Traffic Use keyword blocking to prevent certain types of HTTP traffic from accessing your network. The blocking can be always or according to a scheduled. Turn on keyword blocking according to the Schedule screen settings. â□¢ Always. Turn on keyword blocking all the time, independent of the Schedule screen. 3. In the Keyword field, enter a keyword or domain, click Add Keyword, and click Apply. the Keyword list supports up to 32 entries. Here are some sample entries: â□¢ â□¢ â□¢ Specify XXX to block http://www.

Com if you want to allow only sites with domain suffixes such as . Enter a period (. Select the keyword you want to delete from the list. Specify a Trusted Computer You can exempt one trusted computer from blocking and logging. The computer you exempt has to have a fixed IP address.

security Settings 49 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 ï□□□ To specify a trusted computer: 1. In the Trusted IP Address field, enter the IP address. Firewall Rules to Control Network Access By default your router blocks any inbound traffic from the Internet to your computers except for replies to your outbound traffic. You might need to create exceptions to this rule to allow remote computers to access a server on your local network or to allow certain applications and games to work correctly. Your router provides port forwarding and port triggering for creating these exceptions. This section covers the following topics: â□¢ â□¢ â□¢ â□¢ â□¢ â□¢ Remote Computer Access Basics Port Triggering to Open Incoming Ports Port Forwarding to Permit External Host Communications How Port Forwarding Differs from Port Triggering Configure Port Forwarding to Local Servers Configure Port Triggering Remote Computer Access Basics When a computer on your network needs to access a computer on the Internet, your computer sends your router a message containing the source and destination address and process information. Before forwarding your message to the remote computer, your router has to modify the source information and create and track the communication session so that replies can be routed back to your computer. Here is an example of normal outbound traffic and the resulting inbound responses: 1. You open a browser and your operating system assigns port number 5678 to this browser session. Com into the URL field, and your computer creates a web page request message with the following address and port information. The request message is sent to your router. 5678, which is the browser session. destination address. The IP address of www. example.

Com, which your computer finds by asking a DNS server. destination port number. 80, which is the standard port number for a web server process. security Settings 50 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 3. Your router creates an entry in its internal session table describing this communication session between your computer and the web server at www. Before sending the web page request message to www. example. Com, your router stores the original information and then modifies the source information in the request message, performing Network Address Translation (NAT): â□¢ The source address is replaced with your router□□s public IP address. This is necessary because your computer uses a private IP address that is not globally unique and cannot be used on the Internet. â□¢ The source port number is changed to a number chosen by the router, such as 33333.

This is necessary because two computers could independently be using the same session number. Your router then sends this request message through the Internet to the web server at www. Com composes a return message with the requested web page data. The return message contains the following address and port information. The web server then sends this reply message to your router.

source address. The IP address of www. 80, which is the standard port number for a web server process. destination address. The public IP address of your router.

Upon receiving the incoming message, your router checks its session table to determine whether there is an active session for port number 33333. Finding an active session, the router then modifies the message to restore the original address information replaced by NAT. Your router sends this reply message to your computer, which displays the web page from www. The message now contains the following address and port information. source address. The IP address of www. 80, which is the standard port number for a web server process. 5678, which is the browser session that made the initial request. 6. When you finish your browser session, your router eventually detects a period of inactivity in the communications.

Your router then removes the session information from its session table, and incoming traffic is no longer accepted on port number 33333. Port Triggering to Open Incoming Ports In the preceding example, requests are sent to a remote computer by your router from a particular service port number, and replies from the remote computer to your router are directed to that port number. If the remote server sends a reply back to a different port number, your router does not recognize it and discards it. However, some application servers (such as FTP and IRC servers) send replies back to multiple port numbers. Using the port Security Settings 51 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 triggering function of your router, you can tell the router to open additional incoming ports when a particular outgoing port originates a session. The IRC server not only responds to your originating source port, but also sends an â□□identifyâ□□ message to your computer on port 113.

Using port triggering, you can tell the router, â€œWhen you initiate a session with destination port 6667, you have to also allow incoming traffic on port 113 to reach the originating computer. â€� Using steps similar to the preceding example, the following sequence shows the effects of the port triggering rule you have defined: 1. You open an IRC client program to start a chat session on your computer. 2.

Your IRC client composes a request message to an IRC server using a destination port number of 6667, the standard port number for an IRC server process. Your computer then sends this request message to your router. 3. Your router creates an entry in its internal session table describing this communication session between your computer and the IRC server. Your router stores the original information, performs Network Address Translation (NAT) on the source address and port, and sends this request message through the Internet to the IRC server.

4. Noting your port triggering rule and having observed the destination port number of 6667, your router creates an additional session entry to send any incoming port 113 traffic to your computer. 5. The IRC server sends a return message to your router using the NAT-assigned source port (as in the previous example, letâ€™s say port 33333) as the destination port. The IRC server also sends an â€œidentifyâ€� message to your router with destination port 113. 6. Upon receiving the incoming message to destination port 33333, your router checks its session table to determine whether there is an active session for port number 33333. Finding an active session, the router restores the original address information replaced by NAT and sends this reply message to your computer. 7. Upon receiving the incoming message to destination port 113, your router checks its session table and learns that there is an active session for port 113, associated with your computer. The router replaces the messageâ€™s destination IP address with your computerâ€™s IP address and forwards the message to your computer. 8. When you finish your chat session, your router eventually senses a period of inactivity in the communications. The router then removes the session information from its session table, and incoming traffic is no longer accepted on port numbers 33333 or 113. To configure port triggering, you need to know which inbound ports the application needs.

Also, you need to know the number of the outbound port that will trigger the opening of the inbound ports. You can usually determine this information by contacting the publisher of the application, or user groups or newsgroups. Note: Only one computer at a time can use the triggered application. Security Settings 52 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 Port Forwarding to Permit External Host Communications In both of the preceding examples, your computer initiates an application session with a server computer on the Internet. However, you might need to allow a client computer on the Internet to initiate a connection to a server computer on your network. Normally, your router ignores any inbound traffic that is not a response to your own outbound traffic. You can configure exceptions to this default rule by using the port forwarding feature. A typical application of port forwarding can be shown by reversing the client-server relationship from the previous web server example. In this case, a remote computerâ€™s browser needs to access a web server running on a computer in your local network. Using port forwarding, you can tell the router, â€œWhen you receive incoming traffic on port 80 (the standard port number for a web server process), forward it to the local computer at 192.

â€� The following sequence shows the effects of the port forwarding rule you have defined: 1. The user of a remote computer opens a browser and requests a web page from www. example. Com, which resolves to the public IP address of your router. The remote computer composes a web page request message with the following destination information: Destination address.

The IP address of www. example. Com, which is the address of your router. destination port number. 80, which is the standard port number for a web server process.

The remote computer then sends this request message through the Internet to your router. 2. Your router receives the request message and looks in its rules table for any rules covering the disposition of incoming port 80 traffic. Your port forwarding rule specifies that incoming port 80 traffic should be forwarded to local IP address 192. Therefore, your router modifies the destination information in the request message: The destination address is replaced with 192. Your router then sends this request message to your local network. 123 receives the request and composes a return message with the requested web page data. Your web server then sends this reply message to your router. 4. Your router performs Network Address Translation (NAT) on the source IP address, and sends this request message through the Internet to the remote computer, which displays the web page from www.

To configure port forwarding, you need to know which inbound ports the application needs. You usually can determine this information by contacting the publisher of the application or the relevant user groups and newsgroups. How Port Forwarding Differs from Port Triggering The following points summarize the differences between port forwarding and port triggering: Security Settings 53 N600 Wireless Dual Band Gigabit ADSL2+ Modem Router DGND3700 â€¢ â€¢ â€¢ â€¢ â€¢ â€¢ Port triggering can be used by any computer on your network, although only one computer can use it at a time. Port forwarding is configured for a single computer on your network. Port triggering does not need to know the computerâ€™s IP address in advance. The IP address is captured automatically. Port forwarding requires that you specify the computerâ€™s IP address during configuration, and the IP address can never change. Port triggering requires specific outbound traffic to open the inbound ports, and the triggered ports are closed after a period of no activity. Port forwarding is always active and does not need to be triggered. Configure Port Forwarding to Local Servers Using the port forwarding feature, you can allow certain types of incoming traffic to reach servers on your local network.

For example, you might want to make a local web server, FTP server, or game server visible and available to the Internet. Use the Port Forwarding screen to configure the router to forward specific incoming protocols to computers on your local network. In addition to servers for specific applications, you can also specify a default DMZ server to which all other incoming protocols are forwarded. Before starting, you need to determine which type of service, application, or game you want to provide, and the local IP address of the computer that will provide the service.