D-Link®

User Manual

DIR-615S

Wireless N300 Router

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CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the router DIR-615S and explains how to configure and operate it.

This manual is intended for users familiar with basic networking concepts, who create an in-home local area network, and system administrators, who install and configure networks in offices.

Conventions

Example	Description
text	The body text of the manual.
Before You Begin	A reference to a chapter or section of this manual.
"Quick Installation Guide"	A reference to a document.
Change	A name of a menu, menu item, control (field, checkbox, drop-down list, button, etc.).
`192.168.0.1`	Data that you should enter in the specified field.
! Information	An important note.

Document Structure

Chapter 1 describes the purpose and structure of the document.

Chapter 2 gives an overview of the router's hardware and software features, describes its appearance and the package contents.

Chapter 3 explains how to install the router DIR-615S and configure a PC in order to access its web-based interface.

Chapter 4 describes all pages of the web-based interface in detail.

Chapter 5 includes safety instructions and tips for networking and connecting additional equipment.

Chapter 6 introduces abbreviations and acronyms used in this manual.

CHAPTER 2. OVERVIEW

General Information

The DIR-615S device is a wireless router with a built-in 4-port switch. It provides a fast and simple way to create a wireless and wired network at home or in an office.

You are able to connect the wireless router DIR-615S to a cable or DSL modem or to a private Ethernet line and use a high-speed Internet connection to successfully fulfill a wide range of professional tasks. The built-in 4-port switch enables you to connect Ethernet-enabled computers, game consoles, and other devices to your network.

Using the DIR-615S device, you are able to quickly create a wireless network at home or in your office, which lets your relatives or employees connect to your wireless network virtually anywhere (within the operational range of your wireless network). The router can operate as a base station for connecting wireless devices of the standards 802.11b, 802.11g, and 802.11n (at the rate up to 300Mbps).

The router supports multiple functions for the wireless interface: several security standards (WEP, WPA/WPA2), MAC address filtering, WPS, WMM.

In addition, the device is equipped with a button for switching the Wi-Fi network off/on. If needed, for example, when you leave home, you can easily switch the router's WLAN by pressing the button, and devices connected to the LAN ports of the router will stay online.

The wireless router DIR-615S includes a built-in firewall. The advanced security functions minimize threats of hacker attacks, prevent unwanted intrusions to your network, and block access to unwanted websites for users of your LAN.

You can configure the settings of the wireless router DIR-615S via the user-friendly web-based interface (the interface is available in several languages).

Now you can simply update the firmware: the router itself finds approved firmware on D-Link update server and notifies when ready to install it.

*Specifications**

Hardware	
Interfaces	· 10/100BASE-TX WAN port · 4 10/100BASE-TX LAN ports
LEDs	· POWER · WLAN · WPS · INTERNET · 4 LAN LEDs
Buttons	· ON/OFF button to power on/power off · RESET button to restore factory default settings · WPS button to set up secure wireless connection and enable/disable wireless network
Antenna	· Two non-detachable omnidirectional antennas (5dBi gain)
MIMO	· 2 x 2
Power connector	· Power input connector (DC)

Software	
WAN connection types	· PPPoE · IPv6 PPPoE · PPPoE Dual Stack · Static IP / Dynamic IP · Static IPv6 / Dynamic IPv6 · PPPoE + Static IP / Dynamic IP · PPTP/L2TP + Static IP · PPTP/L2TP + Dynamic IP
Network functions	· DHCP server/relay · DHCPv6 server (Stateful/Stateless), IPv6 prefix delegation · DNS relay · Support of DNSv6 AAAA records · Dynamic DNS · Static IP routing · Static IPv6 routing · IGMP Proxy · RIP · Support of UPnP IGD · Support of VLAN · Flow control · WAN ping respond · Support of SIP ALG · Support of RTSP

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

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
Management	· Local and remote access to settings through TELNET/WEB (HTTP/HTTPS) · Multilingual web-based interface for configuration and management · Notification on connection problems and auto redirect to settings · 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/Enterprise) · MAC filter · WPS (PBC/PIN)
Advanced functions	· Support of client mode · WMM (Wi-Fi QoS) · Managing connected stations · Advanced settings
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) 15dBm (+/-1.5dB) at 1, 2, 5.5, 11Mbps · 802.11g (typical at room temperature 25 °C) 15dBm (+/-1.5dB) at 6, 9, 12, 18, 24, 36, 48, 54Mbps · 802.11n (typical at room temperature 25 °C) HT20 15dBm (+/-1.5dB) at MCS0/1/2/3/4/5/6/8/9/10/11/12/13/14 14dBm (+/-1.5dB) at MCS7/15 HT40 15dBm (+/-1.5dB) at MCS0/1/2/3/4/5/6/8/9/10/11/12/13/14 14dBm (+/-1.5dB) at MCS7/15

Wireless Module Parameters	
Receiver sensitivity	· 802.11b (typical at PER = 8% at room temperature 25 °C) -82dBm at 1Mbps -80dBm at 2Mbps -78dBm at 5.5Mbps -76dBm at 11Mbps · 802.11g (typical at PER = 10% at room temperature 25 °C) -85dBm at 6Mbps -84dBm at 9Mbps -82dBm at 12Mbps -80dBm at 18Mbps -77dBm at 24Mbps -73dBm at 36Mbps -69dBm at 48Mbps -68dBm at 54Mbps · 802.11n (typical at PER = 10% at room temperature 25 °C) HT20 -82dBm at MCS0/8 -79dBm at MCS1/9 -77dBm at MCS2/10 -74dBm at MCS3/11 -70dBm at MCS4/12 -66dBm at MCS5/13 -65dBm at MCS6/14 -64dBm at MCS7/15 HT40 -79dBm at MCS0/8 -76dBm at MCS1/9 -74dBm at MCS2/10 -71dBm at MCS3/11 -67dBm at MCS4/12 -63dBm at MCS5/13 -62dBm at MCS6/14 -61dBm at MCS7/15
Modulation schemes	· 802.11b: DQPSK, DBPSK, DSSS, CCK · 802.11g: BPSK, QPSK, 16QAM, 64QAM with OFDM · 802.11n: BPSK, QPSK, 16QAM, 64QAM with OFDM

Physical Parameters	
Dimensions	· 174 x 115 x 30 mm (7 x 4.5 x 1.2 in)
Weight	· 226 g (0.5 lb)

Operating Environment	
Power	· Output: 12V DC, 0.5A
Temperature	· Operating: from 0 to 40 °C · Storage: from -20 to 65 °C
Humidity	· Operating: from 10% to 90% (non-condensing) · Storage: from 5% to 95% (non-condensing)

Product Appearance

Top Panel

Figure 1. Top panel view.

LED	Mode	Description
POWER	*Solid green*	The router is powered on.
	No light	The router is powered off.
WLAN	*Solid green*	The router's WLAN is on.
	Blinking green	The WLAN interface is active (upstream or downstream traffic).
	No light	The router's WLAN is off.
WPS	*Blinking green*	Attempting to add a wireless device via the WPS function.
	No light	The WPS function is not in use.
INTERNET	*Solid green*	The Internet connection is on.
	Blinking green	The WAN interface is active (upstream or downstream traffic).
	No light	The cable is not connected.
LAN 1-4	*Solid green*	A device (computer) is connected to the relevant port, the connection is on.
	Blinking green	The LAN port is active (upstream or downstream traffic).
	No light	The cable is not connected to the relevant port.

Back and Bottom Panels

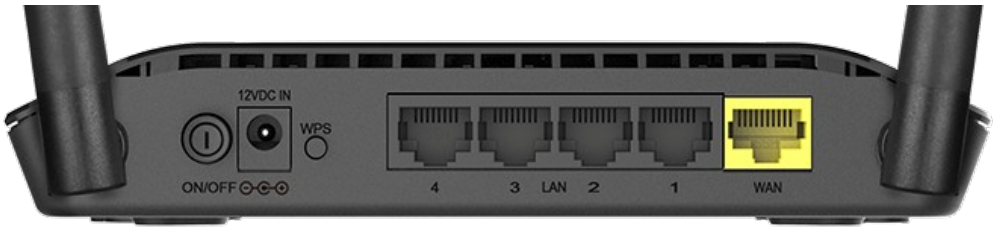


Figure 2. Back panel view.

Name	Description
ON/OFF	A button to turn the router on/off.
12VDC IN	Power connector.
WPS	A button to set up a secure wireless connection (the WPS function) and enable/disable the wireless network. To use the WPS function: with the device turned on, push the button, hold it for 2 seconds, and release. The **WPS** LED should start blinking. To disable the router's wireless network: with the device turned on, press the button, hold for 7 seconds, and release. The **WLAN** LED should turn off.
LAN 1-4	4 Ethernet ports to connect computers or network devices.
WAN	A port to connect to a cable or DSL modem or to a private Ethernet line (it is recommended to use the cable included in the delivery package).

The **RESET** button located on the bottom panel of the router is designed to restore the factory default settings. To restore the factory defaults, push the button (with the device turned on), hold it for 10 seconds, and then release the button.

The device is also equipped with two external Wi-Fi antennas.

Delivery Package

The following should be included:

- Router DIR-615S
- Power adapter DC 12V/0.5A
- Ethernet cable (CAT 5)
- "***Quick Installation Guide***" (brochure).

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.

CHAPTER 3. INSTALLATION AND CONNECTION

Before You Begin

Please, read this manual prior to installing the device. Make sure that you have all the necessary information and equipment.

Operating System

Configuration of the wireless router DIR-615S with a built-in 4-port switch (hereinafter referred to as "the router") is performed via the built-in web-based interface. The web-based interface is available from any operating system that supports a web browser.

Web Browser

The following web browsers are recommended:

- Apple Safari 5 and later
- Google Chrome 5 and later
- Microsoft Internet Explorer 8 and later
- Mozilla Firefox 5 and later
- Opera 10 and later.

For successful operation, JavaScript should be enabled on the web browser. Make sure that JavaScript has not been disabled by other software (such as virus protection or web user security packages) running on your computer.

Wired or Wireless NIC (Ethernet or Wi-Fi Adapter)

Any computer that uses the router should be equipped with an Ethernet or Wi-Fi adapter (NIC). If your computer is not equipped with such a device, install an Ethernet or Wi-Fi adapter prior to using the router.

Wireless Connection

Wireless workstations from your network should be equipped with a wireless 802.11b, g, or n NIC (Wi-Fi adapter). In addition, you should specify the values of SSID, channel number and security settings defined in the web-based interface of the router for all these wireless workstations.

Connecting to PC

PC with Ethernet Adapter

1. Make sure that your PC is powered off.
2. Connect an Ethernet cable between any of LAN ports located on the back panel of the router and the Ethernet port of your PC.
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. Turn on your PC and wait until your operating system is completely loaded.

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.

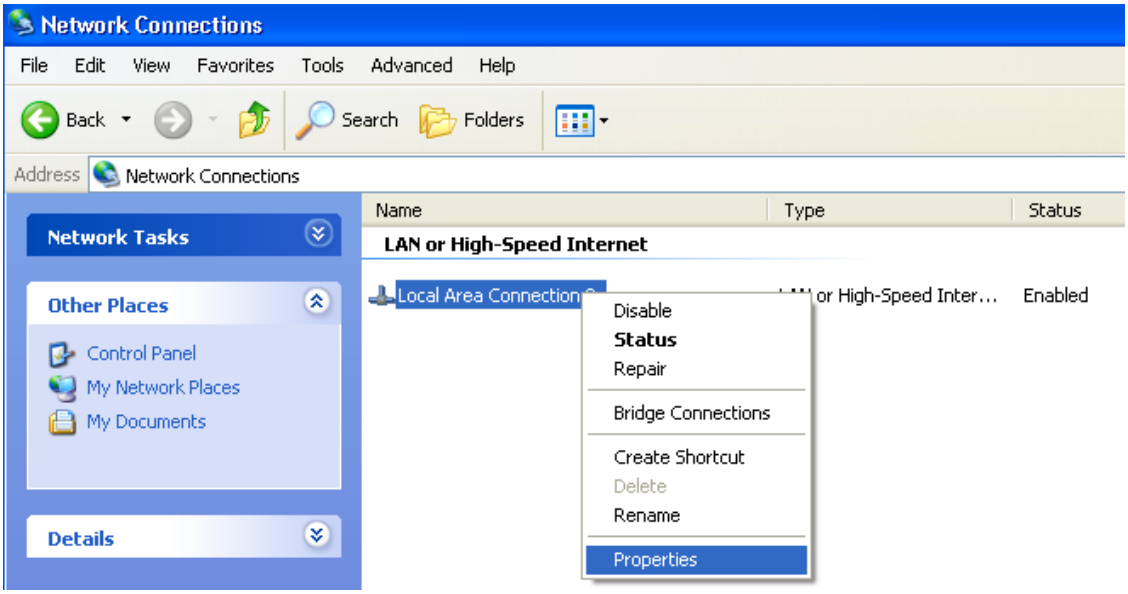


*Figure 3. The **Network Connections** window.*

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

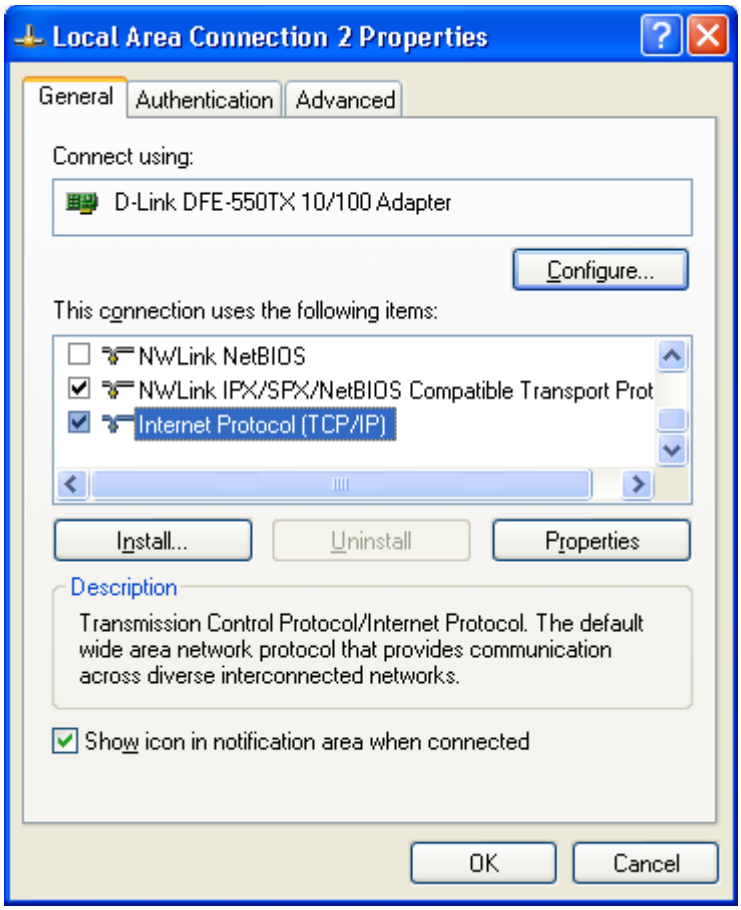


*Figure 4. The **Local Area Connection Properties** window.*

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

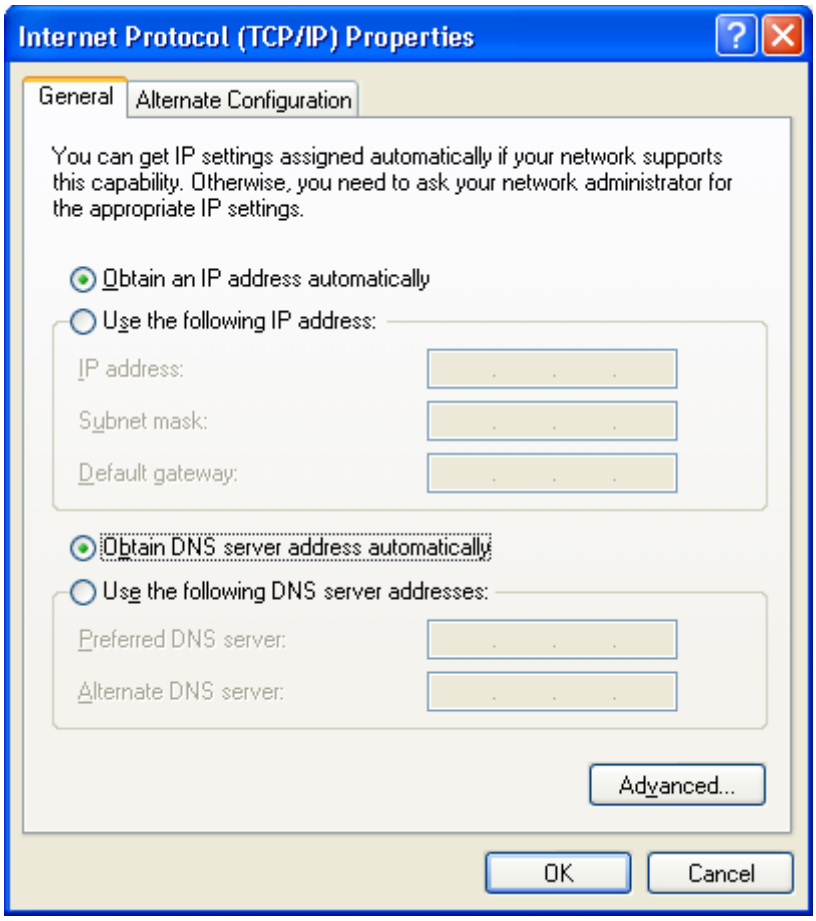


*Figure 5. The **Internet Protocol (TCP/IP) Properties** window.*

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.)

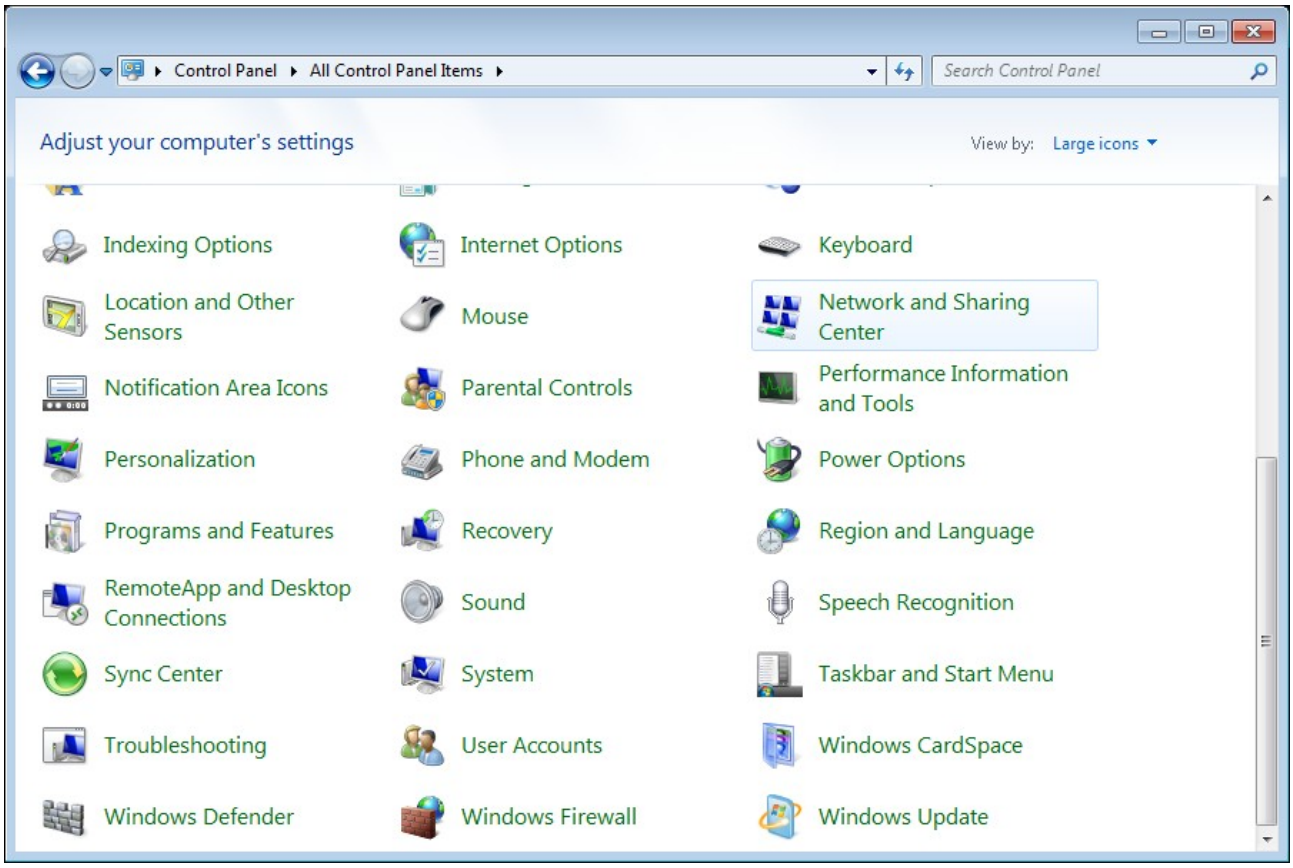


*Figure 6. The **Control Panel** window.*

3. In the menu located on the left part of the window, select the **Change adapter settings** line.

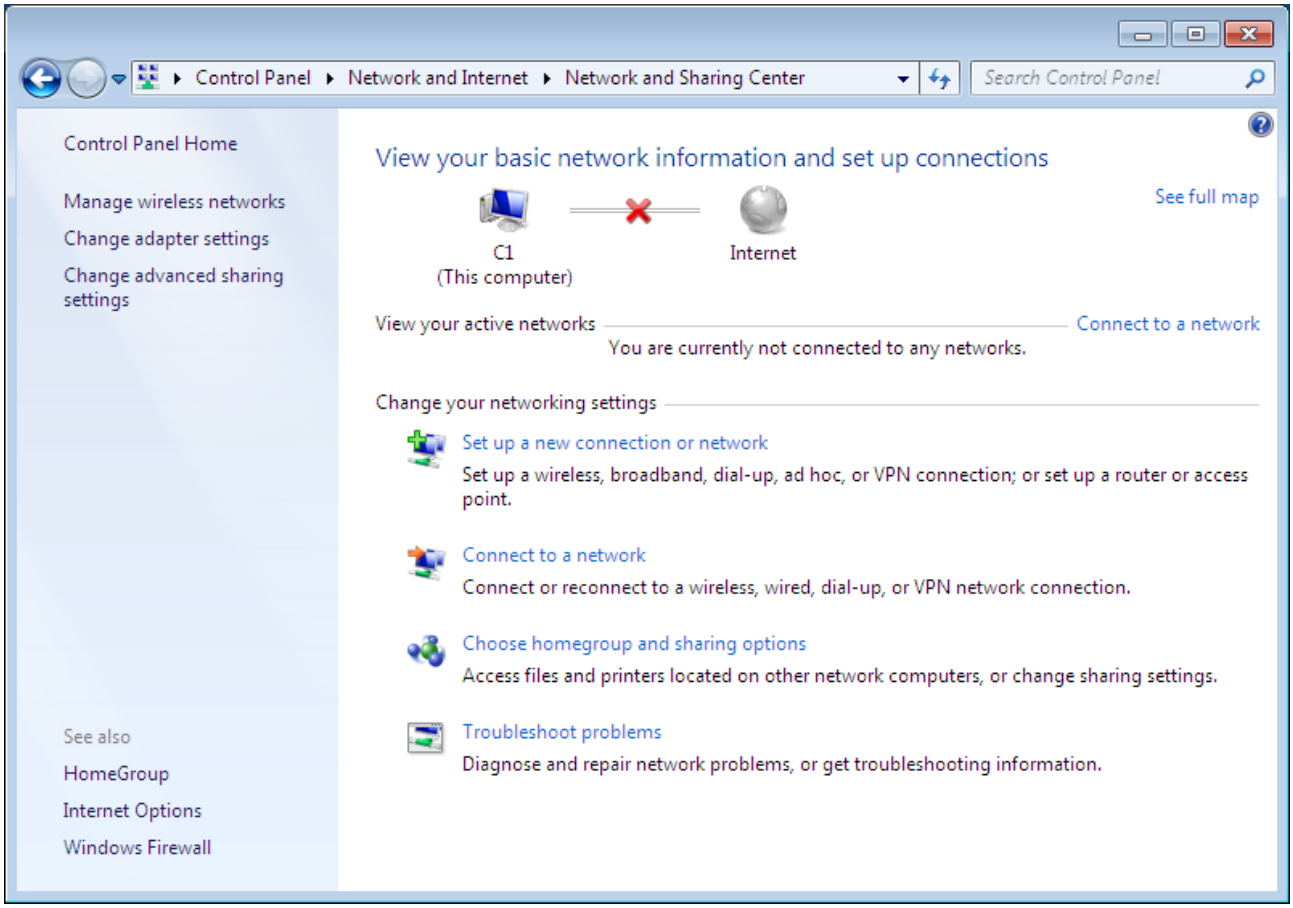


*Figure 7. The **Network and Sharing Center** window.*

4. In the opened window, right-click the relevant **Local Area Connection** icon and select the **Properties** line in the menu displayed.

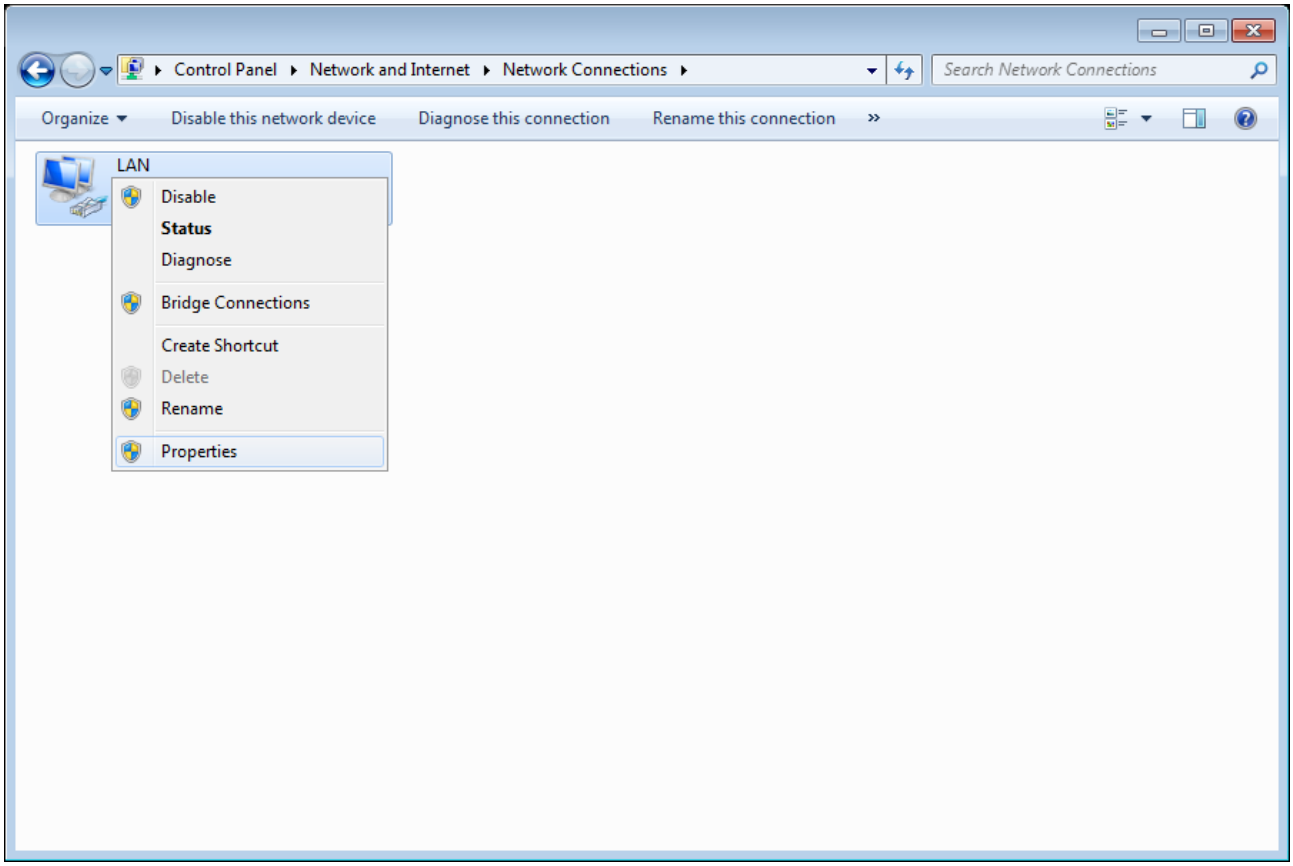


*Figure 8. The **Network Connections** window.*

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.

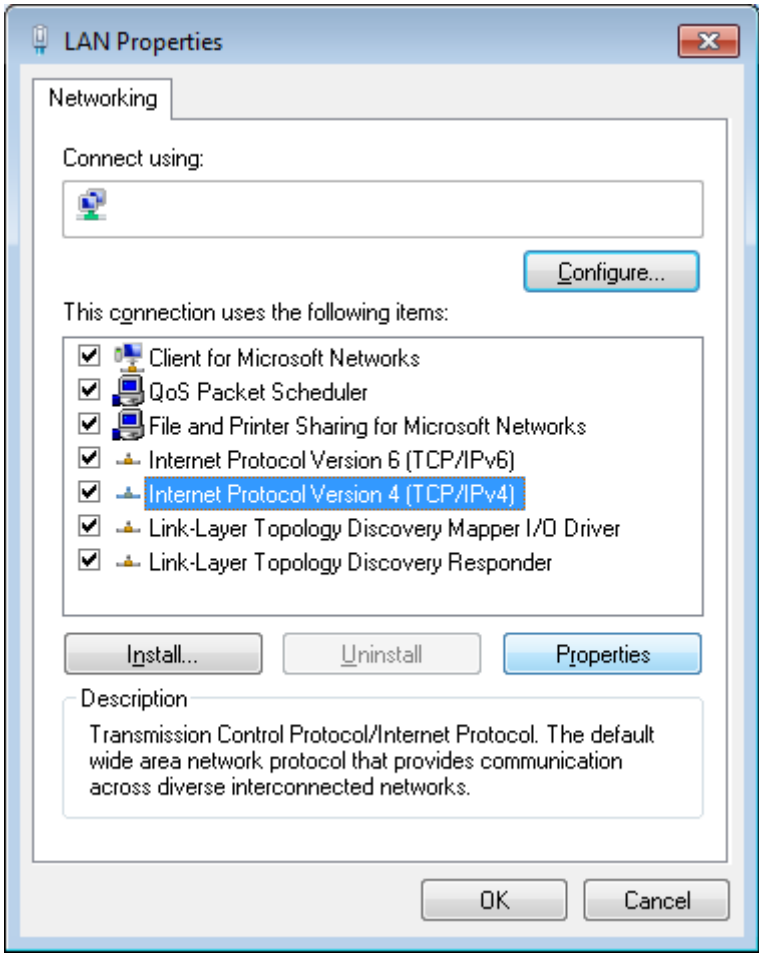


*Figure 9. The **Local Area Connection Properties** window.*

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

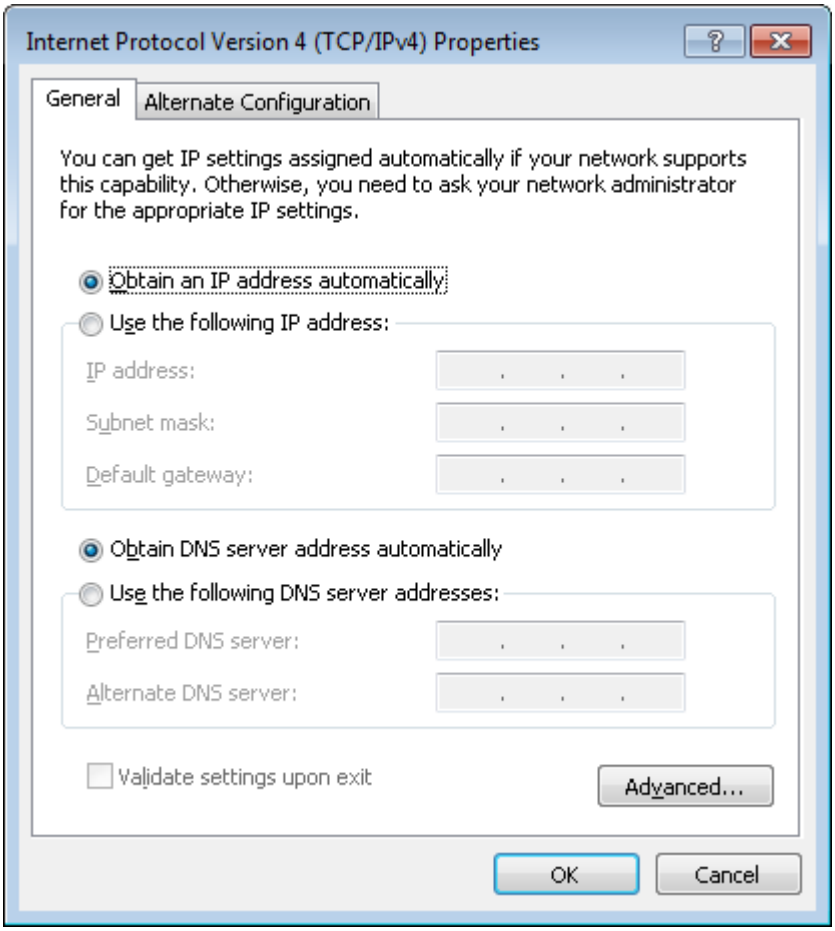


*Figure 10. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window.*

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 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.
2. Turn on the router by pressing the **ON/OFF** button on its back panel.
3. Turn on your PC and wait until your operating system is completely loaded.
4. 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.

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.

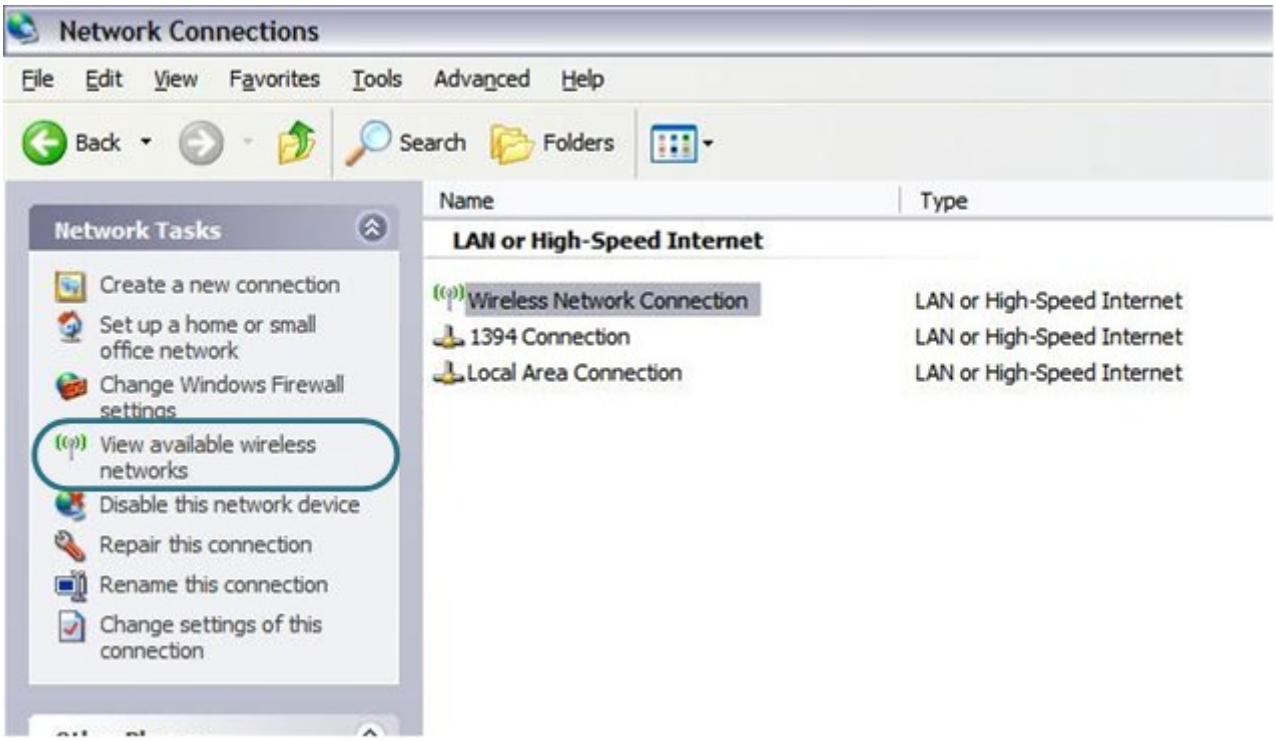


*Figure 11. The **Network Connections** window.*

3. Search for available wireless networks.
4. In the opened **Wireless Network Connection** window, select the wireless network **DIR-615** 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.)

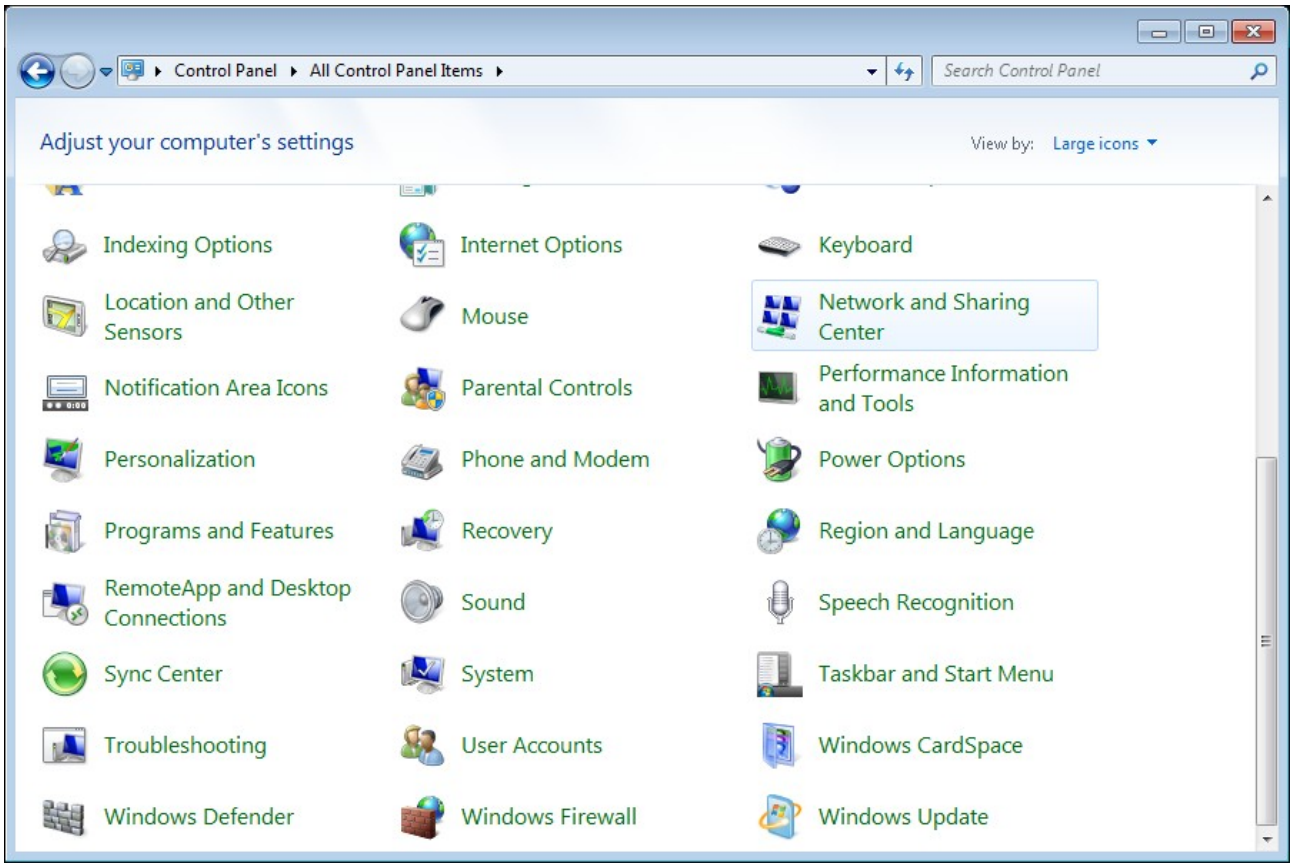


*Figure 12. The **Control Panel** window.*

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.

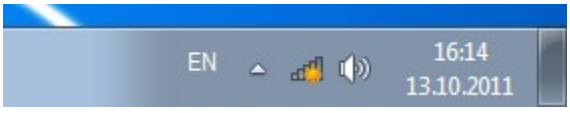


Figure 13. The notification area of the taskbar.

6. In the opened window, in the list of available wireless networks, select the wireless network **DIR-615** and click the **Connect** button.

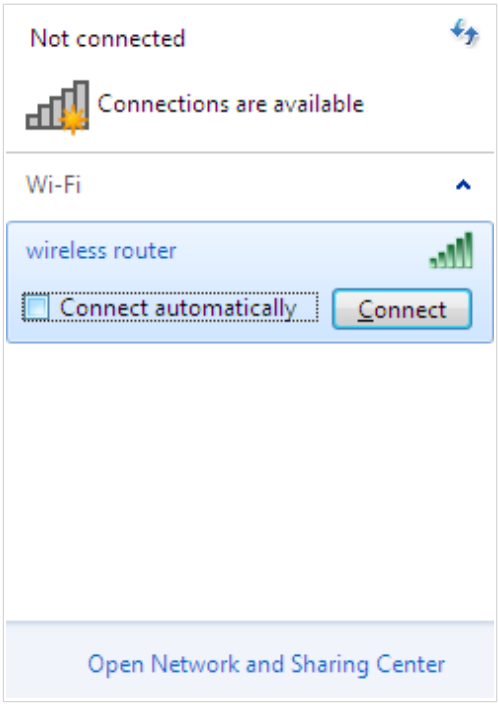


Figure 14. The list of available networks.

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.

Connecting to Web-based Interface

When you have configured your computer, you can access the web-based interface and configure needed parameters (create a WAN connection, change the parameters of the wireless network, specify the settings of the firewall, etc.).

Start a web browser (see the ***Before You Begin*** section, page 13). In the address bar of the web browser, enter the IP address of the router (by default, the following IP address is specified: **192.168.0.1**). Press the **Enter** key.

Figure 15. Connecting to the web-based interface of the DIR-615S device.

! 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.

After the first access to the web-based interface you need to change the default administrator password. Enter the new password in the **Password** and **Confirmation** fields. You may set any password except **admin**. Use digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard. Then click the **Apply** button.

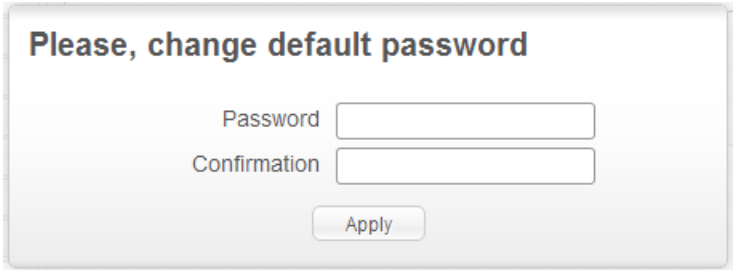


Figure 16. The page for changing the default administrator password.

! 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.

When the web-based interface is accessed the next time and after, the login page opens. Enter the username (**admin**) in the **Login** field and the password you specified in the **Password** field, then click the **Enter** button.

Figure 17. The login page.

Web-based Interface Structure

General Information Page

After successful registration the **Home / Information** page opens.

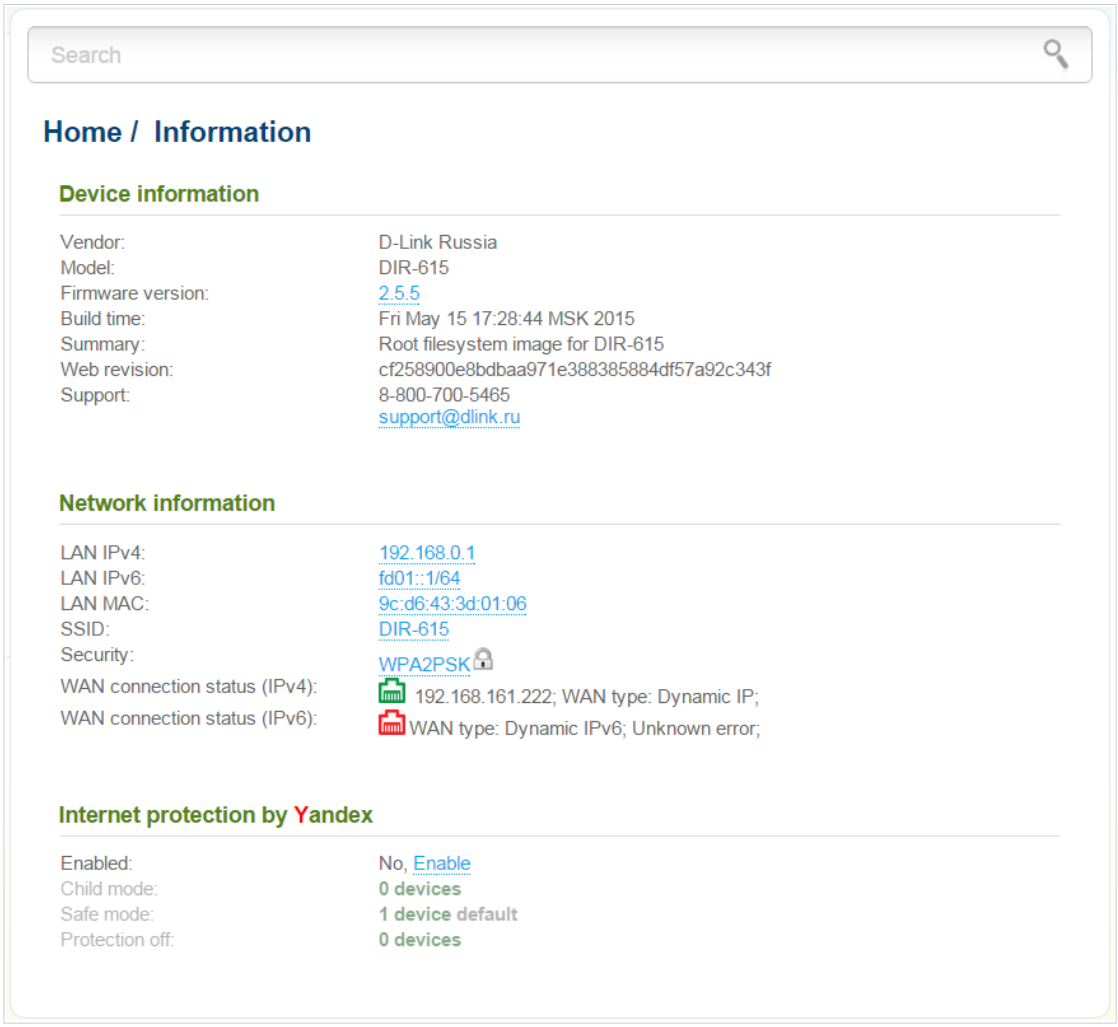


Figure 18. The general information page.

The web-based interface of the router is multilingual. If you need to select another language for the web-based interface, place the mouse pointer over the **English** caption in the top part of the page and select a language from the menu displayed.

Figure 19. Changing the language of the web-based interface.

The **Home / Information** page displays general information on the router and its software. From the page you can quickly get to some pages of the web-based interface.

To upgrade the firmware of the router, left-click the current firmware version (the right column of the **Firmware version** line) and follow the dialog box appeared.

To contact the technical support group (to send an e-mail), left-click the support e-mail address (the right column of the **Support** line). After clicking the line, the e-mail client window for sending a new letter to the specified address opens.

To edit the router's local interface parameters, left-click the IPv4, IPv6, or MAC address of the local interface (the right column of the lines **LAN IPv4**, **LAN IPv6**, or **LAN MAC** correspondingly). After clicking the line, the page for editing the LAN interface opens (for the detailed description of the page, see the ***LAN*** section, page 106).

To configure the router's WLAN basic parameters, left-click the SSID of the WLAN (the right column of the **SSID** line). After clicking the line, the **Wi-Fi / Basic settings** page opens (for the detailed description of the page, see the ***Basic Settings*** section, page 110).

To configure security settings of the WLAN, left-click the network authentication type (the right column of the **Security** line). After clicking the line, the **Wi-Fi / Security settings** page opens (for the detailed description of the page, see the ***Security Settings*** section, page 112).

To proceed to the page for configuring the Yandex.DNS web content filtering service, left-click the name of the **Internet protection by Yandex** section. Also you can enable/disable the service or change the default mode directly from the general information page.

Menu Sections

To configure the router use the menu in the left part of the page.

The **Monitoring** section provides an interactive scheme which illustrates the router's settings and the LAN structure.

In the **Home** section you can run the needed Wizard.

To configure connection to the Internet, go to the **Click'n'Connect** page (for the detailed description of the Wizard, see the ***Click'n'Connect*** section, page 35).

To configure the router's wireless network, go to the **Wireless network settings wizard** page (for the detailed description of the Wizard, see the ***Wireless Network Settings Wizard*** section, page 59).

To configure access from the Internet to a web server located in your LAN, go to the **Virtual server settings wizard** page (for the detailed description of the Wizard, see the ***Virtual Server Settings Wizard*** section, page 65).

To configure the router to use an IPTV set-top box, go to the **IPTV settings wizard** page (for the detailed description of the Wizard, see the ***IPTV Settings Wizard*** section, page 67).

The pages of the **Status** section display data on the current state of the router (for the description of the pages, see the ***Status*** section, page 68).

The pages of the **Net** section are designed for configuring basic parameters of the LAN interface of the router and creating a connection to the Internet (for the description of the pages, see the ***Net*** section, page 74).

The pages of the **Wi-Fi** section are designed for specifying all needed settings of the router's wireless network (for the description of the pages, see the ***Wi-Fi*** section, page 110).

The pages of the **Advanced** section are designed for configuring additional parameters of the router (for the description of the pages, see the ***Advanced*** section, page 131).

The pages of the **Firewall** section are designed for configuring the firewall of the router (for the description of the pages, see the ***Firewall*** section, page 148).

The pages of the **Control** section are designed for creating restrictions on access to the Internet (for the description of the page, see the ***Control*** section, page 157).

The pages of the **Yandex.DNS** section are designed for configuring the Yandex.DNS web content filtering service (for the description of the pages, see the ***Yandex.DNS*** section, page 159).

The pages of the **System** section provide functions for managing the internal system of the router (for the description of the pages, see the ***System*** section, page 162).

Also you can find a specific page via search. To do this, enter the name of the page, wholly or partly, in the search bar in the top part of the web-based interface page, and then select a needed link in the search results.

Notifications and System Drop-down Menu

The router's web-based interface displays the notifications in the top right part of the page.

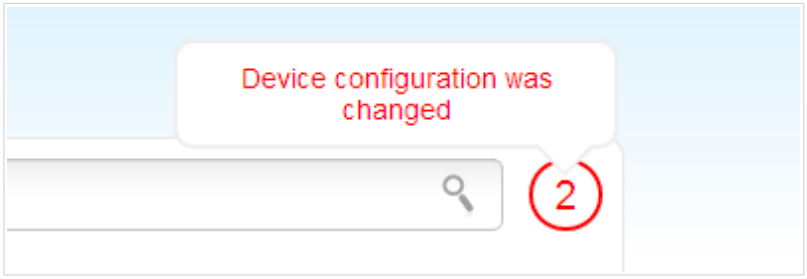


Figure 20. The web-based interface notifications.

Click the icon displaying the number of notifications to view the complete list and click the relevant link.

! Note that you should regularly save the changes of the router's settings to the non-volatile memory.

You can save the router's settings via the menu displayed when the mouse pointer is over the **System** caption in the top left part of the page. Also the **System** menu allows you to reboot the device, create and load the configuration backup, restore the factory defaults, update the firmware, disable/enable the WLAN.

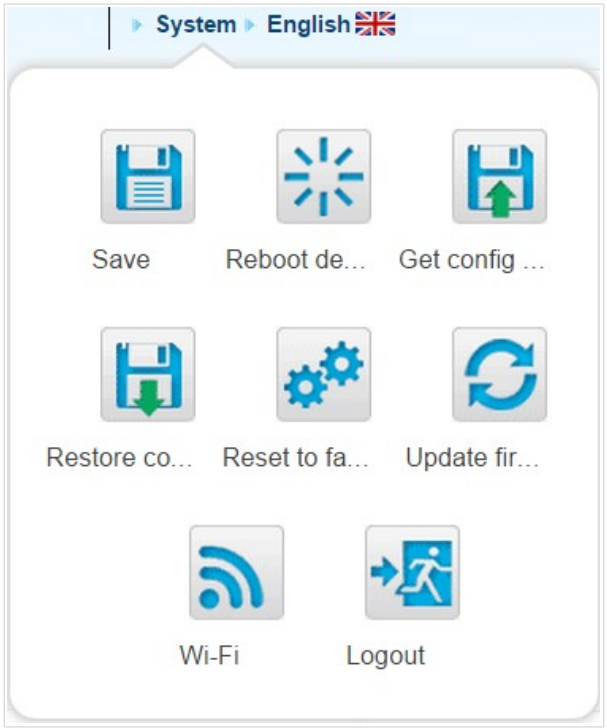


*Figure 21. The **System** menu in the top part of the page.*

Control	Description
Save	Click the icon to save new settings to the non-volatile memory. Also you can save the device's parameters via the **Save** button on the **System / Configuration** page.
Reboot device	Click the icon to reboot the device. All unsaved changes will be lost after the device's reboot.
Get config backup	Click the icon to save the configuration (all settings of the router) to your PC. The configuration backup will be stored in the download location of your web browser. Also you can create the configuration backup via the **Backup** button on the **System / Configuration** page.
Restore config	Click the icon to go to the **System / Configuration** page.
Reset to factory	Click the icon to restore the factory default settings. Also you can restore the factory defaults via the **Factory** button on the **System / Configuration** page. Also you can restore the factory default settings via the hardware **RESET** button. The button is located on the bottom panel of the router. Push the button (with the router powered on) and hold for 10 seconds. Then release the button.
Update firmware	Click the icon to update the firmware of the router. Also you can update the firmware on the **System / Firmware upgrade** page.
Wi-Fi	Click the icon to disable or enable the device's WLAN. Also you can disable/enable the router's WLAN on the **Wi-Fi / Basic settings** page.
Logout	Click the icon to exit the web-based interface.

CHAPTER 4. CONFIGURING VIA WEB-BASED INTERFACE

Monitoring

The page displays an interactive scheme which illustrates the router's settings and the LAN structure.

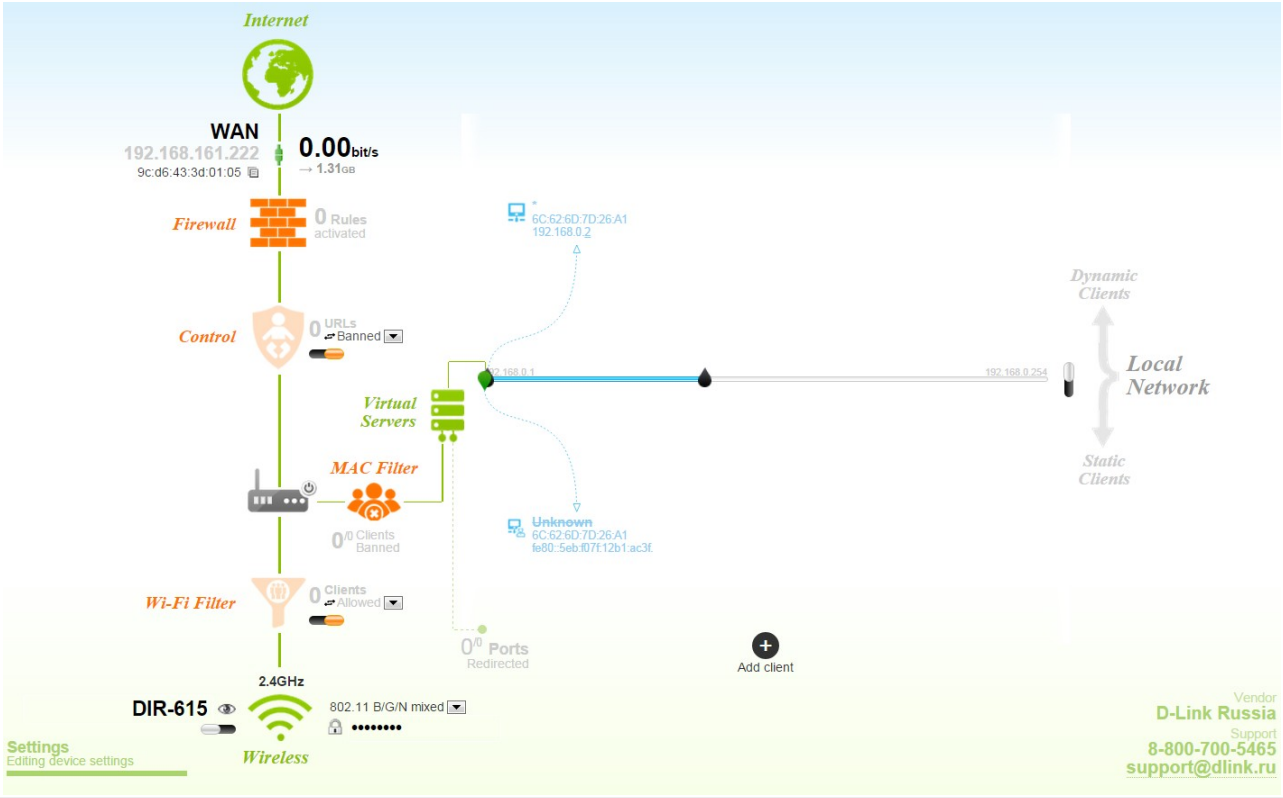
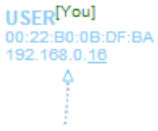


*Figure 22. The **Monitoring** page.*

Also you can modify the basic parameters of the router on the **Monitoring** page. To access the router's advanced settings, click the **Editing device settings** link in the bottom left corner of the page. For the detailed description of all the router's functions, see the relevant section of this manual.

The interactive scheme displays the following elements:

Control	Description
Internet	The **Internet** element displays information on the active connection. Place the mouse pointer over the icon to switch to another connection, remove existing connections, or add new ones. If the Ethernet cable provided by your ISP is connected to the WAN port of the router, to the left, the name of the active connection, received or specified IP address, and the MAC address of this connection are displayed. You can change the MAC address in the editing mode or clone the MAC address of a connected device by placing the mouse pointer over the **Clone MAC address** icon ( ). To the right, the approximate data transfer rate and the total value of the received data are displayed.
Firewall	The **Firewall** element displays the number of the IP filter active rules. Place the mouse pointer over the icon to view the list of the IP filter rules, remove existing rules, add new ones, or quickly switch the filtering mode for a rule.
Control	The **Control** element displays the number of blocked/allowed web sites. Place the mouse pointer over the icon to view the list of web sites, remove existing entries, or add new ones. Use the **Enable/Disable URL-filter** switch ( ) to enable or disable the URL filter. Use the drop-down list to the right of the element to quickly change the operating mode: block access to web sites from the list or allow access to web sites from the list.
Device	The **Device** element displays the layout of your device. Place the mouse pointer over the top right corner of this icon to display the system menu which helps you to reboot the device, save the configuration, restore the factory default settings, update the firmware, exit the web-based interface.
MAC Filter	The **MAC Filter** element displays the total number of clients to which the filtering rules are applied and the number of blocked clients. Place the mouse pointer over the icon to view the list of filtered clients, remove existing clients, add new ones, or quickly switch the filtering mode for a client.

Control	Description
Virtual Servers	The **Virtual Servers** element is designed for redirecting incoming traffic to a specific IP address in the LAN. It displays the total number of rules for redirecting traffic and the number of rules active in this specific LAN. Place the mouse pointer over the icon to view the list of all rules for redirecting traffic, remove existing rules, or add new ones.
DHCP	The **DHCP** element is a scale where the range of the DHCP server addresses is placed. Dynamic clients receive IP addresses from this range. Use the **Enable/Disable DHCP Server** switch ( ) to enable or disable DHCP server. If you want to change the range, enter a value from the keyboard in the editing mode or move the sliders. In the editing mode, you can specify the subnet mask.
 **Dynamic Clients**	The **Dynamic Clients** area displays all connected dynamic clients. An icon of a client displays the name of a device, its MAC address, and received IP address. The list of actions available for each client is displayed when the mouse pointer is over an icon. If you want to assign the current IP address to the MAC address of the client, drag and drop its icon to the static clients area.
Static Clients	The **Static Clients** area displays all static clients. An icon of a client displays the name of a device, its MAC address, and received IP address. The list of actions available for each client is displayed when the mouse pointer is over an icon. If you want to break the binding between the MAC address of the client and its current IP address, drag and drop its icon to the dynamic clients area. Use the **Add client** button to add static clients.

Control	Description
Wireless	The **Wireless** element displays information on Wi-Fi module operation. To the left, the name of the access point is displayed. You can change it in the editing mode. Use the **Hide Access Point** switch (/) to forbid or allow other users to see your wireless network. Use the **Enable/Disable Wireless** switch () to enable or disable your wireless network. To the right, the standards of devices which can connect to the access point are displayed. You can select other standards from the drop-down list. Use the **Enable/Disable password protection** switch (/) to modify security settings of your wireless network. If you want to view or change the password, switch to the editing mode of the relevant field.
Wireless (Client Mode)	The **Wireless (Client Mode)** element displays operation of Wi-Fi module in the client mode. To the right of the graphical representation of another access point, its name and MAC address are displayed. Use the **Disable client mode** switch () to disable the client mode.
Wi-Fi Filter	The **Wi-Fi Filter** element displays the number of MAC addresses specified in the MAC filter. The element is unavailable when the Wi-Fi module is in the client mode. Place the mouse pointer over the icon to view the list of MAC addresses, remove existing addresses, or add new ones. Use the **Enable/Disable Wi-Fi filter** switch () to enable or disable the Wi-Fi filter. Use the drop-down list to the right of the element to quickly change the mode of the filter (allow or forbid access to your wireless network).

In this section, you can contact the technical support group (to send an e-mail). To do this, left-click the support e-mail address in the bottom right corner of the page. After clicking the line, the e-mail client window for sending a new letter to the specified address opens.

Click'n'Connect

To configure connection to the Internet, click the **Click'n'Connect** link in the **Home** section.

Figure 23. Configuring connection to the Internet.

Connect the Ethernet cable provided by your ISP to the WAN port of the router. Verify the relevant LED (the **Internet** LED should be on).

Click the **Next** button to continue.

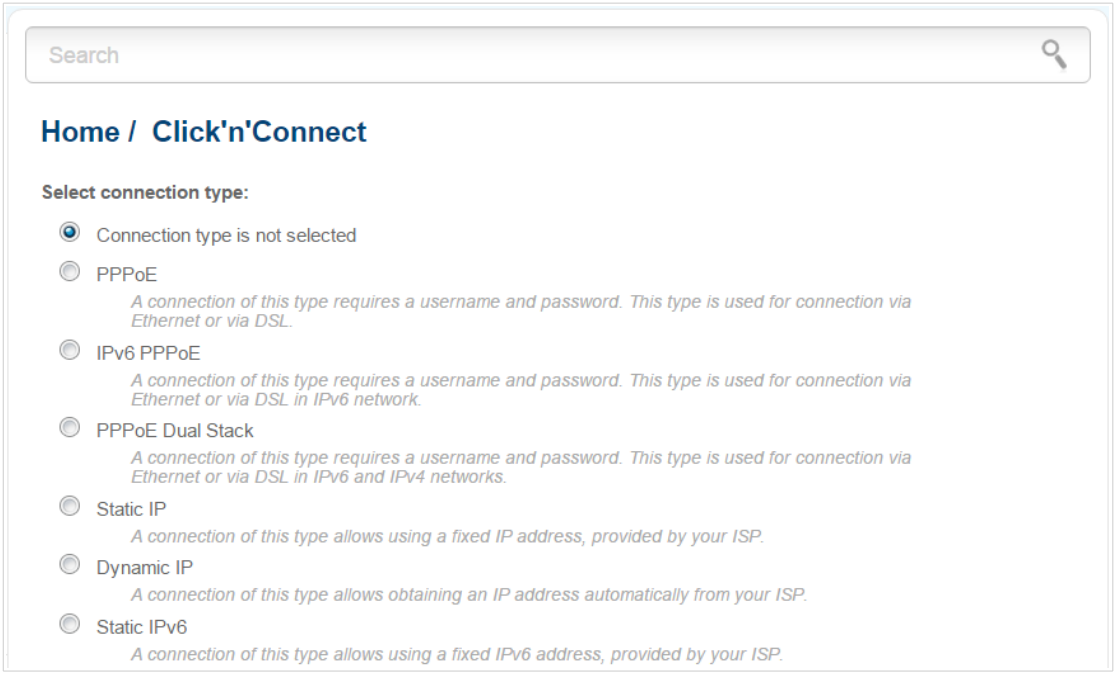


Figure 24. The page for selecting the connection type.

On the opened page, select the needed choice of the radio button and click the **Next** button.

Creating WAN Connection

PPPoE Connection

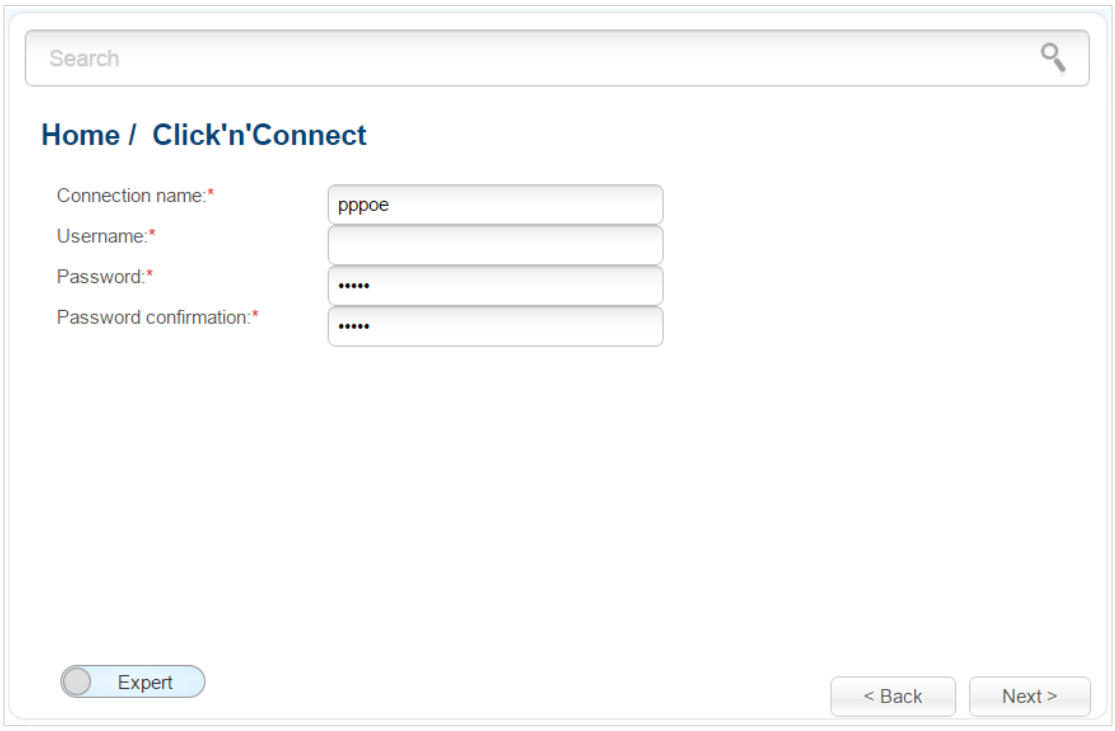


Figure 25. Configuring PPPoE WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPPoE WAN Connection*** section, page 75).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

IPv6 PPPoE or PPPoE Dual Stack Connection

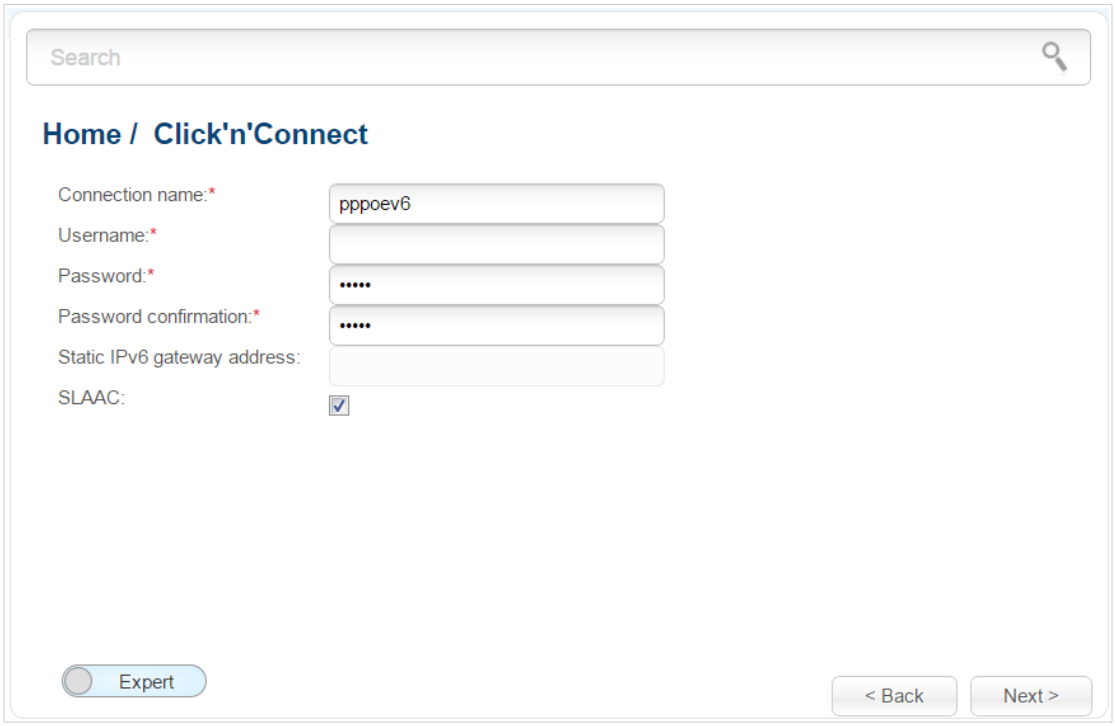


Figure 26. Configuring IPv6 PPPoE WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

If you need to specify the gateway address manually, deselect the **SLAAC** checkbox and fill in the **Static IPv6 gateway address** field.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating IPv6 PPPoE or PPPoE Dual Stack WAN Connection*** section, page 79).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

Static IP Connection

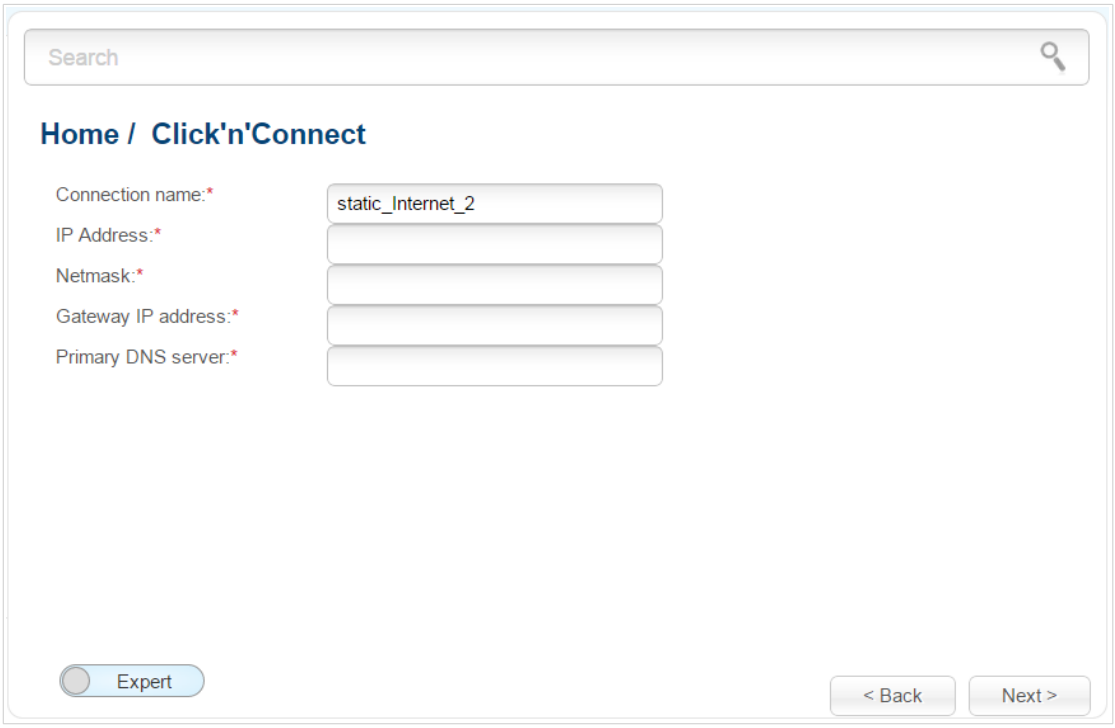


Figure 27. Configuring Static IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

Fill in the **IP Address** and **Netmask** fields.

In the **Gateway IP address** field, enter the IP address of the gateway used by this WAN connection.

In the **Primary DNS server** field, enter the address of the primary DNS server.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating Static IP or Dynamic IP WAN Connection*** section, page 85).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

Dynamic IP Connection

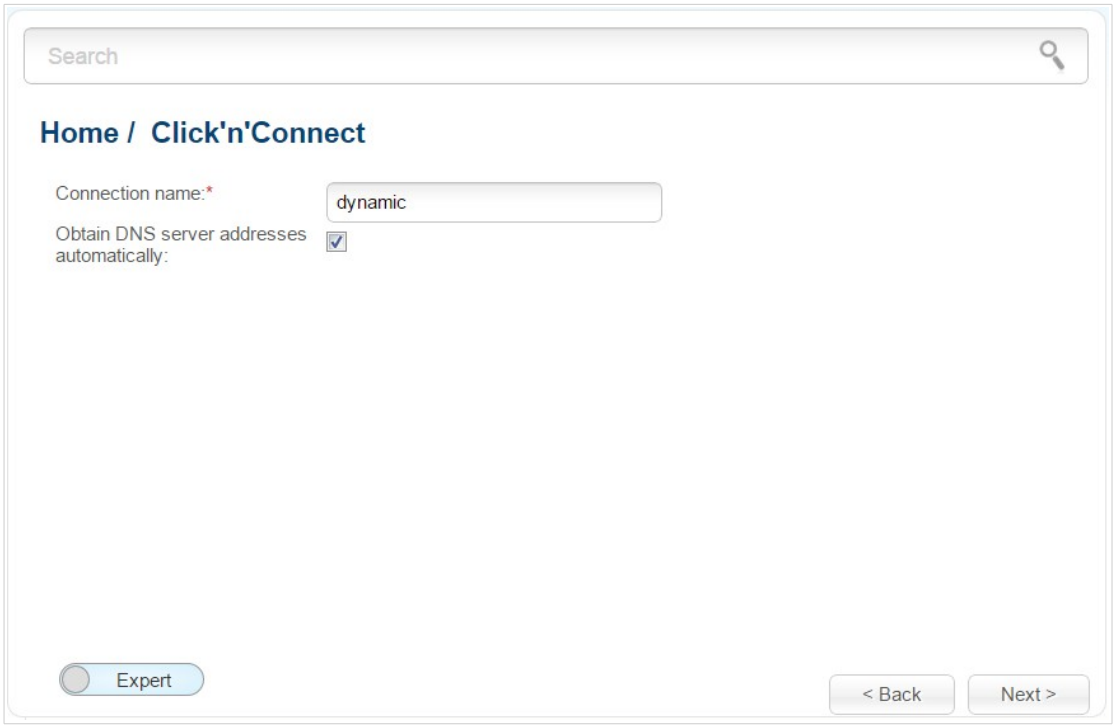


Figure 28. Configuring Dynamic IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

If your ISP has provided the addresses of the DNS servers, deselect the **Obtain DNS server addresses automatically** checkbox and fill in the **Primary DNS server** field.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating Static IP or Dynamic IP WAN Connection*** section, page 85).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

Static IPv6 Connection

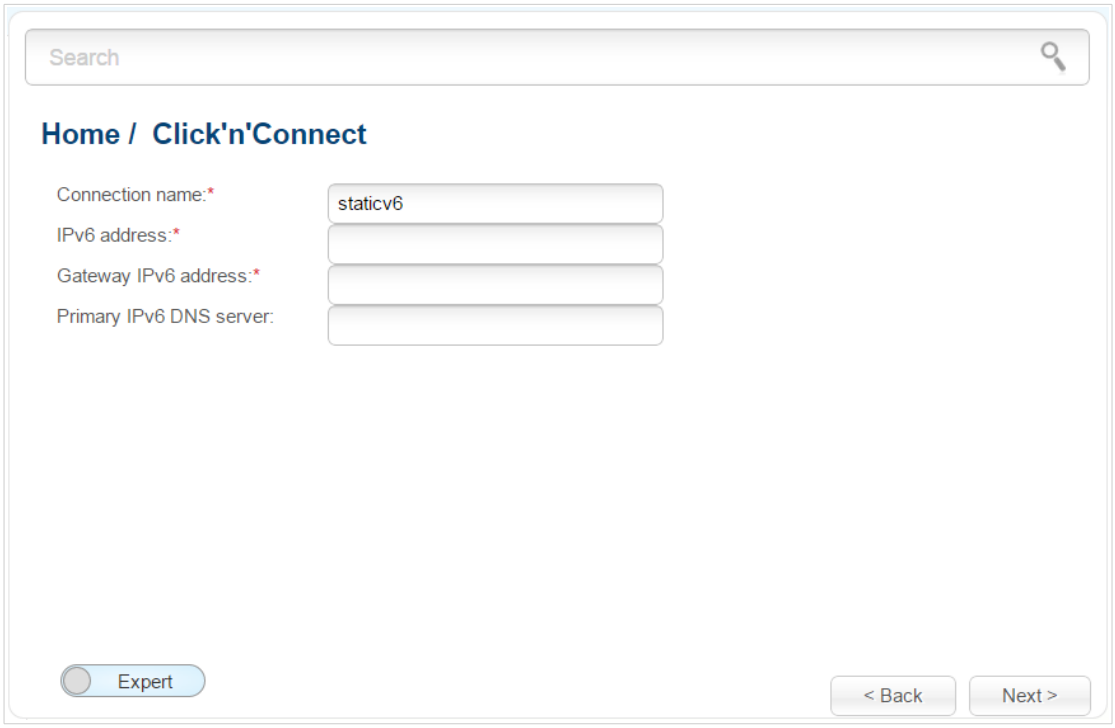


Figure 29. Configuring Static IPv6 WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

Fill in the **IPv6 address** and **Gateway IPv6 address** fields.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating Static IPv6 or Dynamic IPv6 WAN Connection*** section, page 89).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

Dynamic IPv6 Connection

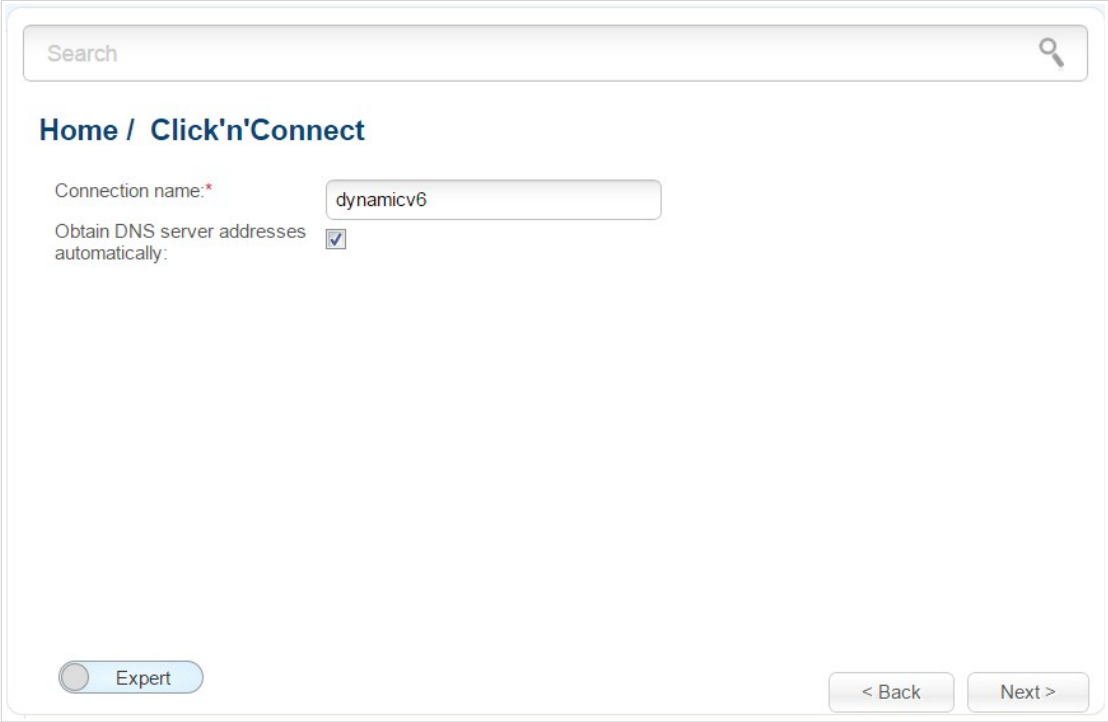


Figure 30. Configuring Dynamic IPv6 WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

If your ISP has provided the addresses of the DNS servers, deselect the **Obtain DNS server addresses automatically** checkbox and fill in the **Static primary DNS server** field.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating Static IPv6 or Dynamic IPv6 WAN Connection*** section, page 89).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

PPPoE + Static IP Connection

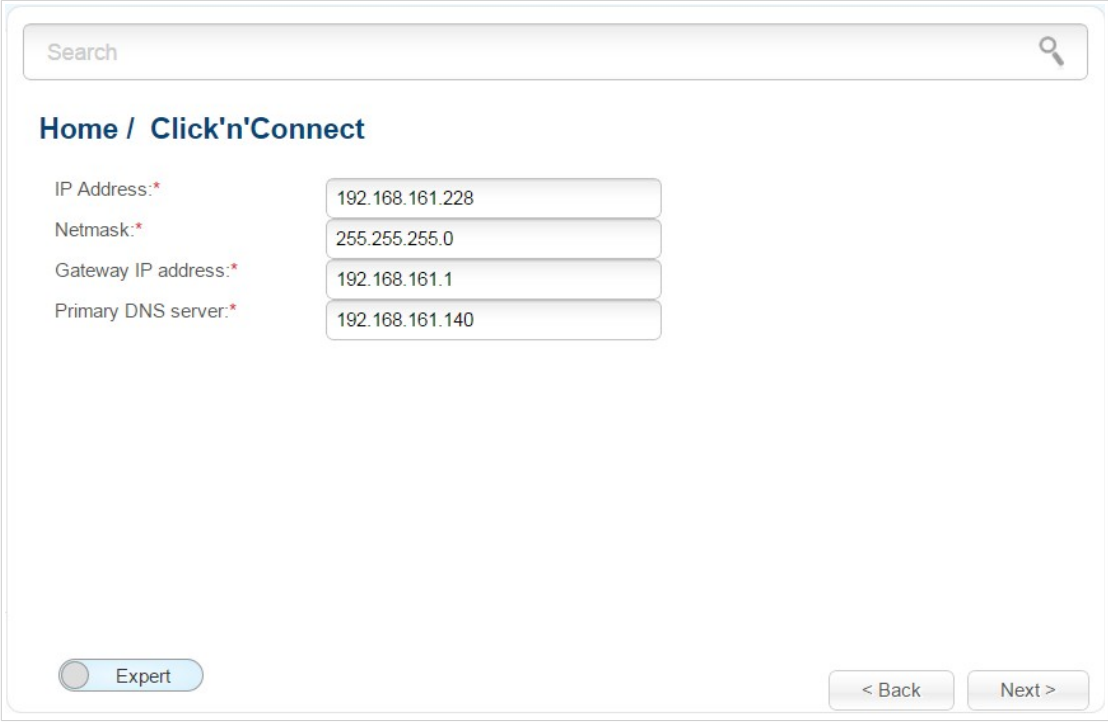


Figure 31. Configuring PPPoE + Static IP WAN connection.

Fill in the **IP Address** and **Netmask** fields.

In the **Gateway IP address** field, enter the IP address of the gateway used by this WAN connection.

In the **Primary DNS server** field, enter the address of the primary DNS server.

As a rule, the specified settings are enough at this step to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPPoE + Static IP or PPPoE + Dynamic IP WAN Connection*** section, page 93).

Click the **Next** button to continue.

If needed, enter the IP addresses of the ISP's local resources.

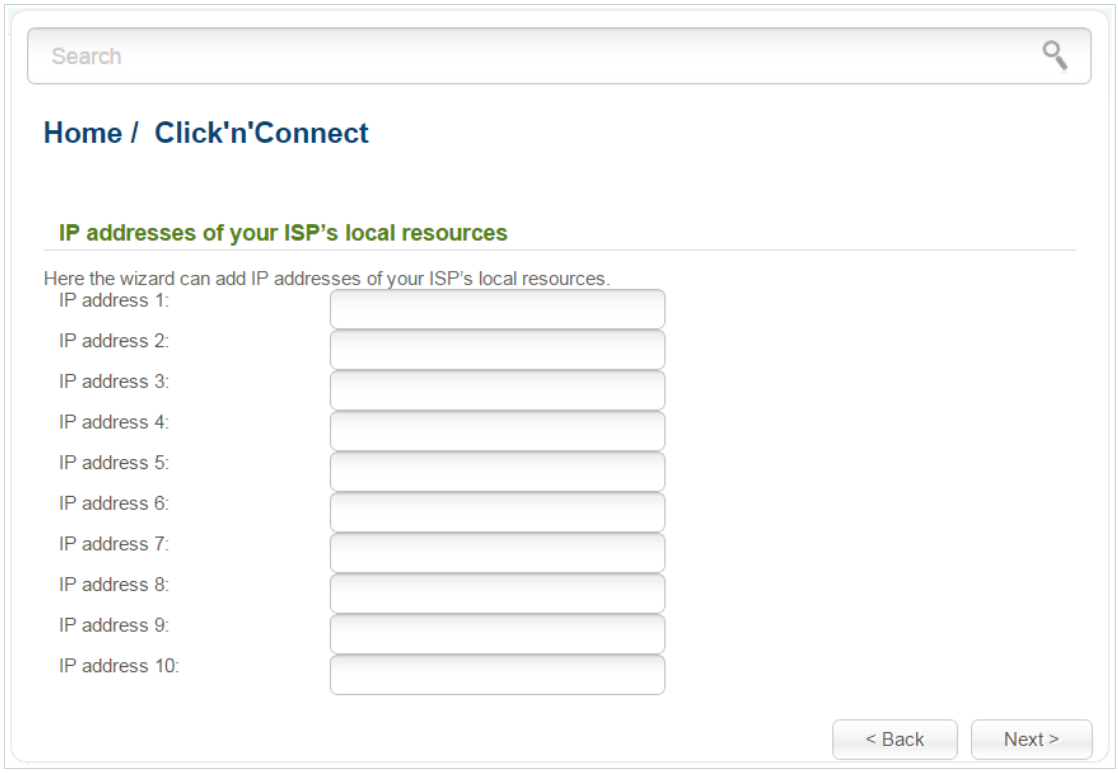


Figure 32. Configuring PPPoE + Static IP WAN connection.

Click the **Next** button to continue.

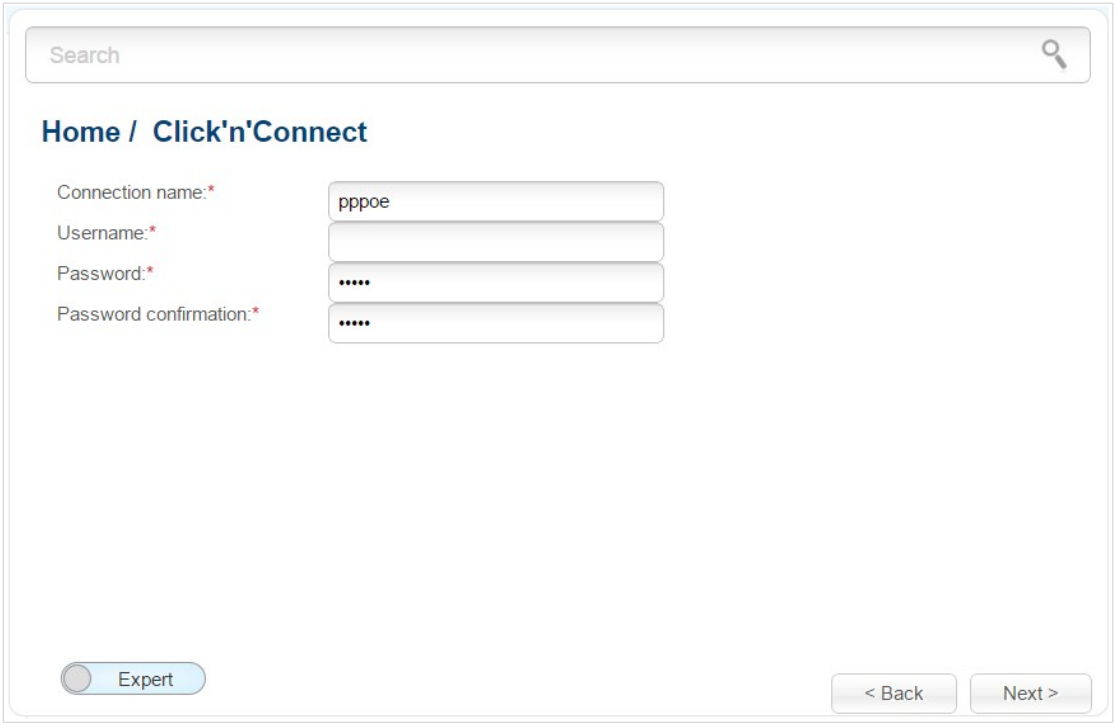


Figure 33. Configuring PPPoE + Static IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPPoE + Static IP or PPPoE + Dynamic IP WAN Connection*** section, page 93).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

PPPoE + Dynamic IP Connection

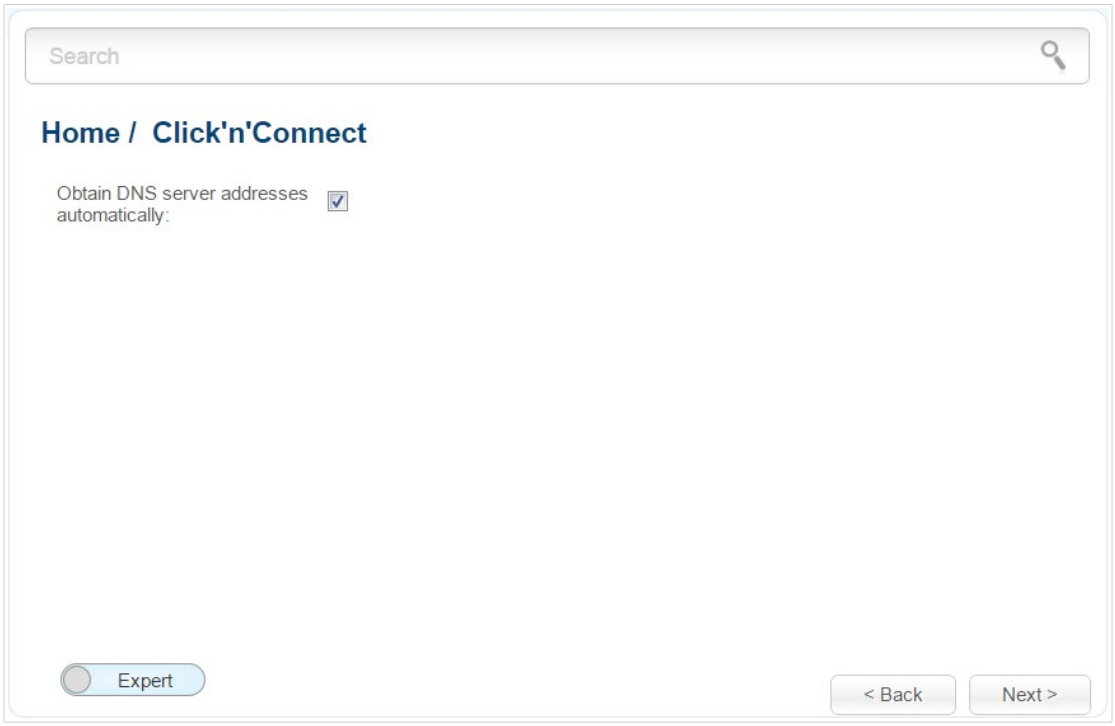


Figure 34. Configuring PPPoE + Dynamic IP WAN connection.

If your ISP has provided the addresses of the DNS servers, deselect the **Obtain DNS server addresses automatically** checkbox and fill in the **Primary DNS server** field.

As a rule, the specified settings are enough at this step to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPPoE + Static IP or PPPoE + Dynamic IP WAN Connection*** section, page 93).

Click the **Next** button to continue.

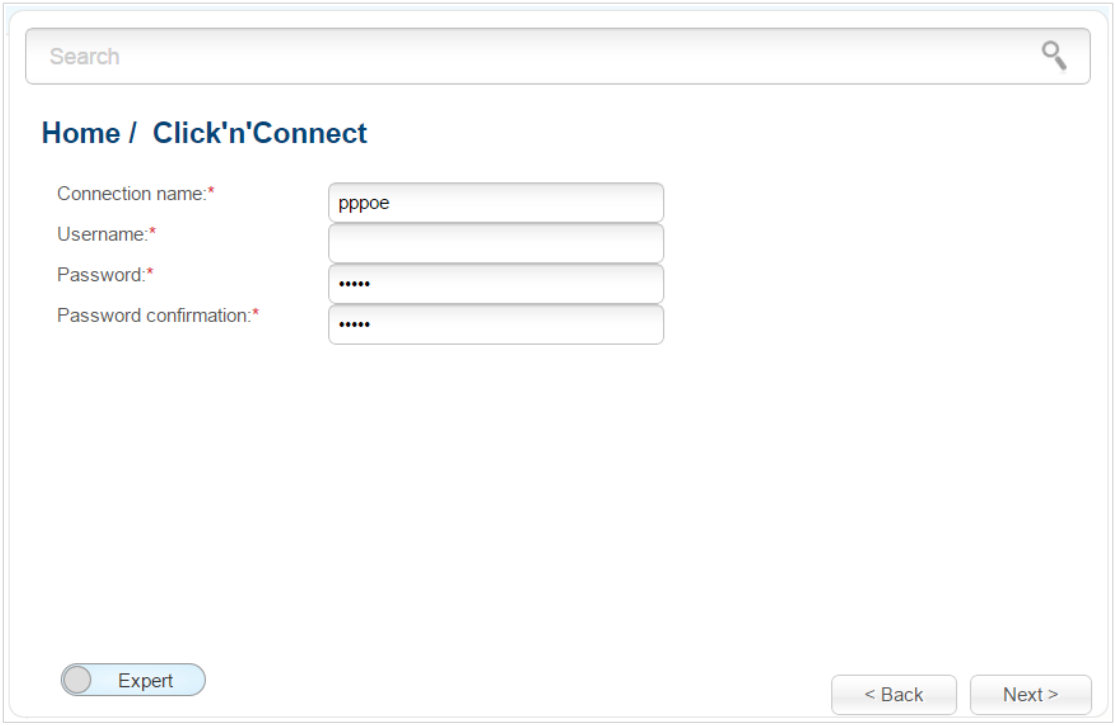


Figure 35. Configuring PPPoE + Dynamic IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPPoE + Static IP or PPPoE + Dynamic IP WAN Connection*** section, page 93).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

PPTP + Static IP or L2TP + Static IP Connection

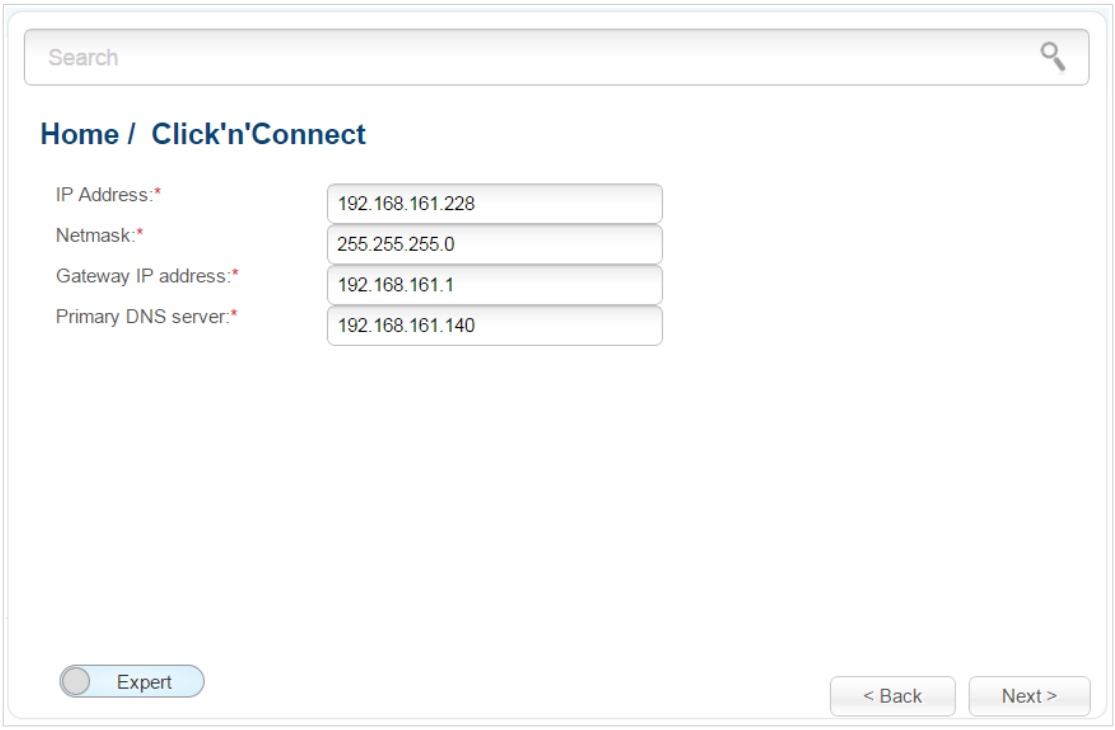


Figure 36. Configuring PPTP + Static IP WAN connection.

Fill in the **IP Address** and **Netmask** fields.

In the **Gateway IP address** field, enter the IP address of the gateway used by this WAN connection.

In the **Primary DNS server** field, enter the address of the primary DNS server.

As a rule, the specified settings are enough to configure a non-protected connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPTP/L2TP + Static IP or PPTP/L2TP + Dynamic IP WAN Connection*** section, page 99).

Click the **Next** button to continue.

If needed, enter the IP addresses of the ISP's local resources.

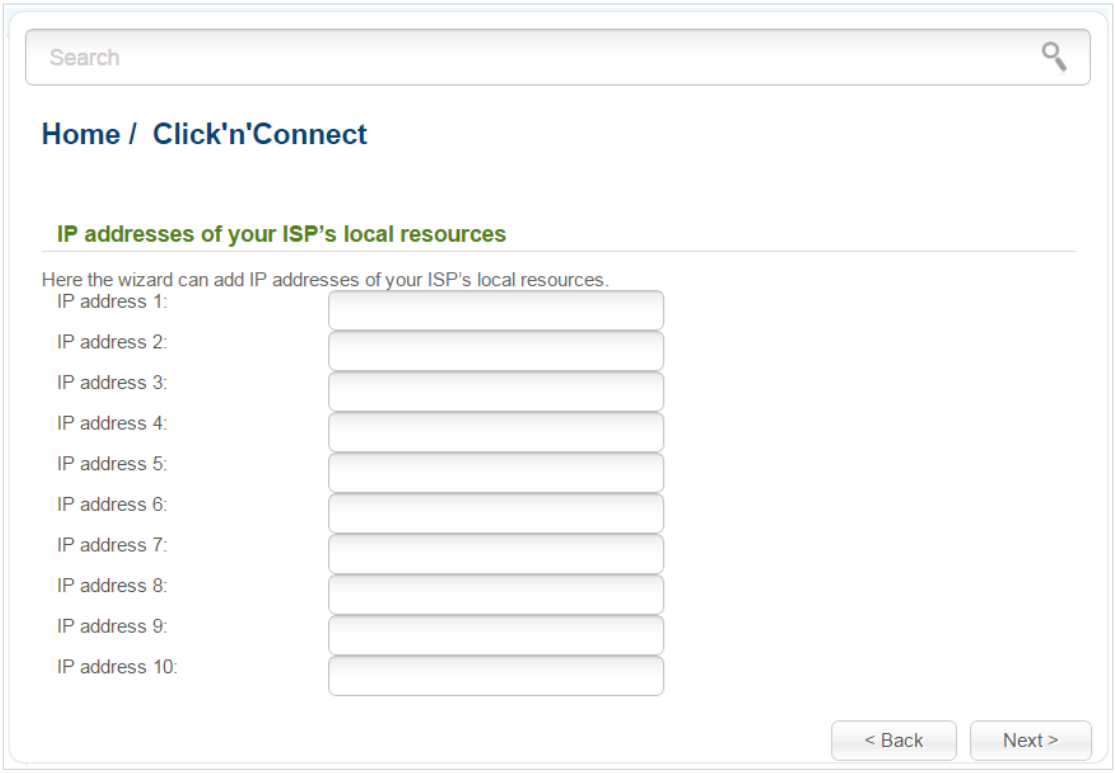


Figure 37. Configuring PPTP + Static IP WAN connection.

Click the **Next** button to continue.

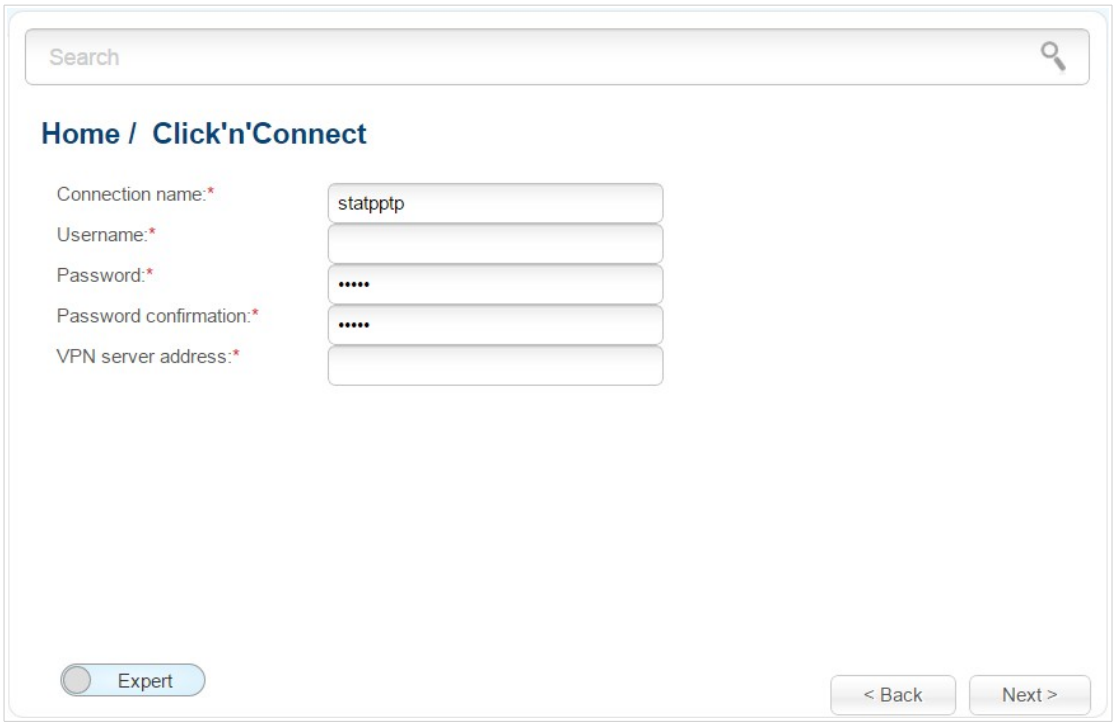


Figure 38. Configuring PPTP + Static IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

In the **VPN server address** field, enter the IP or URL address of the PPTP or L2TP authentication server.

As a rule, the specified settings are enough to configure a protected connection (the VPN tunnel). If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPTP/L2TP + Static IP or PPTP/L2TP + Dynamic IP WAN Connection*** section, page 99).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

PPTP + Dynamic IP or L2TP + Dynamic IP Connection

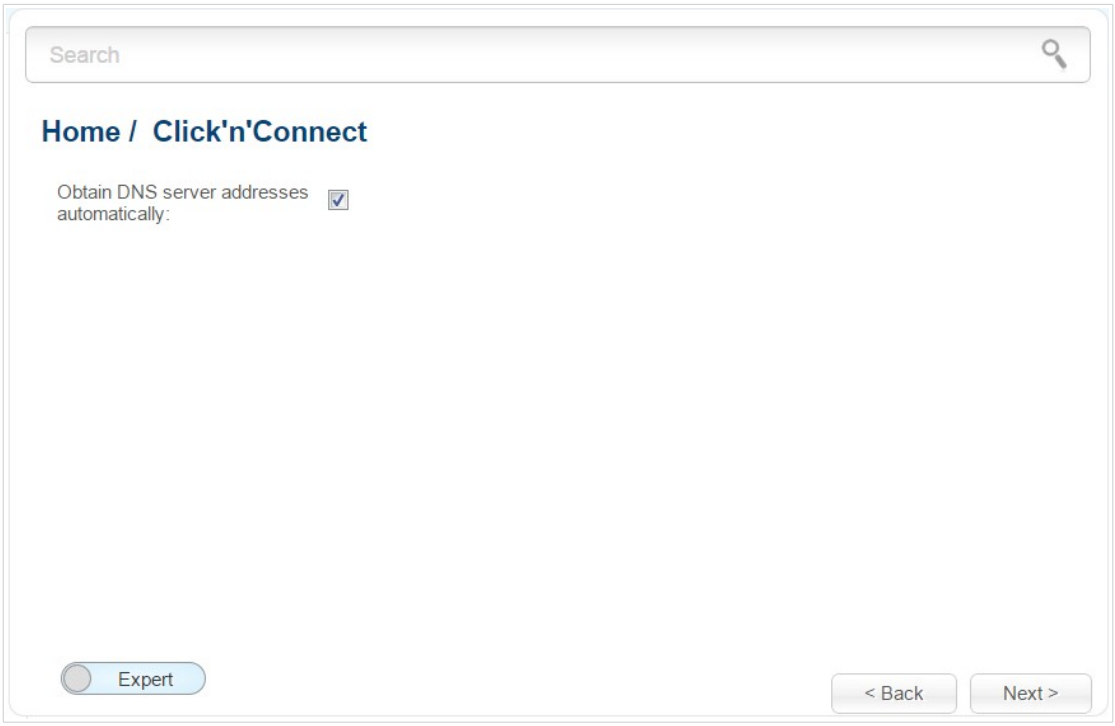


Figure 39. Configuring PPTP + Dynamic IP WAN connection.

If your ISP has provided the addresses of the DNS servers, deselect the **Obtain DNS server addresses automatically** checkbox and fill in the **Primary DNS server** field.

As a rule, the specified settings are enough to configure a non-protected connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPTP/L2TP + Static IP or PPTP/L2TP + Dynamic IP WAN Connection*** section, page 99).

Click the **Next** button to continue.

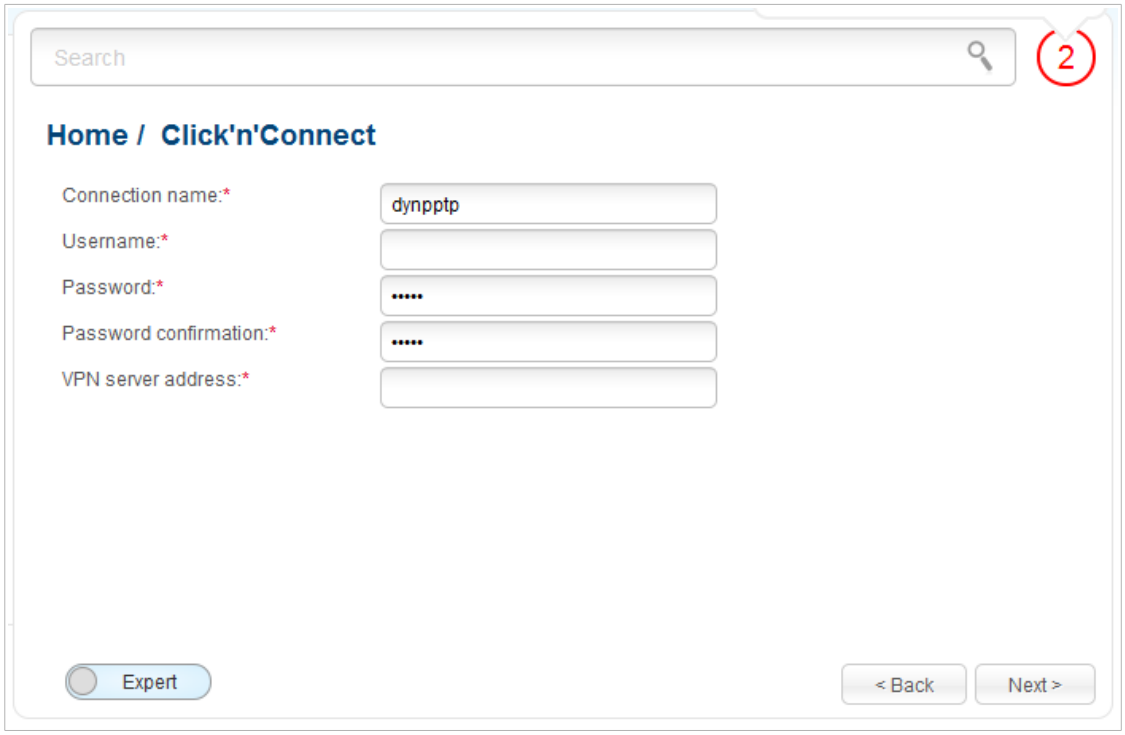


Figure 40. Configuring PPTP + Dynamic IP WAN connection.

In the **Connection name** field, specify a name for the connection for easier identification.

In the **Username** field, enter your login, and in the **Password** and **Password confirmation** fields – the password provided by your ISP.

In the **VPN server address** field, enter the IP or URL address of the PPTP or L2TP authentication server.

As a rule, the specified settings are enough to configure a protected connection (the VPN tunnel). If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the ***Creating PPTP/L2TP + Static IP or PPTP/L2TP + Dynamic IP WAN Connection*** section, page 99).

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Click the **Apply** button to create the connection or the **Back** button to specify other settings.

After clicking the **Apply** button, the page for checking the Internet availability opens (see the ***Checking Internet Availability*** section, page 53).

Checking Internet Availability

On the page, you can check the WAN connection you have created.

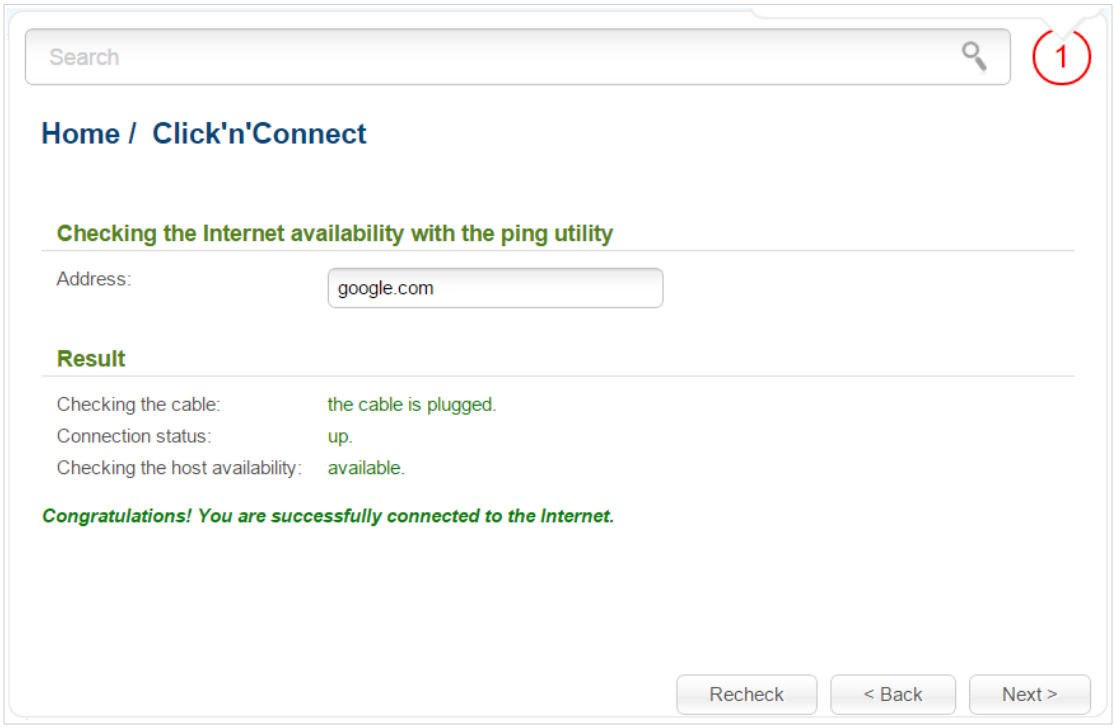


Figure 41. Checking the Internet availability.

In the **Result** section, the status of the WAN connection and possible causes of malfunctions are displayed. To recheck the status of the WAN connection, enter the IP address or name of a host in the **Address** field or leave the value specified by default (`google.com` for IPv4 connections, `ipv6.google.com` for IPv6 connections). Then click the **Recheck** button.

Click the **Back** button to specify other settings.

Click the **Next** button to continue.

After clicking the **Next** button, the page for configuring the Yandex.DNS service opens (see the ***Configuring Yandex.DNS Service*** section, page 54).

Configuring Yandex.DNS Service

On the page, you can enable the Yandex.DNS service and configure its operating mode.

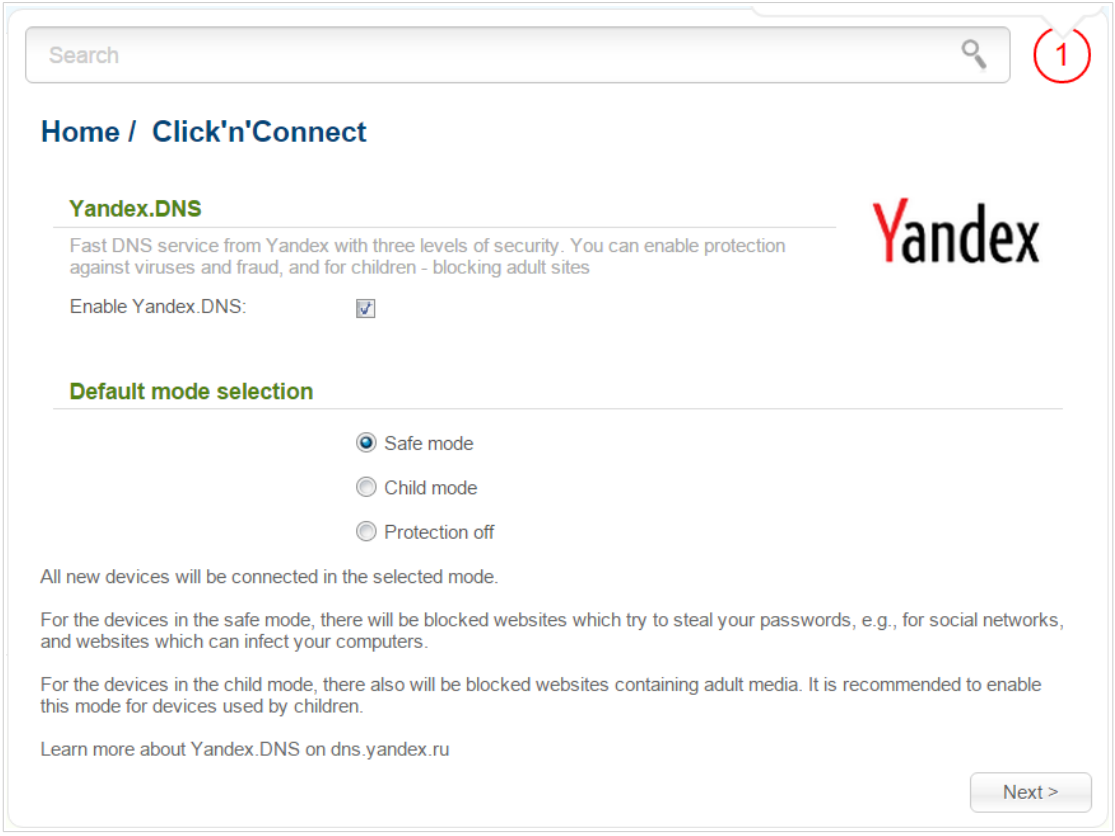


Figure 42. Configuring the Yandex.DNS service.

To enable the Yandex.DNS service, select the **Enable Yandex.DNS** checkbox. Then select the needed choice of the radio button to configure filtering for all devices of the router's network:

- **Safe mode**: when this value is selected, the service blocks access to malicious and fraudulent web sites;
- **Child mode**: when this value is selected, the service blocks access to malicious and fraudulent web sites and blocks access to adult content;
- **Protection off**: when this value is selected, the service provides the DNS server with no restrictions on access to unsafe web sites.

If you are not going to use the service, leave the **Enable Yandex.DNS** checkbox unselected.

Click the **Next** button to continue.

After clicking the **Next** button, the page for configuring wireless connection opens (see the ***Configuring Wireless Connection*** section, page 55).

Configuring Wireless Connection

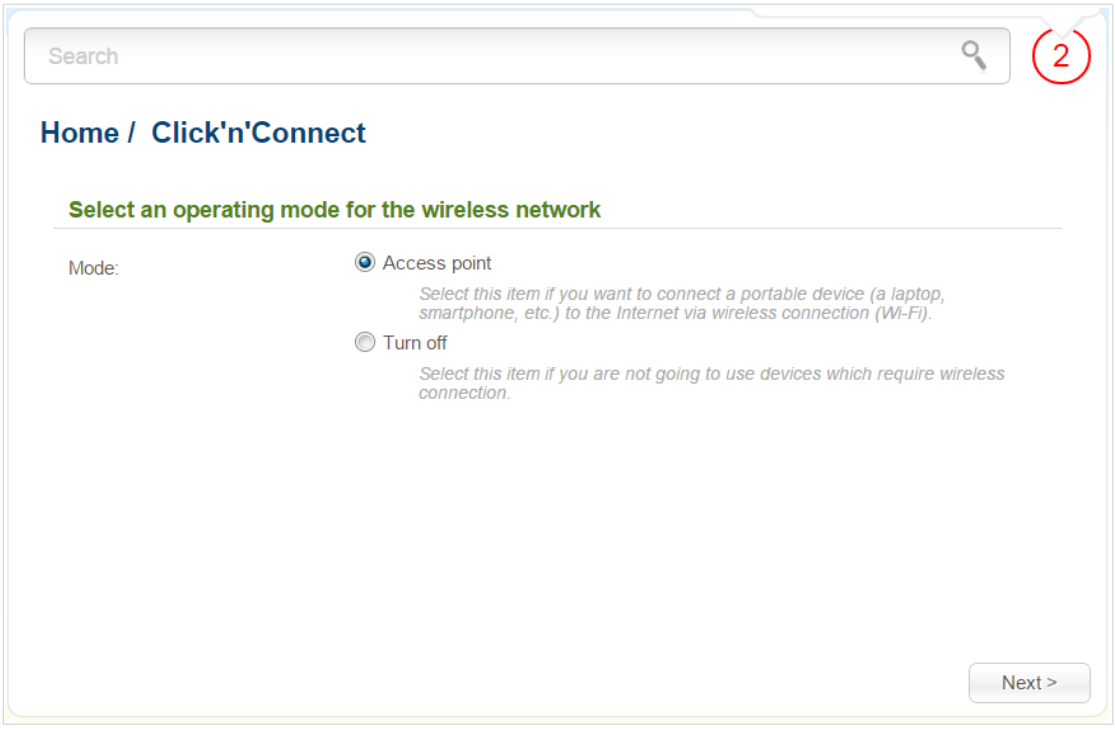


Figure 43. Selecting the operating mode for the wireless network.

If you are not going to use the wireless connection, select the **Turn off** choice of the **Mode** radio button. Click the **Next** button and then click the **Apply** button on the opened page. After clicking the button, the page for configuring the router to use an IPTV set-top box opens (see the ***Configuring IPTV*** section, page 58).

If you want to connect portable devices to the Internet via wireless connection, select the **Access point** choice of the **Mode** radio button. Click the **Next** button.

On the opened page, in the **SSID** field, specify a new name for the network (use digits and Latin characters).

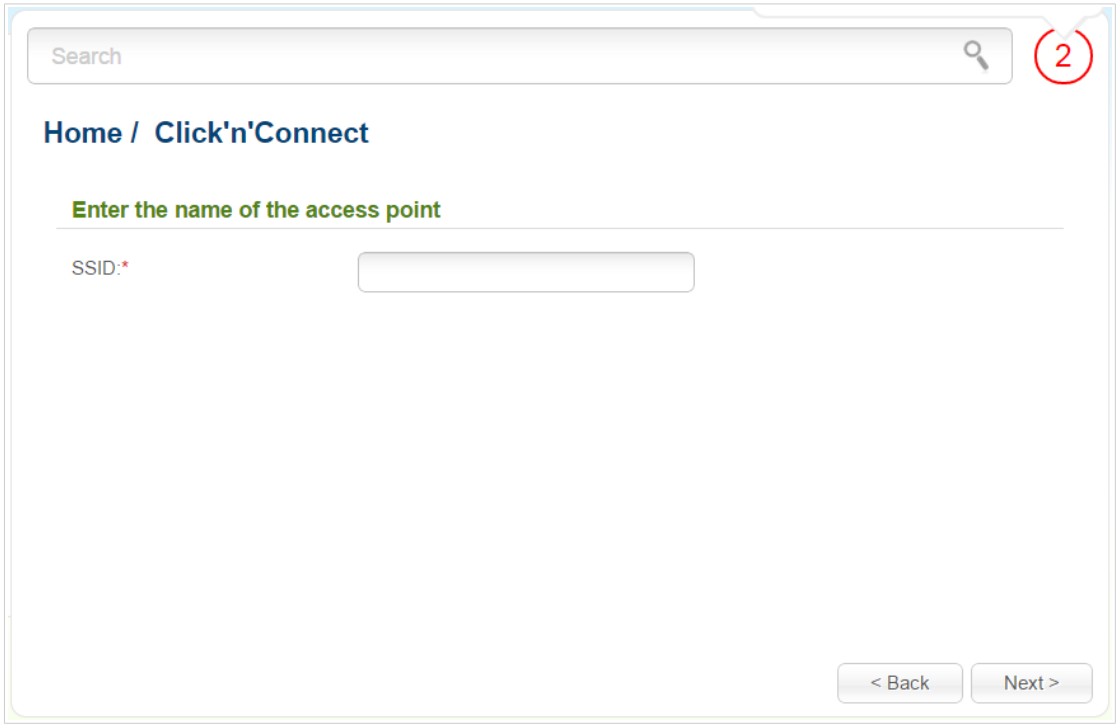


Figure 44. Changing the name of the wireless LAN.

Click the **Next** button to continue.

On the next page, you can modify security settings of the WLAN.

Select the **Protected** value from the **Network Authentication** drop-down list and enter a key (a password that will be used to access your wireless network) in the **Network key** field. Use digits and Latin characters. After applying this setting, the **WPA-PSK/WPA2-PSK mixed** authentication type is specified for the router's WLAN.

When the **Open** value is selected, the **Network key** field is unavailable. After applying this setting, the **Open** authentication type with no encryption is specified for the router's WLAN.

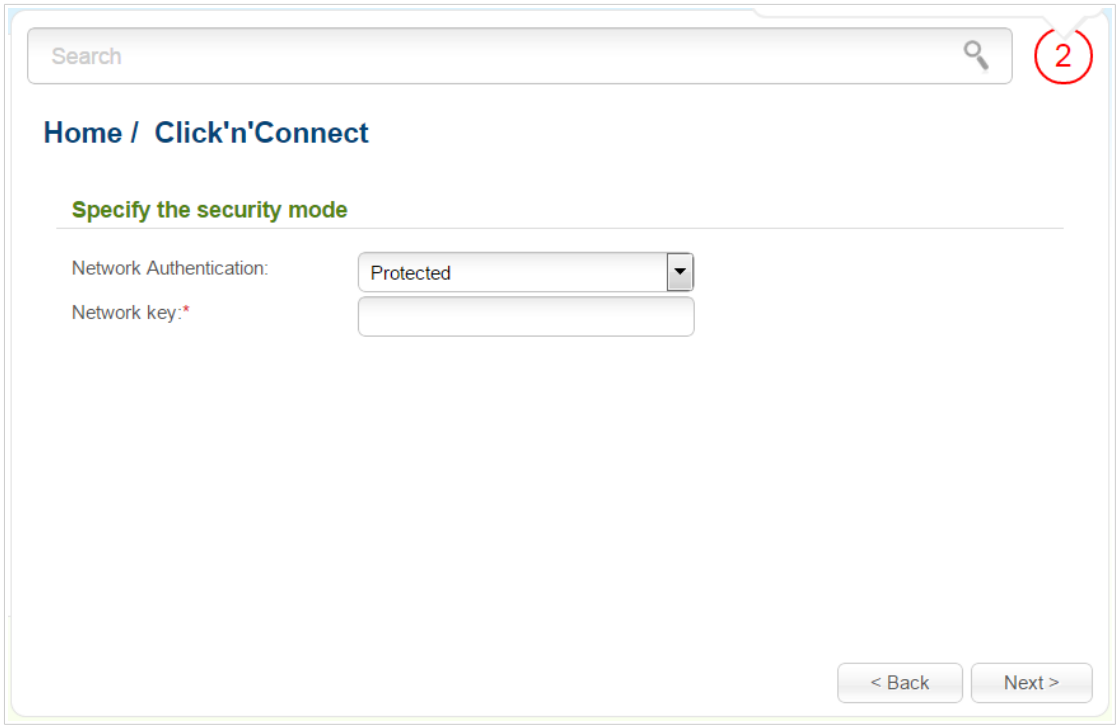


Figure 45. Selecting a security mode for the wireless network.

Click the **Next** button to continue.

On the next page, the specified settings are displayed. Make sure that they are correct and then click the **Apply** button. After clicking the button, the page for configuring the router to use an IPTV set-top box opens (see the ***Configuring IPTV*** section, page 58).

Configuring IPTV

On the page, you can configure the router to use an IPTV set-top box.

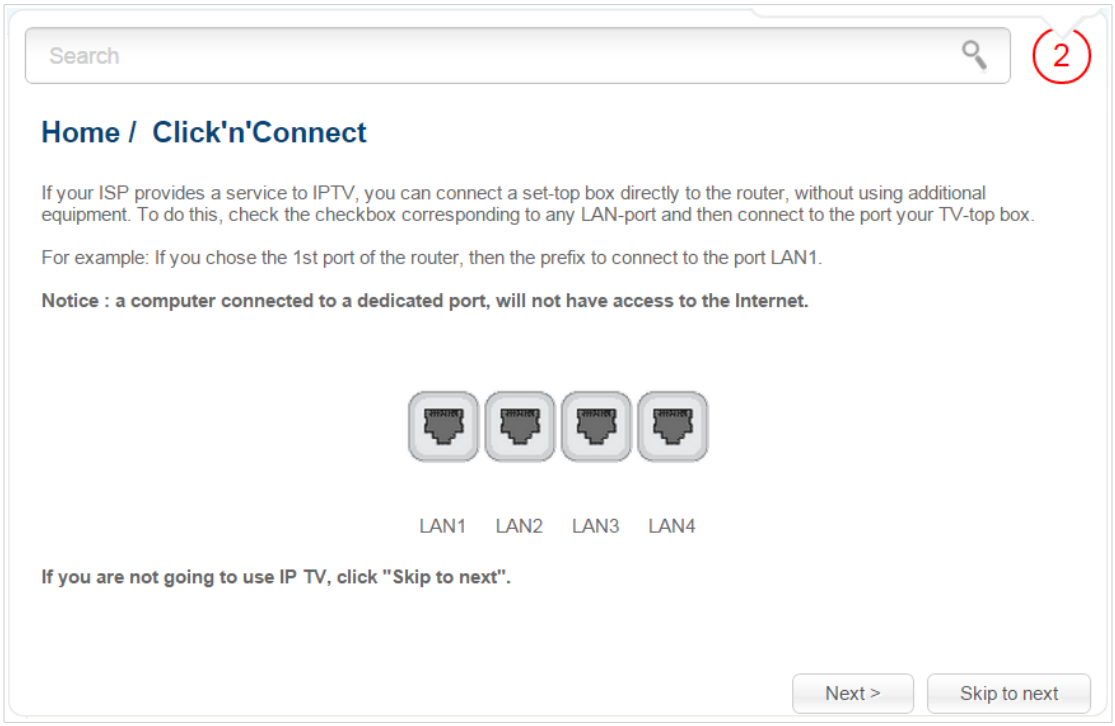


Figure 46. Selecting a LAN port to connect an IPTV set-top box.

On the opened page, select the LAN port of the router to which you will connect your IPTV set-top box.

If in the future you need to disconnect your IPTV set-top box from the specified LAN port and connect to it a computer, start the **IPTV settings wizard** (for the detailed description of the Wizard, see the ***IPTV Settings Wizard*** section, page 67).

If for accessing the Internet and IPTV services your ISP uses virtual local area networks with identifiers (VLAN ID), to configure access to the IPTV service, proceed to the **Advanced / VLAN** page, create a group of ports with the required value of the **VLAN ID** parameter, the **Bridge** type, and the port to which the set-top box will be connected (see the ***VLAN*** section, page 132, for a detailed description of the elements from the page).

Click the **Next** button to continue.

Click the **Skip to next** button in order not to apply the IPTV settings.

Click the **Apply** button to save the specified settings.

After clicking the **Apply** button, the **Home / Information** page opens.

Wireless Network Settings Wizard

To specify all needed settings for your wireless network, click the **Wireless network settings wizard** link in the **Home** section.

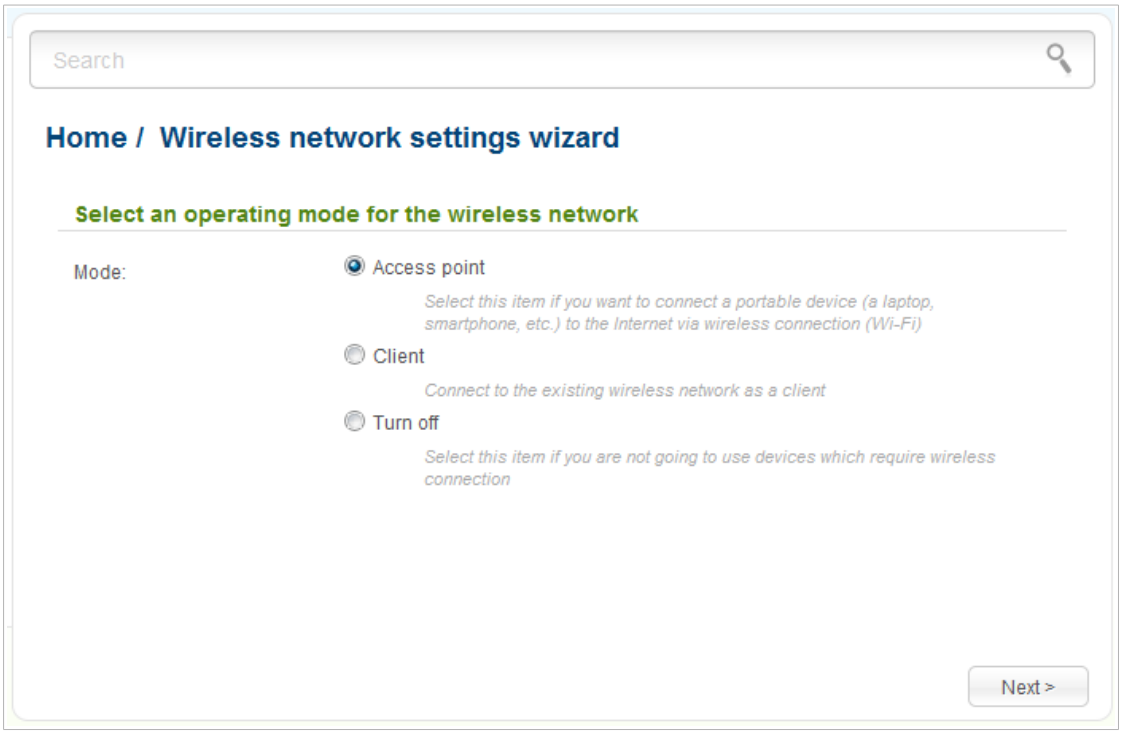


Figure 47. The page for selecting the operating mode for the wireless network.

If you are not going to use the wireless connection, select the **Turn off** choice of the **Mode** radio button. Click the **Next** button and then click the **Apply** button on the opened page. After clicking the button, the **Home / Information** page opens.

If you want to connect portable devices to the Internet via wireless connection, select the **Access point** choice of the **Mode** radio button. Click the **Next** button.

If you want to configure the router as a client to connect to a wireless access point, select the **Client** choice of the **Mode** radio button. Click the **Next** button.

Access Point Mode

On the opened page, in the **SSID** field, specify a new name for the network (use digits and Latin characters).

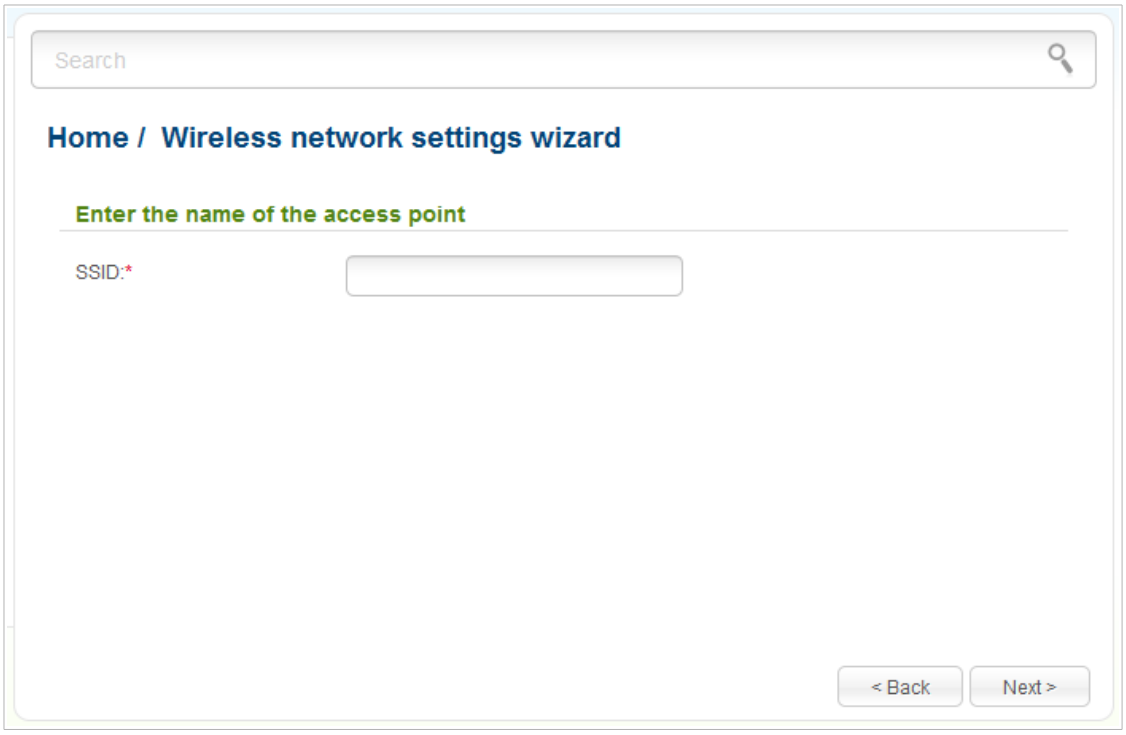


Figure 48. Page for changing the name of the wireless LAN.

Click the **Next** button to continue.

On the next page, you can modify security settings of the WLAN.

Select the **Protected** value from the **Network Authentication** drop-down list and enter a key (a password that will be used to access your wireless network) in the **Network key** field. Use digits and Latin characters. After applying this setting, the **WPA-PSK/WPA2-PSK mixed** authentication type is specified for the router's WLAN.

When the **Open** value is selected, the **Network key** field is unavailable. After applying this setting, the **Open** authentication type with no encryption is specified for the router's WLAN.

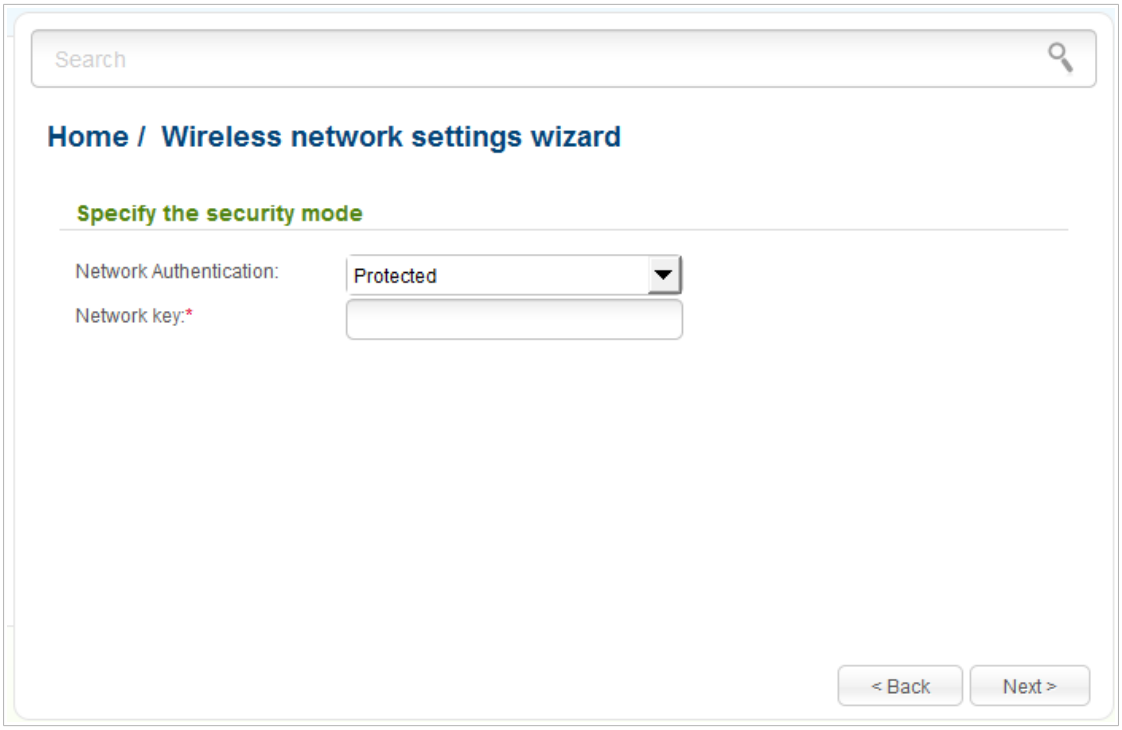


Figure 49. Page for selecting a security mode for the wireless network.

Click the **Next** button to continue.

On the next page, the specified settings are displayed. Make sure that they are correct and then click the **Apply** button. After clicking the button, the **Home / Information** page opens.

Client Mode

On the opened page, click the **Search** button.

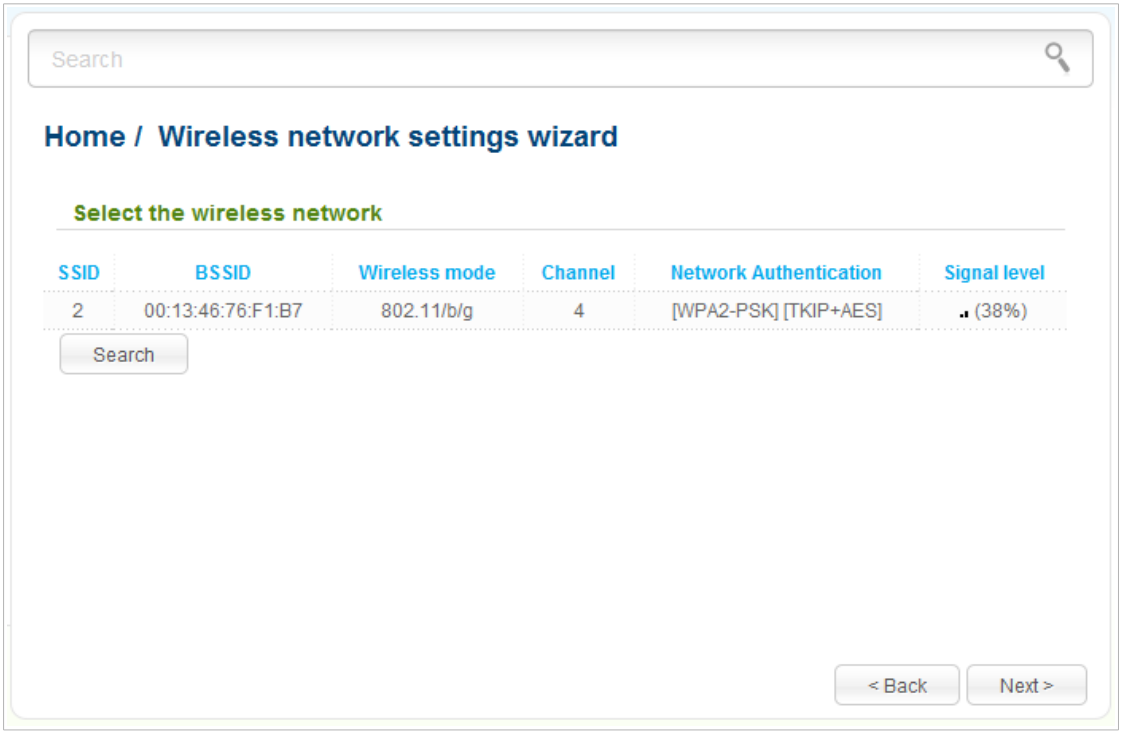


Figure 50. The page for selecting a network to connect.

Select the network to which you want to connect and click the **Next** button.

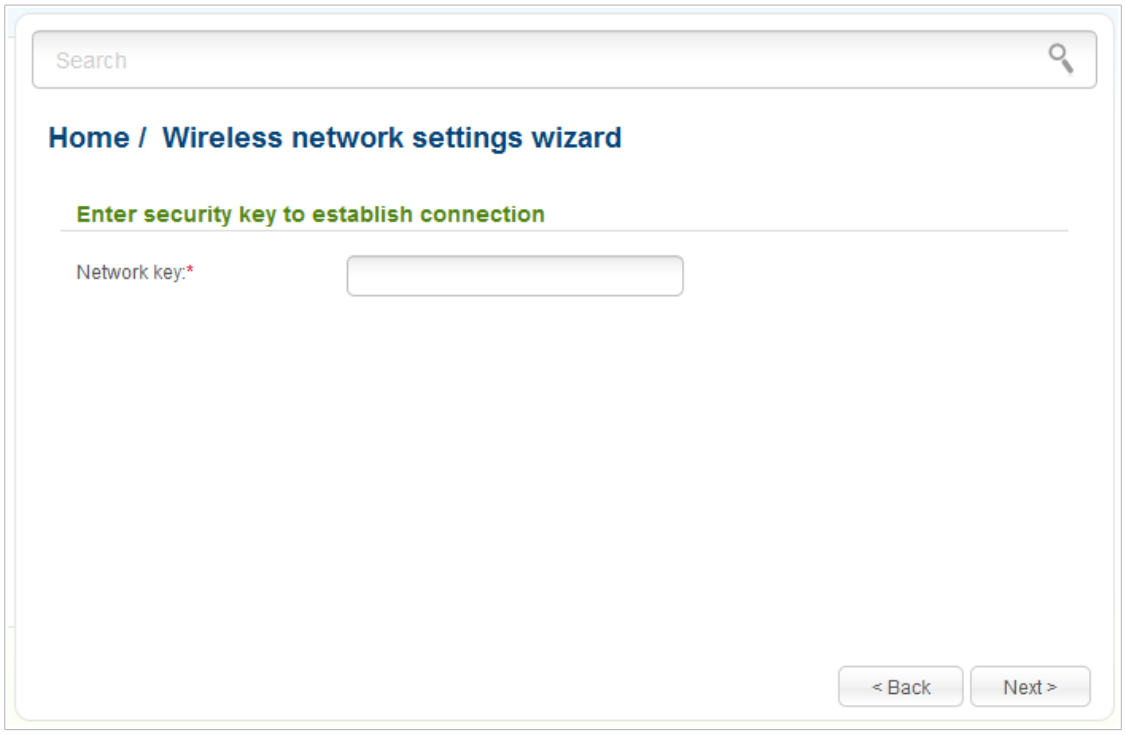


Figure 51. The page for entering the password for connection to the wireless network.

If you need a password to connect to the selected network, enter the password in the **Network key** field and click the **Next** button.

On the next page, you can specify an individual name (SSID) and security settings for the router or disable the router's wireless network broadcast.

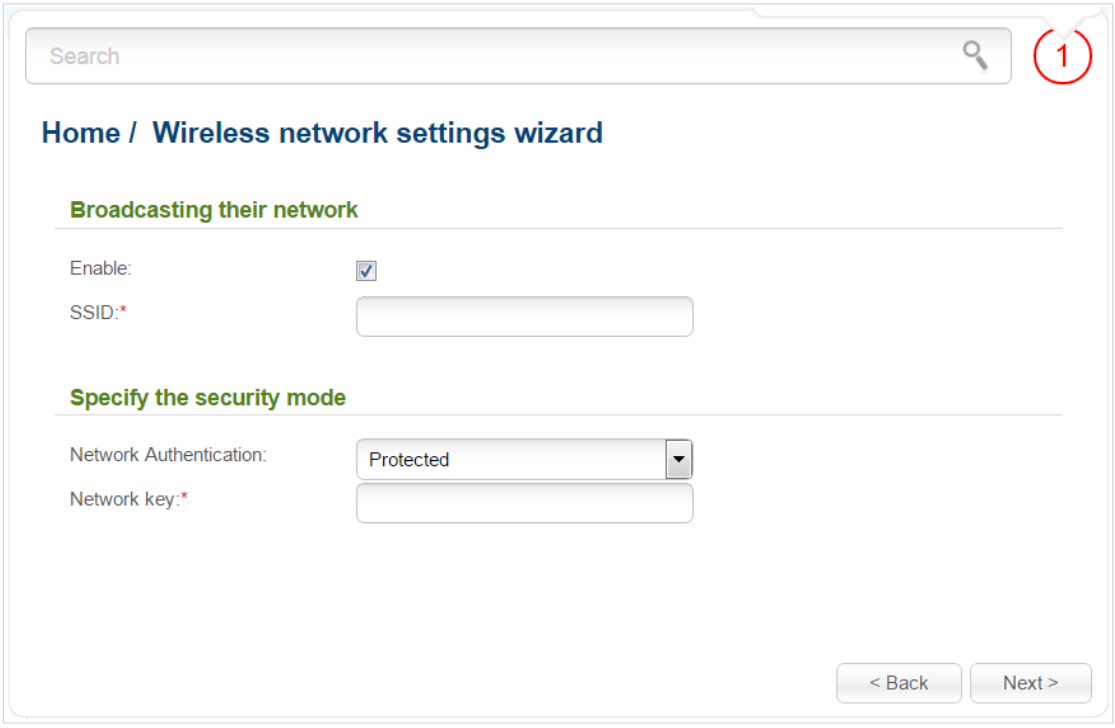


Figure 52. The page for changing the settings of the wireless local area network.

If you want to use the router's wireless network to connect devices, leave the **Enable** checkbox selected. Then, if needed, specify another name for the network in the **SSID** field (use digits and Latin characters).

It is strongly recommended to configure the secure wireless network of DIR-615S. To do this, select the **Protected** value from the **Network Authentication** drop-down list and enter a key (a password that will be used to access your wireless network) in the **Network key** field. Use digits and Latin characters. After applying this setting, the **WPA-PSK/WPA2-PSK mixed** authentication type is specified for the router's WLAN. Click the **Next** button.

On the next page, the parameters of the network to which you want to connect, the entered password, and the settings of the wireless network of the router are displayed. Make sure that the specified settings are correct and then click the **Apply** button. After that, the wireless channel of DIR-615S will switch to the channel of the wireless access point to which you have connected.

After configuring the device as a client, you need to create a WAN connection with relevant parameters for the **WiFiClient** interface.

After clicking the **Apply** button, the **Home / Information** page opens.

Virtual Server Settings Wizard

To create a virtual server for redirecting incoming Internet traffic to a specified IP address in the LAN, click the **Virtual server settings wizard** link in the **Home** section.

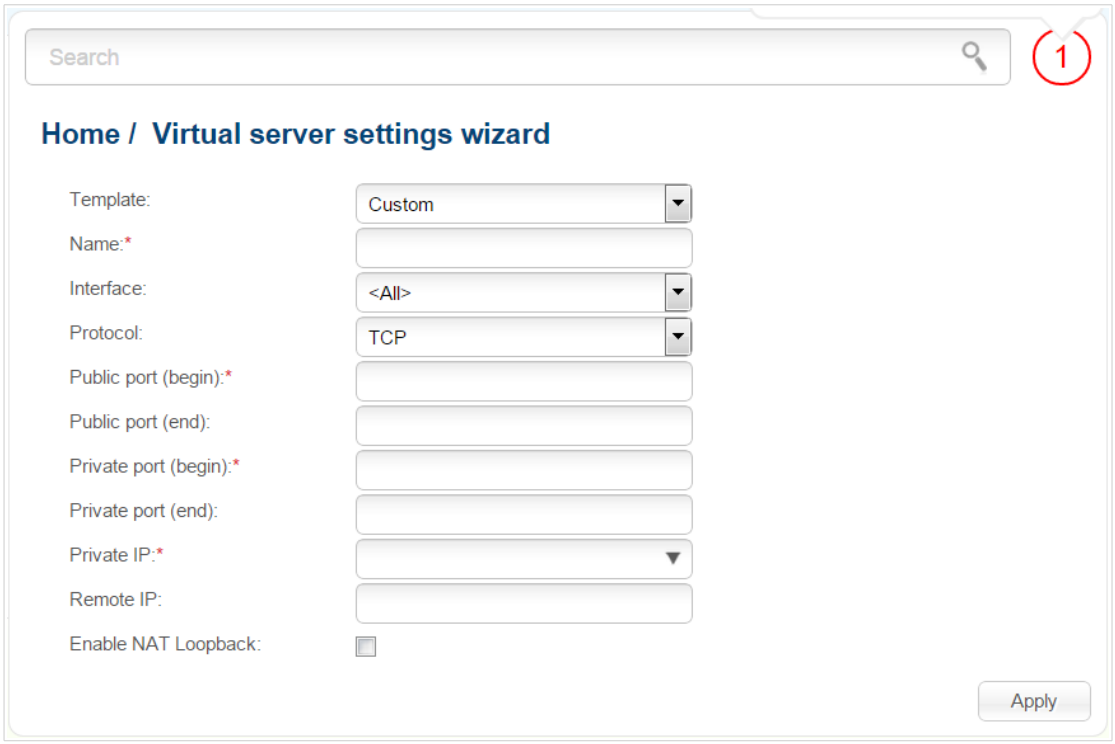


Figure 53. The page for adding a virtual server.

On the opened page, you can specify the following parameters:

Parameter	Description
Template	Select a virtual server template from the drop-down list, or select **Custom** to specify all parameters of the new virtual server manually.
Name	Enter a name for the virtual server for easier identification. You can specify any name.
Interface	Select a WAN connection to which this virtual server will be assigned.
Protocol	A protocol that will be used by the new virtual server. Select a value from the drop-down list.
Public port (begin)/ Public port (end)	A port of the router from which traffic is directed to the IP address specified in the **Private IP** field. Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Public port (begin)** field and leave the **Public port (end)** field blank.

Parameter	Description
Private port (begin)/ Private port (end)	A port of the IP address specified in the **Private IP** field to which traffic is directed from the **Public port**. Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Private port (begin)** field and leave the **Private port (end)** field blank.
Private IP	Enter the IP address of the server from the local area network. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list (the field will be filled in automatically).
Remote IP	Enter the IP address of the server from the external network.
Enable NAT Loopback	If the checkbox is selected, users of the router's LAN can access the server, which IP address is specified in the **Private IP** field, using the router's external IP address as the server's IP address. If a DDNS service is configured on the **Advanced / DDNS** page, the users can access the server via the router's domain name.

When needed settings are configured, click the **Apply** button.

After clicking the **Apply** button, a dialog box appears.

If you are going to create a new virtual server, click the **OK** button. After clicking the button, the **Firewall / Virtual servers** page opens (see the ***Virtual Servers*** section, page 151, for a detailed description of the elements from the page).

If you are not going to create a new virtual server, click the **Cancel** button. After clicking the button, the **Home / Information** page opens.

IPTV Settings Wizard

To configure the router to use an IPTV set-top box, click the **IPTV settings wizard** link in the **Home** section.

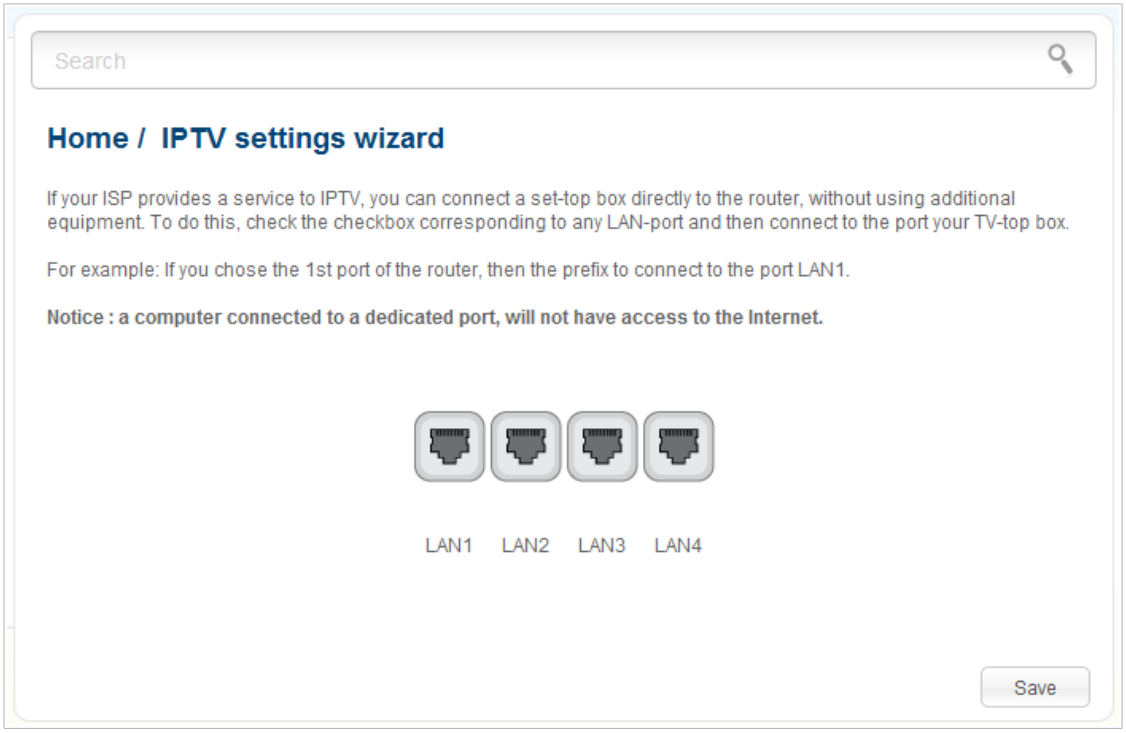


Figure 54. The page for selecting a LAN port to connect an IPTV set-top box.

On the opened page, select the LAN port of the router to which you will connect your IPTV set-top box and click the **Save** button.

If in the future you need to disconnect your IPTV set-top box from the specified LAN port and connect to it a computer, on the current page deselect the LAN port and click the **Save** button.

If for accessing the Internet and IPTV services your ISP uses virtual local area networks with identifiers (VLAN ID), to configure access to the IPTV service, proceed to the **Advanced / VLAN** page, create a group of ports with the required value of the **VLAN ID** parameter, the **Bridge** type, and the port to which the set-top box will be connected (see the ***VLAN*** section, page 132, for a detailed description of the elements from the page).

Status

The pages of this section display data on the current state of the router:

- network statistics
- IP addresses leased by the DHCP server
- the routing table
- data on devices connected to the router's network and its web-based interface
- active sessions
- addresses of active multicast groups.

Network Statistics

On the **Status / Network statistics** page, you can view statistics for all connections existing in the system (WAN connections, LAN, WLAN). For each connection the following data are displayed: name and state (when the connection is on, its name is highlighted in green, when the connection is off, its name is highlighted in red), IP address and subnet mask, gateway (if the connection is established), MAC address, MTU value, and volume of data received and transmitted (with increase of the volume the units of measurement are changed automatically: byte, Kbyte, Mbyte, Gbyte).

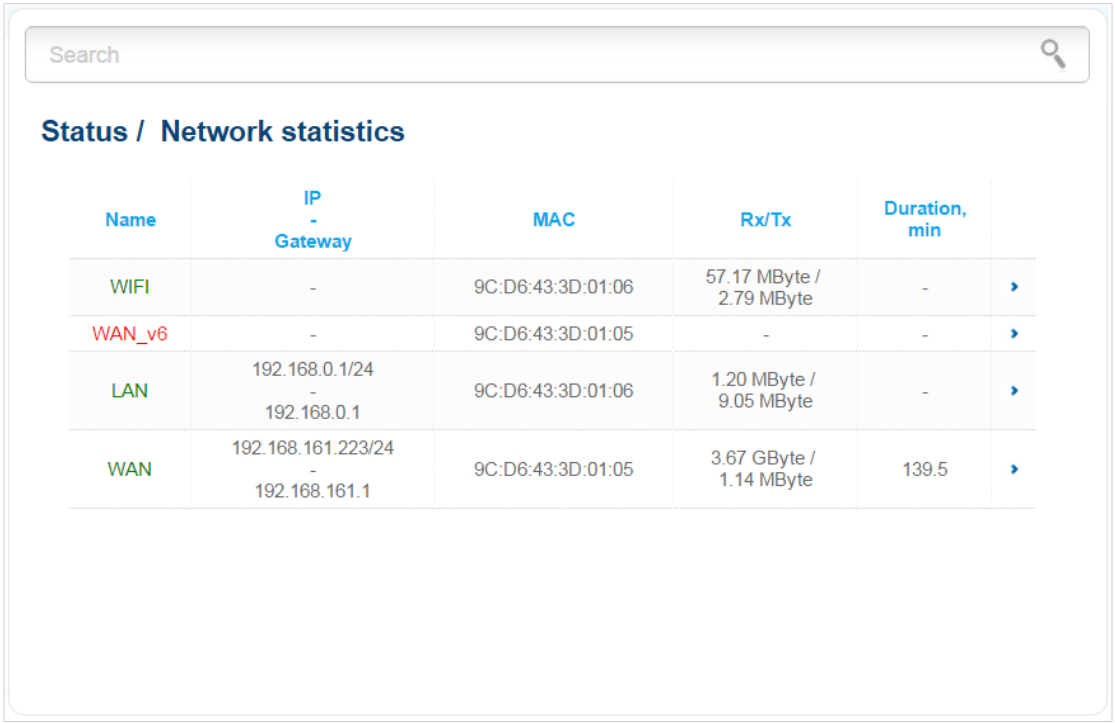


*Figure 55. The **Status / Network statistics** page.*

DHCP

The **Status / DHCP** page displays the information on computers that have been identified by hostnames and MAC addresses and have got IP addresses from the DHCP server of the device, as well as the IP address expiration periods (the lease time).

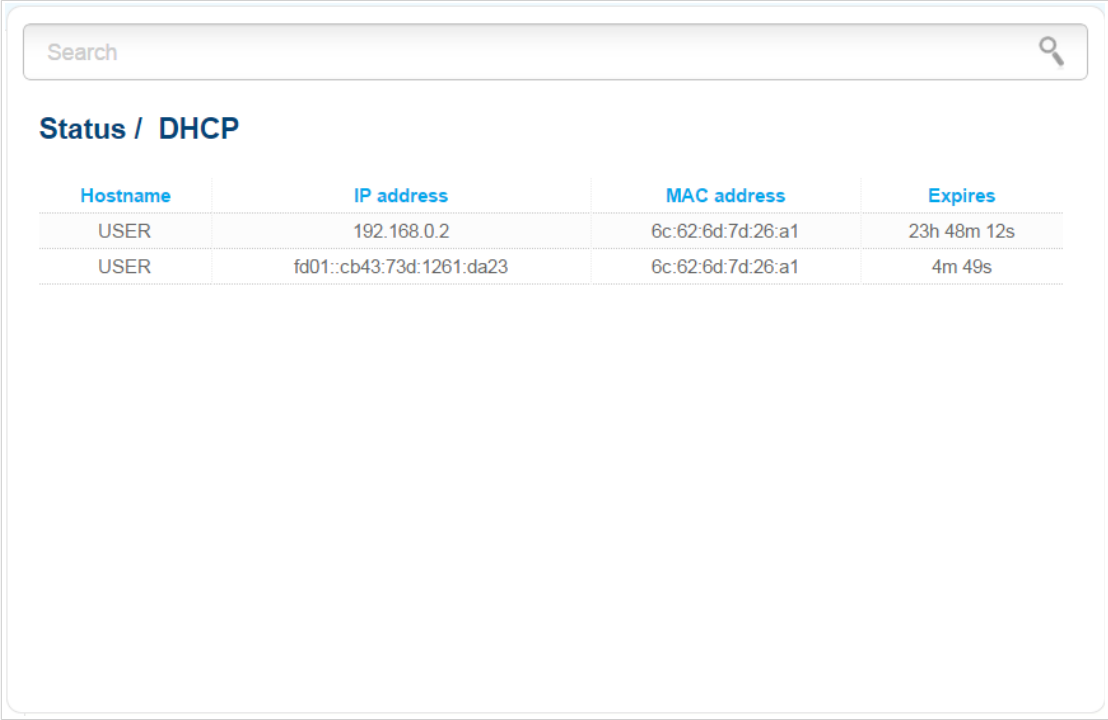


*Figure 56. The **Status / DHCP** page.*

Routing Table

The **Status / Routing table** page displays the information on routes. The table contains destination IP addresses, gateways, subnet masks, and other data.

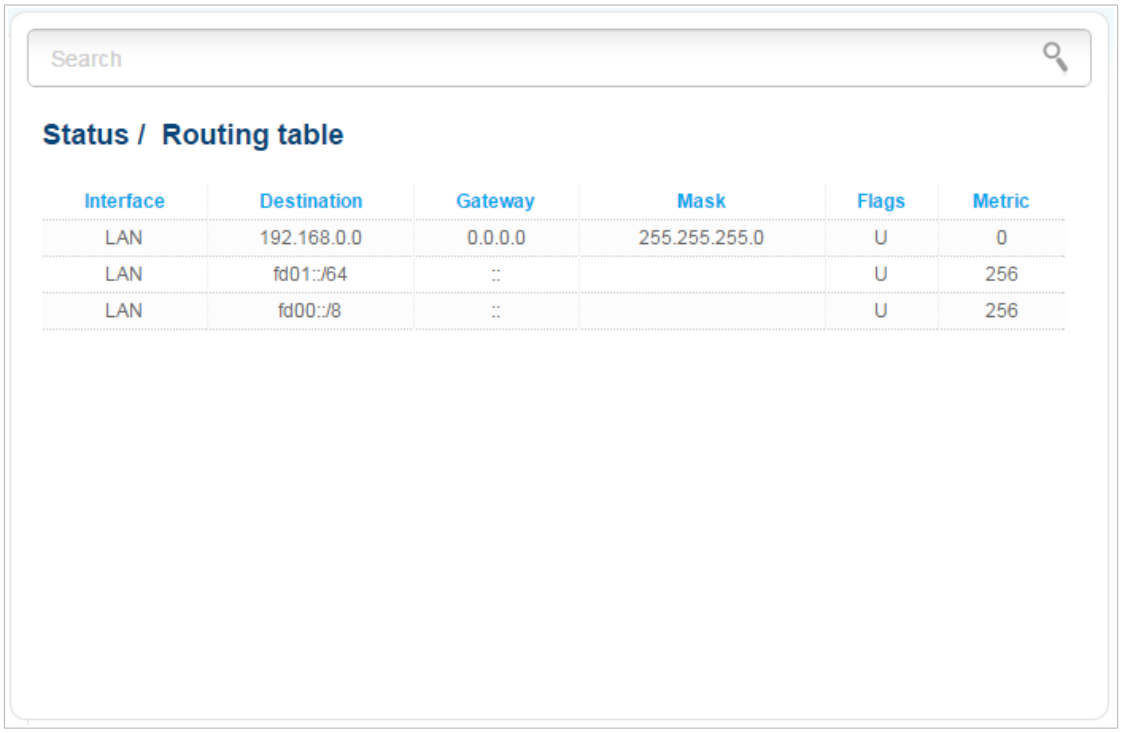


*Figure 57. The **Status / Routing table** page.*

Clients

On the **Status / Clients** page, you can view the list of devices connected to the router and devices accessing its web-based interface.

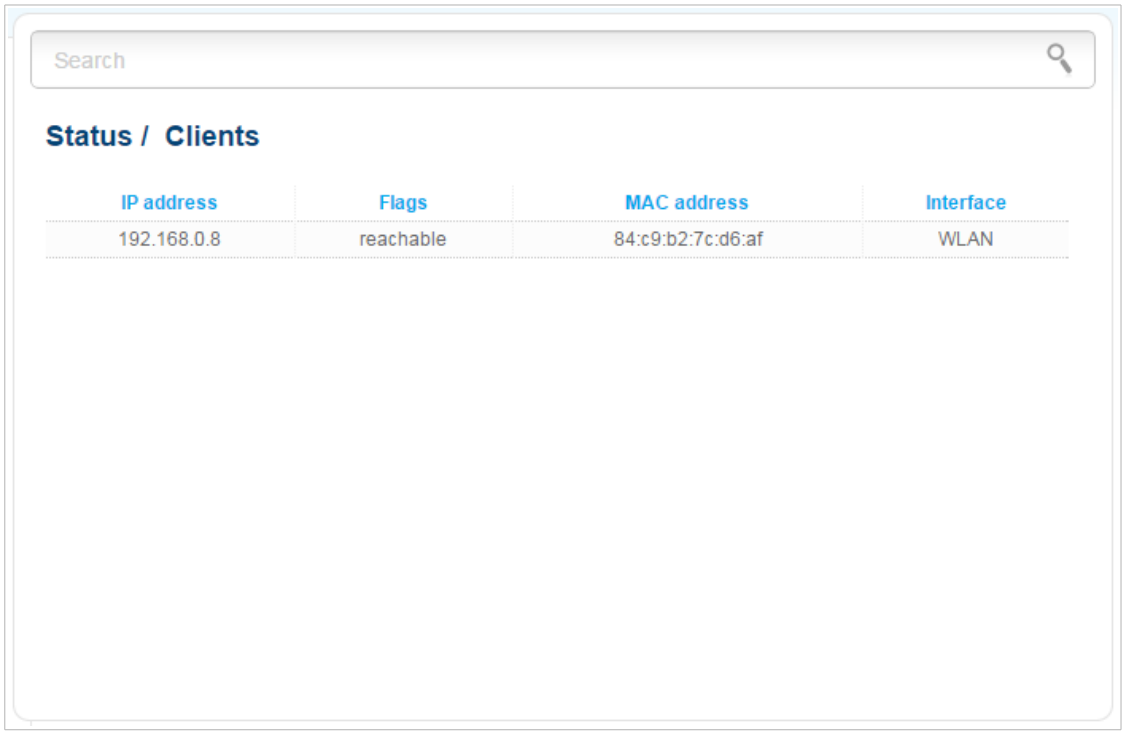


*Figure 58. The **Status / Clients** page.*

For each device the following data are displayed: the IP address, the MAC address, and the interface to which the device is connected.

Active Sessions

On the **Status / Active sessions** page, you can view information on current sessions in the router's network. For each session the following data are displayed: a protocol for network packet transmission, a source IP address and port, a destination IP address and port.

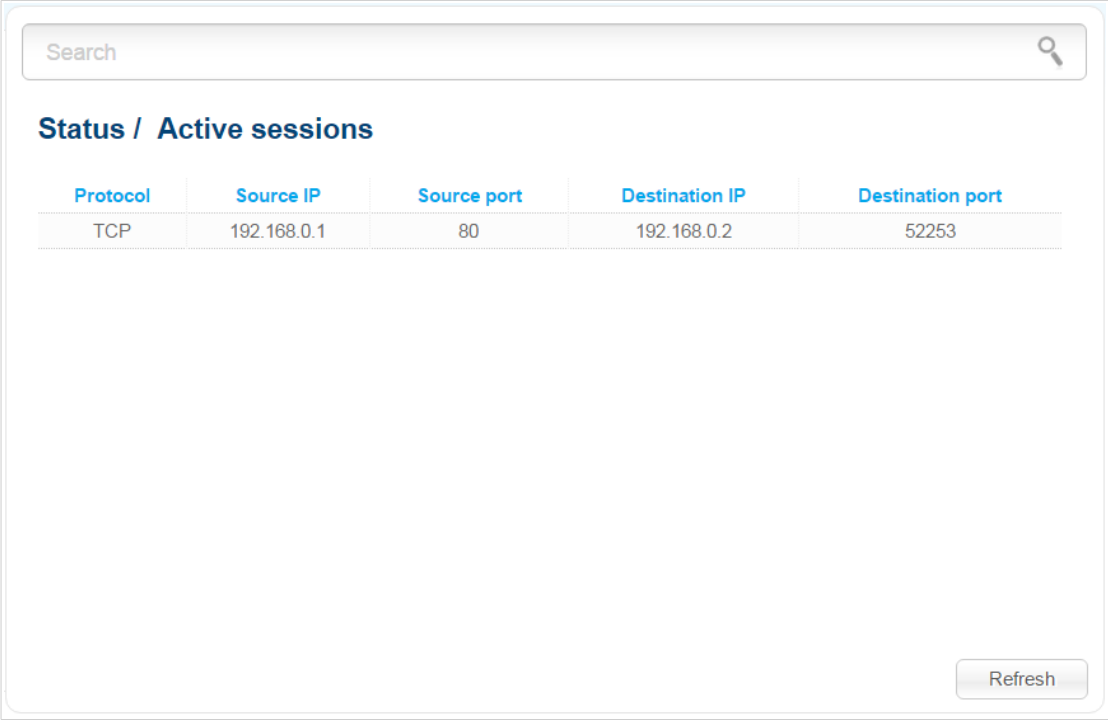


*Figure 59. The **Status / Active sessions** page.*

To view the latest data on current sessions in the router's network, click the **Refresh** button.

Multicast groups

The **Status / Multicast groups** page displays addresses of active multicast groups (including IPTV channels and groups for transferring service information) to which the device is subscribed, and the interface through which the device is subscribed.

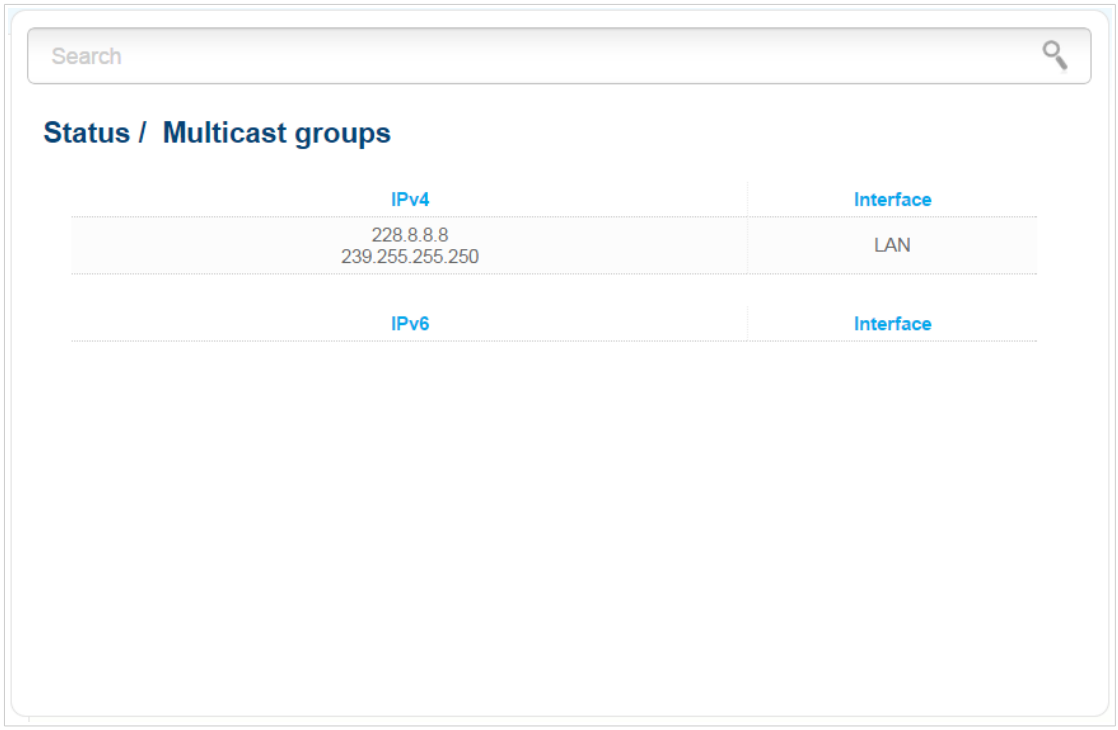


*Figure 60. The **Status / Multicast groups** page.*

Net

In this menu you can configure basic parameters of the router's local area network and configure connection to the Internet (a WAN connection).

WAN

On the **Net / WAN** page, you can create and edit connections used by the router.

By default, a **Dynamic IP** connection and a **Dynamic IPv6** connection are configured in the system. They are assigned to the WAN port of the router. You can edit these connections or delete them.

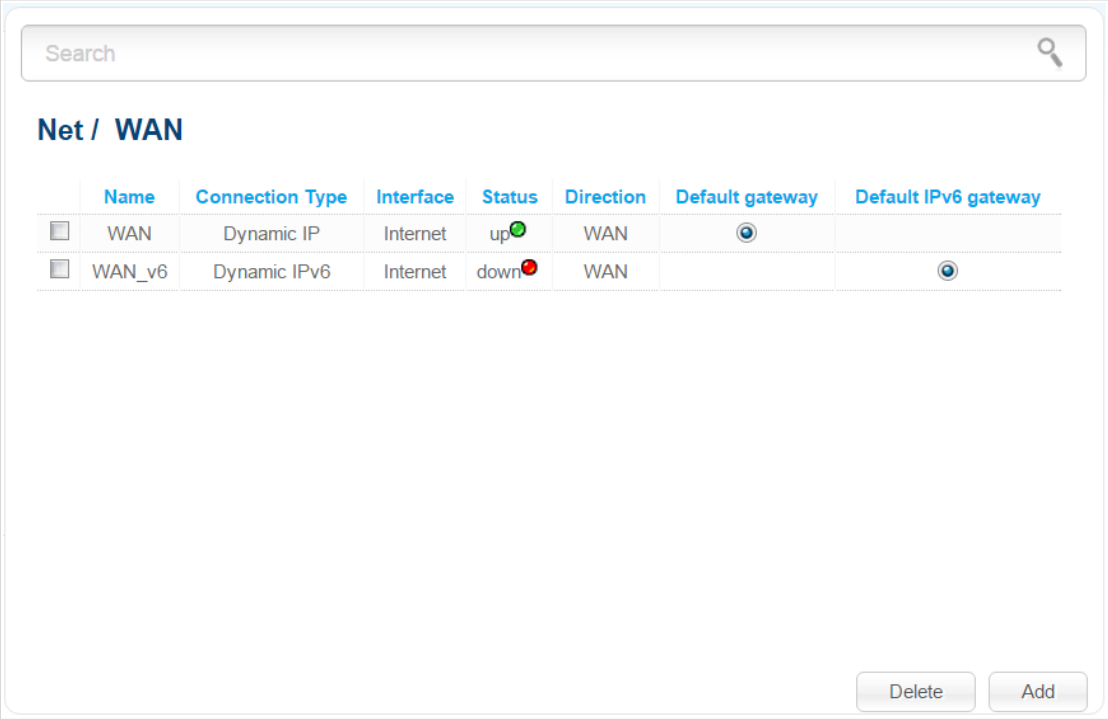


*Figure 61. The **Net / WAN** page.*

To create a new connection, click the **Add** button. On the page displayed, select the needed value from the **Connection Type** drop-down list and specify the relevant values.

To edit an existing connection, left-click the relevant line in the table. On the page displayed, change the parameters and click the **Apply** button.

To remove a connection, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Also you can remove a connection on the editing page.

To use one of existing WAN connections as a default IPv4 gateway, select the choice of the **Default gateway** radio button located in the line corresponding to this connection.

To use one of existing WAN connections as a default IPv6 gateway, select the choice of the **Default IPv6 gateway** radio button located in the line corresponding to this connection.

Creating PPPoE WAN Connection

To create a connection of the PPPoE type, click the **Add** button on the **Net / WAN** page. On the opened page, select the **PPPoE** value from the **Connection Type** drop-down list and specify the needed values.

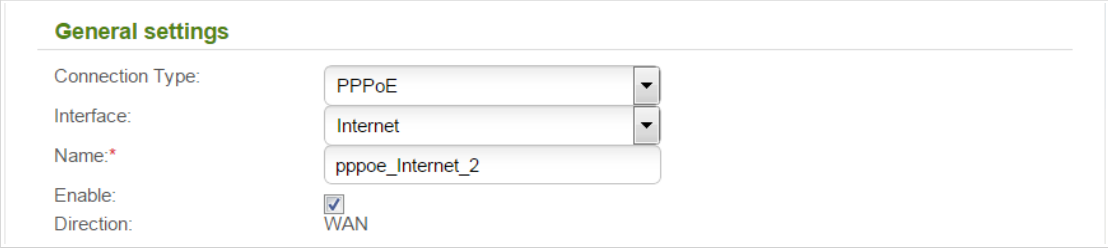


*Figure 62. The page for creating a new **PPPoE** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

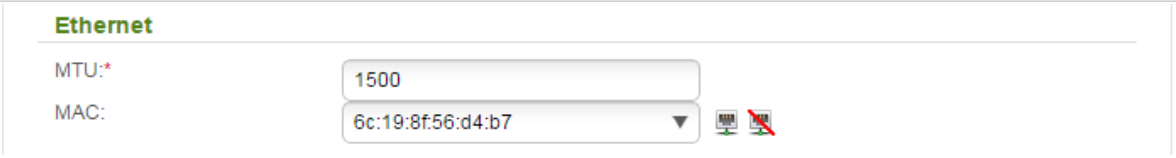


*Figure 63. The page for creating a new **PPPoE** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

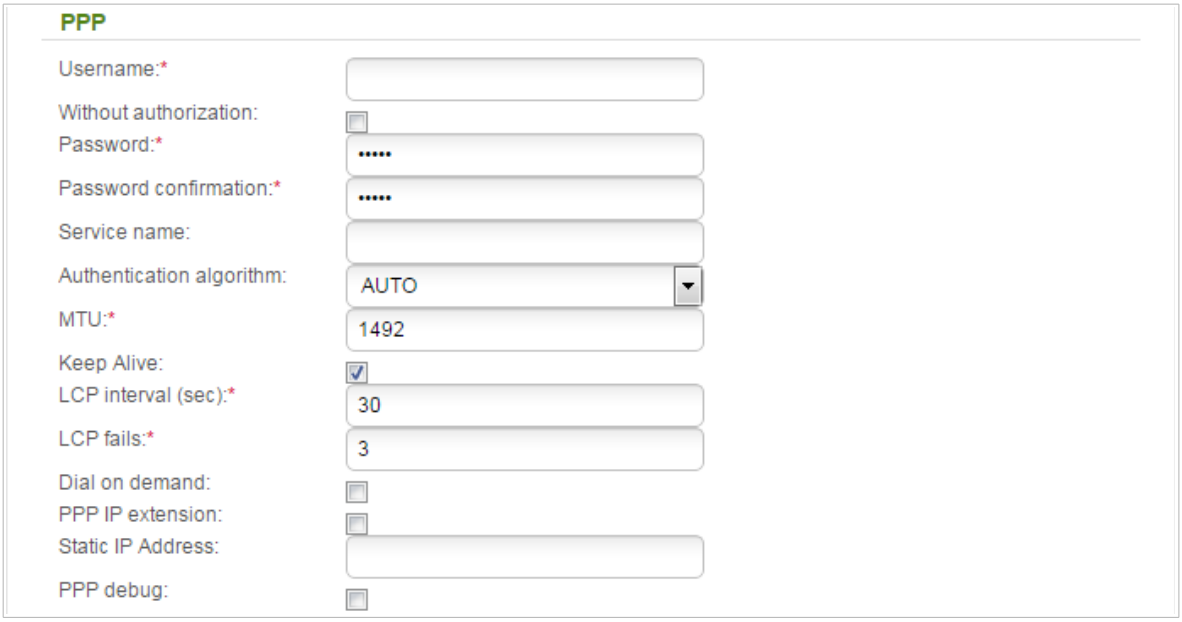


*Figure 64. The page for creating a new **PPPoE** connection. The **PPP** section.*

Parameter	Description
PPP	
Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Service name	The name of the PPPoE authentication server.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
MTU	The maximum size of units transmitted by the interface.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the **LCP interval** and **LCP fails** fields are available. Specify the required values.
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the **Maximum idle time** field, specify a period of inactivity (in seconds) after which the connection should be terminated.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.

Parameter	Description
Static IP Address	Fill in the field if you want to use a static IP address to access the Internet.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.

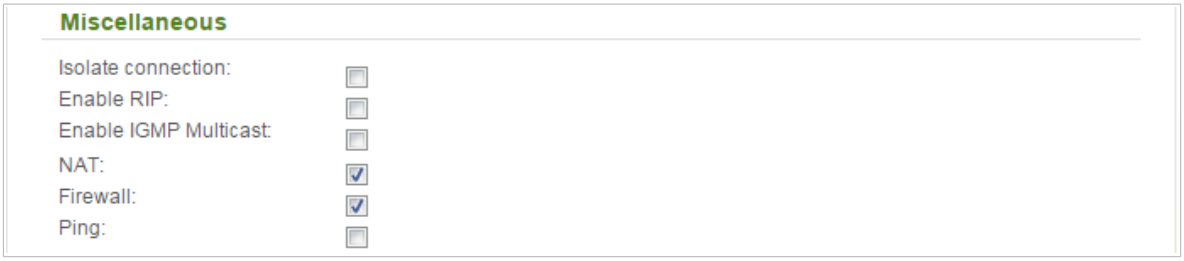


*Figure 65. The page for creating a new **PPPoE** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

Creating IPv6 PPPoE or PPPoE Dual Stack WAN Connection

To create a connection of the IPv6 PPPoE or PPPoE Dual Stack type, click the **Add** button on the **Net / WAN** page. On the opened page, select the relevant value from the **Connection Type** drop-down list and specify the needed values.

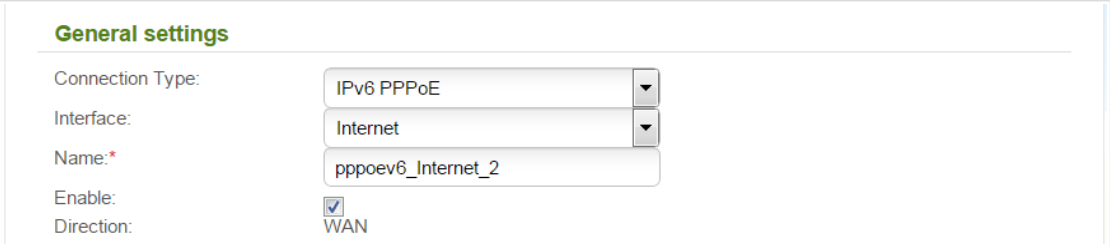


*Figure 66. The page for creating a new **IPv6 PPPoE** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

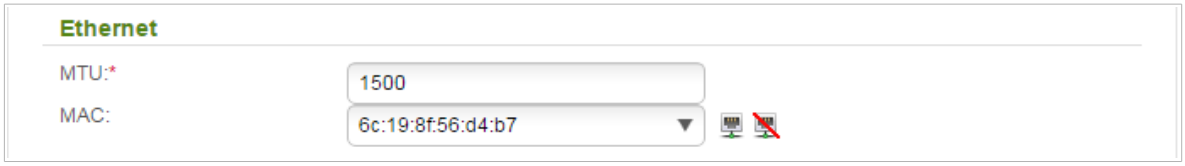


*Figure 67. The page for creating a new **IPv6 PPPoE** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

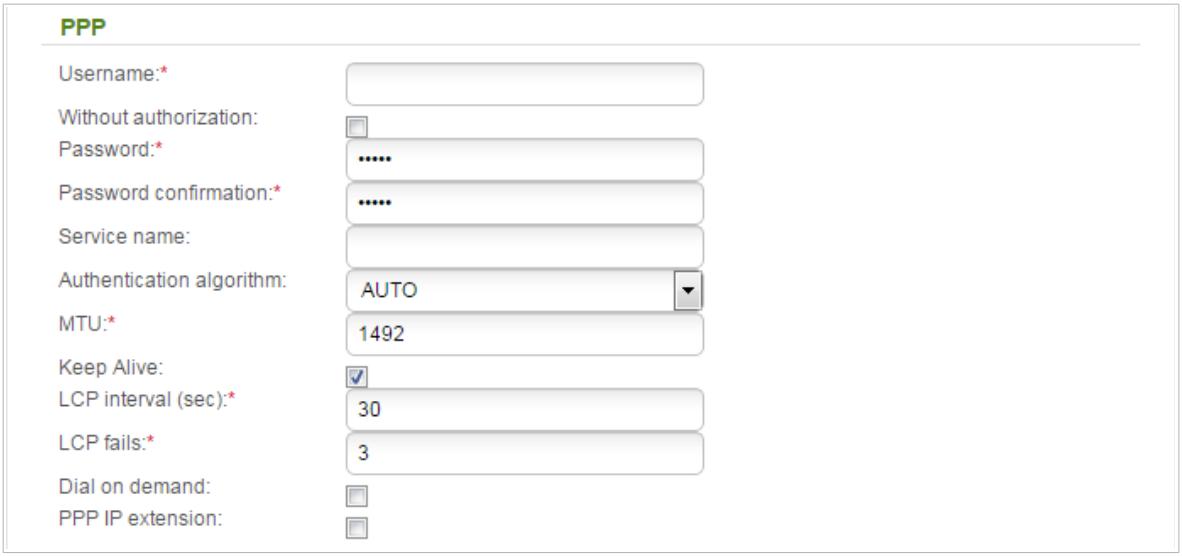


*Figure 68. The page for creating a new **IPv6 PPPoE** connection. The **PPP** section.*

Parameter	Description
PPP	
Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Service name	The name of the PPPoE authentication server.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
MTU	The maximum size of units transmitted by the interface.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the **LCP interval** and **LCP fails** fields are available. Specify the required values.
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the **Maximum idle time** field, specify a period of inactivity (in seconds) after which the connection should be terminated.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.

Parameter	Description
Static IP Address	*For the **PPPoE Dual Stack** type only.* Fill in the field if you want to use a static IP address to access the Internet.

*Figure 69. The page for creating a new **Pv6 PPPoE** connection. The **IPv6** section.*

Parameter	Description
IPv6	
Get IPv6	Select a method for IPv6 address assignment from the drop-down list or leave the **Automatically** value.

*Figure 70. The page for creating a new **Pv6 PPPoE** connection. The **IPv6 gateway** section.*

Parameter	Description
IPv6 gateway	
SLAAC	Select the checkbox to automatically assign the IPv6 gateway address with help of SLAAC (*Stateless Address Autoconfiguration*).
Static IPv6 gateway address	The static address of the IPv6 gateway. The field is available for editing, if the **SLAAC** checkbox is not selected.

*Figure 71. The page for creating a new **Pv6 PPPoE** connection. The **IPv6 DNS addresses** section.*

Parameter	Description
IPv6 DNS addresses	
Obtain DNS server addresses automatically	Select the checkbox to configure automatic assignment of IPv6 DNS server addresses. If the checkbox is selected, the **Static primary DNS server** and **Static secondary DNS server** fields are not available for editing.
Static primary DNS server/Static secondary DNS server	Enter addresses of the primary and secondary IPv6 DNS servers in the relevant fields.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.

*Figure 72. The page for creating a new **Pv6 PPPoE** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	*For the **PPPoE Dual Stack** type only.* Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	*For the **PPPoE Dual Stack** type only.* Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

Creating Static IP or Dynamic IP WAN Connection

To create a connection of the Static IP or Dynamic IP type, click the **Add** button on the **Net / WAN** page. On the opened page, select the relevant value from the **Connection Type** drop-down list and specify the needed values.

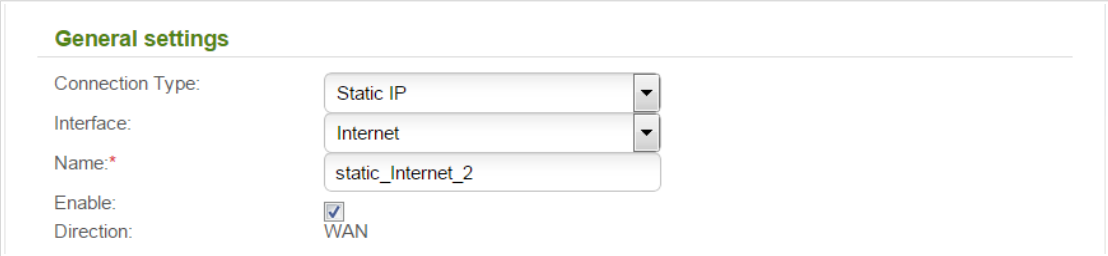


*Figure 73. The page for creating a new **Static IP** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

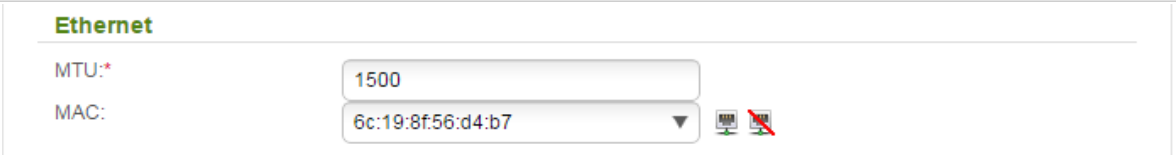


*Figure 74. The page for creating a new **Static IP** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

*Figure 75. The page for creating a new **Static IP** connection. The **IP** section.*

Parameter	Description
IP	
*For **Static IP** type*	
IP Address	Enter an IP address for this WAN connection.
Netmask	Enter a subnet mask for this WAN connection.
Gateway IP address	Enter an IP address of the gateway used by this WAN connection.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
*For **Dynamic IP** type*	
Obtain DNS server addresses automatically	Select the checkbox to configure automatic assignment of DNS server addresses. If the checkbox is selected, the **Primary DNS server** and **Secondary DNS server** fields are not displayed.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
Vendor ID	The identifier of your ISP. *Optional*.
Hostname	A name of the router specified by your ISP. *Optional*.

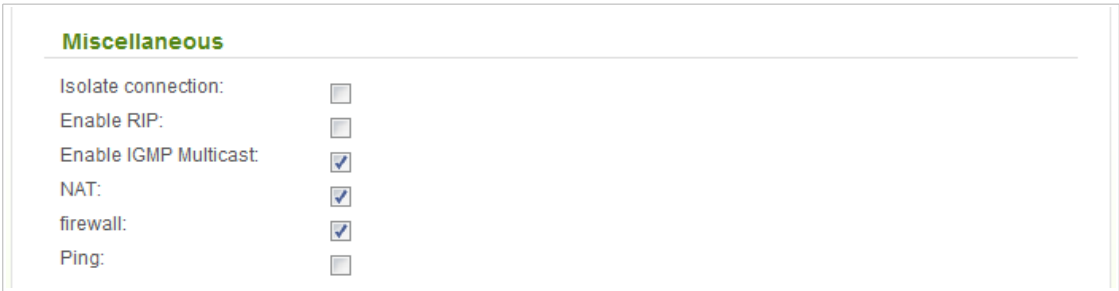


*Figure 76. The page for creating a new **Static IP** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

Creating Static IPv6 or Dynamic IPv6 WAN Connection

To create a connection of the Static IPv6 or Dynamic IPv6 type, click the **Add** button on the **Net / WAN** page. On the opened page, select the relevant value from the **Connection Type** drop-down list and specify the needed values.

*Figure 77. The page for creating a new **Static IPv6** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

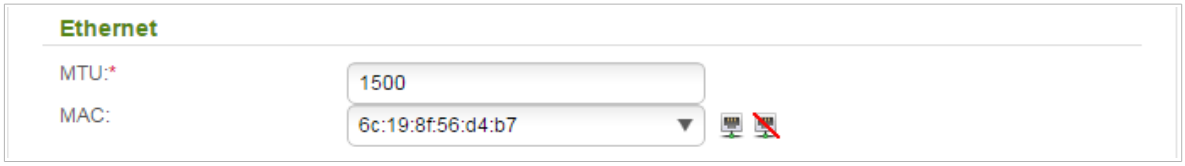


*Figure 78. The page for creating a new **Static IPv6** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

*Figure 79. The page for creating a new **Static IPv6** connection. The **IP** section.*

Parameter	Description
IP	
*For **Static IPv6** type*	
IPv6 address	Enter an IPv6 address for this WAN connection.
Gateway IPv6 address	Enter an IPv6 address of the gateway used by this WAN connection.
Primary IPv6 DNS server/Secondary IPv6 DNS server	Enter addresses of the primary and secondary IPv6 DNS servers in the relevant fields.
*For **Dynamic IPv6** type*	
Get IPv6	Select a method for IPv6 address assignment from the drop-down list or leave the **Automatically** value.
Gateway by SLAAC	Select the checkbox to automatically assign the IPv6 gateway address with help of SLAAC (*Stateless Address Autoconfiguration*).
Static IPv6 gateway address	The static address of the IPv6 gateway. The field is available for editing, if the **Gateway by SLAAC** checkbox is not selected.
Obtain DNS server addresses automatically	Select the checkbox to configure automatic assignment of IPv6 DNS server addresses. If the checkbox is selected, the **Static primary DNS server** and **Static secondary DNS server** fields are not available for editing.
Static primary DNS server/Static secondary DNS server	Enter addresses of the primary and secondary IPv6 DNS servers in the relevant fields.

*Figure 80. The page for creating a new **Static IPv6** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

Creating PPPoE + Static IP or PPPoE + Dynamic IP WAN Connection

To create a connection of the PPPoE + Static IP or PPPoE + Dynamic IP type, click the **Add** button on the **Net / WAN** page. On the opened page, select the relevant value from the **Connection Type** drop-down list and specify the needed values.

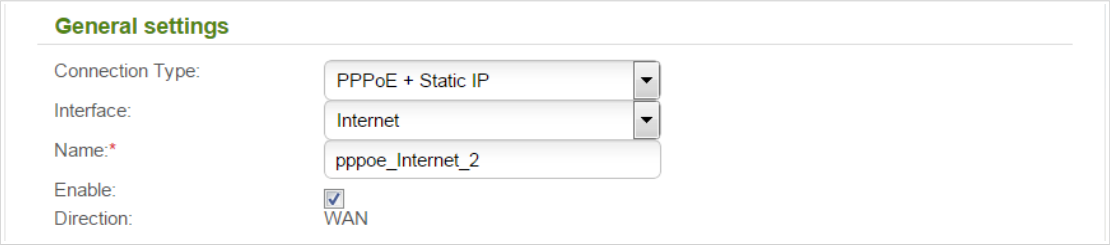


*Figure 81. The page for creating a new **PPPoE + Static IP** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

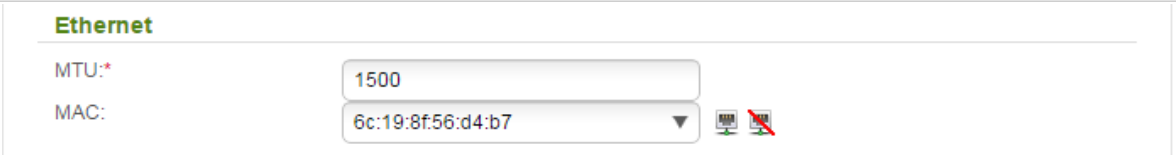


*Figure 82. The page for creating a new **PPPoE + Static IP** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

*Figure 83. The page for creating a new **PPPoE + Static IP** connection. The **IP** section.*

Parameter	Description
IP	
*For **PPPoE + Static IP** type*	
IP Address	Enter an IP address for this WAN connection.
Netmask	Enter a subnet mask for this WAN connection.
Gateway IP address	Enter an IP address of the gateway used by this WAN connection.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
*For **PPPoE + Dynamic IP** type*	
Obtain DNS server addresses automatically	Select the checkbox to configure automatic assignment of DNS server addresses. If the checkbox is selected, the **Primary DNS server** and **Secondary DNS server** fields are not displayed.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
Vendor ID	The identifier of your ISP. *Optional*.
Hostname	A name of the router specified by your ISP. *Optional*.

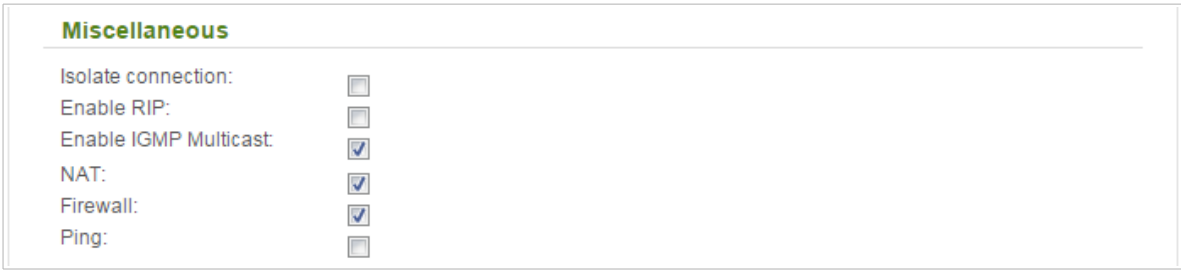


*Figure 84. The page for creating a new **PPPoE + Static IP** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous *(for **IP** section)*	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

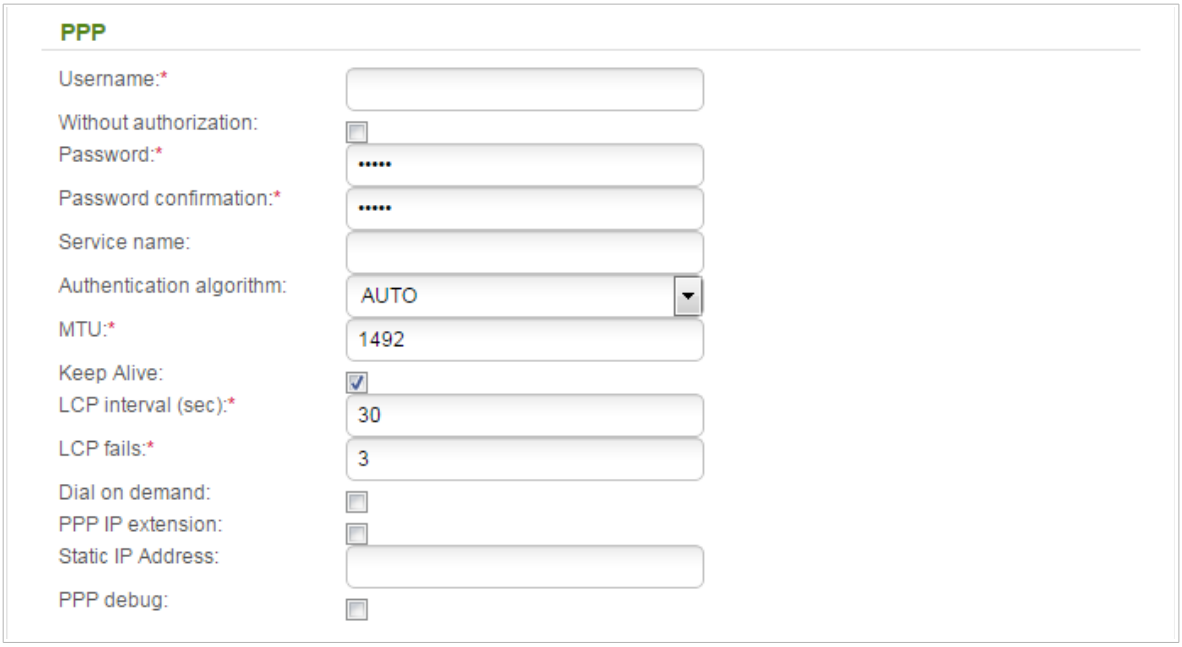


*Figure 85. The page for creating a new **PPPoE + Static IP** connection. The **PPP** section.*

Parameter	Description
PPP	
Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Service name	The name of the PPPoE authentication server.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
MTU	The maximum size of units transmitted by the interface.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the **LCP interval** and **LCP fails** fields are available. Specify the required values.
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the **Maximum idle time** field, specify a period of inactivity (in seconds) after which the connection should be terminated.

Parameter	Description
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
Static IP Address	Fill in the field if you want to use a static IP address to access the Internet.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.

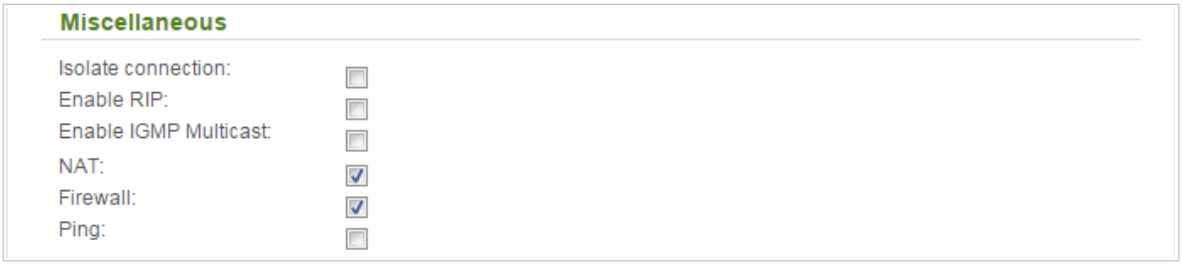


*Figure 86. The page for creating a new **PPPoE + Static IP** connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous *(for **PPP** section)*	
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

Creating PPTP/L2TP + Static IP or PPTP/L2TP + Dynamic IP WAN Connection

To create a connection of the PPTP + Static IP, L2TP + Static IP, PPTP + Dynamic IP, or L2TP + Dynamic IP type, click the **Add** button on the **Net / WAN** page. On the opened page, select the relevant value from the **Connection Type** drop-down list and specify the needed values.

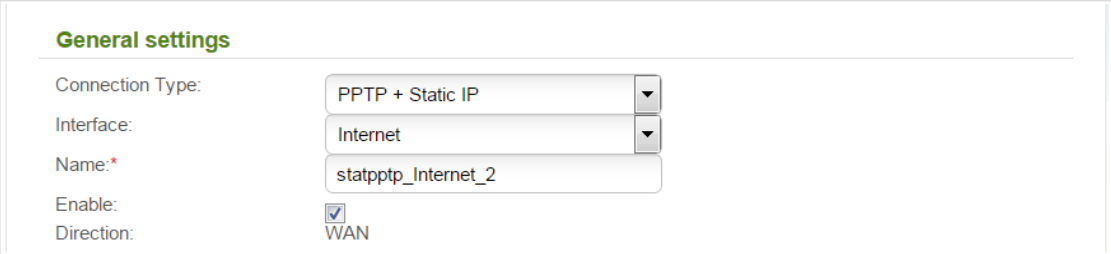


*Figure 87. The page for creating a new **PPTP + Static IP** connection. The **General settings** section.*

Parameter	Description
General settings	
Interface	A physical or virtual interface to which the new connection will be assigned.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

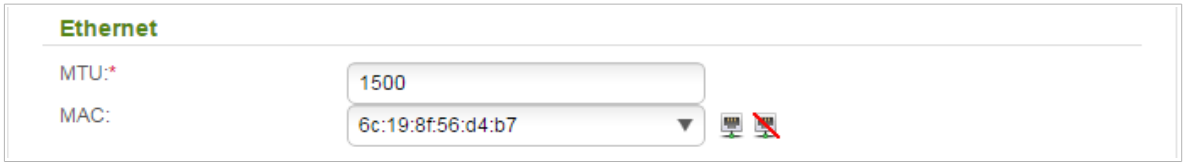


*Figure 88. The page for creating a new **PPTP + Static IP** connection. The **Ethernet** section.*

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface. This parameter is mandatory if your ISP uses MAC address binding. In the field, enter the MAC address registered by your ISP upon concluding the agreement. You can click the **Clone MAC address of your computer** icon ( ) to set the MAC address of the network interface card (of the computer that is being used to configure the router at the moment) as the MAC address of the WAN interface. Also you can set the address of a device connected to the router's LAN at the moment. To do this, select the relevant value from the drop-down list (the field will be filled in automatically). You can click the **Restore default MAC address** icon ( ) to set the router's MAC address.

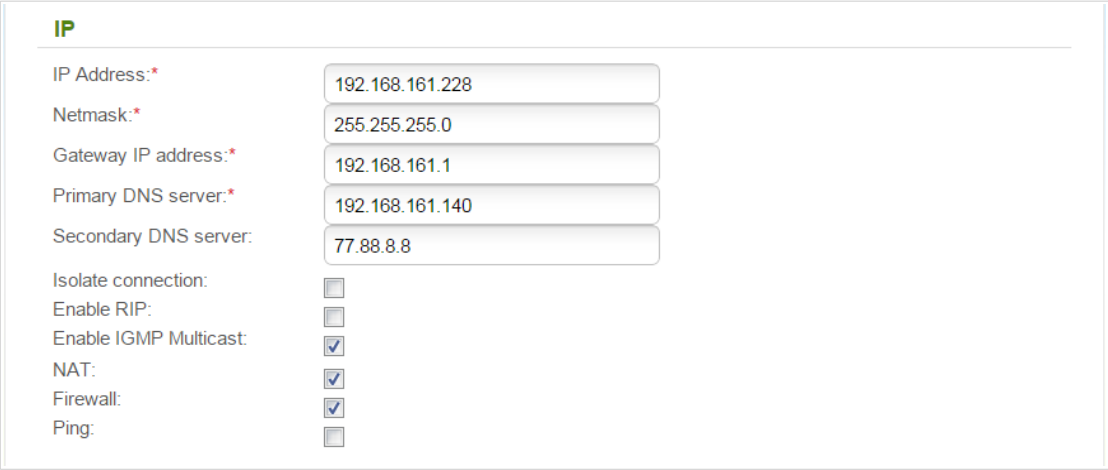


*Figure 89. The page for creating a new **PPTP + Static IP** connection. The **IP** section.*

Parameter	Description
IP	
*For **PPTP** + **Static IP** and **L2TP** + **Static IP** types*	
IP Address	Enter an IP address for this WAN connection.
Netmask	Enter a subnet mask for this WAN connection.
Gateway IP address	Enter an IP address of the gateway used by this WAN connection.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

Parameter	Description
*For **PPTP + Dynamic IP** and **L2TP + Dynamic IP** types*	
Obtain DNS server addresses automatically	Select the checkbox to configure automatic assignment of DNS server addresses. If the checkbox is selected, the **Primary DNS server** and **Secondary DNS server** fields are not displayed.
Primary DNS server/ Secondary DNS server	Enter addresses of the primary and secondary DNS servers in the relevant fields.
Vendor ID	The identifier of your ISP. *Optional*.
Hostname	A name of the router specified by your ISP. *Optional*.
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

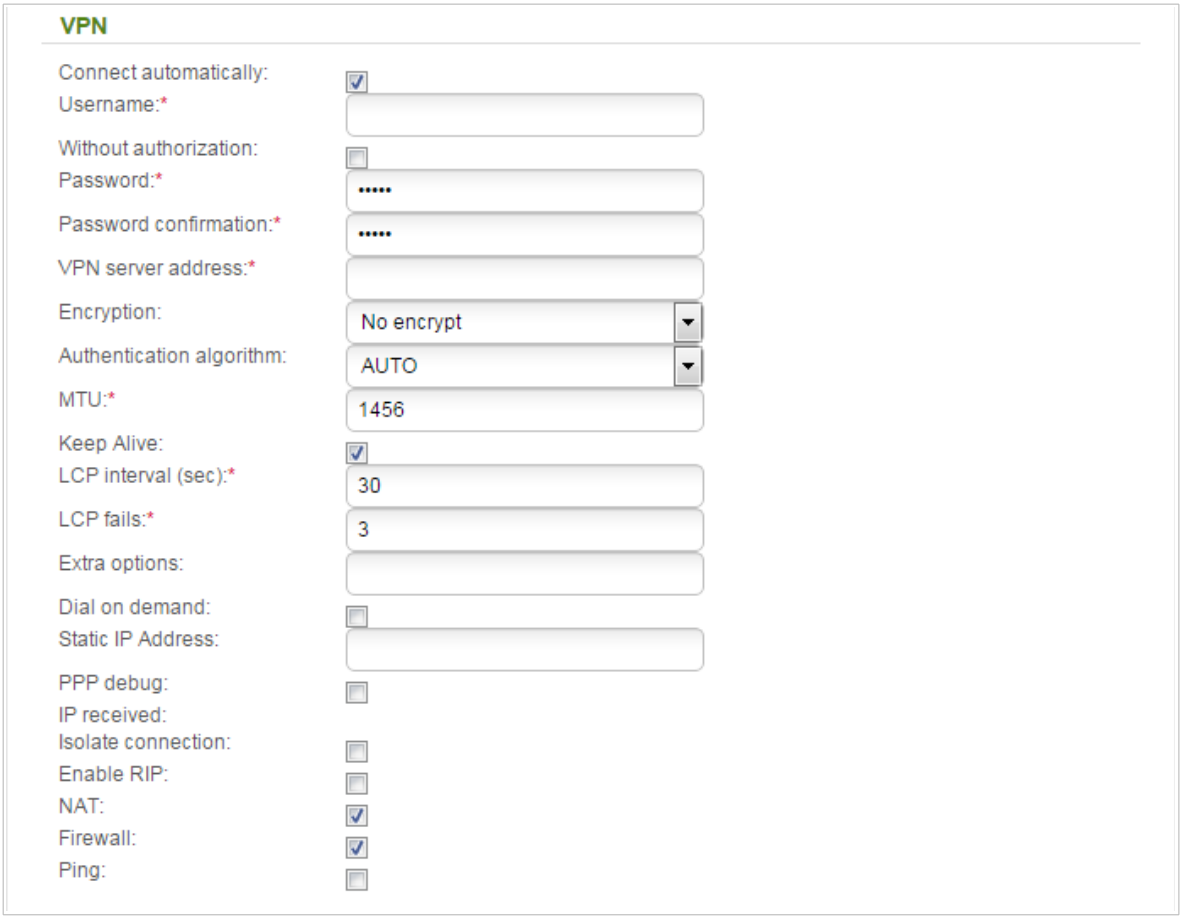


*Figure 90. The page for creating a new **PPTP + Static IP** connection. The **VPN** section.*

Parameter	Description
VPN	
Connect automatically	Select the checkbox to enable auto-start of the connection upon the boot-up of the router.
Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
VPN server address	The IP or URL address of the PPTP or L2TP authentication server.

Parameter	Description
Encryption	Select a method of MPPE encryption. • **No encrypt**: MPPE encryption is not applied. • **MPPE 40/128 bit**: MPPE encryption with a 40-bit or 128-bit key is applied. • **MPPE 40 bit**: MPPE encryption with a 40-bit key is applied. • **MPPE 128 bit**: MPPE encryption with a 128-bit key is applied. MPPE encryption can be applied only if the **MS-CHAP, MS-CHAP-V2**, or **AUTO** value is selected from the **Authentication algorithm** drop-down list.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
MTU	The maximum size of units transmitted by the interface.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the **LCP interval** and **LCP fails** fields are available. Specify the required values.
Extra options	Advanced options of the pppd daemon which need to be specified for this connection. *Optional*.
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the **Maximum idle time** field, specify a period of inactivity (in seconds) after which the connection should be terminated.
Static IP Address	Fill in the field if you want to use a static IP address to access the Internet.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.
IP received	The IP address assigned by the ISP.
Isolate connection	When the checkbox is selected, the router uses an alternate routing table for this connection. Select the checkbox only when your ISP requires this.
Enable RIP	Select the checkbox to allow using RIP for this connection.

Parameter	Description
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external network through this connection. For security reasons, it is recommended not to select this checkbox.

When all needed settings are configured, click the **Apply** button.

LAN

To configure the router's local interface, proceed to the **Net / LAN** page.

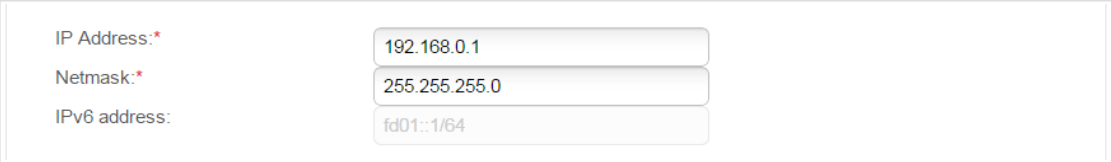


Figure 91. Basic settings of the local interface.

If needed, edit the basic settings of the local interface.

Parameter	Description
IP Address	The IP address of the router in the local subnet. By default, the following value is specified: `192.168.0.1`.
Netmask	The mask of the local subnet. By default, the following value is specified: `255.255.255.0`.
IPv6 address	The IPv6 address of the router in the local subnet. By default, the following value is specified: `fd01::1/64`. The field is available for editing, if the **DHCP PD** checkbox is not selected.

When needed settings are configured, click the **Apply** button.

In the **DHCP server** section, you can configure the built-in DHCP server of the router.

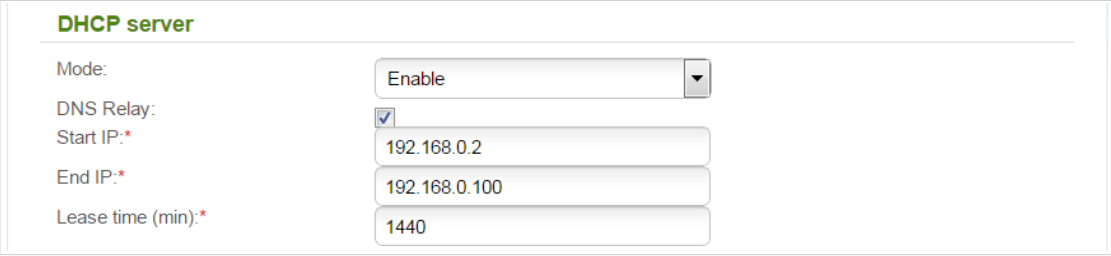


Figure 92. The section for configuring the DHCP server.

Parameter	Description
Mode	An operating mode of the router's DHCP server. **Enable**: the router assigns IP addresses to clients automatically in accordance with the specified parameters. When this value is selected, the **DNS Relay**, **Start IP**, **End IP**, and the **Lease time** fields are displayed on the page. **Disable**: the router's DHCP server is disabled, clients' IP addresses are assigned manually. **Relay**: an external DHCP server is used to assign IP addresses to clients. When this value is selected, the **External DHCP server IP** field is displayed on the page.

Parameter	Description
DNS Relay	Select the checkbox so that the devices connected to the router obtain the address of the router as the DNS server address. Deselect the checkbox so that the devices connected to the router obtain the address transmitted by the ISP as the DNS server address.
Start IP	The start IP address of the address pool used by the DHCP server to distribute IP addresses to clients.
End IP	The end IP address of the address pool used by the DHCP server to distribute IP addresses to clients.
Lease time	The lifetime of IP addresses leased by the DHCP server. At the end of this period the leased IP address is revoked and can be distributed to another device, unless the previous device has confirmed the need to keep the address.
External DHCP server IP	The IP address of the external DHCP server which assigns IP addresses to the router's clients.

When all needed settings are configured, click the **Apply** button.

In the **IPv6 address assignment** section, you can configure the built-in the DHCPv6 server of the router.

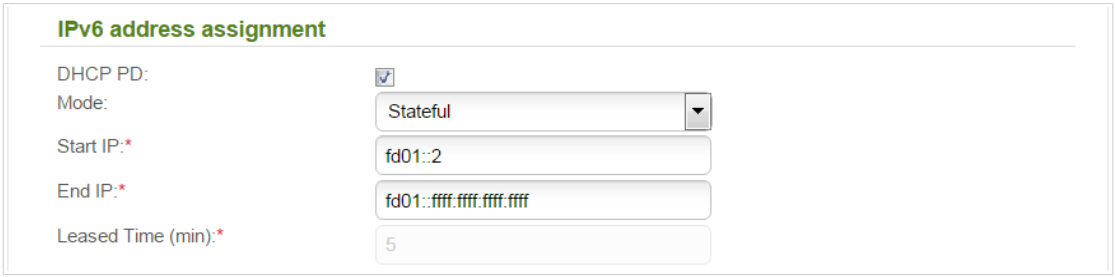


Figure 93. The section for configuring the DHCPv6 server.

Parameter	Description
DHCP PD	Select the checkbox to activate the Prefix Delegation function. When the checkbox is selected, the router requests a prefix to configure IPv6 addresses for clients of the LAN from a delegating router.

Parameter	Description
Mode	Select an operating mode of the DHCPv6 server from the drop-down list. **Stateless**: clients themselves configure IPv6 addresses using the prefix. **Stateful**: clients receive IPv6 addresses from the range specified in the **Start IP** and **End IP** fields. **Disable**: the router's DHCPv6 server is disabled, clients' IPv6 addresses are assigned manually.
Start IP	The start IPv6 address of the address pool used by the DHCPv6 server to distribute addresses to clients.
End IP	The end IPv6 address of the address pool used by the DHCPv6 server to distribute addresses to clients.
Leased Time	The lifetime of IPv6 addresses leased by the DHCPv6 server. The field is available for editing, if the **DHCP PD** checkbox is not selected.

When all needed settings are configured, click the **Apply** button.

In the **Static DHCP** section, you can specify MAC address and IP address pairs (set a fixed IPv4 address in the local area network for a device with a certain MAC address). The router assigns IP addresses in accordance with the specified pairs only when the DHCP server is enabled (in the **DHCP server** section, in the **Mode** drop-down list, the **Enable** value is selected).

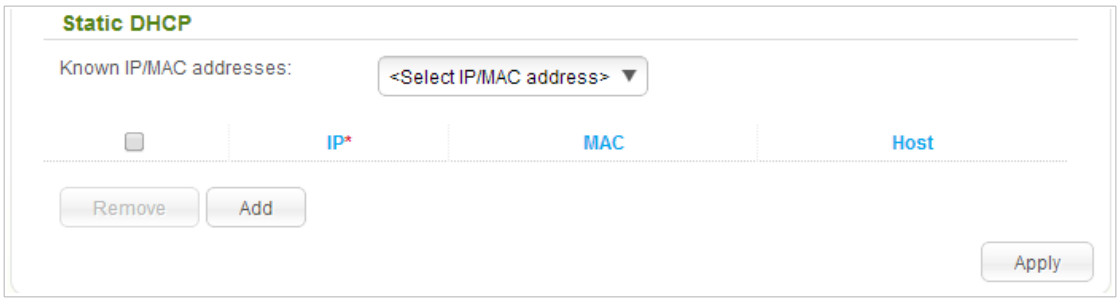


Figure 94. The section for creating MAC-IP pairs.

To create a MAC-IP pair, click the **Add** button. In the **IP** field, enter an IPv4 address which will be assigned to the device from the LAN, then in the **MAC** field, enter the MAC address of this device. In the **Host** field, specify a network name of the device for easier identification (*optional*).

Also you can create a MAC-IP pair for a device connected to the router's LAN at the moment. To do this, select the relevant value from the **Known IP/MAC addresses** drop-down list (the **IP** and **MAC** fields will be filled in automatically).

When all needed MAC-IP pairs are specified, click the **Apply** button.

Existing MAC-IP pairs are displayed in the table of the **Static DHCP** section. To remove a pair, select the checkbox in the relevant line in the table and click the **Remove** button. Then click the **Apply** button.

Wi-Fi

In this menu you can specify all needed settings for your wireless network.

Basic Settings

On the **Wi-Fi / Basic settings** page, you can enable your wireless local area network (WLAN) and configure its basic parameters.

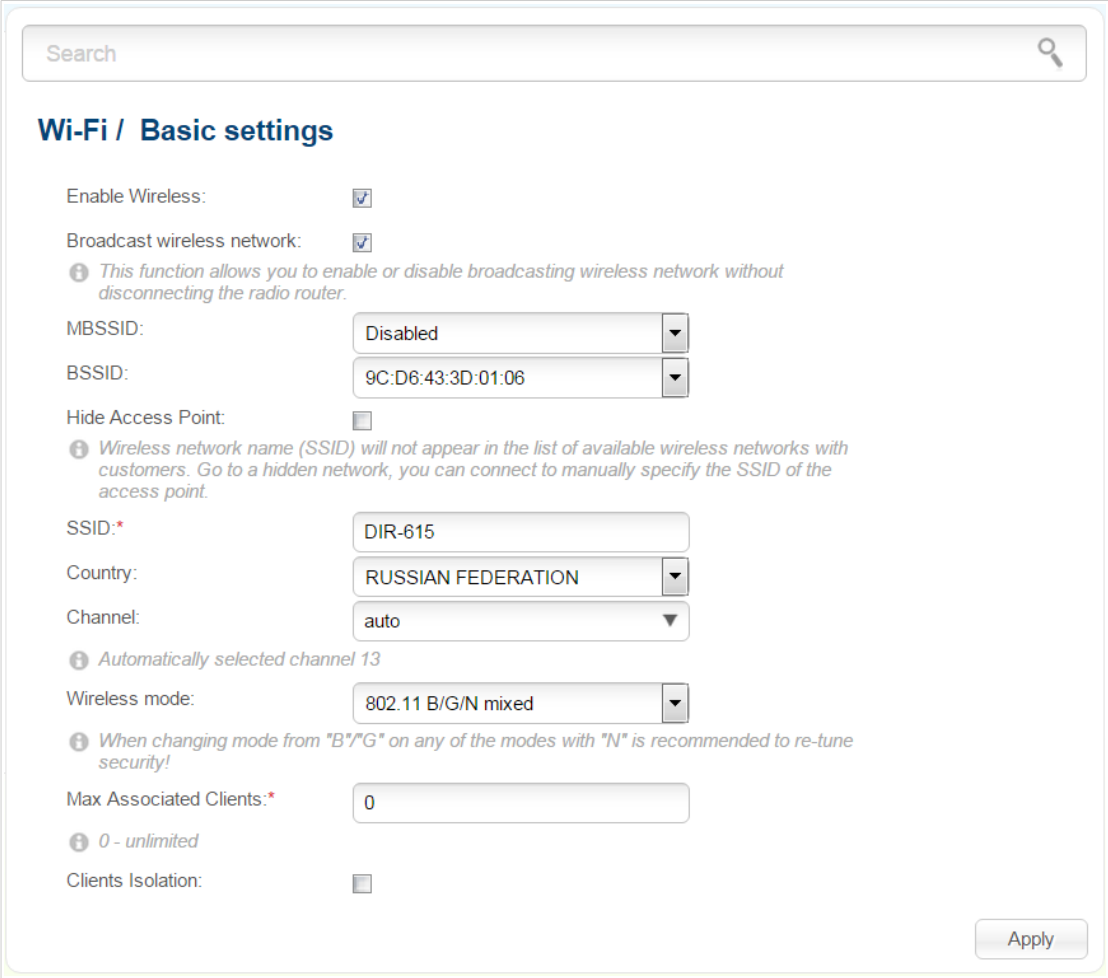


Figure 95. Basic settings of the wireless LAN.

Parameter	Description
Enable Wireless	The checkbox enables Wi-Fi connections. If you want to disable your WLAN, deselect the checkbox.
Broadcast wireless network	If the checkbox is not selected, devices cannot connect to the router's WLAN. Upon that the router can connect to another access point as a wireless client.
BSSID	The unique identifier for your Wi-Fi network. You cannot change the value of this parameter, it is determined in the device's internal settings

Parameter	Description
Hide Access Point	If the checkbox is selected, other users cannot see your Wi-Fi network. (It is recommended not to select this checkbox in order to simplify initial configuration of your WLAN.)
SSID	A name for the WLAN. By default, the value **DIR-615** is specified. It is recommended to specify another name for the network upon initial configuration (use digits and Latin characters).
Country	The country you are in. Select a value from the drop-down list.
Channel	The wireless channel number. When the **auto** value is selected, the router itself chooses the channel with the least interference.
Wireless mode	Operating mode of the wireless network of the router. This parameter defines standards of the devices that will be able to use your wireless network. Select a value from the drop-down list.
Max Associated Clients	The maximum number of devices connected to the wireless network of the router. When the value **0** is specified, the device does not limit the number of connected clients.
Clients Isolation	Select the checkbox to forbid wireless clients of your WLAN to communicate to each other.

When you have configured the parameters, click the **Apply** button.

Security Settings

On pages of the **Wi-Fi / Security settings** section, you can modify security settings of the WLAN.

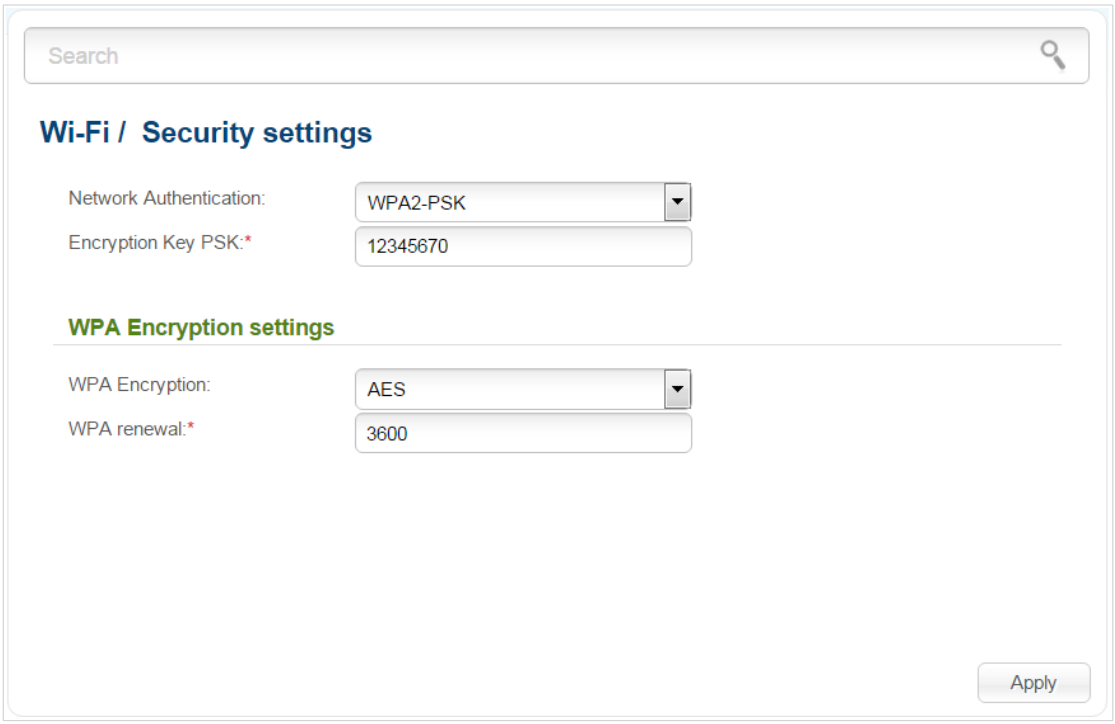


Figure 96. The default security settings.

By default, the **WPA2-PSK** network authentication type is specified for both bands of the WLAN. WPS PIN from the barcode label is used as the network key.

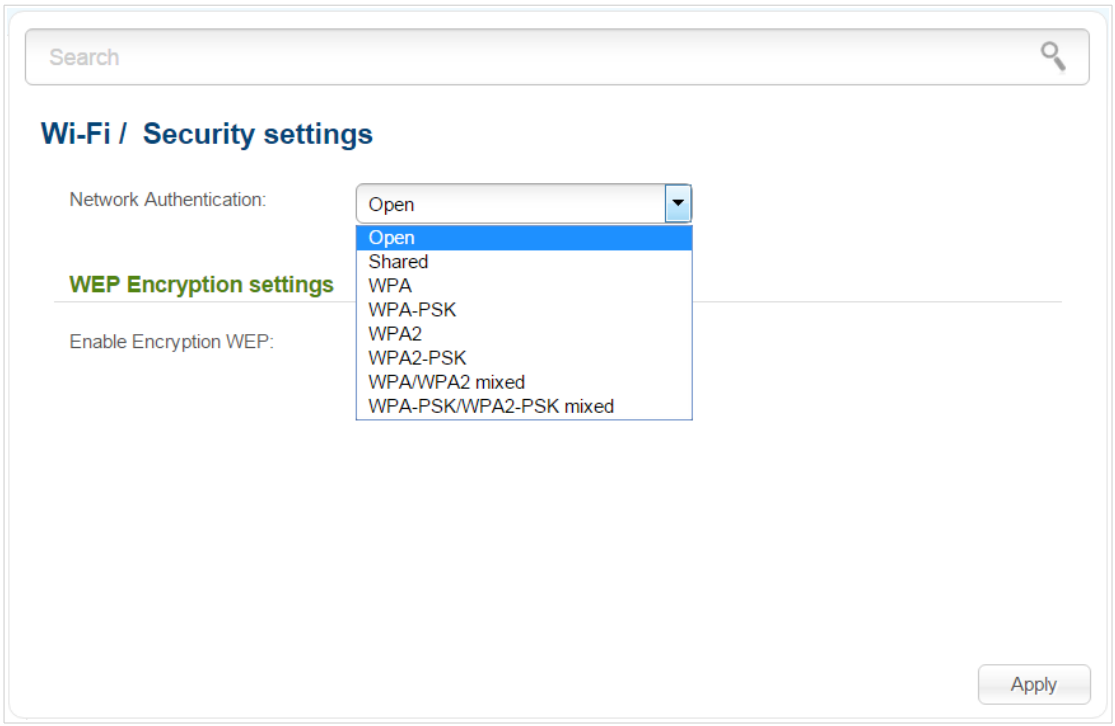


Figure 97. Network authentication types supported by the router.

The router supports the following authentication types:

Authentication type	Description
Open	Open authentication (with WEP encryption for wireless network modes not supporting 802.11n devices).
Shared	Shared key authentication with WEP encryption. This authentication type is not available when on the **Wi-Fi / Basic settings** page of the relevant band, in the **Wireless mode** drop-down list, a mode supporting 802.11n devices is selected.
WPA	WPA-based authentication using a RADIUS server.
WPA-PSK	WPA-based authentication using a PSK.
WPA2	WPA2-based authentication using a RADIUS server.
WPA2-PSK	WPA2-based authentication using a PSK.
WPA/WPA2 mixed	A mixed type of authentication. When this value is selected, devices using the **WPA** authentication type and devices using the **WPA2** authentication type can connect to the WLAN of the router.
WPA-PSK/WPA2-PSK mixed	A mixed type of authentication. When this value is selected, devices using the **WPA-PSK** authentication type and devices using the **WPA2-PSK** authentication type can connect to the WLAN of the router.

! The **WPA**, **WPA2**, and **WPA/WPA2 mixed** authentication types require a RADIUS server.

When the **Open** or **Shared** value is selected, the **WEP Encryption settings** section is displayed (the section is unavailable for the wireless network operating modes which support the standard 802.11n):

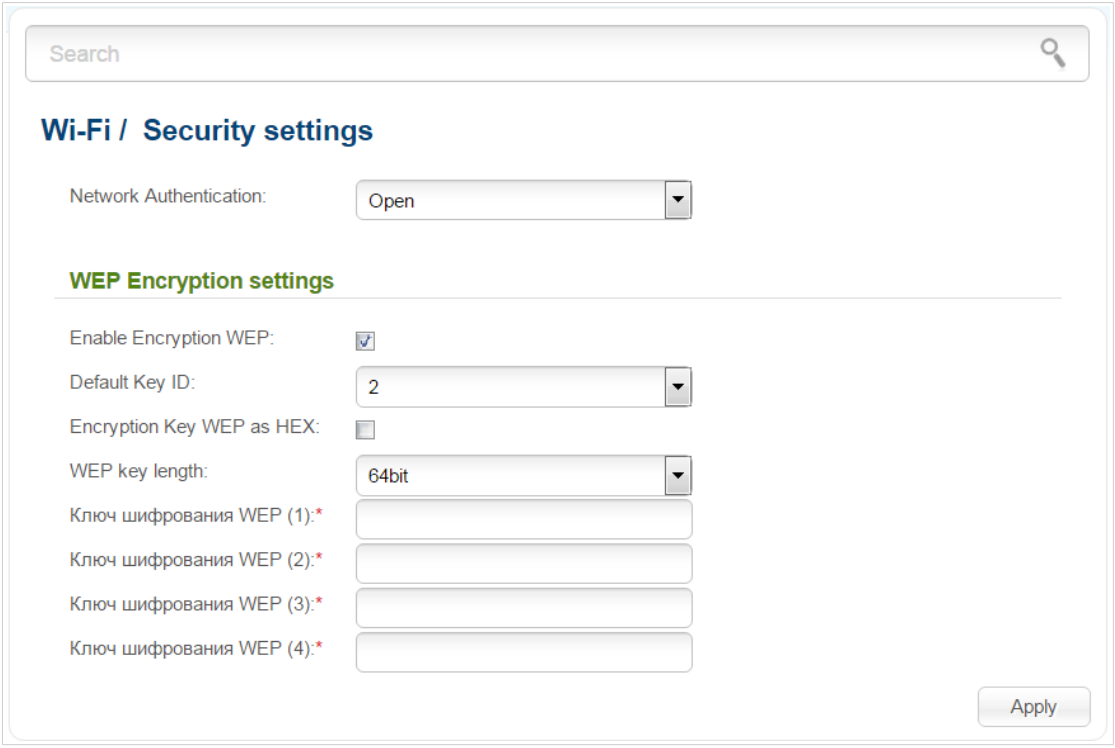


*Figure 98. The **Open** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
Enable Encryption WEP	The checkbox activating WEP encryption. When the checkbox is selected, the **Default Key ID** field, the **Encryption Key WEP as HEX** checkbox, the **WEP key length** drop-down list, and four **Encryption Key WEP** fields are displayed on the page. For the **Shared** authentication type the checkbox is always selected.
Default Key ID	The number of the key (from first to fourth) which will be used for WEP encryption.
Encryption Key WEP as HEX	Select the checkbox to set a hexadecimal number as a key for encryption.
WEP key length	The length of WEP encryption key. Select the value **64bit** to specify keys containing 5 ASCII symbols or 10 HEX symbols. Select the value **128bit** to specify keys containing 13 ASCII symbols or 26 HEX symbols.
Encryption Key WEP (1-4)	Keys for WEP encryption. The router uses the key selected from the **Default Key ID** drop-down list. It is required to specify all the fields.

When the **WPA-PSK**, **WPA2-PSK**, or **WPA-PSK/WPA2-PSK mixed** value is selected, the **WPA Encryption settings** section is displayed:

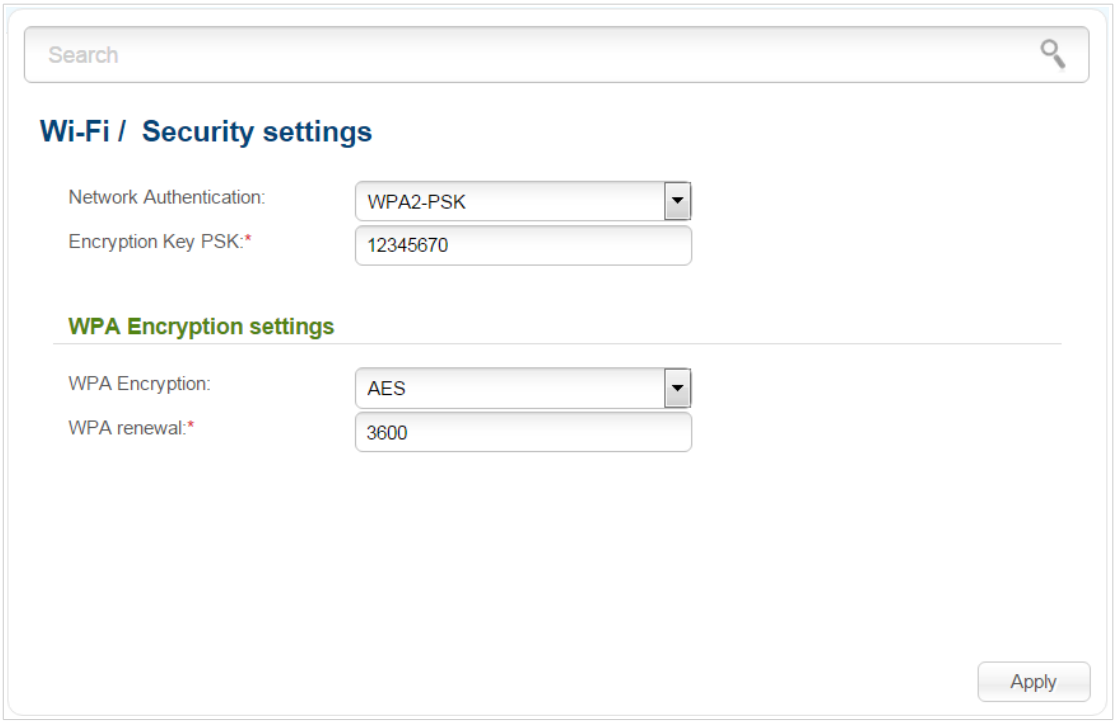


*Figure 99. The **WPA2-PSK** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
Encryption Key PSK	A key for WPA encryption. The key can contain digits and/or Latin characters.
WPA Encryption	An encryption method: **TKIP**, **AES**, or **TKIP+AES**. For the wireless network operating modes which support 802.11n standard (see the value of the **Wireless mode** drop-down list on the **Wi-Fi / Basic settings** page), the **AES** value is only available.
WPA renewal	The time period (in seconds), at the end of which a new key for WPA encryption is generated. When the value **0** is specified for this field, the key is not renewed.

When the **WPA**, **WPA2**, or **WPA/WPA2 mixed** value is selected, the **RADIUS settings** and **WPA Encryption settings** sections are available:

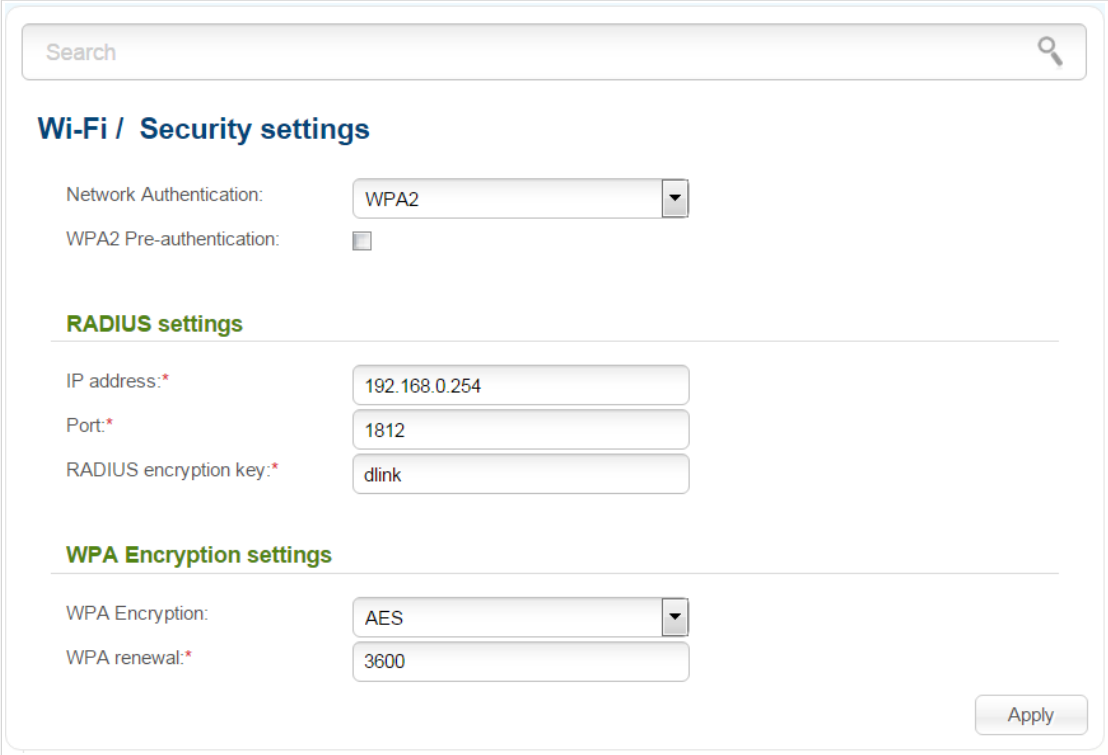


*Figure 100. The **WPA2** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
WPA2 Pre-authentication	The checkbox activating preliminary authentication (displayed only for the **WPA2** and **WPA/WPA2 mixed** authentication types).
IP address	The IP address of the RADIUS server.
Port	A port of the RADIUS server.
RADIUS encryption key	The password which the router uses for communication with the RADIUS server (the value of this parameter is specified in the RADIUS server settings).
WPA Encryption	An encryption method: **TKIP**, **AES**, or **TKIP+AES**.
WPA renewal	The time period (in seconds), at the end of which a new key for WPA encryption is generated. When the value **0** is specified for this field, the key is not renewed.

When you have configured the parameters, click the **Apply** button.

MAC Filter

On pages of the **Wi-Fi / MAC Filter** section, you can define a set of MAC addresses of devices which will be allowed to access the WLAN, or define MAC addresses of devices which will not be allowed to access the WLAN.

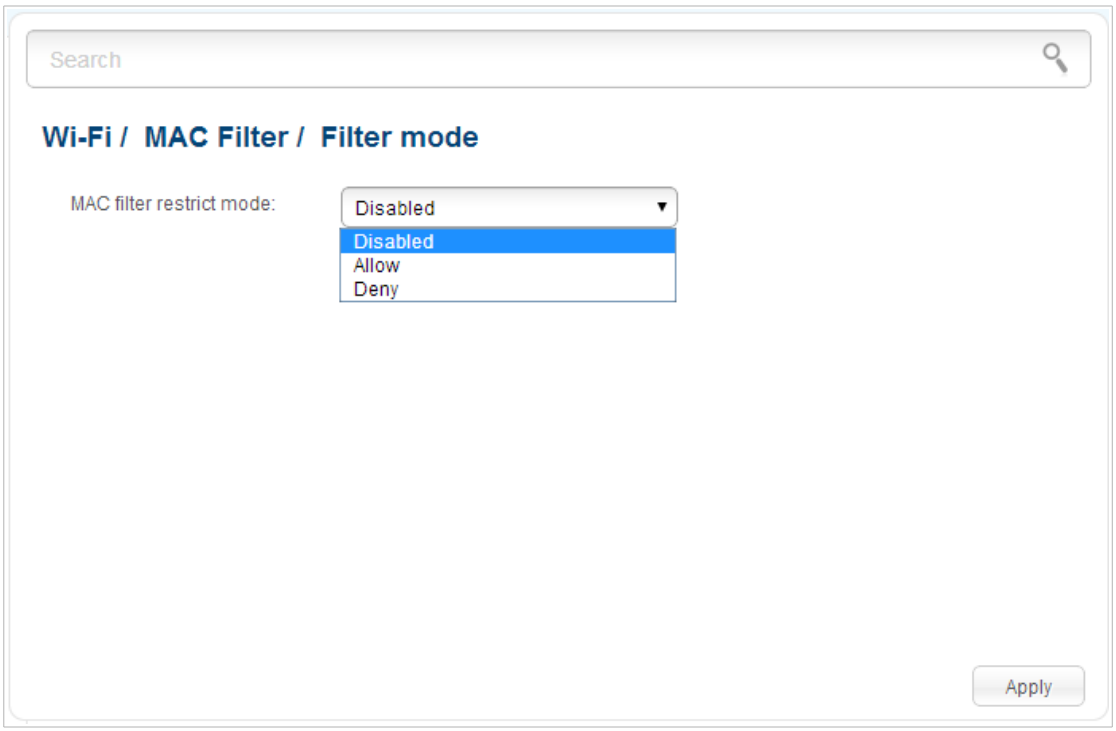


Figure 101. The page for configuring the MAC filter for the wireless network.

By default, MAC filtering is not active (the **Disabled** value is selected from the **MAC filter restrict mode** drop-down list on the **Wi-Fi / MAC Filter / Filter mode** page).

To open your wireless network for the devices which MAC addresses are specified on the **Wi-Fi / MAC Filter / MAC addresses** page and to close the wireless network for all other devices, select the **Allow** value from the **MAC filter restrict mode** drop-down list and click the **Apply** button.

To close your wireless network for the devices which MAC addresses are specified on the **Wi-Fi / MAC Filter / MAC addresses** page, select the **Deny** value from the **MAC filter restrict mode** drop-down list and click the **Apply** button.

To add a MAC address to which the selected filtering mode will be applied, proceed to the **Wi-Fi / MAC Filter / MAC addresses** page.

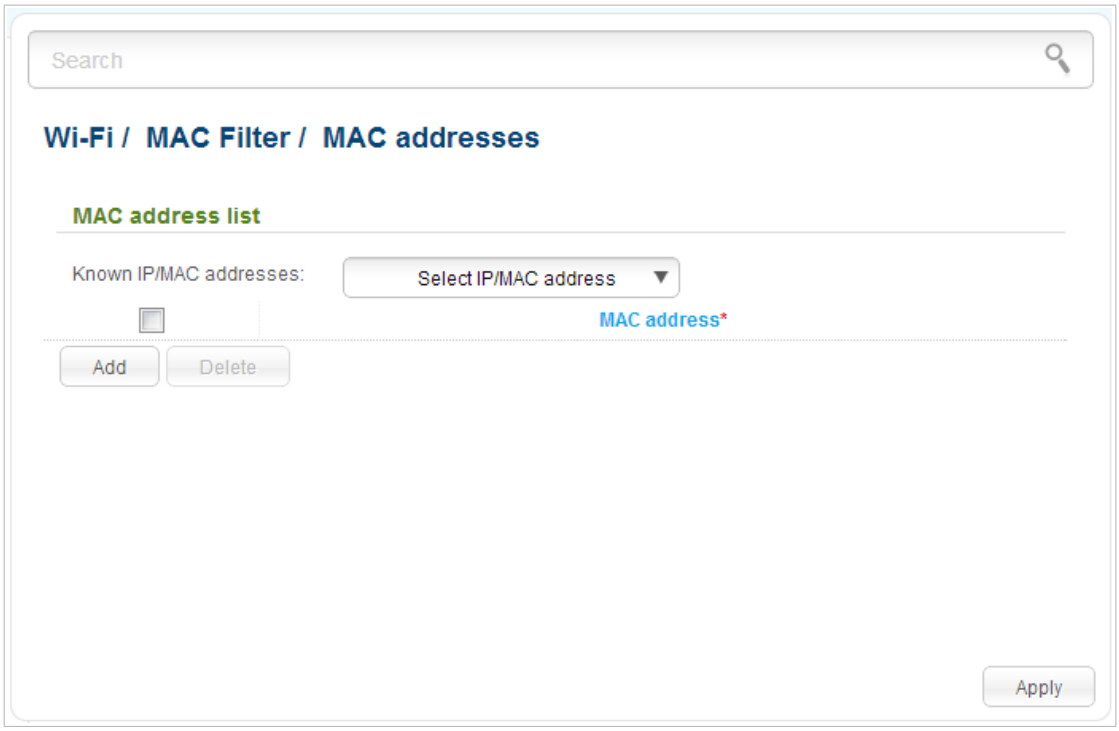


Figure 102. The page for adding a MAC address.

Click the **Add** button and enter an address in the field displayed. Also you can enter the MAC address of a device connected to the router's LAN at the moment. To do this, select the relevant device from the **Known IP/MAC addresses** drop-down list (the field will be filled in automatically). Then click the **Apply** button.

To remove a MAC address from the list of MAC addresses, select the checkbox located to the left of the relevant MAC address and click the **Delete** button. Then click the **Apply** button.

List of Wi-Fi Clients

On the **Wi-Fi / List of Wi-Fi clients** page, you can view the list of wireless clients connected to the router.

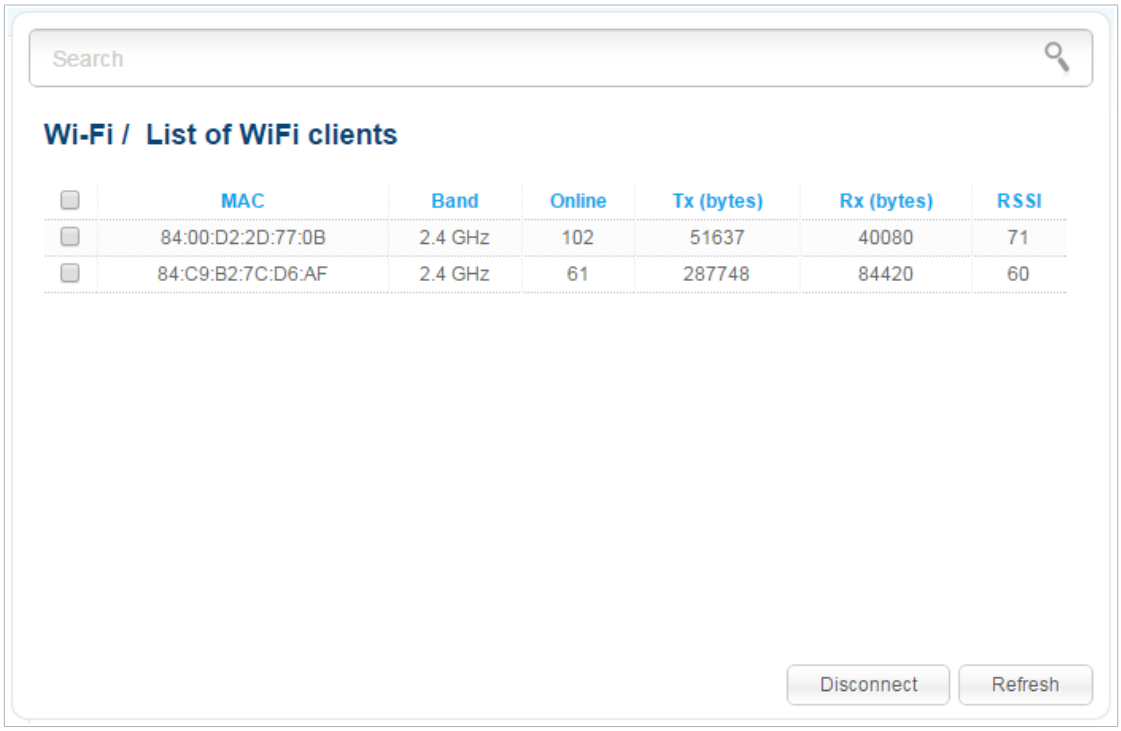


Figure 103. The list of the wireless clients.

If you want to disconnect a wireless device from your WLAN, select the checkbox in the line containing the relevant MAC address, and click the **Disconnect** button.

To view the latest data on the devices connected to the WLAN, click the **Refresh** button.

WPS

On the **Wi-Fi / WPS** page, you can enable the function for secure configuration of the WLAN and select a method used to easily add wireless devices to the WLAN.

The WPS function helps to configure the protected wireless network automatically. Devices connecting to the wireless network via the WPS function must support the WPS function.

! Before using the function you need to configure one of the following authentication types: **Open** with no encryption, **WPA2-PSK**, or **WPA-PSK/WPA2-PSK mixed** with the **AES** encryption method (on the **Wi-Fi / Security settings** page). When other security settings are specified, controls of the **Wi-Fi / WPS** page are not available.

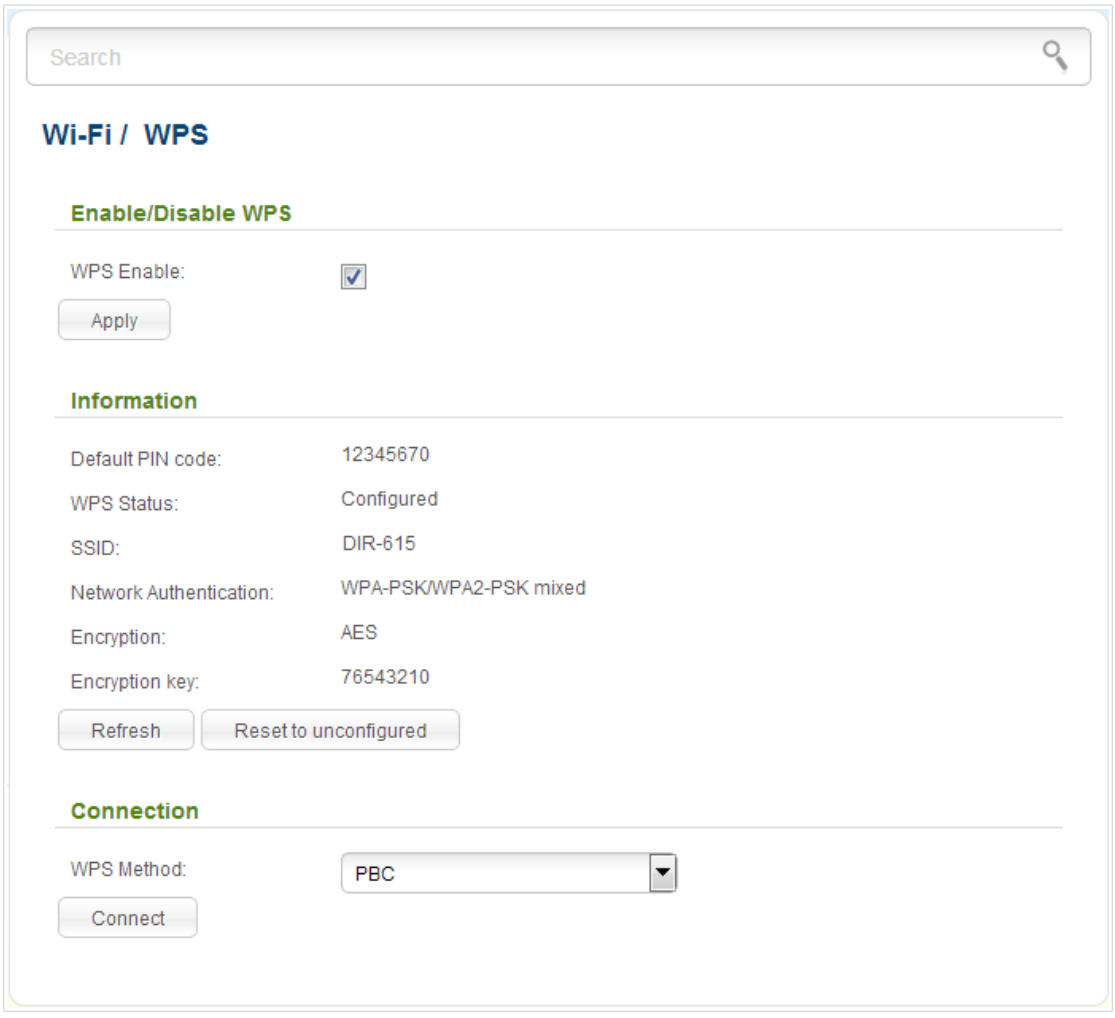


Figure 104. The page for configuring the WPS function.

To activate the WPS function, select the **WPS Enable** checkbox and click the **Apply** button. When the checkbox is selected, the **Information** and **Connection** sections are available on the page.

Parameter	Description
Default PIN code	The PIN code of the router. This parameter is used when connecting the router to a registrar to set the parameters of the WPS function.
WPS Status	The state of the WPS function: • **Configured** (all needed settings are specified; these settings will be used upon establishing the wireless connection) • **Unconfigured** (after activating the WPS function, the SSID and the encryption key will be configured automatically, the network authentication type will be changed to WPA2-PSK).
SSID	The name of the router's WLAN.
Network Authentication	The network authentication type specified for the WLAN.
Encryption	The encryption type specified for the WLAN.
Encryption key	The encryption key specified for the WLAN.
Refresh	Click the button to refresh the data on the page.
Reset to unconfigured	Click the button to reset the parameters of the WPS function.
WPS Method	A method of the WPS function. Select a value from the drop-down list. **PIN**: Connecting the device via the PIN code. **PBC**: Connecting the device via the push button (actual or virtual).
PIN Code	The PIN code of the WPS-enabled device that needs to be connected to the wireless network of the router. The field is displayed only when the **PIN** value is selected from the **WPS Method** drop-down list.
Connect	Click the button to connect the wireless device to the router's WLAN via the WPS function.

Using WPS Function via Web-based Interface

To add a wireless device via the PIN method of the WPS function, follow the next steps:

1. Select the **WPS Enable** checkbox.
2. Click the **Apply** button.
3. Select the **PIN** value from the **WPS Method** drop-down list.
4. Select the PIN method in the software of the wireless device that you want to connect to the router's WLAN.
5. Click the relevant button in the software of the wireless device that you want to connect to the WLAN.
6. Right after that, enter the PIN code specified on the cover of the wireless device or in its software in the **PIN Code** field.
7. Click the **Connect** button in the web-based interface of the router.

To add a wireless device via the PBC method of the WPS function, follow the next steps:

1. Select the **WPS Enable** checkbox.
2. Click the **Apply** button.
3. Select the **PBC** value from the **WPS Method** drop-down list.
4. Select the PBC method in the software of the wireless device that you want to connect to the router's WLAN.
5. Click the relevant button in the software or press the WPS button on the cover of the wireless device that you want to connect to the WLAN.
6. Click the **Connect** button in the web-based interface of the router.

Using WPS Function without Web-based Interface

You can add a wireless device to the router's WLAN without accessing the web-based interface of the router. To do this, you need to configure the following router's settings:

1. Specify corresponding security settings for the wireless network of the router.
2. Select the **WPS Enable** checkbox.
3. Click the **Apply** button.
4. Save the settings and close the web-based interface (click the icon (**Save**) in the menu displayed when the mouse pointer is over the **System** caption in the top left part of the page, then click the icon (**Logout**)).

Later you will be able to add wireless devices to the WLAN by pressing the **WPS** button of the router.

1. Select the PBC method in the software of the wireless device that you want to connect to the router's WLAN.
2. Click the relevant button in the software or press the WPS button on the cover of the wireless device that you want to connect to the WLAN.
3. Press the **WPS** button of the router, hold it for 2 seconds, and release. The **WPS** LED will start blinking.

Additional Settings

On the **Wi-Fi / Additional settings** page, you can define additional parameters for the WLAN of the router.

Changing parameters presented on this page may negatively affect your WLAN!

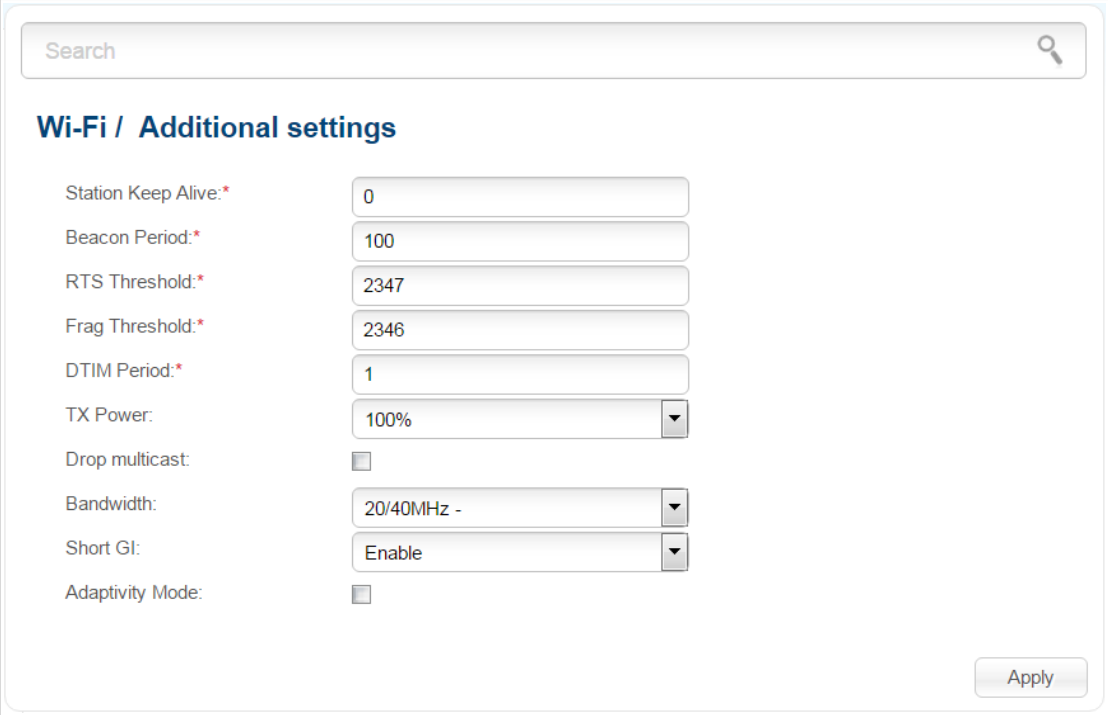


Figure 105. Additional settings of the WLAN.

The following fields are available on the page:

Parameter	Description
Station Keep Alive	The time interval (in seconds) between keep alive checks of wireless devices from your WLAN. When the value **0** is specified, the checking is disabled.
Beacon Period	The time interval (in milliseconds) between packets sent to synchronize the wireless network.
RTS Threshold	The minimum size (in bites) of a packet for which an RTS frame is transmitted.
Frag Threshold	The maximum size (in bites) of a non-fragmented packet. Larger packets are fragmented (divided).
DTIM Period	The time period (in seconds) between sending a DTIM (a message notifying on broadcast or multicast transmission) and data transmission.

Parameter	Description
TX Power	The transmit power (in percentage terms) of the router.
Drop multicast	Select the checkbox to disable multicasting for the router's WLAN. Deselect the checkbox to enable multicasting from WAN connections for which the **Enable IGMP Multicast** checkbox is selected.
Bandwidth	The channel bandwidth for 802.11n devices. **20MHz**: 802.11n devices operate at 20MHz channels. **40MHz**: 802.11n devices operate at 40MHz channels. **20/40MHz -**: 802.11n devices operate at 20MHz and 40MHz channels (the channel is combined with the previous adjacent channel). **20/40MHz +**: 802.11n devices operate at 20MHz and 40MHz channels (the channel is combined with the next adjacent channel).
Short GI	Guard interval (in nanoseconds). This parameter defines the interval between symbols transmitted when the router is communicating to wireless devices. **Enable**: the router uses the 400 ns short guard interval. For the wireless network operating modes which support 802.11n standard only (see the value of the **Wireless mode** drop-down list on the **Wi-Fi / Basic settings** page). **Disable**: the router uses the 800 ns standard guard interval.
Adaptivity Mode	Select the checkbox to prevent your wireless network from interfering with radars and other mobile or stationary radio systems. Such a setting can slow down the router's WLAN.

When you have configured the parameters, click the **Apply** button.

WMM

On the **Wi-Fi / WMM** page, you can enable the Wi-Fi Multimedia function.

The WMM function implements the QoS features for Wi-Fi networks. It helps to improve the quality of data transfer over Wi-Fi networks by prioritizing different types of traffic.

To enable the function, select the **WMM** checkbox and click the **Apply** button.

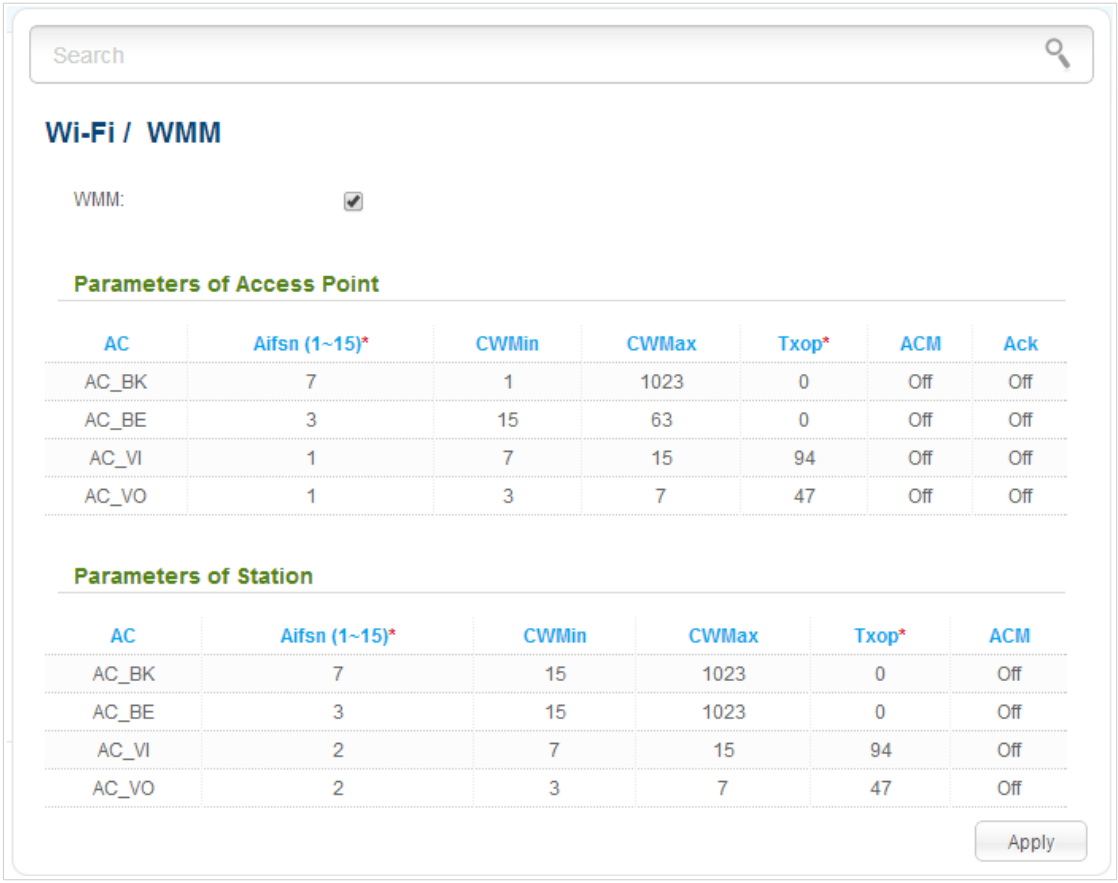


Figure 106. The page for configuring the WMM function.

! All needed settings for the WMM function are specified in the device's system. It is recommended not to change the default values.

The WMM function allows assigning priorities for four Access Categories (AC):

- **AC_BK** (*Background*), low priority traffic (print jobs, file downloads, etc.).
- **AC_BE** (*Best Effort*), traffic from legacy devices or devices/applications that do not support QoS.
- **AC_VI** (*Video*).
- **AC_VO** (*Voice*).

Parameters of the Access Categories are defined for both the router itself (in the **Parameters of Access Point** section) and wireless devices connected to it (in the **Parameters of Station** section).

For every Access Category the following fields are available:

Parameter	Description
Aifsn	*Arbitrary Inter-Frame Space Number*. This parameter influences time delays for the relevant Access Category. The lower the value, the higher is the Access Category priority.
CWMin/CWMax	*Contention Window Minimum/Contention Window Maximum*. Both fields influence time delays for the relevant Access Category. The **CWMax** field value should not be lower, than the **CWMin** field value. The lower the difference between the **CWMax** field value and the **CWMin** field value, the higher is the Access Category priority.
Txop	*Transmission Opportunity*. The higher the value, the higher is the Access Category priority.
ACM	*Admission Control Mandatory*. If on, prevents from using the relevant Access Category.
Ack	*Acknowledgment*. Answering response requests while transmitting. Displayed only in the **Parameters of Access Point** section. If off, the router answers requests. If on, the router does not answer requests.

When you have configured the parameters, click the **Apply** button.

Client

On the **Wi-Fi / Client** page, you can configure the router as a client to connect to a wireless access point.

As a rule, the client mode is used to connect to a WISP network. All parameters specified on this page should be provided by your WISP.

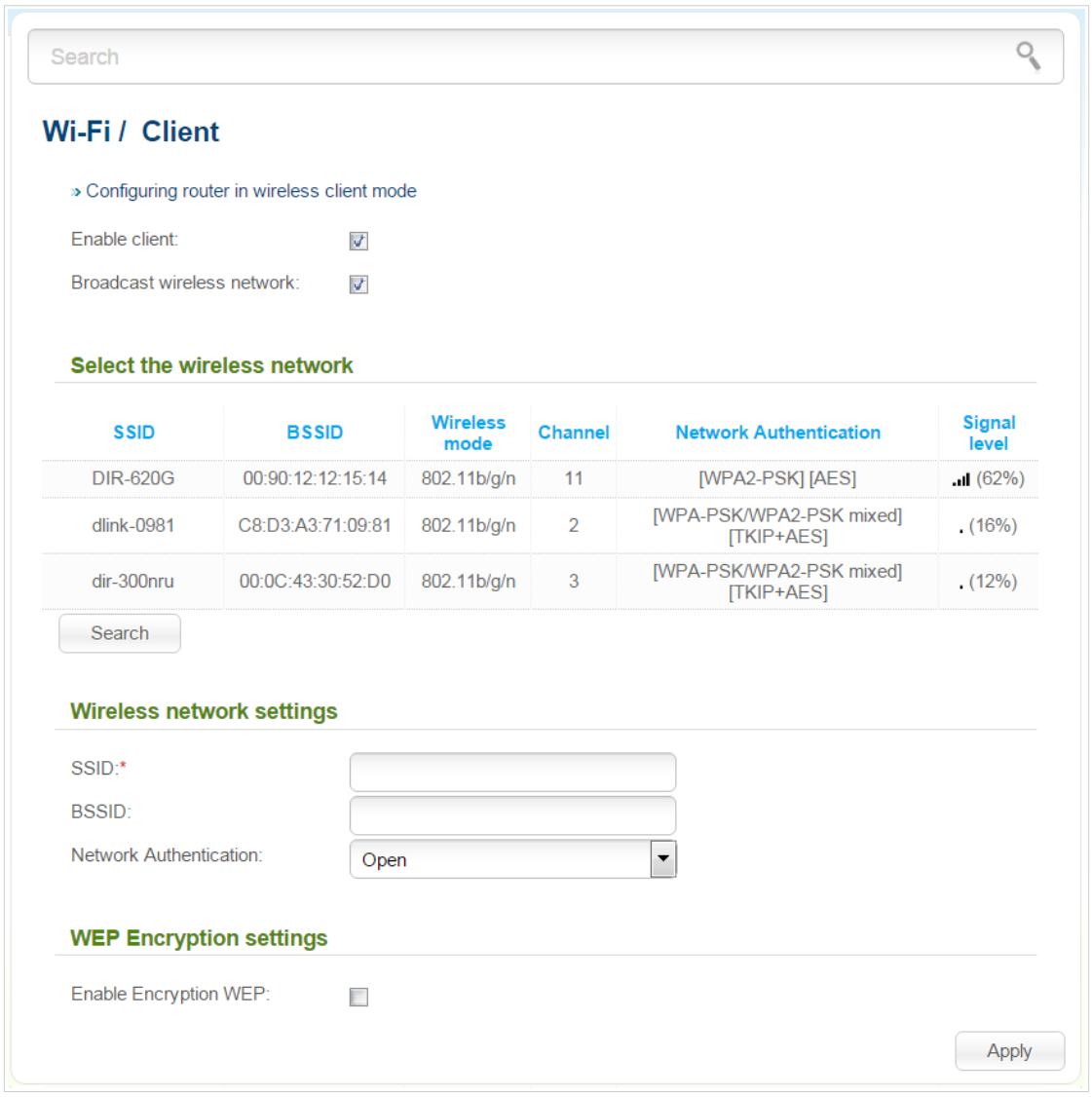


Figure 107. The page for configuring the client mode.

To configure the router as a client, select the **Enable client** checkbox. When the checkbox is selected, the following fields are displayed on the page:

Parameter	Description
Broadcast wireless network	If the checkbox is not selected, devices cannot connect to the router's WLAN. Upon that the router can connect to another access point as a wireless client.
Wireless network settings	
SSID	The name of the network to which the router connects.
BSSID	The unique identifier of the network to which the router connects.
Network Authentication	The authentication type of the network to which the router connects.

When the **Open** or **Shared** authentication type is selected, the following fields are available:

Parameter	Description
Enable Encryption WEP	The checkbox activating WEP encryption. When the checkbox is selected, the **Default Key ID** field, the **Encryption Key WEP as HEX** checkbox, the **WEP key length** drop-down list, and four **Encryption Key WEP** fields are displayed on the page. For the **Shared** authentication type the checkbox is always selected.
Default Key ID	The number of the key (from first to fourth) which will be used for WEP encryption.
Encryption Key WEP as HEX	Select the checkbox to set a hexadecimal number as a key for encryption.
WEP key length	The length of WEP encryption key. Select the value **64bit** to specify keys containing 5 ASCII symbols or 10 HEX symbols. Select the value **128bit** to specify keys containing 13 ASCII symbols or 26 HEX symbols.
Encryption Key WEP (1-4)	Keys for WEP encryption. The router uses the key selected from the **Default Key ID** drop-down list. It is required to specify all the fields.

When the **WPA-PSK**, **WPA2-PSK**, or **WPA-PSK/WPA2-PSK mixed** authentication type is selected, the following fields are available:

Parameter	Description
Encryption Key PSK	A key for WPA encryption. The key can contain digits and/or Latin characters.
WPA Encryption	An encryption method: **TKIP**, **AES**, or **TKIP+AES**.

When you have configured the parameters, click the **Apply** button.

In addition, when the **Enable client** checkbox is selected, the list of available wireless networks is displayed on the page.

To view the latest data on the available wireless networks, click the **Search** button.

To connect to a wireless network from the list, select the needed network. Upon that the relevant values are automatically inserted in the **SSID**, **BSSID**, and **Network Authentication** fields.

For the **Open** authentication type with no encryption, click the **Apply** button.

For the **Open** authentication type with encryption and the **Shared** authentication type, select a needed value from the **Default Key ID** drop-down list. If needed, select the **Encryption Key WEP as HEX** checkbox to set a hexadecimal number as a key for encryption. Then select a needed value in the **WEP key length** drop-down list, fill in 4 **Encryption Key WEP** fields, and click the **Apply** button.

For the **WPA-PSK**, **WPA2-PSK**, or **WPA-PSK/WPA2-PSK mixed** authentication types, fill in the **Encryption Key PSK** field and click the **Apply** button.

After clicking the **Apply** button, the wireless channel of DIR-615S will switch to the channel of the wireless access point to which you have connected.

If the router is connected to the selected network successfully, the green indicator appears to the right of the network's SSID in the table.

After configuring the device as a client, you need to create a WAN connection with relevant parameters for the **WiFiClient** port.

The step-by-step description of how to configure the router as a wireless client is available on D-Link website. To access it, click the **Configuring router in wireless client mode** link in the top part of the page.

Advanced

In this menu you can configure advanced settings of the router:

- create groups of ports for VLANs
- enable the UPnP IGD protocol
- configure notifications on the reason of the Internet connection failure
- configure a DDNS service
- define static routes
- create rules for remote access to the web-based interface
- allow the router to use IGMP, RTSP, enable the SIP ALG, PPPoE pass through, PPTP pass through, and L2TP pass through functions
- configure TR-069 client
- enable the flow control function.

VLAN

On the **Advanced / VLAN** page, you can create and edit groups of ports for virtual networks (VLANs).

By default, 2 groups are created in the router's system:

- **lan**: it includes ports 1-4. You cannot delete this group.
- **wan**: for the WAN interface; it includes the **INTERNET** port. You can edit or delete this group.

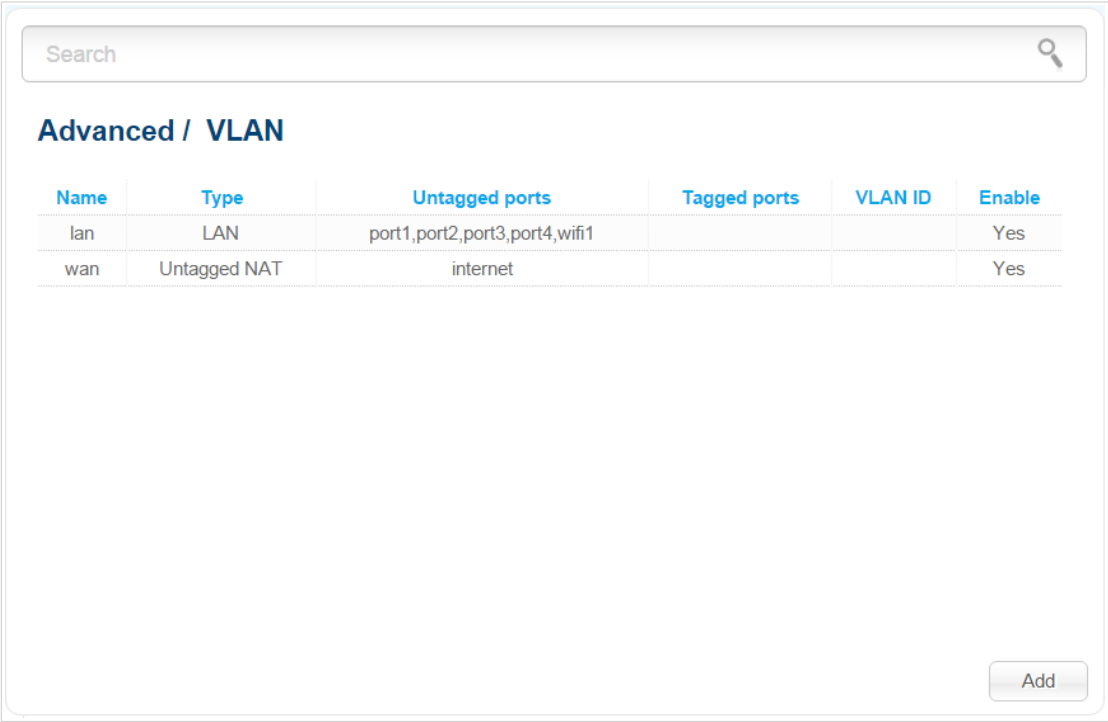


*Figure 108. The **Advanced / VLAN** page.*

If you want to create a group including LAN ports of the router, first delete relevant records from the **lan** group on this page. To do this, select the **lan** group, deselect the needed checkbox located to the left of the relevant port, and click the **Apply** button.

To create a new group for VLAN, click the **Add** button.

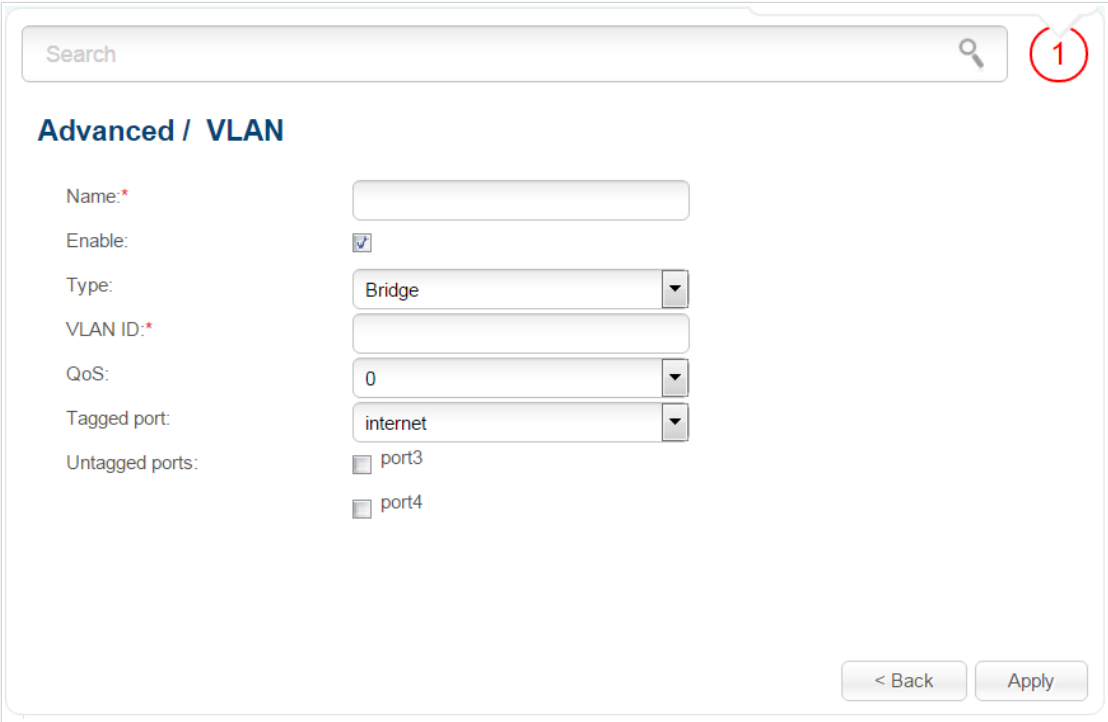


Figure 109. The page for adding a group of ports for VLAN.

You can specify the following parameters:

Parameter	Description
Name	A name for the port for easier identification.
Enable	Select the checkbox to allow using this group of ports.
Type	The type of the VLAN. **Untagged NAT**. The group of this type is an external connection with address translation. It is mostly used to transmit untagged traffic. When this value is selected, the **VLAN ID** field and the **QOS**, **Tagged port** drop-down lists are not displayed. **Tagged NAT**. The group of this type is an external connection with address translation. It is mostly used to connect to the Internet. Later the VLAN which identifier is specified in the **VLAN ID** field is used to create a WAN connection (on the **Net / WAN** page). When this value is selected, the **Untagged ports** section is not displayed. **Bridge**. The group of this type is a transparent connection between an internal port and an external connection. It is mostly used to connect IPTV set-top boxes.
VLAN ID	An identifier of the VLAN to which this group of ports will be assigned.
QoS	A priority tag for the type of traffic transmitted.

Parameter	Description
Tagged port	From the list, select an available value to assign it to this group.
Untagged ports	The section includes the ports (a physical port of the router, the wireless interface) that can be added to the group. To add a port to the group, select the needed checkbox located to the left of the relevant port. To remove a port from the group, deselect the needed checkbox located to the left of the relevant port.

Click the **Apply** button.

To edit or remove an existing group, select the relevant group on the **Advanced / VLAN** page. On the page displayed, change the parameters and click the **Apply** button, or click the **Delete** button.

UPnP IGD

On the **Advanced / UPnP IGD** page, you can enable the UPnP IGD protocol. The router uses the UPnP IGD protocol for automatic configuration of its parameters for network applications requiring an incoming connection to the router.

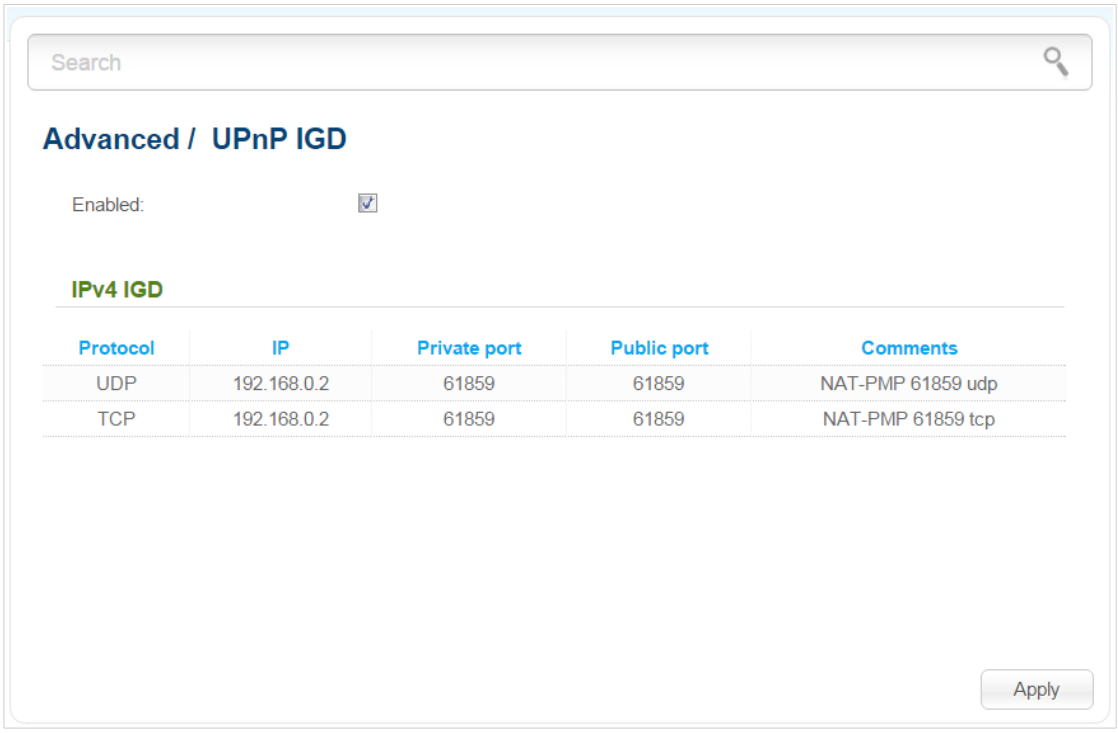


*Figure 110. The **Advanced / UPnP IGD** page.*

If you want to manually specify all parameters needed for network applications, deselect the **Enabled** checkbox and click the **Apply** button.

If you want to enable the UPnP IGD protocol in the router, select the **Enabled** checkbox and click the **Apply** button.

When the protocol is enabled, the router's parameters configured automatically are displayed on the page:

Parameter	Description
Protocol	A protocol for network packet transmission.
IP	The IP address of a client from the local area network.
Private port	A port of a client's IP address to which traffic is directed from a public port of the router.
Public port	A public port of the router from which traffic is directed to a client's IP address.
Comments	Information transmitted by a client's network application.

Redirect

On the **Advanced / Redirect** page, you can enable notifications on the reason of the Internet connection failure. Notifications will be displayed in the browser window when a user is attempting to open a web site on the Internet.

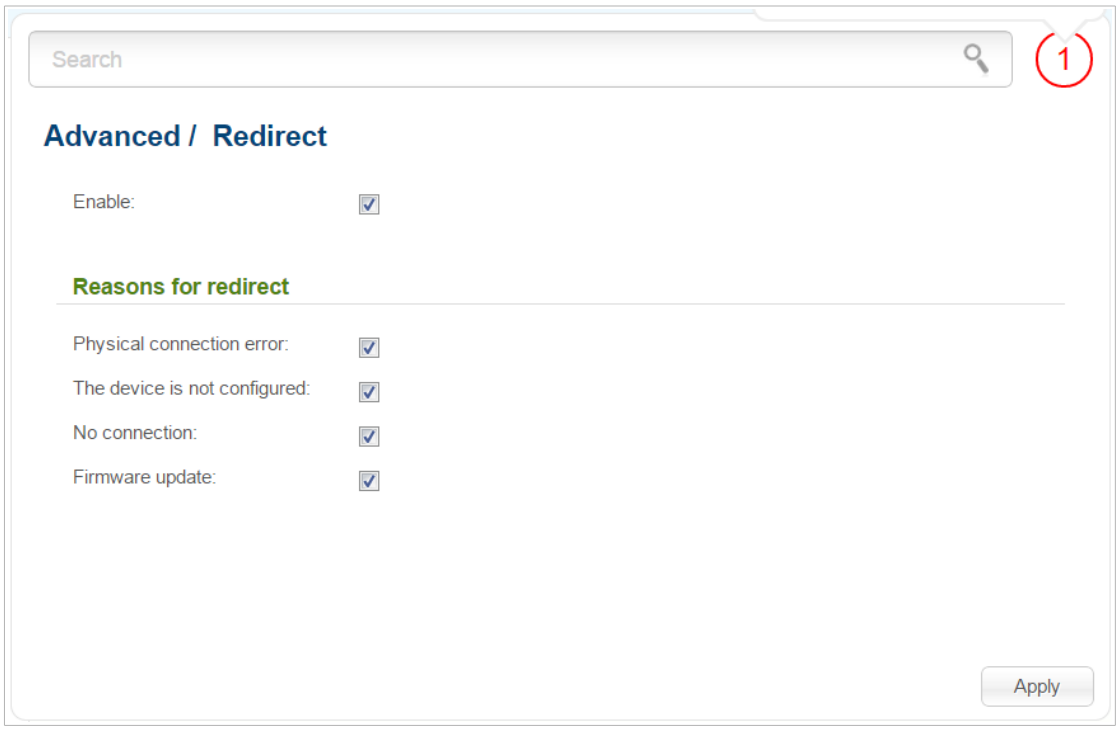


*Figure 111. The **Advanced / Redirect** page.*

To configure notifications, select the **Enable** checkbox. Then select needed checkboxes in the **Reasons for redirect** section.

Parameter	Description
Reasons for redirect	
Physical connection error	Notifications in case of physical connection problems (the ISP's cable is not connected, an additional device needed to access the Internet is not connected).
The device is not configured	Notifications in case when the device works with default settings.
No connection	Notifications in case of problems of the connection used as the default gateway (authorization error, the IPS's server does not respond, etc.).
Firmware update	Notifications in case of update of the device's firmware.

When you have configured the parameters, click the **Apply** button.

To disable notifications, deselect the **Enable** checkbox and click the **Apply** button.

DDNS

On the **Advanced / DDNS** page, you can define parameters of the DDNS service, which allows associating a domain name with dynamic IP addresses.

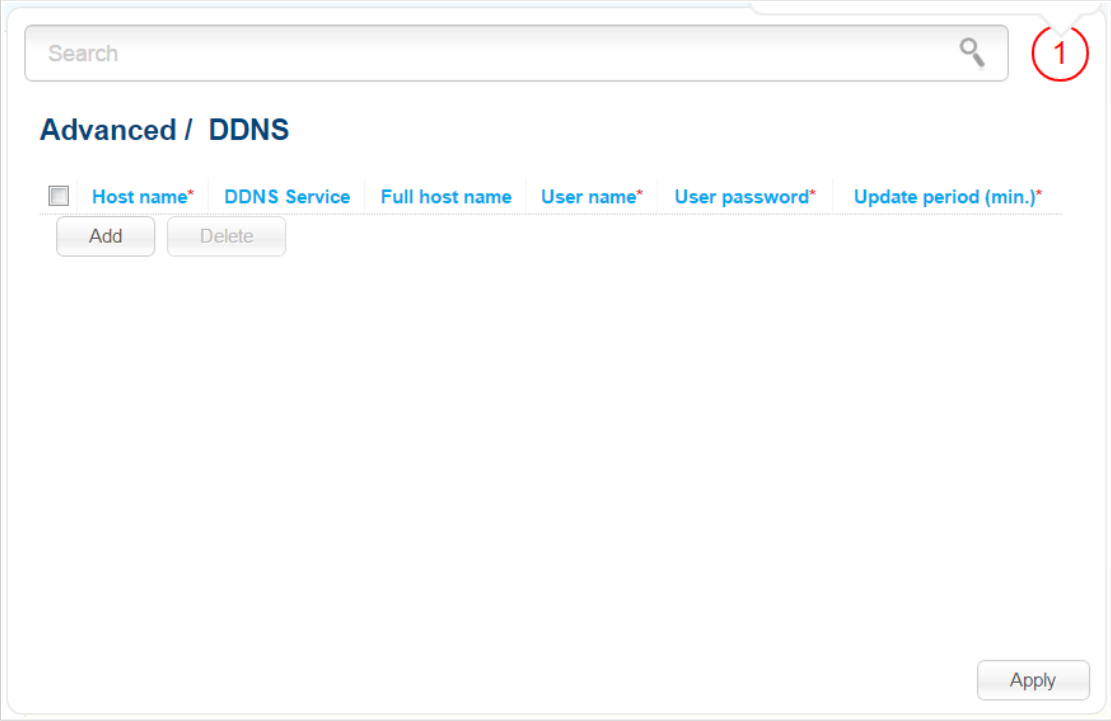


*Figure 112. The **Advanced / DDNS** page.*

To add a new DDNS service, click the **Add** button. In the line displayed, you can specify the following parameters:

Parameter	Description
Host name	The part of the domain name specified by a user while registering at a DDNS provider.
DDNS Service	Select a DDNS provider from the drop-down list.
Full host name	The domain name registered at your DDNS provider. The field will be filled in automatically.
User name	The username to authorize for your DDNS provider.
User password	The password to authorize for your DDNS provider.
Update period	An interval (in minutes) between sending data on the router's external IP address to the relevant DDNS service.

After specifying the needed parameters, click the **Apply** button.

To edit parameters of the existing DDNS service, select a needed field in the relevant line of the table, change its value, and click the **Apply** button.

To remove an existing DDNS service, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Then click the **Apply** button.

Routing

On the **Advanced / Routing** page, you can add static routes into the system.

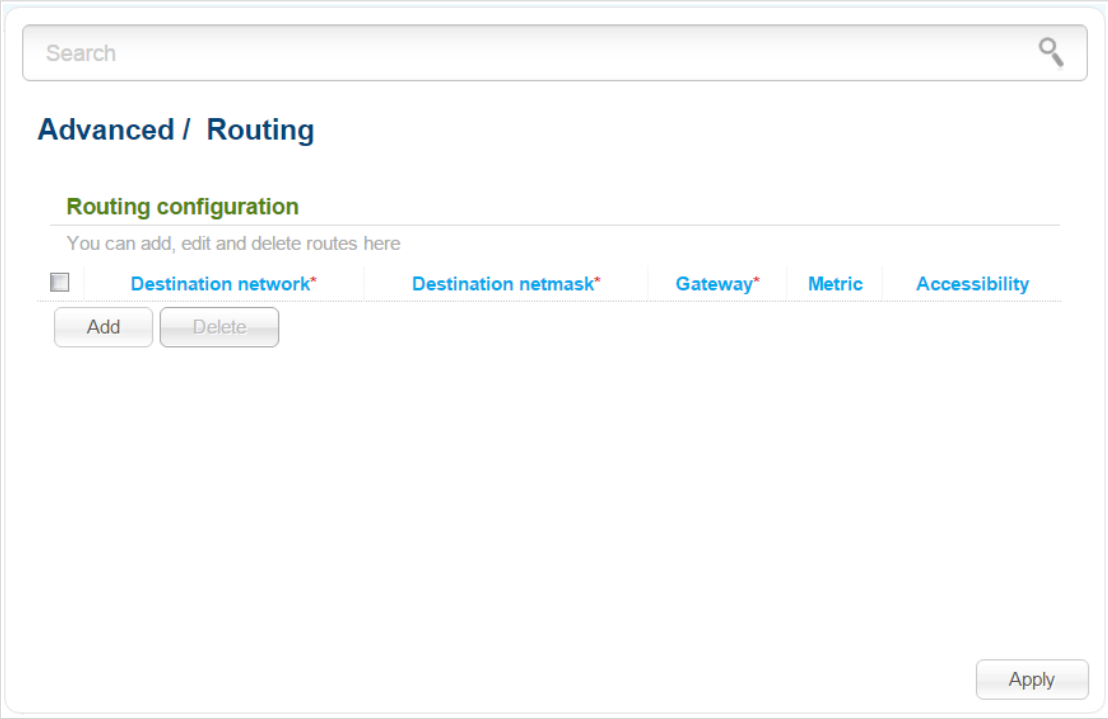


*Figure 113. The **Advanced / Routing** page.*

To create a new route, click the **Add** button. In the line displayed, you can specify the following parameters:

Parameter	Description
Destination network	A destination network to which this route is assigned.
Destination netmask	The destination network mask.
Gateway	An IP address through which the destination network can be accessed.
Metric	A metric for the route. The lower the value, the higher is the route priority. *Optional*.

After specifying the needed parameters, click the **Apply** button.

To edit an existing route, select a needed field in the relevant line of the table, change its value, and click the **Apply** button.

To remove an existing route, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Then click the **Apply** button.

IPv6 Routing

On the **Advanced / IPv6 routing** page, you can add static routes into the system.

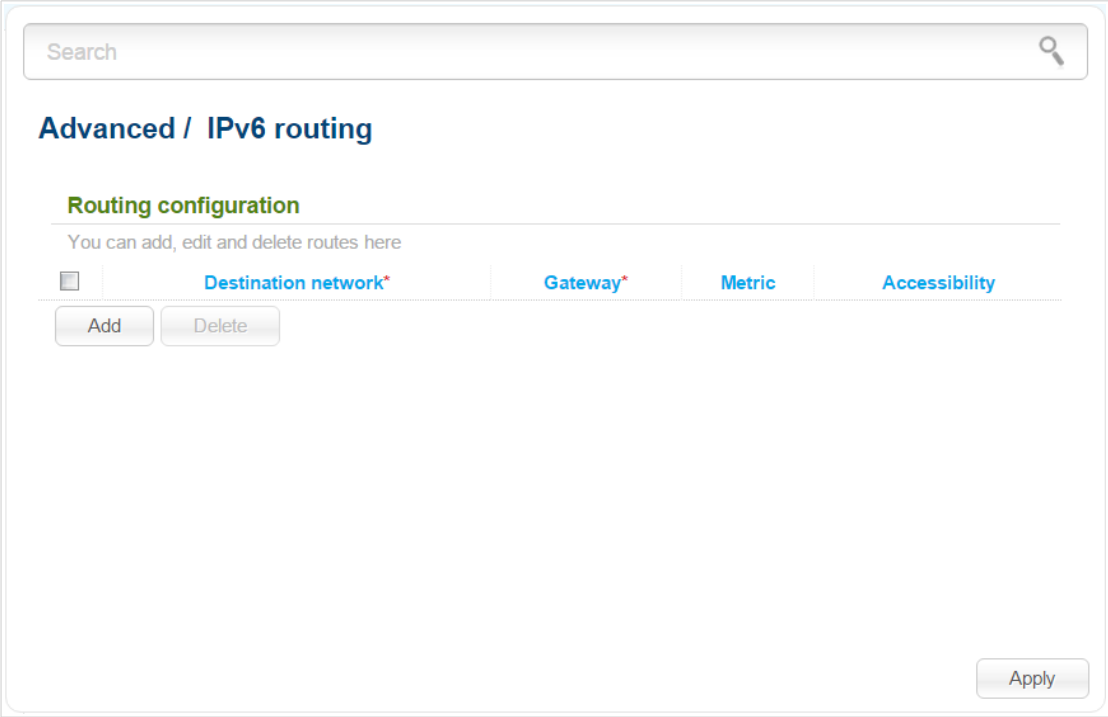


*Figure 114. The **Advanced / IPv6 routing** page.*

To create a new route, click the **Add** button. In the line displayed, you can specify the following parameters:

Parameter	Description
Destination network	A destination network to which this route is assigned. You can specify an IPv6 address (`2001:db8:1234::1`) or an IPv6 address with a prefix (`2001:db8:1234::/64`).
Gateway	An IPv6 address through which the destination network can be accessed.
Metric	A metric for the route. The lower the value, the higher is the route priority. *Optional*.

After specifying the needed parameters, click the **Apply** button.

To edit an existing route, select a needed field in the relevant line of the table, change its value, and click the **Apply** button.

To remove an existing route, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Then click the **Apply** button.

Remote Access to Device

On the **Advanced / Remote access to device** page, you can configure access to the web-based interface of the router. By default, the access from external networks to the router is closed. If you need to allow access to the router from the external network, create relevant rules.

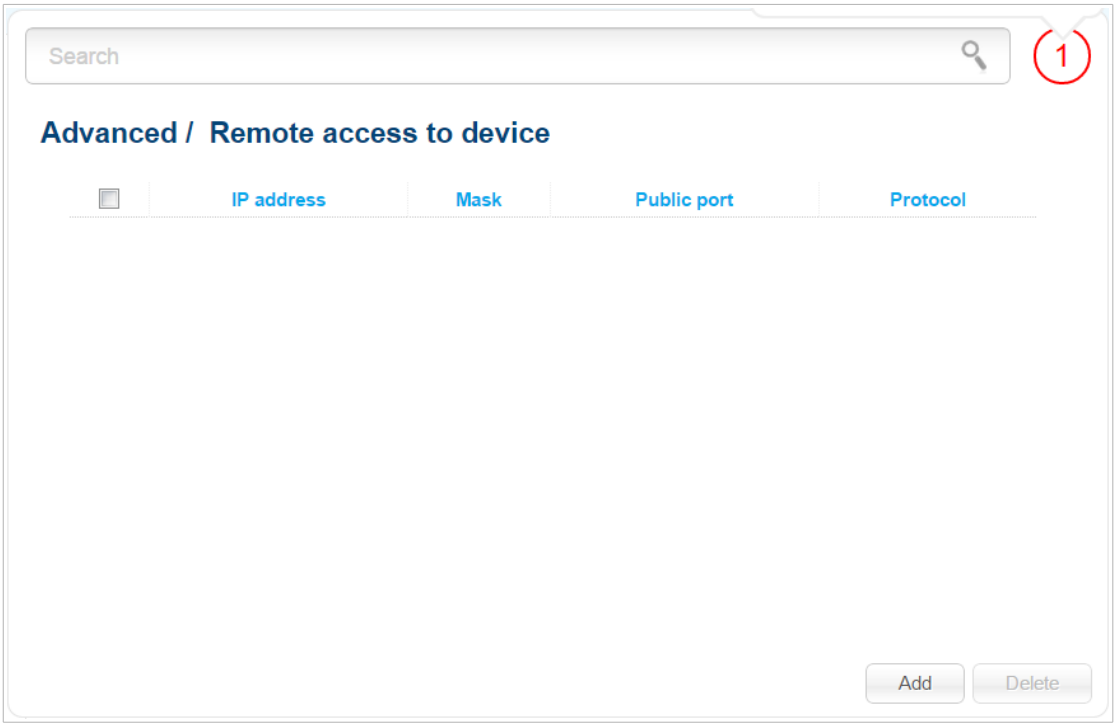


*Figure 115. The **Advanced / Remote access to device** page.*

To create a new rule, click the **Add** button.

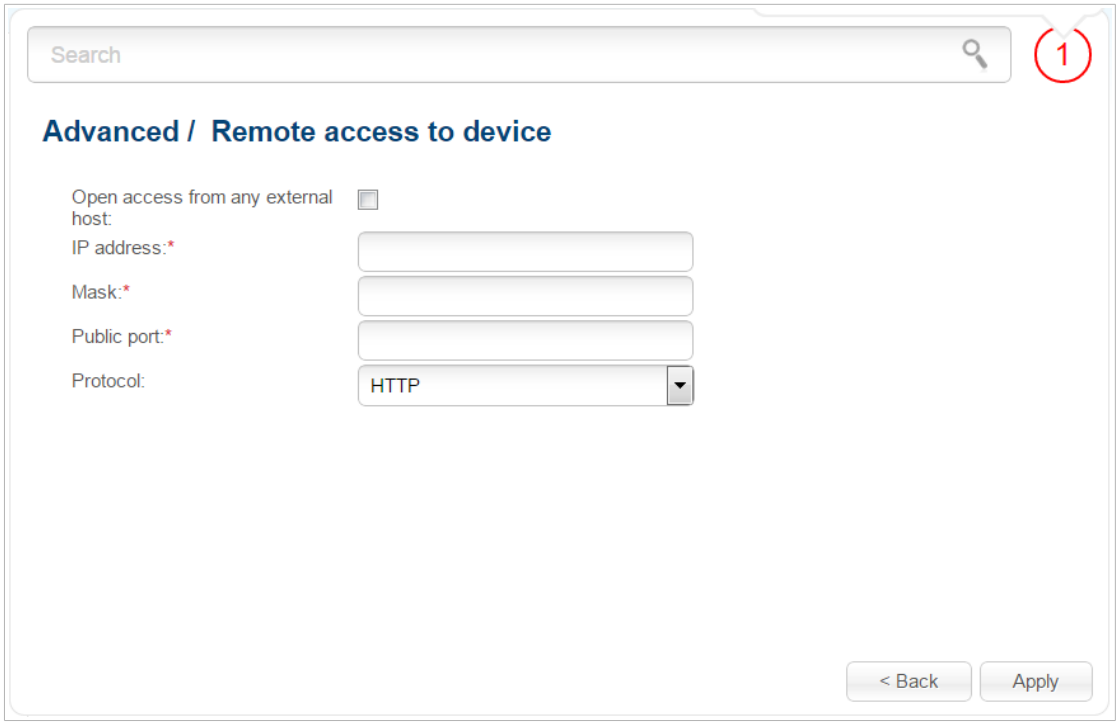


Figure 116. The page for adding a rule for remote management.

You can specify the following parameters:

Parameter	Description
Open access from any external host	Select the checkbox to allow access to the router for any host. When the checkbox is selected, the **IP version** drop-down list is displayed on the page, and the **IP address** and **Mask** fields are not available for editing.
IP version	An IP version to which the rule will be applied. Select the relevant value from the drop-down list.
IP address	A host or a subnet to which the rule is applied. You can specify an IPv4 or IPv6 address.
Mask	*For the IPv4-based network only.* The mask of the subnet.
Public port	*For the IPv4-based network only.* An external port of the router. You can specify only one port.
Protocol	The protocol available for remote management of the router.

After specifying the needed parameters, click the **Apply** button.

To edit a rule for remote access, click the link to the relevant rule. On the opened page, change the needed parameters and click the **Apply** button.

To remove a rule for remote access, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Also you can remove a rule on the editing page.

Miscellaneous

On the **Advanced / Miscellaneous** page, you can enable IGMP, RTSP, the SIP ALG, the PPPoE pass through, PPTP pass through, and L2TP pass through functions for the router.

IGMP is used for managing multicast traffic (transferring data to a group of destinations). This protocol allows using network resources for some applications, e.g., for streaming video, more efficiently.

SIP is used for creating, modifying, and terminating communication sessions. This protocol allows telephone calls via the Internet.

RTSP is used for real-time streaming multimedia data delivery. This protocol allows some applications to receive streaming audio/video from the Internet.

The PPPoE pass through function allows PPPoE clients of computers from your LAN to connect to the Internet through PPPoE connections of the router.

The PPTP pass through and L2TP pass through functions allow VPN PPTP and L2TP traffic to pass through the router so that clients from your LAN can establish relevant connections with remote networks.

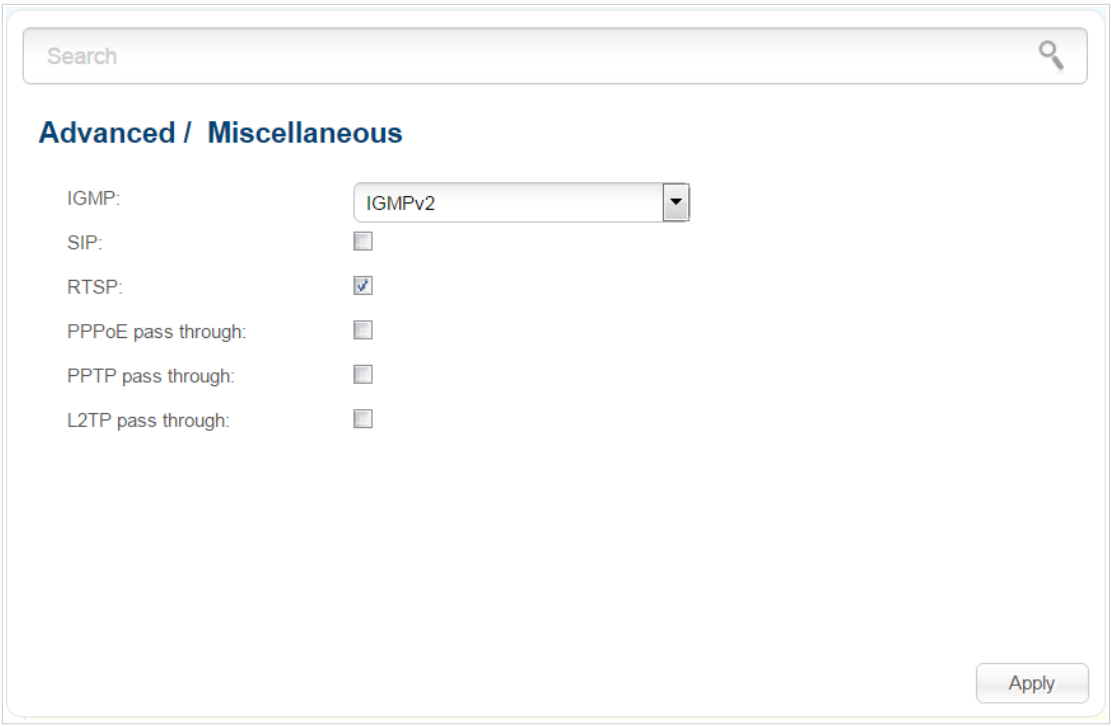


*Figure 117. The **Advanced / Miscellaneous** page.*

The following elements are available on the page:

Parameter	Description
IGMP	Select a version of IGMP from the drop-down list to enable IGMP. Such a setting allows using the IGMP Proxy function for all WAN connections for which the **Enable IGMP Multicast** checkbox is selected. To disable IGMP, select the **Off** value from the drop-down list.
SIP	Select the checkbox to enable SIP. Such a setting allows using the SIP ALG function. This function allows VoIP traffic to pass through the NAT-enabled router.[1]
RTSP	Select the checkbox to enable RTSP. Such a setting allows managing media stream: fast forward streaming audio/video, pause and start it.
PPPoE pass through	Select the checkbox to enable the PPPoE pass through function.
PPTP pass through	Select the checkbox to enable the PPTP pass through function.
L2TP pass through	Select the checkbox to enable the L2TP pass through function.

After specifying the needed parameters, click the **Apply** button.

1 On the **Net / WAN** page, create a WAN connection, on the **Advanced / Miscellaneous** page, select the **SIP** checkbox, connect the phone cable between a LAN port of the router and the IP phone. Specify SIP parameters on the IP phone and configure it to obtain an IP address automatically (as DHCP client).

TR-069 Client

On the **Advanced / TR-069 Client** page, you can configure the router for communication with a remote Auto Configuration Server (ACS).

The TR-069 client is used for remote monitoring and management of the device.

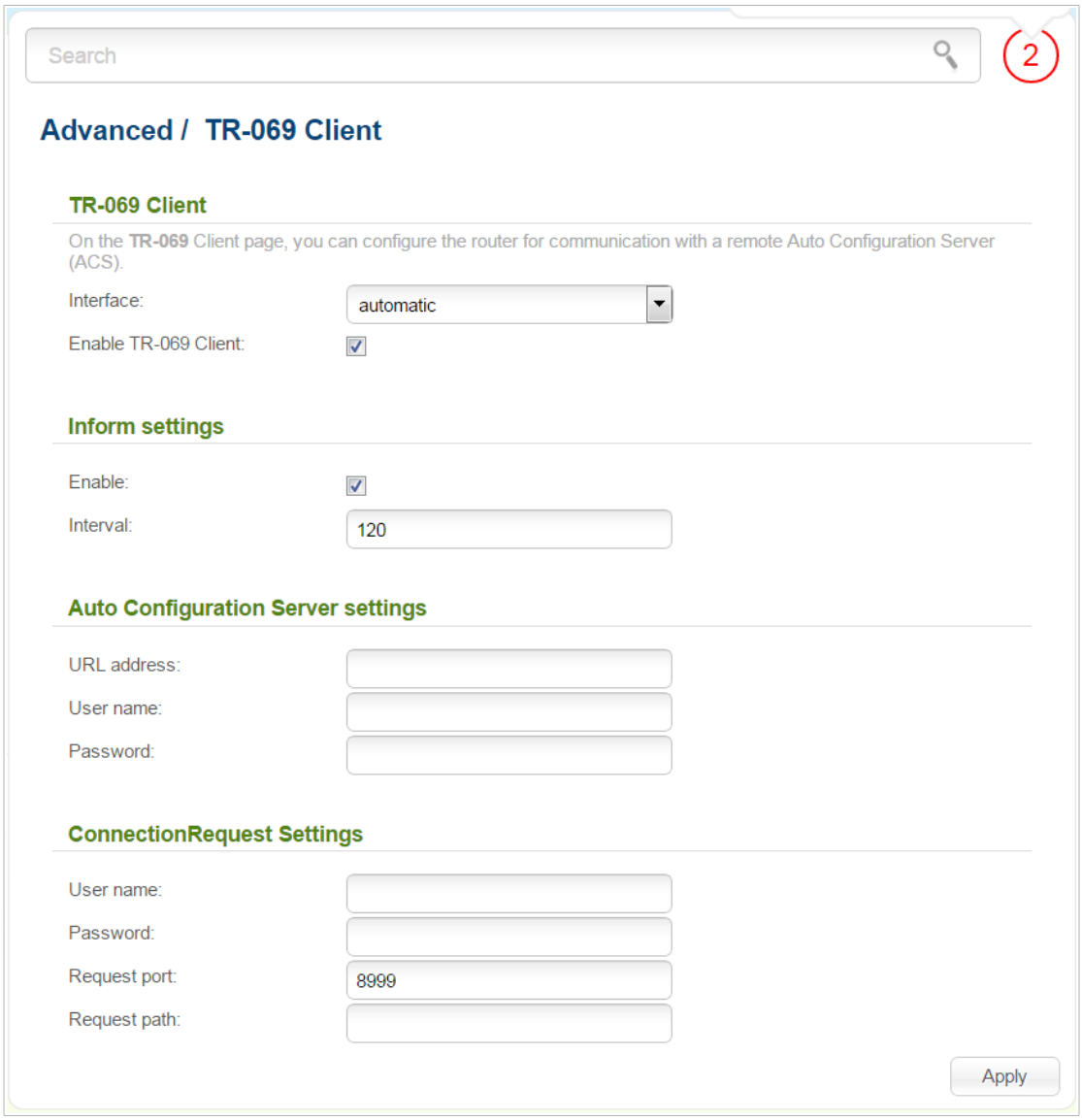


Figure 118. The page for configuring the TR-069 client.

You can specify the following parameters:

Parameter	Description
Interface	The interface which the router uses for communication with the ACS. Leave the **automatic** value to let the device select the interface basing on the routing table or select another value if required by your ISP.
Enable TR-069 Client	Select the checkbox to enable the TR-069 client.

Parameter	Description
Inform settings	
Enable	Select the checkbox so the router may send reports (data on the device and network statistics) to the ACS.
Interval	Specify the time period (in seconds) between sending reports.
Auto Configuration Server settings	
URL address	The URL address of the ACS provided by the ISP.
User name	The username to connect to the ACS. The username can contain digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard.
Password	The password to connect to the ACS. The password can contain digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard.
ConnectionRequest Settings	
User name	The username used by the ACS to transfer a connection request to the router. The username can contain digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard.
Password	The password used by the ACS. The password can contain digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard.
Request port	The port used by the ACS. By default, the port `8999` is specified.
Request path	The path used by the ACS.

When you have configured the parameters, click the **Apply** button.

Flow Control

On the **Advanced / Flow Control** page, you can enable and disable data flow control for the WAN port of the router.

This function is used for equal load balancing in ISPs' networks. Contact your ISP to clarify if this function needs to be enabled.

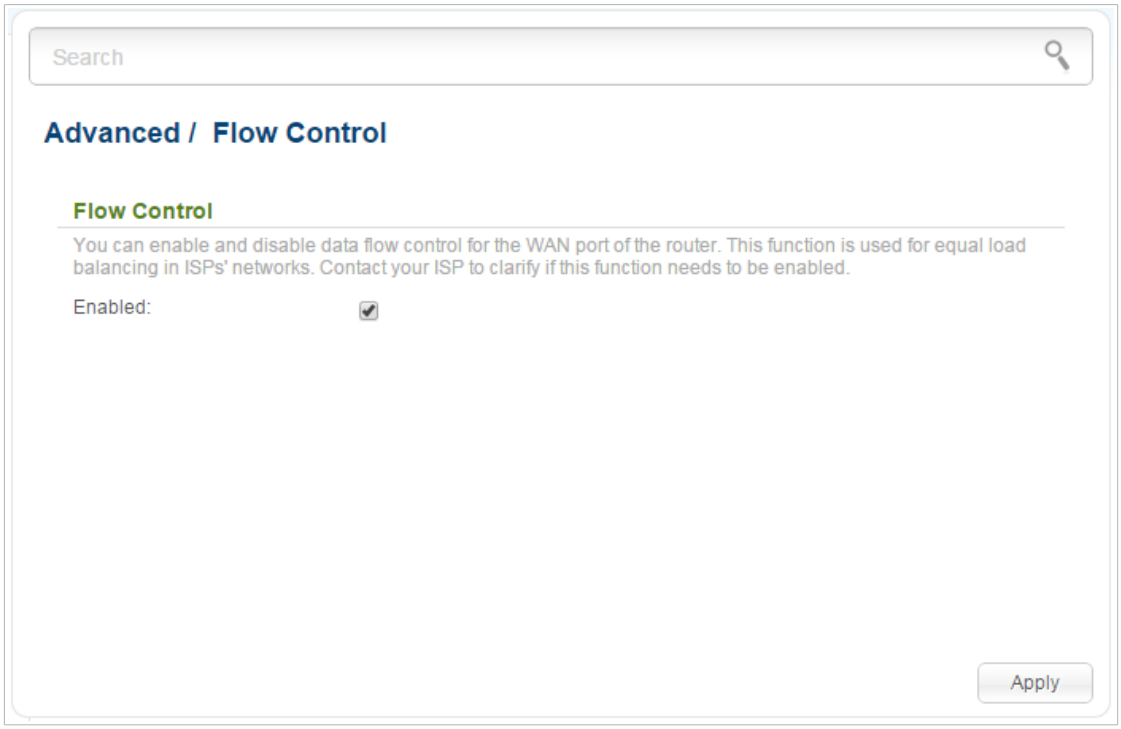


*Figure 119. The **Advanced / Flow Control** page.*

To enable the flow control function, select the **Enabled** checkbox and click the **Apply** button.

To disable the flow control function, deselect the **Enabled** checkbox and click the **Apply** button.

Firewall

In this menu you can configure the firewall of the router:

- add rules for IP filtering
- create virtual servers
- define a DMZ
- configure the MAC filter.

IP Filters

On the **Firewall / IP filters** page, you can create new rules for filtering IP packets and edit or remove existing rules.

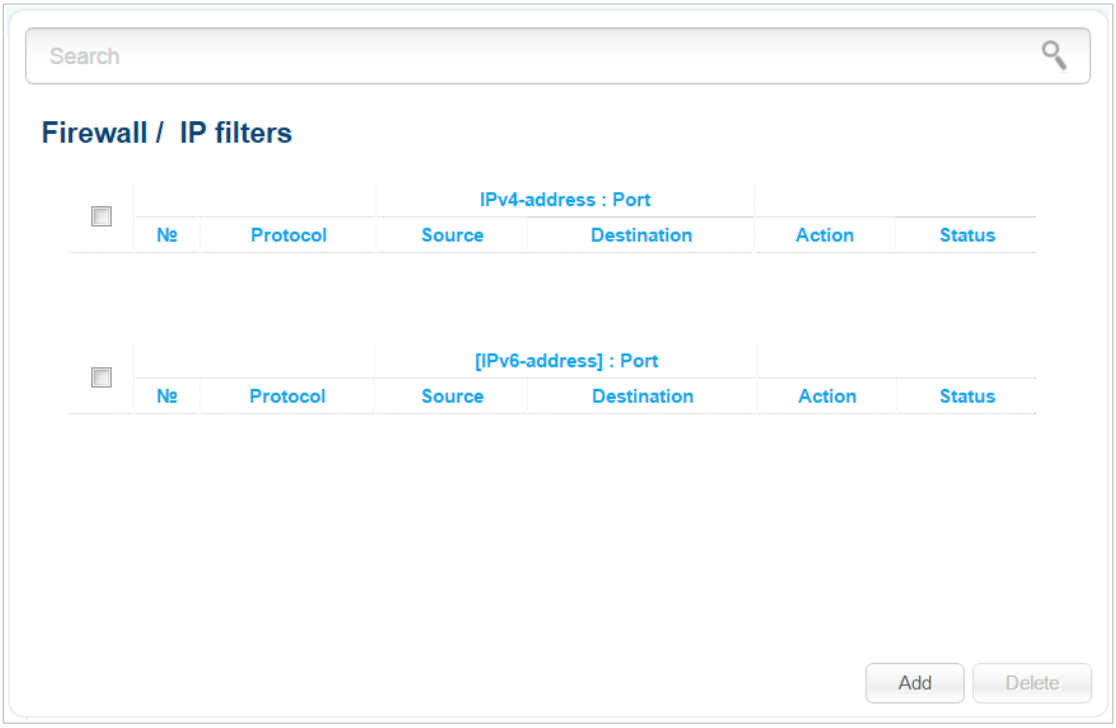


*Figure 120. The **Firewall / IP filters** page.*

To create a new rule, click the **Add** button.

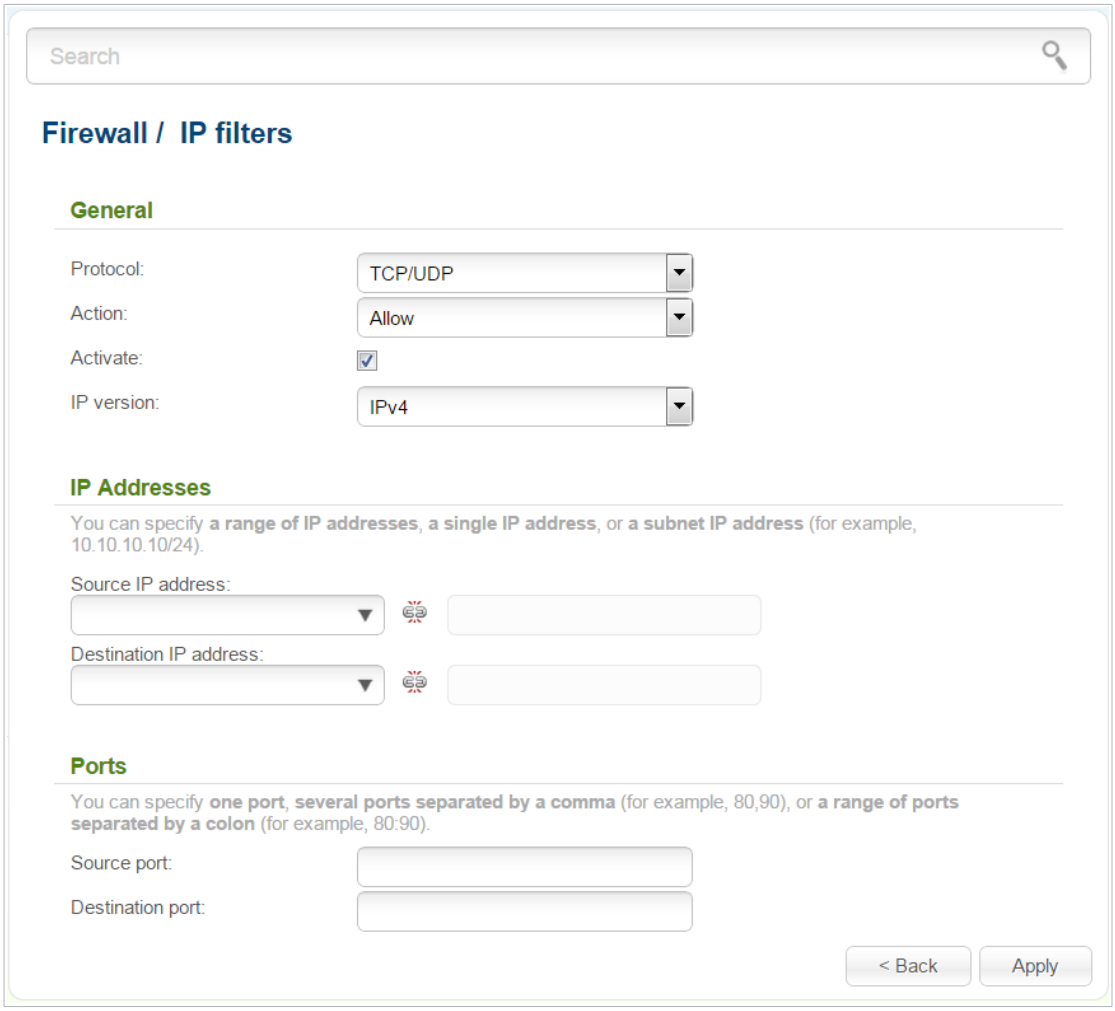


Figure 121. The page for adding a rule for IP filtering.

You can specify the following parameters:

Parameter	Description
General	
Protocol	A protocol for network packet transmission. Select a value from the drop-down list.
Action	Select an action for the rule. **Allow**: Allows packet transmission in accordance with the criteria specified by the rule. **Deny**: Denies packet transmission in accordance with the criteria specified by the rule.
Activate	If the checkbox is selected, the rule is enabled. Deselect the checkbox to disable the rule.
IP version	An IP version to which the rule will be applied. Select the relevant value from the drop-down list.

Parameter	Description
IP Addresses	
Source IP address	The source host/subnet IP address. To choose a device connected to the router's LAN at the moment, select the relevant IP address from the drop-down list (the field will be filled in automatically). If you want to specify a range of IP addresses, click the icon (**Range**) and enter the starting and ending addresses in the left and right fields correspondingly.
Destination IP address	The destination host/subnet IP address. To choose a device connected to the router's LAN at the moment, select the relevant IP address from the drop-down list (the field will be filled in automatically). If you want to specify a range of IP addresses, click the icon (**Range**) and enter the starting and ending addresses in the left and right fields correspondingly.
Ports	
Source port	A port of the source IP address. You can specify one port, several ports separated by a comma, or a range of ports separated by a colon.
Destination port	A port of the destination IP address. You can specify one port, several ports separated by a comma, or a range of ports separated by a colon.

Click the **Apply** button.

To edit a rule for IP filtering, click the link to the relevant rule. On the opened page, change the needed parameters and click the **Apply** button.

To remove a rule, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Also you can remove a rule on the editing page.

Virtual Servers

On the **Firewall / Virtual servers** page, you can create virtual servers for redirecting incoming Internet traffic to a specified IP address in the local area network.

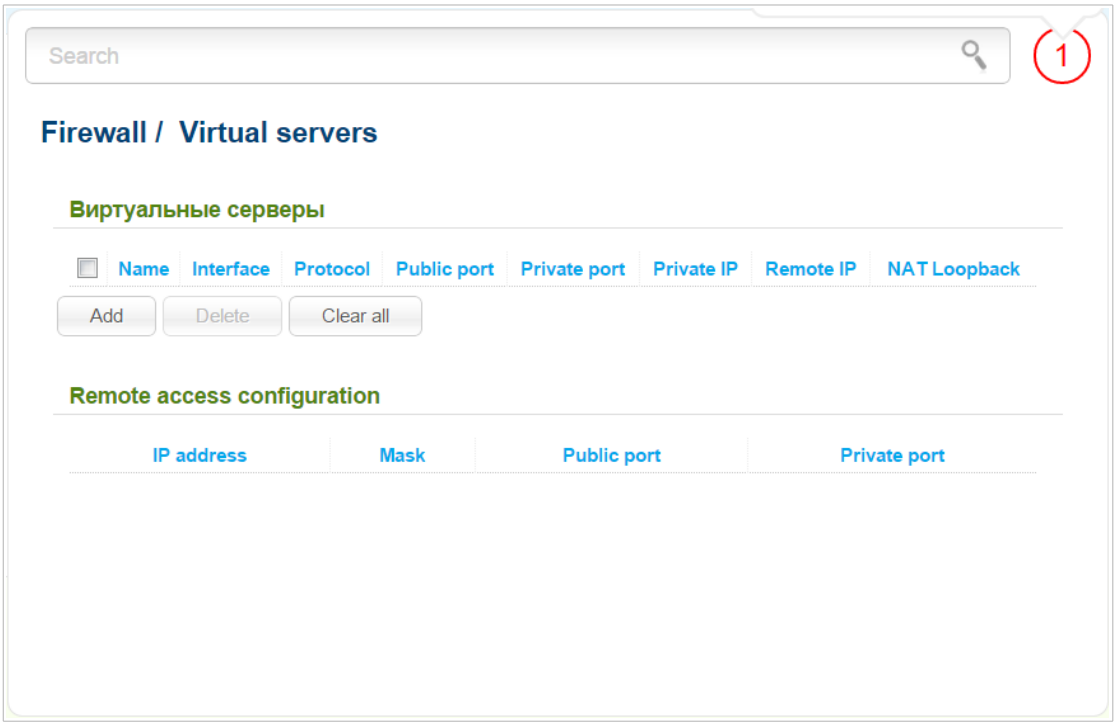


*Figure 122. The **Firewall / Virtual servers** page.*

To create a new virtual server, click the **Add** button.

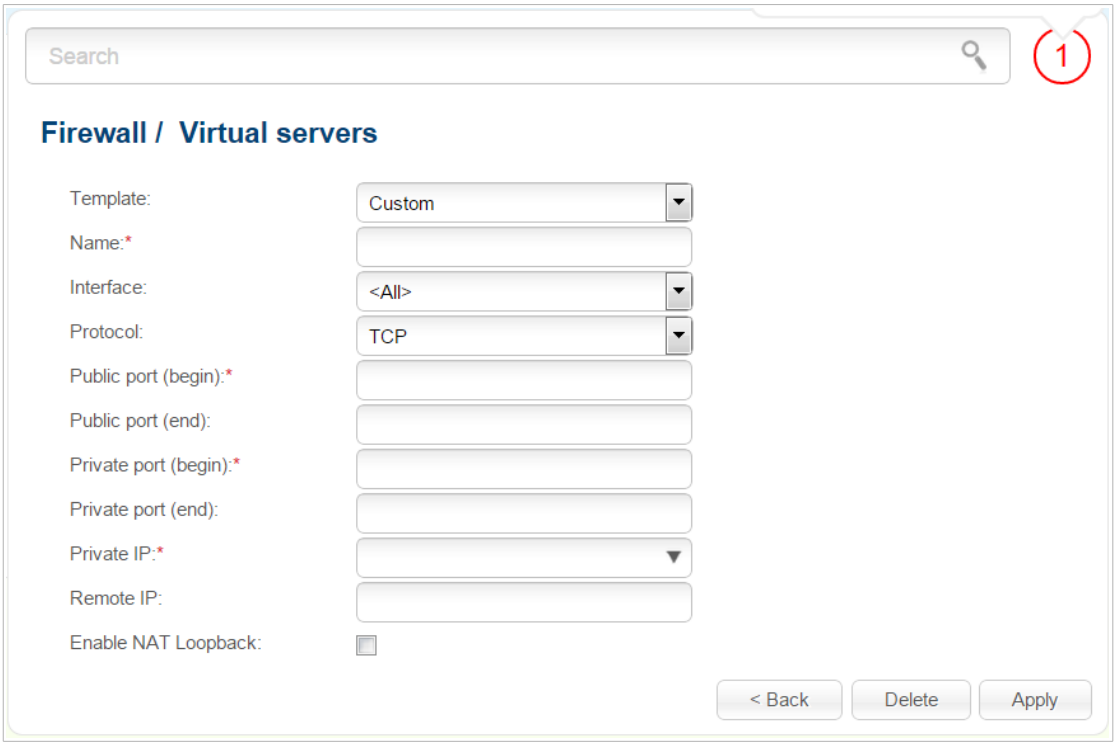


Figure 123. The page for adding a virtual server.

You can specify the following parameters:

Parameter	Description
Template	Select a virtual server template from the drop-down list, or select **Custom** to specify all parameters of the new virtual server manually.
Name	A name for the virtual server for easier identification. You can specify any name.
Interface	A WAN connection to which this virtual server will be assigned.
Protocol	A protocol that will be used by the new virtual server. Select a value from the drop-down list.
Public port (begin)/ Public port (end)	A port of the router from which traffic is directed to the IP address specified in the **Private IP** field. Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Public port (begin)** field and leave the **Public port (end)** field blank.
Private port (begin)/ Private port (end)	A port of the IP address specified in the **Private IP** field to which traffic is directed from the **Public port**. Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Private port (begin)** field and leave the **Private port (end)** field blank.
Private IP	The IP address of the server from the local area network. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list (the field will be filled in automatically).
Remote IP	The IP address of the server from the external network.
Enable NAT Loopback	If the checkbox is selected, users of the router's LAN can access the server, which IP address is specified in the **Private IP** field, using the router's external IP address as the server's IP address. If a DDNS service is configured on the **Advanced / DDNS** page, the users can access the server via the router's domain name.

Click the **Apply** button.

To edit the parameters of an existing server, select the relevant server in the table. On the opened page, change the needed parameters and click the **Apply** button.

To remove a server, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Also you can remove a server on the editing page.

To remove all servers from this page, click the **Clear all** button.

In the **Remote access configuration** section, rules created on the **Advanced / Remote access to device** page are displayed. If after creating virtual servers you need to edit rules for remote access, you can quickly get to the **Advanced / Remote access to device** page by clicking the link to the relevant rule.

DMZ

A DMZ is a host or network segment located “between” internal (local) and external (global) networks. In the router, the DMZ implements the capability to transfer a request coming to a port of the DSL router from the external network to a specified host of the internal network.

On the **Firewall / DMZ** page you can specify the IP address of the DMZ host.

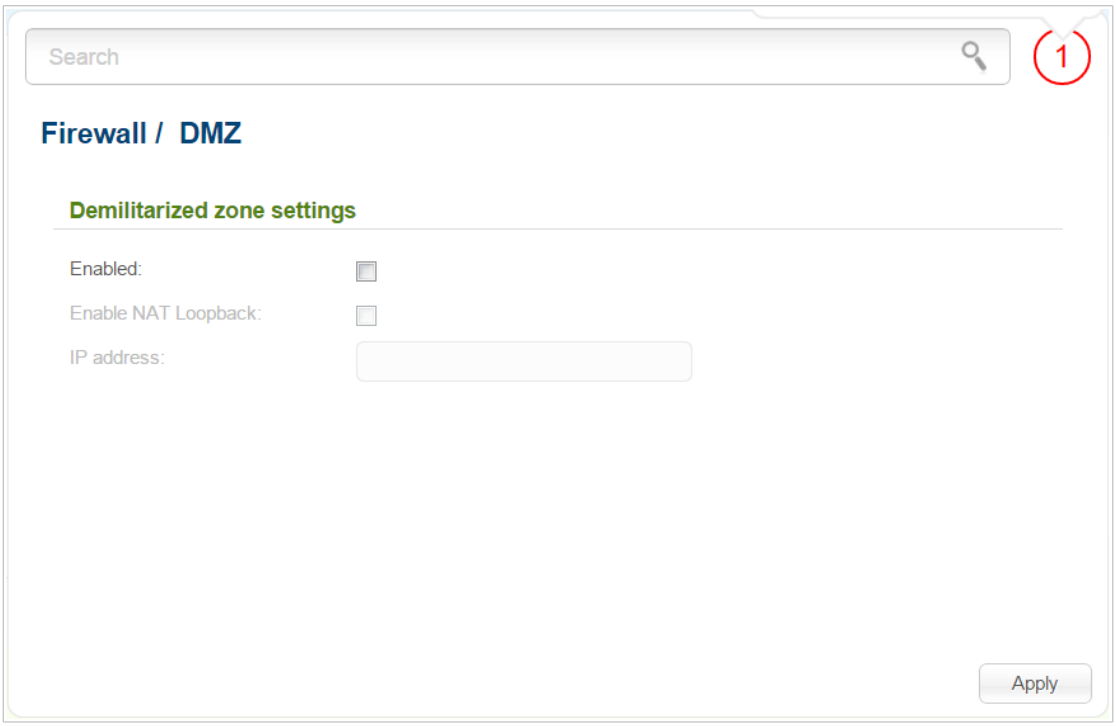


*Figure 124. The **Firewall / DMZ** page.*

To enable the DMZ, select the **Enabled** checkbox.

Enter the IP address of a host from your network in the **IP address** field. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list (the field will be filled in automatically).

If you want users of the router's LAN to access the host using the router's external IP address, select the **Enable NAT Loopback** checkbox. If a DDNS service is configured on the **Advanced / DDNS** page, also the users can access the host via the router's domain name.

Click the **Apply** button.

Note that when the DMZ is enabled, all traffic coming to a port of the WAN interface of the router is directed to the same port of the specified IP address. Also note that virtual servers have higher priority than the DMZ host. In other words, if there has been created a virtual server that directs traffic from external port 80 to a port of the device from the router's local network, then entering **`http://router_WAN_IP`** in the address bar, users of the external network are directed to the specified port and IP address configured for the virtual server, but not to port 80 of the device with the IP address specified on the **Firewall / DMZ** page.

To disable the DMZ, deselect the **Enabled** checkbox and click the **Apply** button.

MAC Filter

On the **Firewall / MAC filter** page, you can configure MAC-address-based filtering for computers of the router's LAN.

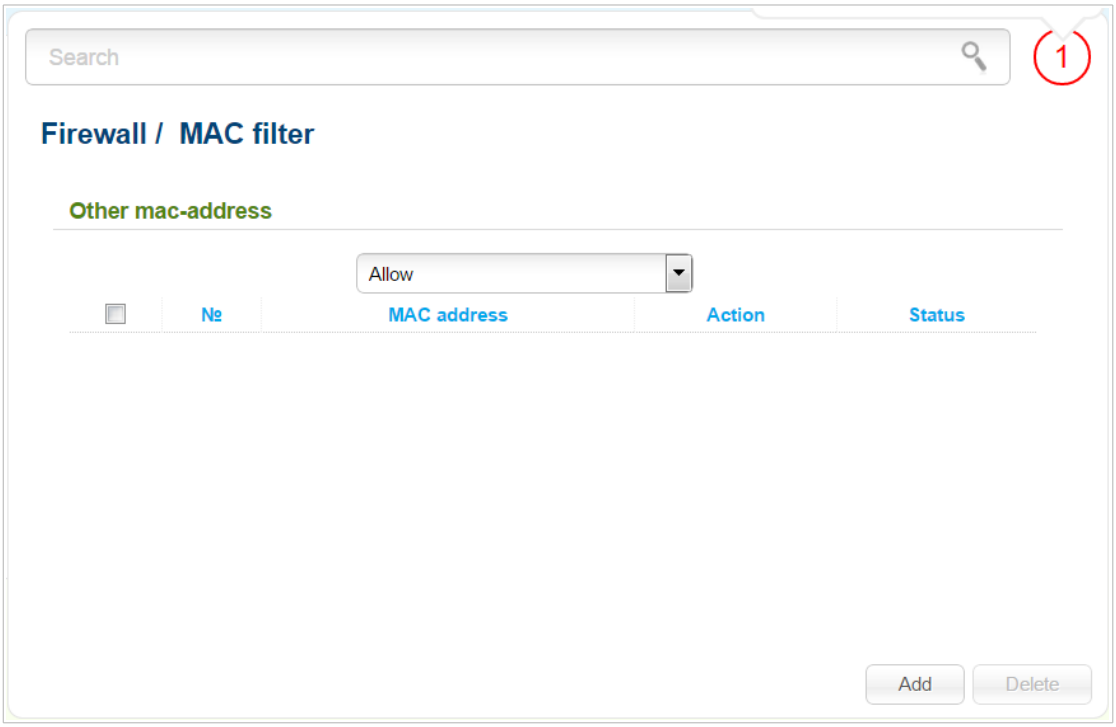


*Figure 125. The **Firewall / MAC filter** page.*

Select the needed action from the drop-down list to configure filtering for all devices of the router's network:

- **Allow**: Allows access to the router's network and to the Internet for devices (the value is specified by default);
- **Deny**: Blocks access to the router's network for devices.

If you need to specify a filtering mode for each device separately, create relevant rules. To do this, click the **Add** button.

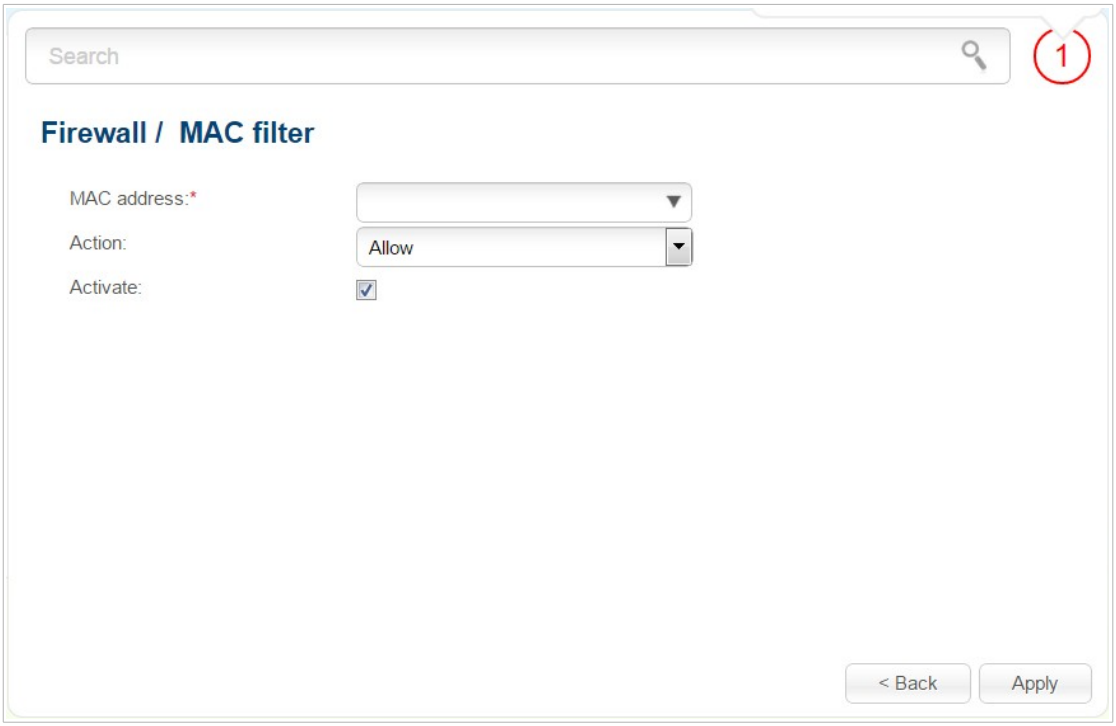


Figure 126. The page for adding a rule for the MAC filter.

You can specify the following parameters:

Parameter	Description
MAC address	The MAC address of a device from the router's LAN. You can enter the MAC address of a device connected to the router's LAN at the moment. To do this, select the relevant device from the drop-down list (the field will be filled in automatically).
Action	Select an action for the rule. **Deny**: Blocks access to the router's network for the device with the specified MAC address. **Allow**: Allows access to the router's network and to the Internet for the device with the specified MAC address when the rules on the **Firewall / IP filters** page block access for this device.
Activate	If the checkbox is selected, the rule is enabled. Deselect the checkbox to disable the rule.

After specifying the needed parameters, click the **Apply** button.

To edit a rule for filtering, click the link to the relevant rule. On the opened page, change the needed parameters and click the **Apply** button.

To remove a rule, select the checkbox located to the left of the relevant line in the table and click the **Delete** button. Also you can remove a rule on the editing page.

Control

This menu is designed to create restrictions on access to certain web sites.

URL Filter

On the pages of the **Control / URL filter** section, you can specify restrictions on access to certain web sites.

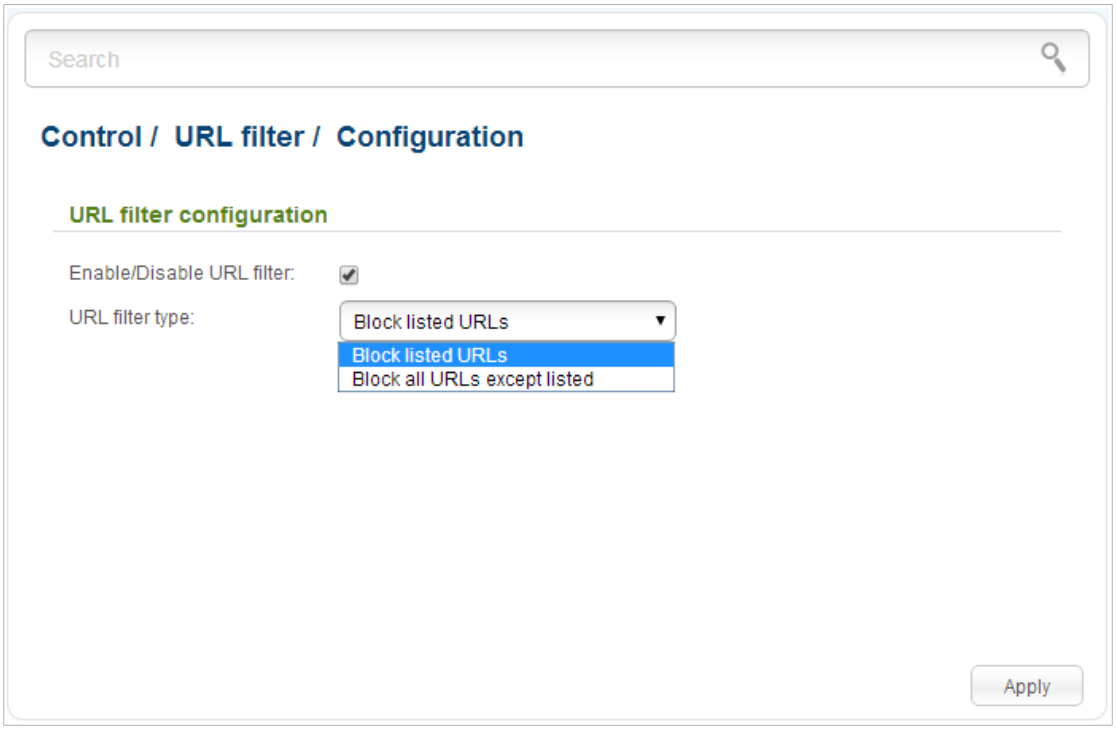


*Figure 127. The **Control / URL filter / Configuration** page.*

To enable the URL filter, select the **Enable/Disable URL filter** checkbox on the **Control / URL filter / Configuration** page, then select a needed mode from the **URL filter type** drop-down list:

- **Block listed URLs**: when this value is selected, the router blocks access to all addresses specified on the **Control / URL filter / Configuration** page;
- **Block all URLs except listed**: when this value is selected, the router allows access to addresses specified on the **Control / URL filter / Configuration** page and blocks access to all other web sites.

Click the **Apply** button.

To specify URL addresses to which the selected filtering will be applied, go to the **Control / URL filter / URL addresses** page.

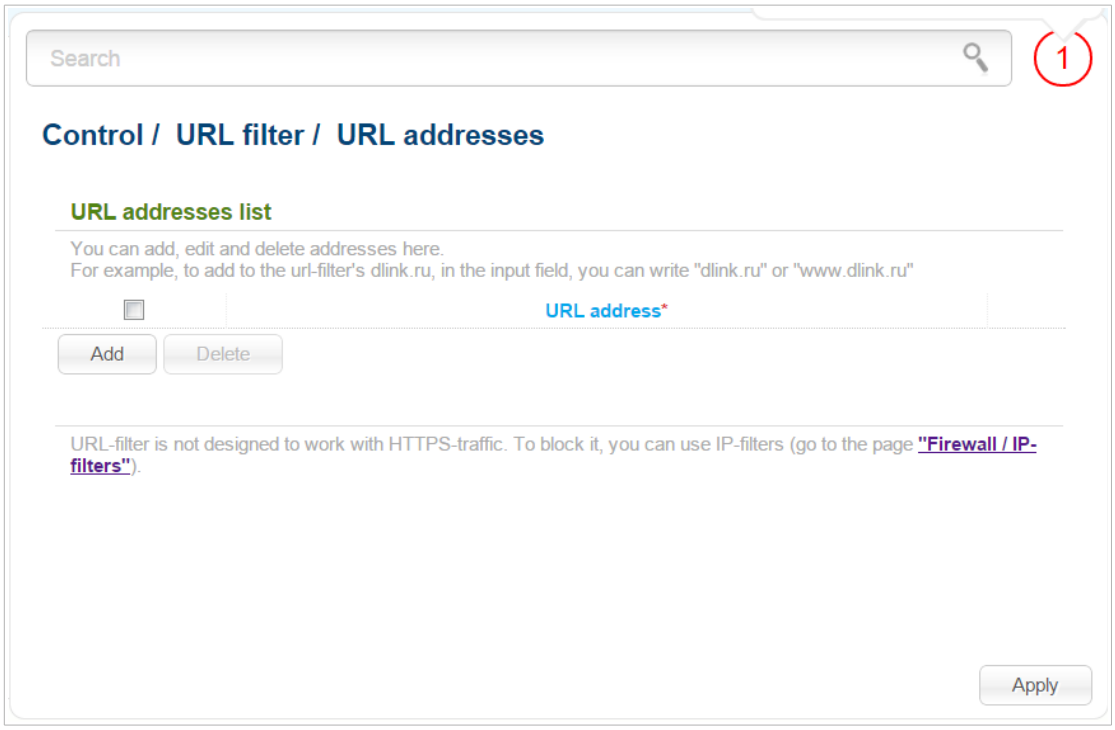


*Figure 128. The **Control / URL filter / URL addresses** page.*

Click the **Add** button and enter an address in the field displayed. Then click the **Apply** button.

To remove an address from the list of URL addresses, select the checkbox located to the left of the relevant URL address and click the **Delete** button. Then click the **Apply** button.

Yandex.DNS

This menu is designed to configure the Yandex.DNS service.

Yandex.DNS is a web content filtering service which provides the DNS server, protect a computer against malicious web sites, and block access to adult web sites. Click the **About yandex.DNS** link in the **Yandex.DNS** section to get detailed information on the service.

Internet Protection Settings

On the pages of the **Yandex.DNS / Internet protection settings** section, you can enable the Yandex.DNS service and configure its operating mode.

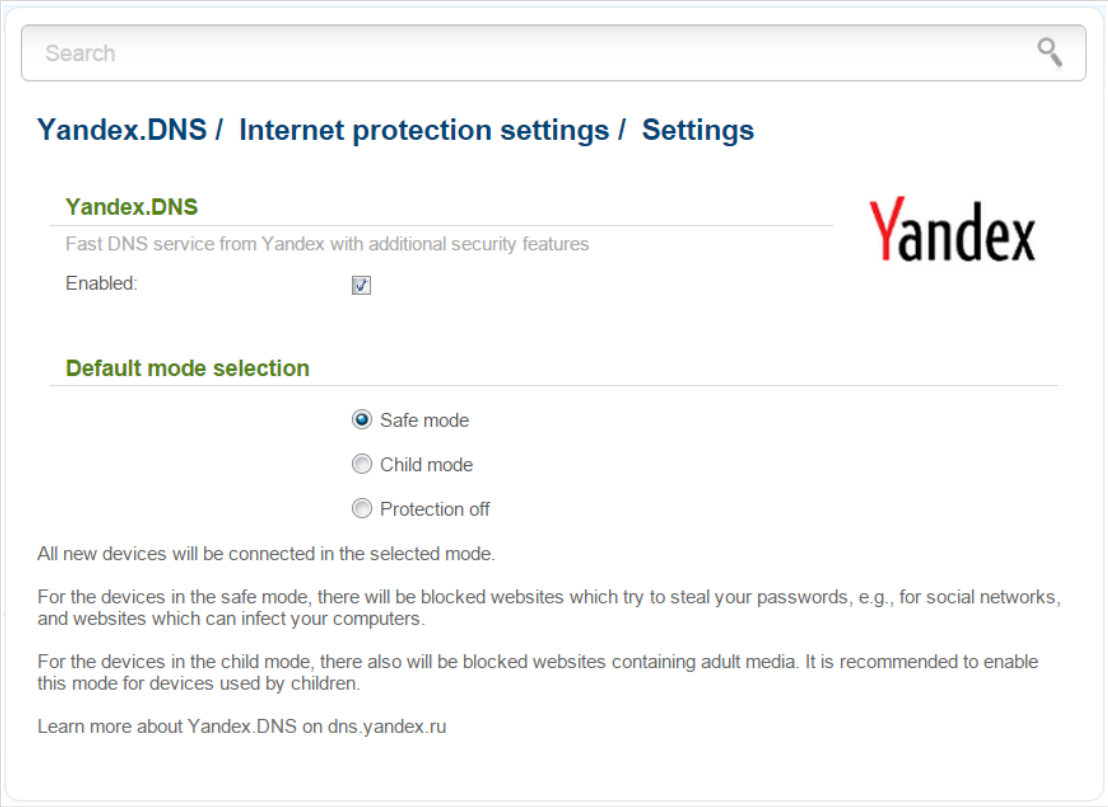


*Figure 129. The **Yandex.DNS / Internet protection settings / Settings** page.*

To enable the Yandex.DNS service, select the **Enabled** checkbox on the **Yandex.DNS / Internet protection settings / Settings** page.

When the checkbox is selected, the **Default mode selection** section is displayed on the page. Select the needed choice of the radio button to configure filtering for all devices of the router's network:

- **Safe mode**: when this value is selected, the service blocks access to malicious and fraudulent web sites;
- **Child mode**: when this value is selected, the service blocks access to malicious and fraudulent web sites and blocks access to adult content;
- **Protection off**: when this value is selected, the service provides the DNS server with no restrictions on access to unsafe web sites.

Also the selected filtering mode will be applied to all devices newly connected to the router's network.

If you need to specify a filtering mode for each device separately, create relevant rules. To do this, go to the **Yandex.DNS / Internet protection settings / Devices** page.

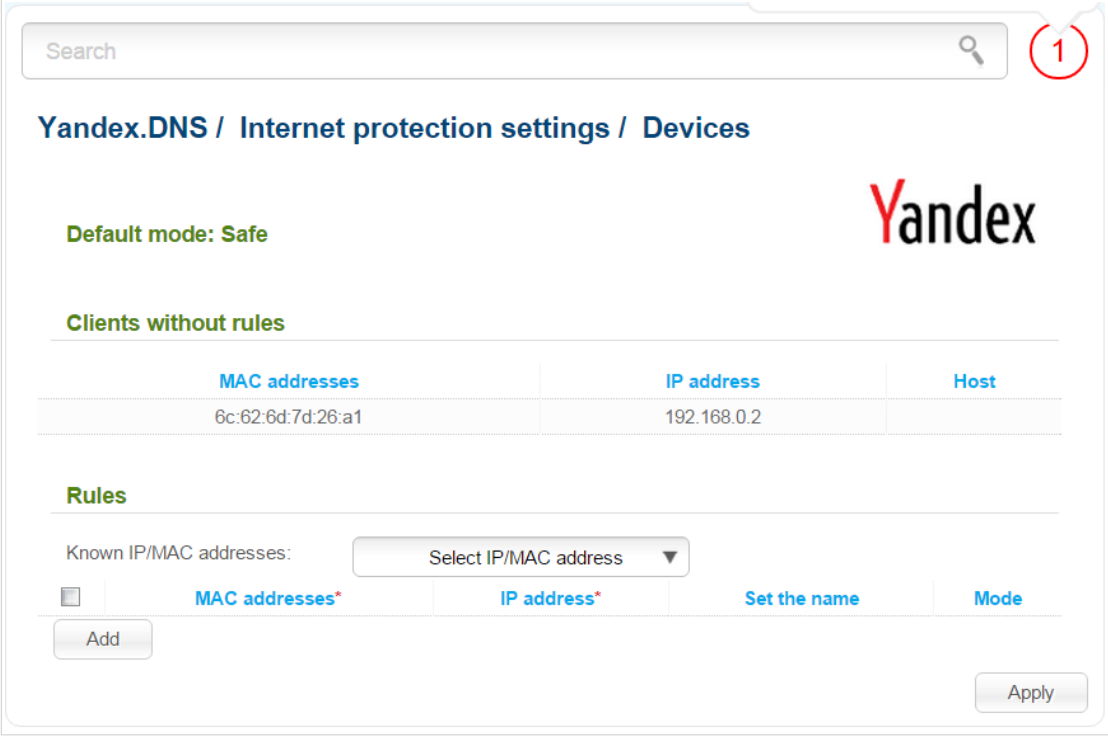


*Figure 130. The **Yandex.DNS / Internet protection settings / Devices** page.*

On the opened page, in the **Clients without rules** section, the devices which filtering mode is specified on the **Yandex.DNS / Internet protection settings / Settings** page are displayed. The name of the mode is displayed in the **Default mode** section.

To create[2] a new filtering rule for a device, click the **Add** button in the **Rules** section. In the line displayed, you can specify the following parameters:

Parameter	Description
MAC addresses	The MAC address of a device from the router's LAN. You can enter the MAC address of a device connected to the router's LAN at the moment. To do this, select the relevant device from the **Known IP/MAC addresses** drop-down list (the field will be filled in automatically).
IP address	The IP address of a device from the router's LAN. You can enter the IP address of a device connected to the router's LAN at the moment. To do this, select the relevant device from the **Known IP/MAC addresses** drop-down list (the field will be filled in automatically).
Set the name	Enter a name for the rule for easier identification. You can specify any name.
Mode	Select an operating mode of the Yandex.DNS service for this rule. **Child**: when this value is selected, the service blocks access to malicious and fraudulent web sites and blocks access to adult content. **Safe**: when this value is selected, the service blocks access to malicious and fraudulent web sites. **Protection off**: when this value is selected, the service provides the DNS server with no restrictions on access to unsafe web sites.

After specifying the needed parameters, click the **Apply** button.

To edit a rule for filtering, select a needed field in the relevant line of the table, change its value, and click the **Apply** button.

To remove a rule for filtering, select the checkbox located to the left of the relevant rule and click the **Apply** button.

To disable the Yandex.DNS service, deselect the **Enabled** checkbox on the **Yandex.DNS / Internet protection settings / Settings** page.

2 When a new rule for filtering is created, a MAC address and IP address pair is displayed on the **Net / LAN** page. The created pair will be deleted with the relevant rule.

System

In this menu you can do the following:

- change the password used to access the router's settings
- save the current settings to the non-volatile memory
- reboot the router
- create a backup of the router's configuration
- restore the router's configuration from a previously saved file
- restore the factory default settings
- view the system log
- update the firmware of the router
- configure automatic notification on new firmware version
- configure automatic synchronization of the system time or manually configure the date and time for the router
- check availability of a host on the Internet through the web-based interface of the router
- trace the route to a host
- allow or forbid access to the router via TELNET.

Administrator Password

On the **System / Administrator password** page, you can change the password for the administrator account used to access the web-based interface of the router and to access the device settings via TELNET.

! For security reasons, it is strongly recommended to change the administrator password upon initial configuration of the router.

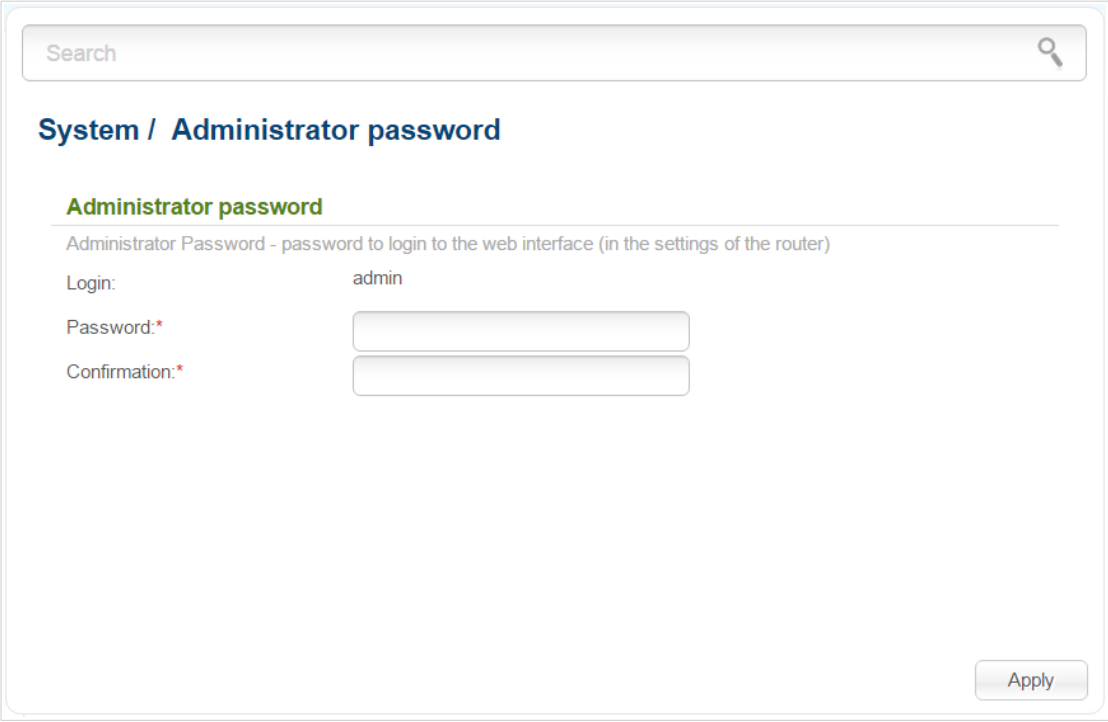


Figure 131. The page for modifying the administrator password.

Enter the new password in the **Password** and **Confirmation** fields and click the **Apply** button.

Configuration

On the **System / Configuration** page, you can reboot the device, save the changed settings to the non-volatile memory, restore the factory defaults, backup the current configuration, or restore the router's configuration from a previously created file.

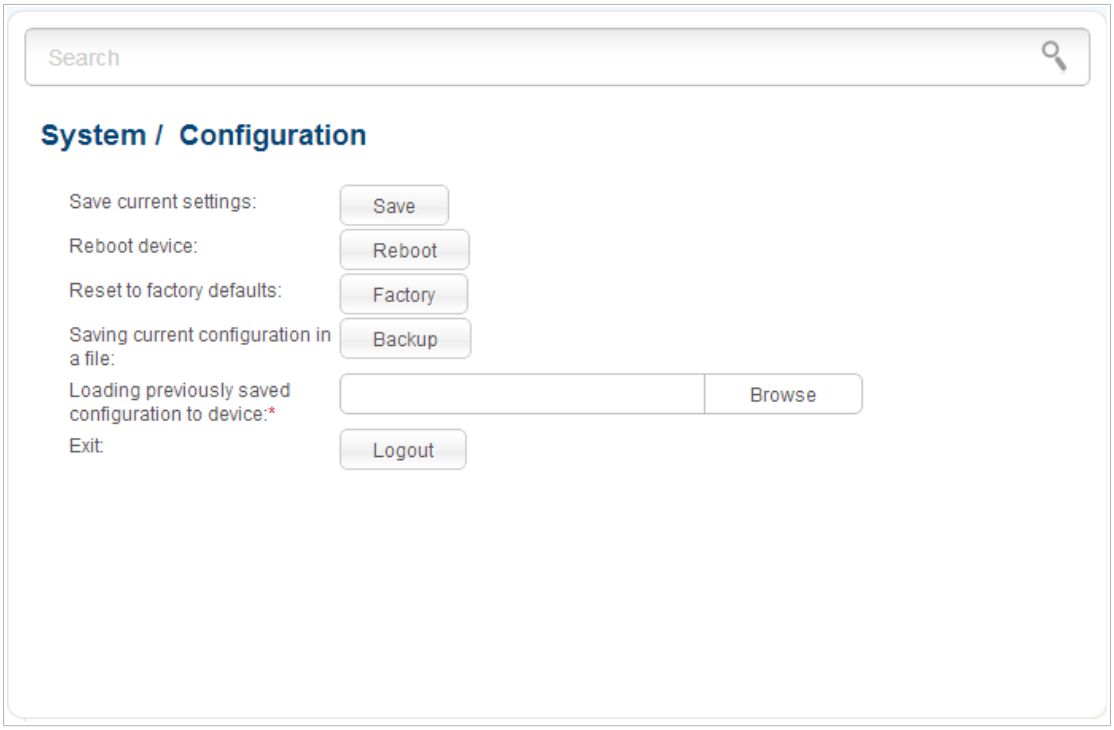


*Figure 132. The **System / Configuration** page.*

The following buttons are available on the page:

Control	Description
Save	Click the button to save settings to the non-volatile memory. Please, save settings every time you change the router's parameters. Otherwise the changes will be lost upon hardware reboot of the router.
Reboot	Click the button to reboot the device. All unsaved changes will be lost after the device's reboot.
Factory	Click the button to restore the factory default settings. Also you can restore the factory defaults via the hardware **RESET** button (see the ***Back and Bottom Panels*** section, page 11).
Backup	Click the button to save the configuration (all settings of the router) to your PC. The configuration backup will be stored in the download location of your web browser.

Control	Description
Browse	Click the button and follow the dialog box appeared to select a previously saved configuration file (all settings of the router) located on your PC and upload it.
Logout	Click the button to exit the web-based interface.

Actions of the **Save**, **Reboot**, **Factory**, **Backup**, and **Logout** buttons also can be performed via the top-page menu displayed when the mouse pointer is over the **System** caption.

System Log

On the **System / System log / Configuration** page, you can set the system log options and configure sending the system log to a remote host.

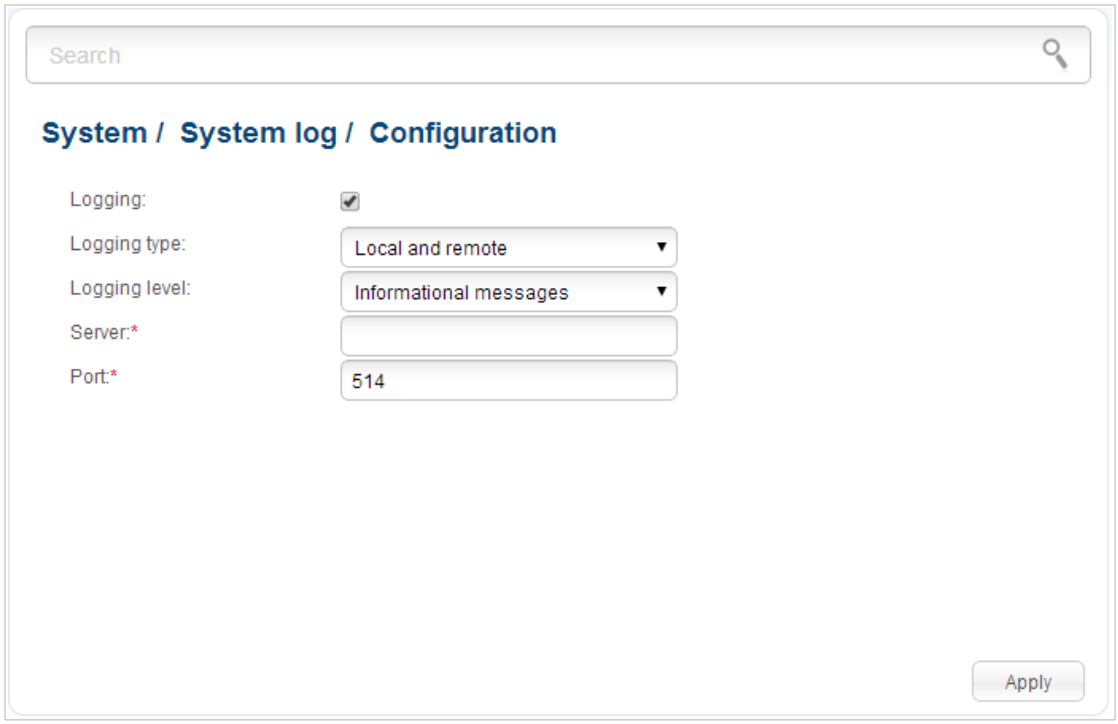


*Figure 133. The **System / System log / Configuration** page.*

To enable logging of the system events, select the **Logging** checkbox. Then specify the needed parameters.

Control	Description
Logging type	Select a type of logging from the drop-down list. • **Local**: the system log is stored in the router's memory (and displayed on the **System / System log / Log** page). When this value is selected, the **Server** and **Port** fields are not displayed. • **Remote**: the system log is sent to the remote host specified in the **Server** field. • **Local and remote**: the system log is stored in the router's memory (and displayed on the **System / System log / Log** page) and sent to the remote host specified in the **Server** field.
Logging level	Select a type of messages and alerts/notifications to be logged.
Server	The IP or URL address of the host from the local or global network, to which the system log will be sent.

Control	Description
Port	A port of the host specified in the **Server** field. By default, the value `514` is specified.

After specifying the needed parameters, click the **Apply** button.

To disable logging of the system events, deselect the **Logging** checkbox and click the **Apply** button.

On the **System / System log / Log** page, the events specified in the **Logging level** list are displayed.

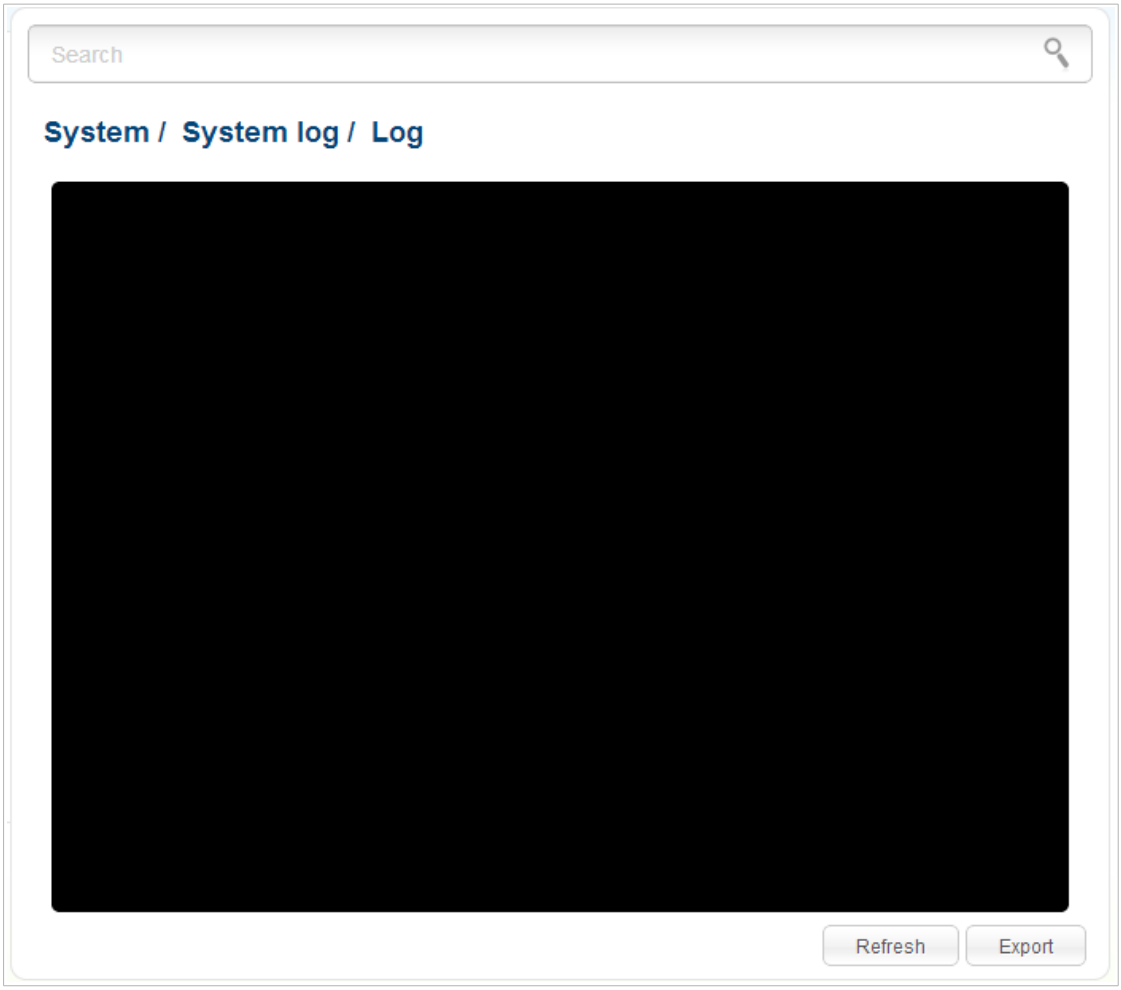


*Figure 134. The **System / System log / Log** page.*

To view the latest system events, click the **Refresh** button.

To save the system log to your PC, click the **Export** button and follow the dialog box appeared.

Firmware Upgrade

On the **System / Firmware upgrade** page, you can upgrade the firmware of the router and configure the automatic check for updates of the router's firmware.

! Upgrade the firmware only when the router is connected to your PC via a wired connection.

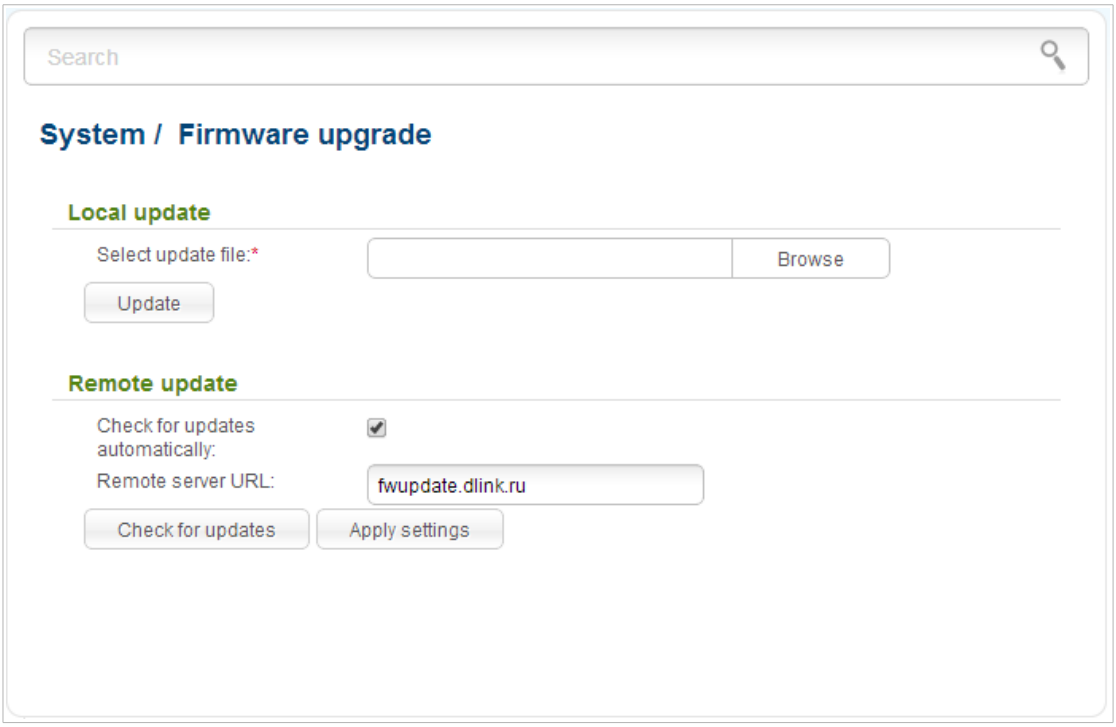


*Figure 135. The **System / Firmware upgrade** page.*

The current version of the router's firmware is displayed next the D-Link logo in the top left corner of the page.

By default, the automatic check for the router's firmware updates is enabled. If a firmware update is available, a notification will be displayed in the top right corner of the page.

To disable the automatic check for firmware updates, in the **Remote update** section, deselect the **Check for updates automatically** checkbox and click the **Apply settings** button.

To enable the automatic check for firmware updates, in the **Remote update** section, select the **Check for updates automatically** checkbox and click the **Apply settings** button. By default, in the **Remote server URL** field, the D-Link update server address (**`fwupdate.dlink.ru`**) is specified.

You can upgrade the firmware of the router locally (from the hard drive of your PC) or remotely (from the update server).

Local Update

> **!** Attention! Do not turn off the router before the firmware upgrade is completed. This may cause the device breakdown.

To update the firmware of the router locally, follow the next steps:

1. Download a new version of the firmware from www.dlink.ru.
2. Click the **Browse** button on the **System / Firmware upgrade** page to locate the new firmware file.
3. Click the **Update** button to upgrade the firmware of the router.
4. Wait until the router is rebooted (about one and a half or two minutes).
5. Log into the web-based interface using the login (**admin**) and the current password.

After the upgrade is completed, the new version of the firmware will be displayed in the top left corner of the page.

If after updating the firmware the router doesn't work correctly, please restore the factory default settings. To do this, place the mouse pointer over the **System** caption in the top left corner of the page and click the (**Reset to factory**) icon. Wait until the router is rebooted.

Remote Update

> **!** Attention! Do not turn off the router before the firmware upgrade is completed. This may cause the device breakdown.

To update the firmware of the router remotely, follow the next steps:

1. On the **System / Firmware upgrade** page, in the **Remote update** section, click the **Check for updates** button to check if a newer firmware version exists.
2. Click the **OK** button in the window displayed to upgrade the firmware of the router. Also you can upgrade the firmware of the router by clicking the **Remote update** button (the button is displayed if a newer version of the firmware is available).
3. Wait until the router is rebooted (about one and a half or two minutes).
4. Log into the web-based interface using the login (**admin**) and the current password.

After the upgrade is completed, the new version of the firmware will be displayed in the top left corner of the page.

If after updating the firmware the router doesn't work correctly, please restore the factory default settings. To do this, place the mouse pointer over the **System** caption in the top left corner of the page and click the (**Reset to factory**) icon. Wait until the router is rebooted.

System Time

On the **System / System time** page, you can manually set the time and date of the router or configure automatic synchronization of the system time with a time server on the Internet.

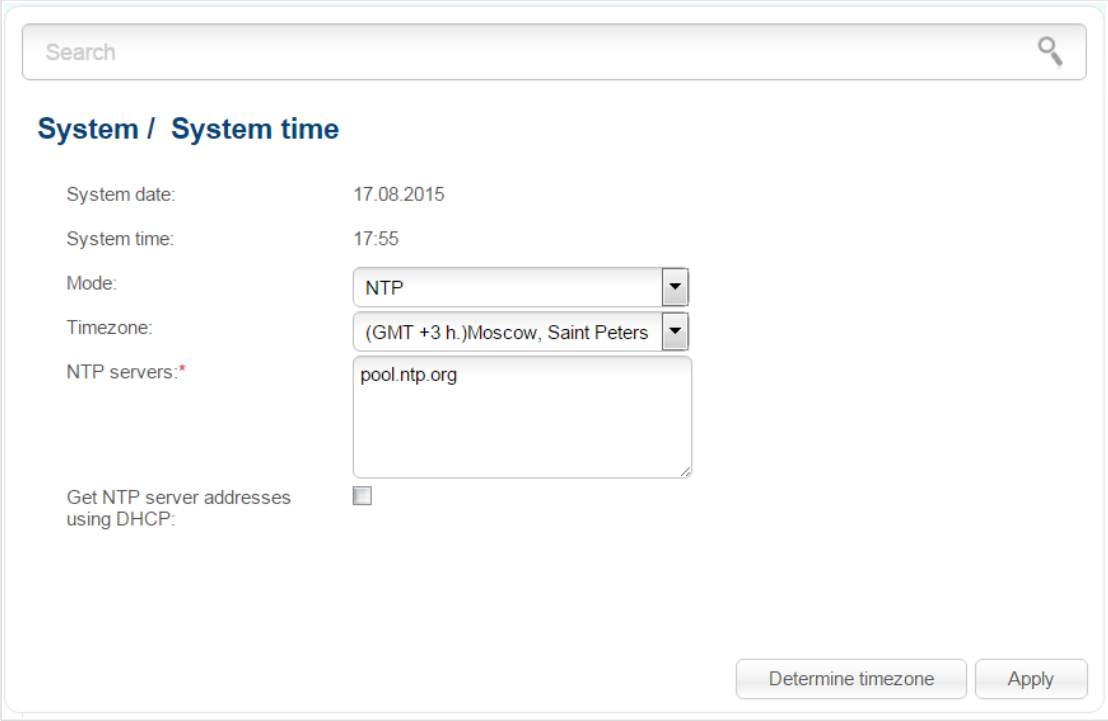


*Figure 136. The **System / System time** page.*

To set the system time manually, select the **Manual** value from the **Mode** drop-down list and set the time and date in the fields displayed. Then click the **Apply** button.

To enable automatic synchronization with a time server, follow the next steps:

1. Select the **NTP** value from the **Mode** drop-down list.
2. Select your time zone from the drop-down list. To set the time zone in accordance with the settings of your operating system, click the **Determine timezone** button in the bottom right corner of the page.
3. Specify the needed NTP server in the **NTP servers** field or leave the server specified by default.
4. Click the **Apply** button.

In some cases NTP servers addresses are provided by your ISP. In this case, you need to select the **Get NTP server addresses using DHCP** checkbox. Contact your ISP to clarify if this checkbox needs to be enabled. If the **Get NTP server addresses using DHCP** checkbox is selected, the **NTP servers** field is not available.

After clicking the **Apply** button, the date and time set for the router will be displayed in the **System date** and **System time** fields.

! When the router is powered off or rebooted, the system time is reset to the default value. If you have set automatic synchronization for the system time, the internal clock of the device will be configured after connecting to the Internet. If you have set the system time manually, you need to set the time and date again (see above).

Ping

On the **System / Ping** page, you can check availability of a host from the local or global network via the Ping utility.

The Ping utility sends echo requests to a specified host and receives echo replies.

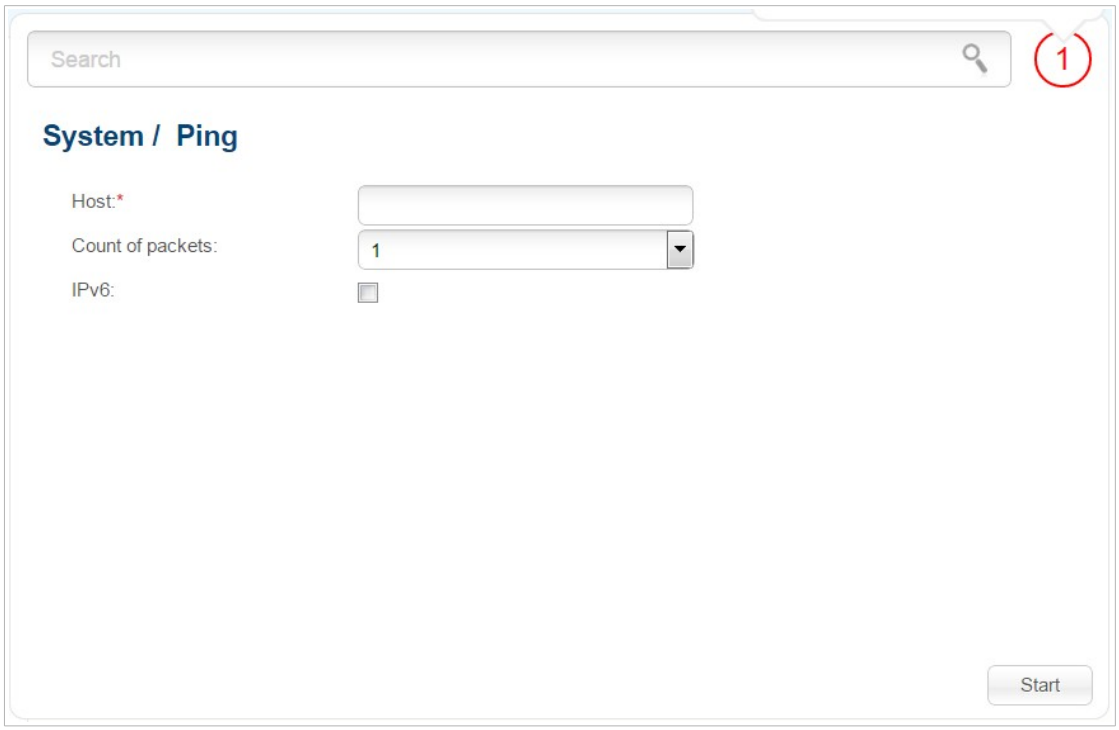


*Figure 137. The **System / Ping** page.*

To check availability of a host, enter the IP address or name of this host in the **Host** field, and select a number of requests that will be sent in order to check its availability from the **Count of packets** drop-down list. If availability check should be performed with IPv6, select the relevant checkbox. Click the **Start** button. After a while, the results will be displayed on the page.

Traceroute

On the **System / Traceroute** page, you can determine the route of data transfer to a host via the traceroute utility.

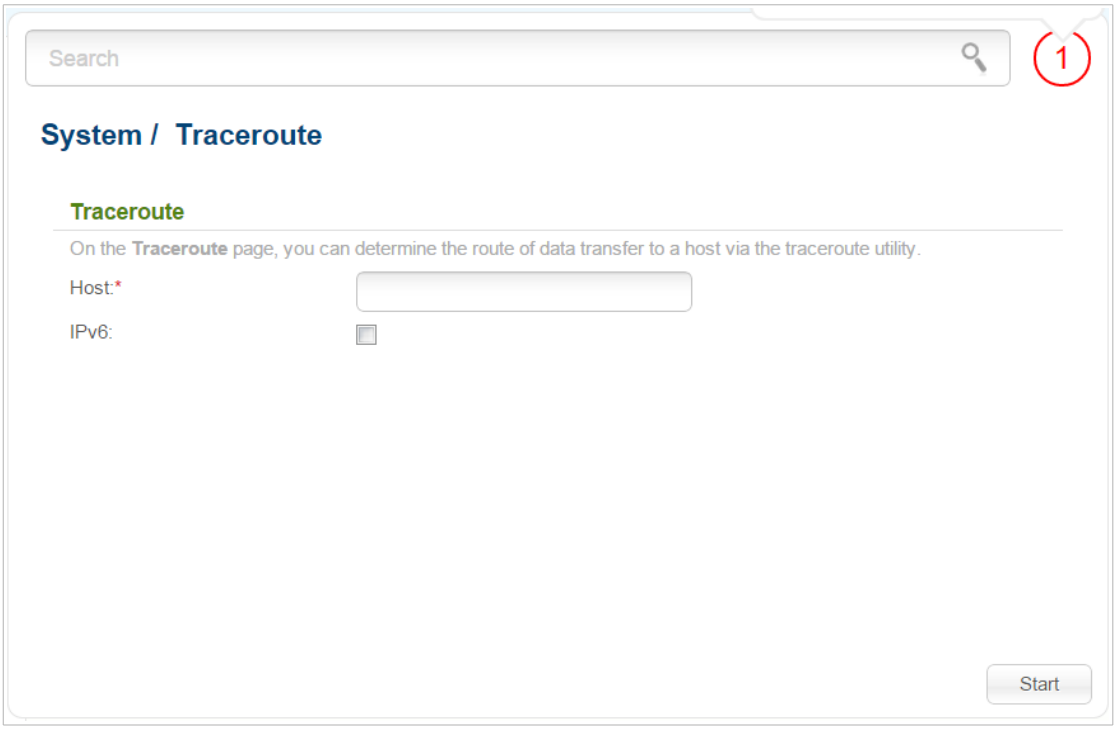


*Figure 138. The **System / Traceroute** page.*

To determine the route, enter the name or IP address of a host in the **Host** field. If the route should be determined using IPv6, select the relevant checkbox. Click the **Start** button. After a while, the results will be displayed on the page.

Telnet

On the **System / Telnet** page, you can enable or disable access to the device settings via TELNET from your LAN. By default, access is enabled.

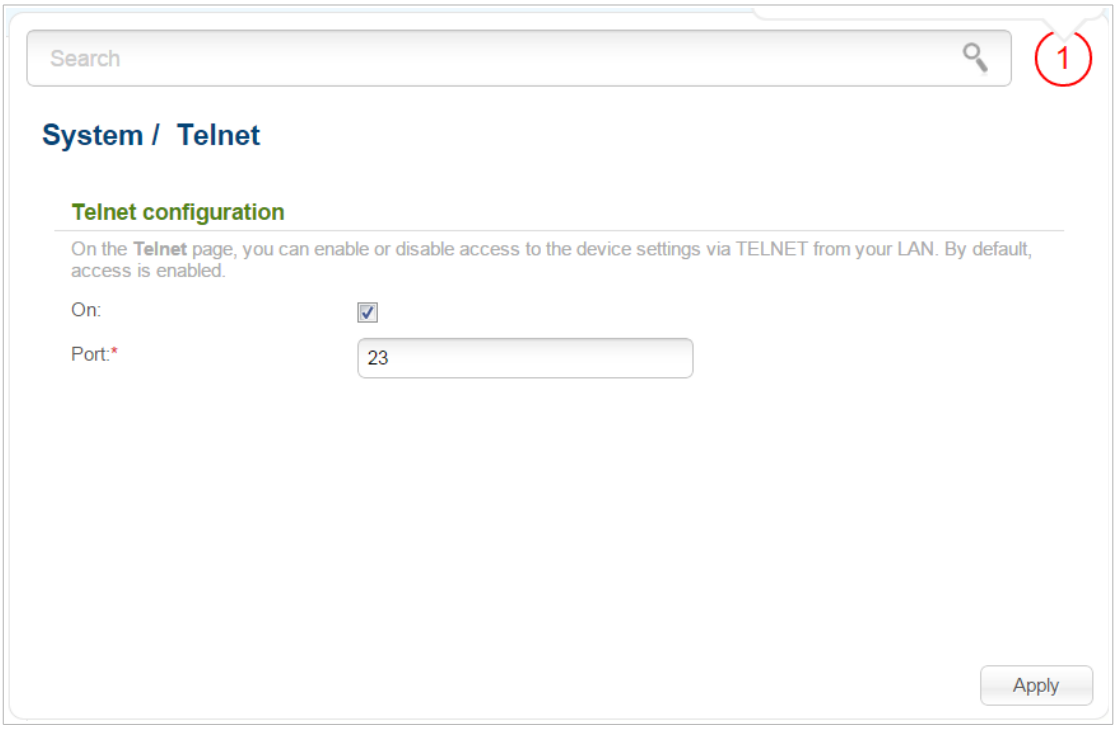


*Figure 139. The **System / Telnet** page.*

To disable access via TELNET, deselect the **On** checkbox and click the **Apply** button.

To enable access via TELNET again, select the **On** checkbox. In the **Port** field, enter the number of the router's port through which access will be allowed (by default, the port `23` is specified). Then click the **Apply** button.

CHAPTER 5. OPERATION GUIDELINES

Safety Instructions

Place your router on a flat horizontal surface or mount the router on the wall (the mounting holes are located on the bottom panel of the device). Make sure that the router is provided with sufficient ventilation.

To prevent overheating, do not obstruct the ventilation openings of the router.

Plug the router into a surge protector to reduce the risk of damage from power surges and lightning strikes.

Operate the router only from an electrical outlet with the correct power source as indicated on the adapter.

Do not open the cover of the router. Otherwise any warranty will be invalidated.

Unplug the equipment before dusting and cleaning. Use a damp cloth to clean the equipment. Do not use liquid/aerosol cleaners or magnetic/static cleaning devices.

Wireless Installation Considerations

The DIR-615S device lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF noise in your home or office. To maximize your wireless range, follow the guidelines below.

1. Keep the number of walls and ceilings between the DIR-615S device and other network devices to a minimum – each wall or ceiling can reduce your wireless network range by 3-90 feet (1-30 meters).
2. Be aware of the direct line between network devices. Place your devices so that the signal travels straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building materials make a difference. A solid metal door or aluminum studs may have a negative effect on your wireless range. Try to position your router, access points, and computers so that the signal passes through drywalls or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your router away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.
5. If you are using 2.4 GHz cordless phones or X-10 equipment (wireless devices such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4 GHz phone base is as far away from your wireless devices as possible. Note, that the base transmits a signal even if the phone in not in use.

Connecting to Cable or DSL Modem

If you need to connect the router to a cable or DSL modem, do the following.

1. Place the router in an open location in the supposed center of your wireless network. Do not plug the power adapter into the router.
2. Turn off your PC.
3. Unplug the Ethernet cable (that connects your PC to your modem) from your computer and place it into the **WAN** port of your router.
4. Plug another Ethernet cable into one of the four LAN ports on the router. Plug the other end into the Ethernet port of your PC.
5. Turn on your modem. Wait until the modem is booted (about 30 seconds).
6. Plug the power adapter to the router and connect to an electrical outlet or power strip. Wait until the router is booted (about 30 seconds).
7. Turn on your PC.
8. Verify the LEDs of the router. The following LEDs should be solid or blinking green: **POWER**, **INTERNET**, **LAN** (corresponding to the LAN ports of the router to which devices from the router's local area network are connected), and **WLAN** (if the wireless network is on and in use). If not, make sure that your computer, modem, and router are powered on and the relevant cables are connected correctly.

CHAPTER 6. ABBREVIATIONS AND ACRONYMS

AC	Access Category
AES	Advanced Encryption Standard
ARP	Address Resolution Protocol
BSSID	Basic Service Set Identifier
CRC	Cyclic Redundancy Check
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
DMZ	DeMilitarized Zone
DNS	Domain Name System
DTIM	Delivery Traffic Indication Message
GMT	Greenwich Mean Time
IGD	Internet Gateway Device
IGMP	Internet Group Management Protocol
IP	Internet Protocol
ISP	Internet Service Provider
L2TP	Layer 2 Tunneling Protocol
LAN	Local Area Network
LCP	Link Control Protocol
MAC	Media Access Control
MTU	Maximum Transmission Unit
NAT	Network Address Translation
NTP	Network Time Protocol
OFDM	Orthogonal Frequency Division Multiplexing
PBC	Push Button Configuration
PIN	Personal Identification Number
PPPoE	Point-to-point protocol over Ethernet

PPTP	Point-to-point tunneling protocol
PSK	Pre-shared key
QoS	Quality of Service
RADIUS	Remote Authentication in Dial-In User Service
RTS	Request To Send
RTSP	Real Time Streaming Protocol
SIP	Session Initiation Protocol
SSID	Service Set Identifier
TKIP	Temporal Key Integrity Protocol
UDP	User Datagram Protocol
UPnP	Universal Plug and Play
URL	Uniform Resource Locator
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
WAN	Wide Area Network
WEP	Wired Equivalent Privacy
Wi-Fi	Wireless Fidelity
WISP	Wireless Internet Service Provider
WLAN	Wireless Local Area Network
WMM	Wi-Fi Multimedia
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup