



DSL-2640U/NRU

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

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CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the wireless router DSL-2640U/NRU 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.
<i>Before You Begin</i>	A reference to a chapter or section of this manual.
<i>“Quick Installation Guide”</i>	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.
 <u>Information</u>	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/NRU 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/NRU 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/NRU 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/NRU 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/NRU can operate as a base station for connecting wireless devices of the standards 802.11b, 802.11g, and 802.11n¹. 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/NRU 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/NRU via the user-friendly web-based interface (the interface is available in several languages).

¹ 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 standard², 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:
 - multi-mode, ANSI T1.413 Issue 2, ITU-T G.992.1 (G.dmt) Annex A, ITU-T G.992.2 (G.lite) Annex A, ITU-T G.994.1 (G.hs).
- ADSL2:
 - ITU-T G.992.3 (G.dmt.bis) Annex A/L/M, ITU-T G.992.4 (G.lite.bis) Annex A.
- ADSL2+:
 - ITU-T G.992.5 Annex A/L/M.

WAN Connection Types:

- ADSL:
 - PPPoE
 - PPPoA
 - IPoA
 - Static IP
 - Dynamic IP
 - Bridge.

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

² The maximum speed of the wireless connection is limited by the chipset up to 65Mbps.

- Ethernet:
 - PPPoE
 - Static IP
 - Dynamic IP
 - 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
- IGMP snooping
- RIP.

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
- 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.

Operating Temperature:

- from 0 to 40 °C (from 32 to 104 °F).

Storage Temperature:

- from -20 to 65 °C (from -4 to 149 °F).

Humidity:

- from 5% to 95% non-condensing.

Product Appearance

Front Panel



Figure 1. Front panel view.

LED	Mode	Description
Power	<i>Solid green</i>	The router is powered on.
	<i>No light</i>	The router is powered off.
	<i>Solid red</i>	A malfunction of the router.
LAN 1-4	<i>Solid green</i>	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).
	<i>Blinking green</i>	The relevant LAN port is active (upstream or downstream traffic).
WLAN	<i>Solid green</i>	The router's WLAN is on.
	<i>Blinking green</i>	The WLAN interface is active (upstream or downstream traffic).
WPS	<i>Solid green</i>	A wireless device is connected to the router's WLAN (lights for several minutes).
	<i>Blinking green</i>	Attempting to add a wireless device via the WPS function.
DSL	<i>Solid green</i>	DSL has been synchronized.
	<i>Blinking green</i>	Detecting a carrier signal and synchronizing DSL.
	<i>No light</i>	No carrier signal.
Internet	<i>Solid green</i>	A WAN connection (ADSL and/or Ethernet) is established.
	<i>Blinking green</i>	The WAN interface is active (upstream or downstream traffic).
	<i>Solid red</i>	An authorization failure.
	<i>No light</i>	The router is in the bridge mode or no WAN connection (neither Ethernet nor ADSL) is established.

Back Panel

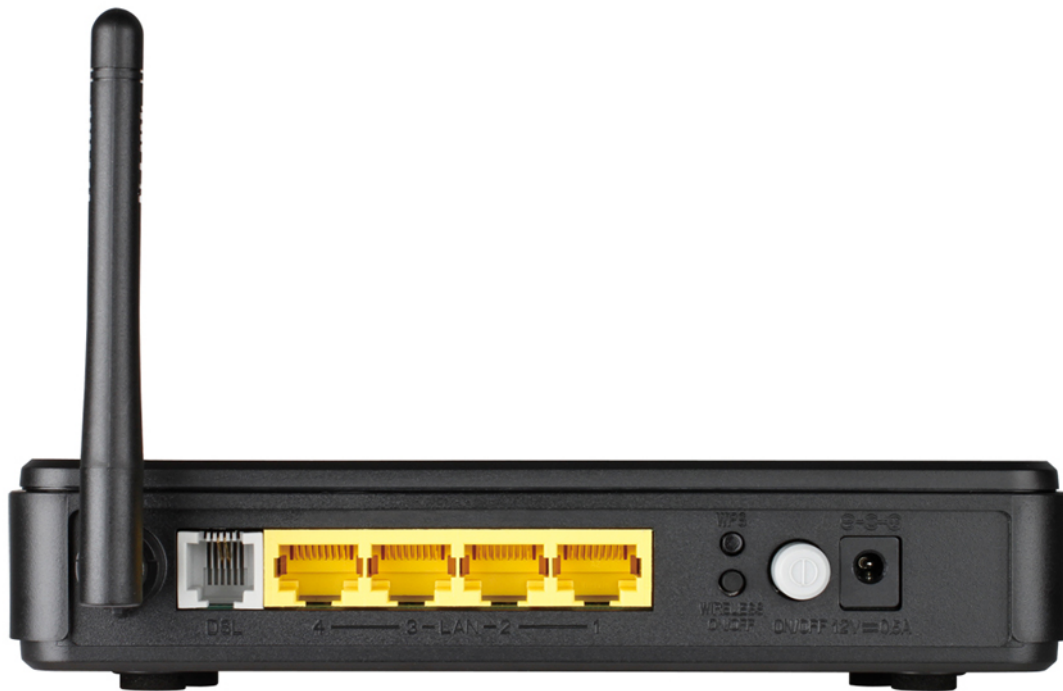



Figure 2. Back panel view.

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/NRU
- Power adapter DC 12V/0.5A
- RJ-11 telephone cable
- Straight-through Ethernet cable (CAT 5E)
- Splitter
- CD-ROM with “*User Manual*” and “*Quick Installation Guide*”
- “*Quick Installation Guide*” (brochure).

 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/NRU (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 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.

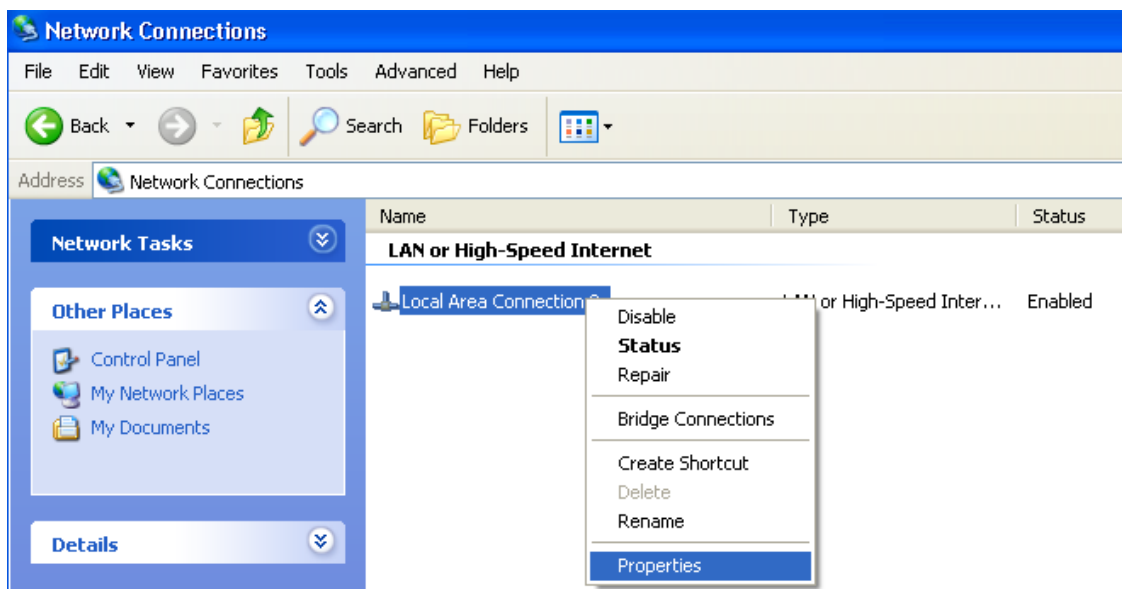


Figure 3. The **Network Connections** window.

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

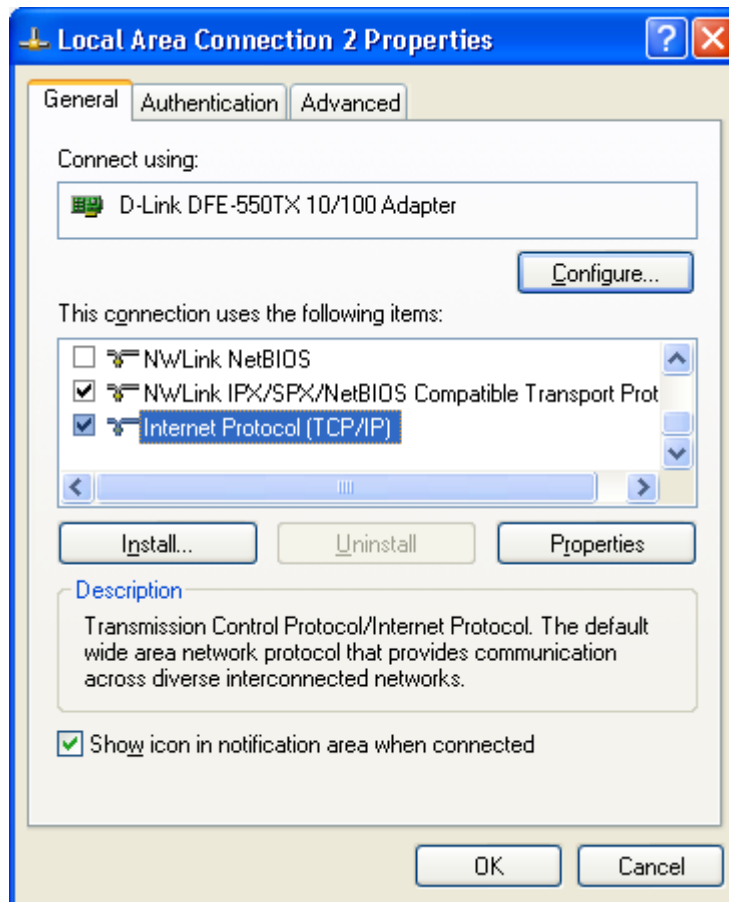


Figure 4. The **Local Area Connection Properties** window.

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

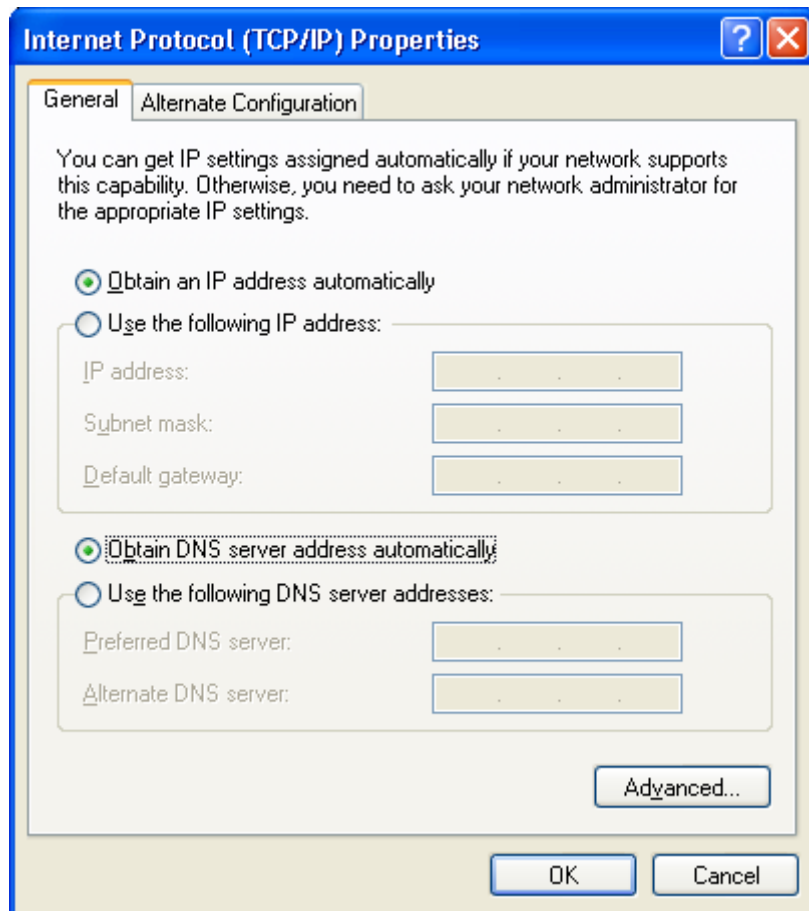


Figure 5. The **Internet Protocol (TCP/IP) Properties** window.

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.)

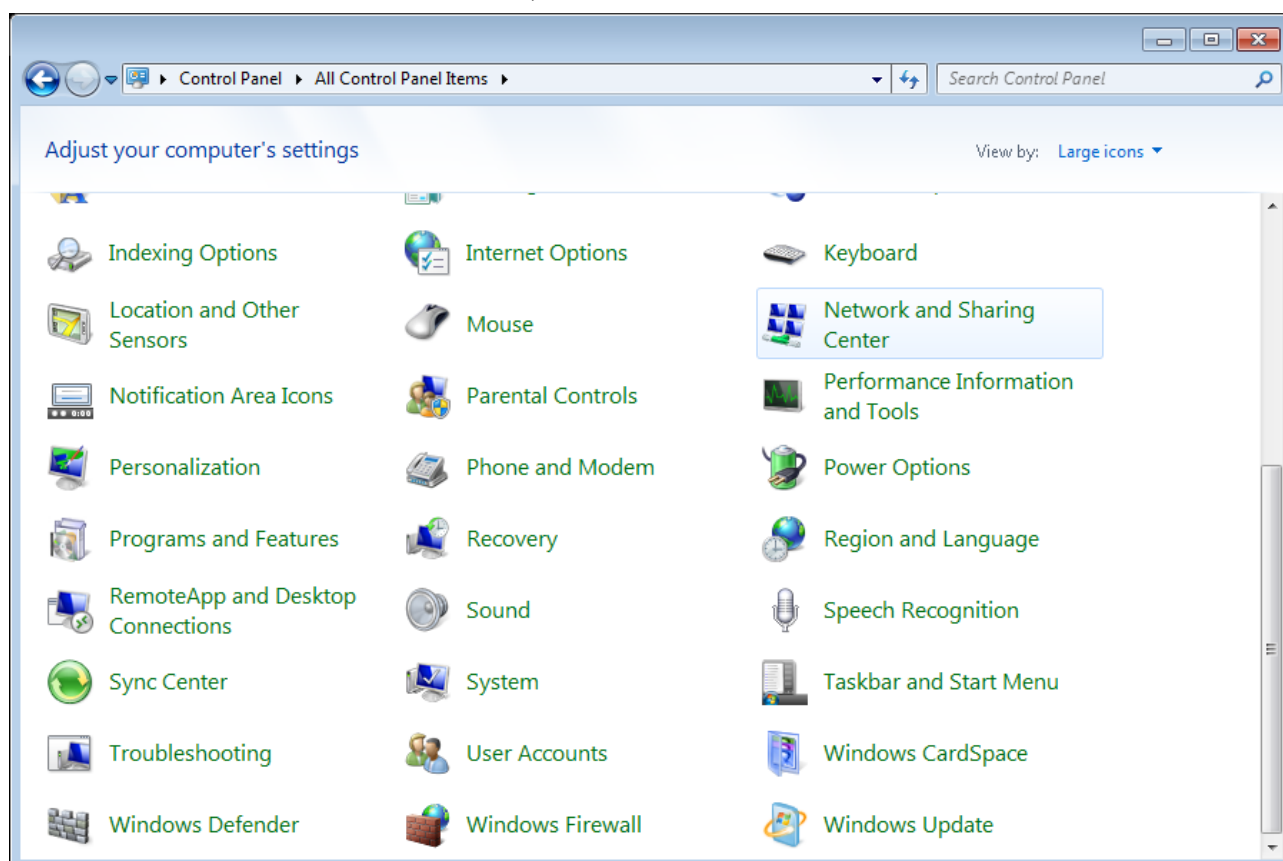


Figure 6. The **Control Panel** window.

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

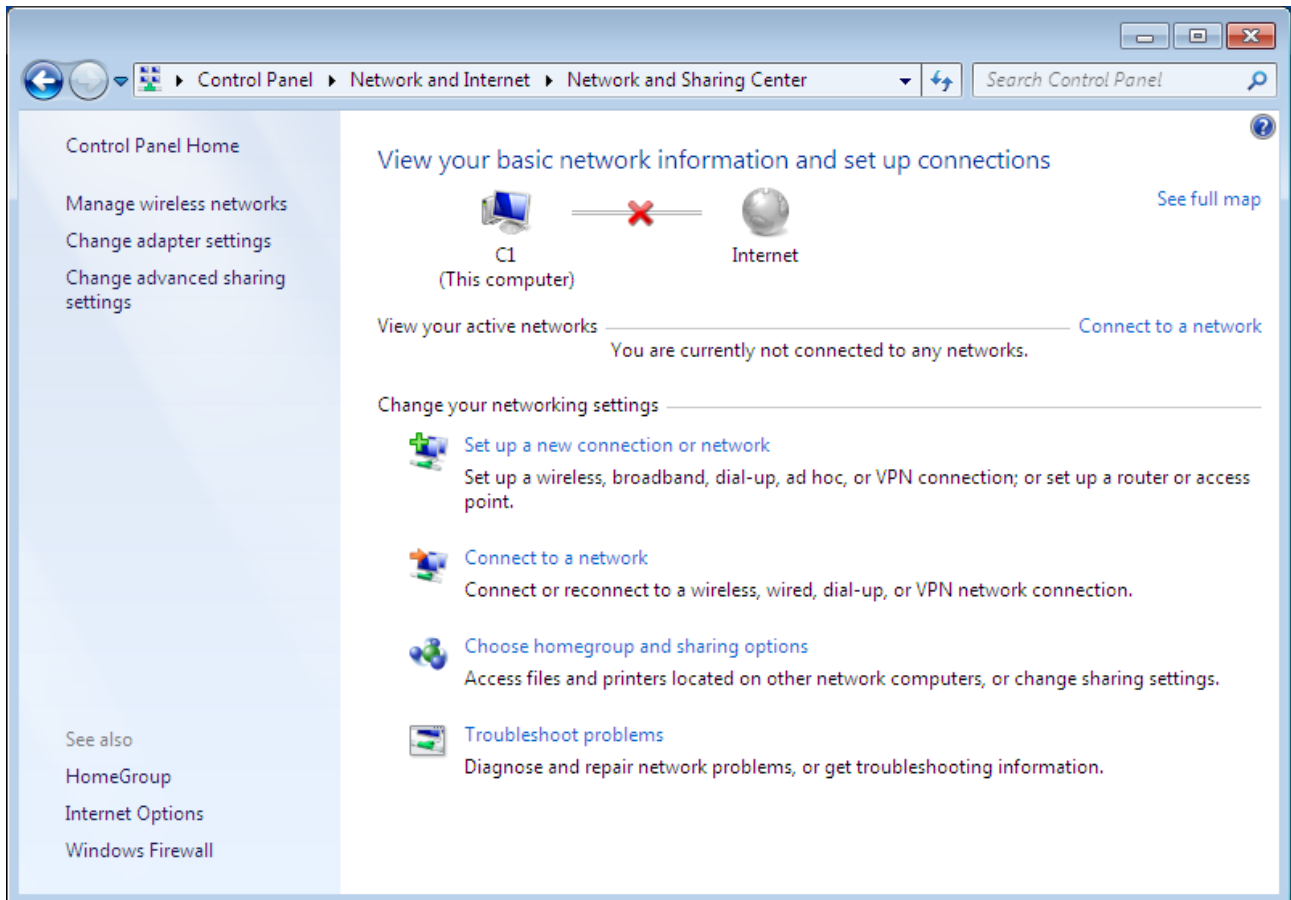


Figure 7. The **Network and Sharing Center** window.

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

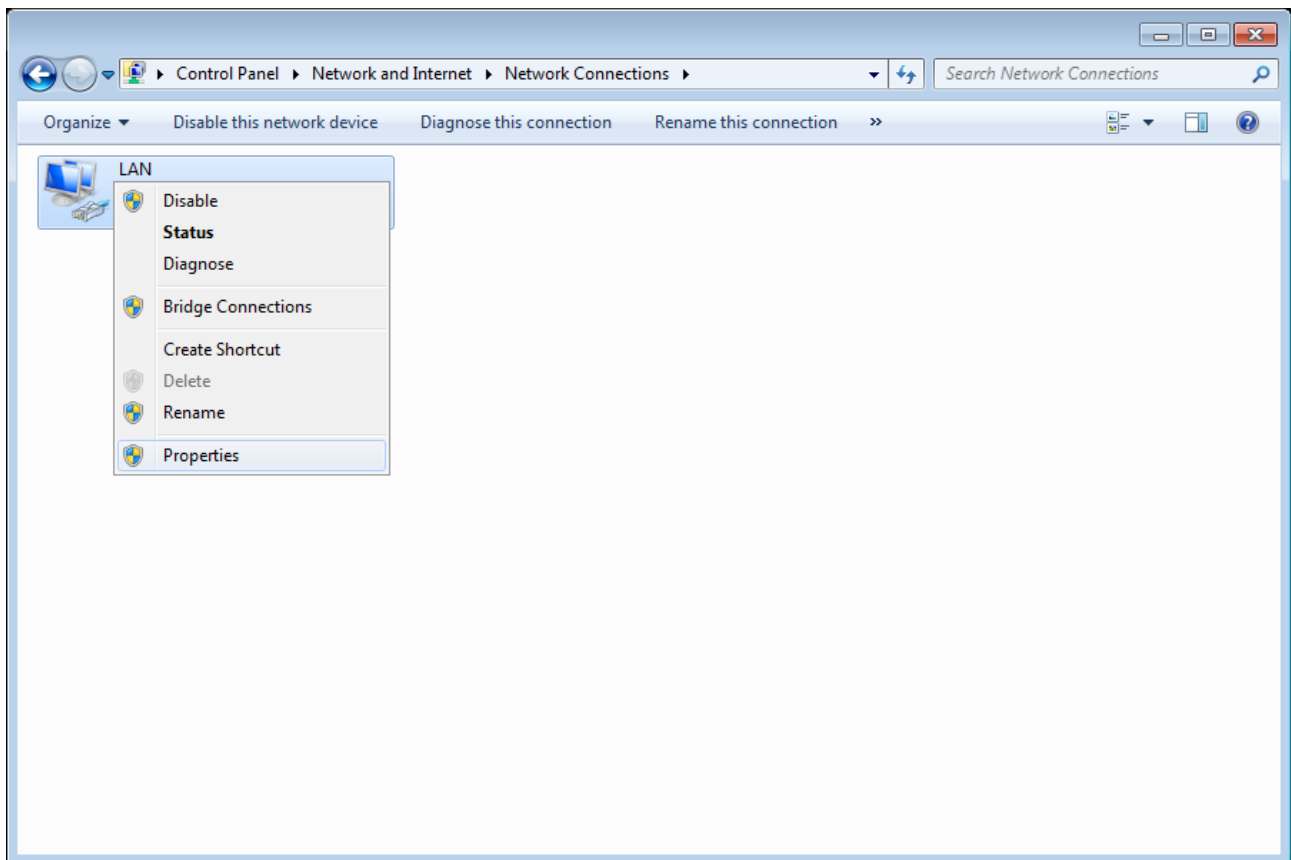


Figure 8. The **Network Connections** window.

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.

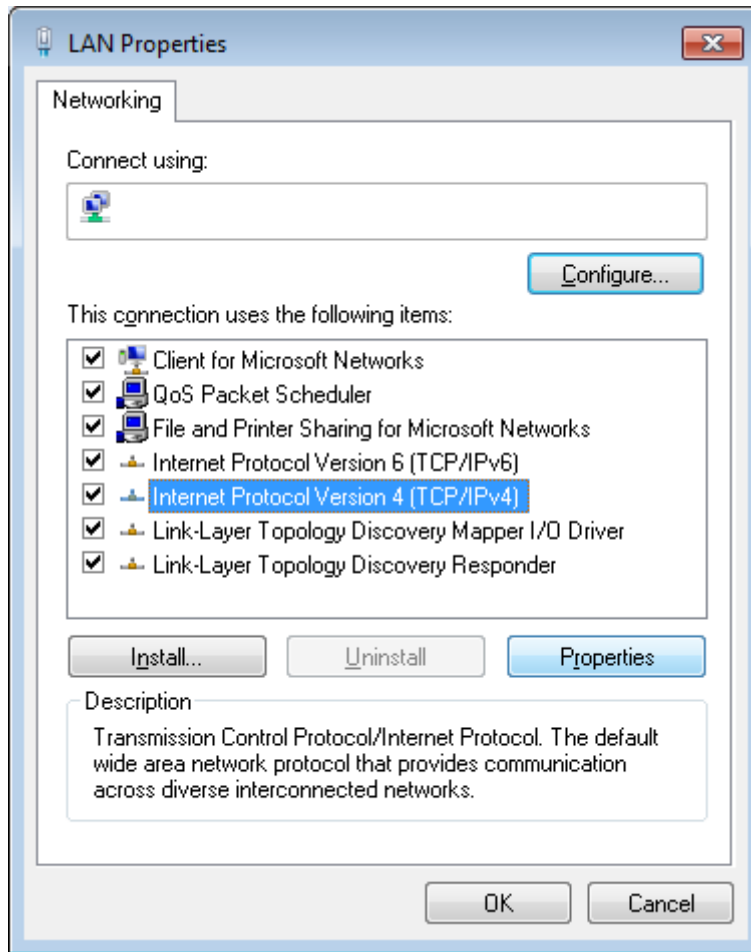


Figure 9. The **Local Area Connection Properties** window.

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

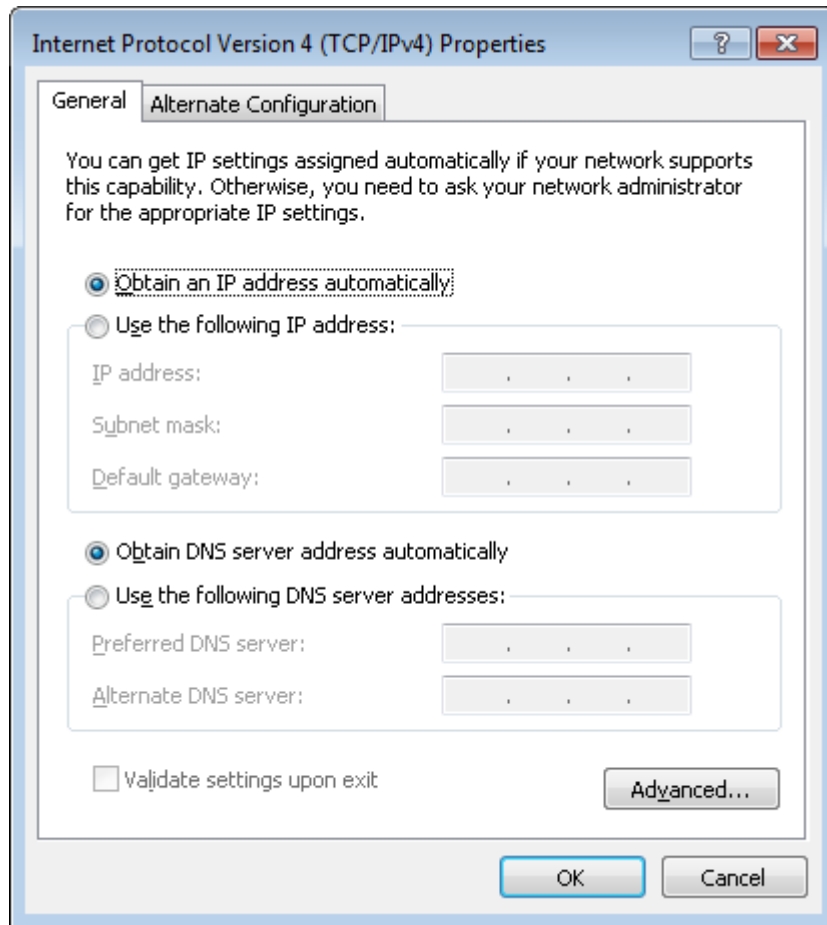


Figure 10. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window.

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 Wi-Fi: push the relevant button on the back panel of the router.
5. Turn on your PC and wait until your operating system is completely loaded.
6. Turn on your Wi-Fi adapter. As a rule, modern notebooks with built-in wireless NICs are equipped with a button or switch that turns on/off the wireless adapter (refer to your PC documents). If your PC is equipped with a pluggable wireless NIC, install the software provided with your Wi-Fi adapter.

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.

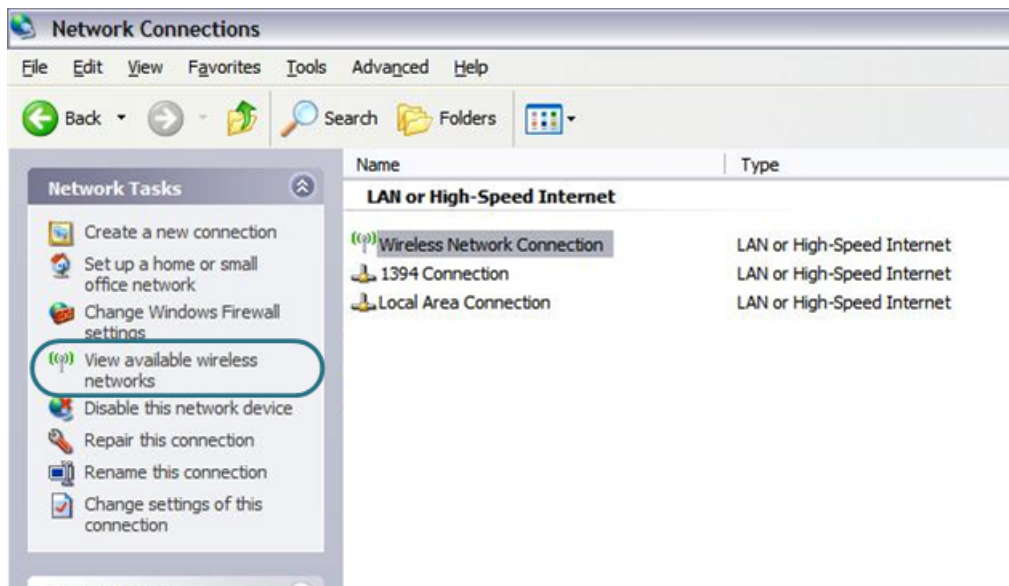


Figure 11. The **Network Connections** window.

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.)

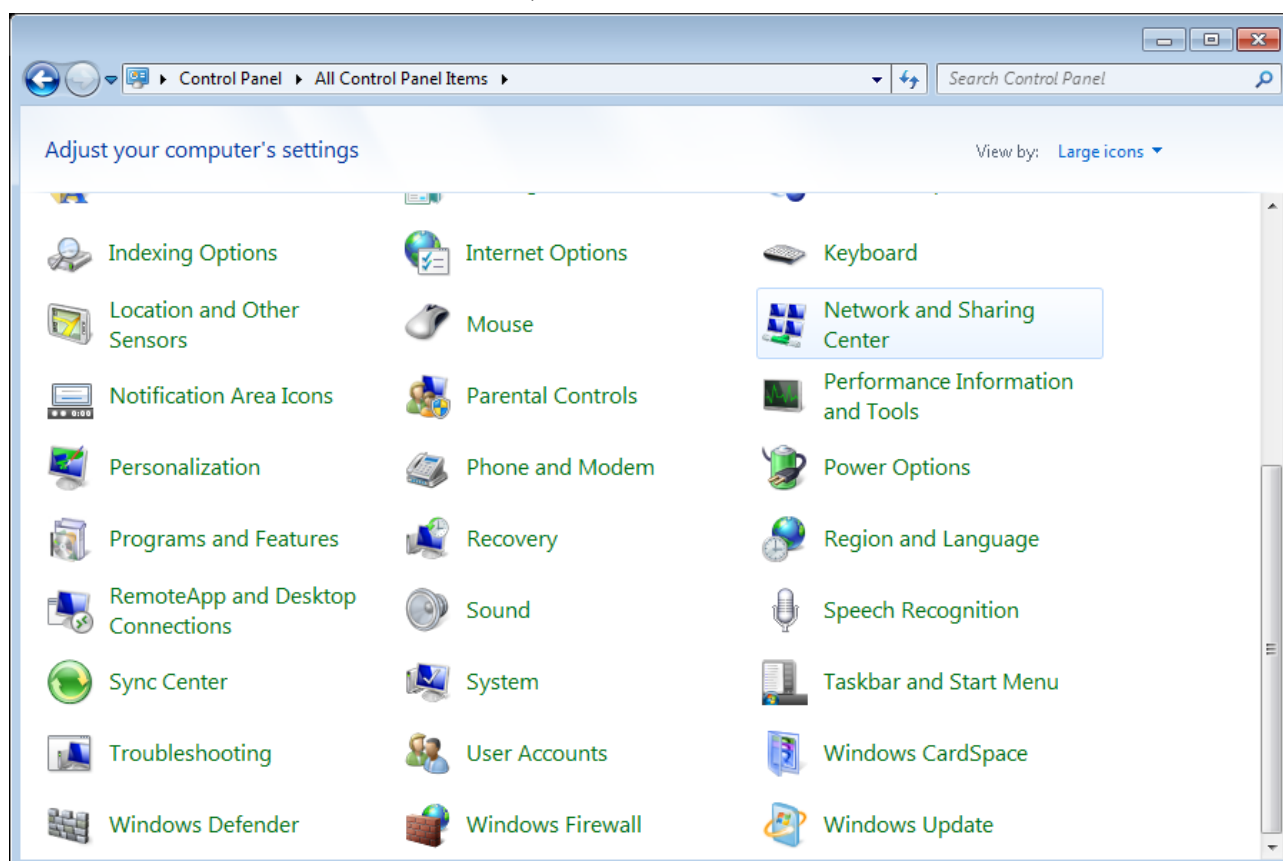


Figure 12. The **Control Panel** window.

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.

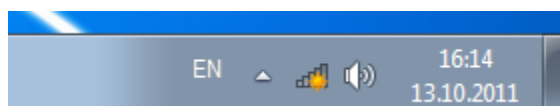


Figure 13. The notification area of the taskbar.

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

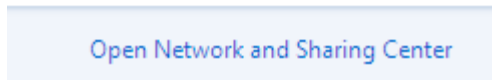
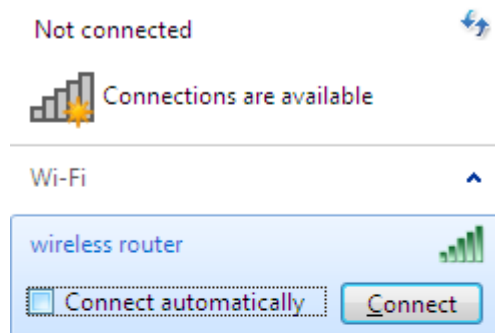


Figure 14. The list of available networks.

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/NRU 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** link.



Figure 16. The login 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.

! 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 router's quick settings page opens.

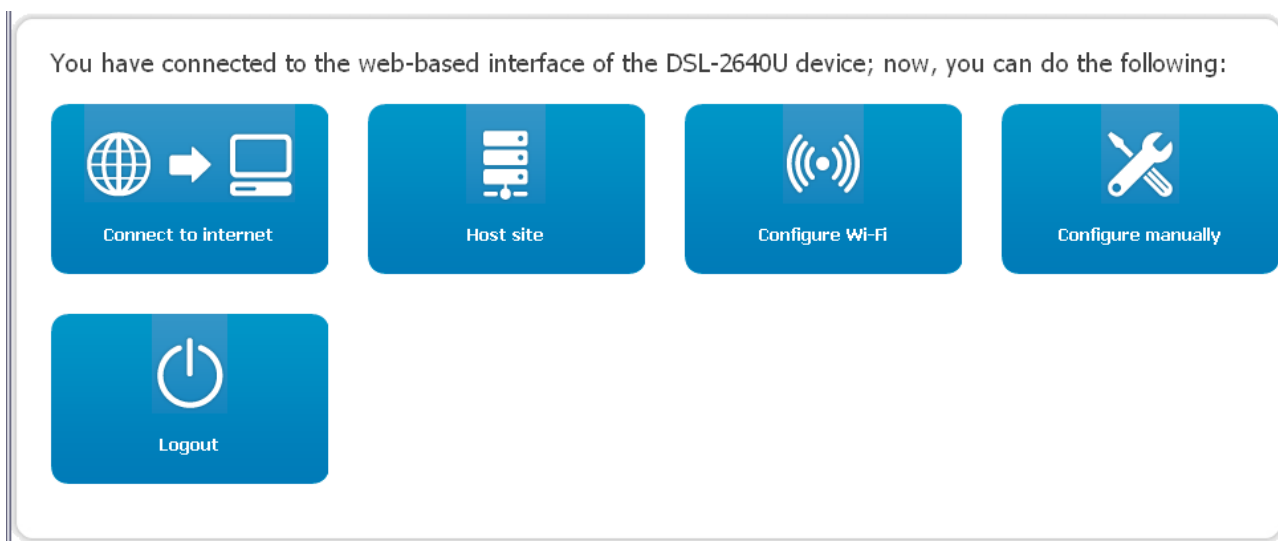


Figure 17. The quick settings page.

To configure connection to the Internet, click the **Connect to internet** button. After clicking the button, the Internet Setup Wizard opens (see the *Internet Setup Wizard* section, page 31).

To configure access from the Internet to a web server located in your LAN, click the **Host site** button. After clicking the button, the Site Setup Wizard opens (see the *Site Setup Wizard* section, page 44).

To configure the router's wireless network, click the **Configure Wi-Fi** button. After clicking the button, the Wi-Fi Setup Wizard opens (see the *Wi-Fi Setup Wizard* section, page 45).

To get back to the quick settings page from any Wizard or web-based interface menu section, left-click the D-Link logo in the top left corner of the page.

To configure all parameters of the router independently without the Wizards, click the **Configure manually** button.

After clicking the button the system statistics page opens. The page displays general information on the router and its software (the version and the date of the firmware, the IP address of the device, the name of the WLAN, etc.), and data on the DSL connection state.

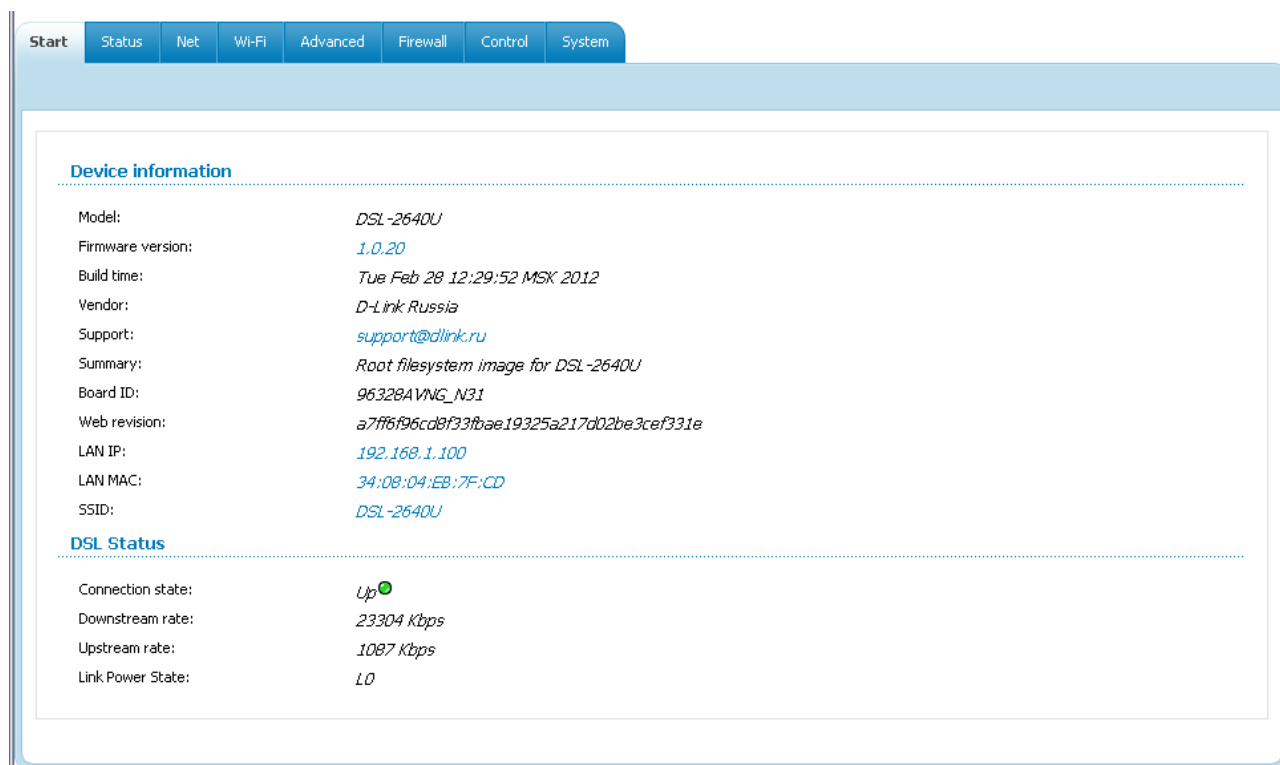


Figure 18. The system statistics page.

From the system statistics page you can proceed to the page for upgrading the router's firmware, contact the technical support group, and proceed to the settings of the local interface or the device's WLAN.

To upgrade the firmware of the router, left-click the current firmware version (the right column of the **Firmware version** line). After clicking the line, the **System / Firmware upgrade** page opens (see the *Firmware Upgrade* section, page 110).

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

To edit the router's local interface parameters, left-click the IP or MAC address of the local interface (the right column of the **LAN IP** line or **LAN MAC** line correspondingly). After clicking the line, the page for editing the LAN interface opens (see the *LAN* section, page 66).

To configure the router's WLAN parameters, left-click the SSID of the WLAN (the right column of the **SSID** line). After clicking the line, the **Wi-Fi / Basic settings** page opens (see the *Basic Settings* section, page 69).

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.

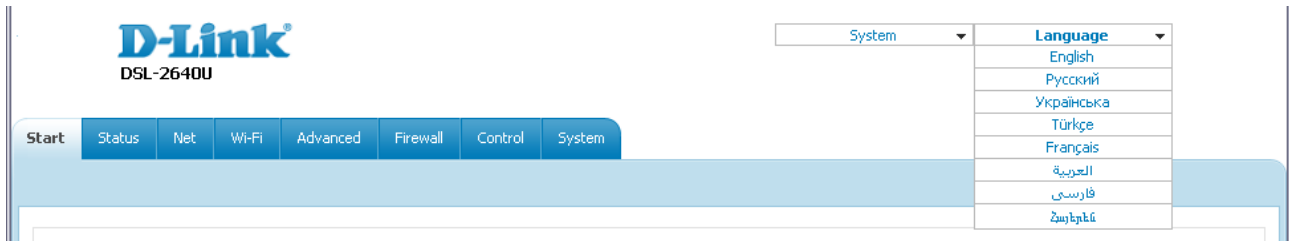


Figure 19. Changing the language of the web-based interface.

After selecting the language, the notification on unsaved changes will be displayed. Click the **Save** button to save the current language of the web-based interface as the default language.

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.

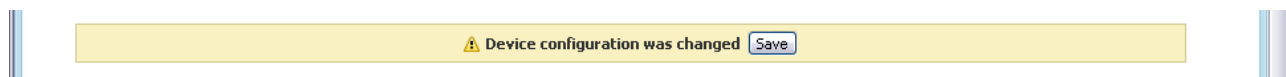


Figure 20. The notification on unsaved changes.

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

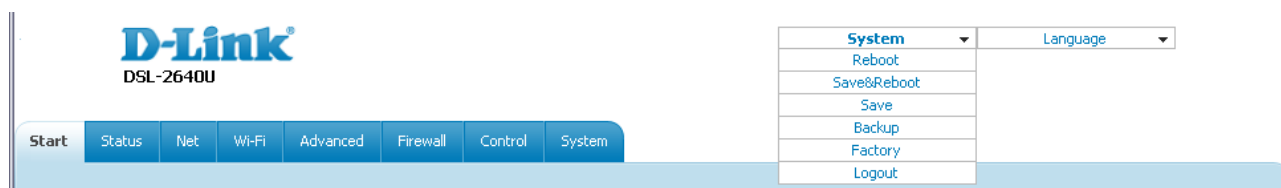


Figure 21. The top-page menu.

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

Wizards

Internet Setup Wizard

To configure connection to the Internet, click the **Connect to internet** button.

Internet connection wizard:

Get necessary information about Internet access type from Your provider.
You can [add new connection](#) based on this information.

You can go back from any step of the wizard [to the main page](#) by clicking on D-Link logo.

Figure 22. Configuring connection to the Internet.

To create a new WAN connection, click the **add new connection** link.

Internet connection wizard:

Select connection type:

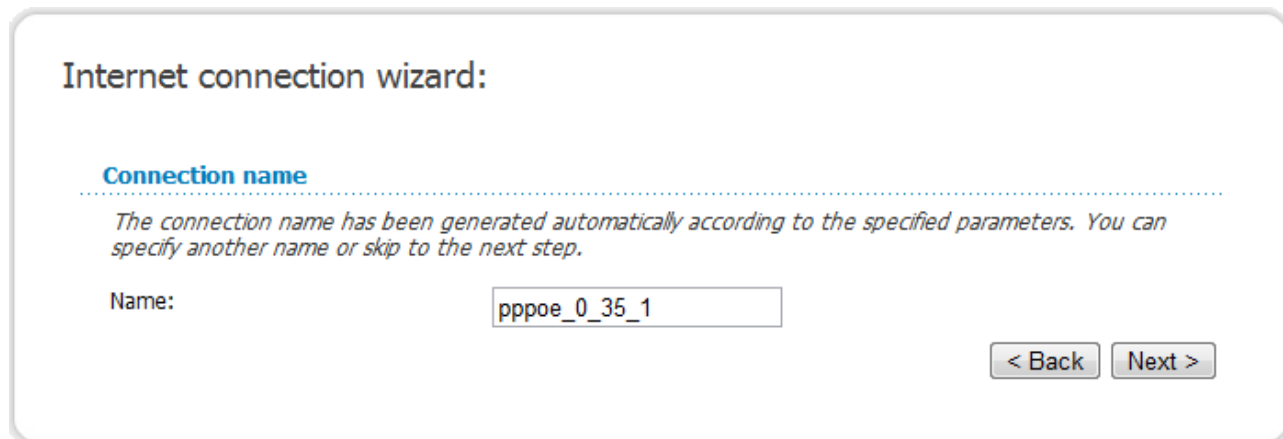
- PPPoE**
A connection of this type requires a username and password. This type is used for connection via Ethernet or via DSL.
- PPPoA**
A connection of this type is an alternative to the PPPoE type. This type is used by some ISPs for connection via DSL. A connection of this type requires a username and password.
- IPoA**
A connection of this type allows using a fixed IP address, provided by your ISP. This type is used by some ISPs for connection via DSL.
- Static IP**
A connection of this type allows using a fixed IP address, provided by your ISP.
- Dynamic IP**
A connection of this type allows obtaining an IP address automatically from your ISP.
- Bridge**
A connection of this type is a transparent bridge. This type is often used for connection via DSL in couple with a PPPoE connection configured on your PC.

Next >

Figure 23. The page for selecting the connection type.

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

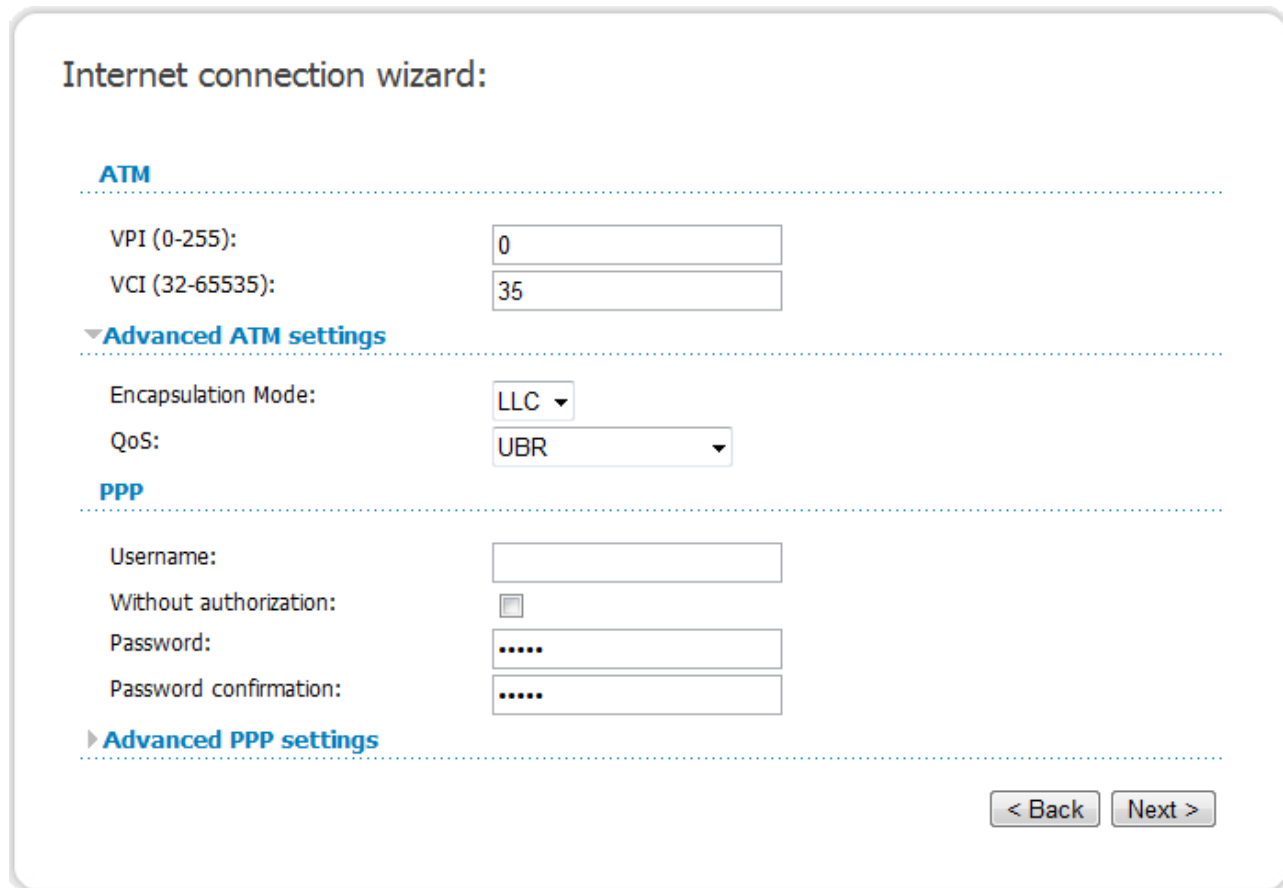
PPPoE or PPPoA Connection



The screenshot shows the 'Internet connection wizard' interface. At the top, it says 'Internet connection wizard:'. Below that, there is a section titled 'Connection name' with a dotted line separator. A note reads: 'The connection name has been generated automatically according to the specified parameters. You can specify another name or skip to the next step.' There is a 'Name:' label followed by a text input field containing 'pppoe_0_35_1'. To the right of the input field are two buttons: '< Back' and 'Next >'.

Figure 24. Configuring PPPoE WAN connection.

In the **Name** field, specify a name for the connection for easier identification and click the **Next** button.



The screenshot shows the 'Internet connection wizard' interface for PPPoA configuration. It starts with 'Internet connection wizard:'. Below is a section titled 'ATM' with a dotted line separator. It contains two input fields: 'VPI (0-255):' with the value '0' and 'VCI (32-65535):' with the value '35'. Below these is a section titled 'Advanced ATM settings' with a dropdown arrow. It contains two dropdown menus: 'Encapsulation Mode:' set to 'LLC' and 'QoS:' set to 'UBR'. Below that is a section titled 'PPP' with a dotted line separator. It contains four input fields: 'Username:' (empty), 'Without authorization:' (checkbox, unchecked), 'Password:' (masked with '*****'), and 'Password confirmation:' (masked with '*****'). At the bottom right are two buttons: '< Back' and 'Next >'.

Figure 25. Configuring PPPoA WAN connection.

In the **VPI** field, specify the VPI. In the **VCI** field, specify the VCI.

From the **Encapsulation Mode** drop-down list, select a method of encapsulation.

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

If authorization is not required, select the **Without authorization** checkbox.

If needed, specify additional settings for your PPPoE or PPPoA WAN connection.

Internet connection wizard:

ATM

VPI (0-255):

VCI (32-65535):

▶ **Advanced ATM settings**

PPP

Username:

Without authorization:

Password:

Password confirmation:

▼ **Advanced PPP settings**

Service name:

Authentication algorithm:

MTU:

Keep Alive:

LCP interval (sec):

LCP fails:

Dial on demand:

PPP IP extension:

Use Static IP Address:

PPP debug:

PPPoE pass through:

Figure 26. Configuring PPPoE WAN connection.

Parameter	Description
Service name	<i>Displayed for the PPPoE type only.</i> The name of the PPPoE authentication server.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the AUTO value.
MTU	The maximum size of units transmitted by the interface.

Parameter	Description
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the LCP interval and LCP fails fields are available. Specify the required values.
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the Maximum idle time field, specify a period of inactivity (in seconds) after which the connection should be terminated.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
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	<i>Displayed for the PPPoE type only.</i> 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.

Click the **Next** button to continue.

If needed, change the connection settings available in the **Miscellaneous** section.

Internet connection wizard:

Miscellaneous

Enable IGMP Multicast:

NAT:

firewall:

Figure 27. Configuring PPPoE WAN connection.

Parameter	Description
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.

Click the **Next** button to continue.

If needed, change the connection settings available in the **VLAN** section.

Internet connection wizard:

VLAN

Allow to create several connections assigned to this port:

Use VLAN:

Figure 28. Configuring PPPoE WAN connection.

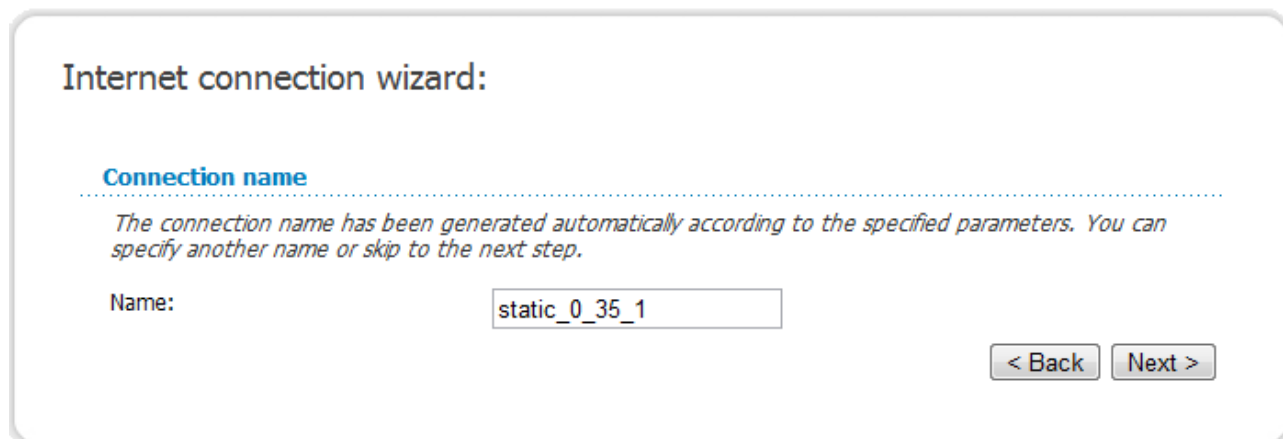
Parameter	Description
Allow to create several connections assigned to this port	Select the checkbox to allow the router to use several untagged connections.
Use VLAN	Select the checkbox to allow the router to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when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

Click the **Next** button to continue.

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

After clicking the **Save** button, the quick settings page opens.

IPoA or Static IP Connection



Internet connection wizard:

Connection name

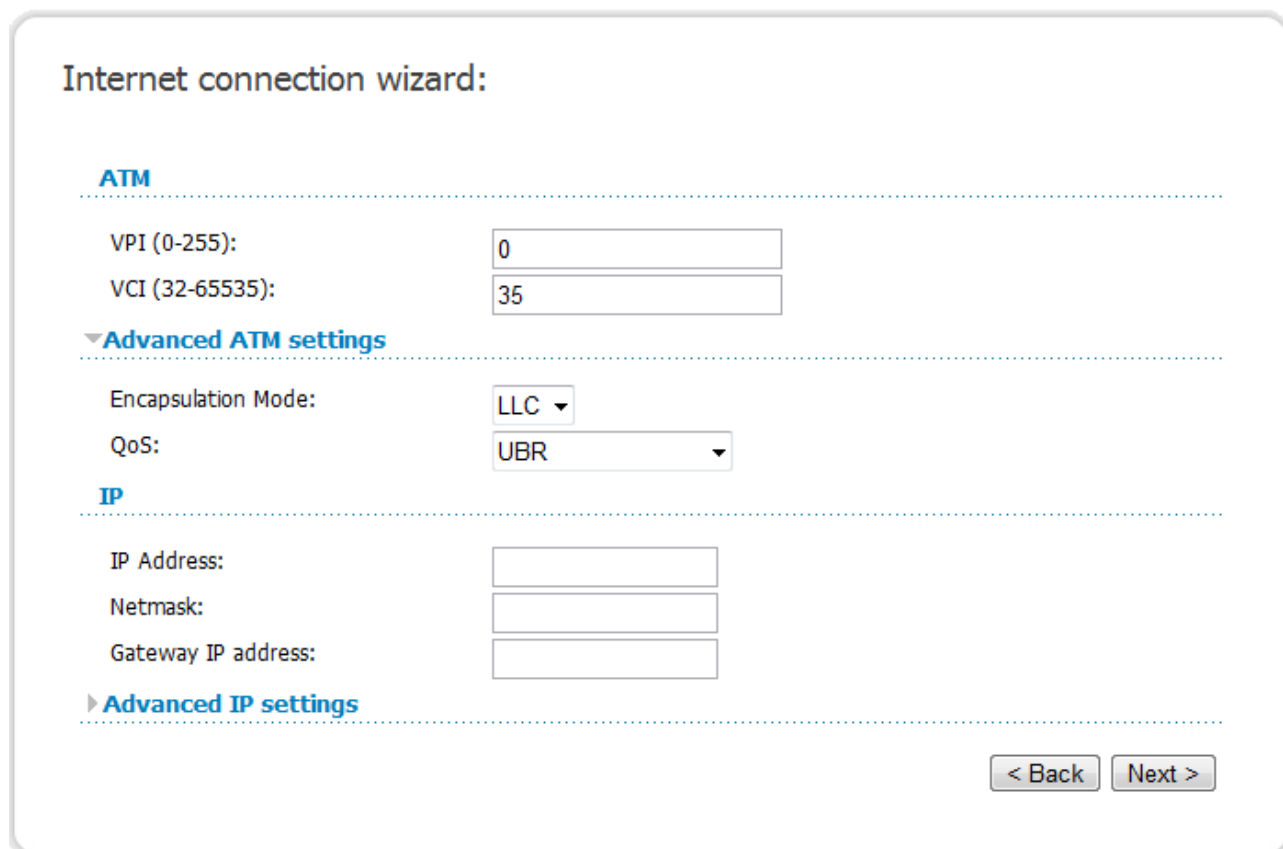
The connection name has been generated automatically according to the specified parameters. You can specify another name or skip to the next step.

Name:

< Back Next >

Figure 29. Configuring Static IP WAN connection.

In the **Name** field, specify a name for the connection for easier identification and click the **Next** button.



Internet connection wizard:

ATM

VPI (0-255):

VCI (32-65535):

▼ **Advanced ATM settings**

Encapsulation Mode:

QoS:

IP

IP Address:

Netmask:

Gateway IP address:

▶ **Advanced IP settings**

< Back Next >

Figure 30. Configuring Static IP WAN connection.

In the **VPI** field, specify the VPI. In the **VCI** field, specify the VCI.

From the **Encapsulation Mode** drop-down list, select a method of encapsulation.

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

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

Click the **Next** button to continue.

If needed, change the connection settings available in the **Miscellaneous** section.

Internet connection wizard:

Miscellaneous

Enable IGMP Multicast:

NAT:

firewall:

< Back Next >

Figure 31. Configuring Static IP WAN connection.

Parameter	Description
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.

Click the **Next** button to continue.

If needed, change the connection settings available in the **VLAN** section.

Internet connection wizard:

VLAN

Allow to create several connections assigned to this port:

Use VLAN:

< Back Next >

Figure 32. Configuring Static IP WAN connection.

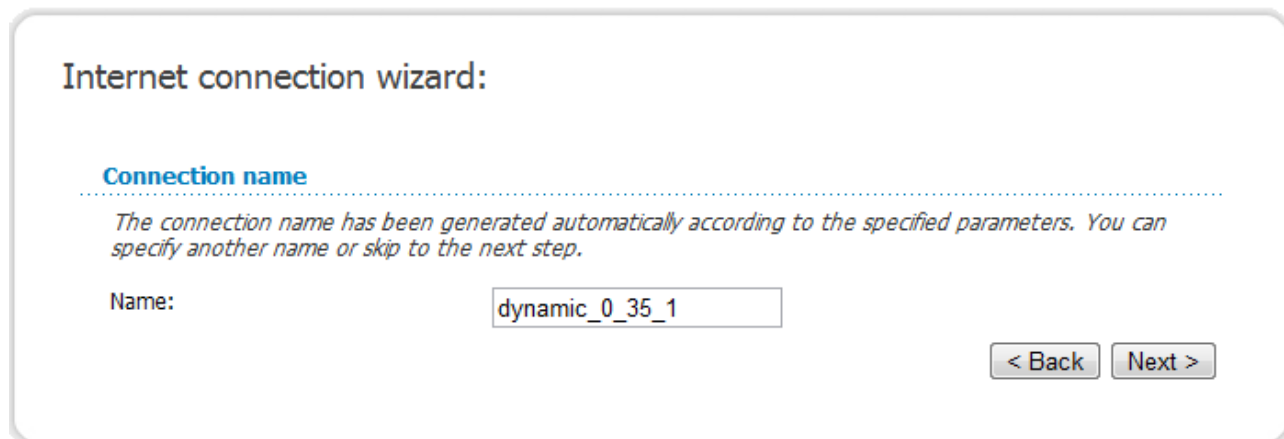
Parameter	Description
Allow to create several connections assigned to this port	Select the checkbox to allow the router to use several untagged connections.
Use VLAN	Select the checkbox to allow the router to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when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

Click the **Next** button to continue.

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

After clicking the **Save** button, the quick settings page opens.

Dynamic IP Connection



Internet connection wizard:

Connection name

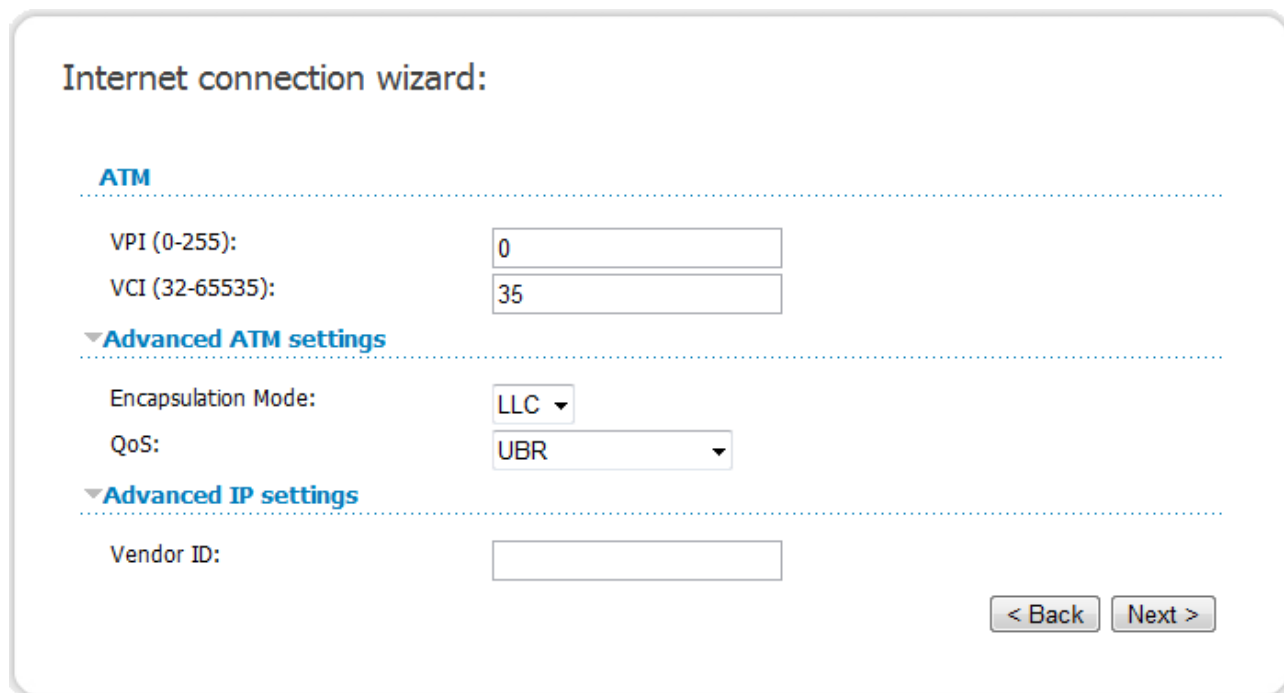
The connection name has been generated automatically according to the specified parameters. You can specify another name or skip to the next step.

Name:

< Back Next >

Figure 33. Configuring Dynamic IP WAN connection.

In the **Name** field, specify a name for the connection for easier identification and click the **Next** button.



Internet connection wizard:

ATM

VPI (0-255):

VCI (32-65535):

▼ **Advanced ATM settings**

Encapsulation Mode:

QoS:

▼ **Advanced IP settings**

Vendor ID:

< Back Next >

Figure 34. Configuring Dynamic IP WAN connection.

In the **VPI**, specify the VPI. In the **VCI** field, specify the VCI.

From the **Encapsulation Mode** drop-down list, select a method of encapsulation.

If your ISP has provided its identifier, fill in the **Vendor ID** field.

Click the **Next** button to continue.

If needed, change the connection settings available in the **Miscellaneous** section.

Internet connection wizard:

Miscellaneous

Enable IGMP Multicast:

NAT:

firewall:

< Back Next >

Figure 35. Configuring Dynamic IP WAN connection.

Parameter	Description
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.

Click the **Next** button to continue.

If needed, change the connection settings available in the **VLAN** section.

Internet connection wizard:

VLAN

Allow to create several connections assigned to this port:

Use VLAN:

< Back Next >

Figure 36. Configuring Dynamic IP WAN connection.

Parameter	Description
Allow to create several connections assigned to this port	Select the checkbox to allow the router to use several untagged connections.

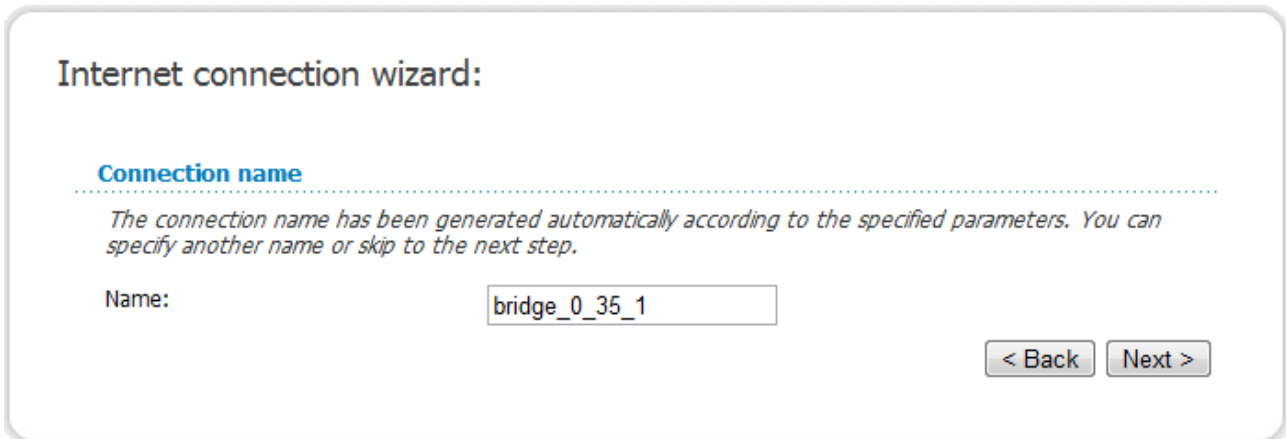
Parameter	Description
Use VLAN	Select the checkbox to allow the router to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when the Use VLAN checkbox is selected.
VLAN priority	A priority tag for the type of traffic transmitted. The field is displayed when the Use VLAN checkbox is selected.

Click the **Next** button to continue.

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

After clicking the **Save** button, the quick settings page opens.

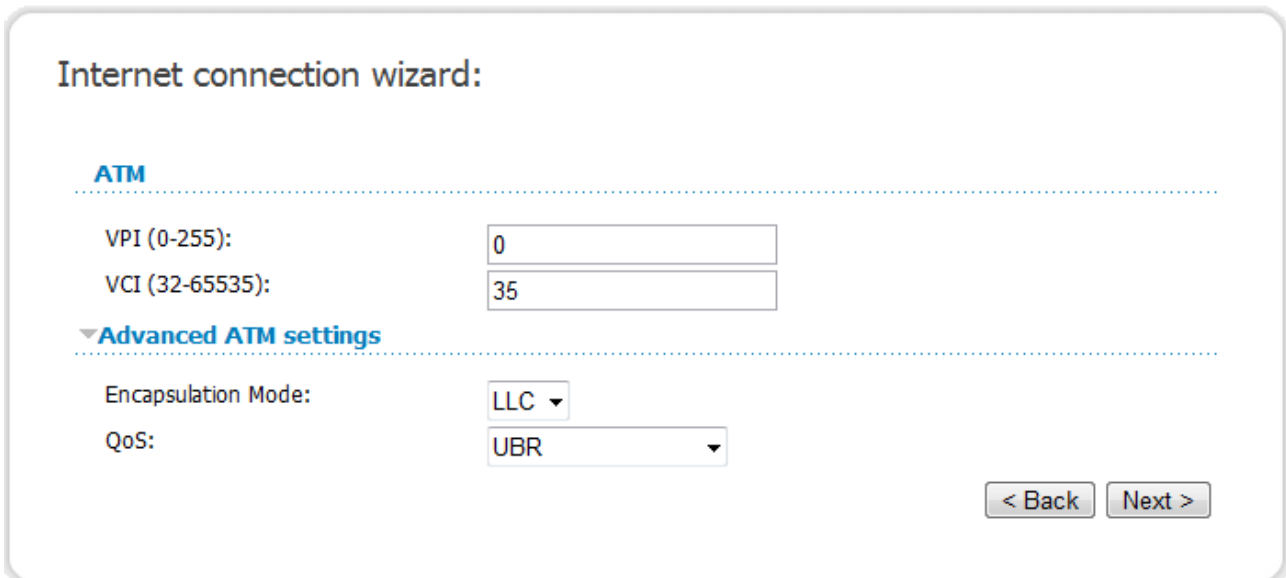
Bridge Connection



The screenshot shows the 'Internet connection wizard' for a Bridge WAN connection. The title is 'Internet connection wizard:'. Below it, the section is titled 'Connection name'. A note states: 'The connection name has been generated automatically according to the specified parameters. You can specify another name or skip to the next step.' There is a text input field labeled 'Name:' containing the text 'bridge_0_35_1'. At the bottom right, there are two buttons: '< Back' and 'Next >'.

Figure 37. Configuring Bridge WAN connection.

In the **Name** field, specify a name for the connection for easier identification and click the **Next** button.



The screenshot shows the 'Internet connection wizard' for a Bridge WAN connection, specifically the ATM configuration step. The title is 'Internet connection wizard:'. The section is titled 'ATM'. There are two text input fields: 'VPI (0-255):' with the value '0' and 'VCI (32-65535):' with the value '35'. Below these is a section titled 'Advanced ATM settings' with a dropdown arrow. There are two dropdown menus: 'Encapsulation Mode:' set to 'LLC' and 'QoS:' set to 'UBR'. At the bottom right, there are two buttons: '< Back' and 'Next >'.

Figure 38. Configuring Bridge WAN connection.

In the **VPI** field, specify the VPI. In the **VCI** field, specify the VCI.

From the **Encapsulation Mode** drop-down list, select a method of encapsulation.

Click the **Next** button to continue.

If needed, change the connection settings available in the **VLAN** section.

Internet connection wizard:

VLAN

Allow to create several connections assigned to this port:

Use VLAN:

< Back Next >

Figure 39. Configuring Bridge WAN connection.

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

Click the **Next** button to continue.

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

After clicking the **Save** button, the quick settings page opens.

Site Setup Wizard

To create a virtual server for redirecting incoming Internet traffic to a specified IP address in the LAN, click the **Host site** button.

Figure 40. The page for adding a virtual server.

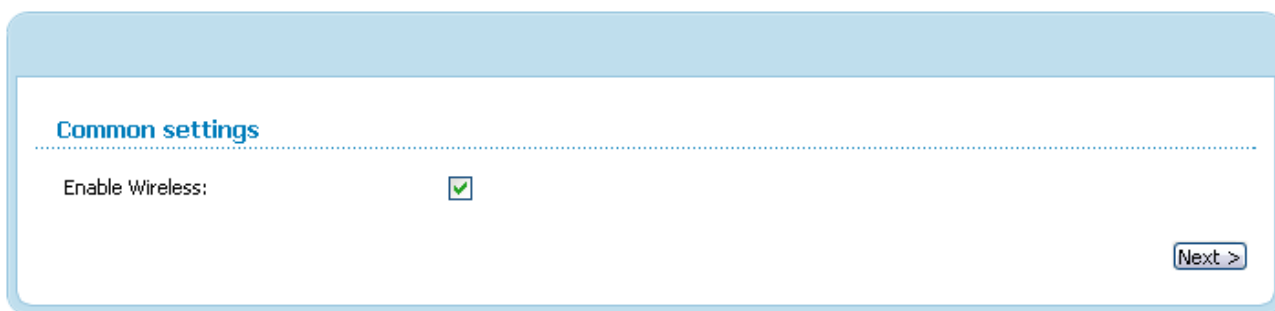
On the opened page, you can specify the following parameters:

Parameter	Description
Name	Enter a name for the virtual server for easier identification. You can specify any name.
Interface	Select a WAN connection to which this virtual server will be assigned.
Private IP	Enter the IP address of the server from the local area network. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list located to the right of the Private IP field (the field will be filled in automatically).
Remote IP	Enter the IP address of the server from the external network.

When needed settings are configured, click the **Save** button. After that you get to the quick settings page.

Wi-Fi Setup Wizard

To specify all needed settings for your wireless network, click the **Configure Wi-Fi** button.



Common settings

Enable Wireless:

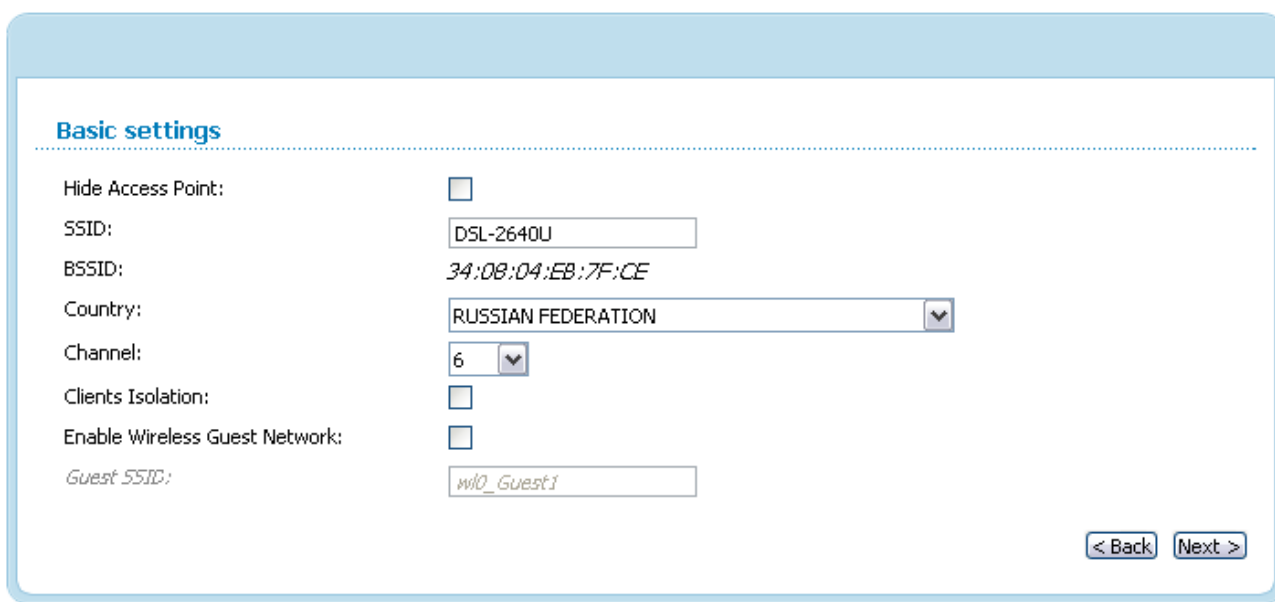
Next >

Figure 41. The page for enabling/disabling the wireless LAN.

On the opened page, in the **Common settings** section, select the **Enable Wireless** checkbox (if it was deselected before) to enable Wi-Fi connections.

Click the **Next** button to continue.

In the **Basic settings** section, you can change the basic parameters of your router's WLAN: “hide” your wireless network (**Hide Access Point**), specify a name for the network (**SSID**), select your location (**Country**) and the wireless channel number (**Channel**), isolate users of your WLAN from each other (**Clients Isolation**), and enable the guest part of your WLAN (**Enable Wireless Guest Network**) and change its name (**Guest SSID**).



Basic settings

Hide Access Point:

SSID: DSL-2640U

BSSID: 34:08:04:EB:7F:CE

Country: RUSSIAN FEDERATION

Channel: 6

Clients Isolation:

Enable Wireless Guest Network:

Guest SSID: wi0_Guest1

< Back Next >

Figure 42. Basic settings of the wireless LAN.

Click the **Next** button to continue.

On the next page, you can modify security settings of the WLAN. By default, the **Open** network authentication type with no encryption is specified for the WLAN.

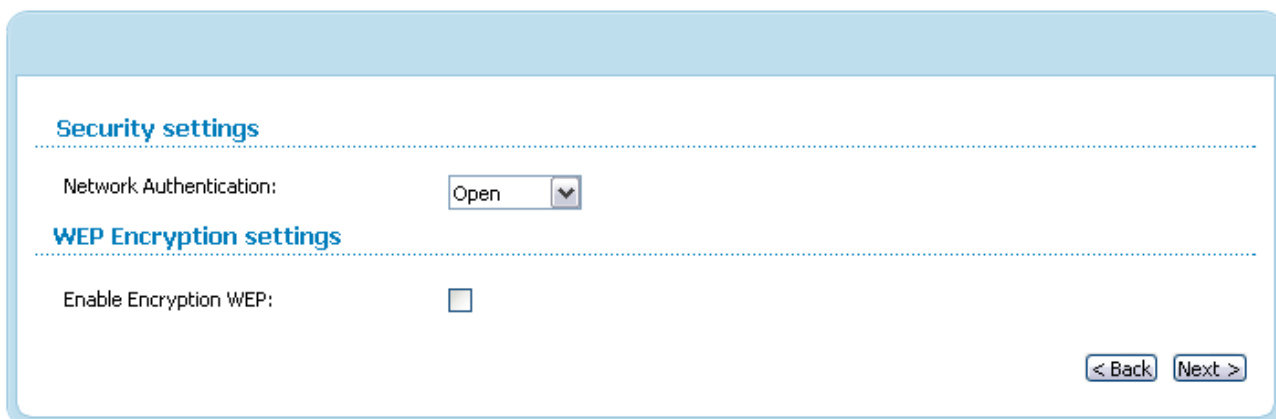


Figure 43. The default security settings.

! 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:

The screenshot shows a configuration page with two main sections. The first section, 'Security settings', contains a 'Network Authentication' dropdown menu with 'Open' selected. The second section, 'WEP Encryption settings', contains three items: 'Enable Encryption WEP' with a checked checkbox, 'Encryption Key WEP as HEX' with an unchecked checkbox, and 'Encryption Key WEP (1)' with an empty text input field. At the bottom right, there are two buttons: '< Back' and 'Next >'.

Figure 44. 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 45. 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.

Click the **Next** button to continue.

When all the steps of configuring the WLAN are completed, the specified settings are displayed on the page. Check their correctness and then click the **Save** button. After that you get to the quick settings page.

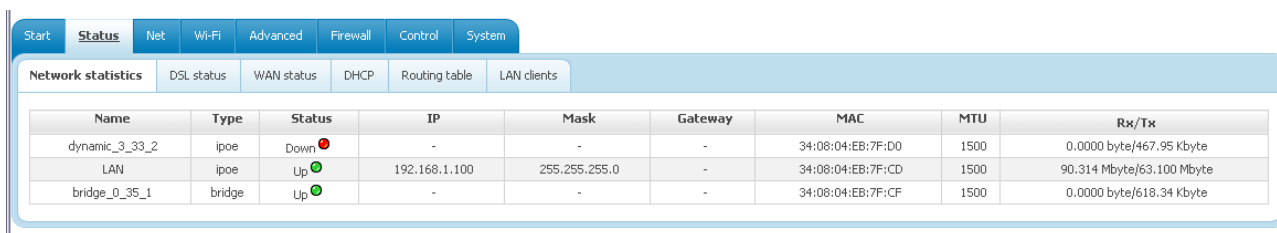
Status

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

- network statistics
- DSL connection status
- active WAN connections
- IP addresses leased by the DHCP server
- the routing table
- data on devices connected to the router's network and its web-based interface.

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).



Name	Type	Status	IP	Mask	Gateway	MAC	MTU	Rx/Tx
dynamic_3_33_2	ipoe	Down	-	-	-	34:08:04:EB:7F:D0	1500	0.0000 byte/467.95 Kbyte
LAN	ipoe	Up	192.168.1.100	255.255.255.0	-	34:08:04:EB:7F:CD	1500	90.314 Mbyte/63.100 Mbyte
bridge_0_35_1	bridge	Up	-	-	-	34:08:04:EB:7F:CF	1500	0.0000 byte/618.34 Kbyte

Figure 46. 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.

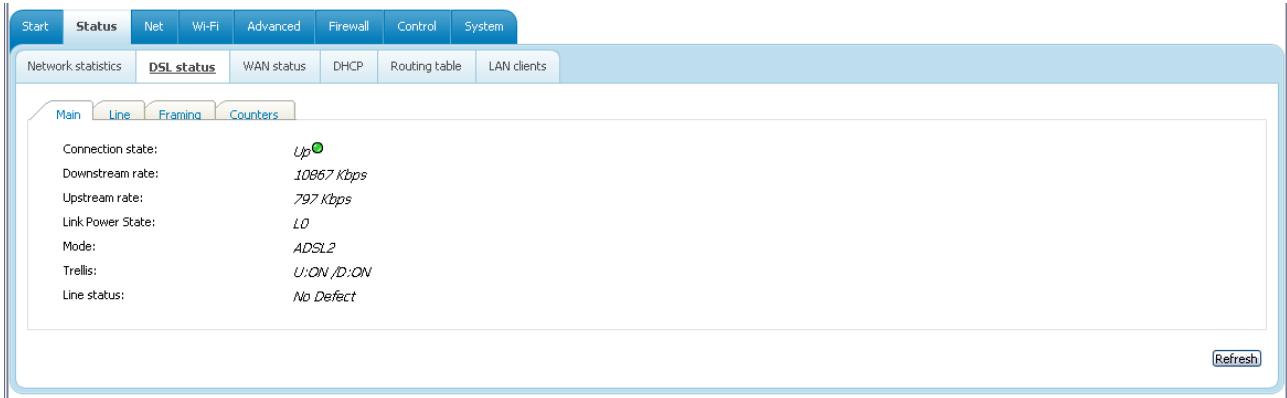


Figure 47. The **Status / DSL status** page.

WAN Status

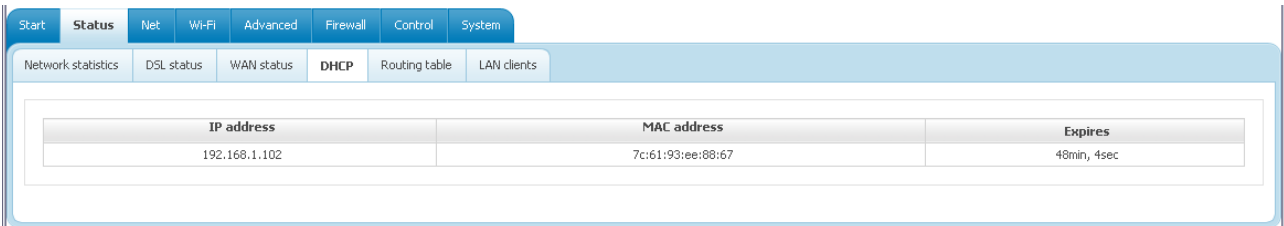
The **Status / WAN status** page displays active WAN connections.

Name	Type	Interface	VPI/VCI	Category	Enabled	Status	IP address
bridge_0_35_1	Bridge	atm0	0/35	UBR	Yes	Up	0.0.0.0
dynamic_3_33_2	IPoE	atm1	3/33	UBR	Yes	Down	0.0.0.0

Figure 48. 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).

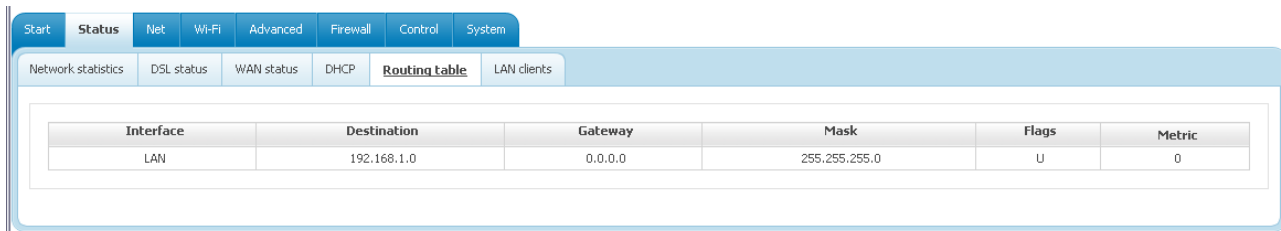


IP address	MAC address	Expires
192.168.1.102	7c:61:93:ee:88:67	48min, 4sec

Figure 49. 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.

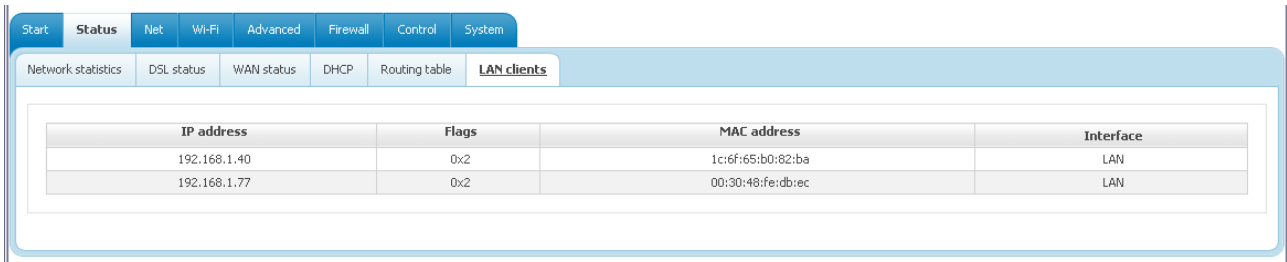


Interface	Destination	Gateway	Mask	Flags	Metric
LAN	192.168.1.0	0.0.0.0	255.255.255.0	U	0

Figure 50. 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.



The screenshot shows the 'LAN clients' page in a web-based interface. The page has a navigation menu at the top with tabs for 'Start', 'Status', 'Net', 'Wi-Fi', 'Advanced', 'Firewall', 'Control', and 'System'. Below this, there is a sub-menu with tabs for 'Network statistics', 'DSL status', 'WAN status', 'DHCP', 'Routing table', and 'LAN clients'. The 'LAN clients' tab is selected, and it displays a table with the following data:

IP address	Flags	MAC address	Interface
192.168.1.40	0x2	1c:6f:65:b0:82:ba	LAN
192.168.1.77	0x2	00:30:48:fe:db:ec	LAN

Figure 51. 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).

WAN

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

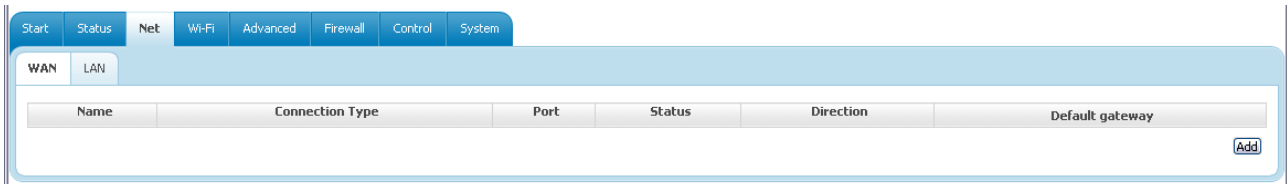


Figure 52. The **Net / WAN** page.

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

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

Creating ADSL WAN Connection

General settings

Connection Type:	Bridge
Port:	DSL(new)
Name:	bridge_0_35_3
Enable:	<input checked="" type="checkbox"/>
Direction:	WAN

ATM

VPI (0-255):	0
VCI (32-65535):	35
Encapsulation Mode:	LLC
QoS:	UBR

VLAN

Allow to create several connections assigned to this port:	<input type="checkbox"/>
Use VLAN:	<input type="checkbox"/>

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

Parameter	Description
General settings	
Connection Type	<p>A type of network protocol to be used by the connection. Available values:</p> <ul style="list-style-type: none"> • PPPoA • PPPoE • Static IP • Dynamic IP • IPoA • Bridge.
Port	A physical interface to which the new connection will be assigned. Leave the DSL(new) value to create a new interface at the physical layer.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.
ATM	
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.
QoS	<p>A class of traffic for this connection.</p> <p>UBR</p> <p><i>(Unspecified Bit Rate)</i>: 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.</p> <p>UBR With PCR</p> <p><i>(Unspecified Bit Rate with Peak Cell Rate)</i>: 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,</p>

Parameter	Description
	<p>the Peak Cell Rate field is displayed. Specify a required value (in cells per second).</p> <p>CBR</p> <p><i>(Constant Bit Rate)</i>: 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).</p> <p>Non Realtime VBR</p> <p><i>(Non-Real-time Variable Bit Rate)</i>: 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.</p> <p>Realtime VBR</p> <p><i>(Real-time Variable Bit Rate)</i>: 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.</p>
VLAN	
Allow to create several connections assigned to this port	Select the checkbox to allow the router to use several untagged connections.
Use VLAN	Select the checkbox to allow the router to use tagged VLAN connections.
VLAN ID	An identifier for the VLAN. The field is displayed when the Use VLAN checkbox is selected.
VLAN priority	A priority tag for the type of traffic transmitted. The field is displayed when the Use VLAN checkbox is selected.

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

Miscellaneous

Enable IGMP Multicast:

NAT:

firewall:

Figure 54. 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** section is displayed for the **PPPoE** and **PPPoA** connection types.

PPP

Username:

Without authorization:

Password:

Password confirmation:

Service name:

Authentication algorithm:

MTU:

Keep Alive:

LCP interval (sec):

LCP fails:

Dial on demand:

PPP IP extension:

Use Static IP Address:

PPP debug:

PPPoE pass through:

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

Parameter	Description
PPP	
Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Service name	<i>Displayed for the PPPoE type only.</i> The name of the PPPoE authentication server.
Authentication algorithm	Select a required authentication method from the drop-down list or leave the AUTO value.
MTU	The maximum size of units transmitted by the interface.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the LCP interval and LCP fails fields are available. Specify the required values.

Parameter	Description
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the Maximum idle time field, specify a period of inactivity (in seconds) after which the connection should be terminated.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
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	<i>Displayed for the PPPoE type only.</i> 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.

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

IP

IP Address:

Netmask:

Gateway IP address:

Figure 56. The page for creating a new connection. The **IP** section.

Parameter	Description
IP	
IP Address	<i>Displayed for the Static IP and IPoA types only.</i> Enter an IP address for this WAN connection.
Netmask	<i>Displayed for the Static IP and IPoA types only.</i> Enter a subnet mask for this WAN connection.
Gateway IP Address	<i>Displayed for the Static IP and IPoA types only.</i> Enter an IP address of the gateway used by this WAN connection.
Vendor ID	<i>Displayed for the Dynamic IP type only.</i> The identifier of your ISP. <i>Optional.</i>

When all needed settings are configured, 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 82).

General settings

Connection Type:

 Port:

 Name:

 Enable:

 Direction: *WAN*

Ethernet

MTU:

 MAC:

Figure 57. The page for creating a new connection. The **General settings** and **Ethernet** sections.

Parameter	Description
General settings	
Connection Type	A type of network protocol to be used by the connection. Available values: <ul style="list-style-type: none"> • PPPoE • Static IP • Dynamic IP • Bridge.
Port	Select the value corresponding to the LAN port specified as the WAN port.
Name	A name for connection for easier identification.
Enable	Select the checkbox to enable the connection.
Direction	The direction of this connection.
Ethernet	
MTU	The maximum size of units transmitted by the interface.
MAC	A MAC address assigned to the interface.

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

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

Miscellaneous

Enable IGMP Multicast:

NAT:

firewall:

Figure 58. 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** section is displayed for the **PPPoE** connection type.

PPP

Username:

Without authorization:

Password:

Password confirmation:

Service name:

Authentication algorithm:

MTU:

Keep Alive:

LCP interval (sec):

LCP fails:

Dial on demand:

PPP IP extension:

Use Static IP Address:

PPP debug:

PPPoE pass through:

Figure 59. The page for creating a new connection. The **PPP** section.

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

Parameter	Description
Dial on demand	Select the checkbox if you want the router to establish connection to the Internet on demand. In the Maximum idle time field, specify a period of inactivity (in seconds) after which the connection should be terminated.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
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.

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

IP

IP Address:

Netmask:

Gateway IP address:

Figure 60. The page for creating a new connection. The **IP** section.

Parameter	Description
IP	
IP Address	<i>Displayed for the Static IP type only.</i> Enter an IP address for this WAN connection.
Netmask	<i>Displayed for the Static IP type only.</i> Enter a subnet mask for this WAN connection.
Gateway IP Address	<i>Displayed for the Static IP type only.</i> Enter an IP address of the gateway used by this WAN connection.
Vendor ID	<i>Displayed for the Dynamic IP type only.</i> The identifier of your ISP. <i>Optional.</i>

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

LAN

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

The screenshot shows the LAN configuration page with the following details:

- IP Address:** 192.168.1.1
- Netmask:** 255.255.255.0
- IGMP snooping:** Off (radio button selected)
- Static DHCP:** Fields for IP address and MAC address, with Remove and Add buttons.
- DHCP server:** Mode: Enable, Start IP: 192.168.1.2, End IP: 192.168.1.254, Lease time (min): 1440. A Save button is at the bottom right.

Figure 61. The page for configuring the local interface.

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

Parameter	Description
IP Address	The IP address of the router in the local subnet. By default, the following value is specified: 192.168.1.1 .
Netmask	The mask of the local subnet. By default, the following value is specified: 255.255.255.0 .
IGMP snooping	The IGMP snooping function provides management of multicast traffic in the LAN. Select the needed choice of the radio button: Blocking: the router does not let multicast traffic pass to the LAN. Standard: the router lets multicast traffic pass to the LAN devices which request such traffic. <i>Recommended for better performance of the LAN.</i> Off: the router lets multicast traffic pass to all devices from the LAN. <i>Default value.</i>

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

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

To create a MAC-IP pair, click the **Add** button and specify the following parameters:

Parameter	Description
IP address	An IP address which will be assigned to the device with the specified MAC address.
MAC address	The MAC address of the device from the LAN.

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

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

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

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

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).

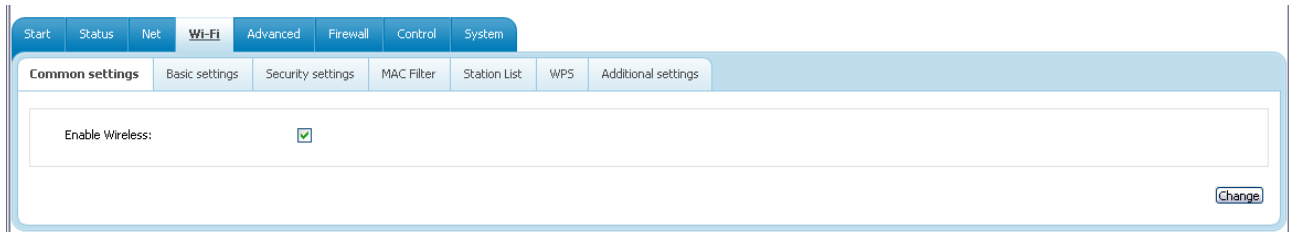


Figure 62. The page for enabling/disabling the wireless LAN.

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.

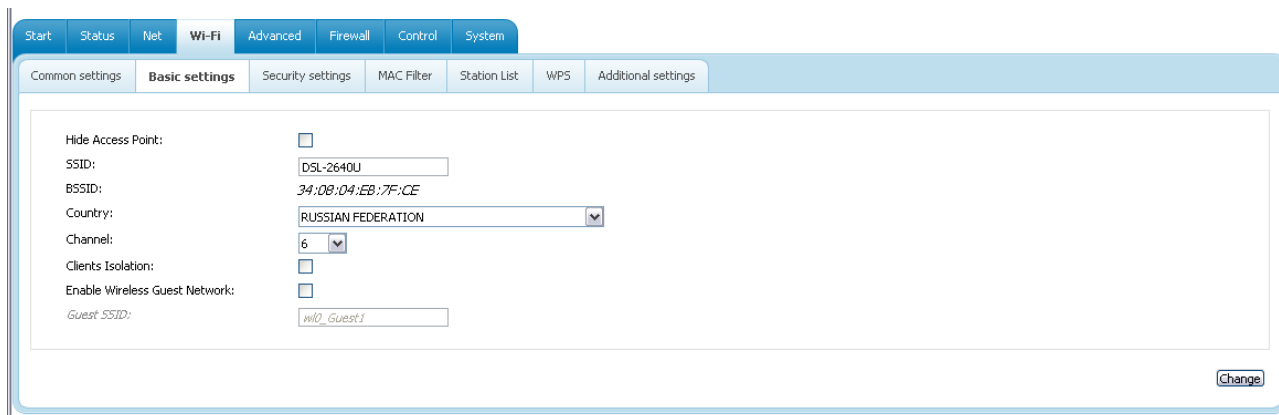


Figure 63. Basic settings of the wireless LAN.

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.

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.

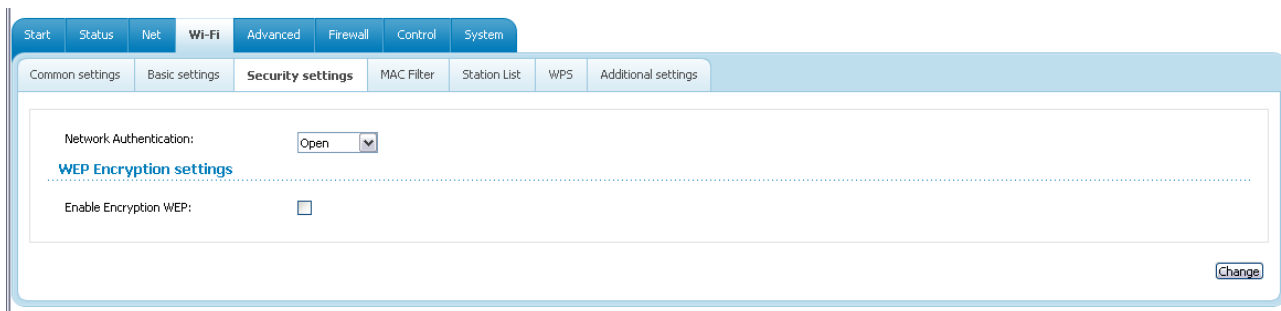


Figure 64. The default security settings.

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:

Network Authentication: ▼

WEP Encryption settings

Enable Encryption WEP:

Encryption Key WEP as HEX:

Encryption Key WEP (1):

Figure 65. 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:

Network Authentication:

Encryption Key PSK:

WPA2 Pre-authentication:

WPA Encryption settings

WPA Encryption:

WPA renewal:

Figure 66. 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.

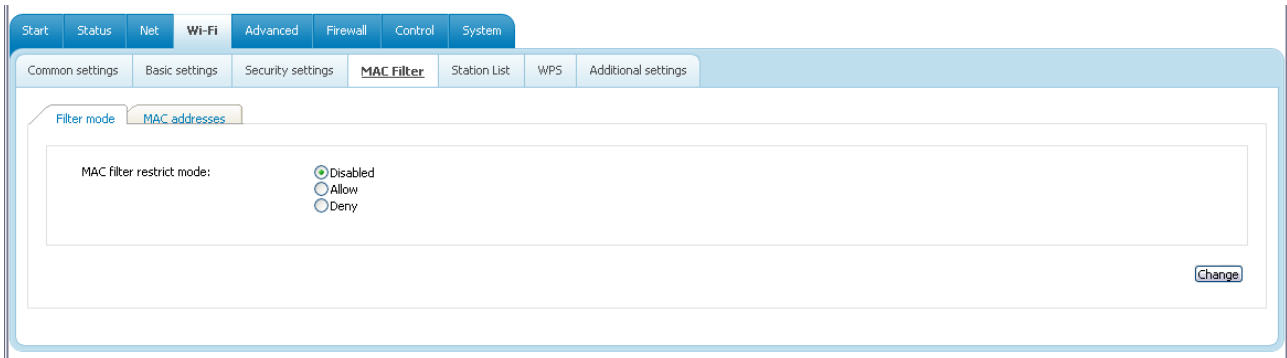


Figure 67. The MAC filter for the wireless network.

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.

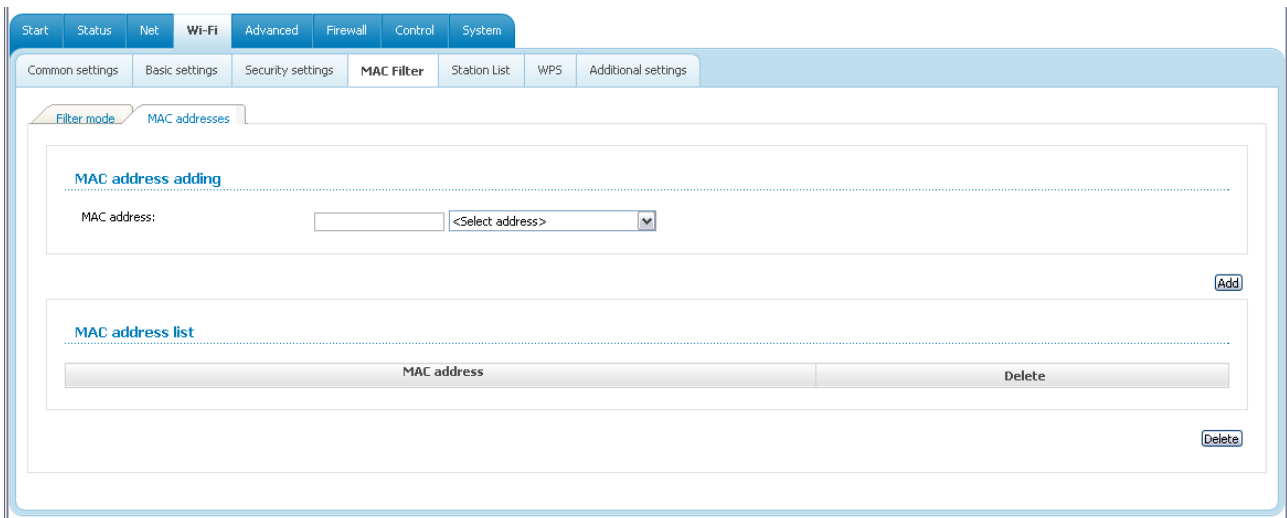


Figure 68. The tab for adding a MAC address.

Enter an address in the **MAC address** field of the **MAC address adding** section, and click the **Add** button.

To add the MAC address of a device connected to the router's LAN at the moment, select the value containing the MAC and IP address of this device from the drop-down list located to the right of the **MAC address** field (the field will be filled in automatically) and click the **Add** button.

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.

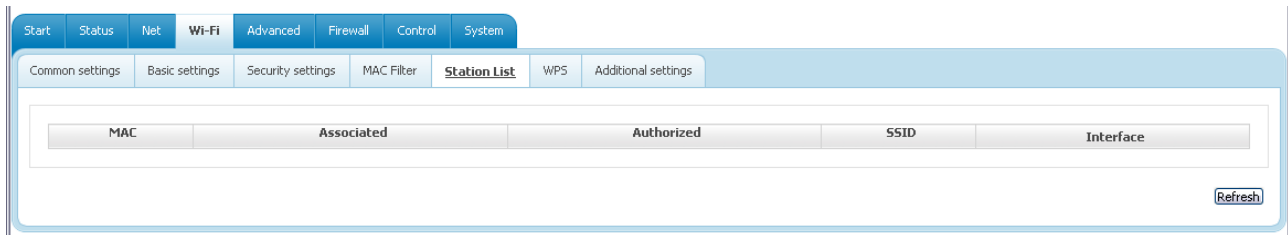


Figure 69. The list of the router's wireless clients.

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 function you need to configure one of the following authentication types: **Open** with no encryption, **WPA-PSK** or **WPA2-PSK** with the **AES** or **TKIP+AES** encryption method (on the **Wi-Fi / Security settings** page).

The screenshot shows the WPS configuration page in a web interface. The page has a blue header with navigation tabs: Start, Status, Net, Wi-Fi, Advanced, Firewall, Control, System. Below the header, there are sub-tabs: Common settings, Basic settings, Security settings, MAC Filter, Station List, WPS, and Additional settings. The WPS tab is selected. The main content area is divided into three sections: 'Enable/Disable WPS', 'Information', and 'Connection'. In the 'Enable/Disable WPS' section, 'WPS Enable:' is checked. In the 'Information' section, 'WPS Status:' is 'Configured', 'SSID:' is 'DSL-2640U', 'Network Authentication:' is 'psk2', 'Encryption:' is 'aes', 'Device PIN:' is '19951683', and 'Client PIN:' is empty. In the 'Connection' section, 'WPS Method:' is set to 'PBC'. There are 'Change' and 'Connect' buttons at the bottom right of each section.

Figure 70. 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 the WPS function: <ul style="list-style-type: none"> • Configured (all needed settings are specified) • Unconfigured (you need to specify the relevant settings).
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. This parameter is used when connecting the router to a registrar to set the parameters of the WPS function.
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 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 press the WPS button on the cover of the wireless device that you want to connect to the WLAN.
6. Click the **Connect** button in the web-based interface of the router.

Using WPS Function without Web-based Interface

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

1. Specify corresponding security settings for the wireless network of the router.
2. Select the **WPS Enable** checkbox.
3. Click the **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 pressing the WPS button of the router.

1. Select the PBC method in the software of the wireless device that you want to connect to the router's WLAN.
2. Click the relevant button in the software or press the WPS button on the cover of the wireless device that you want to connect to the WLAN.
3. Press the WPS button of the router.

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!

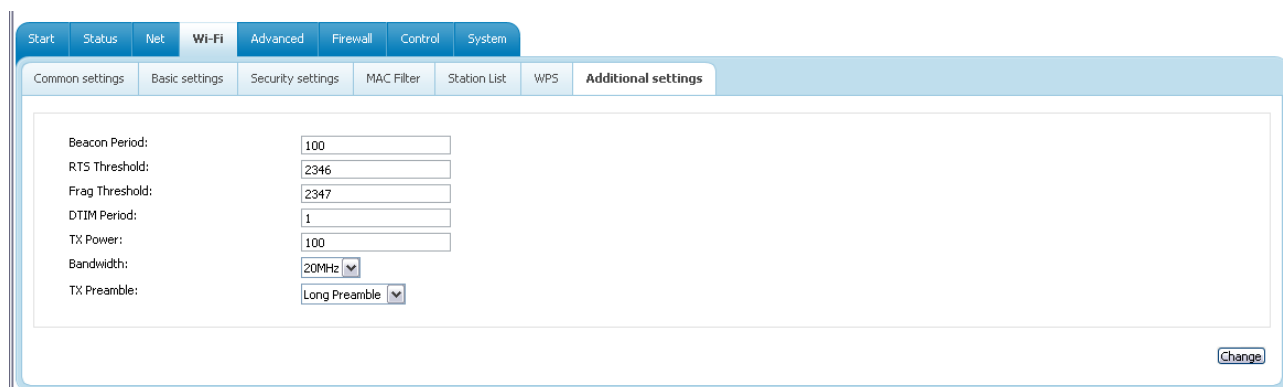


Figure 71. Additional settings of the WLAN.

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. <i>DSL-2640U/NRU supports 20MHz channels only.</i>
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

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

- enable the UPnP function
- define interface groups and allow the router to connect to a private Ethernet line
- configure a DDNS service
- add name servers
- define static routes
- allow the router to use RIP
- edit the ADSL connection parameters
- create rules for remote access to the web-based interface.

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.

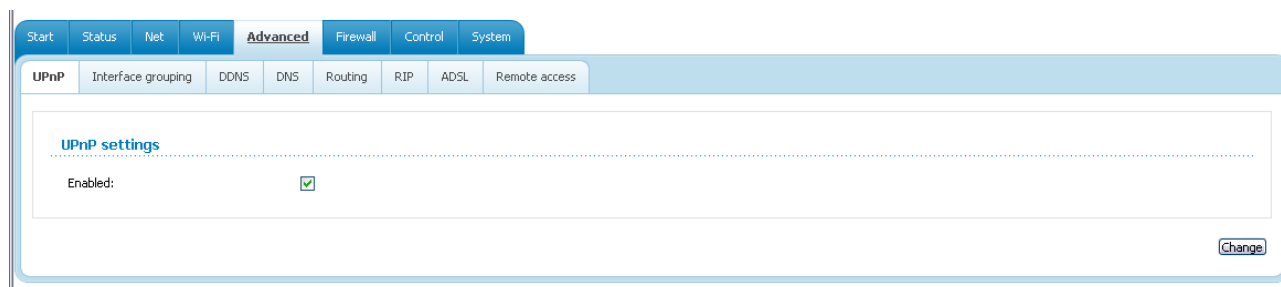


Figure 72. The **Advanced / UPnP** page.

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.

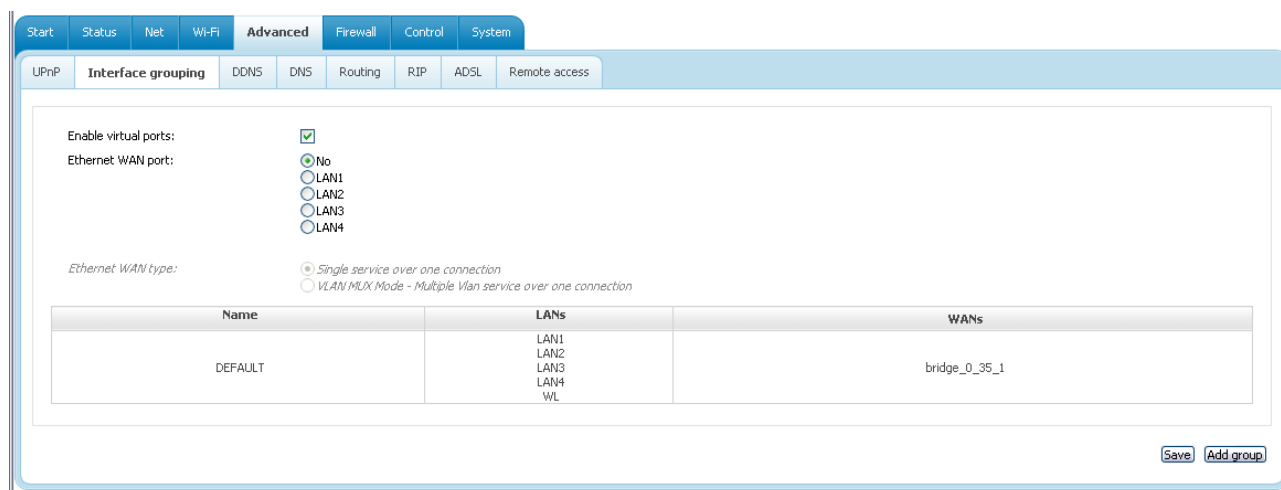


Figure 73. The **Advanced / Interface grouping** page.

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 assign one or more tagged VLAN connections or several untagged connections 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).

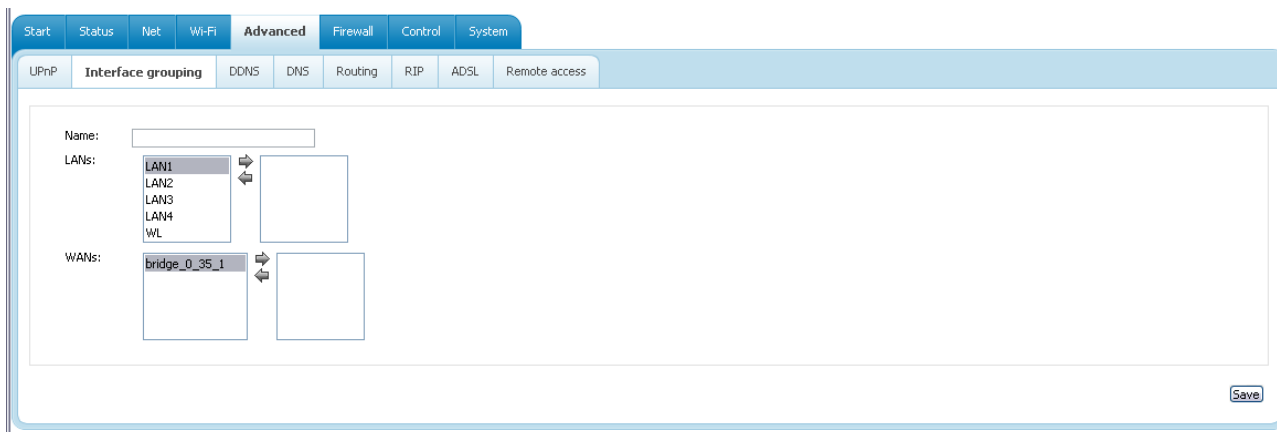


Figure 74. The page for adding a new group of ports.

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.

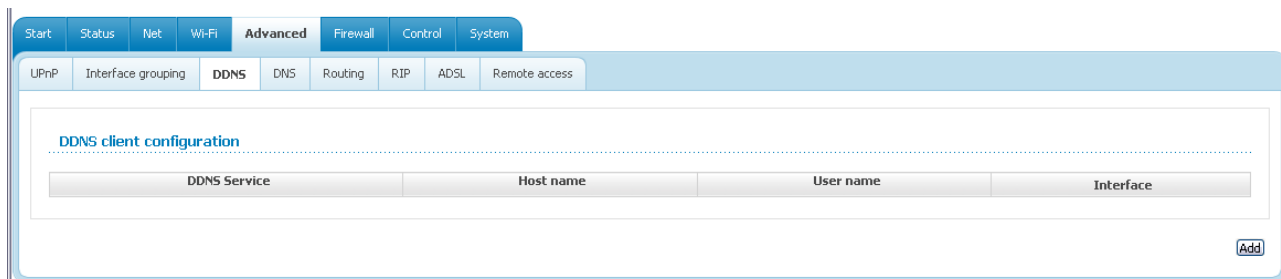


Figure 75. The **Advanced / DDNS** page.

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

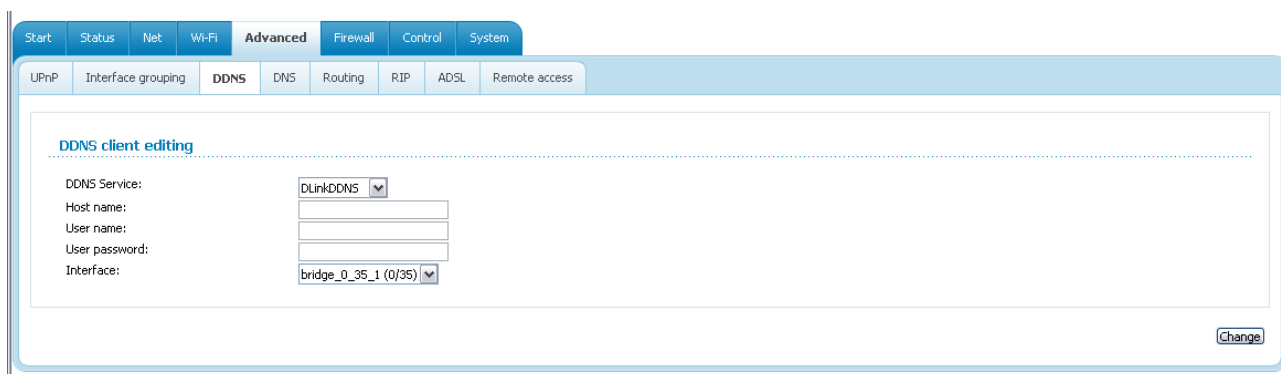


Figure 76. The page for adding a DDNS service.

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.

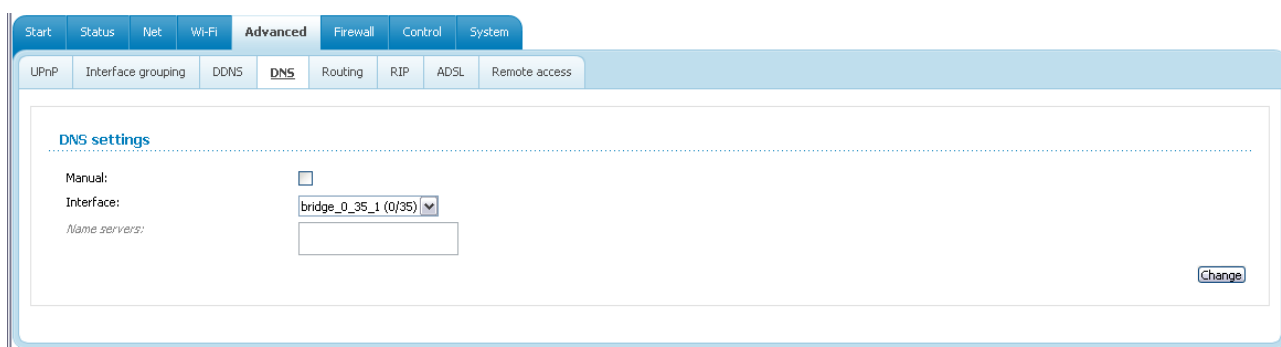


Figure 77. The **Advanced / DNS** page.

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.

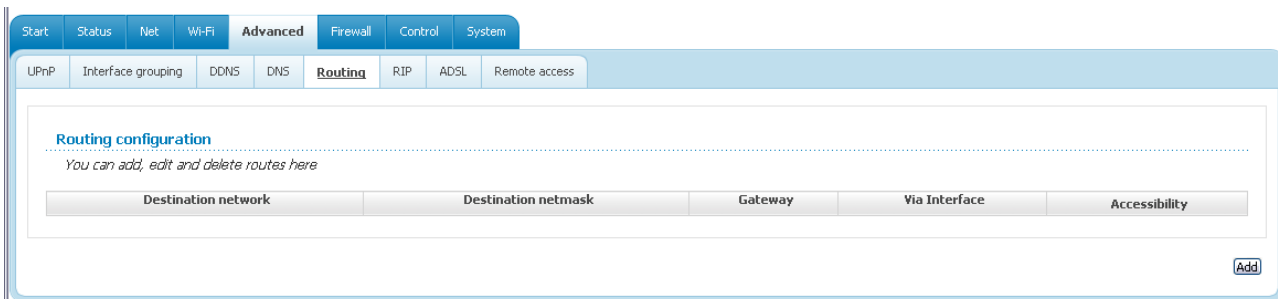


Figure 78. The **Advanced / Routing** page.

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

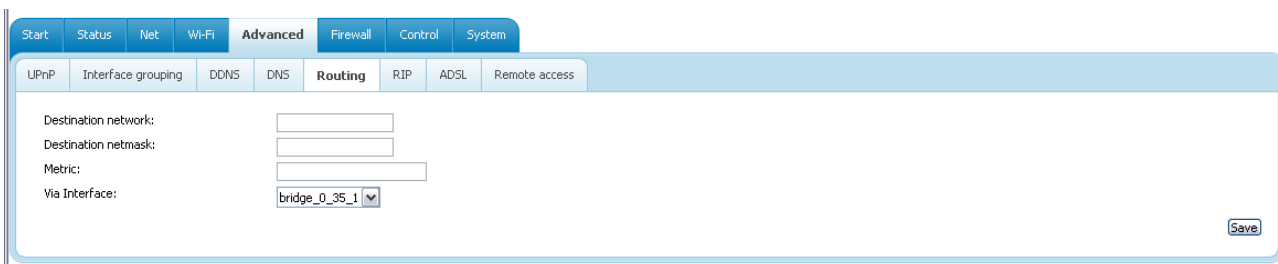


Figure 79. The page for adding a static route.

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. The field is displayed when the <Auto> value is selected from the Via Interface drop-down list.
Metric	A metric for the route. The lower the value, the higher is the route priority. <i>Optional.</i>
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.

RIP

On the **Advanced / RIP** page, you can enable RIP.

RIP is a routing protocol designed for automatic update of the routing table on the basis of the network status information.

You can allow the router to apply RIP for the local interface and WAN connections available on this page and specify a version of the protocol and an operating mode of the router.

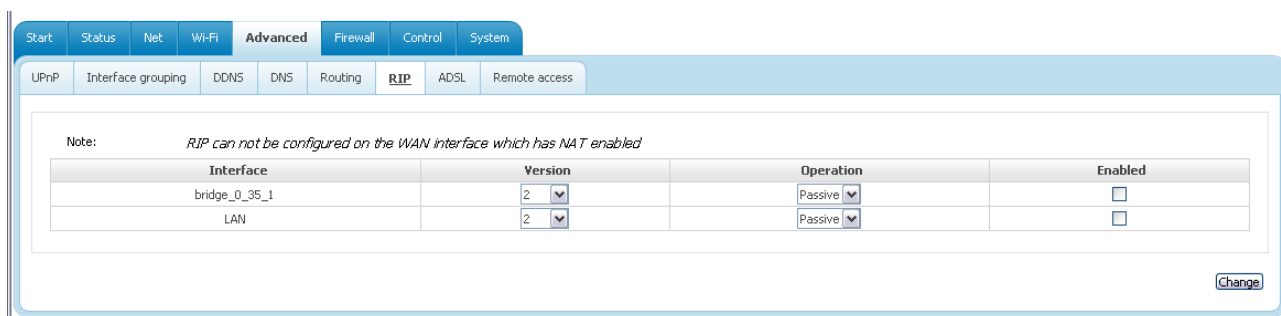


Figure 80. The **Advanced / RIP** page.

To configure application of RIP for the local interface (the **LAN** connection) or a specific WAN connection, in the line corresponding to this connection, specify the following parameters.

1. In the **Version** drop-down list, select a version of RIP which is used by the devices or your network. Select the **Both** value to allow the router to use both the first and the second versions of RIP.
2. In the **Operation** drop-down list, select an operating mode for the router: **Active** (the router provides data on routes to other devices in the network, receives such data, and updates its routing table) or **Passive** (the router only receives data on routes and updates its routing table).
3. Select the **Enabled** checkbox.
4. Click the **Change** button.

To disallow application of RIP for a specific connection, in the line corresponding to this connection, deselect the **Enabled** checkbox and click the **Change** 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.

The screenshot shows the 'Advanced / ADSL' configuration page. The top navigation bar includes 'Start', 'Status', 'Net', 'Wi-Fi', 'Advanced', 'Firewall', 'Control', and 'System'. Below this, a sub-menu contains 'UPnP', 'Interface grouping', 'DDNS', 'DNS', 'Routing', 'RIP', 'ADSL', and 'Remote access'. The main content area is titled 'Select the modulation below' and contains the following options:

- G.Dmt Enabled:
- G.lite Enabled:
- T1.413 Enabled:
- ADSL2 Enabled:
- AnnexL Enabled:
- ADSL2+ Enabled:
- AnnexM Enabled:

Below this is the 'Select the phone line pair below' section with two radio button options:

- Phone line pair: Inner pair
- Outer pair

The 'Capability' section contains two options:

- Bitswap Enable:
- SRA Enable:

A 'Change' button is located in the bottom right corner of the configuration area.

Figure 81. 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.

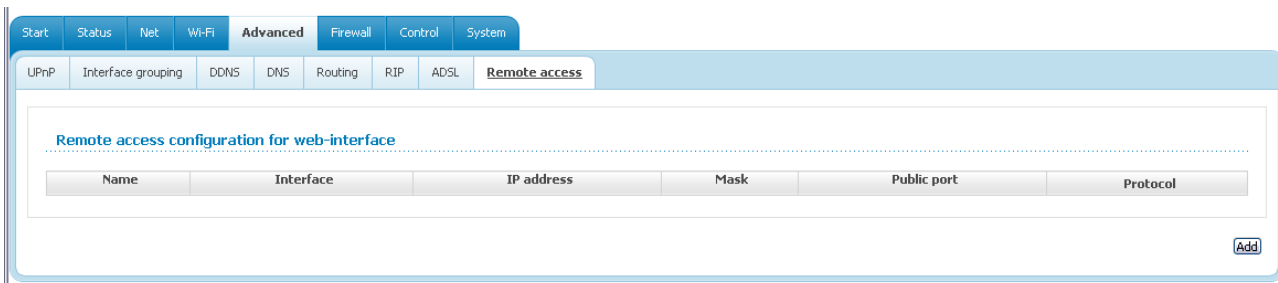


Figure 82. The **Advanced / Remote access** page.

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

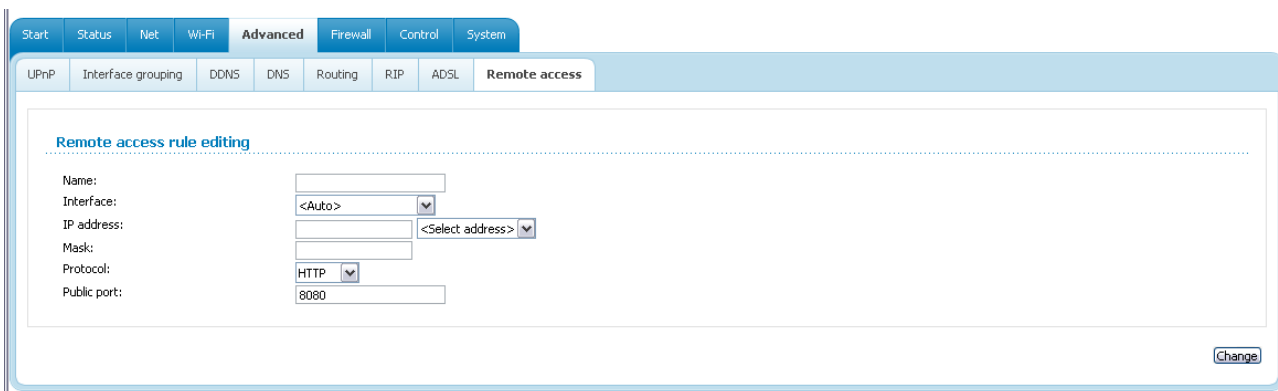


Figure 83. The page for adding a rule for remote management.

You can specify the following parameters:

Parameter	Description
Name	A name for the rule for easier identification. You can specify any name.
Interface	A connection through which the web-based interface of the router is accessed.
IP address	A host or a subnet to which the rule is applied. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list located to the right of the field (the field will be filled in automatically).
Mask	The mask of the subnet.
Protocol	The protocol available for remote management of the router.

Public port	An external port of the router. You can specify only one port. The field is displayed when the HTTP value is selected from the Protocol drop-down list.
--------------------	---

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
- create virtual servers
- define a DMZ
- configure the Port Triggering function
- configure the MAC filter.

IP Filters

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

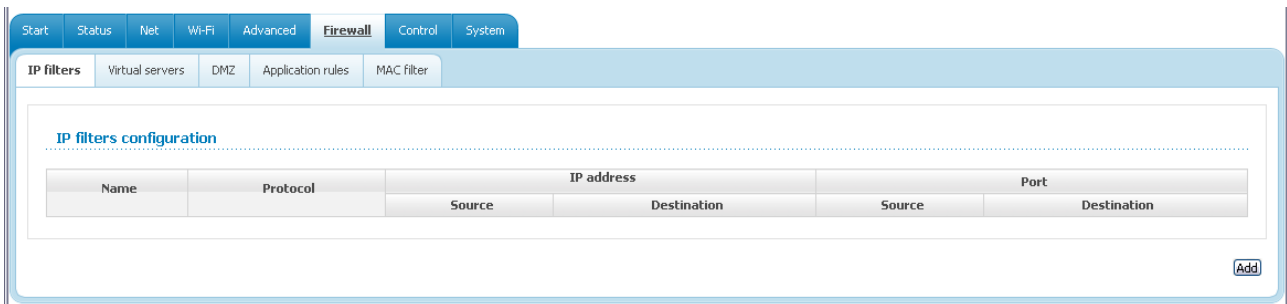


Figure 84. The Firewall / IP filters page.

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

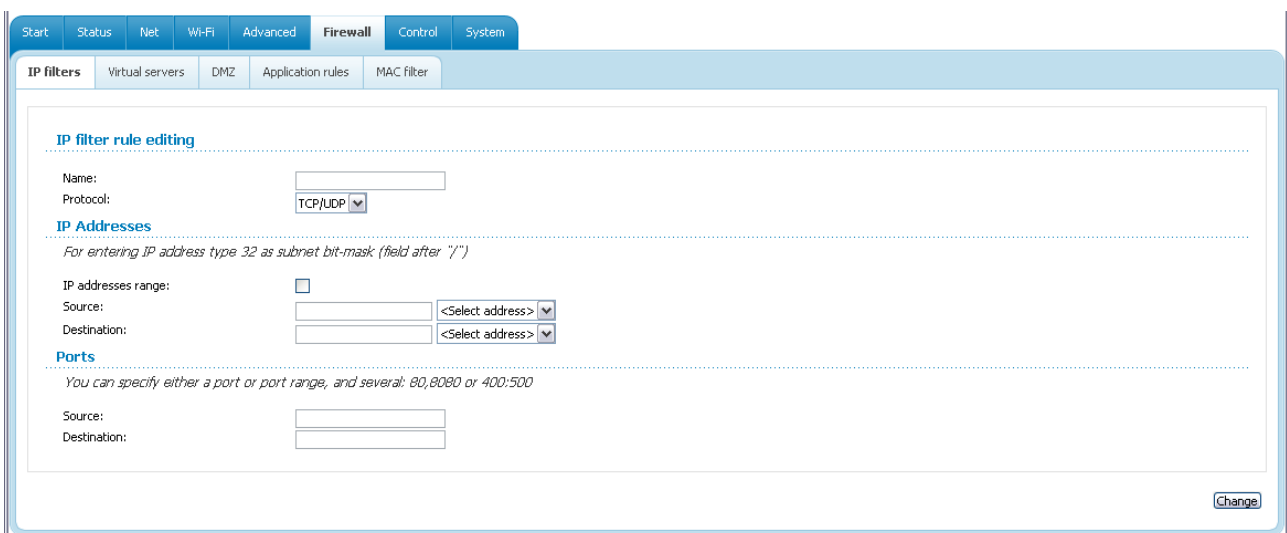


Figure 85. The page for adding a rule for IP filtering.

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 address range	Select the checkbox if you want to specify a range of IP addresses as the source or destination IP address.
Source	<p>The source host/subnet IP address.</p> <p>If the IP address range checkbox is selected, specify the starting IP address of the range in the Source (first) field and the ending IP address in the Source (last) field.</p> <p>If the IP address range checkbox is not selected, specify the IP address of the host or subnet in the Source field. To specify an IP address add <code>/32</code>.</p> <p>To choose a device connected to the router's LAN at the moment, select the relevant IP address from the drop-down list located to the right of the field (the field will be filled in automatically).</p>
Destination	<p>The destination host/subnet IP address.</p> <p>If the IP address range checkbox is selected, specify the starting IP address of the range in the Destination (first) field and the ending IP address in the Destination (last) field.</p> <p>If the IP address range checkbox is not selected, specify the starting IP address of the host or subnet in the Destination field. To specify an IP address add <code>/32</code>.</p> <p>To choose a device connected to the router's LAN at the moment, select the relevant IP address from the drop-down list located to the right of the field (the field will be filled in automatically).</p>
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 86. The Firewall / Virtual servers page.

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

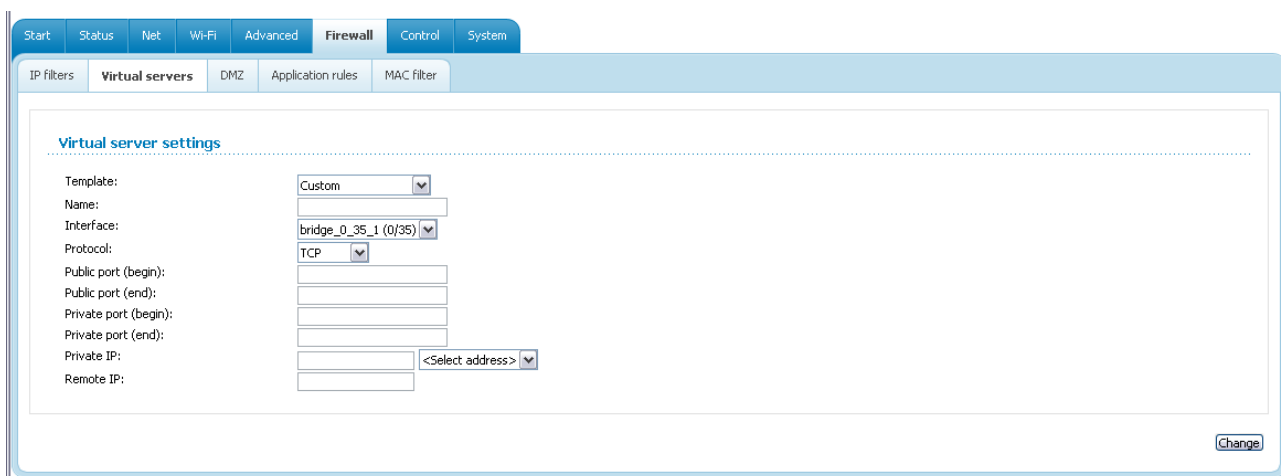


Figure 87. The page for adding a virtual server.

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.

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

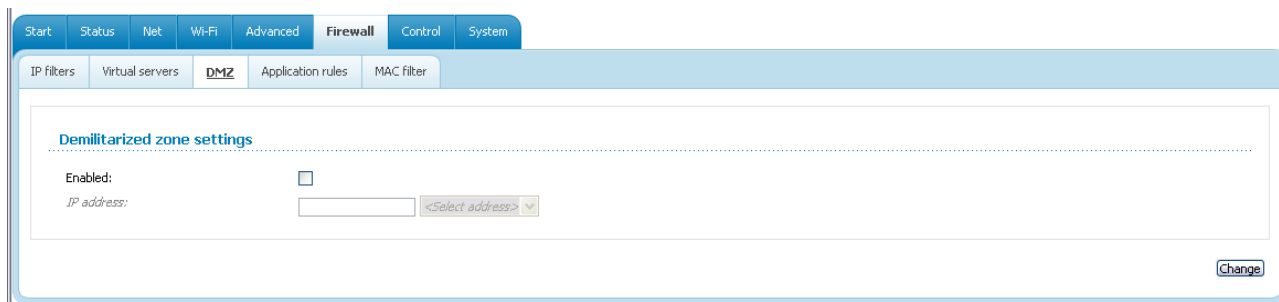


Figure 88. The **Firewall / DMZ** page.

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

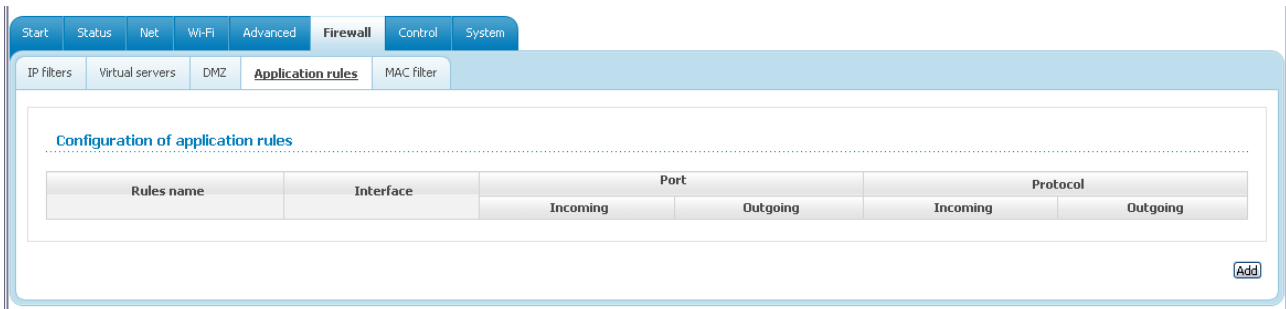


Figure 89. The **Firewall / Application rules** page.

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

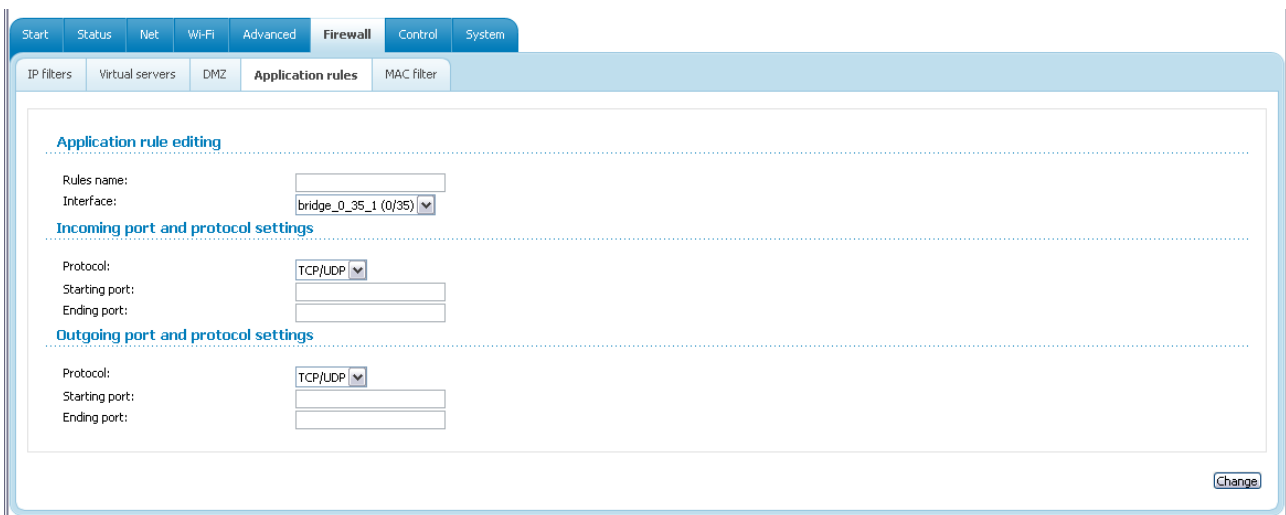


Figure 90. The page for adding a rule for the Port Triggering function.

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 91. The Firewall / MAC filter page. The Configuration tab.

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

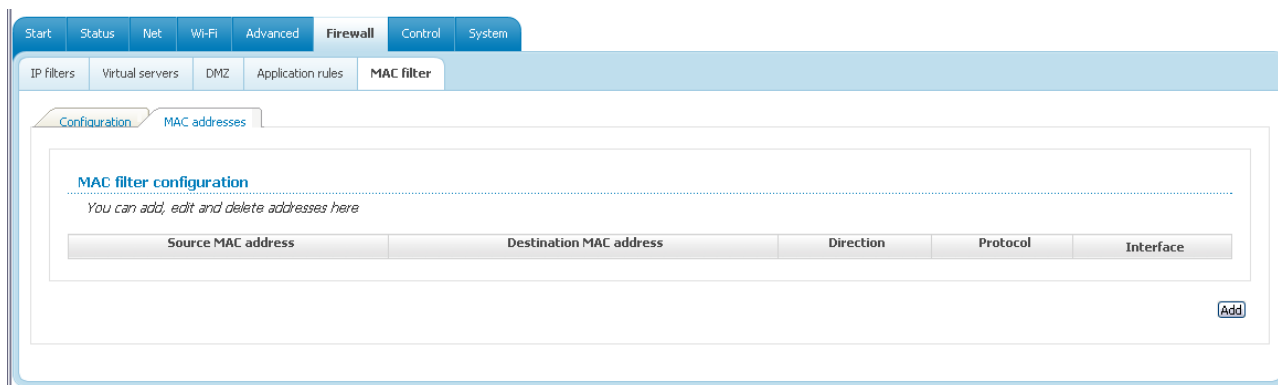


Figure 92. The Firewall / MAC filter page. The MAC addresses tab.

On the opened page, specify the needed parameters.

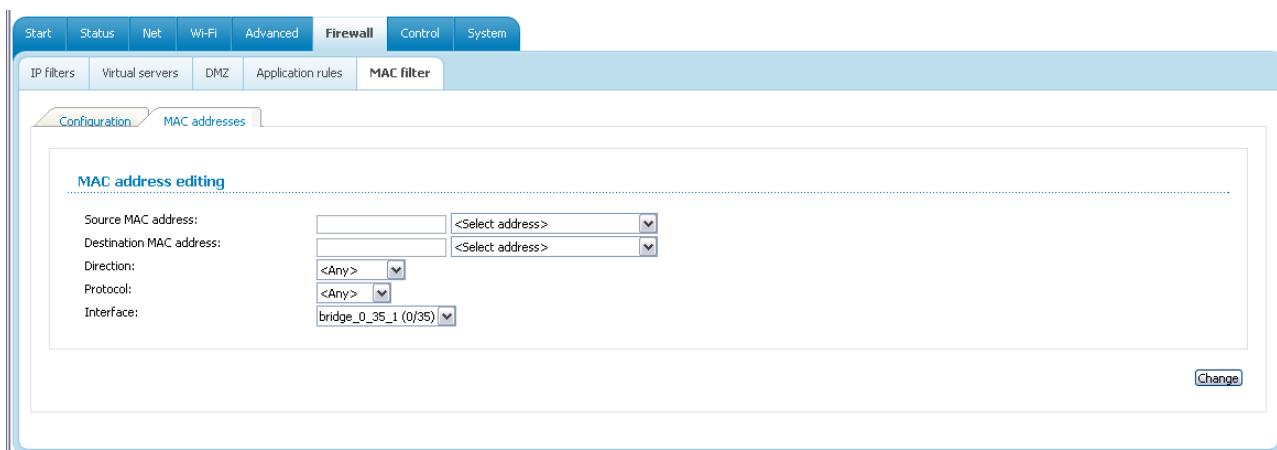


Figure 93. The page for adding a rule for MAC-address-based filtering.

Parameter	Description
Source MAC address	The MAC address of the source host. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list located to the right of the field (the field will be filled in automatically).
Destination MAC address	The MAC address of the destination host. To choose a device connected to the router's LAN at the moment, select the relevant value from the drop-down list located to the right of the field (the field will be filled in automatically).
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.

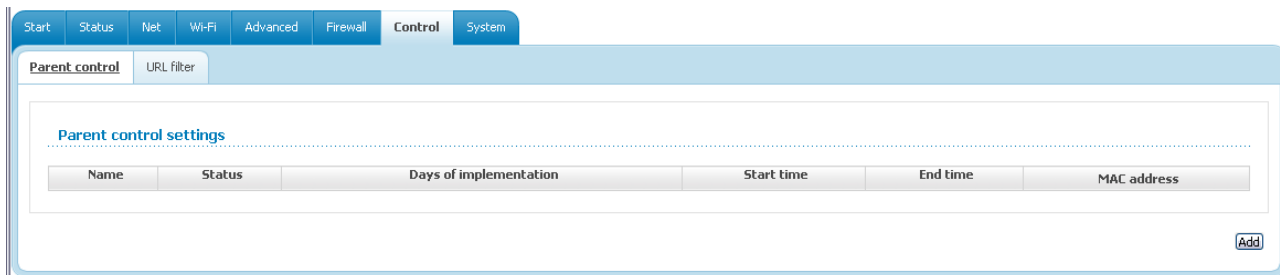


Figure 94. The **Control / Parent control** page.

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

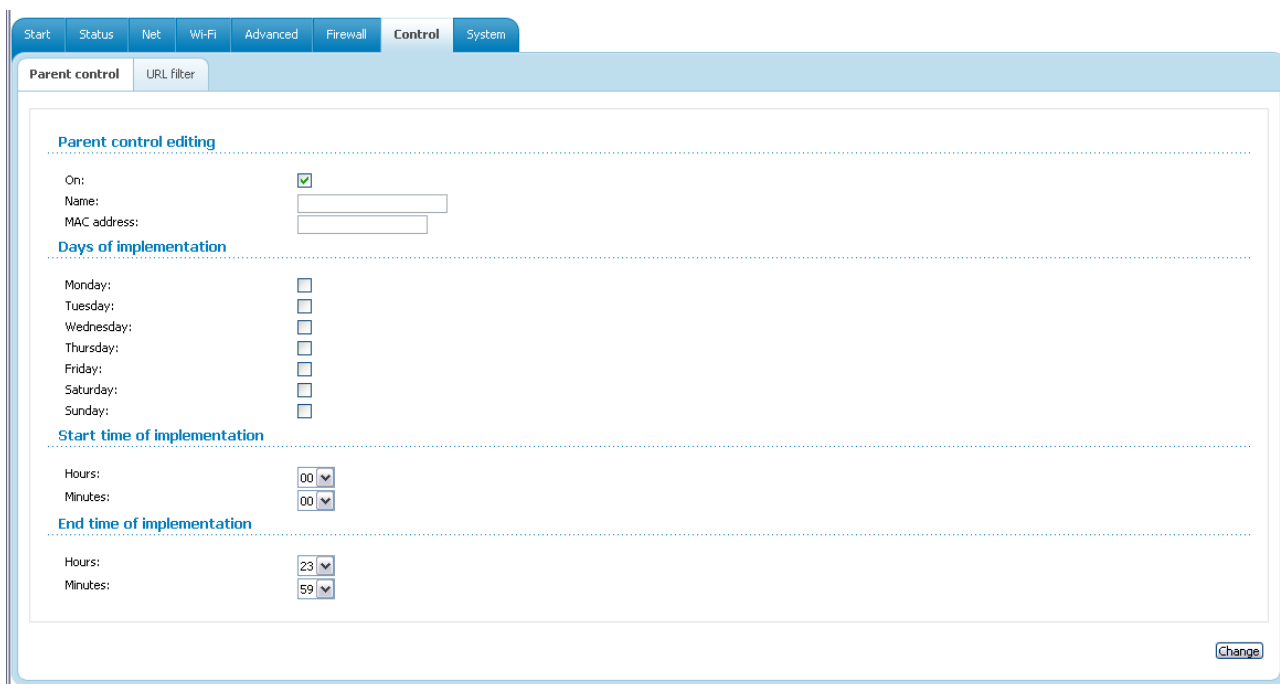


Figure 95. The page for adding a new parental control rule.

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.

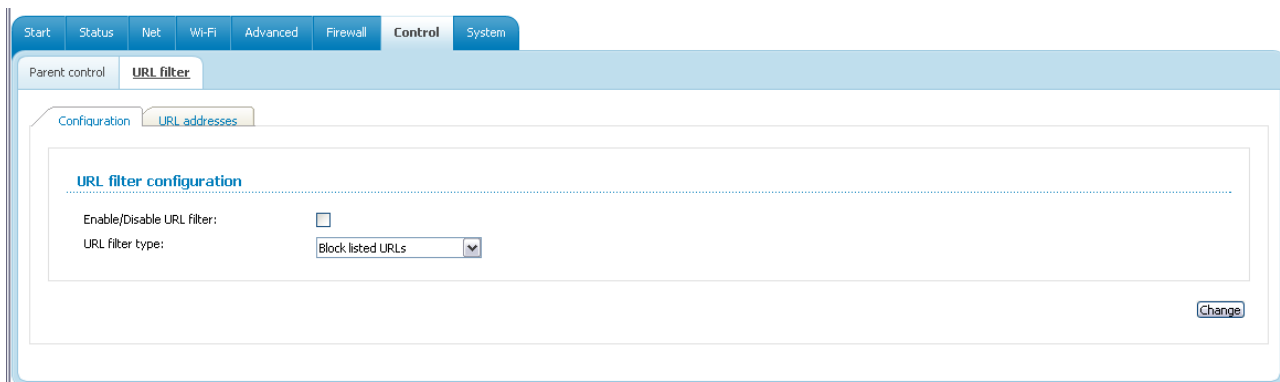


Figure 96. The **Control / URL filter** page. The **Configuration** tab.

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.

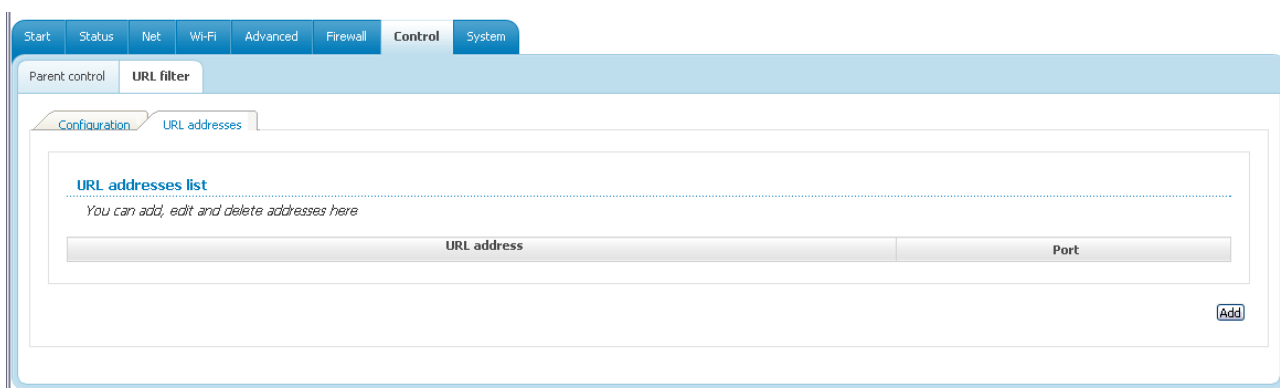


Figure 97. The **Control / URL filter** page. The **URL addresses** tab.

On the opened page, specify the needed parameters.

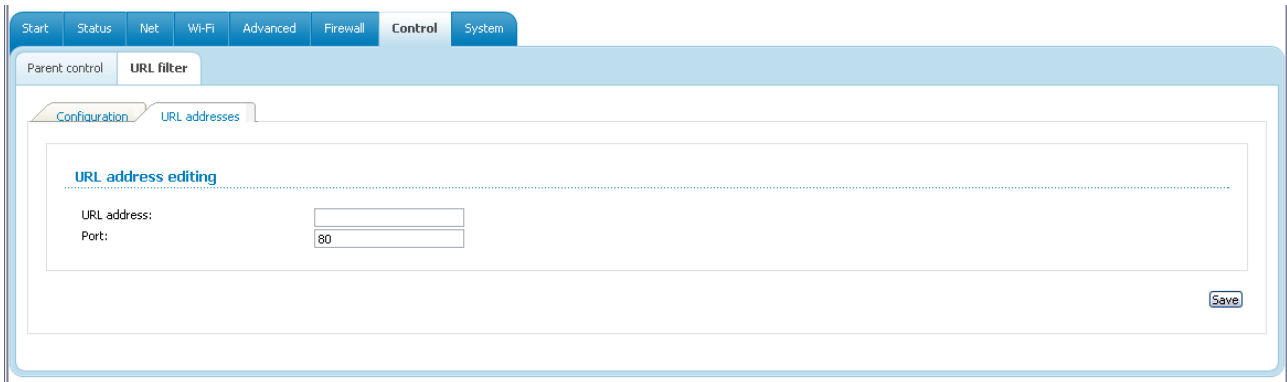


Figure 98. The page for adding an address for the URL filter.

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

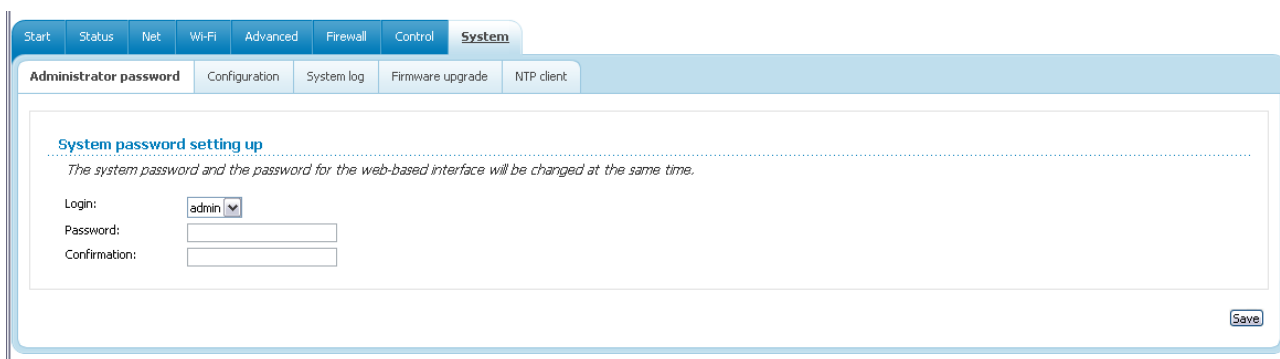
In this menu you can do the following:

- change the password used to access the router's settings
- save the current 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
- update the firmware of the router
- configure automatic synchronization of the system time.

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.



The screenshot shows the 'System' menu in the router's web interface. The 'Administrator password' sub-menu is selected. The page title is 'System password setting up'. Below the title, there is a note: 'The system password and the password for the web-based interface will be changed at the same time.' The form contains three fields: 'Login:' with a dropdown menu showing 'admin', 'Password:', and 'Confirmation:'. A 'Save' button is located at the bottom right of the form.

Figure 99. 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.

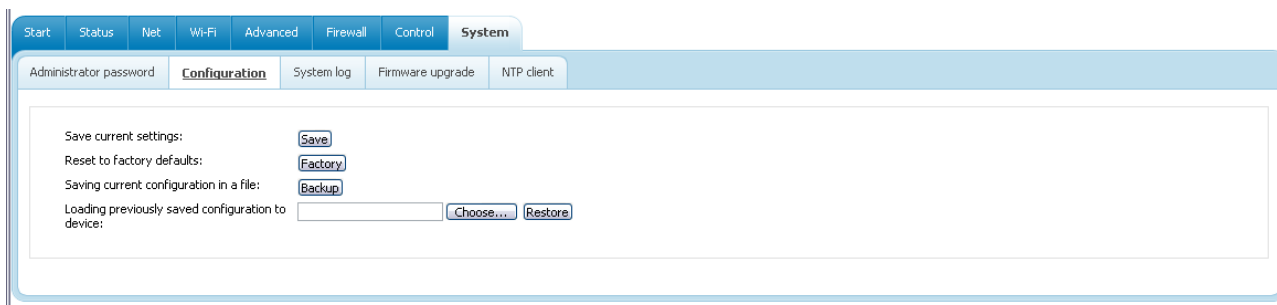


Figure 100. The **System / Configuration** page.

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 <i>Saving and Restoring Settings</i> section, page 30).
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 ³ 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.

³ 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.

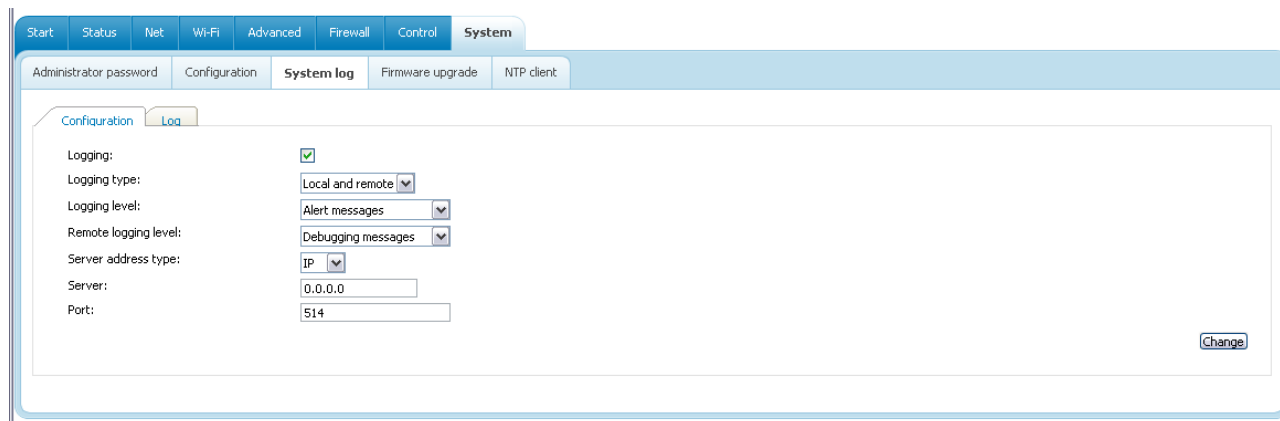


Figure 101. The **System / System log** page. The **Configuration** tab.

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

Control	Description
Logging type	<p>Select a type of logging from the drop-down list.</p> <ul style="list-style-type: none"> • 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.
Logging level	<p>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.</p>
Remote logging level	<p>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.</p>
Server address type	<p>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.</p>

Control	Description
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 **Logging level** list are displayed.

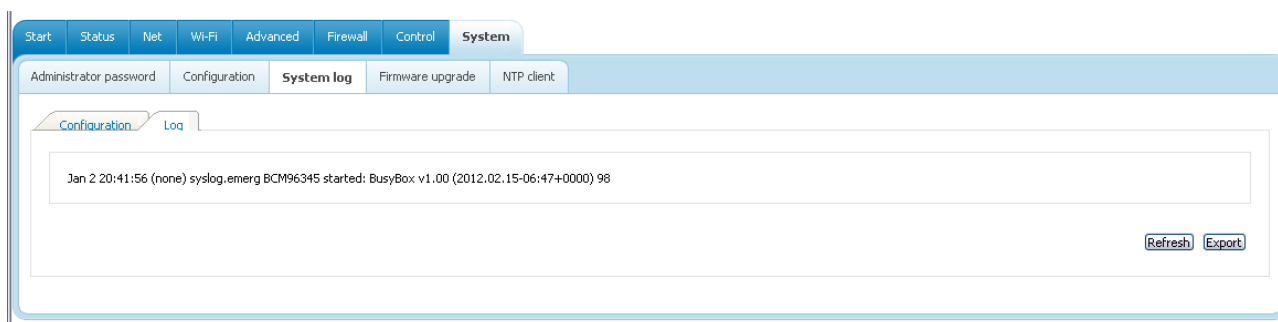


Figure 102. The **System / System log** page. The **Log** tab.

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.

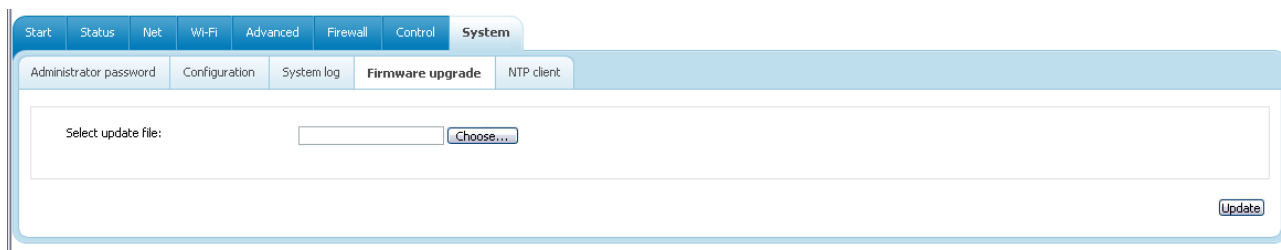


Figure 103. The **System / Firmware upgrade** page.

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**⁴ 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**).

⁴ 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.

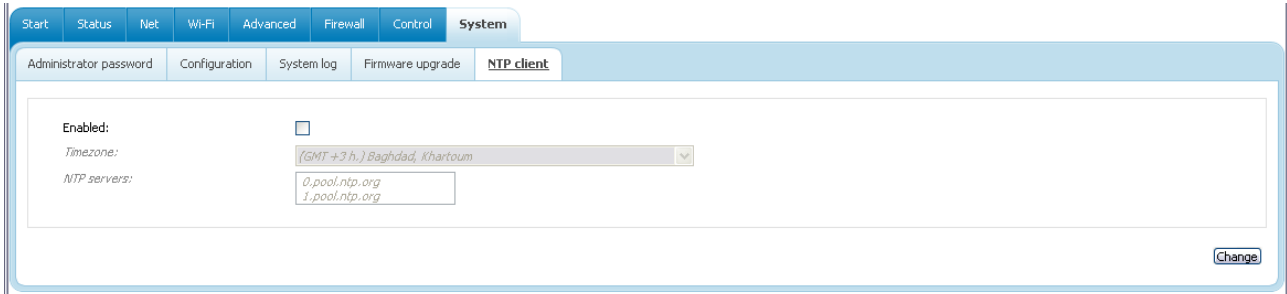


Figure 104. The **System / NTP client** page.

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/NRU 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/NRU 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 is 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/Static IP/Dynamic IP/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 = 0, 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 Dynamic IP type for the computer connected to the LAN 3 port of the router and the laptop connected to the wireless interface of the router.

To configure the router, follow the steps below:

1. Go to the **Net / WAN** page and click the **Add** button.
2. Select the **Bridge** value from the **Connection Type** drop-down list.
3. Fill in the **VPI** and **VCI** fields.
4. In the **VLAN** section, select the **Allow to create several connections assigned to this port** checkbox.
5. Click the **Save** button.
6. Click the **Add** button again.
7. Select the **Dynamic IP** value from the **Connection Type** drop-down list.
8. Select the **atm0(0/35)** value from the **Port** drop-down list.
9. Click the **Save** button.

Name	Connection Type	Port
bridge_0_35_1	Bridge	atm0(0/35)
dynamic_0_35_2	Dynamic IP	atm0(0/35)

Figure 105. Two WAN connections with the same values of the VPI and VCI.

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

Name	LANs	WANs
1	LAN2	bridge_0_35_1
2	WL LAN3	dynamic_0_35_2
DEFAULT	LAN1 LAN4	

Figure 106. Groups of ports for the created WAN connections.

13. 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 Dynamic IP type for the computer connected to the LAN 4 port of the router and the laptop connected to the wireless interface of the router.

To configure the router, follow the steps below:

1. Go to the **Advanced / 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 / WAN** 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 **Port** drop-down list.
8. Click the **Save** button.
9. Click the **Add** button again.
10. Select the **Dynamic IP** value from the **Connection Type** drop-down list.
11. Select the **LAN 3** value from the **Port** drop-down list.
12. Click the **Save** button.

Name	Connection Type	Port
bridge_LAN3_1	Bridge	LAN3
dynamic_LAN3_2	Dynamic IP	LAN3

Figure 107. Two WAN connections for one physical interface.

13. Go to the **Advanced / Interface grouping** page.
14. Create a group containing the WAN connection of the Bridge type and the LAN 2 port.
15. Create another group containing the WAN connection of the Dynamic IP type, the LAN 4 port, and the wireless interface.

Name	LANs	WANs
1	LAN2	bridge_LAN3_1
2	LAN4 WL	dynamic_LAN3_2
DEFAULT	LAN1	

Figure 108. Groups of ports for the created WAN connections.

16. 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
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
RIP	Routing Information Protocol
RTS	Request To Send
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