D-Link®

Quick Installation Guide

DSL-224

Wireless VDSL2 Router with ASDL2+ Support

BEFORE YOU BEGIN

Delivery Package

- Router DSL-224
- Power adapter DC 12V/1A
- RJ-11 telephone cable
- Ethernet cable
- Splitter
- "***Quick Installation Guide***" (brochure).

If any of the items are missing, please contact your reseller.

The "***User Manual***" and "***Quick Installation Guide***" documents are available on D-Link website (see www.dlink.ru).

! **Using a power supply with a different voltage rating than the one included will cause damage and void the warranty for this product.**

Default Settings

IP address of wireless router	`192.168.1.1`
Username (login)	`admin`
Password	`admin`
Name of wireless network (SSID)	`DSL-224`
Network key (PSK)	see WPS PIN on the barcode label on the bottom panel of the device

System Requirements and Equipment

- A computer with any operating system that supports a web browser.
- A web browser to access the web-based interface of the router:
  - Apple Safari 8 and later
  - Google Chrome 48 and later
  - Microsoft Internet Explorer 10 and later
  - Microsoft Edge 20.10240 and later
  - Mozilla Firefox 44 and later
  - Opera 35 and later.
- A NIC (Ethernet or Wi-Fi adapter) to connect to the router.
- An 802.11b, g, or n Wi-Fi adapter to create a wireless network.

CONNECTING TO PC

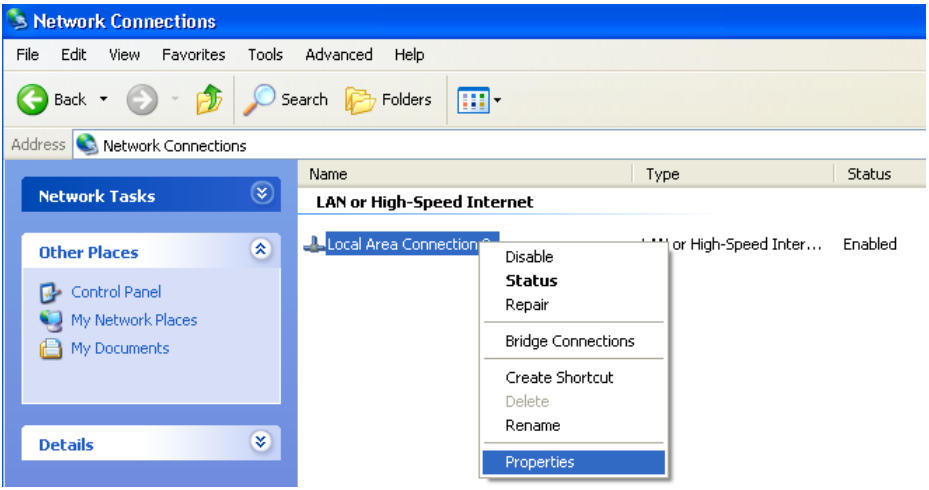
PC with Ethernet Adapter

1. Make sure that your PC is powered off.
2. Connect a phone cable between the DSL port of the router and the **MODEM** port of the splitter. Connect your phone to the **PHONE** port of the splitter. Then connect another phone cable between a phone jack and the **LINE** port of the splitter.
3. Connect the power cord to the power connector port on the back panel of the router, then plug the power adapter into an electrical outlet or power strip.
4. Turn on the router by pressing the **ON/OFF** button on its back panel.
5. Connect the router to your PC.
6. Connect an Ethernet cable between an available Ethernet port of the router and the Ethernet port of your PC.
7. Turn on your PC and wait until your operating system is completely loaded.

Now you should configure your PC to obtain an IP address automatically (as DHCP client).

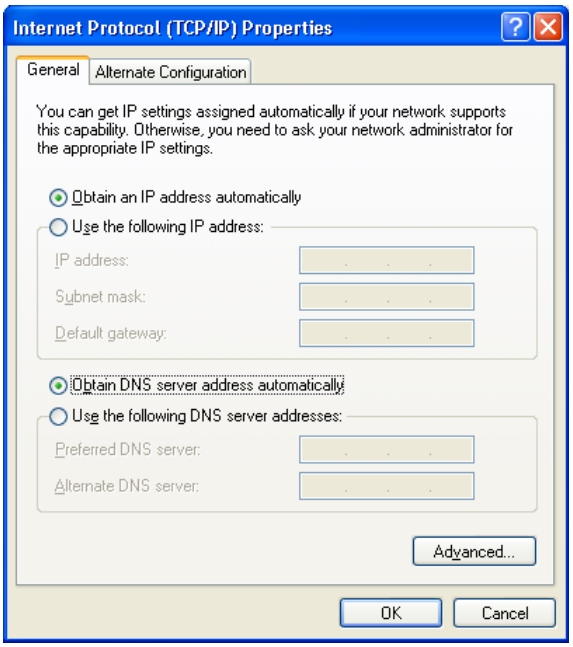
Obtaining IP Address Automatically in OS Windows XP

1. Click the **Start** button and proceed to the **Control Panel > Network and Internet Connections > Network Connections** window.
2. In the **Network Connections** window, right-click the relevant **Local Area Connection** icon and select the **Properties** line in the menu displayed.



3. In the **Local Area Connection Properties** window, on the **General** tab, select the **Internet Protocol (TCP/IP)** line. Click the **Properties** button.

4. Select the **Obtain an IP address automatically** and **Obtain DNS server address automatically** radio buttons. Click the **OK** button.

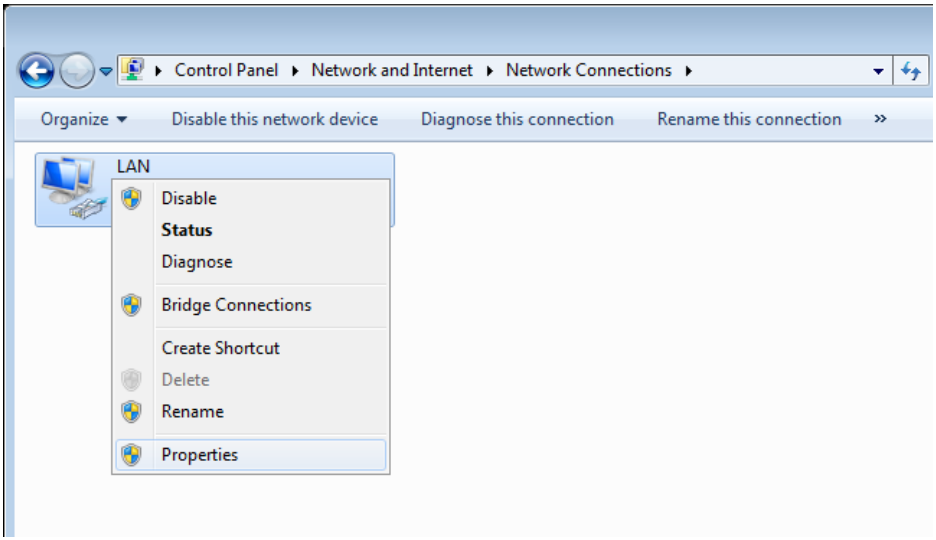


5. Click the **OK** button in the connection properties window.

Now your computer is configured to obtain an IP address automatically.

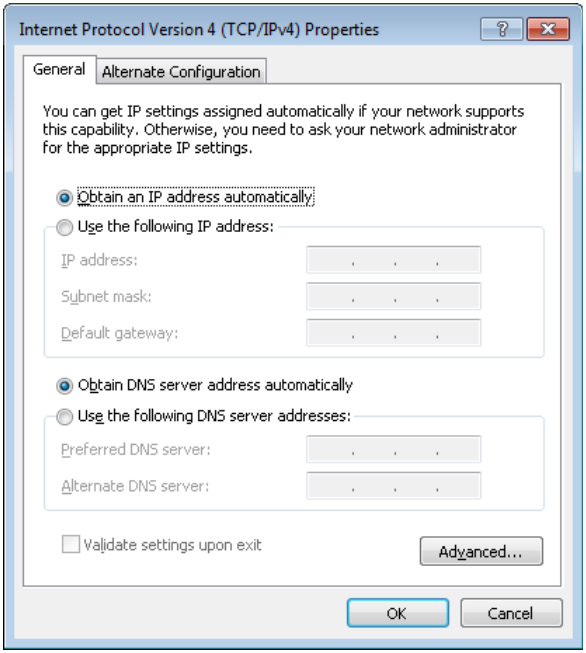
Obtaining IP Address Automatically in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.
2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)
3. In the menu located on the left part of the window, select the **Change adapter settings** line.
4. In the opened window, right-click the relevant **Local Area Connection** icon and select the **Properties** line in the menu displayed.



5. In the **Local Area Connection Properties** window, on the **Networking** tab, select the **Internet Protocol Version 4 (TCP/IPv4)** line. Click the **Properties** button.

6. Select the **Obtain an IP address automatically** and **Obtain DNS server address automatically** radio buttons. Click the **OK** button.



7. Click the **OK** button in the connection properties window.

Now your computer is configured to obtain an IP address automatically.

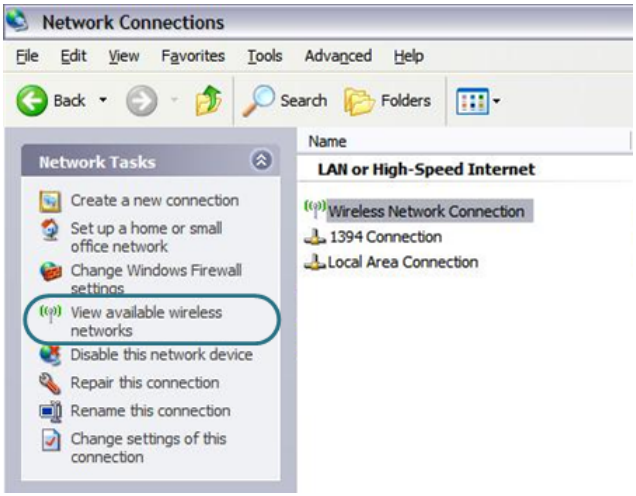
PC with Wi-Fi Adapter

1. Connect a phone cable between the DSL port of the router and the **MODEM** port of the splitter. Connect your phone to the **PHONE** port of the splitter. Then connect another phone cable between a phone jack and the **LINE** port of the splitter.
2. Connect the power cord to the power connector port on the back panel of the router, then plug the power adapter into an electrical outlet or power strip.
3. Turn on the router by pressing the **ON/OFF** button on its back panel.
4. Connect the router to your PC.
5. Turn on your PC and wait until your operating system is completely loaded.
6. Turn on your Wi-Fi adapter. As a rule, modern notebooks with built-in wireless NICs are equipped with a button or switch that turns on/off the wireless adapter (refer to your PC documents). If your PC is equipped with a pluggable wireless NIC, install the software provided with your Wi-Fi adapter.

Now you should configure your Wi-Fi adapter.

Configuring Wi-Fi Adapter in OS Windows XP

1. Click the **Start** button and proceed to the **Control Panel > Network and Internet Connections > Network Connections** window.
2. Select the icon of the wireless network connection and make sure that your Wi-Fi adapter is on.



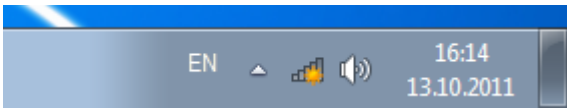
3. Search for available wireless networks.
4. In the opened **Wireless Network Connection** window, select the wireless network **DSL-224** and click the **Connect** button.
5. In the opened window, enter the network key (see WPS PIN on the barcode label on the bottom panel of the device) in the **Network key** and **Confirm network key** fields and click the **Connect** button.

After that the **Wireless Network Connection Status** window appears.

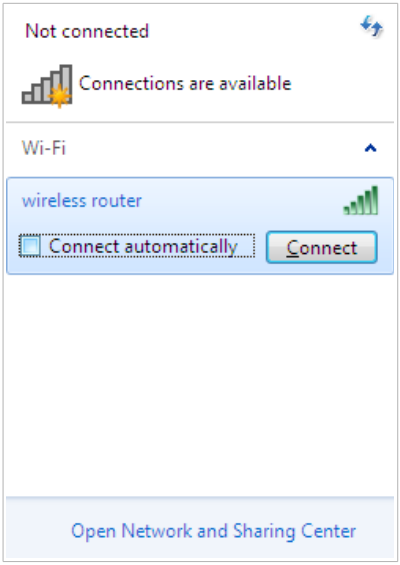
! If you perform initial configuration of the router via Wi-Fi connection, note that immediately after changing the wireless default settings of the router you will need to reconfigure the wireless connection using the newly specified settings.

Configuring Wi-Fi Adapter in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.
2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)
3. In the menu located on the left part of the window, select the **Change adapter settings** line.
4. In the opened window, select the icon of the wireless network connection and make sure that your Wi-Fi adapter is on.
5. To open the list of available wireless networks, select the icon of the wireless network connection and click the **Connect To** button or left-click the network icon in the notification area located on the right side of the taskbar.



6. In the opened window, in the list of available wireless networks, select the wireless network **DSL-224** and click the **Connect** button.



7. In the opened window, enter the network key (see WPS PIN on the barcode label on the bottom panel of the device) in the **Security key** field and click the **OK** button.
8. Wait for about 20-30 seconds. After the connection is established, the network icon will be displayed as the signal level scale.

! If you perform initial configuration of the router via Wi-Fi connection, note that immediately after changing the wireless default settings of the router you will need to reconfigure the wireless connection using the newly specified settings.

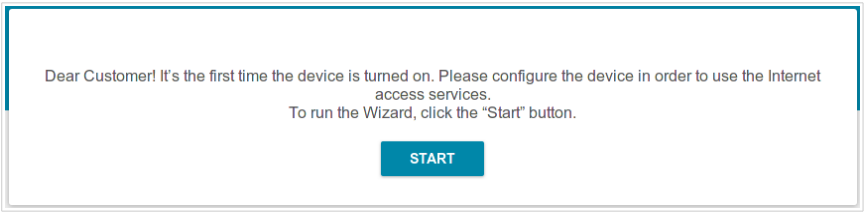
CONFIGURING ROUTER

Connecting to Web-based Interface

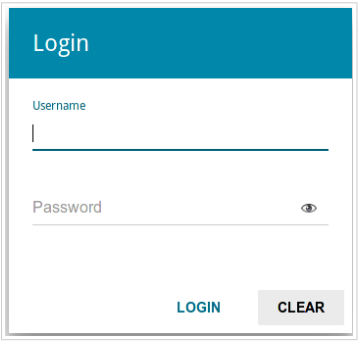
Start a web browser. In the address bar of the web browser, enter the IP address of the router (by default, the following IP address is specified: **192.168.1.1**). Press the **Enter** key.

! If the error "*The page cannot be displayed*" (or "*Unable to display the page*"/"*Could not connect to remote server*") occurs upon connecting to the web-based interface of the router, make sure that you have properly connected the router to your computer.

If the device has not been configured previously or the default settings have been restored, after access to the web-based interface the Initial Configuration Wizard opens (see the ***Initial Configuration Wizard*** section, page 18).

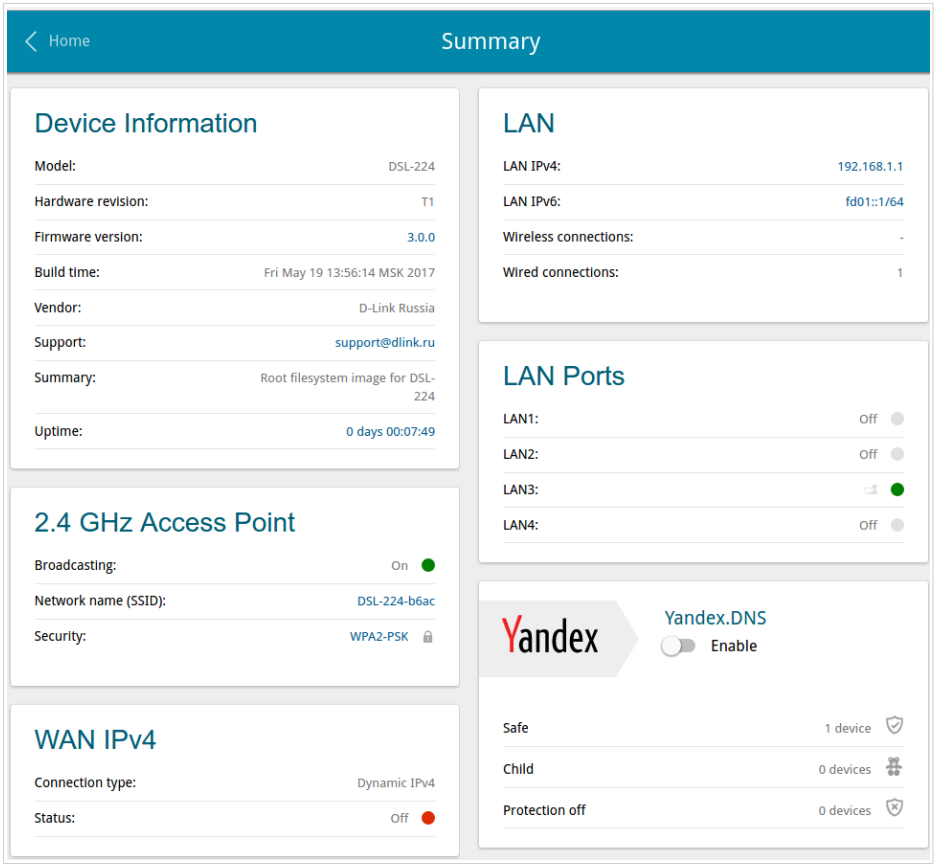


If you configured the device previously, after access to the web-based interface the login page opens. Enter the username (**admin**) in the **Username** field and the password you specified in the **Password** field, then click the **LOGIN** button.

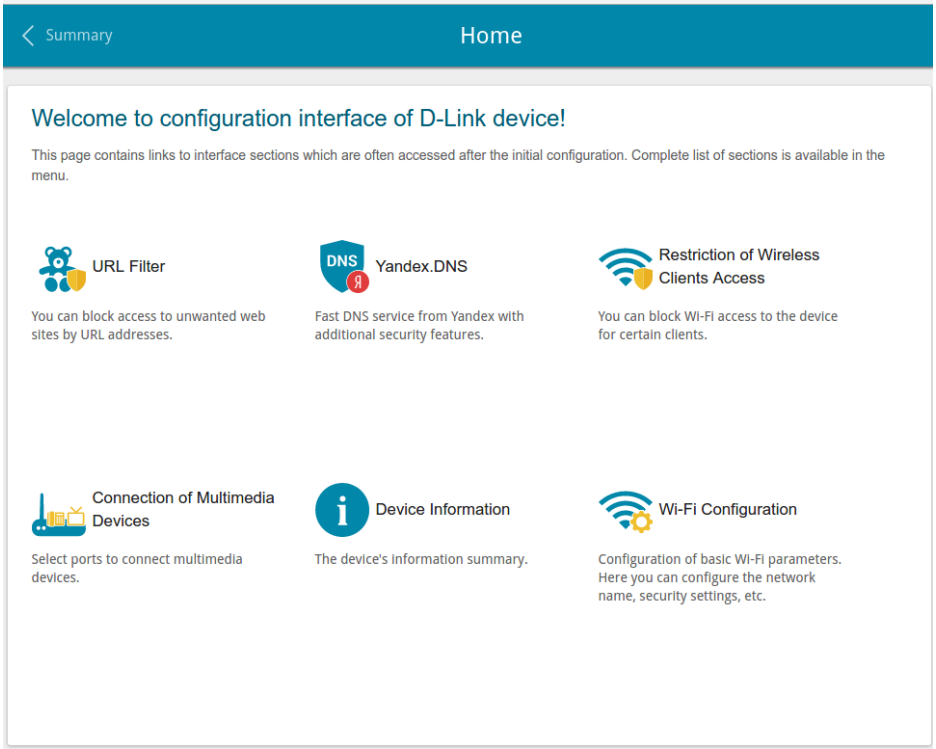


The web-based interface of the router is bilingual (English/Russian). You can select the needed language upon the initial configuration of the web-based interface of the router or in the **System / Configuration** section of the menu.

The **Summary** page displays general information on the router and its software.



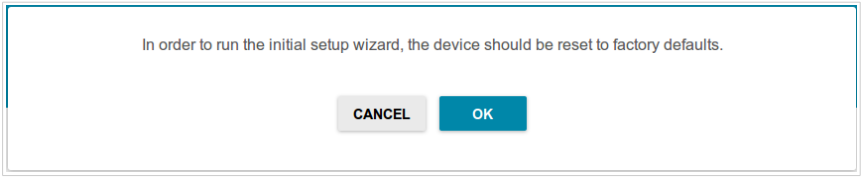
The **Home** page displays links to the most frequently used pages with device's settings.



Other settings of the router are available in the menu in the left part of the page. Go to the relevant section and select the needed page or run the wizard in the **Initial Configuration** section.

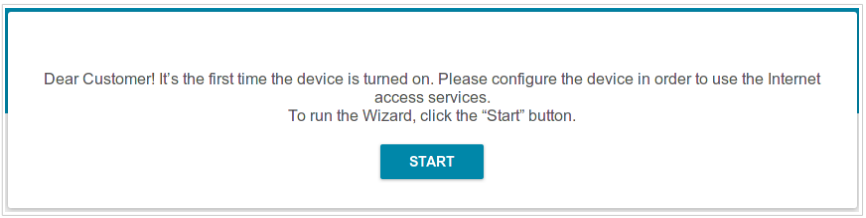
Initial Configuration Wizard

In order to start the Initial Configuration Wizard manually, go to the **Initial Configuration** section.

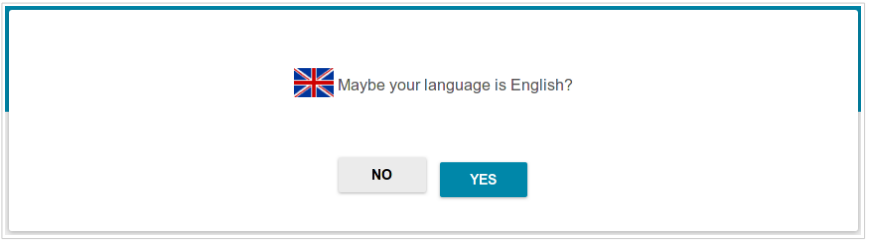


Click the **OK** button and wait until the factory default settings are restored. Then click the **START** button.

If the device has not been configured previously or the default settings have been restored, the Initial Configuration Wizard starts automatically upon access to the web-based interface or upon opening a web site on the Internet.



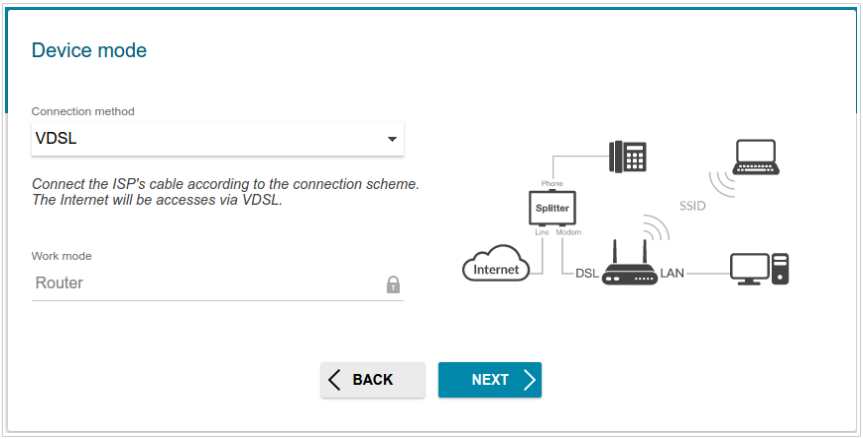
1. Click **YES** in order to leave the current language of the web-based interface or click **NO** to select the other language.



2. On the next page, click the **CONTINUE** button.

Selecting Operation Mode

In order to connect your device to a VDSL or ADSL line, on the **Device mode** page, from the **Connection method** list, select the **VDSL or ADSL** value correspondingly. In this mode you can configure a WAN connection, set your own settings for the wireless network, configure LAN ports to connect an STB or VoIP phone, and set your own password for access to the web-based interface of the device.



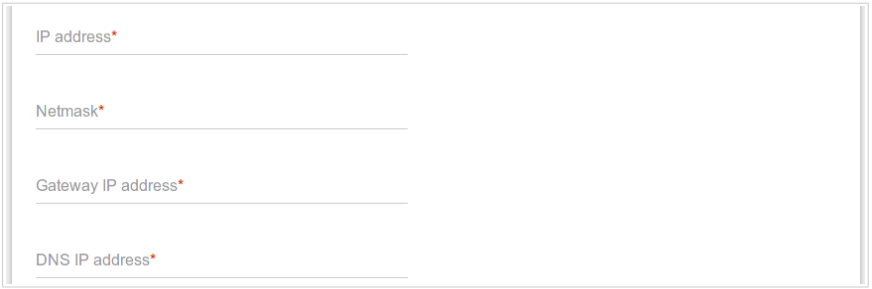
When the operation mode is selected, click the **NEXT** button.

Configuring VDSL WAN Connection

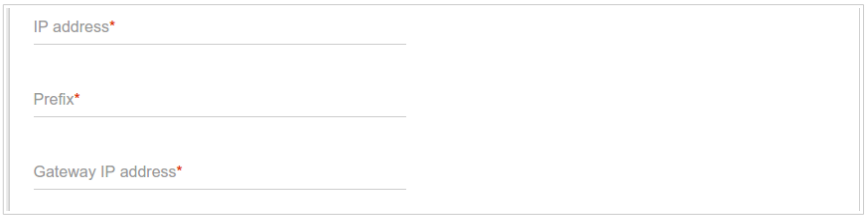
! You should configure your WAN connection in accordance with data provided by your Internet service provider (ISP). Make sure that you have obtained all necessary information prior to configuring your connection. Otherwise contact your ISP.

1. On the **Internet connection type** page, from the **Connection type** list, select the connection type used by your ISP and fill in the fields displayed on the page.

Static IPv4: Fill in the following fields: **IP address**, **Netmask**, **Gateway IP address**, and **DNS IP address**.



Static IPv6: Fill in the following fields: **IP address**, **Prefix**, and **Gateway IP address**.



PPPoE, IPv6 PPPoE, PPPoE Dual Stack: Enter authorization data provided by your ISP (the username (login) in the **Username** field and the password in the **Password** field). Click the **Show** icon ( ) to display the entered password. If authorization is not required, select the **Without authorization** checkbox.

2. If your ISP uses MAC address binding, select the **Clone MAC address of your device** checkbox.
3. If the Internet access is provided via a VLAN channel, select the **Use VLAN** checkbox and fill in the **VLAN ID** field.

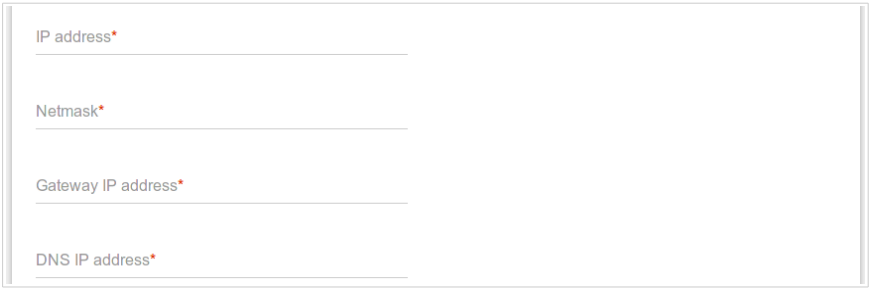
4. Click the **NEXT** button.

Configuring ADSL WAN Connection

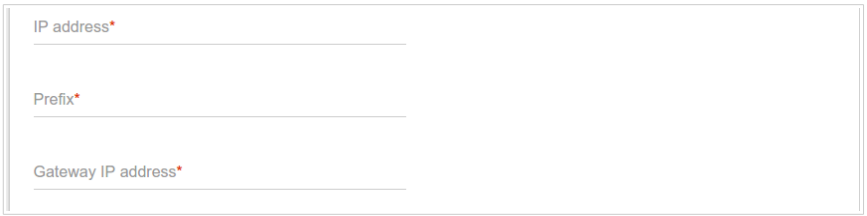
! You should configure your WAN connection in accordance with data provided by your Internet service provider (ISP). Make sure that you have obtained all necessary information prior to configuring your connection. Otherwise contact your ISP.

1. On the **Internet connection type** page, from the **Connection type** list, select the connection type used by your ISP and fill in the fields displayed on the page.

Static IPv4, IPoA: Fill in the following fields: **IP address**, **Netmask**, **Gateway IP address**, and **DNS IP address**.

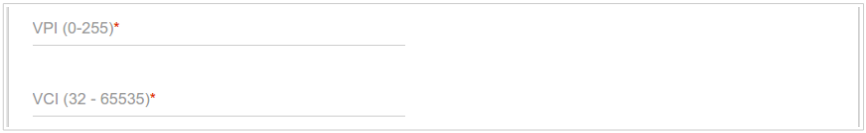


Static IPv6: Fill in the following fields: **IP address**, **Prefix**, and **Gateway IP address**.



PPPoE, IPv6 PPPoE, PPPoE Dual Stack, PPPoA: Enter authorization data provided by your ISP (the username (login) in the **Username** field and the password in the **Password** field). Click the **Show** icon ( ) to display the entered password. If authorization is not required, select the **Without authorization** checkbox.

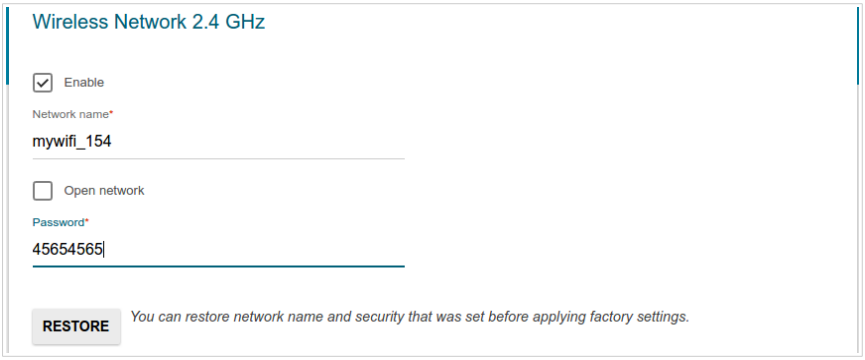
2. Specify the VPI and VCI values in the relevant fields.



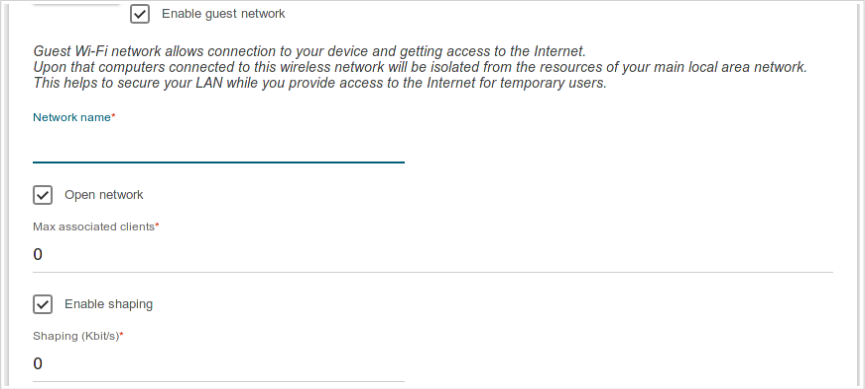
3. Click the **NEXT** button.

Configuring Wireless Network

1. On the **Wireless Network 2.4 GHz** page, in the **Network name** field, specify your own name for the wireless network or leave the value suggested by the router.
2. In the **Password** field, specify your own password for access to the wireless network or leave the value suggested by the router (WPS PIN of the device, see the barcode label).
3. You can restore the parameters of the wireless network specified before resetting to factory defaults. To do this, click the **RESTORE** button.



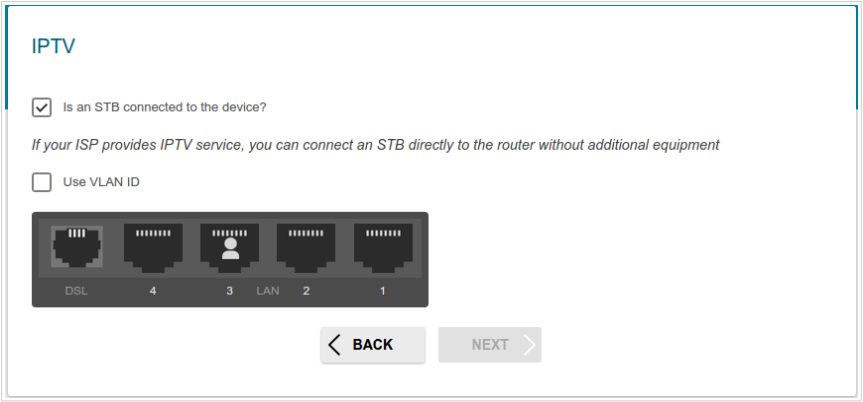
4. If you want to create an additional wireless network isolated from your LAN, select the **Enable guest network** checkbox.



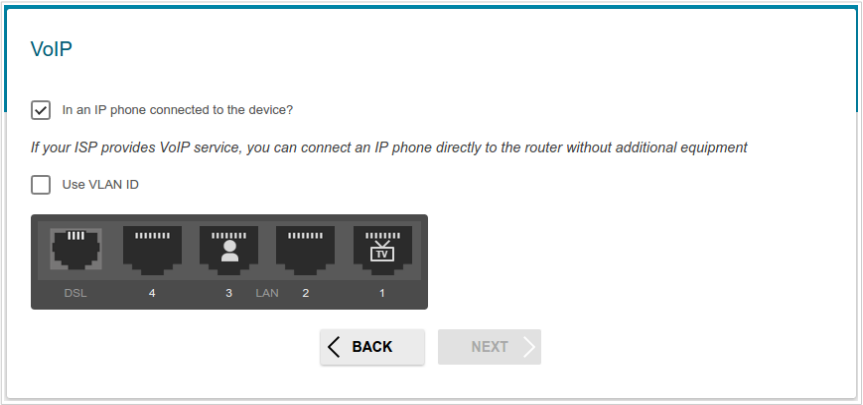
5. In the **Network name** field, specify your own name for the guest wireless network or leave the value suggested by the router.
6. If you want to create a password for access to the guest wireless network, deselect the **Open network** checkbox and fill in the **Password** field.
7. If you want to limit the bandwidth of the guest wireless network, select the **Enable shaping** checkbox and fill in the **Shaping** field.
8. Click the **NEXT** button.

Configuring LAN Ports for IPTV/VoIP

1. On the **IPTV** page, select the **Is an STB connected to the device** checkbox.



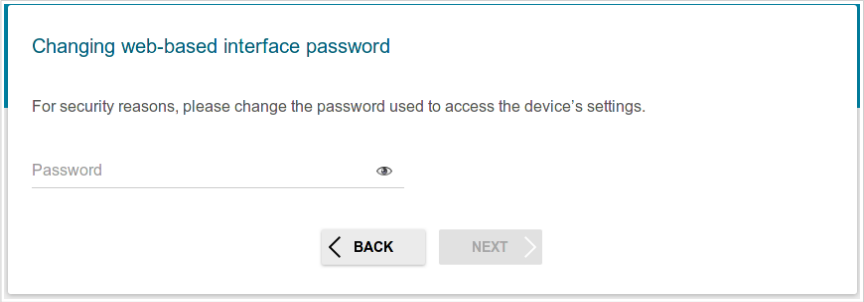
2. Select a free LAN port for connecting your set-top box.
3. **For VDSL connection method**: If the IPTV service is provided via a VLAN channel, select the **Use VLAN ID** checkbox and fill in the **VLAN ID** field.
4. **For ADSL connection method:** Specify the VPI and VCI values in the relevant fields.
5. Click the **NEXT** button.
6. On the **VoIP** page, select the **In an IP phone connected to the device** checkbox.



7. Select a free LAN port for connecting your IP phone.
8. **For VDSL connection method**: If the IPTV service is provided via a VLAN channel, select the **Use VLAN ID** checkbox and fill in the **VLAN ID** field.
9. **For ADSL connection method:** Specify the VPI and VCI values in the relevant fields.
10. Click the **NEXT** button.

Changing Web-based Interface Password

On this page you should change the default administrator password. You may set any password except **admin**. Use digits, Latin letters (uppercase and/or lowercase), and other characters available in the US keyboard layout.[1]



! Remember or write down the new password for the administrator account. In case of losing the new password, you can access the settings of the router only after restoring the factory default settings via the hardware **RESET** button. This procedure wipes out all settings that you have configured for your router.

Click the **NEXT** button.

On the next page, check all the settings you have just specified.

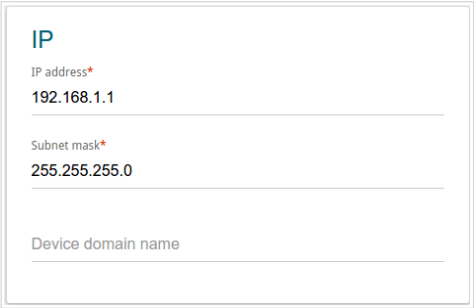
Also you can save a text file with parameters set by the Wizard to your PC. To do this, click the **SAVE CONFIGURATION FILE** button and follow the dialog box appeared.

To finish the Wizard, click the **APPLY** button. The router will apply settings, reboot, if needed, and check the Internet connection if the Wizard has configured a WAN connection.

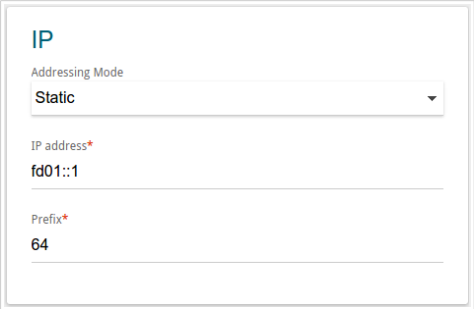
1 0-9, A-Z, a-z, space, !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~.

Configuring Local Area Network

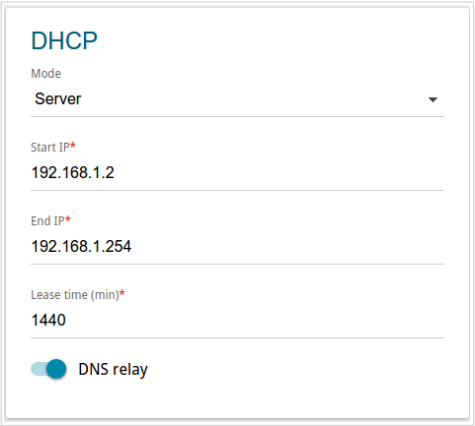
1. Go to the **Connections Setup / LAN** page.
2. If needed, change the IPv4 address of the router's LAN interface and the mask of the local subnet. To do this, click the **IPv4** tab and specify needed values in the **IP Address** and **Subnet mask** fields in the **IP** section.



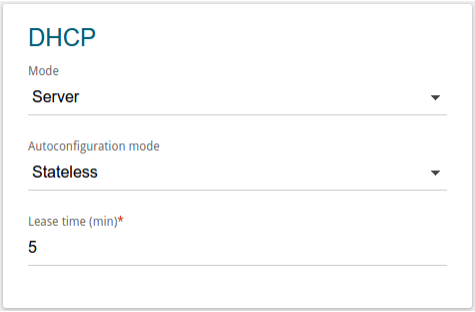
3. If needed, specify your own IPv6 address of the router's LAN interface. To do this, click the **IPv6** tab and select the **Static** value from the **Addressing Mode** drop-down list in the **IP** section. Then specify the needed value in the **IP address** field.



4. **IPv4 address assignment**. By default, the built-in DHCP server of the router assigns IPv4 addresses to the devices of the LAN. If you want to manually assign IPv4 addresses, disable the DHCP server (click the **IPv4** tab and select the **Disable** value from the **Mode** drop-down list in the **DHCP** section).



5. **IPv6 address assignment**. By default, the devices of the LAN automatically assign IPv6 addresses to themselves (the **Stateless** value is selected from the **Autoconfiguration mode** drop-down list in the **DHCP** section on the **IPv6** tab). If the devices of the LAN do not support IPv6 address autoconfiguration, enable the built-in DHCPv6 server of the router (select the **Stateful** value from the **Autoconfiguration mode** drop-down list). If you want to manually assign IPv6 addresses to devices of the LAN, select the **Disable** value from the **Mode** drop-down list.



6. After specifying the needed parameters on the **Connections Setup / LAN** page, click the **APPLY** button.

SPECIFICATIONS*

Hardware	
Processor	· RTL8685S
RAM	· 32 MB, SDRAM
Flash	· 8 MB, SPI
Interfaces	· RJ-11 DSL port · 4 10/100BASE-TX LAN ports
LEDs	· POWER · DSL · INTERNET · WLAN · 4 LAN LEDs · WPS
Buttons	· ON/OFF button to power on/power off · RESET button to restore factory default settings · WPS button to set up wireless connection · WLAN button to enable/disable wireless network
Antenna	· Two internal omnidirectional antennas (2dBi gain)
MIMO	· 2 x 2
Power connector	· Power input connector (DC)

* The device features are subject to change without notice. For the latest versions of the firmware and relevant documentation, visit www.dlink.ru.

DSL Parameters	
VDSL/ADSL Standards	· VDSL2: ITU G.993.2, support of 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a profiles · ADSL: Multi-mode, ANSI T1.413 Issue 2, ITU-T G.992.1 (G.dmt) Annex A, ITU-T G.992.2 (G.lite) Annex A, ITU-T G.994.1 (G.hs) · ADSL2: ITU-T G.992.3 (G.dmt.bis) Annex A/L/M, ITU-T G.992.4 (G.lite.bis) Annex A · ADSL2+: ITU-T G.992.5 Annex A/L/M
ATM/PPP Protocols	· Bridged and routed Ethernet encapsulation · VC-based or LLC-based multiplexing · ATM Forum UNI3.1/4.0 PVC (up to 8 PVCs) · ATM Adaptation Layer Type 5 (AAL5) · ITU-T I.610 OAM F4/F5 loopback · ATM QoS · PPP over ATM (RFC 2364) · PPP over Ethernet (PPPoE) · Keep-alive for PPP connections

Software	
WAN connection types	· PPPoA · PPPoE · IPv6 PPPoE · PPPoE Dual Stack · IPoA · Static IP / Dynamic IP · Static IPv6 / Dynamic IPv6
Network functions	· DHCP server/relay · Stateful/Stateless mode for IPv6 address assignment, IPv6 prefix delegation · DNS relay · Dynamic DNS · Static IP routing · Static IPv6 routing · IGMP Proxy · IGMP snooping · RIP · Support of UPnP IGD · Support of VLAN · WAN ping respond · Support of SIP ALG · Support of RTSP

Software	
Firewall functions	· Network Address Translation (NAT) · Stateful Packet Inspection (SPI) · IP filter · IPv6 filter · MAC filter · URL filter · DMZ · Prevention of ARP and DDoS attacks · Virtual servers · Built-in Yandex.DNS web content filtering service
VPN	· IPSec/PPTP/L2TP/PPPoE pass-through
QoS	· Interface grouping · VLAN priority (802.1p)
Management	· Local and remote access to settings through TELNET/WEB (HTTP/HTTPS) · Multilingual web-based interface for configuration and management · Firmware update via web-based interface · Automatic notification on new firmware version · Saving/restoring configuration to/from file · Support of remote logging · Automatic synchronization of system time with NTP server and manual time/date setup · Ping function · Traceroute utility · TR-069 client

Wireless Module Parameters	
Standards	· IEEE 802.11b/g/n
Frequency range	· 2400 ~ 2483.5MHz
Wireless connection security	· WEP · WPA/WPA2 (Personal) · MAC filter · WPS (PBC/PIN)
Advanced functions	· WMM (Wi-Fi QoS) · Information on connected Wi-Fi clients · Advanced settings · Guest Wi-Fi / support of MBSSID · Limitation of wireless network rate · Periodic scan of channels, automatic switch to least loaded channel

Wireless Module Parameters	
Wireless connection rate	· IEEE 802.11b: 1, 2, 5.5, and 11Mbps · IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, and 54Mbps · IEEE 802.11n: from 6.5 to 300Mbps (from MCS0 to MCS15)
Transmitter output power *The maximum value of the transmitter output power depends upon the radio frequency regulations applied in your country*	· 802.11b (typical at room temperature 25 °C) 16dBm (+/-1dB) · 802.11g (typical at room temperature 25 °C) 14dBm (+/-1dB) · 802.11n (typical at room temperature 25 °C) 14dBm (+/-1dB)
Receiver sensitivity	· 802.11b (typical at room temperature 25 °C) -86dBm · 802.11g (typical at room temperature 25 °C) -72dBm · 802.11n (typical at room temperature 25 °C) HT20 -67dBm HT40 -65dBm

Physical Parameters	
Dimensions (L x W x H)	· 160 x 59 x 121 mm (6.3 x 2.32 x 4.76 in)
Weight	· 215 g (0.47 lb)

Operating Environment	
Power	· Output: 12V DC, 1A
Temperature	· Operating: from 0 to 40 °C · Storage: from -20 to 70 °C
Humidity	· From 5% to 95% (non-condensing)

SAFETY RULES AND CONDITIONS

Please carefully read this section before installation and connection of the device. Make sure that the power adapter and cables are not damaged. The device should be used only as intended in accordance with the documents.

The device is intended for use in dry, clean, dust-free, and well ventilated areas with normal humidity away from strong heat sources. Do not use the device outdoors or in the areas with high humidity. Do not place foreign objects on the device. Do not obstruct the ventilation openings of the device. The environmental temperature near the device and the temperature inside the device's cover should be within the range from 0 °C to +40 °C.

Only use the power adapter supplied with the device. Do not plug in the adapter, if its case or cable are damaged. Plug the adapter only into working electrical outlets with parameters indicated on the adapter.

Do not open the cover of the device! Unplug the device before dusting and cleaning. Use a damp cloth to clean the device. Do not use liquid/aerosol cleaners or magnetic/static cleaning devices. Prevent moisture getting into the device or the power adapter.

The service life of the device is 2 years.

TECHNICAL SUPPORT

You can find software updates and user documentation on our website.

D-Link provides its customers with free support within the product's warranty period.

Customers can contact the technical support group by phone or by e-mail/Internet.

FOR TELEPHONE NUMBERS AND ADDRESSES OF D-LINK OFFICES WORLDWIDE VISIT

http://www.dlink.com/corporate/worldwideoffices/