D-Link®

User Manual

DSL-2640U

ADSL Annex B/Ethernet Router with Wi-Fi and Built-in Switch

October 2012

Contents

CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the wireless router DSL-2640U 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-2640U 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

The DSL-2640U device is an affordable high-end ADSL/Ethernet router developed for home and SOHO (*Small Office/Home Office*) networks. It provides fast and simple broadband access to the Internet and a shared connection for multi users. The device allows accessing the Internet via ADSL technology and via Ethernet technology.

DSL-2640U provides all the essentials for creating a secure high-speed wireless and wired network: ADSL/ADSL2/ADSL2+ standards, Fast Ethernet standard, the built-in firewall, the QoS engine, and numerous additional features.

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-2640U 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 DSL-2640U 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.

The wireless router DSL-2640U 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 wireless router DSL-2640U via the user-friendly web-based interface (the interface is available in several languages).

* The maximum speed of the wireless connection is limited by the chipset up to 65Mbps.

Specifications

Interfaces:

- ADSL: 1 RJ-11 port
- LAN: 4 RJ-45 10/100BASE-TX Fast Ethernet ports with auto-MDI/MDIX
- WLAN: built-in 802.11b, g, and n draft wireless interface.

Wireless Network:

- IEEE 802.11n draft standard*, IEEE 802.11b/g compliant
- Support of guest wireless network
- WEP data encryption
- WPA/WPA2 security supporting TKIP, AES and TKIP+AES
- MAC-based access to wireless network
- PIN and PBC methods of WPS
- Advanced settings.

ADSL Standards:

- ADSL:
  - ANSI T1.413-1998 Issue 2; ITU-T G.992.1 (G.dmt) Annex B, ITU-T G.992.2 (G.lite) Annex B.
- ADSL2:
  - ITU-T G.992.3 Annex B.
- ADSL2+:
  - ITU-T G.992.5 Annex B.

WAN Connection Types:

- ADSL:
  - PPPoA
  - PPPoE
  - IPoE
  - IPoA
  - Bridge.

* The maximum speed of the wireless connection is limited by the chipset up to 65Mbps.

- Ethernet:
  - IPoE
  - PPPoE
  - Bridge.

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.

Network Protocols and Functions:

- Static IP routing
- NAT (*Network Address Translation*)
- DHCP server/client/relay
- DNS relay
- DDNS
- UPnP
- Support of VLAN
- IGMP proxy.

Firewall and Access Management Functions:

- Network Address Translation (NAT)
- Stateful Packet Inspection (SPI)
- MAC-filtering based on time of day and day of week
- URL filter
- Packet filtering (IP/ICMP/TCP/UDP)
- Virtual servers
- Prevention of DoS attacks
- Intrusion detection system
- DMZ
- Port Triggering.

QoS:

- Interface grouping
- 3 priority queues.

Configuration and Management:

- Multilingual web-based interface for configuration and management
- Access via TELNET
- Firmware update via web-based interface
- Saving/restoring configuration to/from file
- Support of remote logging
- SNMP agent
- Automatic synchronization of system time with NTP server.

LEDs:

- Power
- LAN 1-4
- WLAN
- WPS
- DSL
- Internet.

Power:

- External power adapter DC 12V/0.5A
- ON/OFF power switch
- ON/OFF Wi-Fi switch
- Reset to Factory Defaults button
- WPS button.

Dimensions:

- 164 mm x 112 mm x 35 mm.

Weight:

- 240 g.

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
	Solid red	A malfunction of the router
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)
WLAN	*Solid green*	The router's WLAN is on
	Blinking green	The WLAN interface is active (upstream or downstream traffic)
WPS	*Solid green*	A wireless device is connected to the router's WLAN (lights for several minutes)
	Blinking green	Attempting to add a wireless device via the WPS function
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 (ADSL and/or Ethernet) is established
	Blinking green	The WAN interface is active (upstream or downstream traffic)
	Solid red	An authorization failure
	No light	The router is in the bridge mode or no WAN connection (neither Ethernet nor ADSL) is established

Back Panel

Figure 2. 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.
WPS	A button to quickly add wireless devices to the router's WLAN.
WIRELESS ON/OFF	A button to turn the router's wireless interface on/off.
ON/OFF	A button to turn the router on/off.
12V=0.5A	Power connector.

Delivery Package

The following should be included:

- Wireless router DSL-2640U
- Power adapter DC 12V/0.5A
- RJ-11 telephone cable
- Straight-through Ethernet cable (CAT 5E)
- Splitter
- "***Quick Installation Guide***" (brochure).

The "***User Manual***" and "***Quick Installation Guide***" documents in Russian and English are available on D-Link website (see ftp.dlink.ru/pub/ADSL/DSL-2640U (ANNEX B)/Description/).

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

CHAPTER 3. INSTALLATION AND CONNECTION

Before You Begin

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

Operating System

Configuration of the wireless router DSL-2640U (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: Windows Internet Explorer, Mozilla Firefox, or Opera.

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

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

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

Wireless Connection

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

Connecting to PC

PC with Ethernet Adapter

1. Make sure that your PC is powered off.
2. Connect an Ethernet cable between any of four Ethernet ports located on the back panel of the router and the Ethernet port of your PC.
3. ***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.
4. ***To connect the router to an Ethernet line:*** connect the Ethernet cable between any of four Ethernet ports located on the back panel of the router and the Ethernet line.
5. 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.
6. Turn on the router by pressing the **ON/OFF** button on its back panel.
7. Turn on your PC and wait until your operating system is completely loaded.

Obtaining IP Address Automatically in OS Windows XP

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

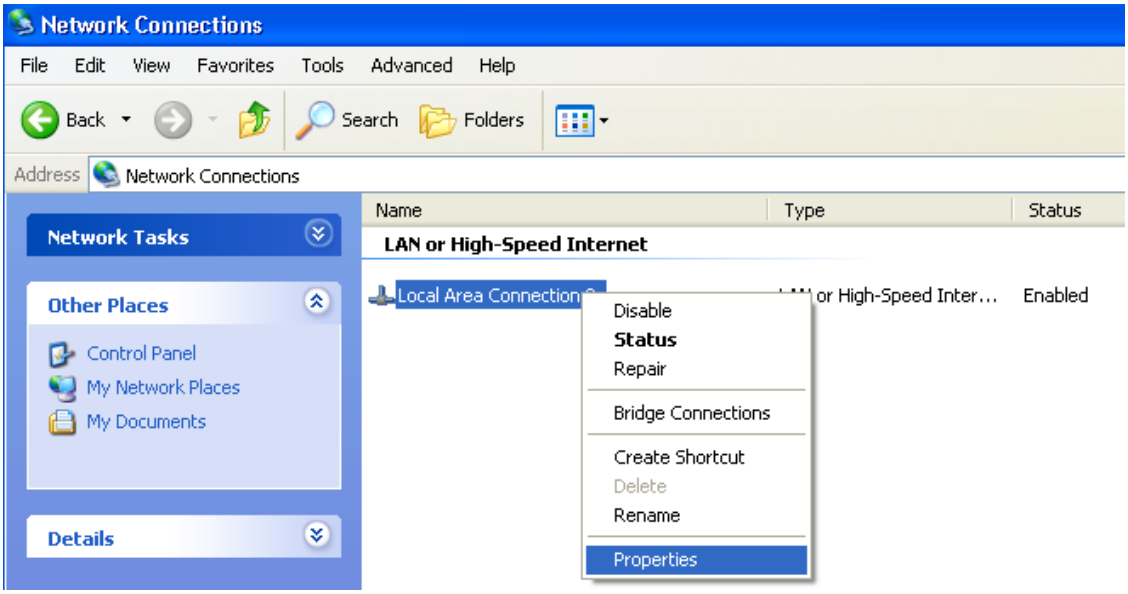


*Figure 3. The **Network Connections** window.*

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

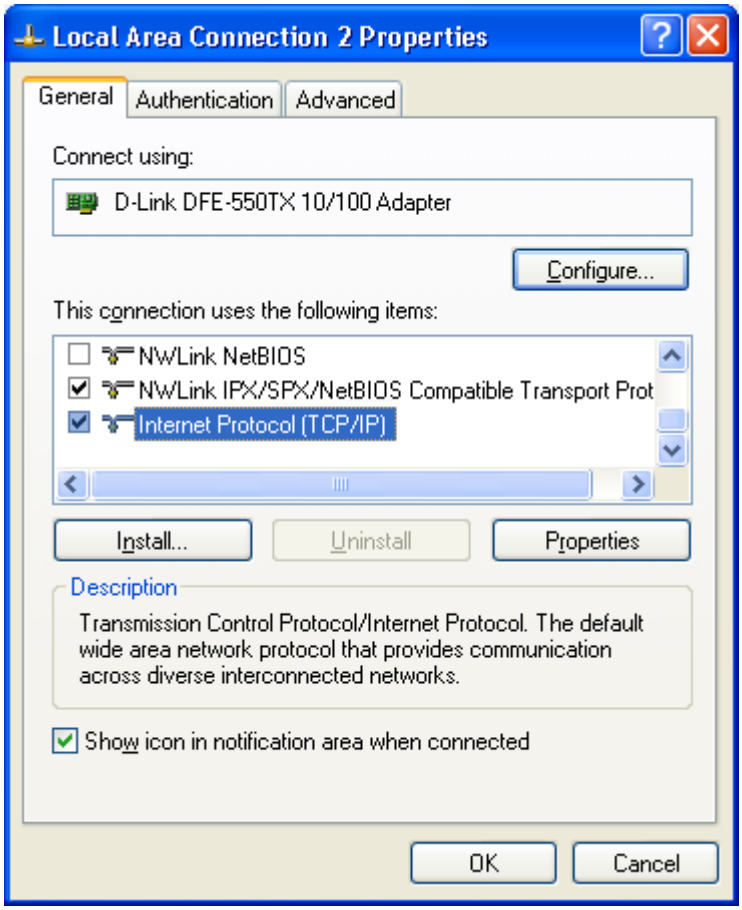


*Figure 4. The **Local Area Connection Properties** window.*

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

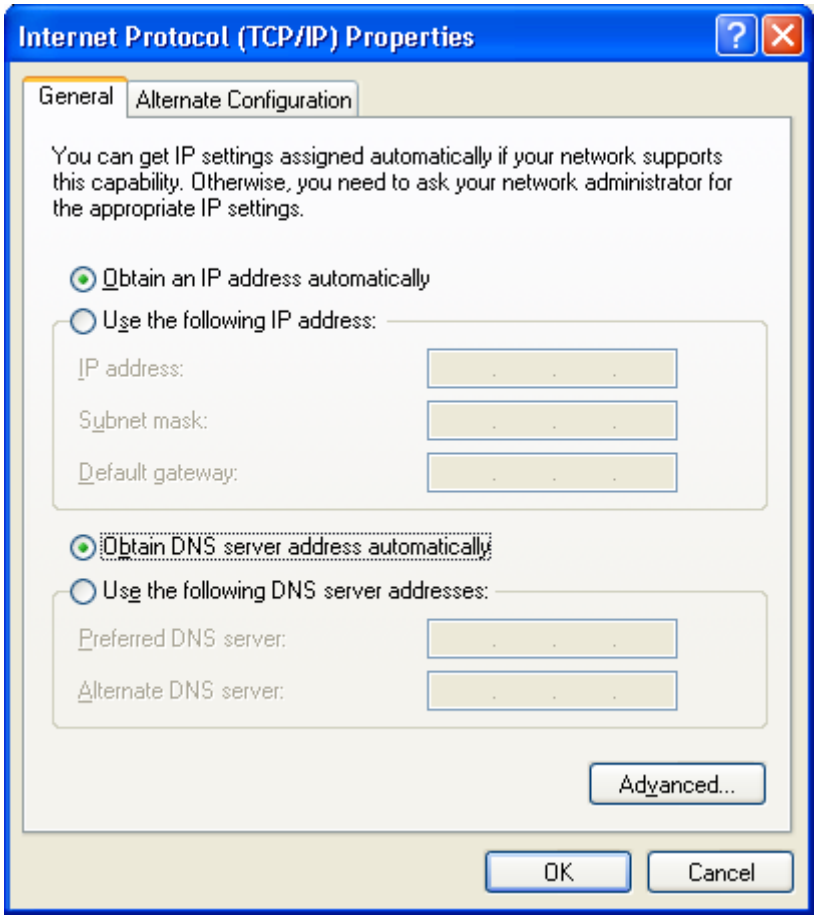


*Figure 5. The **Internet Protocol (TCP/IP) Properties** window.*

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

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

Obtaining IP Address Automatically in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.
2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)

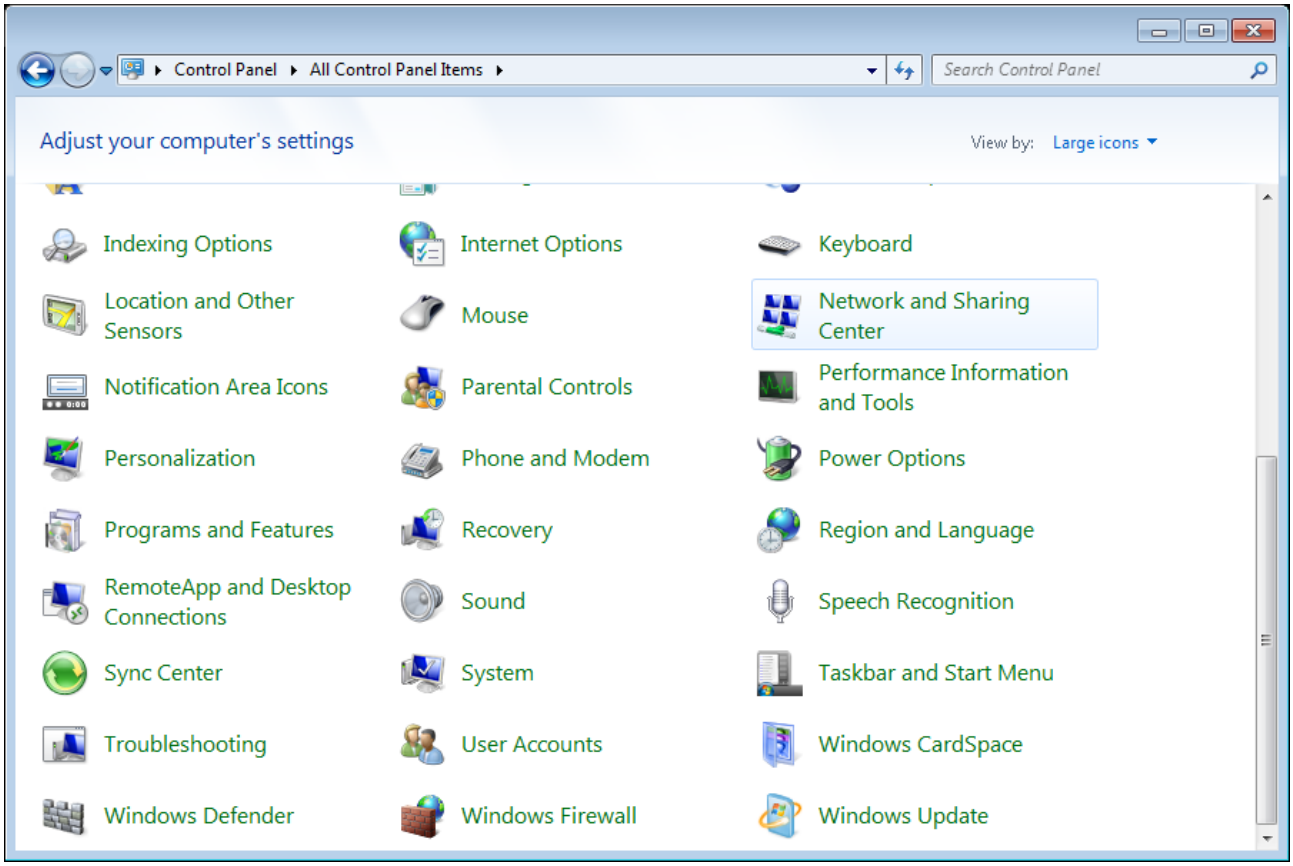


*Figure 6. The **Control Panel** window.*

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

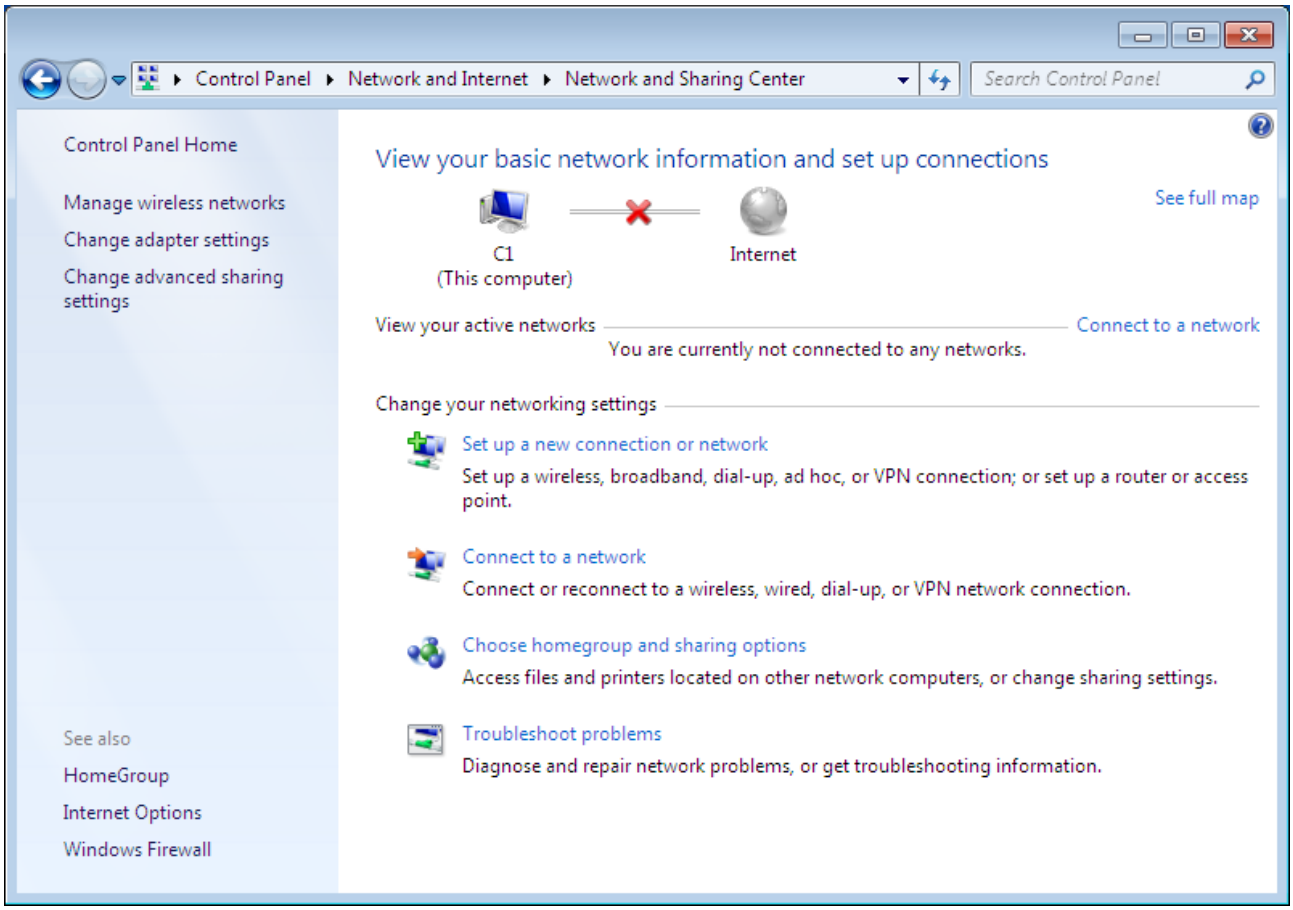


*Figure 7. The **Network and Sharing Center** window.*

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

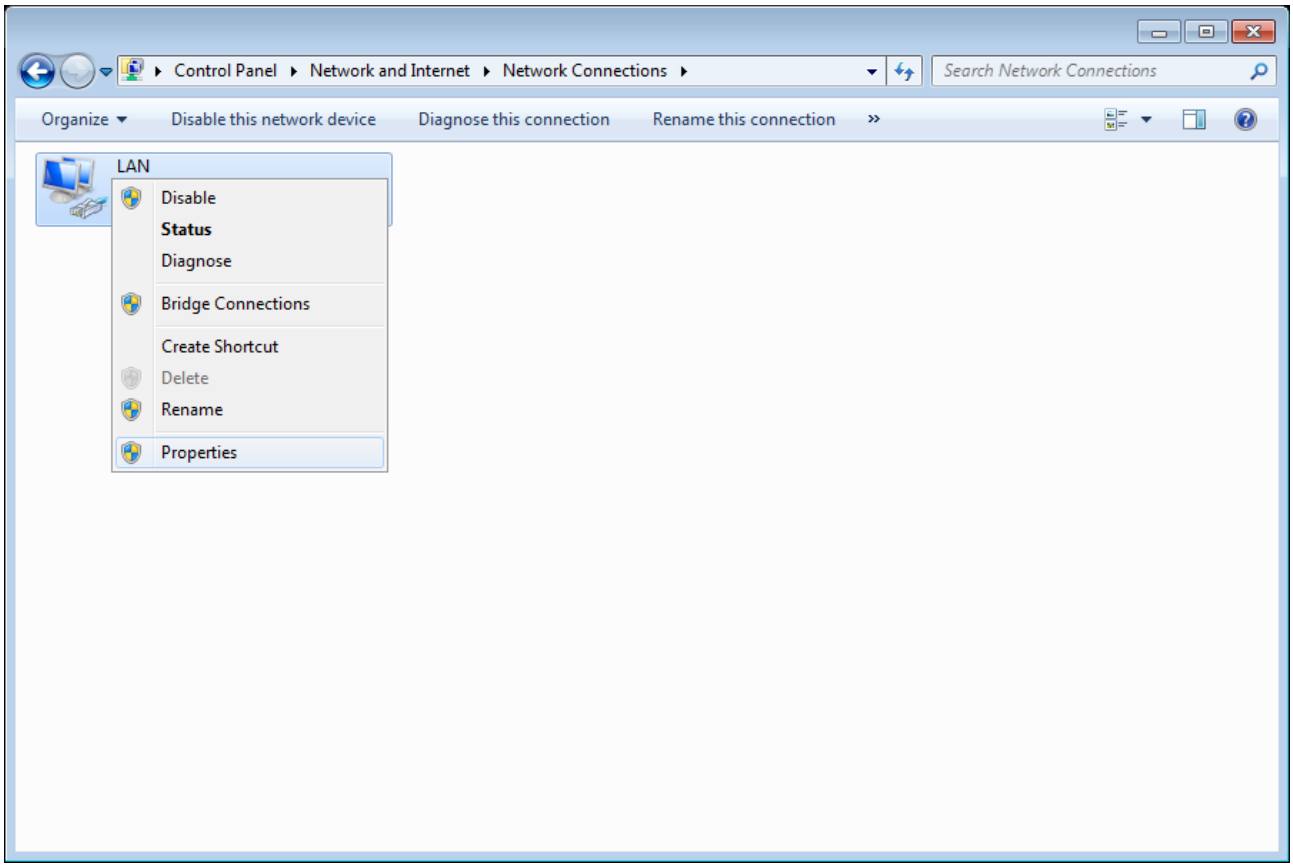


*Figure 8. The **Network Connections** window.*

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

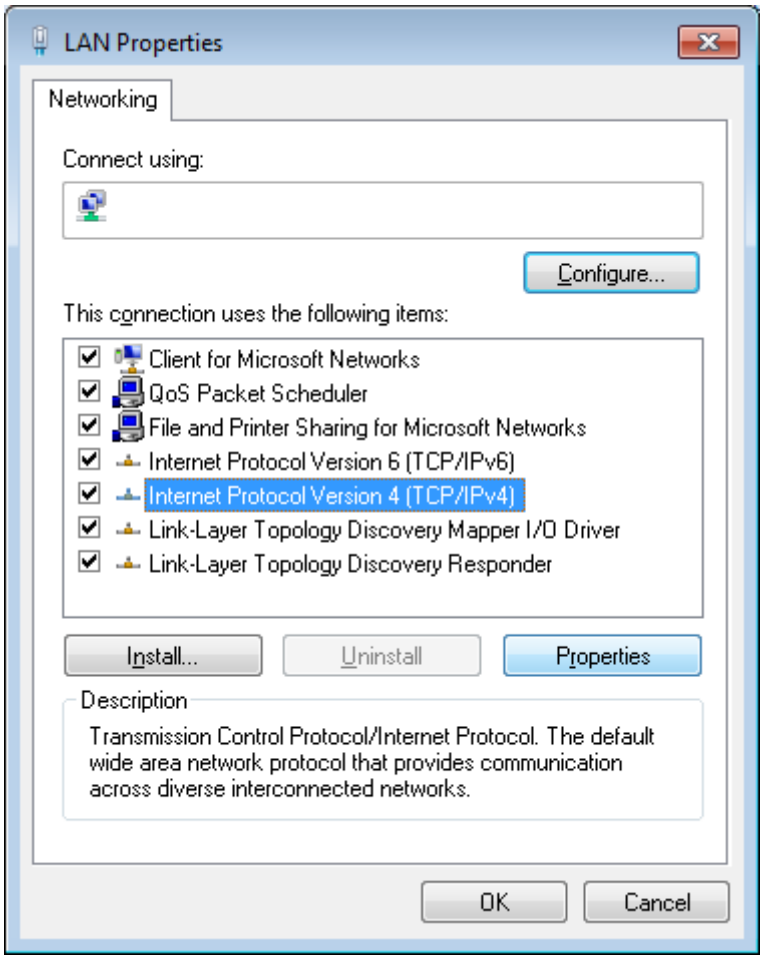


*Figure 9. The **Local Area Connection Properties** window.*

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

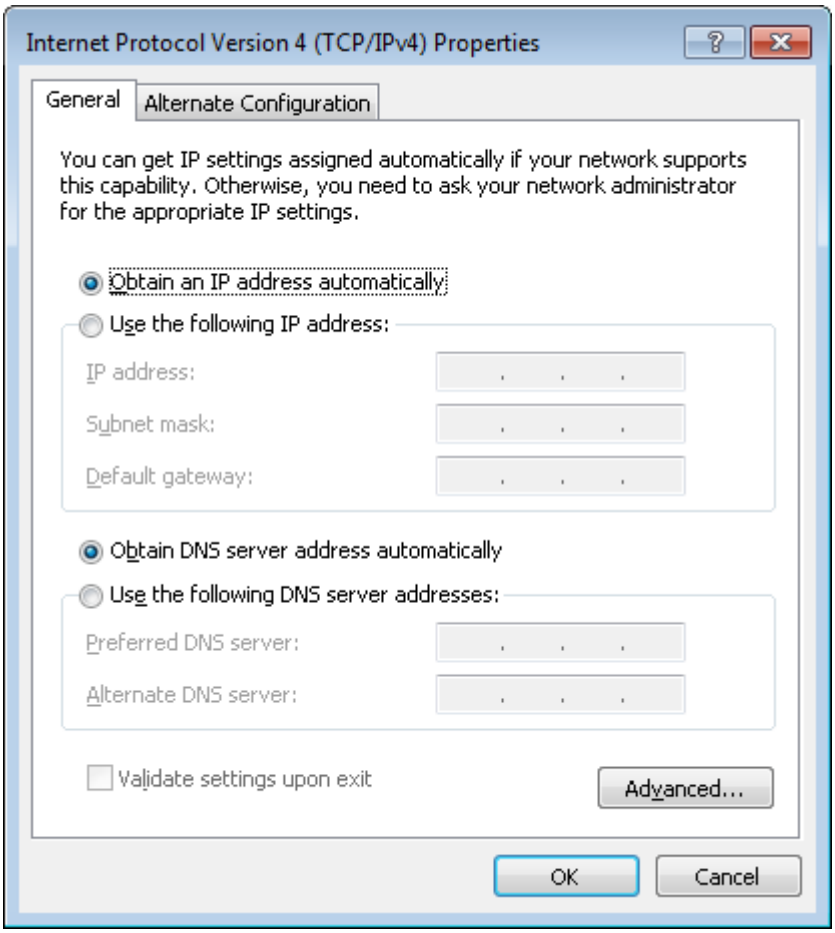


*Figure 10. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window.*

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

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

PC with Wi-Fi Adapter

1. ***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.
2. ***To connect the router to an Ethernet line***: connect the Ethernet cable between any of four Ethernet ports located on the back panel of the router and the Ethernet line.
3. Connect the power cord to the power connector port on the back panel of the router, then plug the power adapter into an electrical outlet or power strip.
4. Turn on the router by pressing the **ON/OFF** button on its back panel.
5. Turn on Wi-Fi by pressing the relevant button on the back panel of the router.
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.

Configuring Wi-Fi Adapter in OS Windows XP

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

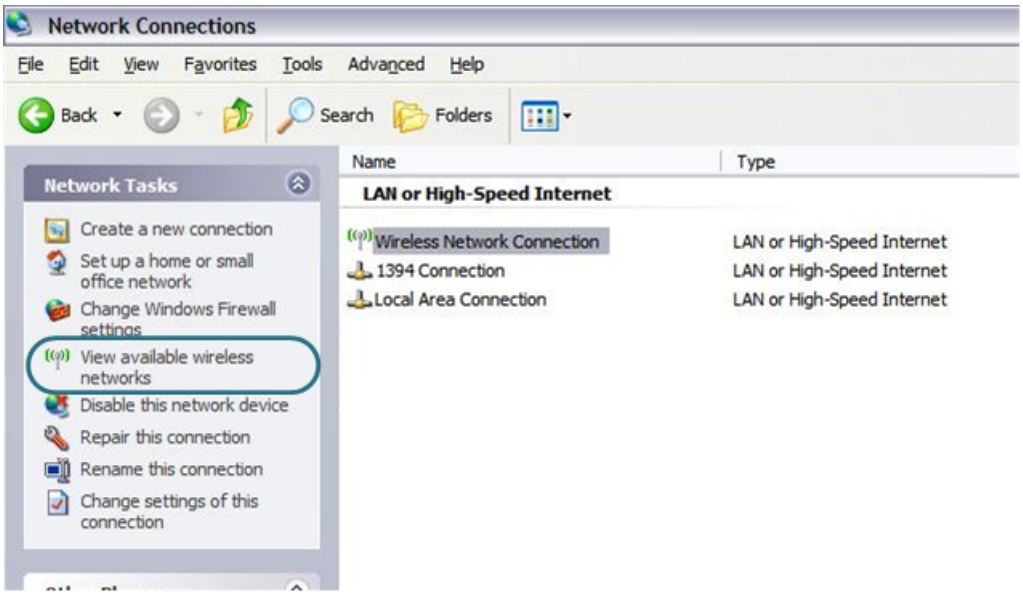


*Figure 11. The **Network Connections** window.*

3. Search for available wireless networks.
4. In the opened **Wireless Network Connection** window, select the wireless network **DSL-2640U** and click the **Connect** button.

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

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

Configuring Wi-Fi Adapter in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.
2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)

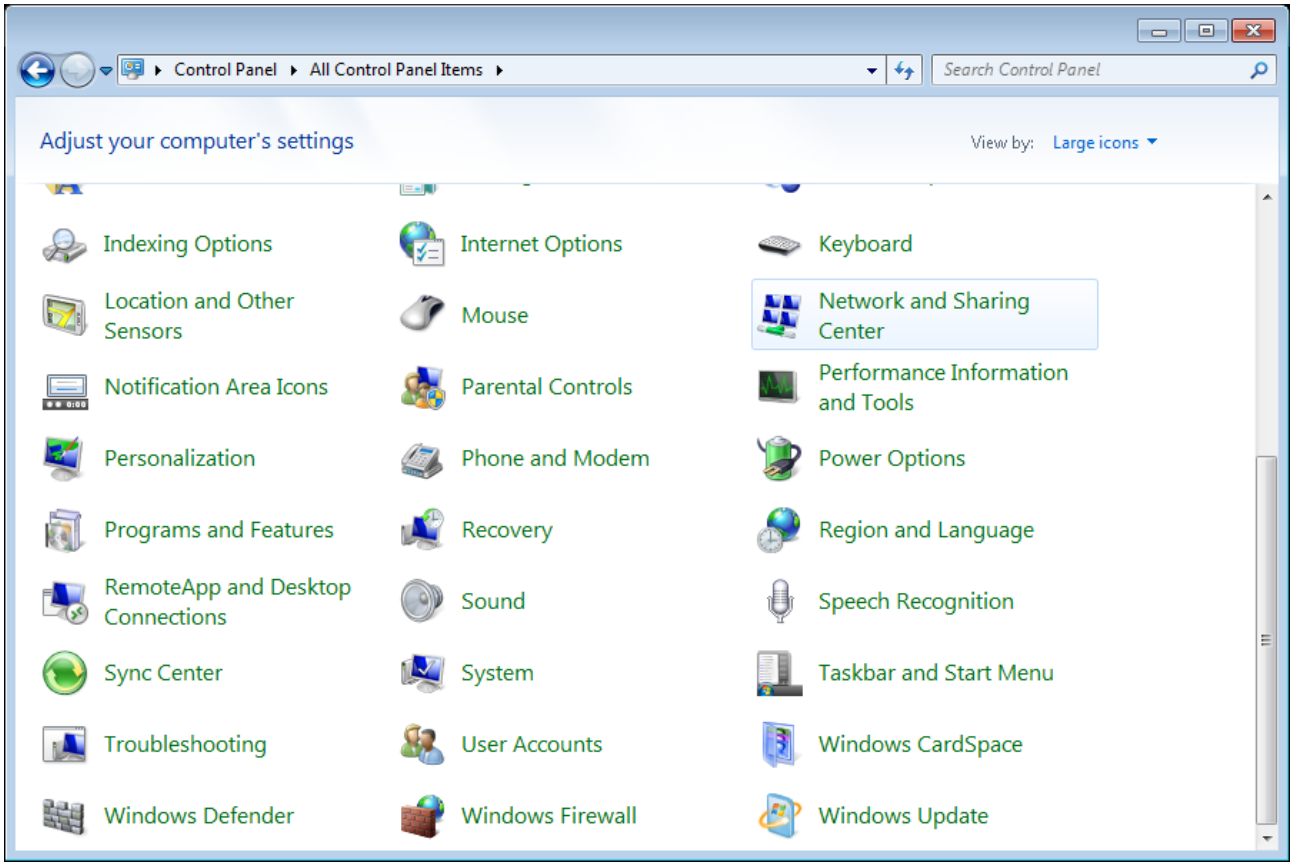


*Figure 12. The **Control Panel** window.*

3. In the menu located on the left part of the window, select the **Change adapter settings** line.
4. In the opened window, select the icon of the wireless network connection and make sure that your Wi-Fi adapter is on.
5. To open the list of available wireless networks, select the icon of the wireless network connection and click the **Connect To** button or left-click the network icon in the notification area located on the right side of the taskbar.

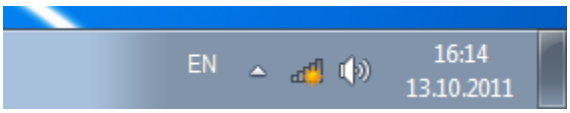


Figure 13. The notification area of the taskbar.

6. In the opened window, in the list of available wireless networks, select the wireless network **`DSL-2640U`** and click the **Connect** button.

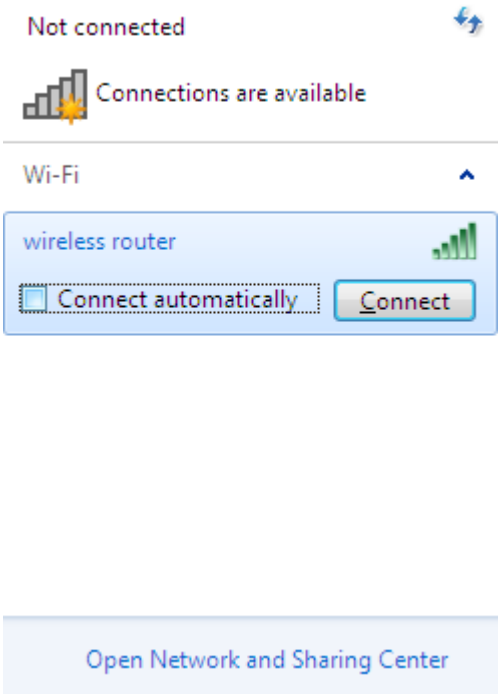


Figure 14. The list of available networks.

7. 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.)

1. Start a web browser (see the ***Before You Begin*** section, page 13).
2. 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 15. Connecting to the web-based interface of the DSL-2640U device.

3. On the opened page, enter the username (login) and password for the administrator account (by default, the following username and password are specified: **`admin`**, **`admin`**). Then click the **Enter** button.

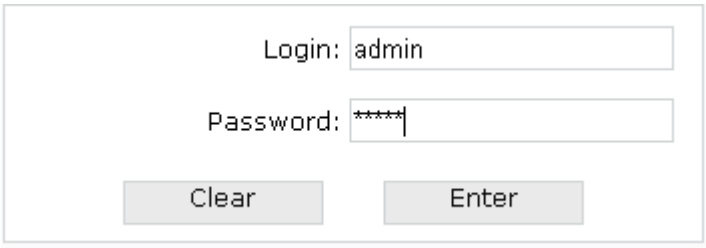


Figure 16. The login page.

! 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 successful registration the system statistics page opens. The page displays general information on the router and its software.

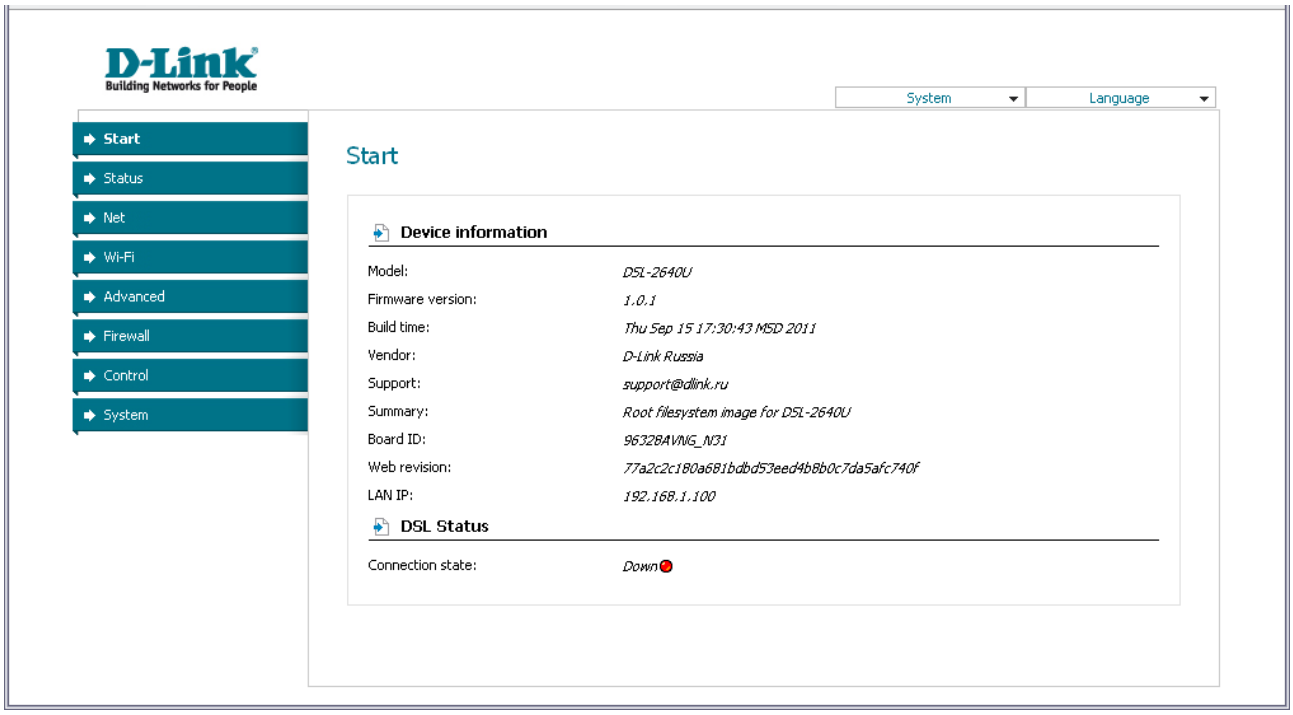


Figure 17. The system statistics page.

For security reasons, it is strongly recommended to change the administrator password upon initial configuration of the router. To do this, proceed to the **System / Administrator password** page.

The web-based interface of the router is multilingual. Select a needed language from the menu displayed when the mouse pointer is over the **Language** caption. You can change the language of the web-based interface in any menu item.

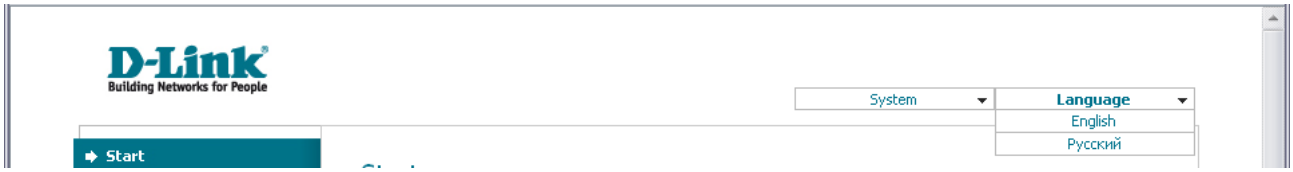


Figure 18. Changing the language of the web-based interface.

Saving and Restoring Settings

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

The router's web-based interface displays the notification on unsaved changes at the top of the page.

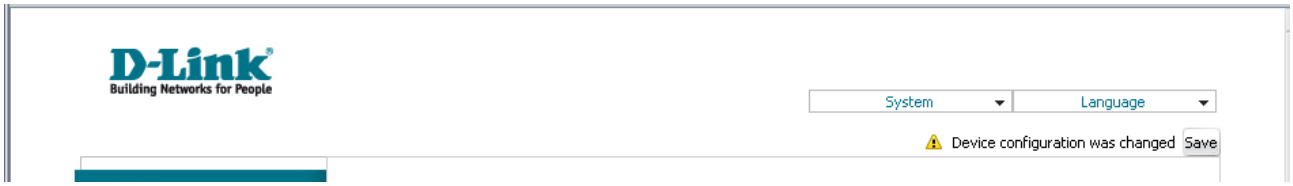


Figure 19. The notification on unsaved changes.

You can save the router's settings via the top-page menu displayed when the mouse pointer is over the **System** caption.

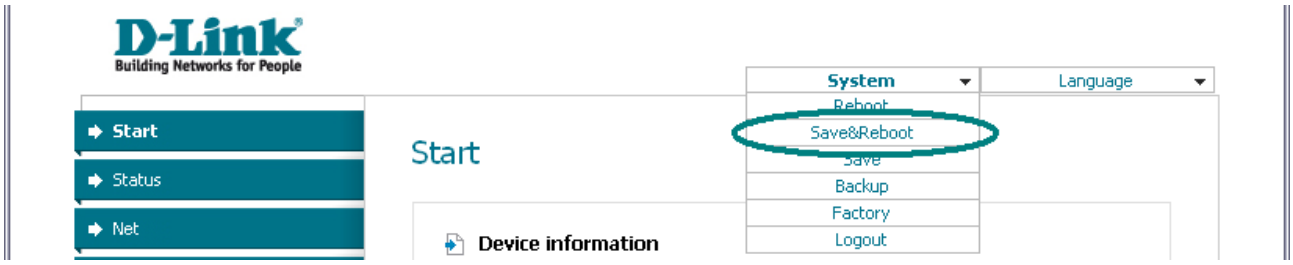


Figure 20. The top-page menu.

Click the **Reboot** line if you have already saved the router's settings.

Click the **Save&Reboot** line to save new settings and immediately reboot the router.

Click the **Save** line to save new settings to the non-volatile memory and continue configuring the device. Also you can save the device's parameters via the **Save** button on the **System / Configuration** page.

Click the **Backup** line and follow the dialog box appeared to save the configuration (all settings of the router) to your PC. Also you can save the router's configuration to your PC via the **Backup** button on the **System / Configuration** page.

Click the **Factory** line 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 located on the bottom panel of the router. Use a small paperclip to activate the button; insert it into the hole (with the device turned on), push, and hold for 10 seconds. Release the button and wait until the router is rebooted (about a minute). Now you can access the web-based interface of the router using the default IP address, username and password.

When you have configured all needed settings, click the **Logout** line.

CHAPTER 4. CONFIGURING VIA WEB-BASED INTERFACE

Status

This menu displays data on the current state of the router. The following data are represented: DSL connection status, active WAN connections, IP addresses leased by DHCP server, the routing table, network statistics, and data on network devices connected to the router.

Network Statistics

On the **Status / Network statistics** page, you can view statistics for all interfaces (connections) existing in the system. For each connection the following data are displayed: state, IP address, subnet mask and 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).

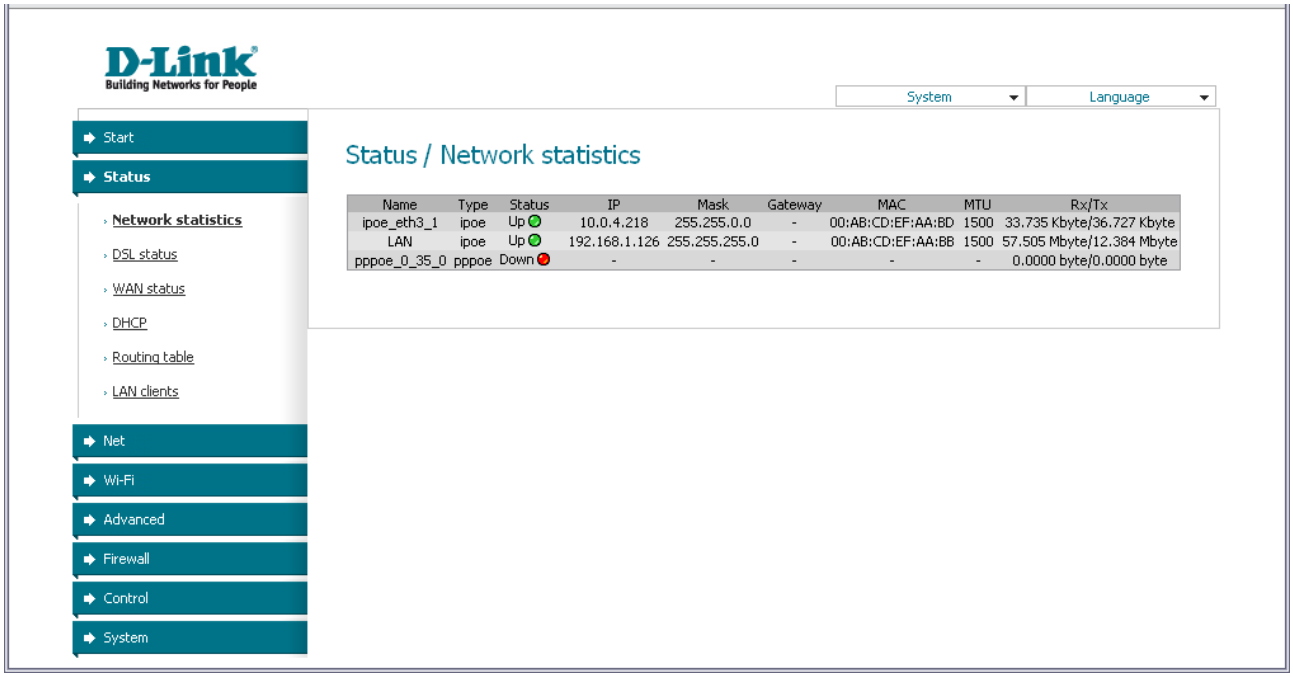


*Figure 21. The **Status / Network statistics** page.*

DSL Status

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

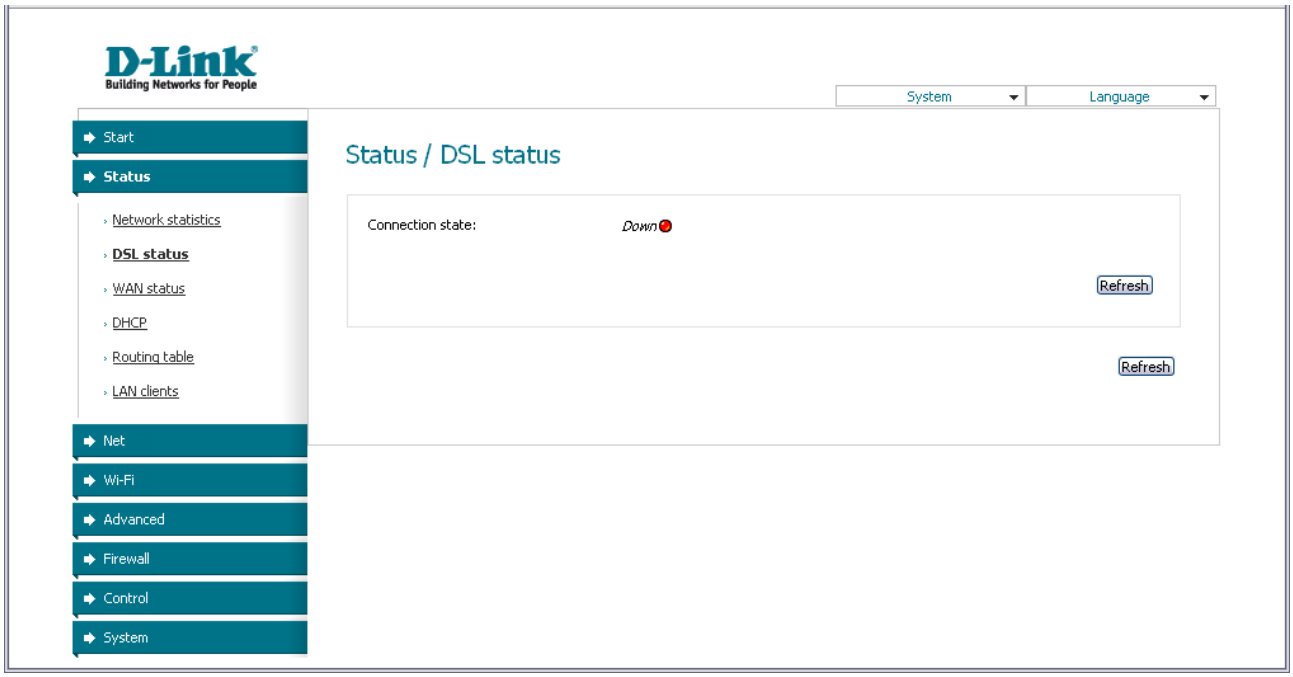


*Figure 22. The **Status / DSL status** page.*

WAN Status

The **Status / WAN status** page displays active WAN connections.

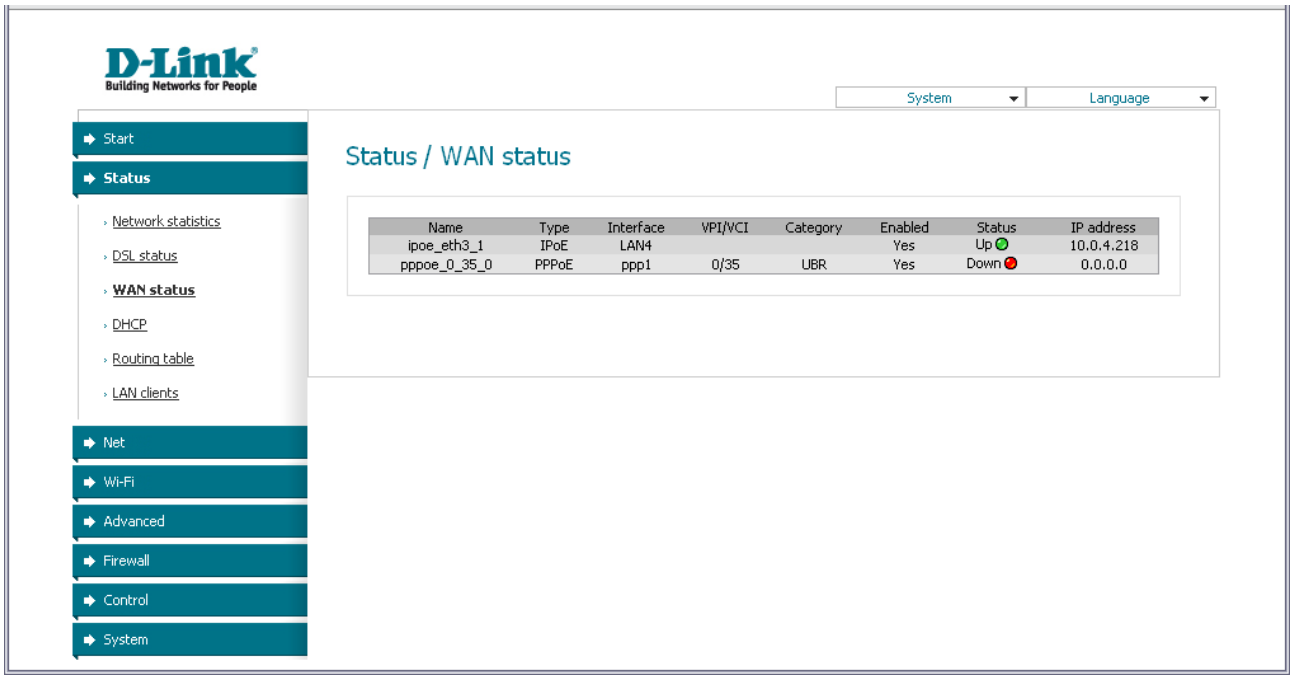


*Figure 23. The **Status / WAN status** page.*

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).

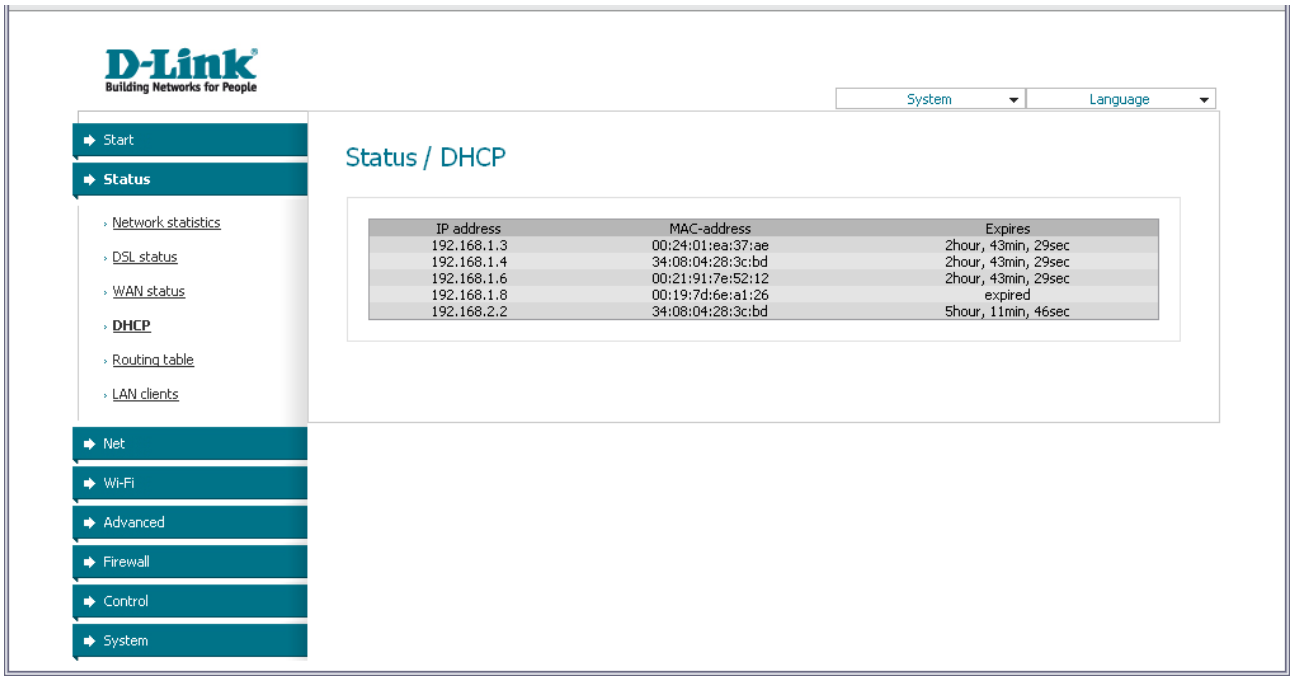


*Figure 24. The **Status / DHCP** page.*

Routing Table

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

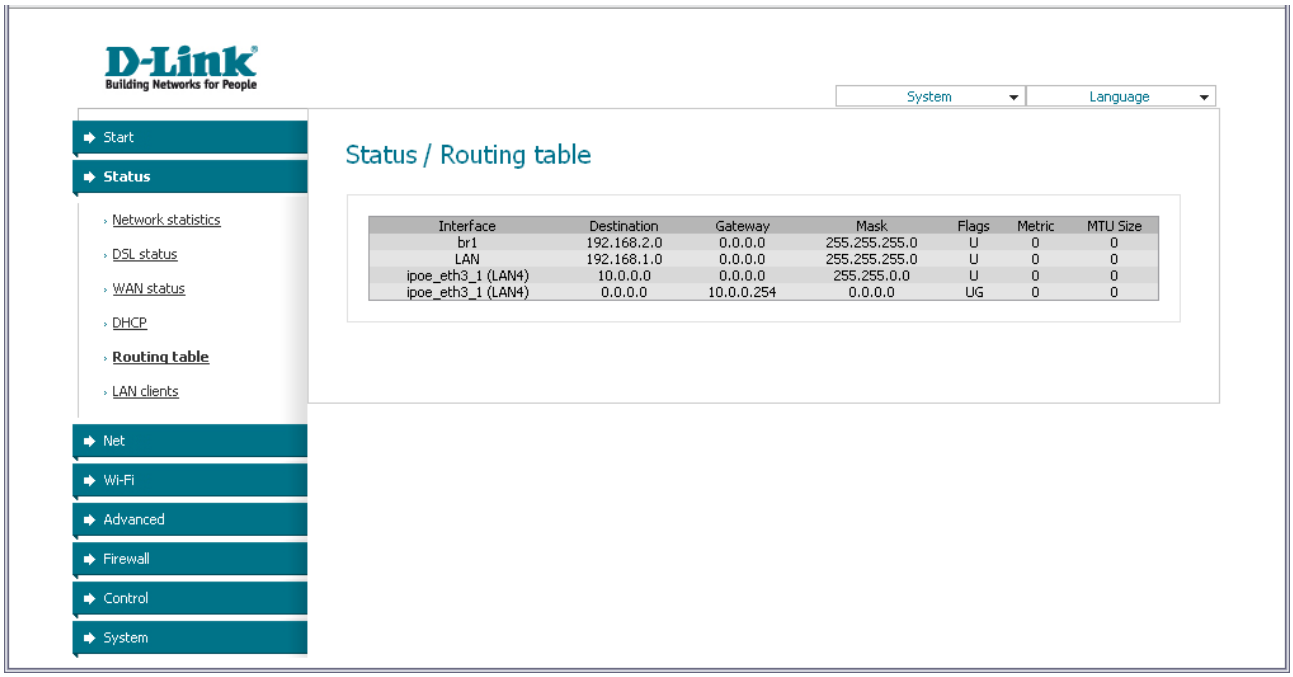


*Figure 25. The **Status / Routing table** page.*

LAN Clients

On the **Status / LAN clients** page, you can view data on network devices connected to the router. The page displays devices connected to the wireless network of the router, devices connected to the built-in switch of the router, and devices accessing the web-based interface of the router.

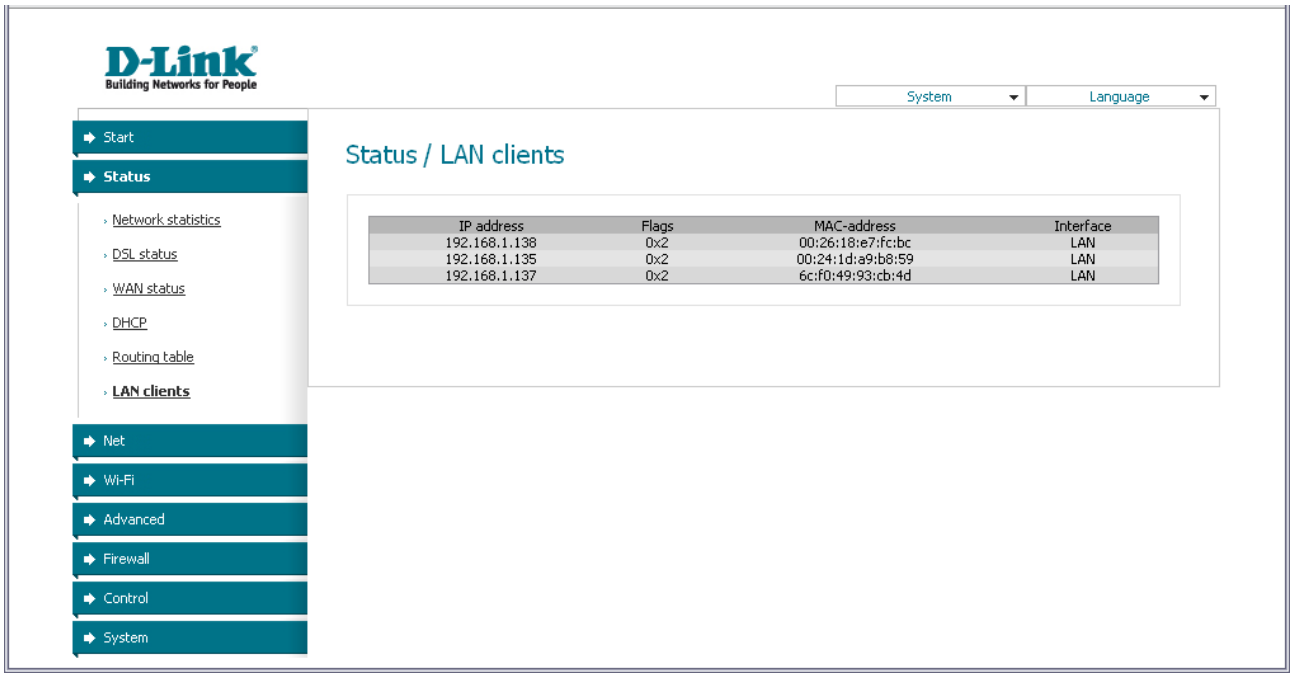


*Figure 26. The **Status / LAN clients** page.*

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

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).

Connections

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

By default, the **LAN** connection is configured in the system. It corresponds to the local interface of the router (**br0**). The connection is represented by the ports of the built-in switch (ports 1-4) and the wireless interface of the router. You cannot delete this connection.

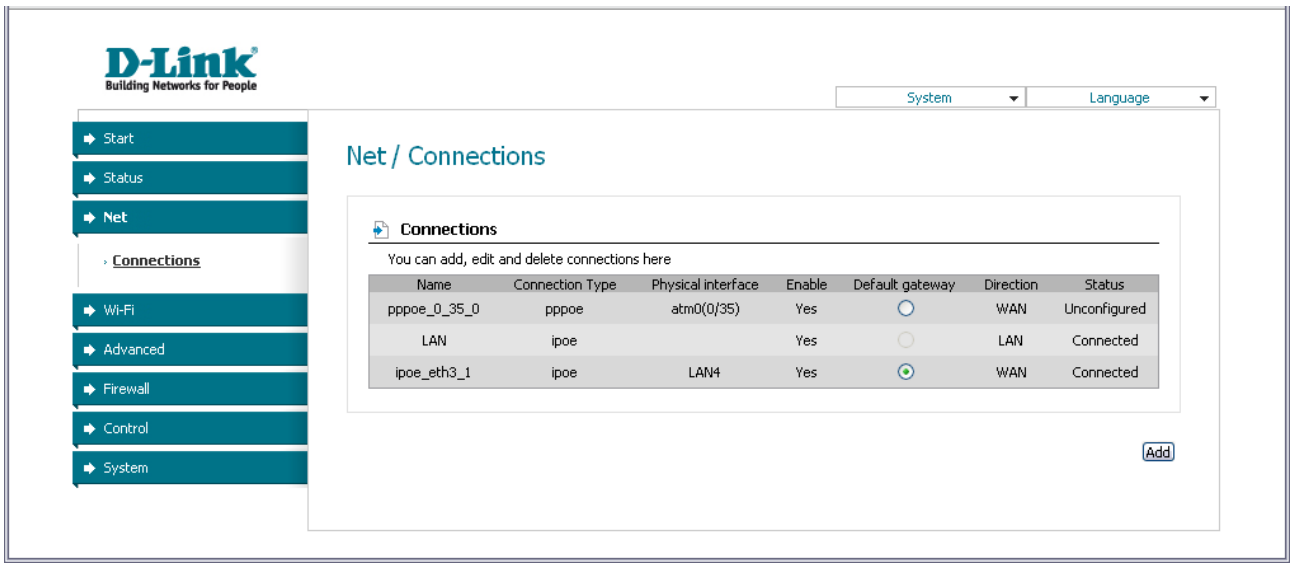


*Figure 27. The **Net / Connections** page.*

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 **Save** button.

To delete an existing connection, left-click the relevant line in the table. On the page displayed, click the **Delete** button.

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 100.

Editing Local Interface Parameters

To edit the parameters of the router's local area network, left-click the **LAN** connection on the **Net / Connections** page.

On the **Main** tab, you can configure basic parameters of the router's LAN.

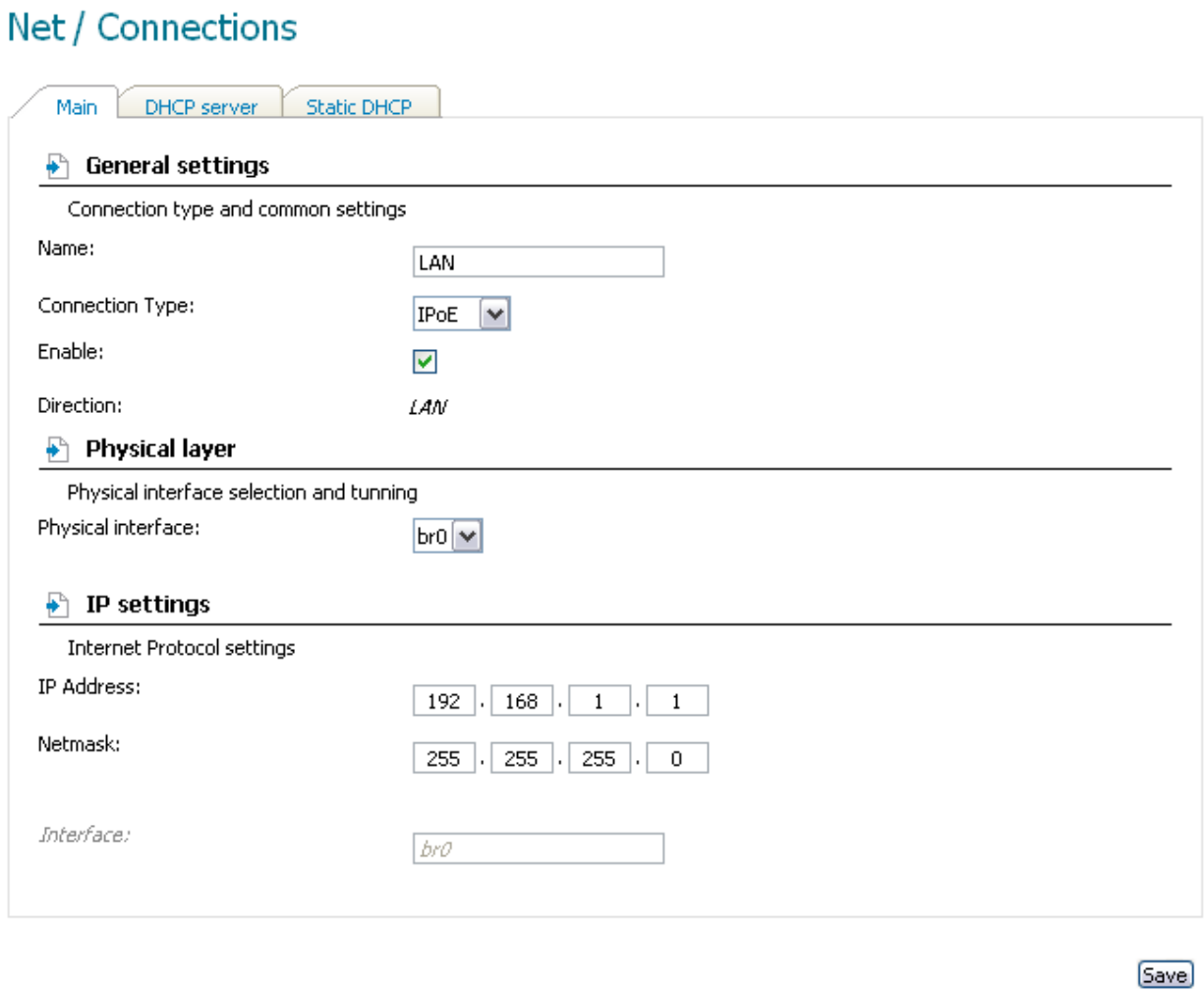


Figure 28. Basic parameters of the router's LAN.

Parameter	Description
General settings	
Name	A name for this connection.
Connection Type	The type of network protocol used by this connection – **IPoE**.
Enable	The checkbox enabling this connection.
Direction	The direction of this connection.
Physical layer	
Physical interface	The physical interface to which this connection is assigned – **br0**.
IP settings	
IP Address	The router's IP address. By default, the following value is specified: `192.168.1.1`.
Netmask	The subnet mask. By default, the following value is specified: `255.255.255.0`.
Interface	The name assigned to the connection by the system.

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

On the **DHCP server** tab, you can configure the built-in DHCP sever of the router.

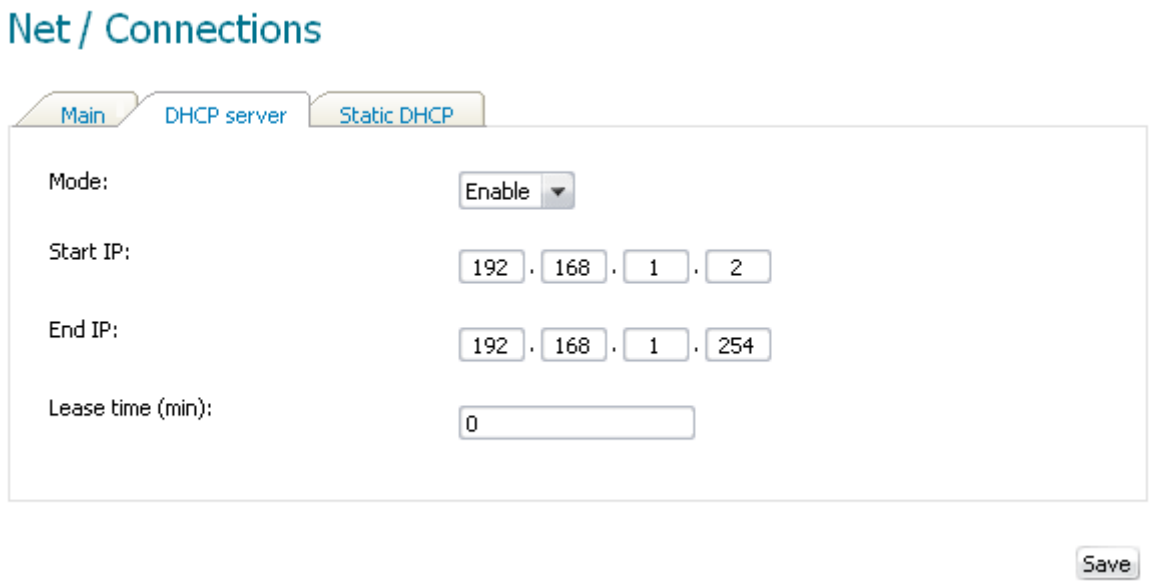


Figure 29. The tab for configuring the DHCP server.

Parameter	Description
Mode	An operating mode of the router's DHCP server. **Enable**: the router assigns IP addresses to clients automatically in accordance with specified parameters. When this value is selected, the **Start IP**, **End IP**, and the **Lease time** fields are displayed on the tab. If the DHCP server is enabled, you can also specify MAC-IP pairs on the **Static DHCP** tab. **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 tab.
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 **Save** button.

On the **Static DHCP** tab, you can specify MAC address and IP address pairs. The tab is active when the router's DHCP server is enabled.

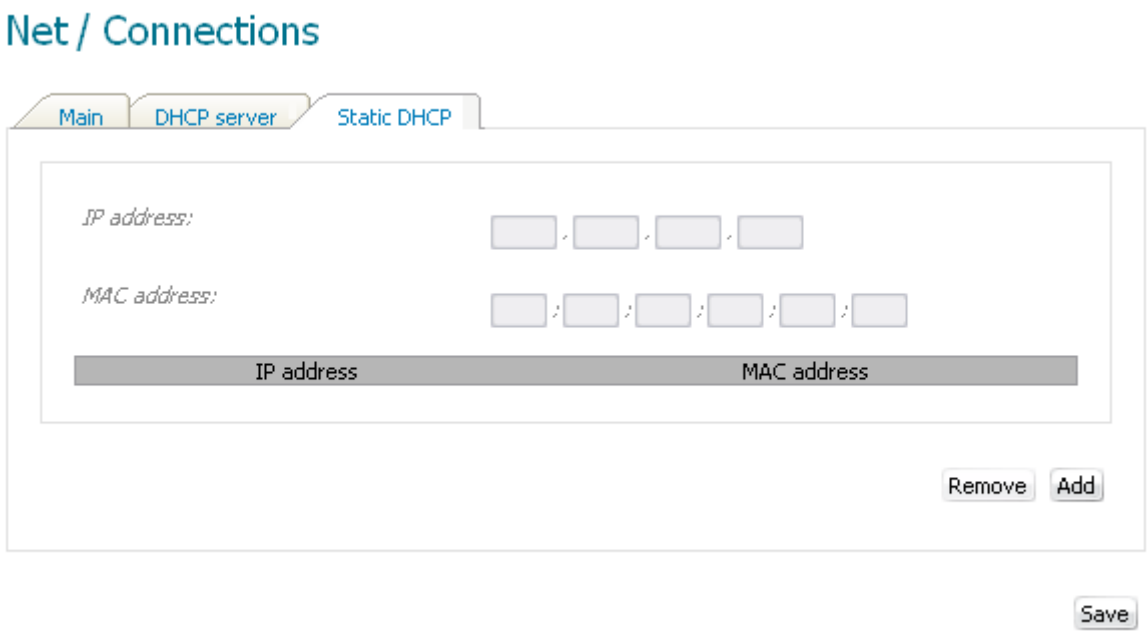


Figure 30. The tab for configuring MAC-IP pairs.

To create a MAC-IP pair (set a fixed IP address in the local area network for a device with a certain MAC address), click the **Add** button. Then enter the needed IP address and MAC address in the relevant fields and click the **Save** button.

Existing MAC-IP pairs are displayed on the **Static DHCP** tab. To remove a pair, select the relevant line in the table and click the **Remove** button. Then click the **Save** button.

Creating ADSL WAN Connection

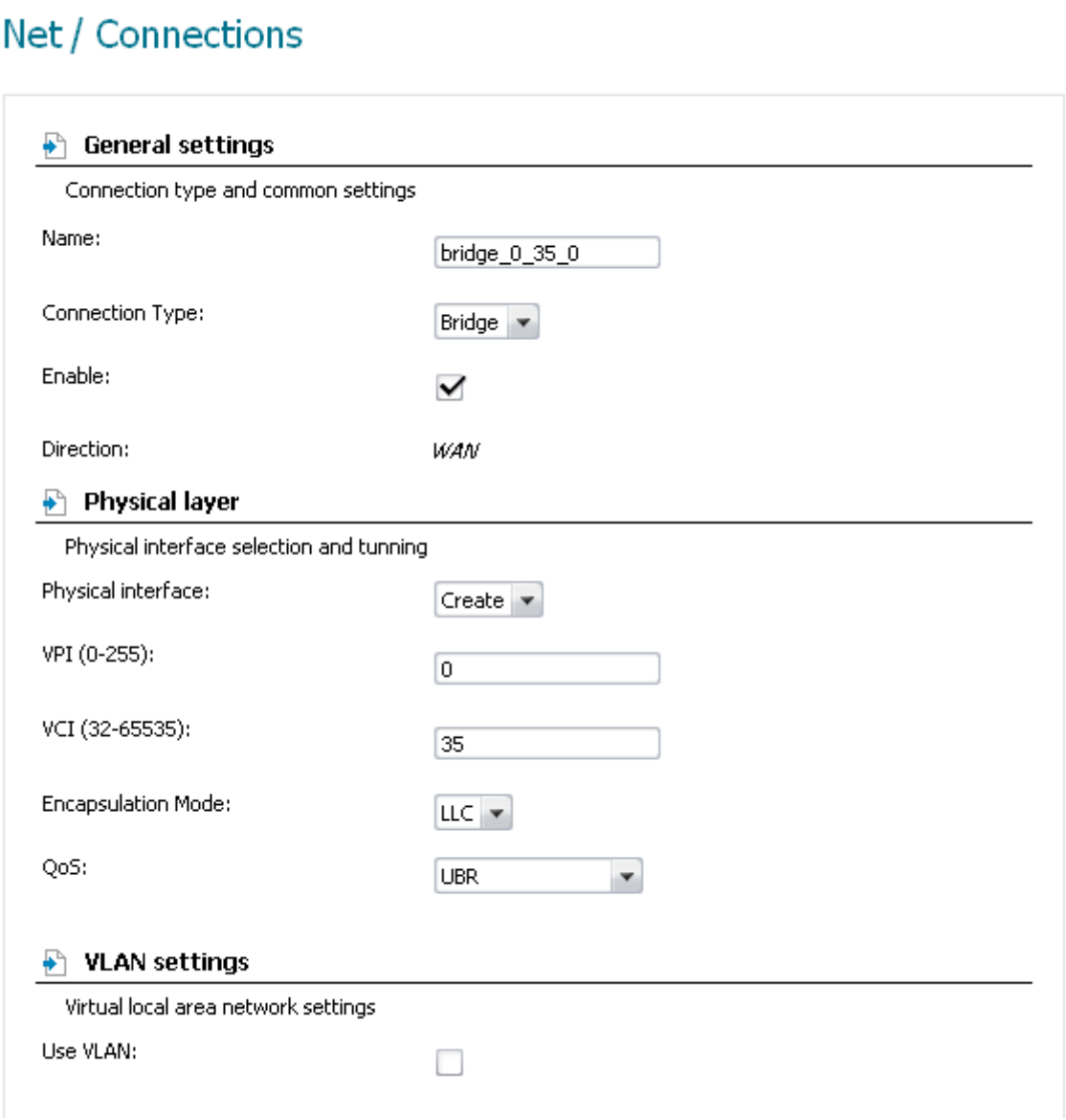


*Figure 31. The page for creating a new connection. The **General settings**, **Physical layer** and **VLAN settings** sections.*

Parameter	Description
General settings	
Name	A name for connection for easier identification.
Connection Type	A type of network protocol to be used by the connection. Available values: • **PPPoA** • **PPPoE** • **IPoE** • **IPoA** • **Bridge.**
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.
Physical layer	
Physical interface	A physical or virtual interface to which the new connection will be assigned. Leave the **Create** value to create a new interface at the physical layer.
VPI	Virtual Path Identifier. The valid range is from 0 to 250.
VCI	Virtual Circuit Identifier. The valid range is from 32 to 65535.
Encapsulation Mode	Select **LLC** or **VC** from the drop-down list.

Parameter	Description
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** (*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.
VLAN settings	

Parameter	Description
Use VLAN	Select the checkbox to allow the router to apply VLAN tagging.
VLAN priority	A priority tag for the type of traffic transmitted.
VLAN ID	An identifier for the VLAN.

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

*Figure 32. The page for creating a new connection. The **Miscellaneous** section.*

Parameter	Description
Miscellaneous	
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.

The **PPP settings** section is displayed for the **PPPoE** and **PPPoA** connection types.

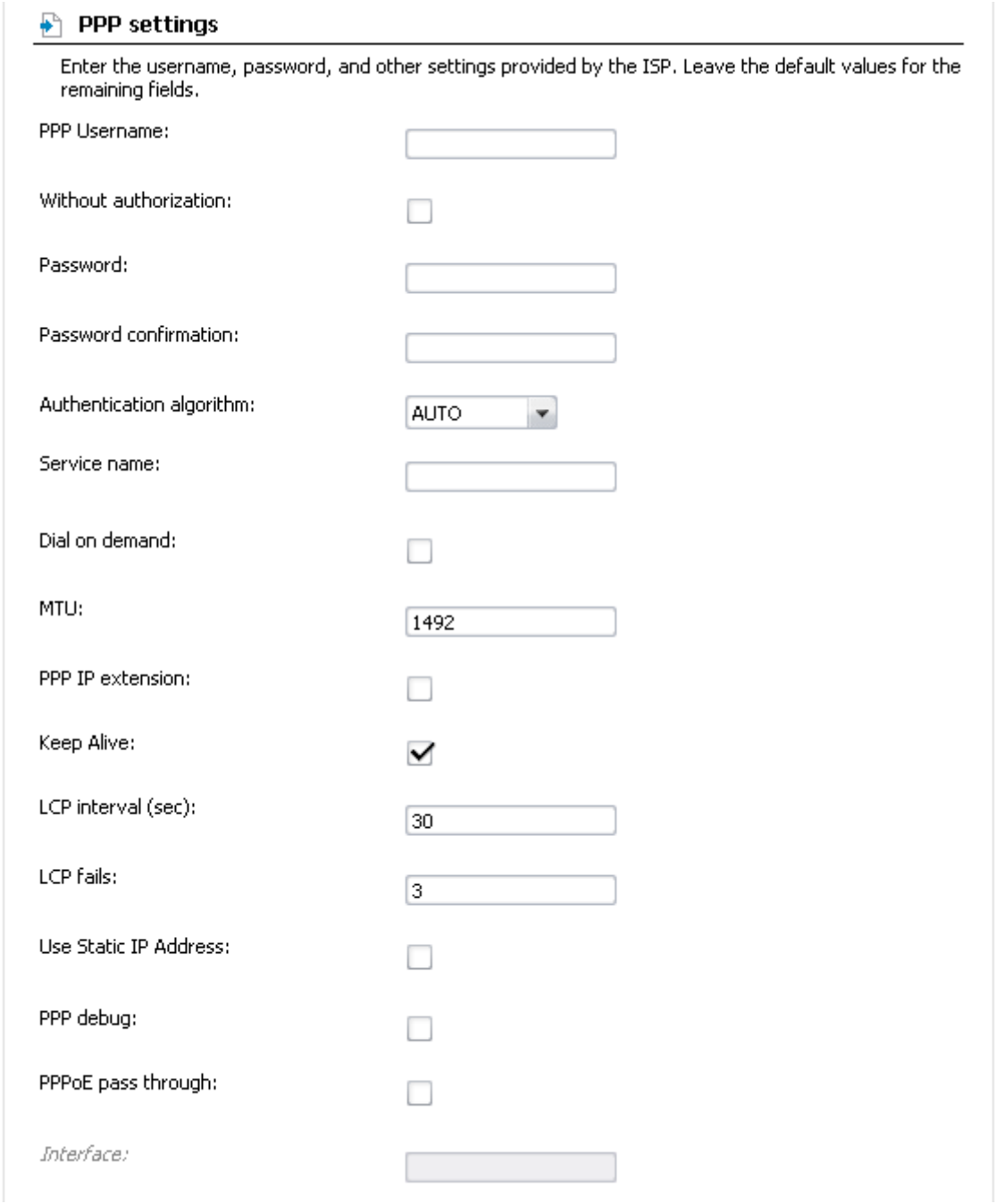


*Figure 33. The page for creating a new connection. The **PPP settings** section.*

Parameter	Description
PPP settings	
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.

Parameter	Description
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
Service name	The name of the PPPoE authentication server.
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.
MTU	The maximum size of units transmitted by the interface.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
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.
Use Static IP Address	Select the checkbox if you want to use a static IP address to access the Internet. In the **IP Address** field displayed when the checkbox is selected, specify a static IP address.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.
PPPoE pass through	*Displayed for the PPPoE type only.* Select the checkbox if you want to allow PPPoE clients of computers from your LAN to connect to the Internet through this PPPoE connection of the router.
Interface	The name assigned to the connection by the system.

The **IP settings** section is displayed for the **IPoE** and **IPoA** connection types.

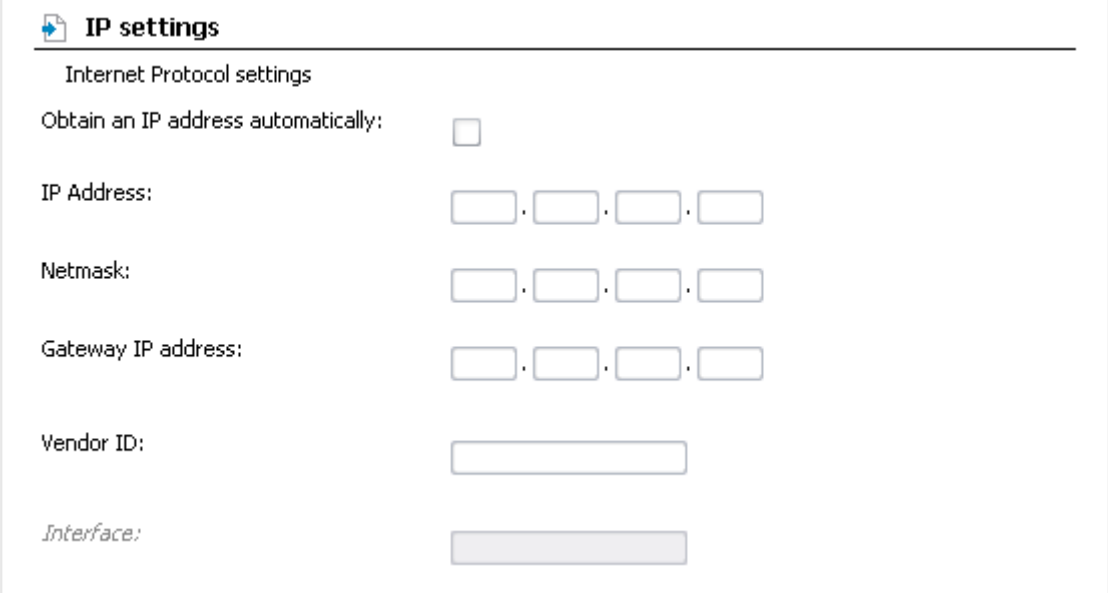


*Figure 34. The page for creating a new connection. The **IP settings** section.*

Parameter	Description
IP settings	
Obtain an IP address automatically	*Displayed for the IPoE type only.* Select the checkbox to configure automatic IP address assignment for this connection. When the checkbox is selected, the **IP Address**, **Netmask**, and **Gateway IP Address** fields are not displayed.
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.
Vendor ID	*Displayed for the IPoE type only.* The identifier of your ISP. This field is specified when the ISP assigns an IP address automatically (the **Obtain an IP address automatically** checkbox is selected). *Optional*.
Interface	The name assigned to the connection by the system.

Click the **Save** 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 ***Interface Grouping*** section, page 68).

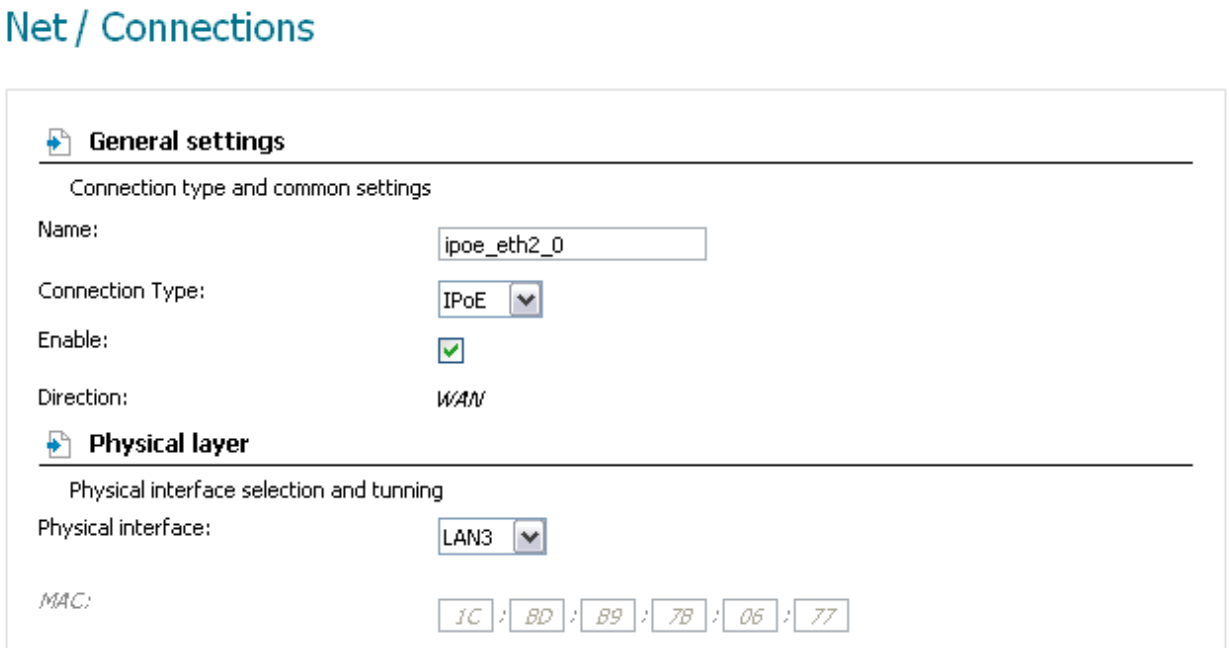


*Figure 35. The page for creating a new connection. The **General settings** and **Physical layer** sections.*

Parameter	Description
General settings	
Name	A name for connection for easier identification.
Connection Type	A type of network protocol to be used by the connection. Available values: • **PPPoE** • **IPoE** (for the Static IP and DHCP connection types) • **Bridge**.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.
Physical layer	
Physical interface	Select the value corresponding to the LAN port specified as the WAN port.
MAC	A MAC address assigned to the interface.

Parameter	Description
VLAN settings (The section is displayed, if the **VLAN MUX Mode** choice of the **Ethernet WAN type** radio button is selected on the **Advanced / Interface grouping** page.)	
Use VLAN	The checkbox indicates that the router is allowed to apply VLAN tagging.
VLAN priority	A priority tag for the type of traffic transmitted.
VLAN ID	An identifier for the VLAN.
Miscellaneous	
Enable IGMP Multicast	Select the checkbox to allow multicast traffic from the external network (e.g. video streaming) to be received.
NAT	Select the checkbox if you want one WAN IP address to be used for all computers of your LAN.
Firewall	Select the checkbox to enable protection against ARP and DDoS attacks.

The **PPP settings** section is displayed for the **PPPoE** connection type.

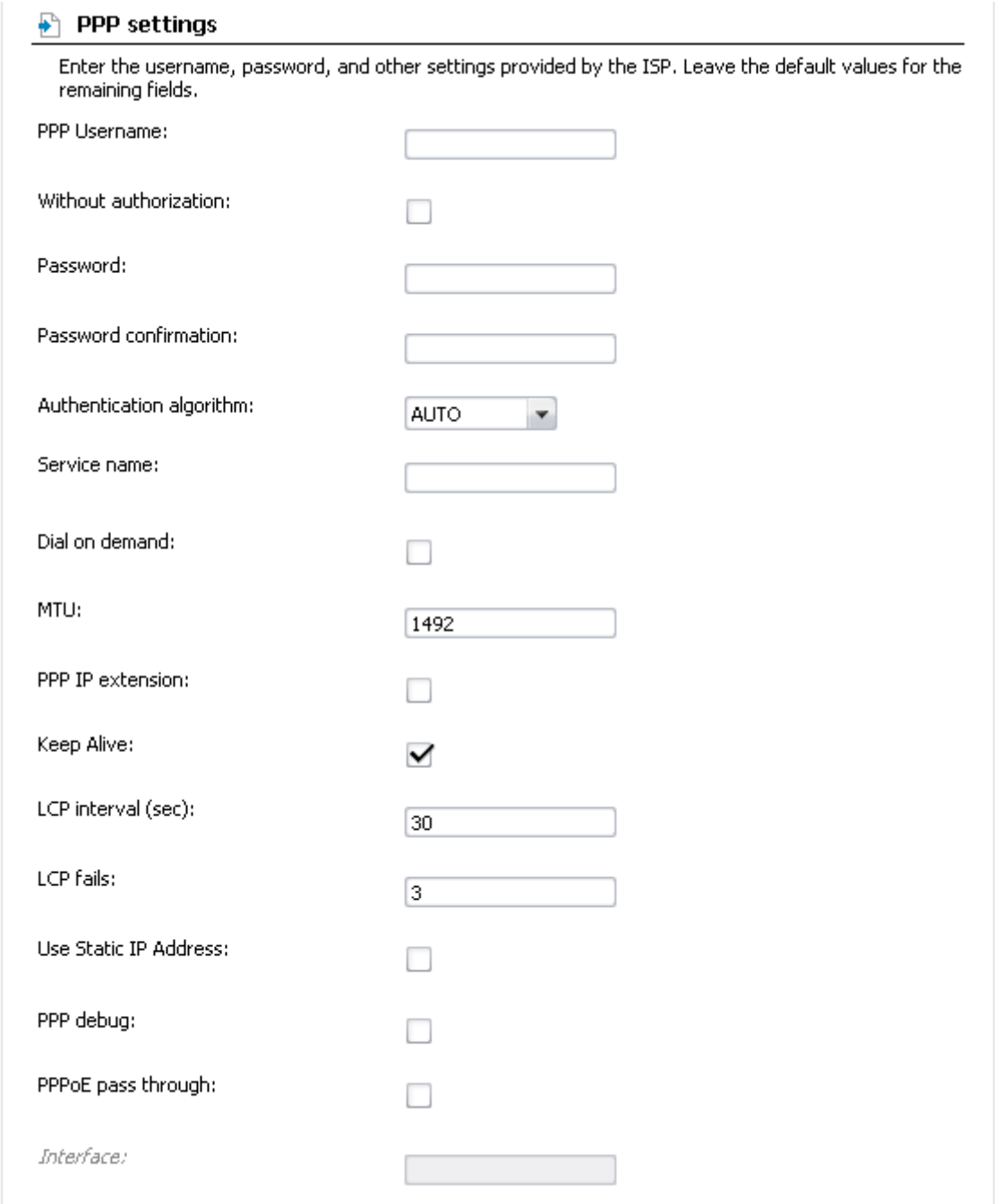


*Figure 36. The page for creating a new connection. The **PPP settings** section.*

Parameter	Description
PPP settings	
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).
Authentication algorithm	Select a required authentication method from the drop-down list or leave the **AUTO** value.
Service name	The name of the PPPoE authentication server.
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.
MTU	The maximum size of units transmitted by the interface.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
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.
Use Static IP Address	Select the checkbox if you want to use a static IP address to access the Internet. In the **IP Address** field displayed when the checkbox is selected, specify a static IP address.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.
PPPoE pass through	Select the checkbox if you want to allow PPPoE clients of computers from your LAN to connect to the Internet through this PPPoE connection of the router.
Interface	The name assigned to the connection by the system.

The **IP settings** section is displayed for the **IPoE** connection type.

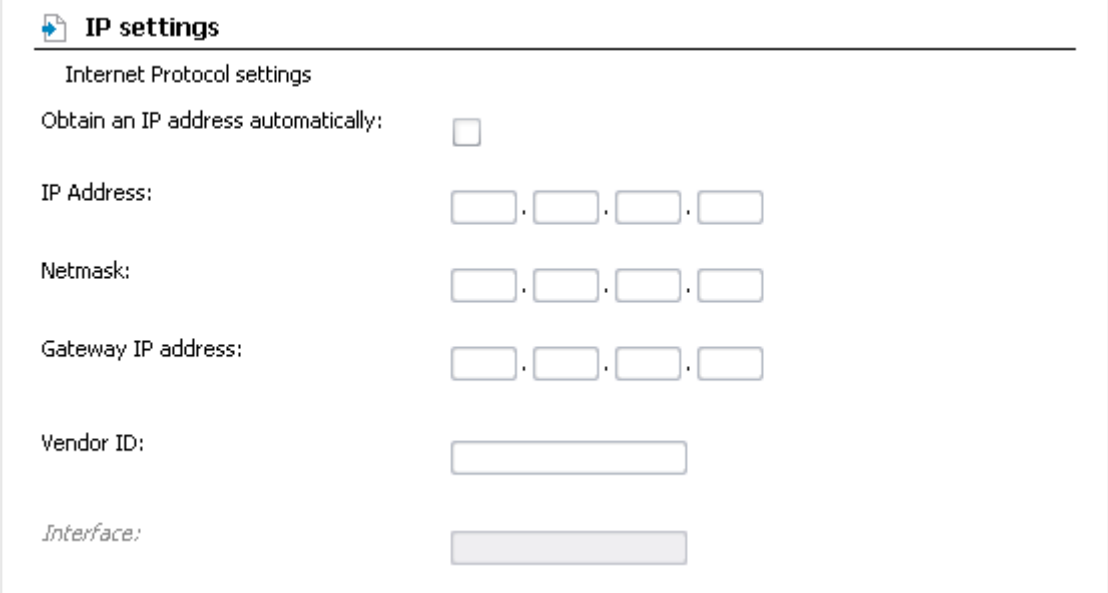


*Figure 37. The page for creating a new connection. The **IP settings** section.*

Parameter	Description
IP settings	
Obtain an IP address automatically	Select the checkbox to configure automatic IP address assignment for this connection. When the checkbox is selected, the **IP Address**, **Netmask**, and **Gateway IP Address** fields are not displayed.
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.
Vendor ID	The identifier of your ISP. This field is specified when the ISP assigns an IP address automatically (the **Obtain an IP address automatically** checkbox is selected). *Optional*.
Interface	The name assigned to the connection by the system.

Click the **Save** button.

Wi-Fi

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

Common settings

On the **Wi-Fi / Common settings** page, you can enable your wireless local area network (WLAN).

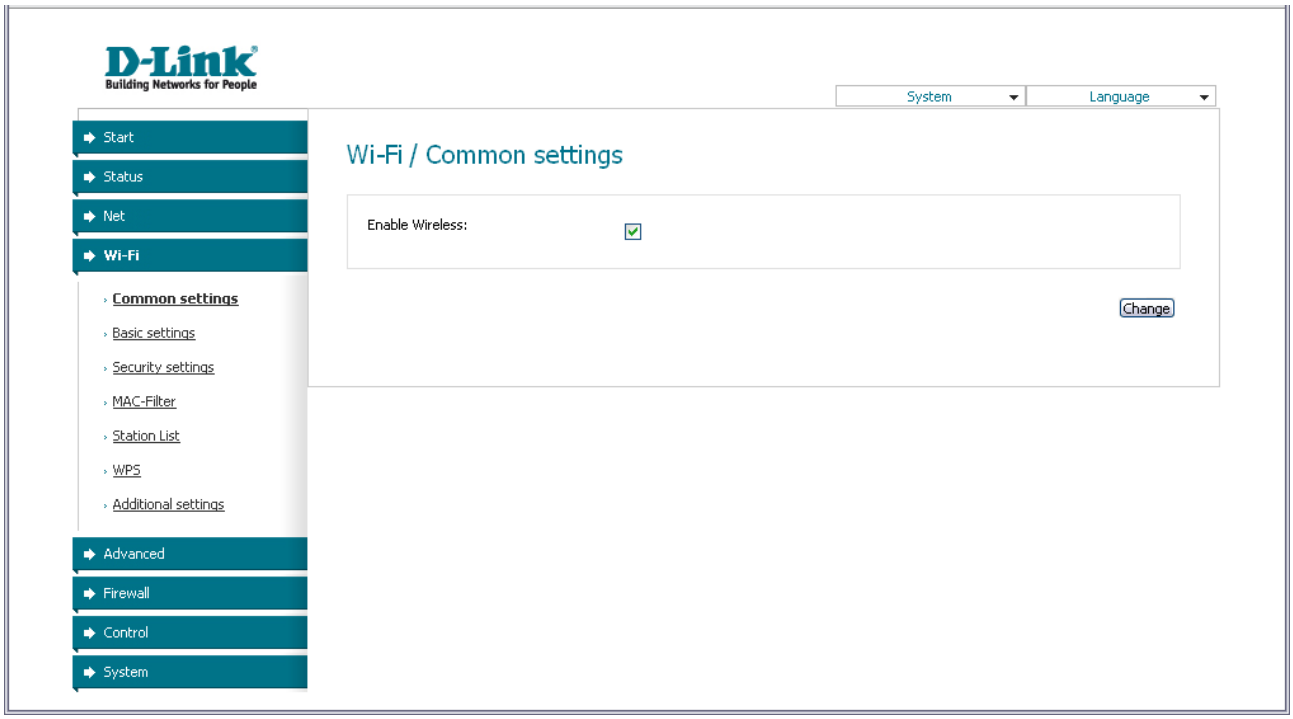


Figure 38. The page for enabling/disabling the wireless LAN.

The **Enable Wireless** checkbox enables Wi-Fi connections. By default, the checkbox is selected. If you want to disable your WLAN, deselect the **Enable Wireless** checkbox and click the **Change** button.

Basic Settings

On the **Wi-Fi / Basic settings** page, you can configure basic parameters of the router's WLAN.

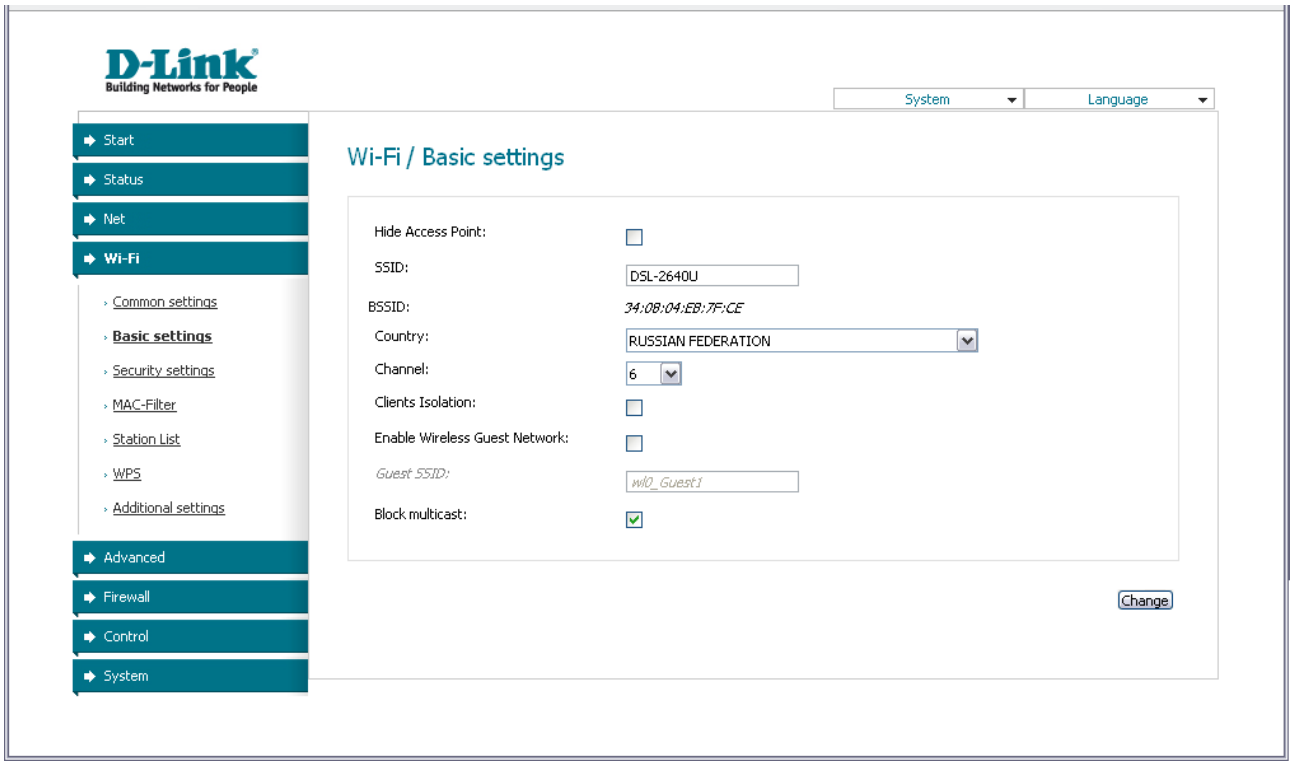


Figure 39. Basic settings of the wireless LAN.

Parameter	Description
Hide Access Point	If the checkbox is selected, other users cannot see your Wi-Fi network. (It is recommended not to select this checkbox in order to simplify initial configuration of your WLAN.)
SSID	A name for the WLAN. By default, the value **DSL-2640U** is specified. It is recommended to specify another name for the network upon initial configuration (use digits and Latin characters).
BSSID	The parameter that uniquely identifies your wireless network. You cannot change the value of this parameter.
Country	The country you are in. Select a value from the drop-down list.
Channel	The wireless channel number. By default, channel 6 is specified. If you want to use another channel, select a value from the drop-down list. When the **auto** value is selected, the router itself chooses the channel with the least interference.
Clients Isolation	Select the checkbox to isolate the users of your WLAN (to forbid wireless clients to communicate to each other).
Enable Wireless Guest Network	Select the checkbox to create a separate part of your WLAN with open authentication type and with no password. Wireless devices connected to this network can access the Internet, but are isolated from the router's LAN.
Guest SSID	A name for the guest part of your WLAN.
Block multicast	Select the checkbox to disable multicasting for the router's WLAN. Deselect the checkbox to enable multicasting from WAN connections for which the **Enable IGMP Multicast** checkbox is selected.

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

Security Settings

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

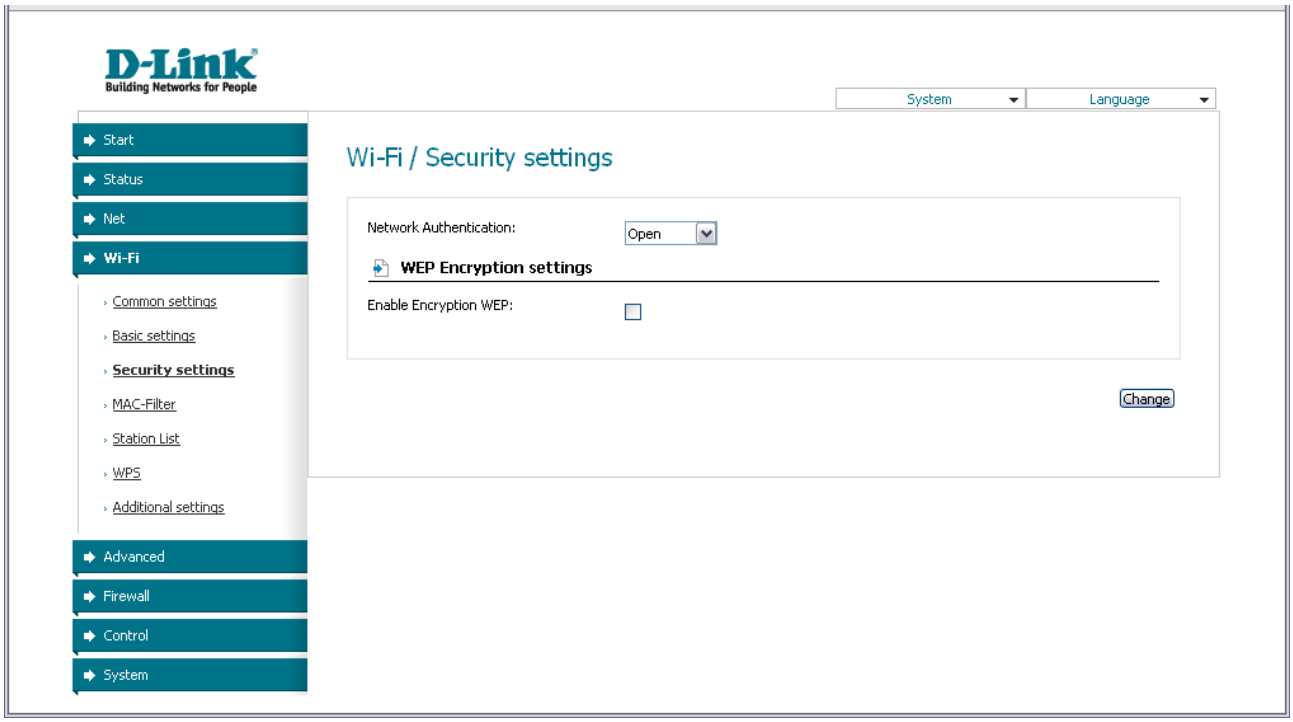


Figure 40. The default security settings.

By default, the **Open** network authentication type with no encryption is specified for the WLAN.

! The default security settings do not provide sufficient protection for the WLAN. Please, specify your own security settings.

The router supports the following authentication types:

Authentication type	Description
Open	Open authentication (with or without WEP encryption).
WPA-PSK	WPA-based authentication using a PSK.
WPA2-PSK	WPA2-based authentication using a PSK.

When the **Open** value is selected, the **WEP Encryption settings** section is displayed:

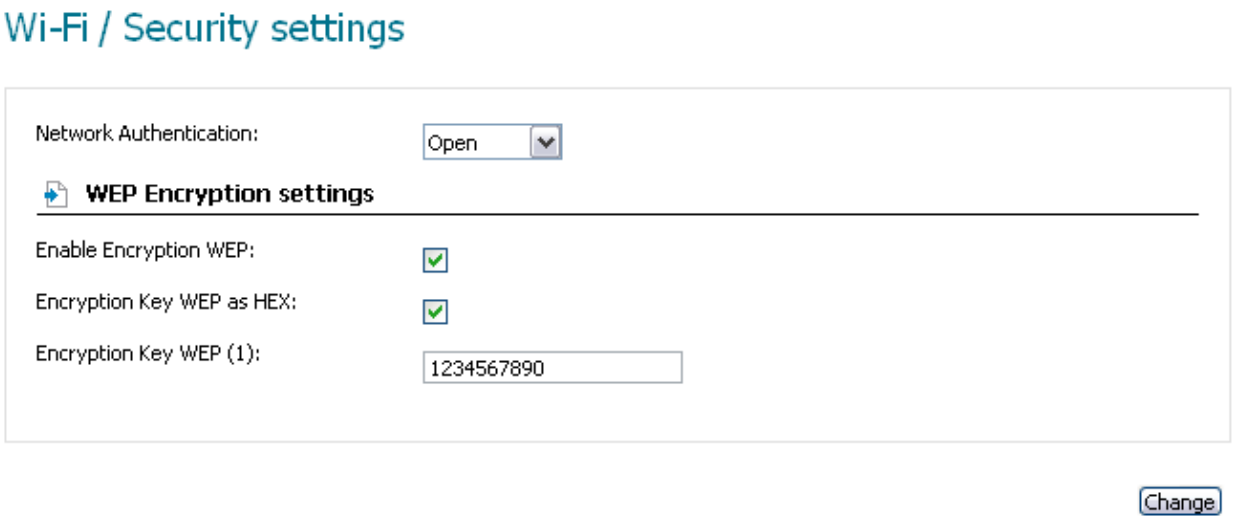


*Figure 41. The **Open** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
Enable Encryption WEP	The checkbox activating WEP encryption. When the checkbox is selected, the **Encryption Key WEP (1)** field and the **Encryption Key WEP as HEX** checkbox are displayed.
Encryption Key WEP as HEX	Select the checkbox to set a hexadecimal number as a key for encryption.
Encryption Key WEP (1)	The key for WEP encryption. You can specify keys containing 5 or 13 symbols (use digits and/or Latin characters). If the **Encryption Key WEP as HEX** checkbox is selected, you can specify only keys containing 10 symbols (the digits 0-9 and the characters A-F).

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

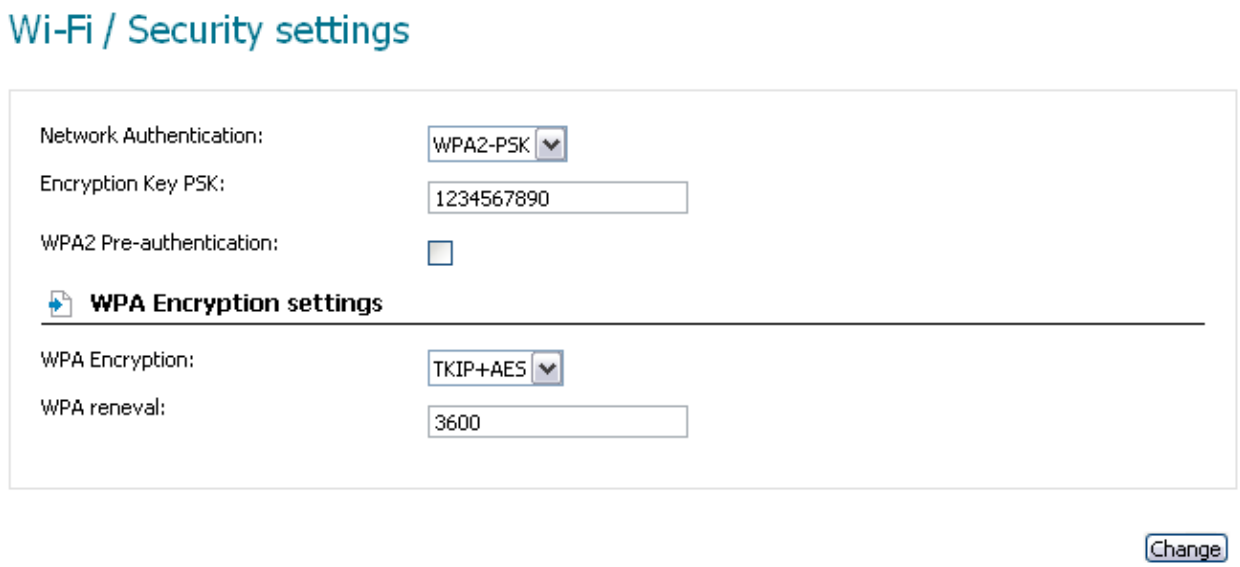


*Figure 42. The **WPA2-PSK** value is selected from the **Network Authentication** drop-down list.*

Parameter	Description
Encryption Key PSK	A key for WPA encryption. The key can contain digits and/or Latin characters.
WPA2 Pre-authentication	The checkbox activating preliminary authentication (displayed only for the **WPA2-PSK** authentication type).
WPA Encryption	An encryption method: **TKIP**, **AES**, or **TKIP+AES**.
WPA renewal	The time period (in seconds), at the end of which a new key for WPA encryption is generated. When the value **0** is specified for this field, the key is not renewed.

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

MAC Filter

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

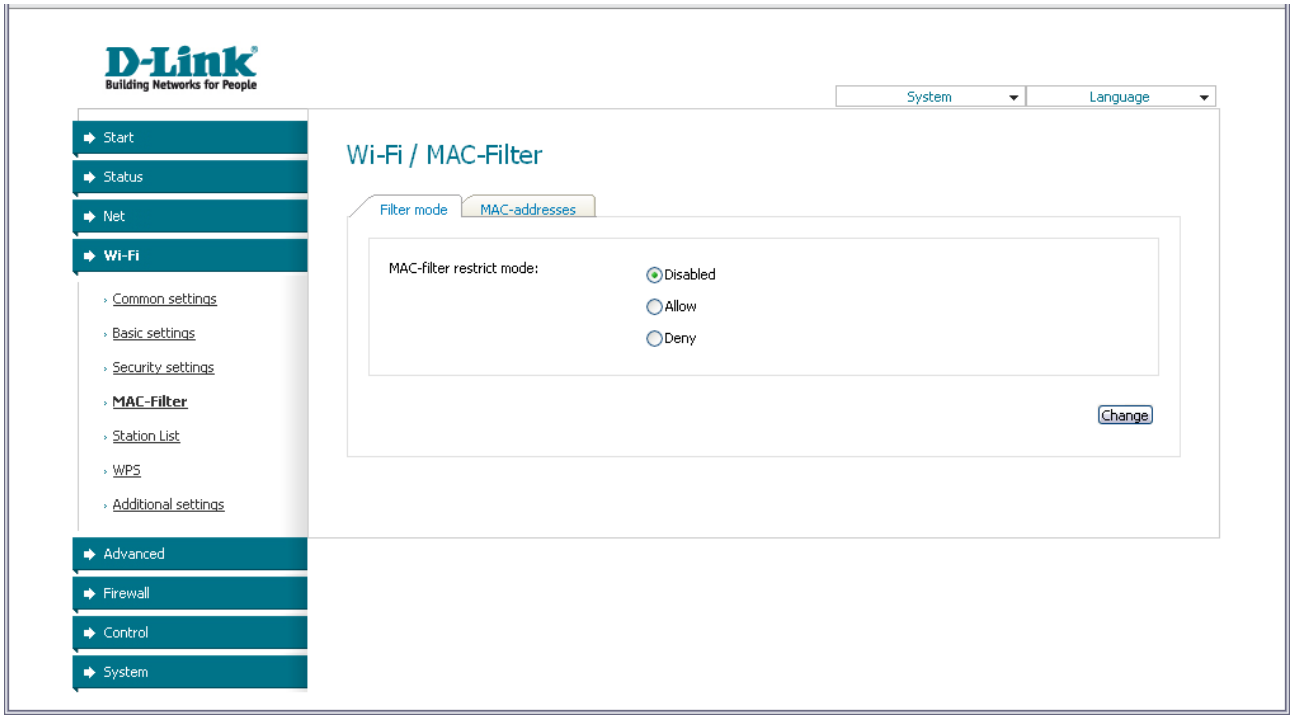


Figure 43. The MAC filter for the wireless network.

By default, MAC filtering is not active (the **Disabled** choice of the **MAC-filter restrict mode** radio button is selected).

To open your wireless network for the devices which MAC addresses are specified on the **MAC-addresses** tab and to close the wireless network for all other devices, select the **Allow** choice of the **MAC-filter restrict mode** radio button and click the **Change** button.

To close your wireless network for the devices which MAC addresses are specified on the **MAC-addresses** tab, select the **Deny** choice of the **MAC-filter restrict mode** radio button and click the **Change** button.

To add a MAC address to which the selected filtering mode will be applied, proceed to the **MAC-addresses** tab, enter this address in the **MAC-address** field of the **MAC-address adding** section, and click the **Add** button. After that, the entered address will be displayed in the **MAC-address list** section.

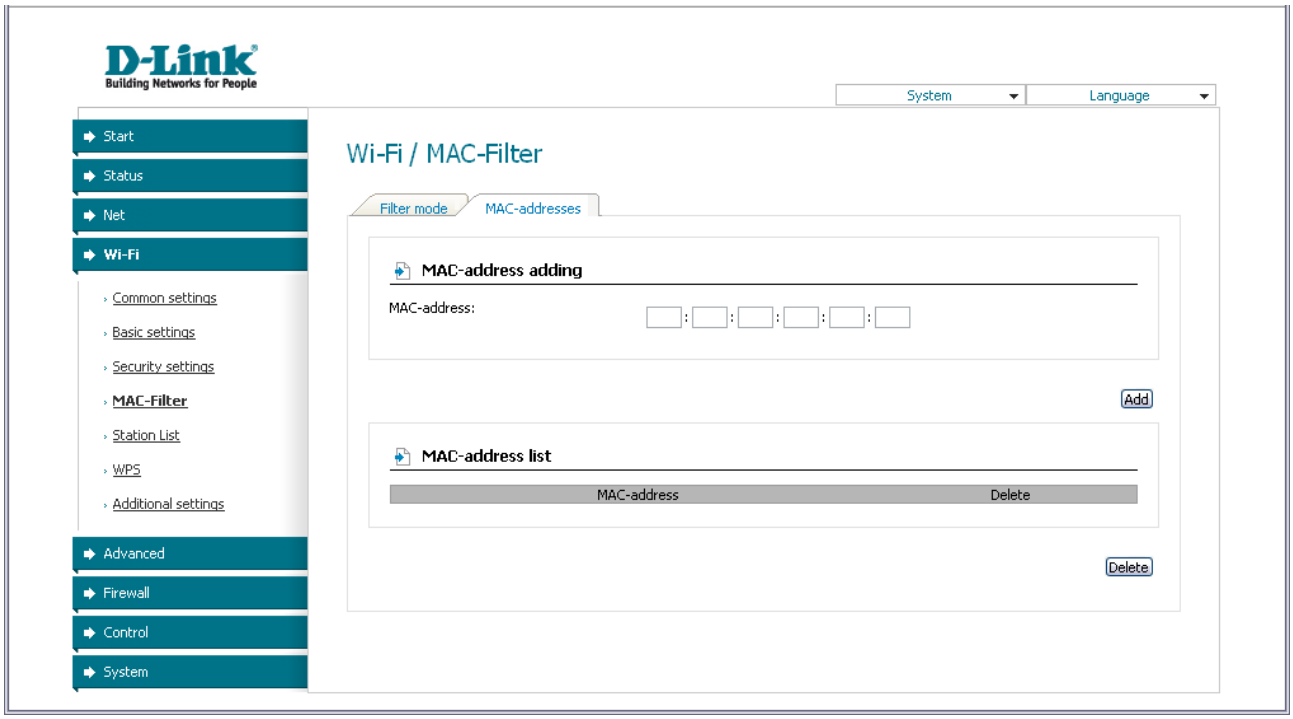


Figure 44. The tab for adding a MAC address.

To remove a MAC address from the list of MAC addresses, select the checkbox located to the right of the relevant MAC address in the **MAC-address list** section and click the **Delete** button.

Station List

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

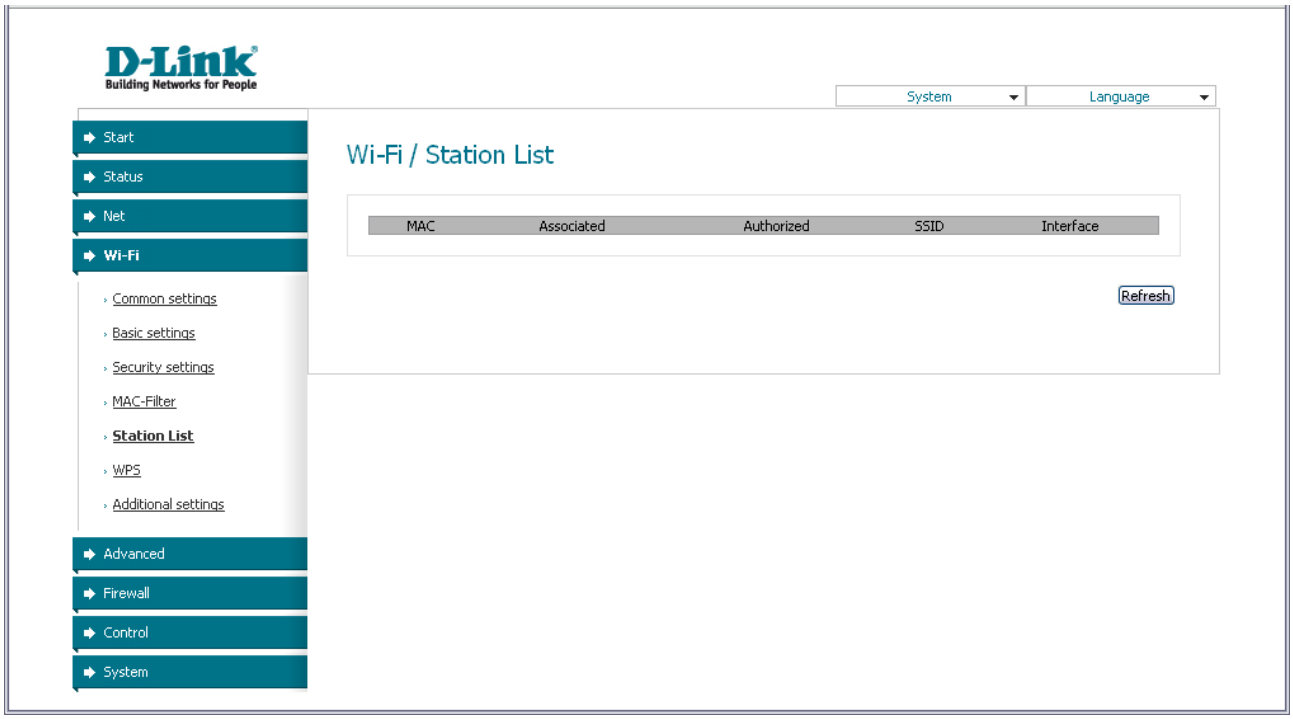


Figure 45. The list of the router's wireless clients.

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 WPS function it is required to configure a type of WPA encryption.

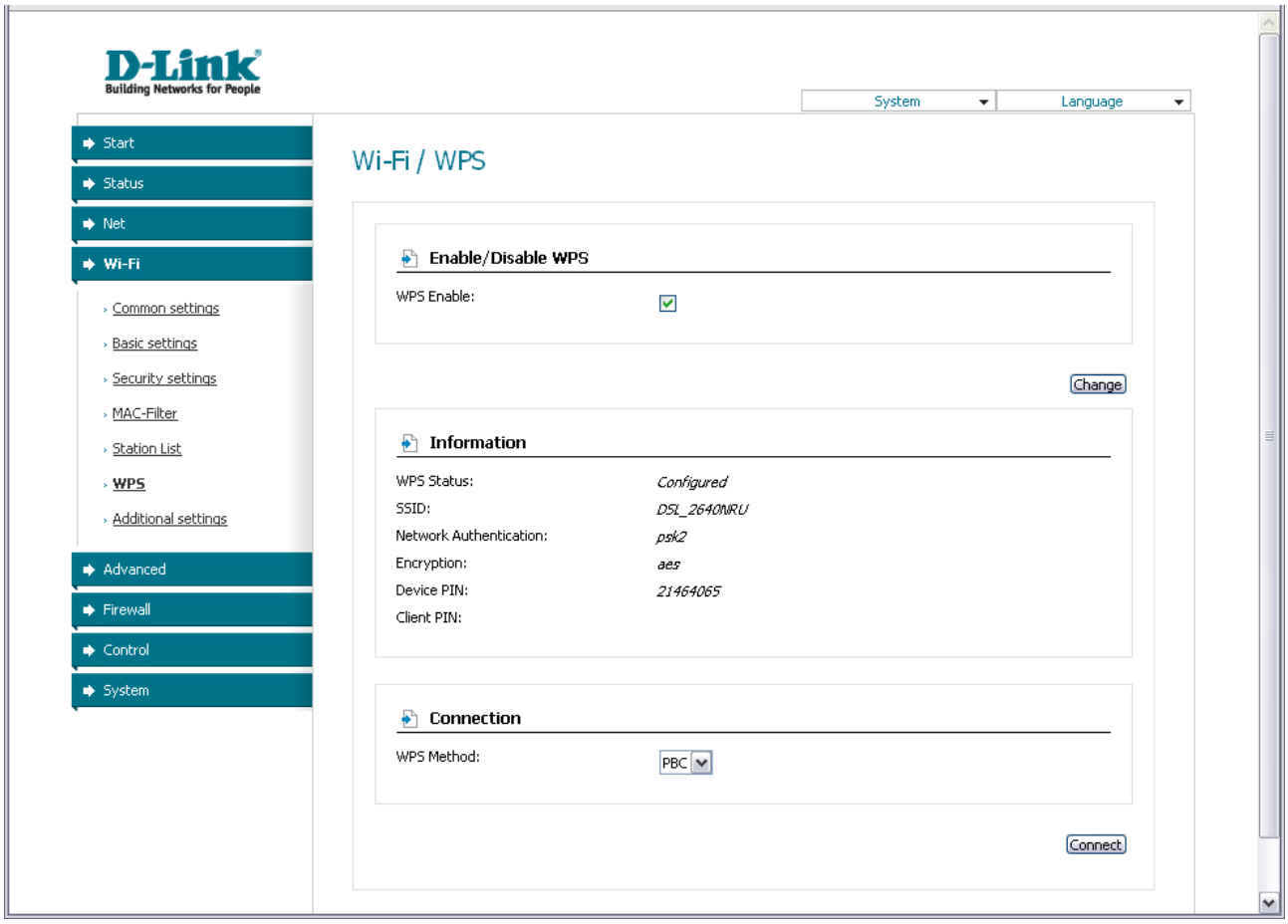


Figure 46. The page for configuring the WPS function.

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

Parameter	Description
WPS Status	The state of connecting the wireless device via the WPS function.
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.
Device PIN	The PIN code of the router.
Client PIN	The PIN code of the device newly connected to the router via 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 **Change** 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 or on the cover 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 **Change** 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 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. Configure a type of WPA encryption for the WLAN.
2. Select the **WPS Enable** checkbox.
3. Click the **Change** button.
4. Save the settings and close the web-based interface (click the **Save** line in the top-page menu displayed when the mouse pointer is over the **System** caption, then click the **Logout** line).

Later you will be able to add wireless devices to the WLAN by clicking the router's WPS button.

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 on the cover of the wireless device that you want to connect to the WLAN.
3. Click the WPS button of the router.

After clicking the button the WPS LED blinks. If the wireless device has been successfully connected to the WLAN, the LED stops blinking and lights green for several minutes.

Additional Settings

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

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

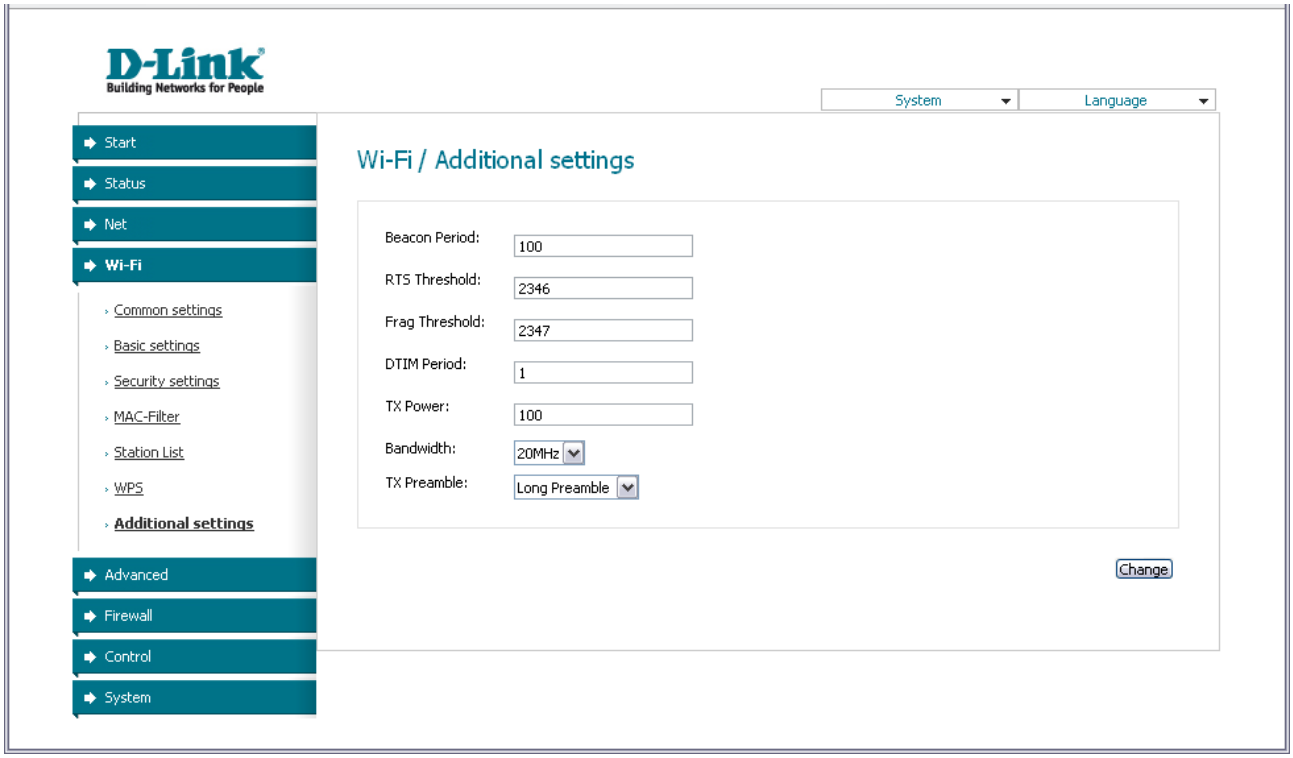


Figure 47. Additional settings of the WLAN.

The following fields are available on the page:

Parameter	Description
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.
TX Power	The router's transmit power (in percentage terms).
Bandwidth	Channel bandwidth for 802.11n devices.
TX Preamble	This parameter defines the length of the CRC block sent by the router when communicating to wireless devices. Select a value from the drop-down list. **Long Preamble**. **Short Preamble** (this value is recommended for networks with high-volume traffic).

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

Advanced

This menu provides advanced settings of the router. On the pages of this menu, you can define static routes and rules for remote access to the web-based interface, add name servers, enable the UPnP function, define interface groups and allow the router to connect to a private Ethernet line, configure a DDNS service, enable the SNMP agent, and edit the ADSL connection parameters.

SNMP

On the **Advanced / SNMP page**, you can enable and configure the SNMP agent. The agent is used to collect data on the state of the router and manage the device via the SNMP protocol.

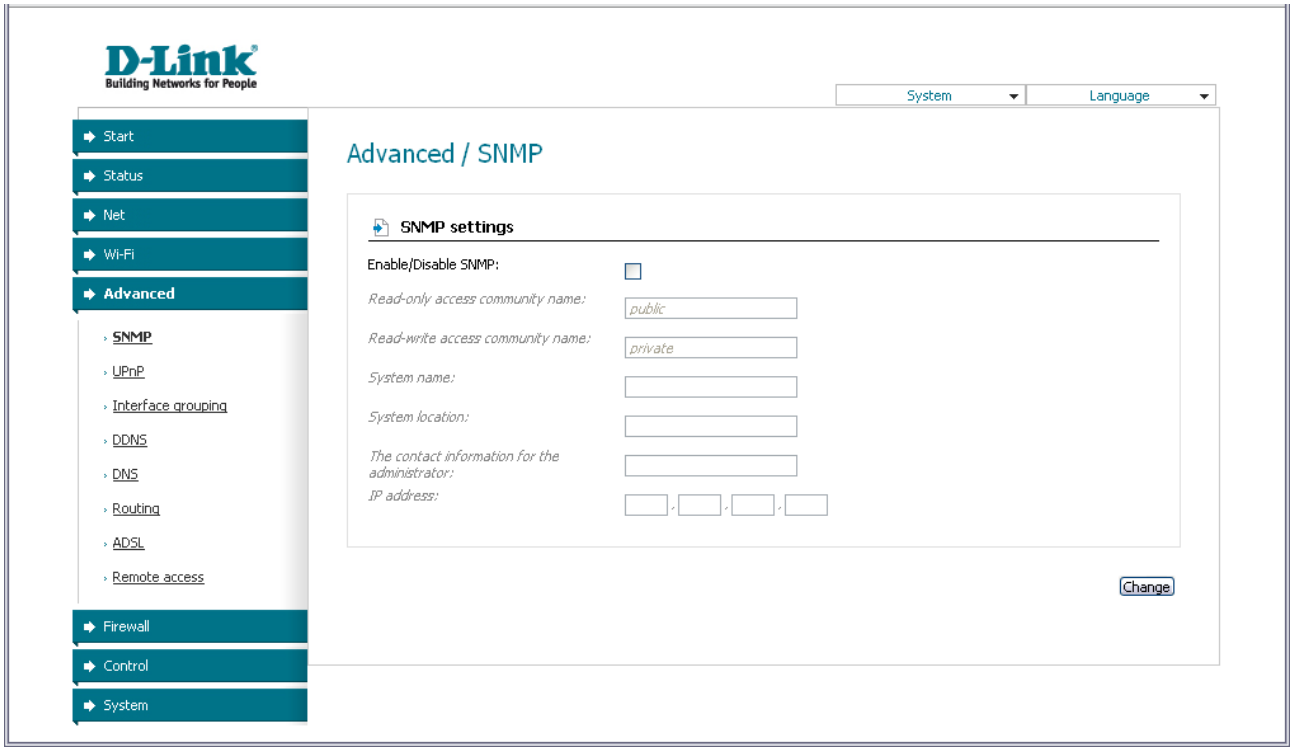


*Figure 48. The **Advanced / SNMP** page.*

To allow the router to use the SNMP agent, select the **Enable/Disable SNMP** checkbox and set the needed values in the fields on the page.

Parameter	Description
Read-only access community name	The name of the group of accounts which have read-only access to the router.
Read-write access community name	The name of the group of accounts which have read/write access to the router.
System name	A name of the router for the SNMP manager.
System location	Additional information on the router's location.

Parameter	Description
The contact information for the administrator	Additional information on the contact of the router's administrator.
IP address	The IP address of the host on which the SNMP manager is located.

When you have specified the needed settings, click the **Change** button.

To disable the SNMP agent, deselect the **Enable/Disable SNMP** checkbox.

UPnP

On the **Advanced / UPnP** page, you can enable the UPnP function.

UPnP is a set of networking protocols designed for automatic configuration of network devices. The UPnP function performs automatic configuration of the device's parameters for network applications requiring an incoming connection to the router.

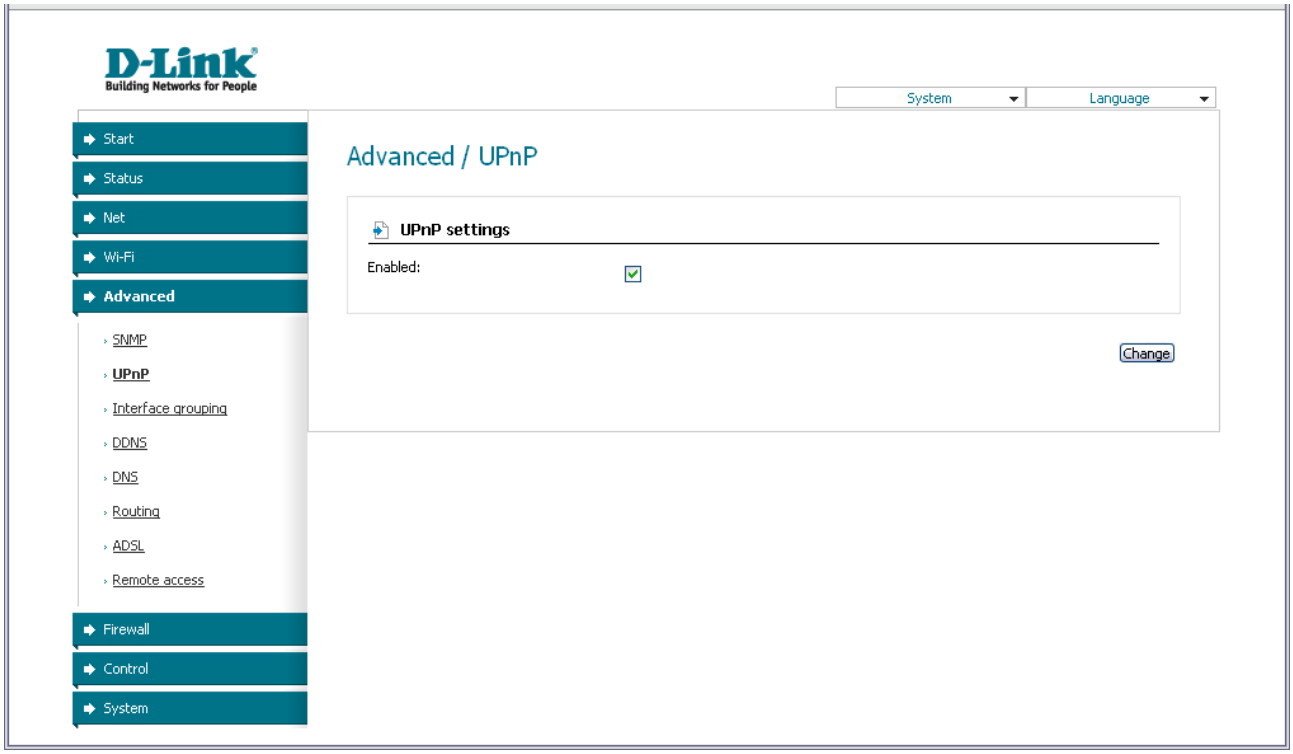


*Figure 49. The **Advanced / UPnP** page.*

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

If you want to enable the UPnP function in the router, select the **Enabled** checkbox and click the **Change** button.

Interface Grouping

On the **Advanced / Interface grouping** page, you can assign virtual PVC 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. Also on the 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.

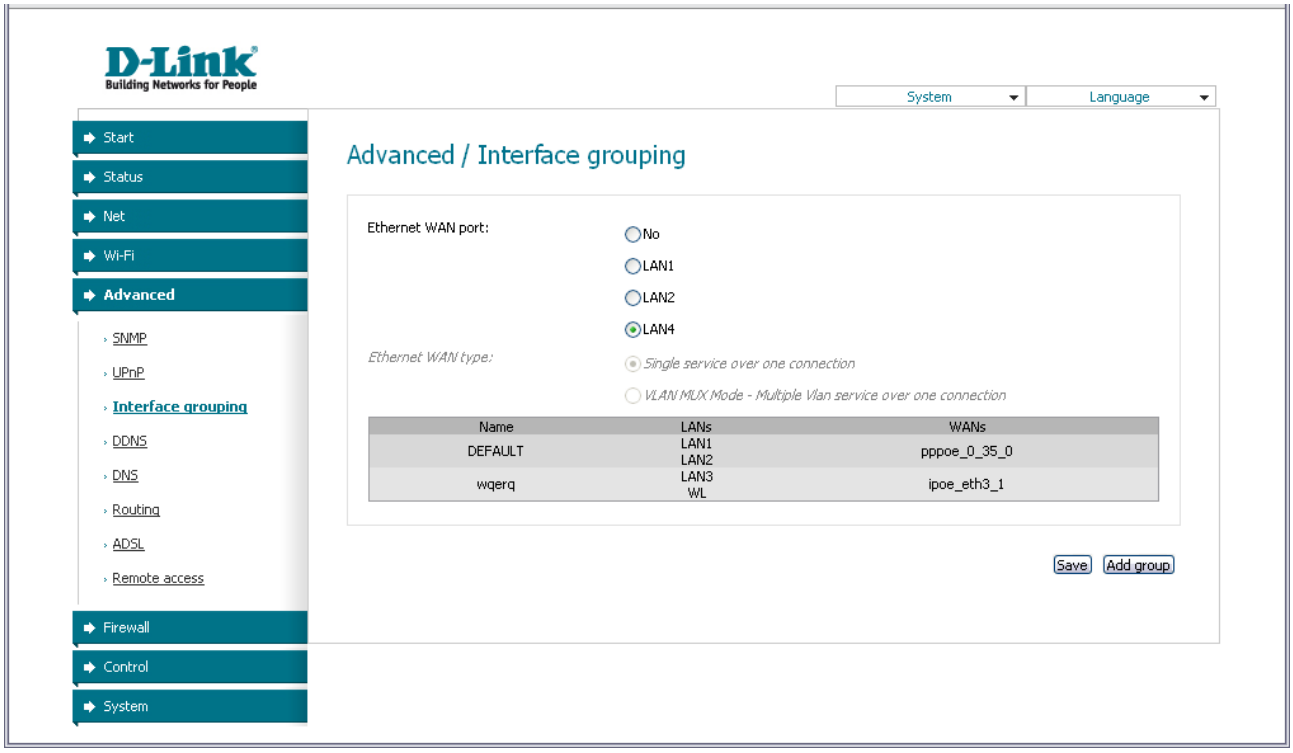


*Figure 50. The **Advanced / Interface grouping** page.*

To enable the Ethernet WAN function, follow the steps below.

1. Select the choice corresponding to the LAN port that will be used as the WAN port of the **Ethernet WAN port** radio button.
2. If you need to connect one or more VLANs to the created Ethernet WAN interface, select the **VLAN MUX Mode** choice of the **Ethernet WAN type** radio button.
3. Click the **Save** button.

To create a new rule for interface grouping (a group of ports), click the **Add group** button (the button is not displayed if there is no WAN connection in the system).

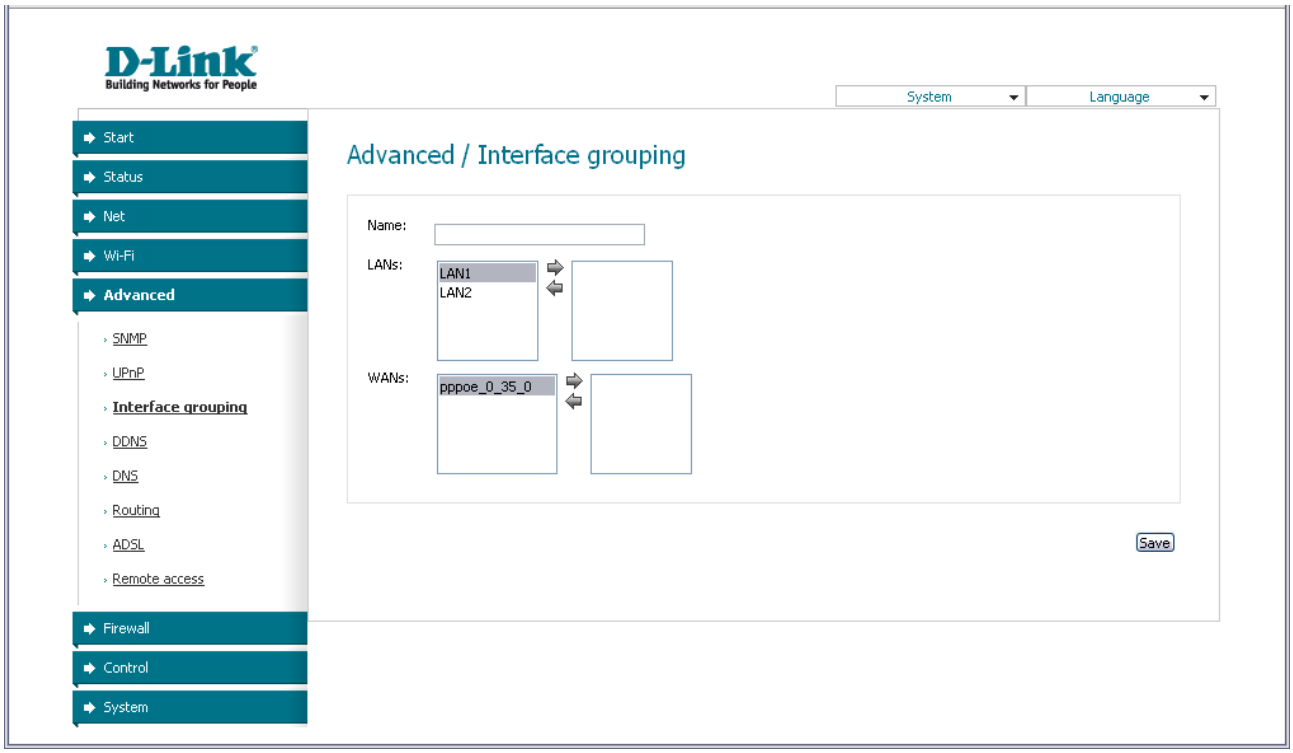


Figure 51. The page for adding a new group of ports.

You can specify the following parameters:

Parameter	Description
Name	A name for the group for easier identification. You can specify any name.
LANs	The list of available internal interfaces is displayed in the left column of the line. Use the button ==> to select interfaces. The selected interfaces will be displayed in the right column of the field.
WANs	WAN connections to which the new group will be assigned. Use the button ==> to select WAN connections. The selected connections will be displayed in the right column of the field.

Click the **Save** button.

! When you add an interface to the new group, it is excluded from the group to which it has been assigned before.

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 **Save** button, or click the **Delete** button. When you delete a group, interfaces assigned to it are reassigned to the **DEFAULT** group.

DDNS

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

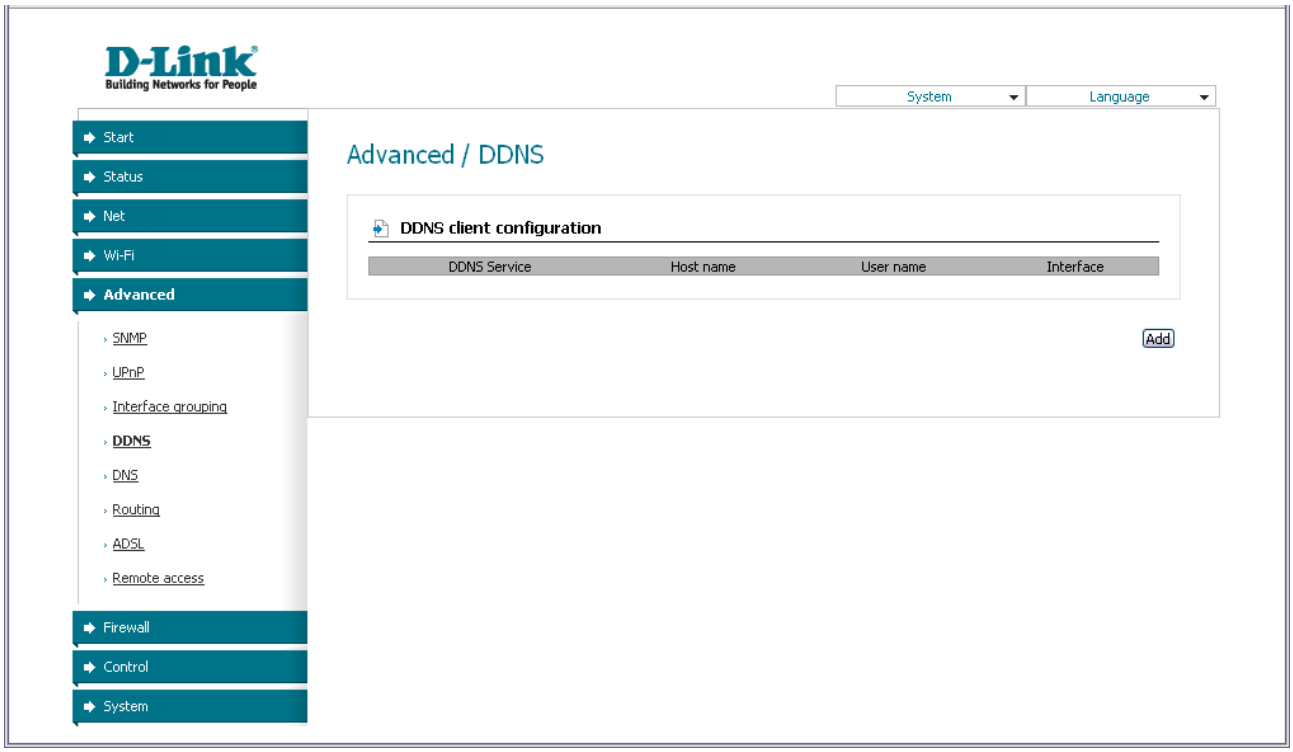


*Figure 52. The **Advanced / DDNS** page.*

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

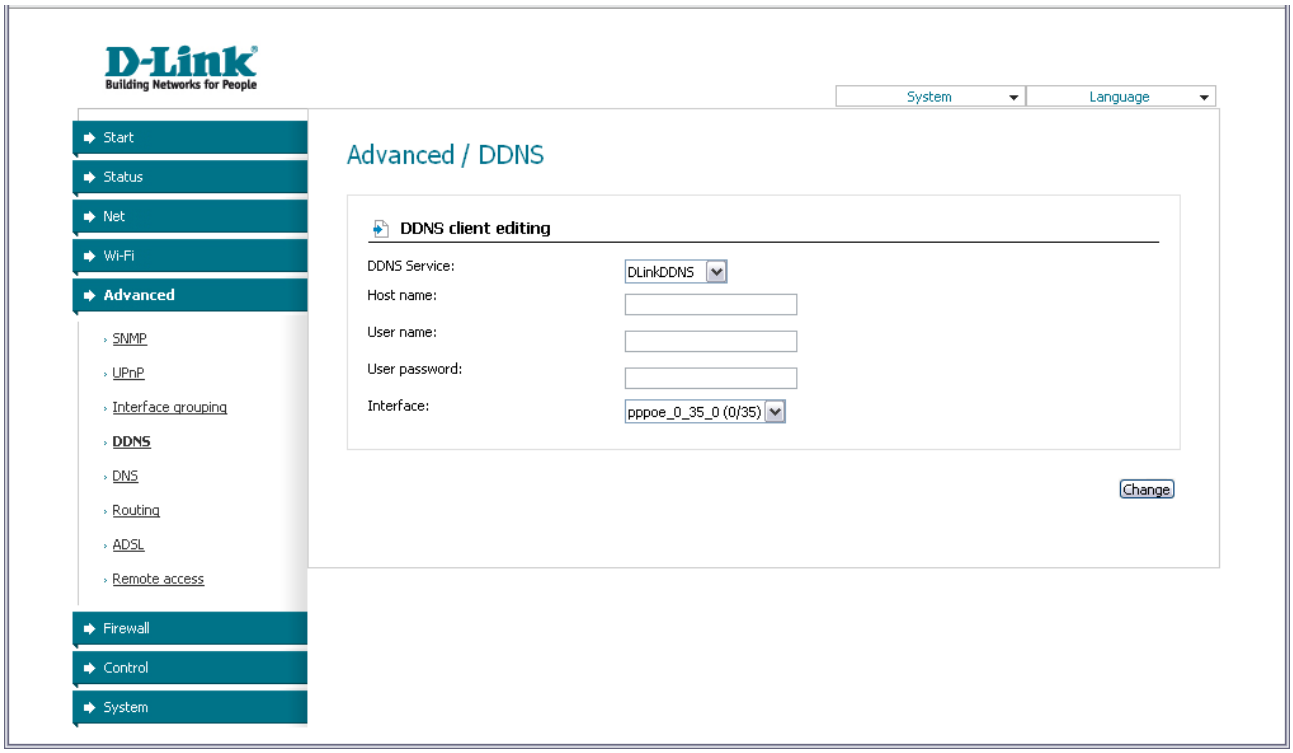


Figure 53. The page for adding a DDNS service.

You can specify the following parameters:

Parameter	Description
DDNS Service	Select a DDNS provider from the drop-down list.
Host name	The domain name registered at your DDNS provider.
User name	The username to authorize for your DDNS provider.
User password	The password to authorize for your DDNS provider.
Interface	Select a WAN connection which IP address will be used to access the DDNS service.

Click the **Change** button.

To edit parameters of the existing DDNS service, click the relevant service link. On the opened page, change the needed parameters and click the **Change** button.

To remove an existing DDNS service, click the relevant service link. On the opened page, click the **Delete** button.

DNS

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

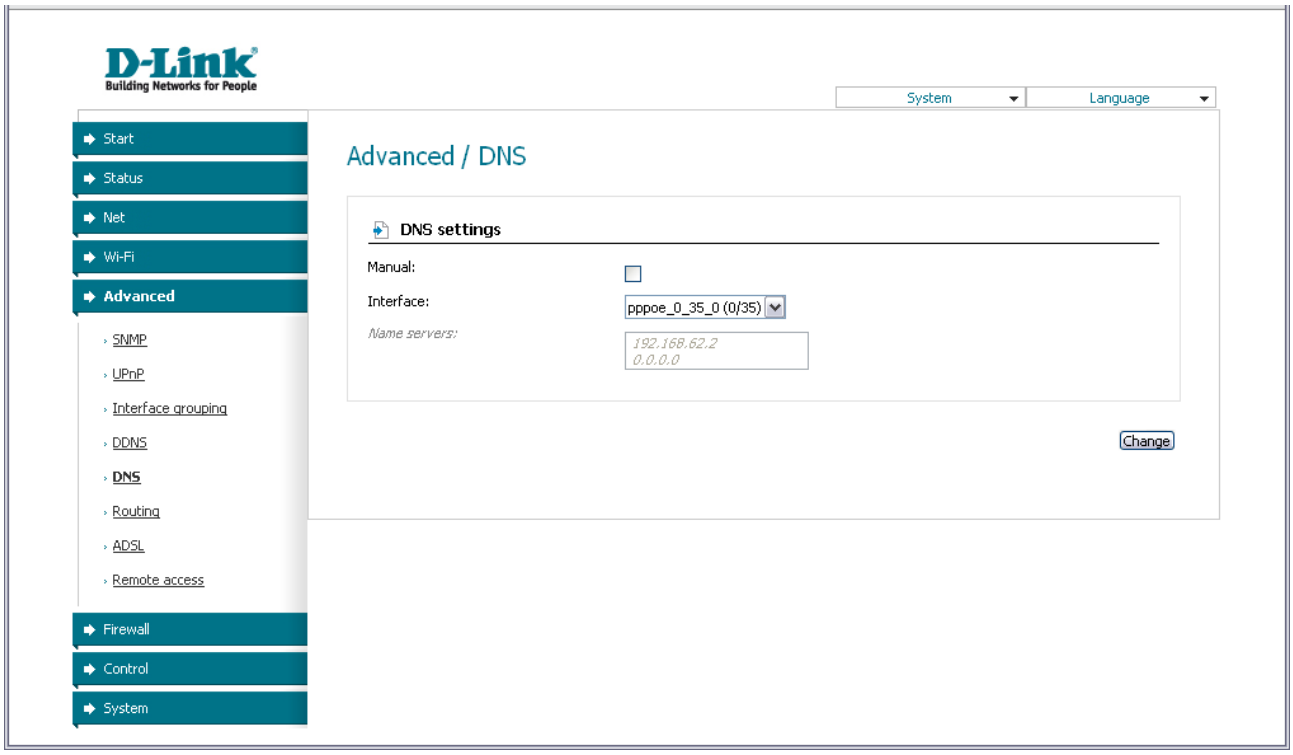


*Figure 54. The **Advanced / DNS** page.*

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

The device performs the DNS relay function, i.e., it redirects the DNS requests of users to external DNS servers. You can specify the addresses of DNS servers manually on this page, or configure the router to obtain DNS servers addresses automatically from your ISP upon installing a connection.

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

If you want to configure automatic obtainment of DNS servers addresses, deselect the **Manual** checkbox, select a WAN connection which will be used to obtain addresses of DNS servers automatically from the **Interface** drop-down list, and click the **Change** button.

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

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

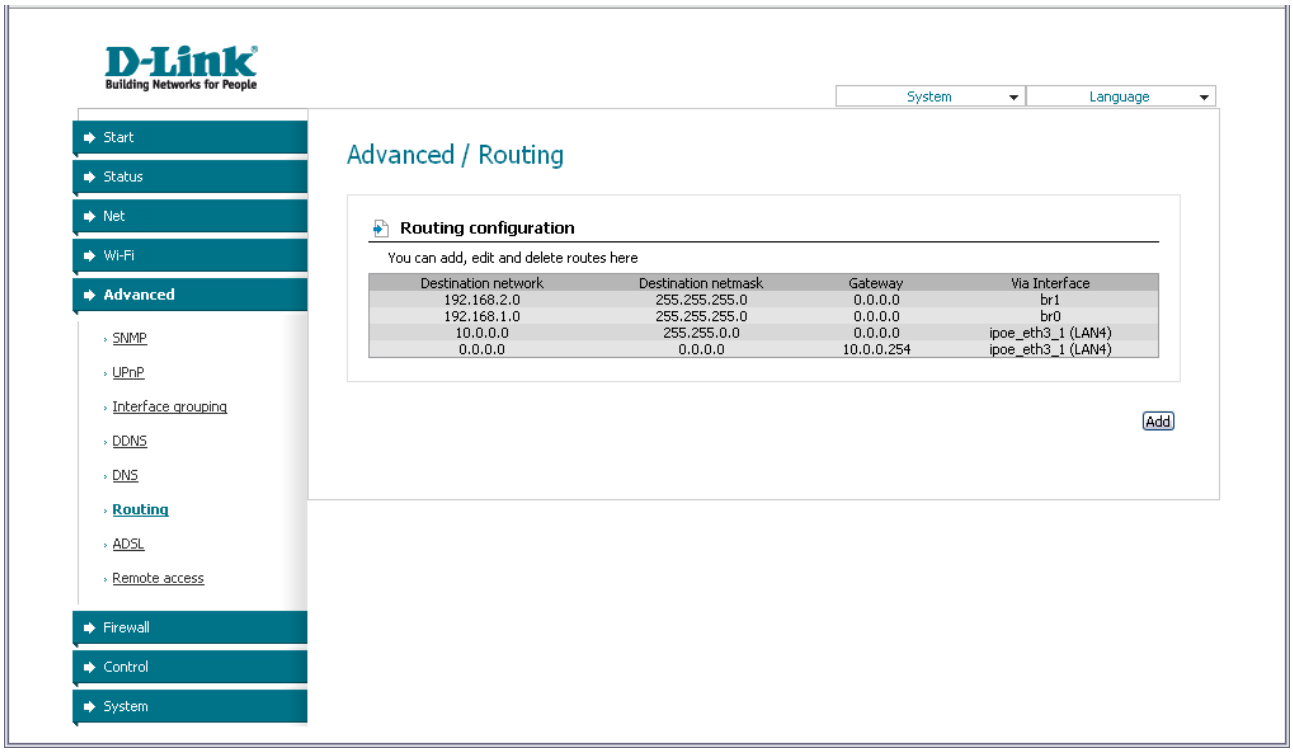


*Figure 55. The **Advanced / Routing** page.*

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

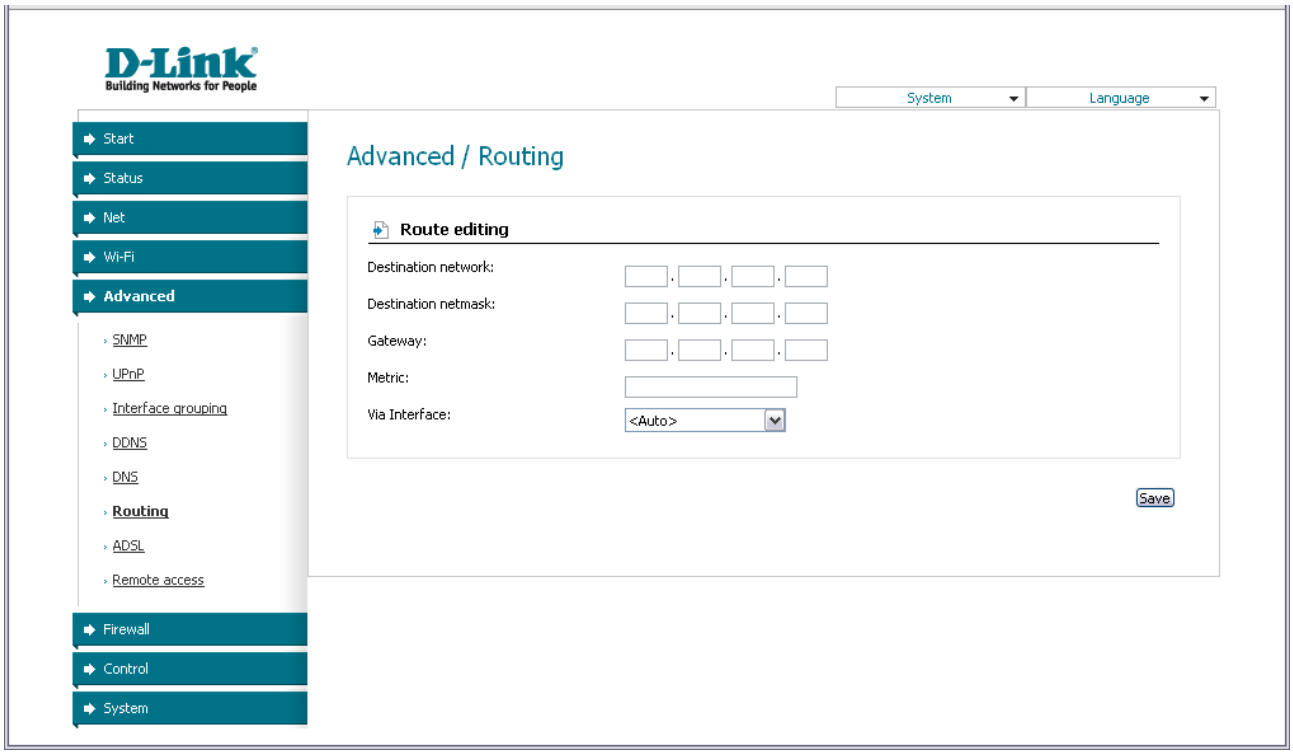


Figure 56. The page for adding a static route.

You can specify the following parameters:

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

Click the **Save** button.

To edit an existing route, select the needed route in the table. On the opened page, change the needed parameters and click the **Save** button.

To remove an existing route, select the needed route in the table. On the opened page, click the **Delete** 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 **Change** button.

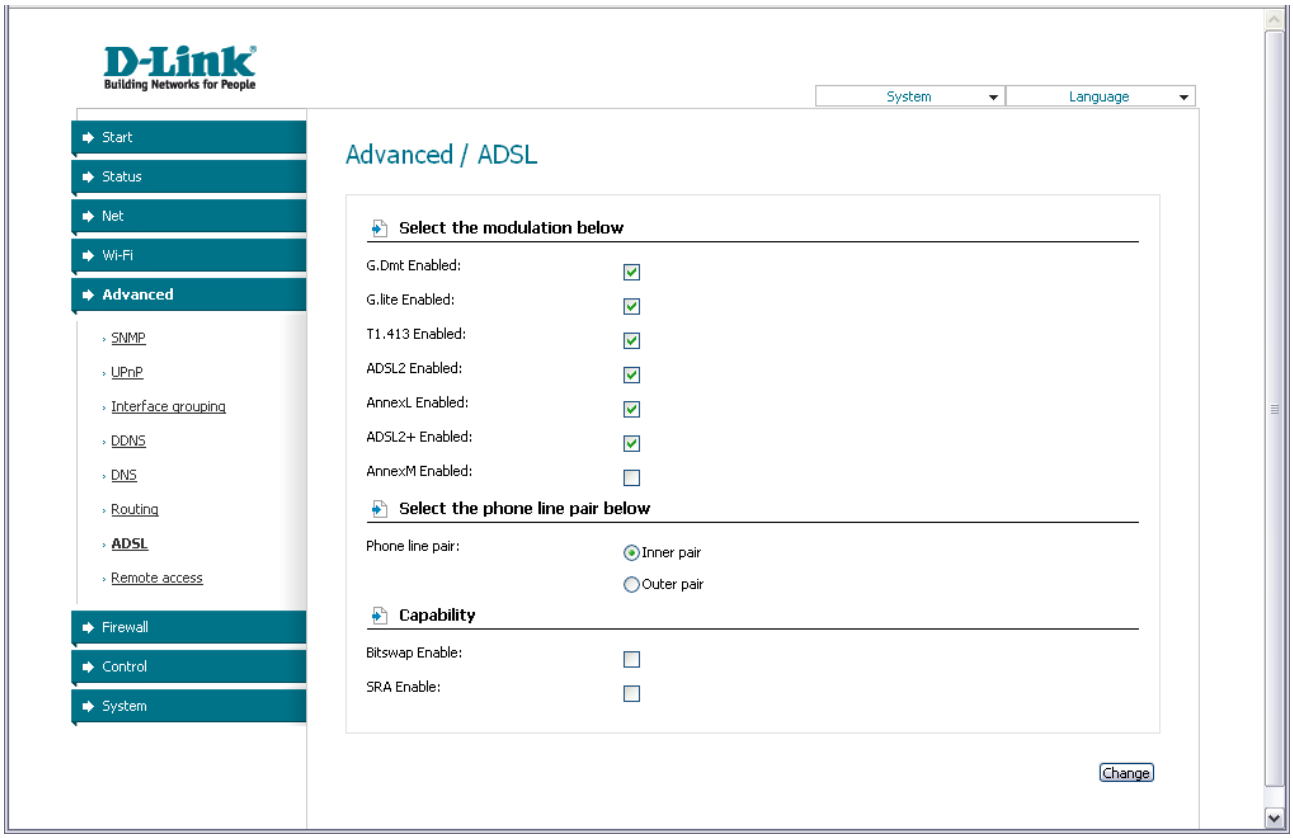


*Figure 57. The **Advanced / ADSL** page.*

Remote Access

On the **Advanced / Remote access** page, you can configure remote 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.

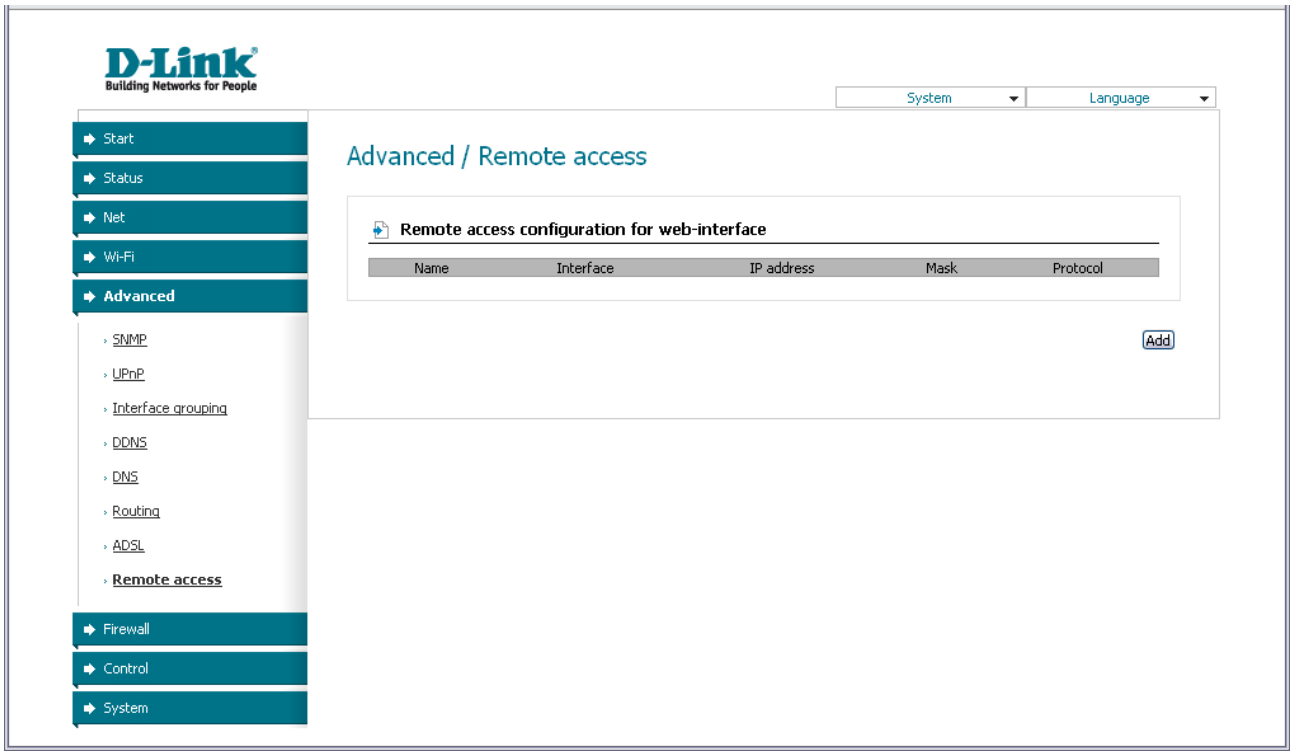


*Figure 58. The **Advanced / Remote access** page.*

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

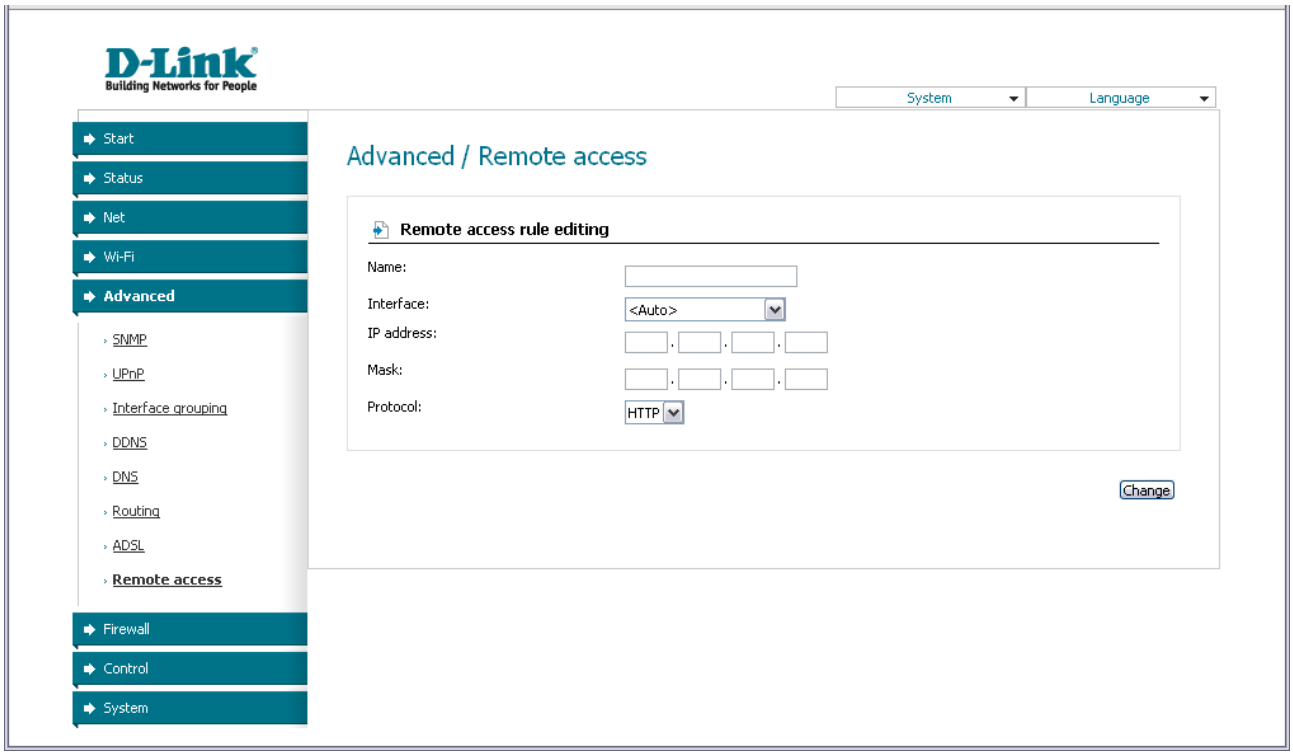


Figure 59. The page for adding a rule for remote management.

You can specify the following parameters:

Parameter	Description
Name	A name for the rule for easier identification. You can specify any name.
Interface	A physical interface through which the web-based interface of the router is accessed.
IP address	A host or a subnet to which the rule is applied.
Mask	The mask of the subnet.
Protocol	The protocol available for remote management of the router.

Click the **Change** button.

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

To remove a rule for remote access, click the relevant link. On the opened page, click the **Delete** button.

Firewall

In this menu you can configure the firewall of the router: add rules for IP filtering, define a DMZ-zone, create virtual servers, configure MAC-filters and the Port Triggering function.

IP Filters

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

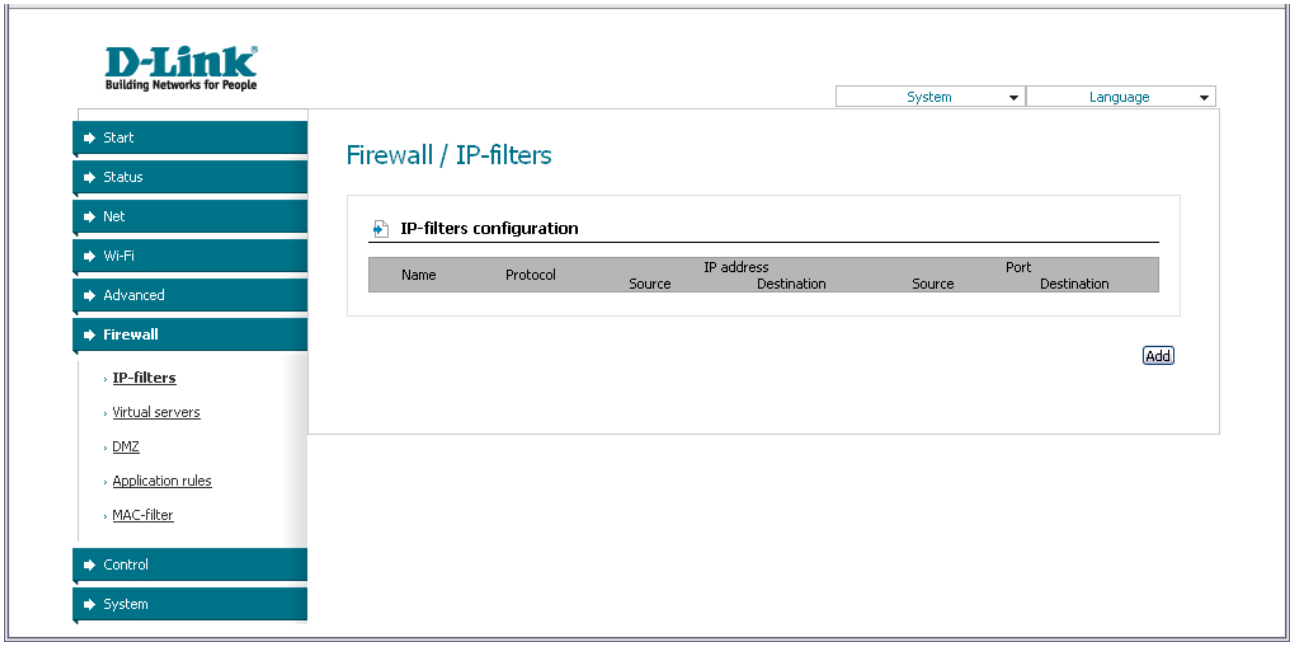


*Figure 60. The **Firewall / IP-filters** page.*

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

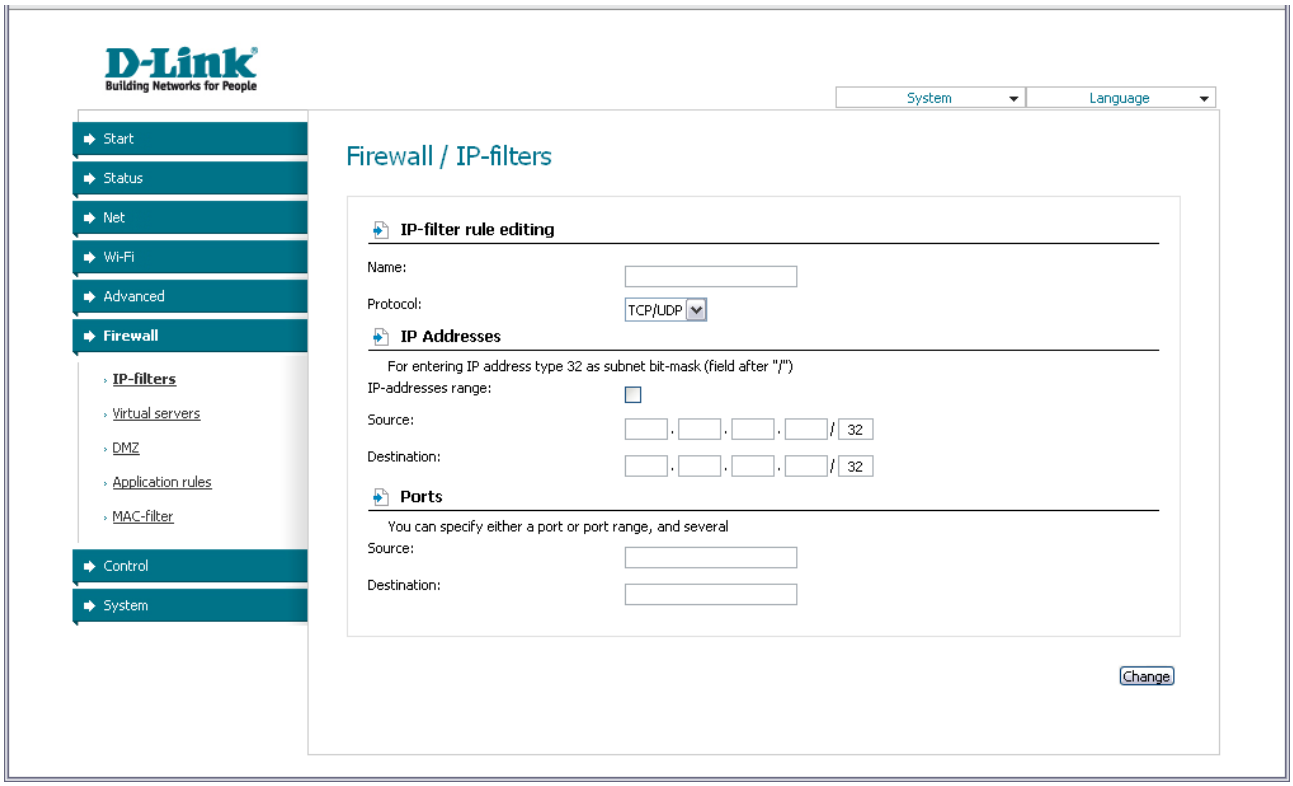


Figure 61. The page for adding a rule for IP filtering.

You can specify the following parameters:

Parameter	Description
IP-filter rule editing	
Name	A name for the rule for easier identification.
Protocol	A protocol for network packet transmission. Select a value from the drop-down list.
IP Addresses	
IP addresses range	Select the checkbox if you want to specify a range of IP addresses as the source or destination IP address.
Source	The source host/subnet IP address. To specify an IP address leave `32` in the field following the slash character (/).
Destination	The destination host/subnet IP address. To specify an IP address leave `32` in the field following the slash character (/).
Ports	
Source	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	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 **Change** button.

To edit a rule for IP filtering, select the relevant rule in the table. On the opened page, change the needed parameters and click the **Change** button.

To remove a rule for IP filtering, select the relevant rule in the table. On the opened page, click the **Delete** button.

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.

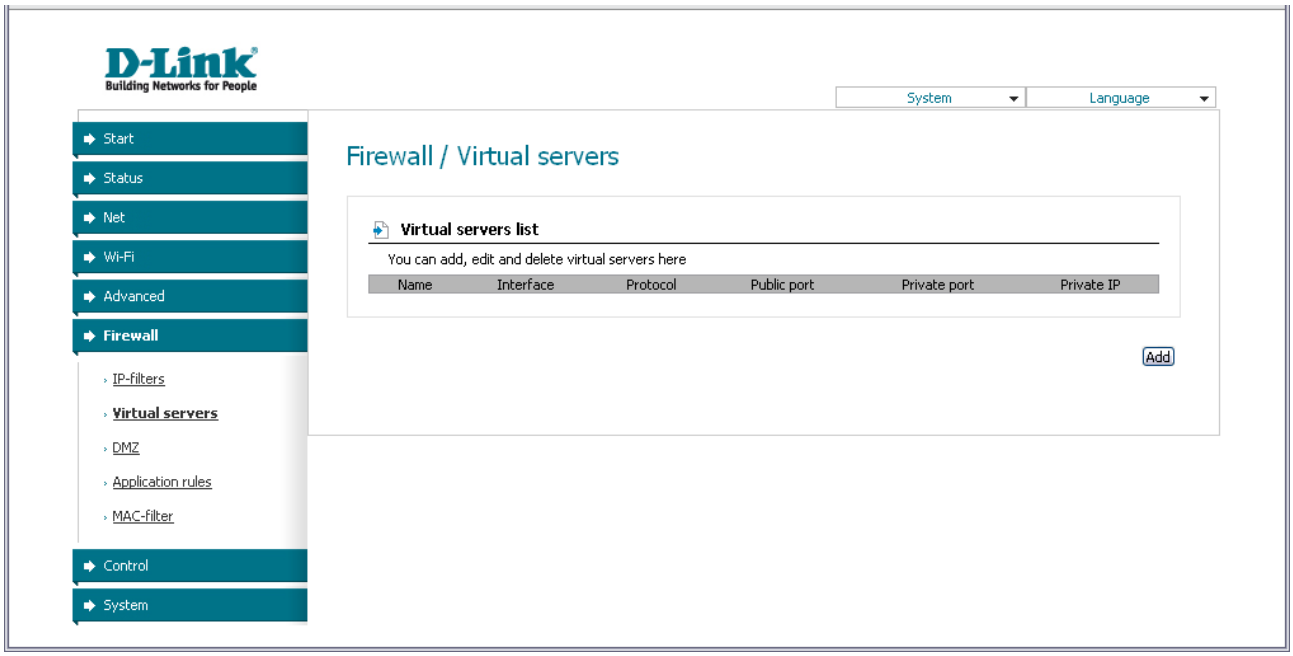


*Figure 62. The **Firewall / Virtual servers** page.*

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

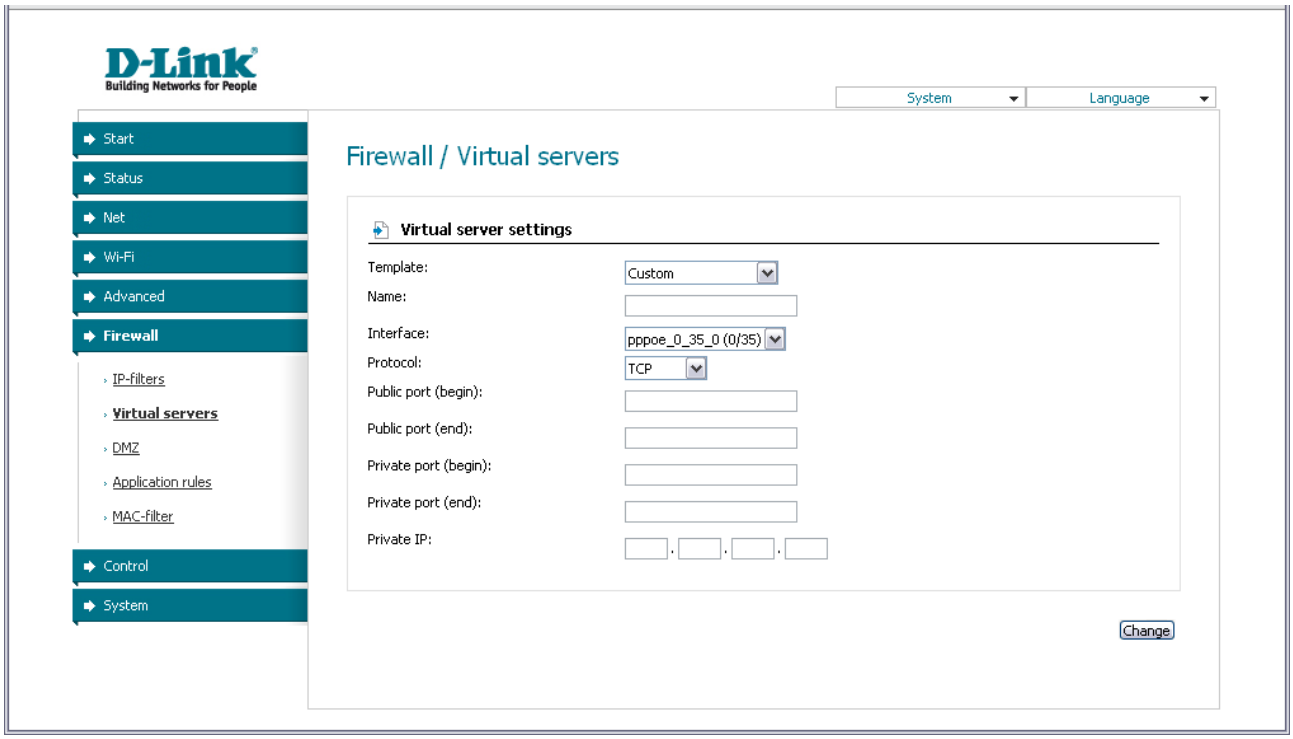


Figure 63. The page for adding a virtual server.

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.

Click the **Change** 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 **Change** button.

To remove an existing server, select the relevant server in the table. On the opened page, click the **Delete** button.

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.

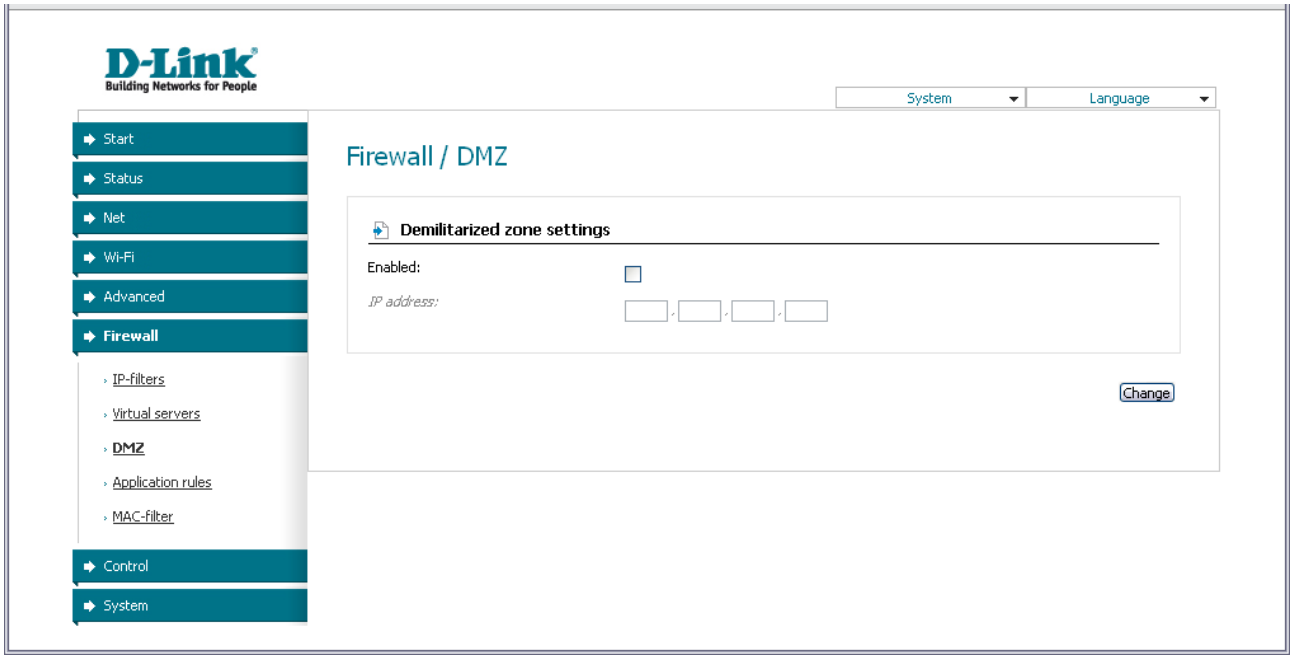


*Figure 64. The **Firewall / DMZ** page.*

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 **Change** button.

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

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

Application Rules

On the **Firewall / Application rules** page, you can define rules for the Port Triggering function.

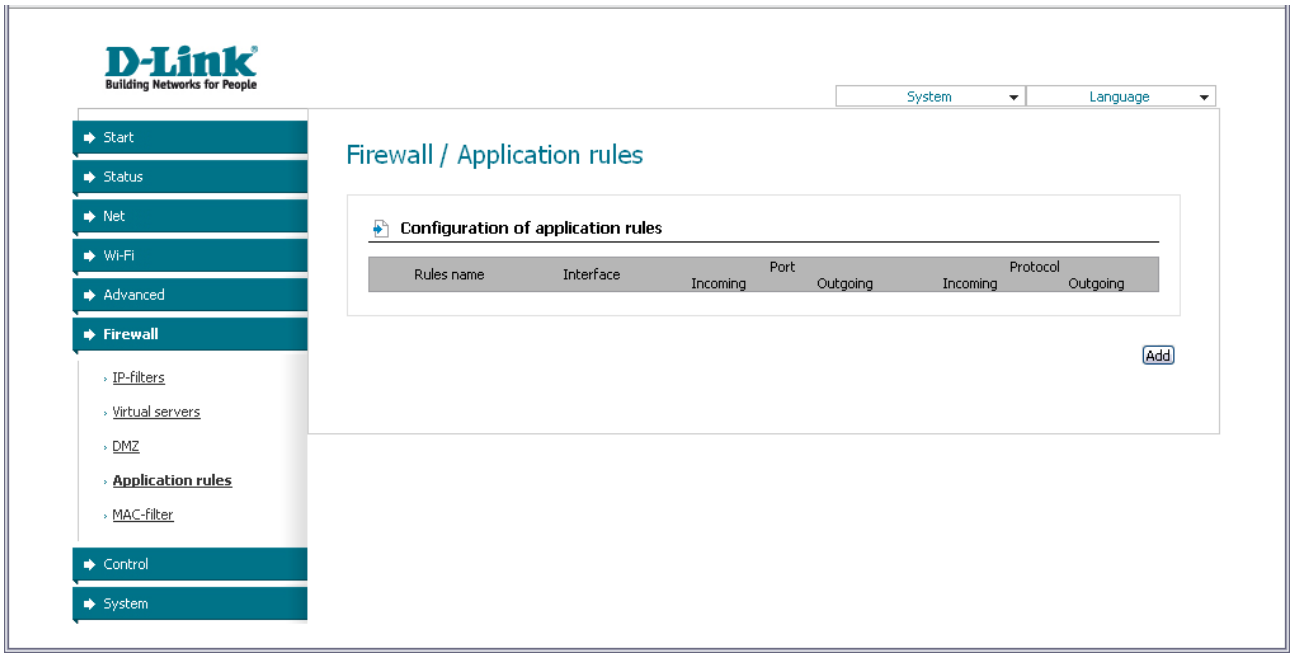


*Figure 65. The **Firewall / Application rules** page.*

To add a new rule for the Port Triggering function, click the **Add** button.

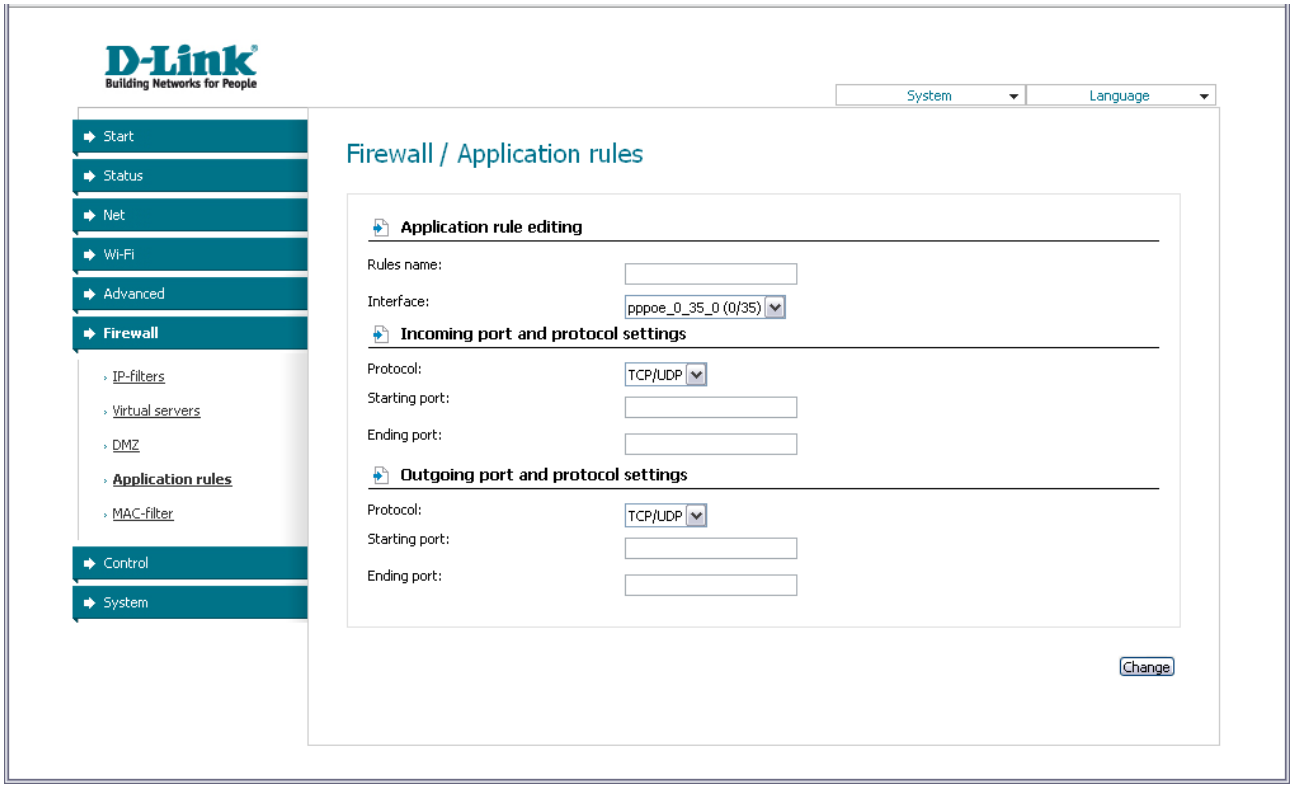


Figure 66. The page for adding a rule for the Port Triggering function.

You can specify the following parameters:

Parameter	Description
Application rule editing	
Rules name	A name for the rule for easier identification.
Interface	A WAN connection to which this rule will be assigned.
Incoming port and protocol settings	
Protocol	A protocol to which this rule will be applied upon receiving data to the specified port or port range.
Starting port/ Ending port	A range of the router's ports which will be open to receive data from the external network (incoming traffic). Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Starting port** field and leave the **Ending port** field blank.
Outgoing port and protocol settings	
Protocol	A protocol to which this rule will be applied upon transferring data from the specified port or port range.
Starting port/ Ending port	A range of the router's ports from which data are transferred to the external network (outgoing traffic). Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the **Starting port** field and leave the **Ending port** field blank.

Click the **Change** button.

To edit an existing rule for the Port Triggering function, select the relevant rule in the table. On the opened page, change the needed parameters and click the **Change** button.

To remove an existing rule for the Port Triggering function, select the relevant rule in the table. On the opened page, click the **Delete** button.

MAC Filter

The MAC-address-based filtering allows forwarding and blocking traffic subject to the source and destination MAC addresses.

> **!** MAC-address-based filtering is active only when the device is configured as a transparent bridge (the Bridge mode).

On the **Configuration** tab, you can select the operating mode of the MAC filter. Select the **Allow** value from the **Action** drop-down list to allow traffic affected by the rules from the **MAC-addresses** tab and block the other traffic. Select the **Deny** value from the drop-down list to block only traffic affected by the rules from the **MAC-addresses** tab.

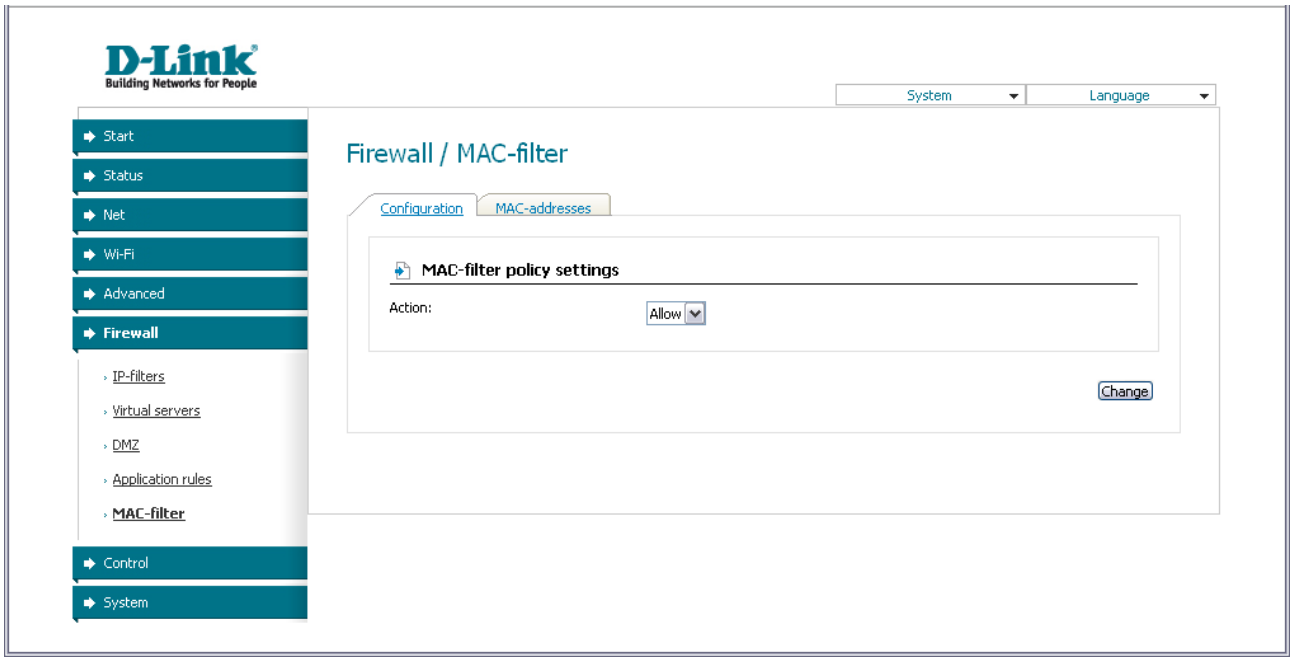


*Figure 67. The **Firewall / MAC-filter** page. The **Configuration** tab.*

To create a new rule, proceed to the **MAC-addresses** tab and click the **Add** button.

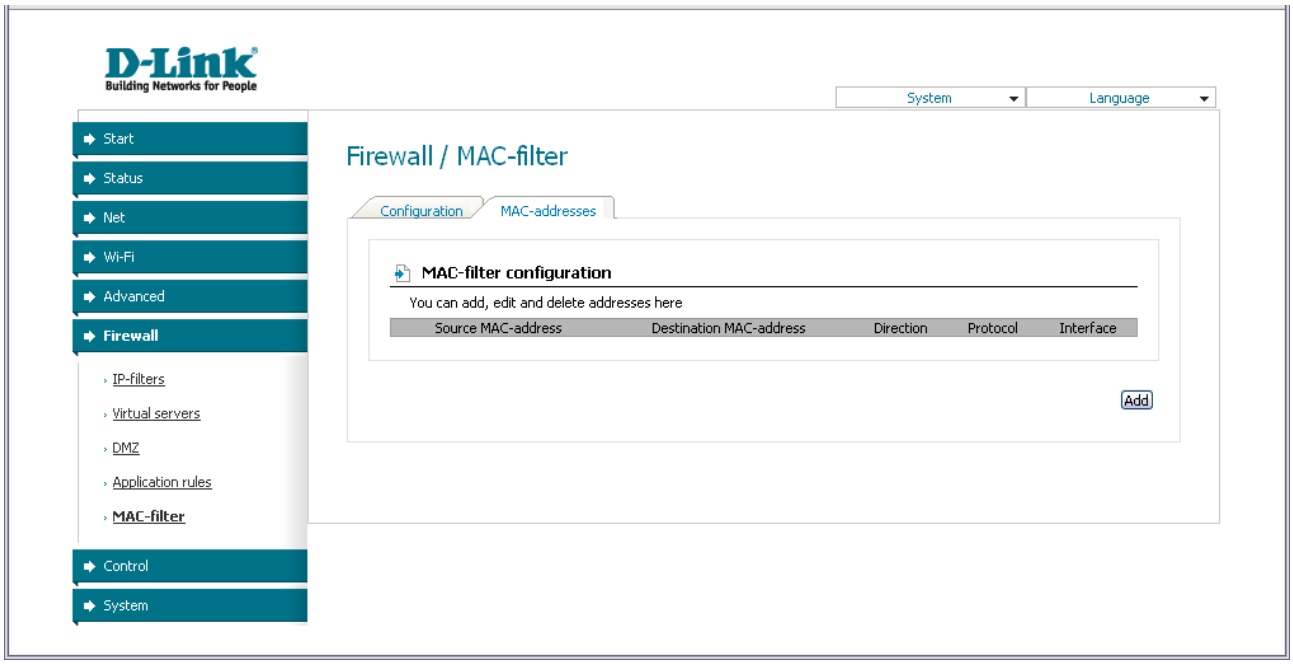


*Figure 68. The **Firewall / MAC-filter** page. The **MAC-addresses** tab.*

On the opened page, specify the needed parameters.

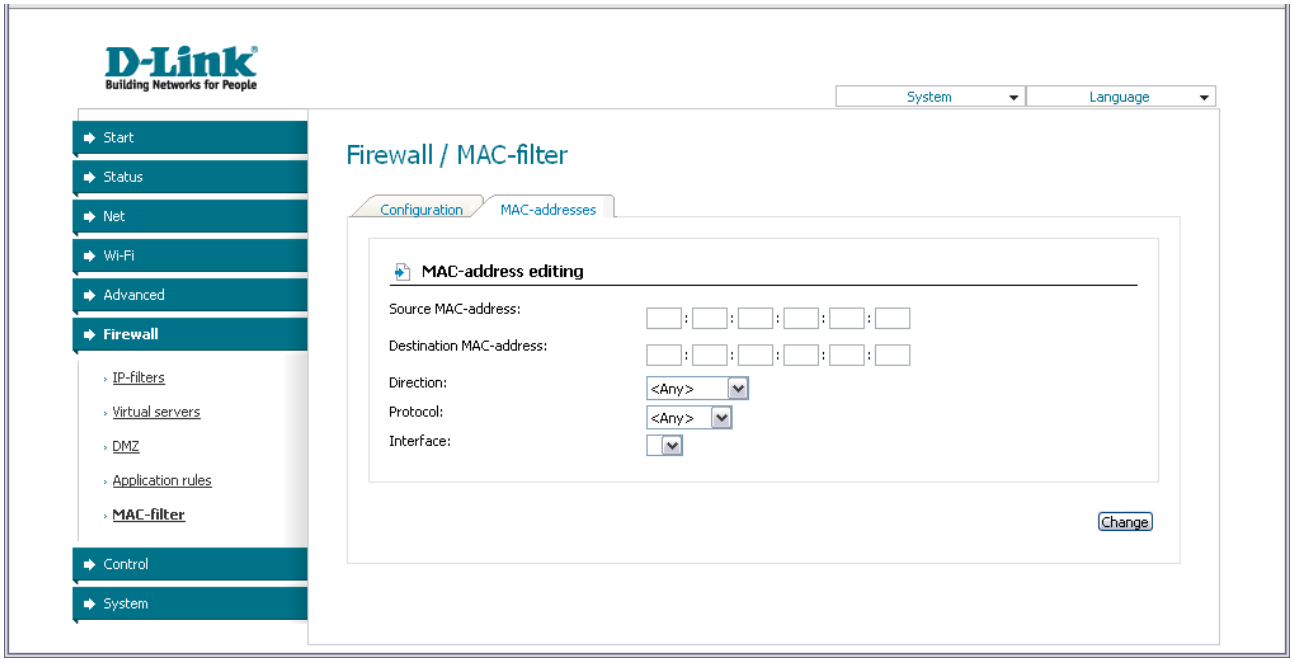


Figure 69. The page for adding a rule for MAC-address-based filtering.

Parameter	Description
Source MAC-address	The MAC address of the source host.
Destination MAC-address	The MAC address of the destination host.
Direction	Select a direction for which the rule will be applied.
Protocol	Select a protocol for which the rule will be applied. The **<Any>** value means any protocol from those displayed in the list.
Interface	Select a WAN connection (with the **Bridge** connection type only) for which the rule will be applied.

Click the **Change** button.

To edit a rule for filtering, select the relevant rule on the **MAC-addresses** tab. On the opened page, change the needed parameters and click the **Change** button.

To remove a rule for filtering, select the relevant rule on the **MAC-addresses** tab. On the opened page, click the **Delete** button.

Control

This menu is designed to create restrictions on access to the Internet for users of your LAN: forbid access for specified computers and limit access to certain web sites.

Parent Control

On the **Control / Parent control** page, you can create rules restricting access to the Internet for computers with specified MAC addresses during particular time periods on particular days.

*Figure 70. The **Control / Parent control** page.*

Rules restricting access for computers with specified MAC addresses are presented as a table. To create a new rule, click the **Add** button.

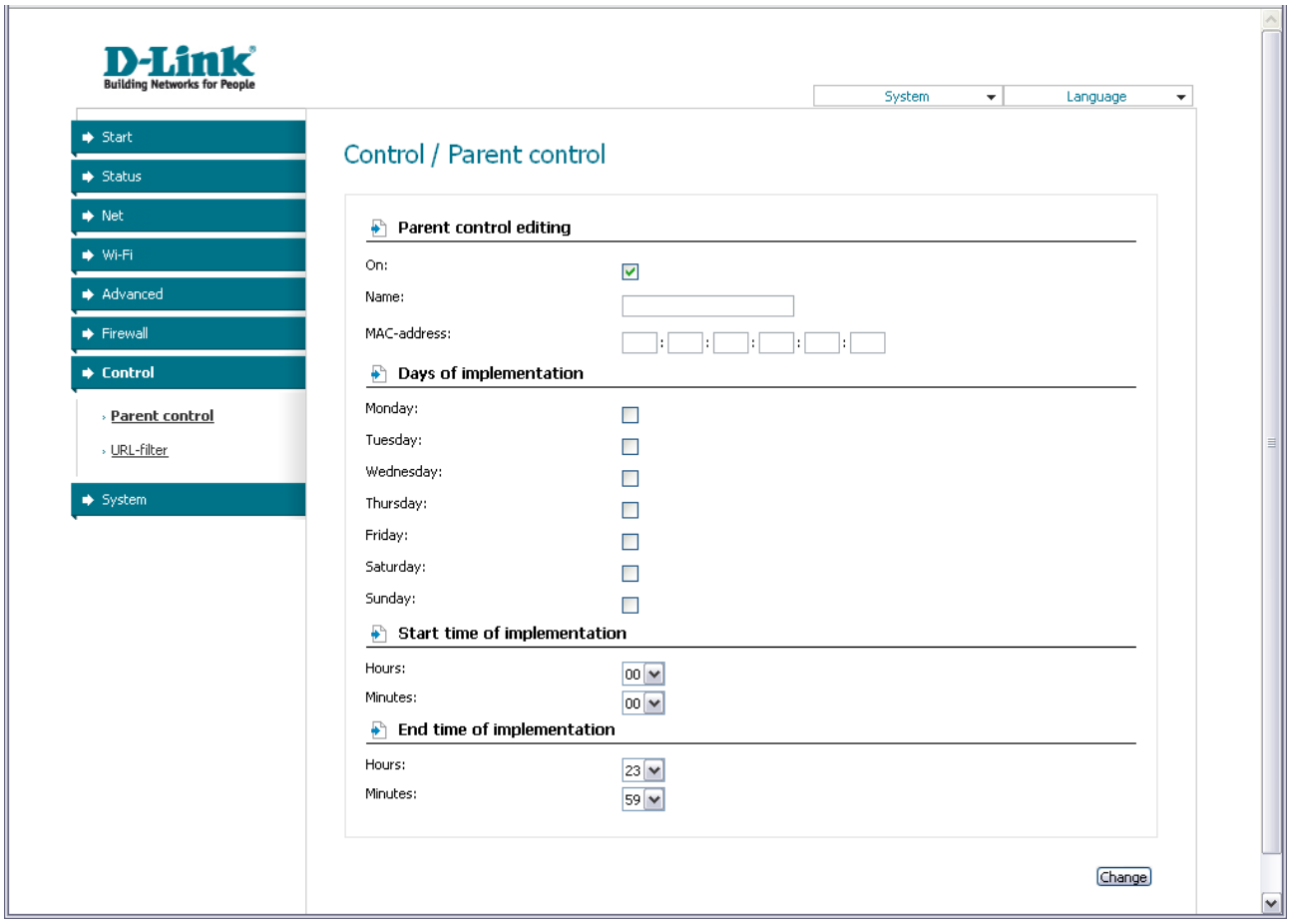


Figure 71. The page for adding a new parental control rule.

You can specify the following parameters:

Parameter	Description
Parent control editing	
On	Select the checkbox to enable the rule.
Name	A name for the rule for easier identification. You can specify any name.
MAC-address	The MAC address of the computer to which this rule will be applied.
Days of implementation	
Select checkboxes corresponding to the needed days of the week.	
Start time of implementation	
Hours **Minutes**	Start time of the rule application.
End time of implementation	
Hours **Minutes**	End time of the rule application.

Click the **Change** button.

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

To delete an existing rule, select the relevant rule in the table. On the opened page, click the **Delete** button.

URL Filter

On the **Control / URL-filter** page, you can specify restrictions on access to certain web sites.

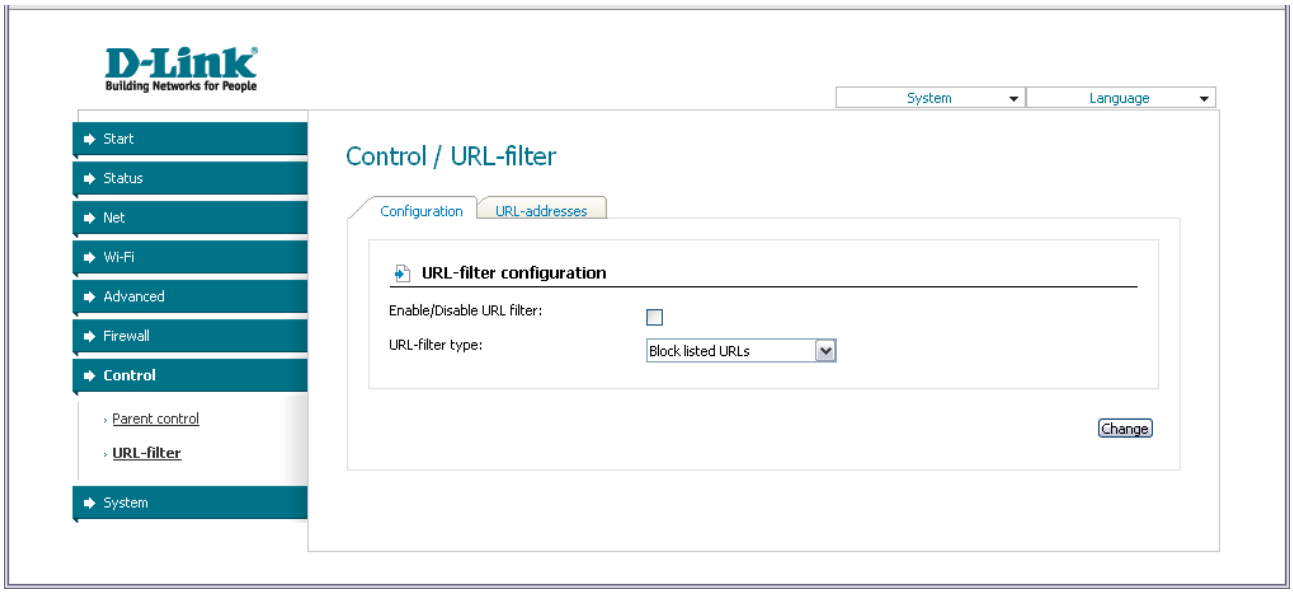


*Figure 72. The **Control / URL-filter** page. The **Configuration** tab.*

To enable the URL filter, select the **Enable/Disable URL filter** checkbox on the **Configuration** tab, 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 URL-addresses tab;
- **Block all URLs except listed**: when this value is selected, the router allows access to addresses specified on the URL-addresses tab and blocks access to all other web sites.

Click the **Change** button.

To specify URL addresses to which the selected filtering will be applied, go to the **URL-addresses** tab and click the **Add** button.

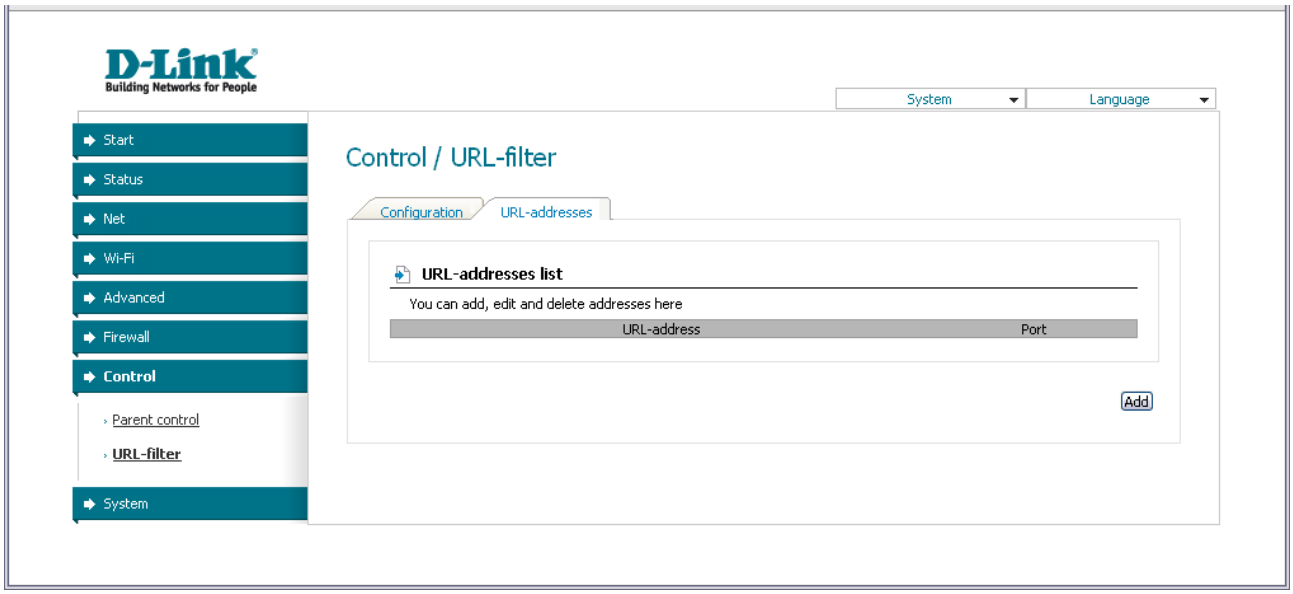


*Figure 73. The **Control / URL-filter** page. The **URL-addresses** tab.*

On the opened page, specify the needed parameters.

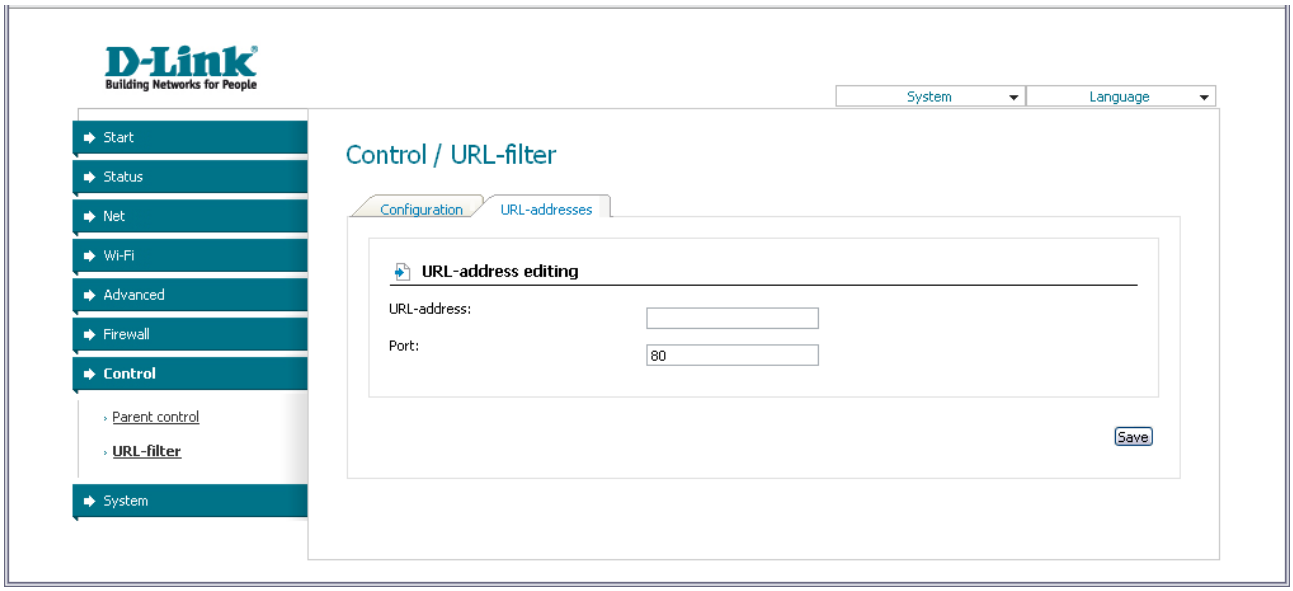


Figure 74. The page for adding an address for the URL filter.

Enter a URL address in the **URL-address** field, specify a port (as usual, you need to specify port 80 for HTTP), then click the **Save** button.

To remove an address from the list of URL addresses, select the relevant address in the table on the **URL-addresses** tab and click the **Delete** button.

To disable the URL filter, deselect the **Enable/Disable URL filter** checkbox on the **Configuration** tab, then click the **Change** button.

System

In this menu you can save the changed settings to the non-volatile memory, 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, configure automatic synchronization of the system time, update the firmware of the router, and change the password used to access its settings.

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 via TELNET.

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

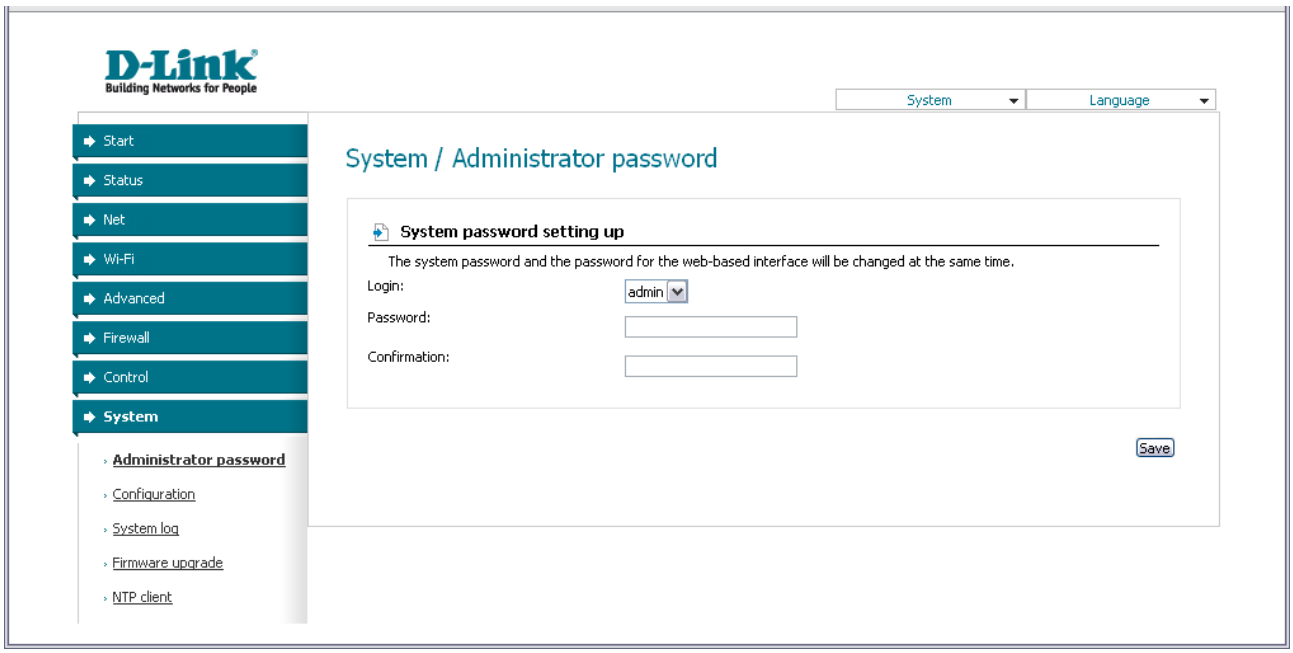


*Figure 75. The **System / Administrator password** page.*

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

Configuration

On the **System / Configuration** page, you can 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.

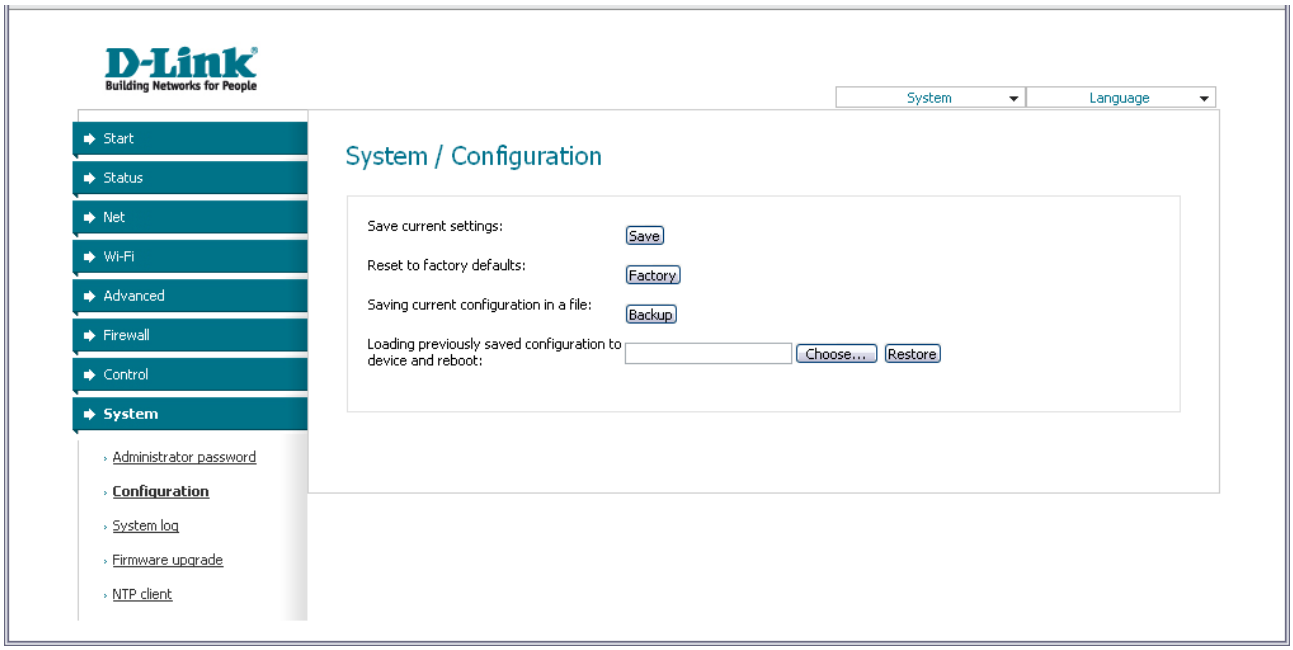


*Figure 76. The **System / Configuration** page.*

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 reboot of the router.
Factory	Click the button to restore the factory default settings. Also you can restore the factory defaults via the hardware Reset button (see the ***Saving and Restoring Settings*** section, page 28).
Backup	Click the button and follow the dialog box appeared to save the configuration (all settings of the router) to your PC.
Restore	Click the button to upload a previously saved configuration (all settings of the router) from a file on your PC. Click the **Choose/Browse**[1] button to select a previously saved configuration file located on your PC.

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

1 The name of the button depends upon the web browser that you use.

System Log

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

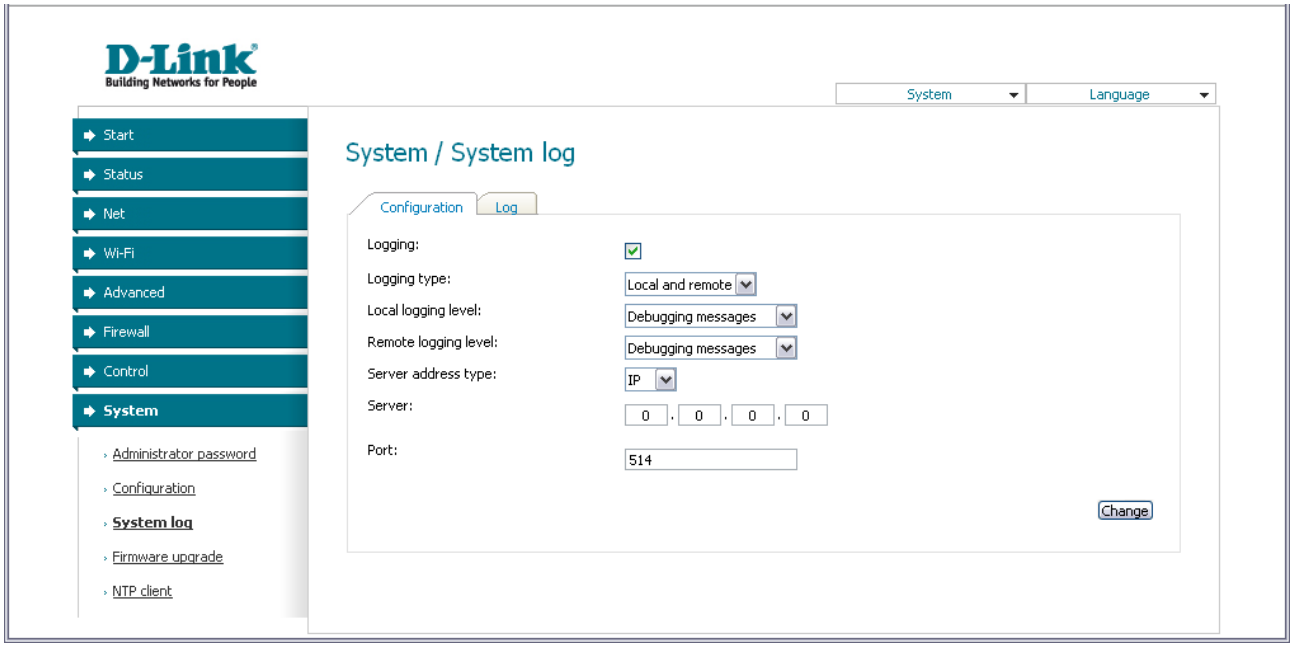


*Figure 77. The **System / System log** page. The **Configuration** tab.*

To enable logging of the system events, select the **Logging** checkbox on the **Configuration** tab. 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 **Log** tab). When this value is selected, the **Server address type**, **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 **Log** tab) and sent to the remote host specified in the **Server** field.
Local logging level	Select a type of messages and alerts/notifications to be stored locally in the router's memory. The field is available, when the **Local** or **Local and remote** value is selected from the **Logging type** drop-down list.

Control	Description
Remote logging level	Select a type of messages and alerts/notifications to be sent to the remote host specified in the **Server** field. The field is available, when the **Remote** or **Local and remote** value is selected from the **Logging type** drop-down list.
Server address type	From the drop-down list, select the **IP** value to specify an IP address of a host from the local or global network, or the **URL** value to specify a URL address of a remote server.
Server	The IP or URL address of the host from the local or global network, to which the system log will be sent.
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 **Change** button.

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

On the **Log** tab, the events specified in the **Local logging level** list are displayed.

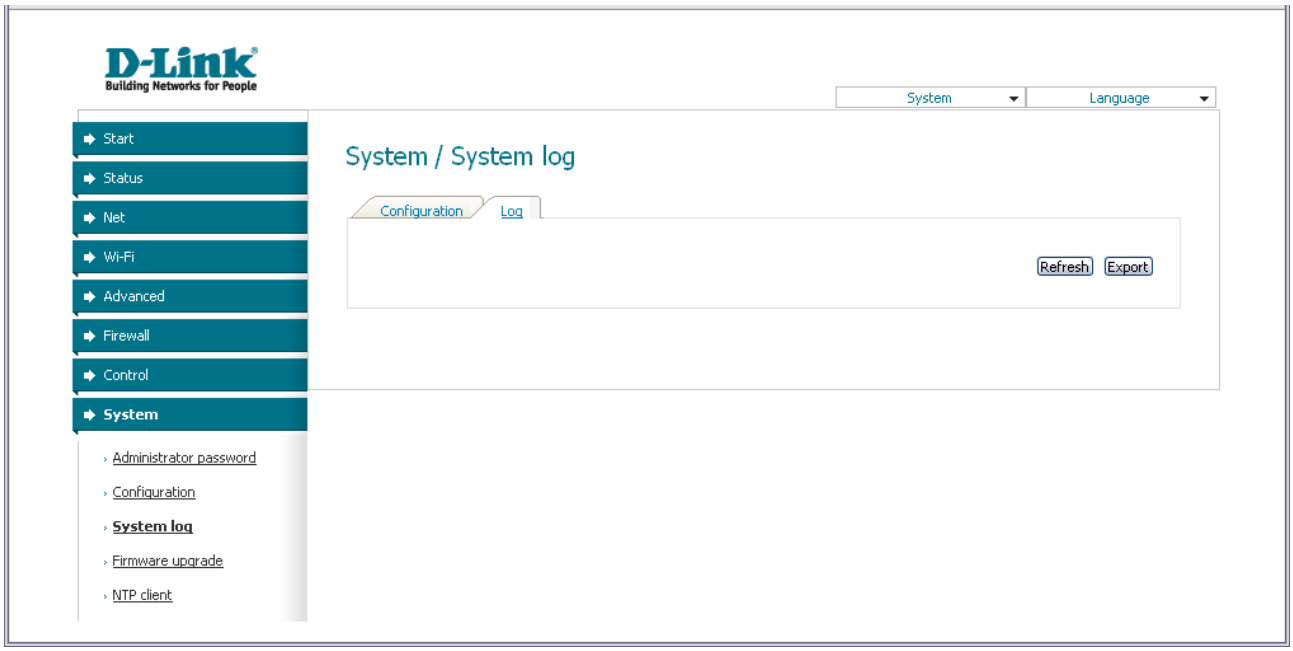


*Figure 78. The **System / System log** page. The **Log** tab.*

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.

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

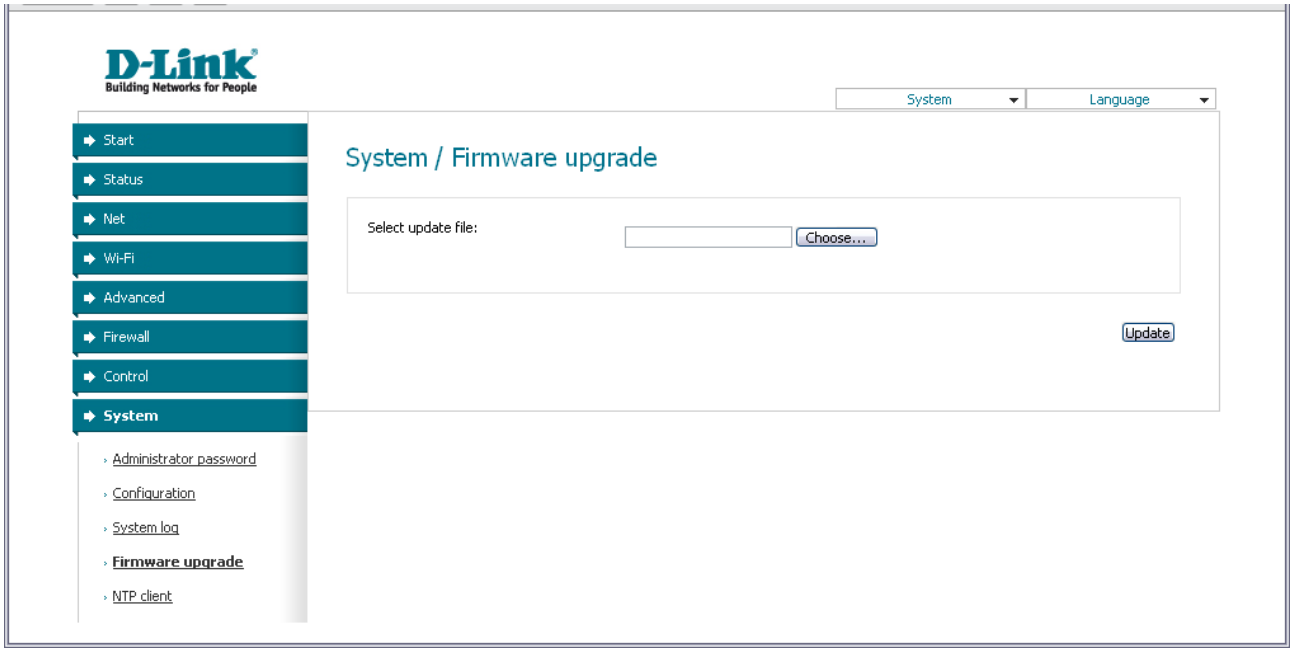


*Figure 79. The **System / Firmware upgrade** page.*

The current version of the router's firmware is displayed in the **Firmware version** field on the **Start** page. If you need to install a newer version of the firmware, follow the next steps:

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

1. Download a new version of the firmware from www.dlink.ru.
2. Click the **Choose/Browse**[2] 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.
6. Select the **Factory** line in the top-page menu displayed when the mouse pointer is over the **System** caption.
7. Wait until the router is rebooted. Log into the web-based interface, using the default IP address, login and password (**192.168.1.1**, **admin**, **admin**).

2 The name of the button depends upon the web browser that you use.

NTP Client

On the **System / NTP client** page, you can configure automatic synchronization of the system time with a time server on the Internet.

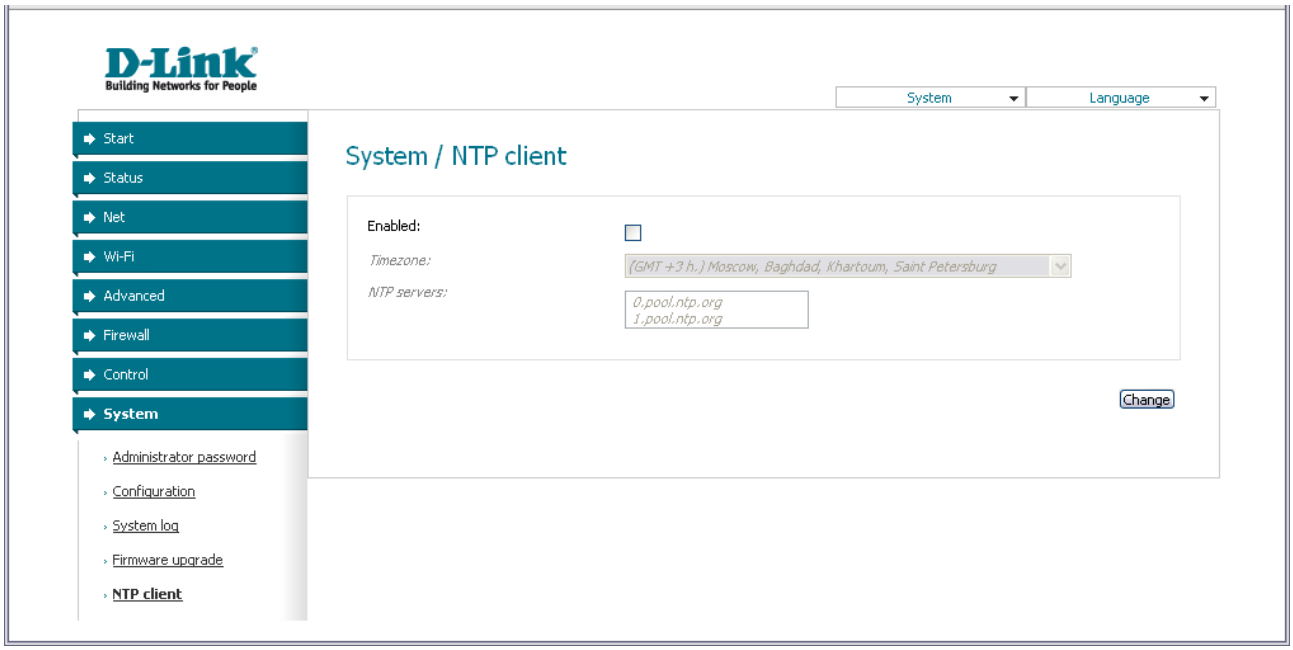


*Figure 80. The **System / NTP client** page.*

To enable automatic synchronization with a time server:

1. Select the **Enabled** checkbox.
2. Select your time zone.
3. Specify the needed NTP server in the **Ntp servers** field or leave the server specified by default.
4. Click the **Change** button.

! 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.

CHAPTER 5. OPERATION GUIDELINES

Safety Instructions

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

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

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

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

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

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

Wireless Installation Considerations

The DSL-2640U 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-2640U 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 (of the Bridge/IPoE/IPoA type) to one virtual channel (that is, to specify the same values of the VPI/VCI).

For example, your ISP provides the IPTV service (VPI = 8, VCI = 35). 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 IPoE 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 / Connections** page and click the **Add** button.
2. Select the **Bridge** value from the **Connection Type** drop-down list.
3. Fill in the **VPI** and **VCI** fields.
4. In the **VLAN settings** section, select the **Use VLAN** checkbox.
5. Click the **Save** button.
6. Click the **Add** button again.
7. Select the **IPoE** value from the **Connection Type** drop-down list.
8. Fill in the **VPI** and **VCI** fields.
9. Fill in the fields of the **IP settings** section in accordance with data provided by your ISP.
10. Do not fill the fields of the **VLAN settings** section.
11. Click the **Save** button.

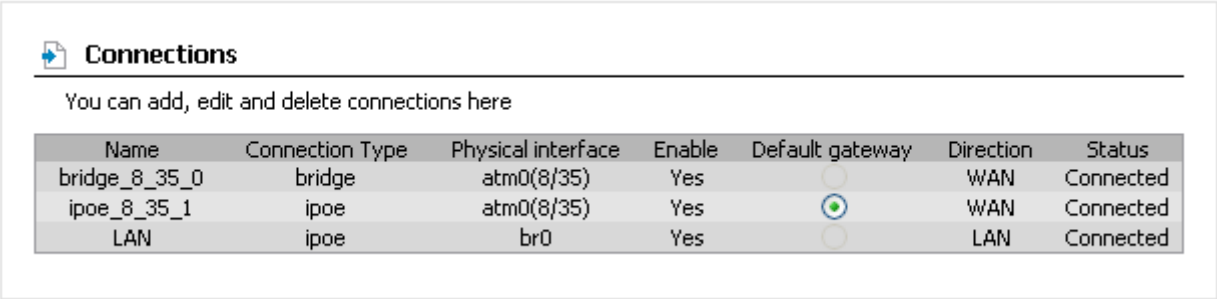
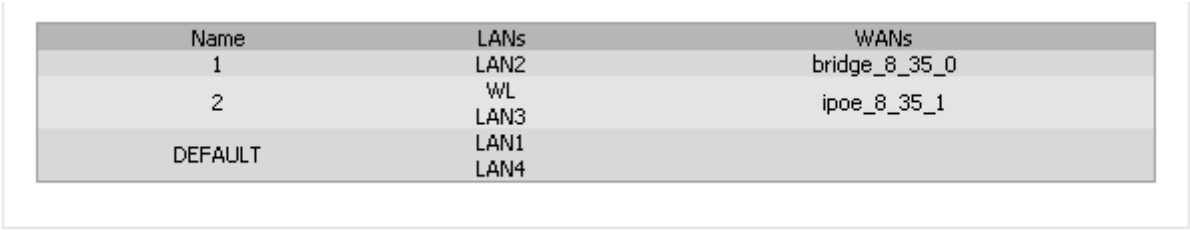


Figure 81. Two WAN connections with the same values of the VPI and VCI.

12. Go to the **Advanced / Interface grouping** page.
13. Create a group containing the WAN connection of the Bridge type and the LAN 2 port.
14. Create another group containing the WAN connection of the IPoE type, the LAN 3 port, and the wireless interface.



Name	LANs	WANs
1	LAN2	bridge_8_35_0
2	WL LAN3	ipoe_8_35_1
DEFAULT	LAN1 LAN4	

Figure 82. Groups of ports for the created WAN connections.

15. Save the router's settings.

Ethernet WAN Connections

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

For example, your private Ethernet line is connected to the LAN 3 port of the router. The ISP provides the IPTV service. 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 IPoE 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 / Interface grouping** page.
2. Select the **LAN 3** choice of the **Ethernet WAN port** radio button.
3. Select the **VLAN MUX Mode** of the **Ethernet WAN type** radio button.
4. Click the **Save** button.
5. Go to the **Net / Connections** page and click the **Add** button.
6. Select the **Bridge** value from the **Connection Type** drop-down list.
7. Select the **LAN 3** value from the **Physical interface** drop-down list.
8. Click the **Save** button.
9. Click the **Add** button again.
10. Select the **IPoE** value from the **Connection Type** drop-down list.
11. Select the **LAN 3** value from the **Physical interface** drop-down list.
12. Fill in the fields of the **IP settings** section in accordance with data provided by your ISP.
13. Click the **Save** button.

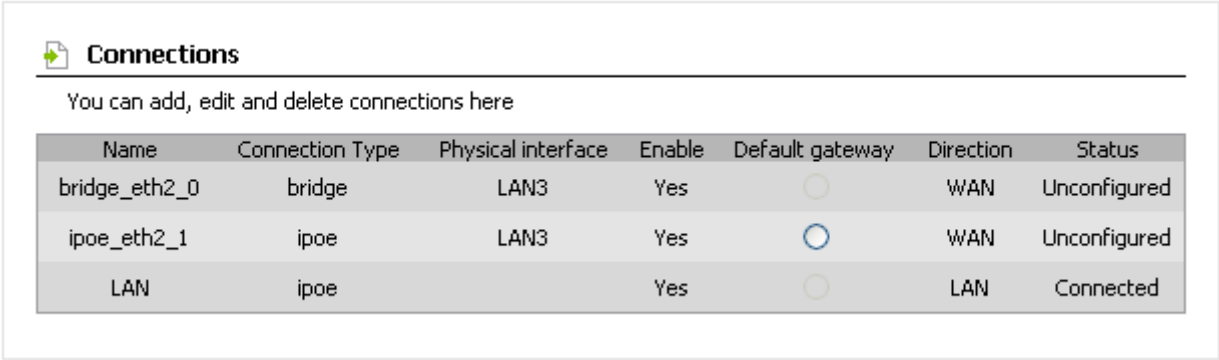


Figure 83. Two WAN connections for one physical interface.

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 IPoE type, the LAN 4 port, and the wireless interface.

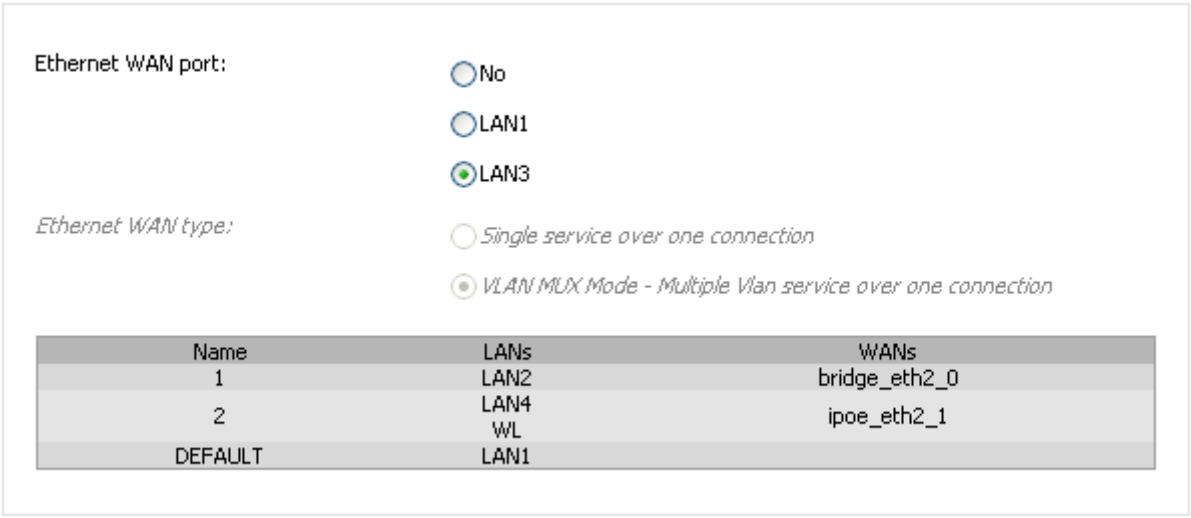


Figure 84. Groups of ports for the created WAN connections.

17. Save the router's settings.

CHAPTER 6. ABBREVIATIONS AND ACRONYMS

AES	Advanced Encryption Standard
ARP	Address Resolution Protocol
BSSID	Basic Service Set Identifier
CRC	Cyclic Redundancy Check
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
DMZ	DeMilitarized Zone
DNS	Domain Name System
DTIM	Delivery Traffic Indication Message
GMT	Greenwich Mean Time
IGMP	Internet Group Management Protocol
IP	Internet Protocol
IPoA	Internet Protocol over ATM
IPoE	Internet Protocol over Ethernet
ISP	Internet Service Provider
LAN	Local Area Network
LCC	Logical Link Control
LCP	Link Control Protocol
MAC	Media Access Control
MTU	Maximum Transmission Unit
NAT	Network Address Translation
NTP	Network Time Protocol
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
QoS	Quality of Service
RTS	Request To Send
SNMP	Simple Network Management Protocol
SSID	Service Set Identifier
TKIP	Temporal Key Integrity Protocol
UPnP	Universal Plug and Play
URL	Uniform Resource Locator
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