User Manual

DIR-615

Gigabit Wireless N300 Router with Fiber WAN Port and FE LAN Ports

August 2016

Contents

CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the router DIR-615 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-615 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.

Chapter 6 introduces abbreviations and acronyms used in this manual.

CHAPTER 2. OVERVIEW

General Information

The DIR-615 device is a wireless router with fiber WAN port. 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 to a fiber optic line via the WAN optical port of the device 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-615 device, you are able to quickly create a wireless network at home or in your office, which lets computers and mobile devices access the Internet 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.

Support of guest Wi-Fi network allows you to create a separate wireless network with individual security settings and maximum rate limitation. Devices connected to the guest network will be able to access the Internet, but will be isolated from the devices and resources of the router's LAN.

Smart adjustment of Wi-Fi clients is useful for networks based on several D-Link access points or routers – when the smart adjustment function is configured on each of them, a client always connects to the access point (router) with the highest signal level.

The wireless router DIR-615 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.

Built-in Yandex.DNS service protects against malicious and fraudulent web sites and helps to block access to adult content on children's devices.

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

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	· 1000BASE-X SFP WAN port · 4 10/100BASE-TX LAN ports
LEDs	· POWER · INTERNET · WLAN · WPS · 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 external non-detachable 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	· Support of IEEE 802.1X for Internet connection · 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 · WAN ping respond · Support of SIP ALG · Support of RTSP · Autonegotiation of speed, duplex mode, and flow control/Manual speed and duplex mode setup for each Ethernet port · Setup of maximum TX rate for each port of the router · Built-in UDPXY application

* 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 · IPSec-tunnels
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) · Information on connected Wi-Fi clients · Advanced settings · Smart adjustment of Wi-Fi clients · Guest Wi-Fi · Limitation of wireless network rate
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 at 1, 2, 5.5, 11Mbps · 802.11g (typical at room temperature 25 °C) 15dBm at 6, 9, 12, 18, 24, 36, 48, 54Mbps · 802.11n (typical at room temperature 25 °C) HT20/HT40 15dBm at MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14 14dBm at MCS7/15

Wireless Module Parameters	
Receiver sensitivity	· 802.11b (typical at PER = 8% at room temperature 25 °C) -84dBm at 1, 2Mbps -82dBm at 5.5Mbps -79dBm at 11Mbps · 802.11g (typical at PER = 10% at room temperature 25 °C) -82dBm at 6Mbps -81dBm at 9Mbps -79dBm at 12Mbps -77dBm at 18Mbps -74dBm at 24Mbps -70dBm at 36Mbps -66dBm at 48Mbps -65dBm 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 c OFDM · 802.11n: BPSK, QPSK, 16QAM, 64QAM c OFDM

Physical Parameters	
Dimensions (L x W x H)	· 172 x 132 x 36 mm (6.76 x 5.19 x 1.42 in)
Weight	· 286 g (0.63 lb)

Operating Environment	
Power	· Output: 12V DC, 1A
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

Front Panel

Figure 1. Front panel view.

LED	Mode	Description
POWER	*Solid green*	The router is powered on.
	No light	The router is powered off.
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.
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.

LED	Mode	Description
WPS	*Blinking green*	Attempting to add a wireless device via the WPS function.
	No light	The WPS function is not in use.

Left Side Panel

Figure 2. Left side panel view.

Name	Description
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 then release it. The **WLAN** LED should turn off.

Back Panel

Figure 3. Back panel view.

Name	Description	
RESET	A button 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.	
LAN 1-4	4 Ethernet ports to connect computers or network devices. A **LAN** LED corresponds to each port. The operating modes:	
	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.
INTERNET	An optical port to connect to a fiber optic line.	
12V DC IN	Power connector.	
ON/OFF	A button to turn the router on/off.	

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

Delivery Package

The following should be included:

- Router DIR-615
- Power adapter DC 12V/1A
- Ethernet cable (CAT 5E)
- "***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 with fiber WAN port DIR-615 (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 9 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 802.11, b, 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.

SFP Transceiver

To connect to a fiber optic line, you need to use an SFP transceiver recommended by your ISP.

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. ***To connect the device to a fiber optic line***: connect your SFP transceiver to the SFP port, then connect the fiber optic cable to the SFP transceiver.
4. 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.
5. Turn on the router by pressing the **ON/OFF** button on its back panel.
6. 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.

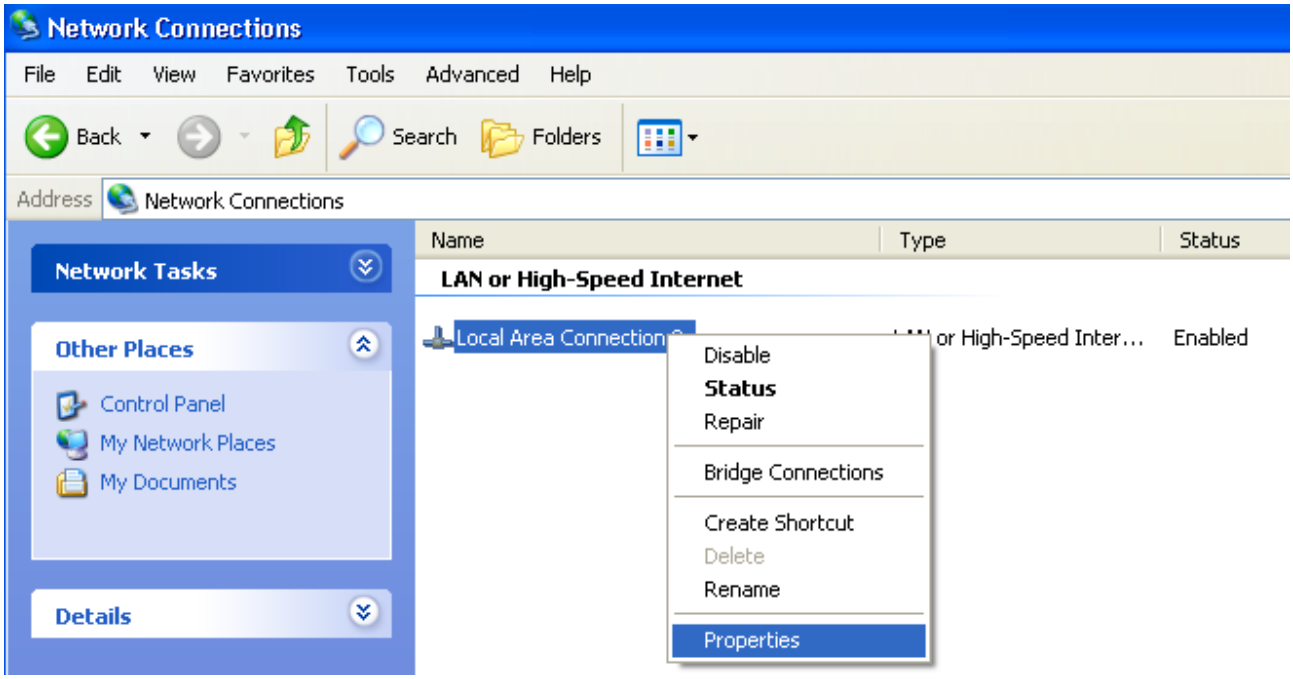


*Figure 4. The **Network Connections** window.*

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

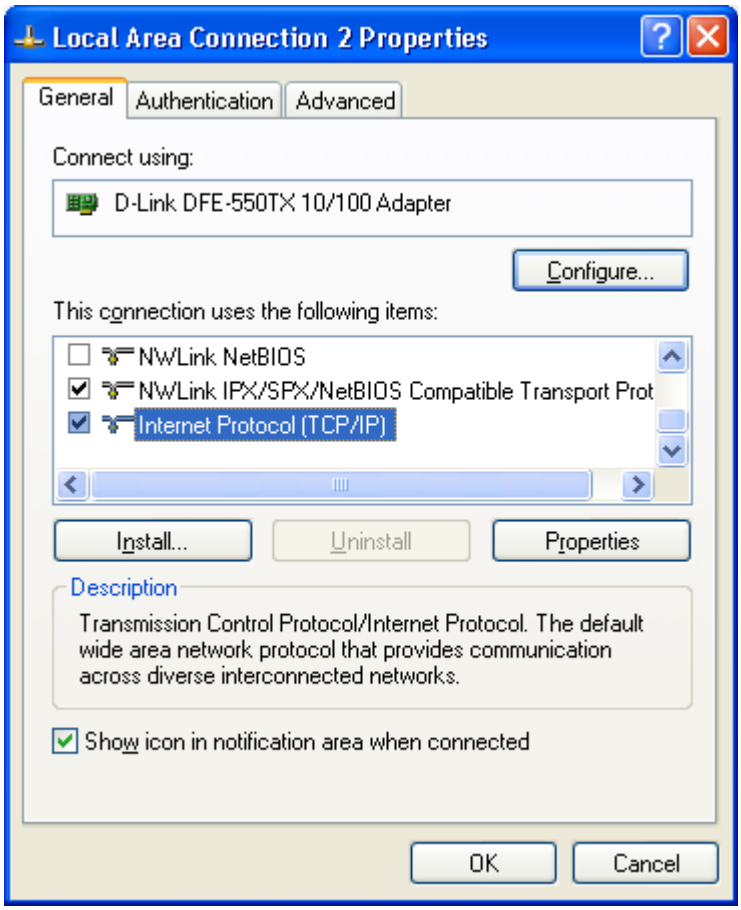


*Figure 5. The **Local Area Connection Properties** window.*

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

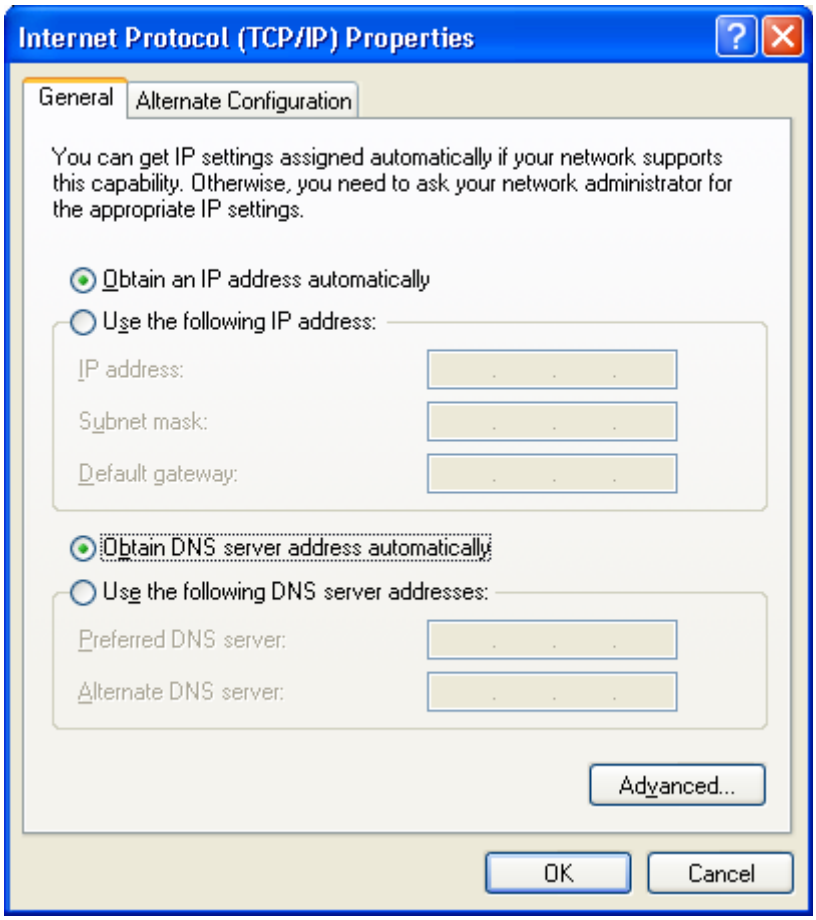


*Figure 6. The **Internet Protocol (TCP/IP) Properties** window.*

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.)

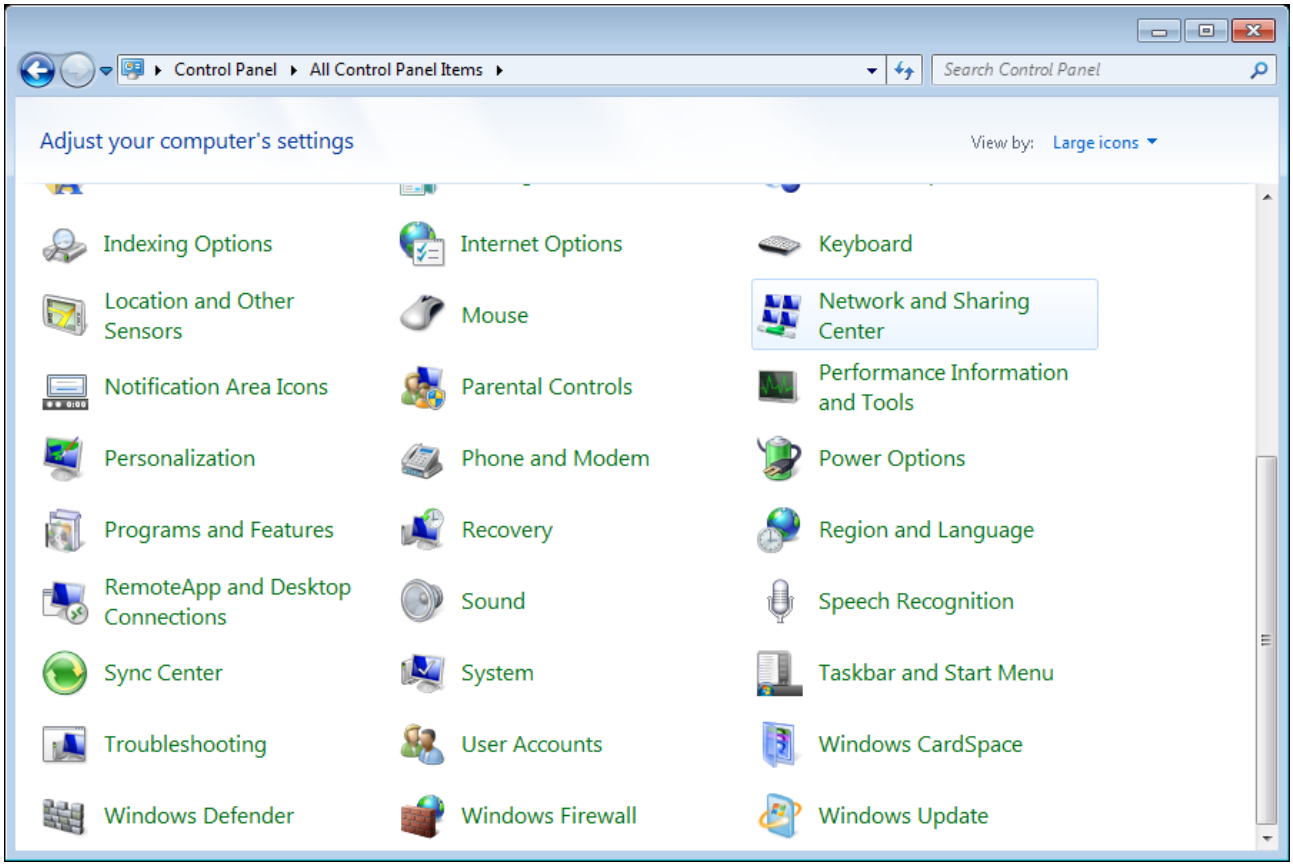


*Figure 7. The **Control Panel** window.*

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

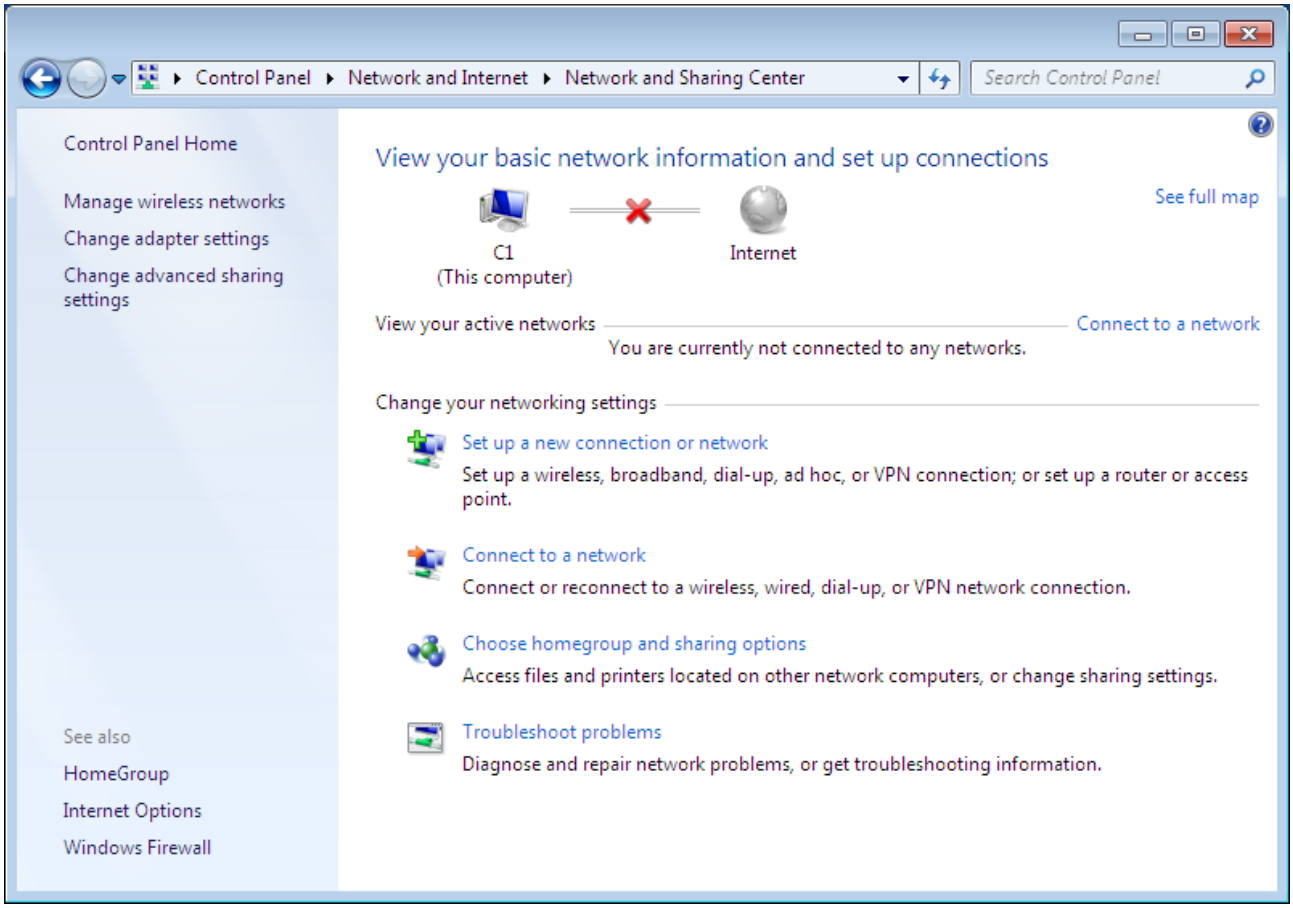


*Figure 8. The **Network and Sharing Center** window.*

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

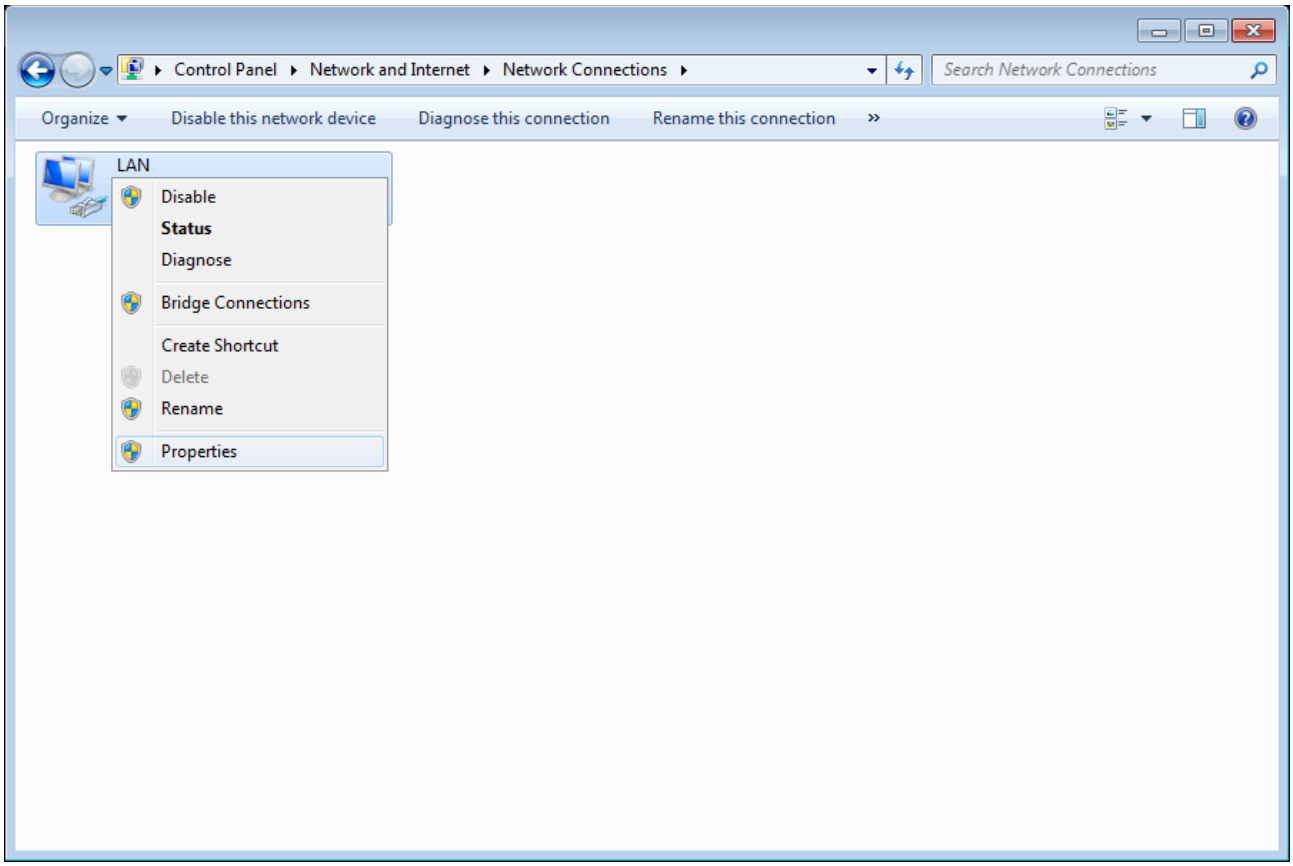


*Figure 9. The **Network Connections** window.*

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.

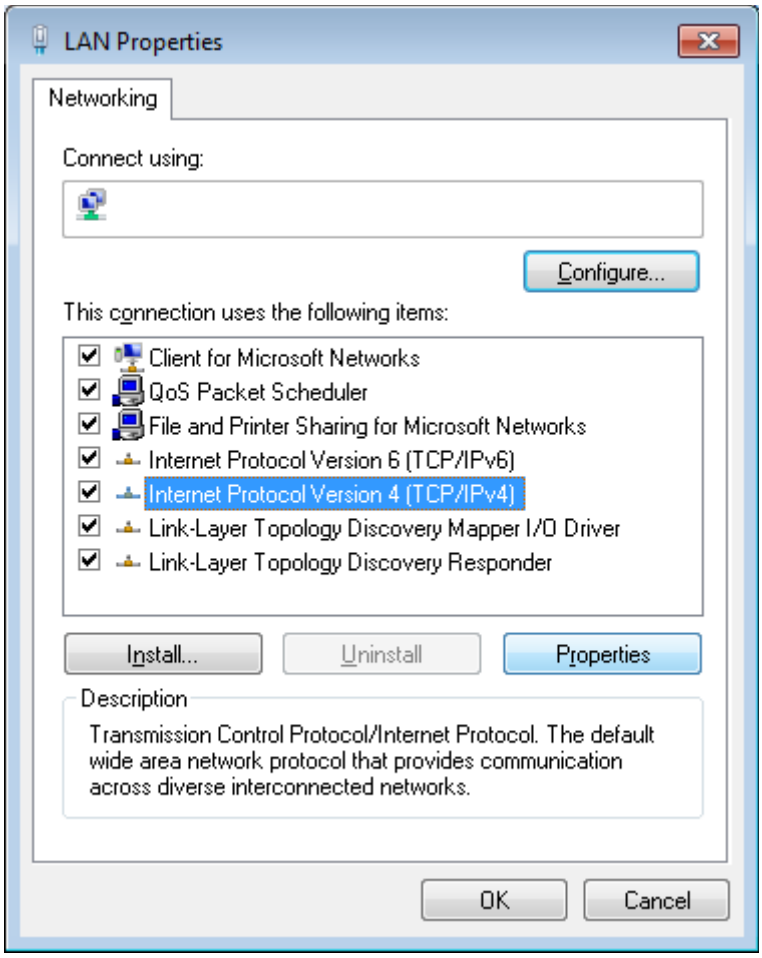


*Figure 10. The **Local Area Connection Properties** window.*

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

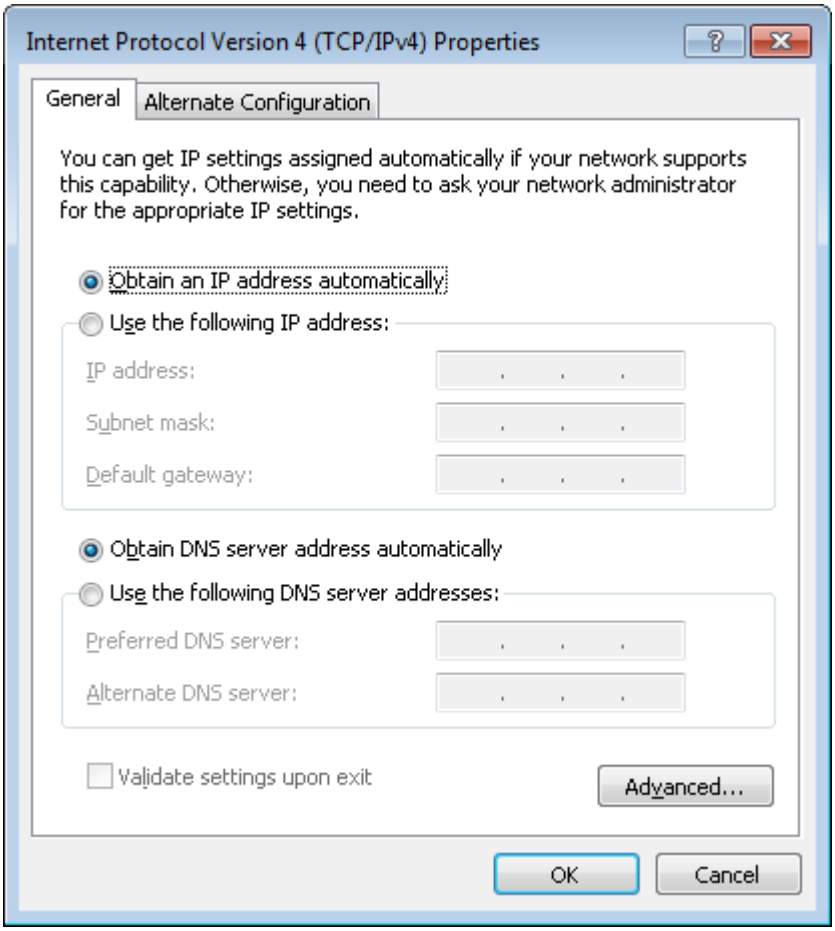


*Figure 11. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window.*

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. ***To connect the device to a fiber optic line***: connect your SFP transceiver to the SFP port, then connect the fiber optic cable to the SFP transceiver.
2. Connect the power cord to the power connector port on the back panel of the router, then plug the power adapter into an electrical outlet or power strip.
3. Turn on the router by pressing the **ON/OFF** button on its back panel.
4. Turn on your PC and wait until your operating system is completely loaded.
5. 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.

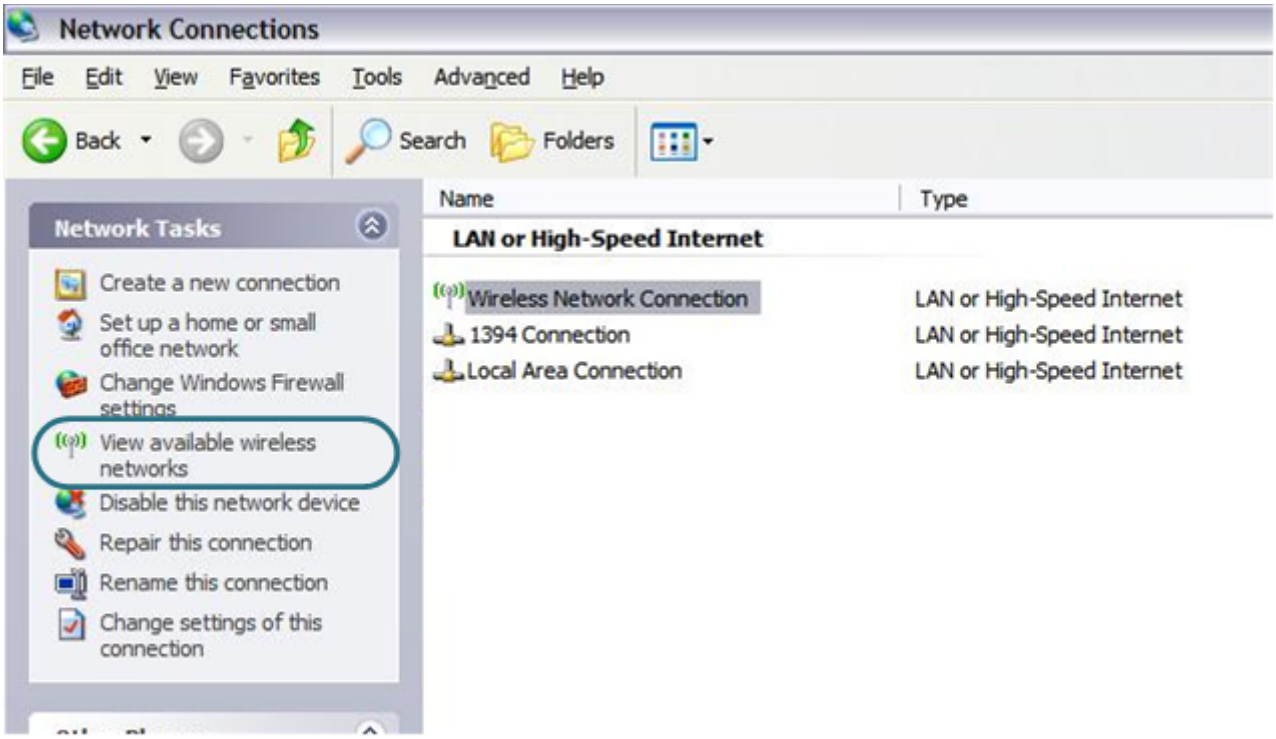


*Figure 12. The **Network Connections** window.*

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

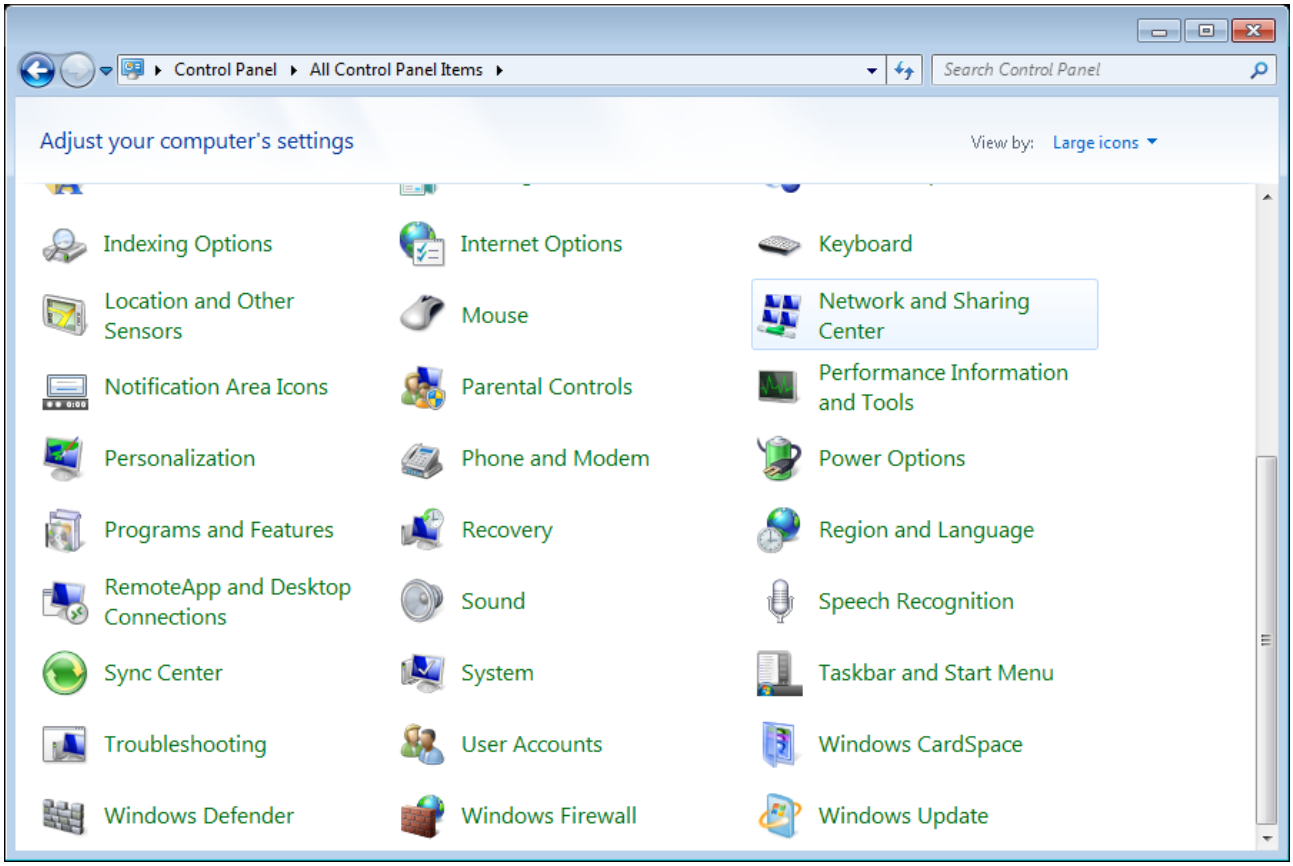


*Figure 13. The **Control Panel** window.*

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.

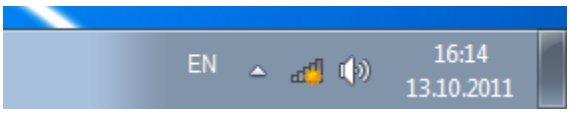


Figure 14. The notification area of the taskbar.

6. In the opened **Wireless Network Connection** window, select the wireless network **DIR-615GF** and click the **Connect** button.

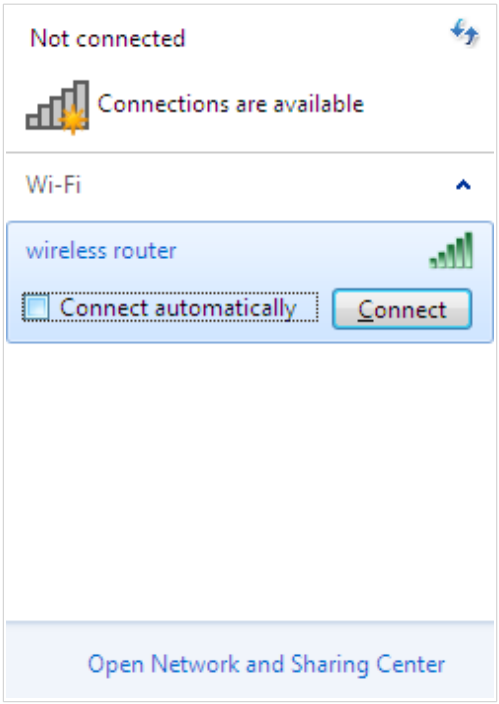


Figure 15. The list of available networks.

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.).

For security reasons, router DIR-615 with default settings cannot connect to the Internet. To get started, please set your own password used to access the web-based interface and, if needed, configure other settings recommended by your ISP.

Start a web browser (see the ***Before You Begin*** section, page 15). 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 16. Connecting to the web-based interface of the DIR-615 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. Also you need to change the default name of the wireless network. To do it, in the **Network name (SSID)**) field, enter a new name for the router's wireless network or leave the value suggested by the router: `DIR-615-XXXX` where `XXXX` are the last 4 characters of the device's MAC address. Then click the **Apply** button.

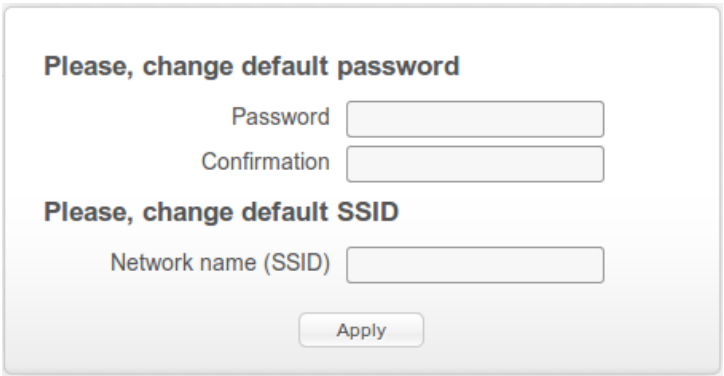


Figure 17. The page for changing the default administrator password.

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 new password in the **Password** field, then click the **Enter** button.

Figure 18. The login page.

Web-based Interface Structure

General Information Page

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

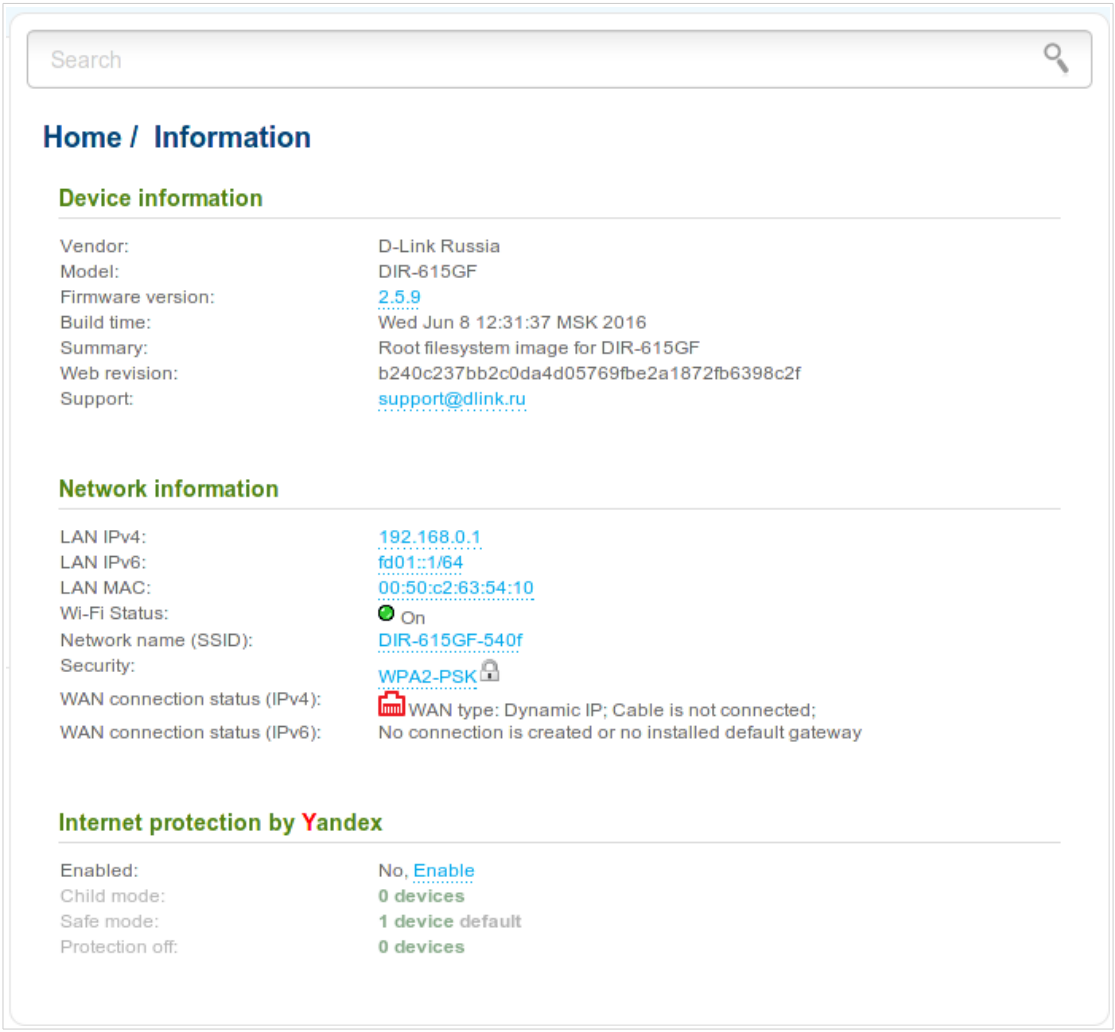


Figure 19. The general information page.

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 20. 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 117).

To configure the router's WLAN basic parameters, left-click the SSID of the WLAN (the right column of the **Network name** (**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 121).

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 124).

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 39).

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 64).

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 73).

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 75).

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 76).

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 83).

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 121).

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 148).

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 178).

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 188).

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 190).

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 193).

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.

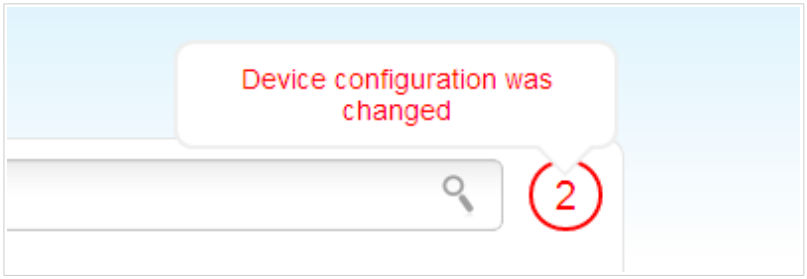


Figure 21. The web-based interface notifications.

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.

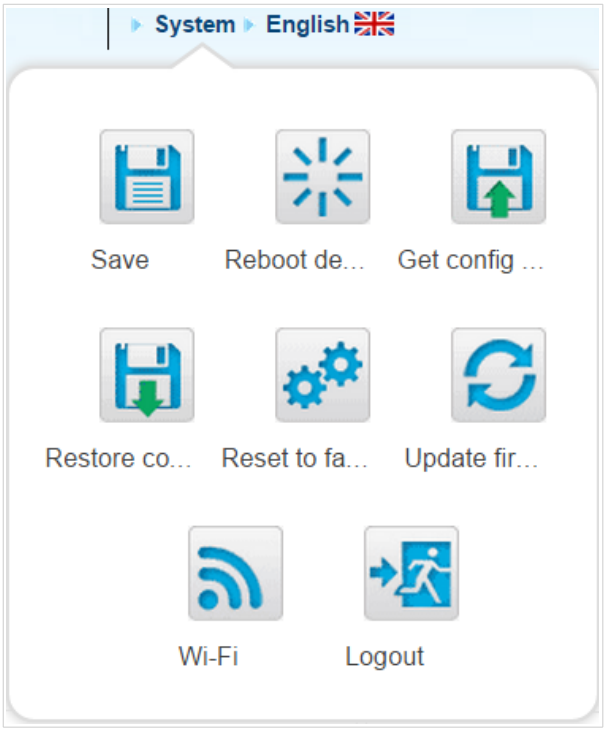


*Figure 22. The **System** menu in the top part of the page.*

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 back 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.

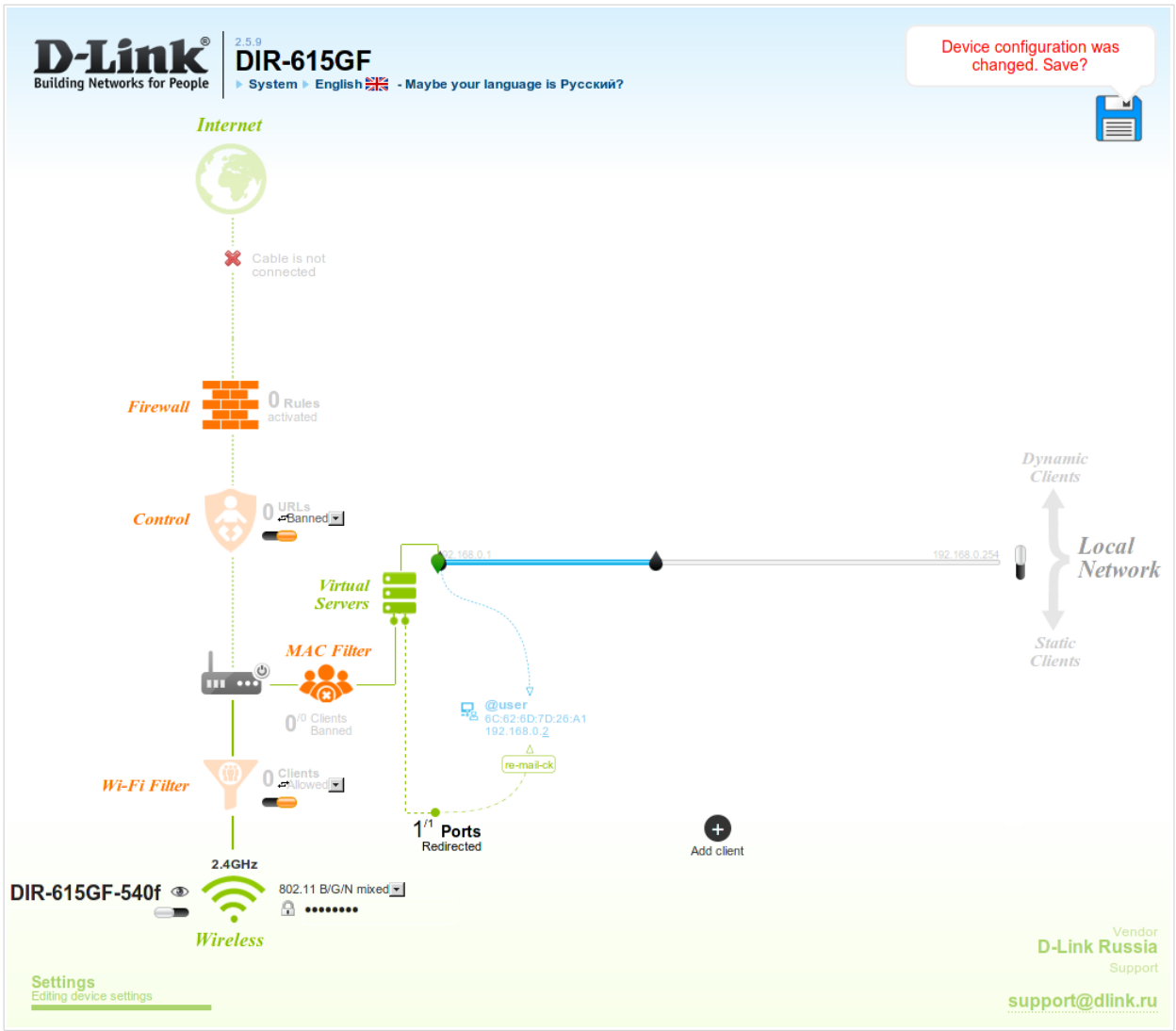
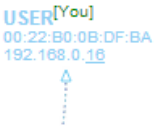


*Figure 23. The **Monitoring** page.*

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.
 **Wi-Fi Filter**	The **Wi-Fi Filter** element displays the number of MAC addresses specified in the MAC filter. 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).

To save new settings, left-click the notification displayed in the top right part of the page.

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.

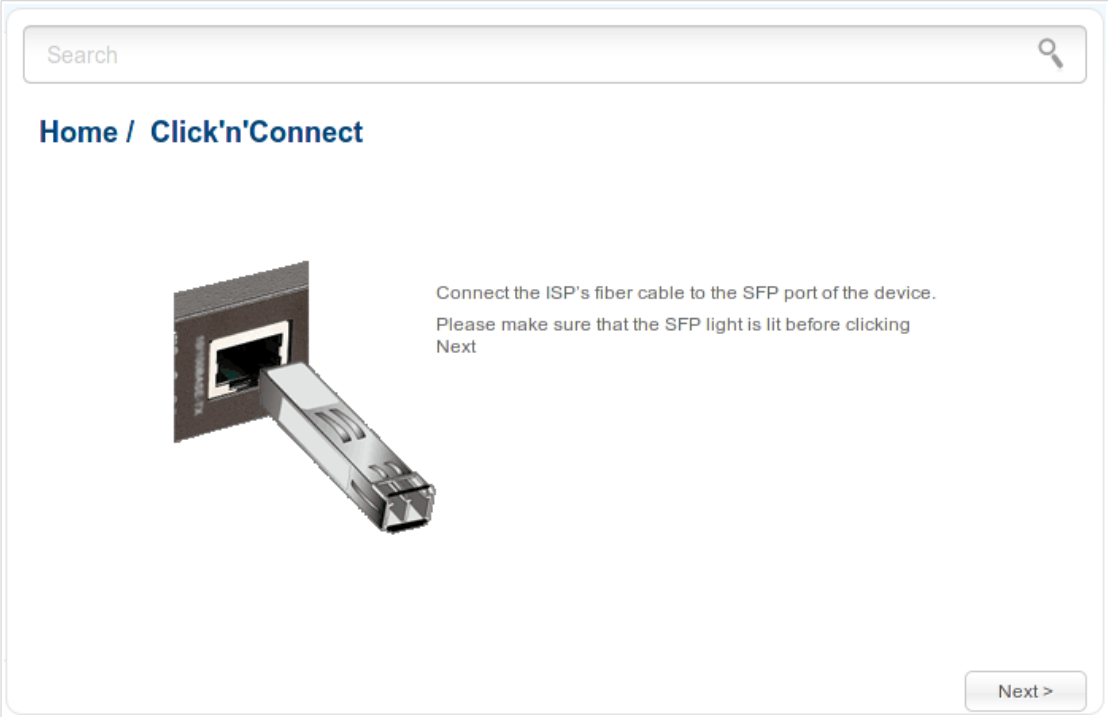


Figure 24. Configuring connection to the Internet.

Connect the fiber optic cable to the SFP transceiver, then connect the transceiver to the SFP port of the router. Verify the relevant LED (the **Internet** LED should be on).

Click the **Next** button to continue.

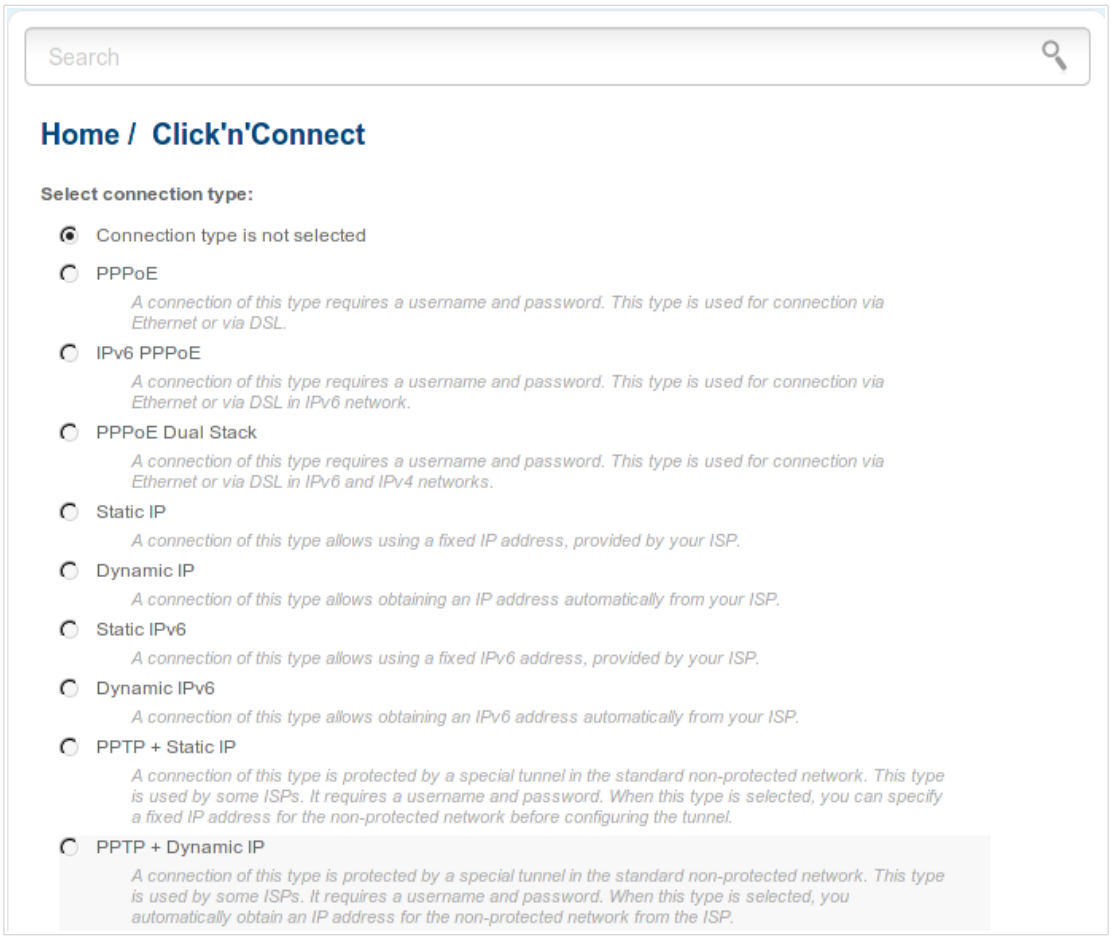


Figure 25. The page for selecting the connection type.

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

Creating WAN Connection

PPPoE Connection

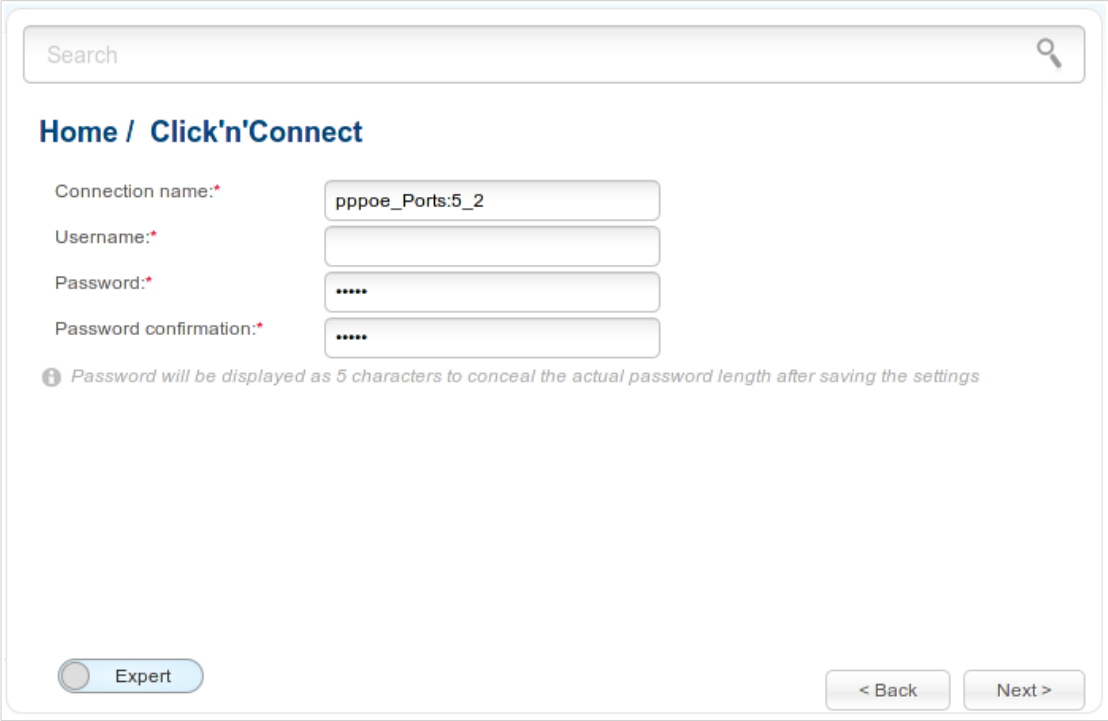


Figure 26. Configuring PPPoE WAN connection.

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 84).

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 55).

IPv6 PPPoE or PPPoE Dual Stack Connection

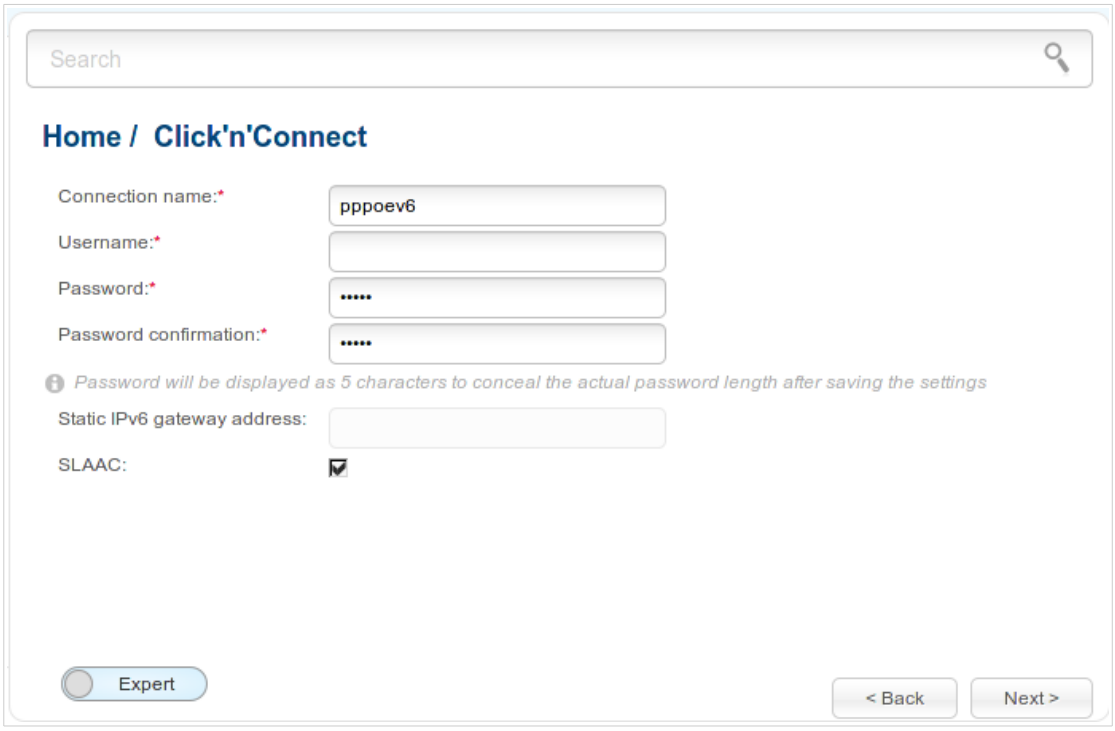


Figure 27. Configuring IPv6 PPPoE WAN connection.

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 88).

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 55).

Static IP Connection

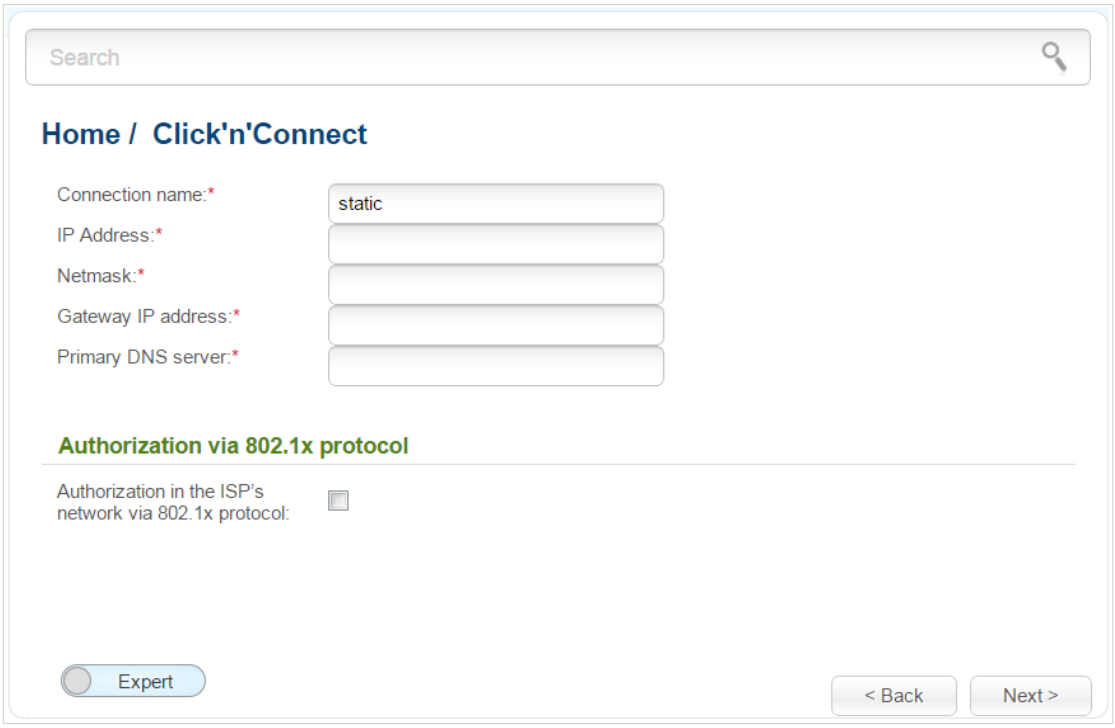


Figure 28. Configuring Static IP WAN connection.

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.

If your wired ISP uses authorization via the 802.1x protocol, in the **Authorization via 802.1x protocol** section, select the **Authorization in the ISP's network via 802.1x protocol** checkbox and fill in the fields of the section in accordance with data 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 Static IP or Dynamic IP WAN Connection*** section, page 94).

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 55).

Dynamic IP Connection

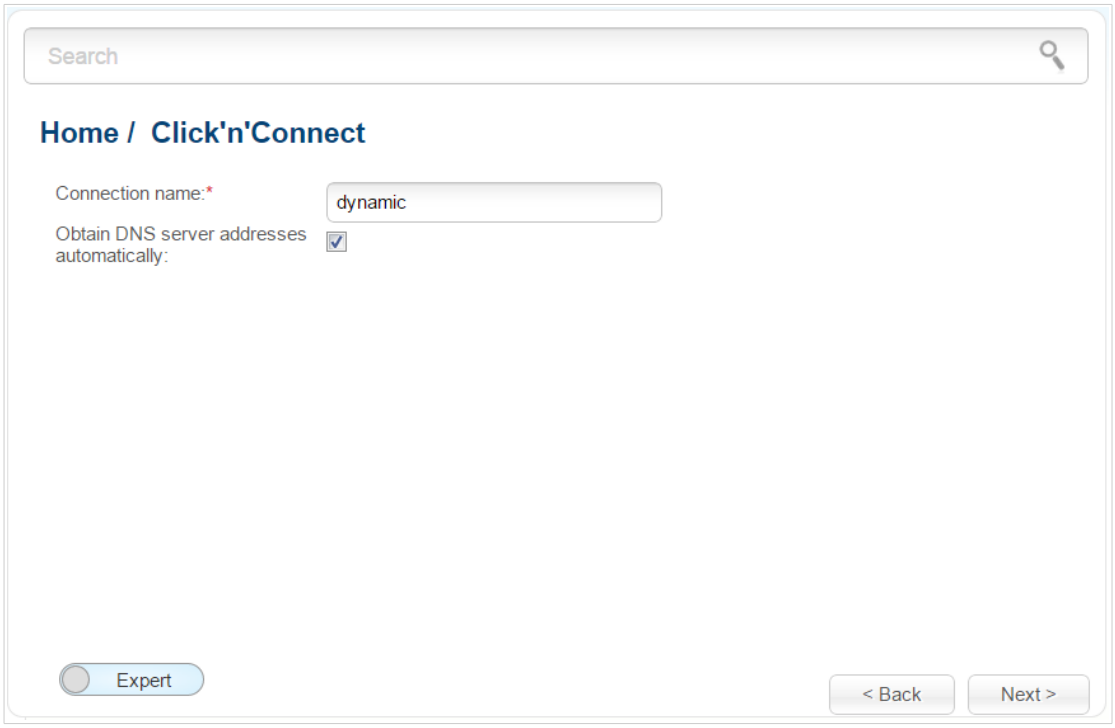


Figure 29. Configuring Dynamic IP WAN connection.

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 94).

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 55).

Static IPv6 Connection

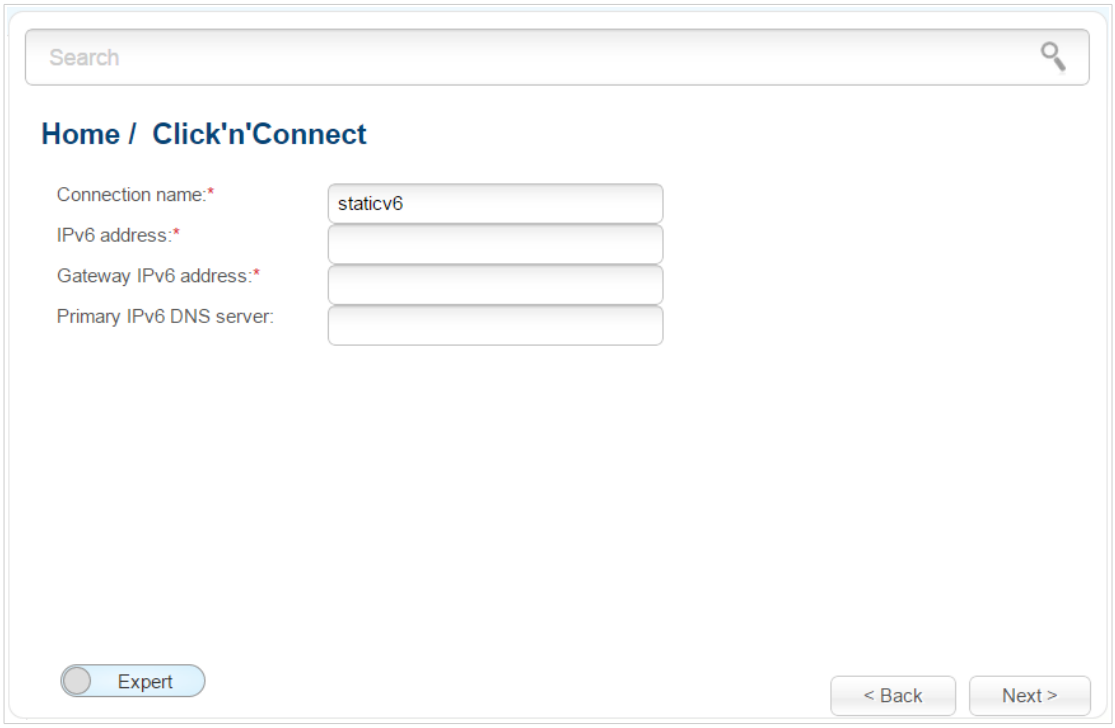


Figure 30. Configuring Static IPv6 WAN connection.

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 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 55).

Dynamic IPv6 Connection

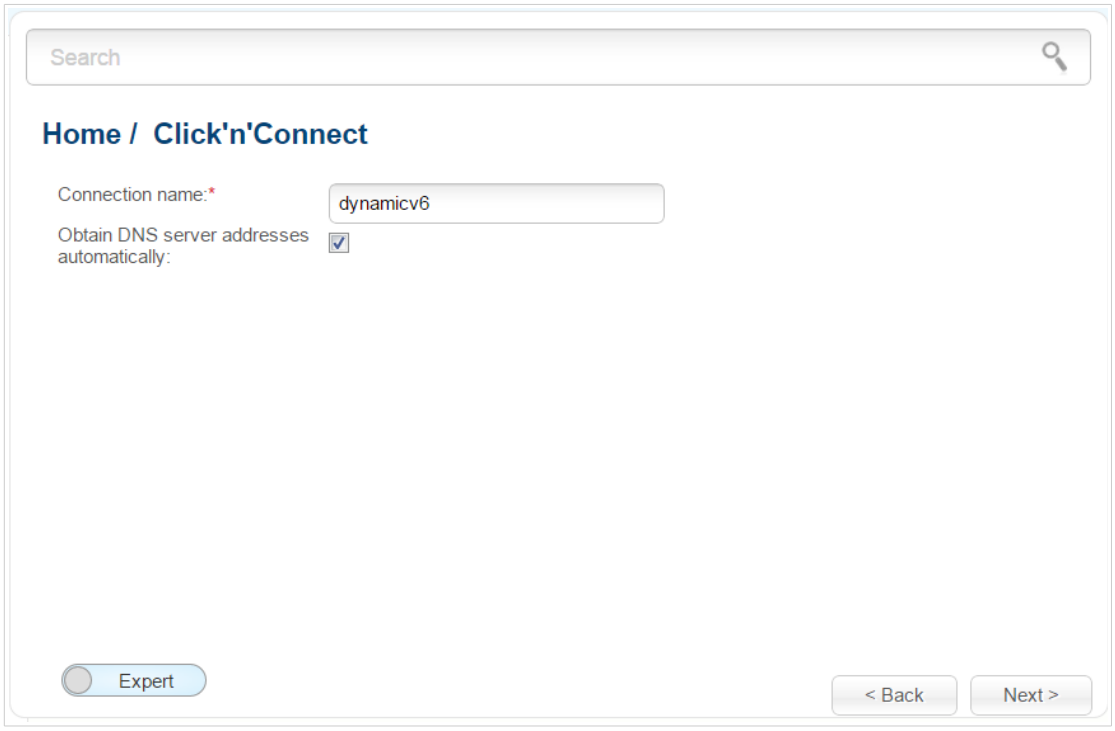


Figure 31. Configuring Dynamic IPv6 WAN connection.

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 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 55).

PPPoE + Static IP Connection

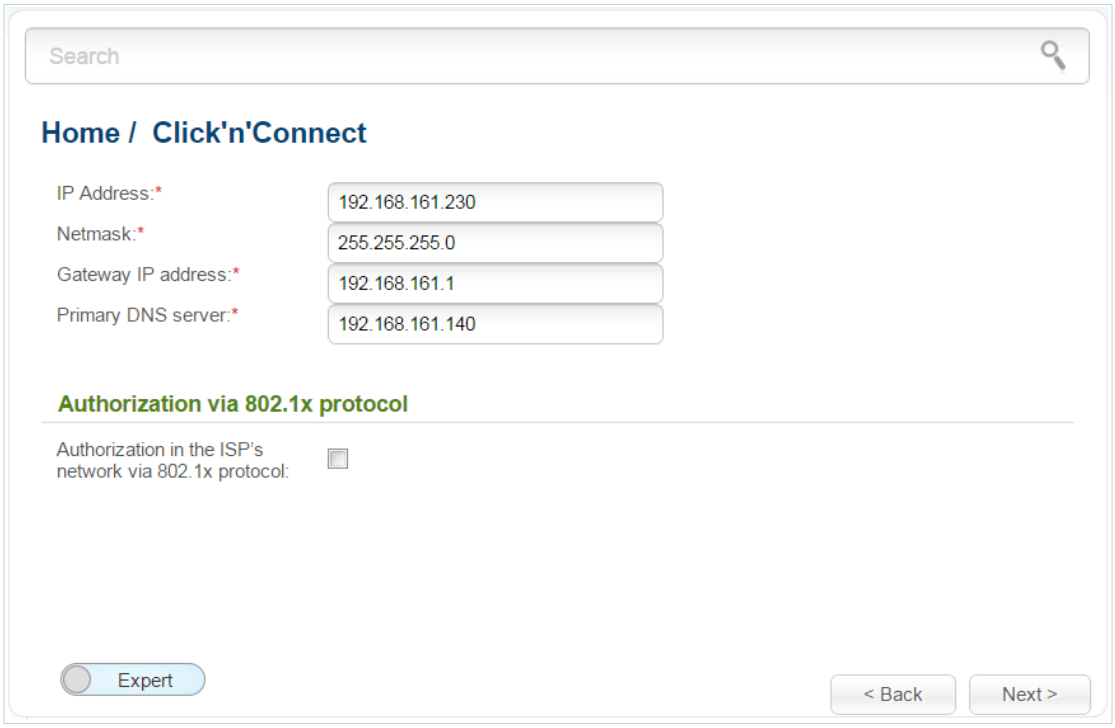


Figure 32. Configuring PPPoE + Static IP WAN connection.

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.

If your wired ISP uses authorization via the 802.1x protocol, in the **Authorization via 802.1x protocol** section, select the **Authorization in the ISP's network via 802.1x protocol** checkbox and fill in the fields of the section in accordance with data provided by your ISP.

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 103).

Click the **Next** button to continue.

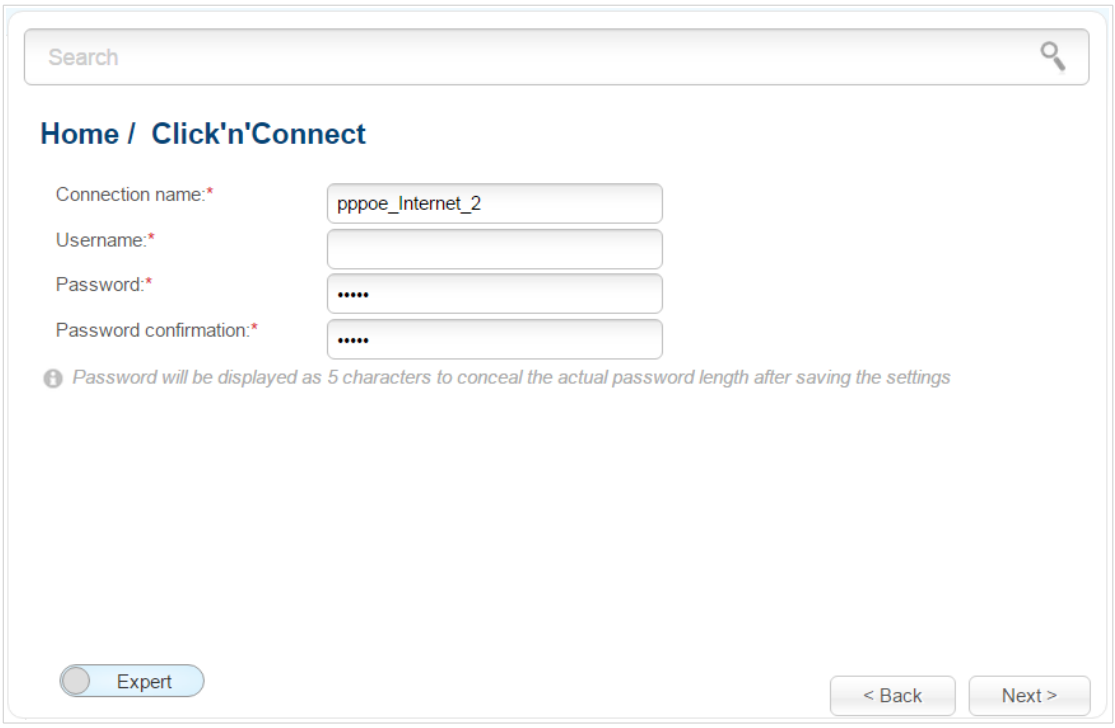


Figure 33. Configuring PPPoE + Static IP WAN connection.

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 103).

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 55).

PPPoE + Dynamic IP Connection

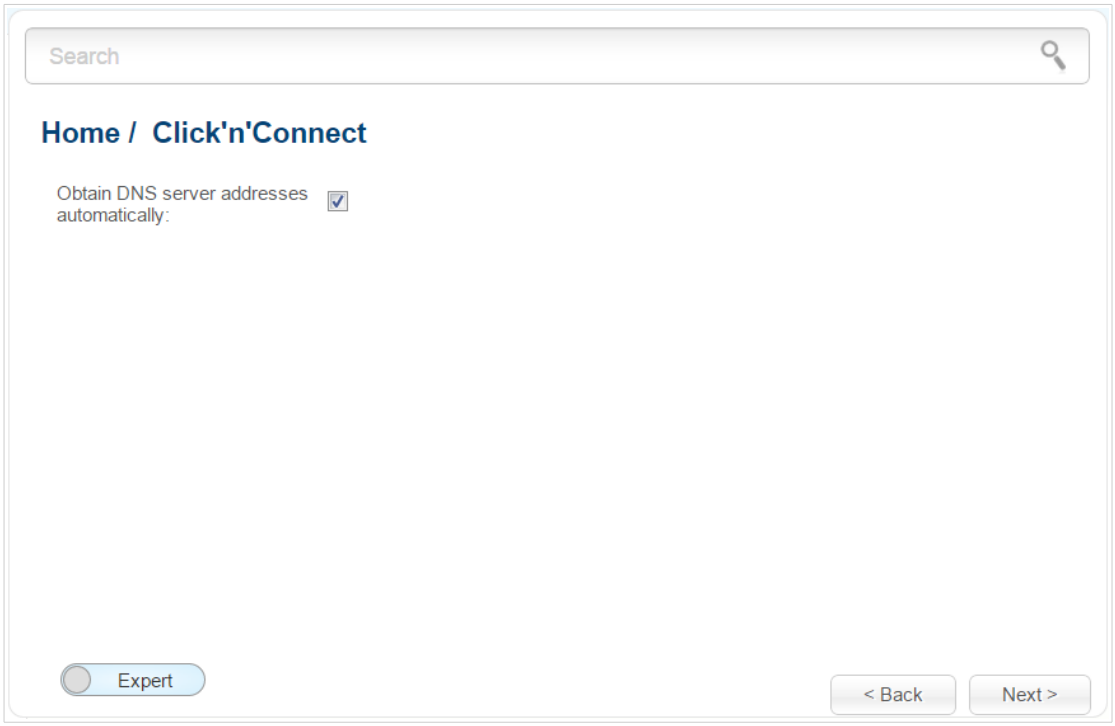


Figure 34. Configuring PPPoE + Dynamic IP WAN connection.

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 103).

Click the **Next** button to continue.

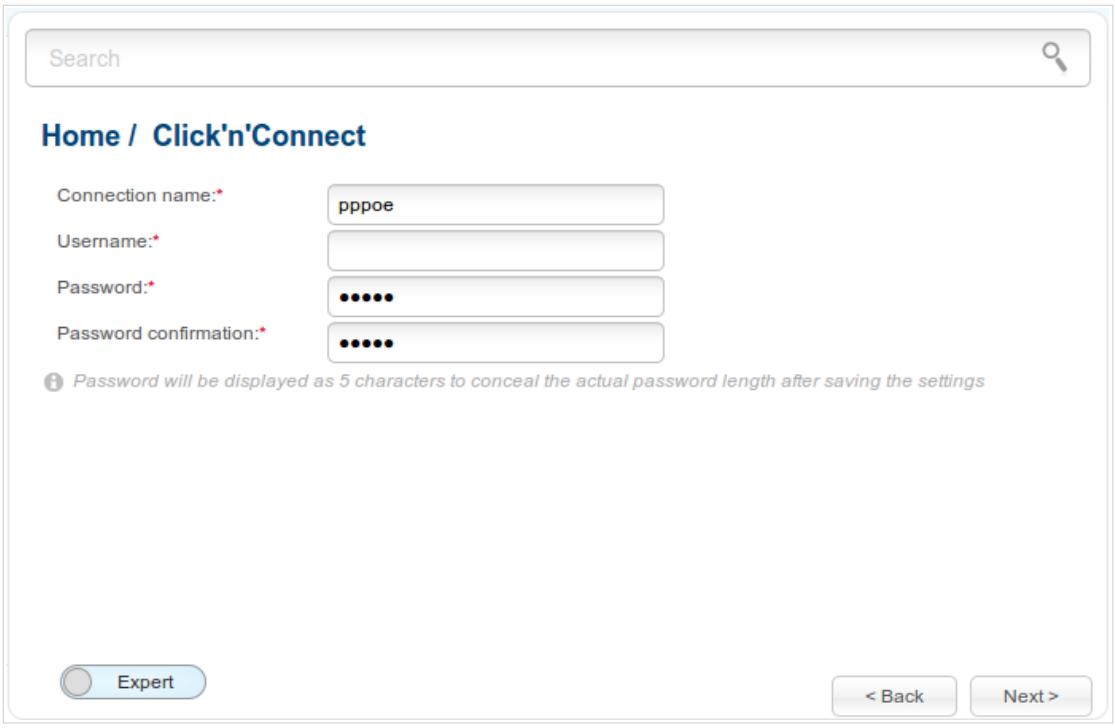


Figure 35. Configuring PPPoE + Dynamic IP WAN connection.

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 103).

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 55).

PPTP + Static IP or L2TP + Static IP Connection

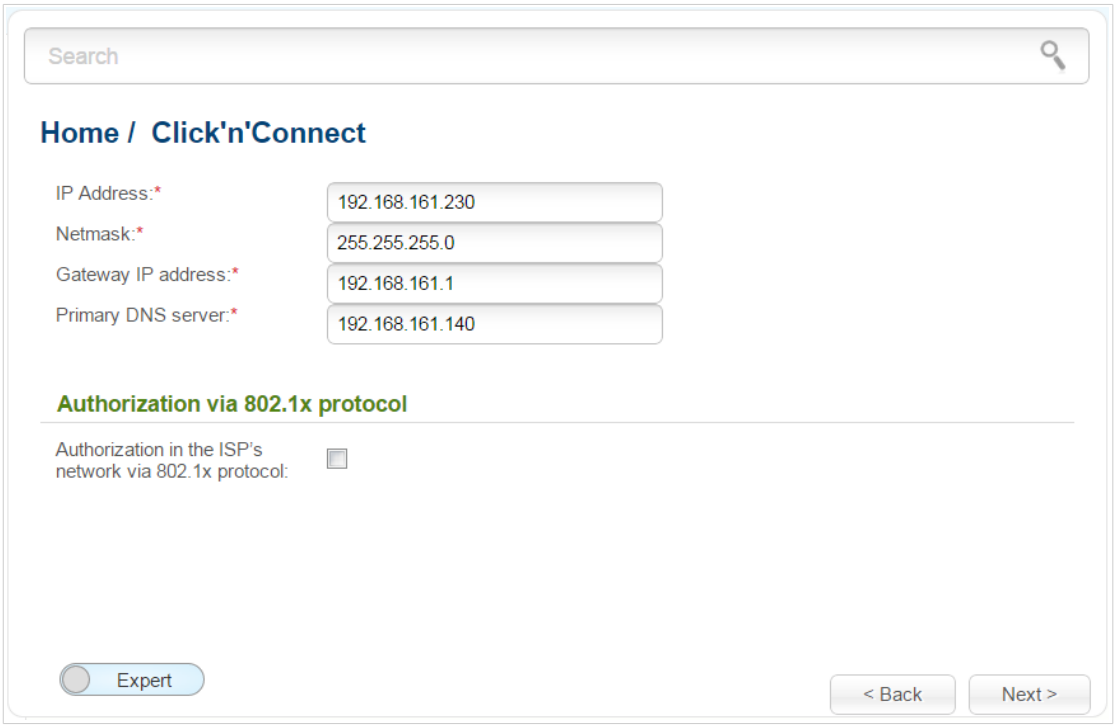


Figure 36. Configuring PPTP + Static IP WAN connection.

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.

If your wired ISP uses authorization via the 802.1x protocol, in the **Authorization via 802.1x protocol** section, select the **Authorization in the ISP's network via 802.1x protocol** checkbox and fill in the fields of the section in accordance with data provided by your ISP.

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 110).

Click the **Next** button to continue.

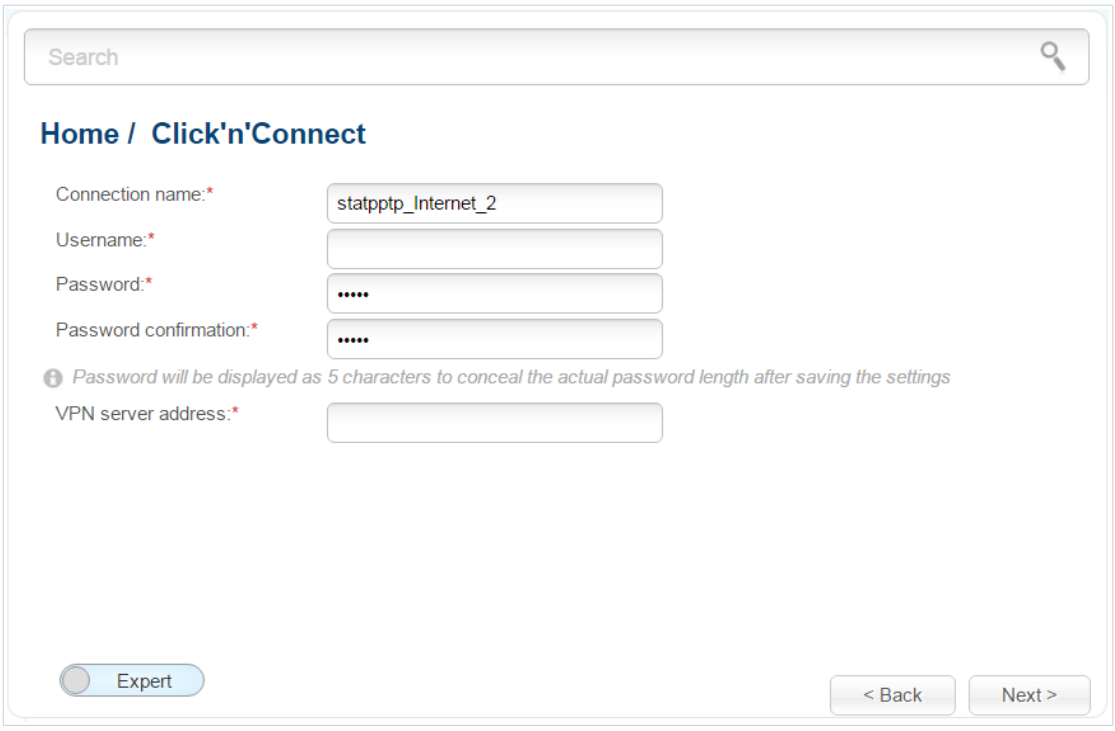


Figure 37. Configuring PPTP + Static IP WAN connection.

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 110).

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 55).

PPTP + Dynamic IP or L2TP + Dynamic IP Connection

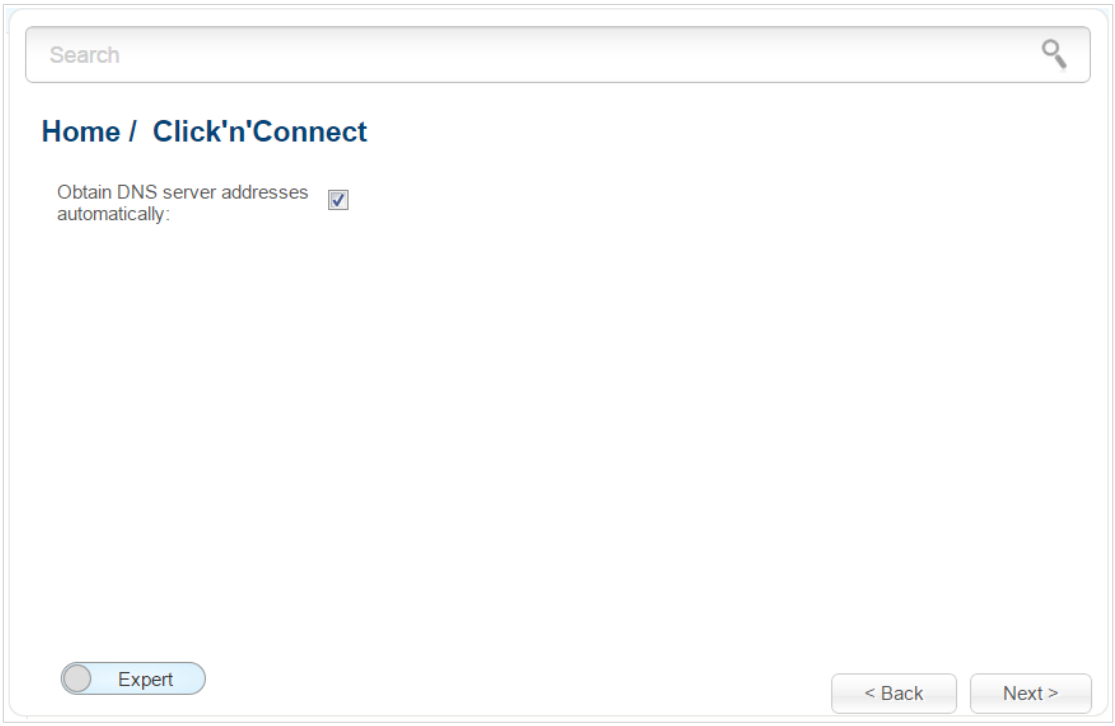


Figure 38. Configuring PPTP + Dynamic IP WAN connection.

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 110).

Click the **Next** button to continue.

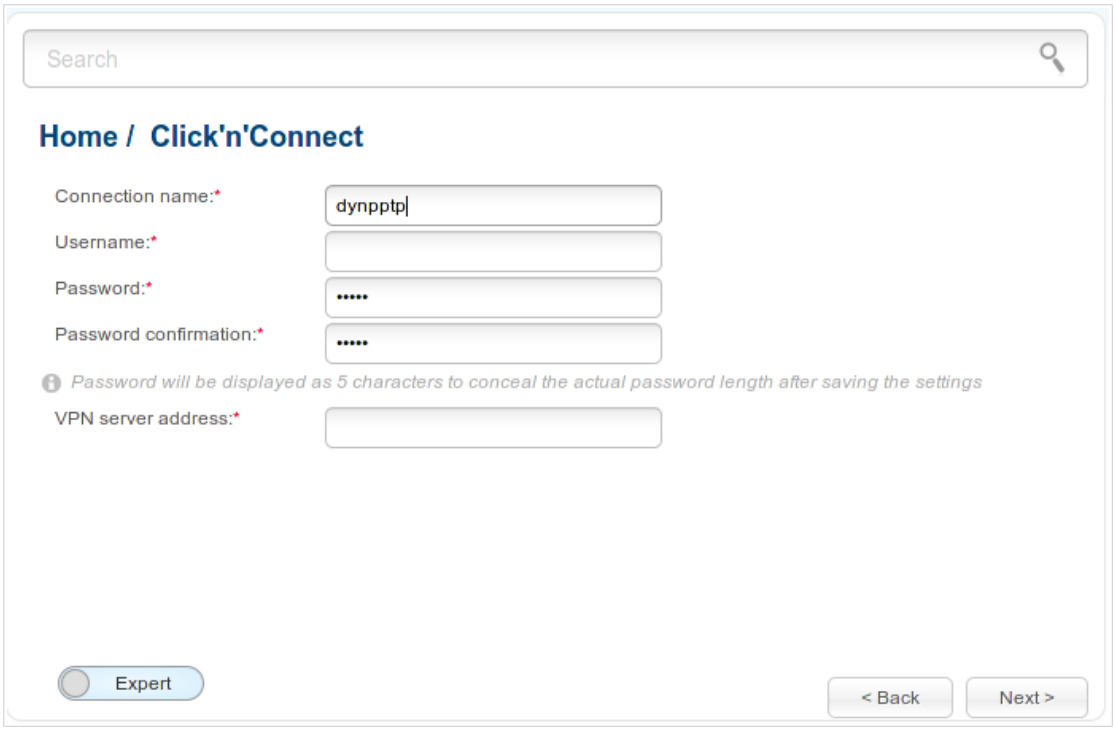


Figure 39. Configuring PPTP + Dynamic IP WAN connection.

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 110).

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 55).

Checking Internet Availability

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

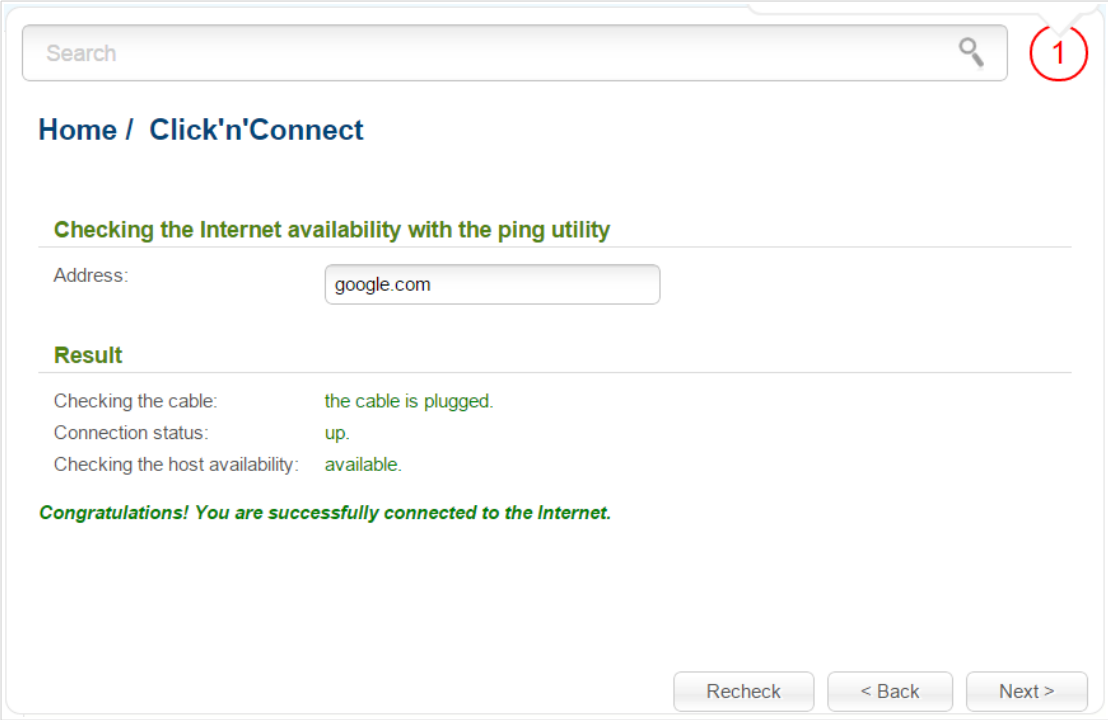


Figure 40. Checking the Internet availability.

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 56).

Configuring Yandex.DNS Service

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

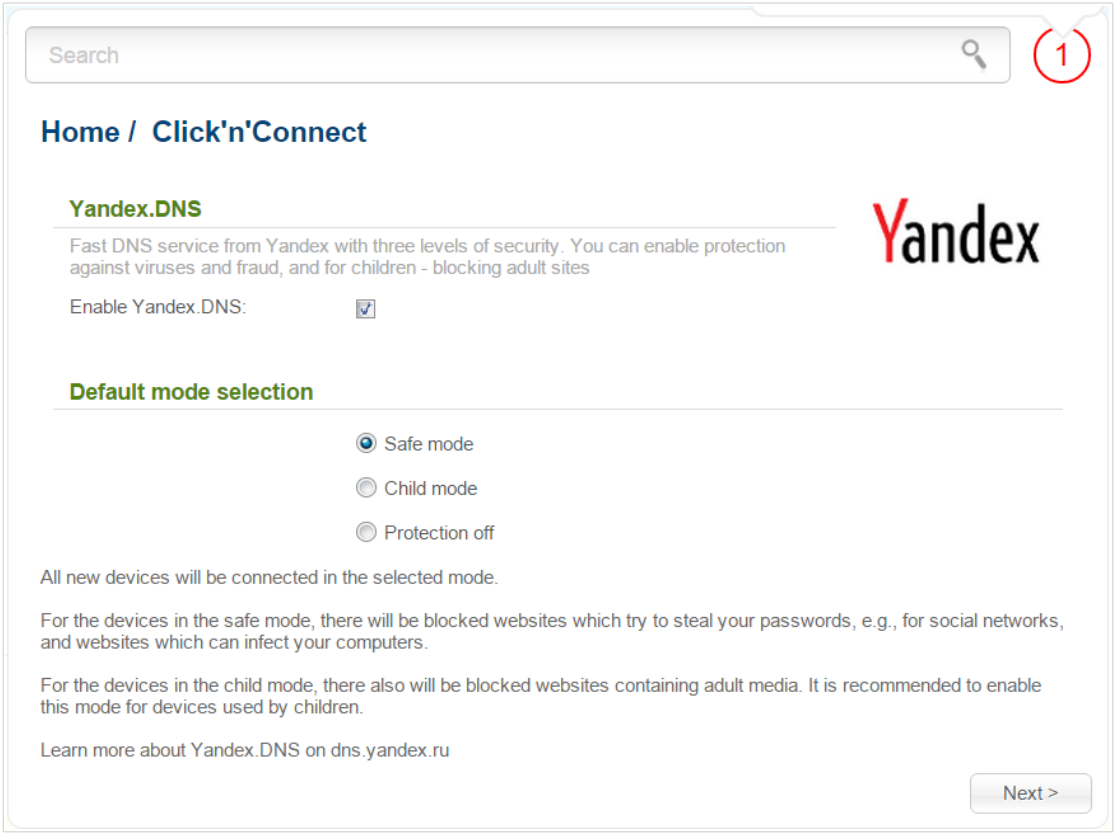


Figure 41. Configuring the Yandex.DNS service.

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 57).

Configuring Wireless Connection

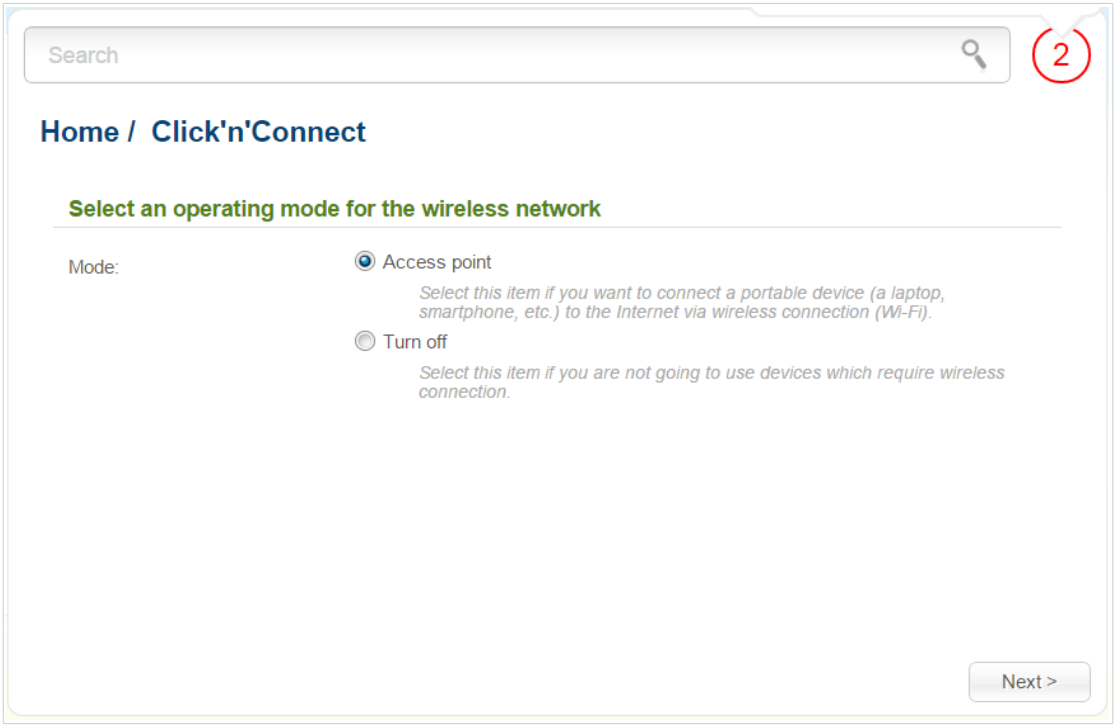


Figure 42. Selecting the operating mode for the wireless network.

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 63).

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 **Network name (SSID)** field, specify a new name for the network (use digits and Latin characters).

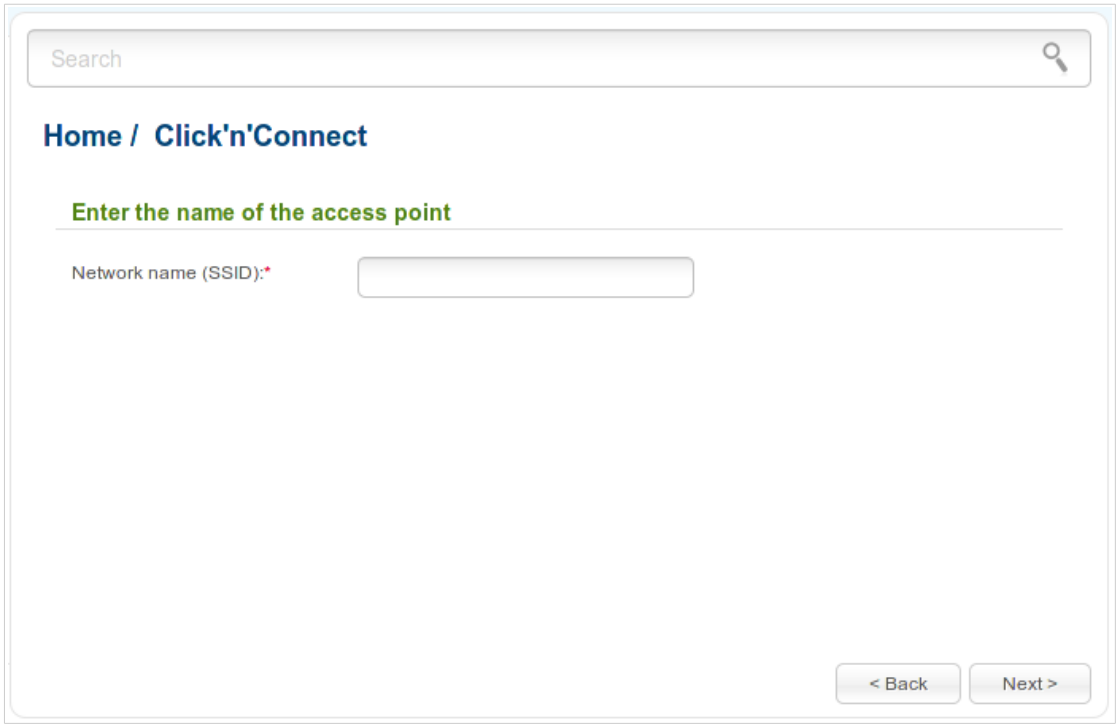


Figure 43. Changing the name of the wireless LAN.

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.

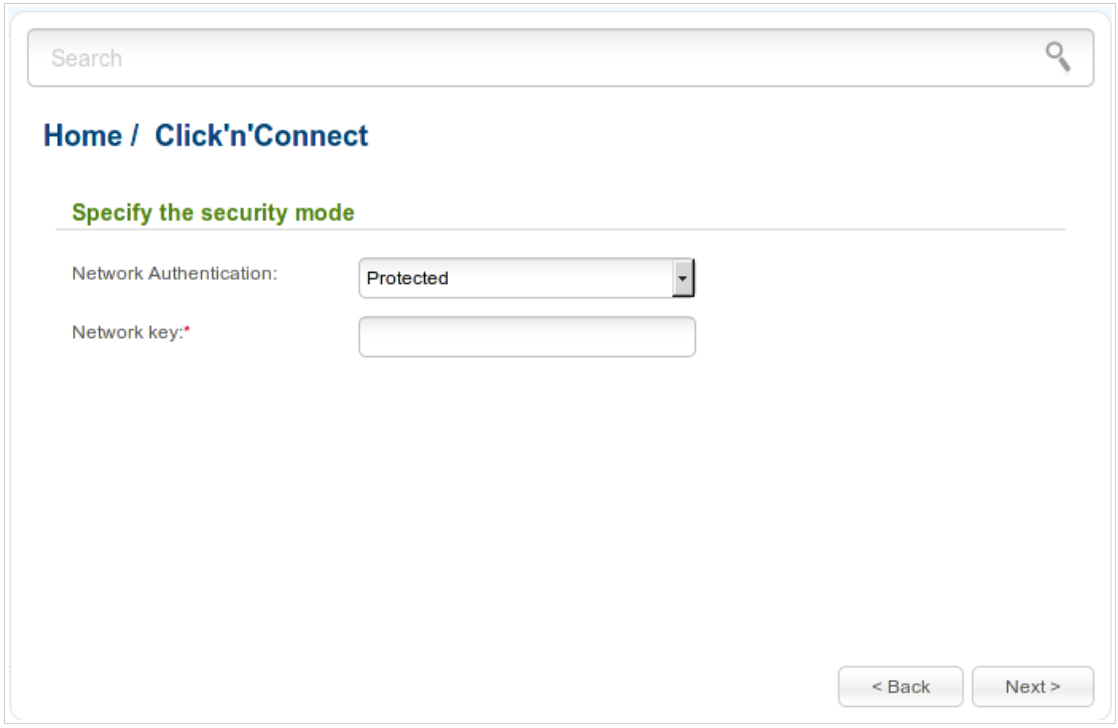


Figure 44. Selecting a security mode for the wireless network.

Click the **Next** button to continue.

On the opened page, you can configure a guest wireless network.

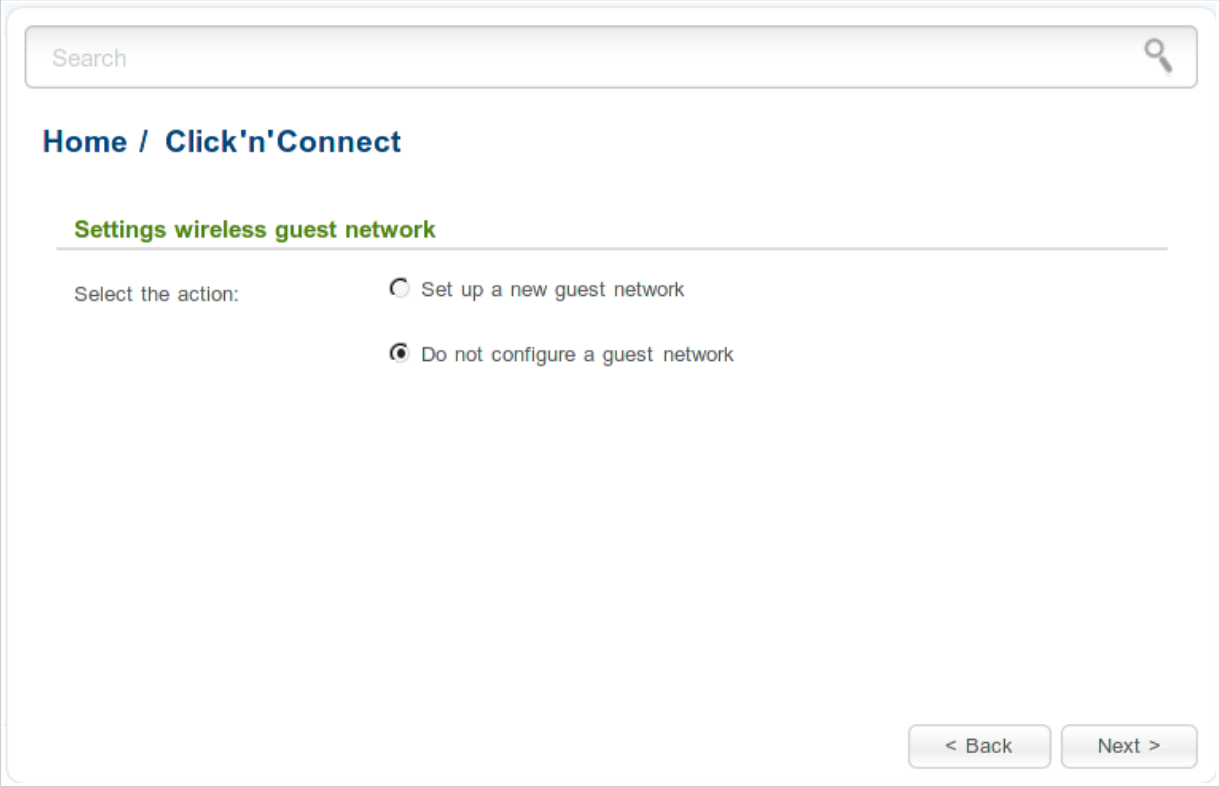


Figure 45. Creating a guest network.

If you are not going to use the guest wireless network, or you have configured all needed settings for the guest wireless network before starting the wizard, select the **Do not configure a guest network** choice of the **Select the action** radio button and click the **Next** button.

After that the page displaying all specified settings opens. Make sure that they are correct, and then click the **Apply** button, or the **Back** button to specify other settings. After clicking the **Apply** button, the page for configuring the router to use an IPTV set-top box opens (see the ***Configuring IPTV*** section, page 63).

If you want to create a guest wireless network or you need to change the existing settings of the guest network, select the **Set up a new guest network** choice or the **To configure an existing guest network** choice of the **Select the action** radio button correspondingly and click the **Next** button.

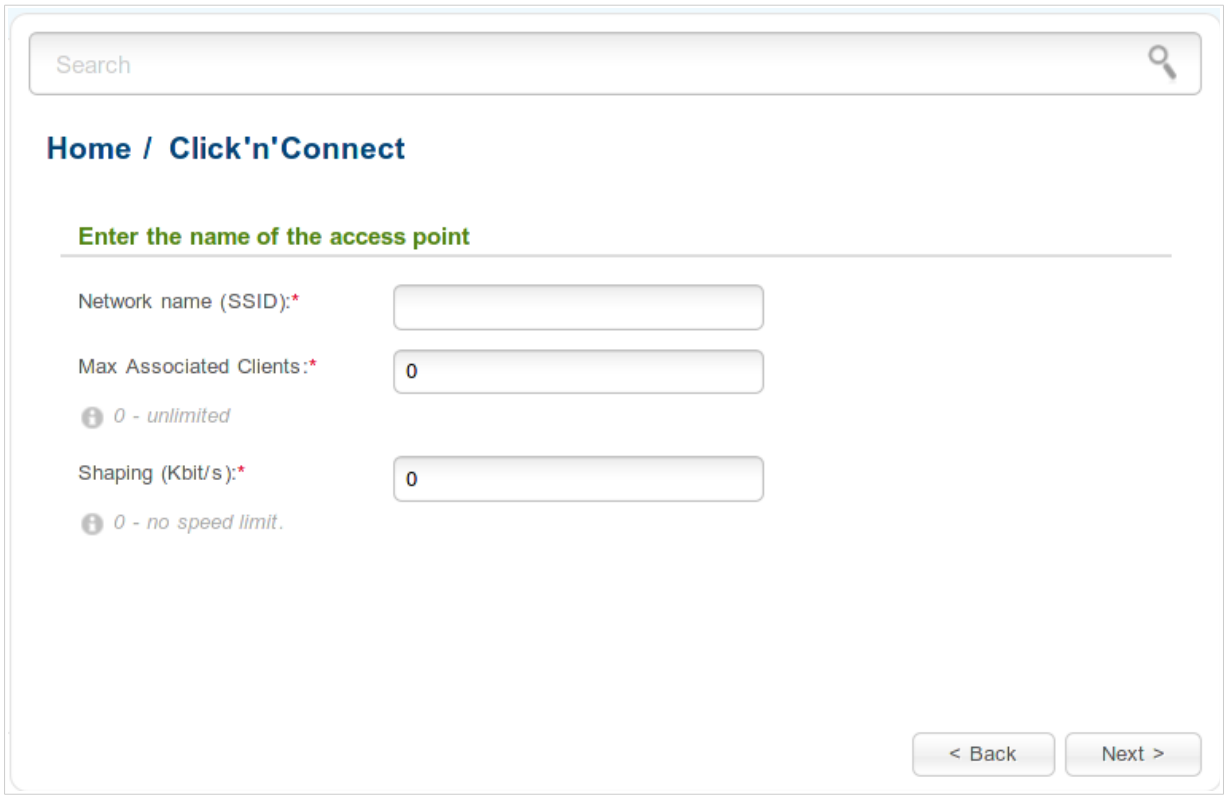


Figure 46. Configuring a guest network.

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

In the **Max Associated clients** field, specify the maximum number of devices that will be able to connect the guest network, or leave the value `0` not to limit the number of clients.

In the **Shaping** field, specify the maximum bandwidth of the guest network or leave the value `0` not to limit bandwidth of the network.

Click the **Next** button.

On the opened page, modify security settings of the guest network.

Select the **Protected** value from the **Network Authentication** drop-down list and enter a key (a password that will be used to access your guest 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 guest network.

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 guest network.

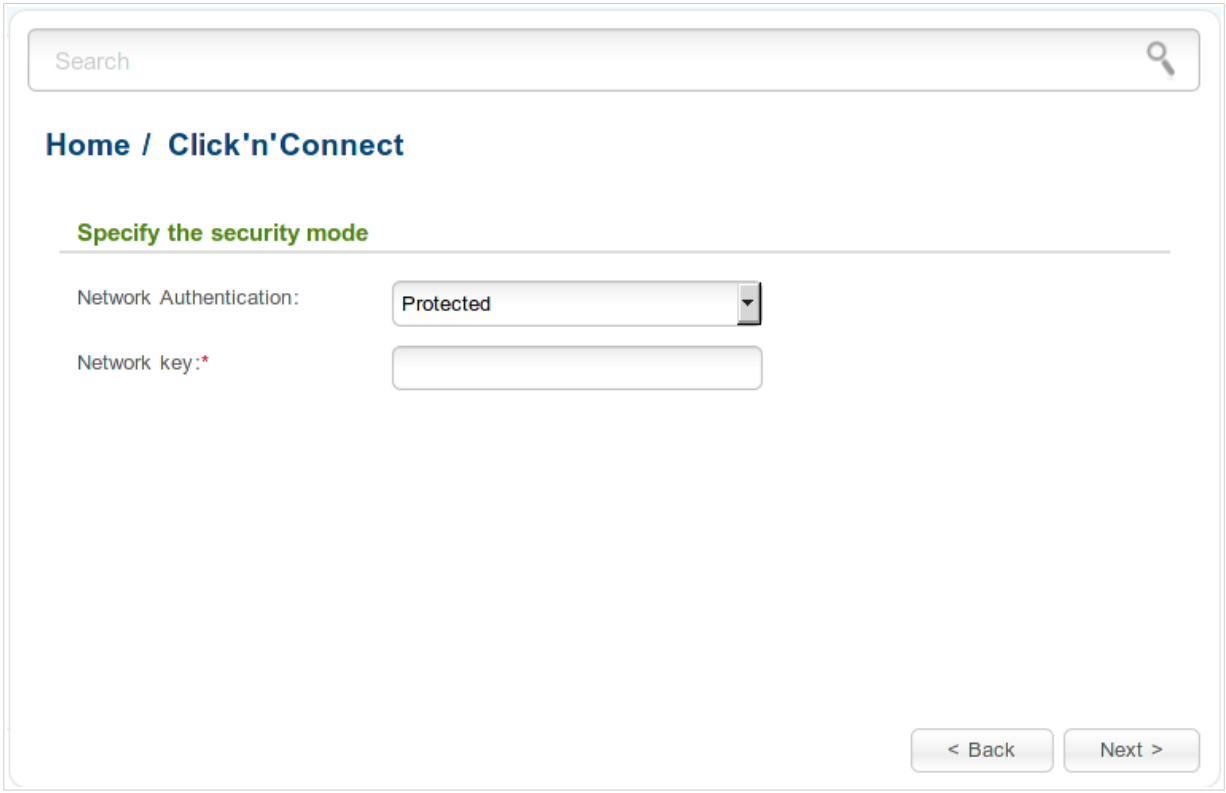


Figure 47. Selecting a security mode for the guest network.

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Make sure that they are correct, and then click the **Apply** button, or the **Back** button to specify other settings. After clicking the **Apply** button, the page for configuring the router to use an IPTV set-top box opens (see the ***Configuring IPTV*** section, page 63).

Configuring IPTV

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

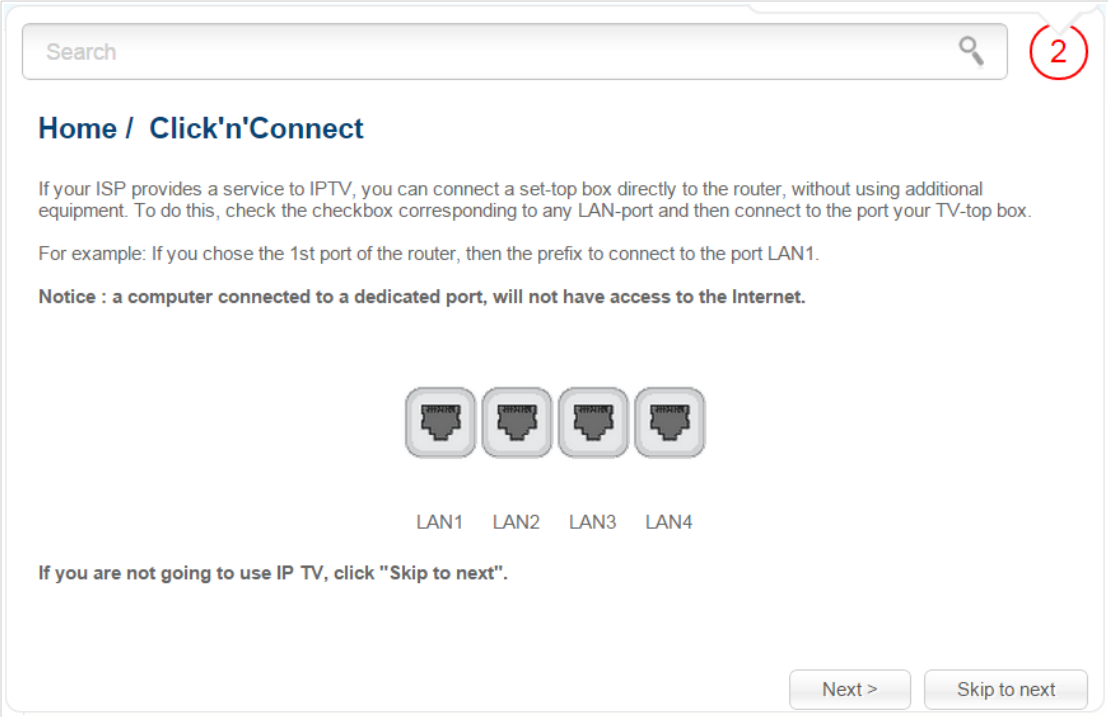


Figure 48. Selecting a LAN port to connect an IPTV set-top box.

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 a computer to it, start the **IPTV settings wizard** (for the detailed description of the Wizard, see the ***IPTV Settings Wizard*** section, page 75).

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 149, 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.

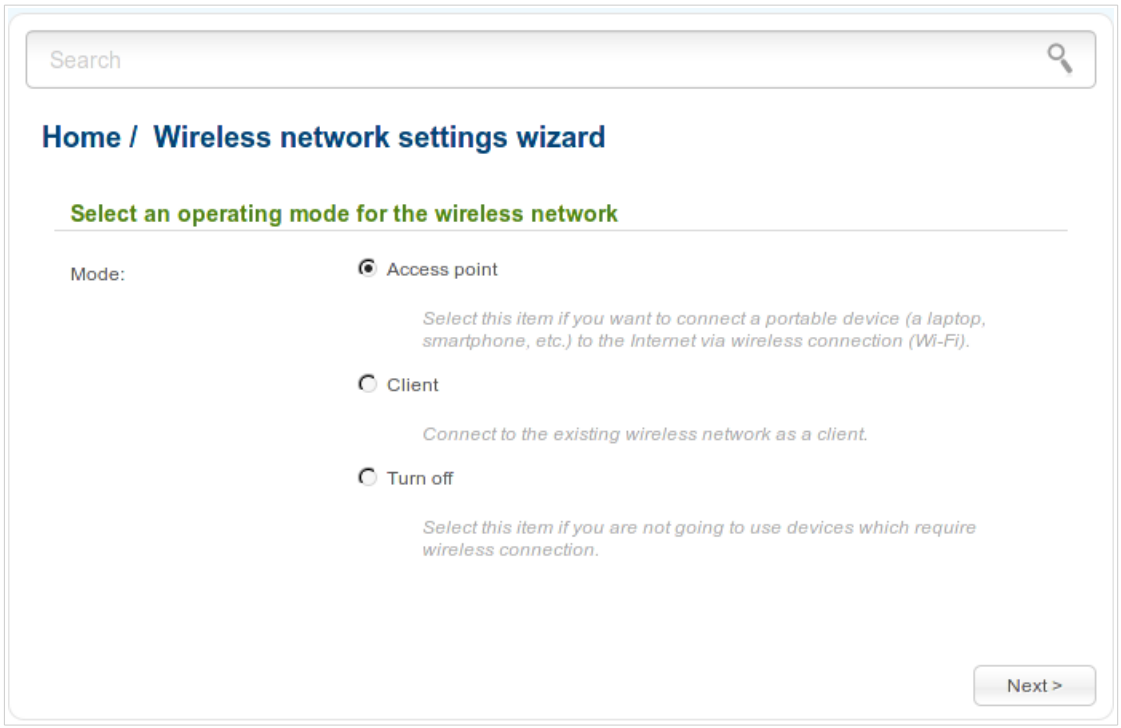


Figure 49. The page for selecting the operating mode for the wireless network.

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 **Network name (SSID)** field, specify a new name for the network (use digits and Latin characters).

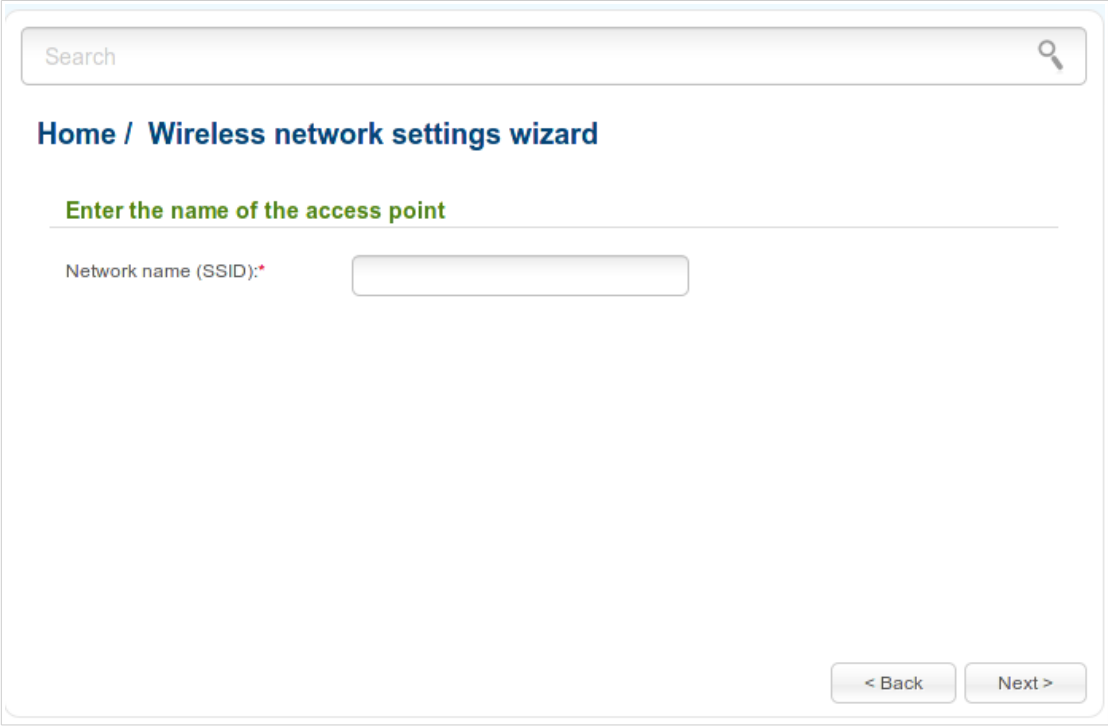


Figure 50. Page for changing the name of the wireless LAN.

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.

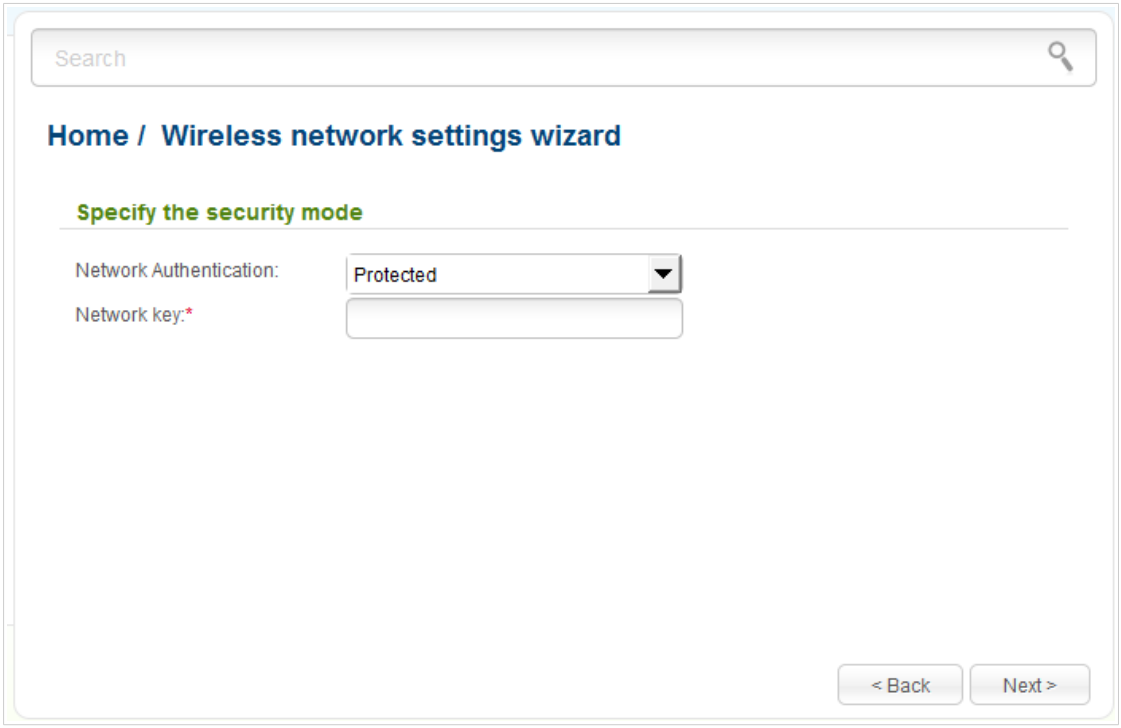


Figure 51. Page for selecting a security mode for the wireless network.

Click the **Next** button to continue.

On the opened page, you can configure a guest wireless network.

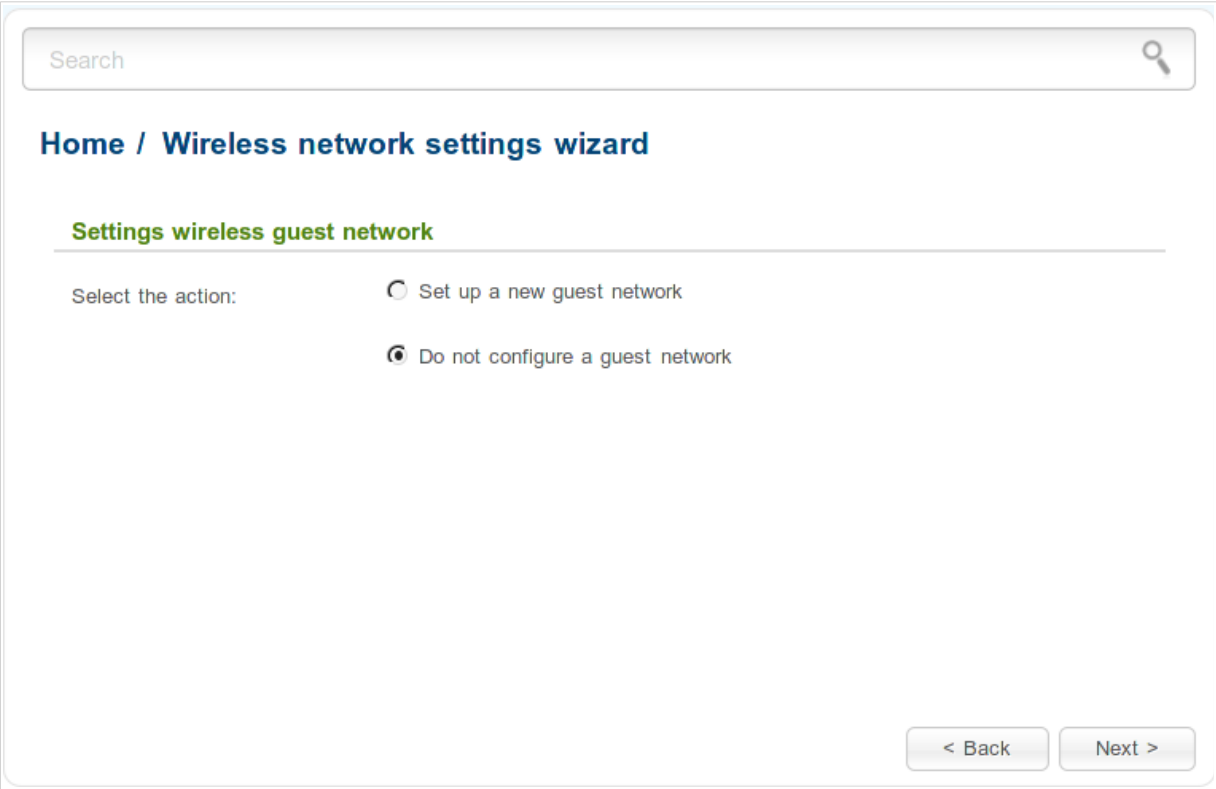


Figure 52. The page for creating a guest network.

If you are not going to use the guest wireless network, or you have configured all needed settings for the guest wireless network before starting the wizard, select the **Do not configure a guest network** choice of the **Select the action** radio button and click the **Next** button.

After that the page displaying all specified settings opens. Make sure that they are correct, and then click the **Apply** button, or the **Back** button to specify other settings. After clicking the **Apply** button, the **Home / Information** page opens.

If you want to create a guest wireless network or you need to change the existing settings of the guest network, select the **Set up a new guest network** choice or the **To configure an existing guest network** choice of the **Select the action** radio button correspondingly and click the **Next** button.

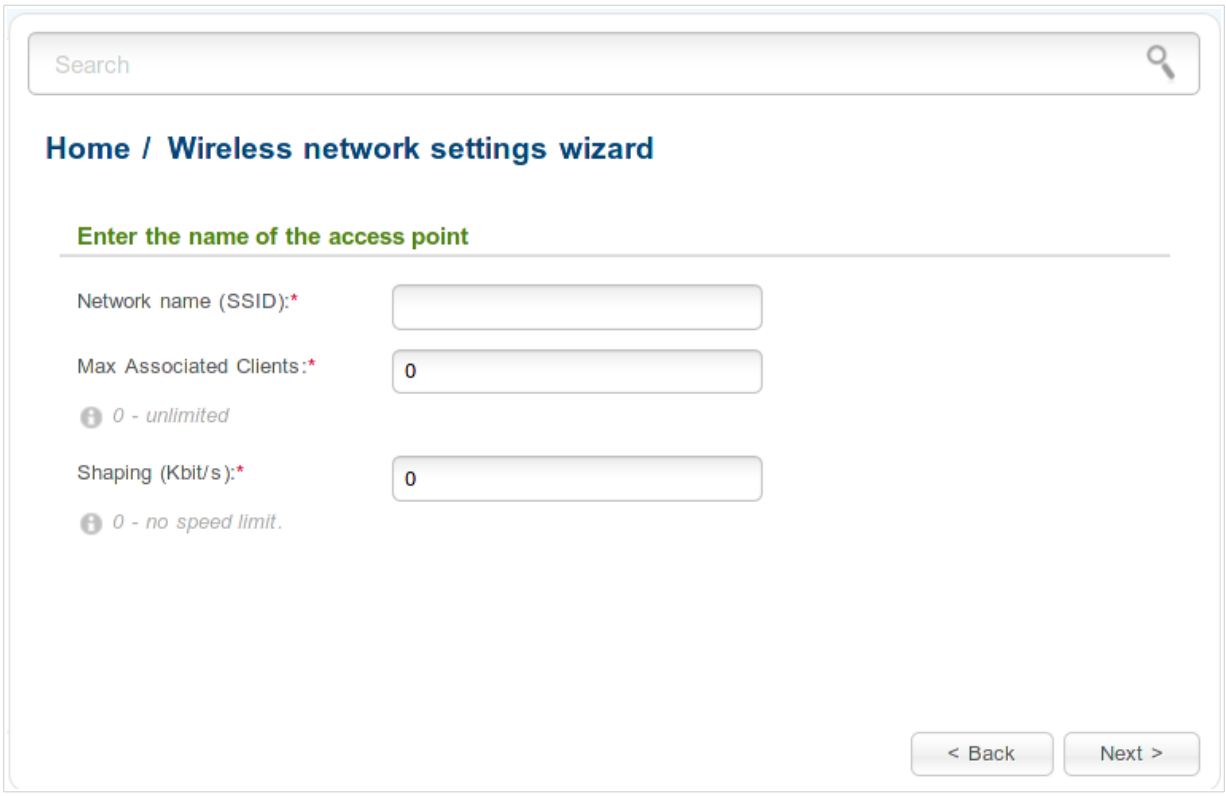


Figure 53. The page for configuring a guest network.

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

In the **Max Associated clients** field, specify the maximum number of devices that will be able to connect to the guest network, or leave the value `0` not to limit the number of clients.

In the **Shaping** field, specify the maximum bandwidth of the guest network or leave the value `0` not to limit bandwidth of the network.

Click the **Next** button.

On the opened page, modify security settings of the guest network.

Select the **Protected** value from the **Network Authentication** drop-down list and enter a key (a password that will be used to access your guest 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 guest network.

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 guest network.

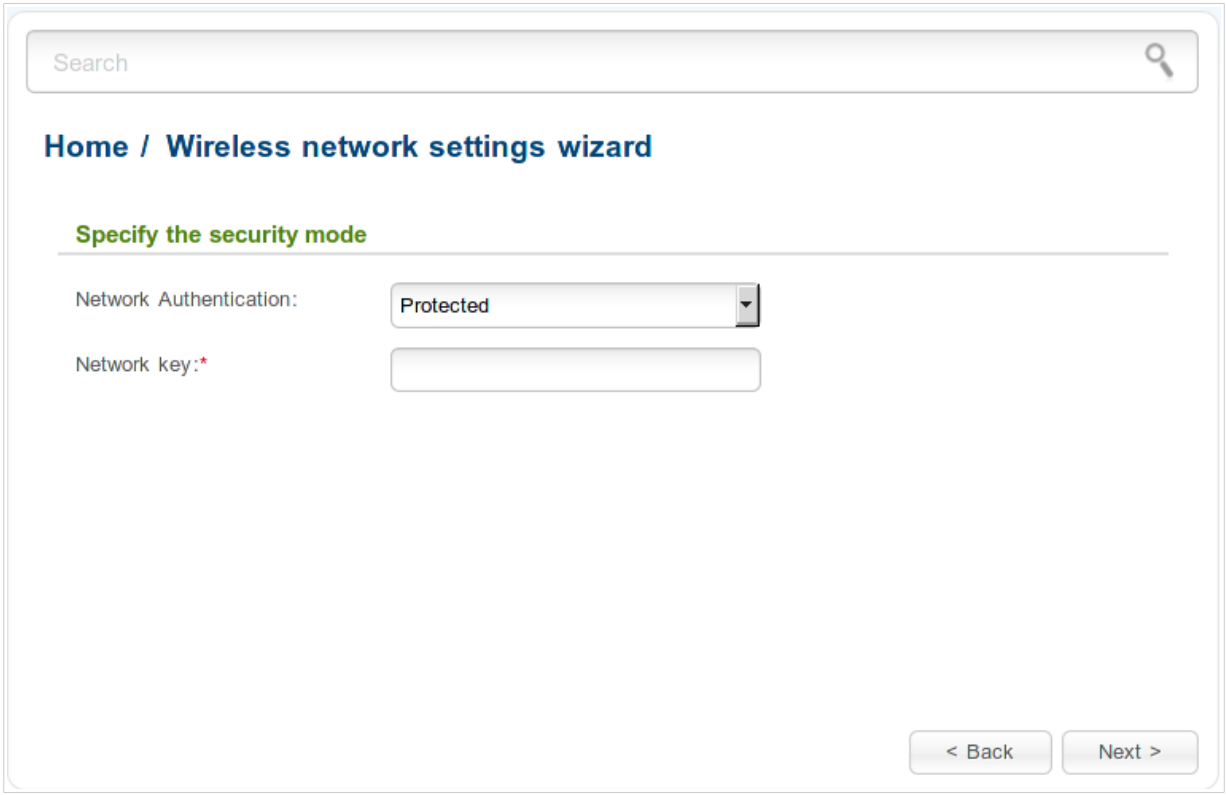


Figure 54. The page for selecting a security mode for the guest network.

Click the **Next** button to continue.

After that the page displaying all specified settings opens. Make sure that they are correct, and then click the **Apply** button, or the **Back** button to specify other settings. After clicking the **Apply** button, the **Home / Information page** opens.

Client Mode

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

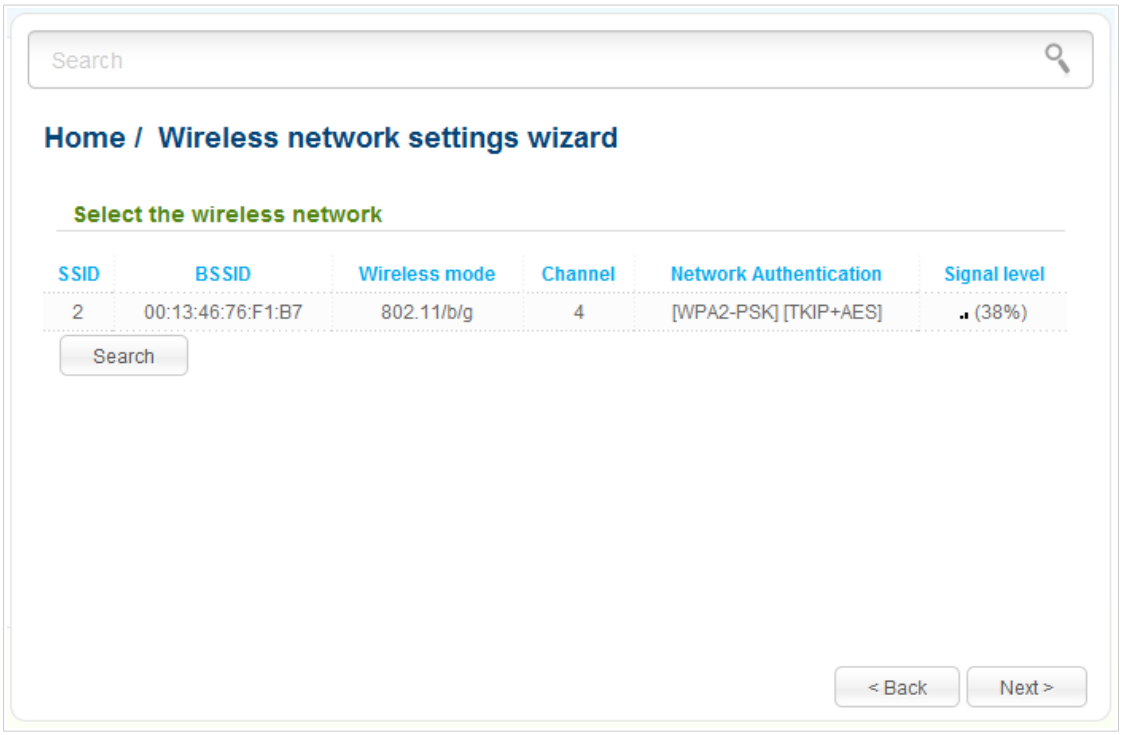


Figure 55. The page for selecting a network to connect.

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

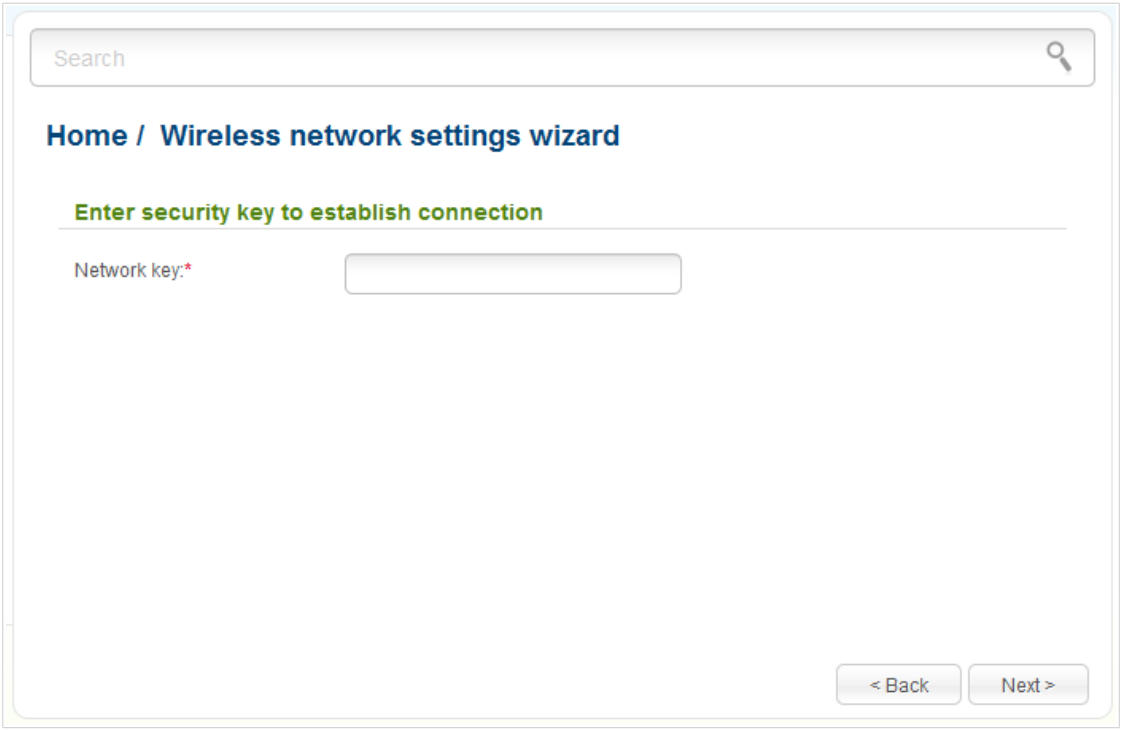


Figure 56. The page for entering the password for connection to the wireless network.

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.

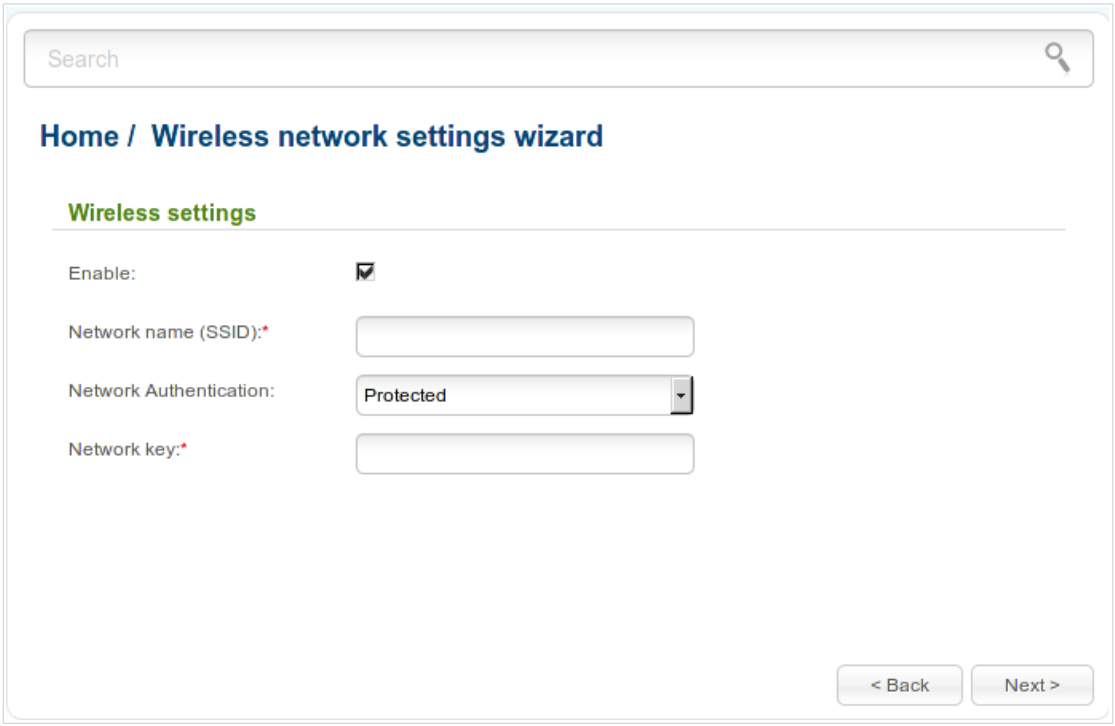


Figure 57. The page for changing the settings of the wireless local area network.

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 **Network name (SSID)** field (use digits and Latin characters).

It is strongly recommended to configure the secure wireless network of DIR-615. 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 **Next** button or the **Back** button to specify other settings. Then click the **Apply** button. After that, the wireless channel of DIR-615 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.

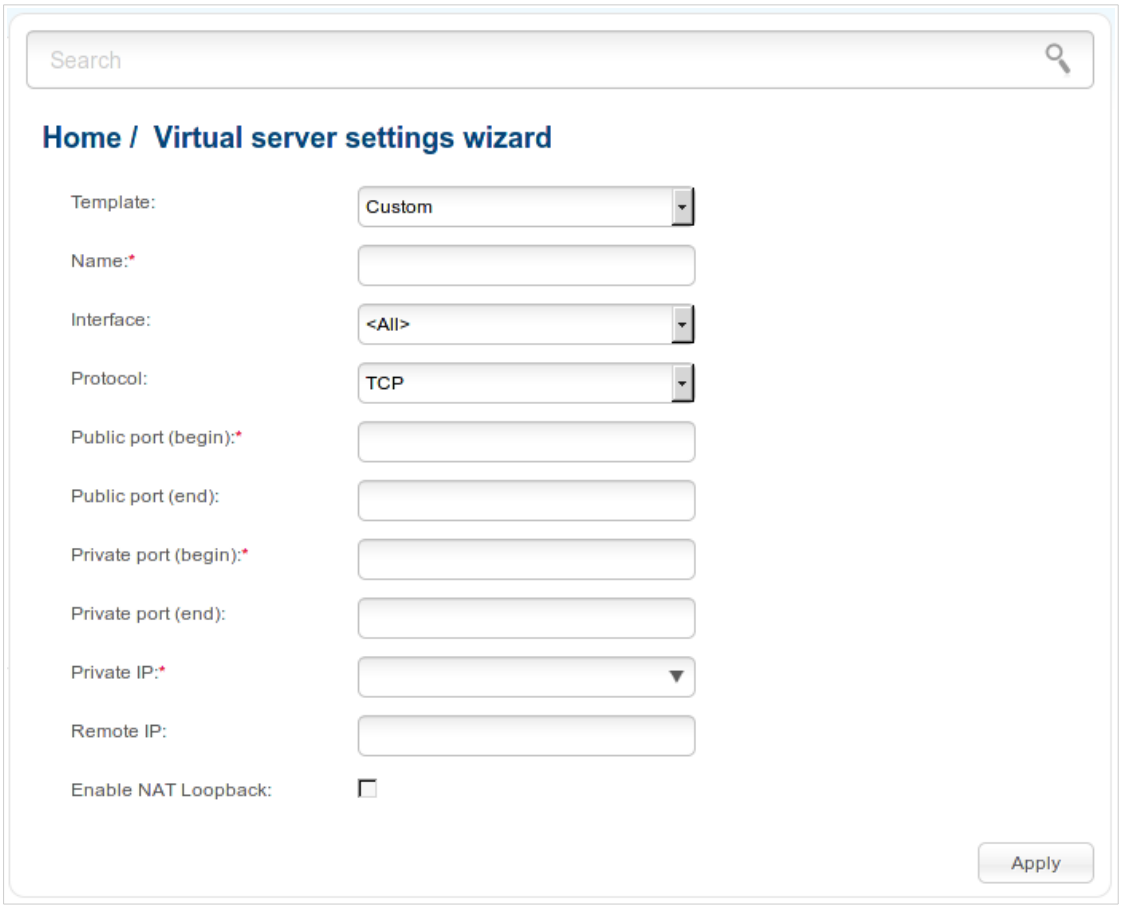


Figure 58. The page for adding a virtual server.

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.

Parameter	Description
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	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	Select the checkbox in order to let the users of the router's LAN access the local server using the external IP address of the router or its DDNS name (if a DDNS service is configured). Users from the external network access the router using the same address (or DDNS 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 181, 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.

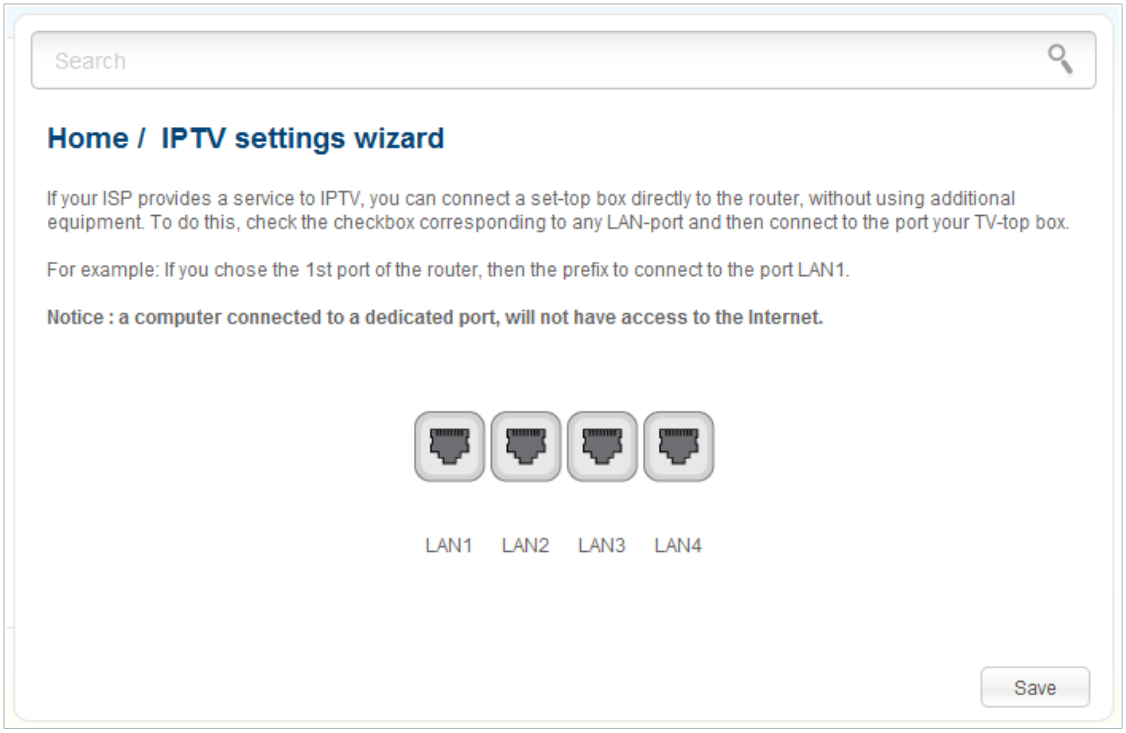


Figure 59. The page for selecting a LAN port to connect an IPTV set-top box.

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 a computer to it, 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 149, 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
- statistics for traffic passing through ports of the router
- 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).

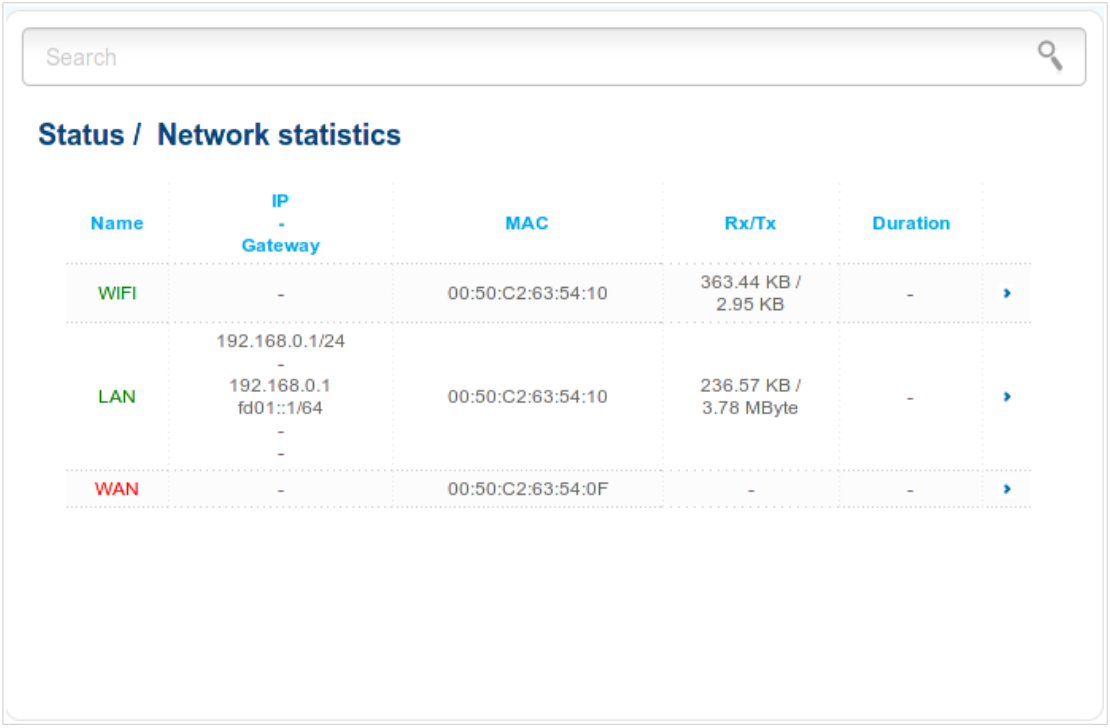


*Figure 60. The **Status / Network statistics** page.*

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 61. 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.

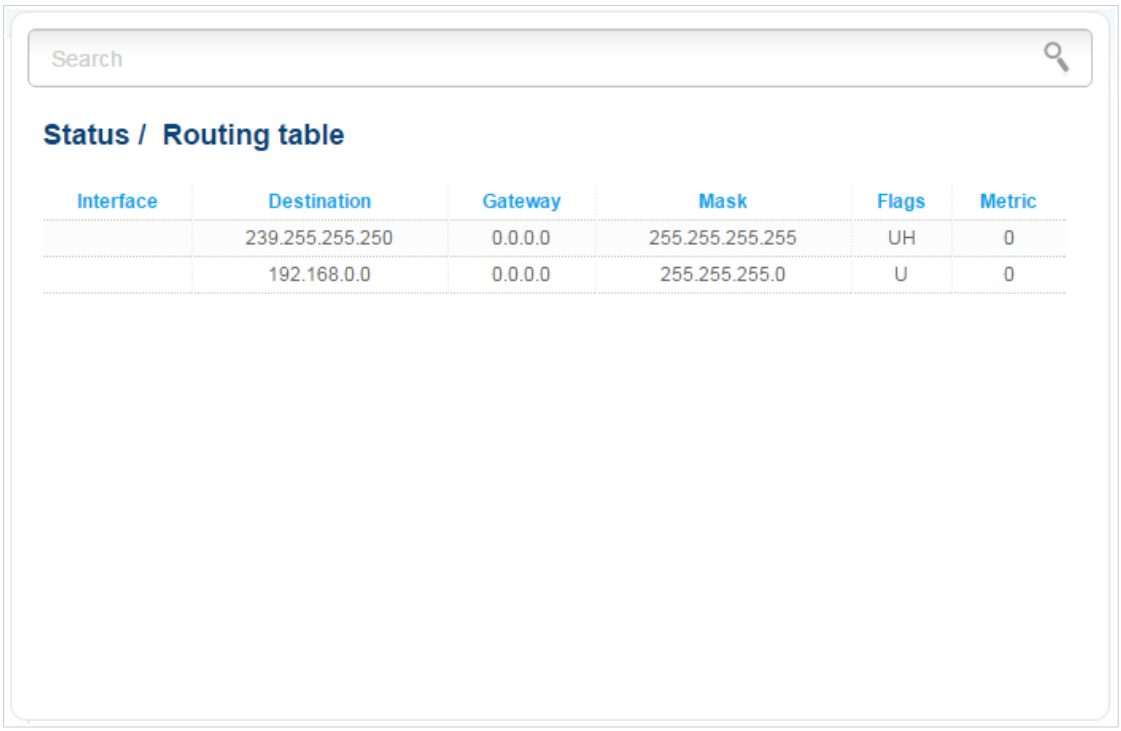


*Figure 62. The **Status / Routing table** page.*

Clients

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

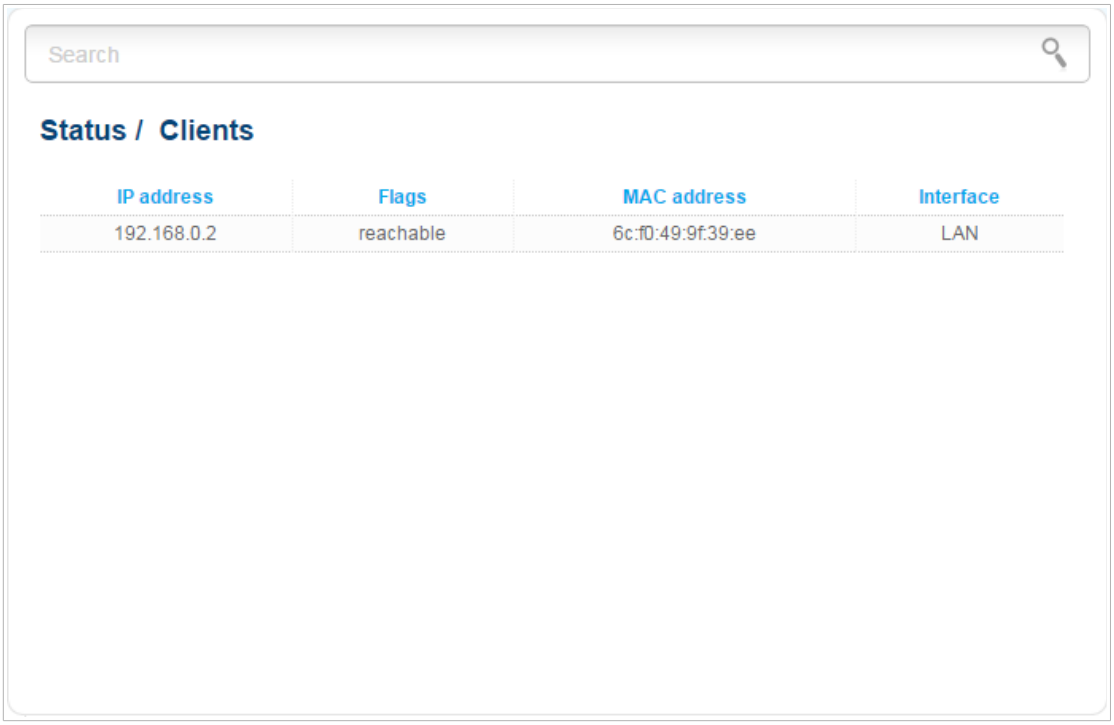


*Figure 63. The **Status / Clients** page.*

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

Port Statistics

On the **Status / Port statistics** page, you can view statistics for traffic passing through ports of the router. To view full list of counter for a port, click the icon › (**More info**) in the line corresponding to this port. The information shown on the page can be used for diagnosing connection problems.

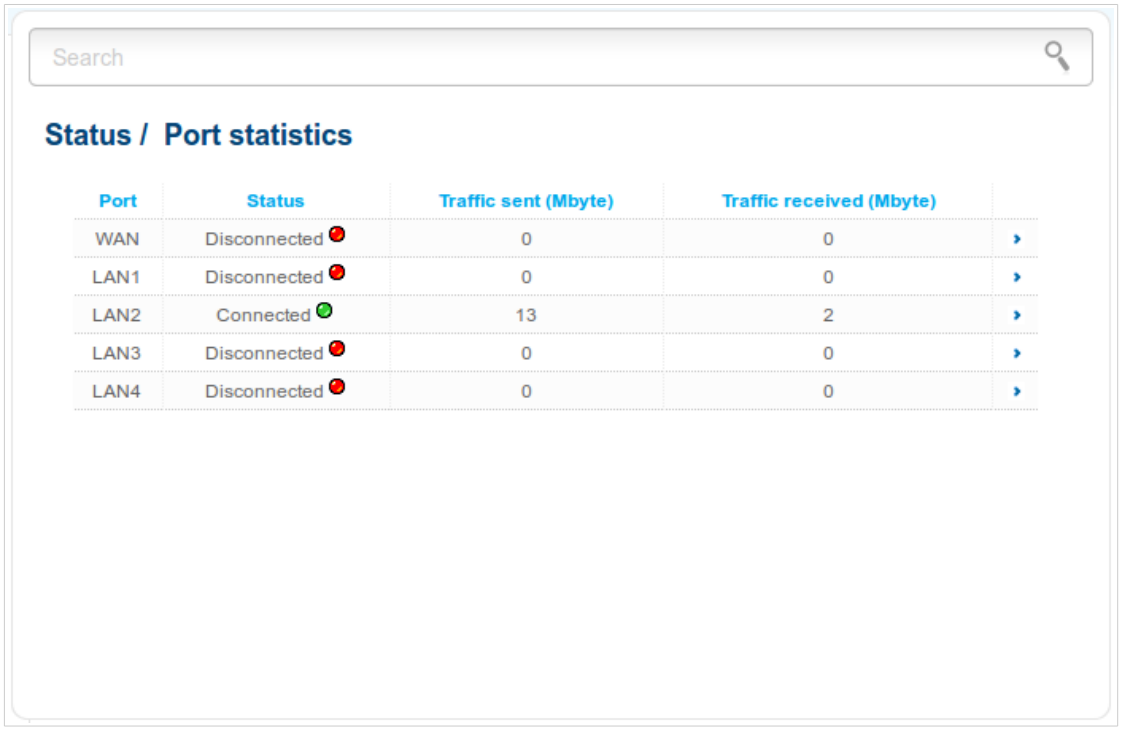


*Figure 64. The **Status / Port Statistics** page.*

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.

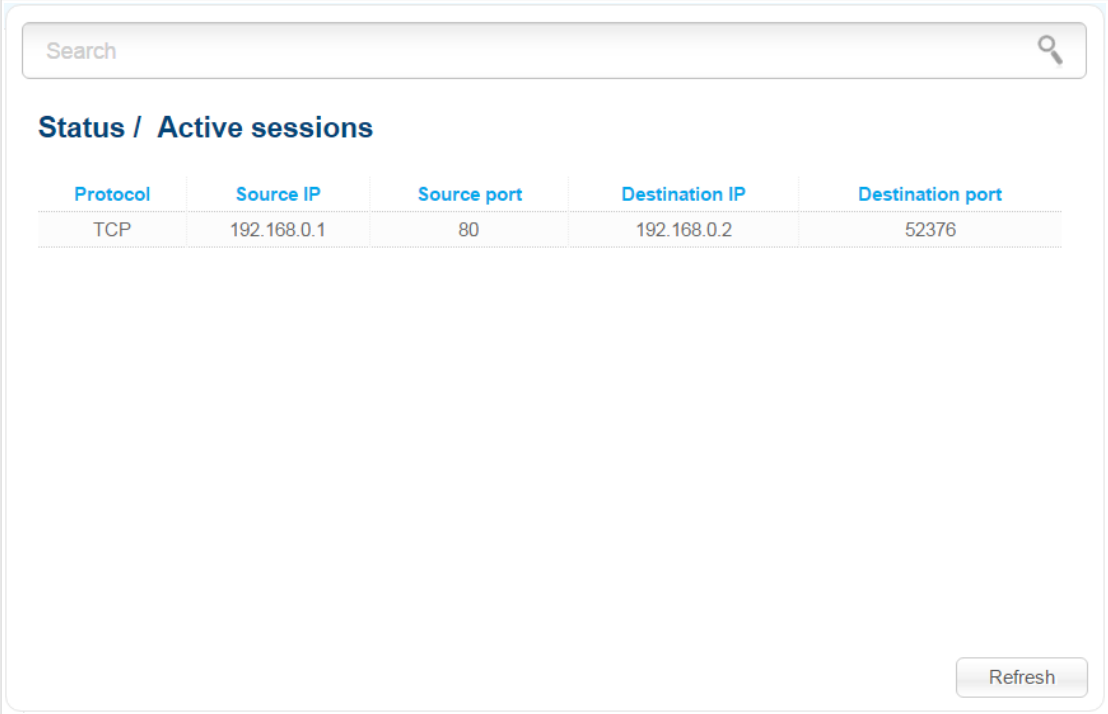


*Figure 65. The **Status / Active sessions** page.*

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.

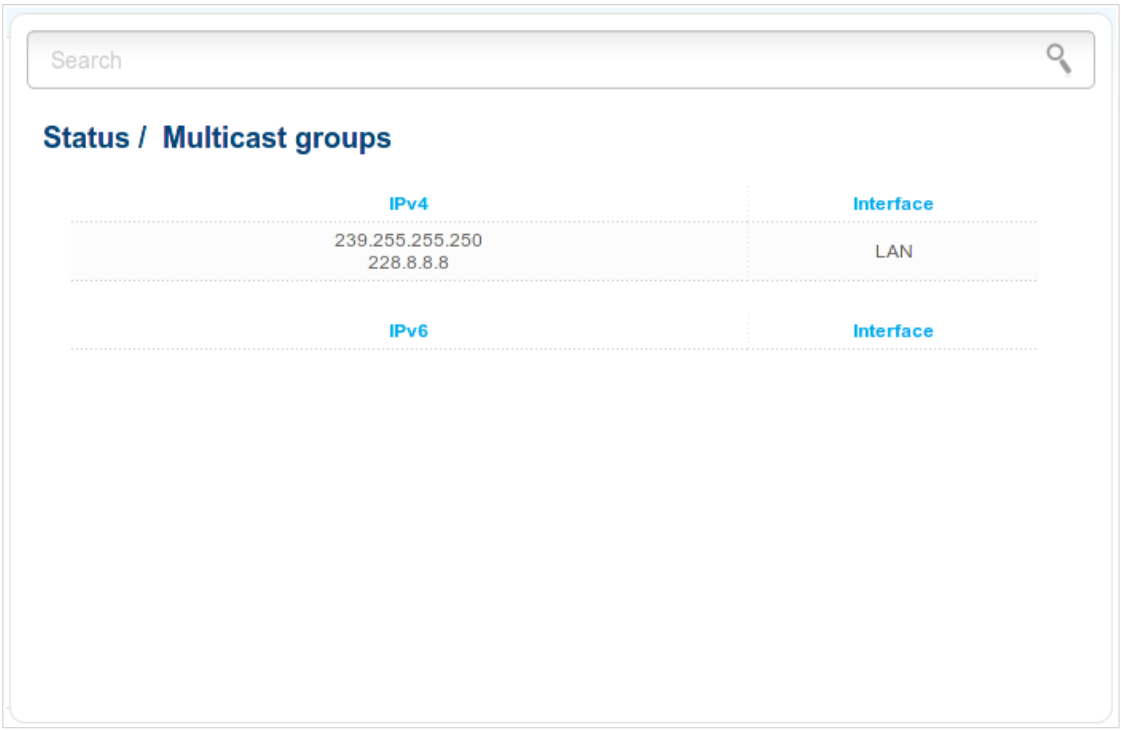


*Figure 66. The **Status / Multicast groups** page.*

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 is configured in the system. It is assigned to the SFP port of the router. You can edit this connection or delete it.

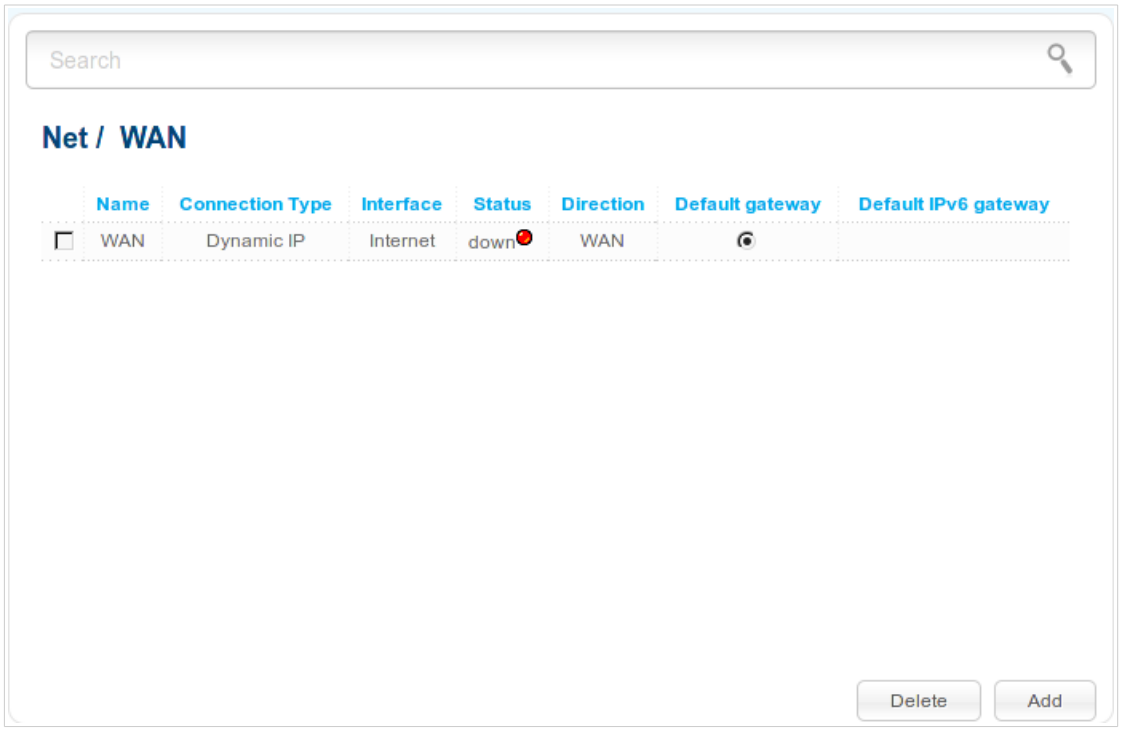


*Figure 67. The **Net / WAN** page.*

To create a new connection, click the **Add** button. On the page displayed, 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.

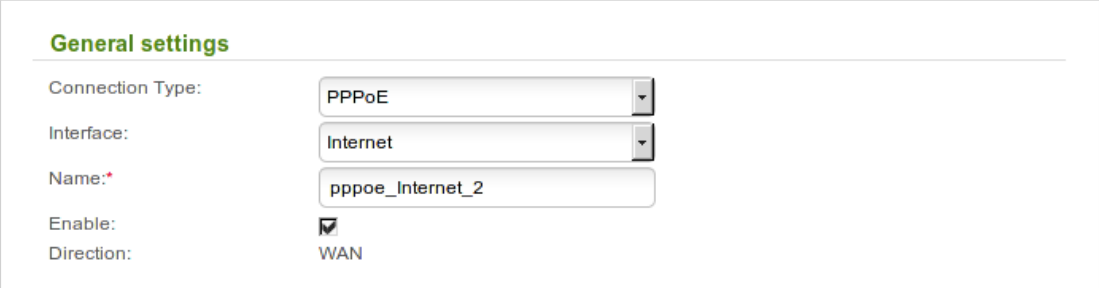


*Figure 68. The page for creating a new **PPPoE** connection. The **General settings** section.*

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.

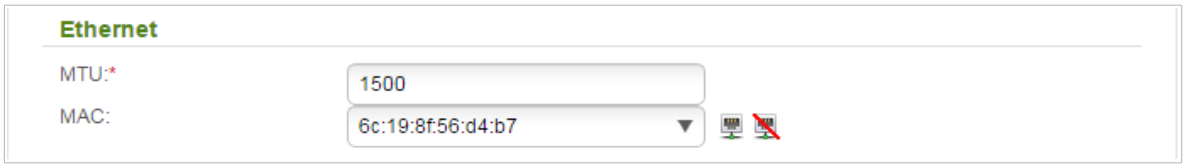


*Figure 69. The page for creating a new **PPPoE** connection. The **Ethernet** section.*

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.

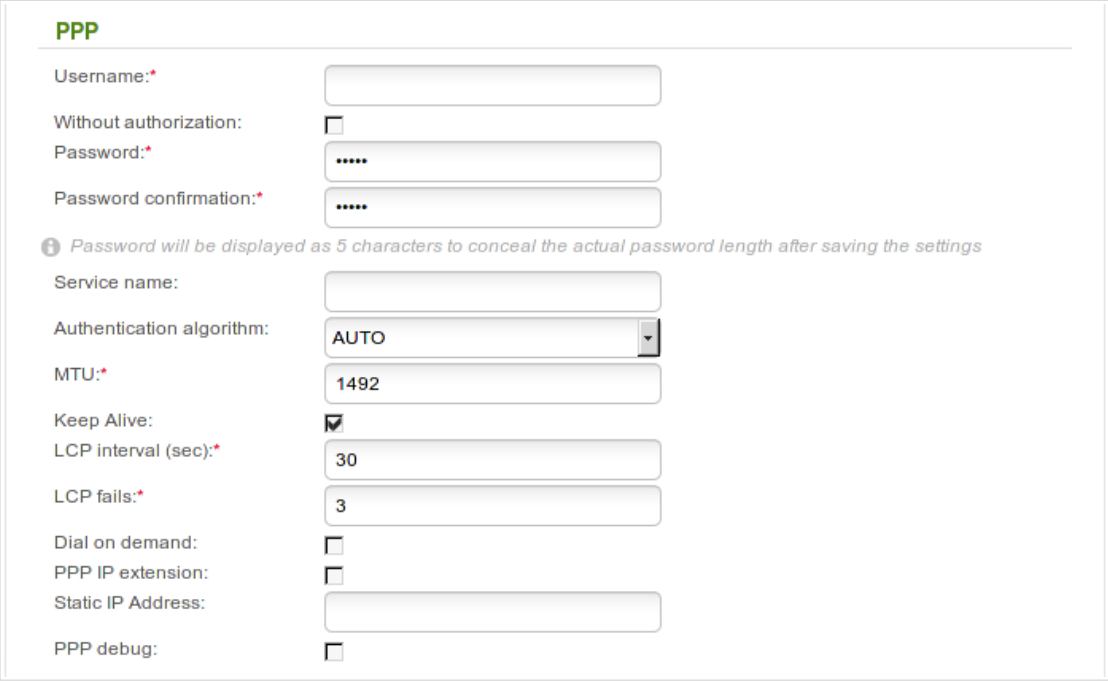


*Figure 70. The page for creating a new **PPPoE** connection. The **PPP** section.*

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.

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.

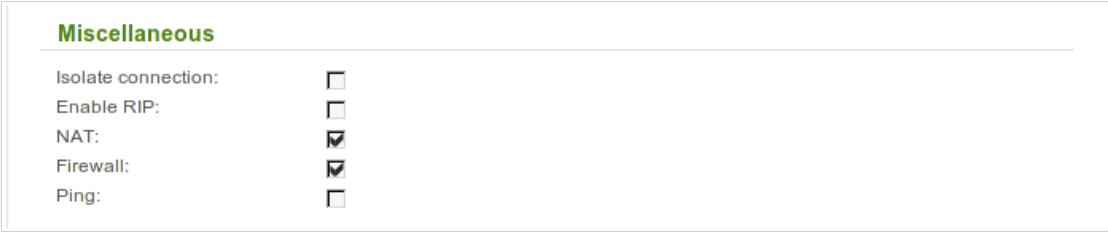


*Figure 71. The page for creating a new **PPPoE** connection. The **Miscellaneous** section.*

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.
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.

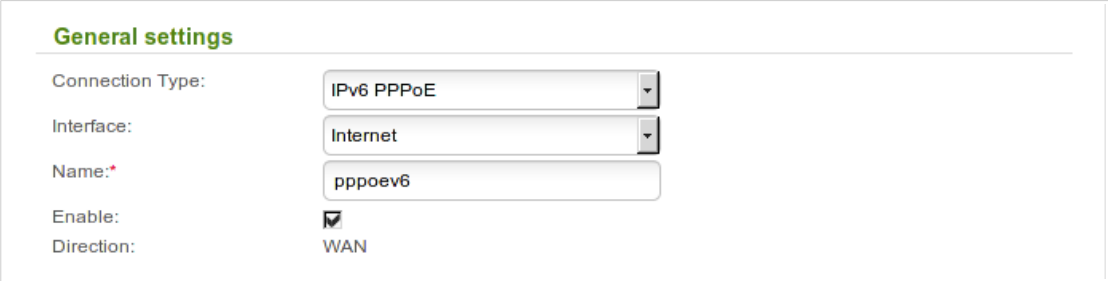


*Figure 72. The page for creating a new **IPv6 PPPoE** connection. The **General settings** section.*

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.

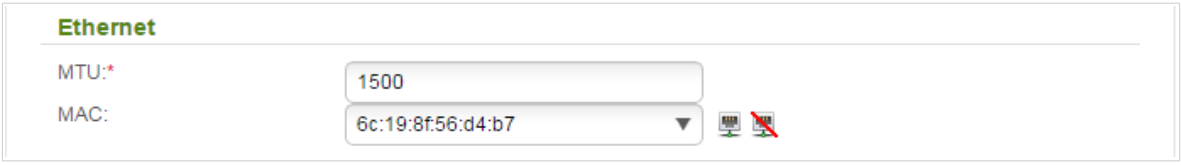


*Figure 73. The page for creating a new **IPv6 PPPoE** connection. The **Ethernet** section.*

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.

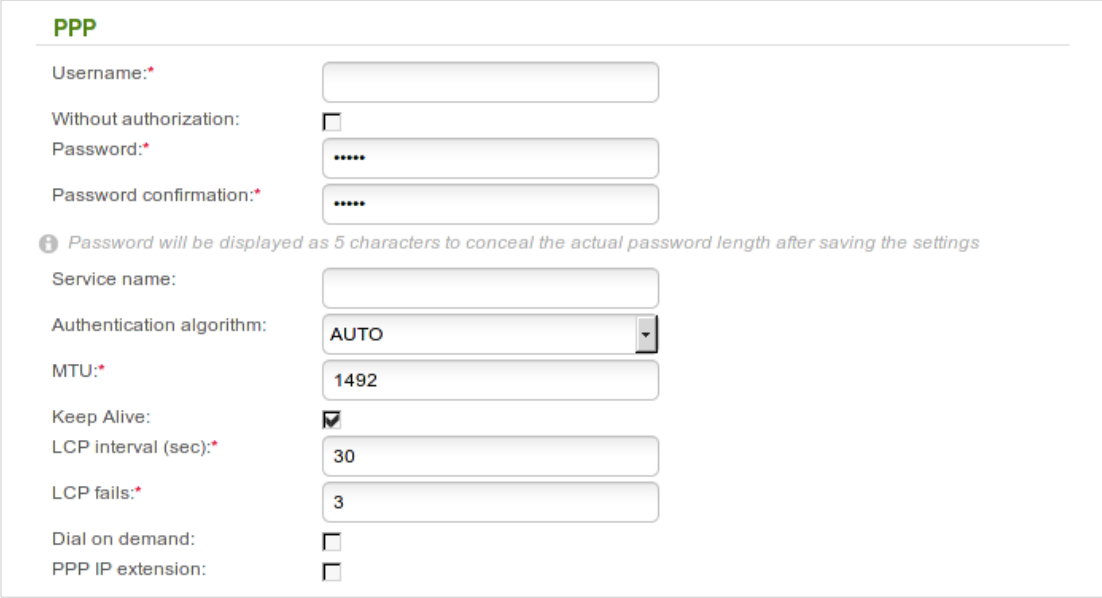


*Figure 74. The page for creating a new **IPv6 PPPoE** connection. The **PPP** section.*

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 75. 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.

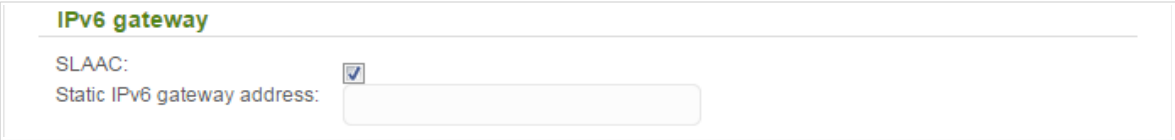


*Figure 76. The page for creating a new **Pv6 PPPoE** connection. The **IPv6 gateway** section.*

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.

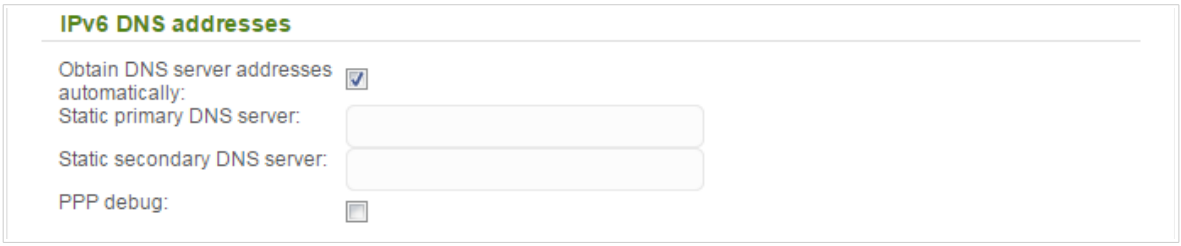


*Figure 77. The page for creating a new **Pv6 PPPoE** connection. The **IPv6 DNS addresses** section.*

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 78. 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.

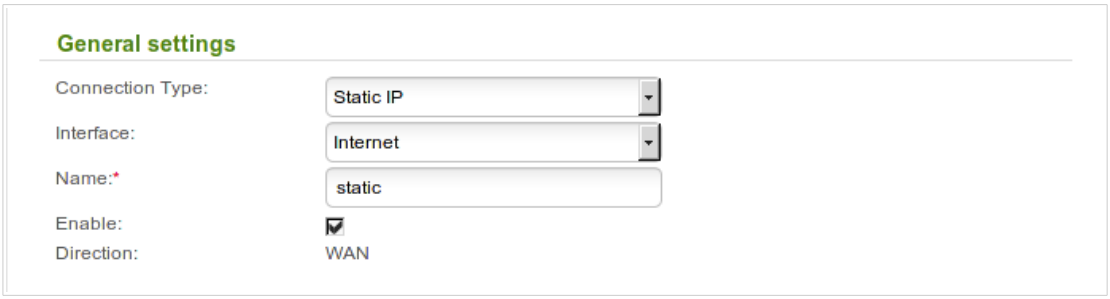


*Figure 79. The page for creating a new **Static IP** connection. The **General settings** section.*

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.

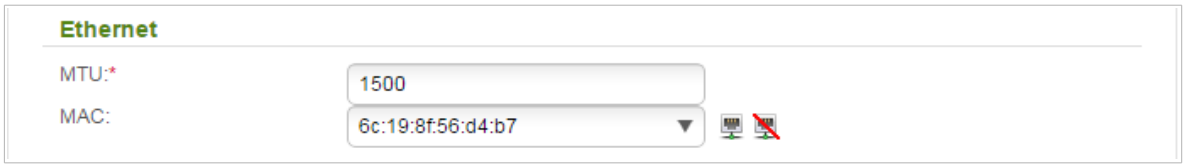


*Figure 80. The page for creating a new **Static IP** connection. The **Ethernet** section.*

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 81. 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 82. The page for creating a new **Static IP** connection. The **Authorization via 802.1x protocol** section.*

Parameter	Description
Authorization via 802.1x protocol	
Authorization in the ISP's network via 802.1x protocol	Select the checkbox to allow authorization in the ISP's network via the 802.1x protocol.
Authentication method	Select a needed authentication method from the drop-down list.
Username	Enter the username provided by your ISP.
Password	Enter the password provided by your ISP.

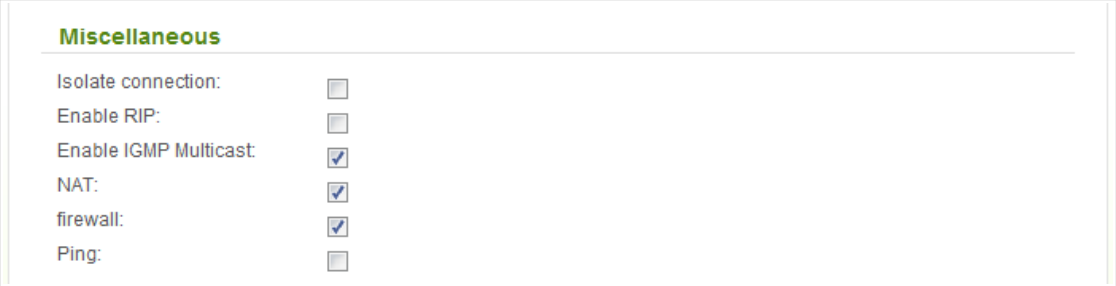


*Figure 83. The page for creating a new **Static IP** connection. The **Miscellaneous** section.*

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.

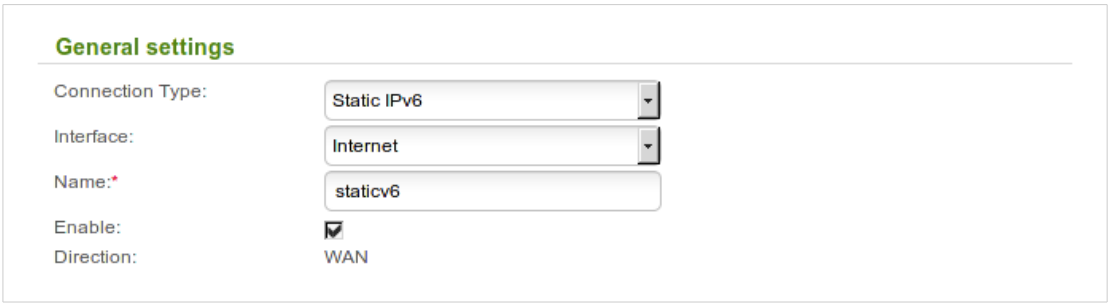


*Figure 84. The page for creating a new **Static IPv6** connection. The **General settings** section.*

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.

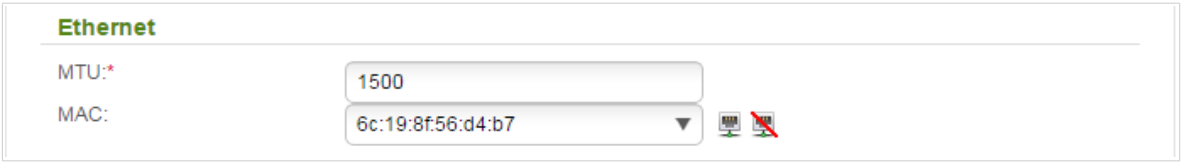


*Figure 85. The page for creating a new **Static IPv6** connection. The **Ethernet** section.*

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 86. 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 87. 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.

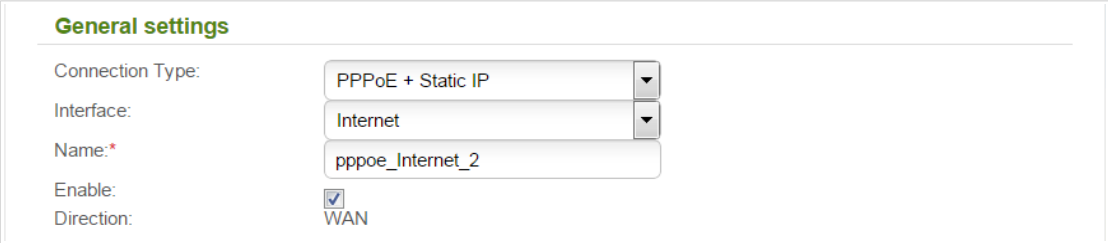


*Figure 88. The page for creating a new **PPPoE + Static IP** connection. The **General settings** section.*

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.

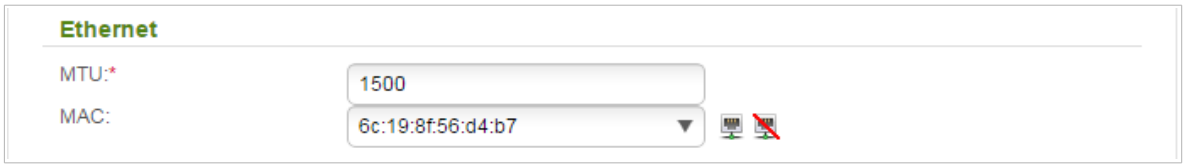


*Figure 89. The page for creating a new **PPPoE + Static IP** connection. The **Ethernet** section.*

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 90. 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 91. The page for creating a new **PPPoE + Static IP** connection. The **Authorization via 802.1x protocol** section.*

Parameter	Description
Authorization via 802.1x protocol	
Authorization in the ISP's network via 802.1x protocol	Select the checkbox to allow authorization in the ISP's network via the 802.1x protocol.
Authentication method	Select a needed authentication method from the drop-down list.
Username	Enter the username provided by your ISP.
Password	Enter the password provided by your ISP.

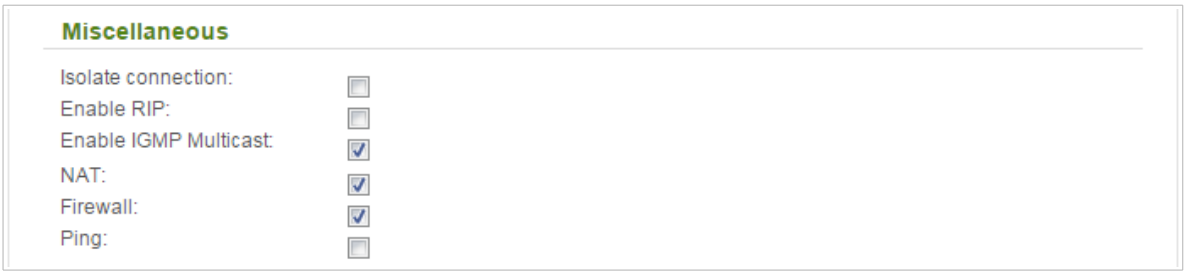


*Figure 92. The page for creating a new **PPPoE + Static IP** connection. The **Miscellaneous** section.*

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.

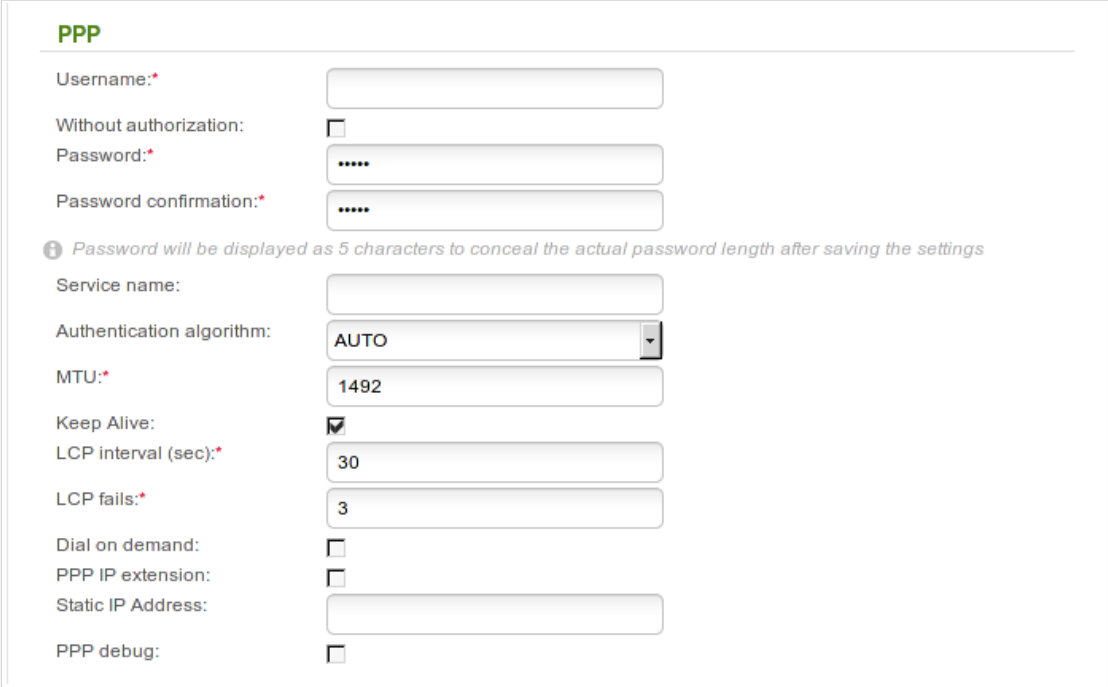


*Figure 93. The page for creating a new **PPPoE + Static IP** connection. The **PPP** section.*

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.

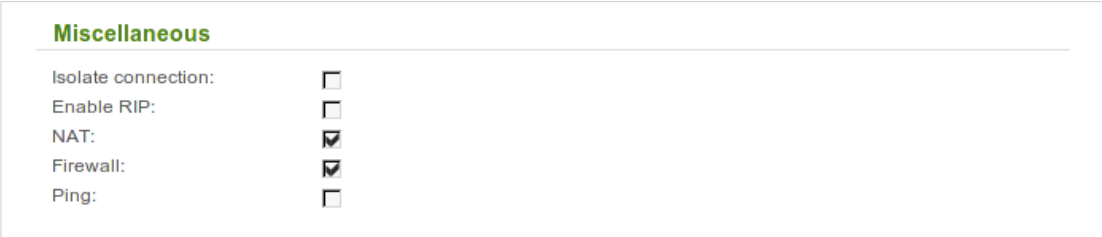


*Figure 94. The page for creating a new **PPPoE + Static IP** connection. The **Miscellaneous** section.*

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.
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.

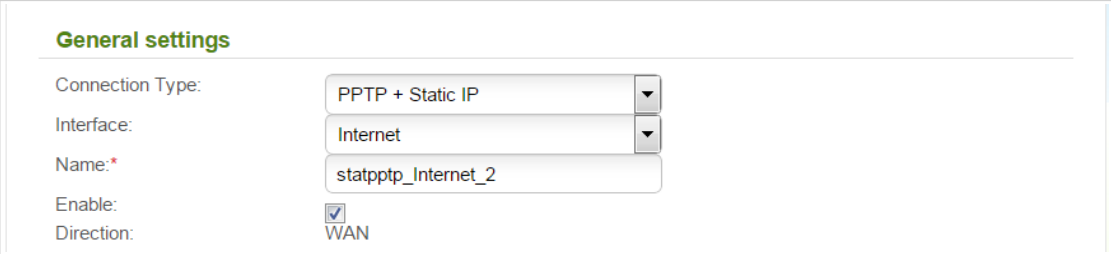


*Figure 95. The page for creating a new **PPTP + Static IP** connection. The **General settings** section.*

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.

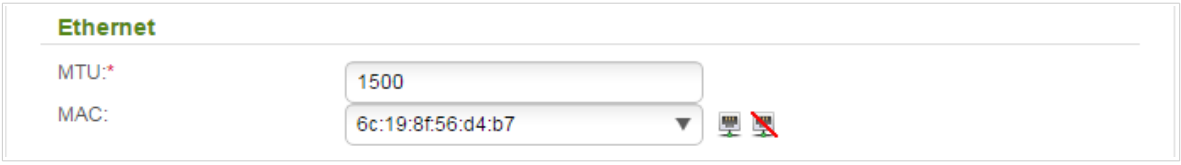


*Figure 96. The page for creating a new **PPTP + Static IP** connection. The **Ethernet** section.*

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 97. 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.
*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*.

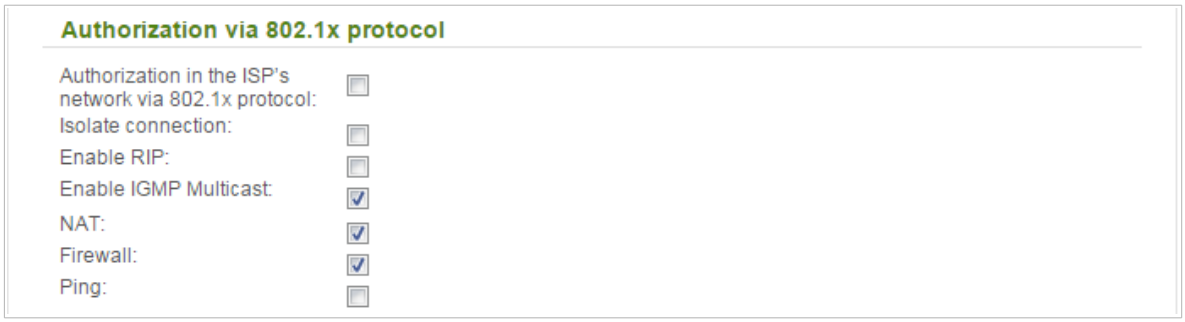


*Figure 98. The page for creating a new **PPTP + Static IP** connection. The **Authorization via 802.1x protocol** section.*

Parameter	Description
Authorization via 802.1x protocol	
Authorization in the ISP's network via 802.1x protocol	Select the checkbox to allow authorization in the ISP's network via the 802.1x protocol.
Authentication method	Select a needed authentication method from the drop-down list.
Username	Enter the username provided by your ISP.
Password	Enter the password provided by your 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.
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.

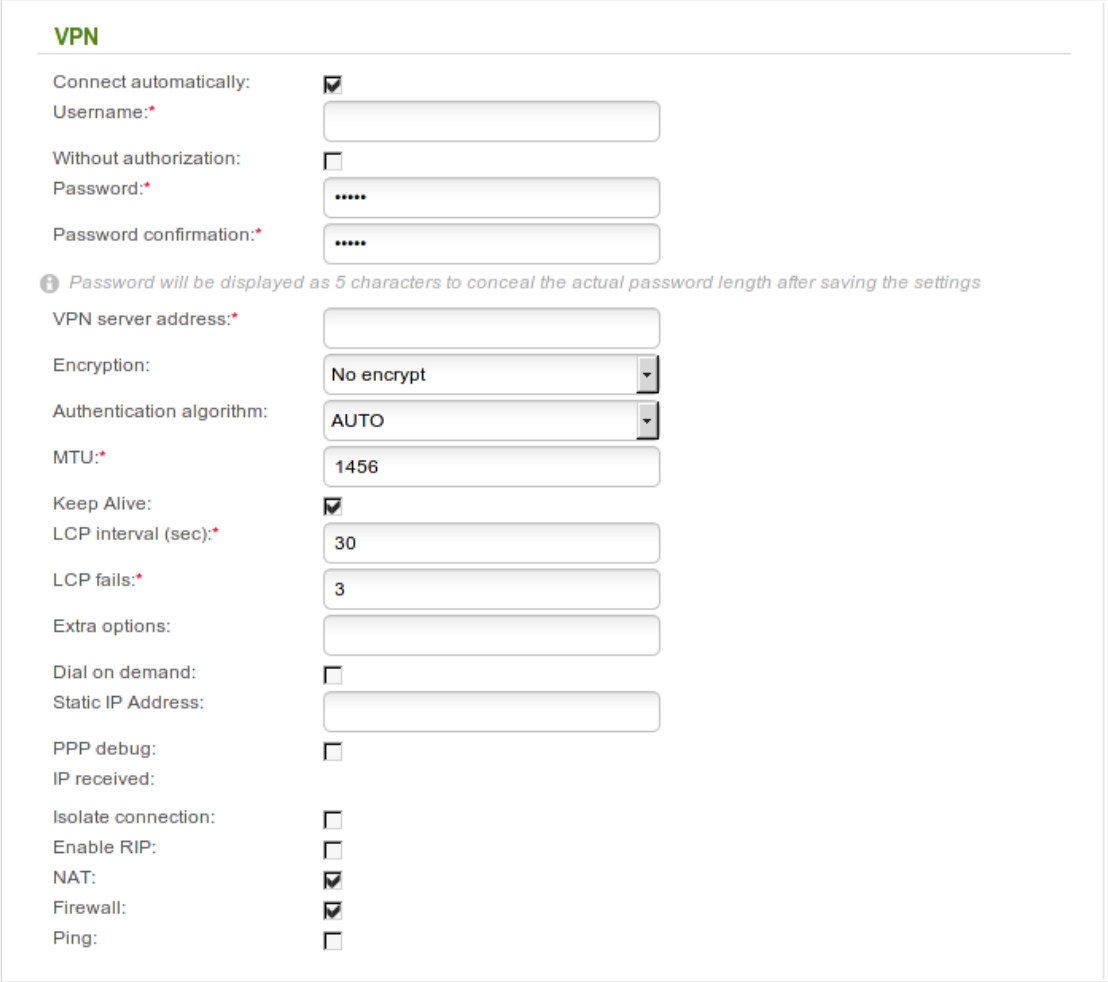


*Figure 99. The page for creating a new **PPTP + Static IP** connection. The **VPN** section.*

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.

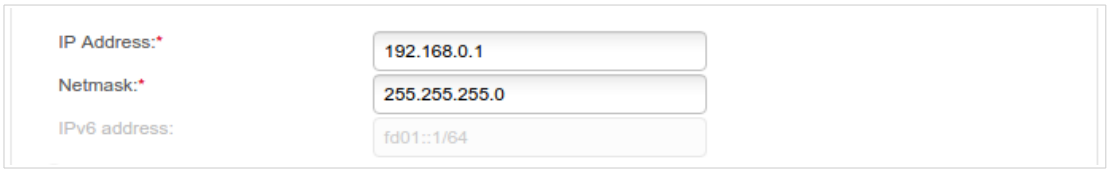


Figure 100. Basic settings of the local interface.

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.

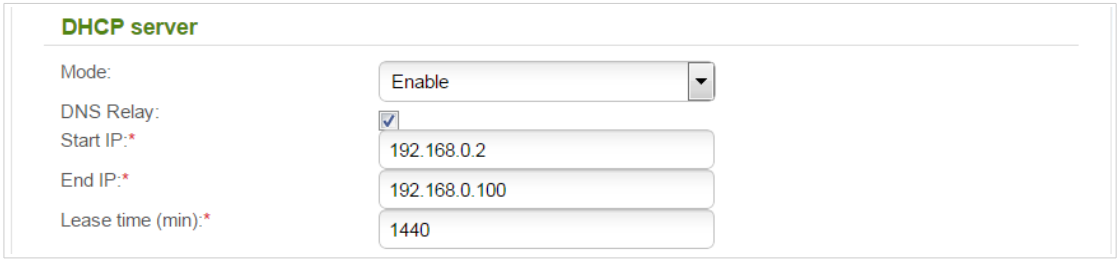


Figure 101. The section for configuring the DHCP server.

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.
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 or specified on the **Advanced / DNS** page 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 how clients from the LAN should obtain IPv6 addresses.

Figure 102. The section of IPv6 address assignment settings.

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.
Mode	Select a mode of IPv6 address assignment from the drop-down list. **Stateless**: clients themselves configure IPv6 addresses using the prefix. **Stateful**: the built-in DHCPv6 server of the router allocates addresses from the range specified in the **Start IP** and **End IP** fields. **Disable**: 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 provided to clients. 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).

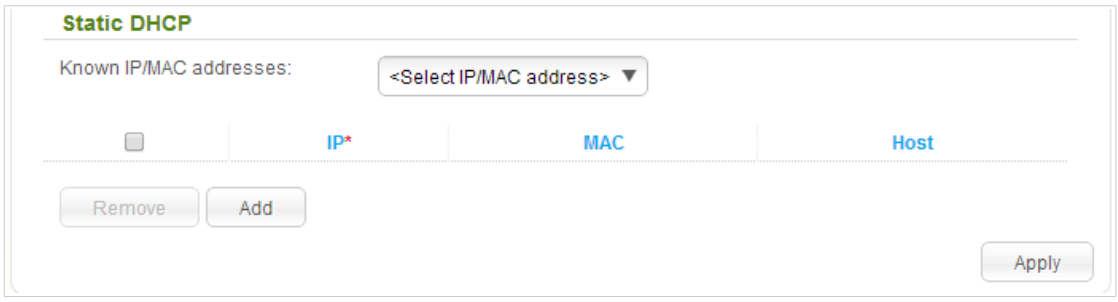


Figure 103. The section for creating MAC-IP pairs.

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.

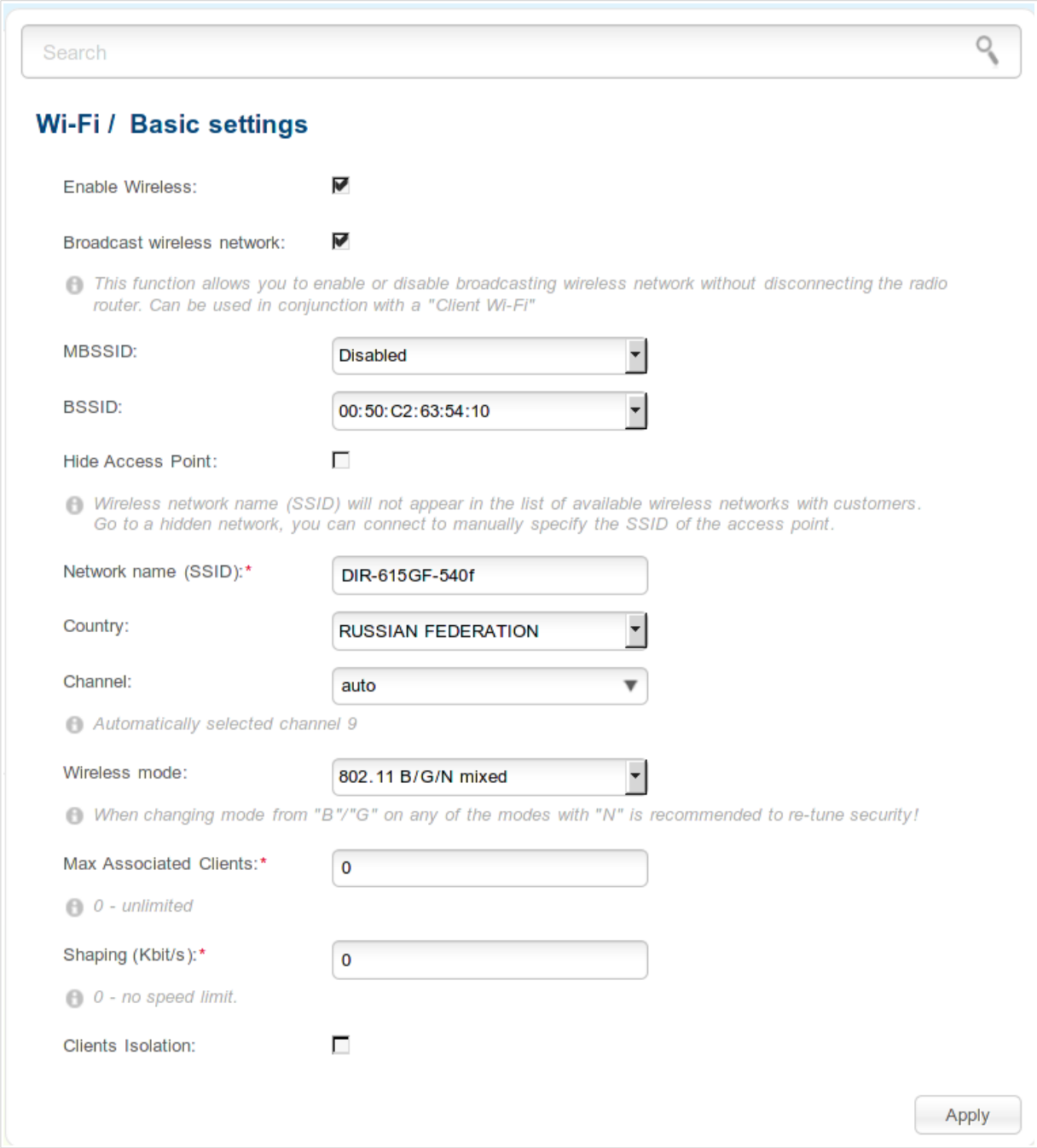


Figure 104. Basic settings of the wireless LAN.

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.
MBSSID	To split the network into several parts, select a relevant value (**2**, **3**, or **4**) from the drop-down list. By default, the wireless network is not split (the **Disabled** value is selected from the list). For every part of the WLAN you can specify a name (SSID), security settings, and rules for MAC filtering. To specify these values, select the needed part from the **BSSID** drop-down list and click the **Apply** button. Then proceed to the relevant page of the **Wi-Fi** menu section.
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. If you have split your WLAN into parts, the drop-down list contains several values. Each identifier corresponds to a single part of the WLAN.
Enable guest network	The field is available for the additional parts of the network. Select the checkbox if you want the devices connected to the additional part of the WLAN to be isolated from the devices and resources of the router's LAN.
Hide Access Point	If the checkbox is selected, other users cannot see your Wi-Fi network (or the selected part of the network). It is recommended not to select this checkbox in order to simplify initial configuration of your WLAN.
Network name (SSID)	A name for the WLAN (or the selected part of the network). The name can consist of 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.

Parameter	Description
Max Associated Clients	The maximum number of devices connected to the wireless network of the router (or to the selected part of the network). When the value `0` is specified, the device does not limit the number of connected clients.
Shaping	The maximum bandwidth (Kbit/s) of your WLAN (or the selected part of the network). Specify the needed value or leave the value specified by default (`0`) not to limit bandwidth of your WLAN.
Clients Isolation	Select the checkbox to forbid wireless clients of your WLAN (or the selected part of the network) to communicate to each other.

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

Security Settings

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

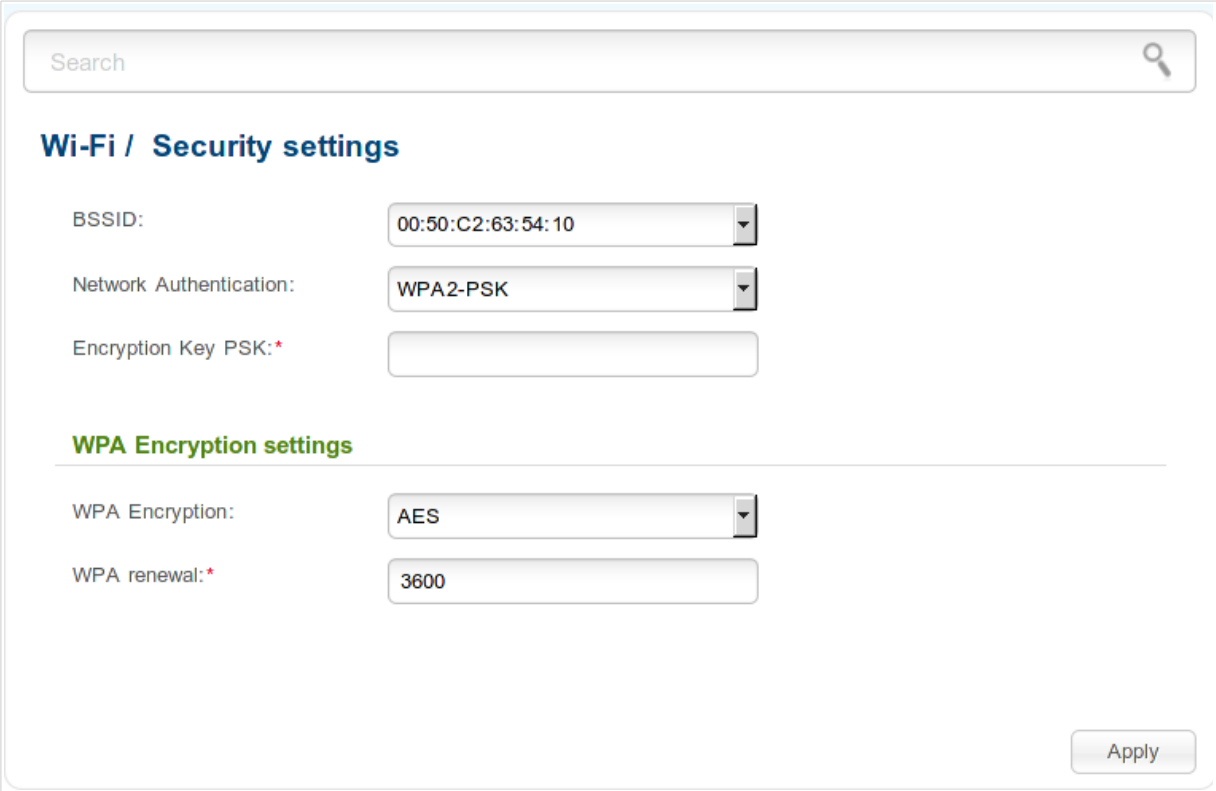


Figure 105. The default security settings.

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.

In the **BSSID** drop-down list, the unique identifier of the Wi-Fi network is displayed. If your network is split into parts, in the **BSSID** list, select the part for which the security settings should be changed.

When you split the network into parts, additional wireless networks with the **Open** network authentication type with no encryption are specified. It is strongly recommended to specify individual security settings for your network.

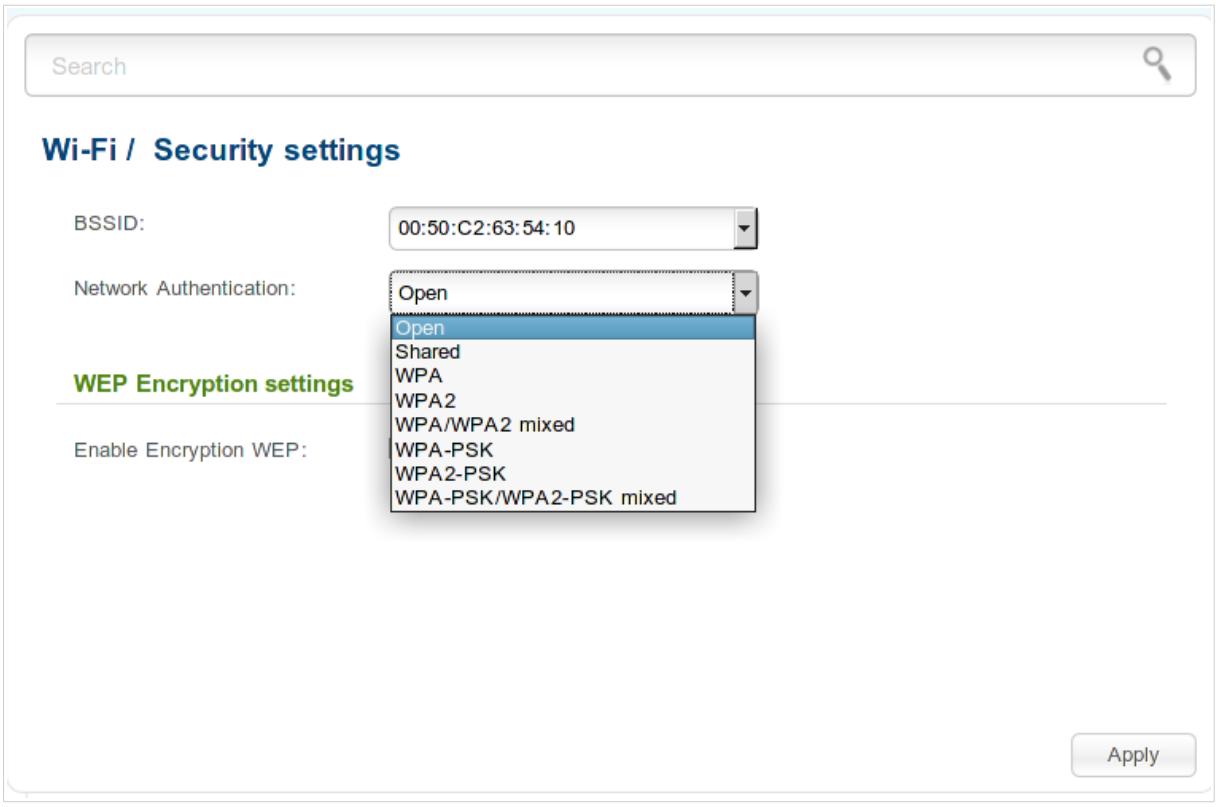


Figure 106. Network authentication types supported by the router.

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.
WPA2	WPA2-based authentication using a RADIUS server.
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	WPA-based authentication using a PSK.
WPA2-PSK	WPA2-based authentication using a PSK.

Authentication type	Description
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):

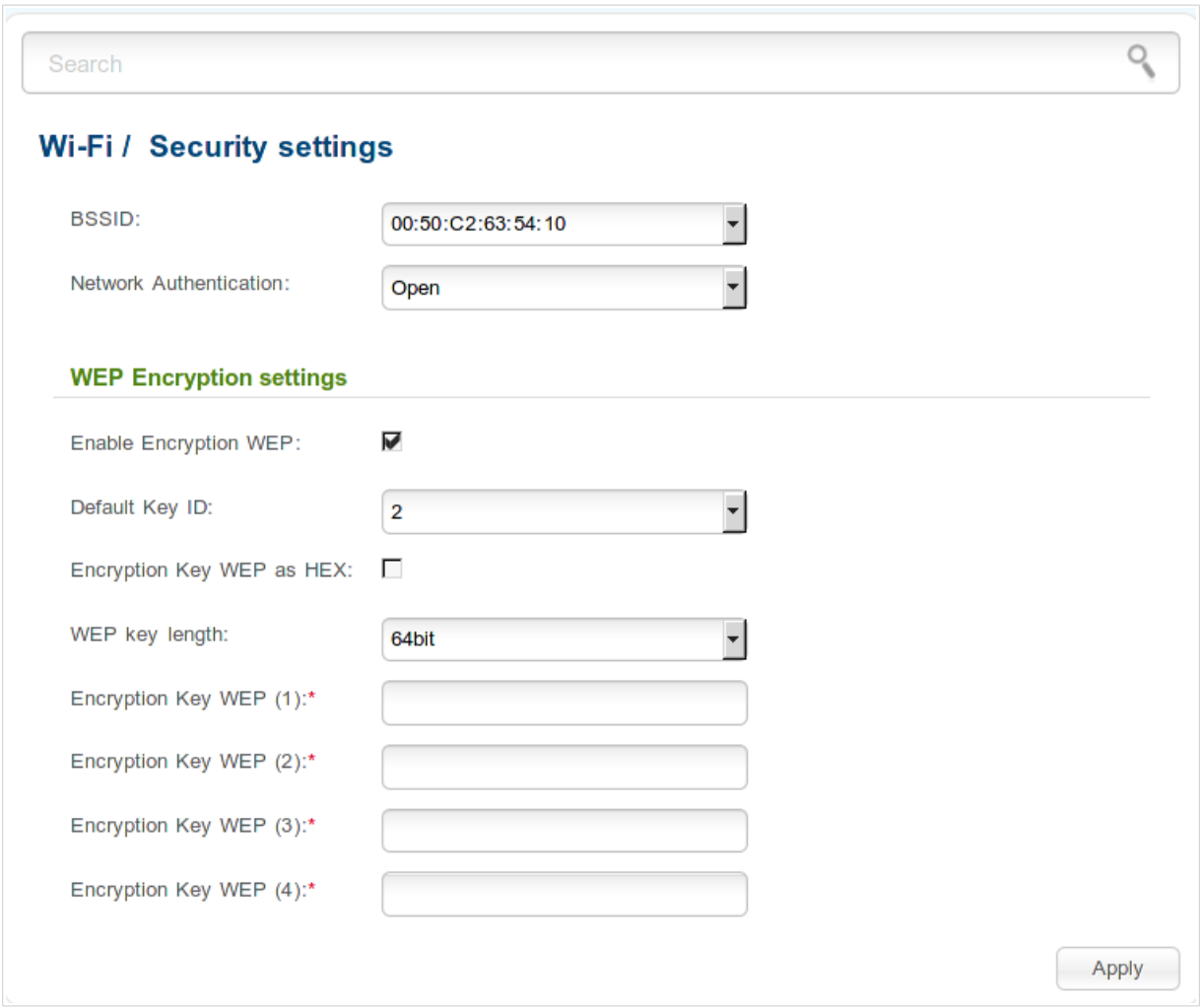


*Figure 107. The **Open** value is selected from the **Network Authentication** drop-down list.*

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:

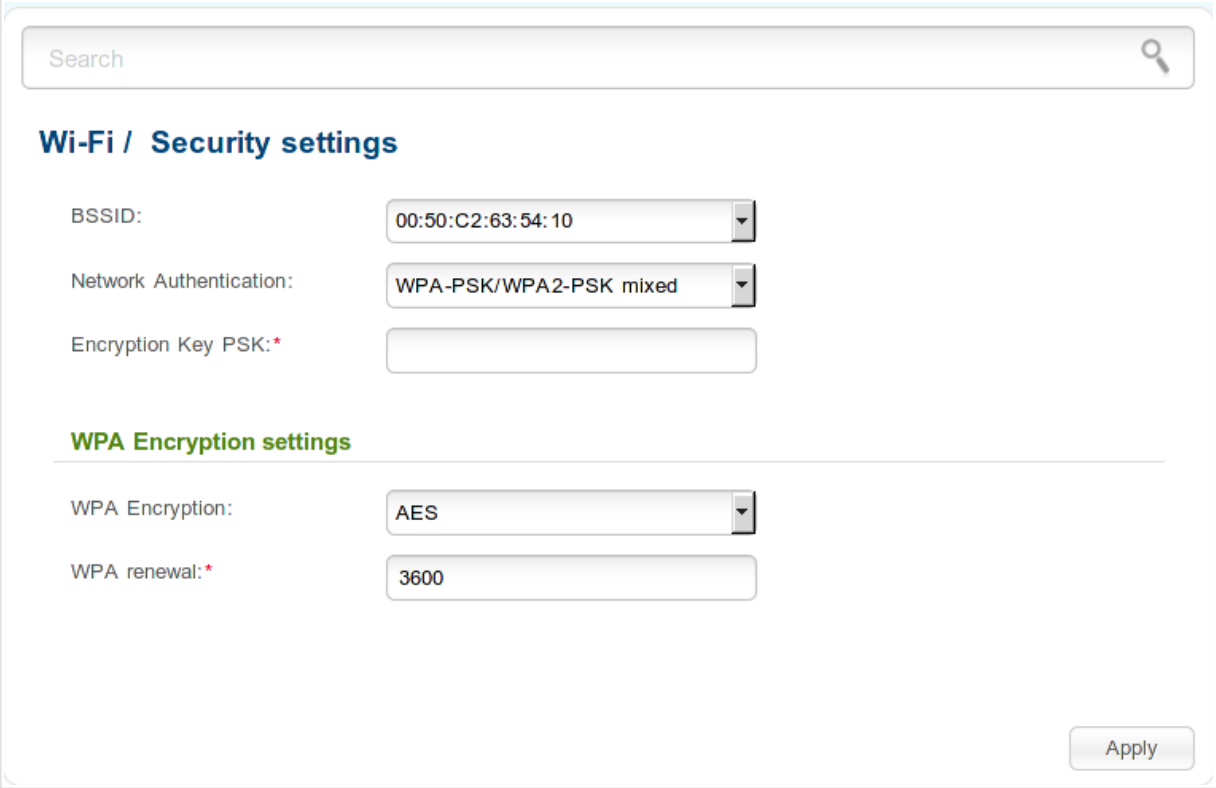


*Figure 108. The **WPA-PSK/WPA2-PSK mixed** value is selected from the **Network Authentication** drop-down list.*

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**.
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:

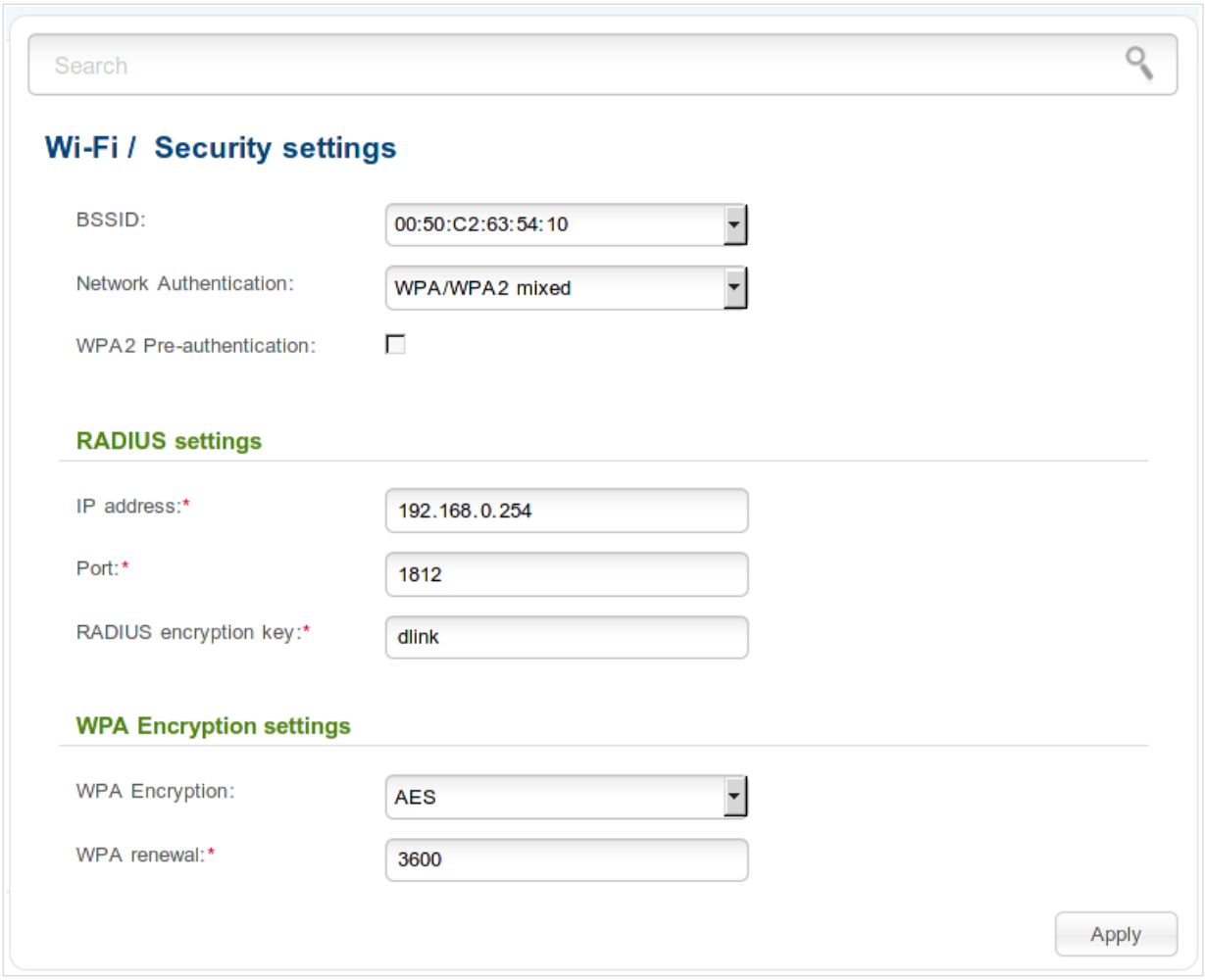


*Figure 109. The **WPA/WPA2 mixed** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
WPA2 Pre-authentication	The checkbox activating preliminary authentication (displayed only for the **WPA2** and **WPA/WPA2 mixed** authentication types).
RADIUS settings	
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 settings	
WPA Encryption	An encryption method: **TKIP**, **AES**, or **TKIP+AES**.

Parameter	Description
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 the **Wi-Fi / MAC Filter** page, 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.

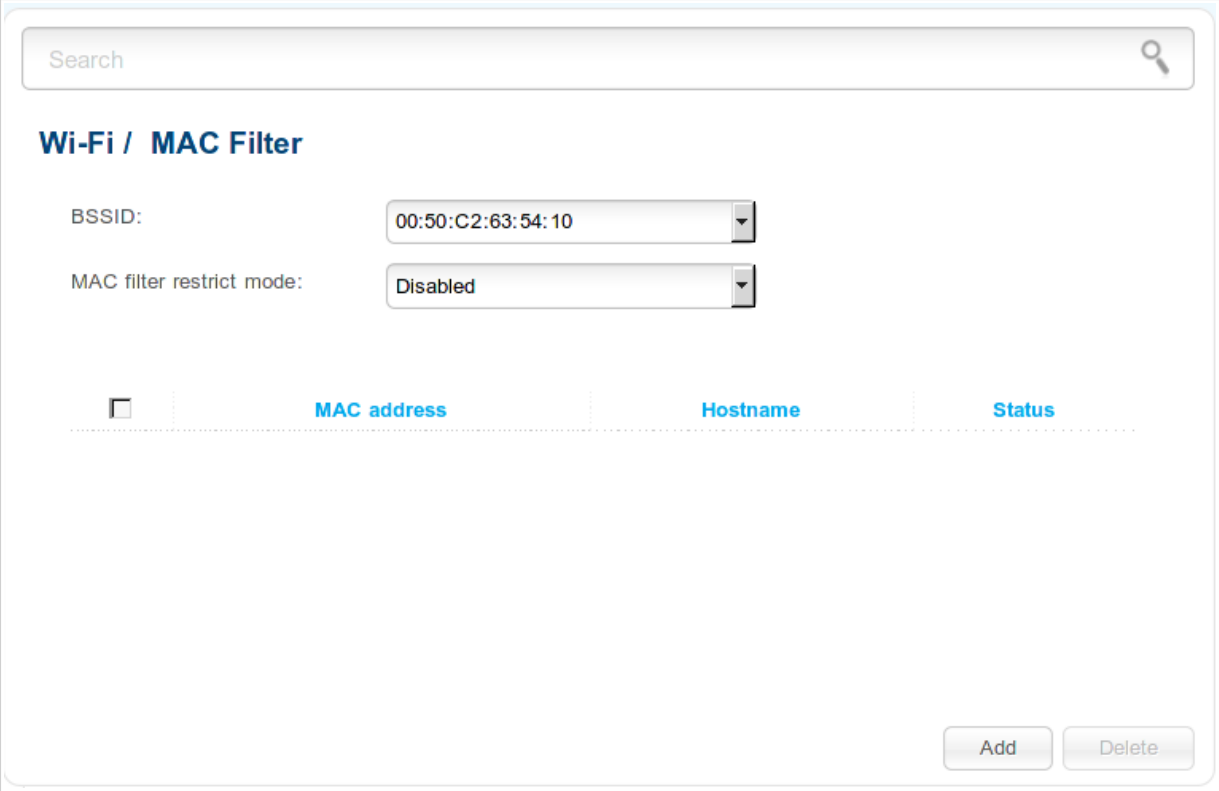


Figure 110. The page for configuring the MAC filter for the wireless network.

In the **BSSID** drop-down list, the unique identifier of the Wi-Fi network is displayed. If your network is split into parts, in the **BSSID** list, select the part for which MAC filter should be configured.

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** page).

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

To close your wireless network for the devices which MAC addresses are specified on this page, select the **Deny** value from the **MAC filter restrict mode** drop-down list.

Click the **Add** button to specify a MAC address to which the selected filtering mode will be applied.

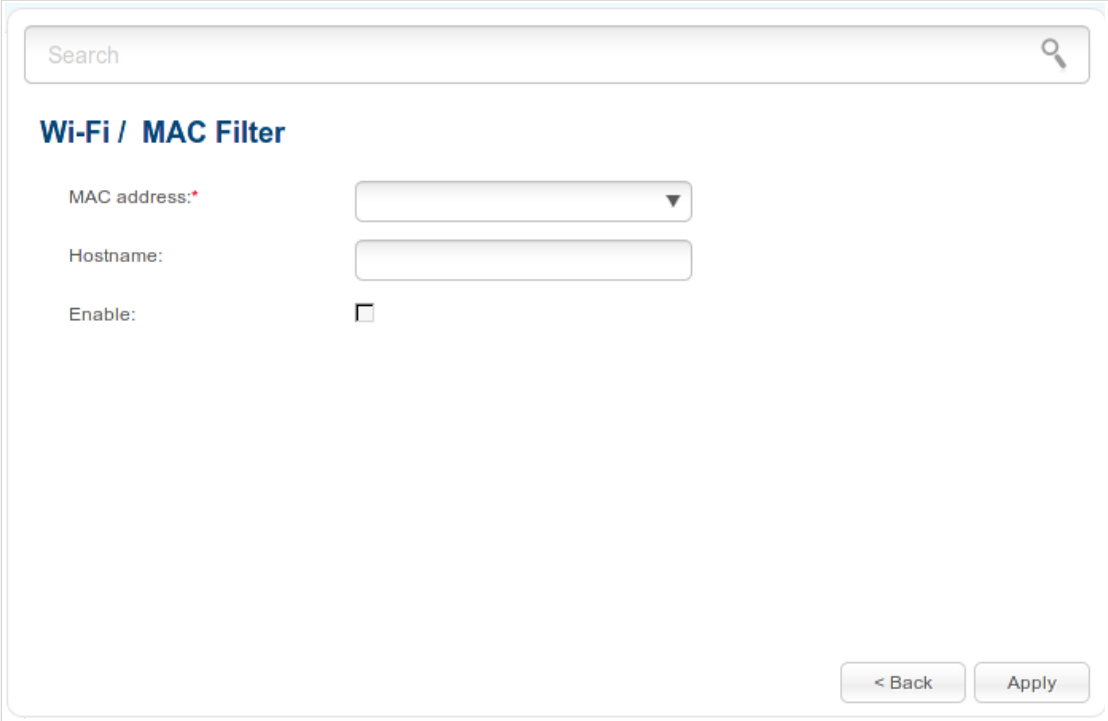


Figure 111. The page for adding a MAC address.

Parameter	Description
MAC address	In the field, enter the MAC address to which the selected filtering mode will be applied. 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).
Hostname	The name of the device for easier identification. You can specify any name.
Enable	Select the checkbox to enable the selected filtering mode of the device.

When you have configured the parameters, 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.

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.

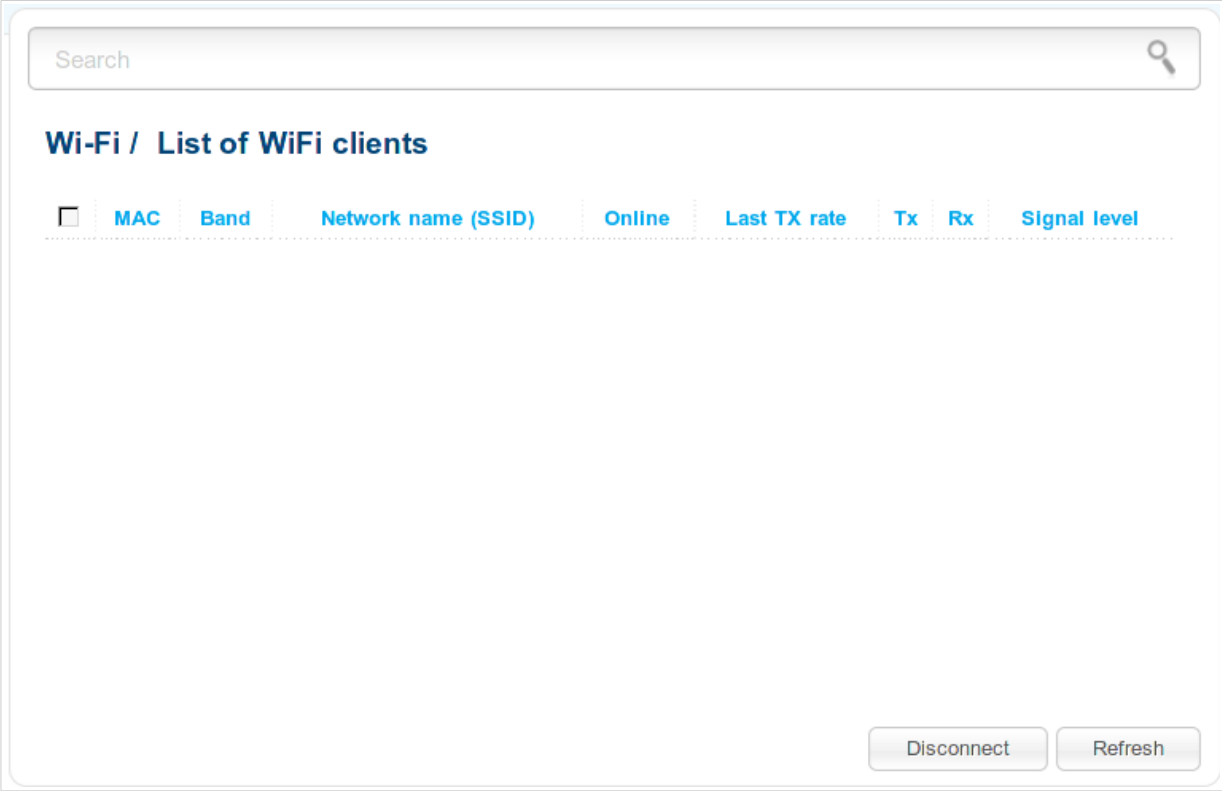


Figure 112. The list of the wireless clients.

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 pages of the **Wi-Fi / WPS** section, 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.

! If the router's WLAN is split into parts (the value **2**, **3**, or **4** is selected from the **MBSSID** drop-down list on the **Wi-Fi / Basic settings** page), the WPS function can be used only for the first part of the WLAN (the first value from the **BSSID** drop-down list).

! 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.

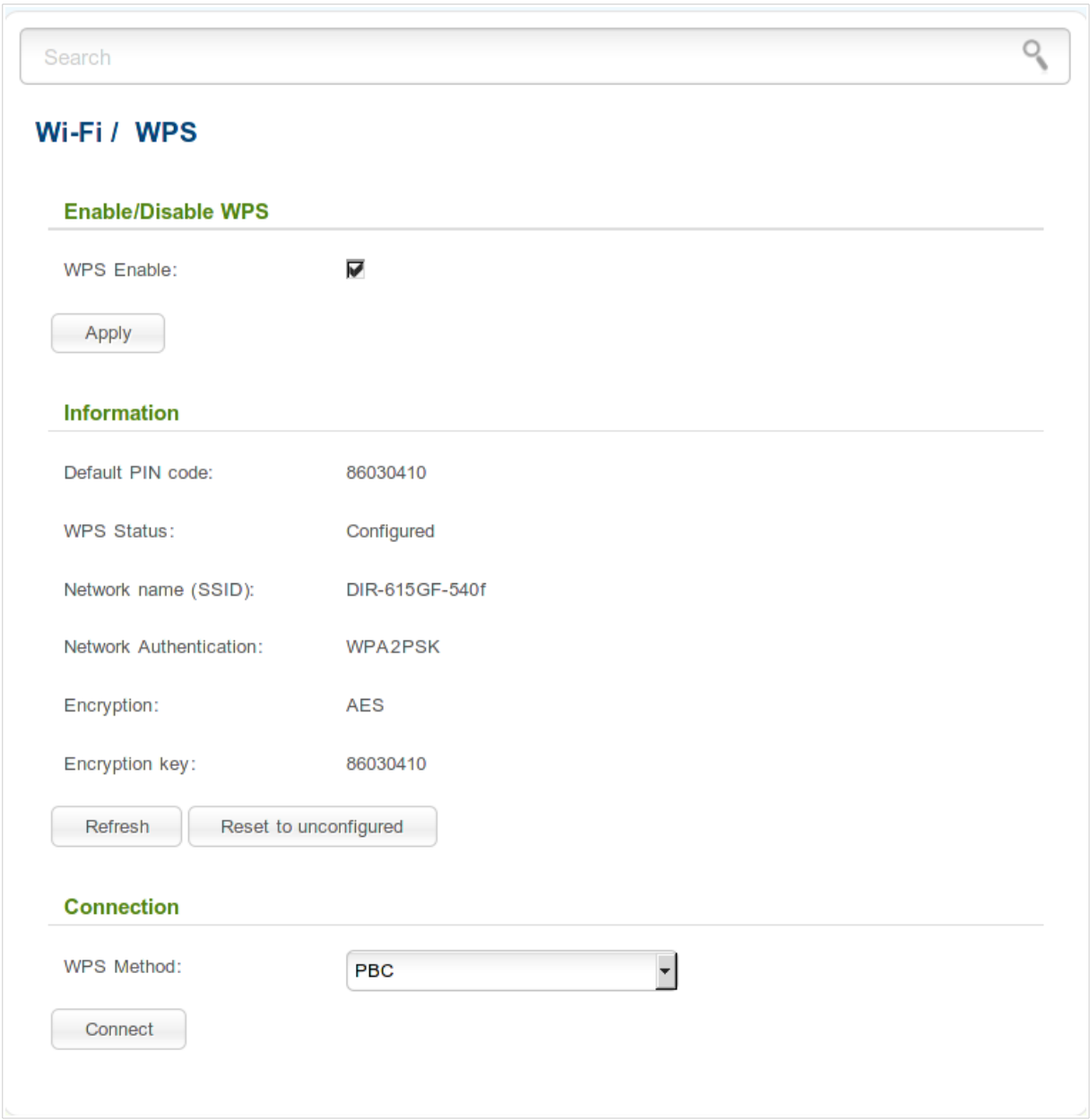


Figure 113. The page for configuring the WPS function.

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 Network name (SSID) and the encryption key will be configured automatically, the network authentication type will be changed to WPA2-PSK).
Network name (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!

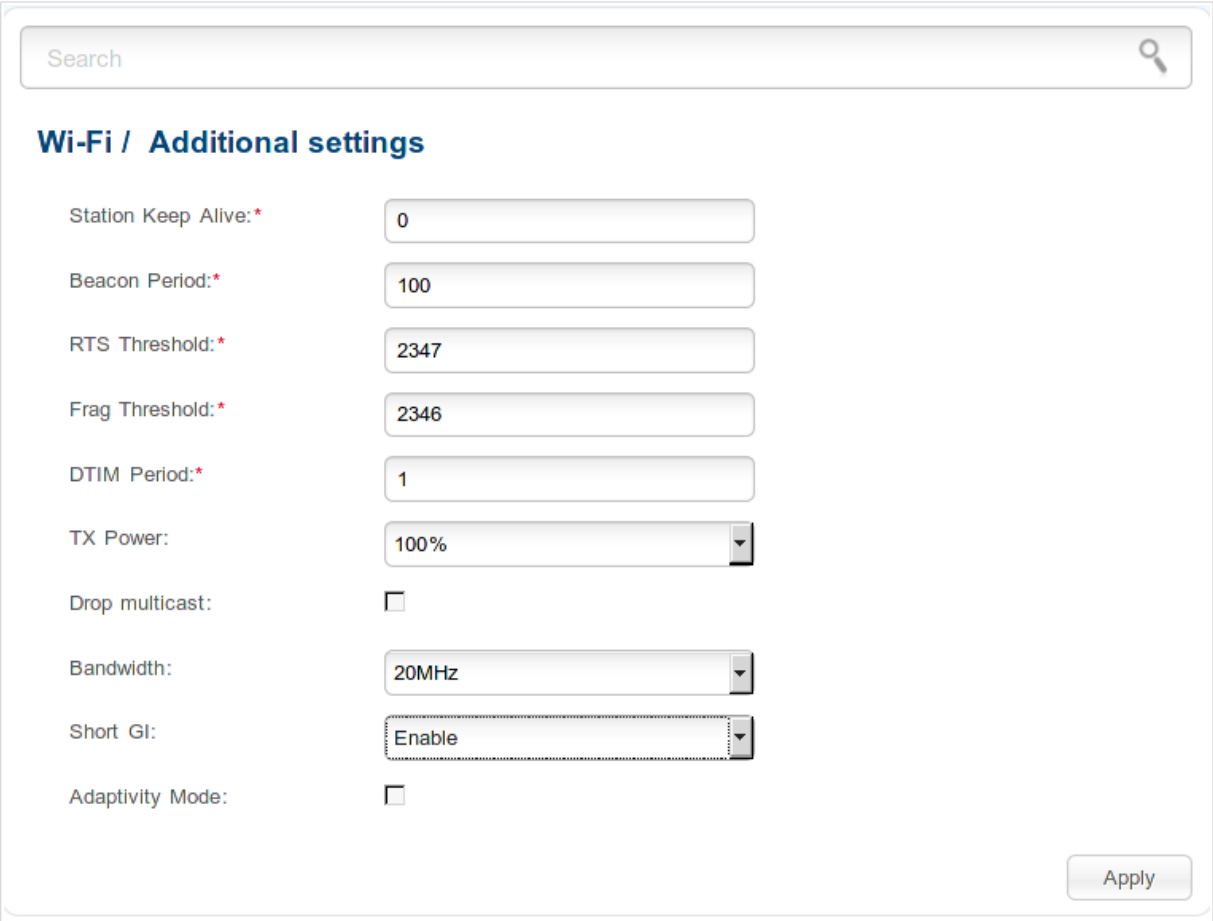


Figure 114. Additional settings of the WLAN.

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.

Parameter	Description
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.
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.

Smart Adjustment of Wi-Fi Clients

Smart adjustment of Wi-Fi clients is designed for wireless networks based on several access points or routers. If the function is enabled for all access points (routers) which establish a wireless network, then wireless clients will always connect to the device with the highest signal level.

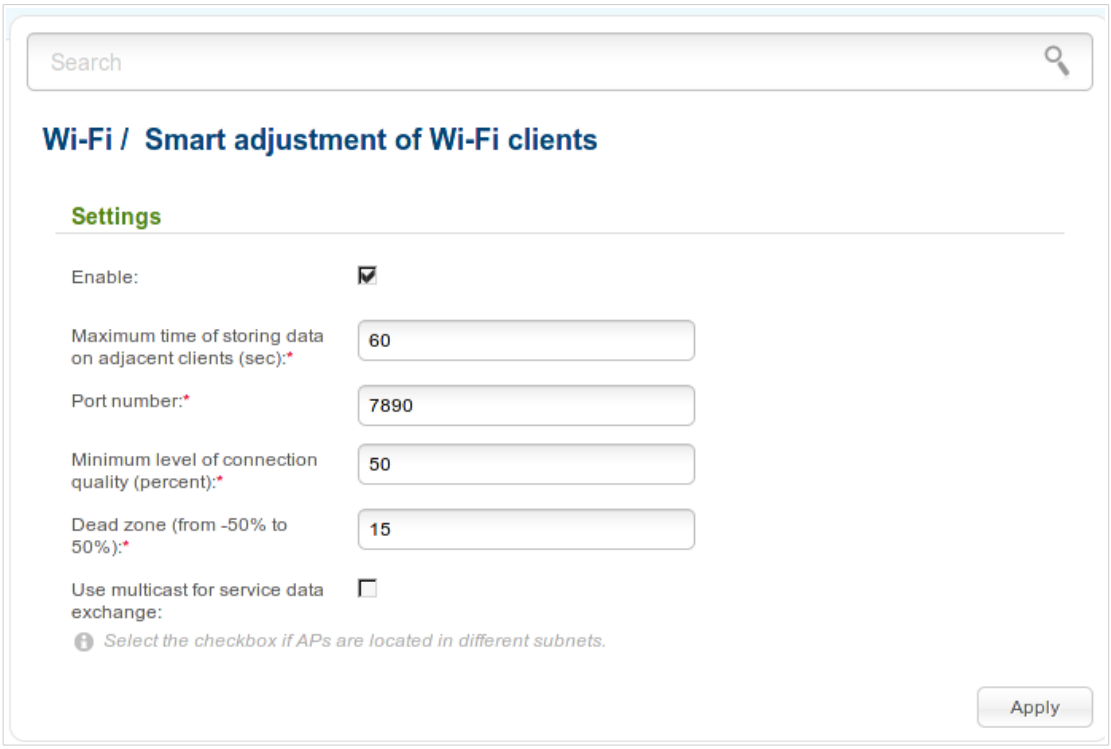


*Figure 115. The **Wi-Fi / Smart adjustment of Wi-Fi clients** page.*

To enable the function, select the **Enable** checkbox. When the checkbox is selected, the **Settings** section is available on the page.

Parameter	Description
Maximum time of storing data on adjacent clients	The maximum time period (in seconds) during which the access point (router) stores data on the signal strength of the client located on its coverage area.
Port number	The number of the port used for data exchange between access points (routers).
Minimum level of connection quality	The threshold value of the signal strength upon which the access point (router) starts scanning other devices.

Parameter	Description
Dead zone	This parameter is used for calculation of the signal strength upon which the smart adjustment function goes off. If the signal strength provided by the device is less than the sum of the **Minimum level of connection quality** field value and the **Dead zone** field value, then the client disconnects from the access point (router) and connects to another device. You can specify the values from `-50%` to `+50%`.
Use multicast for service data exchange	Select the checkbox in order to use multicast traffic for service data exchange between access points (routers). This setting is needed if the devices which support the smart adjustment function are located in different subnets. If the checkbox is selected, the **Multicast TTL** and **Multicast group address** fields are displayed on the page. If the checkbox is not selected, broadcast traffic is used for service data exchange.
Multicast TTL	Specify the TTL (*Time to live*) parameter value. The recommended value is `4`.
Multicast group address	Specify the address of the multicast group (from the subnet 239.255.0.0/16).

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

To disable the function of smart adjustment of Wi-Fi clients, deselect the **Enable** checkbox.

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.

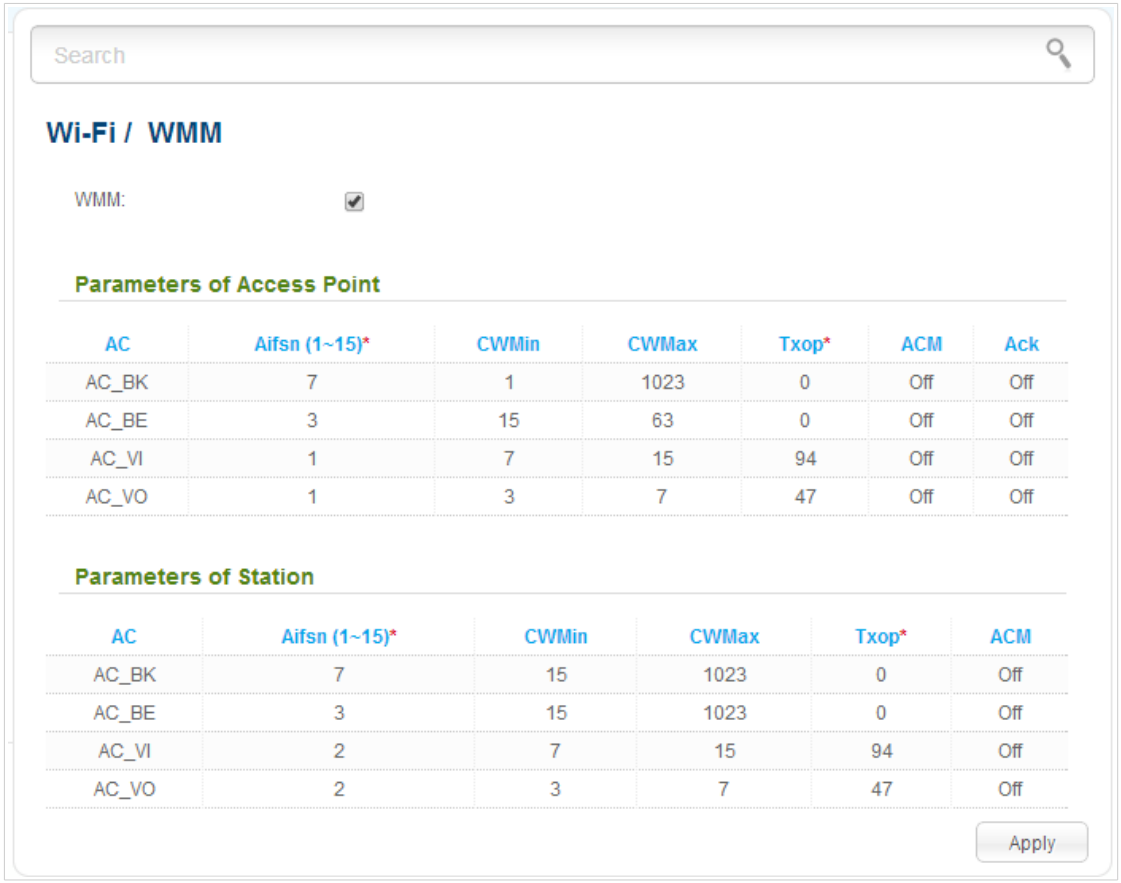


Figure 116. The page for configuring the WMM function.

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.

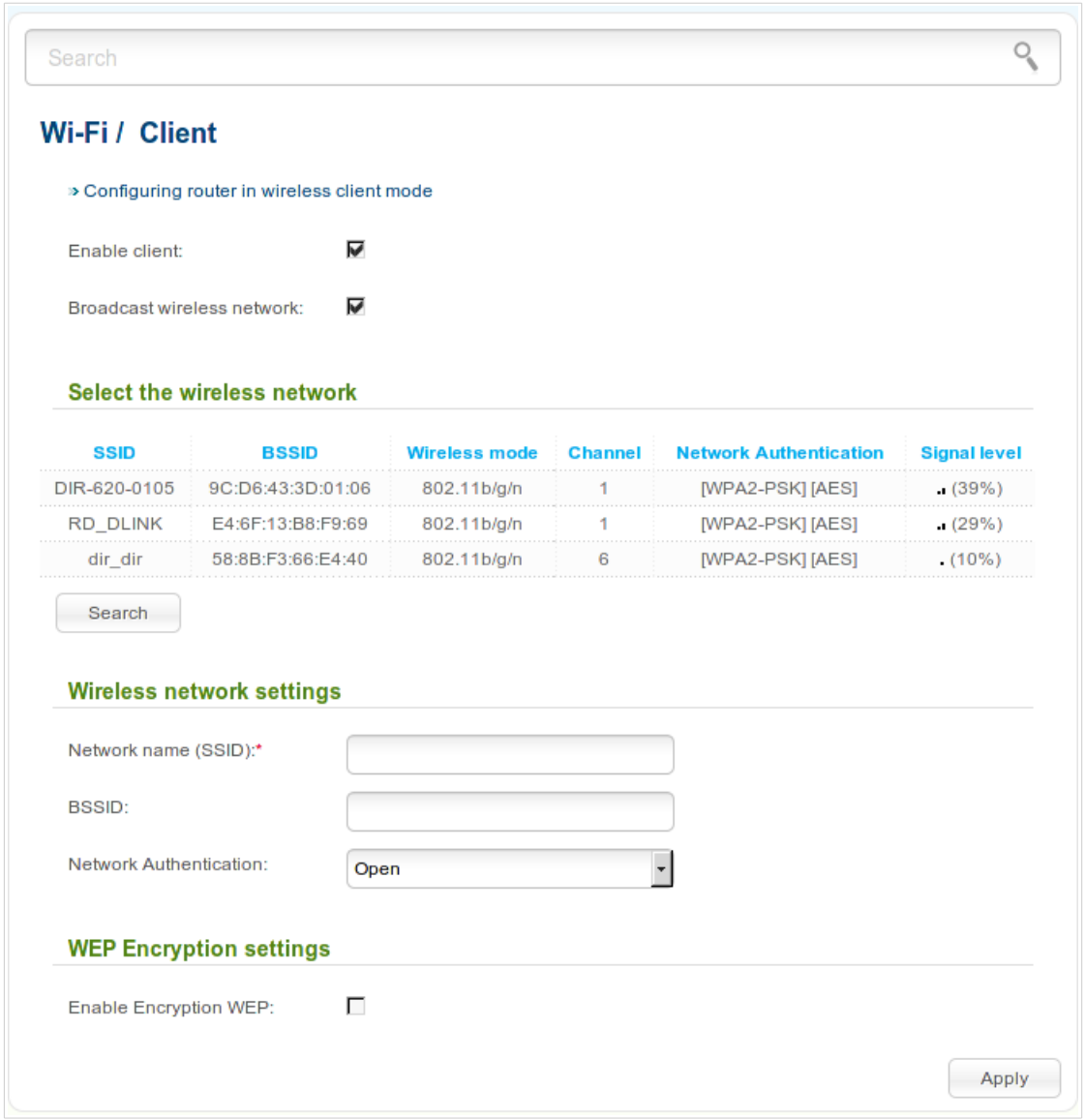


Figure 117. The page for configuring the client mode.

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	
Network name (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 **Network name (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-615 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** interface.

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 autonegotiation or manually configure speed and duplex mode for each Ethernet port of the router
- setup the rate limit for traffic transmitted from every port of the router
- configure notifications on the reason of the Internet connection failure
- configure a DDNS service
- add name servers
- define static routes
- create rules for remote access to the web-based interface
- allow the router to use IGMP, RTSP, and enable the SIP ALG, the PPPoE/PPTP/L2TP/IPSec pass through functions, the function for priority switching, and the built-in UDPXY application for the router
- configure TR-069 client
- configure VPN tunnels based on IPsec protocol.

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.

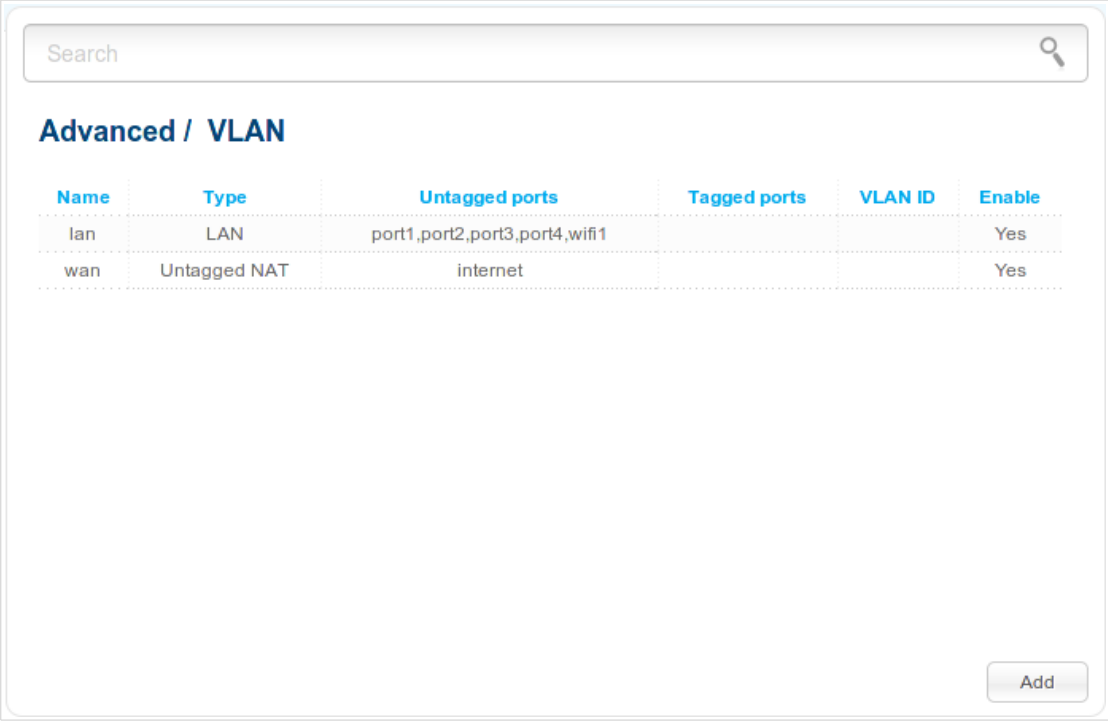


*Figure 118. The **Advanced / VLAN** page.*

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.

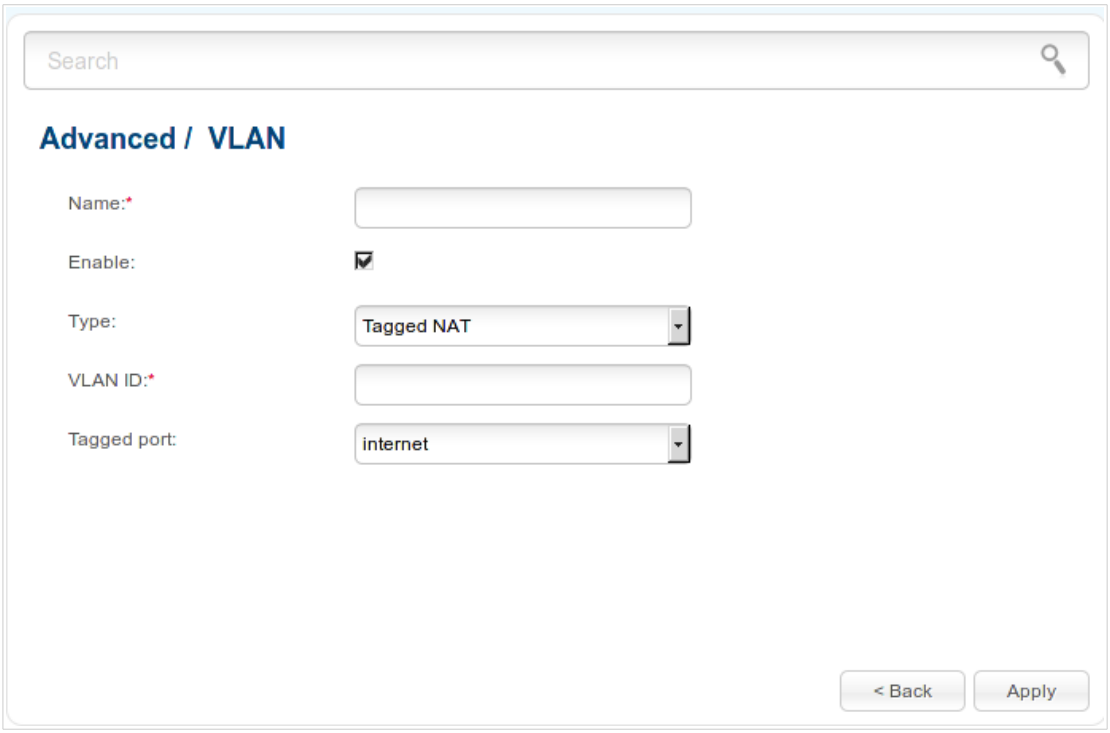


Figure 119. The page for adding a group of ports for VLAN.

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 **Tagged port** drop-down list 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.
Tagged port	From the list, select an available value to assign it to this group.

Parameter	Description
Untagged ports	The section includes the ports 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 120. 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.

Port Settings

On the **Advanced / Port settings** page, you can configure or disable autonegotiation of speed and duplex mode or manually configure speed and duplex mode for each Ethernet port of the router.

Also you can enable or disable data flow control in the autonegotiation mode. This function is used for equal load balancing in ISPs' networks. Contact your ISP to clarify if this function needs to be enabled.

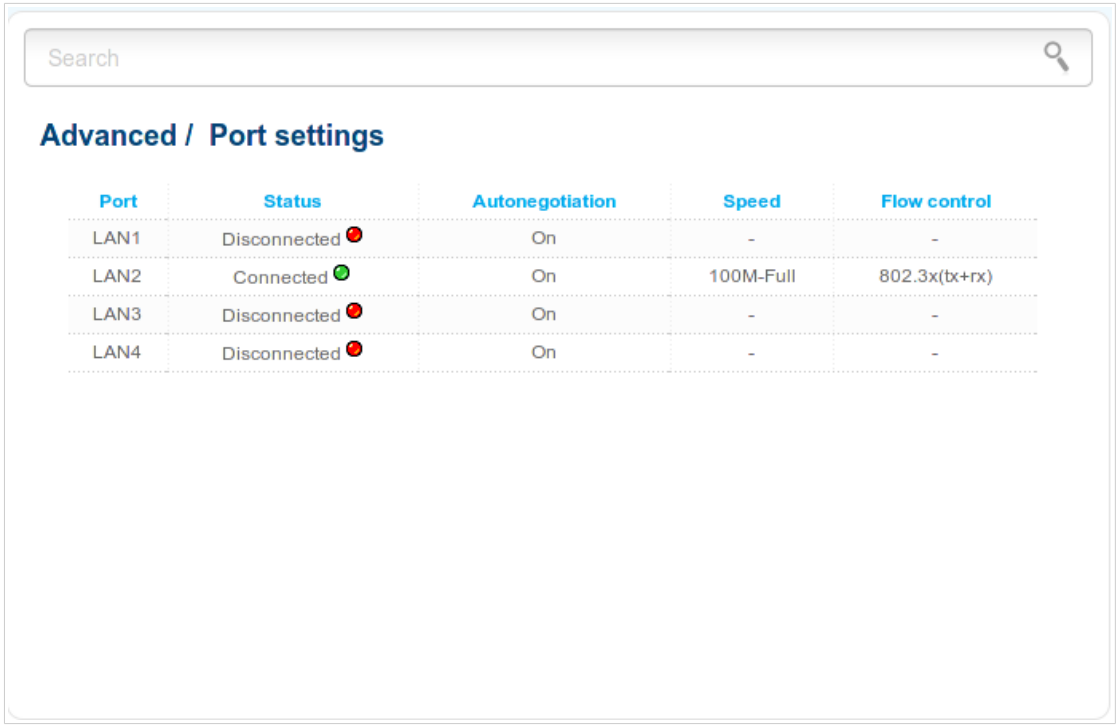


*Figure 121. The **Advanced / Port settings** page.*

By default, autonegotiation of speed, duplex mode, and data flow control is configured for each Ethernet port of the router. If you need to specify speed and duplex mode manually or change autonegotiation settings (speed, duplex mode, or enable/disable data flow control) for a port, select the relevant port in the table.

! Autonegotiation should be enabled for both devices connected to each other.

! When autonegotiation is disabled, speed and duplex mode settings for both devices connected to each other should be the same.

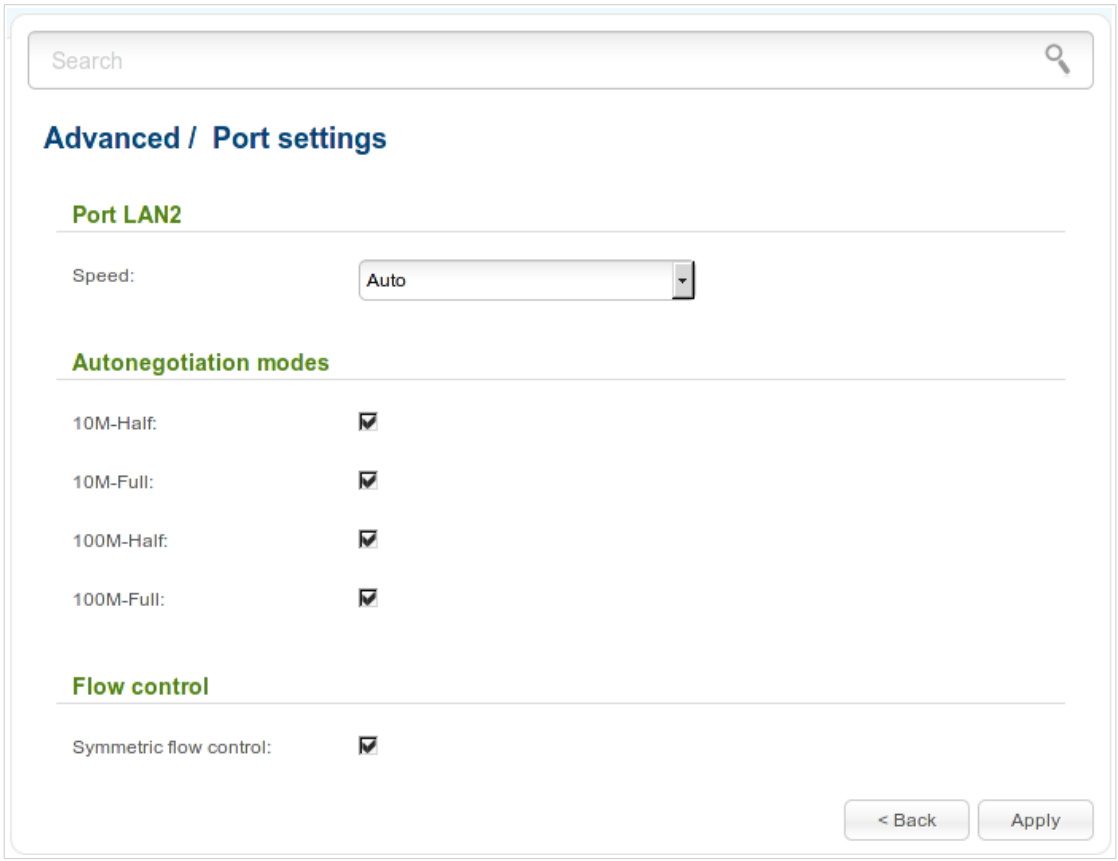


Figure 122. The page for changing the settings of the router's port.

On the opened page, specify the needed parameters:

Parameter	Description
Port LAN	
Speed	Data transfer mode. Select the **Auto** value to enable autonegotiation. When this value is selected, the **Autonegotiation modes** and **Flow control** sections are displayed. Select the **10M-Half**, **10M-Full**, **100M-Half**, or **100M-Full** value to manually configure speed and duplex mode for the selected port: • **10M-Half**: Data transfer in just one direction at a time (data can be either sent or received) at the maximum possible rate of up to 10Mbps. • **10M-Full:** Data transfer in two directions simultaneously (data can be sent and received at the same time) at the maximum possible rate of up to 10Mbps. • **100M-Half:** Data transfer in just one direction at a time (data can be either sent or received) at the maximum possible rate of up to 100Mbps.

Parameter	Description
	• **100M-Full:** Data transfer in two directions simultaneously (data can be sent and received at the same time) at the maximum possible rate of up to 100Mbps.
Autonegotiation modes	
Select checkboxes corresponding to the needed data transfer modes.	
Flow control	
Symmetric flow control	Select the checkbox to enable the flow control function for the port.

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

If in the future you need to edit the parameters of the router's port, select the port in the table. On the opened page, change the needed parameters and click the **Apply** button.

Bandwidth Control

On the **Advanced / Bandwidth control** page you can setup the rate limit for traffic transmitted from every port of the router.

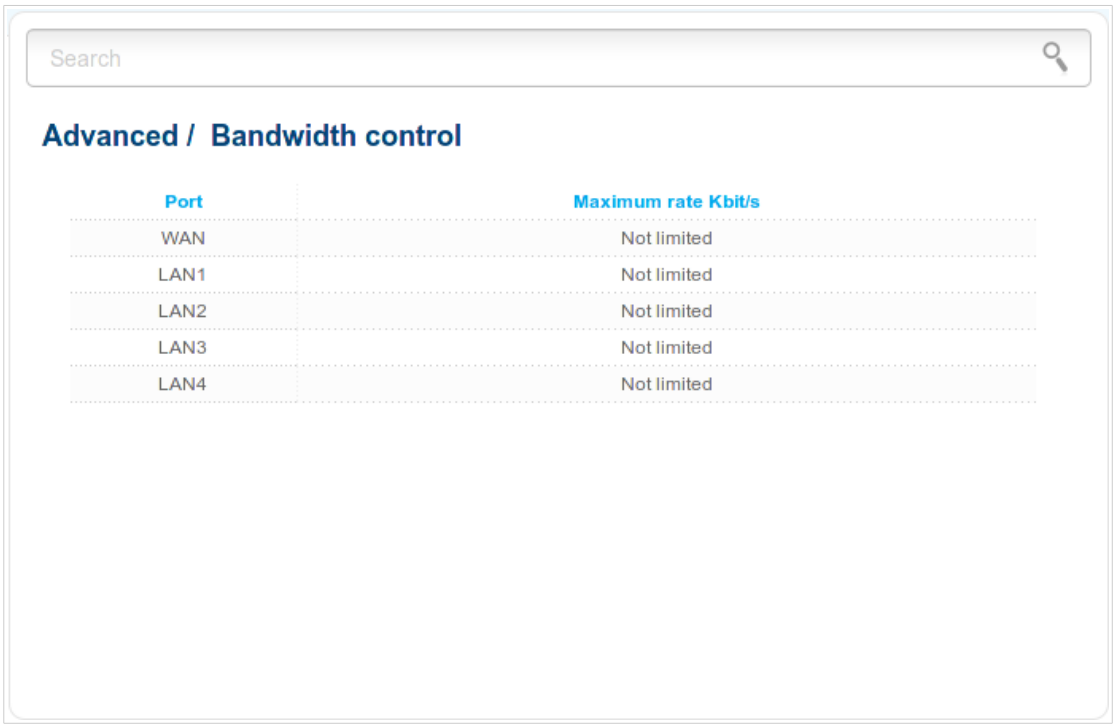


*Figure 123. The **Advanced / Bandwidth control** page.*

By default, the rate is not limited. If you want to limit the rate for traffic transmitted from a port, select the line corresponding to this port in the table.

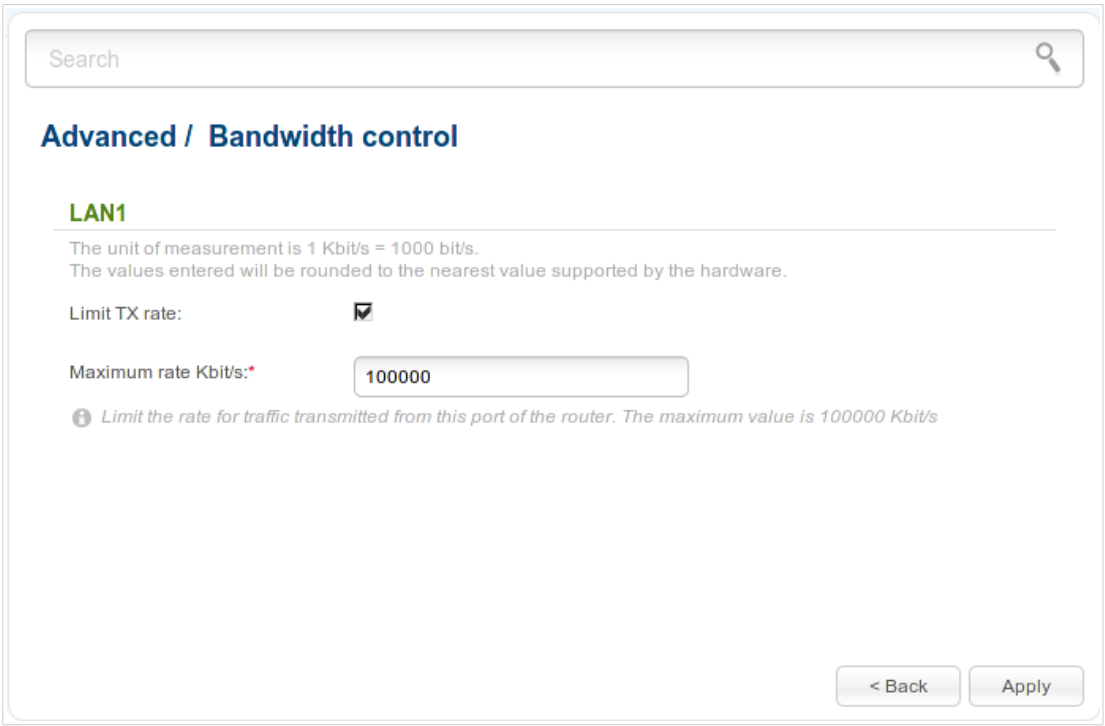


Figure 124. The page for setting up rate limit.

On the opened page, select the **Limit TX rate** checkbox and enter the maximum value of the transmitted traffic rate for this port in the **Maximum rate** field. Then click the **Apply** button.

If you want to remove the rate limit for this port, deselect the **Limit TX rate** checkbox and click the **Apply** button.

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.

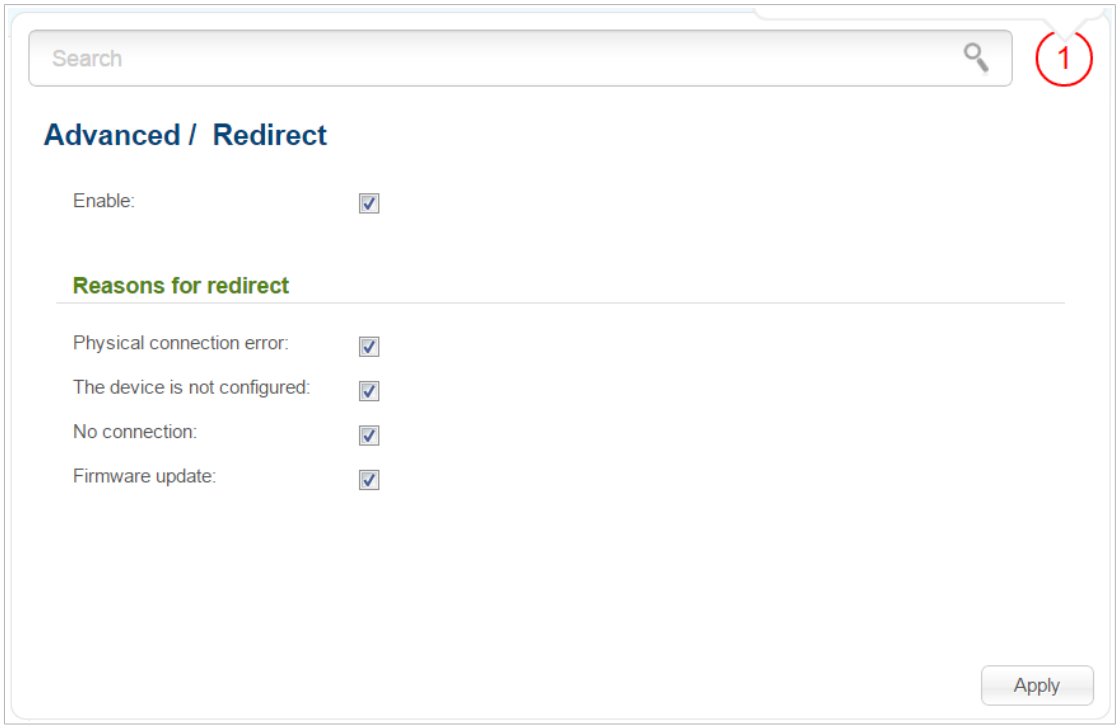


*Figure 125. The **Advanced / Redirect** page.*

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.

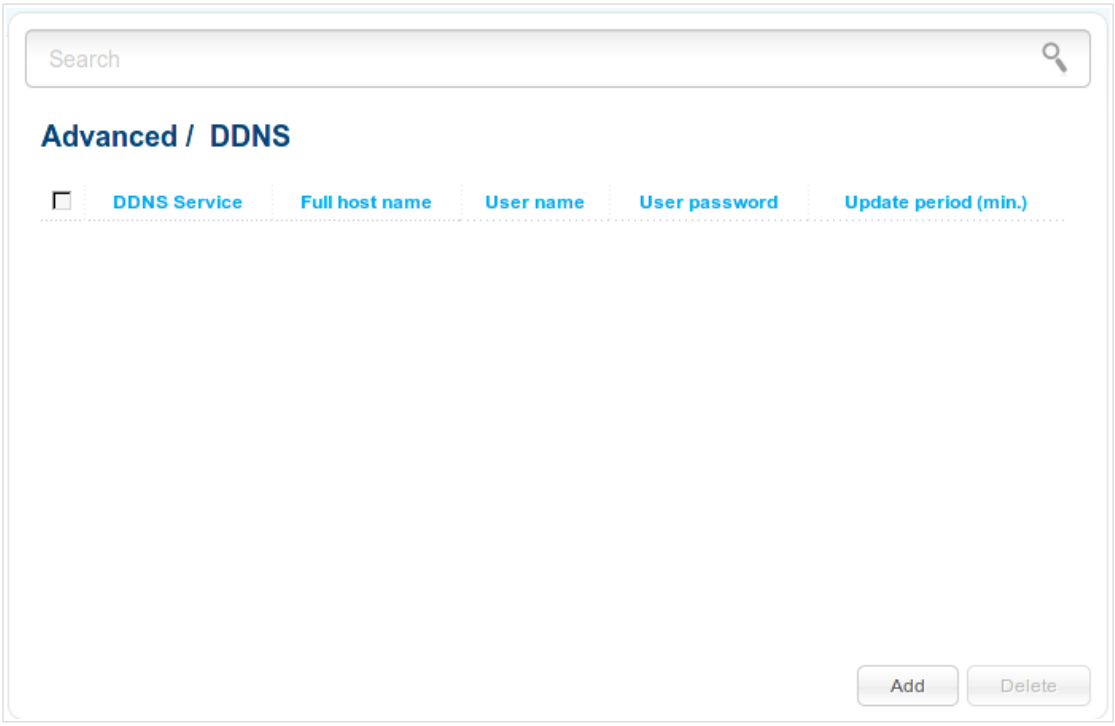


*Figure 126. The **Advanced / DDNS** page.*

To add a new DDNS service, click the **Add** button.

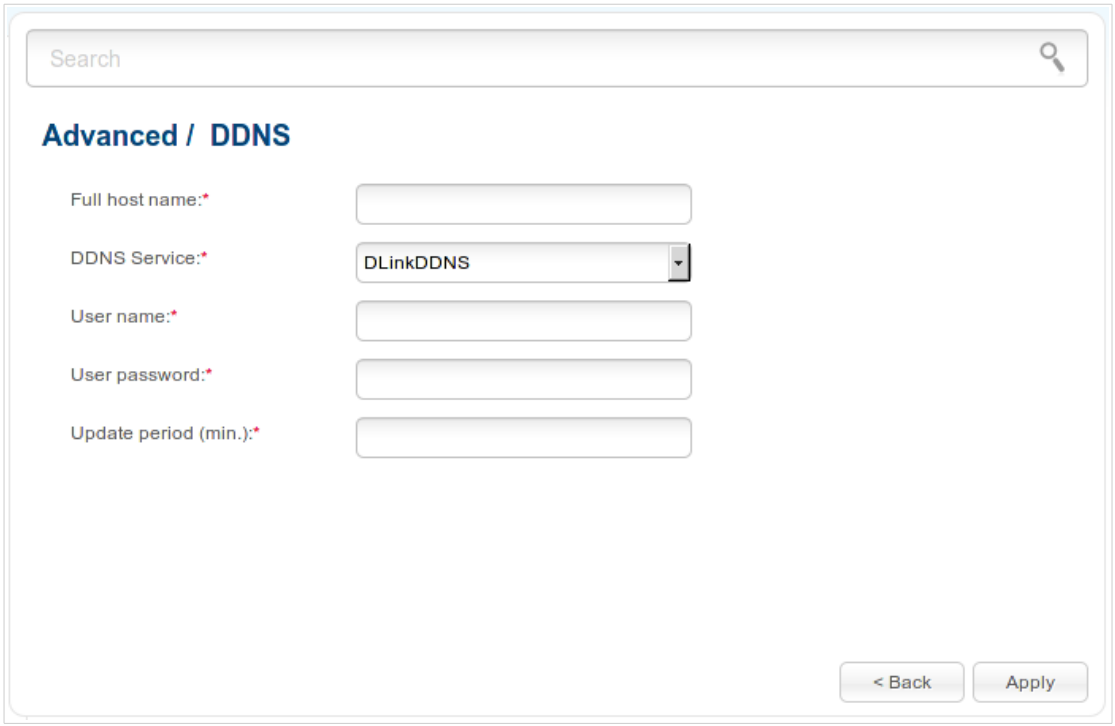


Figure 127. The page for editing the DDNS service.

You can specify the following parameters:

Parameter	Description
Full host name	The domain name registered at your DDNS provider. The field will be filled in automatically.
DDNS Service	Select a DDNS provider from the drop-down list.
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, click the relevant service link. On the opened page, change the needed parameters 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. Also you can remove a service on the editing page.

DNS

On the **Advanced / DNS** page, you can add DNS servers to the system.

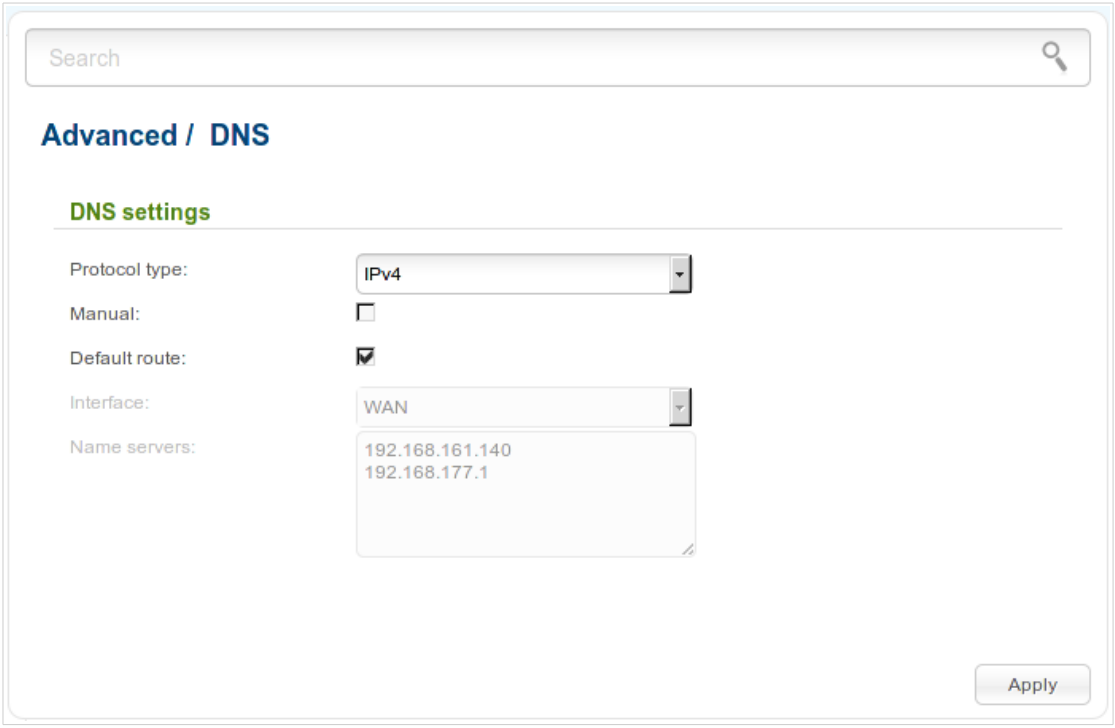


*Figure 128. The **Advanced / DNS** page.*

DNS servers are used to determine the IP address from the name of a server in Intranets or the Internet (as a rule, they are specified by an ISP or assigned by a network administrator).

You can specify the addresses of DNS servers manually on this page, or configure the router to obtain DNS servers addresses automatically from your ISP upon installing a connection.

! When you use the built-in DHCP server, the network parameters (including DNS servers) are distributed to clients automatically.

From the **Protocol type** drop-down list, select an IP version for which DNS servers should be configured.

If you want to configure automatic obtainment of DNS servers addresses, deselect the **Manual** checkbox, select a WAN connection which will be used to obtain addresses of DNS servers automatically from the **Interface** drop-down list or select the **Default route** checkbox, so that the router could use the connection set as the default gateway (on the **Net / WAN** page) to obtain DNS server addresses, and click the **Apply** button.

If you want to specify the DNS server manually, select the **Manual** checkbox and enter a DNS server address in the **Name servers** list. To specify several addresses, press the **Enter** key and enter a needed address in the next line. Then click the **Apply** button.

To remove a DNS server from the system, remove the relevant line from the **Name servers** field and click the **Apply** button.

Routing

On the **Advanced / Routing** page, you can add static routes (routes for networks that are not connected directly to the device but are available through the interfaces of the device) into the system.

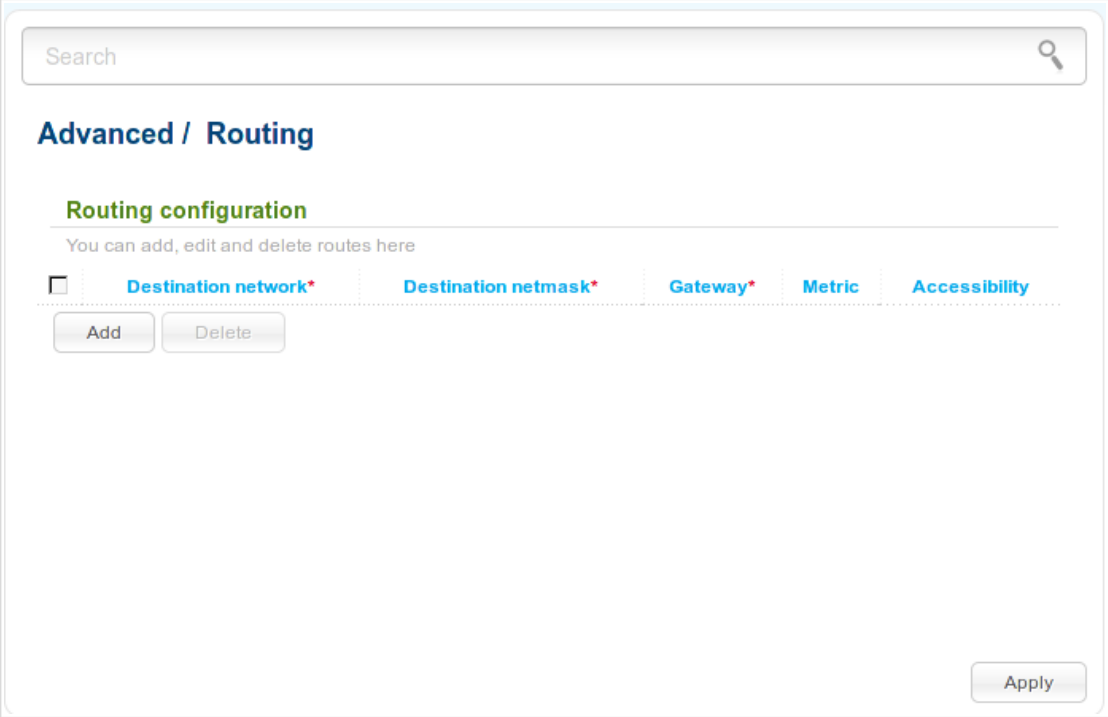


*Figure 129. The **Advanced / Routing** page.*

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 (routes for networks that are not connected directly to the device but are available through the interfaces of the device) into the system.

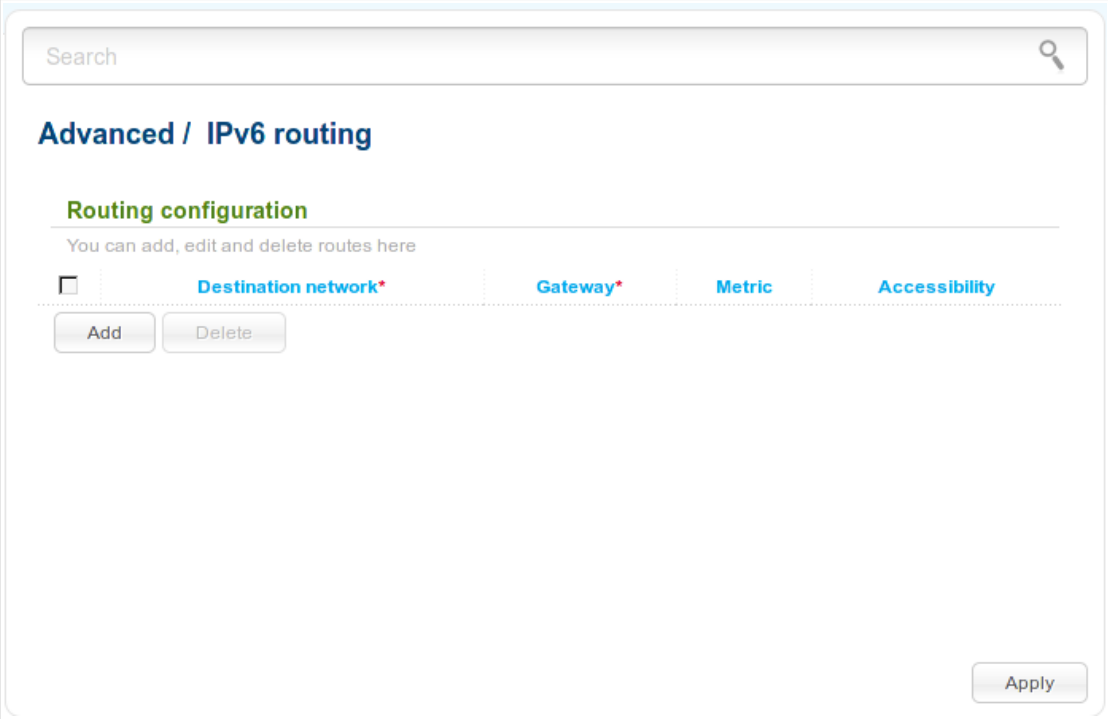


*Figure 130. The **Advanced / IPv6 routing** page.*

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 **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.

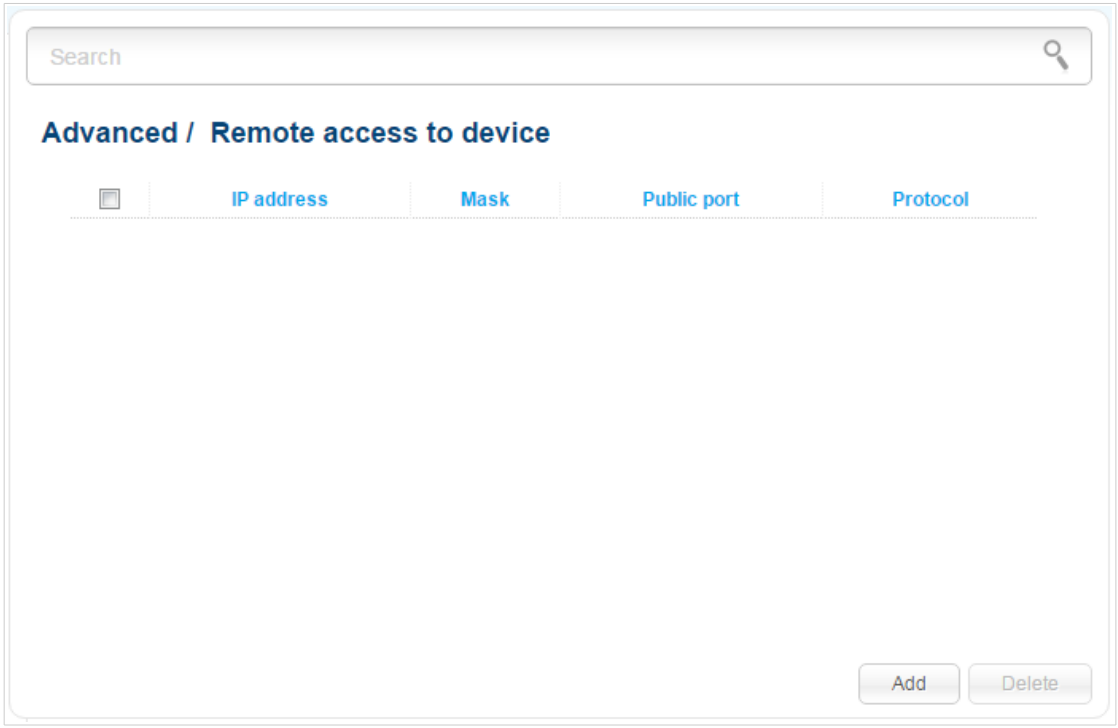


*Figure 131. The **Advanced / Remote access to device** page.*

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

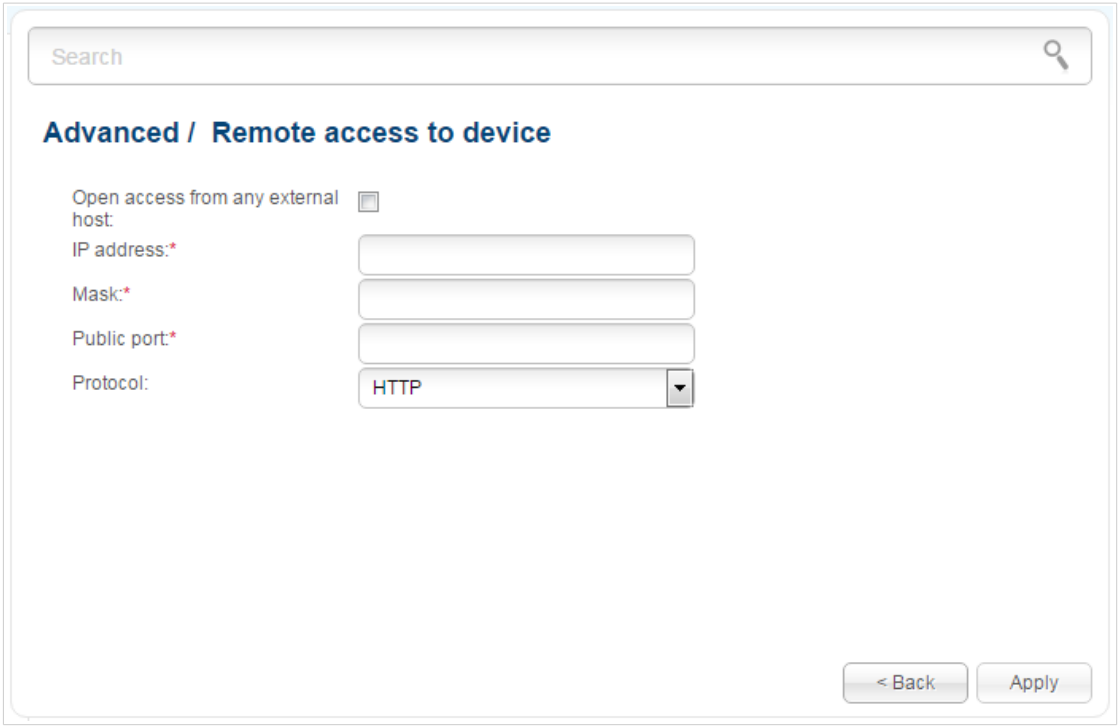


Figure 132. The page for adding a rule for remote management.

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 allow the router to use IGMP, RTSP, and enable the SIP ALG, the PPPoE/PPTP/L2TP/IPSec pass through functions, the function for priority switching, and the built-in UDPXY application 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.

The function for priority switching allows you to allocate the router's resources for online games or IPTV services.

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

The UDPXY application transforms UDP traffic into HTTP traffic. This application allows devices which cannot receive UDP streams to access stream video.

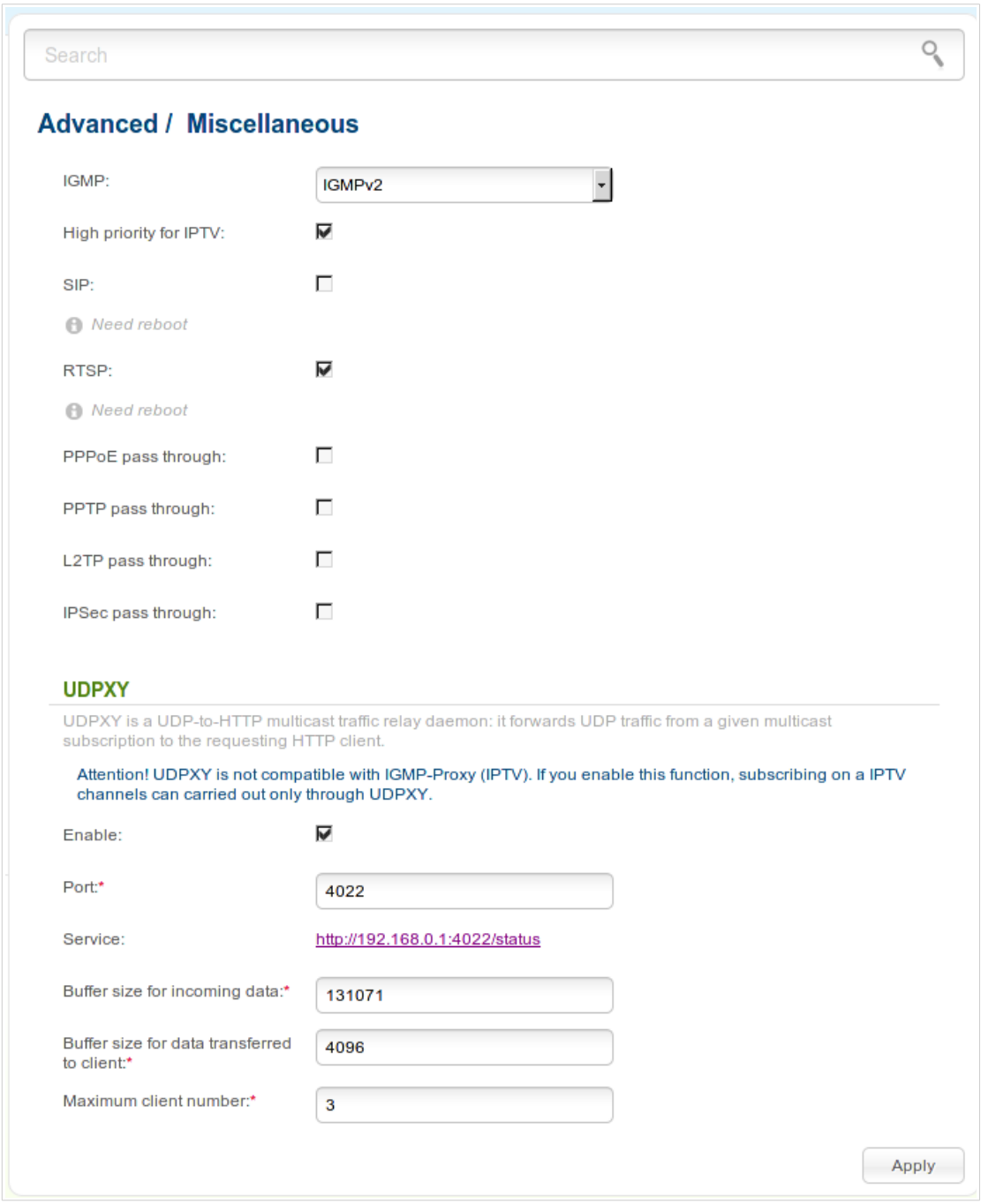


*Figure 133. The **Advanced / Miscellaneous** page.*

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.

Parameter	Description
High priority for IPTV	Select the checkbox to assign a higher priority for IPTV traffic. Deselect the checkbox so that online games traffic could have a higher priority.
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.
IPSec pass through	Select the checkbox to enable the IPSec pass through function.
UDPXY	
Enable	Select the checkbox to enable the built-in UDPXY application. When the application is enabled, the IGMP Proxy function is automatically disabled.
Port	The port of the router which the UDPXY application uses.
Buffer size for incoming data	Size of intermediate buffer for received data. By default, the minimum acceptable value is specified.
Buffer size for data transferred to client	Size of intermediate buffer for transmitted data. By default, the minimum acceptable value is specified.
Maximum client number	Maximum number of devices from the router's VLAN which will be served by the application.

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

In the **Service** field, the address of the web-based interface of the UDPXY application is displayed. To access the status page of the application, click the link.

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).

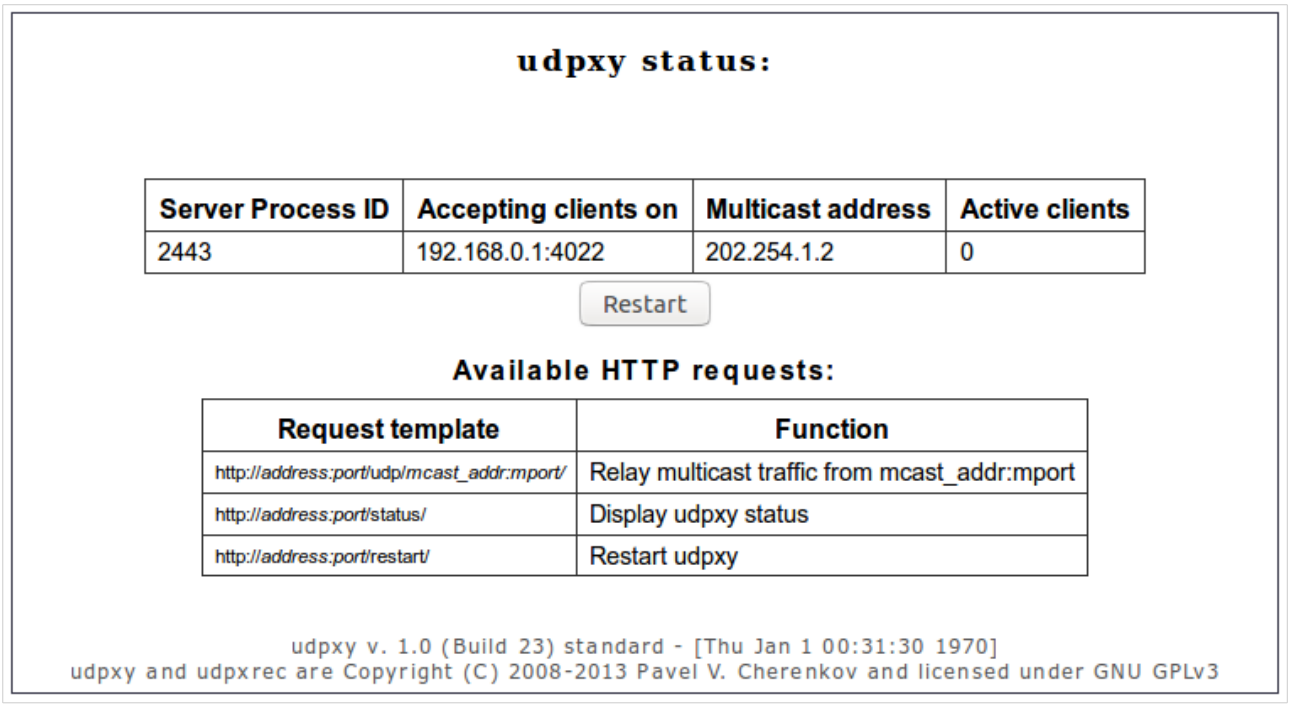


Figure 134. The *UDPXY application status page.*

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.

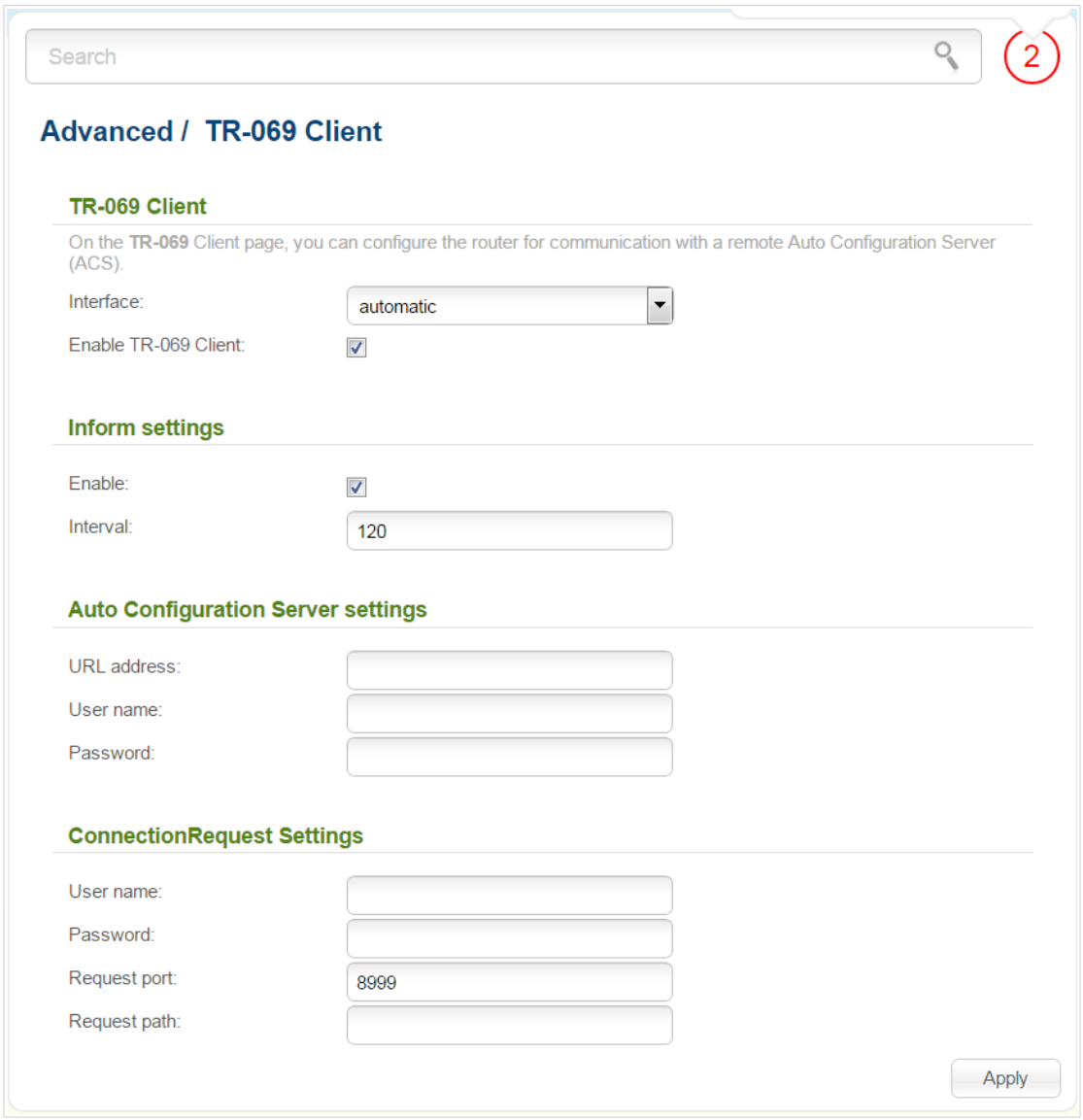


Figure 135. The page for configuring the TR-069 client.

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.

IPsec

On the **Advanced / IPsec** page, you can configure VPN tunnels based on IPsec protocol.

IPsec is a protocol suite for securing IP communications.

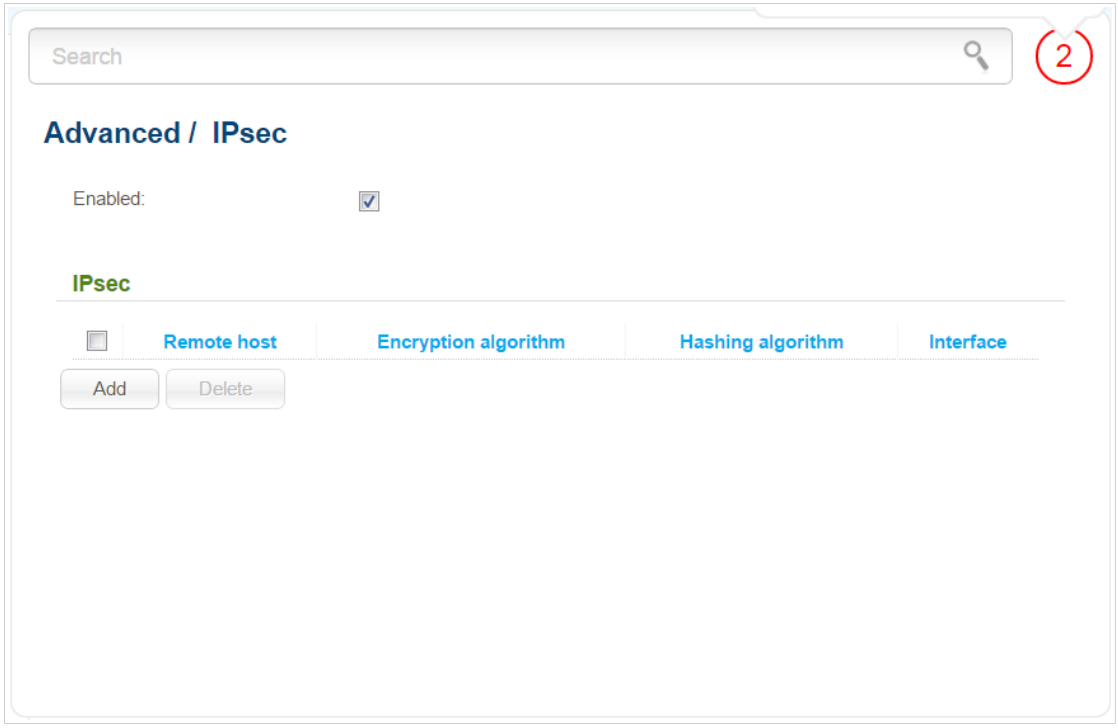


*Figure 136. The **Advanced / IPsec** page.*

To allow IPsec tunnels, select the **Enabled** checkbox. Then click the **Add** button to create a new tunnel.

Setting for both devices which establish the tunnel should be the same.

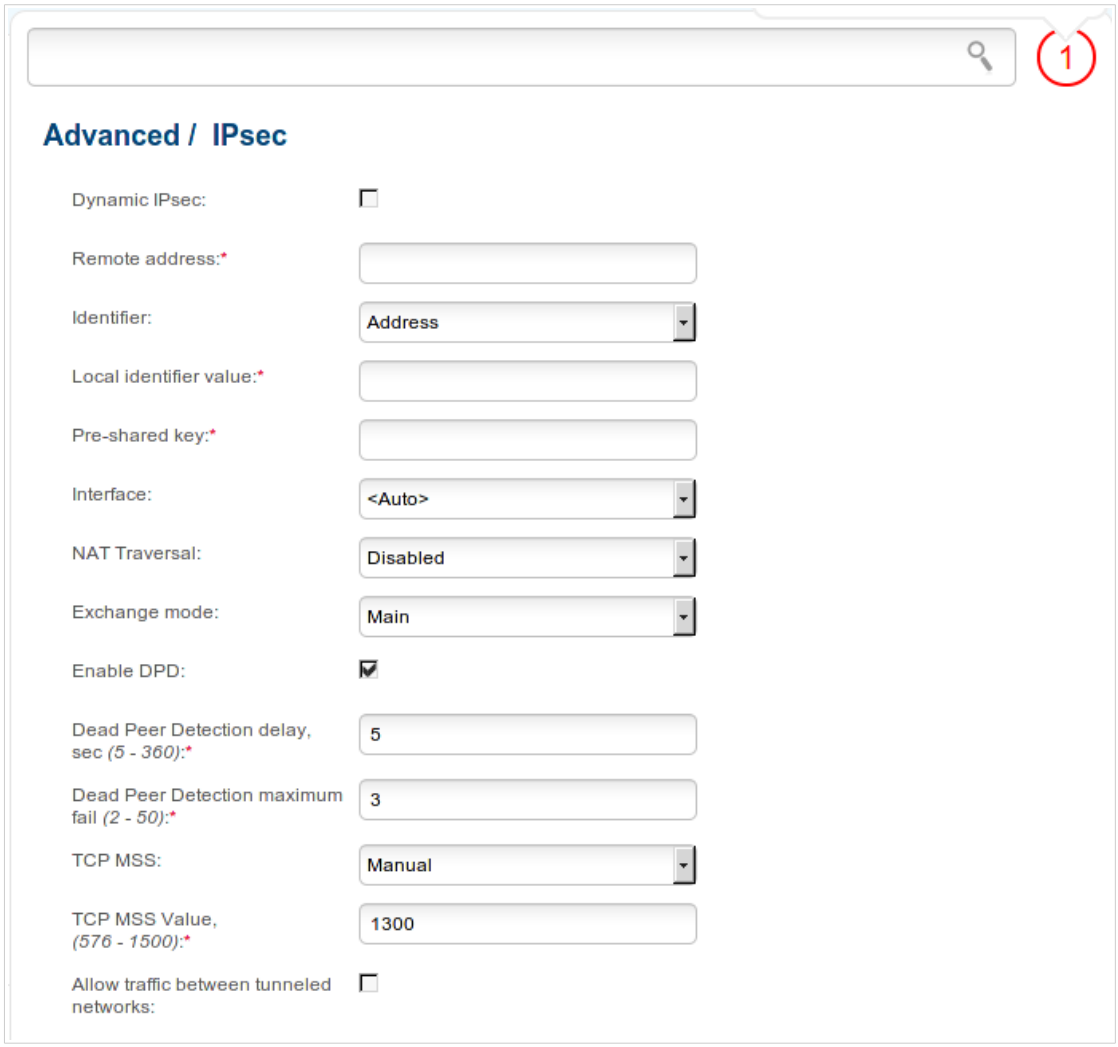


Figure 137. The page for adding an IPsec tunnel.

You can specify the following parameters:

Parameter	Description
Dynamic IPsec	Select the checkbox to allow a remote host with any public IP address to connect to the router via IPsec protocol. The checkbox can be selected for one tunnel only. Connection requests via the tunnel, for which this checkbox is selected, can be sent by a remote host only.
Remote address	A remote subnet VPN gateway IP address. The field is available, if the **Dynamic IPsec** checkbox is not selected.
Identifier	Select an identification method of a remote host from the drop-down list: **Address:** A remote host is identified by its IP address. **FQDN:** A remote host is identified by its domain name.
Local identifier value	Specify the value of the identifier.

Parameter	Description
Pre-shared key	A key for mutual authentication of the parties.
Interface	Select a WAN connection through which the tunnel will pass. When the **<auto>** value is selected, the router uses the connection set as the default gateway.
NAT Traversal	The NAT Traversal function allows VPN traffic to pass through the NAT-enabled router. Select the **Disabled** value to disable the function**.** Select the **Enabled** value to enable the function if it is supported by a remote host. Select the **Force** value to make the function be always on even if it is not supported by a remote host.
Exchange mode	Select the mode of negotiation from the drop-down list: **Main:** The mode provides the most secure communication between the parties in the course of negotiation of the authentication procedures. **Base:** The draft negotiation mode with preliminary authentication of a host. **Aggressive:** The mode provides faster operation as it skips several stages of negotiation of the authentication procedures.
Enable DPD	Select the checkbox to enable using DPD protocol for this tunnel. Such a setting allows to check the status of a remote host: if encrypted packets exchange between the router and the remote host breaks down, the router starts sending DPD messages to the remote host. If the checkbox is not selected, the **Dead Peer Detection delay** and **Dead Peer Detection maximum fail** fields are not available for editing.
Dead Peer Detection delay	A time period (in seconds) between attempts to check the status of a remote host. By default, the value **5** is specified.
Dead Peer Detection maximum fail	A number of DPD messages that were sent to check the status of a remote host and left unanswered. By default, the value **3** is specified. If a remote host does not answer the specified number of messages, the router breaks down the tunnel connection, removes the encryption keys, and tries to activate the connection.

Parameter	Description
TCP MSS	*Maximum Segment Size of a TCP packet.* This parameter influences the size of a TCP packet which will be sent from a remote host to the router. If the **Manual** value is selected, you can specify the parameter in the **TCP MSS Value** field. If the **Path MTU Discovery** value is selected, the parameter will be configured automatically.
TCP MSS Value	The maximum size (in bites) of a non-fragmented packet. The field is available for editing when the **Manual** value is selected from the **TCP MSS** drop-down list.
Allow traffic between tunneled networks	Select the checkbox to allow data exchange between subnets with which IPsec tunnels have been created.

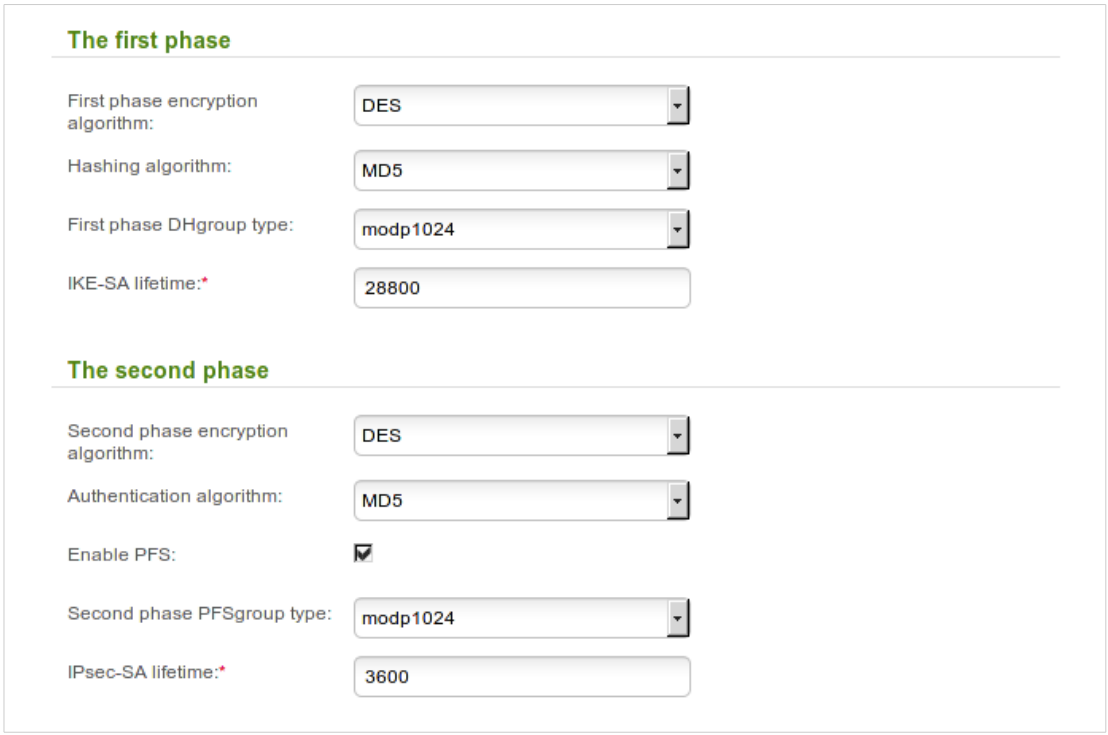


Figure 138. The page for adding an IPsec tunnel. ***The first phase*** */* ***The second phase*** *sections.*

Parameter	Description
The first phase	
First phase encryption algorithm	Select encryption algorithm from the drop-down list.
Hashing algorithm	Select hashing algorithm from the drop-down list.

Parameter	Description
First phase DHgroup type	A Diffie-Hellman key group for Phase 1. Select a value from the drop-down list.
IKE-SA lifetime	The lifetime of IKE-SA keys in seconds. After the specified period it is required to renegotiate the keys. The value specified in this field should exceed the value specified in the **IPsec-SA lifetime** field. Specify **0** if you don't want to limit the lifetime of the keys.
The second phase	
Second phase encryption algorithm	Select encryption algorithm from the drop-down list.
Authentication algorithm	Select authentication algorithm from the drop-down list.
Enable PFS	Select the checkbox to enable the PFS option (*Perfect Forward Secrecy*). If the checkbox is selected, a new encryption key exchange will be used for Phase 2. This option increases the security level of data transfer.
Second phase PFSgroup type	A Diffie-Hellman key group for Phase 2. Select a value from the drop-down list. The field is available, if the **Enable PFS** checkbox is selected.
IPsec-SA lifetime	The lifetime of IPsec-SA keys in seconds. After the specified period it is required to renegotiate the keys. Specify **0** if you don't want to limit the lifetime of the keys.

If you need to specify IP addresses of local and remote subnets for creating a tunnel, click the **Add** button in the **Tunneled networks** section.

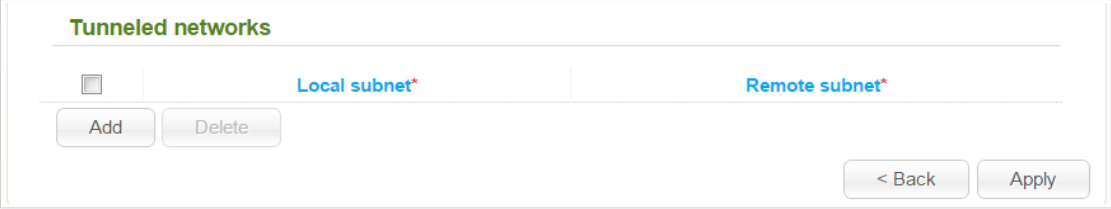


*Figure 139. The page for adding an IPsec tunnel. The **Tunneled networks** section.*

In the line displayed, you can specify the following parameters:

Parameter	Description
Local subnet	A local subnet IP address and mask.
Remote subnet	A remote subnet IP address and mask.

To edit fields in the **Tunneled networks** section, select a needed field in the relevant line of the table and change its value.

To remove IP addresses of subnets, select the checkbox located to the left of the relevant line in the table and click the **Delete** button.

Click the **Apply** button.

After clicking the **Apply** button, the page with the sections **IPsec** and **Status** opens.

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

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

In the **Status** section, the current state of an existing tunnel is displayed.

To disable VPN tunnels based on IPsec protocol, deselect the **Enabled** checkbox.

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.

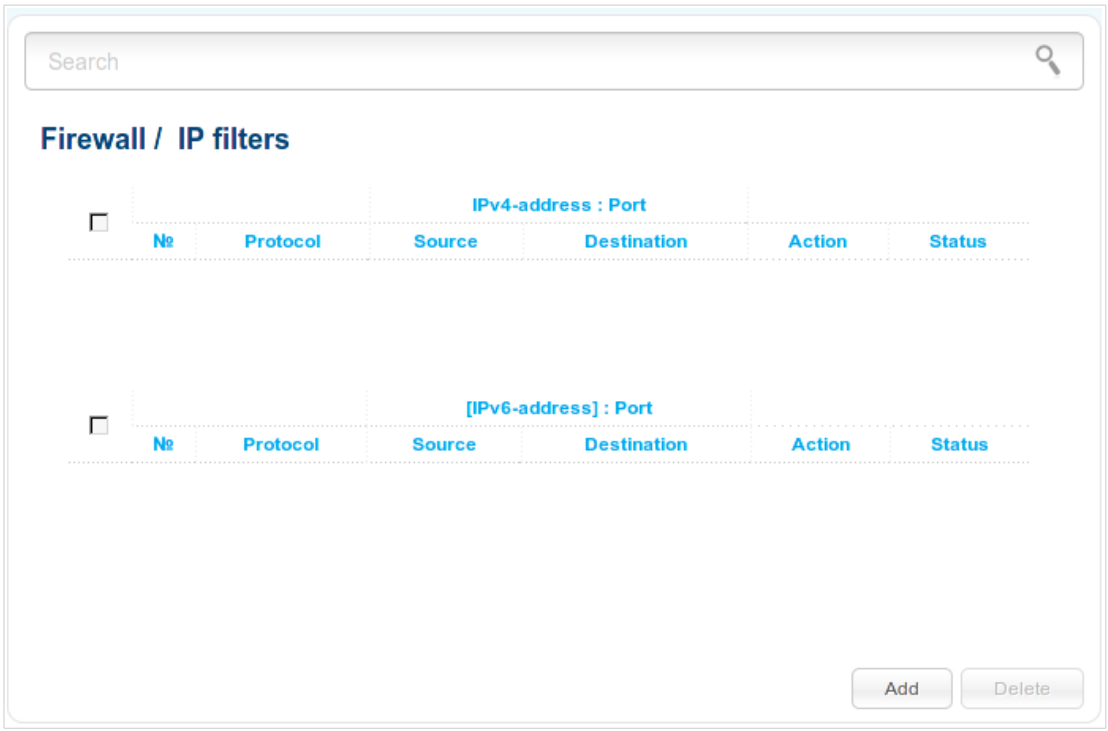


*Figure 140. The **Firewall / IP filters** page.*

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

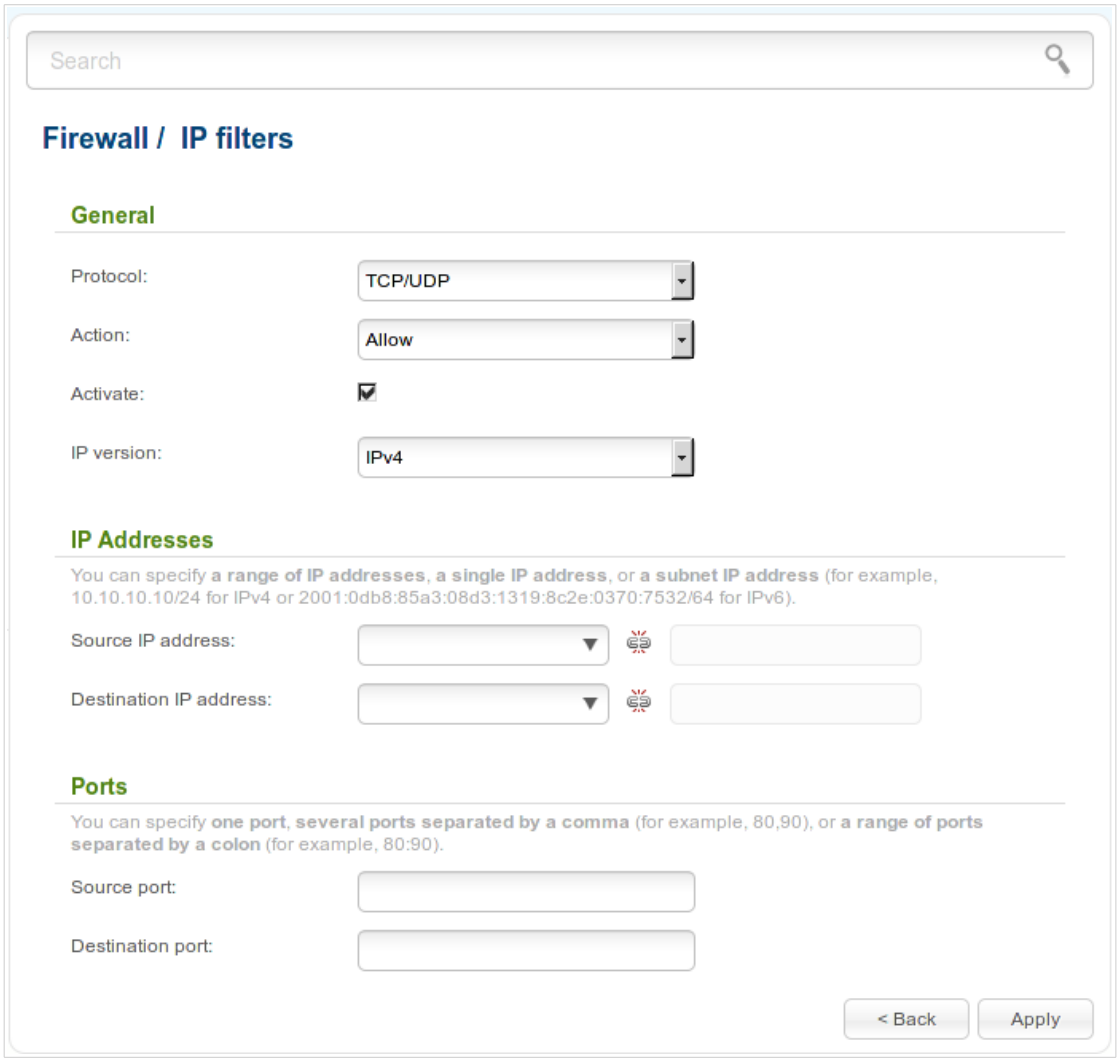


Figure 141. The page for adding a rule for IP filtering.

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.

Parameter	Description
IP version	An IP version to which the rule will be applied. Select the relevant value from the drop-down list.
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 for IP filtering, 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.

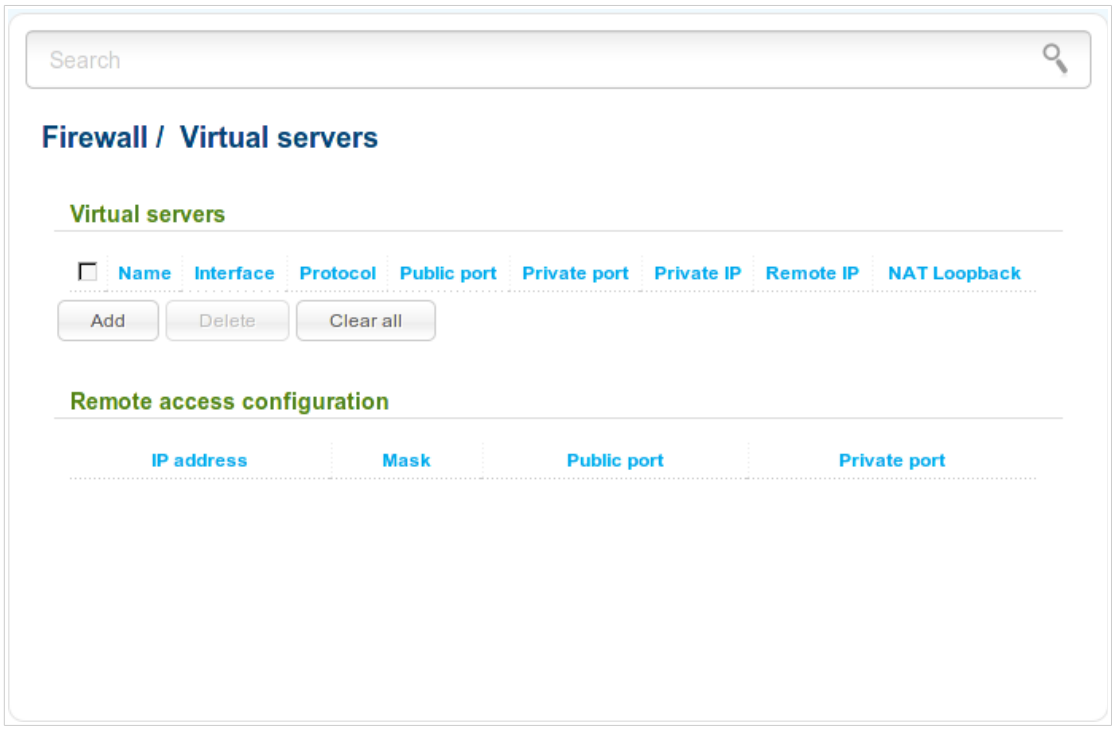


*Figure 142. The **Firewall / Virtual servers** page.*

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

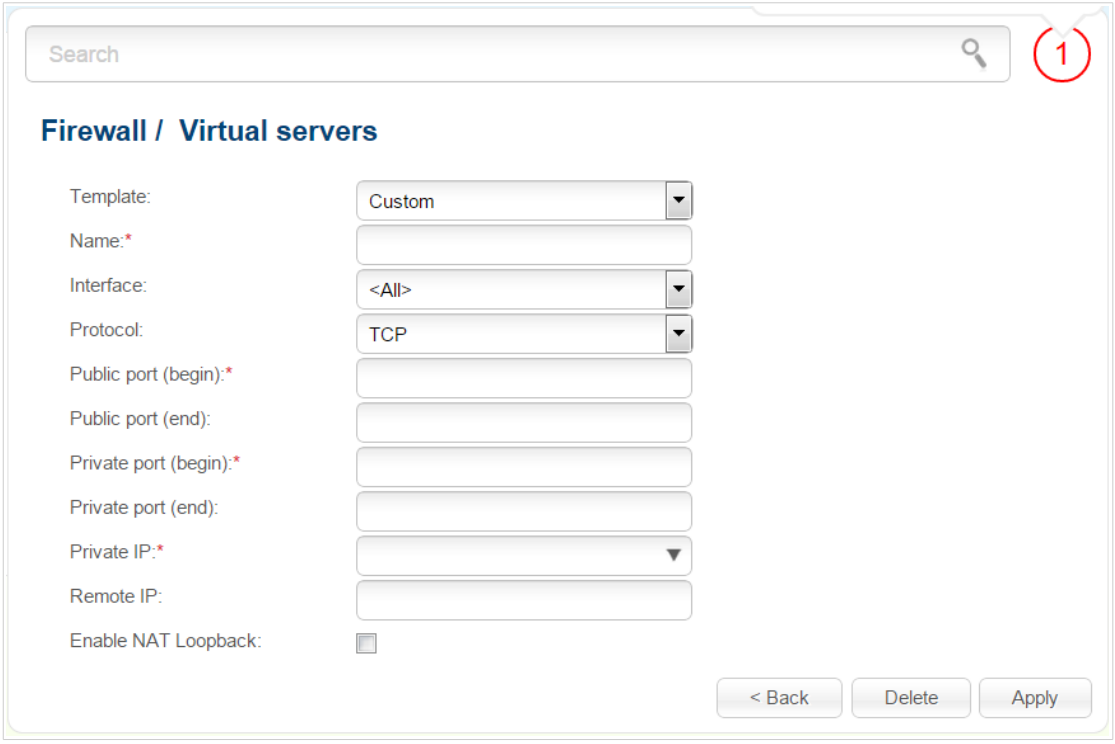


Figure 143. The page for adding a virtual server.

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	Select the checkbox in order to let the users of the router's LAN access the local server using the external IP address of the router or its DDNS name (if a DDNS service is configured). Users from the external network access the router using the same address (or DDNS 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 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.

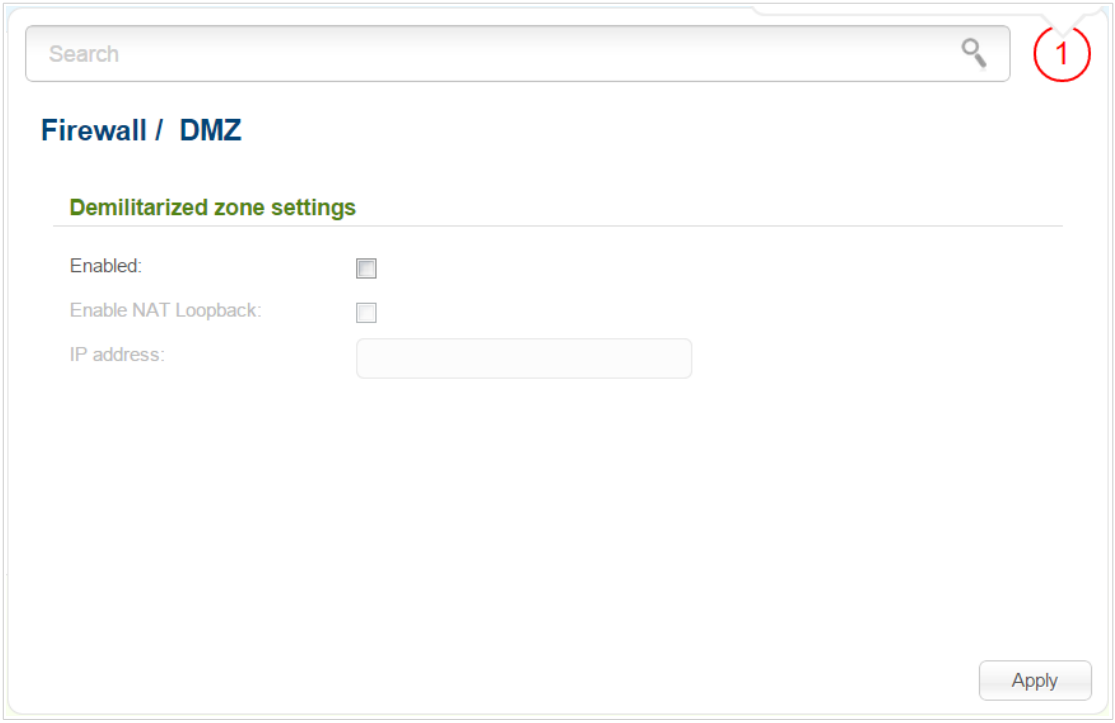


*Figure 144. The **Firewall / DMZ** page.*

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).

Select the **Enable NAT Loopback** checkbox in order to let the users of the router's LAN access the DMZ host using the external IP address of the router or its DDNS name (if a DDNS service is configured). Users from the external network access the router using the same address (or DDNS 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.

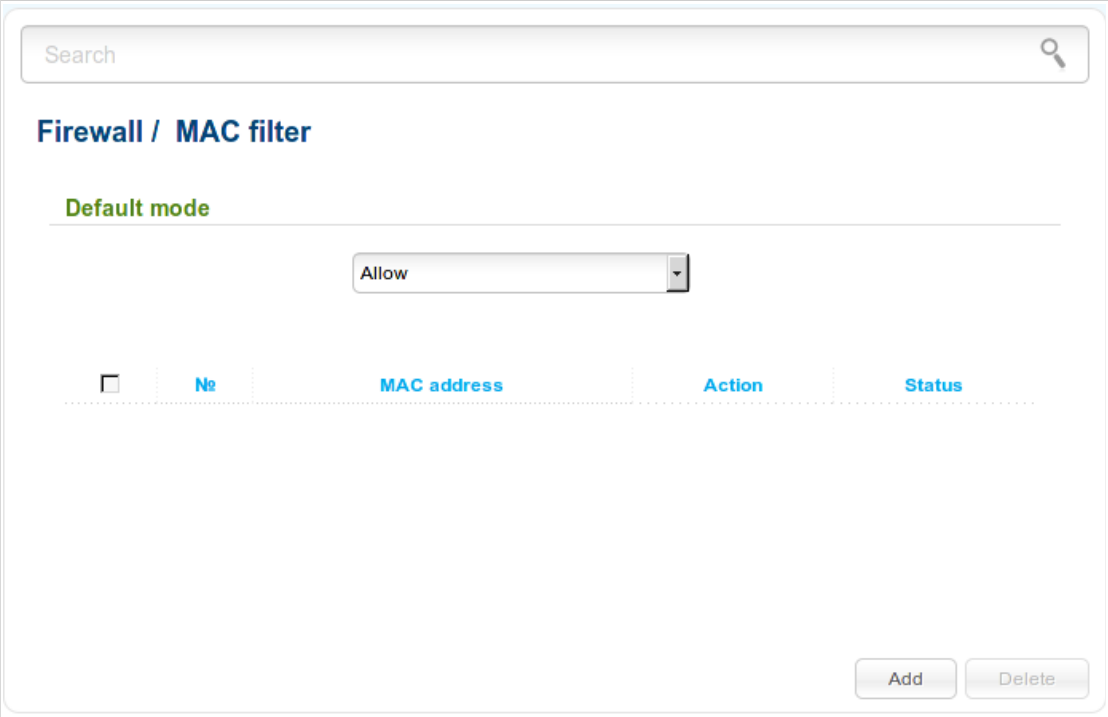


*Figure 145. The **Firewall / MAC filter** page.*

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.

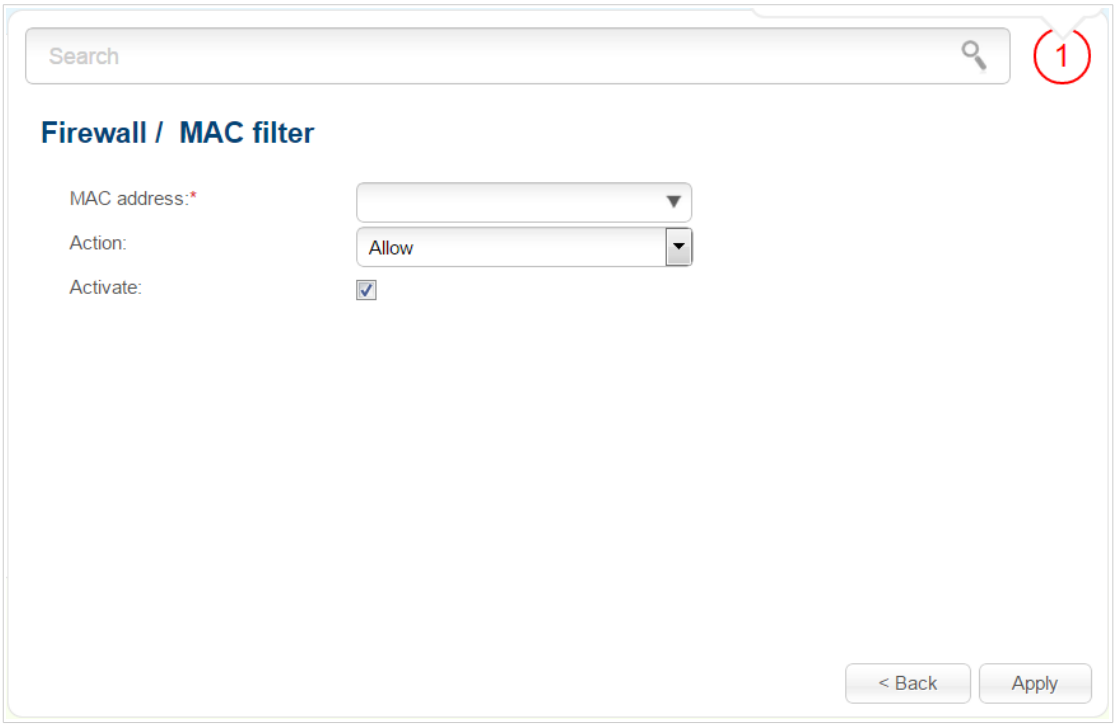


Figure 146. The page for adding a rule for the MAC filter.

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.

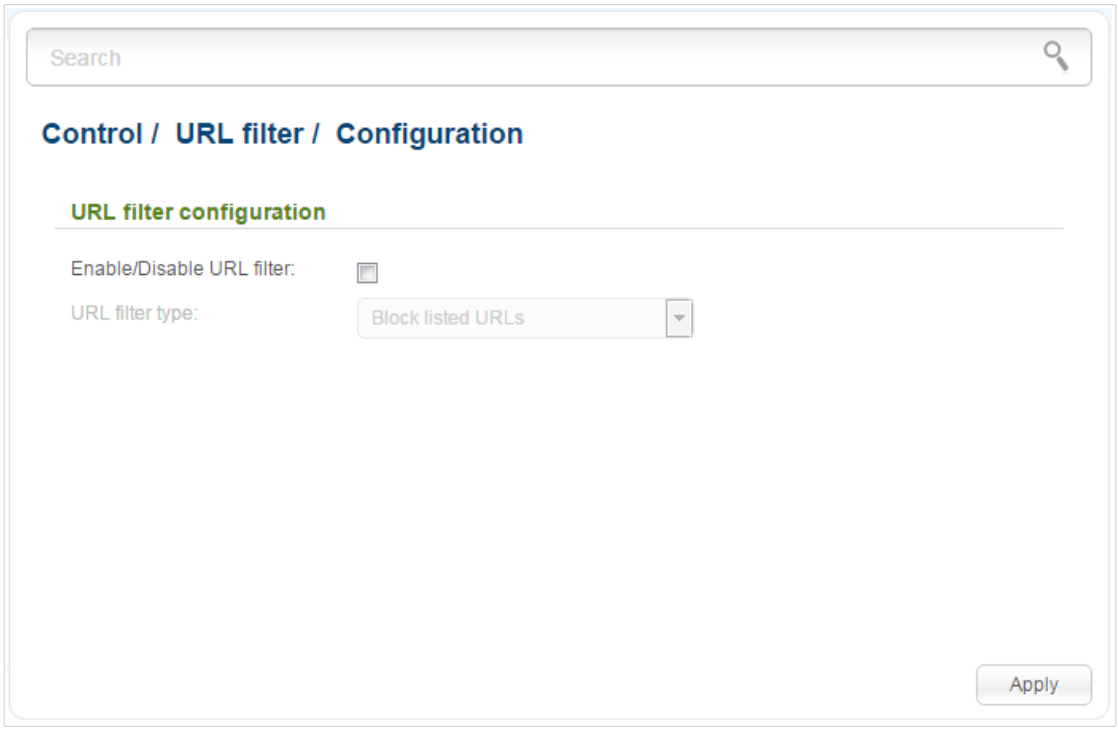


*Figure 147. The **Control / URL filter / Configuration** page.*

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

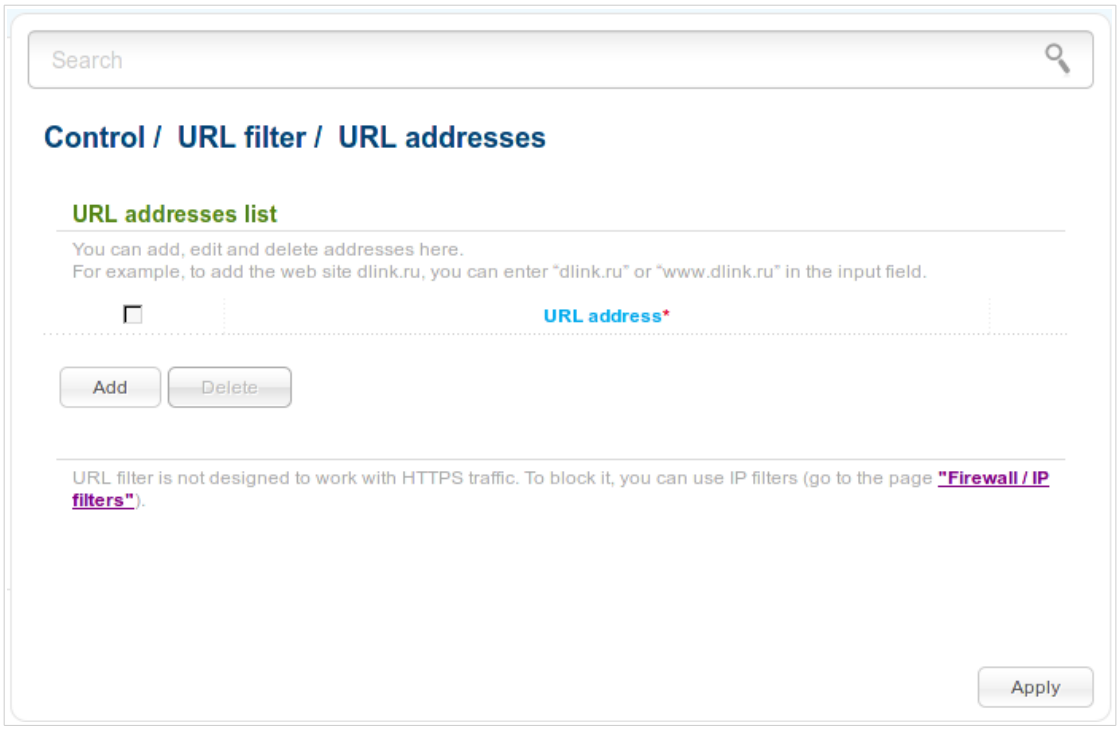


*Figure 148. The **Control / URL filter / URL addresses** page.*

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.

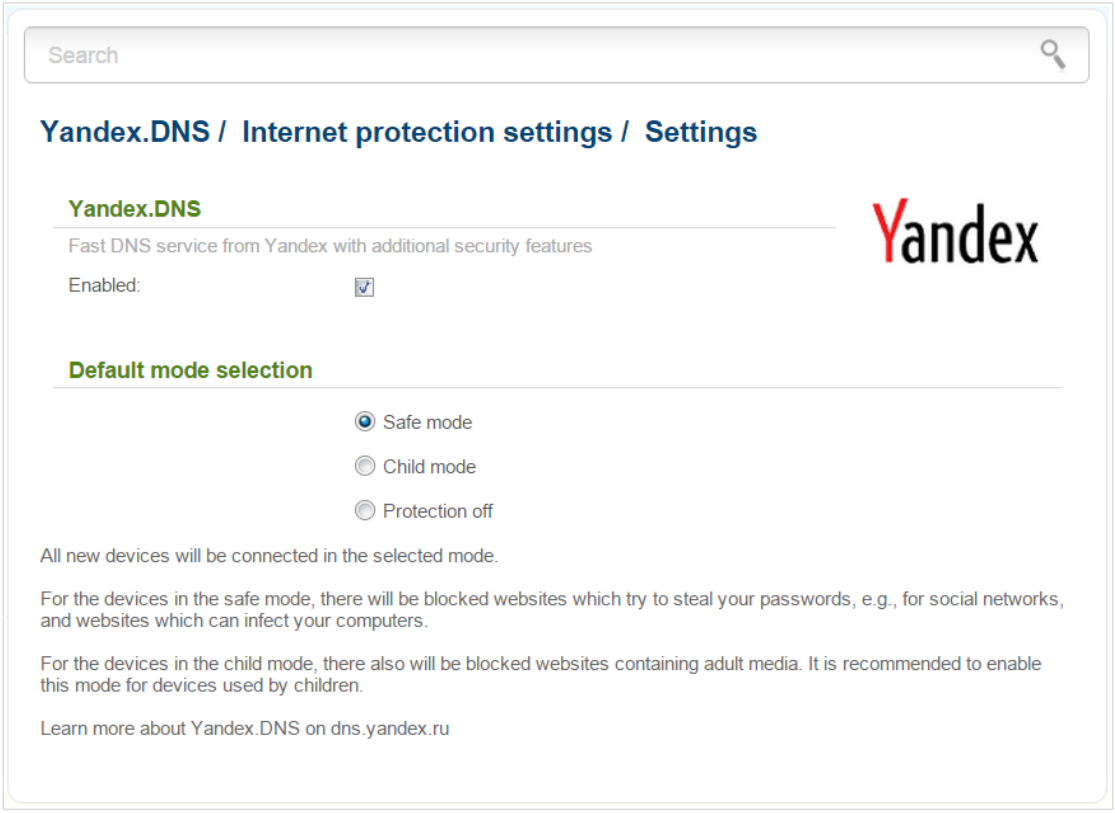


*Figure 149. The **Yandex.DNS / Internet protection settings / Settings** page.*

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.

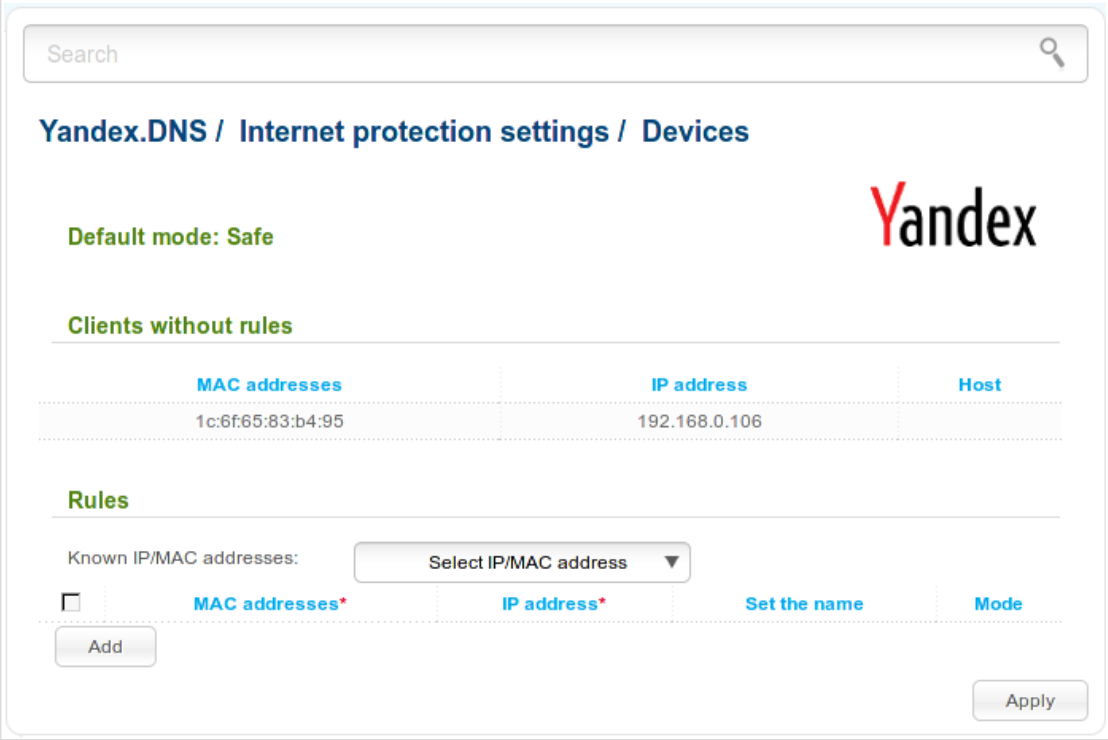


*Figure 150. The **Yandex.DNS / Internet protection settings / Devices** page.*

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
- configure the interface parameters.

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.

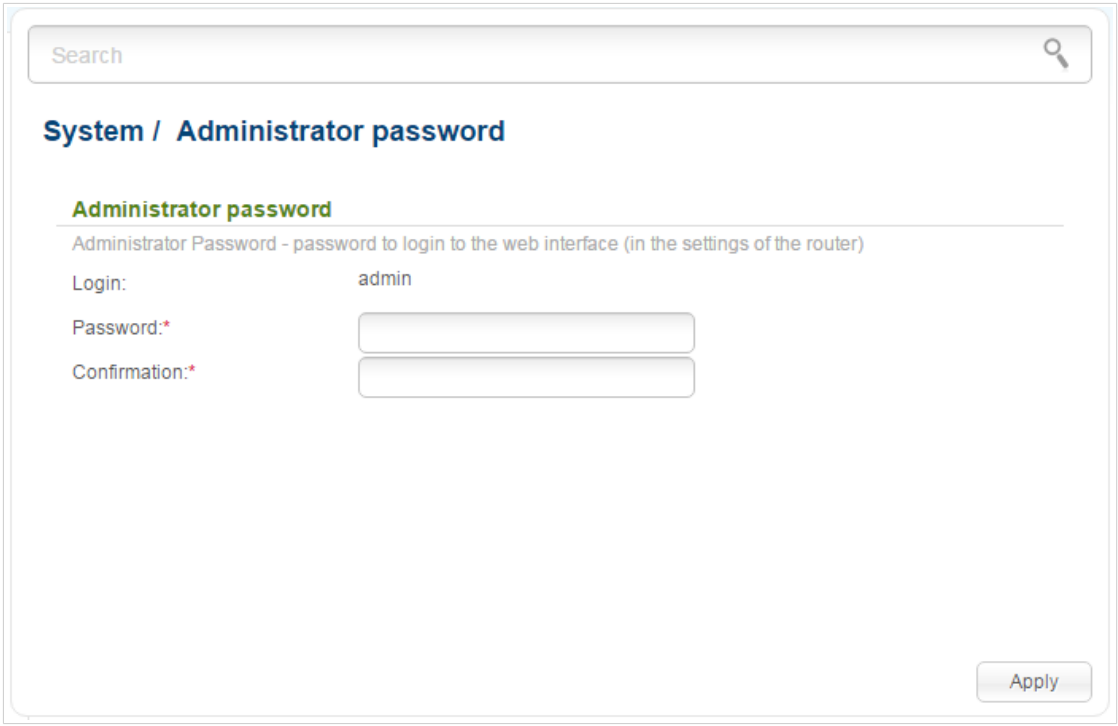


Figure 151. The page for modifying the administrator password.

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.

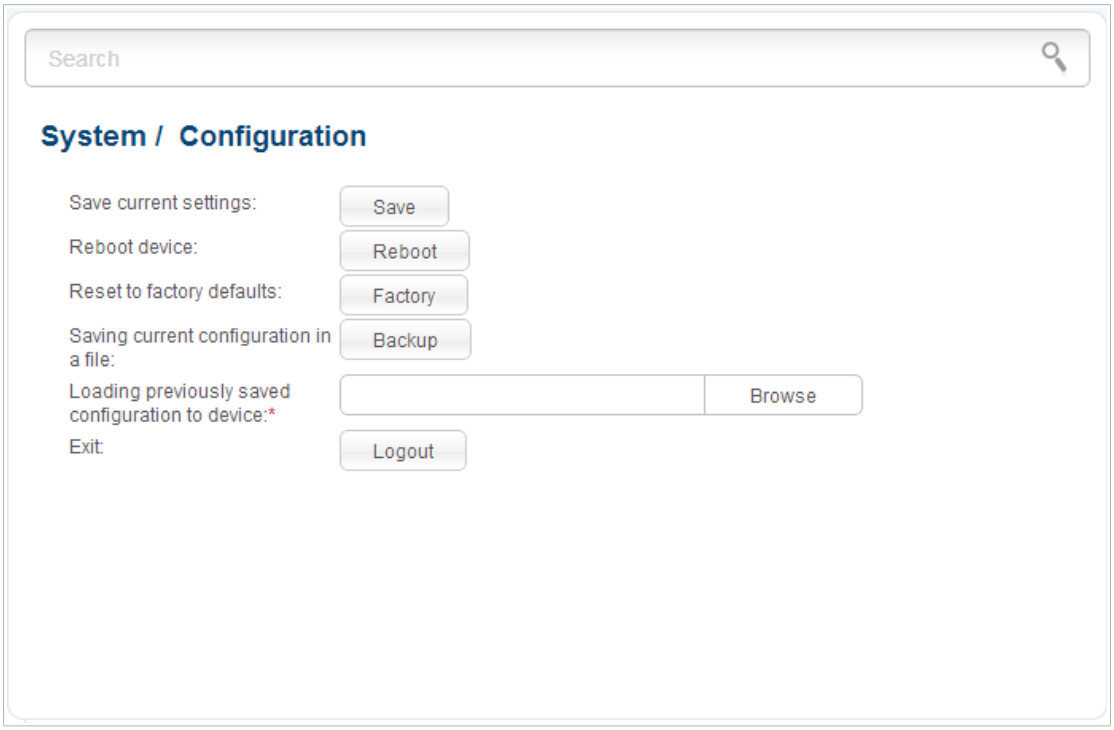


*Figure 152. The **System / Configuration** page.*

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 Panel*** section, page 13).
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.

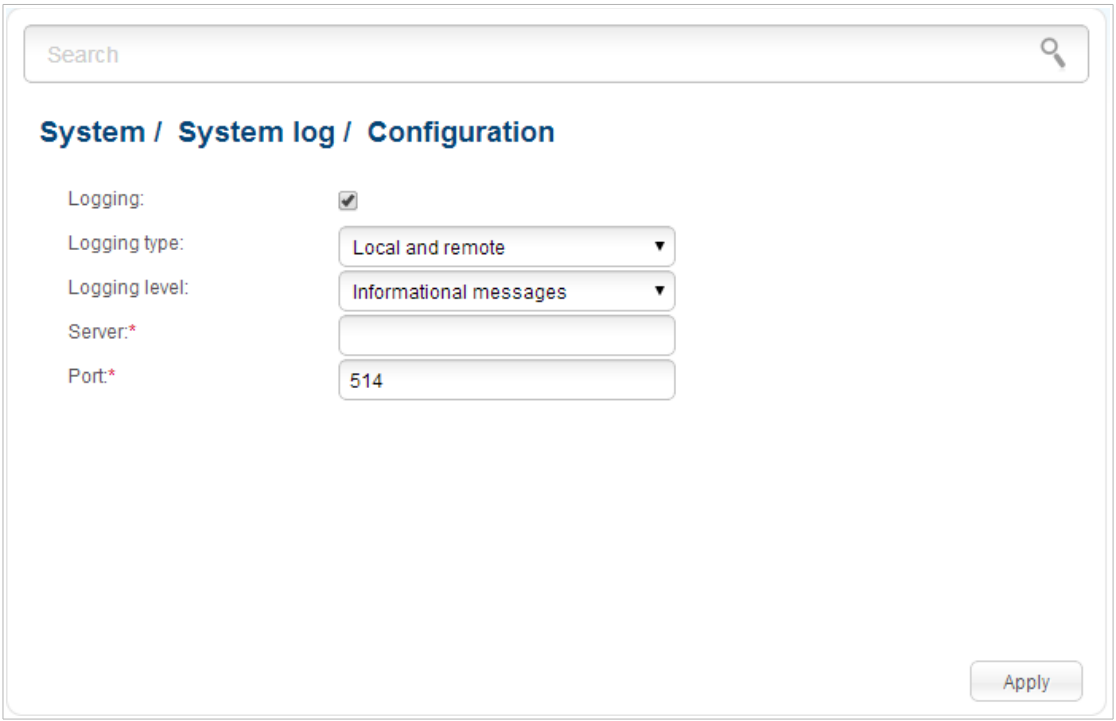


*Figure 153. The **System / System log / Configuration** page.*

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.

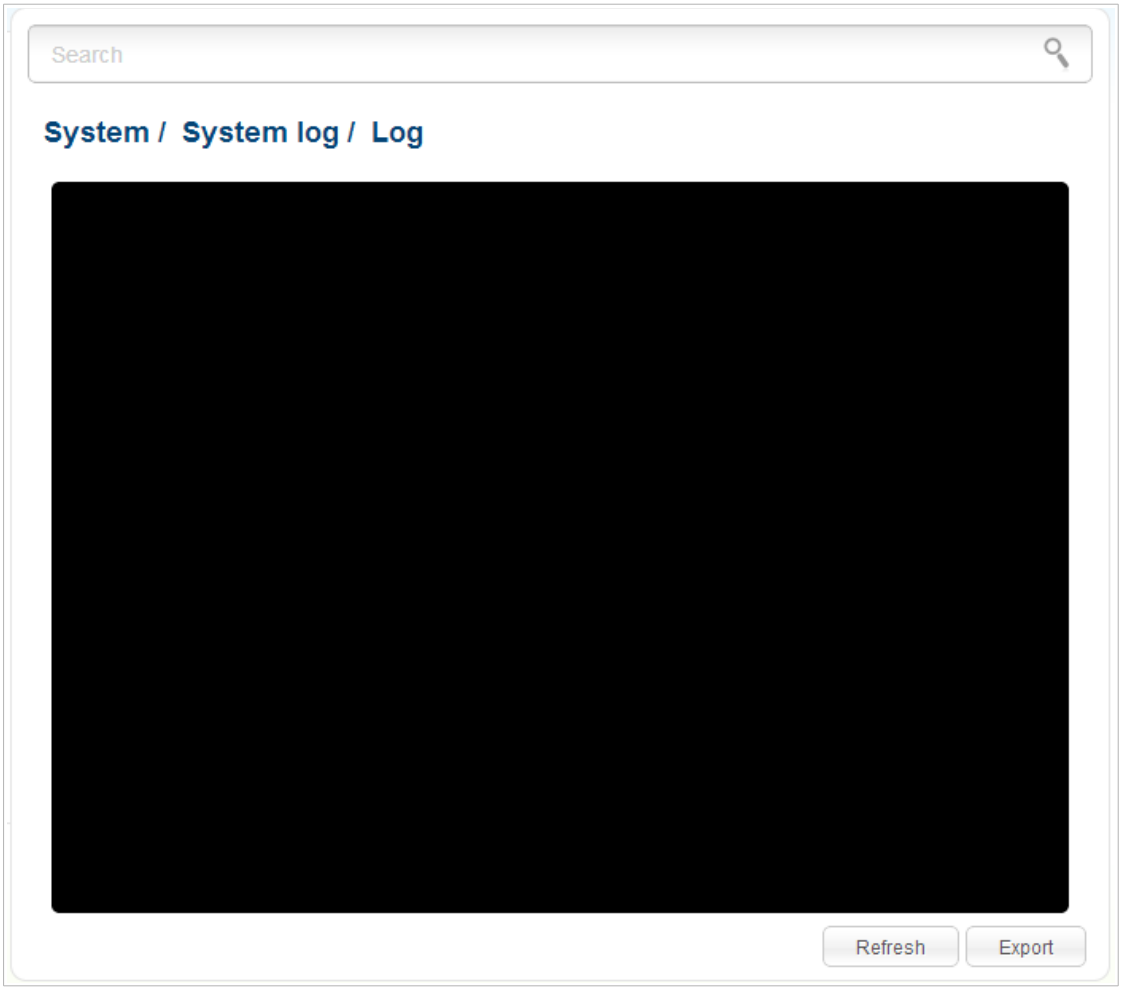


*Figure 154. The **System / System log / Log** page.*

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.

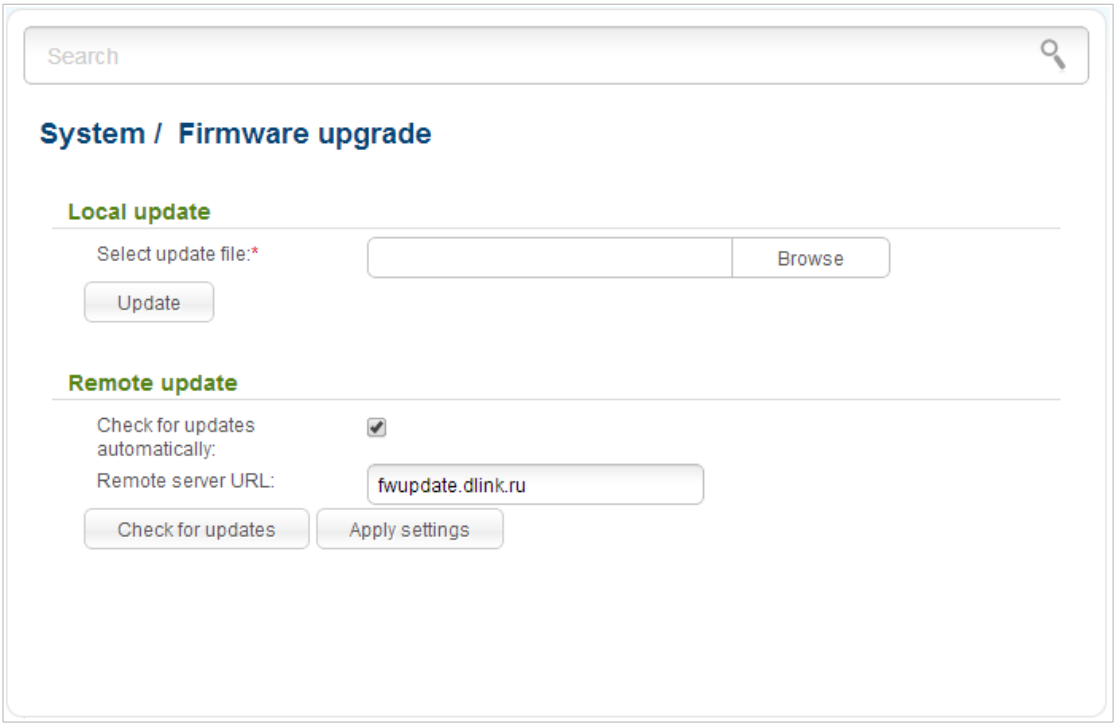


*Figure 155. The **System / Firmware upgrade** page.*

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.

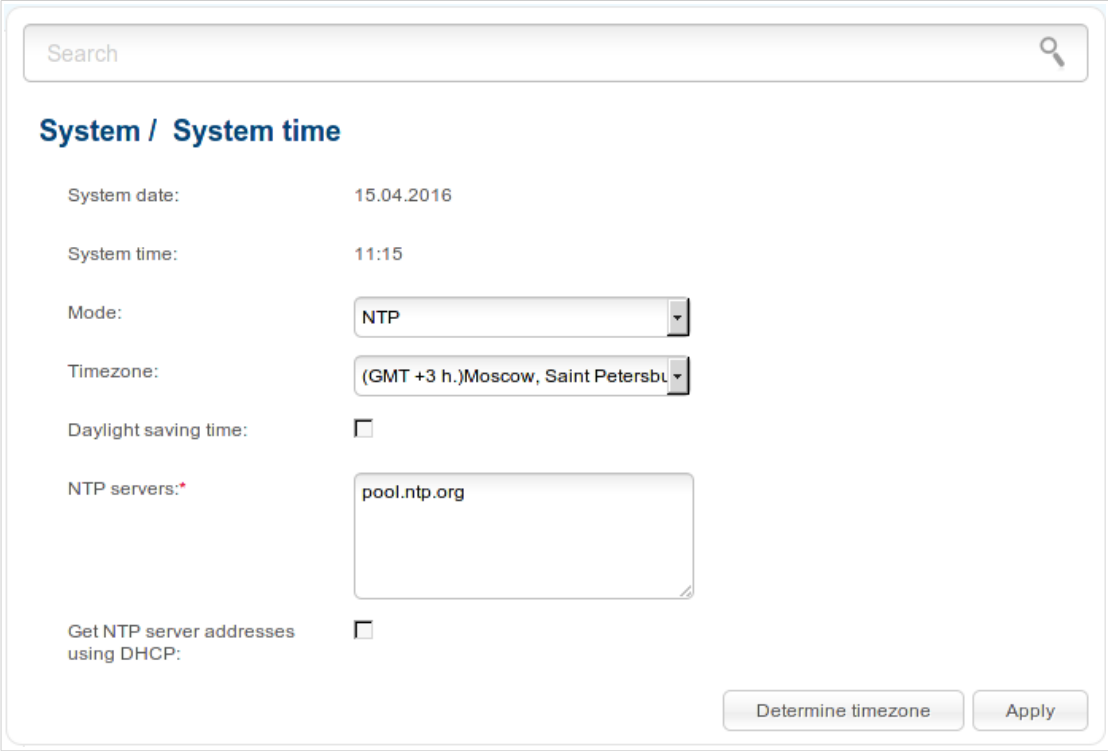


*Figure 156. The **System / System time** page.*

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.

To enable automatic adjustment for daylight saving time of the router, select the **Daylight saving time** checkbox.

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.

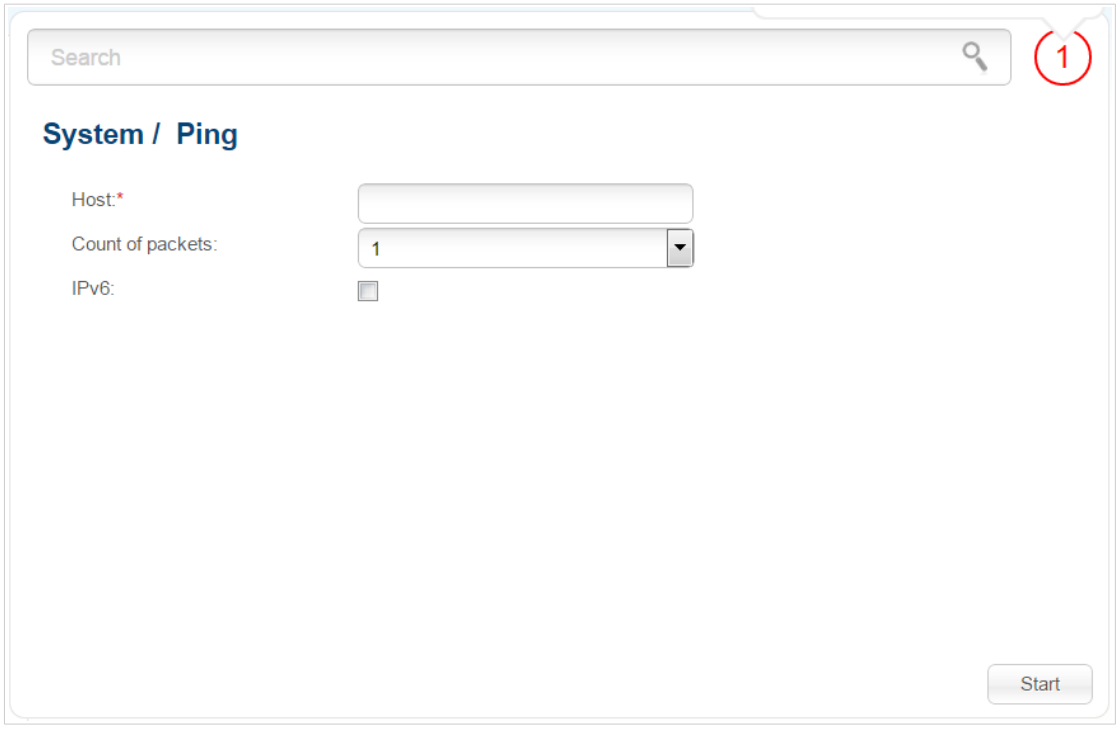


*Figure 157. The **System / Ping** page.*

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.

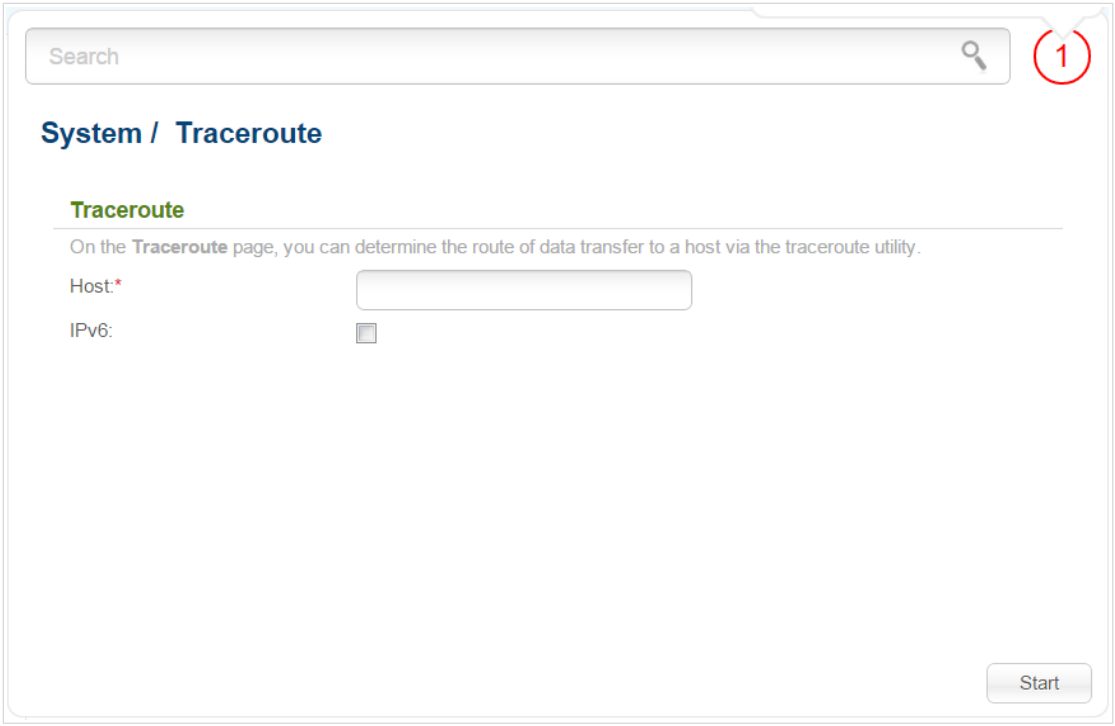


*Figure 158. The **System / Traceroute** page.*

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.

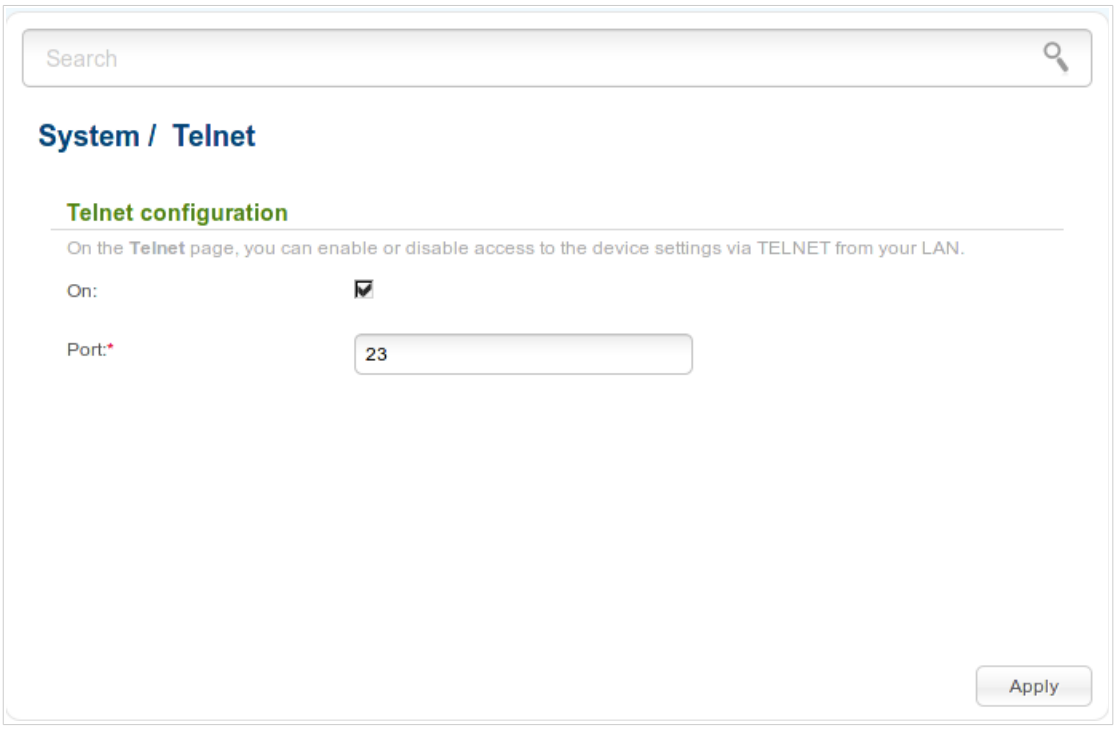


*Figure 159. The **System / Telnet** page.*

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.

Interface settings

On the **System / Interface settings** page, you can configure the interface language and specify a time period at the end of which the session with the interface is completed.

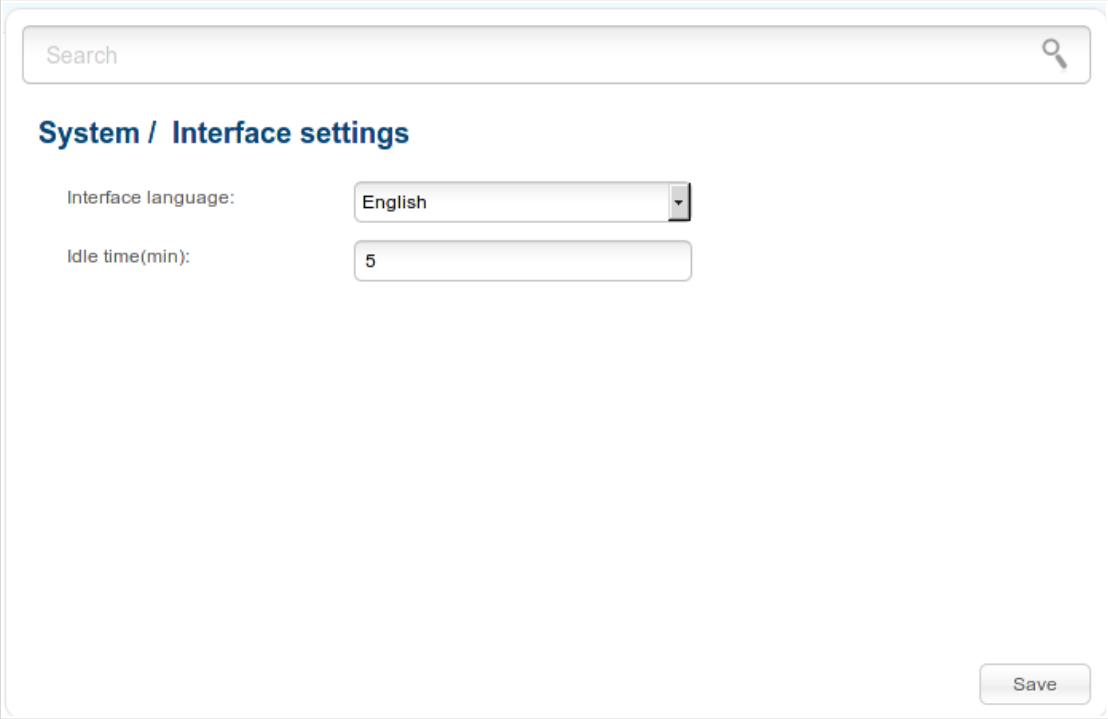


*Figure 160. The **System / Interface settings** page.*

Select a needed value from the **Interface language** drop-down list.

In the **Idle time** field specify a period of inactivity (in minutes) after which the router completes the session of the interface. By default, the value 5 is specified.

When you have configured the parameters, click the **Save** 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-615 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-615 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.

CHAPTER 6. ABBREVIATIONS AND ACRONYMS

AC	Access Category
AES	Advanced Encryption Standard
ARP	Address Resolution Protocol
BSSID	Basic Service Set Identifier
CDMA	Code Division Multiple Access
CRC	Cyclic Redundancy Check
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
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
IPSec	Internet Protocol Security
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
RIP	Routing Information Protocol
RTS	Request To Send
RTSP	Real Time Streaming Protocol
SIP	Session Initiation Protocol
SMB	Server Message Block
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
WLAN	Wireless Local Area Network
WMM	Wi-Fi Multimedia
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup