



## User Manual

### *LANCOM 1630 SDSL*

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1	Getting started .....	3
2	Troubleshooting .....	3
2.1	The SDSL-Link does not work ... ..	3
2.2	The LAN-Link does not work... ..	4
2.3	The Internet access does not work.....	4
2.4	The Router is not accessible from the LAN.....	4
2.5	Questions regarding the Router's configuration.....	5
3	Overview of the LANCOM 1630 SDSL.....	6
3.1	LAN Interfaces .....	6
3.2	WAN protocols .....	7
3.3	Other features .....	7
3.4	Operations philosophy .....	7
4	Operations and Management .....	8
4.1	Basic access methods .....	8
4.2	Configuration.....	9
4.2.1	Configuration with LANconfig.....	9
4.2.1.1	The Setup Wizards.....	9
4.2.1.2	Device management with LANconfig .....	10
4.2.1.3	Multi-CPE configuration.....	11
4.2.2	Configuration with WEBconfig .....	12
4.2.3	Configuration with TFTP command line.....	13
4.2.4	Configuration with TELNET command line .....	13
4.2.5	Configuration with serial connection .....	14
4.2.6	Plug and Play Setup with USB.....	14
4.3	Device monitoring with LANmonitor .....	16
5	The IPsec VPN option.....	18
5.1	Setting up an IPsec VPN.....	18
5.1.1	VPN installation with LANconfig.....	18
5.1.2	Manual VPN configuration .....	19
6	'Back-to-Back' operation.....	20
7	LED encodings .....	21
8	Usage of the reset switch .....	22
9	Firmware upload.....	22
10	Settings of the provider specific presets .....	23
10.1	Dynamic or static IP address(es)?.....	23
10.2	"Standard" configuration .....	24
10.3	"Multi IP" configuration .....	24
10.4	QSC specific preset .....	25
10.5	Streamgate specific preset .....	25
10.6	Riodata specific preset .....	26
11	Manual configuration (routing) .....	27
11.1	LAN Configuration .....	27
11.2	WAN Configurations .....	27
11.3	IP over ATM (IPoA).....	27
11.3.1	Configuration settings .....	27
11.4	Plain Ethernet over ATM.....	28
11.4.1	Configuration settings .....	28
11.5	PPP over ATM (PPPoA) .....	29
11.5.1	Configuration settings .....	29
11.5.1.1	PPP sever mode.....	29
11.5.1.2	PPP client mode.....	29
11.6	PPP over Ethernet (PPPoE) .....	30
11.6.1	Configuration settings .....	30
12	Manual configuration (bridging) .....	31
12.1	LAN Configuration .....	31
12.2	WAN configuration Bridged Ethernet (RFC 1483 bridged).....	31
12.2.1	Configuration settings .....	31

# 1 Getting started

Please follow the instructions of the Quick-Installation Guide.

*As long as the device has not been configured finally...*

- The “SDSL-Link” LED flashes green, because no SDSL-access has been configured yet (run Setup-Wizard “Set up Internet access...”)
- The “Power” LED flashes red/green, because no password has been assigned yet (run Setup-Wizard “Check security settings...”)

*The device has been connected and configured correctly and is ready to use:*

- “Power” green
- “SDSL-Link” green
- “LAN-Link” and/or “USB-Link” green

## 2 Troubleshooting

### 2.1 The SDSL-Link does not work ...

*The SDSL Link is fine when the LED „SDSL-Link“ is GREEN permanently.*

- Please check the WAN wiring first: Ensure, that the „SDSL“ jack on the rear panel is connected to the „phone line“, that was installed for your SDSL access
- Ensure that the „Set up Internet access...“ Installation-Wizard of the LANconfig program (on CD-ROM) has been run with your appropriate provider and your access product.
- Note: Depending on the SDSL-variant in use, the training phase to establish the SDSL can take a while: G.shdsl should connect within a few seconds, whereas SDSL (fixed rate) takes up to 4 minutes. SDSL with Autobauding can take up to 60 minutes worst case. During this phase the „SDSL-Link“ LED is flashing green (slowly). When entering further connection phases, the flashing is getting faster.
- The SDSL Link is established, when the SDSL-Link LED is permanently green.

*Please contact your SDSL-Provider in case all of the above has been checked, but the SDSL-Link cannot be established.*

## 2.2 The LAN-Link does not work...

*Ethernet-LAN: The „LAN-Link“ LED is not GREEN permanently.*

- Toggle the Node/Hub Switch (symbol „|| / X“) on the rear panel of the device. This crossover switch enables to connect either an Ethernet Hub / Switch, or a PC network interface card directly, i.e. without the needing special crossover cables.

*USB: The „USB-Link“ LED is not GREEN permanently*

- Ensure that the USB interface has not been disabled in your PC's BIOS.

## 2.3 The Internet access does not work

*SDSL and LAN link are both OK, but a connection to the Internet cannot be established.*

Check with the PING command (command line interface), whether a known Internet address responds, e.g.

- PING 141.1.1.1
- PING [www.lancom.de](http://www.lancom.de)

In case the PING is not successful ('no reply from xxx), one could check several internal moduls with the TRACE command for correct operation, e.g.

- PPP
- ATM
- IP
- DNS

For example, if you're using the PPP protocol to connect to your Internet service provider, a failed authentication due to an invalid username or password could be recognized with an PPP trace (enter TRACE + PPP).

## 2.4 The Router is not accessible from the LAN...

*The Router is not configured yet (ex factory, or after RESET)*

- The LANconfig (on CD-ROM) will find the Router automatically (power on the device when it is connected to a LAN). This requires that the TCP/IP protocol stack is installed on your computer, and that the protocol is bound the network interface card is use.
- The Router uses to the IP-address „a.b.c.254“ automatically, whereby „a.b.c“ is given by your local network settings (e.g. 192.168.1.254 or 10.1.1.254)
- This requires that the address „a.b.c.254“ is part of your local subnet (for example, local net mask is „255.255.255.0“)
- In case that the address „a.b.c.254“ is already used by another device of your local network, please disconnect or power down that device while configuring the LANCOM 1630 SDSL the first time.

*The Router has been configured in a way that it cannot be reached from the LAN anymore*

- The Router can be reset by pressing the RESET switch on the rear panel for 5 seconds. The Router is reset to the factory default settings then.

Alternatively:

- The Router can be configured via the serial connection („Config/COM“ on the rear panel, 38400 baud, 8N1).
- The Router's IP-address can be set within the entry "BRIDGE" of the „Communication/Connections/Router/Router Interfaces“ table.

## **2.5 Questions regarding the Router's configuration...**

LANconfig (*Windows configuration program*)

- All parameters provide a context-sensitive help function. Select the particular parameter and press F1 for further information.

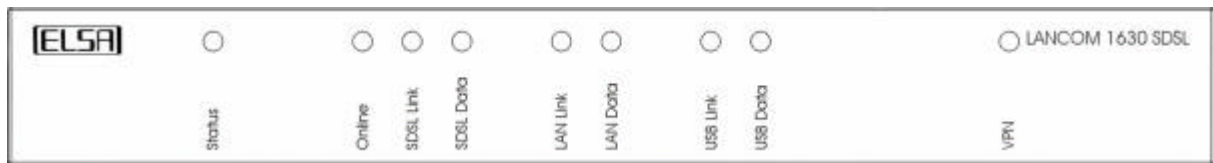
WEBconfig (*the integrated Web-Server*)

- The reference manual can be started via the link „Help (Reference Manual)“ at the bottom of the web server's start page

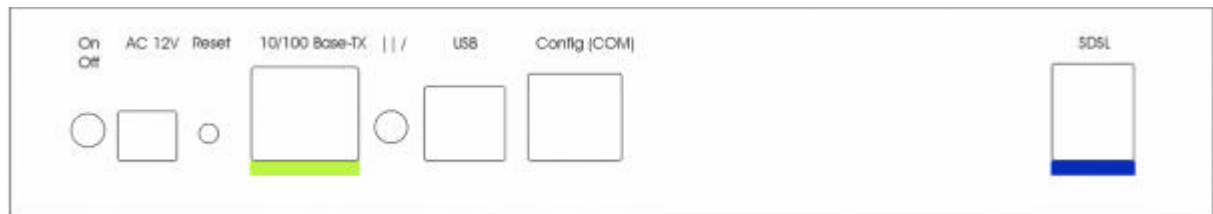
User Manual

- The user manual (what you are reading) can be found on the CD-ROM (PDF format).

## 3 Overview of the LANCOM 1630 SDSL



Front view LANCOM 1630 SDSL



Rear view LANCOM 1630 SDSL

### Key Features

- TCP/IP Router or bridge for SDSL and G.shdsl
- IPsec based VPN upgrade option (LANCOM VPN option kit)
- Easy management with LANconfig, incl. setup wizards and presets
- Monitoring and connection logging with LANmonitor
- IP Masquerading (NAPT) and inverse masquerading
- Packet filter Firewall (ports and protocols)
- DHCP client/server, DNS relay

### 3.1 LAN Interfaces

#### Ethernet

- 10/100 Mbit (autosensing)
- Node/Hub crossover switch allows connection of PC Ethernet NIC or Hub/Switch without crossover cable

#### USB

- USB 1.1 client
- SW drivers provided for Windows 98, Me, 2000 and XP

The USB and Ethernet interfaces can be used simultaneously (bridging between the USB and Ethernet LAN interface).

### 3.2 WAN protocols

- PPPoE
- PPPoA
- IPoA
- EoA (RFC 1483 bridged Ethernet)

### 3.3 Other features

- Dual image flash memory with emergency firmware (persistent, for firmware updates only).
- PPP supports auto-reconnect via PPP/LCP echo reply monitoring and an adjustable hold time for time based billing
- Firewall: NAT/PAT and packet filtering (protocols and port ranges)
- Back-to-back operation with 2 LANCOM 1630 SDSL
- Connection logging and transfer volume metering
- PING and TRACE diagnostics

### 3.4 Operations philosophy

- WAN interfaces are grouped by the protocol they use
- The device contains two internal function blocks: Router and bridge
- Each interface can be connected the router
- The Plain Ethernet interface can be attached to the Bridge as well
- Interfaces connected to the router have an IP address assigned
- Bridge and router can be enabled separately
- The bridge can be attached to the router
- Interfaces are identified by an arbitrary name: For example, the Internet Access Wizard uses “\_\_WIZARD\_\_”

Examples:

#### (1) PPPoA Router with simultaneous USB+Ethernet LAN

- “Router” connected to “PPP” Interface
- “Bridge” connected to “Router”
- “USB” and “Ethernet” connected to “Bridge”

#### (2) IPoA Router with simultaneous USB+Ethernet LAN

- “Router” connected to “Plain IP” Interface
- “Bridge” connected to “Router”
- “USB” and “Ethernet” connected to “Bridge”

#### (3) Ethernet Bridge

- “Bridge” connected to “Plain Ethernet” interface
- “Ethernet” connected to “Bridge”
- Optional: “Router” connected with “Bridge” enables an IP address assignment in order to support easy management and monitoring with LANtools

# 4 Operations and Management

## 4.1 Basic access methods

*Note: The device responds to all IP addresses a.b.c.254 and broadcasts if not configured yet, whereby “a.b.c” is given by your local network’s settings. The device can be found automatically with LANconfig when powered up connected to a LAN. Please ensure that the address “a.b.c.254” is part of the local subnet (e.g. net mask “255.255.255.0”), and that the address is not initially used otherwise.*

LANconfig (Windows GUI program):

- Over an IP network (TFTP)
- Over a serial connection (38400 baud, 8N1)

*LANCOM recommends using the LANconfig configuration tool. Other configuration access methods do not expose the full LANconfig feature set (e.g. Setup Wizards).*

Web based:

- Any standard Internet Browser

Command line interface

- Over a Telnet session
- Over a TFTP session
- Over a serial connection

SNMP

- Any standard SNMP manager SW



## 4.2 Configuration

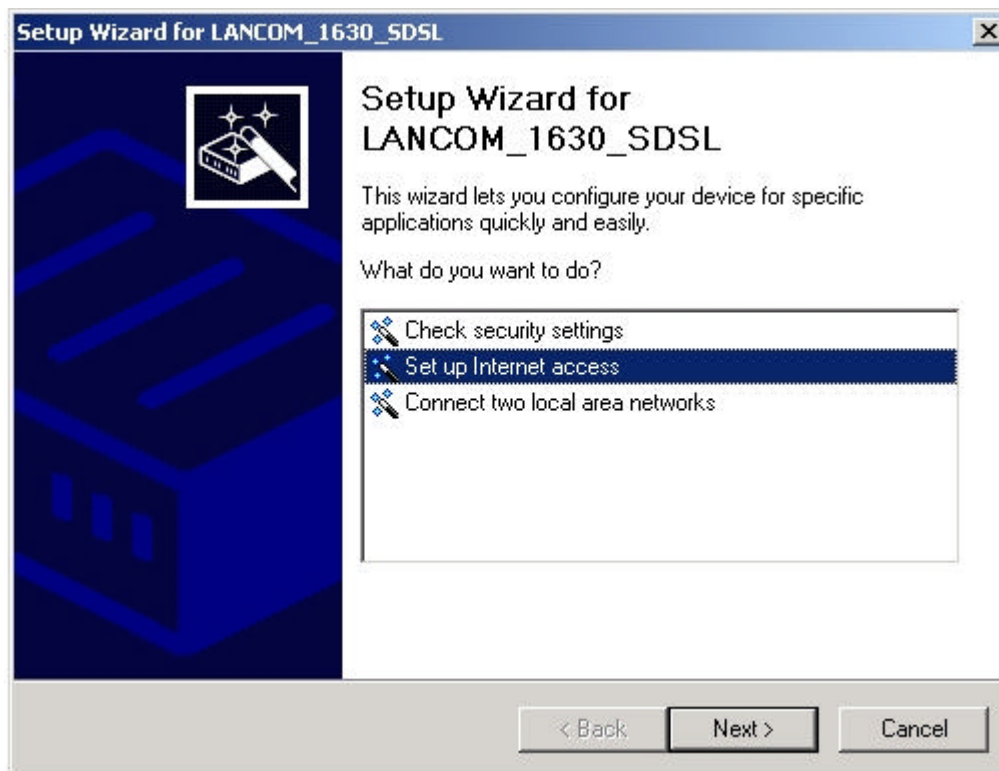
### 4.2.1 Configuration with LANconfig

LANconfig is provided as part of the standard LANCOM SW package. Currently supported are all actual Microsoft Windows operating systems

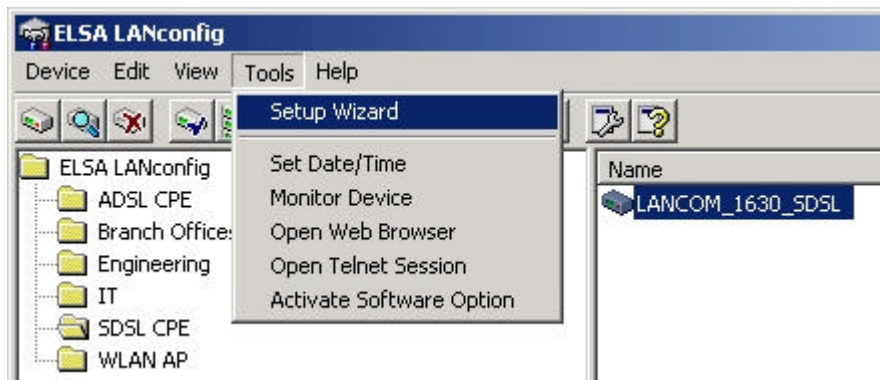
#### 4.2.1.1 The Setup Wizards

The following Setup Wizards are available in this SW release: The “Basic settings...” wizard to set up things like local IP addresses and DHCP, the “Set up Internet access...” wizard that configures the device for your access provider’s specific access profile, and the “Set up Security...” wizard to protect your LANCOM 1630 SDSL from unauthorized access. Devices upgraded with the LANCOM VPN option provide the additional wizard “Connect two local area networks...”.

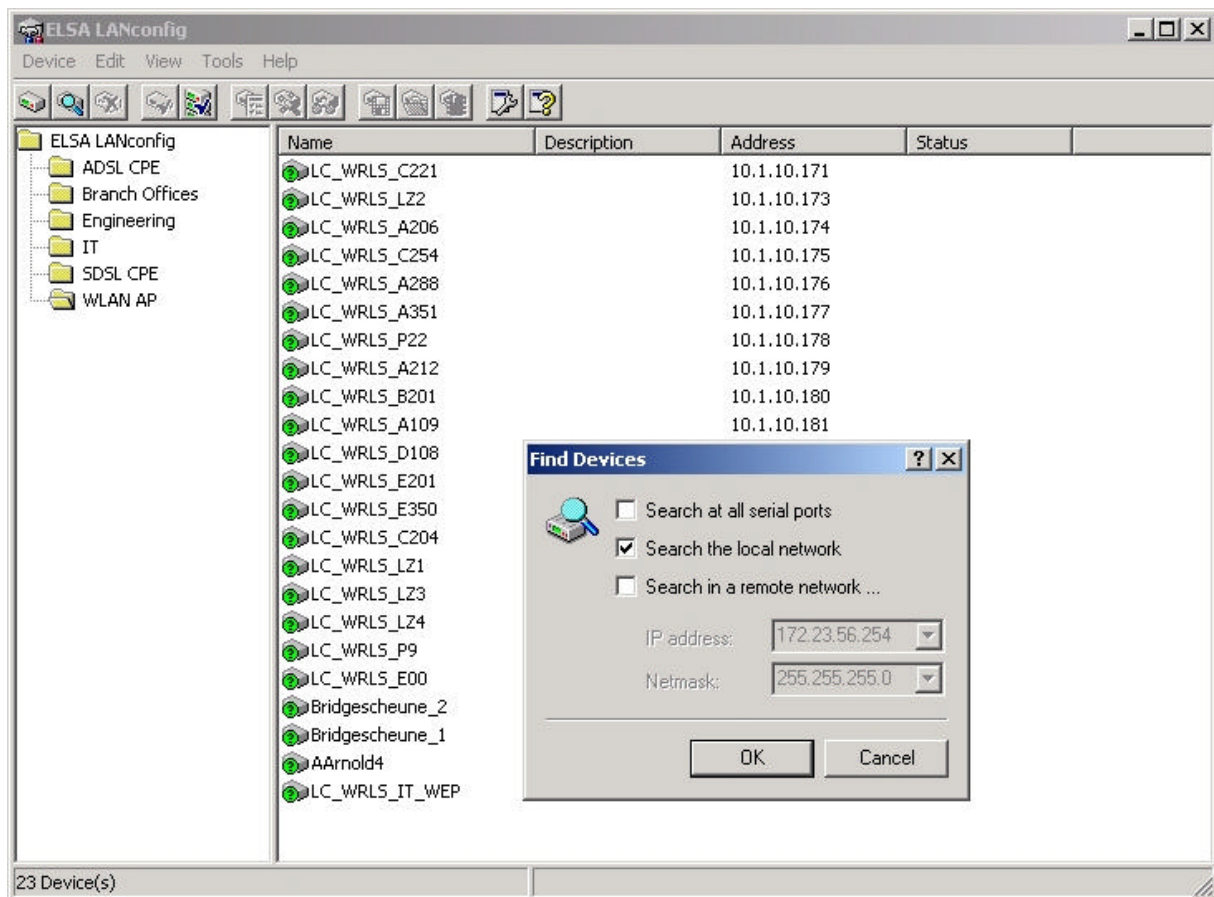
*Note: The Basic Wizard pops up automatically when it detects an un-configured vice only (ex factory of after reset).*



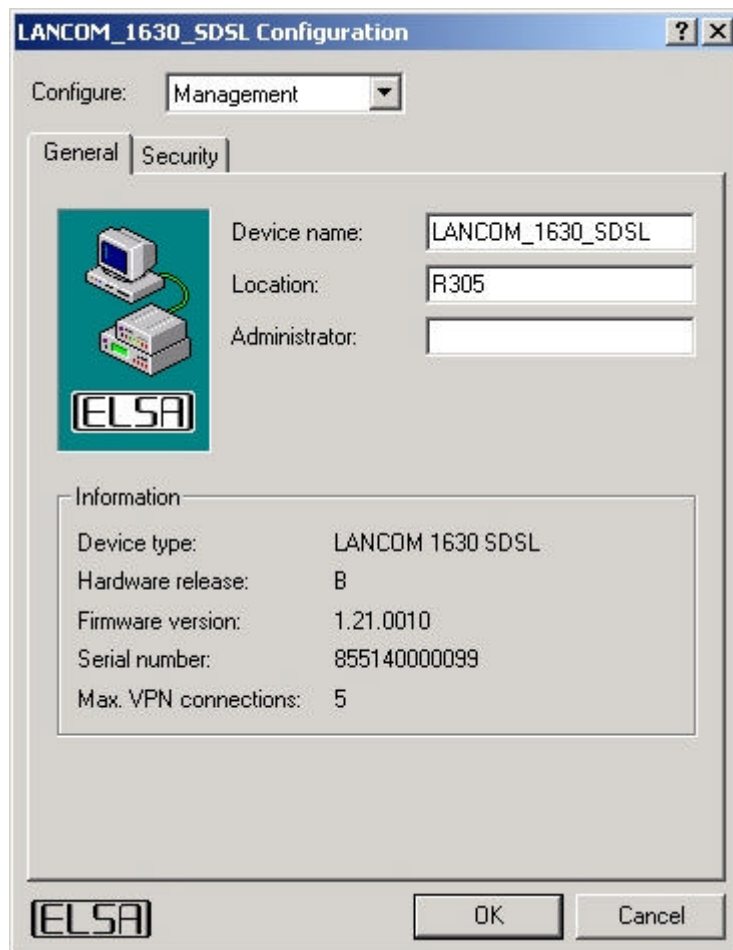
The Wizards can be run from the Tools menu manually, too:



#### 4.2.1.2 Device management with LANconfig



- LANCOM devices are found automatically
- Multiple different devices can be grouped together
- Multiple devices can be configured at once - simply select the desired devices



- Individual passwords can be stored within the management tool.
- CPE configuration management: Load, Store, Modify, Create

#### 4.2.1.3 Multi-CPE configuration

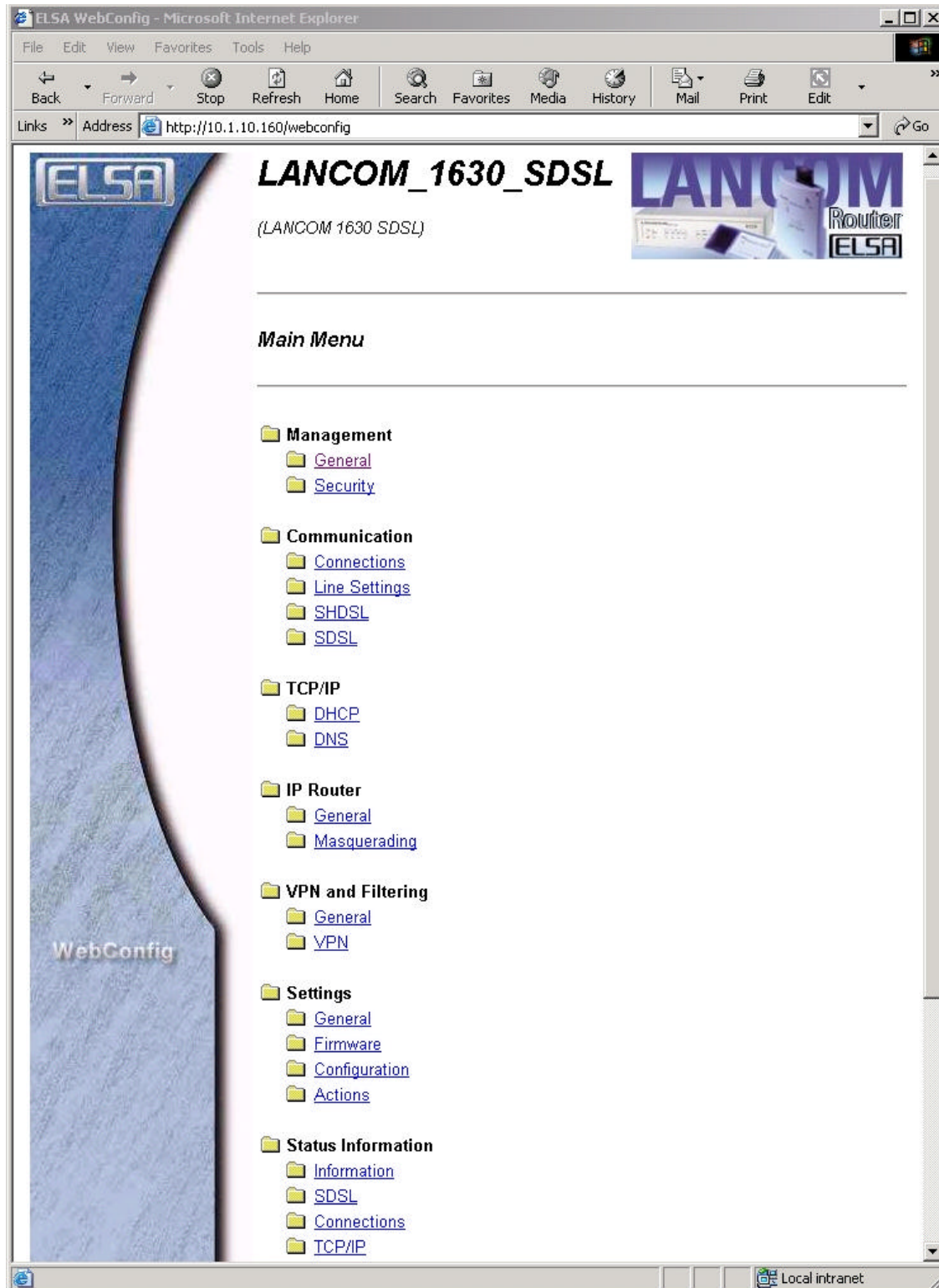
*Not included in standard delivery – on request only*

- A dedicated subset of configuration parameters (such as connection parameters) can be changed simultaneously for all selected devices ("MultiCfg" attribute).
- If multi-configuration is disabled for certain parameters (such as IP-addresses), the appropriate input field is disabled (current value grayed)
- If multi-configuration is enabled, and some of the devices have different settings, a warning pops up whether the change should be applied to all devices or not.
- If multi-configuration is enabled, and tables are being edited, the new values can either be merged in, or diff'ed out.

## 4.2.2 Configuration with WEBconfig

*Lists and modifies device settings in an interactive session*

- Set the language under “Settings / General”
- Set the “expert modus” under “Settings / General”



### 4.2.3 Configuration with TFTP command line

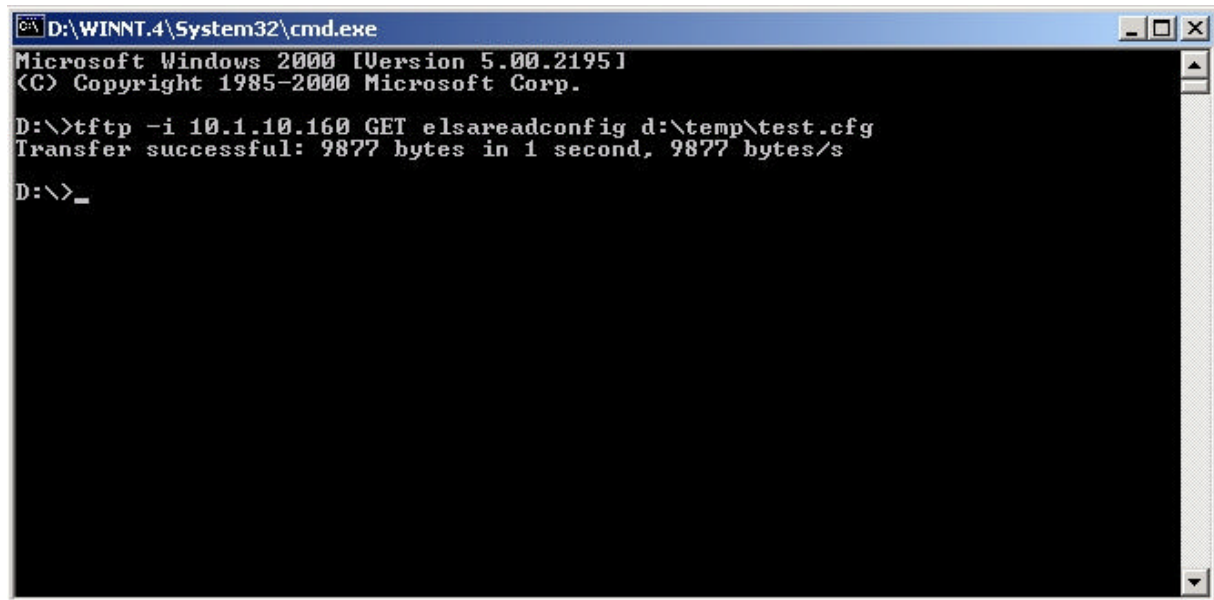
*Reads and writes entire device configuration files.*

*This method is suitable for (multi CPE) configuration within scripts or batch programs.*

Examples:

TFTP [IP-Addr] GET [Password]readconfig c:\Old.cfg

TFTP -I [IP-Addr] PUT [Password]writeconfig c:\New.cfg



```
D:\WINNT.4\System32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

D:\>tftp -i 10.1.10.160 GET elsareadconfig d:\temp\test.cfg
Transfer successful: 9877 bytes in 1 second, 9877 bytes/s

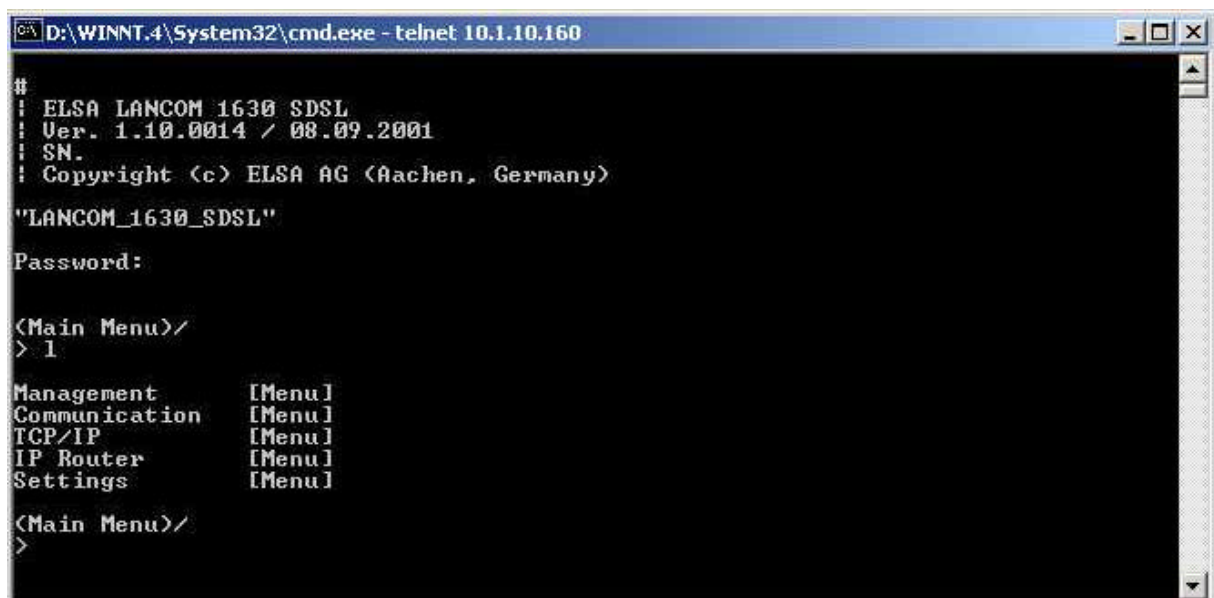
D:\>_
```

### 4.2.4 Configuration with TELNET command line

*Lists and modifies device settings in an interactive session*

Examples:

TELNET [IP-Addr]



```
D:\WINNT.4\System32\cmd.exe - telnet 10.1.10.160

#
! ELSA LANCOM 1630 SDSL
! Ver. 1.10.0014 / 08.09.2001
! SN.
! Copyright (c) ELSA AG (Aachen, Germany)

"LANCOM_1630_SDSL"

Password:

(Main Menu)/
> 1

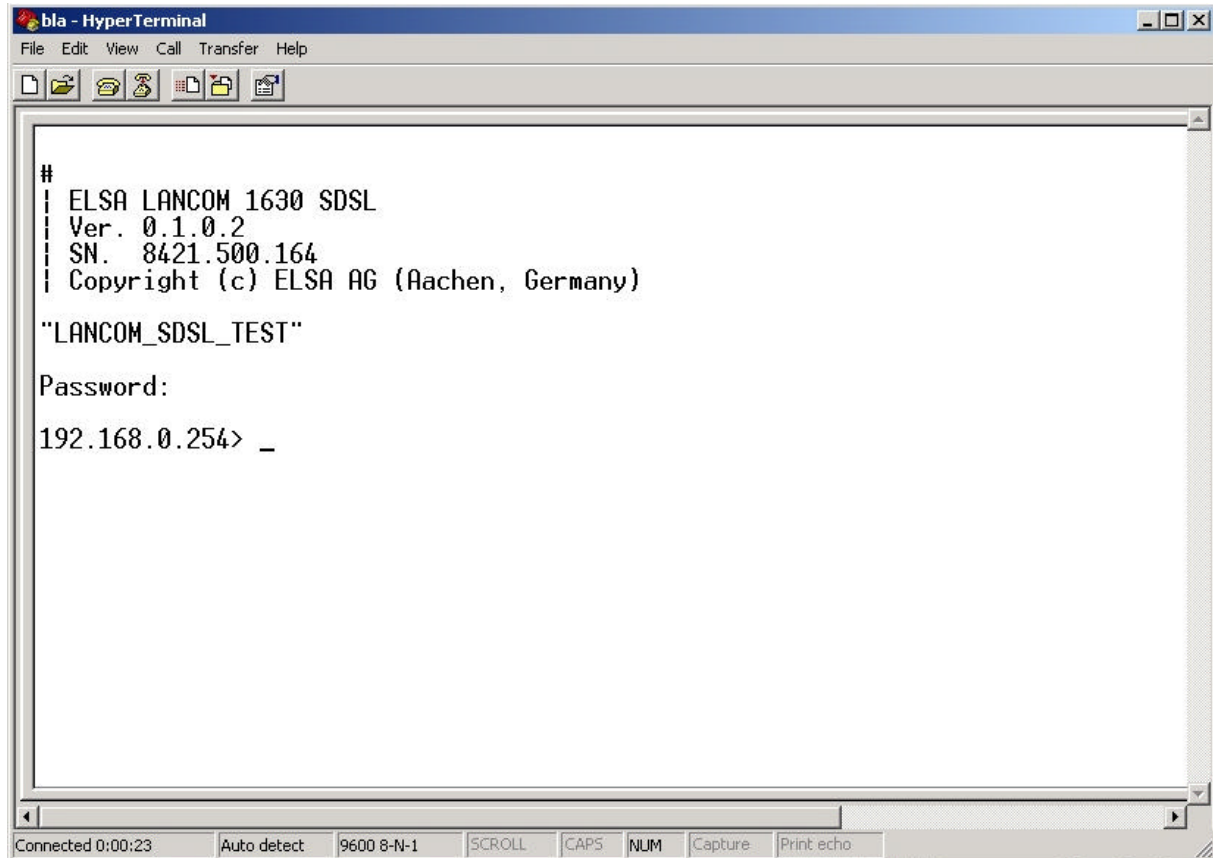
Management      [Menu]
Communication    [Menu]
TCP/IP           [Menu]
IP Router        [Menu]
Settings         [Menu]

(Main Menu)/
>
```

#### 4.2.5 Configuration with serial connection

Notes:

- Requires serial connection with the supplied serial config cable.
- COM port settings: 38.400 kbps, 8N1, no hardware and no software handshake
- Requires terminal program (such as Windows HyperTerminal)



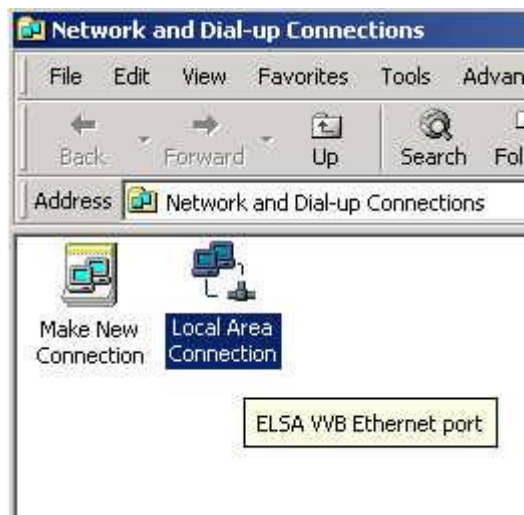
#### 4.2.6 Plug and Play Setup with USB

The LANCOM 1630 SDSL is automatically detected as soon as the USB connection is established.



After successful installation (you have to provide the path to the LANCOM CD with the USB drivers), the USB connection is presented as a standard Ethernet LAN interface on the PC. That is, it can be found under "Network and Dial-up Connections".





```
D:\WINNT.4\System32\cmd.exe
D:\>ipconfig /all

Windows 2000 IP Configuration

    Host Name . . . . . : cs1
    Primary DNS Suffix . . . . . :
    Node Type . . . . . : Peer-Peer
    IP Routing Enabled. . . . . : Yes
    WINS Proxy Enabled. . . . . : No
    DNS Suffix Search List. . . . . : de.elsa.intern

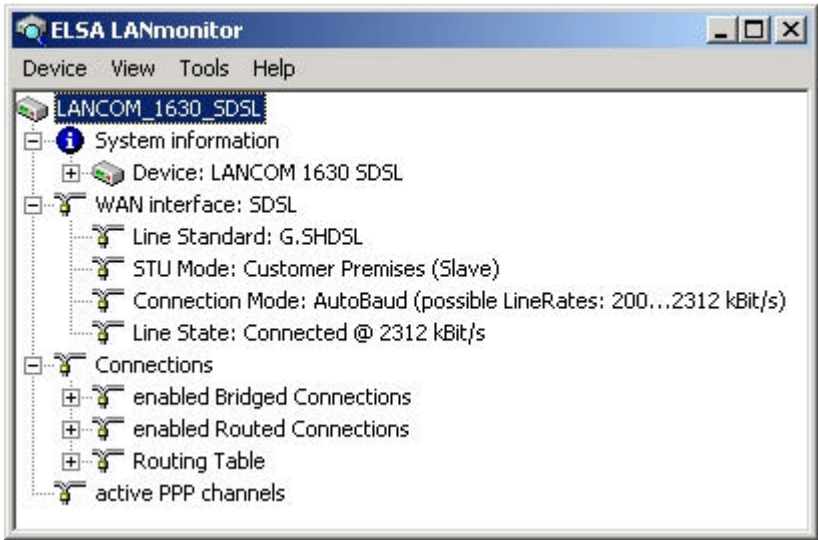
Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . :
    Description . . . . . : ELSA UUB Ethernet port
    Physical Address. . . . . : 00-A0-57-03-75-63
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Autoconfiguration IP Address. . . : 169.254.253.18
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :
    DNS Servers . . . . . :
```

After installation of the USB drivers, this interface is represented to the PC as an additional Ethernet interface.

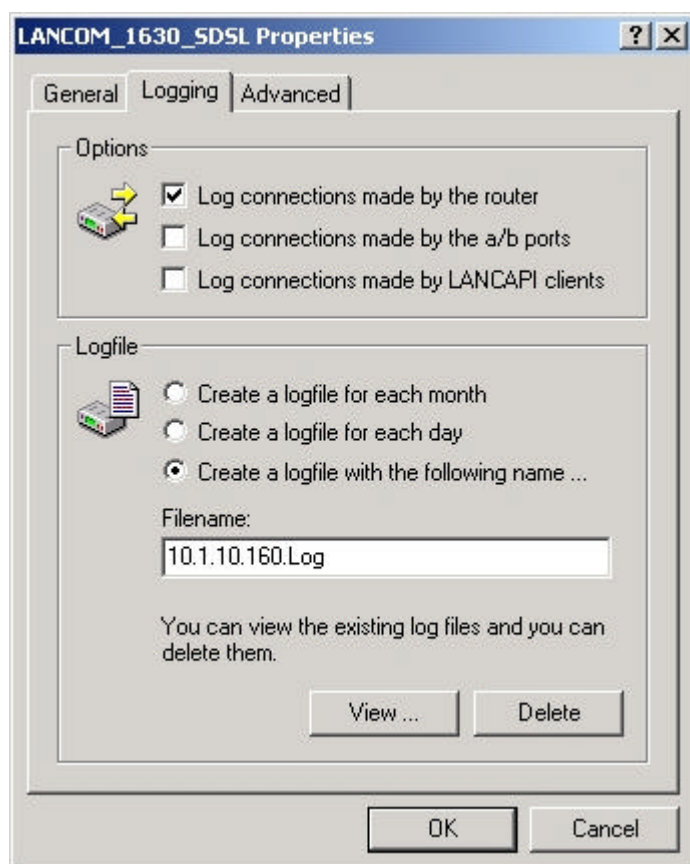
**4.3 Device monitoring with LANmonitor**

LANmonitor provides various information regarding the actual device status.





The connections can be logged as well



# 5 The IPSec VPN option

## 5.1 Setting up an IPSec VPN

*VPN requires the LANCOM VPN option kit*

Background information regarding IPSec based VPNs can be found in the reference manual of the LANCOM VPN option kit.

### 5.1.1 VPN installation with LANconfig

LANCOM recommends the easy to use setup wizard „Connect two local area networks...“ to set up VPN connections.

The following parameters are required:

- „Remote site“: This is the name under which the connection is stored
- “Shared secret”: This is the central key for the VPN security. This pre-shared key must match exactly on both sides of the VPN connection
- Public IP address of the VPN remote site
- Network address and mask of the remote local area network

**Setup Wizard for LANCOM\_1630\_SDSL**

**Connect two local area networks**  
Settings for the TCP/IP protocol

Enter the address of the remote gateway for this VPN connection. This is the IP address from which the device can be reached on the Internet on the other side.

Gateway:

Please enter the address of the remote IP network. The router can then automatically transmit data to this network.

Address:

Network Mask:

< Back    Next >    Cancel

### 5.1.2 Manual VPN configuration

1st Step: Add a connection entry in the „VPN connections“ table

Here must be entered the IP address of the remote VPN gateway, the pre-shared secret and the desired IKE and IPSec proposals.

VPN and Filtering: VPN: Connections: VPN-connections: Add

Name	Extr. Addr.	Gateway	IKE	IPSec	Secret	Dynamic**
branch1	0.0.0.0	193.10.1.10	IKEPROP*	IPSECPROP*	'secret'	Off

\*The IKE and IPSec proposals are preset in a way that modifications should not be needed normally (Blowfish-128, AES-128 or 3-DES encryption, ESP, no AH, MD-5 hash).

\*\* Parameter currently unused

2<sup>nd</sup> Step: Add a filter rule, which describes the VPN, protected IP packets

VPN and Filtering: VPN: General, Rules: Add

Prot.	Src. addr.	Src. mask	From	To	Dest. addr.	Dest. mask	From	To	Action	Connection
All	0.0.0.0	0.0.0.0	0	0	10.1.1.0	255.255.255.0	0	0	IPSec	Branch1

In this example, all packets for a network 10.1.1.x are transmitted with IPSec encryption to the VPN remote site 'branch1'.

## 6 ‘Back-to-Back’ operation

The LANCOM 1630 SDSL can be used to couple two local networks via any 2-wire connection over distances up to 6 km. Depending on the line quality, the full bandwidth of 2.3 Mbps can be achieved over distances up to 3.5 km.

In this case, one LANCOM 1630 SDSL is required on each end of the 2-wire line – one in the “Central Office Mode (CO)” mode, and one in the “Customer Premises Equipment (CPE)” mode. The device in CPE mode synchronizes to the line speed given by the CO device then.

The devices can be operated either in Bridge mode or in Router mode:

- In case of Bridge mode, the two distant local area networks are being coupled in a transparent manner, similar to an Ethernet cable of 6 km length
- In case of Routing, two logical IP networks can be coupled with all features a router provides – e.g. VPN encryption or dedicated packet filter settings

Suitable protocols for Back-to-Back routing are these:

- Plain Ethernet over ATM
- IPoA
- PPPoA (the device running in CO mode works also as the PPP server)

The LANCOM CD-ROM contains two example configurations for these applications:

- Ethernet bridge (G.shdsl, 2.3 Mbps)
- IPoA router (G.shdsl, 2.3 Mbps)

## 7 LED encodings

Name	Color	Meaning
<b>Power</b>	Red	Hardware error
	Red / Green flashing	No password set for configuration access (insecure device configuration).
	Green	Self-test OK, power on
	Green flashing	Writing to Flash-Rom ( <i>do NOT turn off power while flashing</i> )
<b>Online</b>	Green	PPP-protocols: PPP-link active Other protocols: same as SDSL-Link
	Off	Otherwise
<b>SDSL-Link</b>	Red	SDSL-Link errors (e.g. framing error)
	Green flashing	Establishing SDSL Link
	Green	SDSL-Link established
<b>SDSL-Data</b>	Green	SDSL user traffic (Rx/Tx)
<b>LAN-Link</b>	Green	Ethernet LAN Link established ( <i>check crossover switch on rear panel</i> )
<b>LAN-Data</b>	Red	Ethernet LAN packet collision detected
	Green	Ethernet LAN packet transmission (Rx/Tx)
<b>USB-Link</b>	Green	USB LAN Link established
<b>USB-Data</b>	Green	USB LAN packet transmission (Rx/Tx)
<b>VPN</b>	Green flashing	Establishing VPN tunnel (LANCOM VPN Option)
	Green	VPN tunnel established (LANCOM VPN Option)
	Off	Otherwise

## 8 Usage of the reset switch

User Action	Device Indication	Device Action
Push < 1 second	None	None
1 sec. < Push < 5 sec.	All LEDs flash once	Reboot
Push > 5 seconds	All LEDs on	Reset to default configuration
Push while turning on the device	Power LED switches to red	Emergency firmware becomes active

## 9 Firmware upload

Future firmware updates can be uploaded to the device by all configuration access methods (see configuration access). Preferable upload methods would be either via LANconfig, or via WEBconfig.

The FirmSafe supports dual firmware image for safe Flash-ROM updates. In case of unsuccessful firmware uploads – e.g. by unforeseen power-outage or damaged upload images – the permanent backup image becomes active and allows to continue safely.

Please notice that writing new images to the Flash-ROM will last up to a few minutes. The Flash-ROM update is indicated by a green flashing Power LED. In order to prevent an unwanted fallback to the emergency firmware, do not power cycle the device during this time.

# 10 Settings of the provider specific presets

The LANCOM 1630 SDSL offers two different configurations for each provider, which belong as follows to the number and type of IP addresses from your provider.

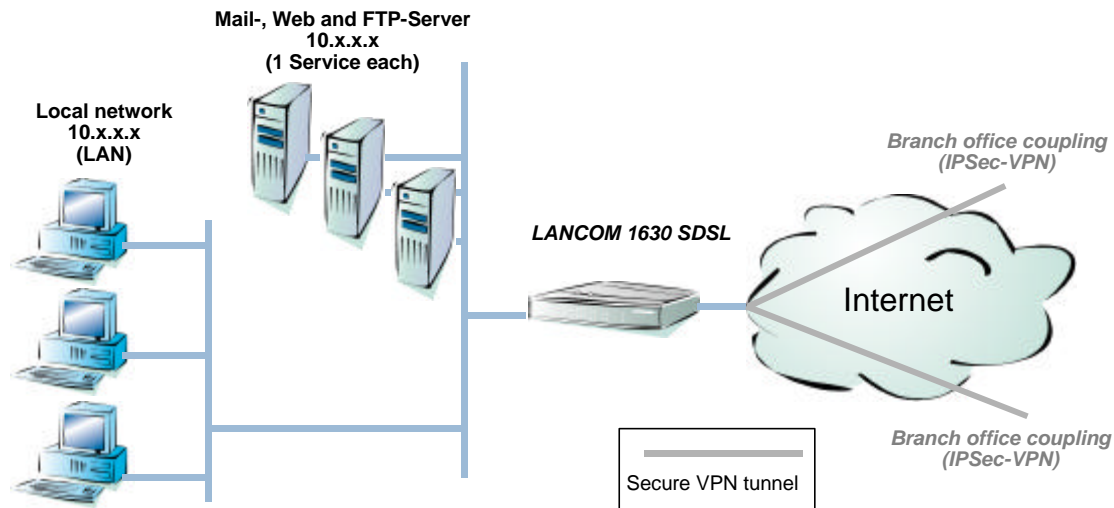
## 10.1 Dynamic or static IP address(es)?

The features of the LANCOM 1630 SDSL depend on the type and number of IP addresses.

IP adresse(s)	Internet server operation	Local network	VPN possible?	Router configuration profile name
1 (dynamic)	No	LAN (private IP addresses via NAT)	No	„Standard“
1 (static)	One service of each type: e.g. 1 web-, 1 mail- and 1 FTP server: private addresses, port based mapping to public IP (inverse masquerading)	LAN (private IP addresses via NAT)	Yes (requires LANCOM VPN option for LANCOM 1630 SDSL)	„Standard“
multiple (static)	Yes, multiple web, mail or FTP-server possible	DMZ (public IP addresses, no NAT)	Yes (with additional router)	„Multi IP“

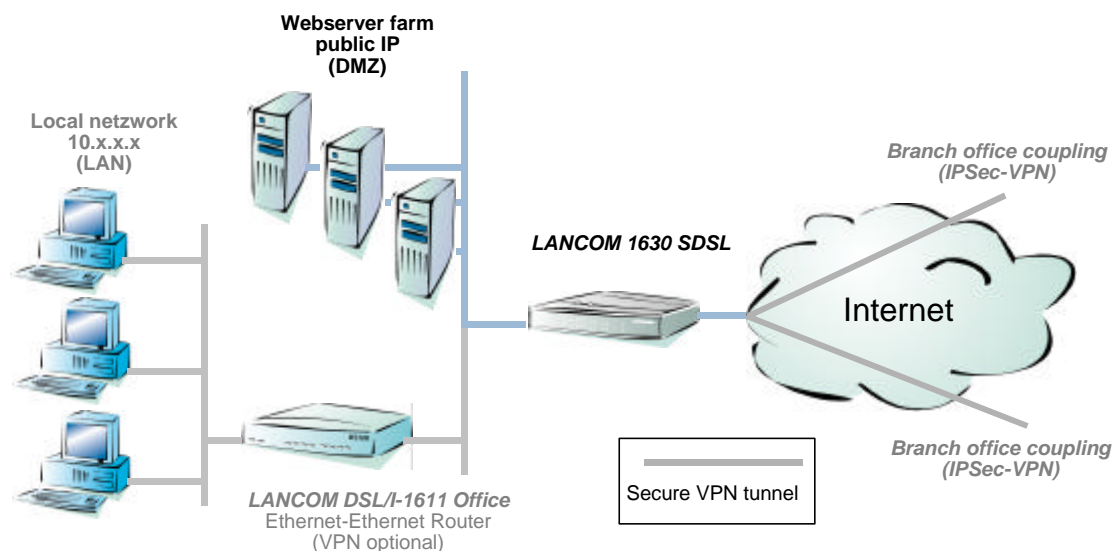
## 10.2 “Standard” configuration

In case of ONE IP address, the router masquerades a local network with private IP addresses behind its own public IP address. With one static IP, the operation of exactly one web, mail or ftp server is possible. That is, the router exposes via inverses masquerading the particular port (e.g. port 80 of a local http server) on its own public IP address.



## 10.3 “Multi IP” configuration

If multiple servers need to be supported, which all use the same port (e.g. a farm of web servers), multiple static IP addresses are required. In this case network address translation (NAT) is not being used, all servers get public IP addresses (de-militarized zone, DMZ). If a local area network should be connected as well, a separate Ethernet-Ethernet router (VPN optional) would be required.





#### 10.4 QSC specific preset

- WAN: 2B1Q SDSL, auto baud, flow-point mode, clear channel framing, min rate 272, config rate 272
- Router: PPPoA with LLC encapsulation, ATM VCI 51, VPI 1
- The configuration “Q-DSL Business (Standard)” has the firewall enabled with filters for outbound NETBIOS packets (prevents unwanted connections with Windows networking) and inbound RIP packets (protection of routing table from outside modifications)
- The configuration “Q-DSL Business (Multi IP)” leaves the firewall disabled

##### *Remarks regarding the “Multi IP” configuration*

- If the device has been operated in another configuration before, it must be reset prior to the change to the Multi IP configuration in order to re-enable the “Basic settings...” Wizard
- The public IP addresses for the servers within the DMZ have to be entered within the „Basic settings...” setup wizard then

#### 10.5 Streamgate specific preset

- WAN: G.shdsl
- Router: Plain Ethernet (RFC 1483 bridged) with LLC encapsulation, ATM VCI 35, VPI 0
- The configuration “Streamgate Giga (Standard)” has the firewall enabled with filters for outbound NETBIOS packets (prevents unwanted connections with Windows networking) and inbound RIP packets (protection of routing table from outside modifications)
- The configuration “Streamgate Giga (Multi IP)” operates the LANCOM 1630 SDSL as an Ethernet over ATM Bridge (no router/firewall).

##### *Remarks regarding the “Multi IP” configuration*

- The Multi-IP configuration can be found as a preset configuration on the LANCOM CD-ROM
- After configuration upload, the LANCOM 1630 SDSL must be configured with the serial connection then (LANconfig or terminal program).
- The static IP addresses for the servers within the DMZ will be assigned automatically via DHCP.

## 10.6 Riodata specific preset

- WAN: G.shdsl
- Router: PPPoA with LLC encapsulation, ATM VCI 100, VPI 0
- The configuration “Riodata BusinessConnect (Standard)” has the firewall enabled with filters for outbound NETBIOS packets (prevents unwanted connections with Windows networking) and inbound RIP packets (protection of routing table from outside modifications)
- The configuration “Riodata BusinessConnect (Multi IP)” leaves the firewall disabled

### *Remarks regarding the “Multi IP” configuration*

- If the device has been operated in another configuration before, it must be reset prior to the change to the Multi IP configuration in order to re-enable the “Basic settings....” Wizard
- The public IP addresses for the servers within the DMZ have to be entered within the „Basic settings...” setup wizard then

# 11 Manual configuration (routing)

## 11.1 LAN Configuration

Communication: Connections: Bridge Interfaces: Add

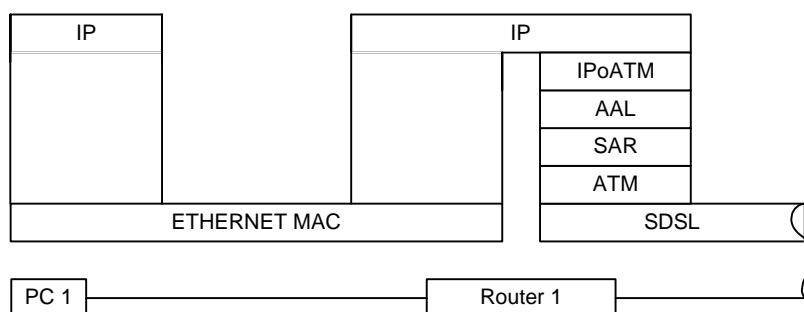
Name	Status
ETHER	Enabled
USB	Enabled

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
BRIDGE	Enabled	172.19.5.33	255.255.255.0	0.0.0.0

## 11.2 WAN Configurations

### 11.3 IP over ATM (IPoA)



#### 11.3.1 Configuration settings

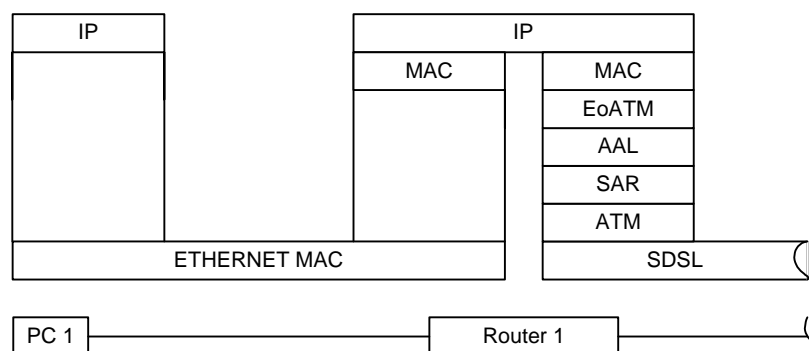
Communication: Connections: Plain IP: Add

Name	VPI	VCI	PCR	Type	Encapsulation
IPOA1	2	34	5000	UBR	LLC

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
IPOA1	Enabled	192.168.3.2	255.255.255.0	192.168.3.1

## 11.4 Plain Ethernet over ATM



### 11.4.1 Configuration settings

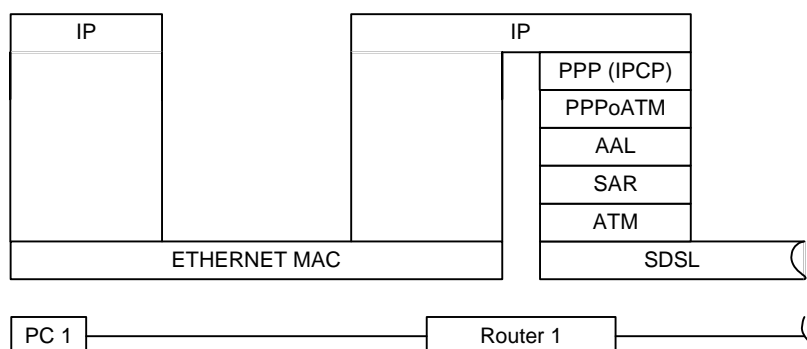
Communication: Connections: Plain Ethernet: Add

Name	VPI	VCI	PCR	Type	Encapsulation
EOA1	2	34	5000	UBR	LLC

Communication: Connections: Router Interfaces: Add

Name	Status	IP address	Net mask	Gateway
EOA1	Enabled	192.168.3.2	255.255.255.0	192.168.3.1

## 11.5 PPP over ATM (PPPoA)



### 11.5.1 Configuration settings

Communication: Connections: PPP ...: Add

Name	VPI	VCI	PCR	Type	Encapsulation	Control Protocol	Short hold	Username	Password
PPPOA1	2	34	5000	UBR	LLC	IPCP	3000	Roger.Rabbit	*

#### 11.5.1.1 PPP sever mode

If device is configured as Central Office (CO), PPP uses server mode.

- Gateway IP-address is assigned to CPE as the WAN IP address
- IP address is CPE assigned as the gateway IP address

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
PPPOA1	Enabled	192.168.3.2	255.255.255.0	192.168.3.1

#### 11.5.1.2 PPP client mode

If device is configured as CPE (see SDSL parameters), PPP uses client mode.

Automatic IP address assignment via PPP/IPCP

- Preset IP address, net mask and Gateway with "0.0.0.0"

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
PPPOA1	Enabled	0.0.0.0	0.0.0.0	0.0.0.0

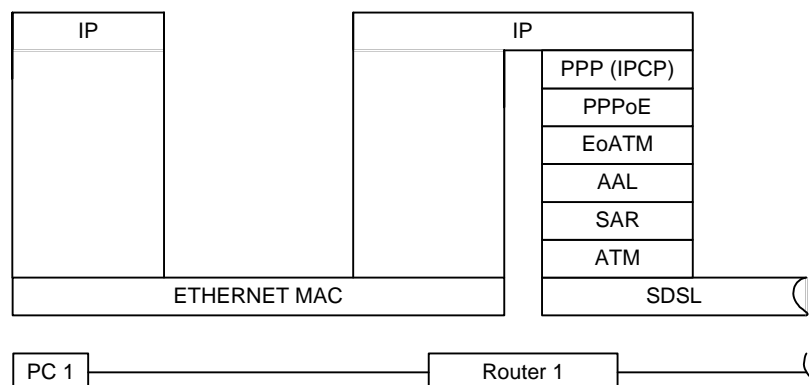
If IP address must be configured manually:

- Preset IP-address as desired

Communication: Connections: Router interfaces: Add

Name	Status	IP address	net mask	Gateway
PPPOA1	Enabled	192.168.3.2	0.0.0.0	0.0.0.0

## 11.6 PPP over Ethernet (PPPoE)



### 11.6.1 Configuration settings

Communication: Connections: PPP over Ethernet: Add

Name	VPI	VCI	PCR	Type	Encapsulation	AC name	Service
PPPOEOA1	2	34	5000	UBR	LLC		.....

Control Protocol	Short hold	Username	Password
IPCP	3000	Roger.Rabbit	*

The device is the PPPoE client.

NOTE: It is not possible to configure the device as PPPoE Server!

Automatic IP address assignment via PPP/IPCP

- Preset IP address, net mask and Gateway with "0.0.0.0"

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
PPPOEOA1	Enabled	0.0.0.0	0.0.0.0	0.0.0.0

If IP address must be configured manually:

- Preset IP-address as desired

Communication: Connections: Router interfaces: Add

Name	Status	IP address	Net mask	Gateway
PPPOEOA1	Enabled	192.168.3.2	0.0.0.0	0.0.0.0

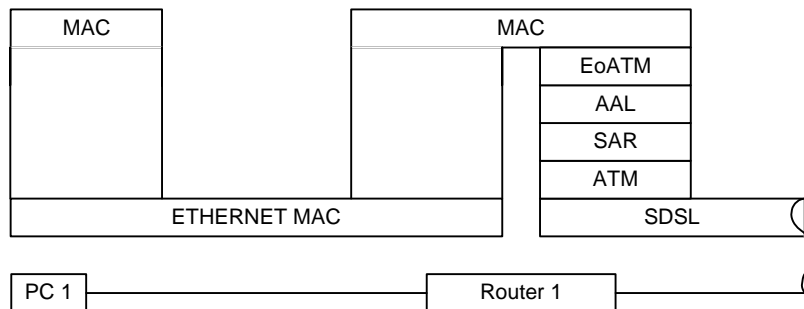
# 12 Manual configuration (bridging)

## 12.1 LAN Configuration

Communication: Connections: Bridge interfaces: Add

Name	Status
ETHER	Enabled
USB	Enabled

## 12.2 WAN configuration Bridged Ethernet (RFC 1483 bridged)



### 12.2.1 Configuration settings

Communication: Connections: Plain Ethernet: Add

Name	VPI	VCI	PCR	Type	Encapsulation
EOA1	2	34	5000	UBR	LLC

Communication: Connections: Bridge interfaces: Add

Name	Status
EOA1	Enabled