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NETGEAR

N300 Wireless ADSL2+
Modem Router DGN2200M
Mobile Edition
User Manual



350 East Plumeria Drive
San Jose, CA 95134
USA

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Manual abstract:

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Installation Guide. After the initial configuration, you can log in to the wireless modem router to view or change its settings, and to access the Knowledge Base and documentation. Note: Your computer must be configured for DHCP. For help configuring DHCP, see the documentation that came with your computer, or click the link to the online document in Preparing Your Network in Appendix C. When you have logged in, if you do not click Logout, the wireless modem router waits for 5 minutes after no activity before it automatically logs you out.



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To log in to the wireless modem router: 1. Type <http://www.routerlogin.net> in the address field of your browser, and then press Enter. A login window displays: 2. Enter admin for the user name and your password (or the default, password). For information about how to change the password, see [Changing the Built-In Password on page 41](#). Note: If you changed your password and do not remember what it is, you can restore the wireless modem router to its factory settings. See [Factory Default Configuration on page 111, Chapter 1](#).

Internet Configuration \ 17 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual 3. If the router has not been configured, the Smart Wizard screen displays. After the router has been configured, one of the following screens appears: · Firmware Upgrade Assistant screen. After initial setup, the Firmware Upgrade Assistant screen displays unless the Check for Updated Firmware Upon Log-in check box is cleared. Note: You can disable this automatic checking and updating feature during future logins by clearing the Check for Updated Firmware Upon Log-in check box, but NETGEAR recommends that you keep this feature enabled to ensure your router is using the latest updated firmware. · Router Status screen. The Router Status screen displays the current router connection status. See [Router Status and Usage Statistics on page 55, 4](#). You can use different methods to configure your router. · Select Setup Wizard from the router menu to set up your Internet connection and wireless network configuration. See [Using the Setup Wizard after Installation on page 19](#). · You can manually configure the router settings. See [Manually Configuring Your Internet Settings on page 21, 18 \ Chapter 1, Internet Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Using the Setup Wizard after Installation The Setup Wizard can check your Internet connection for servers and protocols to determine your ISP configuration. You can also manually specify your Internet connection settings in the Basic Settings screen. Note: The Setup Wizard is also called the Configuration Assistant. To use the Setup Wizard: 1. From the top of the modem router main menu, select Setup Wizard.](#)

2. Click Next. The Setup Wizard prompts you to set up your Internet connection and wireless network as described in the [N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition Installation Guide](#). a. Select your Internet connection mode: · Use ADSL first and if fail use Mobile Broadband connection · Always use Mobile Broadband connection Always use ADSL connection b. Click Next. [Chapter 1. Internet Configuration \ 19 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual c. Select your country and then your Internet Service Provider information. d.](#)

Click Next. Note: When failover mode is selected, ADSL is configured first and then mobile broadband is configured second. 3. Depending on the type of connection, you are prompted to enter your ISP settings. · For PPPoE or PPPoA, enter the login user name and password. These fields are case-sensitive. · For a dynamic IP account setup, no entries are needed. For IP over ATM Classical IP assignment (RFC1577), enter the assigned IP address, subnet mask, and the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also. DNS servers translate an Internet name such as www.netgear.com to a numeric IP address. For help with a static IP address, see [Fixed IP \(Static\) Account Setup on page 20](#). · 4. At the end of the Setup Wizard, click Test to check your Internet connection.

If you have trouble connecting to the Internet, see [Chapter 7, Troubleshooting, Fixed IP \(Static\) Account Setup 1](#). If required, enter the account name and domain name from your ISP. 2. Select Use Static IP Address or Use IP Over ATM (IPoA -- RFC1483 Routed) according to the information from your ISP. If you select IPoA, the router will detect the gateway IP address, but you still need to provide the router IP address. 3. Enter your assigned IP address, subnet mask, and the IP address of your ISP's gateway wireless modem router. This information should have been provided to you by your ISP. 4. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also. DNS servers translate an Internet name such as www.netgear.com to a numeric IP address.

20 \ Chapter 1. Internet Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual [Manually Configuring Your Internet Settings](#) For you to connect to the network, an active broadband service account is required. Contact your ISP for your user name, password, and the network name. You must also configure some or all of the settings described in the following sections, depending on how you have chosen to connect to the Internet: · · Broadband Settings Basic ISP Settings on page 22 ADSL Settings on page 25 (not required if using Mobile Broadband connection only) Mobile Broadband Settings on page 26 (not required if using ADSL connection only) Broadband Settings To manually configure your broadband Internet settings: 1. Log in to the router as described in [Logging In to Your Wireless-N Modem Router on page 17](#). 2. From the main menu, select Broadband Settings. 3. Adjust the settings as needed based on your Internet connection. The fields in this screen are described in [Table 2](#).

4. The following buttons are available: · Apply. Apply the changes that you made. · Cancel. Discard changes.

[Chapter 1. Internet Configuration \ 21 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Table 2. Broadband Settings Fields and Check Boxes Internet Connection Mode Description](#) The choices are: · Use ADSL first and if fail use Mobile Broadband connection · Always use Mobile Broadband connection · Always use ADSL connection Select the failover method and enter the related information: · DNS lookup using WAN DNS Server · Perform a DNS lookup by a hostname · Ping this IP address Enter the retry interval. Enter how many retry attempts to make before failing over. Enter how long to wait for primary link is stabilized before resuming to use the primary link.

Enter when to failover when the Ethernet link is dropped. This is independent of the DNS / Ping detection methods. Failover Detection Method1 Retry Interval is1 Failover after1 Resume after1 Enable Hardware link detection 1. This field is available only when the Internet Connection Mode is Use Ethernet first and if fail use 3G mobile connection. Basic ISP Settings To view or configure the basic settings: 1. Select Basic Settings from the router menu. 2. Select Yes or No depending on whether your ISP requires a login. This selection changes the fields available on the Basic Settings screen.



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Internet Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual ISP does not require login ISP does require login · · Yes. If your ISP requires a login, select this radio button. No. If your ISP does not require a login, enter the account name, if required, and the domain name, if required. 3. Enter the settings for the IP address and DNS server. If you enter or change a DNS address, restart the computers on your network so that these settings take effect. 4. If no login is required, you can specify the MAC Address setting. 5.

Click Apply to save your settings. 6. Click Test to test your Internet connection. If the NETGEAR website does not appear within 1 minute, see Troubleshooting the Internet Connection on page 103. When your Internet connection is working, you do not 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. Table 3. Basic Settings Screen Fields Settings Does Your ISP Require a Login? Description · Yes · No Chapter 1. Internet Configuration \ 23 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Table 3. Basic Settings Screen Fields (Continued) Settings Description These fields Account Name Enter the account name provided by your ISP. This might also be called the appear only if no (If required) host name. login is required. Domain Name Enter the domain name provided by your ISP. (If required) Login These fields appear only if Password your ISP requires a login. Service Name Connection Mode Idle Timeout (In minutes) The login name provided by your ISP. This is often an e-mail address. The password that you use to log in to your ISP. If your ISP provided a service name, enter it here. Select the connection mode: Always on, Dial on Demand, or Manually Connect. If you want to change the Internet login time-out, 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. Entering an Idle Timeout value of 0 (zero) means never log out. · Get Dynamically from ISP. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses. · Use Static IP Address. Enter the IP address that your ISP assigned. Also enter the IP subnet mask and the gateway IP address. The gateway is the ISP's wireless modem router to which your wireless modem router will connect. · Use IP Over ATM (PoA).

This option is available only if your ISP does not require a log in. The DNS server is used to look up site addresses based on their names. · Get Automatically from ISP. Your ISP uses DHCP to assign your DNS server address automatically. · Use These DNS Servers.

If you know 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 ISP's primary DNS server. If a secondary DNS server address is available, enter it also. Internet IP Address Domain Name Server (DNS) Address 24 | Chapter 1. Internet Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Table 3. Basic Settings Screen Fields (Continued) Settings NAT (Network Address Translation) Description NAT automatically assigns private IP addresses (10.

1.1.x) to devices on your LAN. · Enable. Usually NAT is enabled. · Disable. This disables NAT, but leaves the firewall active. Disable NAT only if you are sure that you do not require 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 Your computer's local address is its unique address on your network. This is also referred to as the computer's MAC (Media Access Control) address. · Use Default MAC Address. This is the usual setting. · Use Computer MAC address. If your ISP requires MAC authentication, you can use this setting to disguise the wireless modem router's MAC address with the computer's own MAC address. · Use This MAC Address. If your ISP requires MAC authentication, you can manually type the MAC address for a different computer. The format for the MAC address is XX:XX:XX:XX:XX:XX.

This field appears only if your ISP does not require a login. 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 install 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 NETGEAR recommends that you use the Setup Wizard to automatically detect and configure your ADSL settings.

This usually works fine. However, if you have technical experience and are sure of the multiplexing method and virtual circuit number for the virtual path identifier (VPI) and virtual channel identifier (VCI), you can specify those settings here. Note: Use the Setup Wizard to select the correct country to optimize detection of the ADSL settings. To manually specify ADSL settings: If your ISP provided you with a multiplexing method or VPI/VCI number, then enter the setting: 1. From the main menu, select ADSL Settings and the ADSL Settings screen displays.

Chapter 1. Internet Configuration \ 25 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual 2. In the Multiplexing Method drop-down list, select LLC-based or VC-based. 3. For the VPI, type a number between 0 and 255. The default is 8. 4. For the VCI, type a number between 32 and 65535. The default is 35. 5.

Click Apply. Mobile Broadband Settings To manually configure your mobile broadband Internet settings: 1. Log in to the router as described in Logging In to Your Wireless-N Modem Router on page 17. 2. From the main menu, select Mobile Broadband Settings. 3. Adjust the settings as needed based on your Internet connection. The fields in this screen depend on the network and are described in Table 4. 4. The following buttons are available: · Connect. Manually connect to the network. · · · Disconnect. Disconnect from the current network. Apply. Apply the changes that you made.

Cancel. Discard changes. 26 | Chapter 1. Internet Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual · Refresh. Update the connection status.

Table 4. Mobile Broadband Settings Fields Fields and Check Boxes User Name Password Country Internet Service Provider Access Number PIN code APN PDP type Description Internet account login user name. Internet account password for authentication. Select your country from the drop-down list. Select your Internet Service Provider from the drop-down list.



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The remote site's phone number. Pin code of the SIM card, where applicable. Access point name. Select the type of packet data protocol: · IP · PDP-IP · PPP · PPP-IP When this check box is selected, the modem automatically connects to the network when powered up. This should be selected after login information is provided.

When this check box is selected, the modem will attempt to reconnect to the network when the connection is lost. Under normal situations, this setting should be selected. When this check box is checked, the unit might roam to any available operator in range and might incur roaming charges. Select the option to determine the behavior of the WPS push button on the front panel when pressed. · Control Wi-Fi Only: Pressing the push button toggles the Wi-Fi function. If Wi-Fi is turned on, pressing the push button turns off the Wi-Fi. Pressing it again will turn on the Wi-Fi. This function is available only if the Wi-Fi function is enabled. The Wireless Broadband function is unaffected. · Control Both Wi-Fi and Wireless Broadband: Pressing the push button toggles both the Wi-Fi function and wireless broadband at the same time.

If Wi-Fi is turned on, pressing the push button turns off the Wi-Fi. At the same time, the wireless broadband connection is disconnected. If you press the push button again, Wi-Fi is turned on and the router attempts to re-establish the wireless broadband connection. Depending on the coverage, wireless broadband coverage might or might not be connected successfully. Current WAN port status.

Connect automatically at startup Reconnect automatically when connection is lost Roaming automatically Wireless Button Configuration Connection status 1. These fields and check boxes depend on the network. Chapter 1. Internet Configuration | 27 2. Wireless Network Configuration 2 For a wireless connection, the SSID, also called the wireless network name, and the wireless security settings must be the same for the wireless modem router and wireless computers or wireless adapters.

NETGEAR strongly recommends that you use wireless security. Note: Computers can connect wirelessly at a range of several hundred feet. If you do not use wireless security, this can allow others outside your immediate area to access your network. Planning Your Wireless Network For compliance and compatibility between similar products in your area, the operating channel and region must be set correctly. To configure the wireless network, you can either specify the wireless settings, or you can use Wi-Fi Protected Setup (WPS) to automatically set the SSID and implement WPA/WPA2 security. · To manually configure the wireless settings, you must know the following: SSID. The default SSID for the wireless modem router is NETGEAR-3G. The wireless mode (80.211n, 802.11g, or 802.

11b) that each wireless adapter supports. Wireless security option. To successfully implement wireless security, check each wireless adapter to determine which wireless security option it supports. See Manually Configuring Your Wireless Settings on page 30. · Push 'N' Connect (WPS) implements WPA/WPA2 wireless security on the wireless modem router and your wireless computer or device at the same time. The wireless computer or device must be compatible with WPS. See Using Push 'N' Connect (WPS) to Configure Your Wireless Network on page 35. Chapter 2. Wireless Network Configuration | 28 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Wireless Placement and Range Guidelines The range of your wireless connection can vary significantly based on the physical placement of the wireless modem router. The latency, data throughput performance, and notebook power consumption of wireless adapters also vary depending on your configuration choices.

For best results, place your wireless modem router according to the following guidelines: · · · · · Near the center of the area in which your PCs will operate. In an elevated location such as a high shelf where the wirelessly connected PCs have line-of-sight access (even if through walls). Away from sources of interference, such as PCs, microwave ovens, and 2.4 GHz cordless phones. Away from large metal surfaces.

Put the antenna in a vertical position to provide the best side-to-side coverage. Put the antenna in a horizontal position to provide the best up-and-down coverage. If using 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 5 channels (for example, use Channels 1 and 6, or 6 and 11). The time it takes to establish a wireless connection can vary depending on both your security settings and placement.

WEP connections can take slightly longer to establish. Also, WEP encryption can consume more battery power on a notebook computer. Wireless Security Options Indoors, computers can connect over 802.11g wireless networks at a maximum range of up to 300 feet. Such distances can allow for others outside your immediate area to access your network. Unlike wired network data, your wireless data transmissions can extend beyond your walls and can be received by anyone with a compatible adapter. For this reason, use the security features of your wireless equipment. The N300 Wireless ADSL2+ Modem Router provides highly effective security features, which are covered in detail in this chapter. Deploy the security features appropriate to your needs. There are several ways you can enhance the security of your wireless network: · Restrict access based on MAC address.

You can allow only trusted PCs to connect so that unknown PCs cannot wirelessly connect to the wireless modem router. Restricting access by MAC address adds an obstacle against unwanted access to your network, but the data broadcast over the wireless link is fully exposed. Turn off the broadcast of the wireless network name (SSID). If you disable broadcast of the SSID, only devices that have the correct SSID can connect. This nullifies wireless network discovery feature of some products, such as Windows XP, but the data is still exposed. WEP. Wired Equivalent Privacy (WEP) data encryption provides data security. WEP Shared Key authentication and WEP data encryption block all but the most determined · · Chapter 2. Wireless Network Configuration | 29 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual eavesdropper. This data encryption mode has been superseded by WPA-PSK and WPA2-PSK.

· · WPA-802.1x, WPA2-802.1x. Wi-Fi Protected Access (WPA) with user authentication implemented using IEEE 802.1x and RADIUS servers. WPA-PSK (TKIP), WPA2-PSK (AES). Wi-Fi Protected Access (WPA) using a pre-shared key to perform authentication and generate the initial data encryption keys. The very strong authentication along with dynamic per frame re-keying of WPA makes it virtually impossible to compromise.



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For more information about wireless technology, click the link to the online document in *Wireless Networking Basics* in Appendix C. *Manually Configuring Your Wireless Settings* Note: If you use a wireless computer to change the wireless network name (SSID) or wireless security, you will be disconnected when you click Apply.

To avoid this problem, connect your computer to the router with an Ethernet cable while you are making changes. To view or manually configure the wireless settings: 1. Log in to the wireless modem router as described in *Logging In to Your Wireless-N Modem Router* on page 17. 2. Select *Wireless Settings* from the main menu: The settings for this screen are explained in Table 5. 30 | Chapter 2. *Wireless Network Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* 3. Select the region in which the wireless modem router will operate. 4. For initial configuration and test, leave the other settings unchanged.

5. To save your changes, click Apply. 6. Configure and test your computers for wireless connectivity. Set up your wireless computers with the same SSID and wireless security settings as your wireless modem router. Check that they have a wireless link and are able to obtain an IP address by DHCP from the wireless modem router. If there is interference, adjust the channel. Table 5. *Wireless Settings Settings Wireless Network Name (SSID) Description* The SSID is also known as the wireless network name. Enter a 32-character (maximum) name in this field.

This field is case-sensitive. When there is more than one wireless network, SSIDs provide a means for separating the traffic. To join a network, a wireless computer or device must use the SSID. The location where the wireless modem router is used. The wireless channel: 1 through 13.

This setting applies to any guest networks you set up. Do not change the channel unless you experience interference (shown by lost connections or slow data transfers). If this happens, you might need to try different channels to see which is best. The number of available channels varies by region and depends on the selected mode. · For Up to 145 Mbps mode, the default channel is 11.

· For Up to 300 Mbps mode, the default channel is 7. Region Channel · Up to 300Mbps: This is the fastest mode, and is compatible with all Mode 802.11g, 802.11b, and faster Draft-N wireless stations. The channel The mode can be set bandwidth expands from 20 MHz to 40 MHz to achieve the 300 Mbps only for the primary rate. Channel expansion operates on a frame-by-frame basis to avoid wireless LAN interference with transmissions from other wireless networks. Two (NETGEAR) channels are used, but only the first is listed in the Channel field. The associated channels are: 1+5, 2+6, 3+7, 4+8, 5+9, 6+10, and 7+11.

· Up to 145Mbps (default setting): Allows wireless stations that support speeds up to 134 Mbps.

The router transmits two streams with different data concurrently on the same channel. This mode restricts channel bandwidth to minimize interference with the transmissions of other wireless networks. · Up to 54 Mbps: Allows wireless stations that support speeds up to 54 Mbps. Chapter 2. *Wireless Network Configuration* | 31 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* Table 5. *Wireless Settings (Continued) Settings Security Options None Description* You can use this setting to establish wireless connectivity before implementing wireless security. NETGEAR strongly recommends that you implement wireless security. Use encryption keys and data encryption for data security. You can select 64-bit or 128-bit encryption. See *Configuring WEP* on page 32.

Allow only computers configured with WPA to connect to the wireless modem router. See *Configuring WPA, WPA2, or WPA + WPA2* on page 34. Allow only computers configured with WPA2 to connect to the wireless modem router. See *Configuring WPA, WPA2, or WPA + WPA2* on page 34. Allow computers configured with either WPA-PSK or WPA2-PSK security to connect to the wireless modem router.

See *Configuring WPA, WPA2, or WPA + WPA2* on page 34. WEP WPA-PSK (TKIP) WPA2-PSK (AES) WPA-PSK (TKIP) + WPA2-PSK (AES) *Configuring WEP* Note: If you use a wireless computer to configure wireless security settings, you will be disconnected when you click Apply. Reconfigure your wireless computer to match the new settings, or access the wireless modem router from a wired computer to make further changes. To configure WEP data encryption:

1. Log in to the wireless modem router as described in *Logging In to Your Wireless-N Modem Router* on page 17.

2. From the main menu, select *Wireless Settings* to display the *Wireless Settings* screen. 3. In the *Security Options* section, select the *WEP* radio button: 32 | Chapter 2. *Wireless Network Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* 4. Select the *Authentication Type*: Automatic, Open System, or Shared Key. The default is Open System. Note: The authentication is separate from the data encryption. You can select authentication that requires a shared key, but still leaves data transmissions unencrypted. Security is stronger if you use both the Shared Key and WEP encryption settings.

5. Select the *Encryption Strength* setting: · WEP 64-bit encryption. Enter 10 hexadecimal digits (any combination of 09, af, or AF). · WEP 128-bit encryption. Enter 26 hexadecimal digits (any combination of 09, af, or AF). 6. Enter the encryption keys. You can manually or automatically program the four data encryption keys. These values must be identical on all computers and access points in your network: · Passphrase. To use a passphrase to generate the keys, enter a passphrase, and click *Generate*.

This automatically creates the keys. Wireless stations must use the passphrase or keys to access the wireless modem router. Note: Not all wireless adapters support passphrase key generation. · Key 1Key4. These values are not case-sensitive.

You can manually enter the four data encryption keys. These values must be identical on all computers and access points in your network. Enter 10 hexadecimal digits (any combination of 09, af, or AF). 7. Select which of the four keys will be the default.

Chapter 2. *Wireless Network Configuration* | 33 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* Data transmissions are always encrypted using the default key. The other keys can be used only to decrypt received data. The four entries are disabled if WPA-PSK or WPA authentication is selected. 8. Click *Apply* to save your settings. *Configuring WPA, WPA2, or WPA + WPA2* Both WPA and WPA2 provide strong data security. WPA with TKIP is a software implementation that can be used on Windows systems with Service Pack 2 or later, WPA2 with AES is a hardware implementation; see your device documentation before implementing it.



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Consult the product documentation for your wireless adapter for instructions for configuring WPA settings. Note: If you use a wireless computer to configure wireless security settings, you will be disconnected when you click Apply.

If this happens, reconfigure your wireless computer to match the new settings, or access the wireless modem router from a wired computer to make further changes. To configure WPA or WPA2 in the wireless modem router: 1. Log in to the wireless modem router as described in Logging In to Your Wireless-N Modem Router on page 17. 2. Select Wireless Settings from the main menu. 3. On the Wireless Setting screen, select the radio button for the WPA or WPA2 option of your choice. 4. The settings displayed on the screen depend on which security option you select. 5.

For WPA-PSK or WPA2-PSK, enter the passphrase. 6. If prompted, enter the settings for the Radius server. For WPA-802.1x or WPA2-802.1x, these settings are required for communication with the primary Radius server. · Primary Radius Server IP Address. The IP address of the RADIUS server. The default is 0.0. · Radius Port. Port number of the RADIUS server. The default is 1812. Shared Key. This is shared between the wireless access point and the RADIUS server during authentication. 7. To save your settings, click Apply. 34 | Chapter 2.

Wireless Network Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Using Push 'N' Connect (WPS) to Configure Your Wireless Network For you to use Push 'N' Connect, your wireless computers or devices must support Wi-Fi Protected Setup (WPS). Compatible equipment usually has the WPS symbol on it. WPS can configure the network name (SSID) and set up WPA/WPA2 wireless security for the wireless modem router and the wireless computer or device at the same time. Some considerations regarding WPS are: · NETGEAR's Push 'N' Connect feature is based on the WPS standard. All other Wi-Fi-certified and WPS-capable products should be compatible with NETGEAR products that implement Push 'N' Connect. If your wireless network will include a combination of WPS-capable devices and non-WPS-capable devices, NETGEAR suggests that you set up your wireless network and security settings manually first, and use WPS only for adding WPS-capable devices. · You can connect to the network using WPS either with a push button or a PIN. · Push Button. This is the preferred method. See the following section, WPS Button . Entering a PIN. See WPS PIN Entry on page 36. WPS Button Any wireless computer or wireless adapter that will connect to the wireless modem router wirelessly is a client. The client must support a WPS button, and must have a WPS configuration utility, such as the NETGEAR Smart Wizard or Atheros Jumpstart. To use the wireless modem router WPS button to add a WPS client: 1.

Log in to the wireless modem router as described in Logging In to Your Wireless-N Modem Router on page 17. 2. On the wireless modem router main menu, select Add a WPS Client, and then click Next. WPS button By default, the Push Button (recommended) radio button is selected. 3. Either click the onscreen button or press the WPS button on the front of the wireless modem router. The wireless modem router tries to communicate with the client (the computer that wants to join the network) for 2 minutes. Chapter 2. Wireless Network Configuration | 35 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual 4. Go to the client wireless computer, and run a WPS configuration utility. Follow the utility's instructions to click a WPS button. 5. Go back to the wireless modem router screen to check for a message. The wireless modem router WPS screen displays a message confirming that the client was added to the wireless network. The wireless modem router generates an SSID, and implements WPA/WPA2 wireless security.

The wireless modem router keeps these wireless settings unless you change them, or you clear the Keep Existing Wireless Settings check box in the WPS Settings screen. 6. Note the new SSID and WPA/WPA2 password for the wireless network. You can view these settings in the Wireless Settings screen. See Manually Configuring Your Wireless Settings on page 30. To access the Internet from any computer connected to your wireless modem router, launch a browser such as Microsoft Internet Explorer or Mozilla Firefox. You should see the wireless modem router's Internet LED blink, indicating communication to the ISP. Note: If no WPS-capable client devices are located during the 2-minute time frame, the SSID does not change, and no security is implemented on the wireless modem router. WPS PIN Entry Any wireless computer or device that will connect to the wireless modem router wirelessly is a client. The client must support a WPS PIN, and must have a WPS configuration utility, such as the NETGEAR Smart Wizard or Atheros Jumpstart.

The first time you add a WPS client, make sure that the Keep Existing Wireless Settings check box on the WPS Settings screen is cleared. This is the default setting for the wireless modem router, and allows it to generate the SSID and WPA/WPA2 security settings when it implements WPS. After WPS is implemented, the wireless modem router automatically selects this check box so that your SSID and wireless security settings stay the same if other WPS devices are added later. To use a PIN to add a WPS client: 1. Log in to the wireless modem router as described in Logging In to Your Wireless-N Modem Router on page 17.

36 | Chapter 2. Wireless Network Configuration N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual 2. On the wireless modem router main menu, select Add a WPS Client (computers that will connect wirelessly to the wireless modem router are clients), and then click Next. The Add WPS Client screen displays: 3. Select the PIN Number radio button. 4. Go to the client wireless computer. Run a WPS configuration utility. Follow the utility's instructions to generate a PIN. Take note of the client PIN. 5. From the wireless modem router Add WPS Client screen, enter the client PIN number, and click Next. · The wireless modem router tries to communicate with the client for 4 minutes. · The wireless modem router WPS screen confirms that the client was added to the wireless network. The wireless modem router generates an SSID, and implements WPA/WPA2 wireless security.

If the client is not added during the 2-minute time frame, the router wireless settings remain unchanged. · 6. Note the new SSID and WPA/WPA2 password for the wireless network. You can view these settings in the Wireless Settings screen. See Manually Configuring Your Wireless Settings on page 30. To access the Internet from any computer connected to your wireless modem router, launch an Internet browser. You should see the wireless modem router's Internet LED blink, indicating communication to the ISP.



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Adding Wireless Computers That Do Not Support WPS If you set up your network with WPS, and now you want to add a computer that does not support WPS, you must manually configure that computer. For information about how to view the wireless settings for the router, see *Manually Configuring Your Wireless Settings* on page 30. Because WPA randomly creates the SSID and WPA/WPA2 keys, they might be difficult to type or remember (that is one reason why the network is so secure).

You can change the wireless settings so that they are easier for you to remember. If you do that, then you will need to set up the WPS-compatible computers again. Chapter 2. *Wireless Network Configuration* | 37 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* Changing wireless settings for the network: Note: Making these changes will cause all wireless computers to be disconnected from network. You will then have to set them up with the new wireless settings.

1. Use an Ethernet cable to connect a computer to the router. That way you will not get disconnected when you change the wireless settings. 2. Log in to the router and select *Wireless Settings* (see *Manually Configuring Your Wireless Settings* on page 30).

3. Make the following changes: · Change the wireless network name (SSID) to a meaningful name. · On the WPA/PSK + WPA2/PSK screen, select a passphrase. Make sure that the *Keep Wireless Settings* check box is selected in the WPS Settings screen so that your new settings will not be erased if you use WPS. 4. Click *Apply* so that your changes take effect. Write down your settings. All wireless clients are disassociated and disconnected from the wireless modem router. 5. For the non-WPS devices that you want to connect, open the networking utility and follow the utility's instructions to enter the security settings that you selected in Step 3 (the SSID, WPA/PSK + WPA2/PSK security method, and passphrase).

6. For the WPS devices that you want to connect, follow the procedure in *WPS Button* on page 35 or *WPS PIN Entry* on page 36. The settings that you configured in Step 3 are broadcast to the WPS devices so that they can connect to the wireless modem router. *Wireless Guest Networks* A wireless guest network allows you to provide guests access to your wireless network without prior authorization of each individual guest. You can configure wireless guest networks and specify the security options for each wireless guest network. To configure a wireless guest network: 1. In the main menu, under *Setup*, select *Wireless Settings*. 38 | Chapter 2. *Wireless Network Configuration* | 39 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* 2. Select the radio button for the network profile that you want to set up.

3. You can specify whether the SSID broadcast is enabled, and whether you want to allow the guest to access your local network. You can also change the SSID. · NETGEAR strongly recommends that you change the SSID to a different name. Note that the SSID is case-sensitive. For example, *GuestNetwork* is not the same as *Guestnetwork*. · Wireless security is disabled by default. NETGEAR strongly recommends that you implement wireless security for the guest network. 4. To configure wireless security for the guest network, enter the security options.

For more information, see *Wireless Guest Networks* on page 38. When you have finished making changes, click *Apply*. Chapter 2. *Wireless Network Configuration* | 39 3. *Protecting Your Network* 3 This chapter describes how to use the basic firewall features of the wireless modem router to protect your network. The chapter includes: · · · · *Protecting Access to Your Wireless-N Modem Router* *Blocking Keywords, Sites, and Services* on page 41 *Setting Times and Scheduling Firewall Services* on page 44 *Enabling Security Event Email Notification* on page 48 *Live Parental Controls* on page 49 *Protecting Access to Your Wireless-N Modem Router* For security reasons, the wireless modem router has its own user name and password. Also, after a period of inactivity for a set length of time, the login automatically disconnects. You can use the following procedures to change the wireless modem router's password and the period for the administrator's login time-out. Note: The user name and password are not the same as any other user name or password you might use to log in to your Internet connection. NETGEAR recommends that you change this password to a more secure password.

The ideal password should contain no dictionary words from any language, and should be a mixture of both upper case and lower case letters, numbers, and symbols. Your password can be up to 30 characters. Chapter 3. *Protecting Your Network* | 40 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* Changing the Built-In Password 1. In the main menu, under *Maintenance*, select *Set Password*. 2. To change the password, first enter the old password, and then enter the new password twice. 3. Click *Apply* to save your changes. Note: 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.

Changing the Administrator Login Time-Out For security, the administrator's login to the wireless modem router configuration times out after a period of inactivity. To change the login time-out period: 1. In the *Set Password* screen, type a number in the *Administrator login times out* field. The suggested default value is 5 minutes.

2. Click *Apply* to save your changes, or click *Cancel* to keep the current period. *Blocking Keywords, Sites, and Services* The wireless modem router provides a variety of options for blocking Internet-based content and communications services. With its content filtering feature, the wireless modem router prevents objectionable content from reaching your PCs. The wireless modem router allows you to control access to Internet content by screening for keywords within Web addresses.

Key content filtering options include: · *Keyword blocking of HTTP traffic*. Chapter 3. *Protecting Your Network* | 41 *N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual* · · · *Outbound service blocking*. Limits access from your LAN to Internet locations or services that you specify as off-limits. *Denial of service (DoS) protection*. Automatically detects and thwarts denial of service (DoS) attacks such as *Ping of Death*, *SYN flood*, *LAND Attack*, and *IP spoofing*. *Blocking unwanted traffic from the Internet to your LAN*. *Blocking Sites* To block keywords and sites: 1. In the main menu, under *Content Filtering*, select *Block Sites*: . 2.

To enable keyword blocking, select one of the following: · *Per Schedule*. Turn on keyword blocking according to the settings in the *Schedule* screen.



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· Always. Turn on keyword blocking all the time, independent of the Schedule screen. 3. Enter a keyword or domain in the Keyword field, click Add Keyword, and then click Apply. Some examples of keyword application follow: · · · If the keyword XXX is specified, the URL http://www.badstuff.com/xxx.html is blocked.

If the keyword .com is specified, only websites with other domain suffixes (such as .edu or .gov) can be viewed. Enter a period (.) to block all Internet browsing access. Up to 32 entries are supported in the Keyword list. 4. To delete a keyword or domain, select it from the list, click Delete Keyword, and then click Apply. 5.

To specify a trusted user, enter that computer's IP address in the Trusted IP Address field, and click Apply. 42 | Chapter 3. Protecting Your Network N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual You can specify one trusted user, which is a computer that will be exempt from blocking and logging. Since the trusted user will be identified by an IP address, you should configure that computer with a fixed IP address. 6. Click Apply to save your settings. Blocking Services 1. In the main menu, under Content Filtering, select Block Services. . 2.

Select one of the following: · Per Schedule. Turn on keyword blocking according to the settings in the Schedule screen. · Always. Turn on keyword blocking all the time, independent of the Schedule screen. 3. Click Add and the following screen displays: 4. Either select a service from the Service Type drop-down list, or select User Defined to create a custom service. 5. Click Add to create the service, and the Service is listed in the Service Table: Chapter 3. Protecting Your Network | 43 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual 6.

Click Apply to save your settings. Setting Times and Scheduling Firewall Services The wireless modem router uses the Network Time Protocol (NTP) to obtain the current time and date from one of several network time servers on the Internet. On the router menu, select Schedule under Security to display the Security screen: 44 | Chapter 3. Protecting Your Network N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Setting Your Time Zone

To localize the time for your log entries, you must specify your time zone: 1. In the Schedule screen, select your time zone.

This setting is used for the blocking schedule according to your local time zone and for time-stamping log entries. 2. If your time zone is currently in daylight savings time, select the Adjust for Daylight Savings Time check box. Note: If your region uses daylight savings time, you must manually select Adjust for Daylight Savings Time on the first day of daylight savings time, and clear it at the end. Enabling daylight savings time causes one hour to be added to the standard time.

3. The wireless modem router has a list of NETGEAR NTP servers. If you would prefer to use a particular NTP server as the primary server, select the Use this NTP Server check box, and enter its IP address. 4. Click Apply to save your settings. Scheduling Firewall Services If you enabled services blocking in the Block Services screen or port forwarding in the Ports screen, you can set up a schedule for when blocking occurs or when access is not restricted. To block Internet services based on a schedule: 1. From the Schedule screen, select Every Day or select one or more days. 2. If you want to limit access completely for the selected days, select All Day.

Otherwise, to limit access during certain times for the selected days, or enter times in the Start Time and End Time fields. Note: Enter the values in 24-hour time format. For example, 10:30 a.m. would be 10 hours and 30 minutes, and 10:30 p.m. would be 22 hours and 30 minutes. If you set the start time after the end time, the schedule will be effective through midnight the next day. 3. Click Apply to save your changes.

Chapter 3. Protecting Your Network | 45 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Viewing, Selecting, and Saving Logged Information The wireless modem router logs security-related events such as denied incoming service requests, hacker probes, and administrator logins. If you enable content filtering in the Block Sites screen, the Logs screen show you when someone on your network tries to access a blocked site. If you enable e-mail notification, you will receive these logs in an e-mail message. To view the log, select Logs under Content Filtering.

A screen similar to the following displays: You can write the logs to a computer running a syslog program. To activate this feature, select Broadcast on LAN, or enter the IP address of the server where the syslog file will be written. Table 6. Security Log Entry Descriptions Field Date and time Description or action Source IP Source port and interface Description The date and time the log entry was recorded. The type of event and what action was taken, if any.

The IP address of the initiating device for this log entry. The service port number of the initiating device, and whether it originated from the LAN or WAN.

The name or IP address of the destination device or website. The service port number of the destination device, and whether it is on the LAN or WAN.

Destination Destination port and interface 46 | Chapter 3. Protecting Your Network N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Examples of Log Messages Following are examples of log messages. In all cases, the log entry shows the time stamp as day, year-month-date hour:minute:second. Activation and Administration Tue, 2006-05-21 18:48:39 - NETGEAR activated [This entry indicates a power-up or reboot with initial time entry.] Tue, 2006-05-21 18:55:00 - Administrator login successful-IP:192.168.

0.2 Thu, 2006-05-21 18:56:58 - Administrator logout - IP:192.168.0.2 [This entry shows an administrator logging in and out from IP address 192.168.0.2.] Tue, 2006-05-21 19:00:06 - Login screen timed out - IP:192.168.

0.2 [This entry shows a time-out of the administrator login.] Wed, 2006-05-22 22:00:19 - Log emailed [This entry shows when the log was e-mailed.]

Dropped Packets Wed, 2006-05-22 07:15:15 - TCP packet dropped - Source:64.12.

47.28,4787,WAN Destination:134.177.0.11,21,LAN - [Inbound Default rule match] Sun, 2006-05-22 12:50:33 - UDP packet dropped - Source:64.

12.47.28,10714,WAN Destination:134.177.0.11,6970,LAN - [Inbound Default rule match] Sun, 2006-05-22 21:02:53 - ICMP packet dropped

Source:64.12.47.28,0,WAN - Destination:134.177.

0.11,0,LAN match] - [Inbound Default rule [These entries show an inbound FTP (port 21) packet, a User Datagram Protocol (UDP) packet (port 6970), and an Internet Control Message Protocol (ICMP) packet (port 0) being dropped as a result of the default inbound rule, which states that all inbound packets are denied.] Chapter 3. Protecting Your Network | 47 N300 Wireless ADSL2+ Modem Router DGN2200M Mobile Edition User Manual Enabling Security Event Email Notification To receive logs and alerts by email, you must provide your email information in the E-mail screen and specify which alerts you would like to receive and how often.



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