D-Link®

DSL-2750U

Wireless ADSL2+ Router with 3G/LTE/Ethernet WAN Support and USB Port

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Contents

CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the router DSL-2750U 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.).
`192.168.1.1`	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 and describes its appearance and the package contents.

Chapter 3 explains how to install the wireless router DSL-2750U and configure a PC in order to access its web-based interface.

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

Chapter 5 includes safety instructions and tips for networking and configuring the device.

Chapter 6 introduces abbreviations and acronyms used in this manual.

CHAPTER 2.   OVERVIEW

General Information

DSL-2750U is a multifunction LTE/3G/ADSL/Ethernet router with Wi-Fi and built-in switch. The router allows accessing the Internet via LTE, 3G GSM or CDMA network (with a USB modem[1] connected). In addition, the device allows accessing the Internet via ADSL technology and via Ethernet technology.

The router is equipped with an ADSL port to connect to an ADSL line and 4 Ethernet ports to connect workstations. Due to this feature, DSL-2750U represents a moderate-priced solution for creating wired networks without an additional switch. In addition, any Ethernet port of the device can be used to connect to a private Ethernet line. Also the router has a USB port designed to connect a USB modem, printer, or USB storage.

DSL-2750U can operate as a base station for connecting wireless devices of the standards 802.11b, 802.11g, and 802.11n. The router supports multiple functions for the wireless interface: several security standards (WEP, WPA/WPA2), MAC address filtering, and the WPS function.

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

The wireless router DSL-2750U includes a built-in firewall. The advanced security functions minimize threats of hacker attacks, prevent unwanted intrusions to your network, and block access to unwanted websites for users of your LAN.

You can configure and manage the settings of the multifunction wireless router DSL-2750U via the user-friendly web-based interface (the interface is available in several languages).

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

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1   Not included in the delivery package. D-Link does not guarantee compatibility with all USB modems. For the list of supported USB modems, see the ***Specifications**** section, page 7.

*Specifications**

Hardware	
Interfaces	· RJ-11 ADSL port · 4 10/100BASE-TX LAN ports · USB 2.0 port
LEDs	· POWER · DSL · INTERNET · WLAN · LAN 1-4 · WPS · USB
Buttons	· ON/OFF button to power on/power off · RESET button to restore factory default settings · WPS/WLAN button to set up secure wireless connection and enable/disable wireless network
Antenna	· Two internal omnidirectional antennas (2dBi gain)
MIMO	· 2 x 2
Power connector	· Power input connector (DC)

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

Software	
WAN connection types	· LTE · 3G · PPPoA · PPPoE · IPv6 PPPoE · PPPoE Dual Stack · IPoA · Static IP / Dynamic IP · Static IPv6 / Dynamic IPv6 · Bridge

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

Software	
Network functions	· DHCP server/relay · DHCPv6 server (Stateful/Stateless), IPv6 prefix delegation · DNS relay · Support of DNSv6 AAAA records · Dynamic DNS · Static IP routing · Static IPv6 routing · IGMP Proxy · IGMP snooping · RIP · Support of UPnP IGD · Support of VLAN · WAN ping respond · Support of SIP · Support of RTSP
Firewall functions	· Network Address Translation (NAT) · Stateful Packet Inspection (SPI) · IP filters · MAC filter · URL filter · DMZ · Prevention of ARP and DDoS attacks · Virtual servers · Built-in Yandex.DNS web content filtering service
VPN	· PPTP/PPPoE pass-through
QoS	· Interface grouping · VLAN priority (802.1p) · Traffic classification/prioritization for Ethernet WAN (upstream traffic only)
USB interface functions	· USB modem Auto connection to available type of supported network (4G/3G/2G)[2] Enabling/disabling PIN code check, changing PIN code[3] · USB storage File browser Print server Access to storage via accounts Built-in Samba server Built-in FTP server Built-in DLNA server Built-in Transmission torrent client; uploading/downloading files from/to USB storage
Management	· Local and remote access to settings through TELNET/WEB (HTTP) · Multilingual web-based interface for configuration and management · Firmware update via web-based interface · Automatic notification on new firmware version · Saving/restoring configuration to/from file · Support of remote logging · Automatic synchronization of system time with NTP server and manual time/date setup · Ping function · TR-069 client

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2   For LTE and GSM USB modems.
3   For GSM USB modems only.

Wireless Module Parameters

Standards	· IEEE 802.11b/g/n
Frequency range	· 2400 ~ 2483.5MHz
Wireless connection security	· WEP · WPA/WPA2 (Personal) · MAC filter · WPS (PBC/PIN)
Advanced functions	· Managing connected stations · Advanced settings
Wireless connection rate	· IEEE 802.11b: 1, 2, 5.5, and 11Mbps · IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, and 54Mbps · IEEE 802.11n: from 6.5 to 300Mbps (from MCS0 to MCS15)
Transmitter output power *The maximum value of the transmitter output power depends upon the radio frequency regulations applied in your country*	· 802.11b 16.5 ~ 18.5dBm · 802.11g 13.5 ~ 16.5dBm · 802.11n 13.5 ~ 16.5dBm
Modulation schemes	· 802.11b: CCK (11, 5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps), DSSS · 802.11g: PSK/CCK, DBPSK, DQPSK, OFDM, BPSK, QPSK, 16QAM, 64QAM · 802.11n: PSK/CCK, DBPSK, DQPSK, OFDM, etc.

Physical Parameters

Dimensions	· 160 x 120 x 59 mm (6.3 x 4.7 x 2.3 in)
Weight	· 240 g (0.53 lb)

Operating Environment

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

Supported USB modems[4]	
GSM	· Alcatel X500 · D-Link DWM-152C1 · D-Link DWM-156A6 · D-Link DWM-156A7 · D-Link DWM-156C1 · D-Link DWM-157B1 · D-Link DWM-157B1 (Velcom) · D-Link DWM-158D1 · Huawei E150 · Huawei E1550 · Huawei E156G · Huawei E160G · Huawei E169G · Huawei E171 · Huawei E173 (Megafon) · Huawei E220 · Huawei E352 (Megafon) · Huawei E367 (3G mode) · Huawei E392 (3G mode) · ZTE MF112 · ZTE MF192 · ZTE MF626 · ZTE MF627 · ZTE MF652 · ZTE MF667 · ZTE MF668 · ZTE MF752
CDMA	· Airplus MCD-650 · Airplus MCD-800 · AnyDATA ADU-300A · AnyDATA ADU-500A · AnyDATA ADU-510A · Huawei EC306 · ZTE AC5710 · ZTE AC5730
LTE	· Huawei E3131 · Huawei E3272 · Huawei E367 · Huawei E392 · Megafon M100-1 · Megafon M100-3 · Megafon M100-4 · Megafon M150-1 · MTS 824F · Yota LU-150 · Yota WLTUBA-107 · ZTE MF823 · ZTE MF827

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4   The manufacturer does not guarantee proper operation of the router with every modification of the firmware of USB modems.

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; after powering on: the router is in the crash recovery mode.
DSL	*Solid green*	DSL has been synchronized.
	Blinking green	Detecting a carrier signal and synchronizing DSL.
	No light	No carrier signal.
INTERNET	*Solid green*	A WAN connection is established.
	Blinking green	The WAN interface is active (upstream or downstream traffic).
	Solid red	After powering on: the router is being loaded; after loading: the router is in the crash recovery mode.
	No light	The router is in the bridge mode or no WAN connection is established.

LED	Mode	Description
WLAN	*Blinking green*	The router's WLAN is on.
	No light	The router's WLAN is off.
LAN 1-4	*Solid green*	A device is connected to the port of the router (for the LAN port configured as the WAN port: the router is connected to an Ethernet line).
	Blinking green	The relevant LAN port is active (upstream or downstream traffic).
	No light	The cable is not connected to the relevant port.
WPS	*Blinking green*	Attempting to add a wireless device via the WPS function.
	No light	The WPS function is not in use.
USB	*Solid green*	A USB device is connected to the router's USB port.
	No light	No USB device.

Side Panel

Figure 2. Side panel view.

Name	Description
WPS WLAN	A button to enable/disable the router's wireless network and to quickly add wireless devices to the router's WLAN (the WPS function). To enable/disable the router's wireless network: with the device turned on, press the button, hold for 7 seconds, and then release it. To use the WPS function: with the device turned on, press the button, and release it.
USB	A port for connecting a USB device (modem, storage, printer).

Back Panel

Figure 3. Back panel view.

Port	Description
DSL	A DSL port to connect the router to the telephone line.
LAN 1-4	4 Ethernet ports to connect Ethernet devices. One port can be used to connect to a private Ethernet line.
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.
12VDC IN	Power connector.
ON/OFF	A button to turn the router on/off.

Delivery Package

The following should be included:

- Router DSL-2750U

- Power adapter DC 12V/1A

- RJ-11 telephone cable

- Ethernet cable (CAT 5E)

- Splitter

- "*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 multifunction wireless LTE/3G/ADSL/Ethernet router DSL-2750U (hereinafter referred to as "the router") is performed via the built-in web-based interface. The web-based interface is available from any operating system that supports a web browser.

Web Browser

The following web browsers are recommended:

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

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

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

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

Wireless Connection

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

USB Modem

To connect to an LTE, 3G GSM or CDMA network, you should use a USB modem. Connect it to the USB port of the router, then access the web-based interface of the router, and you will be able to configure a connection to the Internet[5].

> **!** Your USB modem should be equipped with an active identification card (SIM or R-UIM) of your operator.
>
> Some operators require subscribers to activate their USB modems prior to using them. Please, refer to connection guidelines provided by your operator when concluding the agreement or placed on its website.
>
> For LTE and CDMA USB modems, it is required to disable the PIN code check on the identification card prior to connecting the USB modem to the router.

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5 Contact your operator to get information on the service coverage and fees.

Connecting to PC

PC with Ethernet Adapter

1. Make sure that your PC is powered off.

2. Connect an Ethernet cable between any of four Ethernet ports located on the back panel of the router and the Ethernet port of your PC.

3. *To connect via USB modem:* connect your USB modem to the USB port[6] located on the left side panel of the router.

! If you need to connect or change a USB modem to another one when the router is powered on, power off the device, connect the modem to the USB port, and power on the router.

4. *To connect the router to a DSL line:* connect a phone cable between the DSL port of the router and the **ADSL OUT** port of the splitter. Connect your phone to the **PHONE** port of the splitter. Then connect another phone cable between a phone jack and the **ADSL IN** port of the splitter.

5. *To connect the router to an Ethernet line:* in the web-based interface of the router, select the router's LAN port that will be used as the WAN port and create an Ethernet WAN connection. Then connect the Ethernet cable between the selected Ethernet port located on the back panel of the router and the Ethernet line.

6. 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.

7. Turn on the router by pressing the **ON/OFF** button on its back panel.

8. Turn on your PC and wait until your operating system is completely loaded.

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6   It is recommended to use a USB extension cable to connect a USB modem to the router.

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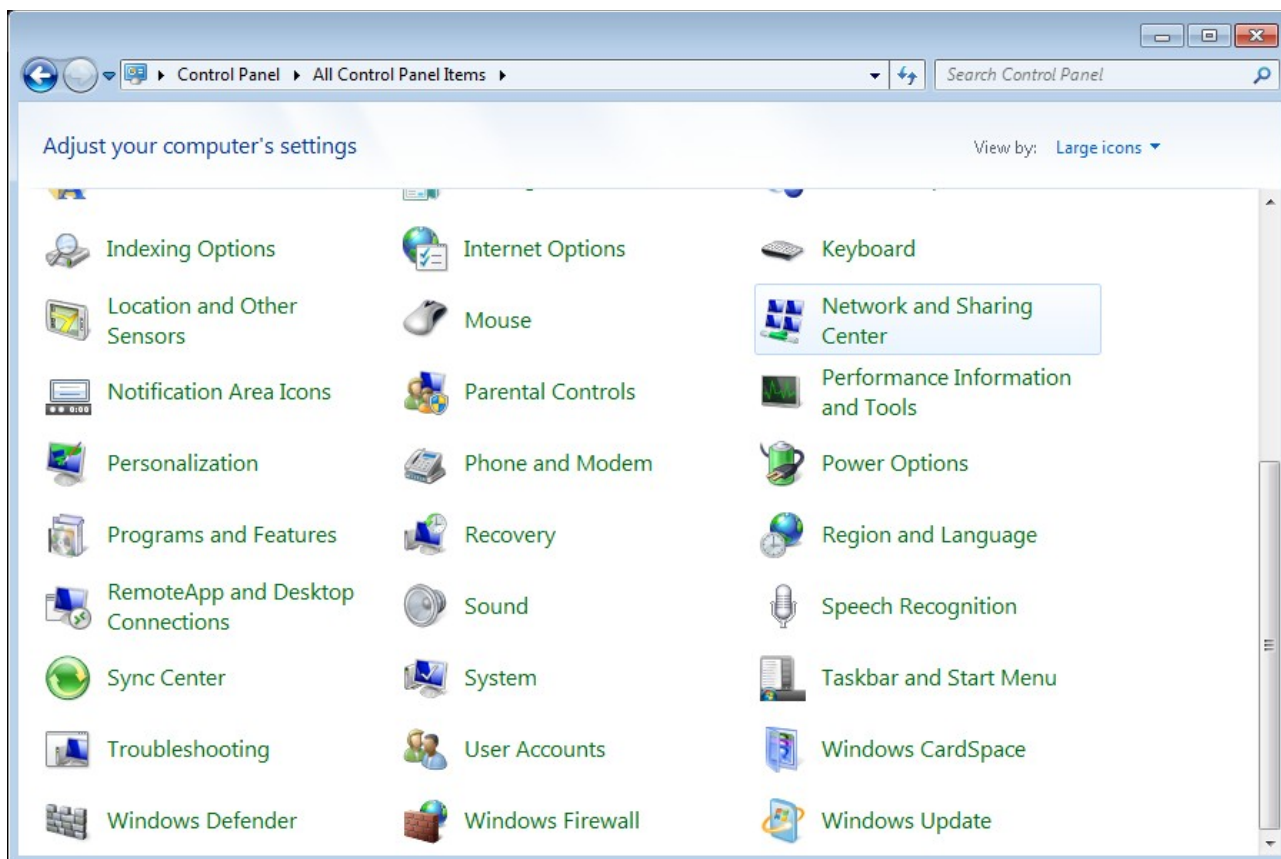
*Figure 7. The **Control Panel** window.*

3. In the menu located on the left part of the window, select the **Change adapter settings** line.
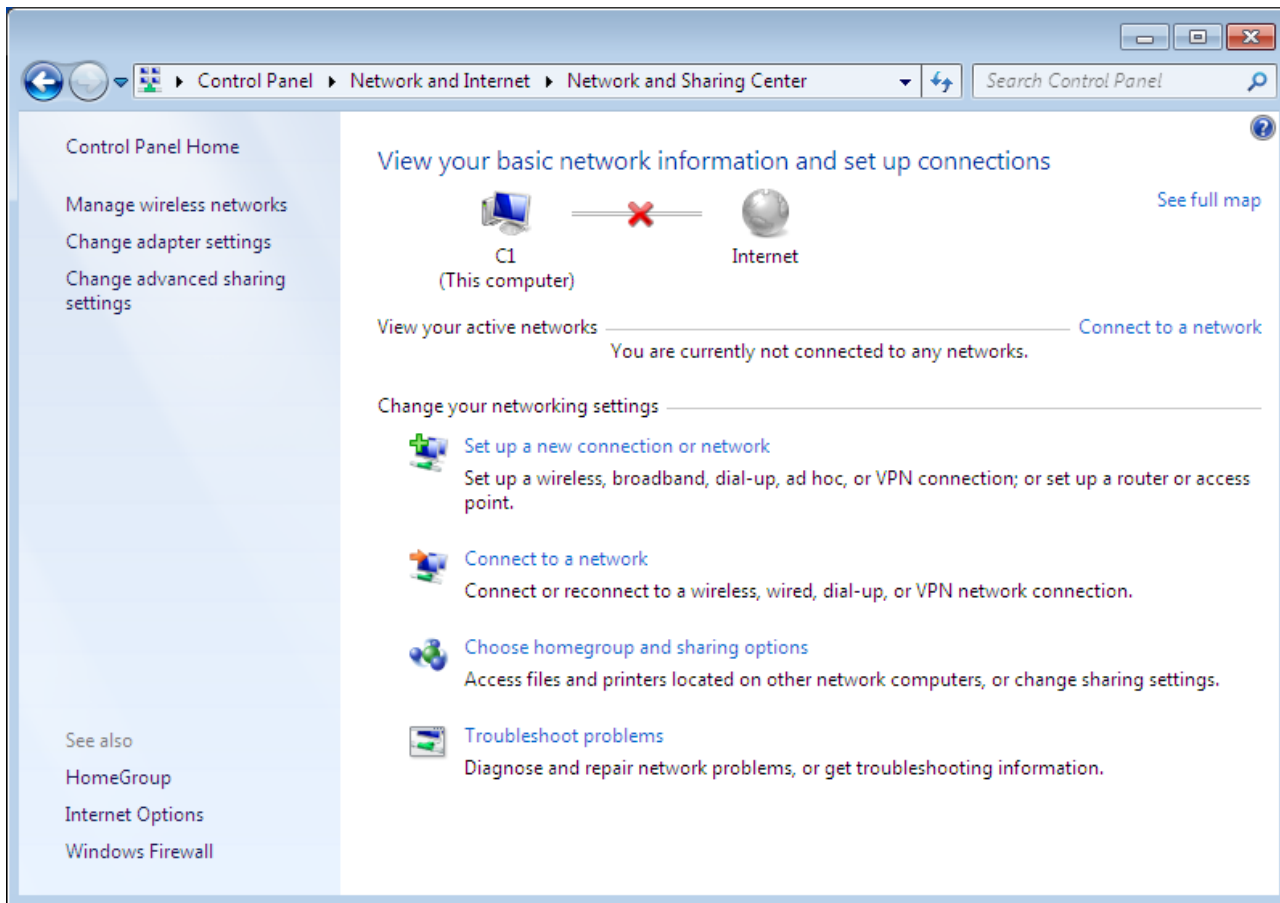
Figure 8. The Network and Sharing Center window.

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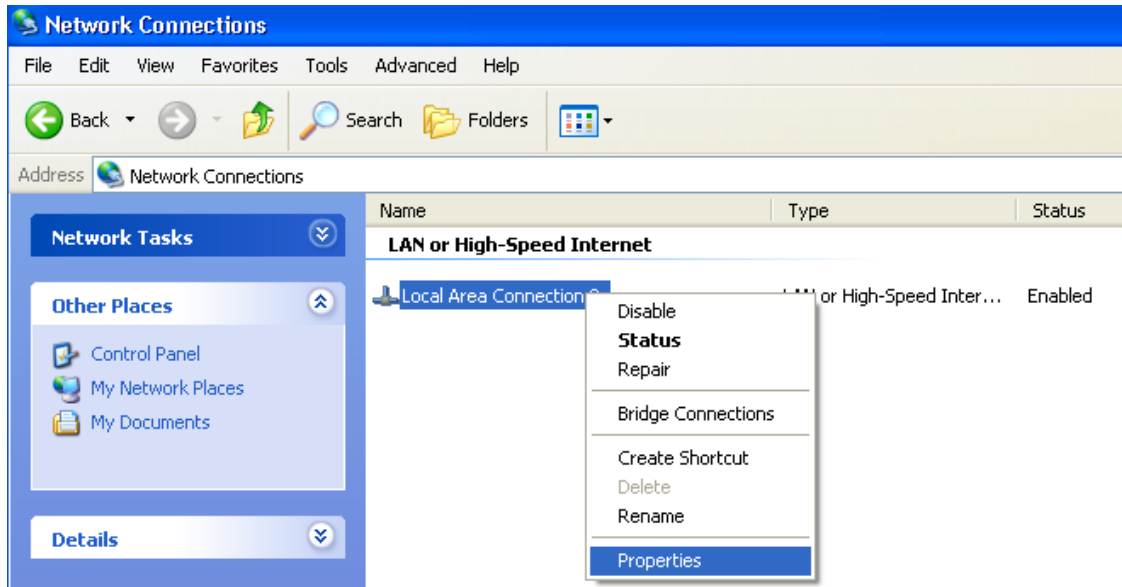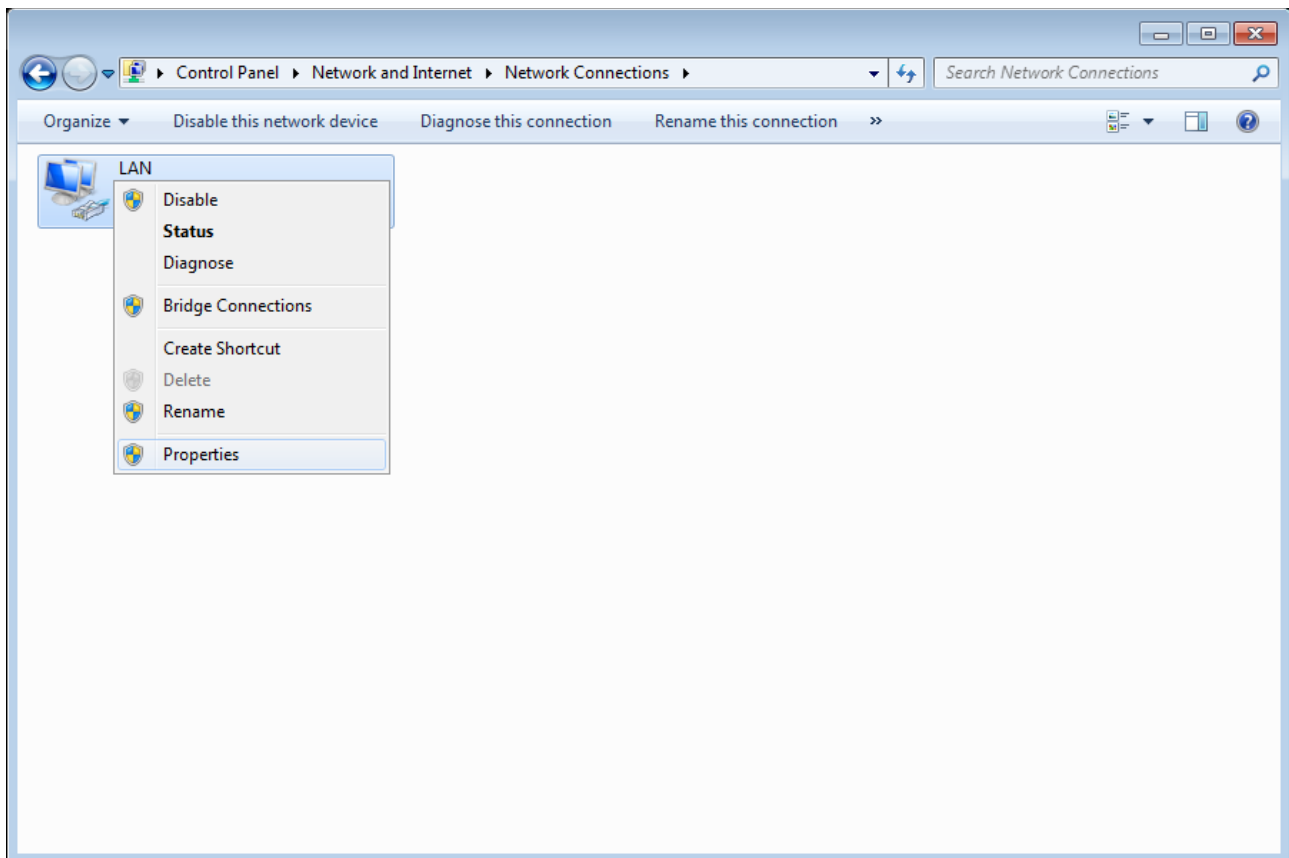

*Figure 9. The **Network Connections** window.*

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.
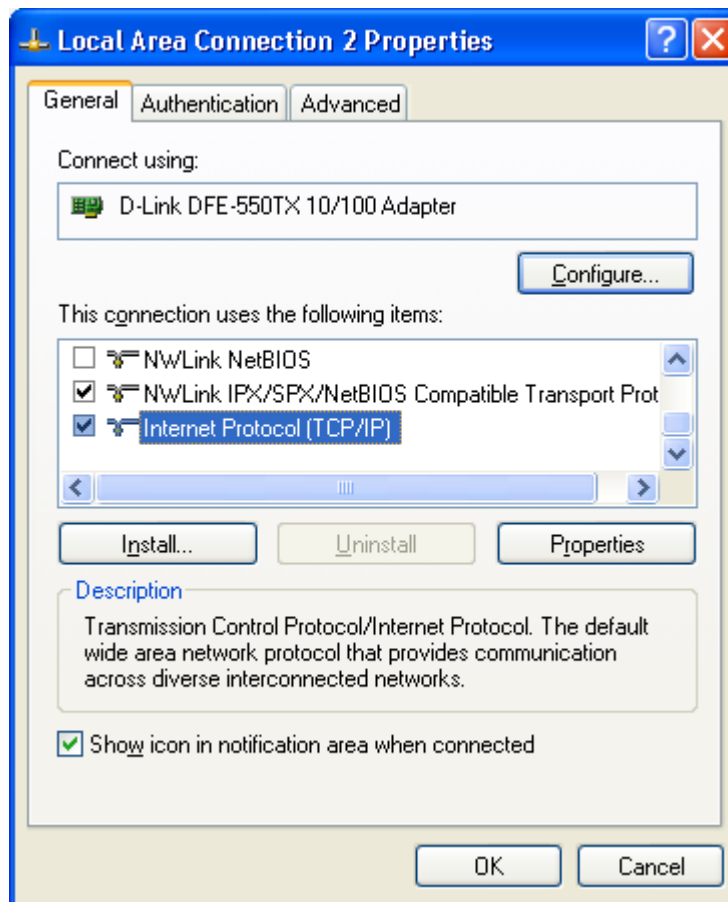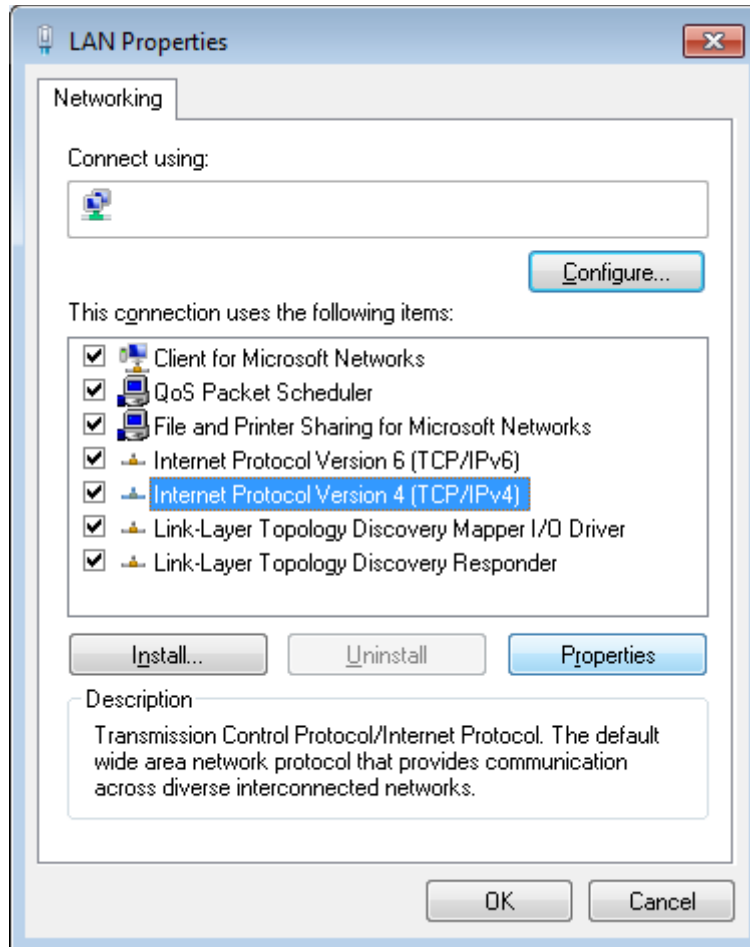

*Figure 10. The **Local Area Connection Properties** window.*

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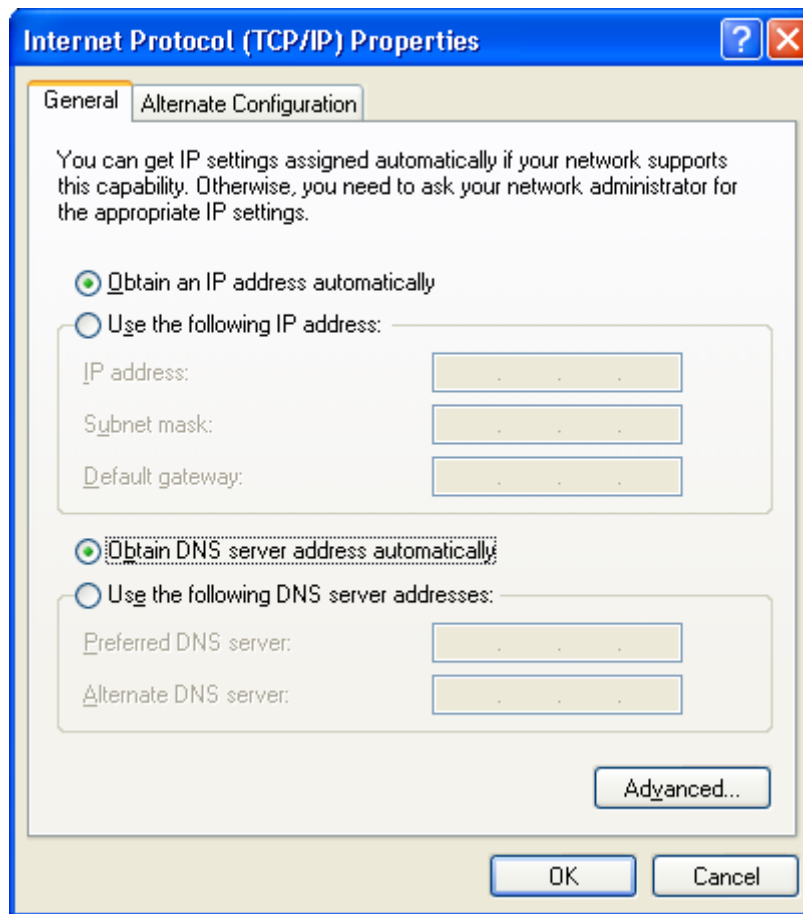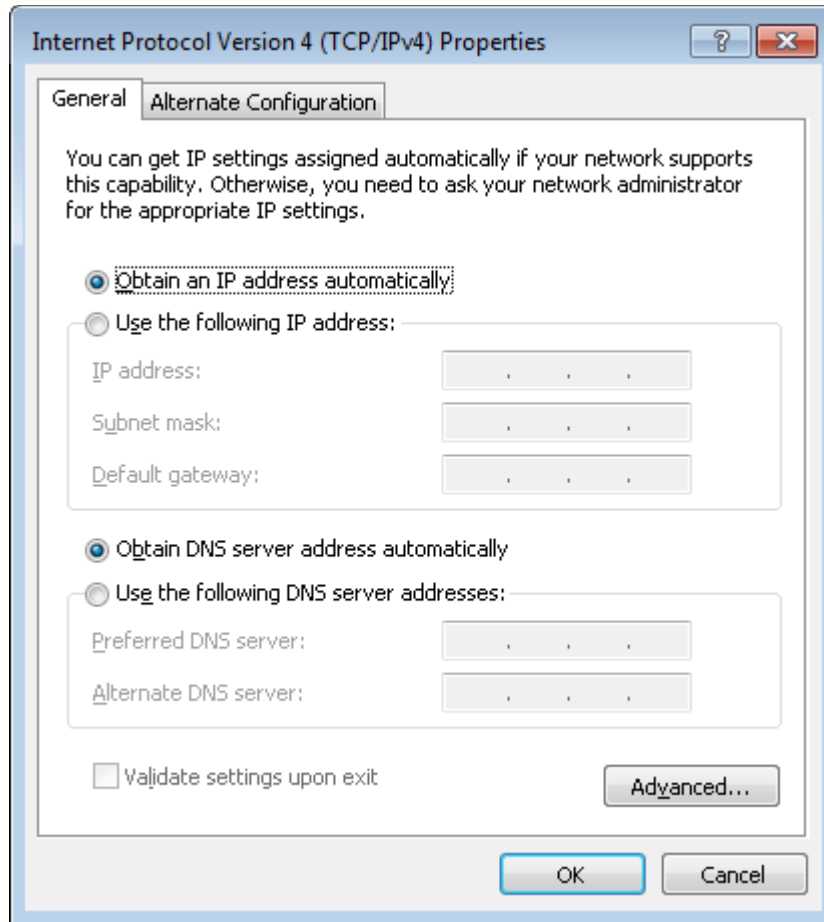

*Figure 11. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window.*

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 via USB modem:*** connect your USB modem to the USB port[7] located on the left side panel of the router.

    ! <u>If you need to connect or change a USB modem to another one when the router is powered on, power off the device, connect the modem to the USB port, and power on the router.</u>

2. ***To connect the router to a DSL line:*** connect a phone cable between the DSL port of the router and the **ADSL OUT** port of the splitter. Connect your phone to the **PHONE** port of the splitter. Then connect another phone cable between a phone jack and the **ADSL IN** port of the splitter.

3. ***To connect the router to an Ethernet line:*** in the web-based interface of the router, select the router's LAN port that will be used as the WAN port and create an Ethernet WAN connection. Then connect the Ethernet cable between the selected Ethernet port located on the back panel of the router and the Ethernet line.

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.

7. 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.

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7   It is recommended to use a USB extension cable to connect a USB modem to the router.

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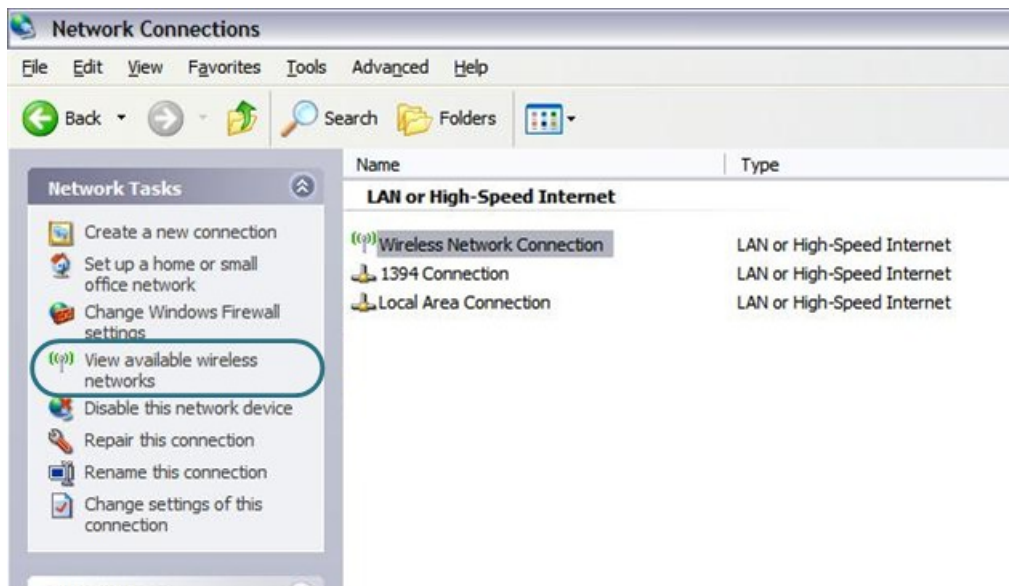
*Figure 12. The **Network Connections** window.*

3. Search for available wireless networks.

4. In the opened **Wireless Network Connection** window, select the wireless network `DSL-2750U` 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.)
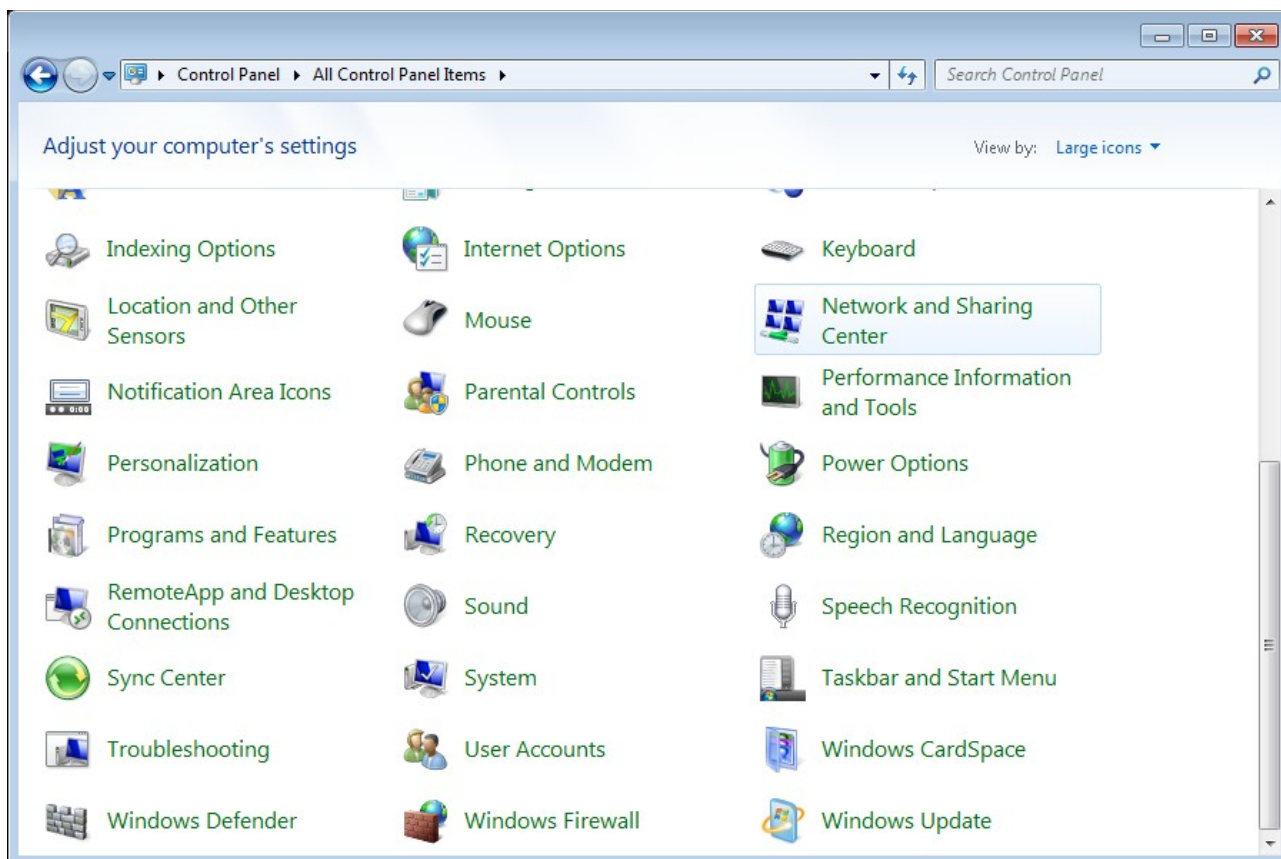
Figure 13. The Control Panel window.

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.
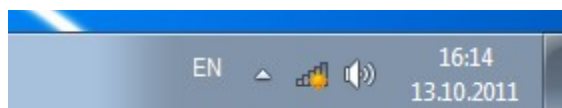
Figure 14. The notification area of the taskbar.

6. In the opened window, in the list of available wireless networks, select the wireless network `DSL-2750U` and click the **Connect** button.
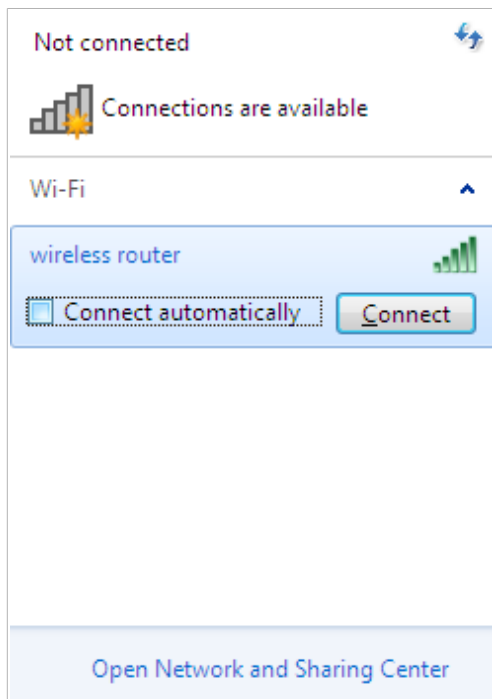
Figure 15. The list of available networks.

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 (for example, create an interface to connect to the Internet, change the parameters of the wireless network, specify the settings of the firewall, edit the password for the administrator account, etc.)

Start a web browser (see the ***Before You Begin*** section, page 16). In the address bar of the web browser, enter the IP address of the router (by default, the following IP address is specified: `192.168.1.1`). Press the **Enter** key.

Figure 16. Connecting to the web-based interface of the DSL-2750U device.

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

After the first access to the web-based interface you need to change the default administrator password. Enter the new password in the **Password** and **Confirmation** fields. You may set any password except `admin`. Use digits, Latin letters (uppercase and/or lowercase), and characters available on the keyboard. Then click the **Apply** button.
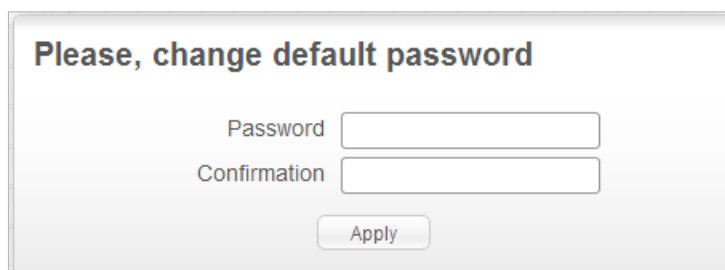
Figure 17. The page for changing the default administrator password.

! 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 password you specified 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.
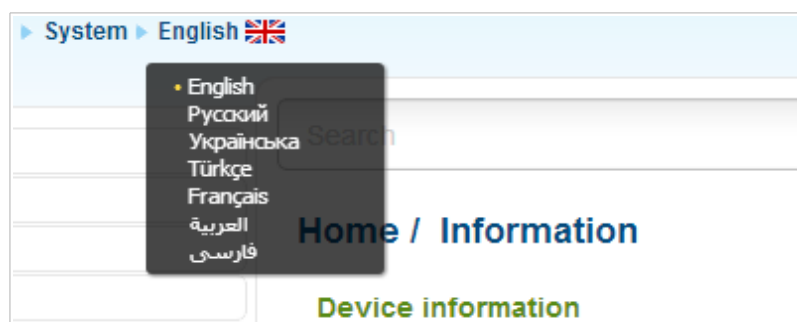
Figure 20. Changing the language of the web-based interface.

The **Home / Information** page displays general information on the router and its software, and data on the DSL connection state. 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 93).

To configure the router's WLAN basic parameters, left-click the SSID of the WLAN (the right column of the **SSID** line). After clicking the line, the **Wi-Fi / Basic settings** page opens (for the detailed description of the page, see the *Basic Settings* section, page 101).

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 103).

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.

In the **USB** section, data on the USB device connected to the router is displayed.

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 43).

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 60).

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 63).

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 65).

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 71).

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 101).

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 115).

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 133).

The pages of the **3G/LTE modem** section are designed to operate the connected LTE, 3G GSM or CDMA USB modem (for the description of the pages, see the *3G/LTE Modem* section, page 141).

The pages of the **USB storage** section are designed to operate the connected USB storage (for the description of the pages, see the *USB Storage* section, page 145).

The pages of the **Transmission** section are designed for configuration of the built-in Transmission torrent client and management of downloading process (for the description of the pages, see the *Transmission* section, page 152).

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 155).

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 157).

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 160).

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.
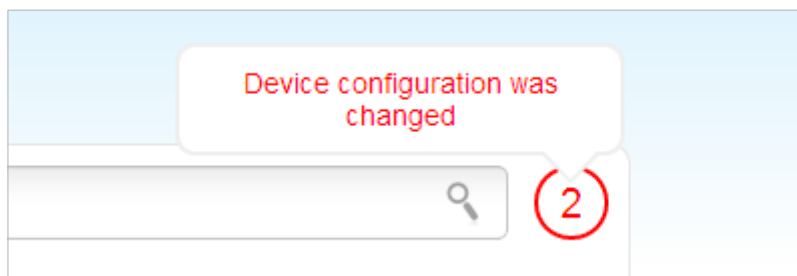
Figure 21. The web-based interface notifications.

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, and safely remove the USB storage connected to the router.
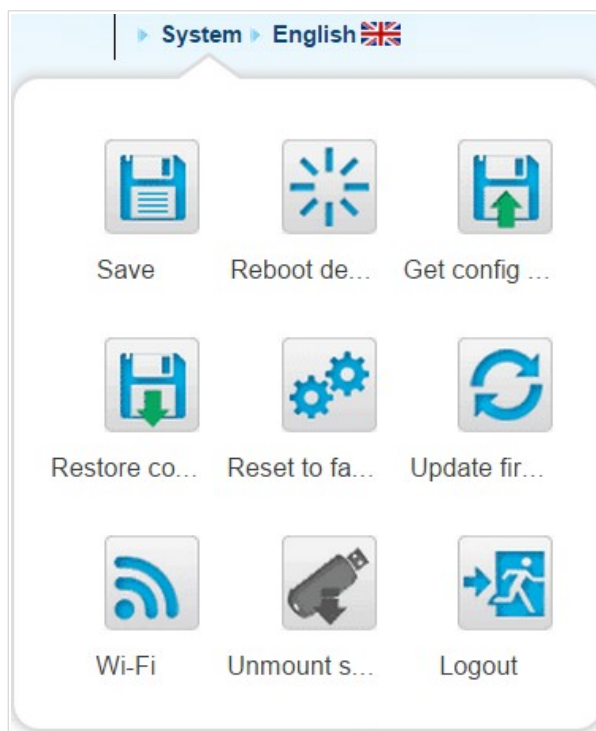
*Figure 22. The **System** menu in the top part of the page.*

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 next to the power connector. 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.
Unmount storage	Click the icon to safely disconnect the USB storage. Also you can safely disconnect the USB storage on the **USB storage / Information** page.

Control	Description
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 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. For the Ethernet WAN connection, 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).

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.
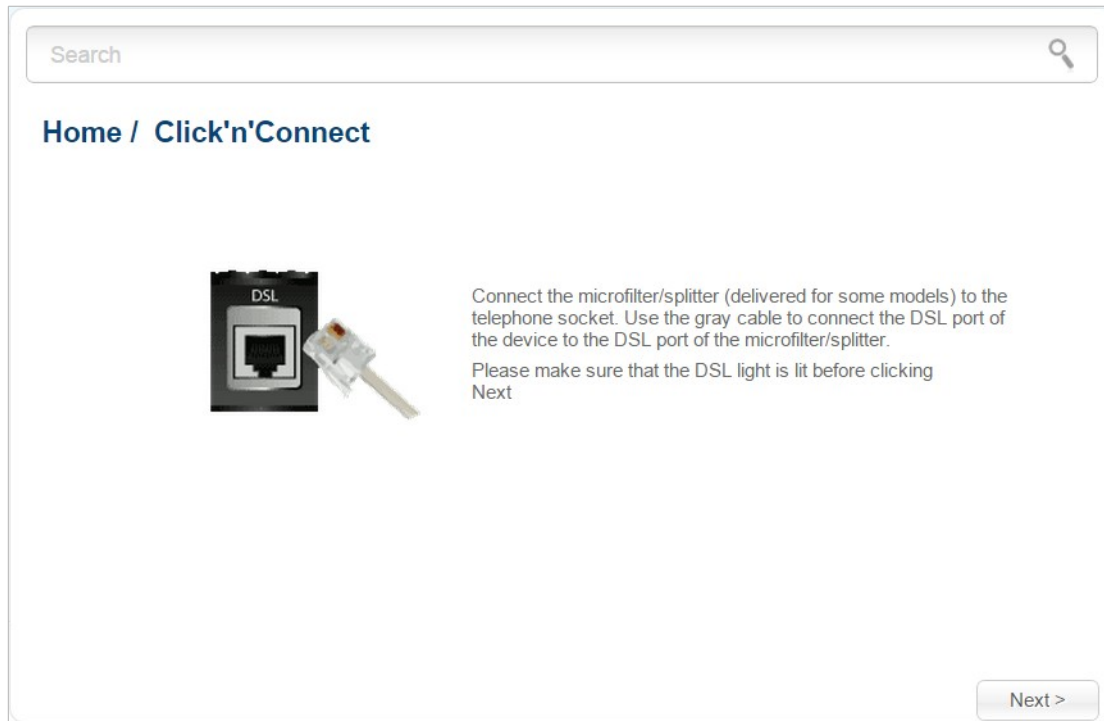
Figure 24. Configuring a WAN connection.

Click the **Next** button.
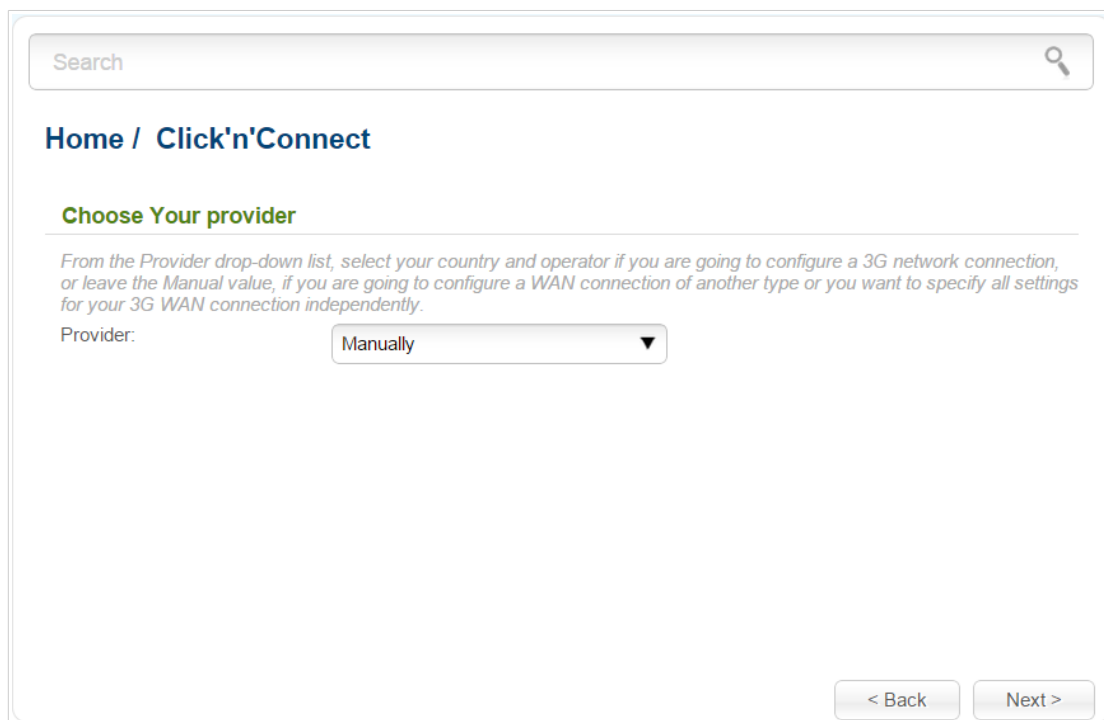
Figure 25. The page for selecting a 3G network operator.

On the opened page, from the **Provider** drop-down list, select your country and operator if you are going to configure a 3G network connection, or leave the **Manually** value, if you are going to configure a wired, LTE WAN connection or you want to specify all settings for your 3G WAN connection independently.

Click the **Next** button to continue.
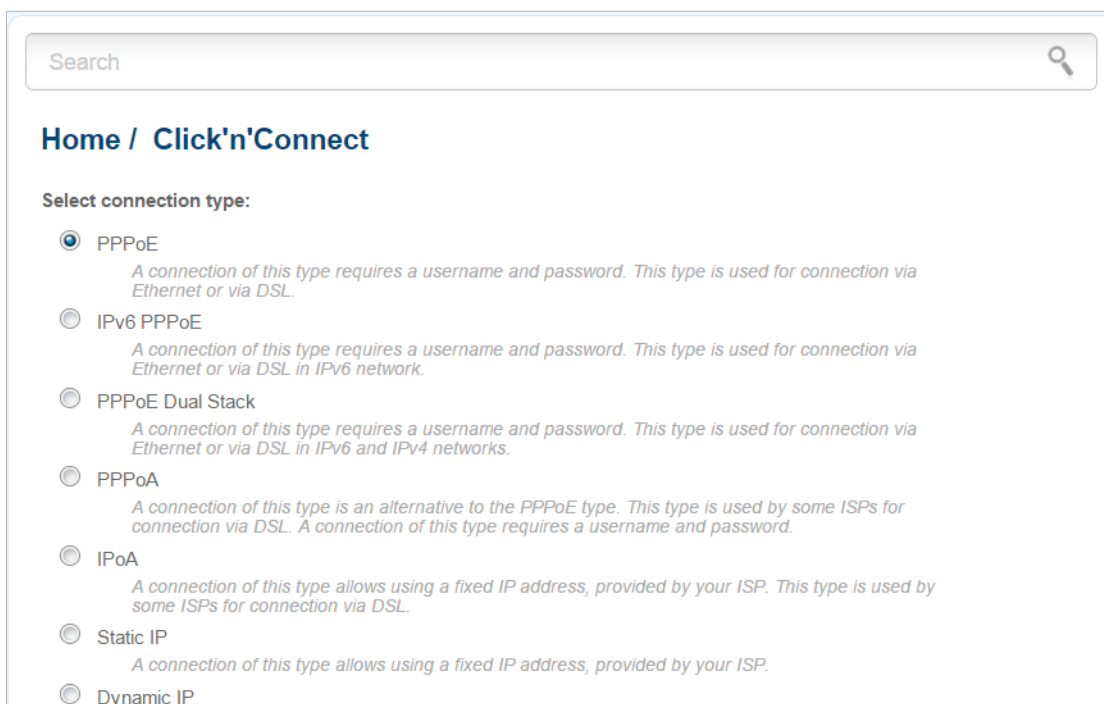
Figure 26. The page for selecting the connection type.

On the opened page, select the needed choice of the radio button and click the **Next** button.
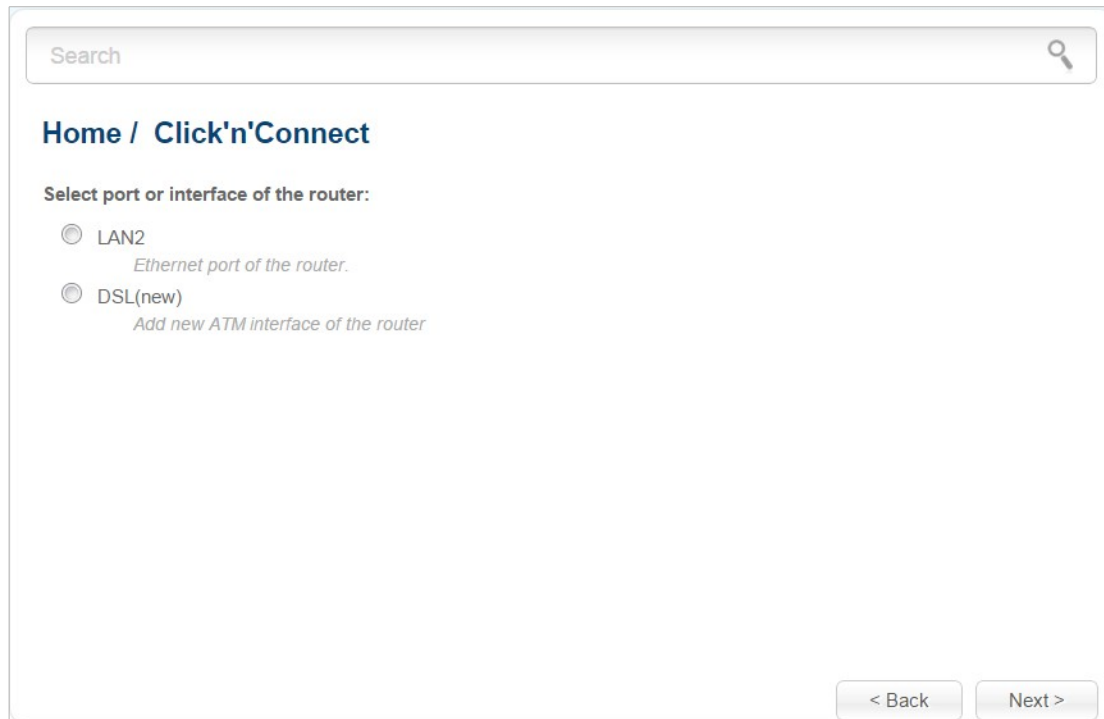
Figure 27. The page for selecting a port or interface.

On the opened page, select a port or interface to which the new connection will be assigned and click the **Next** button.

Creating WAN Connection

PPPoE or PPPoA Connection

Figure 28. Configuring PPPoE WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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 29. Configuring IPv6 PPPoE WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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).

IPoA or Static IP Connection

Figure 30. Configuring Static IP WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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

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

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

As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the *Creating ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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 31. Configuring Dynamic IP WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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).
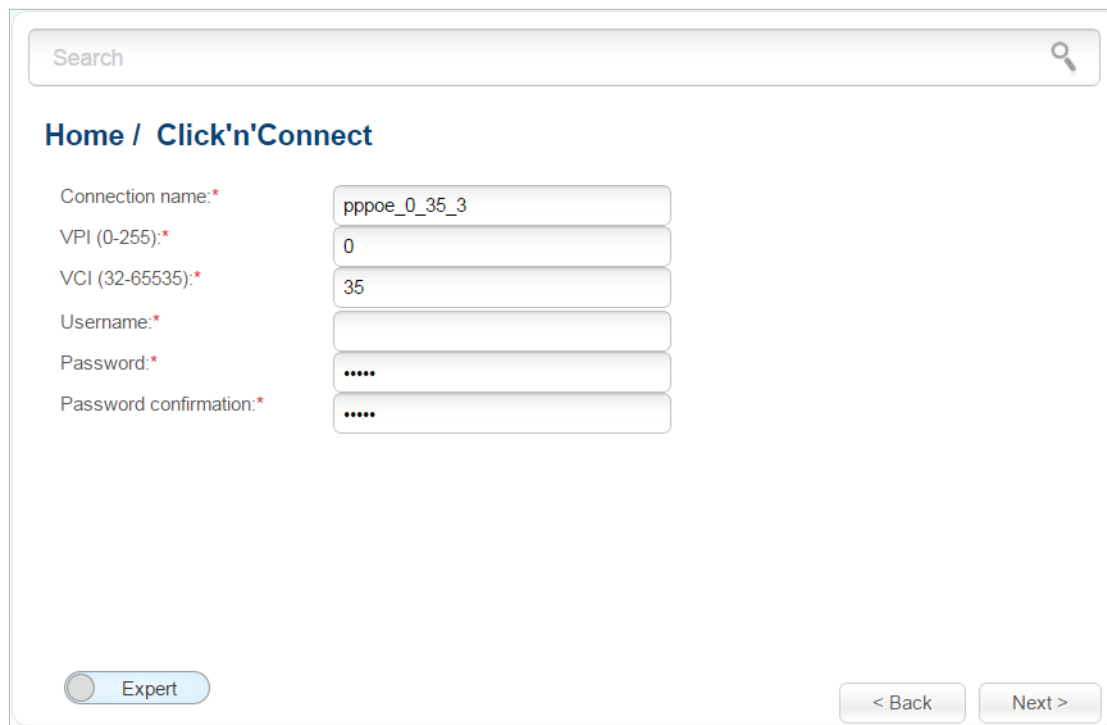
Static IPv6 Connection

Figure 32. Configuring Static IPv6 WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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 33. Configuring Dynamic IPv6 WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** fields.

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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).

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).
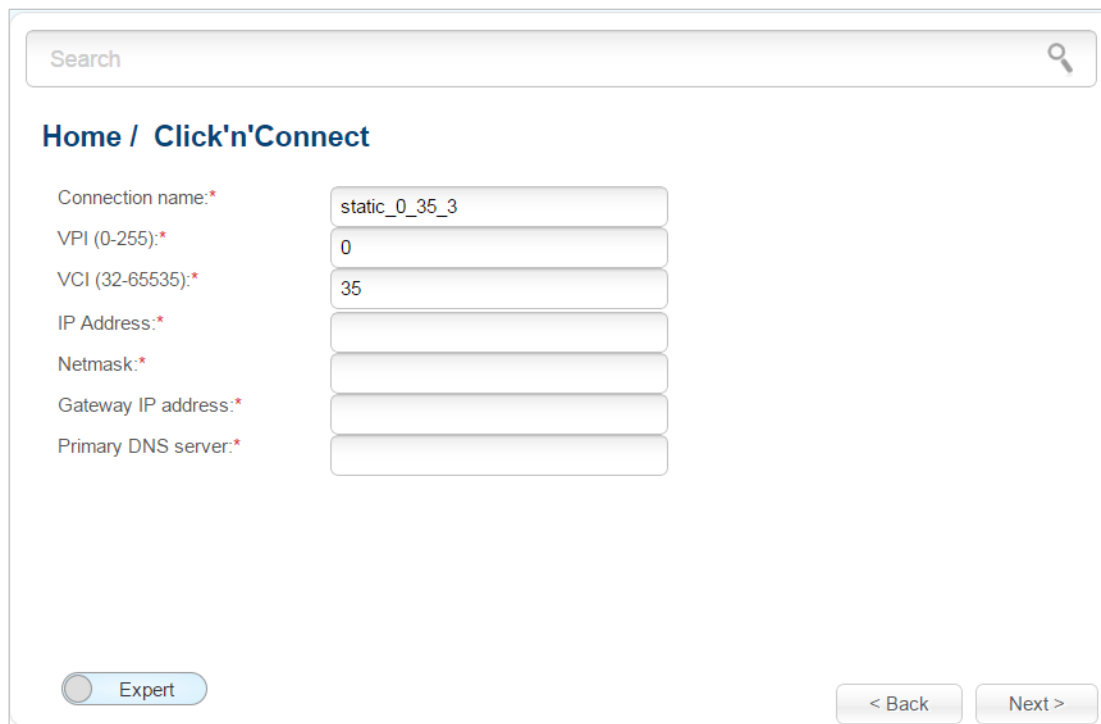
Bridge Connection

Figure 34. Configuring Bridge WAN connection.

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

For ADSL WAN connection, fill in the **VPI** and **VCI** 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 ADSL WAN Connection* section, page 72 when creating ADSL WAN connection or the *Creating Ethernet WAN Connection* section, page 80 when creating Ethernet WAN connection).
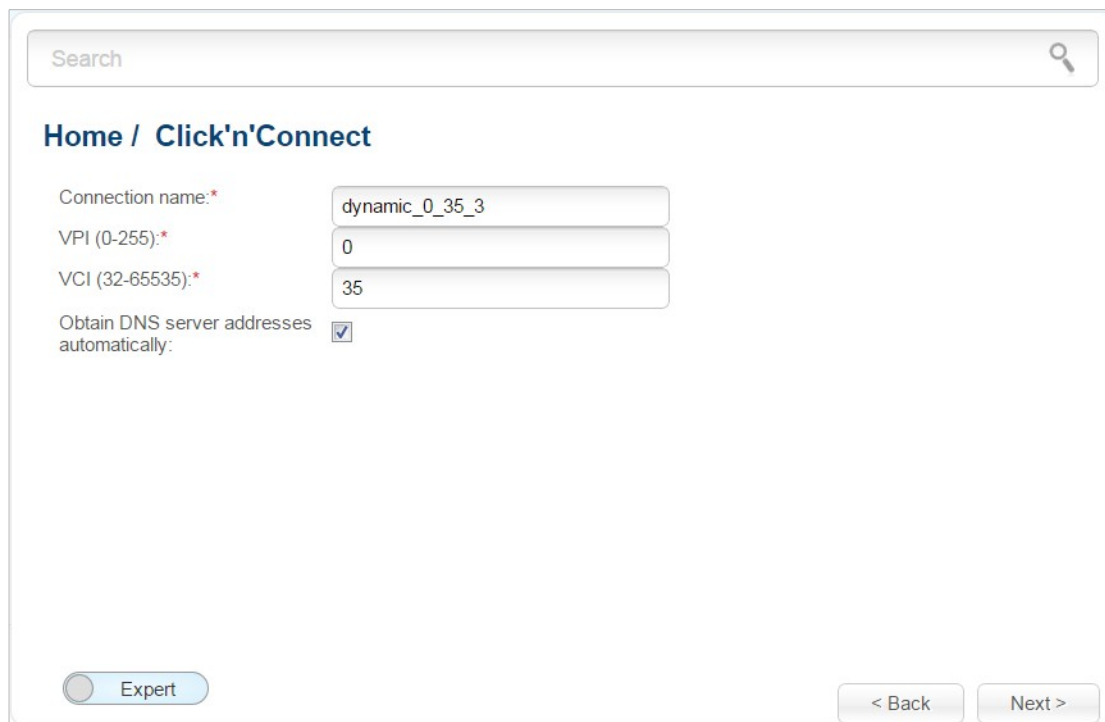
Click the **Next** button to continue.

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).

3G Connection
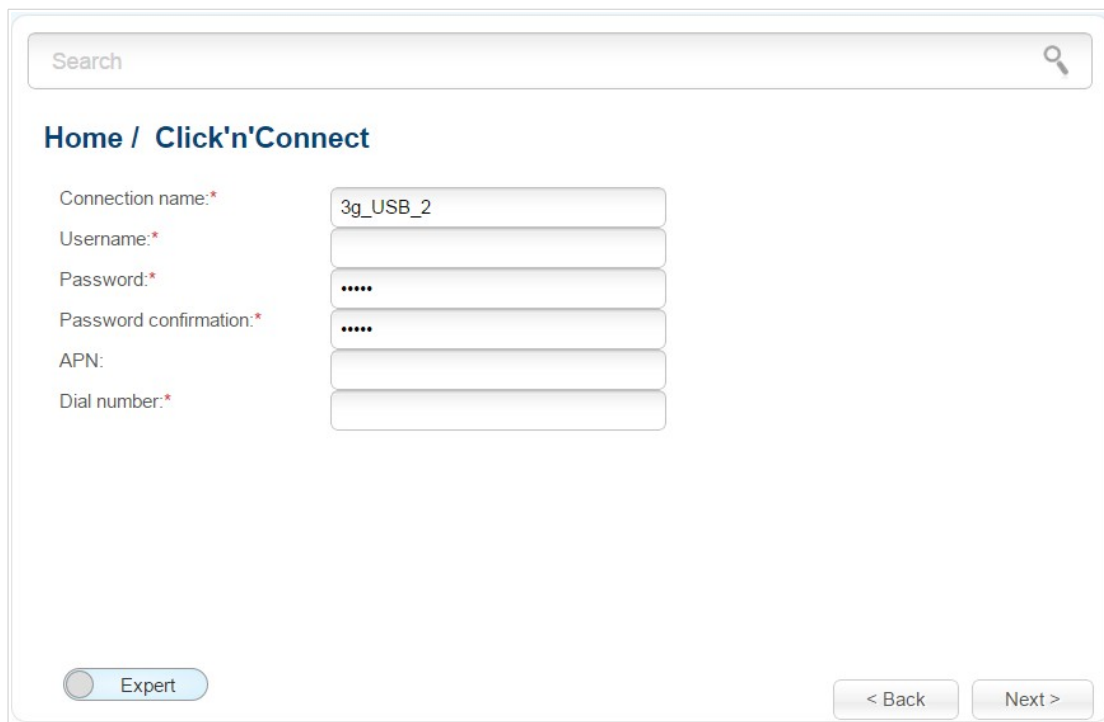
Figure 35. Configuring 3G WAN connection.

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 3G operator.

In the **APN** field (for GSM USB modems only), enter the access point name, and in the **Dial number** field, enter the number dialed to connect to the authorization server of the operator.
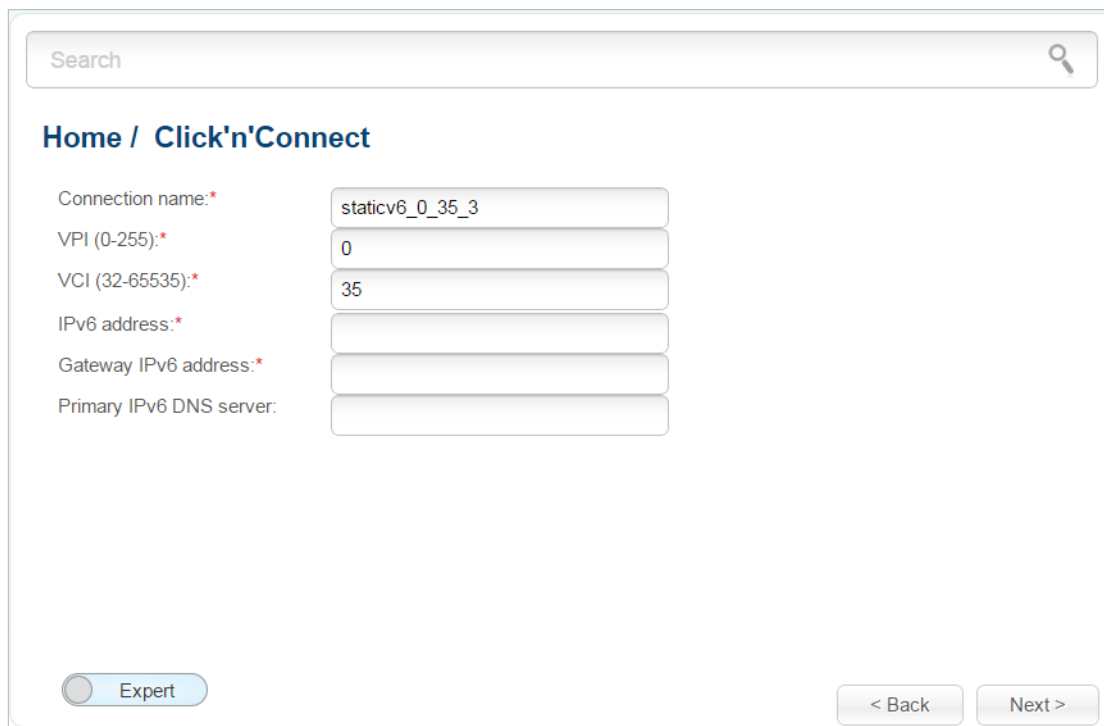
As a rule, the specified settings are enough to configure a connection of the selected type. If you need to specify additional settings, open the expert settings mode. To do this, use the switch in the bottom left corner of the page (for a detailed description of all the connection's parameters, see the *Creating 3G WAN Connection* section, page 53).
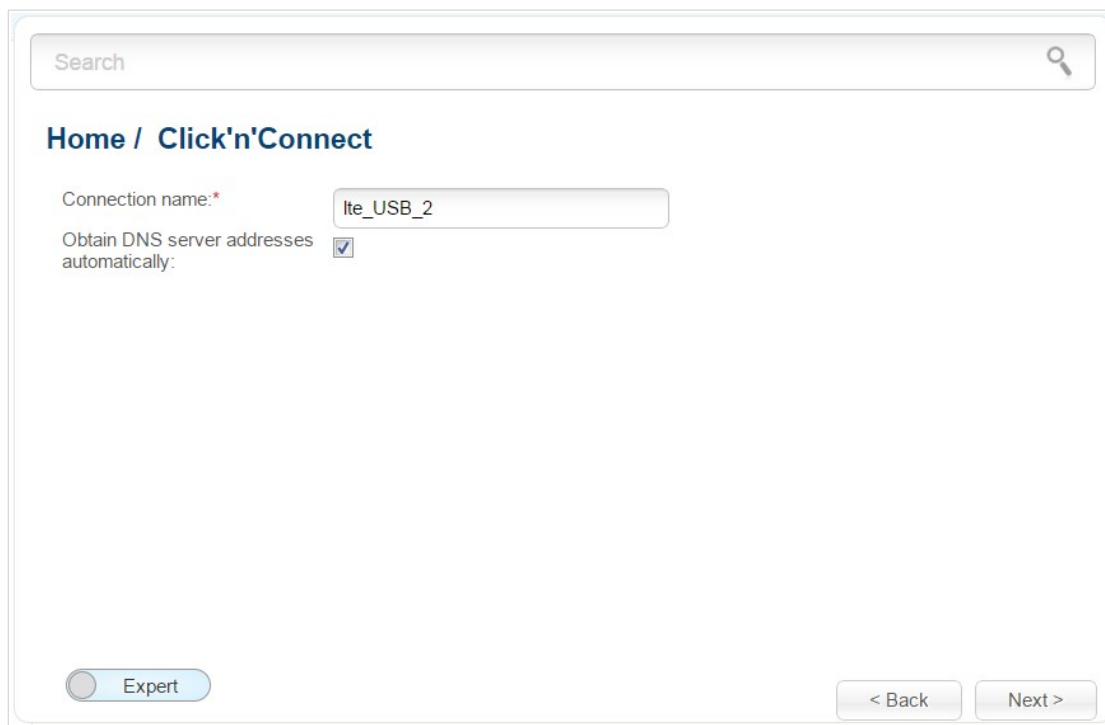
Click the **Next** button to continue.

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).

LTE Connection

> ❗ For the USB modem Megafon M100-1, please reboot the router after finishing the Wizard.

Figure 36. Configuring LTE 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 LTE WAN Connection* section, page 90).

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.
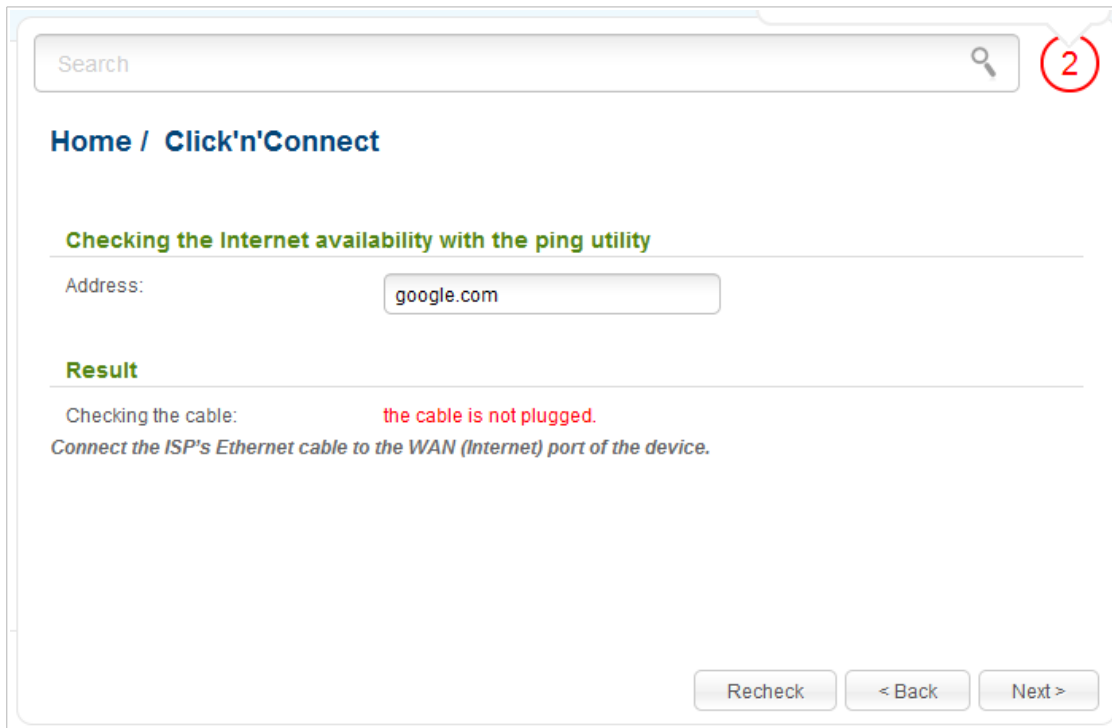
Figure 37. Checking the Internet availability.

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`). 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.
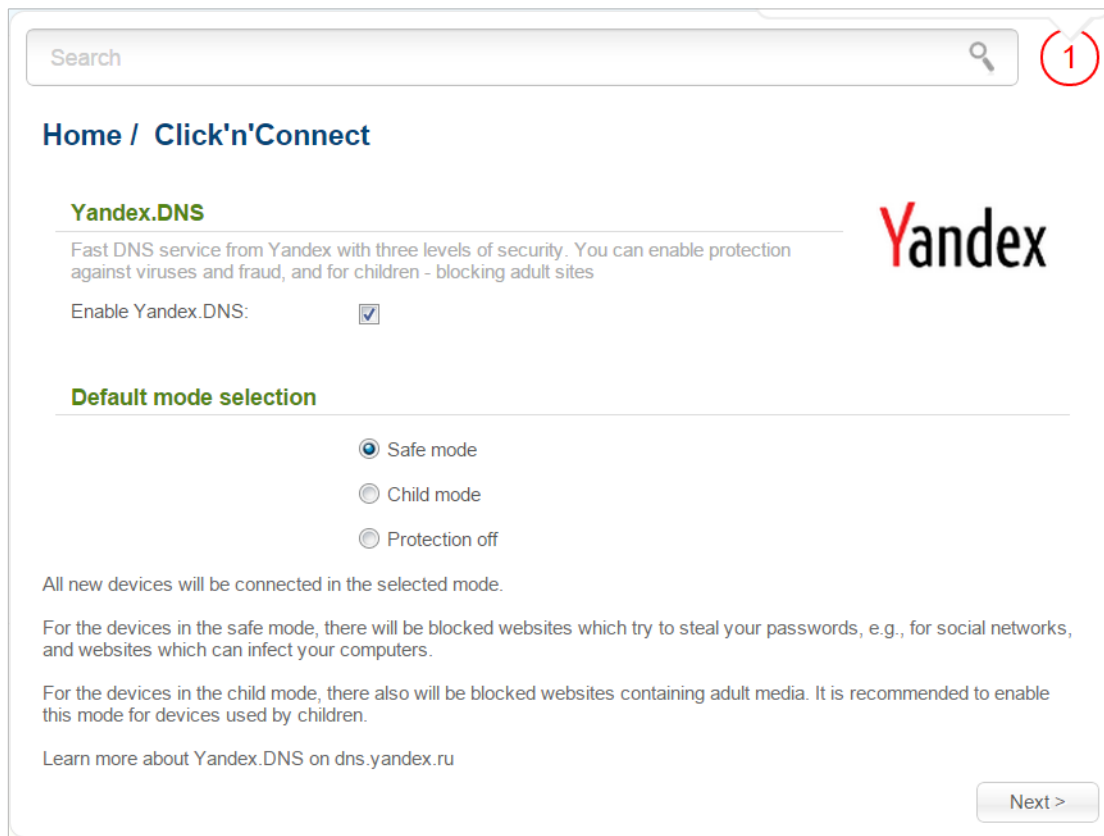
Figure 38. Configuring the Yandex.DNS service.

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
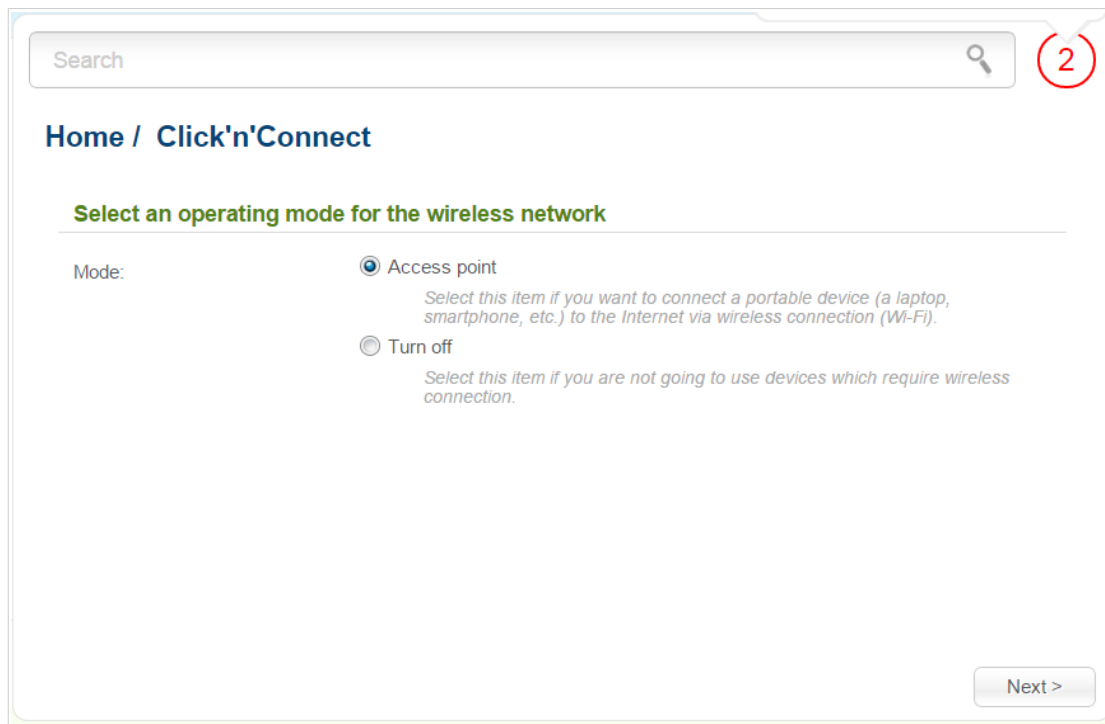
Figure 39. Selecting the operating mode for the wireless network.

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. Save the settings and wait until the router is rebooted.

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

On the opened page, in the **SSID** field, specify a new name for the network (use digits and Latin characters).
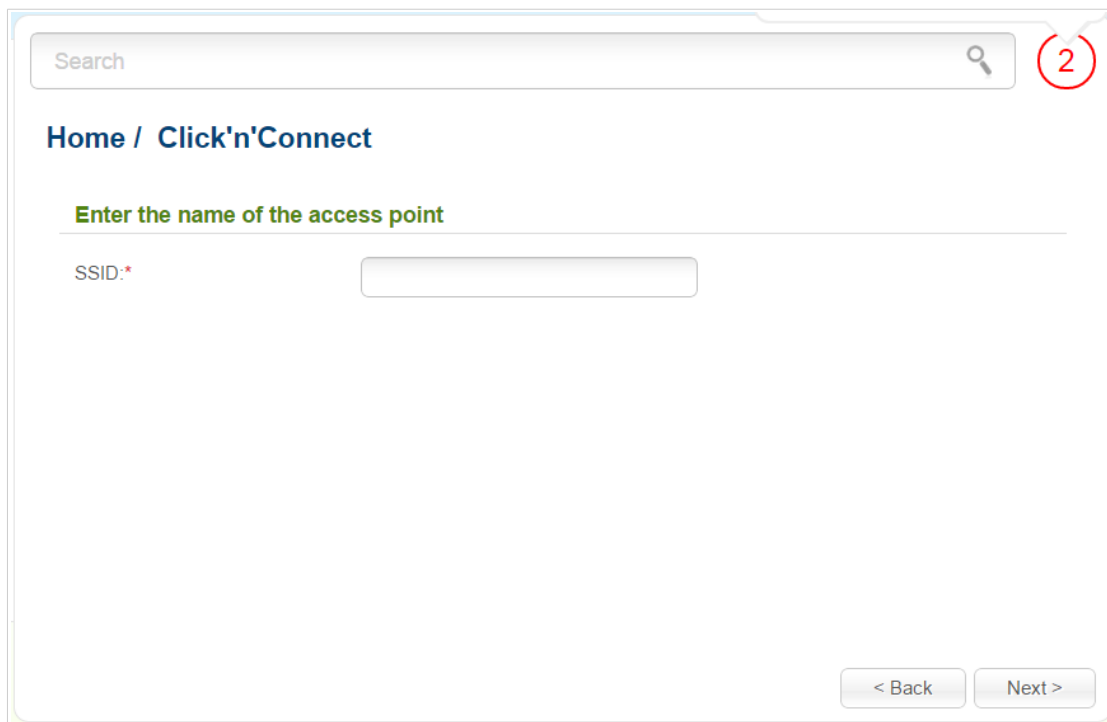
Figure 40. Changing the name of the wireless LAN.

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.
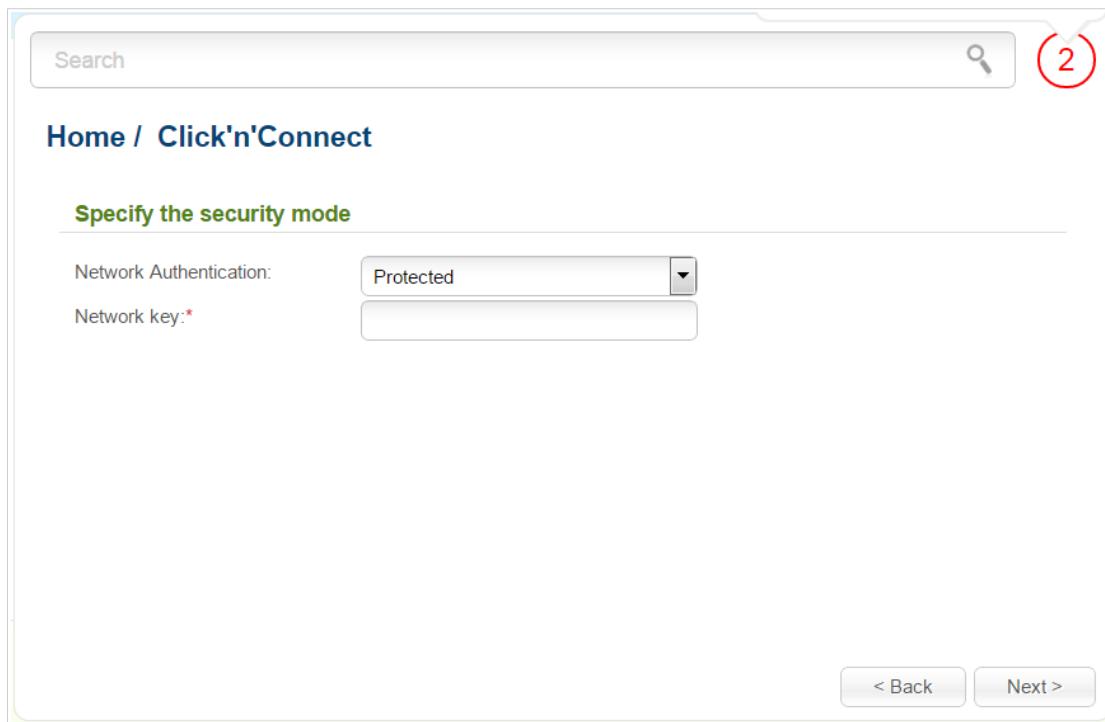
Figure 41. Selecting a security mode for the wireless network.

Click the **Next** button to continue.

On the next page, the specified settings are displayed. Make sure that they are correct and then click the **Apply** button. Save the settings and wait until the router is rebooted.

Wireless Network Settings Wizard

To specify all needed settings for your wireless network, click the **Wireless network settings wizard** link in the **Home** section.
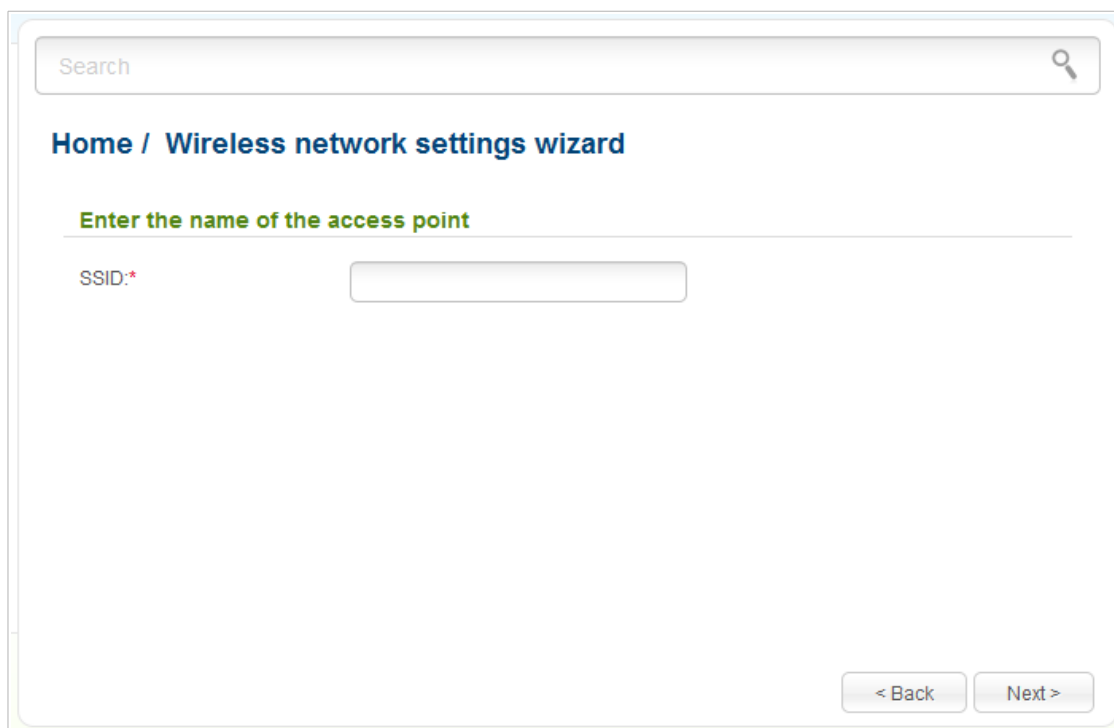
Figure 42. The page for selecting the operating mode for the wireless network.

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.

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

Figure 43. 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.
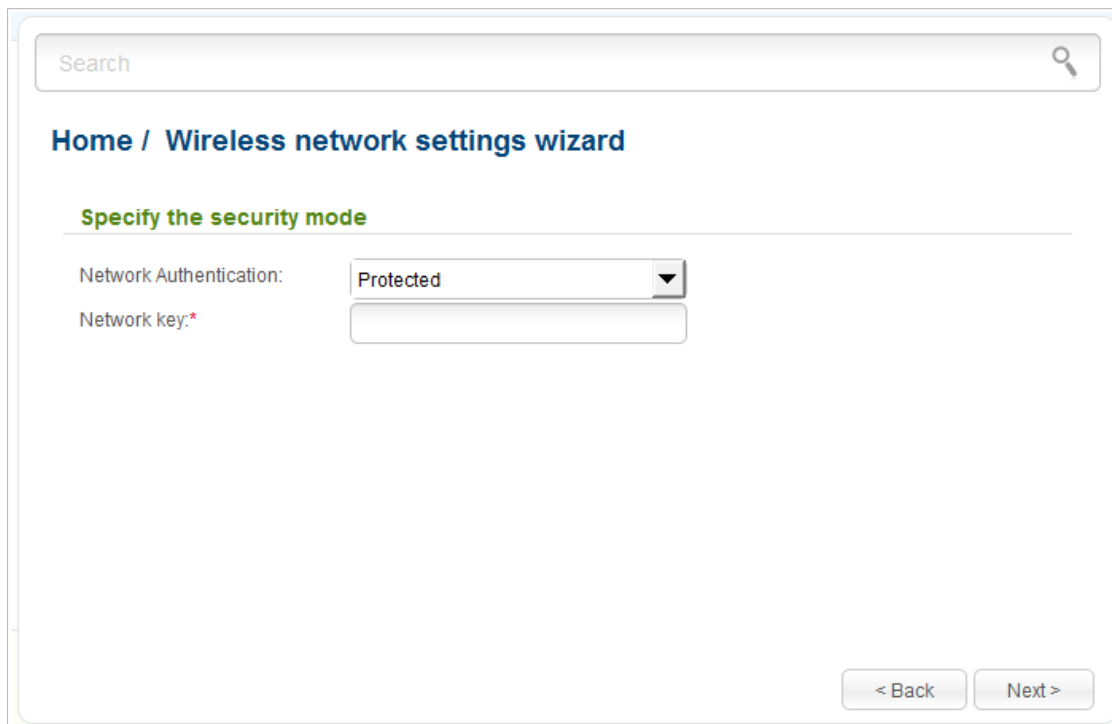
Figure 44. Page for selecting a security mode for the wireless network.

Click the **Next** button to continue.

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

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 45. The page for adding a virtual server.

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

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

Parameter	Description
Private port (begin)/ **Private port (end)**	A port of the IP address specified in the **Private IP** field to which traffic is directed from the **Public port**. Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Private port (begin)** field and leave the **Private port (end)** field blank.
Private IP	Enter the IP address of the server from the local area network. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list (the field will be filled in automatically).
Remote IP	Enter the IP address of the server from the external network.

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 136, 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.
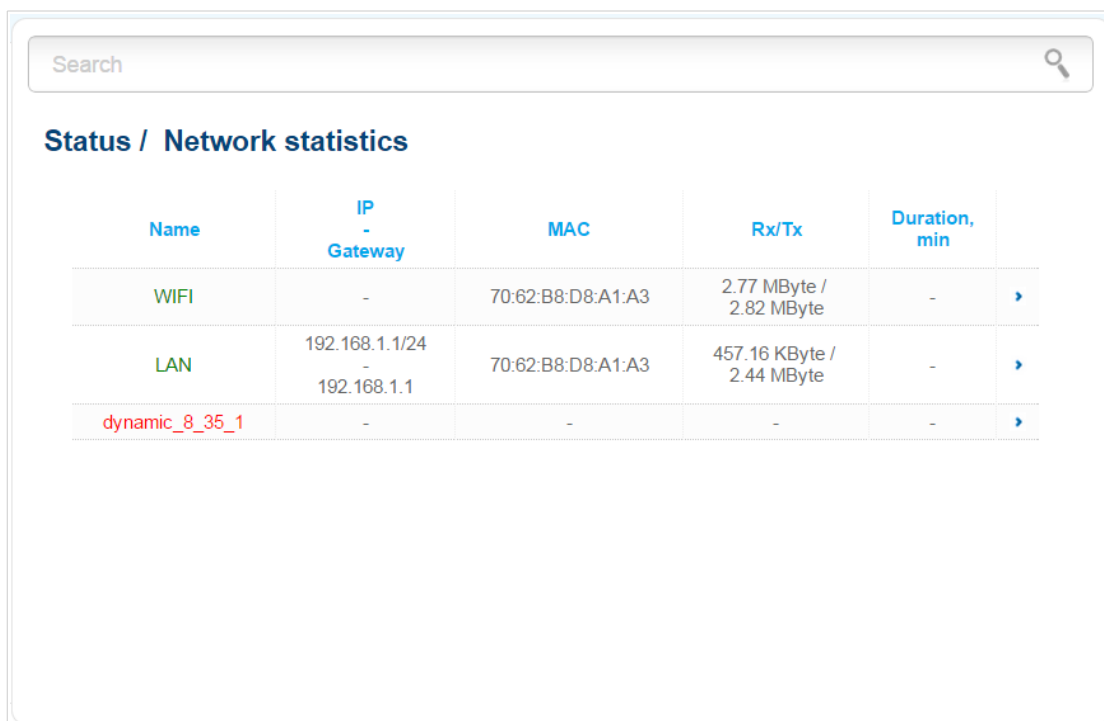
Status

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

- network statistics

- DSL connection status

- IP addresses leased by the DHCP server

- the routing table

- data on devices connected to the router's network and its web-based interface

- 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 46. The **Status / Network statistics** page.*

DSL Status

The information shown on pages of the **Status / DSL status** section can be used for troubleshooting and diagnosing connection problems.

On the **DSL status** and **Line** pages you can view data on your DSL line: the connection state (when the connection is on, the green indicator appears, when the connection is off, the red indicator appears), actual data transfer rate (downstream/upstream traffic), DSL standard, the line state, using trellis coded modulation, and physical parameters of the line (SNR, output power). The **Framing** page displays information on transmitted DSL frames.
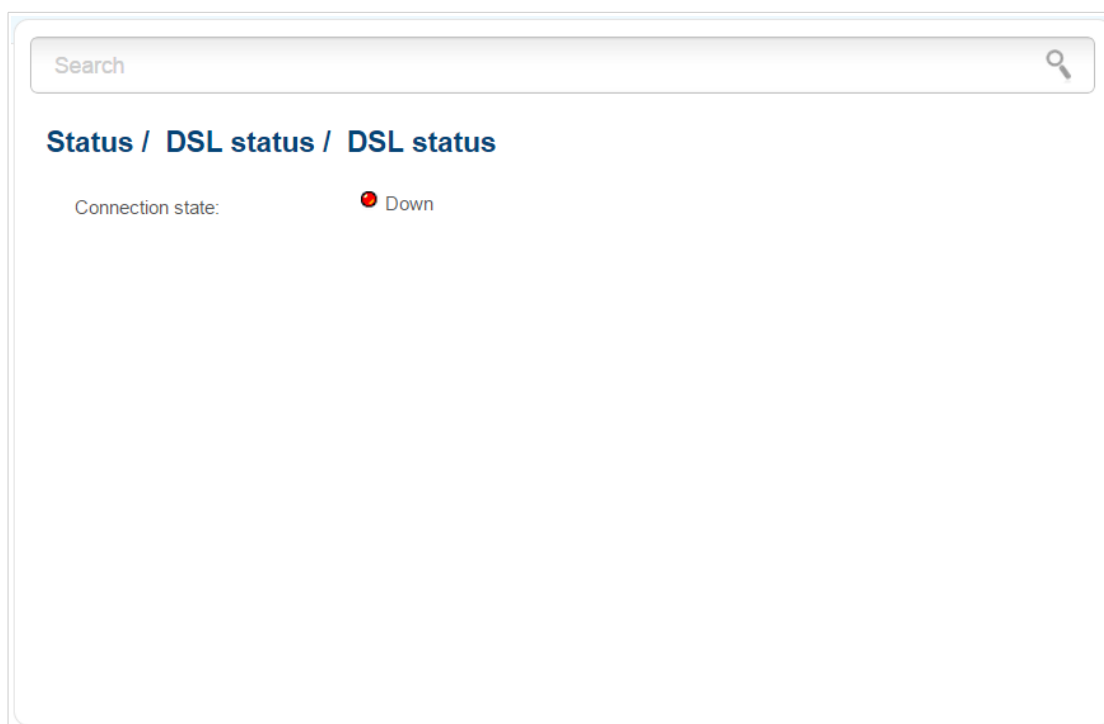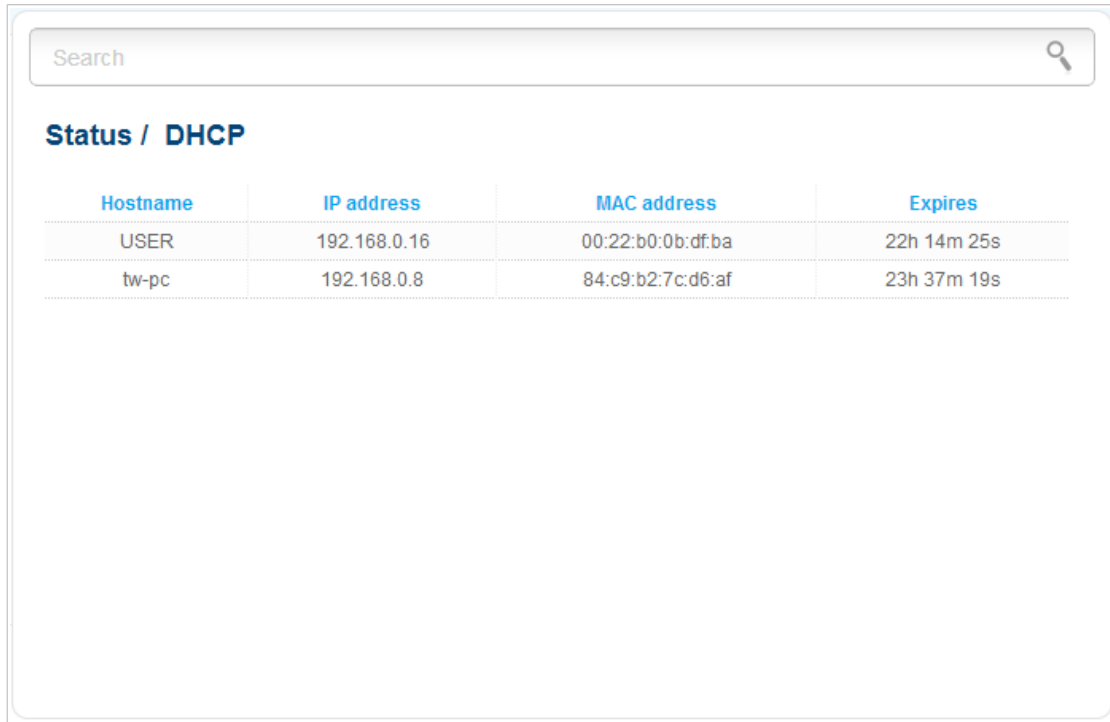
*Figure 47. The **Status / DSL status** page.*

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).
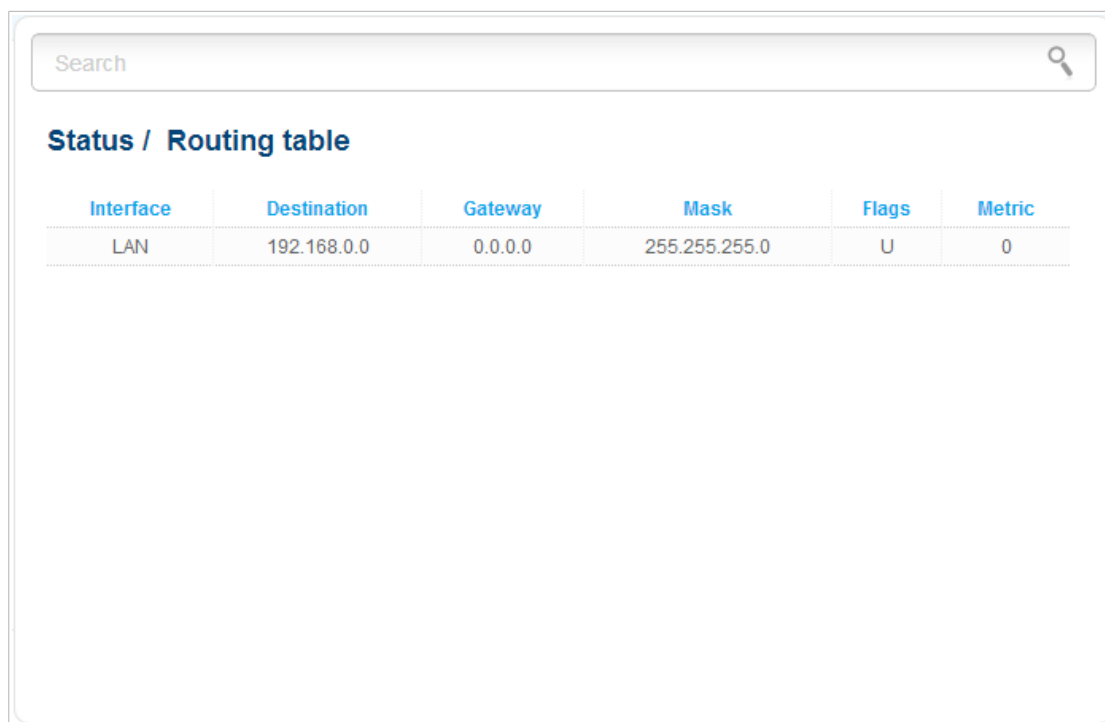
*Figure 48. The **Status / DHCP** page.*

Routing Table

The **Status / Routing table** page displays the information on routes. The table contains destination IP addresses, gateways, subnet masks, and other data.
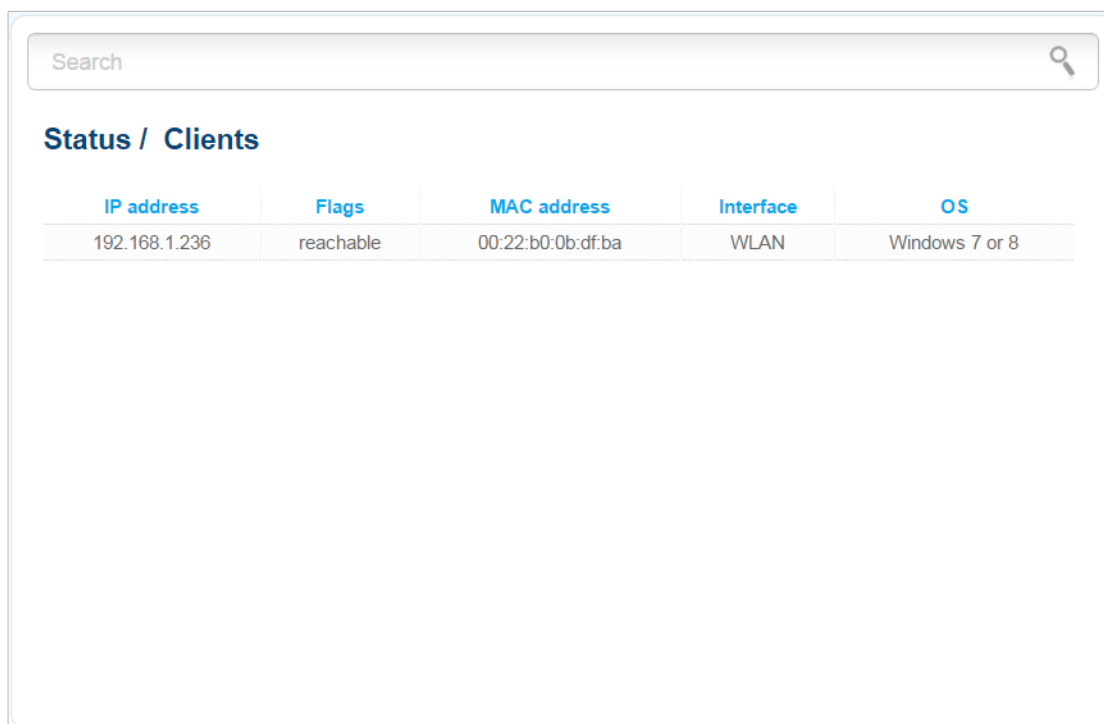
*Figure 49. The **Status / Routing table** page.*

Clients

On the **Status / Clients** page, you can view the list of devices connected to the router and devices accessing its web-based interface.
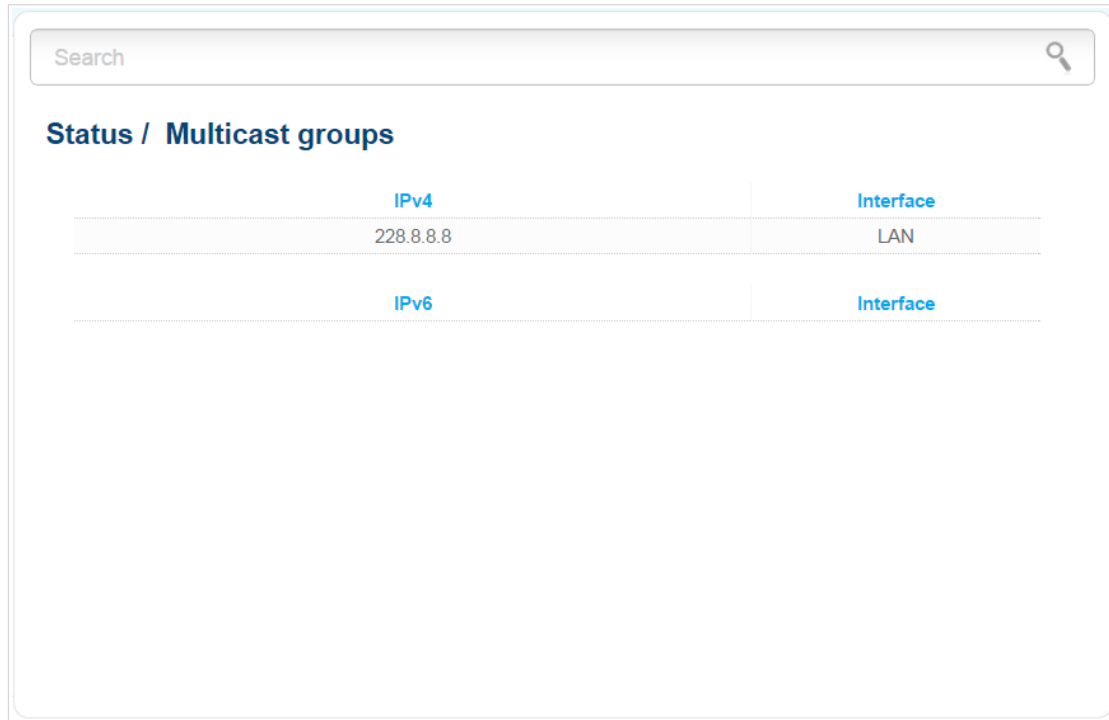
*Figure 50. The **Status / Clients** page.*

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

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 51. 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 WAN port of the router. You can edit this connection or delete it.

> ! Please reboot the router after creating, editing, or removing an ADSL WAN connection.
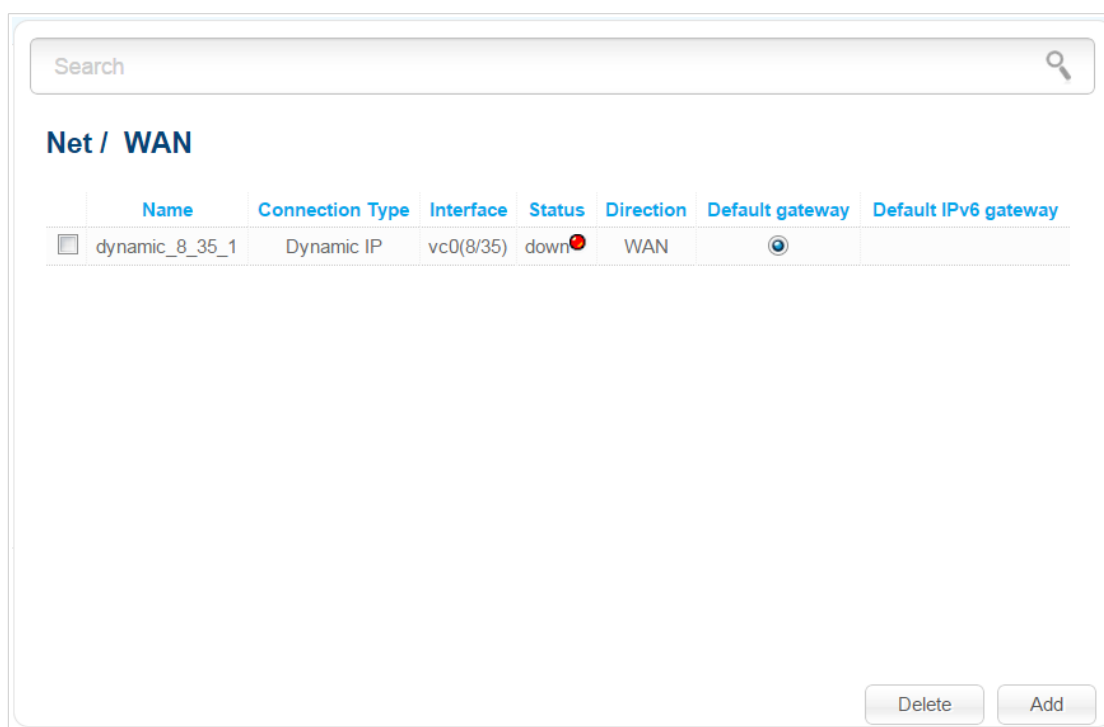
*Figure 52. The **Net / WAN** page.*

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 an existing 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 gateway, select the choice of the **Default gateway** radio button located in the line corresponding to this connection.

See an example of creating several connections in the ***Creating Two Connections on One Channel*** section, page 176.

Creating ADSL WAN Connection

*Figure 53. The page for creating a new connection. The **General settings** and **ATM** sections.*

Parameter	Description
General settings	
Provider	Leave the **Manually** value.
Connection Type	A type of network protocol to be used by the connection. Available values: • **PPPoA** • **PPPoE** • **IPv6 PPPoE** • **PPPoE Dual Stack** • **IPoA** • **Static IP / Dynamic IP** • **Static IPv6 / Dynamic IPv6** • **Bridge**.
Interface	A physical interface to which the new connection will be assigned. Leave the **DSL(new)** value to create a new interface at the physical layer.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

Parameter	Description
ATM	
VPI	Virtual Path Identifier. The valid range is from 0 to 255.
VCI	Virtual Circuit Identifier. The valid range is from 32 to 65535.
Encapsulation Mode	Select **LLC** or **VC** from the drop-down list.
QoS	A class of traffic for this connection. **UBR** (*Unspecified Bit Rate*): The UBR service is used for applications that allow various delays and losses of packets. It is appropriate to use the UBR service for text/data/image transfer applications, as well as messaging, distribution, retrieval, and remote terminal applications. **UBR with PCR** (*Unspecified Bit Rate with Peak Cell Rate*): The UBR service is used for applications that allow various delays and losses of packets. The Peak Cell Rate is a determining factor in how often cells are sent in an effort to minimize lag or jitter caused by traffic inconsistencies. When you select this value from the drop-down list, the **Peak Cell Rate** field is displayed. Specify a required value (in cells per second). **CBR** (*Constant Bit Rate*): This service is used for applications that require a constant data rate. It is mostly used for transferring uncompressed audio and video, e.g. videoconferencing, interactive audio (telephony), audio/video distribution (television, distance education, e-shops), and retrieval (video-on demand, audio libraries). When you select this value from the drop-down list, the **Peak Cell Rate** field is displayed. Specify a required value (in cells per second). **Non Realtime VBR** (*Non-Real-time Variable Bit Rate*): This service can be used for transferring data that have critical response-time requirements, e.g. air ticket booking, bank transactions, and process monitoring. When you select this value from the drop-down list, the **Peak Cell Rate**, **Sustainable Cell Rate**, and **Maximum Burst Size** fields are displayed. Specify required values. **Realtime VBR**

Parameter	Description
	(*Real-time Variable Bit Rate*): This service is used for delay-sensitive applications such as real time video. The Rt-VBR provides higher network flexibility than the CBR service. When you select this value from the drop-down list, the **Peak Cell Rate**, **Sustainable Cell Rate**, and **Maximum Burst Size** fields are displayed. Specify required values.

The **VLAN** section is displayed for the **PPPoE**, **IPv6 PPPoE**, **PPPoE Dual Stack**, **Static IP**, **Dynamic IP**, **Static IPv6**, **Dynamic IPv6** and **Bridge** connection types.

*Figure 54. The page for creating a new connection. The **VLAN** section.*

Parameter	Description
VLAN	
Allow to create several connections assigned to this port	Select the checkbox to allow the router to use several untagged connections.
Use VLAN	Select the checkbox to allow the router to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when the **Use VLAN** checkbox is selected.
VLAN priority	A priority tag for the type of traffic transmitted. The field is displayed when the **Use VLAN** checkbox is selected.

The **Miscellaneous** section is displayed for all connection types except for **Bridge**.

*Figure 55. The page for creating a new connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	*Displayed for the **PPPoA**, **PPPoE**, **PPPoE Dual Stack**, **IPoA**, **Static IP**, and **Dynamic IP** types only.* Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	*Displayed for the **PPPoA**, **PPPoE**, **PPPoE Dual Stack**, **IPoA**, **Static IP**, and **Dynamic IP** types 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.

The **PPP** section is displayed for the **PPPoA**, **PPPoE**, **IPv6 PPPoE**, and **PPPoE Dual Stack** connection types.

*Figure 56. The page for creating a new 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	*Displayed for the **PPPoE**, **IPv6 PPPoE**, and **PPPoE Dual Stack** types only.* 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.

Parameter	Description
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.
Static IP Address	*Displayed for the **PPPoA**, **PPPoE**, and **PPPoE Dual Stack** types only.* Fill in the field if you want to use a static IP address to access the Internet.
PPP debug	*Displayed for the **PPPoA** and **PPPoE** types only.* Select the checkbox if you want to log all data on PPP connection debugging.

The **IP** section is displayed for the **IPoA**, **Static IP**, **Dynamic IP**, **Static IPv6**, and **Dynamic IPv6** connection types.

*Figure 57. The page for creating a new connection. The **IP** section.*

Parameter	Description
IP	
*For **Static IP** and **IPoA** 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 **Dynamic IP** type*	

Parameter	Description
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.*
*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.

The **IPv6**, **IPv6 gateway**, and **IPv6 DNS addresses** sections are displayed for the **IPv6 PPPoE** and **PPPoE Dual Stack** connection types.

*Figure 58. The page for creating a new connection. The **IPv6, IPv6 gateway**, and **IPv6 DNS addresses** sections.*

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

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

Creating Ethernet WAN Connection

Prior to creating an Ethernet WAN connection, specify a LAN port that will be used as the WAN port (see the *EtherWAN* section, page 120).

*Figure 59. The page for creating a new connection. The **General settings**, **Ethernet**, and **VLAN** sections.*

Parameter	Description
General settings	
Provider	Leave the **Manually** value.
Connection Type	A type of network protocol to be used by the connection. Available values: • **PPPoE** • **IPv6 PPPoE** • **PPPoE Dual Stack** • **Static IP / Dynamic IP** • **Static IPv6 / Dynamic IPv6** • **Bridge**.
Interface	Select the value corresponding to the LAN port specified as the WAN port.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

Parameter	Description
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	*Displayed for the **PPPoE**, **IPv6 PPPoE**, **PPPoE Dual Stack**, **Static IP**, **Dynamic IP**, **Static IPv6**, and **Dynamic IPv6** types only.* 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.
VLAN	
Allow to create several connections assigned to this port	If the checkbox is selected, the router is able to use several untagged connections.
Use VLAN	If the checkbox selected, the router is able to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when the **Use VLAN** checkbox is selected.
VLAN priority	A priority tag for the type of traffic transmitted. The field is displayed when the **Use VLAN** checkbox is selected.

The **Miscellaneous** section is displayed for all connection types except for **Bridge**.

Figure 60. The page for creating a new connection. The Miscellaneous section.

Parameter	Description
Miscellaneous	
Enable RIP	Select the checkbox to allow using RIP for this connection.
Enable IGMP Multicast	*Displayed for the **PPPoE**, **PPPoE Dual Stack**, **Static IP**, and **Dynamic IP** types only.* Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	*Displayed for the **PPPoE**, **PPPoE Dual Stack**, **Static IP**, and **Dynamic IP** types 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.

The **PPP** section is displayed for the **PPPoE**, **IPv6 PPPoE**, or **PPPoE Dual Stack** connection types.

*Figure 61. The page for creating a new 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	*Displayed for the **PPPoE** and **PPPoE Dual Stack** types only.* Fill in the field if you want to use a static IP address to access the Internet.
PPP debug	*Displayed for the **PPPoE** type only.* Select the checkbox if you want to log all data on PPP connection debugging.

The **IP** section is displayed for the **Static IP**, **Dynamic IP**, **Static IPv6**, and **Dynamic IPv6** connection types.

*Figure 62. The page for creating a new 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.

Parameter	Description
Vendor ID	The identifier of your ISP. *Optional.*
Hostname	A name of the router specified by your ISP. *Optional.*
*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.

The **IPv6**, **IPv6 gateway**, and **IPv6 DNS addresses** sections are displayed for the **IPv6 PPPoE** and **PPPoE Dual Stack** connection types.

*Figure 63. The page for creating a new connection. The **IPv6**, **IPv6 gateway**, and **IPv6 DNS addresses** sections.*

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

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

Creating 3G WAN Connection

If the PIN code check is enabled for the SIM card inserted into your USB modem, then prior to creating a 3G WAN connection, proceed to the **3G/LTE modem / PIN** menu and enter the PIN code on the page displayed (see the *3G/LTE Modem* section, page 141). Then proceed to the **Net / WAN** page, click the **Add** button, and select the **3G** value from the **Connection Type** drop-down list.

*Figure 64. The page for creating a new connection. The **General settings** section.*

Parameter	Description
General settings	
Provider	To automatically specify all settings required to connect to the Internet, select your country and operator from the drop-down list. To specify all settings independently, leave the **Manually** value.
Interface	Select the **USB** value.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.

*Figure 65. The page for creating a new connection. The **USB modem** section.*

Parameter	Description
USB modem	
Mode	The value of the field specifies the type of the network to which the router connects. Leave the **auto** value to let the router connect automatically to an available type of network, or select a needed value from the drop-down list. *For GSM USB modems only.*

*Figure 66. The page for creating a new connection. The **PPP** section.*

Parameter	Description
PPP	
Username	A username (login) to connect to the network of the operator.
Without authorization	Select the checkbox if your operator does not require authorization.
Password	A password to connect to the network of the operator.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
APN	An access point name. *For GSM USB modems only.*

Parameter	Description
Dial number	A number dialed to connect to the authorization server of the operator.
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. *Optional*.
Keep Alive	Select the checkbox if you want the router to keep you connected to the network of your operator 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	In the field, you can specify additional data for encryption or authentication. *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.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.

*Figure 67. The page for creating a new connection. The **Miscellaneous** section.*
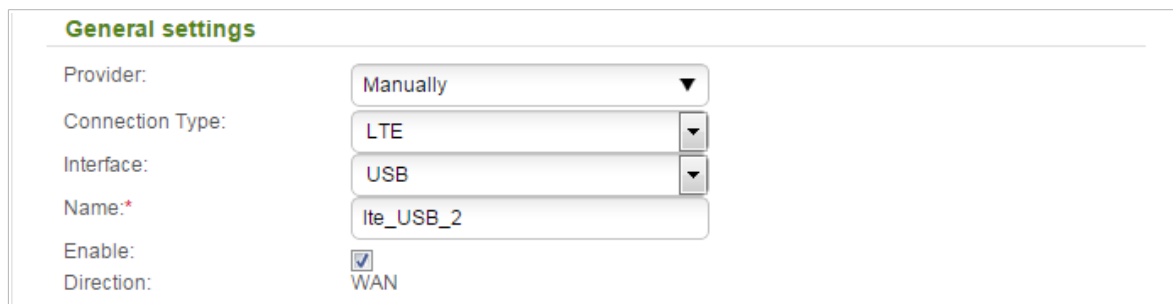
Parameter	Description
Miscellaneous	
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.
Ping	Select the checkbox to allow the router to answer ping requests from the external 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 LTE WAN Connection

> **!** For the USB modem Megafon M100-1, please reboot the router after creating the WAN connection.

To create a connection of the LTE 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 68. The page for creating a new connection. The **General settings** section.*

Parameter	Description
General settings	
Provider	Leave the **Manually** value.
Interface	Select the **USB** value.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.
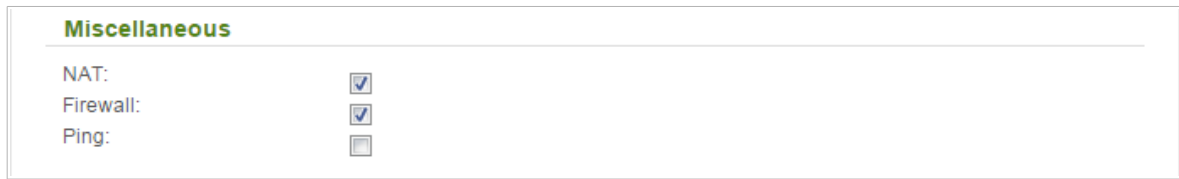
*Figure 69. The page for creating a new connection. The **USB modem** section.*

Parameter	Description
USB modem	
Mode	The value of the field specifies the type of the network to which the router connects. Leave the **auto** value to let the router connect automatically to an available type of network, or select a needed value from the drop-down list.[8]
APN	An access point name.

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

Parameter	Description
IP	
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*.

---

8   Some LTE USB modems do not support network type selection and work in the **auto** mode regardless of the value selected from the drop-down list.

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

Parameter	Description
Miscellaneous	
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 72. 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: `192.168.1.1`.
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. 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 73. The section for configuring the DHCP server.

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

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

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

In the **IPv6 DHCP server** section, you can enable the DHCPv6 server of the router and select its operating mode.

Figure 74. The section for configuring the DHCPv6 server.

Parameter	Description
Enable DHCPv6 Server	Select the checkbox to enable the DHCPv6 server of the router. When the checkbox is selected, the **Mode** drop-down list and the **Leased Time** field are displayed on the page.
DHCP PD	Select the checkbox to activate the Prefix Delegation function. When the checkbox is selected, the router requests a prefix to configure IPv6 addresses for clients of the LAN from a delegating router.

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

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

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

Figure 75. 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.

QoS

This section is designed to enable the QoS features, create rules for prioritizing upstream traffic, and specify the maximum data transfer rate for each queue.

The QoS features help to improve the quality of data transfer by prioritizing different types of traffic.

Advanced Configuration

On the **Net / QoS / Advanced configuration** page, you can enable the QoS features, create new rules for prioritizing upstream traffic, and edit or remove existing rules.

To enable the QoS features, select the **Enabled** checkbox.
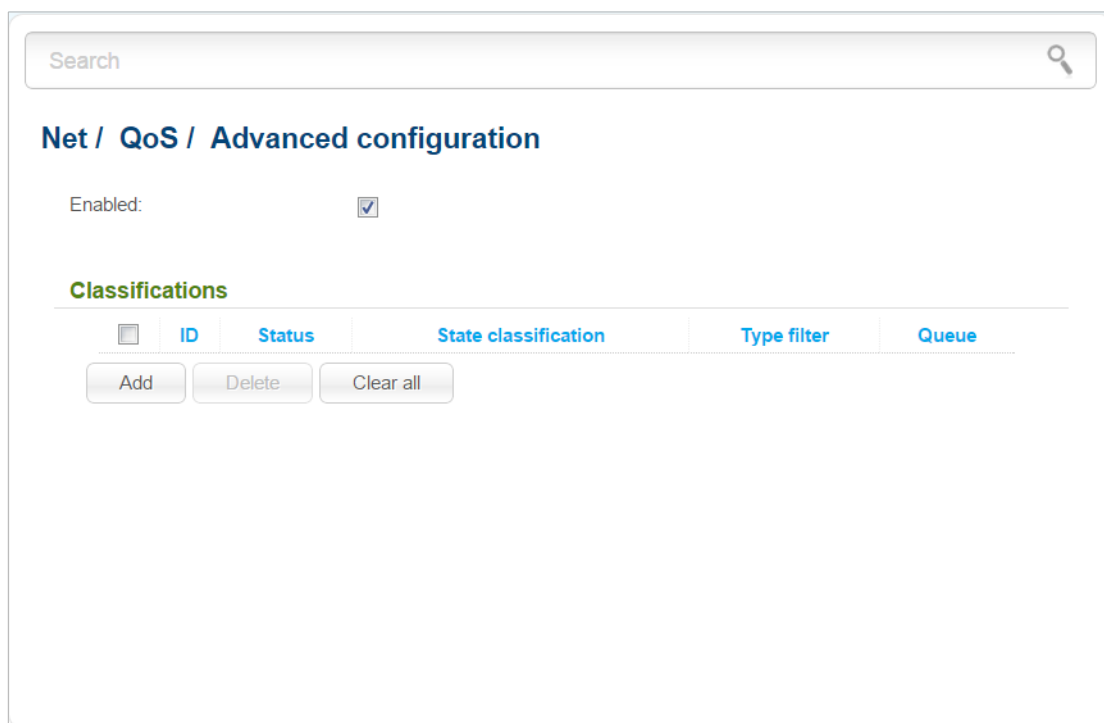
*Figure 76. The **Net / QoS / Advanced configuration** page.*

To create a new rule for prioritizing upstream traffic, click the **Add** button.

Figure 77. The page for adding a rule for prioritizing upstream traffic.

You can specify the following parameters:

Parameter	Description
Setting rules	
Enable/disable classification	If the checkbox is selected, the rule is enabled. Deselect the checkbox to disable the rule.
Type filter	Select a filter type from the drop-down list or leave the **None** value not to use traffic filtering in this rule.
Interface	*Only for the values* **MAC** *and* **LAN** *of the* **Type filter** *drop-down list.* The drop-down list includes the LAN ports that can be added to the rule.

Parameter	Description
	Select one of the ports to traffic from which the rule will be applied or select the **All LAN interfaces** value to apply the rule to traffic passing through all the router's ports.
Direction	The direction of the traffic.
Traffic Selection *Only for the values **Ethertype**, **MAC**, and **IP** of the **Type filter** drop-down list.*	
State	To specify a filtering parameter for the rule, select the checkbox located in the line corresponding to this parameter. If the checkbox is selected, the **Value** field is available for editing.
Title	A name of a filtering parameter.
Value	Specify parameters available for the relevant filter type. *For the **Ethertype** type* **Source MAC**: The MAC address of a device from the router's LAN. **EtherType**: Select a protocol to which the rule will be applied from the drop-down list. *For the **MAC** type* **Source network**: The source host/subnet IPv4 address. **Source port**: A port of the source IPv4 address. **Source MAC**: The MAC address of a device from the router's LAN. *For the **IP** type* **Destination network**: The destination host/subnet IPv4 address. **Source network**: The source host/subnet IPv4 address. **Protocol**: Select a protocol to which the rule will be applied from the drop-down list. **Destination port**: A port of the destination IPv4 address. You can specify one port or a range of ports separated by a colon. If you use this parameter, select a protocol from the **Protocol** drop-down list. **Source port**: A port of the source IPv4 address. You can specify one port or a range of ports separated by a colon. If you use this parameter, select a protocol from the **Protocol** drop-down list.

Parameter	Description
Marking traffic	
Only for the values **LAN**, **Ethertype**, **MAC**, *and* **IP** *of the* **Type filter** *drop-down list.*	
DSCP Remarking	*Differentiated Services Codepoint.* A priority tag for a packet transmitted. Select the relevant value from the drop-down list or leave the **Default** value if you do not need to mark traffic by this tag.
802.1p Remarking	A priority tag for tagged traffic. The higher the value, the higher is the frame priority. Select the relevant value from the drop-down list or leave the **Not use** value if you do not need to mark traffic by this tag.
Queue setting	
Selecting queue	A queue number for the rule. Select the relevant value from the drop-down list.

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

To edit the parameters of a rule, select the relevant rule in the table. On the opened page, change the needed parameters and click the **Save** 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.

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

To disable the QoS features, deselect the **Enabled** checkbox.

Queue

On the **Net / QoS / Queue** page, you can specify the maximum data transfer rate for each queue.

*Figure 78. The **Net / QoS / Queue** page.*

You can specify the following parameters:

Parameter	Description
Default queue	From the drop-down list, select a queue through which unfiltered traffic will be forwarded out. By default, the value **4** is specified.
Queue setting	
Queue	A queue number. The lower the value, the higher is the queue priority.
Shaping	The maximum data transfer rate (Kbit/s). Select a field in the relevant line of the table and specify the needed value. If the maximum data transfer rate is not specified for a queue, traffic of this queue will have higher priority than traffic of a queue for which the maximum data transfer rate is specified.

After specifying the needed parameters, click the **Save** 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 79. 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.
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
Hide Access Point	If the checkbox is selected, other users cannot see your Wi-Fi network. (It is recommended not to select this checkbox in order to simplify initial configuration of your WLAN.)
SSID	A name for the WLAN. By default, the value `DSL-2750U` is specified. It is recommended to specify another name for the network upon initial configuration (use digits and Latin characters).

Parameter	Description
Country	The country you are in. Select a value from the drop-down list.
Channel	The wireless channel number. When the **auto** value is selected, the router itself chooses the channel with the least interference.
Wireless mode	Operating mode of the wireless network of the router. This parameter defines standards of the devices that will be able to use your wireless network. Select a value from the drop-down list.
Max Associated Clients	The maximum number of devices connected to the wireless network of the router. When the value 0 is specified, the device does not limit the number of connected clients.

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 80. The default security settings.

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

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, in the **Wireless mode** drop-down list, a mode supporting 802.11n devices is selected.
WPA-PSK	WPA-based authentication using a PSK.
WPA2-PSK	WPA2-based authentication using a PSK.
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.

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 81. 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 82. 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**. For the wireless network operating modes which support 802.11n standard (see the value of the **Wireless mode** drop-down list on the **Wi-Fi / Basic settings** page), the **AES** value is only available.
WPA renewal	The time period (in seconds), at the end of which a new key for WPA encryption is generated. When the value **0** is specified for this field, the key is not renewed.

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

MAC Filter

On pages of the **Wi-Fi / MAC Filter** section, you can define a set of MAC addresses of devices which will be allowed to access the WLAN, or define MAC addresses of devices which will not be allowed to access the WLAN.
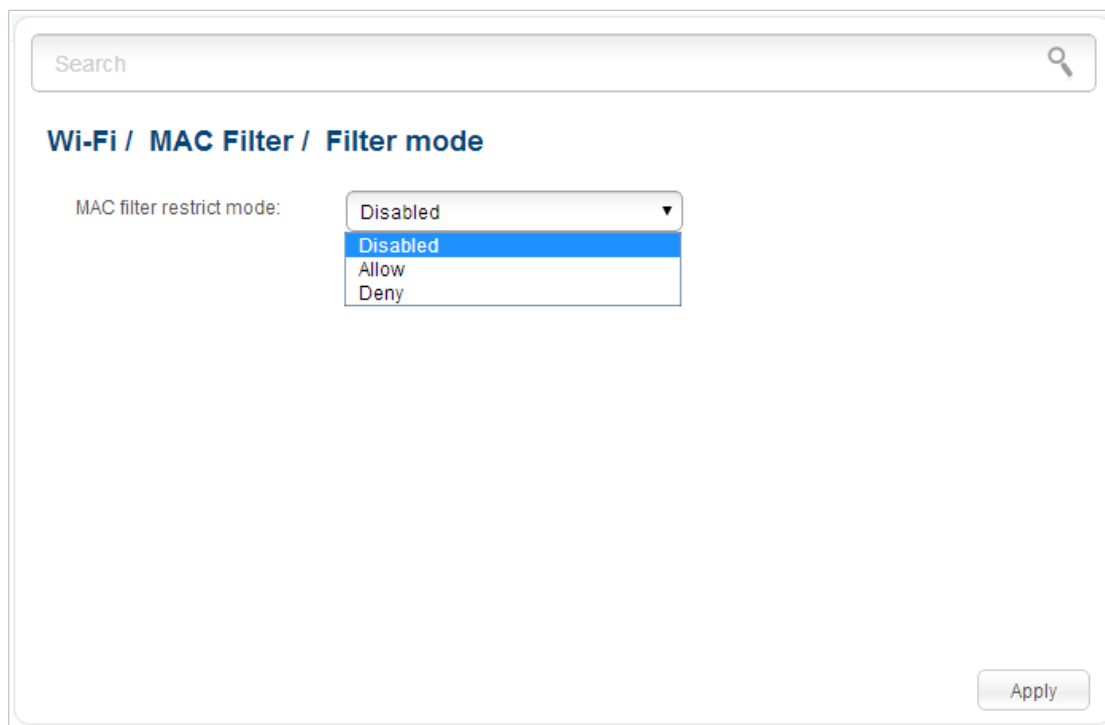
Figure 83. The page for configuring the MAC filter for the wireless network.

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

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

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

To add a MAC address to which the selected filtering mode will be applied, proceed to the **Wi-Fi / MAC Filter / MAC addresses** page.
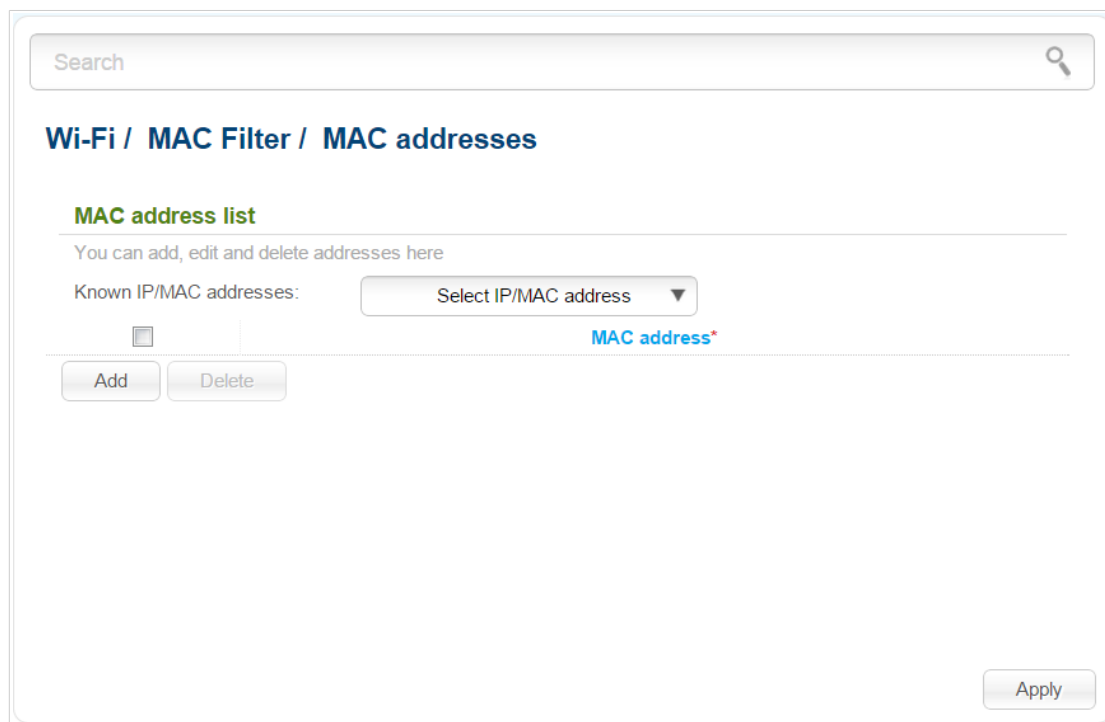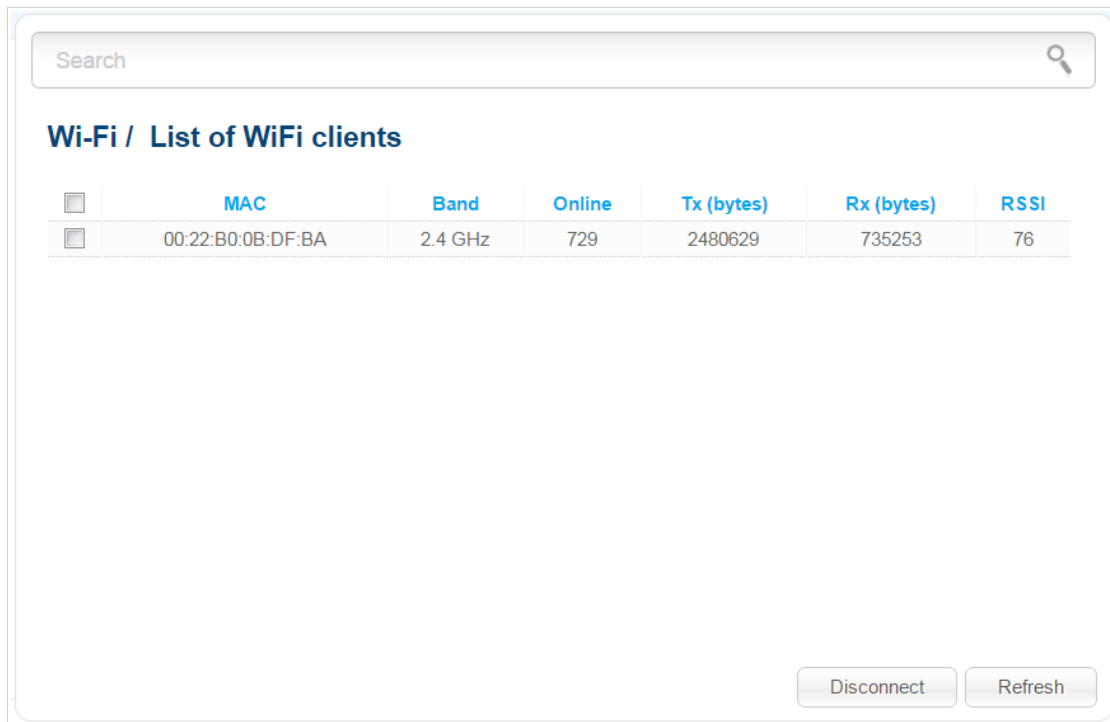
Figure 84. The page for adding a MAC address.

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

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

List of Wi-Fi Clients

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

Figure 85. The list of the wireless clients.

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

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

WPS

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

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

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

Figure 86. The page for configuring the WPS function.

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

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

Using WPS Function via Web-based Interface

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

1. Select the **WPS Enable** checkbox.

2. Click the **Apply** button.

3. Select the **PIN** value from the **WPS Method** drop-down list.

4. Select the PIN method in the software of the wireless device that you want to connect to the router's WLAN.

5. Click the relevant button in the software of the wireless device that you want to connect to the WLAN.

6. Right after that, enter the PIN code specified on the cover of the wireless device or in its software in the **PIN Code** field.

7. Click the **Connect** button in the web-based interface of the router.

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

1. Select the **WPS Enable** checkbox.

2. Click the **Apply** button.

3. Select the **PBC** value from the **WPS Method** drop-down list.

4. Select the PBC method in the software of the wireless device that you want to connect to the router's WLAN.

5. Click the relevant button in the software or press the WPS button on the cover of the wireless device that you want to connect to the WLAN.

6. Click the **Connect** button in the web-based interface of the router.

Using WPS Function without Web-based Interface

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

1. Specify corresponding security settings for the wireless network of the router.

2. Select the **WPS Enable** checkbox.

3. Click the **Apply** button.

4. Save the settings and close the web-based interface (click the icon (**Save**) in the menu displayed when the mouse pointer is over the **System** caption in the top left part of the page, then click the icon (**Logout**)).

Later you will be able to add wireless devices to the WLAN by pressing the **WPS/WLAN** 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/WLAN** button of the router 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 87. Additional settings of the WLAN.

The following fields are available on the page:

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

Parameter	Description
TX Power	The transmit power (in percentage terms) of the router.
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.

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

Advanced

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

- enable the UPnP IGD protocol

- define interface groups

- allow the router to connect to a private Ethernet line

- configure a DDNS service

- define static routes

- edit the ADSL connection parameters

- create rules for remote access to the web-based interface

- allow the router to use IGMP, SIP, RTSP, and enable the PPPoE pass through function

- configure TR-069 client.

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 88. 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.

Interface Grouping

On the **Advanced / Interface grouping** page, you can assign WAN connections to the router's ports (create groups of interfaces), which allows distinguishing different types of traffic. This function is mostly used in Triple-play networks.
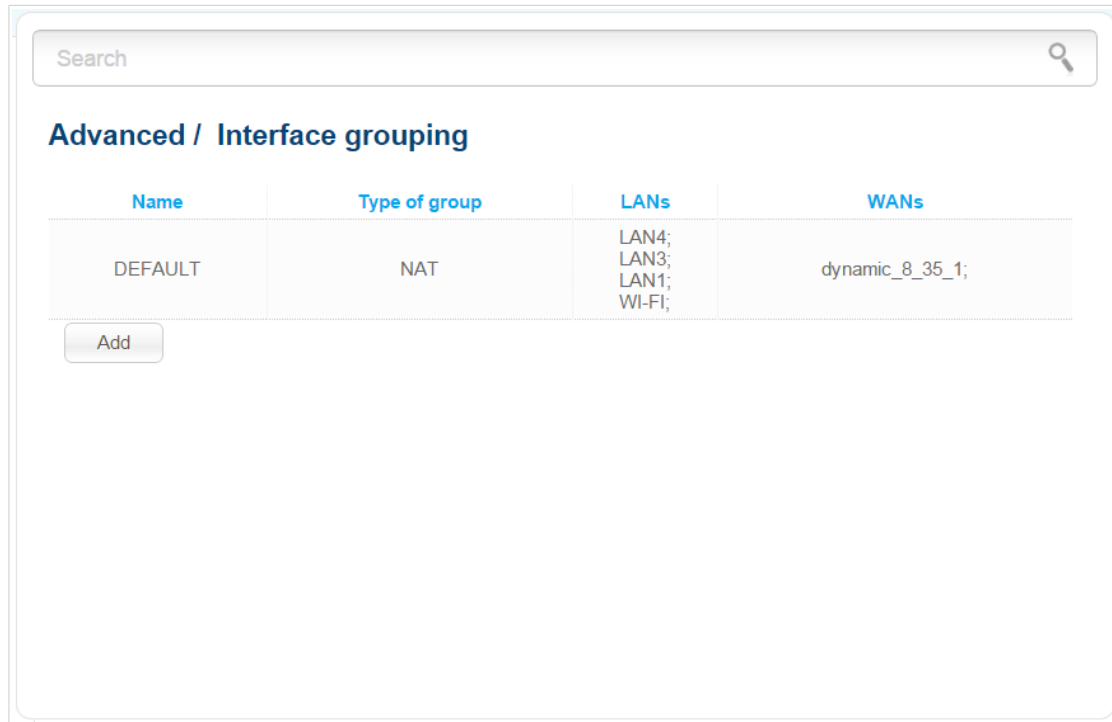
*Figure 89. The **Advanced / Interface grouping** page.*

To create a new rule for interface grouping (a group of ports), click the **Add** button.
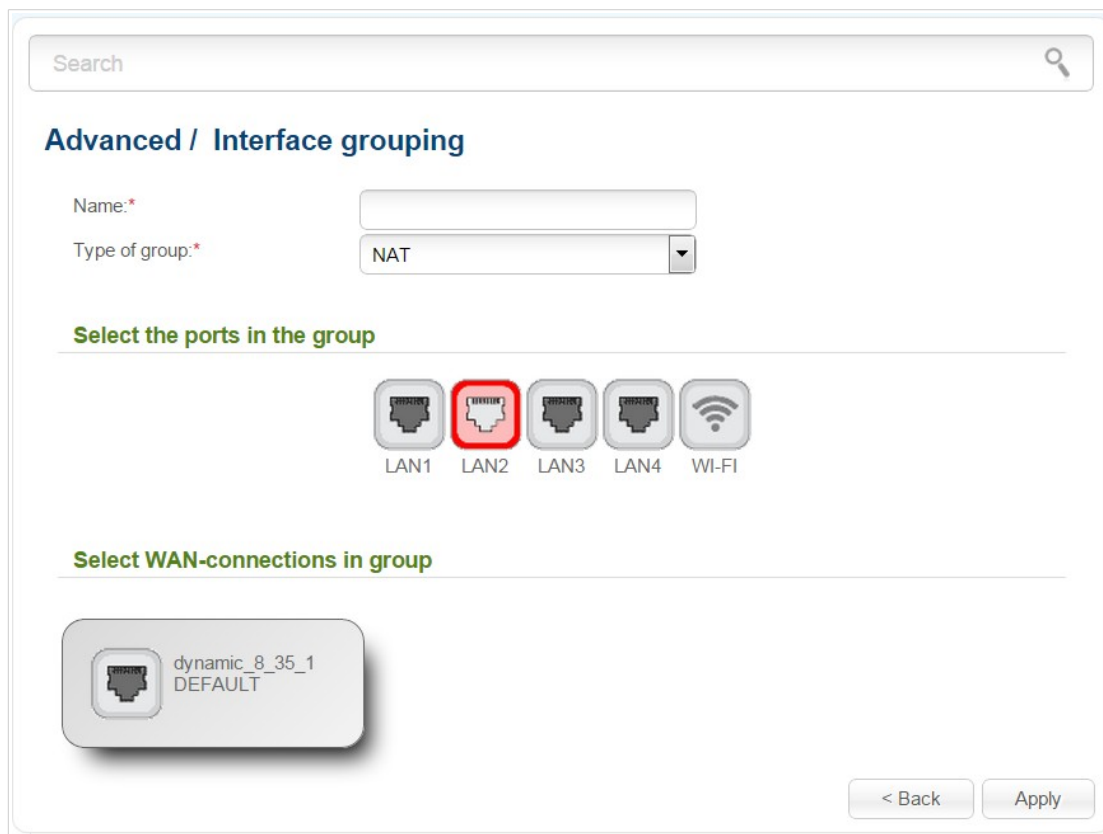
Figure 90. The page for adding a new group of ports.

You can specify the following parameters:

Parameter	Description
Name	A name for the group for easier identification. You can specify any name.
Type of group	The type of the group. **NAT**. The group of this type is an external connection with address translation. It is mostly used to connect to the Internet. You can assign any WAN connection except for the **Bridge** WAN connection to the group of this type. **Transparent 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. You can assign only the **Bridge** WAN connection to the group of this type. **Local**. The group of this type is a channel used to connect local clients to the router. It is mostly used to connect different types of clients, which require separate connection settings. You cannot assign WAN connections to the group of this type.

Parameter	Description
Ports	In this section the LAN ports and the WLAN interface of the router are displayed. Elements which cannot be added to the group are highlighted in red. To add an element to the group, click the icon corresponding to this element. Elements added to the group are highlighted in green. To remove an element from the group, click the icon corresponding to this element.
WAN connections	In this section WAN connections of the router are displayed. Connections which cannot be added to the group are highlighted in red. To add a connection to the group, click the icon corresponding to this connection. The connection added to the group is highlighted in green. To remove a connection from the group, click the icon corresponding to this connection.

Click the **Apply** button.

To edit or remove an existing group, select the relevant group on the **Advanced / Interface grouping** page. On the page displayed, change the parameters and click the **Apply** button, or click the **Delete** button. When you delete a group, interfaces assigned to it are reassigned to the **DEFAULT** group.

EtherWAN

On the **Advanced / EtherWAN** page, you can configure the router to connect to a private Ethernet line.

!	The Ethernet WAN function allows using any Ethernet port of the router to access the Internet via Ethernet technology. When the function is enabled, the router is still able to access the Internet via ADSL technology.
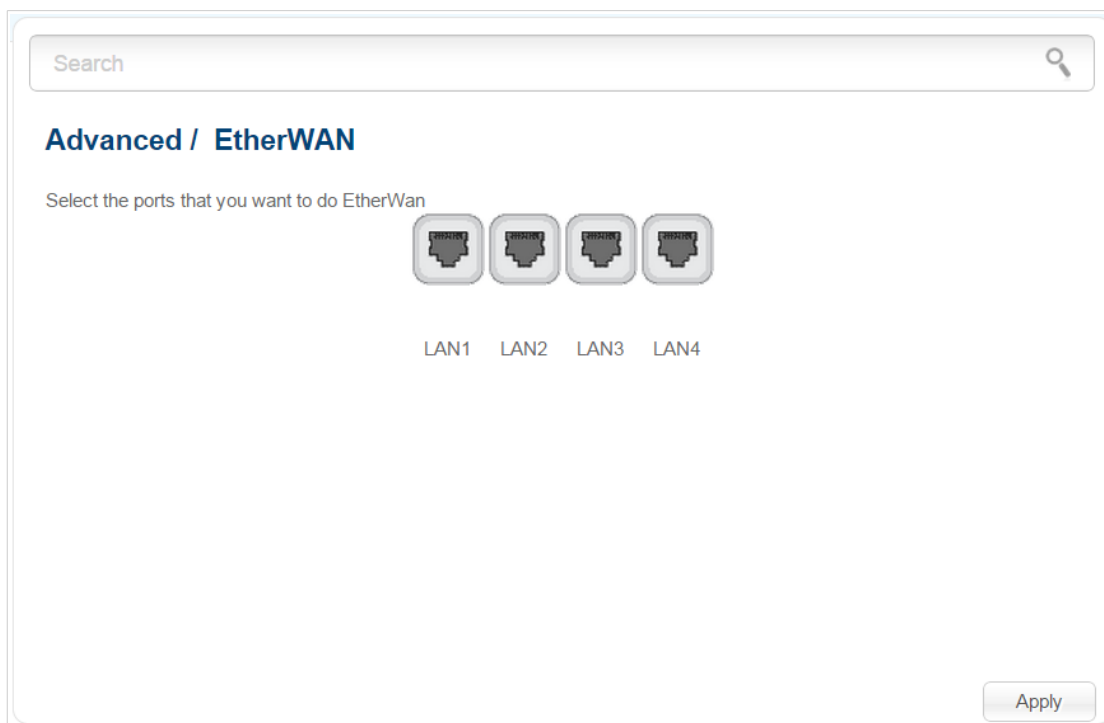
*Figure 91. The **Advanced / EtherWAN** page.*

To use one of the router's LAN port as the WAN port, click the icon corresponding to this port and click the **Apply** button. Port configured as the WAN port is highlighted in green.

If in the future you need to disconnect the LAN port from the private Ethernet line, click the icon highlighted in green 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 92. The **Advanced / DDNS** page.*

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

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

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

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

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

Routing

On the **Advanced / Routing** page, you can add static routes (routes for networks that are not connected directly to the device but are available through the interfaces of the device) into the system.
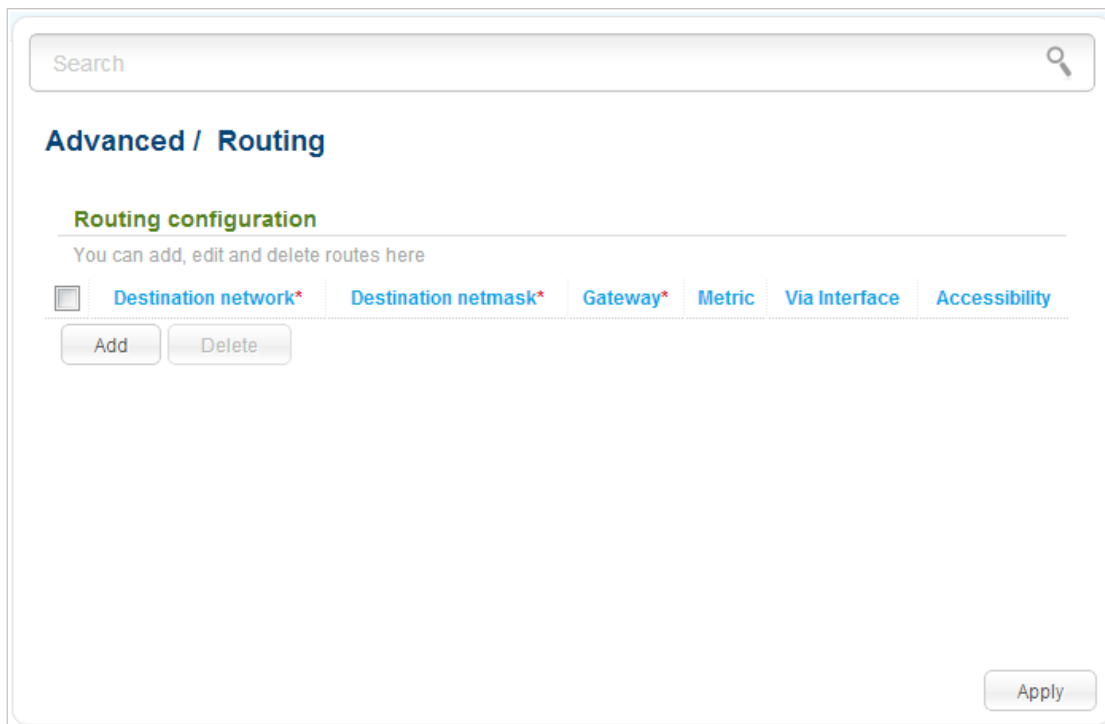
*Figure 93. The **Advanced / Routing** page.*

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. The field is available when the **<Auto>** value is selected from the **Via Interface** drop-down list of this line.
Metric	A metric for the route. The lower the value, the higher is the route priority. *Optional*.
Via Interface	Select an interface through which the destination network can be accessed from the drop-down list. If you have selected the **<Auto>** value of this drop-down list, the router itself sets the interface on the basis of data on connected networks.

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.

If you need to specify a host from the LAN as the default route, select the **<Auto>** value from the **Via Interface** drop-down list, enter `0.0.0.0` in the **Destination network** and **Destination netmask** fields, enter the IP address of the host from the LAN in the **Gateway** field, and 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.
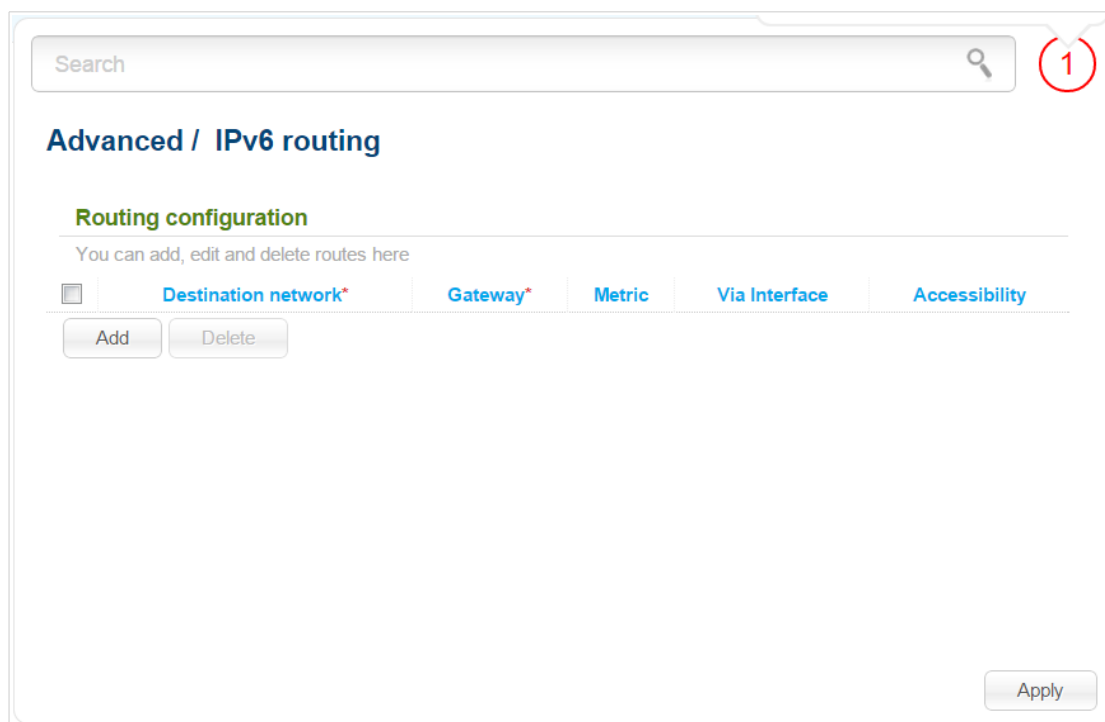
*Figure 94. The **Advanced / IPv6 routing** page.*

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

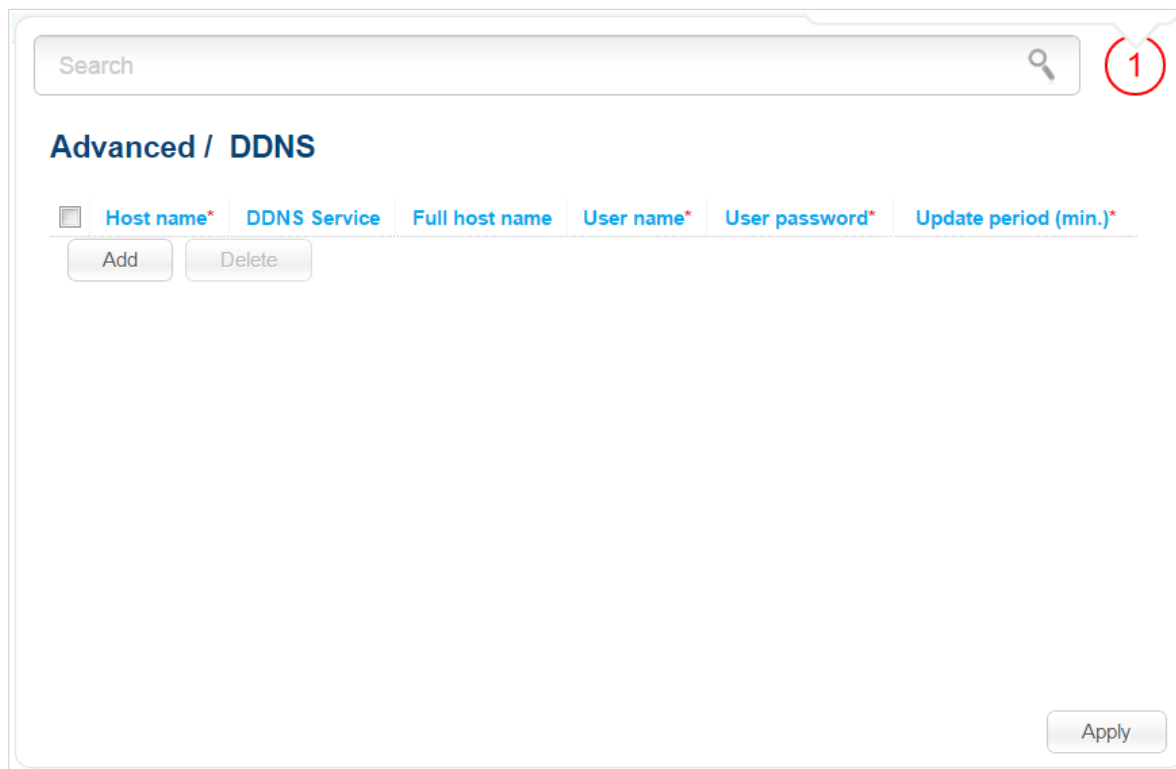| Parameter	Description
Destination network	A destination network to which this route is assigned. You can specify an IPv6 address (`2001:db8:1234::1`) or an IPv6 address with a prefix (`2001:db8:1234::/64`).

Parameter	Description
Gateway	An IPv6 address through which the destination network can be accessed. The field is available when the **<Auto>** value is selected from the **Via Interface** drop-down list of this line.
Metric	A metric for the route. The lower the value, the higher is the route priority. *Optional*.
Via Interface	Select an interface through which the destination network can be accessed from the drop-down list. If you have selected the **<Auto>** value of this drop-down list, the router itself sets the interface on the basis of data on connected networks.

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.

ADSL

The **Advanced / ADSL** page includes the set of ADSL standards that should be defined by an ISP. Contact your ISP to set proper parameters. Select the relevant options and click the **Apply** button.
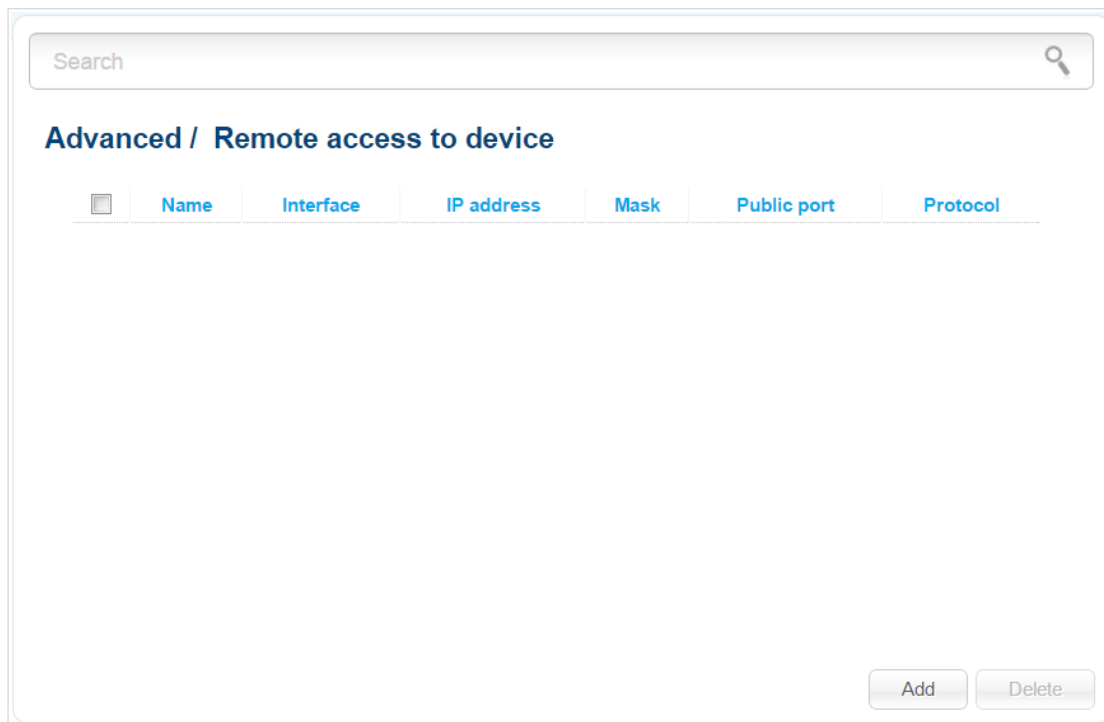
*Figure 95. The **Advanced / ADSL** page.*

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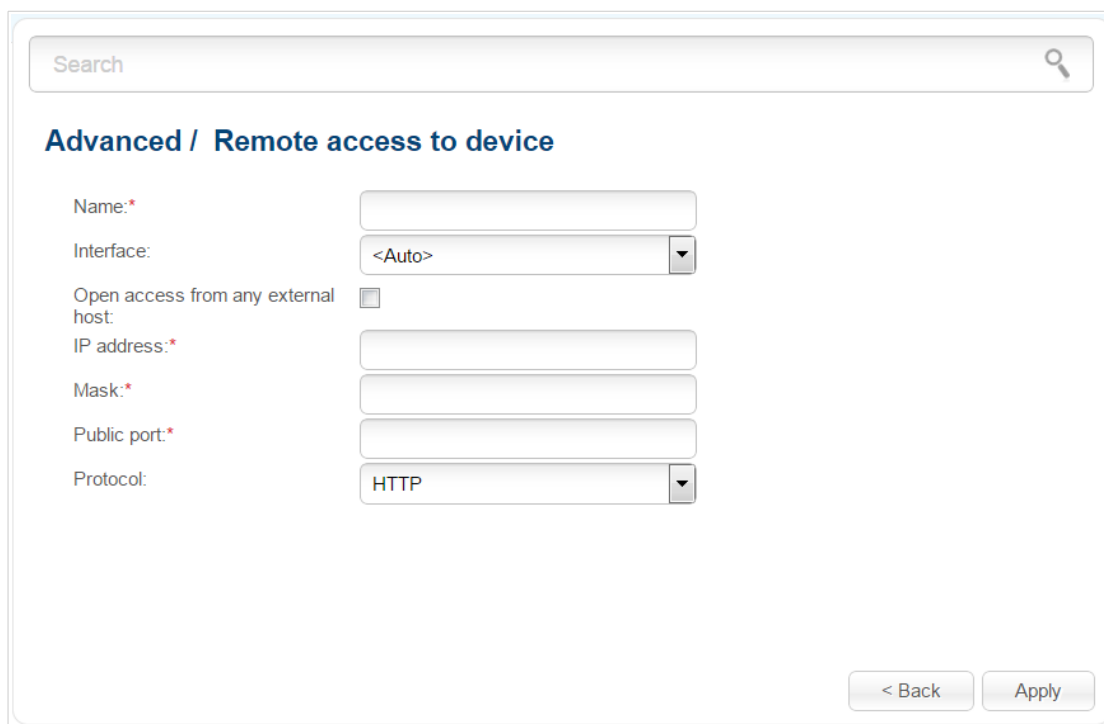
On the **Advanced / Remote access to device** page, you can configure access to the web-based interface of the router. By default, the access from external networks to the router is closed. If you need to allow access to the router from the external network, create relevant rules.

*Figure 96. The **Advanced / Remote access to device** page.*

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

Figure 97. The page for adding a rule for remote management.

You can specify the following parameters:

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

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

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

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

Miscellaneous

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

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

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

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

The PPPoE pass through function allows PPPoE clients of computers from your LAN to connect to the Internet through PPPoE connections of the router.
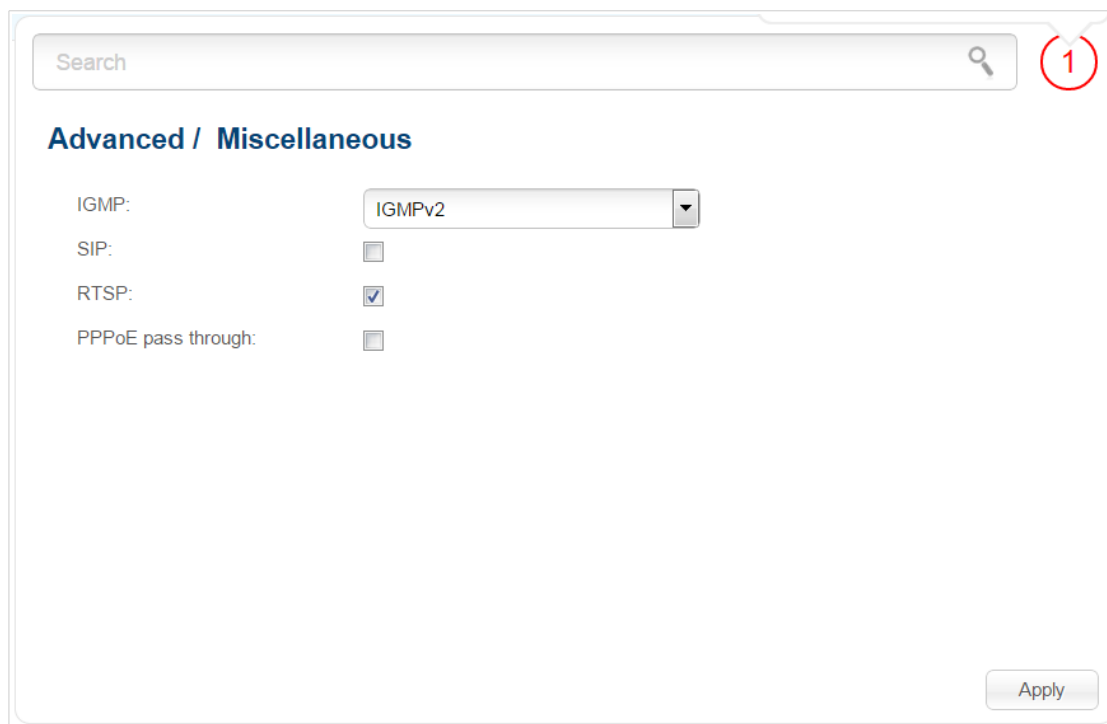
*Figure 98. The **Advanced / Miscellaneous** page.*

To enable IGMP, select a version of IGMP from the **IGMP** drop-down list and click the **Apply** button. 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 **IGMP** drop-down list and click the **Apply** button.

To enable SIP, select the **SIP** checkbox and click the **Apply** button. Such a setting allows using the SIP ALG function. This function allows VoIP traffic to pass through the NAT-enabled router.[9]

---

9   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).

To disable the SIP ALG function, deselect the **SIP** checkbox and click the **Apply** button.

To enable RTSP, select the **RTSP** checkbox and click the **Apply** button. Such a setting allows managing media stream: fast forward streaming audio/video, pause and start it.

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

To enable the PPPoE pass through function, select the **PPPoE pass through** checkbox and click the **Apply** button.

To disable the PPPoE pass through function, deselect the **PPPoE pass through** checkbox and click the **Apply** button.

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 99. 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.

Parameter	Description
Enable TR-069 Client	Select the checkbox to enable the TR-069 client.
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.

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.
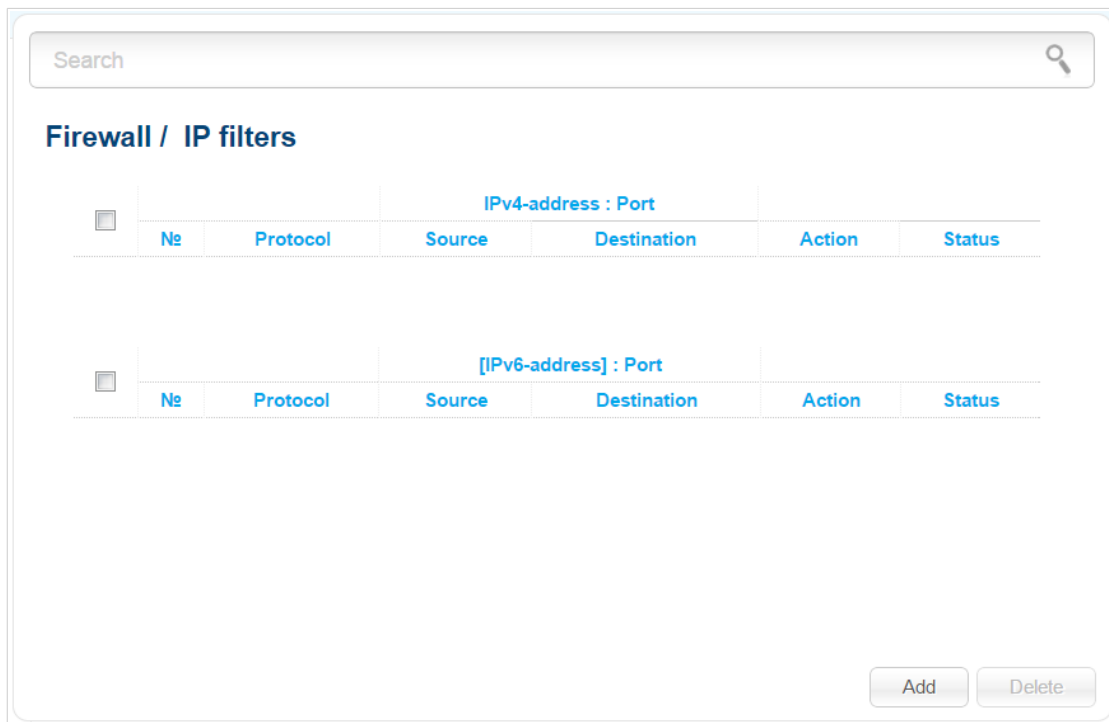
*Figure 100. The **Firewall / IP filters** page.*

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

Figure 101. The page for adding a rule for IP filtering.

You can specify the following parameters:

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

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

Click the **Apply** button.

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

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

Virtual Servers

On the **Firewall / Virtual servers** page, you can create virtual servers for redirecting incoming Internet traffic to a specified IP address in the local area network.
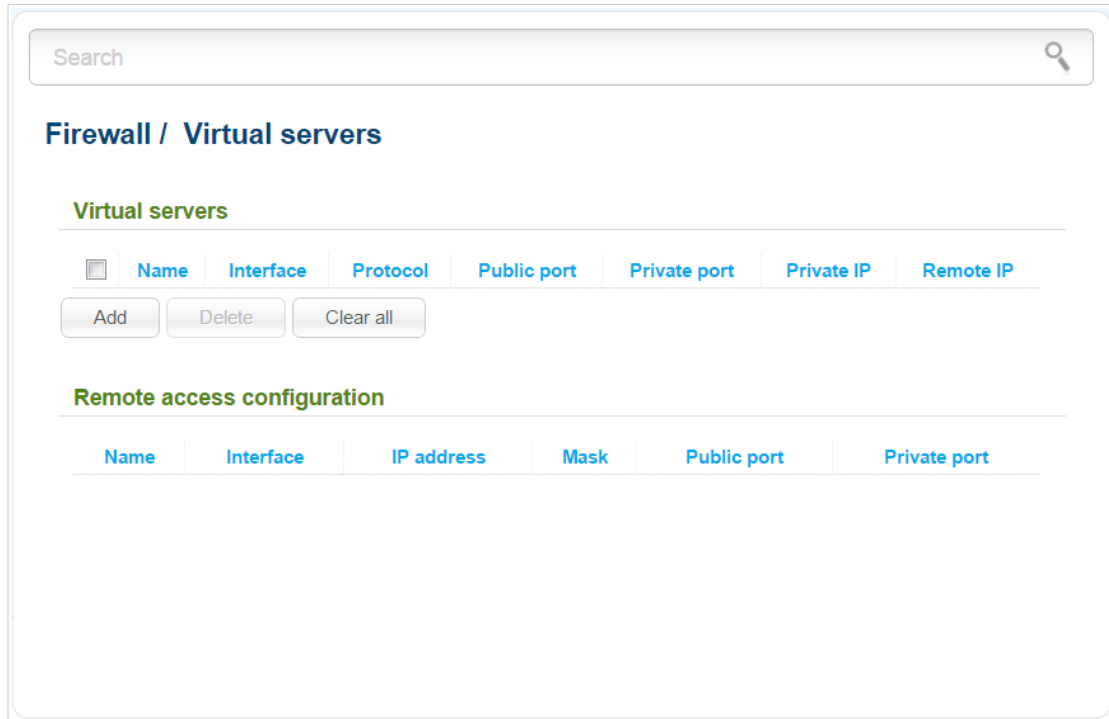
*Figure 102. The **Firewall / Virtual servers** page.*

To create a new virtual server, click the **Add** button.
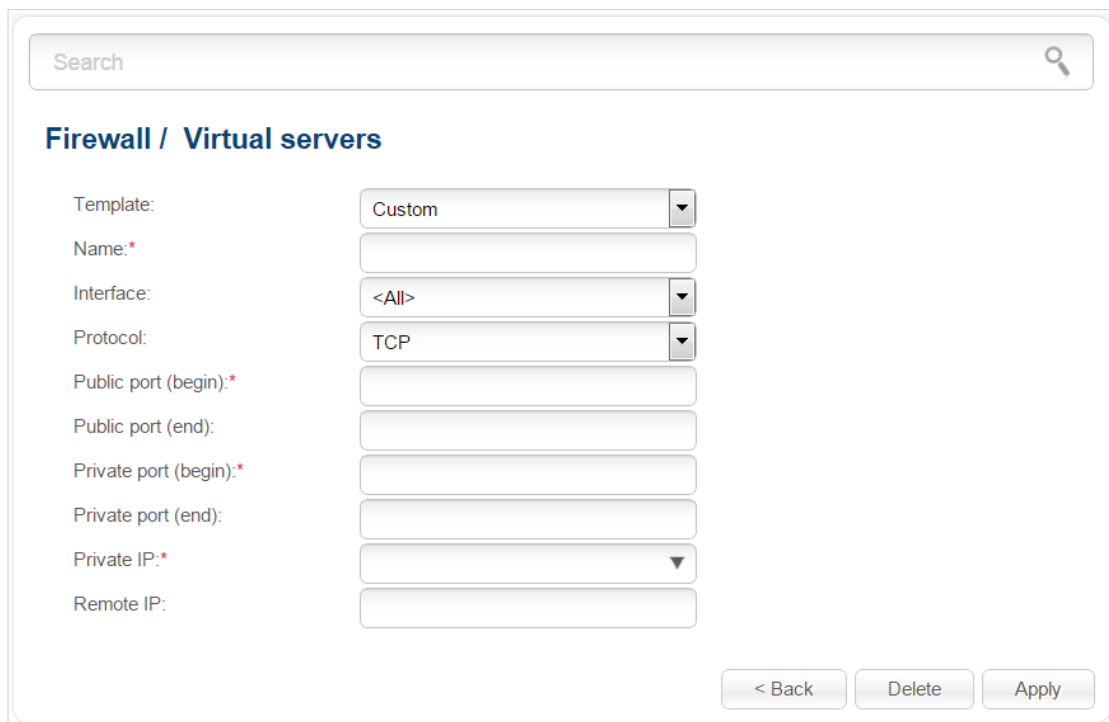
Figure 103. The page for adding a virtual server.

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.

Click the **Apply** button.

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

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

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

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

DMZ

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

On the **Firewall / DMZ** page you can specify the IP address of the DMZ host.
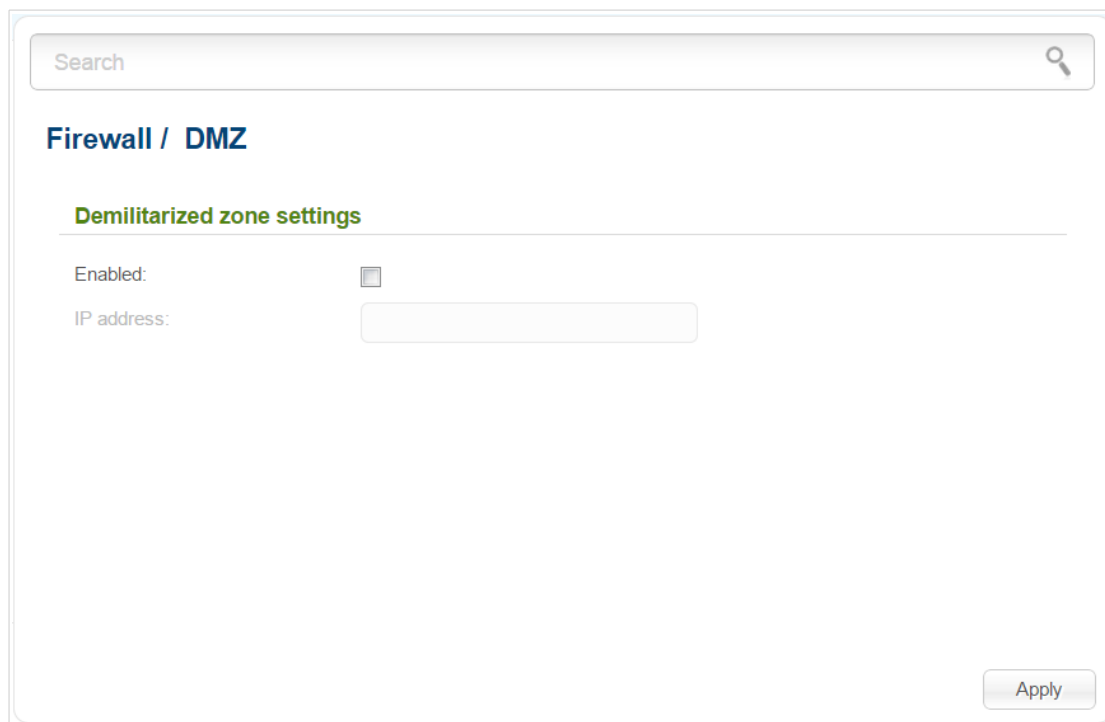
*Figure 104. The **Firewall / DMZ** page.*

To enable the DMZ, select the **Enabled** checkbox, enter the IP address of a host from your network in the **IP address** field, and click the **Apply** button. 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).

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.
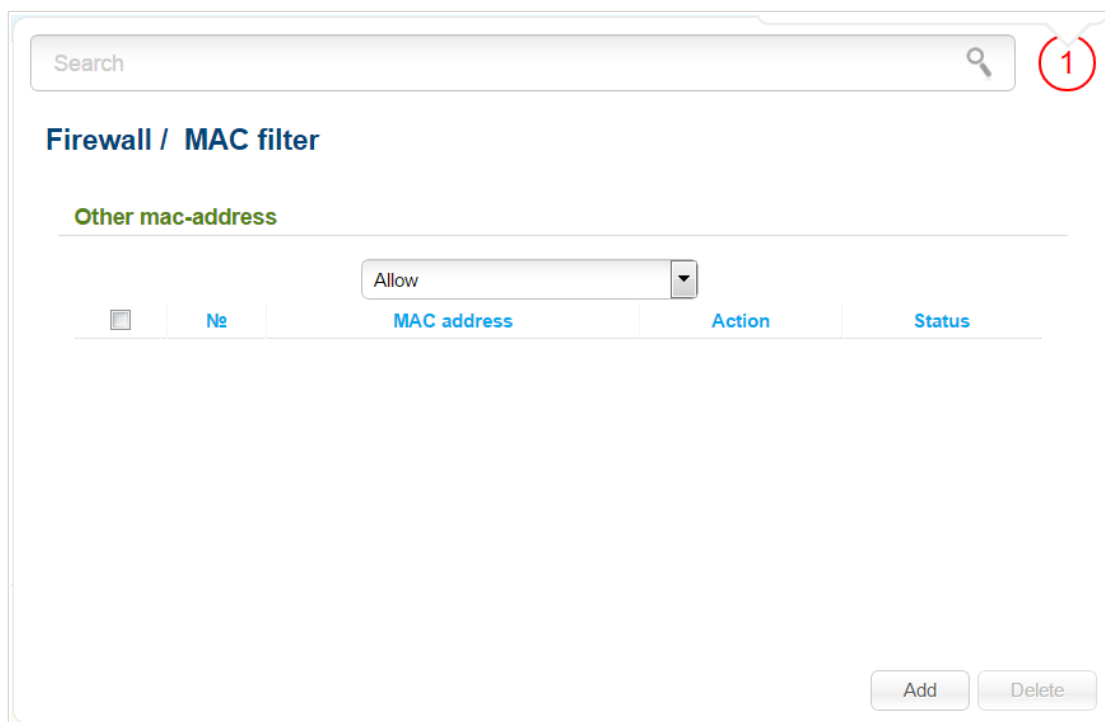
*Figure 105. The **Firewall / MAC filter** page.*

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.
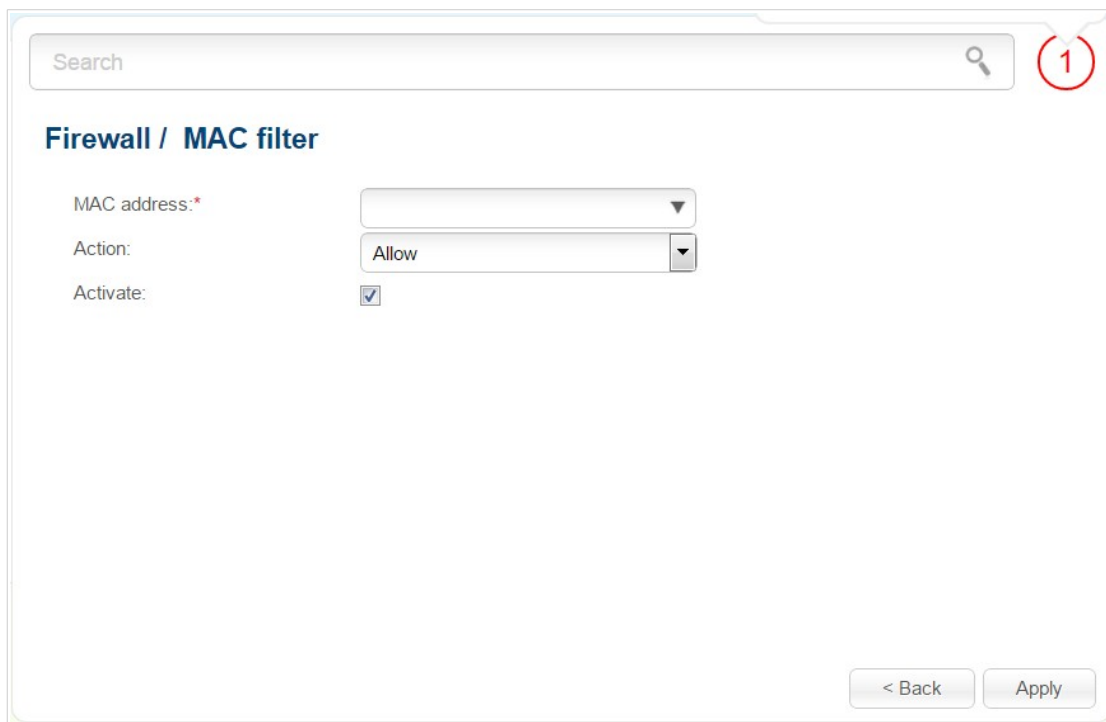
Figure 106. The page for adding a rule for the MAC filter.

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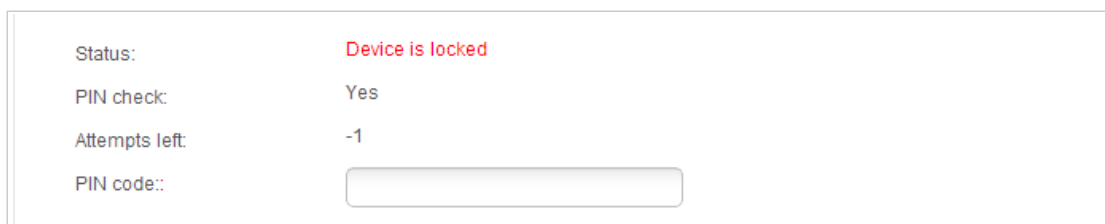
To edit a rule for filtering, click the link to the relevant rule. On the opened page, change the needed parameters and click the **Apply** button.

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.

3G/LTE Modem

This menu is designed to operate USB modems.

If the PIN code check for the SIM card inserted into your USB modem is not disabled, proceed to the **3G/LTE modem / PIN** section. On the opened page, enter the PIN code in the **PIN code** field and click the **Enter** button[10].

Status:	Device is locked
PIN check:	Yes
Attempts left:	-1
PIN code::	

Figure 107. The page for checking the PIN code.

If the PIN code check for the SIM card inserted into your USB modem is disabled, an active WAN connection will be automatically created on the **Net / WAN** page when connecting a USB modem to the router[11].

Some USB modems[12] have an IP address from the subnet which coincides with the router's local subnet. In this case, the relevant notification will be displayed in the web-based interface. For proper operation of a USB modem, proceed to the **Net / LAN** page and change the value of the **IP Address** field (for example, specify the `192.168.2.1` value). Wait until the router is rebooted.

---

10 For GSM USB modems only. For LTE and CDMA USB modems, it is required to disable the PIN code check on the identification card prior to connecting the USB modem to the router.

11 For LTE and GSM USB modems only.

12 For Huawei E3272, ZTE MF823, ZTE MF827 USB modems only.

Information

On the **3G/LTE modem / Information** page, you can view data on the USB modem connected to the router.

*Figure 108. The **3G/LTE modem / Information** page.*

When a USB modem is connected to the router, the following data are displayed on the page:

Parameter	Description
Vendor	The manufacturer of your USB modem.
Model	The alphanumeric code of the model of your USB modem.
Revision	The revision of the firmware of your USB modem.
IMSI	The code stored in the SIM card inserted to your USB modem.
IMEI	The code stored in the memory of the USB modem.
Signal level	The signal level at the input of the modem's receiver. The zero signal level shows that you are out of the coverage area of the selected operator's network.
Operator name	When the needed network is available, the name of the operator is displayed in this field.
Mode	A type of the network to which the USB modem is connected.

PIN

On pages of the **3G/LTE modem / PIN** section, you can change the PIN code of the identification card inserted into your USB modem, disable or enable the check of the PIN code.

> **!** The operations presented in this section are not available for LTE and CDMA USB modems.

On the **3G/LTE modem / PIN / PIN code management** page, the current state of the identification card inserted into your USB modem is displayed in the **Status** field. If the PIN code is entered incorrectly or the PIN code is not entered when the PIN code check is enabled, the **Device is locked** value is displayed in the **Status** field. If the PIN code is entered correctly or the PIN check is disabled, the **Device is unlocked** value is displayed in the **Status** field.

If the PIN code check for the SIM card inserted into your USB modem is not disabled, the **Yes** value is displayed in the **PIN check** field. If the PIN check is disabled, the **No** value is displayed in the **PIN check** field.
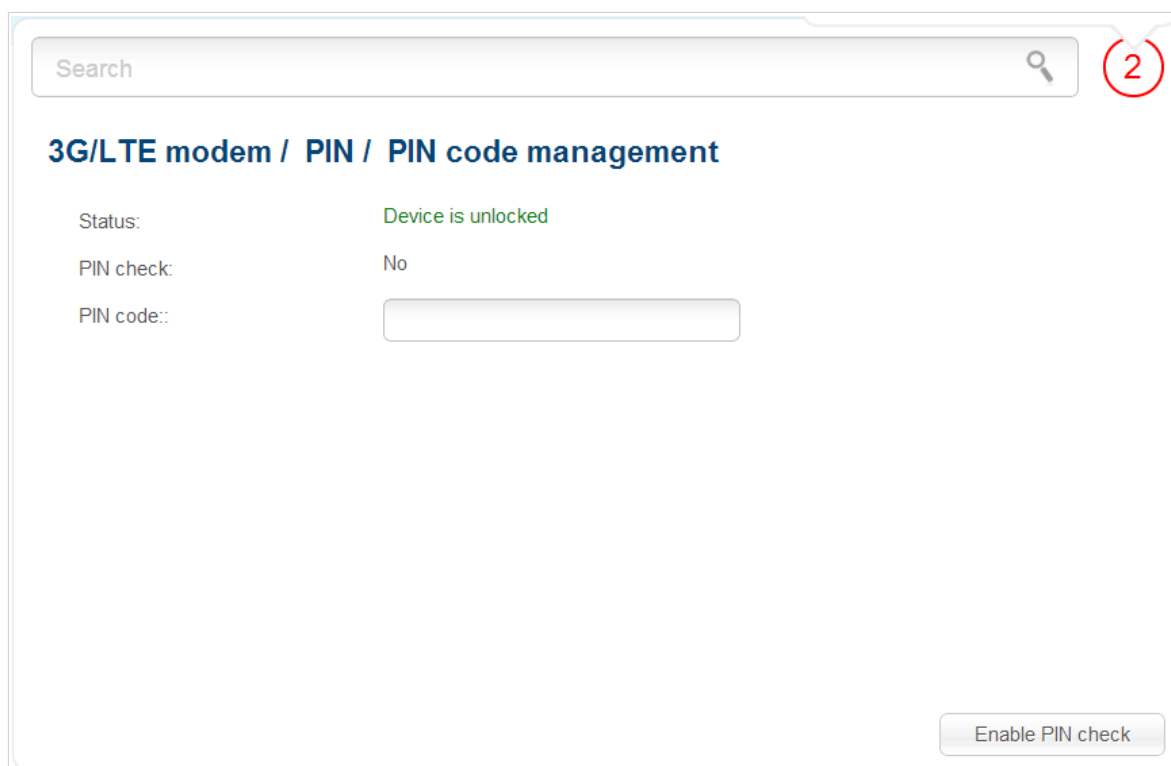
*Figure 109. The **3G/LTE modem / PIN / PIN code management** page.*

To disable the PIN code check, enter the current PIN code in the **PIN code** field and click the **Disable PIN check** button (the button is displayed if the PIN code check is enabled).

To enable the PIN code check, enter the PIN code, used before disabling the check, in the **PIN code** field and click the **Enable PIN check** button (the button is displayed if the PIN code check is disabled).

To change the PIN code, enable the PIN code check on the **3G/LTE modem / PIN / PIN code management** page and proceed to the **3G/LTE modem / PIN / Changing PIN code** page.
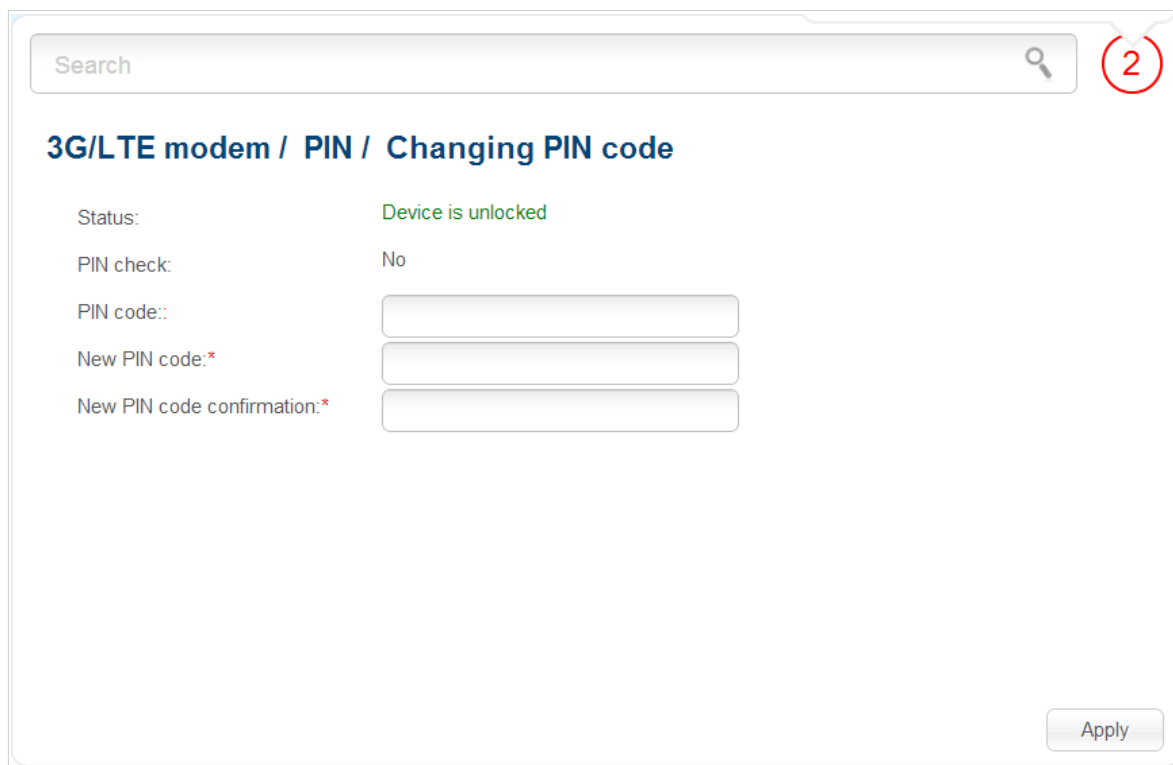
*Figure 110. The **3G/LTE modem / PIN / Changing PIN code** page.*

Enter the current code in the **PIN code** field, then enter a new code in the **New PIN code** and **New PIN code confirmation** fields and click the **Apply** button.

If upon one of the operations described above you have entered an incorrect value in the **PIN code** field three times (the number of remaining attempts is displayed in the **Attempts left** field), the identification card inserted into your USB modem is blocked.

For further use of the card, enter the PUK code in the relevant field, and then specify a new PIN code for your SIM card in the **New PIN code** field. Click the **Enter** button.

USB Storage

This menu is designed to operate USB storages. Here you can do the following:

- view data on the connected USB storage
- view content of the connected USB storage
- configure the router as a print server
- configure SMB-based access to the USB storage
- enable the built-in FTP server of the router
- enable the built-in DLNA server of the router.

Information

On the **USB storage / Information** page, you can view data on the USB storage connected to the router.
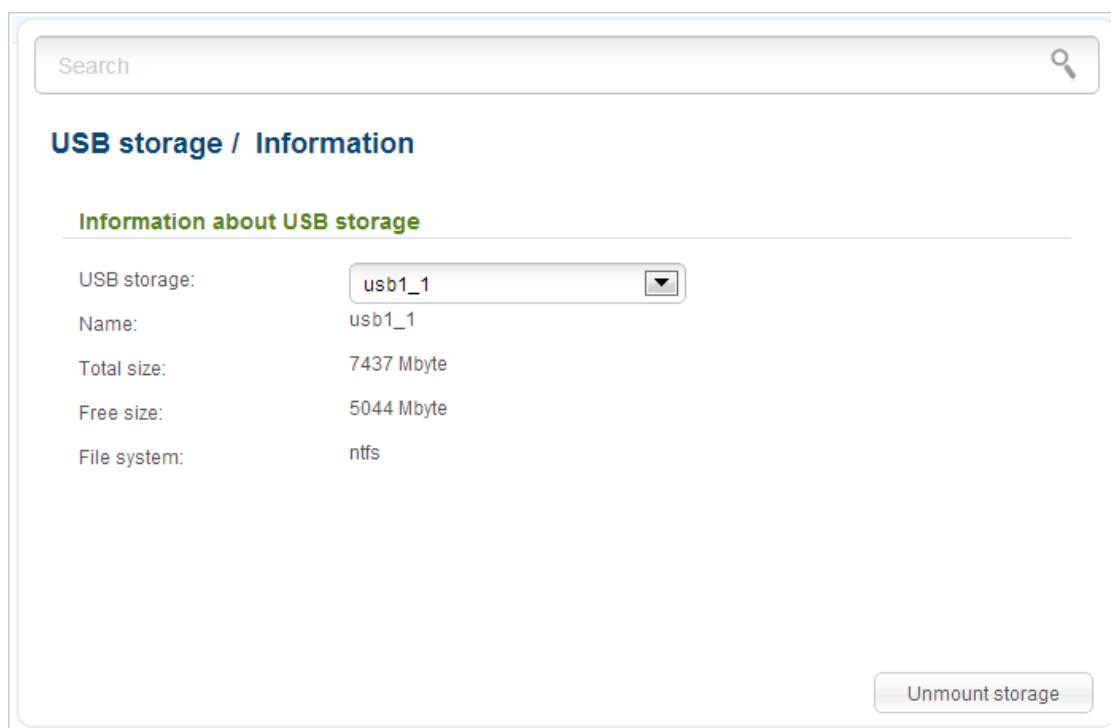
*Figure 111. The **USB storage / Information** page.*

The following data are presented on the page: the name, total and free space of the storage, and the type of its file system (supported file systems: FAT16/32, NTFS, and ext2/3).

If the USB storage is divided into volumes, several values are displayed in the **USB storage** drop-down list. Select the needed value to view data on the volume (partition) of the USB storage.

To safely disconnect the USB storage, click the **Unmount storage** button. When the **Disconnected** value is displayed on the page, remove the storage from the router.

To disconnect one volume of the storage, select the needed value from the **USB storage** drop-down list and click the **Unmount volume** button.

Filebrowser

On the **USB storage / Filebrowser** page, you can view the content of your USB storage connected to the router and remove separate folders and files from the USB storage.
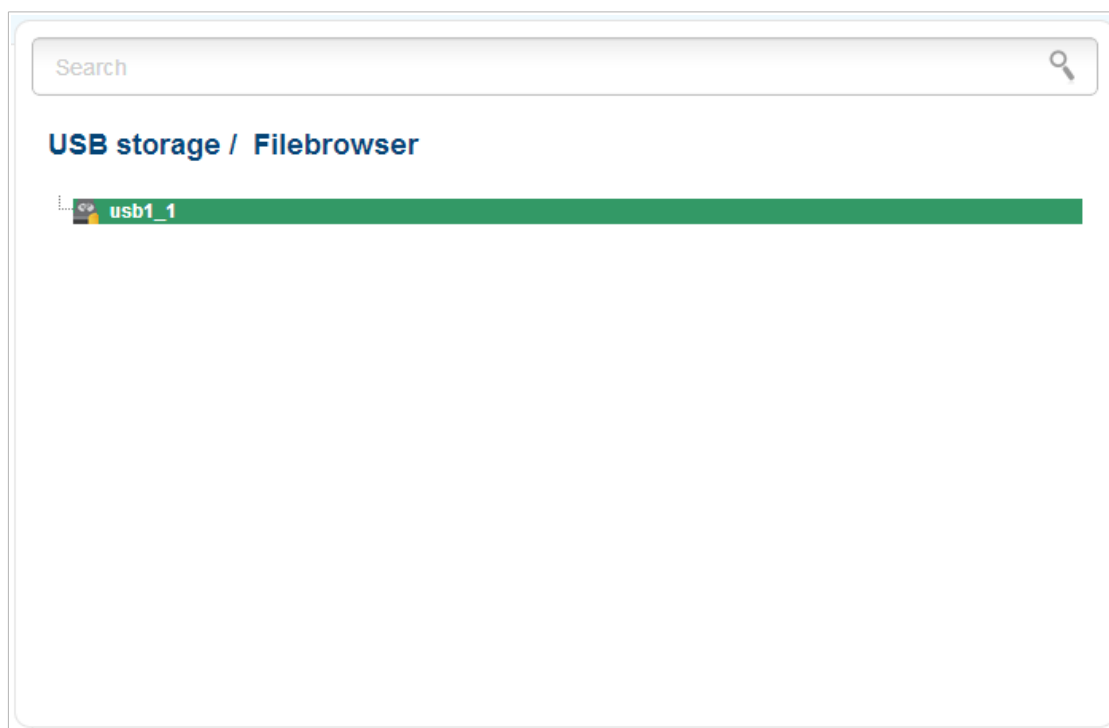
*Figure 112. The **USB storage / Filebrowser** page.*

To view the content of the USB storage, double-click the icon of the storage or storage partition. The list of folders and files will be displayed on the page.

To proceed to a folder, select it in the directory structure on the left part of the page and double-click the line corresponding to this folder.

To refresh the folder contents, right-click the line corresponding to this folder, and select the **Refresh** value in the menu displayed.

To remove a folder or file, right-click the line corresponding to this folder or file, and select the **Delete** value in the menu displayed.

Print Server

On the **USB storage / Print-server** page, you can configure the router as a print server. Being configured in this way, the router will allow your LAN users to share the printer connected to the USB port of the router.

To connect a printer to the router, power off both devices. Connect printer to the USB port of the router, power on the printer, then power on the router.
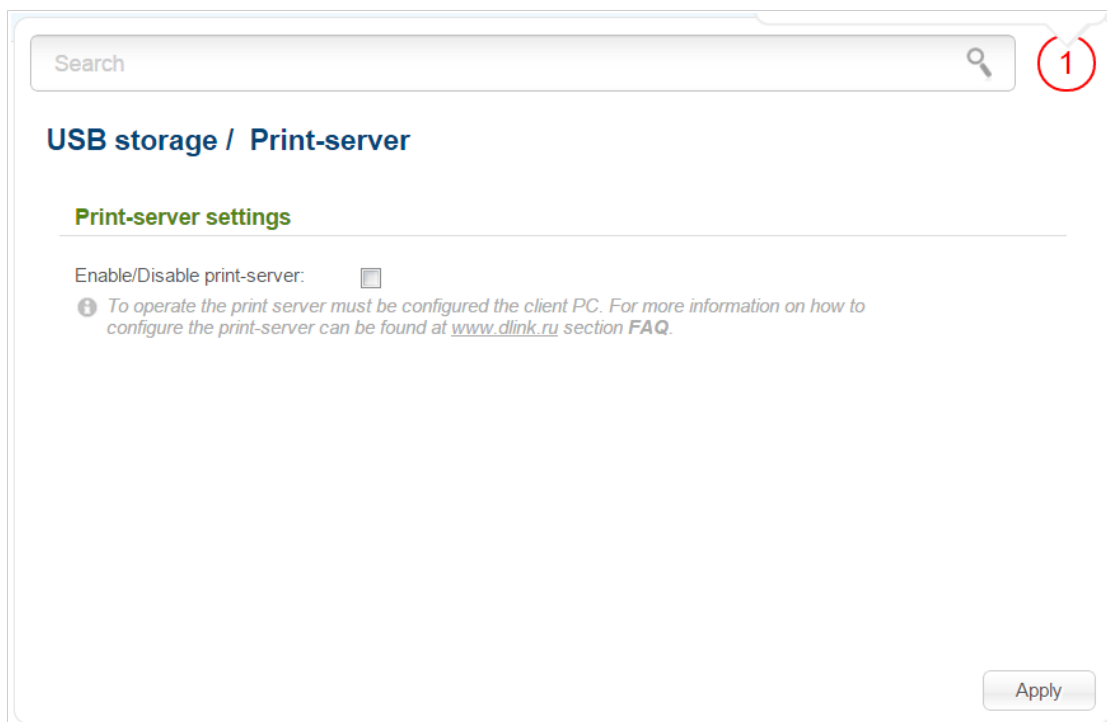
*Figure 113. The **USB storage / Print-server** page.*

To configure the router as a print server, select the **Enable/Disable print-server** checkbox and click the **Apply** button.

If you don't want to use the router as a print server, deselect the **Enable/Disable print-server** checkbox and click the **Apply** button.

Samba

On the **USB storage / Samba** page, you can enable the built-in Samba server of the router to provide access to the USB storage for users of your LAN.

*Figure 114. The **USB storage / Samba** page.*

You can enable the Samba server only when a USB storage is connected to the router (in this case, the **Connected** value is displayed in the **USB storage** field). To enable the Samba server, select the **Enable** checkbox.

The **Anonymous login** checkbox enables anonymous access to the content of the USB storage for users of your LAN. By default, the checkbox is selected.

If you want to provide authorized access to the content of the USB storage for users of your LAN, deselect the checkbox. After applying the parameters on this page, proceed to the **System / USB users** page and create needed accounts.

In the **Workgroup** field, leave the value specified by default (`WORKGROUP`) or specify a new name of a workgroup which participants will have access to the content of the USB storage.

In the **Short description** field, you can specify an additional description for the USB storage. This value will be displayed in some operating systems. Use digits and/or Latin characters.
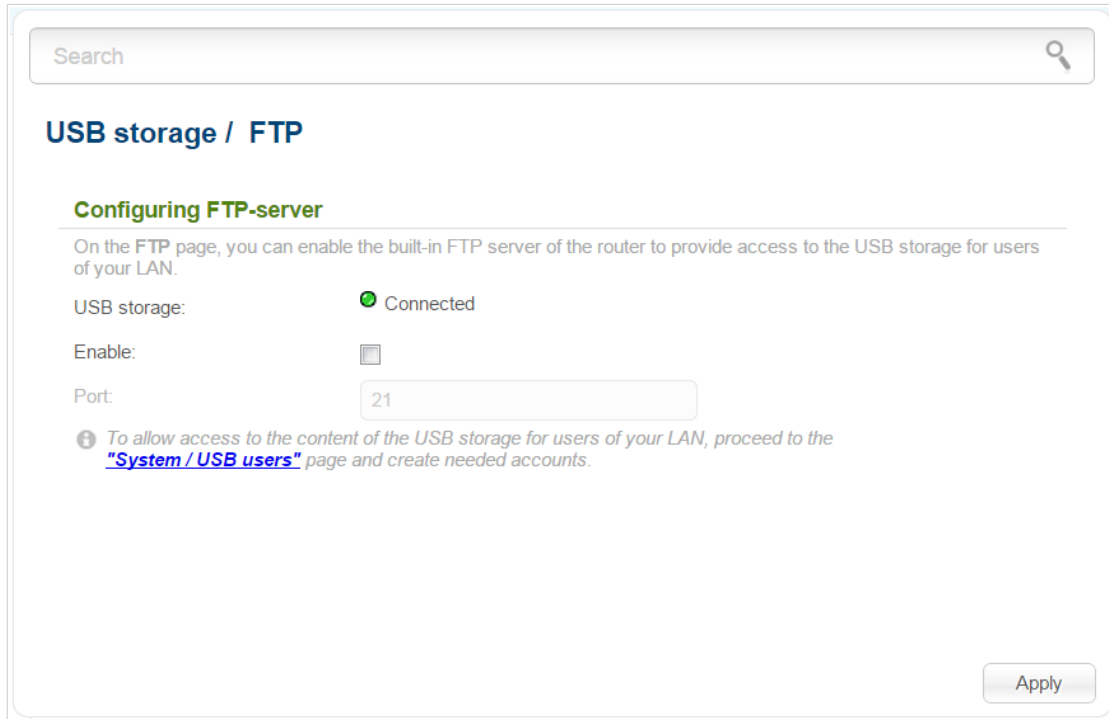
In the **NetBIOS** field, specify a new name of the USB storage for identification in your LAN. Use digits and/or Latin characters.

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

To disable the built-in Samba server of the router, deselect the **Enable** checkbox and click the **Apply** button.

FTP

On the **USB storage / FTP** page, you can enable the built-in FTP server of the router to provide access to the USB storage for users of your LAN.

*Figure 115. The **USB storage / FTP** page.*

You can enable the FTP server only when a USB storage is connected to the router (in this case, the **Connected** value is displayed in the **USB storage** field). Select the **Enable** checkbox; if needed, change the router's port used by the FTP server in the **Port** field (by default, the standard port `21` is specified). Then click the **Apply** button.

To allow access to the content of the USB storage for users of your LAN, proceed to the **System / USB users** page and create needed accounts.

To disable the built-in FTP server of the router, deselect the **Enable** checkbox and click the **Apply** button.

DLNA

On the **USB storage / DLNA** page, you can enable the built-in DLNA server of the router to provide access to the USB storage for users of your LAN.

The built-in media server allows DLNA certified devices of your LAN to play multimedia content of the USB storage. Multimedia content can be played only when a USB storage is connected to the router.

*Figure 116. The **USB storage / DLNA** page.*

To enable the DLNA server, select the **Enabled** checkbox.

In the **Update interval** field, specify the time period (in seconds), at the end of which the media server updates the file list of the USB storage, or leave the value specified by default (`900`). The minimal value you can specify is 60 seconds.

In the **DLNA server name** field, specify a new name of the DLNA server for easier identification in your LAN or leave the value specified by default (`D-Link DLNA Server`). Use digits and/or Latin characters.

To allow access to the content of the USB storage for users of your LAN, click the **Add** button. In the line displayed, locate a folder. To do this, click the button located to the right of the **Path** field (the button is available if the **Path** field is selected). In the opened window, double-click the icon of the storage or storage partition, select the needed folder in the directory structure, and click the **Open** button.

For each folder you can define the type of files which will be available for users of your LAN. To do this, select the needed type of files from the **Type** drop-down list. To share all files of a folder, select the **All** value from the **Type** drop-down list.

To undo the last changes, click the **Reset** button.

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

To remove a folder from the list, select the checkbox in the line containing the relevant folder and click the **Apply** button.

To disable the built-in DLNA server of the router, deselect the **Enabled** checkbox and click the **Apply** button.

Transmission

In this menu you can configure the built-in Transmission torrent client and manage distributing and downloading processes.

Transmission Settings

On the **Transmission / Transmission settings** page, you can configure all needed settings for the built-in Transmission client.

*Figure 117. The **Transmission / Transmission settings** page.*

You can specify the following parameters:

Parameter	Description
Enabled	Select the checkbox to activate the Transmission client.
Port	The router's port which will be used by the Transmission client.
Torrents directory	The folder on the USB storage where files of the Transmission client will be stored.
USB-storage path	The name of the USB storage in the file system of the router. If the USB storage is divided into volumes, several values are displayed in the drop-down list.

Parameter	Description
Web-interface port	The port on which the web-based interface of the Transmission client is available.
Open files limit	The maximum number of files which clients can download simultaneously.
Peer limit	The maximum number of the service users from which you can download files.
Authorization	Select the checkbox if you want the Transmission client to request for username and password when accessing its web-based interface. Then fill in the **User name** and **Password** fields.
User name	The username to access the web-based interface of the Transmission client.
Password	The password to access the web-based interface of the Transmission client.

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

In the **Web-interface page** field, the address of the web-based interface of the Transmission client is displayed. To access the web-based interface of the Transmission client, click the link.
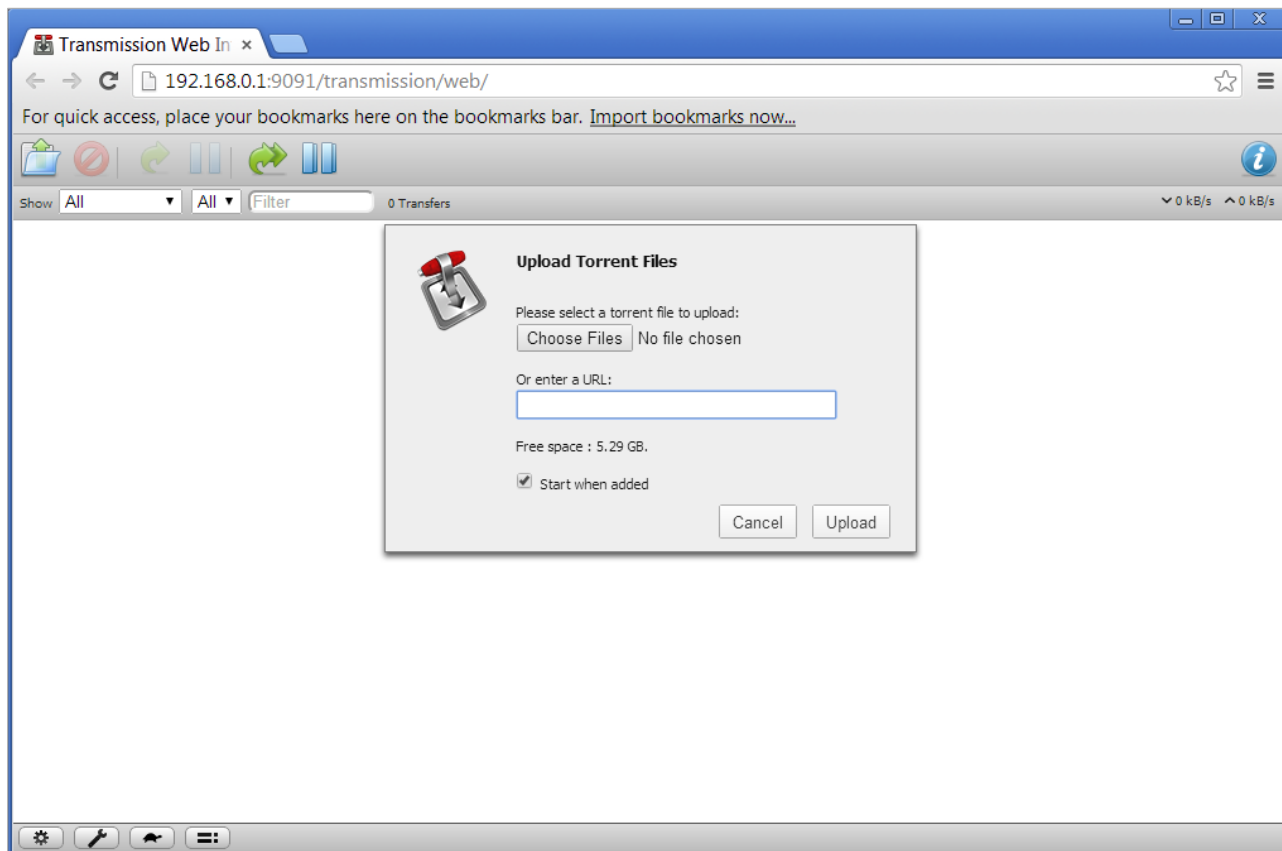
Figure 118. The web-based interface of the Transmission torrent client.

Using the web-based interface of the built-in Transmission torrent client you can manage the process of downloading files to the USB storage connected to the router.

To add a new torrent file, click the button (**Open Torrent**) and select a file stored on your PC. Click the button **Upload** in the dialog box appeared.

To stop downloading of a file, select it in the list and click the button (**Pause Selected Torrents**).

To resume downloading of a file, select it in the list and click the button (**Start Selected Torrents**).

To view data on a file, select it in the list and click the button (**Toggle Inspector**).

To remove a file presented on the page, select it in the list and click the button (**Remove Selected Torrents**).

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.
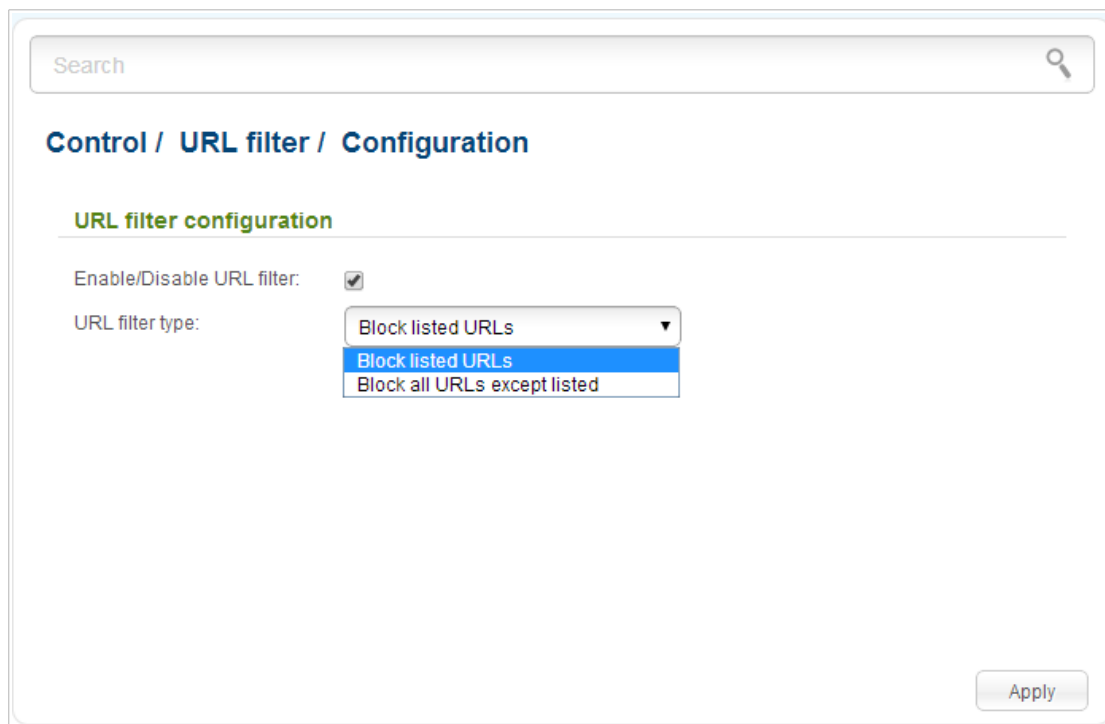
*Figure 119. The **Control / URL filter / Configuration** page.*

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

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

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

Click the **Apply** button.

To specify URL addresses to which the selected filtering will be applied, go to the **Control / URL filter / URL addresses** page.
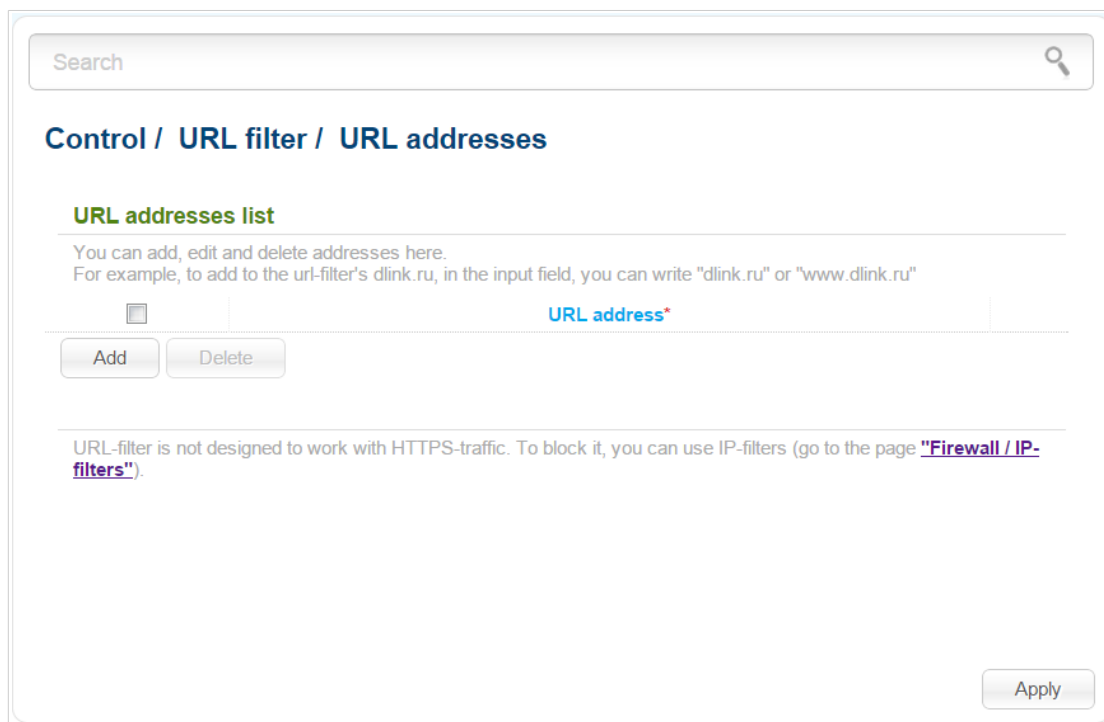
*Figure 120. The **Control / URL filter / URL addresses** page.*

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.
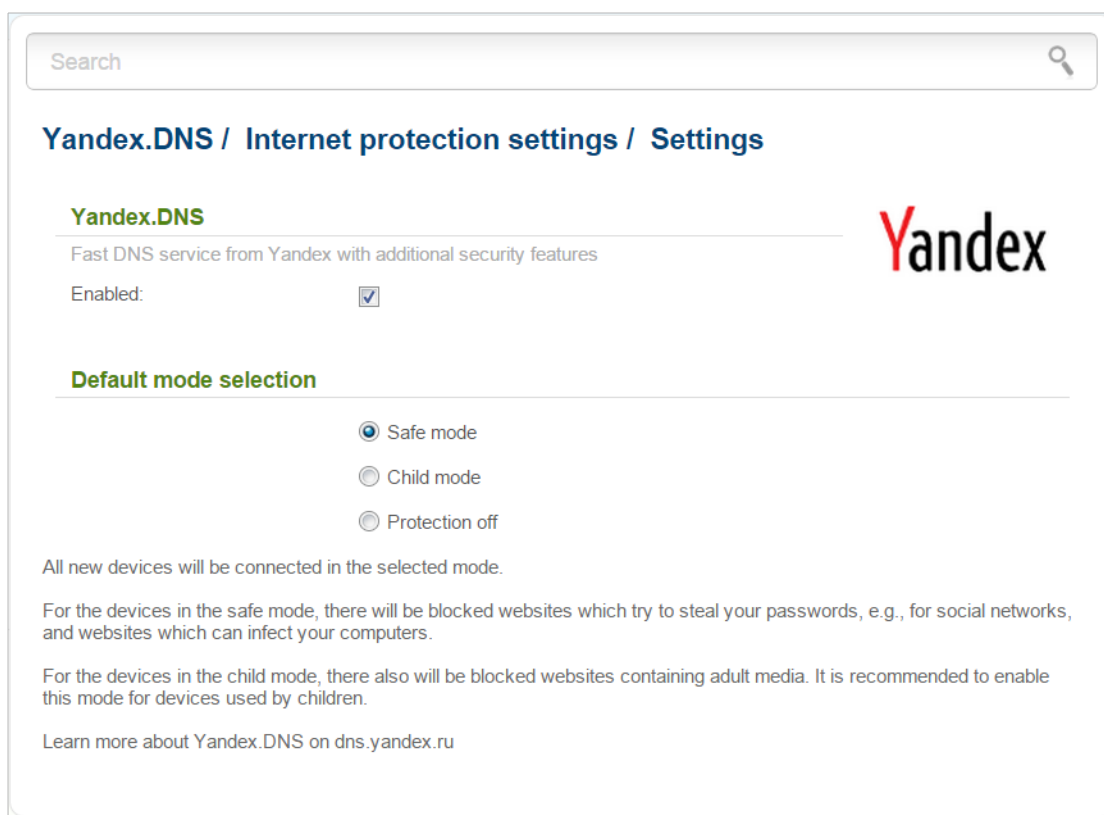
*Figure 121. The **Yandex.DNS / Internet protection settings / Settings** page.*

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.
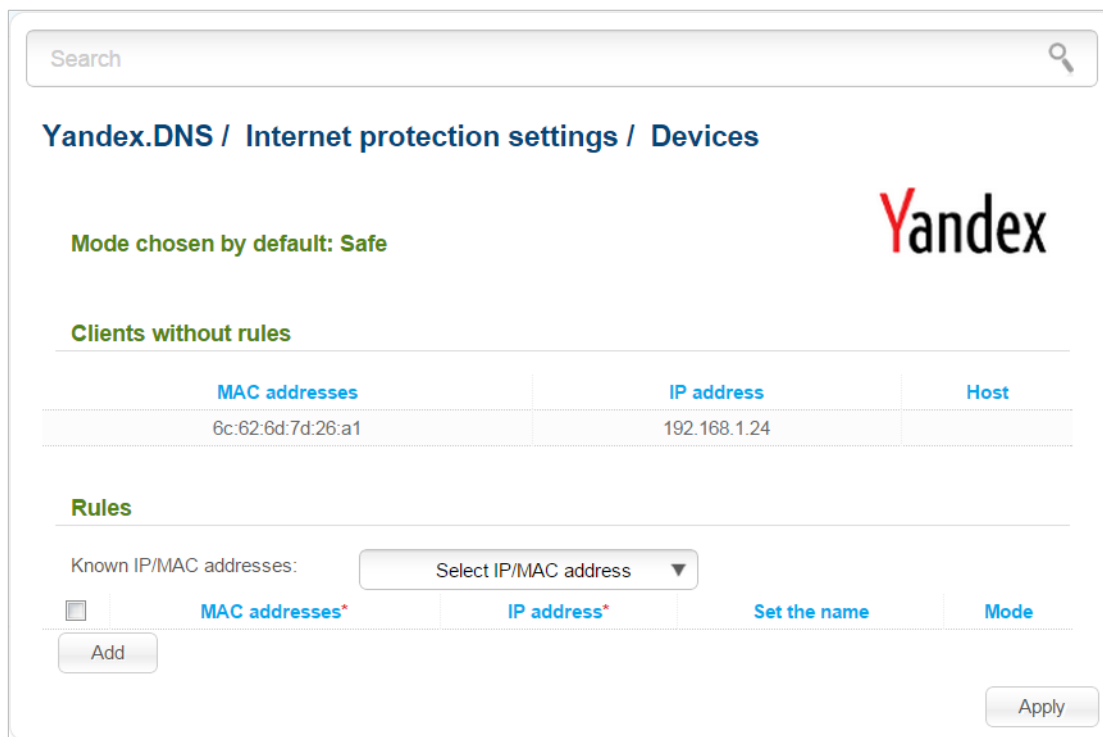
*Figure 122. The **Yandex.DNS / Internet protection settings / Devices** page.*

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 **Mode chosen by default** section.

To create[13] 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.

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13 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:
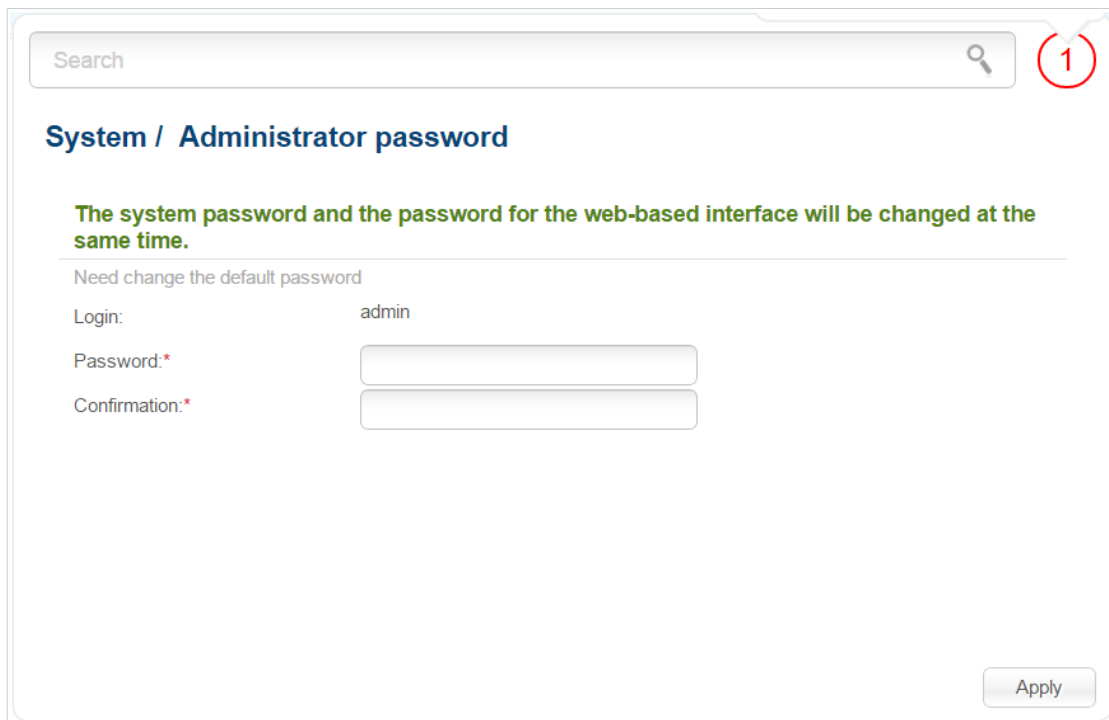
- change the password used to access the router's settings

- 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

- allow or forbid access to the router via TELNET

- create accounts for users to allow access to the content of the USB storage.

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 123. 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.
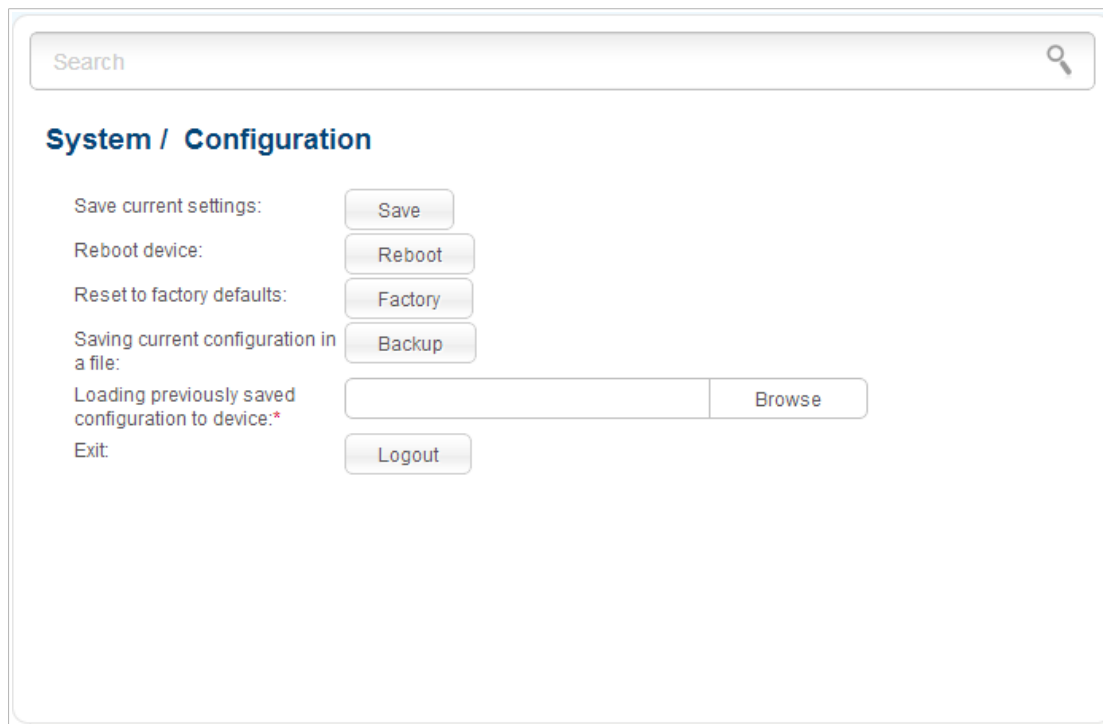
*Figure 124. The **System / Configuration** page.*

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 14).
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 125. 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.
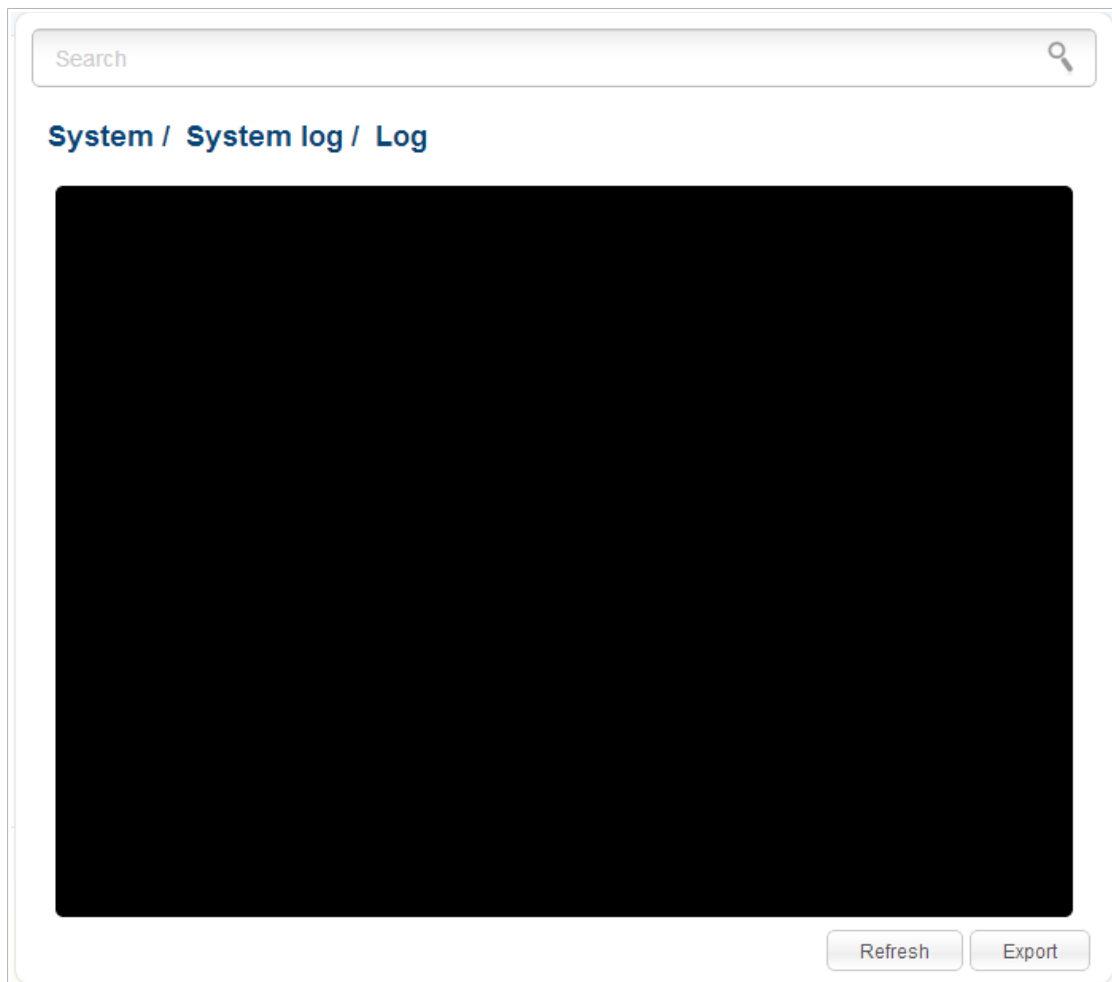
*Figure 126. The **System / System log / Log** page.*

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 127. 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.
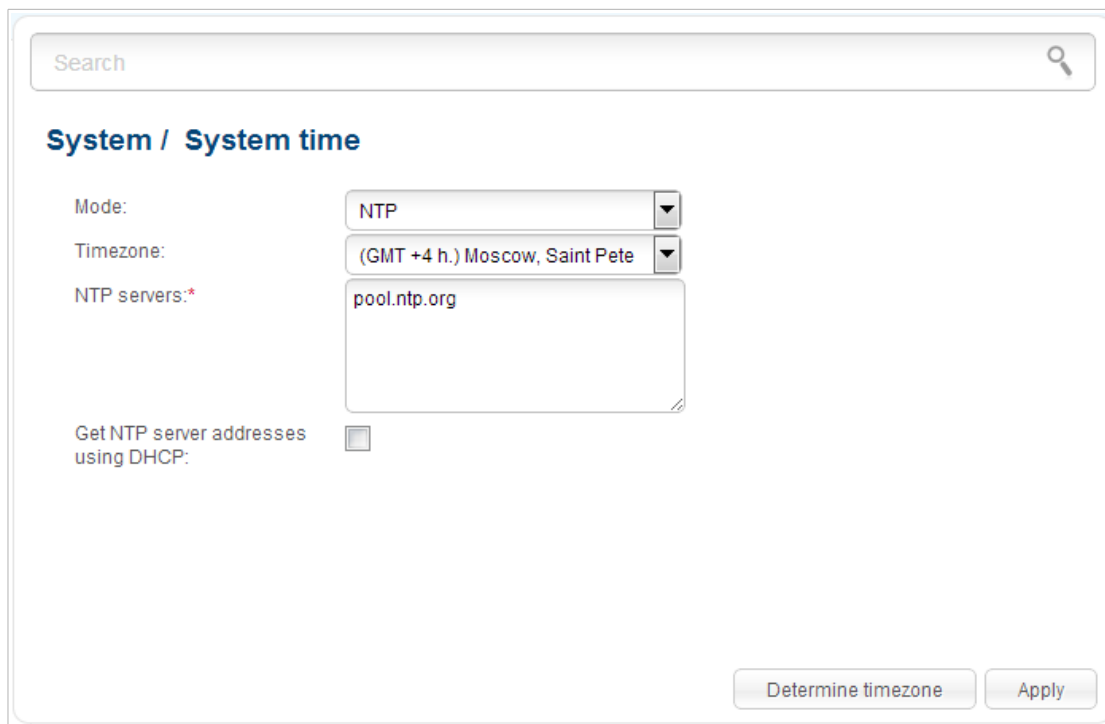
*Figure 128. The **System / System time** page.*

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

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

1. Select the **NTP** value from the **Mode** drop-down list.

2. Select your time zone from the drop-down list. To set the time zone in accordance with the settings of your operating system, click the **Determine timezone** button in the bottom right corner of the page.

3. Specify the needed NTP server in the **NTP servers** field or leave the server specified by default.

4. Click the **Apply** button.

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

> **!** 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.
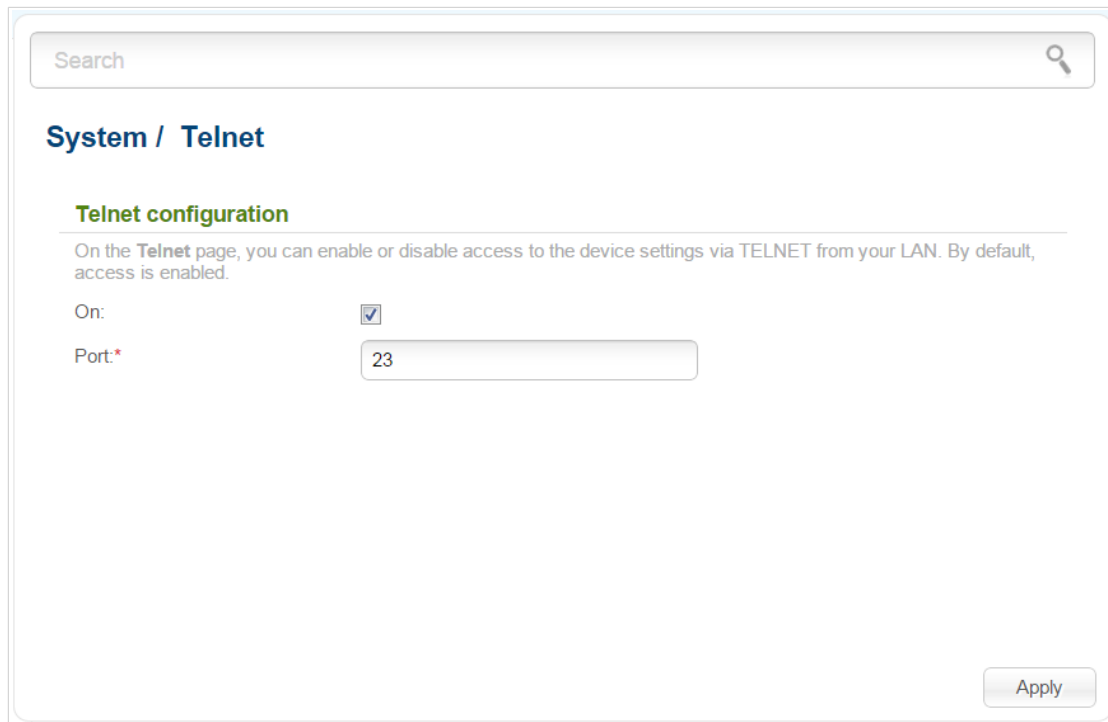
*Figure 129. The **System / Ping** page.*

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.

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 130. 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.

USB Users

On the **System / USB users** page, you can create user accounts to provide access to data on the USB storage connected to the router.
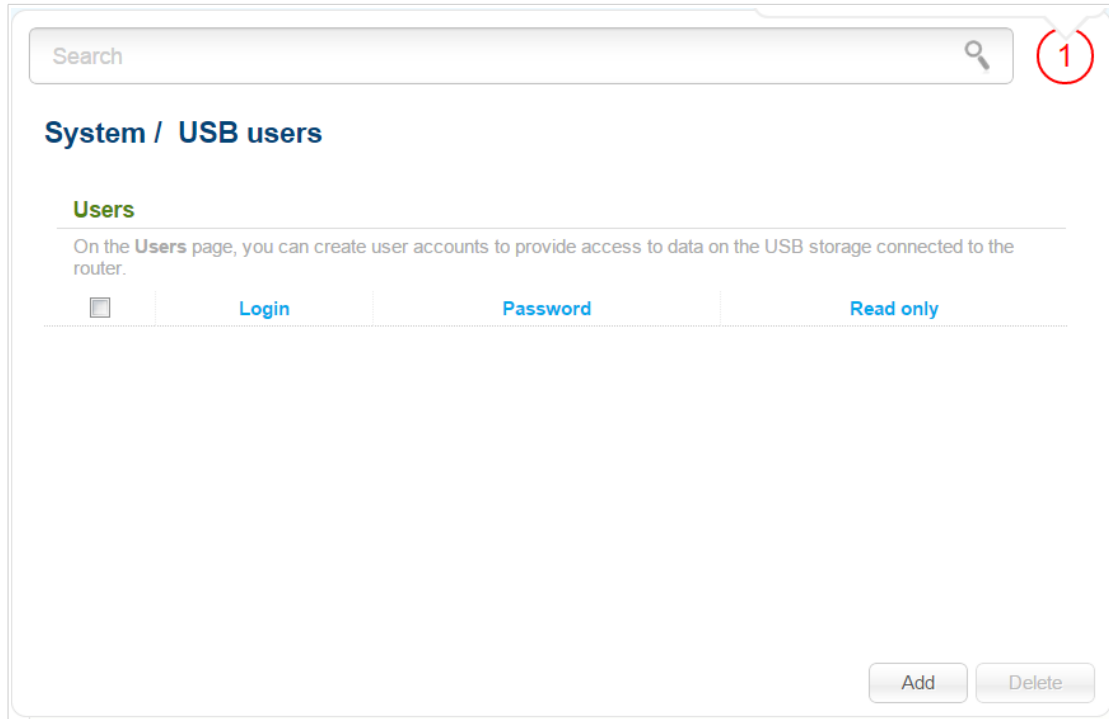
*Figure 131. The **System / USB users** page.*

To create a new user account, click the **Add** button.
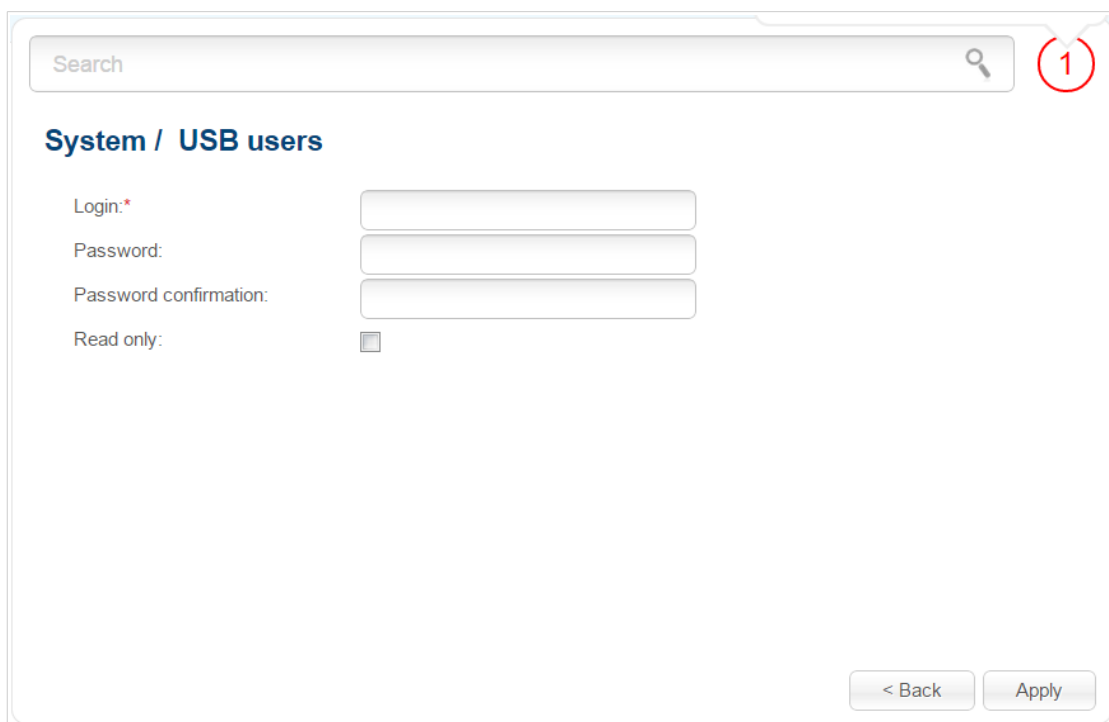
Figure 132. The page for adding a user.

On the opened page, in the **Login** field, specify a username, and in the **Password** and **Password confirmation** fields – the password for the account. You can use letters of the Latin alphabet (uppercase and/or lowercase) and digits.

> **!** You cannot create accounts with the following usernames: `ftp`, `admin`, `support`, `user`, `nobody`.

To change the password of an account, select the relevant line in the table. On the opened page, enter a new value in the **Password** and **Password confirmation** fields, then click the **Apply** button.

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

To remove all accounts from this page, click the **Clear all** button (the button is displayed if at least one account exists).

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 back 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 DSL-2750U 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 DSL-2750U 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.

Creating Two Connections on One Channel

ADSL WAN Connections

In some cases, it is necessary to assign two WAN connections to one virtual channel (that is, to specify the same values of the VPI/VCI).

For example, your ISP provides access to the Internet via the VLAN with the tag (VLAN ID) **20** and the IPTV service (VPI = 0, VCI = 35) via the VLAN with the tag (VLAN ID) **10**. You need to configure a WAN connection of the Bridge type for the set-top-box connected to the LAN 2 port of the router and a WAN connection of Dynamic IP type for the computer connected to the LAN 3 port of the router and the laptop connected to the wireless interface of the router.

To configure the router, follow the steps below:

1. Go to the **Net / WAN** page and click the **Add** button.

2. Select the **Bridge** value from the **Connection Type** drop-down list.

3. Select the **DSL(new)** value from the **Interface** drop-down list.

4. Fill in the **VPI** and **VCI** fields.

5. In the **VLAN** section, select the **Allow to create several connections assigned to this port** and **Use VLAN** checkboxes.

6. In the **VLAN ID** field, enter `10`.

7. Click the **Apply** button.

8. Click the **Add** button again.

9. Select the **Dynamic IP** value from the **Connection Type** drop-down list.

10. Select the **vc0(0/35)** value from the **Interface** drop-down list.

11. In the **VLAN** section, select the **Use VLAN** checkbox.

12. In the **VLAN ID** field, enter `20`.

13. Click the **Apply** button.

Name	Connection Type	Interface	Status	Direction	Default gateway	Default IPv6 gateway
bridge_0_35_1	Bridge	vc0(0/35)	down	WAN	○	
dynamic_0_35_2	Dynamic IP	vc0(0/35)	down	WAN	◉	

Figure 133. Two WAN connections with the same values of the VPI and VCI.

14. Go to the **Advanced / Interface grouping** page.

15. Create a group containing the WAN connection of the Bridge type and the LAN 2 port.

16. Create another group containing the WAN connection of the Dynamic IP type, the LAN 3 port, and the wireless interface.

Name	Type of group	LANs	WANs
DEFAULT	Local	LAN4; LAN1; WI-FI;	
1	Transparent bridge	LAN2;	bridge_0_35_1;
2	NAT	LAN3;	dynamic_0_35_2;

Figure 134. Groups of ports for the created WAN connections.

17. Save the settings and wait until the router is rebooted.

Ethernet WAN Connections

In some cases, it is necessary to assign two WAN connections to one physical interface.

For example, the ISP provides the IPTV service via the VLAN with the tag (VLAN ID) **10** and access to the Internet via the VLAN with the tag (VLAN ID) **20**. Your private Ethernet line is connected to the LAN 3 port of the router. You need to configure a WAN connection of the Bridge type for the set-top-box connected to the LAN 2 port of the router and a WAN connection of Dynamic IP type for the computer connected to the LAN 4 port of the router and the laptop connected to the wireless interface of the router.

To configure the router, follow the steps below:

1. Go to the **Advanced / EtherWAN** page.

2. Place the mouse pointer on the **LAN3** port and left-click it.

3. Click the **Apply** button.

4. Go to the **Net / WAN** page and click the **Add** button.

5. Select the **Bridge** value from the **Connection Type** drop-down list.

6. Select the **LAN3** value from the **Interface** drop-down list.

7. In the **VLAN** section, select the **Use VLAN** checkbox.

8. In the **VLAN ID** field, enter `10`.

9. Click the **Apply** button.

10. Click the **Add** button again.

11. Select the **Dynamic IP** value from the **Connection Type** drop-down list.

12. Select the **LAN3** value from the **Interface** drop-down list.

13. In the **VLAN** section, select the **Use VLAN** checkbox.

14. In the **VLAN ID** field, enter `20`.

15. Click the **Apply** button.

	Name	Connection Type	Interface	Status	Direction	Default gateway	Default IPv6 gateway
☐	bridge_LAN3_1	Bridge	LAN3	down🔴	WAN	⊙	
☐	dynamic_LAN3_2	Dynamic IP	LAN3	down🔴	WAN	⦿	

Figure 135. Two WAN connections for one physical interface.

16. Go to the **Advanced / Interface grouping** page.

17. Create a group containing the WAN connection of the Bridge type and the LAN 2 port.

18. Create another group containing the WAN connection of the Dynamic IP type, the LAN 4 port, and the wireless interface.

Name	Type of group	LANs	WANs
DEFAULT	Local	LAN1;	
1	Transparent bridge	LAN2;	bridge_LAN3_1;
2	NAT	LAN4; WI-FI;	dynamic_LAN3_2;

Figure 136. Groups of ports for the created WAN connections.

19. Save the router's settings.

CHAPTER 6.   ABBREVIATIONS AND ACRONYMS

3G	Third Generation
AES	Advanced Encryption Standard
ARP	Address Resolution Protocol
BSSID	Basic Service Set Identifier
CCK	Complementary Code Keying
CDMA	Code Division Multiple Access
CRC	Cyclic Redundancy Check
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
DLNA	Digital Living Network Alliance
DMZ	DeMilitarized Zone
DNS	Domain Name System
DTIM	Delivery Traffic Indication Message
FTP	File Transfer Protocol
GMT	Greenwich Mean Time
GSM	Greenwich Mean Time
IGD	Internet Gateway Device
IGMP	Internet Group Management Protocol
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IPoA	Internet Protocol over ATM
ISP	Internet Service Provider
LAN	Local Area Network
LCC	Logical Link Control

LCP	Link Control Protocol
LTE	Long Term Evolution
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
PPPoA	Point-to-Point Protocol over ATM
PPPoE	Point-to-point protocol over Ethernet
PSK	Pre-shared key
PUK	PIN Unlock Key
QoS	Quality of Service
R-UIM	Removable User Identity Module
RIP	Routing Information Protocol
RTS	Request To Send
RTSP	Real Time Streaming Protocol
SIM	Subscriber Identification Module
SIP	Session Initiation Protocol
SMB	Server Message Block
SSID	Service Set Identifier
TKIP	Temporal Key Integrity Protocol
UPnP	Universal Plug and Play
URL	Uniform Resource Locator
USB	Universal Serial Bus
VC	Virtual Circuit
VCI	Virtual Circuit Identifier

VLAN	Virtual Local Area Network
VPI	Virtual Path Identifier
WAN	Wide Area Network
WEP	Wired Equivalent Privacy
Wi-Fi	Wireless Fidelity
WLAN	Wireless Local Area Network
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup