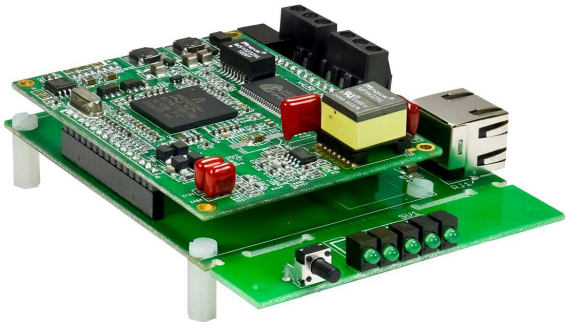
Manual
for
AK-ADSL



EVA-KIT-ADSL

ADSL-Modul

AK-DinRail - ADSL

AK-RailPort - ADSL

AK – Nord
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Contents

Contents

AK-DinRail-ADSL

AK-DinRail-ADSL

Technical description

Dimensions:	35 x 120 mm(WxH)
Temperature range:	From -20℃ to +70℃
Power consumption:	7 to 34 volts / 2.4 watts (equals at 12 volts = 200mA)
Network connections:	Ethernet 10/100MBit (**M-DIX**) RJ45
Network speeds:	10/100 MBit Full/Half Duplex
Supported protocols:	Static IP, Dynamic RIP routing, IP/TCP/UDP/ICMP/ARP/RARP Application, Network Address Translation(NAT), Port Mapping/Forwarding, DHCP Server/Relay/Client, DNS Relay Agent, DMZ
ADSL:	ANSI T1.413 Issue 2 (ADSL) ITU-T G.992.1 (G.dmt) ITU-T G.992.2 (G.lite) ITU-T G.992.3/4 (ADSL2) ITU-T G.992.3 Annex L (RE-ADSL) ITU-T G.992.5 (ADSL2+) ITU-T G.992.5 Annex M (ADSL2+M)
Routing and encapsulation:	RFC2684 Bridge and Routed, LLC and VC Mux support, RFC2364 PPPoA Client, RFC2516 PPPoE Client, RFC2225/RFC1577 Classical IP, Transparent Bridge, PAP/CHAP/MS-CHAP for Password Authentication
Connections:	**1 x ADSL** **1 x Power supply** Removable female connector strips with screwed connection grid 5.08mm

AK-DinRail-ADSL

Description and connection assignment

Network

ADSL connection

Power supply

ADSL

Shield / Housing
DSL-Signal b
DSL Signal a

Power supply

Shield / Housing
+ 7-32 VDC 0.96 watts
- 7-32 VDC 0.96 watts

Reset button

LED

1. Power LED
2. Network link
3. Network activities
4. Status LED
5. DSL activity

AK-RailPort-ADSL

AK-RailPort-ADSL

Technical description

Dimensions:	87 x 62 mm(WxH)
Temperature range:	From -20℃ to +70℃
Power consumption:	7 to 34 volts / 2.4 watts (equals at 12 volts = 200mA)
Network connections:	Ethernet 10/100MBit (**M-DIX**) RJ45
Network speeds:	10/100 MBit Full/Half Duplex
Supported protocols:	Static IP, Dynamic RIP routing, IP/TCP/UDP/ICMP/ARP/RARP Application, Network Address Translation(NAT), Port Mapping/Forwarding, DHCP Server/Relay/Client, DNS Relay Agent, DMZ
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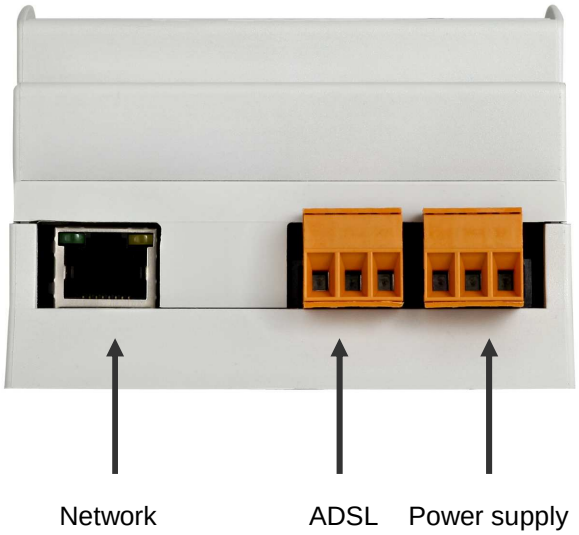
AK-RailPort-ADSL

Description and connection assignment



Power supply

Shield / Housing	
+ 7-32 VDC 0,96 watts	
- 7-32 VDC 0,96 watts	

ADSL

Shield / Housing	
DSL-Signal b	
DSL Signal a	

1. Power LED
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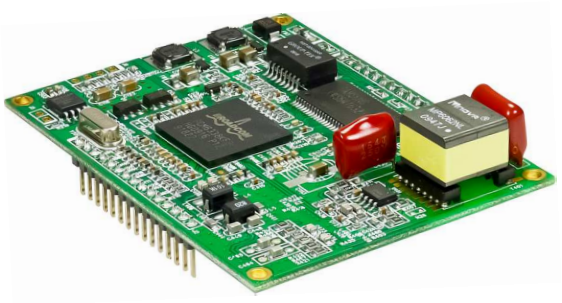
4. Status LED
5. DSL activity

AK-ADSL module

ADSL module



Technical description

Dimensions:	60 x 80 x 14mm
Temperature range:	From -20℃ to +70℃
Power consumption:	5 volts (DC) / 2.5 watts
Network connections:	Ethernet 10/100MBit (**M-DIX**)
Network speeds:	10/100 MBit Full/Half Duplex
Supported protocols:	Static IP, Dynamic RIP routing, IP/TCP/UDP/ICMP/ARP/RARP Application, Network Address Translation(NAT), Port Mapping/Forwarding, DHCP Server/Relay/Client, DNS Relay Agent, DMZ
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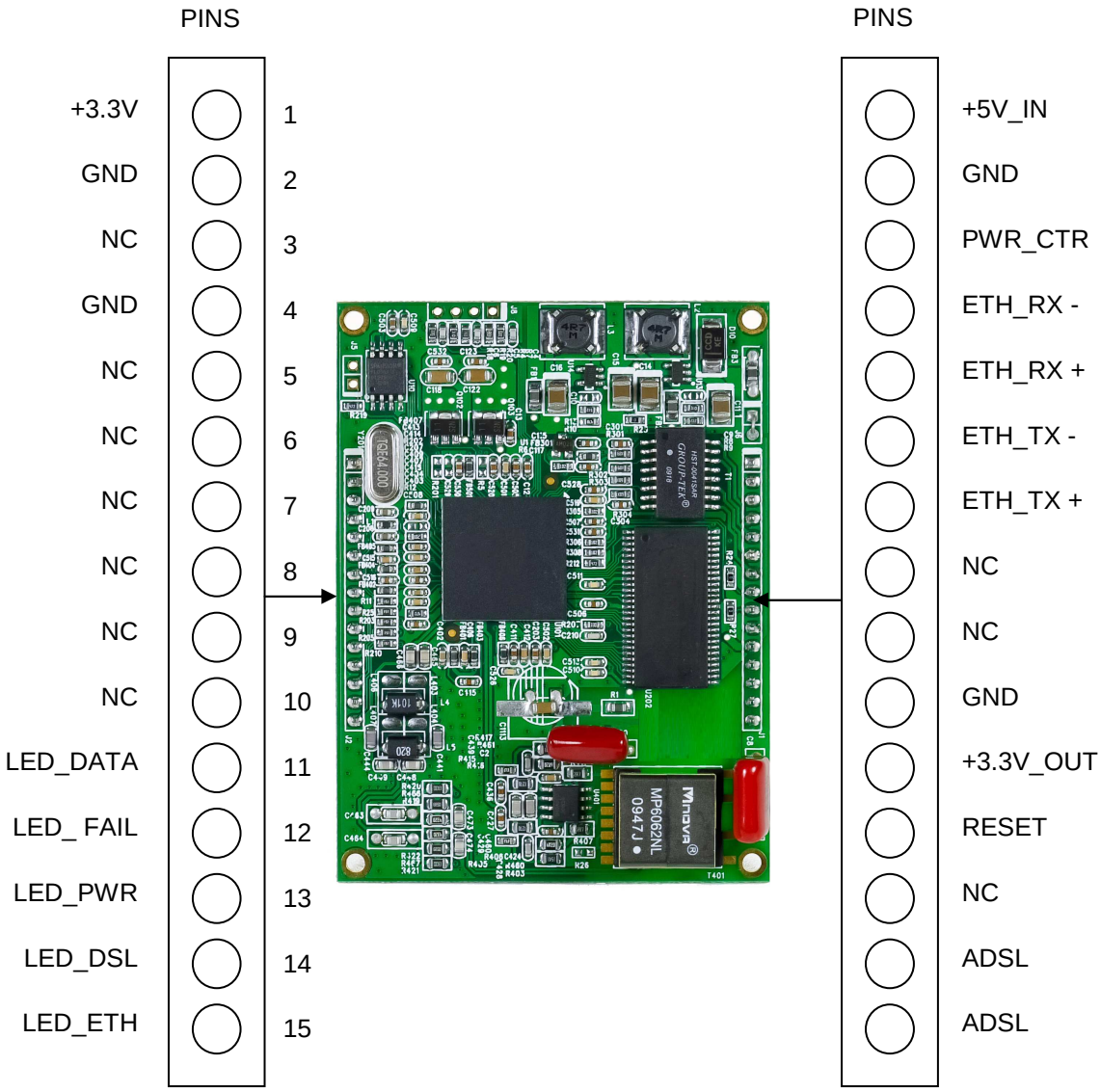
Connections:	**1 x ADSL** **1 x Power supply**

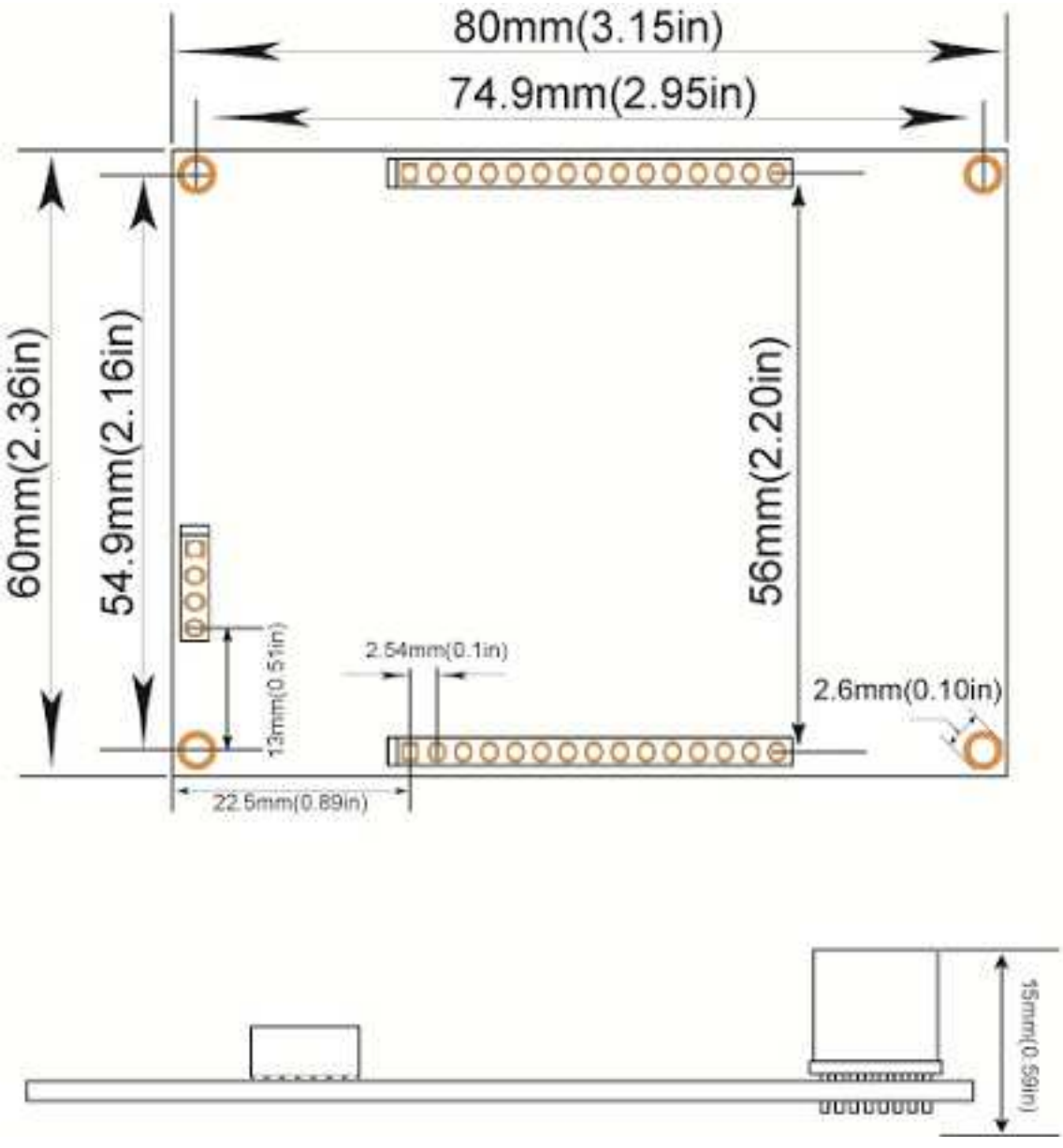
AK-ADSL module

Pin assignment



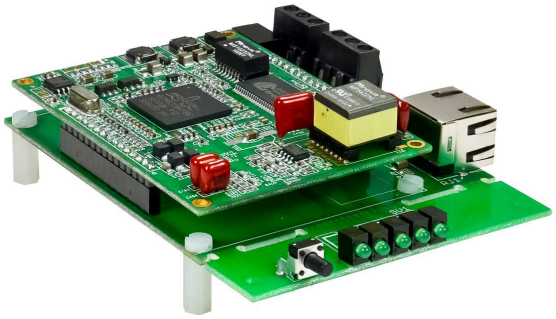
AK-ADSL module

Dimensioning



EVA-KIT-ADSL

AK-EVA-KIT-ADSL



Technical description

Temperature range:	From -20℃ to +70℃
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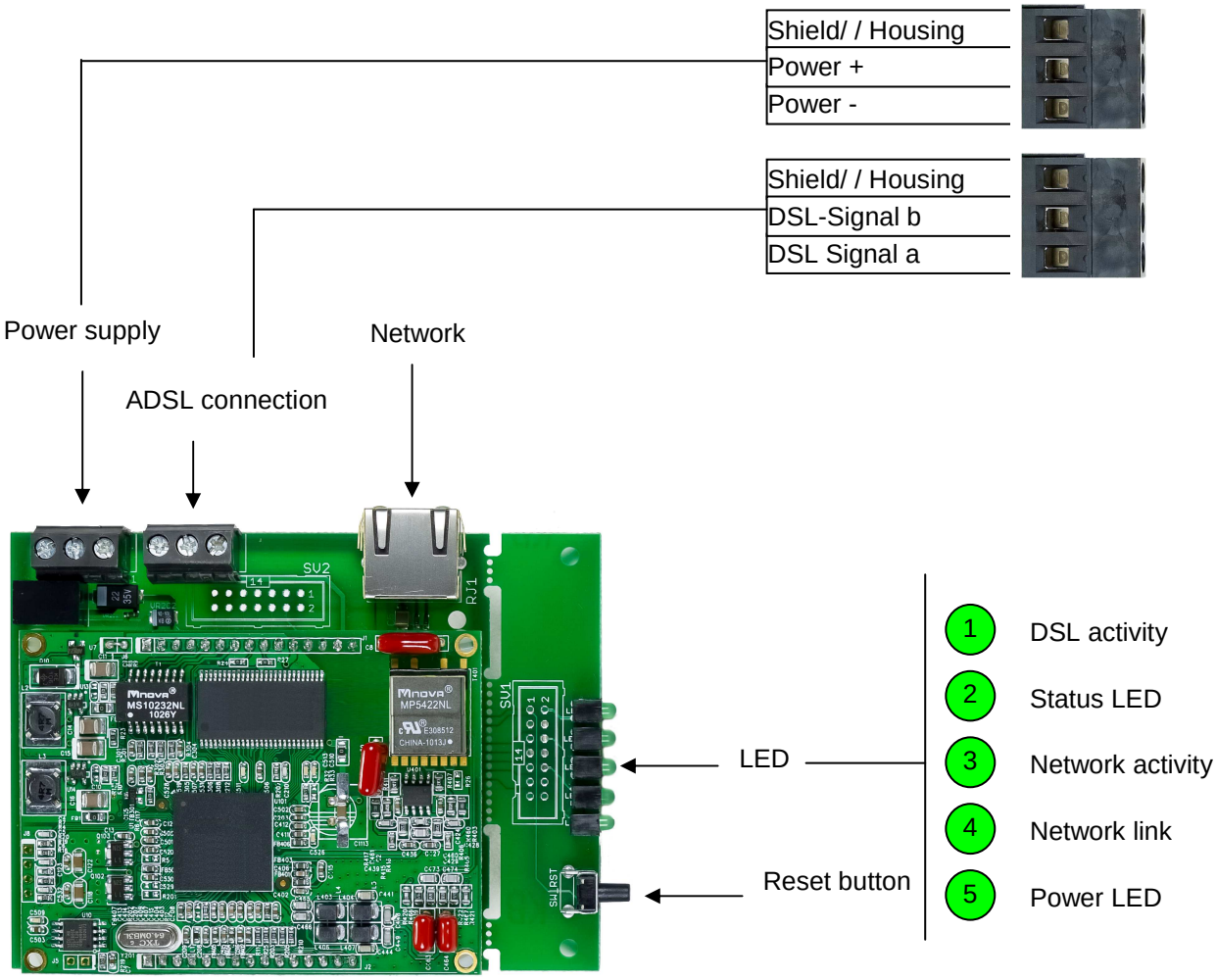
EVA-KIT-ADSL

Description and connection assignment

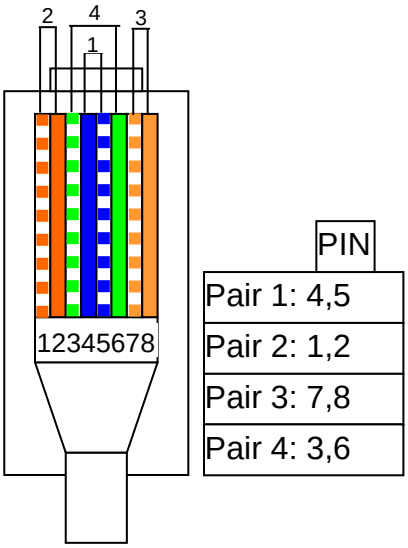


Description for ADSL connection

1st Option

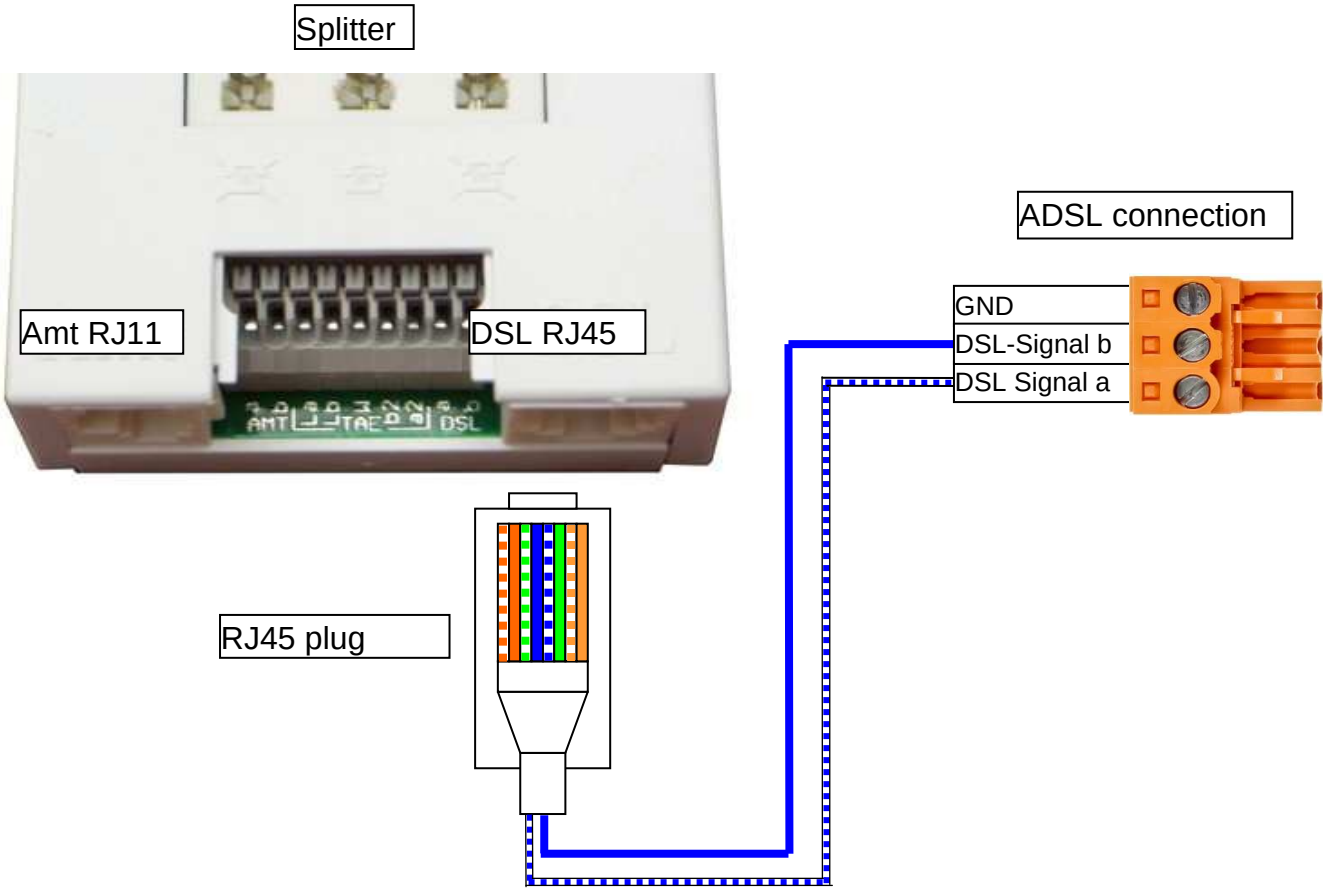
Connection from the splitter to the AK-DinRail-ADSL / EVA-KIT-ADSL via Ethernet cable:

Pin pairs



PIN
Pair 1: 4,5
Pair 2: 1,2
Pair 3: 7,8
Pair 4: 3,6

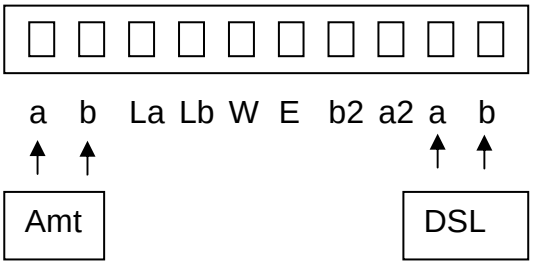
For the ADSL connection the two wires are required which transfer the DSL signals a and b. For an Ethernet cable with RJ45 plug (T568A or T568B) with 8 PINs the two signals are transferred on the pin pair 1 (4=a, 5=b).



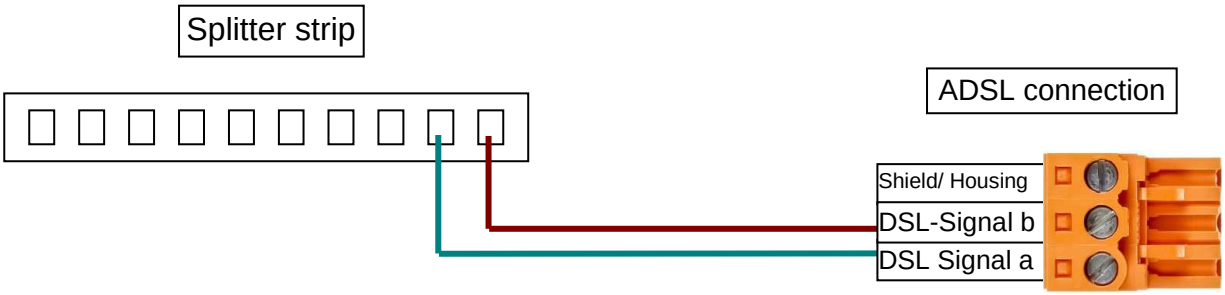
Description for ADSL connection

2nd Option

Connection from the splitter to the AK-DinRail-ADSL / EVA-KIT-ADSL via two wires:



In order to connect the splitter and the DinRail-ADSL / EVA-KIT-ADSL two wires are clamped in the DSL a and b connections.

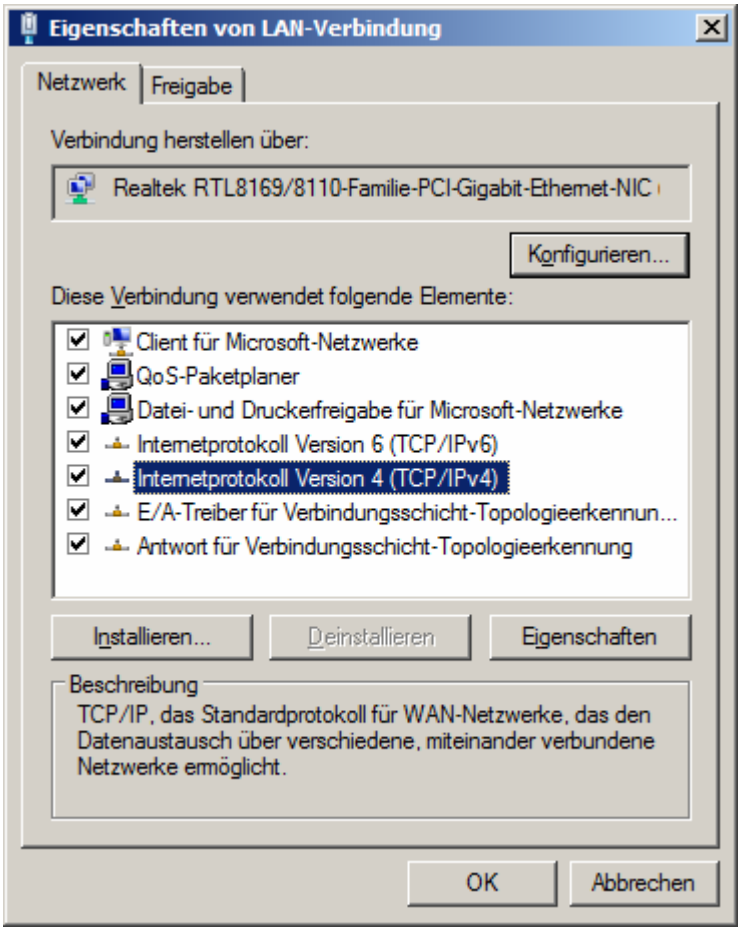


Setting the TCP/IP

Do not connect the AK-DinRail-ADSL / the EVA-KIT-ADSL into the network in any way if a DHCP server is already available in the network! When starting up the connected devices it might happen that both DHCP servers assign different IP addresses to the devices and the existing network will not work correctly any longer! This function should be deactivated when subsequently configuring the AK-DinRail-ADSL / EVA-KIT-ADSL in the LAN menu.

The configuration of the router is performed via a web browser based function. In order to be able to access the router, the router must be connected to the PC via Ethernet. The following standard data are used for the configuration: IPv4 address 192.168.1.1 and subnet mask 255.255.255.0.

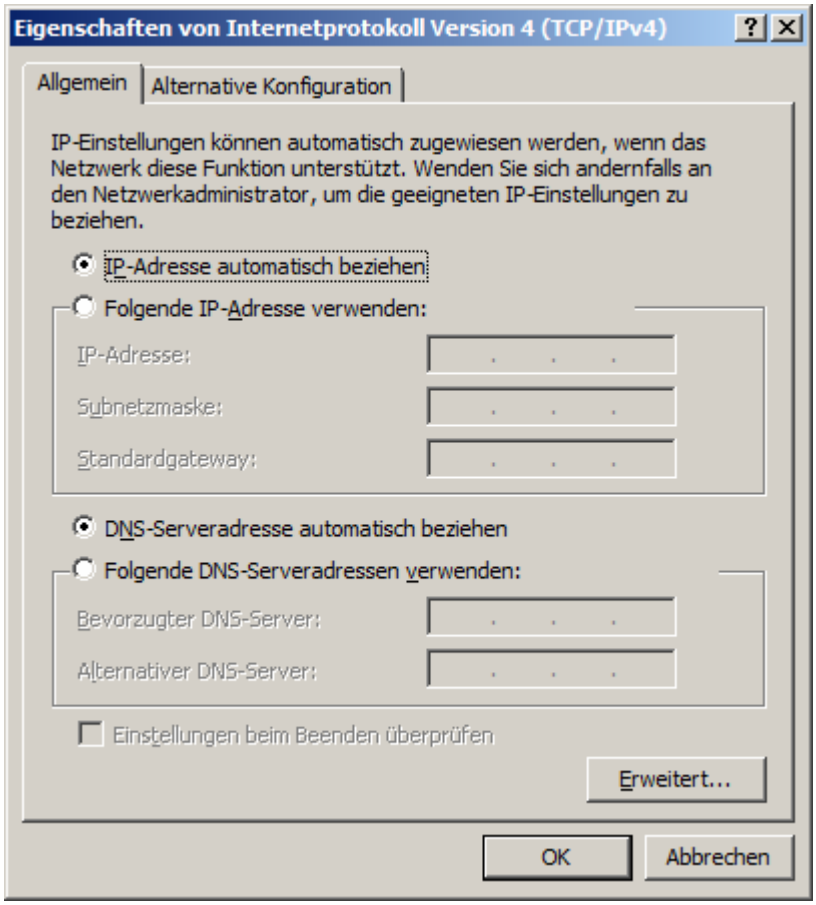
1. Check, if your PC possesses an IPv4 address.
To do so, select under “Network and Internet“ -> “Network connections“ -> by right-clicking on your “LAN connection“ and go to “Properties“. Then the following window should open up:



Then double-click on IPv4 or select IPv4 and click on “Properties“.

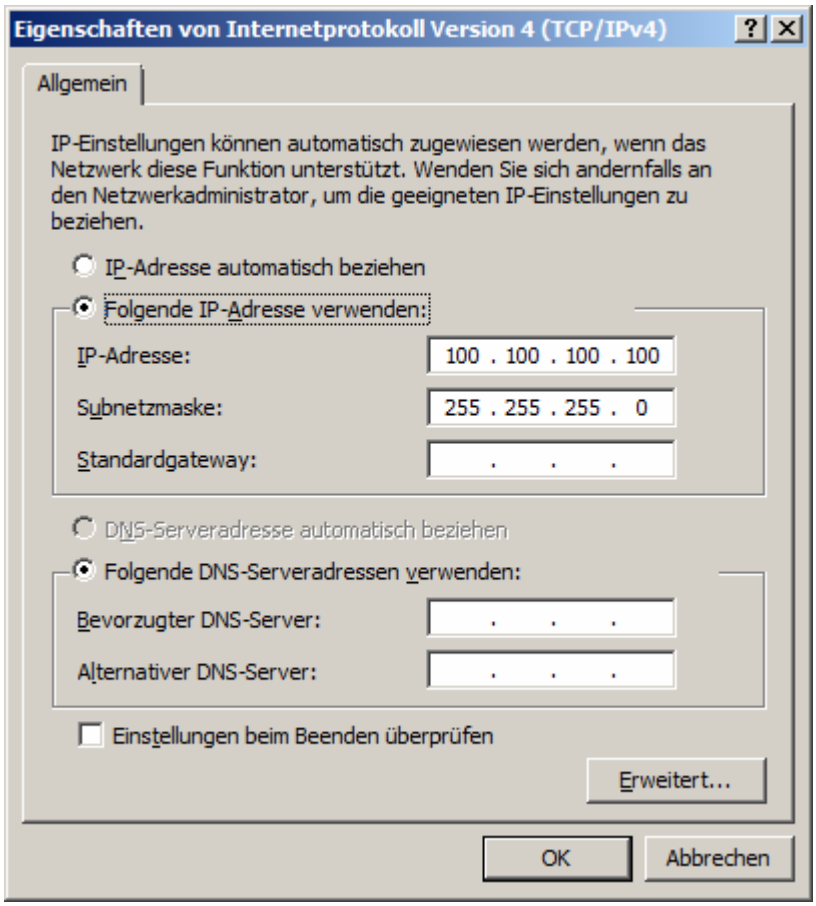
Setting the TCP/IP

1.1 No IPv4 address is available / PC refers automatically to the IPv4 address: The IPv4 address is automatically assigned to your PC by the integrated DHCP server



Setting the TCP/IP

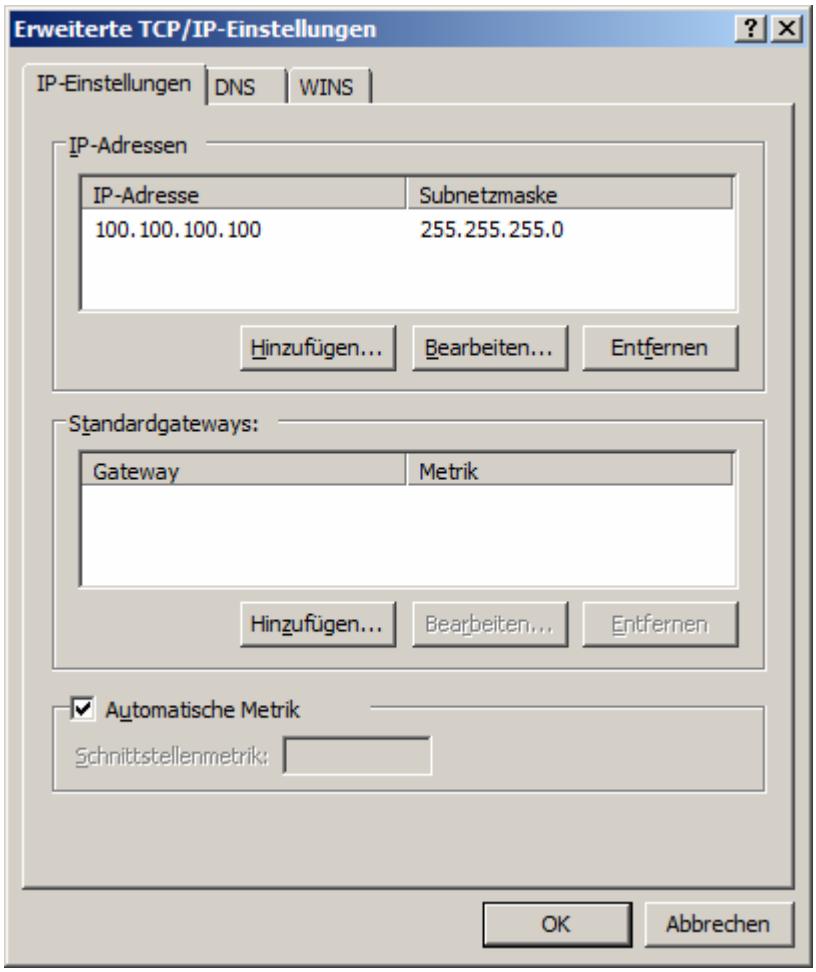
1.2 IPv4 address available:



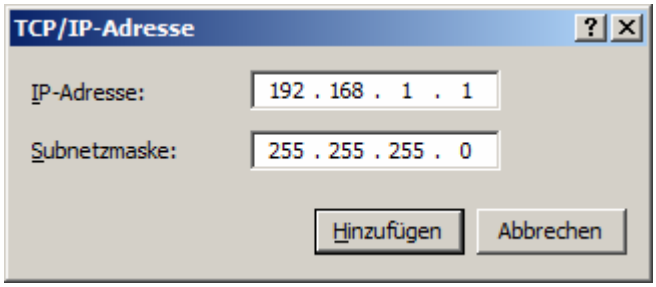
Click on “Extended…“

Setting the TCP/IP

You access the extended IPv4 settings:



Here you can see the already available IPv4 address(es) and then you have to add the IPv4 address for AK-DinRail-ADSL / EVA-KIT-ADSL required for the configuration.
To do so, simply select “Add…“ and the IPv4 address 192.168.1.1 as well as the subnet mask 255.255.255.0 need to be entered:



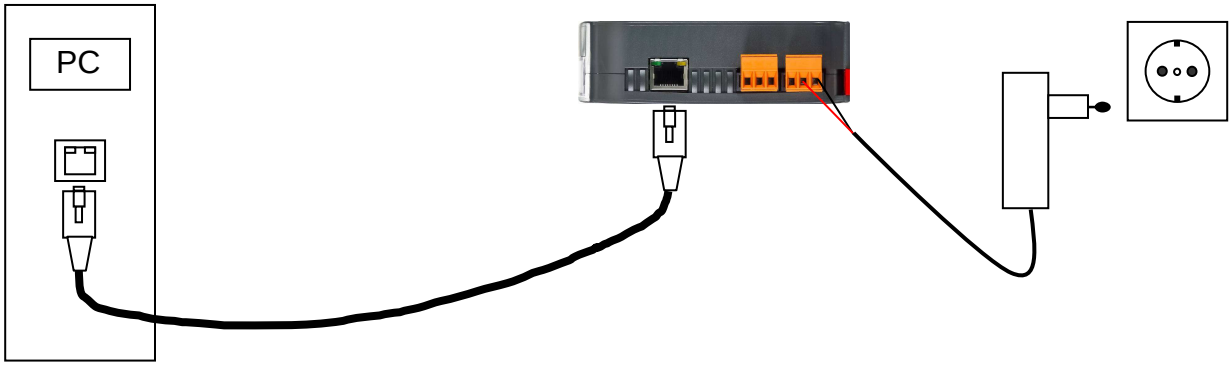
Select “Add“

Setting the TCP/IP

2. During first use disconnect the PC from the existing network.

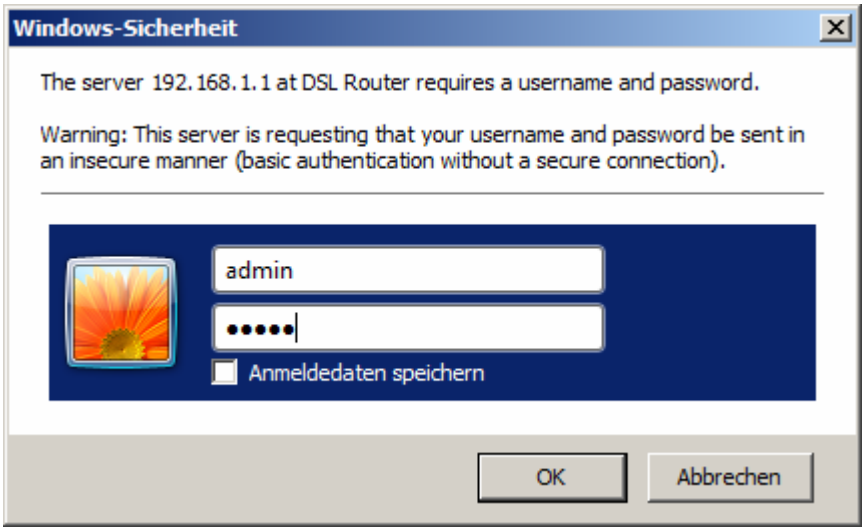
3. Connect the power supply for the AK-DinRail-ADSL / das EVA-KIT-ADSL and connect the AK-DinRail-ADSL / the EVA-KIT-ADSL to your PC via Ethernet.

Example for installation:



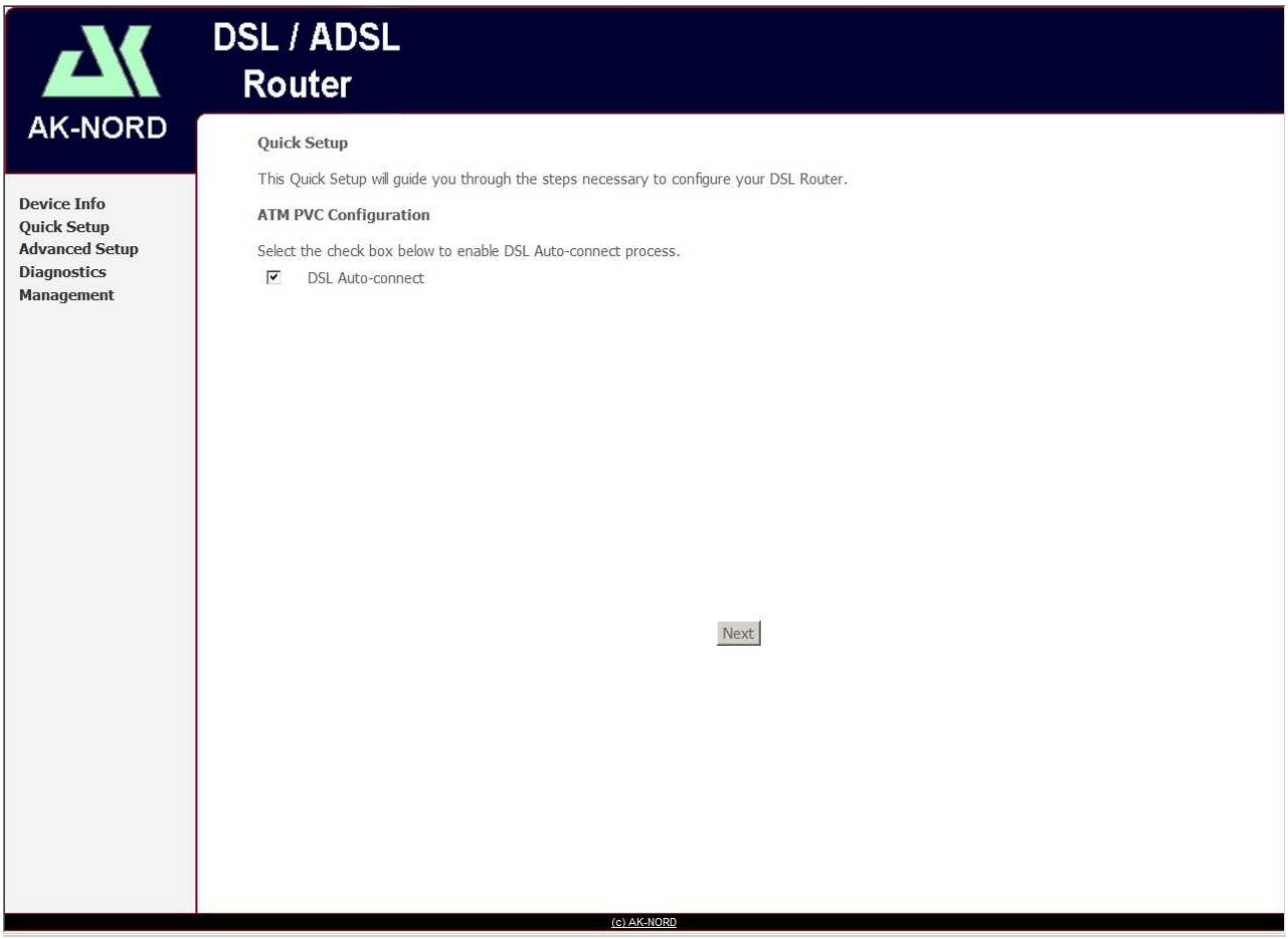
Then open up your web browser and enter http://192.168.1.1 in the address field. After successfully establishing a connection to the router, you are prompted to enter the user name and password.

User name: admin
Password: admin



Configuration ADSL

Welcome to the menu of the DSL / ADSL router



On the left side you will see five menus:

1) Device Info

2) Quick Setup

3) Advanced Setup

4) Diagnostics

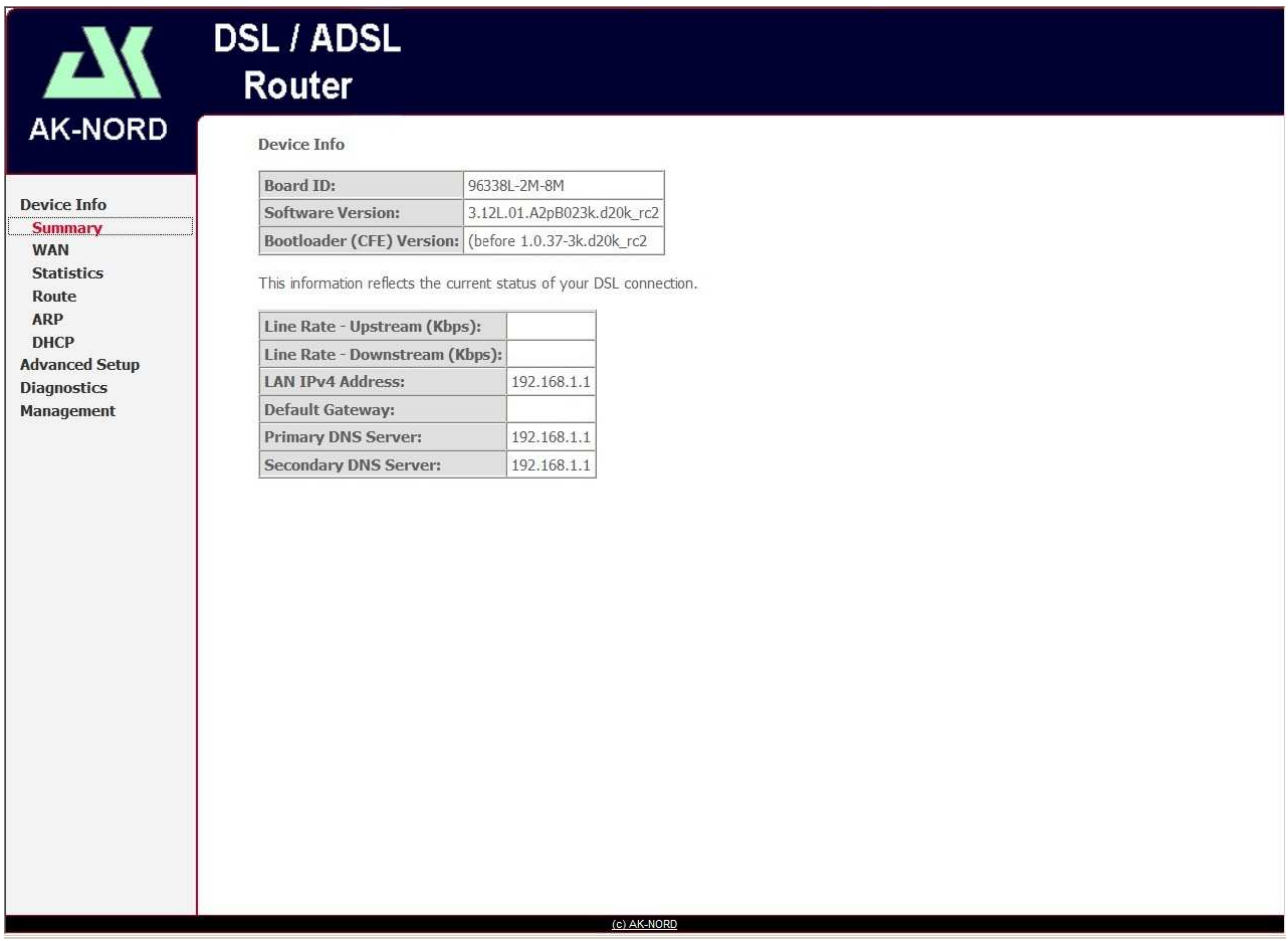
5) Management

On the first page which shows up the “Quick Setup“ menu is available and if you do not possess any exact configuration data, you can also perform this setup. The only disadvantage is the long time required to perform this setup.

The “Advanced Setup” is considerable more rapid!

Configuration ADSL

1) Device Info



Here you can see the general data of the router:

- WAN: All accounts as well as their settings are listed

- Statistics: You receive clearly arranged tables for LAN, WAN, ATM and ADSL, displaying e.g. Received Bytes or Transmitted Bytes or Errors.

- Route: The routing procedure of the router is displayed in a table.

- ARP: Overview of the address data records for the translation of IP to physical addresses.

- DHCP: All DHCP-Clients are listed to which your router assigns an IP address. For the single Client the Hostname, MAC address, IP address and DHCP Lease Time are displayed.

Configuration ADSL

3) Advanced Setup

As you can see, you have accessed the Advanced Setup. Here you have the following selection options in order to configure your router:

3.1) WAN (Wide Area Network) for Internet accounts and Bridge function

3.2) LAN (Local Area Network) for the existing Ethernet connection to the router

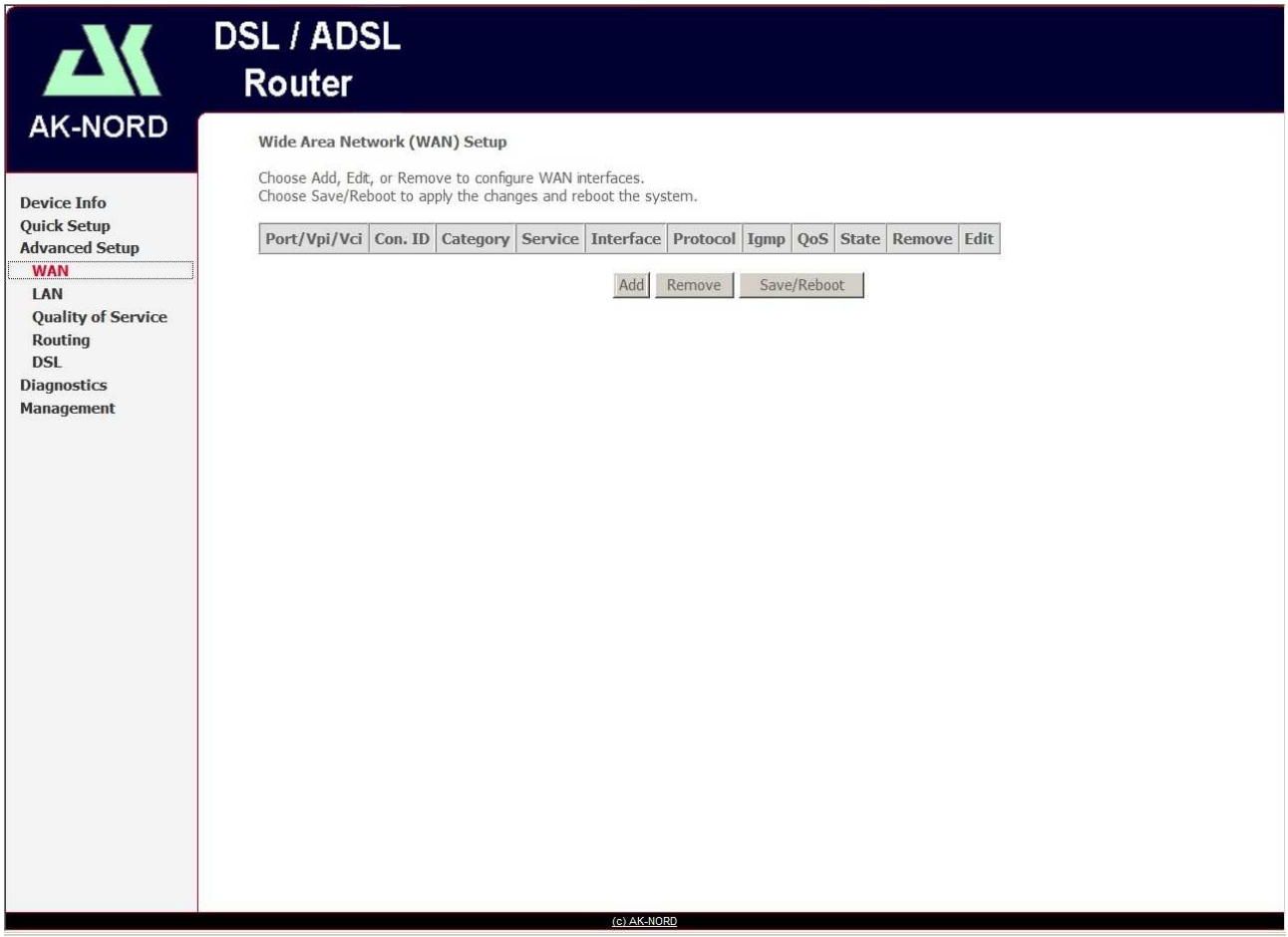
3.3) Quality of Service to classify/prioritize the IP packages

3.4) Routing to determine the path fort he message flow

3.5) DSL for an exact setting of the DSL

Configuration ADSL

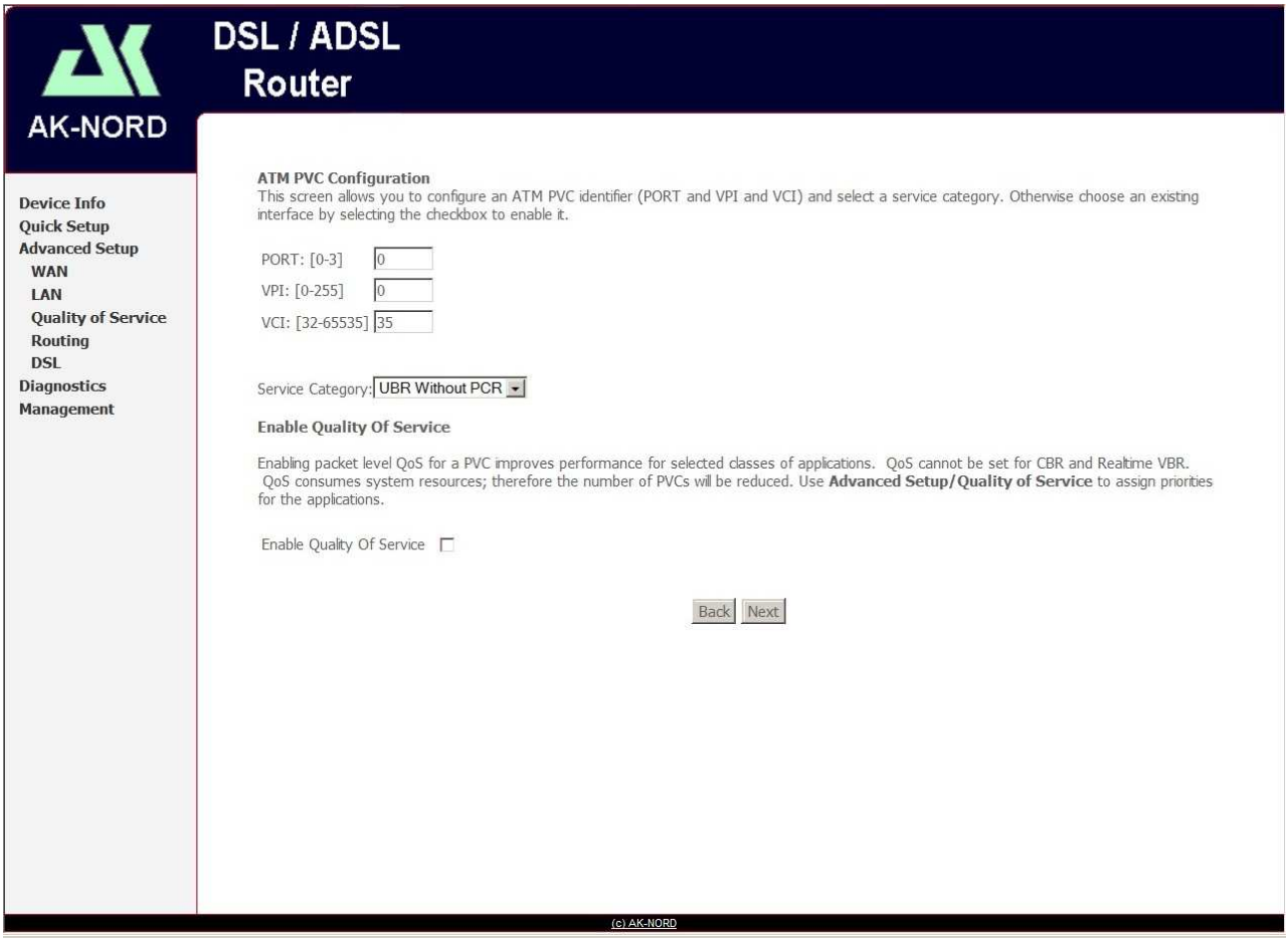
3.1) The WAN menu



You can generally manage accounts with the functions Add, Remove, Save/Reboot and Edit, if there is already an account existing.

Configuration ADSL

Adding a WAN account

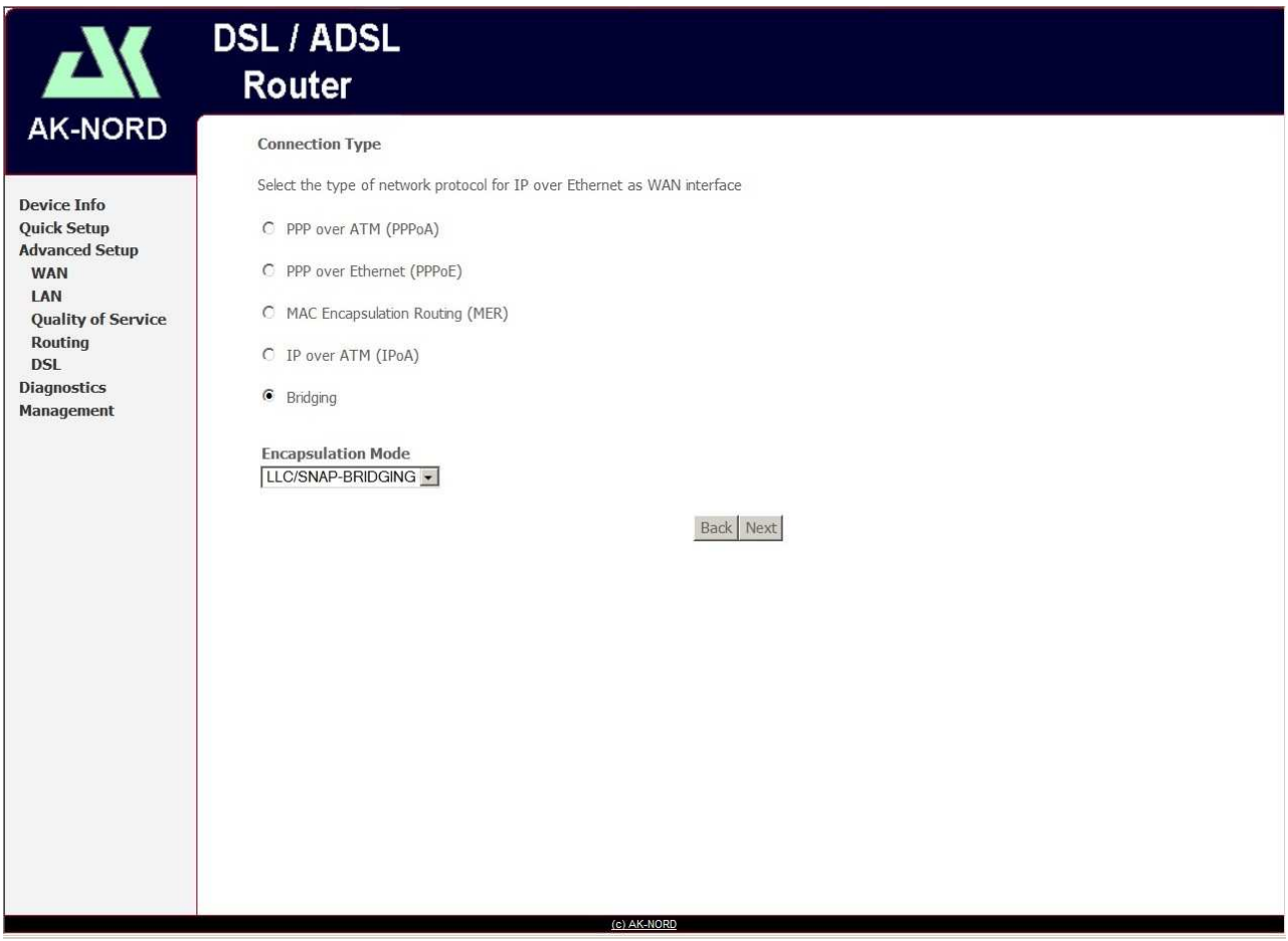


After clicking on the button Add, you can configure your router:

Enter for VPI (Virtual Path Identifier), VCI (Virtual Channel Identifier) as well as Service Category and Enable QoS the data from ISP(Internet Service Provider). If your ISP did not make any indications for the last two items, just leave them as they are.

Configuration ADSL

Click on “Next“ and you access the following page.



Here you can select your connection type:

3.1a) PPP over ATM (PPPoA)
3.1b) PPP over Ethernet (PPPoE)
3.1c) MAC Encapsulation Routing (MER)
3.1d) IP over ATM (IPoA)
3.1e) Bridging

The selection of your connection type is depending on your ISP or on the fact, if you would like to use your router as Bridge. Most providers in Germany offer PPPoE connections in the most common cases.

Configuration ADSL

Service Category / Encapsulation

Service Category:

- UBR (Unspecified Bit Rate): You receive the bandwidth according to the Best-Effort principle, i.e. you receive the bandwidth which can currently be implemented.
  - ➔ However for standard settings for TCP/IP there is no guaranteed cell transfer, e.g. in case of a data bottleneck in the line, the UBR cells are more likely rejected than others. Appropriate for any data transfer.

- CBR (Constant Bit Rate): A certain peak rate is demanded which can be guaranteed and remains constant (but if a higher rate is available, it might cause that this bandwidth remains unused).
  - ➔ the isochronous Service Category is intended for real-time Traffic which does not tolerate hardly any cell transfer delay, respectively cell transfer variations and is defined over a certain time such as e.g. Voice, Video, Circuit Emulation. Not appropriate for suddenly increasing Traffic such as LAN.

- VBR (Variable Bit Rate): An average cell rate is made available which may be exceeded for a certain time.
  - ➔ VBR-RT: the synchronous Service Category is appropriate for suddenly increasing Traffic, it allows statistic multiplexing and is characterized by a peak cell rate (PCR), continuous cell rate as well as a maximum burst size. VBR-RT assumes a certain delay guarantee, however no fixed bandwidth. For instance packed interactive videos or Voice applications with voice activation.
  - ➔ VBR-NRT: can be used for applications with suddenly increasing traffic which do not assume any cell transfer delays / cell delay variations. VBR-NRT allows statistic multiplexing and assumes a low cell loss rate. Furthermore, this Service Category does not require a certain latency and is characterized by a peak cell rate (PCR), continuous cell rate as well as a maximum burst size. It is used mostly for multimedia applications.

PCR (Peak Cell Rate) – can be set for a peak rate which should be guaranteed
RT (Real-Time) – only, if also bandwidth is required, it is also sent (on- / -off Traffic)
NRT (Non-Real-Time) – similar to RT, only tolerant towards time delays

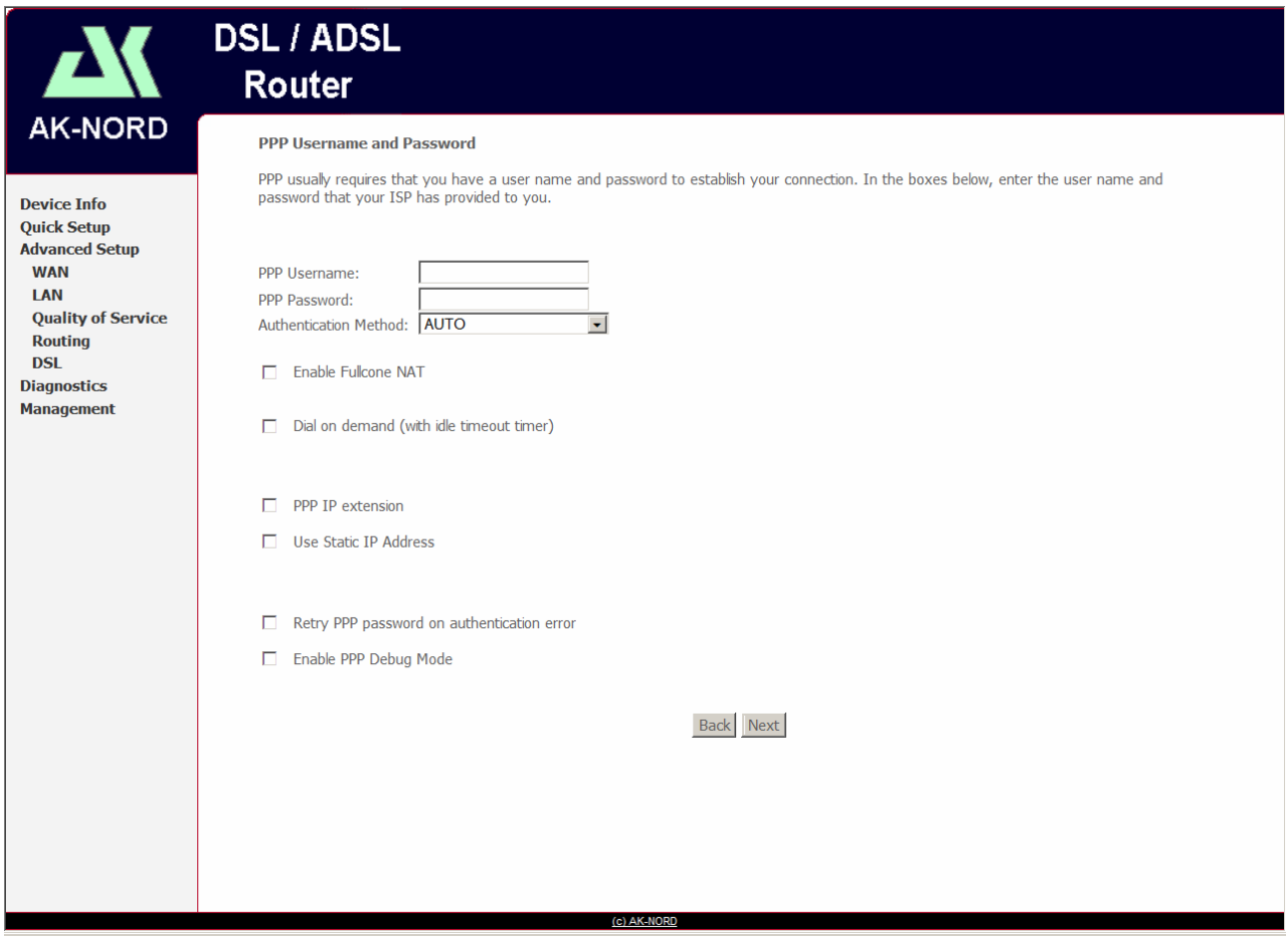
We recommend to use the standard setting “UBR without PCR“. This guarantees a balanced Internet connection. In case that you would like to perform other settings, you should be exactly informed in advance about the different service categories in order that no problems occur.

Encapsulation

We recommend to use the standard setting “LLC/ SNAP-Bridging“. If you would like to perform another setting, please be informed beforehand by your Internet service provider.

Configuration ADSL

3.1a/b) PPPoA / PPPoE



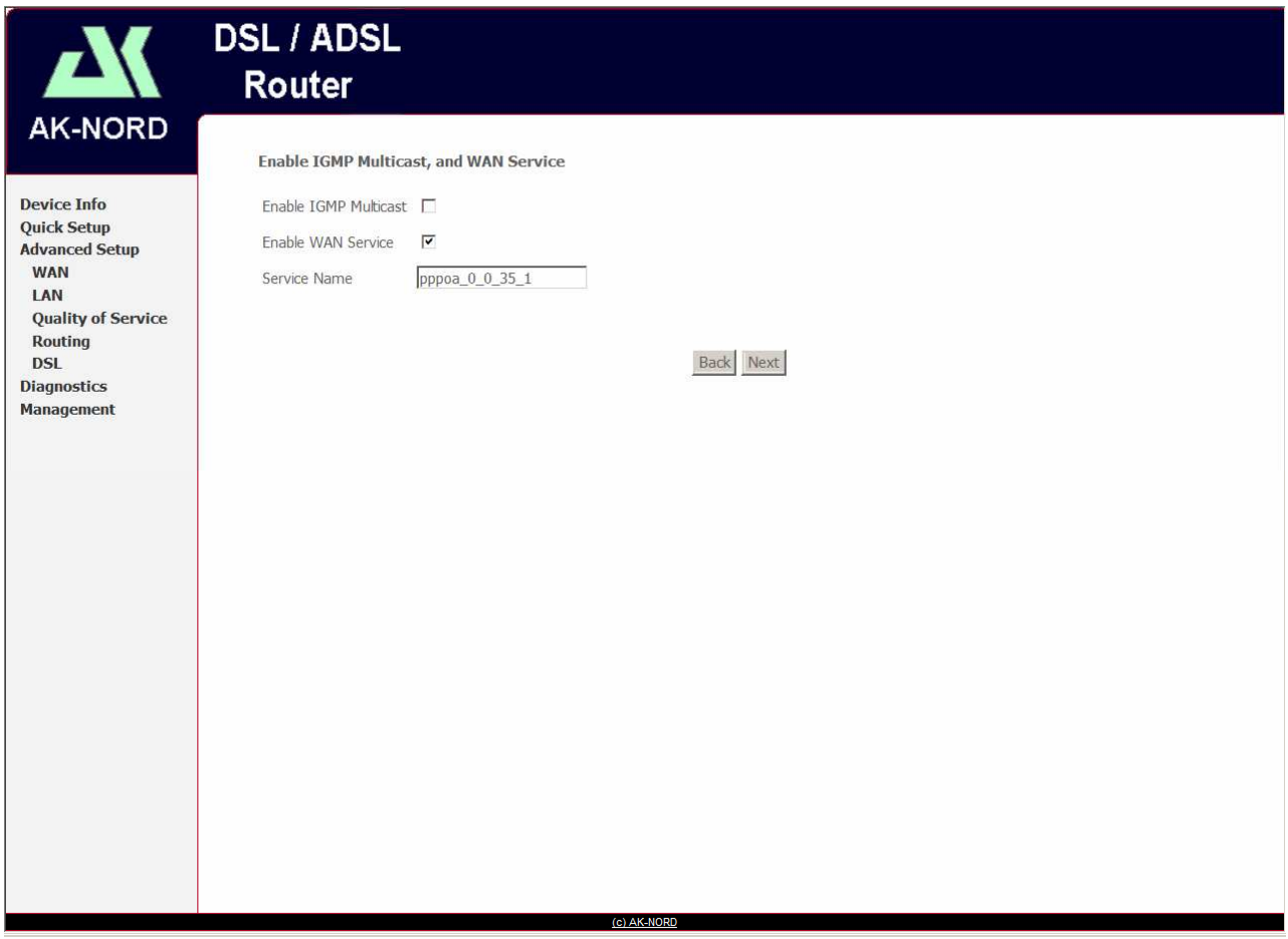
When using a PPPoA / PPPoE connection, you have to indicate your PPP data from ISP in the following step. Furthermore, the options Fullcone NAT, Dial on Demand, IP Extension, Static IP, Retry PPP and Debug Mode are available.

NAT – Network Address Translation
Dial on Demand – If you do not want to operate your Internet connection continuously, since e.g. you do not have a flat rate, you may set a timer which disconnects the Internet connection in case of an inactivity of x minutes.
IP Extension – An IP address is assigned to your router and only the PC to which this IP address is assigned can establish a connection to the Internet.
Static IP – Indications of a static IP address.
Debug Mode – Offers you the option, e.g. to view an exact analysis of the problem in case of a connection failure.

(Only for PPPoE there is the option to use “Bridge PPPoE Frames Between WAN and Local Ports“, which allows you to start PPPoE connections from your PC! And the field PPP Service Name which is left empty or assigned by default, depending on your provider.)

Configuration ADSL

3.1a/b) PPPoA / PPPoE



Here you have to perform the last settings for the PPPoA connection.

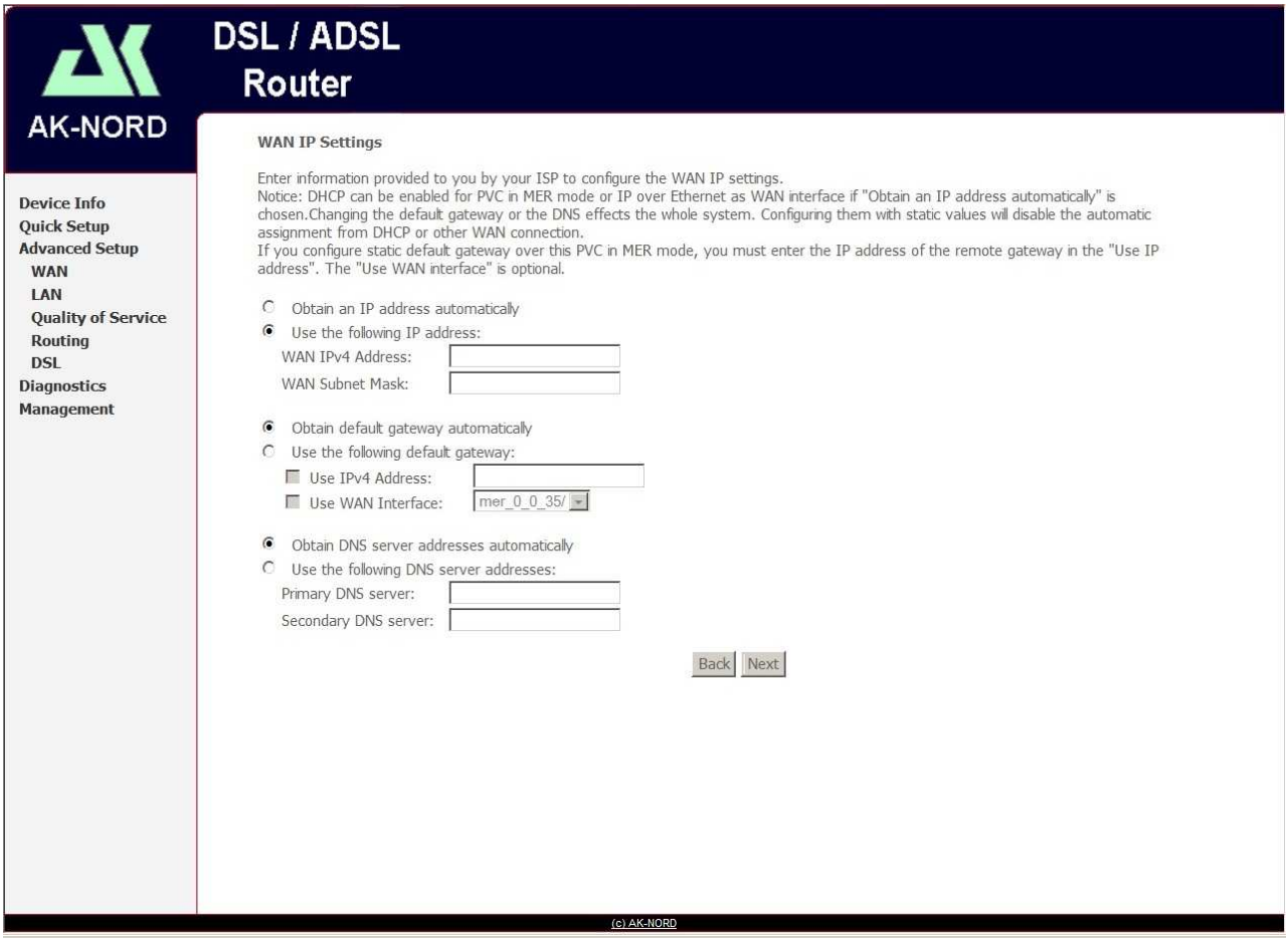
Enable IGMP Multicast - Internet Group Management Protocol must only be set, if the devices support Multicast.

Enable WAN Service – should be activated (if you have several WAN accounts, you can also deactivate them using this function)

Service Name – Name of the Internet account

Configuration ADSL

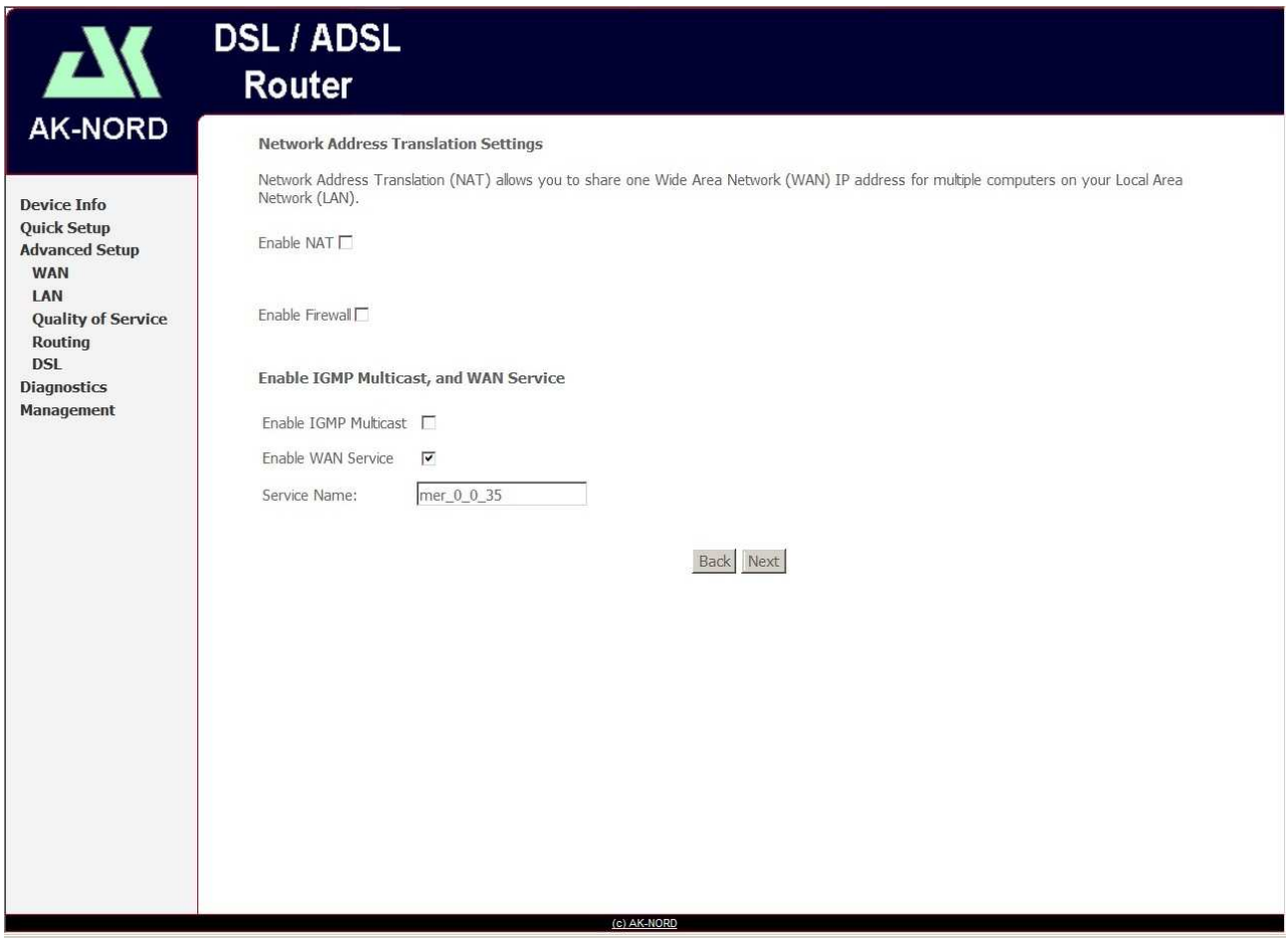
3.1c) MER



If you an MER (MAC Encapsulation Routing), you have configure the IP address, Gateway and DNS server by indicating your ISP in the following step.

Configuration ADSL

3.1c) MER



One step further you have the following setting options:

Enable NAT

Enable Firewall

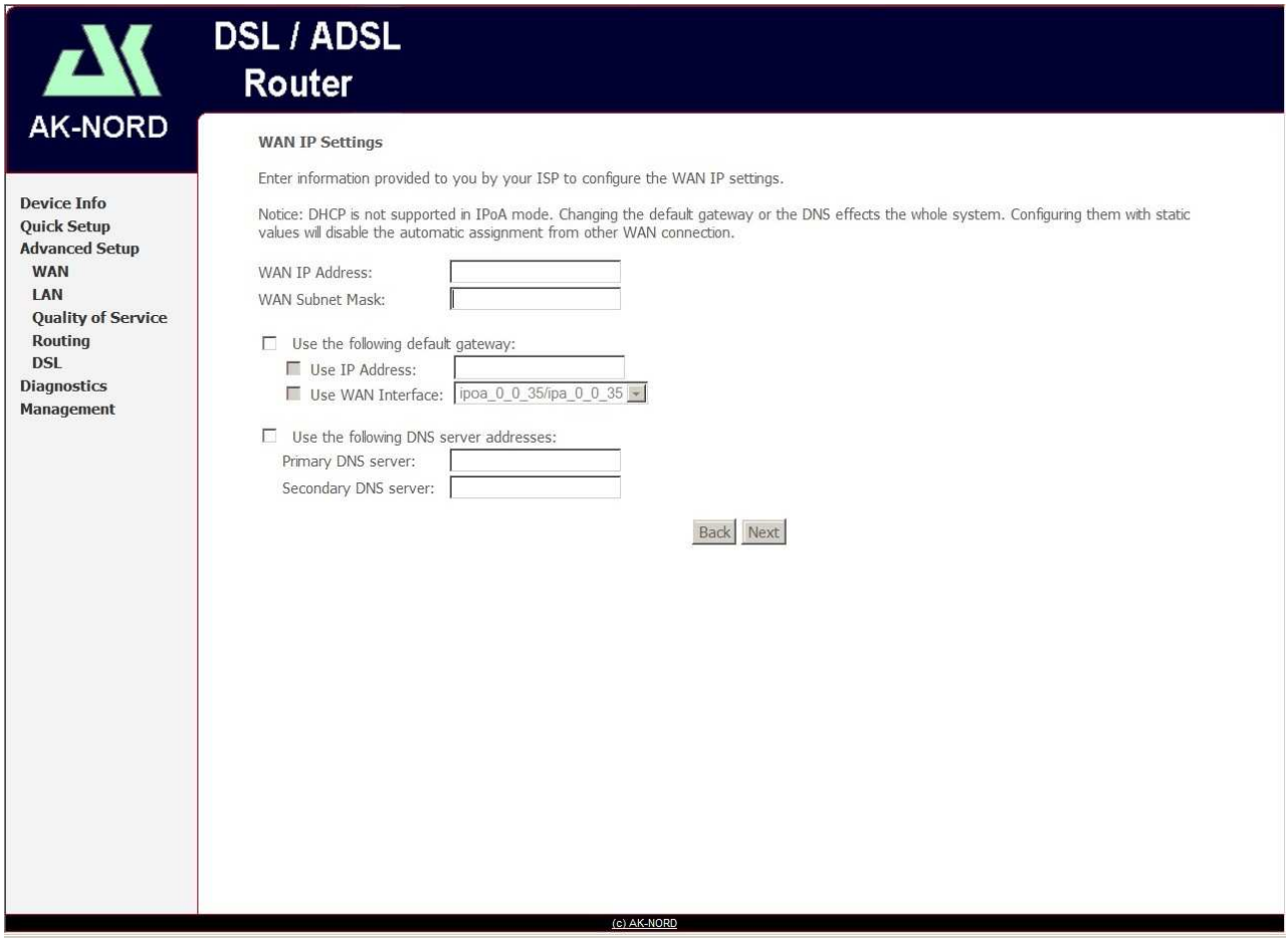
IGMP Multicast - Internet Group Management Protocol must only be set, if the devices support Multicast.

WAN Service – should be activated

Service Name –Name of the Internet account

Configuration ADSL

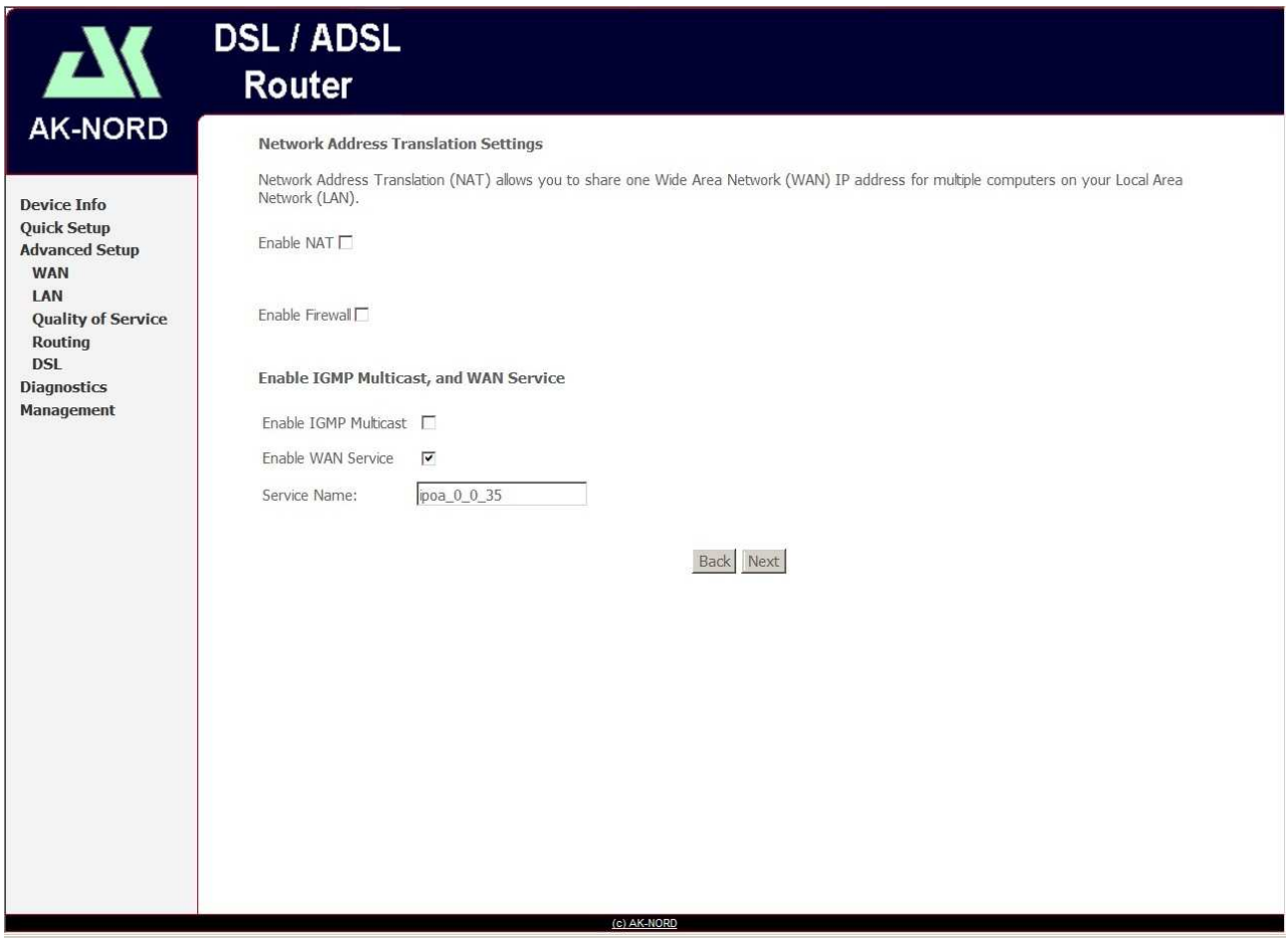
3.1d) IPoA



For the IP over ATM connection you have to set your WAN data and, if required, Gateway and DNS server according to the indications of the ISP.

Configuration ADSL

3.1d) IPoA



You have the following setting options:

Enable NAT

Enable Firewall

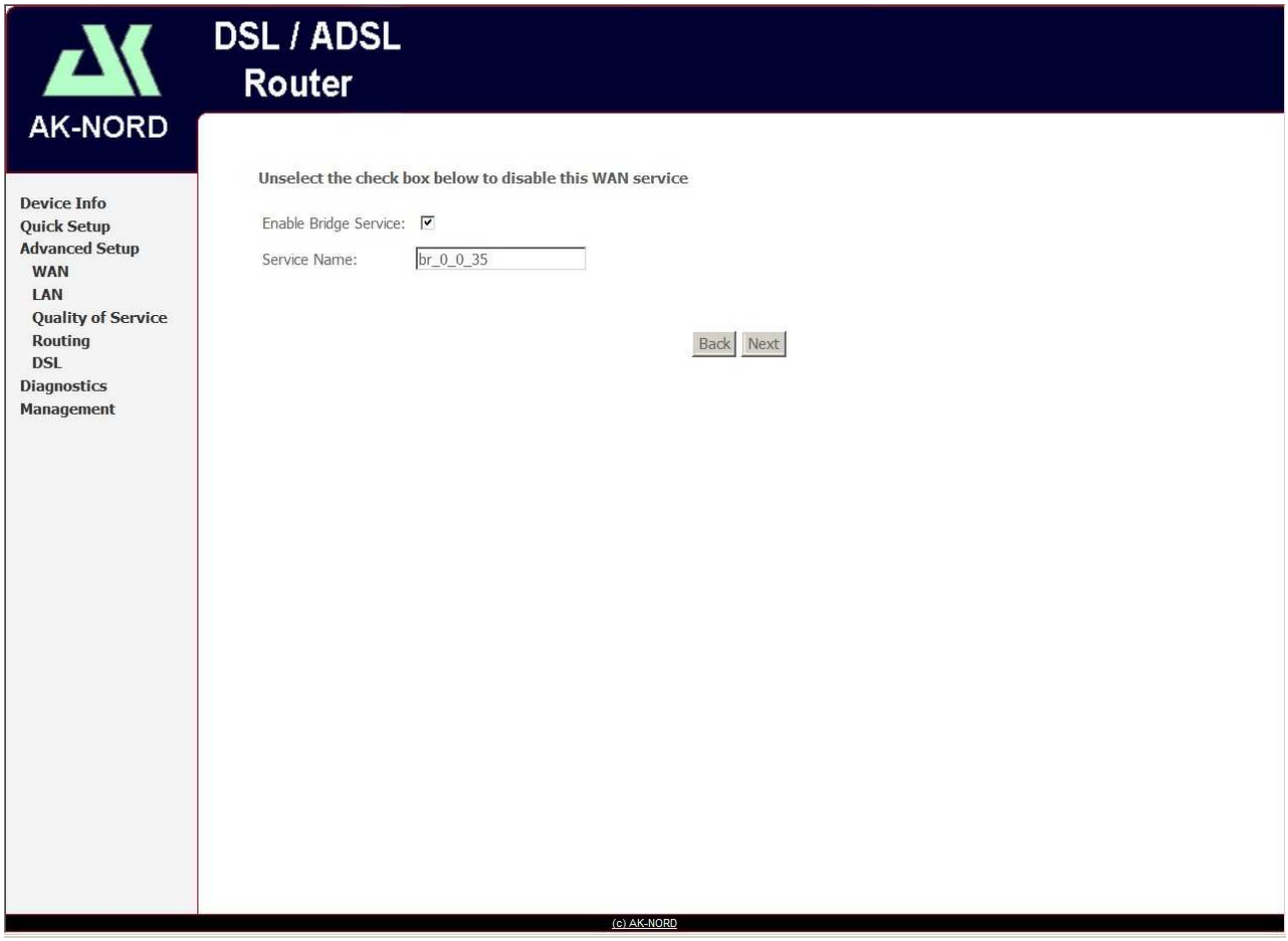
IGMP Multicast - Internet Group Management Protocol must only be set, if the devices support Multicast.

WAN Service – should be activated (if you have several WAN accounts, you can also deactivate them using this function)

Service Name –Name of the Internet account

Configuration ADSL

3.1e) Bridging



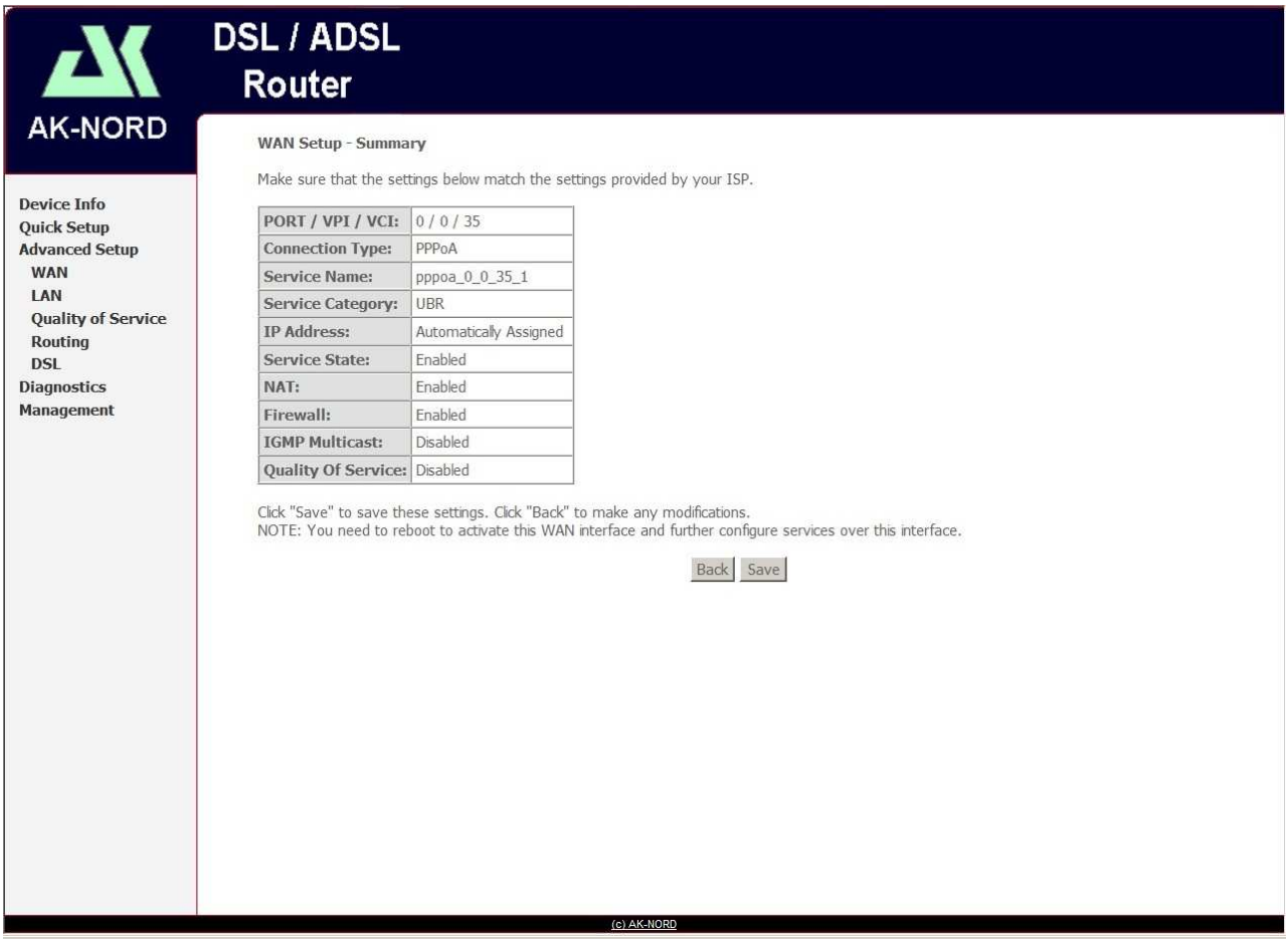
By selecting “Bridging“, you have the option to use your router as Bridge.

Bridge Service – should be activated (if you have several WAN accounts, you can also deactivate them using this function)

Service Name – Name of the Bridge

Configuration ADSL

3.1a-e) PPPoA / PPPoE / MER / IPoA / Bridging

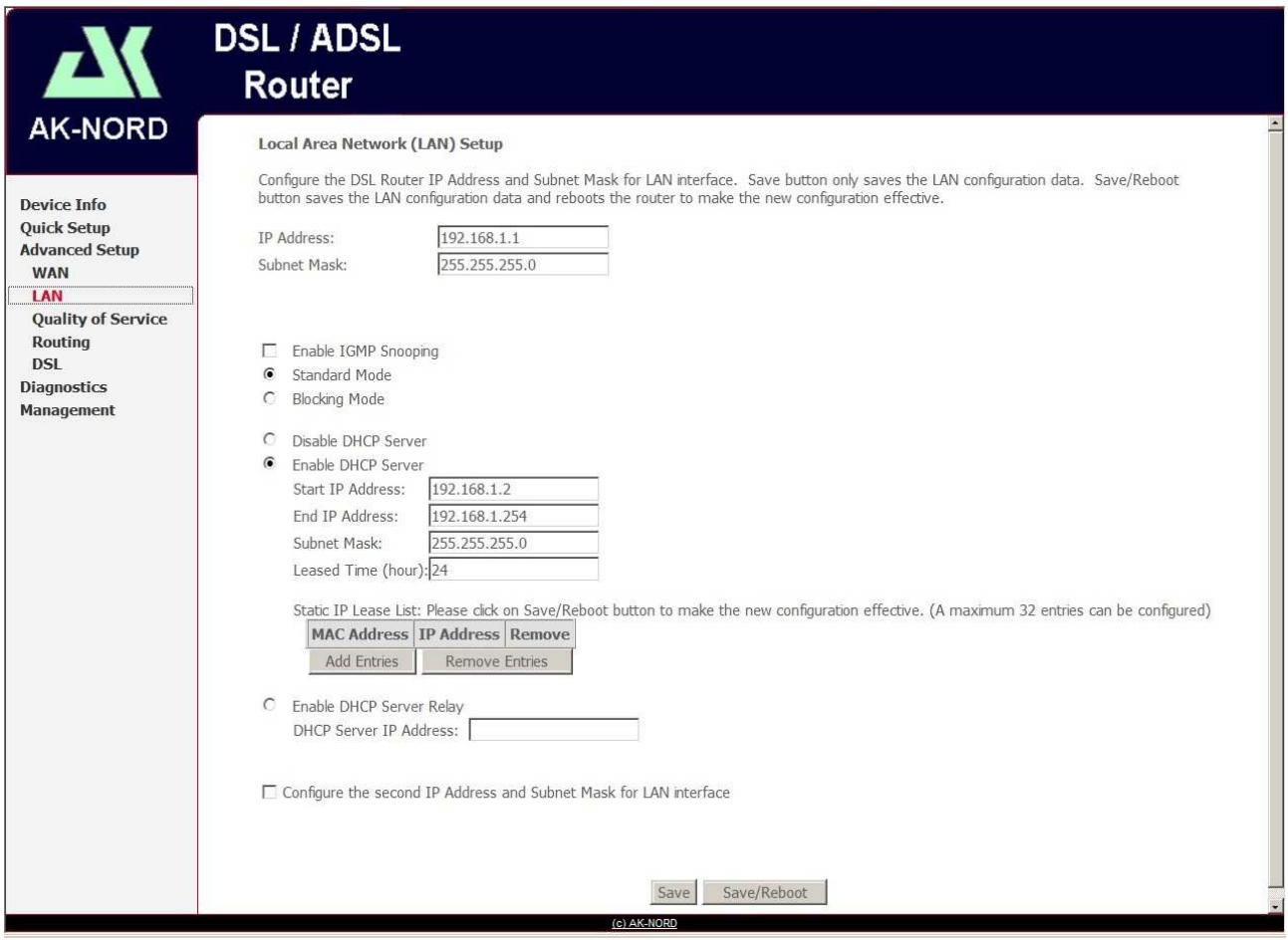


On the last page of the setting of an account a summary of your settings is displayed allowing you to check, if the settings are right before finally saving them.

After having performed all settings respectively adaptations when editing an existing account, the data are buffered first in the Flash memory and are coming into force after a restart of the router. Since you are back to your WAN menu, click on Save/Reboot in order to activate the setting.
This process will take about two minutes.

Configuration ADSL

3.2) The LAN menu



In this menu you can perform all configurations which concern the router in the LAN.

IP Address – current IP address which the router possesses (standard is 192.168.1.1)
Subnet Mask – current subnet mask of the router.

UPnP – Universal Plug and Play to activate the devices in a network
IGMP Snooping – allows to monitor the connection from the host and the router.

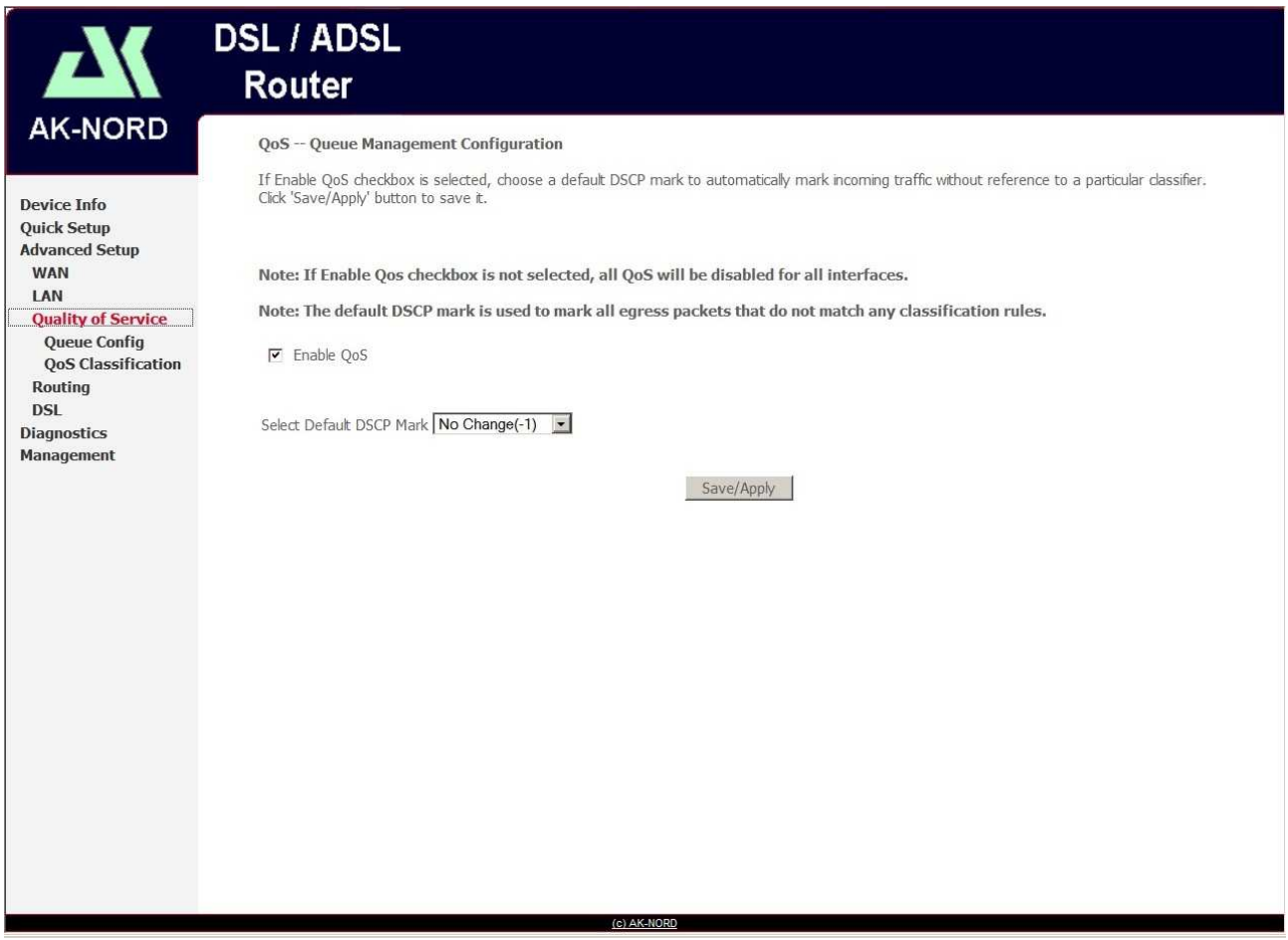
Standard Mode
Blocking Mode

DHCP Settings – Dynamic Host Configuration Protocol is the integration of PC in an existing network without its manual configuration.

Static IP Lease List – Reserving a certain IP address for a PC.

Second IP Address and Subnet Mask – Adding another IP address and subnet mask for the router.

3.3) The QoS menu

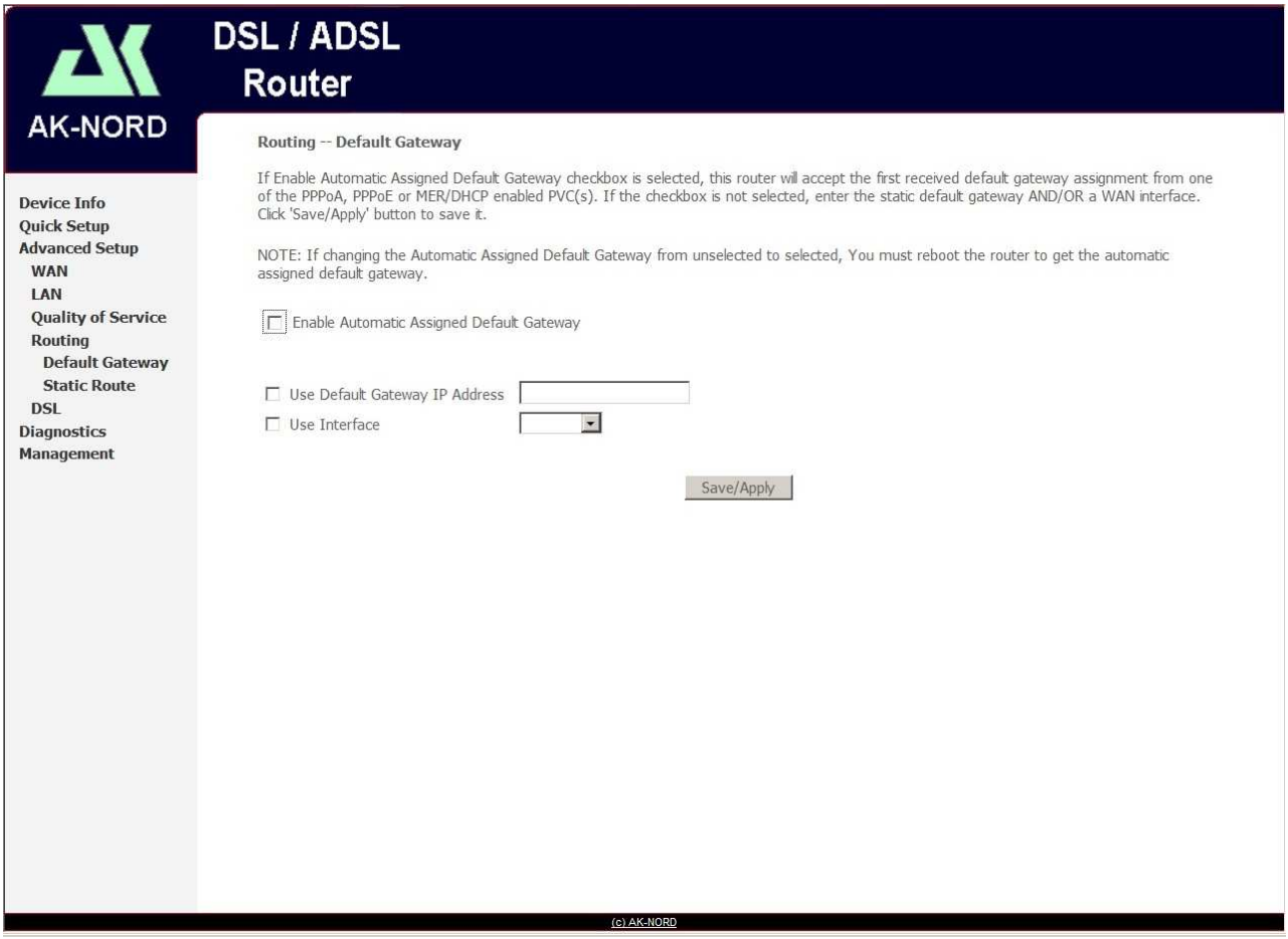


In the QoS menu with the two sub-items Queue Config and QoS Classification you can classify and prioritize the QoS.

Quality of Service describes a procedure to influence the data traffic within networks in order to sort the data according to different parameters. In this case, it is regarding the QoS procedure of the IETF for real-time transfer in the Internet with the Differentiated Services (DiffServ or also called soft QoS). At this, some data are treated with “preference”, i.e. by highlighting or simultaneous prioritizing of the data, you can direct them more rapidly to the target and this way guarantee a stable data transfer. You can prioritize critical traffic such as Voice or the streaming of media and make available a lower latency and simultaneously for the remaining non-critical traffic, such as Web traffic or data transfer by applying the Best-Effort principle.

Configuration ADSL

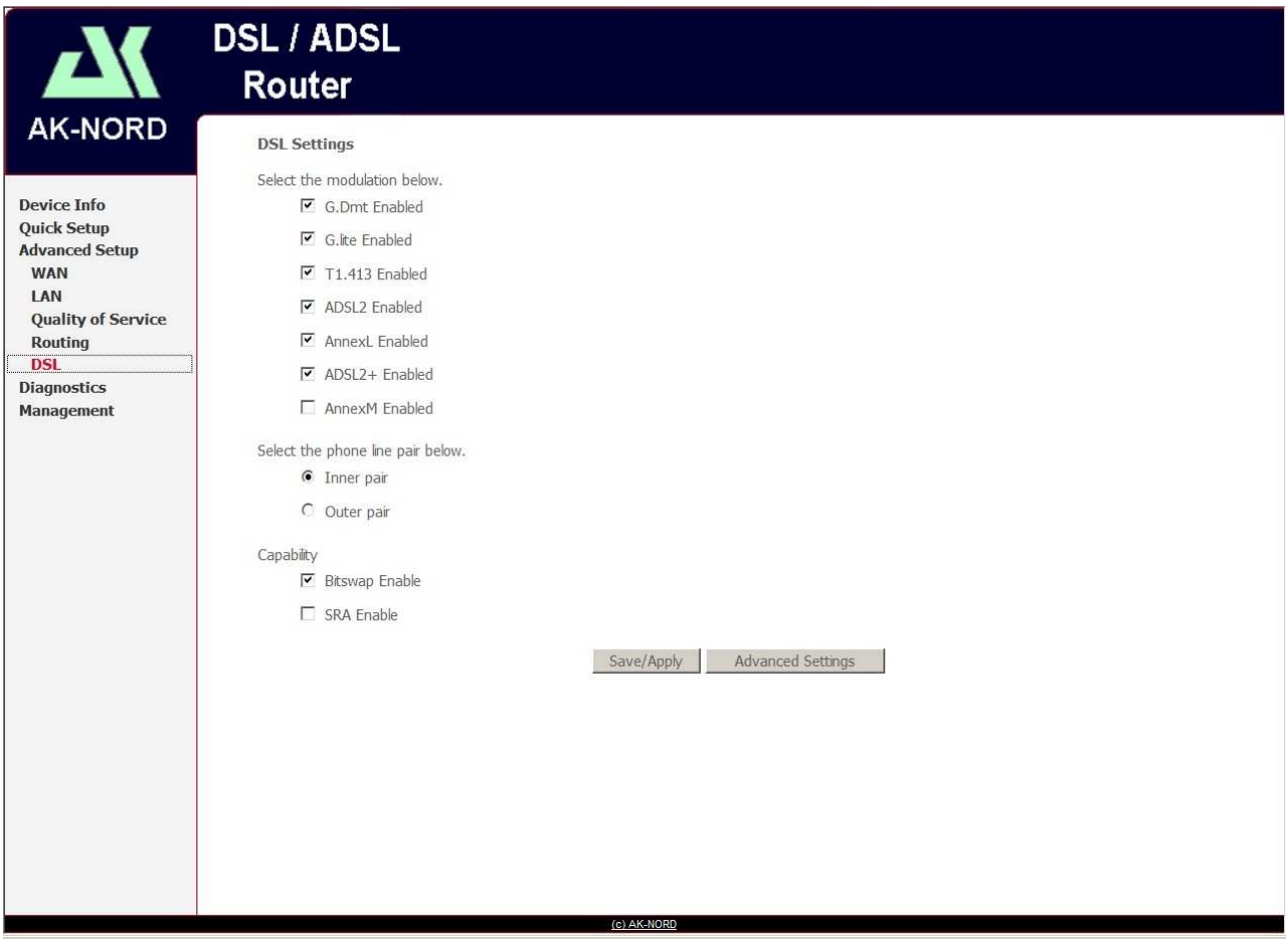
3.4) Routing



In the Routing menu the standard setting is “Enable Automatic Assigned Default Gateway“. At this, the system automatically searches for a path for the message flow. However, you can determine a default Gateway yourself. It is also possible to set a static route.

Configuration ADSL

3.5) DSL

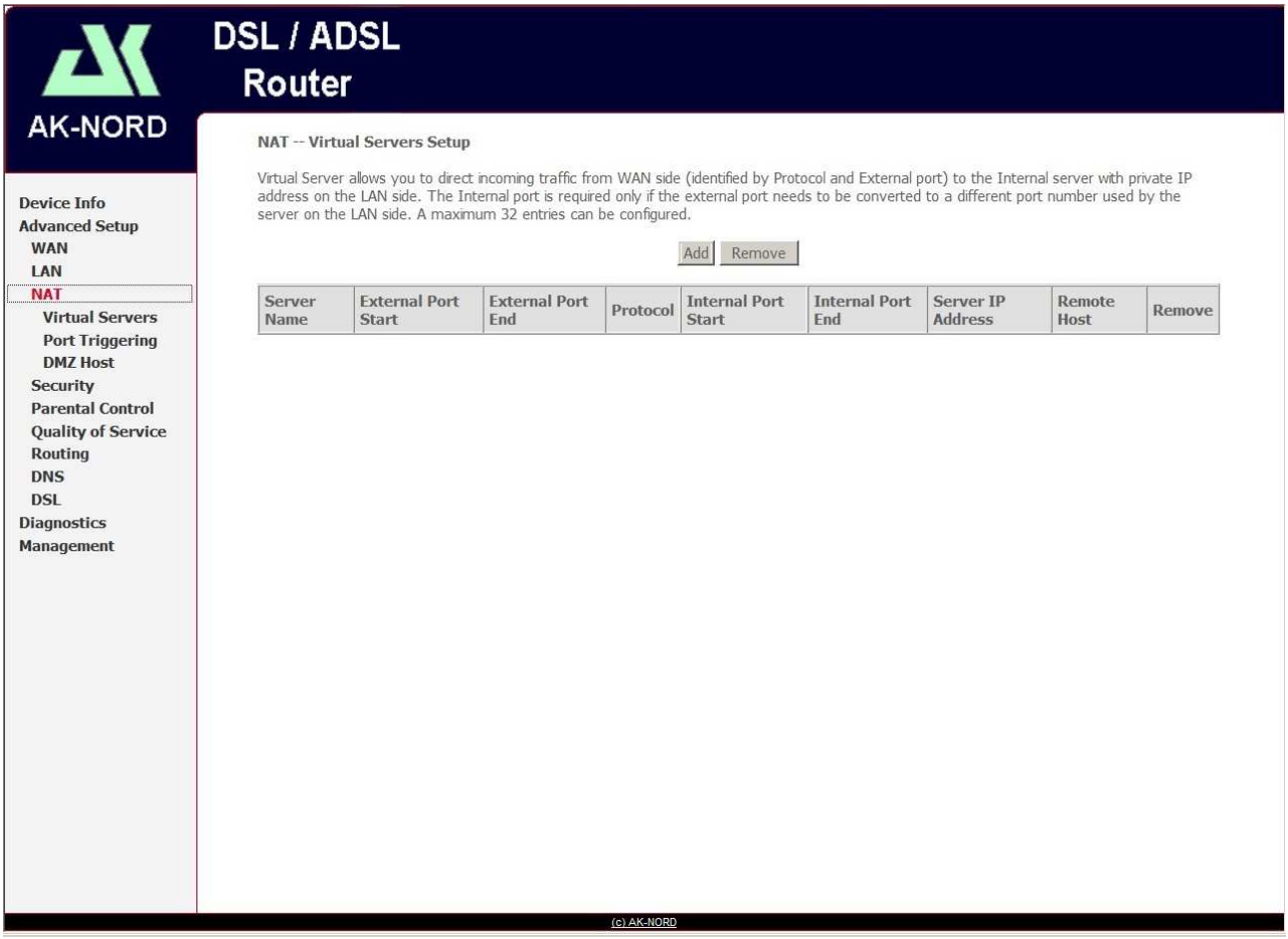


Serves to configure your DSL. In the Advanced Settings the following options are available:

Configuration ADSL

After having added an account, four new sub-items are displayed in the Advanced Setup: NAT, Security, Parental Control and DNS.

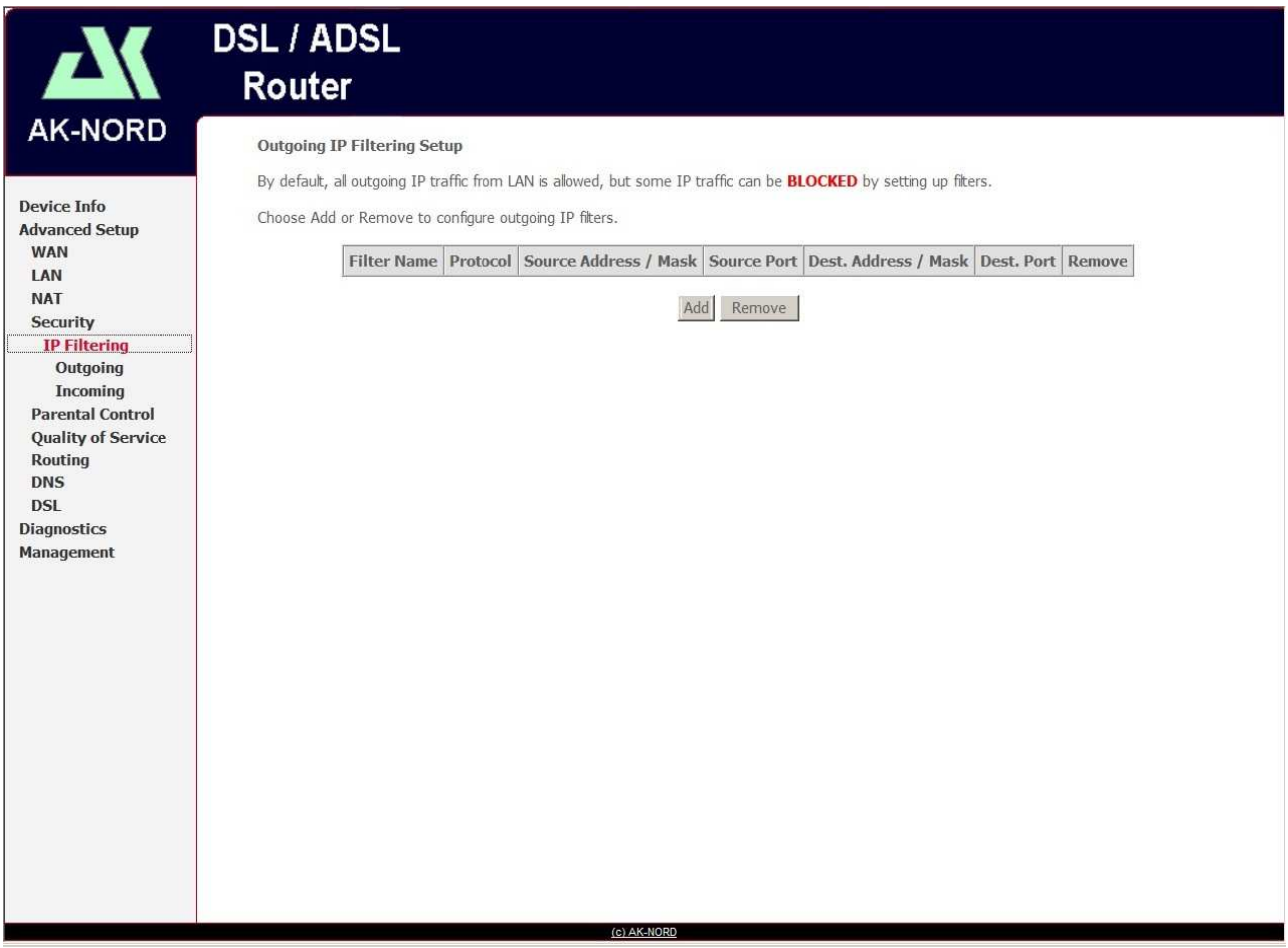
3.6) NAT



Serves for NAT configuration of virtual servers in order to direct the incoming traffic as well as to activate the Port Triggering for programs (some programs require certain port releases in order to be able to control them) and the DMZ Host determination (DMZ = Demilitarized Zone).

Configuration ADSL

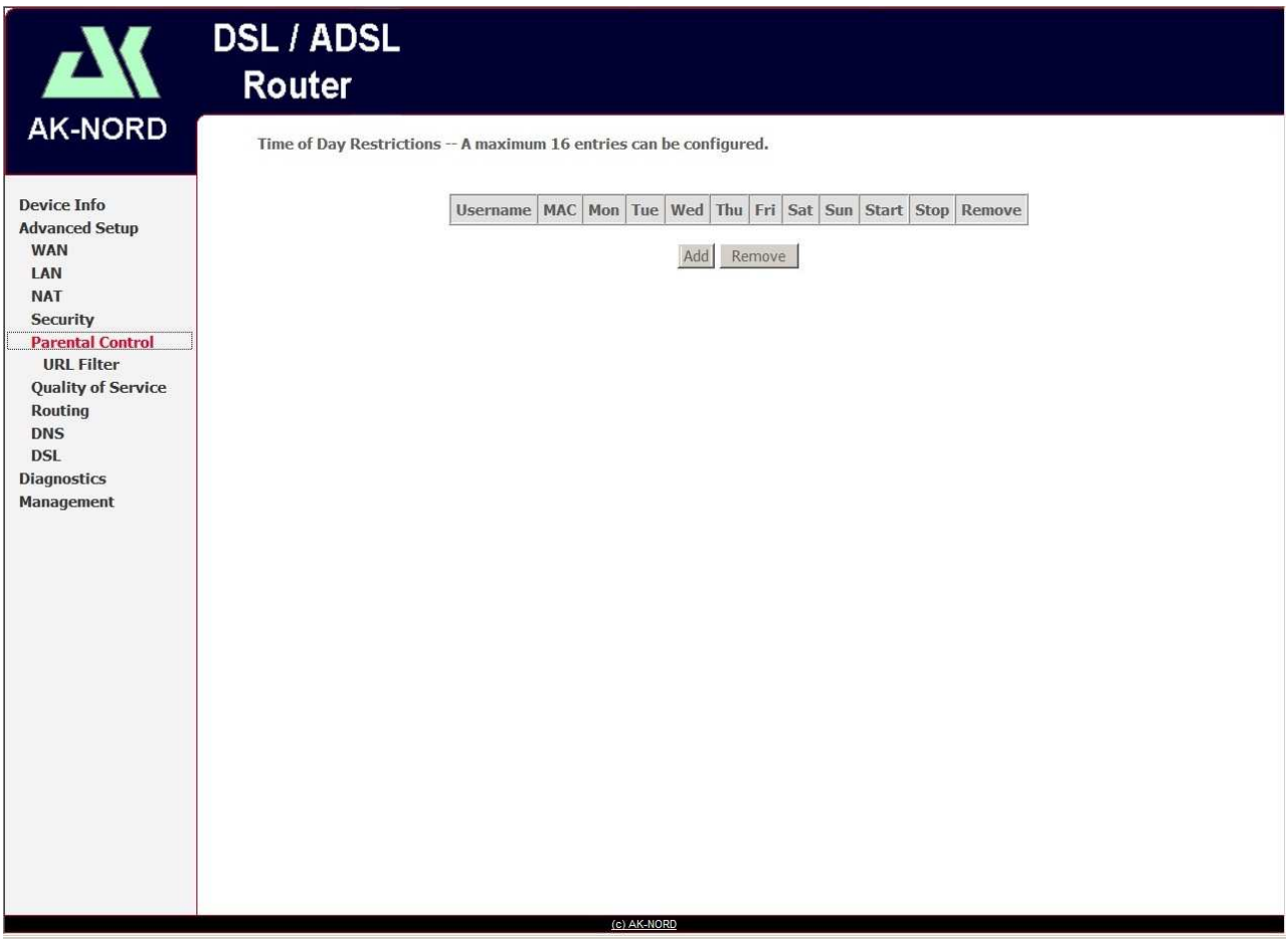
3.7) Security



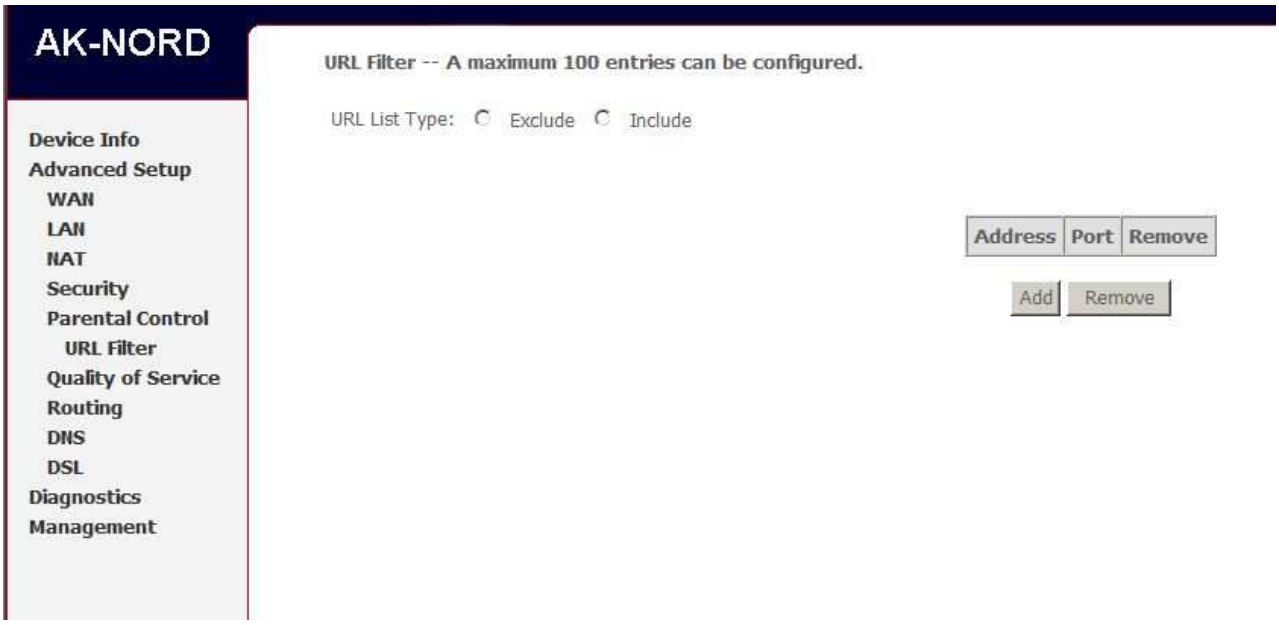
The Security menu is used to set the IP filtering for incoming as well as for outgoing traffic.

Configuration ADSL

3.8) Parental Control

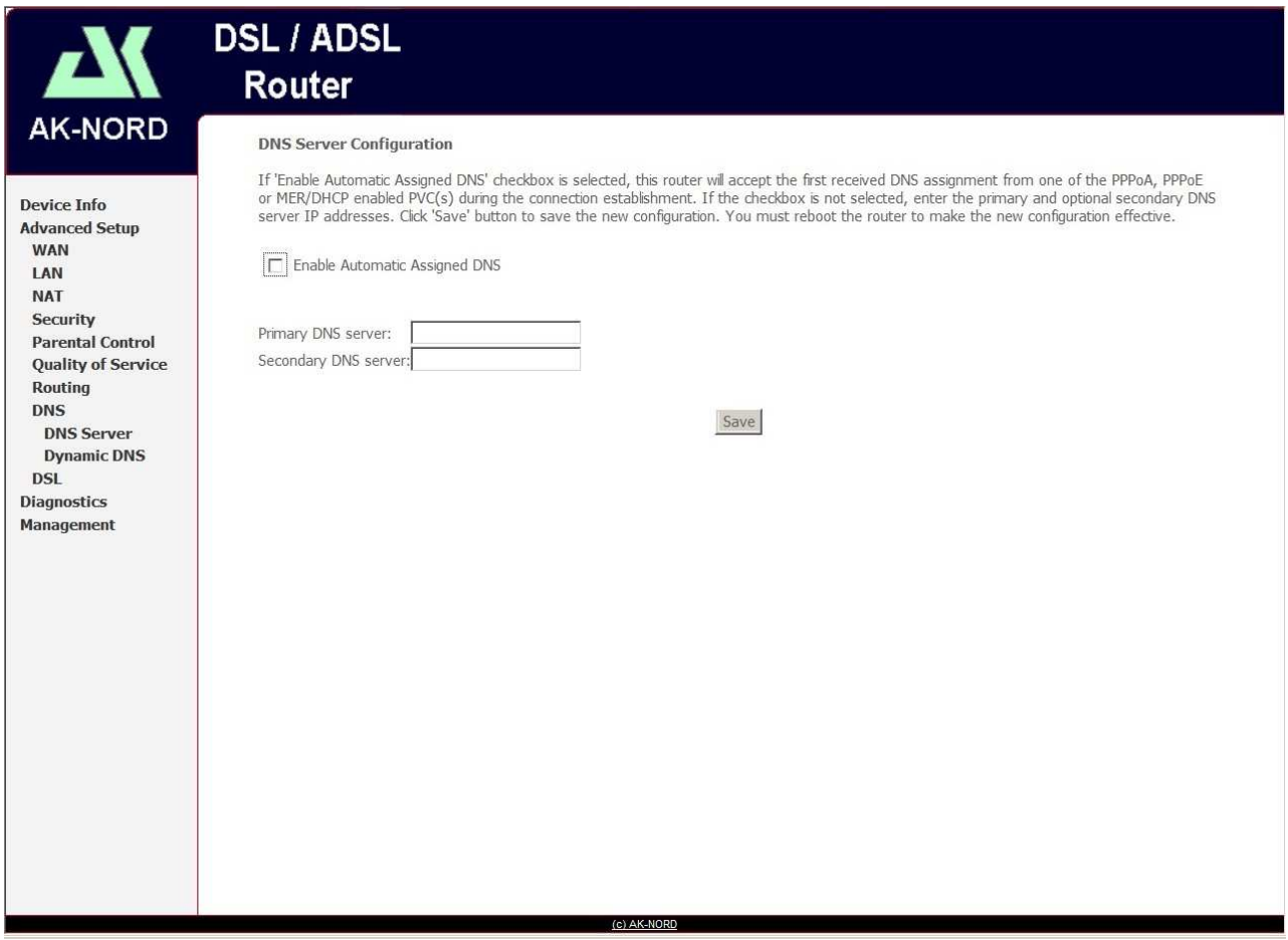


Using this menu, you can limit the Internet usage for participants in the Internet and block Internet sites using the URL filter.



Configuration ADSL

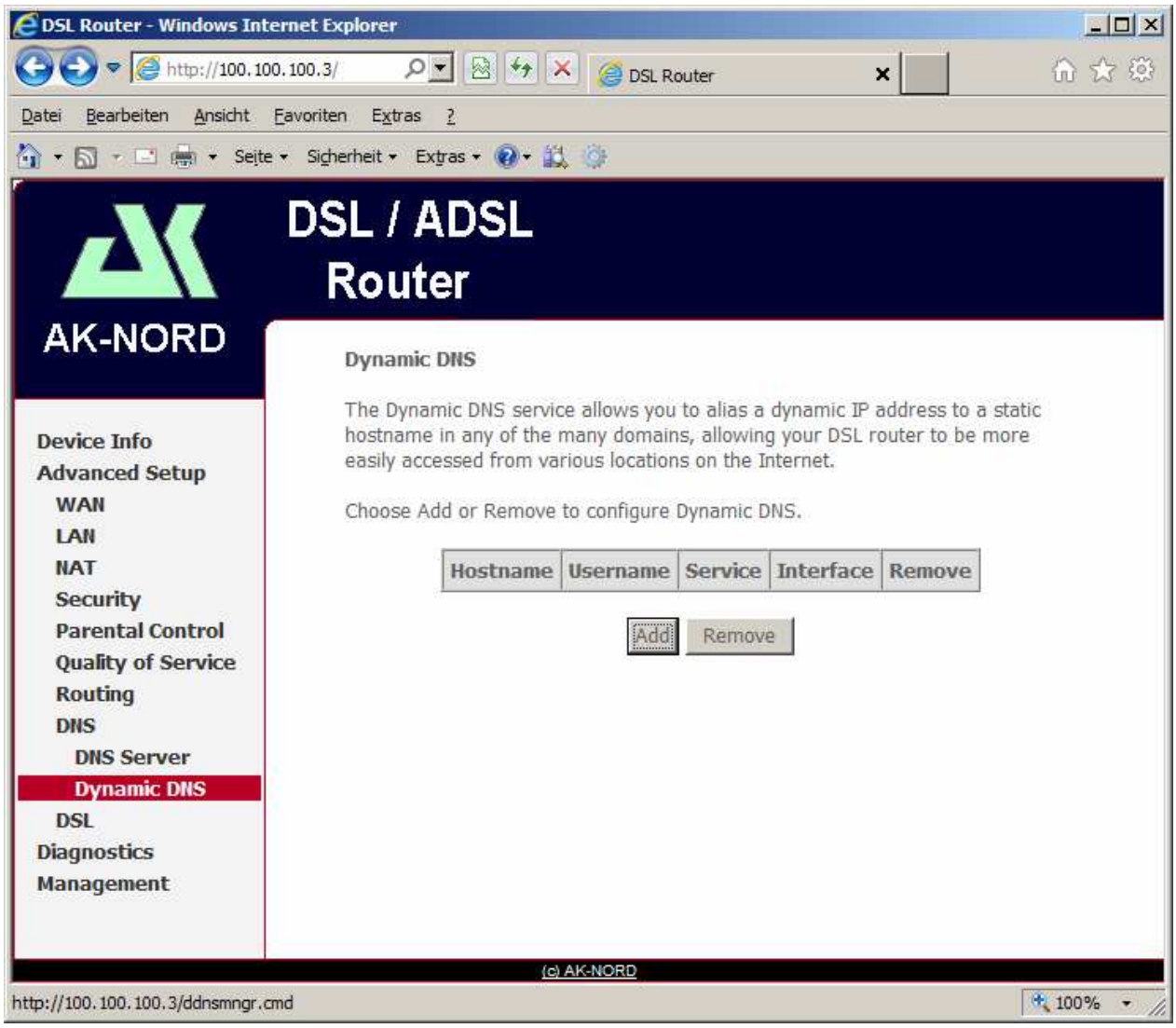
3.9) DNS



Using the DNS menu, it is possible to configure the DNS server. Furthermore, you can also set up a Dynamic DNS.
Standard setting is “Enable Automatic Assigned DNS“.

Konfiguration ADSL

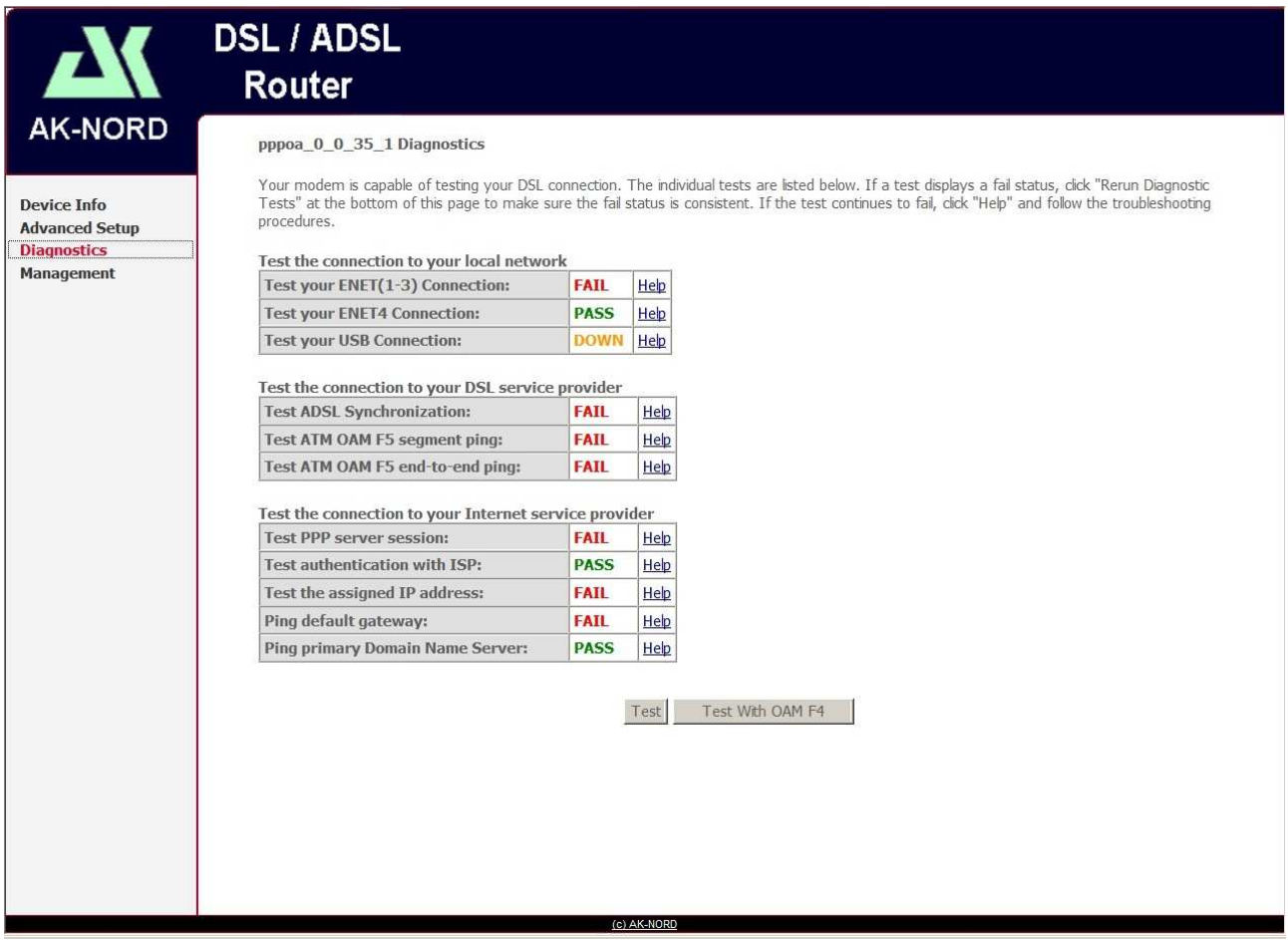
3.10) DynDNS



Please press „ADD“ in order to create an DynDNS - Connection

Configuration ADSL

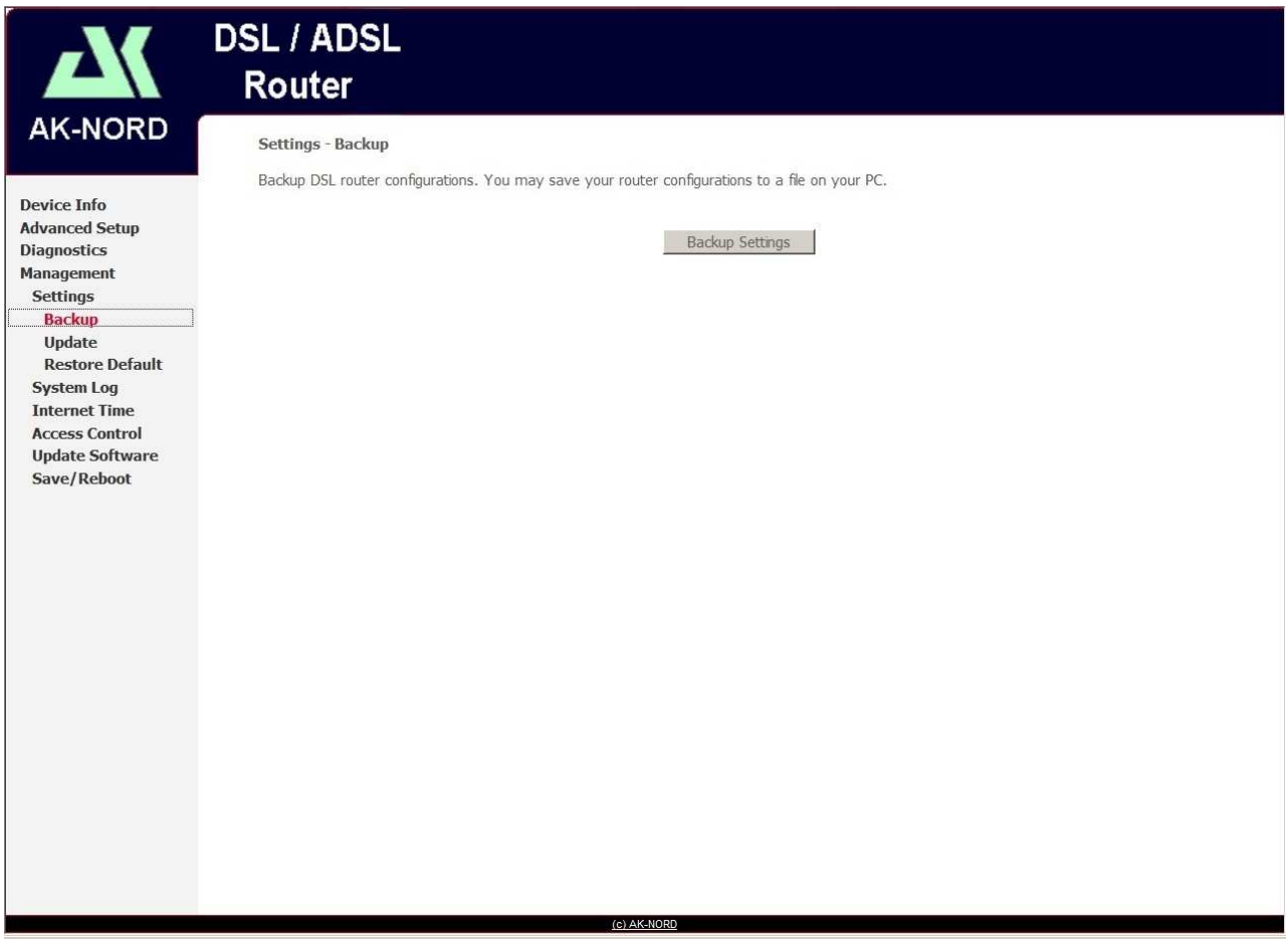
4) Diagnostics



Using the function Diagnostics you can test the settings fort he accounts. The router shows, if the settings are right by indicating “ FAIL“ or “PASS“. Under "Help" you will find possible error sources.

Configuration ADSL

5) Management



Under Management you have the option to edit the Backup/Update settings to reset the router to the default settings to create System-Logs, to determine Internet time, to set the access rights for the router, to perform an update and to save/restart.

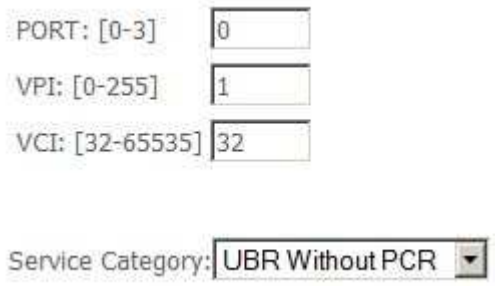
Exemplary provider settings

Please note the indications regarding VPI, VCI, connection type, PPP Username/Password, PPPoE service name made by your Internet provider!!!

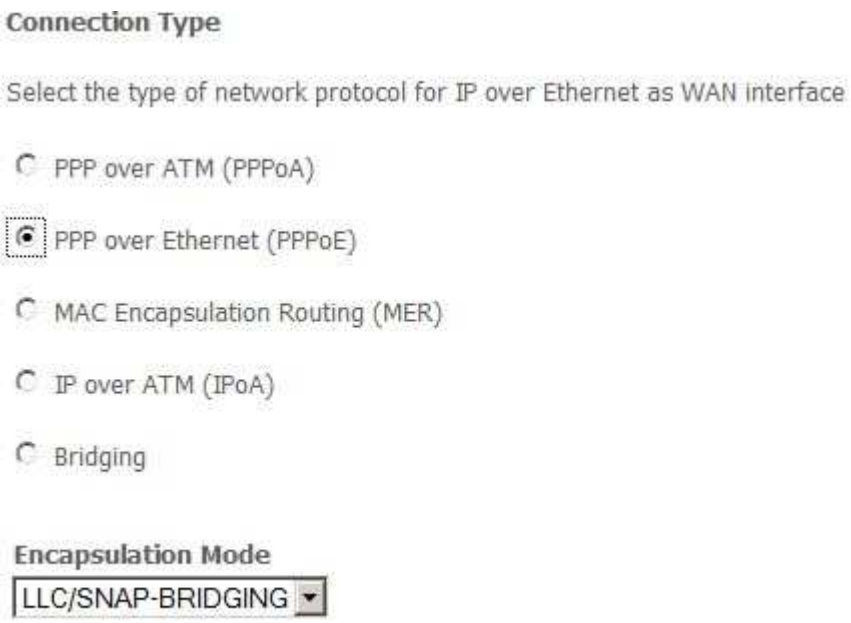
For Encapsulation Mode and Service Category, please use our standard setting:
- Encapsulation Mode: LLC/SNAP-Bridging
- ATM Service Category: UBR without PCR

T-Online

Port: 0
VPI: 1
VCI: 32



-> PPPoE connection



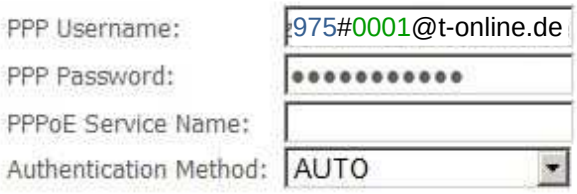
Exemplary provider settings

PPP Username:
{Connection recognition}{T-Online number}{Number of associated user}@t-online.de

Connection recognition and T-Online number with 12 digits (if the T-Online number does not have 12 digits, you have to place a # between the T-Online number and the associated user)

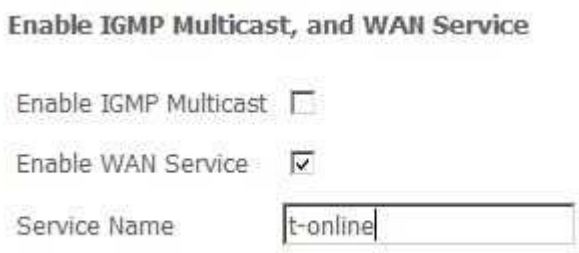
PPP Password: Assigned password of T-Online

PPPoE Service Name:



.B.: 000976552345026521389 75#0001@t-online.de

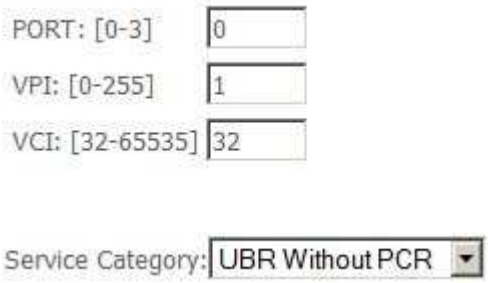
“Next“



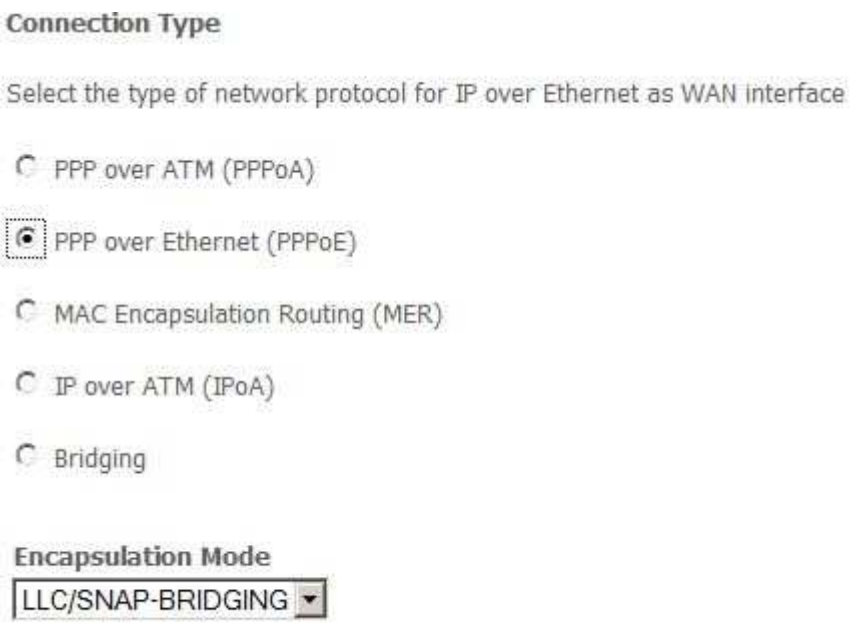
Exemplary provider settings

Alice

Port: 0
VPI: 1
VCI: 32



-> PPPoE connection



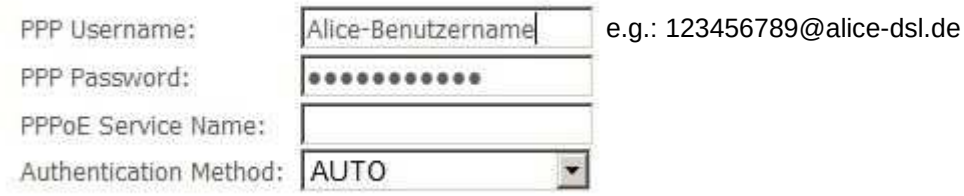
Exemplary provider settings

PPP Username: Assigned user name of Alice

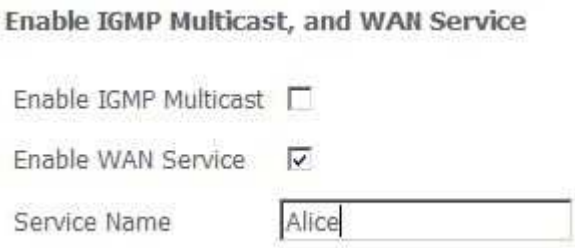
PPP Password: Assigned password of Alice

(if you did not receive a password from Alice, please enter something. Furthermore, you should observe the information in the letter of Alice regarding your access data)

PPPoE Service Name:



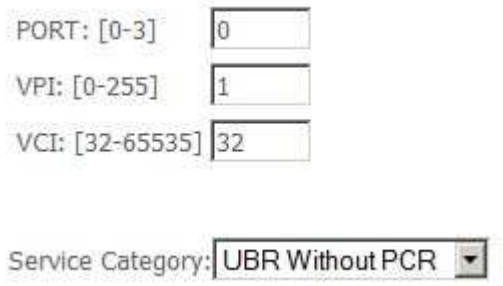
“Next“



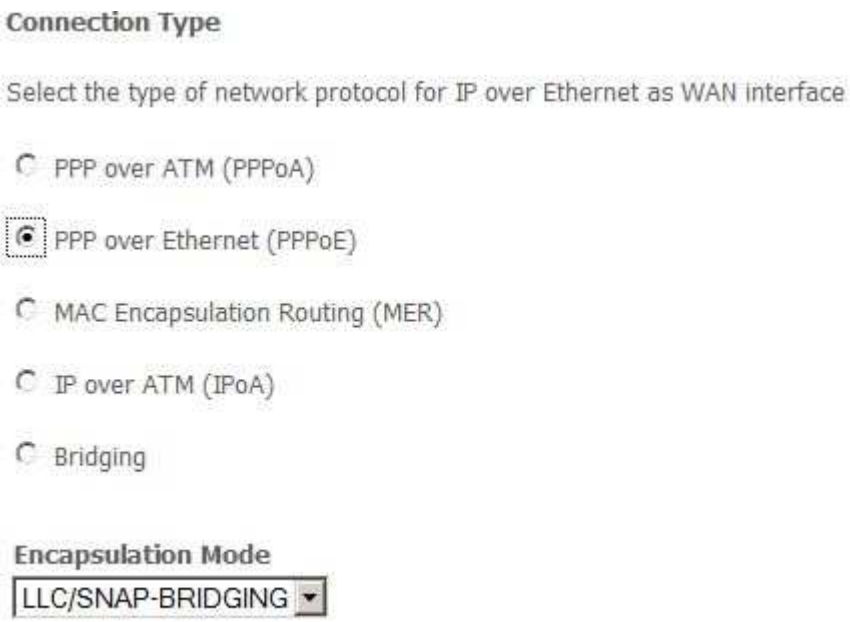
Exemplary provider settings

1und1

Port: 0
VPI: 1
VCI: 32



-> PPPoE connection



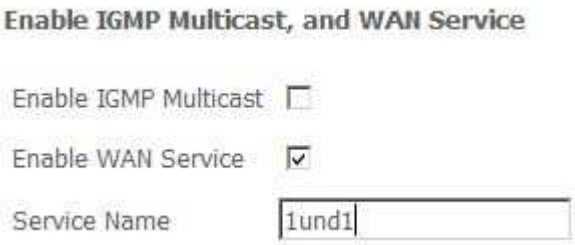
Exemplary provider settings

PPP Username: 1und1/Username@online.de or Username@onlinehome.de

PPP Password: Assigned password of 1und1

PPPoE Service Name:

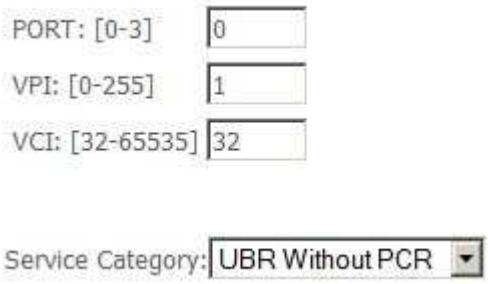
“Next“



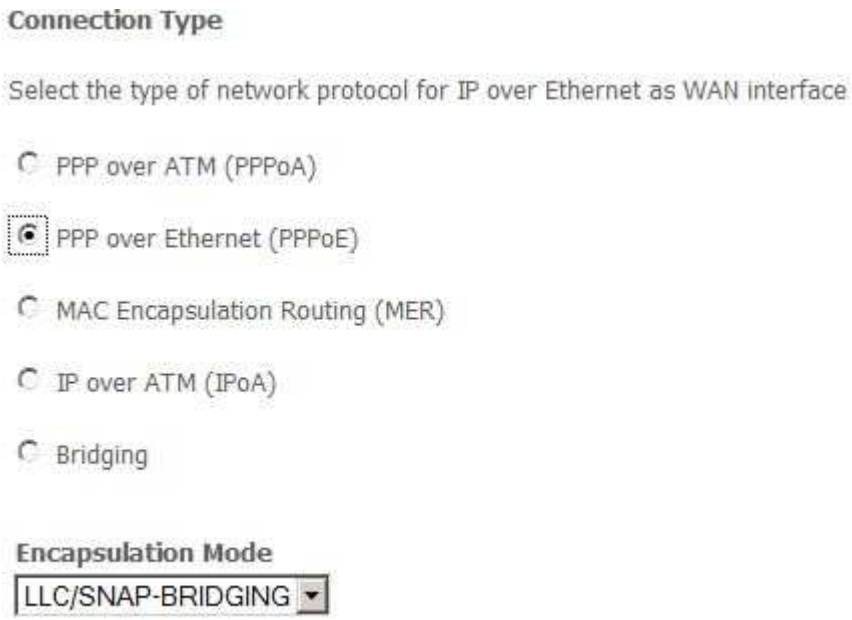
Exemplary provider settings

Versatel

Port: 0
VPI: 1
VCI: 32



-> PPPoE connection

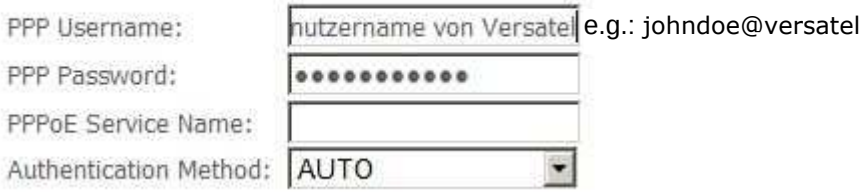


Exemplary provider settings

PPP Username: Assigned user name of Versatel

PPP Password: Assigned password of Versatel

PPPoE Servicename:



“Next“

Explanations

ATM – “Asynchronous Transfer Mode“ is a standardized group of network technologies allowing you to create QoS (Quality of Service) supported high-speed networks.

PVC – “Permanent Virtual Circuit“ is a permanent virtual ATM connection between two users

PPP=Point-to-Point-Protocol

Default DSCP Mark – is used in order to mark all outgoing packages which do not comply with the classification.

NAT – Network Address Translation
The NAT process is used to convert network-internal to public IP addresses. In this way, on the one hand more internal IP addresses are freely available and on the other hand they remain concealed to the public which guarantees a higher protection.
If you did not receive sufficient IP addresses from your ISP to configure each PC in the network you have to use this function. In this way, you can assign an IP address to each PC. The PCs will then communicate via the router which possesses a public IP address.
The annex Fullcone means that the internal IP addresses are converted into a public IP address according to a statistic template. In this way, external hosts can create connections to internal hosts via the public IP address.

MER – The ISP uses the Mac address of a PC in order to authenticate it in the network; this function is only used, if the ISP does not support IP -Routing. MER works similar to NAT: more safety and more IP addresses are available in the internal network.