

User Manual



DSL-2520U

ADSL2/2+ Router with USB and Ethernet Ports

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CHAPTER 1. INTRODUCTION

Contents and Audience

This manual describes the router DSL-2520U and explains how to configure and operate it.

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

Conventions

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

Document Structure

Chapter 1 describes the purpose and structure of the document.

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

Chapter 3 explains how to install the router DSL-2520U 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 introduces abbreviations and acronyms used in this manual.

CHAPTER 2. OVERVIEW

General Information

The DSL-2520U device is an affordable high-end ADSL 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.

DSL-2520U provides all the essentials for creating a secure high-speed 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 an Ethernet port, which can be used to connect one computer or switch. The device is also equipped with a USB port, to which you can connect a single computer.

The router DSL-2520U 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 router DSL-2520U via the user-friendly webbased interface (the interface is available in several languages).

Specifications

Interfaces:

- ADSL: 1 RJ-11 port
- LAN: 1 RJ-45 10/100BASE-TX Fast Ethernet port with auto-MDI/MDIX
- USB: 1 port 1.1, type B.

ADSL Standards:

- ADSL:
 - full rate 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/M.

WAN Connection Types:

- PPPoA
- PPPoE
- IPoE
- IPoA
- 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
- DHCP server/client/relay
- DNS relay
- DDNS
- UPnP
- Support of VLAN
- IGMP proxy.

Firewall and Access Management Functions:

- NAT firewall
- Stateful Packet Inspection (SPI)
- 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.

- External power adapter DC 5V/1A
- ON/OFF power switch
- Reset to Factory Defaults button.

Operating Temperature:

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

Storage Temperature:

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

Humidity:

• From 5% to 95% non-condensing.

Product Appearance

Front Panel



Figure 1. Front panel view.

LED	Mode	Description
	Solid green	The router is powered on.
Power	No light	The router is powered off.
	Solid red	The router is in the crash recovery mode.
Statuo	Blinking green	Traffic (Internet traffic) is passing through the router.
Status	No light	A failure of the system.
	Solid green	A device is connected to the port.
LAN	Blinking green	The LAN port is active (upstream or downstream traffic).
LICP	Solid green	A device is connected to the port.
038	Blinking green	The USB port is active (upstream or downstream traffic).
	Solid green	DSL has been synchronized.
DSL	Blinking green	Detecting a carrier signal and synchronizing DSL.
	No light	No carrier signal.
	Solid green	A WAN connection is established.
Internet	No light	The router is in the bridge mode or no WAN connection is established.
	Solid red	An authorization failure.

Back Panel



Figure 2. Back panel view.

Port	Description
DSL	A DSL port to connect the router to the telephone line.
USB	A USB port to connect to a single computer.
LAN	An Ethernet port to connect a computer/switch.
RESET	A button to restore the factory default settings. To restore the factory defaults, push the button (with the device turned on), hold it for 10 seconds, and then release the button.
ON/OFF	A button to turn the router on/off.
5V=1A	Power connector.

Delivery Package

The following should be included:

- Router DSL-2520U
- Power adapter DC 5V/1A
- RJ-11 telephone cable
- Straight-through Ethernet cable (CAT 5E)
- USB cable
- 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.

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.

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 router DSL-2520U (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.

NIC (Ethernet Adapter)

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

Connecting to PC (in OS Windows XP)

PC with Ethernet Adapter

- 1. Make sure that your PC is powered off.
- 2. Connect an Ethernet cable between the Ethernet port located on the back panel of the router and the Ethernet port of your PC.
- 3. 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. Connect the power cord to the power connector port on the back panel of the router, then plug the power adapter into an electrical outlet or power strip.
- 5. Turn on your PC and wait until your operating system is completely loaded.

PC with USB Port

Do not connect your router to your PC until the USB driver is installed.

- Turn on your computer and wait until the operating system is completely loaded. Insert the CD from the router's delivery package into the CD ROM drive. Open the disk and go to the USBDriver folder, then run the setup.exe file. Wait until the USB driver is installed. When the installation is completed, click the Finish button.
- 2. Connect a phone cable between the DSL port of the router and the **ADSL OUT** port of the splitter. Connect your phone to the **PHONE** port of the splitter. Then connect another phone cable between a phone jack and the **ADSL IN** port of the splitter.
- 3. 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. Connect the USB cable between the USB port located on the back panel of the router and the USB port of your PC.

Obtaining IP Address Automatically

- 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.

🛸 Network Connections			
File Edit View Favorites Tools	Advanced Help		
Ġ Back 🝷 🕥 🕤 🏂 🔎 Se	earch 😥 Folders 🛄		
Address 🔕 Network Connections			
	Name	Туре	Status
Network Tasks 📀	LAN or High-Speed Inte	rnet	
Other Places Image: Control Panel Image: My Network Places Image: My Documents	Local Area Connection	Disable or High-Speed Inter Status Repair Bridge Connections Create Shortcut Delete	Enabled
Details 🛛 🛞		Rename Properties	

Figure 3. The Network Connections window.

3. In the Local Area Connection Properties window, on the General tab, in the This connection uses the following items section, select the Internet Protocol (TCP/IP) line. Click the Properties button.

🕂 Local Area Connection 2 Properties 🛛 🔹 🔀
General Authentication Advanced
Connect using:
B D-Link DFE-550TX 10/100 Adapter
<u>C</u> onfigure
This connection uses the following items:
ST NWLink NetBIOS
▼ TNWLink IPX/SPX/NetBIOS Compatible Transport Prot
M Tinternet Protocol (TCP/IP)
Install Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
OK Cancel

Figure 4. The Local Area Connection Properties window.

4. Select the **Obtain an IP address automatically** radio button. Click the **OK** button.

Internet Protocol (TCP/IP) Pro	operties ? 🔀
General Alternate Configuration	
You can get IP settings assigned a this capability. Otherwise, you need the appropriate IP settings.	utomatically if your network supports I to ask your network administrator for
⊙ <u>O</u> btain an IP address automat	ically
Use the following IP address:	
IP address:	
S <u>u</u> bnet mask:	
Default gateway:	
Obtain DNS server address at	utomatically
O Use the following DNS server	addresses:
Preferred DNS server:	
Alternate DNS server:	
	Advanced
	OK Cancel

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

Click the **OK** button. Now your computer is configured to obtain an IP address automatically.

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, 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 12).
- 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 6. Connecting to the web-based interface of the DSL-2520U device.

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

DSL-2	520U
Login:	admin
Password:	•••••
Clear	Enter

Figure 7. The login page.

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

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

			Dystein ♥	Language	
🔶 Start	Start				
➡ Status	Start				
➡ Net	Device information				
Advanced	Model:	D5L-2520U			
Firewall	Firmware version:	1.0.3			
➡ Control	Build time:	Thu Jul 21 1	2:24:00 M5D 2011		
	Vendor:	D-Link Russ	ia		
System	Support:	support@dli	ink.ru		
	Summary:	Root filesys	tem image for D51-2520U		
	Board ID:	D51-2520U			
	Web revision:	bdb3f44416	b32152137f392cf5d224cf6a1bbce	5	
	LAN IP:	192,168,1,.	105		
	🛃 DSL Status				
	Connection state:	Up 🔵			
	Downstream rate:	23617 Kbps			
	Upstream rate:	1076 Kbps			
	Link Power State:	10			

Figure 8. The system statistics page.

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

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



Figure 9. Changing the language of the web-based interface.

Saving and Restoring Settings

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

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



Figure 10. 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.

D-Link			
building networks for reopte		System 👻	Language 👻
		Reboot	
a) Charle		Save&Reboot	
⇒ Start	Start	Save	
➡ Status	Start	Backup	
		Factory	
🔶 Net		Logout	

Figure 11. 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 back 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.

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CHAPTER 4. CONFIGURING VIA WEB-BASED INTERFACE

Status

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

Network Statistics

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

building freeholiks for reopte						Syste	m 👻	Lar	nguage
▶ Start	Charl		Nuet						
▶ Status	Stat	us /	Net	work sta	usucs				
Network statistics	Name	Туре	Status	IP	Mask	Gateway	MAC	MTU	Rx/Tx
> DSL status	LAN	ipoe	Up O	192.168.1.105	255.255.255.0	-	00:11:22:33:44:50	1500	Kbyte/5.5083 Mbyte
> <u>WAN status</u>	USB LAN	ipoe	Up O		-	-	00:11:22:33:44:55) 1500	0.0000 byte/2.5293 Kbyte
› <u>DHCP</u>									KByte
Routing table									
» <u>LAN clients</u>									
▶ Net									
Advanced									
▶ Firewall									

Figure 12. 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.

			System 👻	Language 👻
 Start 	Status / DSL status			
Status				
Network statistics	Connection state:	Down 😑		
> DSL status				
» <u>WAN status</u>				(D-fr-th)
» <u>DHCP</u>				(Refresh)
Routing table				
> LAN clients				
→ Net				
Advanced				
Firewall				
t. Control				

Figure 13. The Status / DSL status page.

WAN Status

						System	•	Language	
🔶 Start	Statuc /	\ A/A NI	ctatuc						
Status	Status /	VVAN	status						
» Network statistics	Name	Туре	Interface	VPI/VCI	Category	Enabled	Status	IP address	
» <u>DSL_status</u>									
WAN status									
> <u>DHCP</u>									
» <u>Routing table</u>									
» <u>LAN clients</u>									
🔹 Net									
Advanced									
➡ Firewall									

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

Figure 14. 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).

building networks for reopte		System	✓ Language
➡ Start	Status / DHCD		
🕈 Status	Status / DHCP		
» <u>Network statistics</u>	IP address	MAC-address	Expires
» <u>DSL_status</u>			
» <u>WAN status</u>			
› <u>DHCP</u>			
» <u>Routing table</u>			
> LAN clients			
➡ Net			
Advanced			
🔹 Firewall			
 Control 			

Figure 15. 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.

				Syster	n	•	Language	•
♦ Start	Status / Ro	outing table	e					
 Network statistics DSL status WAN status DHCP Routing table LAN clients 	Interface br0	Destination 192,168,1,0	Gateway 0.0,0.0	Mask 255.255.255.0	Flags U	Metric 0	MTU Size D	
♦ Net								
Advanced								

Figure 16. 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 router's LAN and devices accessing the web-based interface of the router.

building networks for reopte			System	Language
➡ Start	Status / LAN diam	to.		
Status	Status / LAN CIEF	lS		
» Network statistics	IP address	Flags	MAC-address	Interface
» <u>DSL_status</u>	192.168.1.40	0x2	1C:6F:65:B0:82:BA	brO
» <u>WAN status</u>				
» <u>DHCP</u>				
» <u>Routing table</u>				
> LAN clients				
➡ Net				
Advanced				
🔶 Firewall				

Figure 17. 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

Ш

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

Connections

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

By default, the **LAN** connection is configured in the system. It corresponds to the local interface of the router (**br0**). You cannot delete this connection.

					System	•	Language	
♦ Start	Net /	Compostions						
 Status 	Net /	connections						
➡ Net		maationa						
Connections	You	can add, edit and d	elete connections he	ere				
A Advanced	Name	Connection Type	Physical interface	Enable	Default gateway	Direction	Status	
Auvariceu	LAN	ipoe		Yes	0	LAN	Connected	
🜩 Firewall								
Control							Add	
🗅 System								

Figure 18. The **Net / Connections** page.

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

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

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

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

Editing Local Interface Parameters

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

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

Net / Connections

Main DHCP server Sta	atic DHCP
🛃 General settings	
Connection type and common	settings
Name:	LAN
Connection Type:	IPoE
Enable:	
Direction:	LAN
🛃 Physical layer	
Physical interface selection an	d tunning
Physical interface:	br0 💌
🛃 IP settings	
Internet Protocol settings	
IP Address:	192.168.1.1
Netmask:	255.255.255.0
Interface:	br0

Save

Figure 19. Basic parameters of the router's LAN.

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

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

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

Net / Connections

Main DHCP server Static DH	HCP
Mode:	Enable 💌
Start IP:	192.168.1.2
End IP:	192.168.1.254
Lease time (min):	1440

Save

Figure 20. The tab for configuring the DHCP server.

Parameter	Description
	An operating mode of the router's DHCP server.
Mode	Enable : the router assigns IP addresses to clients automatically in accordance with specified parameters. When this value is selected, the Start IP , End IP , and the Lease time fields are displayed on the tab. If the DHCP server is enabled, you can also specify MAC-IP pairs on the Static DHCP tab.
	Disable : the router's DHCP server is disabled, clients' IP addresses are assigned manually.
	Relay : an external DHCP server is used to assign IP addresses to clients. When this value is selected, the External DHCP server IP field is displayed on the tab.
Start IP	The start IP address of the address pool used by the DHCP server to distribute IP addresses to clients.
End IP	The end IP address of the address pool used by the DHCP server to distribute IP addresses to clients.
Lease time	The lifetime of IP addresses leased by the DHCP server. At the end of this period the leased IP address is revoked and can be distributed to another device, unless the previous device has confirmed the need to keep the address.
External DHCP server IP	The IP address of the external DHCP server which assigns IP addresses to the router's clients.

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

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

Net / Connections

JP address;			
MAC address	2		
	IP address	MAC address	
			Remove Ac

Figure 21. The tab for configuring MAC-IP pairs.

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

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

Creating ADSL WAN Connection

Net / Connections

Connection type and common sett	ings
Name:	bridge_0_35_0
Connection Type:	Bridge 💌
Enable:	
Direction:	WAN
🛐 Physical layer	
Physical interface selection and tu	nning
Physical interface:	Create
VPI (0-255):	0
VCI (32-65535):	35
Encapsulation Mode:	шс
QoS:	UBR
VLAN settings	
Virtual local area network settings	
Use VLAN:	

Figure 22. The page for creating a new connection. The **General settings**, **Physical layer** and **VLAN settings** sections.

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

Parameter	Description
	A class of traffic for this connection.
	UBR
	(<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.
	UBR With PCR
	(Unspecified Bit Rate with Peak Cell Rate): The UBR service is used for applications that allow various delays and losses of packets. The Peak Cell Rate is a determining factor in how often cells are sent in an effort to minimize lag or jitter caused by traffic inconsistencies. When you select this value from the drop-down list, the Peak Cell Rate field is displayed. Specify a required value (in cells per second).
	CBR
QoS	(<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).
	Non Realtime VBR
	 (<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.
	Realtime VBR
	(<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

Sustainable Cell Rate, and **Maximum Burst Size** fields are displayed. Specify required values.

this value from the drop-down list, the Peak Cell Rate,

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

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

Miscellaneous	
Enable IGMP Multicast:	
NAT:	
firewall:	

Figure 23. The page for creating a new connection. The **Miscellaneous** section.

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

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

🛃 PPP settings	
Enter the username, password, and values for the remaining fields.	other settings provided by the ISP. Leave the default
PPP Username:	
Without authorization:	
Password:	
Password confirmation:	
Authentication algorithm:	AUTO
Service name:	
Dial on demand:	
MTU:	1492
PPP IP extension:	
Keep Alive:	
LCP interval (sec):	30
LCP fails:	3
Use Static IP Address:	
PPP debug:	
PPPoE pass through:	
Interface:	

Figure 24. The page for creating a new connection. The **PPP settings** section.

Parameter	Description
	PPP settings
PPP Username	A username (login) to access the Internet.
Without authorization	Select the checkbox if you don't need to enter a username and password to access the Internet.
Password	A password to access the Internet.
Password confirmation	The confirmation of the entered password (to avoid mistypes).
Authentication algorithm	Select a required authentication method from the drop-down list or leave the AUTO value.
Service name	The name of the PPPoE authentication server.

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.
МТО	The maximum size of units transmitted by the interface.
PPP IP extension	This option is used by some ISPs. Contact your ISP to clarify if this checkbox needs to be enabled.
Keep Alive	Select the checkbox if you want the router to keep you connected to your ISP even when the connection has been inactive for a specified period of time. When the checkbox is selected, the LCP interval and LCP fails fields are available. Specify the required values.
Use Static IP Address	Select the checkbox if you want to use a static IP address to access the Internet. In the IP Address field displayed when the checkbox is selected, specify a static IP address.
PPP debug	Select the checkbox if you want to log all data on PPP connection debugging.
PPPoE pass through	<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.
Interface	The name assigned to the connection by the system.

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

🛃 IP settings	
Internet Protocol settings	
Obtain an IP address automatically:	
IP Address:	
Netmask:	
Gateway IP address:	
Vendor ID:	
Interface:	

Figure 25. The page for creating a new connection. The **IP settings** section.

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

Click the **Save** button.

Advanced

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

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.

second retroits for respe		System	•	Language	
🔶 Start	Advanced / LIDaD				
 Status 	Auvanced / OFTF				
➡ Net	IIPnP settings				
Advanced	Enabled:				
• <u>UPnP</u>	Endbod.				
Interface grouping					
> <u>DDNS</u>				Change	
> <u>DNS</u>					
» <u>Routing</u>					
» <u>ADSL</u>					
» <u>Remote access</u>					
Firewall					
Control					

Figure 26. 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.

summing networks for reopte			System 👻	Language
▶ Start	Advanced / Interface d	rouping		
► Status	Auvanceu / Interface g	nouping		
▶ Net	Name	LANs	WANs	
Advanced	DEFAULT	LAN1 USB	ipoe_0_35_0	
» <u>UPnP</u>				
› Interface grouping				Add group
> DDNS				
› <u>DNS</u>				
» <u>Routing</u>				
› ADSL				
» <u>Remote access</u>				
Firewall				

Figure 27. The Advanced / Interface grouping page.

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).

Building Networks for reopte			System	•	Language	_
🔶 Start	Advanc	ed / Interface grouping				
🔶 Status	Auvano	ed / Interface grouping				
➡ Net	Name:					
Advanced	LANs:					
› <u>UPnP</u>						
› Interface grouping						
> <u>DDNS</u>	WANS:					
> <u>DNS</u>		ipoe_0_35_0				
» <u>Routing</u>						
› <u>ADSL</u>						
» <u>Remote access</u>						
➡ Firewall					Save	

Figure 28. 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.

building networks for reopte				System 👻	Language	
➡ Start	A ab					
 Status 	Adv	anced / DDNS				
➡ Net		DDNS client configur	ation			
Advanced					Turk - ufr	
• <u>UPnP</u>		DUNS Service	Host name	Oser name	Interface	
» Interface grouping					Add	1
DDNS					<u>[200</u>)
» <u>DNS</u>						
» <u>Routing</u>						
» <u>ADSL</u>						
» <u>Remote access</u>						
➡ Firewall						

Figure 29. The Advanced / DDNS page.

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

			System	•	Language	
♦ Start	Advanced / DDNS					
🔹 Status						
➡ Net	DDNS client editing					
Advanced						
› <u>UPnP</u>	Host name:	DLinkL	JUNS 💌			
Interface grouping	User name:					
> DDNS	User password:					
> <u>DNS</u>	Interface:	~				
» <u>Routing</u>						
> <u>ADSL</u>					Change	
Kemote access						
🔹 Firewall						
Control						

Figure 30. 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

g		System	•	Language	
🔶 Start	Advanced / DNS				
Status	Auvanced / DNS				
♦ Net	DNS settings				
Advanced	Manual	 			
› <u>UPnP</u>	Interface:				
Interface grouping	Name servers;				
» <u>DDNS</u>					
» <u>DNS</u>					
» <u>Routing</u>				Change	
» <u>ADSL</u>					
» <u>Remote access</u>					
➡ Firewall					

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

Figure 31. 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.

<u>When you use the built-in DHCP server, the network parameters (including DNS servers)</u> 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.

building receipte				Sys	tem 🔹	Language
▶ Start	۸d	oncod / Douting				
Status	Adv	anceu / Routing				
▶ Net		Pouting configuration				
Advanced		You can add, edit and dele	te routes here	!		
» <u>UPnP</u>		Destination network 192,168,1,0	Destinatio 255.25	on netmask 55.255.0	Gateway 0.0.0.0	Via Interface br0
» Interface grouping						
» <u>DDNS</u>						Add
▶ <u>DNS</u>						
Routing						
∗ <u>ADSL</u>						
» <u>Remote access</u>						
Firewall						
Control						

Figure 32. The Advanced / Routing page.

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

saming memories for respice		System	 Language 	
➡ Start				
➡ Status				
➡ Net	Route editing			
Advanced				
» <u>UPnP</u>				
Interface grouping	Gateway:			
> <u>DDNS</u>	Metric:			
→ <u>DNS</u>	Via Interface:	< Autos		
» <u>Routing</u>				
> <u>ADSL</u>			[]	
» <u>Remote access</u>			Save	
➡ Firewall				
Control				

Figure 33. The page for adding a static route.

You can specify the following parameters:

Parameter	Description
Destination network	A destination network to which this route is assigned.
Destination netmask	The destination network mask.
Gateway	An IP address through which the destination network can be accessed.
Metric	A metric for the route. The lower the value, the higher is the route priority. <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></auto> value of this drop-down list, the router itself sets the interface on the basis of data on connected networks.

Click the **Save** button.

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

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

ADSL

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

		System	▼ Language
Start	Advanced / ADSI		
Status			
Net	Select the modulation	n below	
Advanced	G.Dmt Enabled:		
» <u>UPnP</u>	G.lite Enabled:		
Interface grouping	T1.413 Enabled:		
	ADSL2 Enabled:	\checkmark	
Bouting	AnnexL Enabled:		
ADSL	ADSL2+ Enabled:	\checkmark	
Remote access	AnnexM Enabled:		
	🛃 Select the phone lin	e pair below	
Firewall	Phone line pair:	 Inner pair 	
Control		Outer pair	

Figure 34. 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.

			Syste	m 👻	Language	
🕈 Start	Advanced /	Domoto oco				
Status	Advanced /	Remote acc	ess			
→ Net	P. Romoto or	soos configuration	a for wob-interface			
Advanced	• Remote at	cess compuration				
» <u>UPnP</u>	Name	Interface	IP address	Mask	Protocol	
Interface grouping					[Add	1
> <u>DDNS</u>					AUL	J
> <u>DNS</u>						
» <u>Routing</u>						
» <u>ADSL</u>						
» <u>Remote access</u>						
➡ Firewall						

Figure 35. The Advanced / Remote access page.

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

			System	•	Language	
➡ Start	Advanced / Remo	ate access				
➡ Status	Advanced / Kenic	Jie access				
♦ Net	Remote access rul	e editing				
Advanced	Name					
» <u>UPnP</u>	Name.					
» Interface grouping	IP address:	<auto></auto>	~			
> <u>DDNS</u>	Mask:					
» <u>DNS</u>	Protocol:					
» <u>Routing</u>						
» <u>ADSL</u>					Change	
Remote access					Charlige	
➡ Firewall						
Control						

Figure 36. The page for adding a rule for remote management.

You can specify the following parameters:

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

Click the **Change** button.

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

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

Firewall

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

IP Filters

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

				Syste	em 🔹	Language	
➡ Start	Firewell	TD filter	-				
➡ Status	Filewall /	IP-IIItel	5				
➡ Net	■ ID-filte	ars configura	tion				
Advanced		a s connigar a			D.	k	
➡ Firewall	Name	Protocol	Source	Destination	Source	Destination	
› <u>IP-filters</u>							
» Virtual servers						Add	ļ.
» <u>DMZ</u>							
Application rules							
MAC-filter							
+ Control							

Figure 37. The Firewall / IP-filters page.

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

			System 👻	Lariyuaye
Start	Firewall / IP-filters			
Status				
⇒ Net	ID-filter rule editing			
Advanced				
Firewall	Name:			
	Protocol:	TCP/UD		
• <u>IP-filters</u>	IP Addresses			
Virtual servers	For entering IP address type	e 32 as subnet bit	t-mask (field after "/")	
» <u>DMZ</u>				
Application rules	Source:			
MAC-filter	Destination:			
	Ports			
Control	You can specify either a po	rt or port range,	and several	
🔶 System	Source:			
	Destination:			
				Change

Figure 38. 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	The source host/subnet IP address. To specify an IP address leave 32 in the field following the slash character (/).
Destination	The destination host/subnet IP address. To specify an IP address leave 32 in the field following the slash character (/).
	Ports

Parameter	Description
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.

building recircles for reopte				System	•	Language
➡ Start	Firewall	() (inter a				
 Status 	Firewall	/ virtua	servers)		
♦ Net	Nietu	al corvore li	et			
Advanced	You car	n add, edit an	d delete virtua	al servers here		
➡ Firewall	Name	Interface	Protocol	Public port	Private port	Private IP
IP-filters						
» <u>Virtual servers</u>						Add
→ <u>DMZ</u>						
 Application rules 						
» <u>MAC-filter</u>						
► Control						

Figure 39. The Firewall / Virtual servers page.

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

building networks for reopte		System 👻	Language
➡ Start	Firowall / Virtual co		
🔿 Status			
♦ Net	Nistual conversation	10	
Advanced		js	
➡ Firewall	Name:	Custom	
IP-filters	Interface:	~	
» Virtual servers	Protocol:	ТСР	
▶ <u>DMZ</u>	Public port (begin):		
Application rules	Public port (end):		
MAC-filter	Private port (begin):		
. Control	Private port (end):		
	Private IP:		
System			
			Change

Figure 40. The page for adding a virtual server.

You can specify the following parameters:

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

Parameter	Description
Private port (begin)/ Private port (end)	A port of the IP address specified in the Private IP field to which traffic is directed from the Public port . Specify the start and the end value for the port range. If you need to specify one port, enter the needed value in the Private port (begin) field and leave the Private port (end) field blank.
Private IP	The IP address of the server from the local area network.

Click the **Change** button.

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

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

DMZ

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

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

building retrivits for reopte		System	▼ [anguage 🔹
🕈 Start	Firowall / DM7			
🔶 Status				
➡ Net	Demilitarized zone	settings		
Advanced	Enabled:			
🔹 Firewall	IP address:		7	
› <u>IP-filters</u>				
Virtual servers				
» <u>DMZ</u>				Change
Application rules				
MAC-filter				
➡ Control				

Figure 41. The Firewall / DMZ page.

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

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

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

Application Rules

н

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

				System	•	Language	
♦ Start	Firewall / A	policotion	rulaa				
🔶 Status		pplication	Tules				
⇒ Net	🔊 Configura	tion of annlica	tion rules				
Advanced		tion of applica	norraies	v+	Drot	tocol	
➡ Firewall	Rules name	Interface	Po Incoming	Outgoing	Incoming	Outgoing	
» <u>IP-filters</u>							
» Virtual servers						Add	
» <u>DMZ</u>							
Application rules							
▶ <u>MAC-filter</u>							
➡ Control							

Figure 42. The Firewall / Application rules page.

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

		System 👻	Language
▶ Start	Firowell / Applicatio		
Status	Firewall / Applicatio	in rules	
▶ Net			
> Advanced			
Firewall	Rules name:		
› IP-filters	Interface:	otocol settings	
Virtual servers	Protocol:		
» <u>DMZ</u>	Starting port:		
Application rules	Ending port:		
MAC-filter	🛃 Outgoing port and pr	otocol settings	
Control	Protocol:	TCP/UDP	
Svstem	Starting port:		
	Ending port:		
			Change

Figure 43. 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

IF.

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.

building networks for reopte		System	Language
➡ Start	Firowall / MAC filt	or .	
Status			
➡ Net	Configuration MAC-ad	dresses	
Advanced			
➡ Firewall	MAC-filter policy	/ settings	
› <u>IP-filters</u>	Action:	Allow	
Virtual servers			
» <u>DMZ</u>			Change
Application rules			
• MAC-filter			
➡ Control			

Figure 44. The Firewall / MAC-filter page. The Configuration tab.

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

building networks for respic	System 👻 Language 🔹
♦ Start	Firewall / MAC filter
 Status 	
➡ Net	Configuration MAC-addresses
Advanced	
➡ Firewall	MAC-filter configuration
, IP-filters	You can add, edit and delete addresses here Source MAC-address Destination MAC-address Direction Protocol Interface
Virtual servers	
» <u>DMZ</u>	Add
Application rules	
• MAC-filter	



On the opened page, specify the needed parameters.

I.

◆ Start			
 Status 	Firewall / MAC-filter		
◆ Net	Configuration MAC-addresses	٦	
Advanced			
Firewall	MAC-address editing		
 IP-filters Virtual servers DMZ Application rules MAC-filter 	Source MAC-address: Destination MAC-address: Direction: Protocol: Interface:	<any></any>	
 Control System 			(Change)

Figure 46. The page for adding a rule for MAC-address-based filtering.

Parameter	Description
Source MAC-address	The MAC address of the source host.
Destination MAC-address	The MAC address of the destination host.
Direction	Select a direction for which the rule will be applied.
Protocol	Select a protocol for which the rule will be applied. The <any></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 limit access to certain web sites.

URL Filter

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

Start				
Status	Control / URL-filter			
	Configuration URL-addresses			
Advanced	URL-filter configuration			
Firewall	Enable/Disable LIRI filter			
Control			-	
→ <u>URL-filter</u>	UKCHIKEL Kype.	Block listed URLs	×	
♦ System				Change

Figure 47. 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.

→ Start				
➡ Status	Control / URL-fi	ter		
➡ Net	Configuration URI	L-addresses		
Advanced				
➡ Firewall	URL-address	es list		
➡ Control		URL-address	Por	t
› <u>URL-filter</u>		es62.ru	80	
➡ System				Add

Figure 48. The Control / URL-filter page. The URL-addresses tab.

On the opened page, specify the needed parameters.

		System	
➡ Start	Control / URL-filter		
Status			
🔶 Net	Configuration URL-add	esses	
Advanced			
Firewall	URL-address edit	ng	
Control	URL-address:		
› <u>URL-filter</u>	Port:	80	
♦ System			Save
			(and the second s

Figure 49. The page for adding an address for the URL filter.

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

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

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

System

In this menu you can save the changed settings to the non-volatile memory, create a backup of the router's configuration, restore the router's configuration from a previously saved file, restore the factory default settings, view the system log, update the firmware of the router, and change the password used to access its settings.

Administrator Password

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

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

Building Networks for People			System 👻	Language	
♦ Start	System / Adminis	trator paceword			
➡ Status	System / Auminis	stator password			
➡ Net	🔊 System nassword	setting un			
Advanced	The system password ar	nd the password for the web-bas	ed interface will be change	d at the same time.	
Firewall	Login:	admin 🔽			
♦ Control	Password:				
♦ System	Confirmation:				
• Administrator password					
Configuration				Save)
» <u>System loq</u>					
› Firmware upgrade					

Figure 50. 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.

building networks for reopte	1	System 👻	Language 🗖
🔶 Start	System / Configuration		
🔶 Status	System / Computation		
♦ Net	Save current settings:		
Advanced	Beset to factory defaults:	_	
➡ Firewall	Saving current configuration in a file		
Control	Backup		
🔹 System	device and reboot:	Choose Res	tore
Administrator password			
• Configuration			
» <u>System loq</u>			
» Firmware upgrade			

Figure 51. 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 18).
Backup	Click the button and follow the dialog box appeared to save the configuration (all settings of the router) to your PC.
Restore	Click the button to upload a previously saved configuration (all settings of the router) from a file on your PC. Click the Choose/Browse ¹ button to select a previously saved configuration file located on your PC.

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

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

System Log

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

building rections for reopte		System	✓ Language
🕈 Start	System / System log		
→ Status	System / System log		
➡ Net	Configuration Log		
Advanced	Logging:		
→ Firewall	Logging type:	Local and remote	
Control	Local logging level:	Debugging messages	
→ System	Remote logging level:	Debugging messages 🛛 💉	
	Server address type:	URL 🕶	
› Administrator password	Server:		
Configuration	Port:	514	
» <u>System loq</u>		•••	
» Firmware upgrade			Change

Figure 52. 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
	Select a type of logging from the drop-down list.
Logging type	 Local: the system log is stored in the router's memory (and displayed on the Log tab). When this value is selected, the Server address type, Server, and Port fields are not displayed.
	• Remote : the system log is sent to the remote host specified in the Server field.
	• Local and remote: the system log is stored in the router's memory (and displayed on the Log tab) and sent to the remote host specified in the Server field.
Local logging level	Select a type of messages and alerts/notifications to be stored locally in the router's memory. The field is available, when the Local or Local and remote value is selected from the Logging type drop-down list.

Control	Description
Remote logging level	Select a type of messages and alerts/notifications to be sent to the remote host specified in the Server field. The field is available, when the Remote or Local and remote value is selected from the Logging type drop-down list.
Server address type	From the drop-down list, select the IP value to specify an IP address of a host from the local or global network, or the URL value to specify a URL address of a remote server.
Server	The IP or URL address of the host from the local or global network, to which the system log will be sent.
Port	A port of the host specified in the Server field. By default, the value 514 is specified.

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

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

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

building networks for reopte		System	 Language
🔶 Start	System / System log		
➡ Status	System / System log		
➡ Net	Configuration Log		
 Advanced 			Refresh Export
➡ Firewall			
➡ Control			
♦ System			
> Administrator password			
Configuration			

Figure 53. 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.

Building Networks for People		[System 👻	Language
🔶 Start	System / Firmwar	e uparade		
➡ Status	System / Timwar	e apgrade		
➡ Net	Select update file:		Choose	
➡ Advanced			Choosen	
➡ Firewall				
➡ Control				(Update)
🔶 System				
› Administrator password				
 Configuration 				
System log				

Figure 54. 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/Browse²** button on the **System / Firmware upgrade** page to locate the new firmware file.
- 3. Click the **Update** button to upgrade the firmware of the router.
- 4. Wait until the router is rebooted (about one and a half or two minutes).
- 5. Log into the web-based interface using the login (admin) and the current password.
- 6. Select the **Factory** line in the top-page menu displayed when the mouse pointer is over the **System** caption.
- 7. Wait until the router is rebooted. Log into the web-based interface, using the default IP address, login and password (**192.168.1.1**, **admin**, **admin**).

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

CHAPTER 5. ABBREVIATIONS AND ACRONYMS

ARP	Address Resolution Protocol
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DHCP	Dynamic Host Configuration Protocol
DMZ	DeMilitarized Zone
DNS	Domain Name System
GMT	Greenwich Mean Time
IGMP	Internet Group Management Protocol
IP	Internet Protocol
IPoA	Internet Protocol over ATM
IPoE	Internet Protocol over Ethernet
LAN	Local Area Network
LCC	Logical Link Control
LCP	Link Control Protocol
MAC	Media Access Control
мти	Maximum Transmission Unit
NAT	Network Address Translation
PBC	Push Button Configuration
PIN	Personal Identification Number
PPPoA	Point-to-Point Protocol over ATM
PPPoE	Point-to-point protocol over Ethernet
PSK	Pre-shared key
QoS	Quality of Service
RTS	Request To Send
ТКІР	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