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LANCOM Firmware Version 3.20

October 2003

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Contents

On the following pages we would like to give an overview of the new features and enhancements of this new LANCOM software.

In particular, the following items will be covered:

▶ **The VPN update – new LCOS version 3.20**

▶ Highlights of LCOS version 3.10

▶ Service and Support

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The VPN update

Highlights:

▶ Supported LANCOM models: 800, 1000, 1100, 2000, DSL/10, DSL/I-10, DSL/1610, DSL/I-1611, 821, 1621, 4000 Series, 6000 Series, Wireless L-11/IL-11, 7011 VPN, L-54 Wireless, 3050 and 3550 Wireless

▶ Also for ELSA LANCOM and Telekom T-Octopus LAN

Firmware
3.20

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▶ AES encryption

▶ More VPN channels!

▶ VPN client connection with AES

▶ Cascadable VPN tunnels

▶ VPN status display in LANmonitor

▶ New VPN traces on the command line interface

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AES encryption

The „Advanced Encryption Standard"

AES support

▶ NEW: VPN connections with AES. Starting with version 3.20, LANconfig's setup wizard for VPN supports AES in its default proposal

▶ NEW : Setup wizard for setting up 3rd-Party VPN SW clients with AES support

▶ NEW : Description how to change existing VPN connections to use AES encryption. See LANCOM KnowledgeBase under www.lancom.de/support (keyword search ‚AES')

▶ IPSec-based VPN

▶ The most recent encryption standard

▶ High-performance encryption and optimal security

▶ Approved for use by US authorities

Note: IPSec-based VPN only in conjunction with LANCOM VPN Option (LANCOM series 1600, 1800 and 3000), or if provided by factory defaults (LANCOM series 6000 and 7000)

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More VPN chanels!

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Upgrade the existing 1 channel option to 2 channels

▶ free of charge with LCOS version 3.20

Ideally suited for hub-and-spoke VPN networks

▶ Additional VPN tunnel for remote maintenance

▶ Integrate another branch office

▶ Establish remote access with the LANCOM VPN Client

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VPN SW client connections with AES

Setting up a VPN client connection with user-defined settings for external VPN clients with the generic VPN client wizard.

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Cascadable VPN tunnels

Merging / Nesting of target networks

▶ Faster setup time

▶ For large and complex VPNs

    ▶ „any to any" connections

    ▶ Hierarchical organisation

Real-word example: 39 sites „any to any"

▶ Reduction from over 1.500 to 40 VPN policies!

▶ Much easier configuration
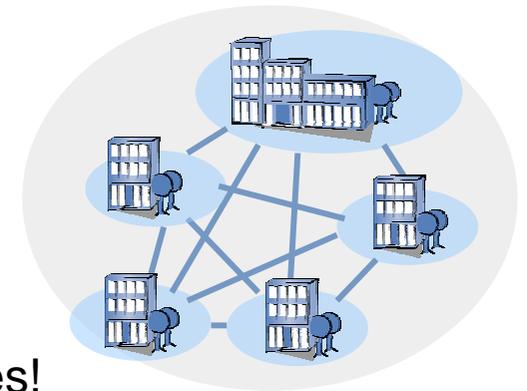
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Cascadable VPN tunnels in detail
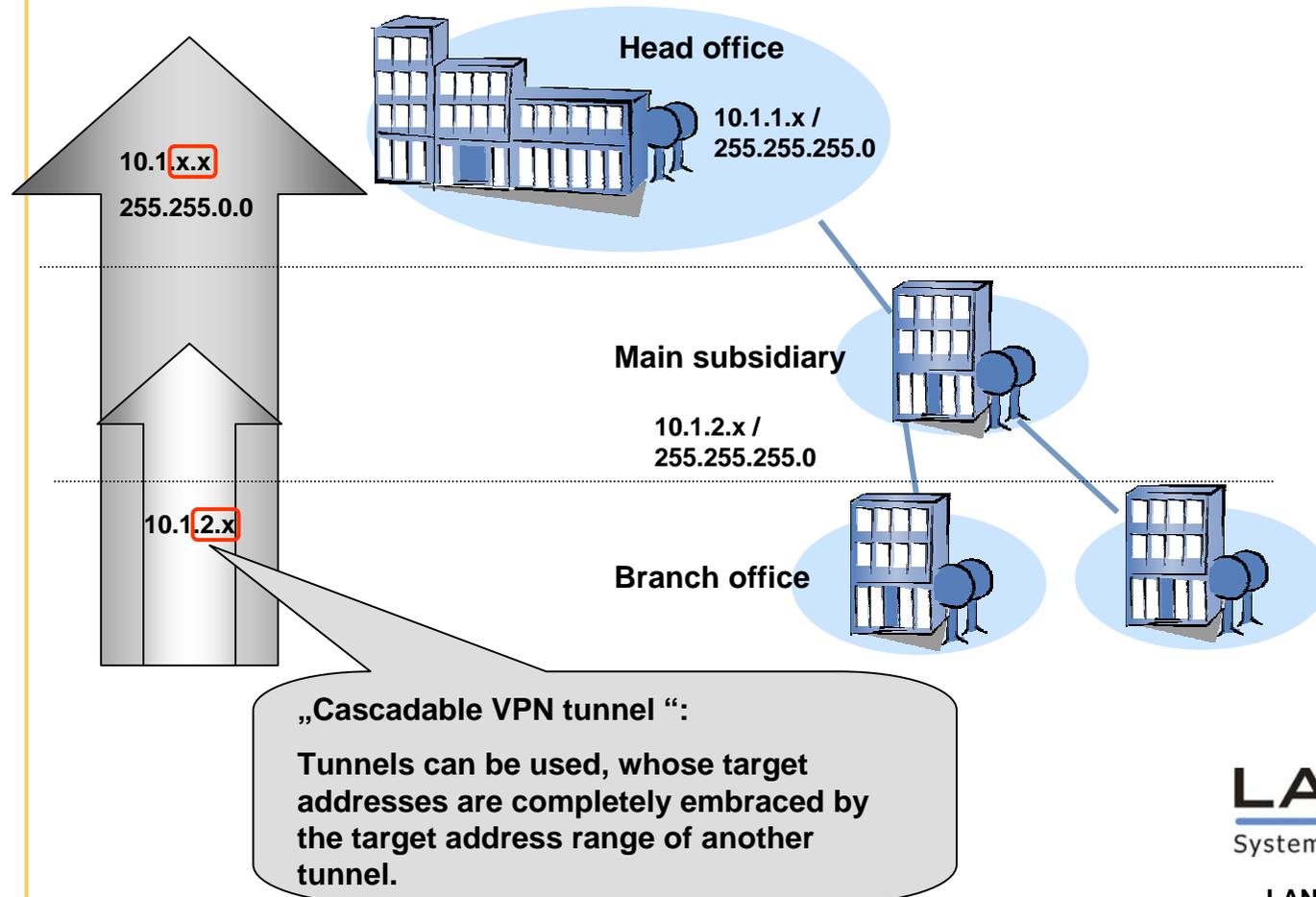
Head office

10.1.1.x /
255.255.255.0

10.1.x.x

255.255.0.0

Main subsidiary

10.1.2.x /
255.255.255.0

10.1.2.x

Branch office

„Cascadable VPN tunnel ":

Tunnels can be used, whose target addresses are completely embraced by the target address range of another tunnel.

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Optimised VPN network structures

Extended VPN topologies:

▶ Combination of hierarchical and arbitrarily meshed VPN topologies

▶ Structuring by combination of networks (cascading)

▶ Accelerated VPN setup times, especially in complex scenarios
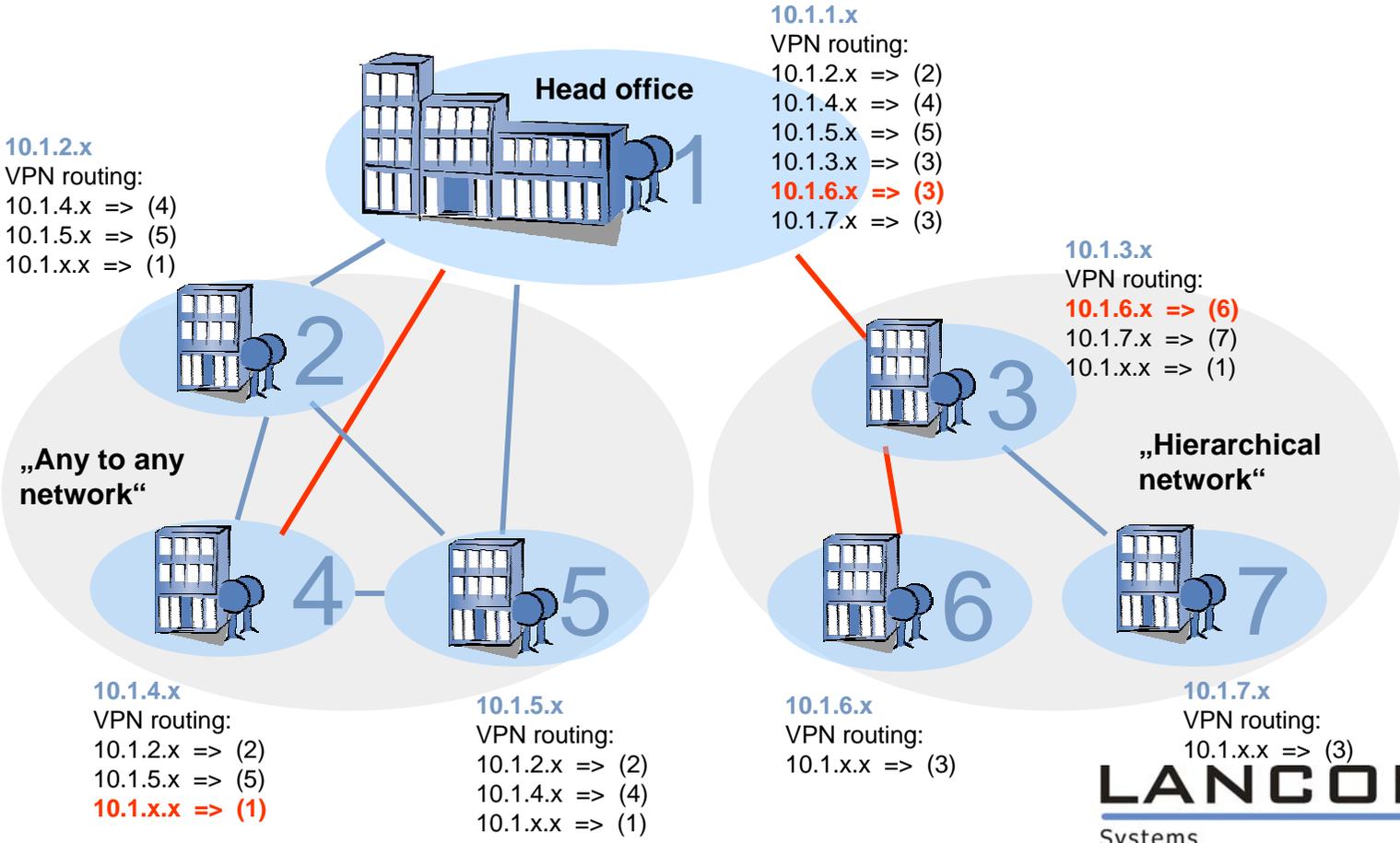
Head office

10.1.1.x
VPN routing:
10.1.2.x => (2)
10.1.4.x => (4)
10.1.5.x => (5)
10.1.3.x => (3)
10.1.6.x => (3)
10.1.7.x => (3)

10.1.2.x
VPN routing:
10.1.4.x => (4)
10.1.5.x => (5)
10.1.x.x => (1)

10.1.3.x
VPN routing:
10.1.6.x => (6)
10.1.7.x => (7)
10.1.x.x => (1)

„Any to any network"

„Hierarchical network"

10.1.4.x
VPN routing:
10.1.2.x => (2)
10.1.5.x => (5)
10.1.x.x => (1)

10.1.5.x
VPN routing:
10.1.2.x => (2)
10.1.4.x => (4)
10.1.x.x => (1)

10.1.6.x
VPN routing:
10.1.x.x => (3)

10.1.7.x
VPN routing:
10.1.x.x => (3)

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LANmonitor

VPN monitoring

▶ Proactively by SNMP

▶ Current state overview

▶ Integrated diagnostics

LANmonitor

Gerät   Ansicht   Extras   ?

RAVENSBURG
- DSL Line: Verbunden mit INTERNET
  - Protokoll: Transparent
  - VPN-Verbindungen: 22
  - Verbindungszeit: Ein Tag und eine Stunde
  - Sende 636 Byte/sek, empfange 718 Byte/sek
- ISDN Line 1: Nicht bereit
- ISDN Line 2: Nicht bereit
- Firewall: 0/0/0000 0:24:07 intruder detection - Paket verworfen
- VPN-Verbindungen
  - Verbunden mit CHEMNITZ (über INTERNET)
  - Verbunden mit COBURG (über INTERNET)
  - Verbunden mit DESSAU (über INTERNET)
  - Verbunden mit DRESDEN (über INTERNET)
  - Verbunden mit ERFURT (über INTERNET)
  - Verbunden mit GERA (über INTERNET)
  - Verbunden mit GOERLITZ (über INTERNET)
  - Verbunden mit GOETTINGEN (über INTERNET)
  - Verbunden mit HALLE (über INTERNET)
  - Verbunden mit HOF (über INTERNET)
  - Verbunden mit HOYERSWERDA (über INTERNET)
  - Verbunden mit KARLSRUHE (über INTERNET)
  - Verbunden mit KEMPTEN (über INTERNET)
  - Verbunden mit KOETHEN (über INTERNET)
  - Verbunden mit LEIPZIG (über INTERNET)
  - Verbunden mit MAGDEBURG (über INTERNET)
  - Verbunden mit MERSEBURG (über INTERNET)
  - Verbunden mit MUENCHEN (über INTERNET)
  - Verbunden mit NUERNBERG (über INTERNET)
  - Verbunden mit OSNABRUECK (über INTERNET)
  - Verbunden mit TEMPELHOF (über INTERNET)
  - Verbunden mit WITTENBERG (über INTERNET)
  - Nicht verbunden mit WOLFEN
  - Nicht verbunden mit WUERSELEN
- System-Informationen

- Nicht verbunden mit VPN_C_DSCHNAK
  - IKE Schlüssel stimmen nicht überein (Responder, IKE) [0x220A]
- Nicht verbunden mit VPN_C_JEHRENF
  - Zeitüberschreitung während IKE- oder IPSec-Verhandlung (Initiator) [0x1106]
- Nicht verbunden mit VPN_C_MFELBER
  - Keine Regel für ID's gefunden - unbekannte Verbindung oder fehlerhafte ID (z.B. IP-Netzwerkdefinition)
- Nicht verbunden mit VPN_C_PWILMES
  - Zeitüberschreitung während IKE- oder IPSec-Verhandlung (Responder) [0x1206]
- Nicht verbunden mit VPN_C_UPRINZ
  - ISDN- oder DSL-Fehler auf Interface nach VPN_C_UPRINZ [0x1328]
- Nicht verbunden mit VPN_UPRINZ
  - Dynamic VPN - keine ISDN Rufnummer für Verhandlungskanal (Initiator) [0x1113]

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Detailed insights for specialists

The newly designed **VPN trace functions** provide a professional analysis and diagnostics toolset during any phase of a VPN connection. Thereby, network experts can analyze VPN connections down to „bits and bytes".

Command line interface:

▶ `trace + vpn-status:`   Display all VPN protocol events and phases

▶ `trace + vpn-packet:`   Display all VPN datagrams

Direct WLAN radio links

LANconfig

▶ Settings under „Management / Wireless LAN / Interface Settings/ WLAN Interface/ Radio"

Thanks to their high transmitting power in the in 5 GHz band, LANCOM 3550 Wireless and LANCOM L-54ag support direct radio links with up to 108 Mbps and over distances of up to several kilometers.

A new distance setting enables optimal performance by internal adjustments for the incurred delay.

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▶ **Highlights of LCOS version 3.10**

▶ Service and Support

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▶ Dynamic DNS

▶ DSL over LAN

▶ Quality of Service

▶ Scheduled Events

▶ Other Highlights

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Dynamic DNS

Dynamic DNS applications

▶ Remote Management

▶ VPNs with dynamic IP Addresses

What is ‚Dynamic DNS'?

Dynamic DNS- (‚Domain Name Service') services address issues arising from dynamic IP addresses, which are typically used by most standard broadband lines.

With such lines, a new IP address is assigned...

▶ Each new dial-in

▶ With flat rate tariffs typ. each 24 h

The following applications based on known IP addresses are enabled (besides other methods such as e.g. ISDN) by Dynamic DNS services:

▶ Remote Management

▶ VPN network couplings and VPN remote access

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Dynamic DNS

LANCOM 3550 Wireless

VPN connection

DSL connection
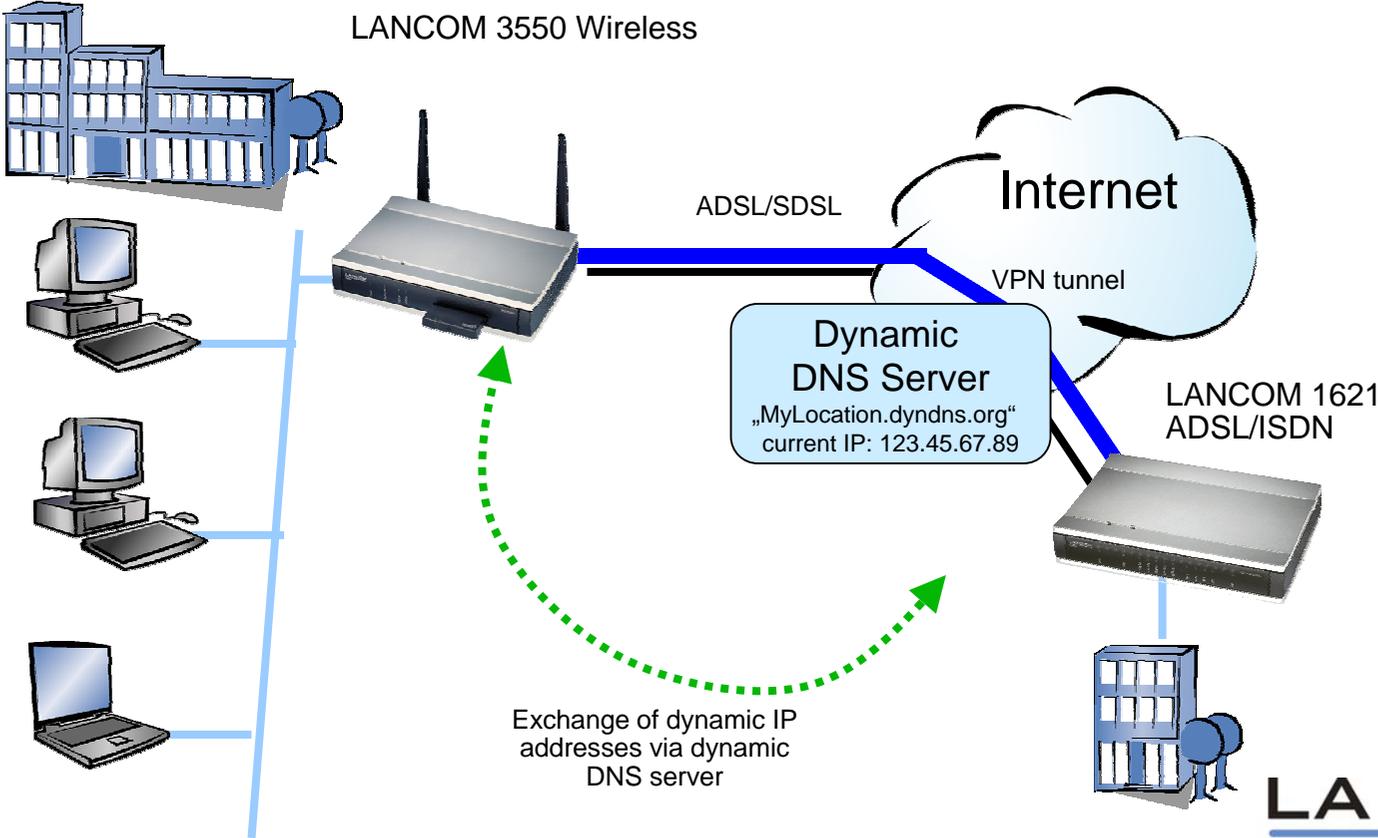
Ethernet connection

ISDN connection

ADSL/SDSL

Internet

VPN tunnel

Dynamic DNS Server
„MyLocation.dyndns.org"
current IP: 123.45.67.89

LANCOM 1621
ADSL/ISDN

Exchange of dynamic IP addresses via dynamic DNS server

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Dynamic DNS Highlights (1)

New LANconfig Dynamic DNS Wizard

Dynamic DNS functions can be set up easily with the new LANconfig setup assistant.

A multitude of well-known Dynamic DNS providers is supported directly with preset configurations.

Ease of use means

▶ Tailored input sets for well-known Dynamic DNS provider

▶ Skripts to update the current IP address

▶ Takes care of refresh-contraints such as minimum update interval (e.g. 5 minutes) and maximal inactivity period (e.g. 28 days)

▶ Can be adopted for other dynamic DNS provider
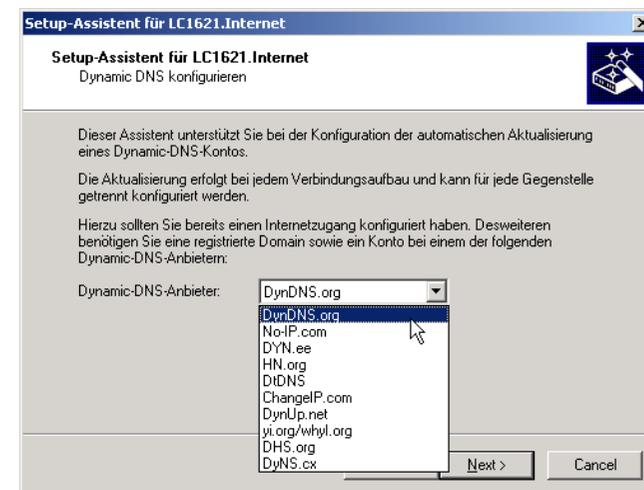
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Dynamic DNS Highlights (2)

Highlights

▶ Enter a static, DNS-resolvable name instead of a static IP address

▶ Enables secure VPN Main Mode connections just if you were using static IPs

▶ Besides IP address updates, execute any LANCOM command line command listed in the new ‚Action table' when a connection is being established or cut

DNS-resolvable names instead of static IP addresses

You can enter a DNS-resolvable name at many places where previously only a fixed IP address was accepted. For example, the device's address in *LANconfig* and *LANmonitor* can be entered this way, as well as the *VPN remote site*'s address.
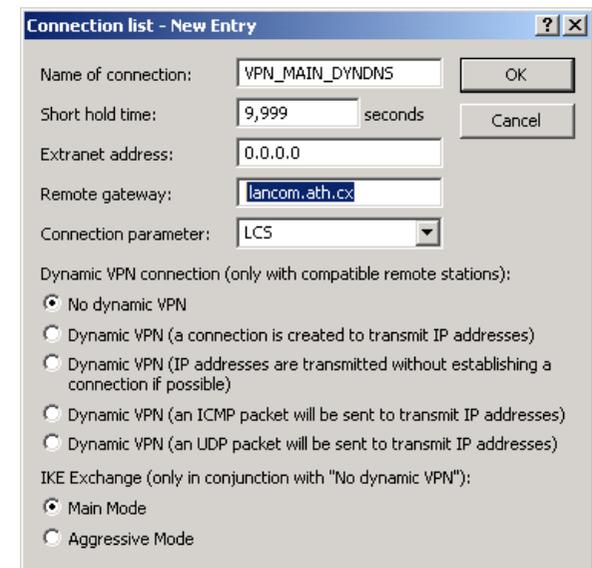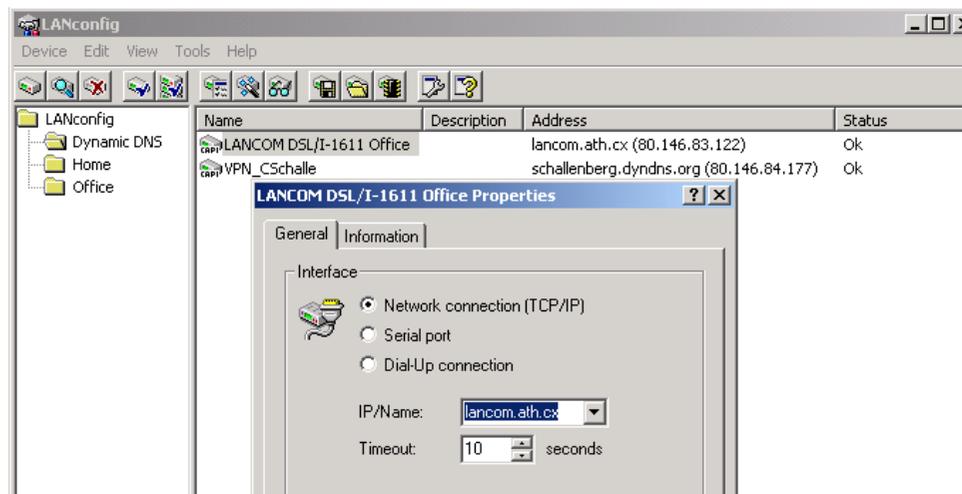
Further connection-state-oriented actions can be entered in LANconfig's new ‚Action table' under „Communication / General "

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Dynamic DNS vs. Dynamic VPN

LANCOM Dynamic VPN

▶ Exchange current IP address via ISDN

▶ **Free of charge** when using ISDN D channel

▶ Works even without flat rate tariffs

▶ **Extreme reliable** low cost VPNs thanks to ISDN

▶ **„State of the Art" – LANCOM to LANCOM only**

Dynamic DNS constraints

▶ VPN depends on 3rd party web server availabilty

▶ Contract and annual costs for professional users

LANCOM Dynamic DNS

▶ Integrated Dynamic DNS client

▶ VPN remote site as DNS-resolvable name

▶ **For mobile users with VPN client and locations without ISDN**

Dynamic DNS Services Ratings.

Sort by: Reliability [ ] Reload

| #	Service		Votes	Rating	Rate It
1	DynDNS	Overall:	1823	4.284	Vote
		Reliability:	1190	4.348	
		Features:	1164	4.149	
		Support:	996	4.015	
2	HN	Overall:	568	4.171	Vote
		Reliability:	417	4.312	
		Features:	413	4.165	
		Support:	372	3.901	
3	Yi	Overall:	518	3.847	Vote
		Reliability:	199	4.296	
		Features:	193	4.140	
		Support:	172	3.314	
4	DHS	Overall:	165	3.970	Vote
		Reliability:	111	4.243	
		Features:	110	3.927	
		Support:	86	3.384	
5	No-IP	Overall:	1973	4.349	Vote
		Reliability:	1078	4.206	
		Features:	1087	4.078	
		Support:	943	4.035	
6	ZoneEdit	Overall:	87	4.264	Vote
		Reliability:	87	4.184	
		Features:	88	4.182	
		Support:	77	4.000	
7	DyNS	Overall:	20	3.900	Vote
		Reliability:	18	4.056	
		Features:	18	3.889	
		Support:	17	4.059	
8	DtDNS	Overall:	269	3.967	Vote
		Reliability:	208	4.038	
		Features:	207	3.778	
		Support:	176	3.744	

Source: www.KVTek.com

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Dynamic DNS application example:
Mobile GPRS Intranet access via VPN
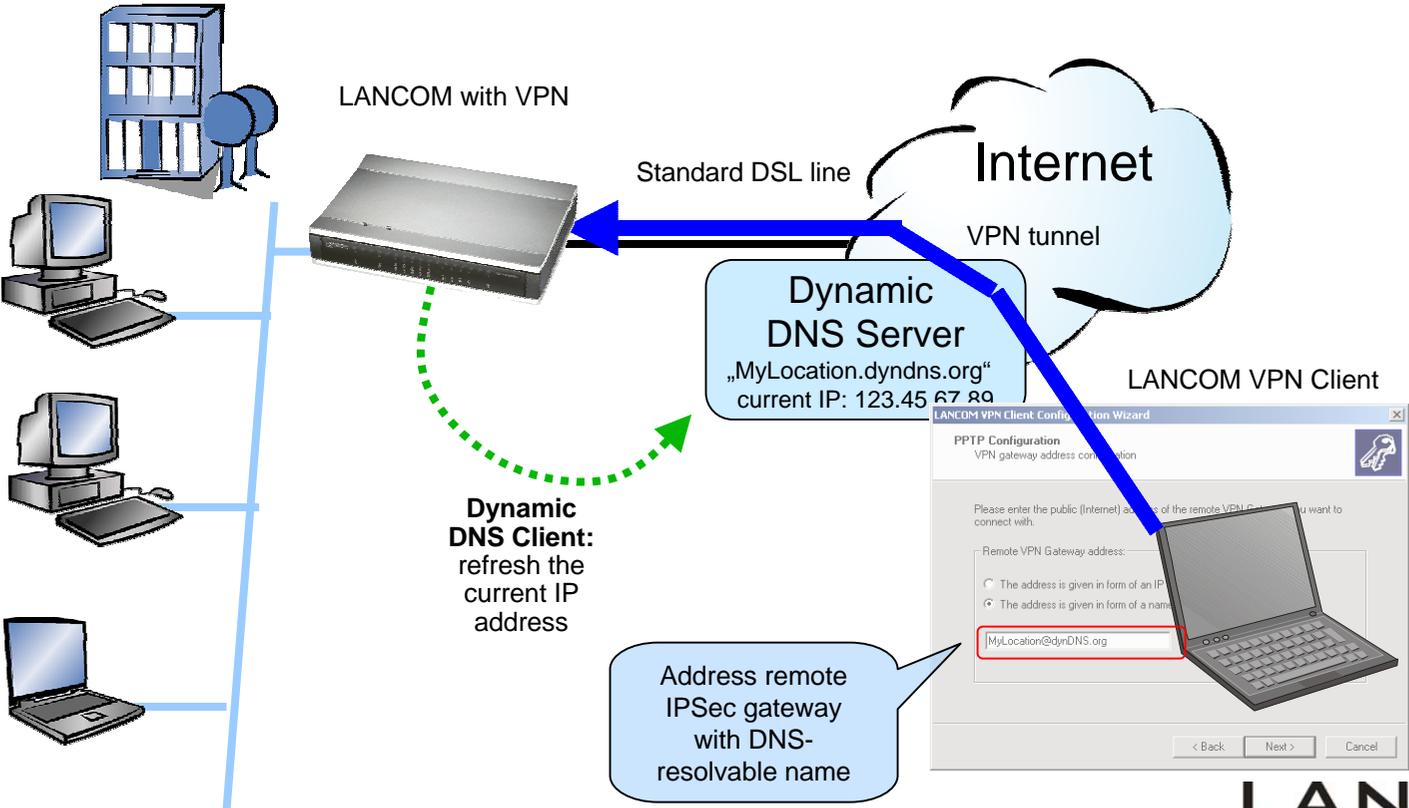
LANCOM with VPN

Standard DSL line

Internet

VPN tunnel

	VPN connection
	DSL connection
	Ethernet connection
	ISDN connection

Dynamic
DNS Server
„MyLocation.dyndns.org"
current IP: 123.45.67.89

LANCOM VPN Client

Dynamic DNS Client: refresh the current IP address

Address remote IPSec gateway with DNS-resolvable name

LANCOM VPN Client Configuration Wizard

PPTP Configuration
VPN gateway address configuration

Please enter the public (Internet) address of the remote VPN Gateway you want to connect with.

Remote VPN Gateway address:

○ The address is given in form of an IP
● The address is given in form of a name

MyLocation@dynDNS.org

< Back   Next >   Cancel

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Firmware Version 3.10

▶ Dynamic DNS

▶ DSL over LAN

▶ Quality of Service

▶ Scheduled Events

▶ Other Highlights

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„DSL over LAN" (DSLoL)

Extended possibilities

You would like to upgrade your device with an integrated ADSL modem to SDSL? You would like to upgrade your LANCOM L-11 Wireless to being a Router for the wired LAN and an Access Point for the Wireless LAN as well? Starting with release 3.10, you will find a new „DSLoL" interface – simply plug in and make it happen!
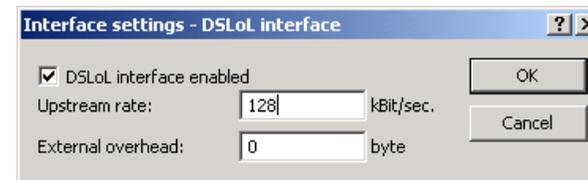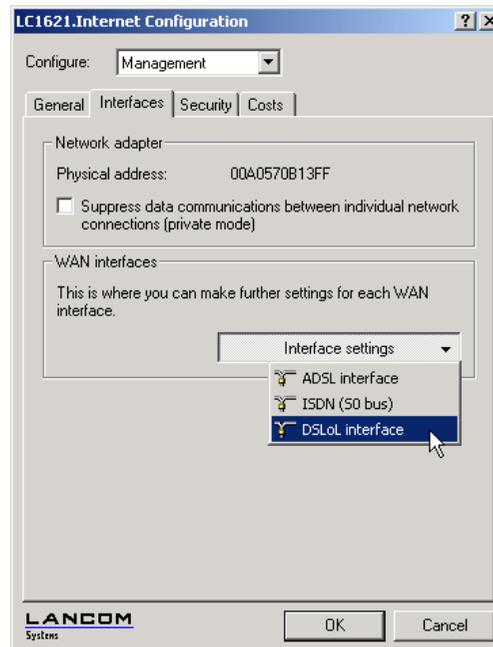
DSLoL Interface in LANconfig under „Management / Interfaces"

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DSLoL with LANCOM ADSL Series (1/2)

3.10

Features

- „DSL over LAN":
  Connect an
  external
  broadband
  modem or router

- Ideally suited for
  customers
  demanding more
  upstream
  bandwith by
  SDSL

- LANCOM 821
  ADSL/ISDN and
  LANCOM 1621
  ADSL/ISDN
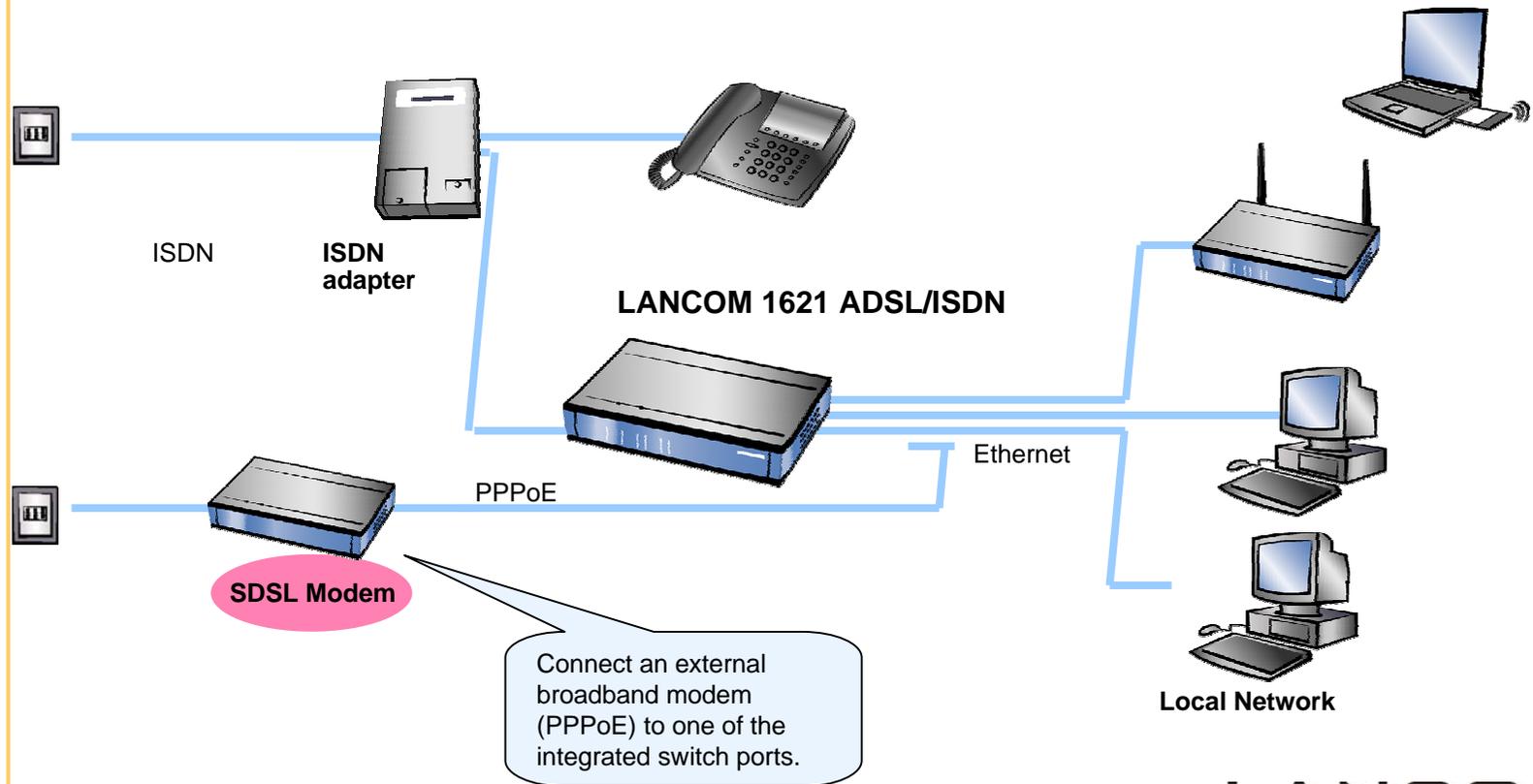
ISDN   **ISDN adapter**

LANCOM 1621 ADSL/ISDN

Ethernet

PPPoE

SDSL Modem

Connect an external
broadband modem
(PPPoE) to one of the
integrated switch ports.

Local Network

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DSLoL with LANCOM ADSL Series (2/2)

Features

- „DSL over LAN" maximal functionality together with „Private Mode"

- Ideally suited for VPN customers demanding more upstream bandwidth

- Local private IP addresses in LAN, multiple public (static) IP addresses in DMZ

- Incl. IP QoS with Traffic Shaping / Limiting for balanced server accesses

- LANCOM 821 ADSL/ISDN and LANCOM 1621 ADSL/ISDN
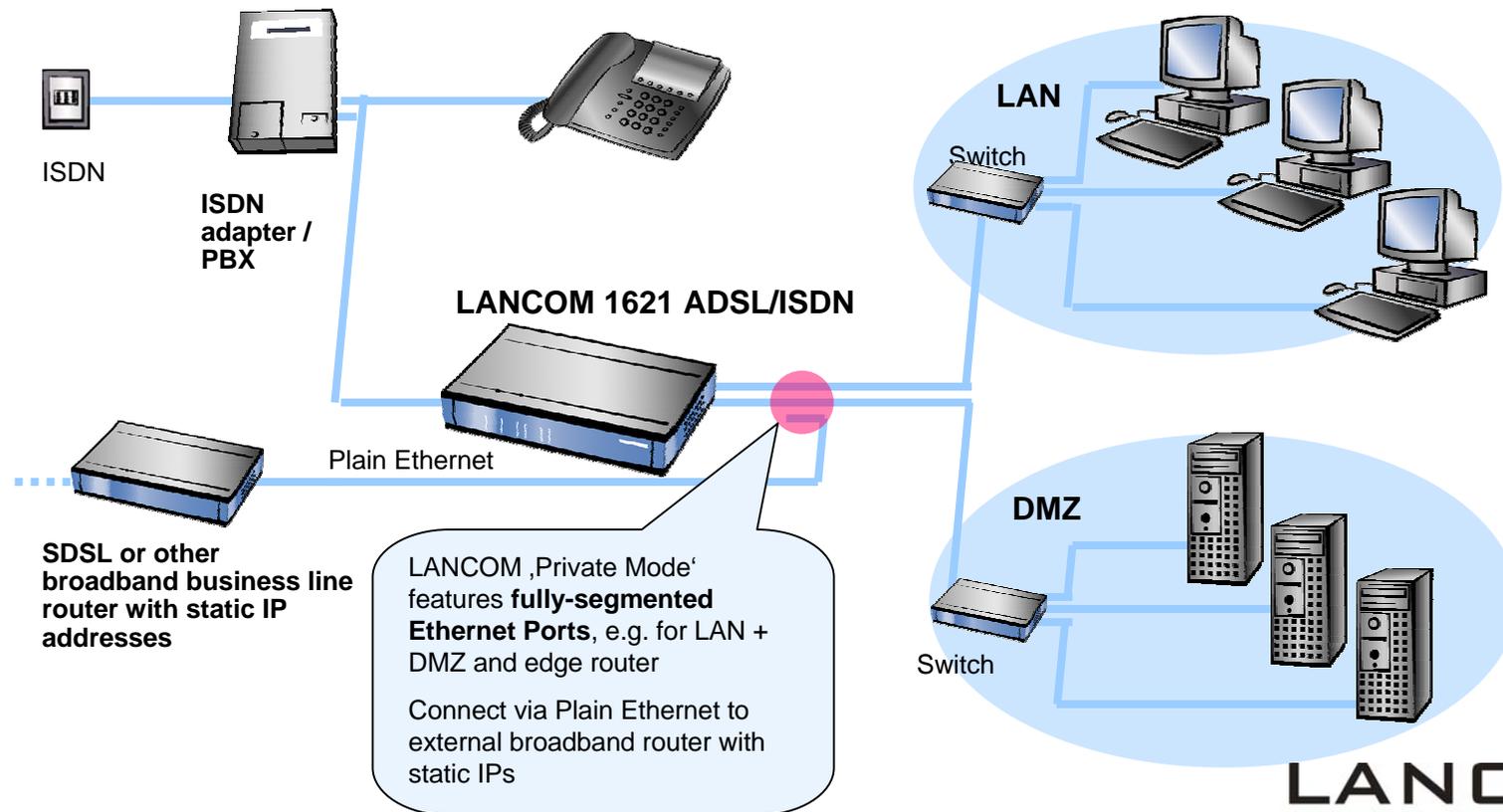
ISDN

ISDN adapter / PBX

LANCOM 1621 ADSL/ISDN

Plain Ethernet

SDSL or other broadband business line router with static IP addresses

LANCOM ‚Private Mode' features **fully-segmented Ethernet Ports**, e.g. for LAN + DMZ and edge router

Connect via Plain Ethernet to external broadband router with static IPs

LAN

Switch

DMZ

Switch

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DSLoL with LANCOM WLAN Access Points 3.10

Features

- Used to be either LAN Router or WLAN Access-Point

- Now: complete solution for LAN (Router) and WLAN (Access Point)

- LANCOM L2, IL-2, L-11, IL-11, L-54g and L-54ag
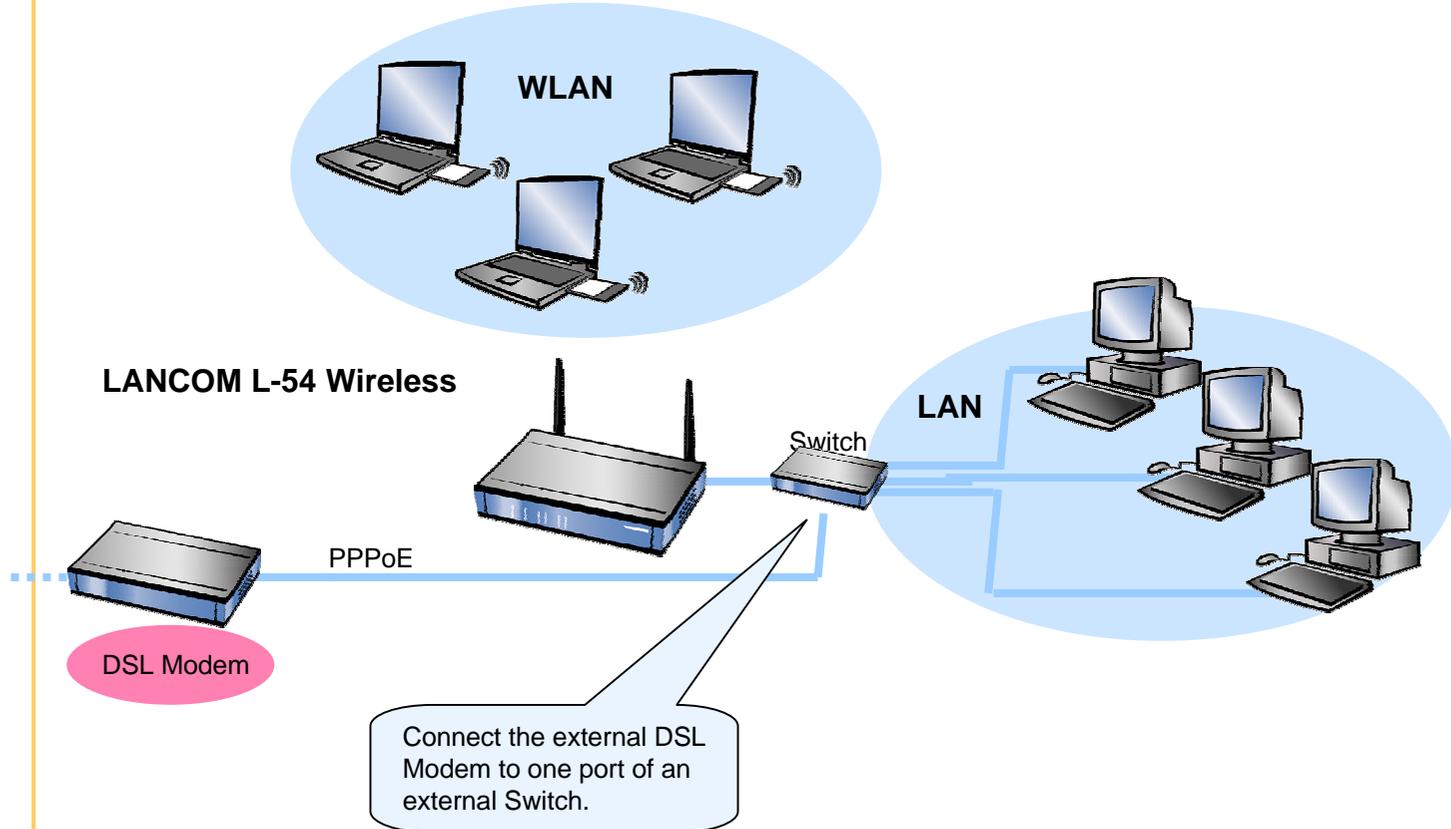
WLAN

LANCOM L-54 Wireless

LAN

Switch

PPPoE

DSL Modem

Connect the external DSL Modem to one port of an external Switch.

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Firmware Version 3.10

▶ Dynamic DNS

▶ DSL over LAN

▶ **Quality of Service**

▶ Scheduled Events

▶ Other Highlights

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Quality of Service

Applications

▶ Cost-efficient VoIP coupling over DSL/VPN

▶ Priority for mission-critical applications

▶ Video conferencing over DSL

QoS for Ethernet interfaces

All Ethernet WAN interfaces provide now an adjustable upstream speed for the LANCOM Quality of Service functions.

Here you enter the transmission speed of your line (e.g. 2300 kBpps with SDSL, or typ. 128-256 kBps with ADSL). The firewall's QoS rules can now prioritise according packets within this bandwidth, for example for Voice over IP applications.

The *LANCOM* sends datagrams according to their priority at precisely determined time slots, so that an external modem uplink will never get overloaded („time slot scheduler").
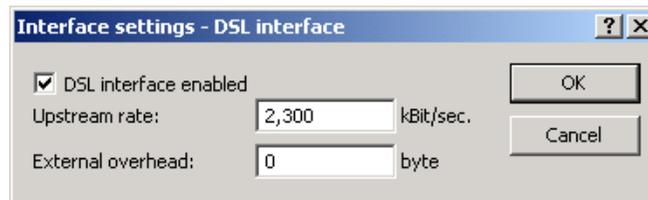
Adjustable upstream speed for Ethernet interfaces in LANconfig under „Management / Interfaces / DSL".

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▶ Dynamic DNS

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▶ **Scheduled Events**

▶ Other Highlights

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Scheduled Events

Applications

▶ Scheduled connections or disconnections at predefined times

▶ Time-controlled access rights

▶ Time-controlled bandwidth limitations

▶ Supports the entire LANCOM command line feature set

Time-controlled actions

The CRON table enables to execute certain actions at certain times. All *LANCOM* command line commands can be entered as execution actions.

For example, one can schedule firewall or bandwith limitations, automatic establishment of connections at predefined times, e.g. weekdays or at certain hours.

Time base	Hours	Weekdays	Commands
Real time	09	1,2,3,4,5	set se\ip-ro\fi\ru-ta\FTP_LIMIT * * * * * * on
Real time	17	1,2,3,4,5	set se\ip-ro\fi\ru-ta\FTP_LIMIT * * * * * * off
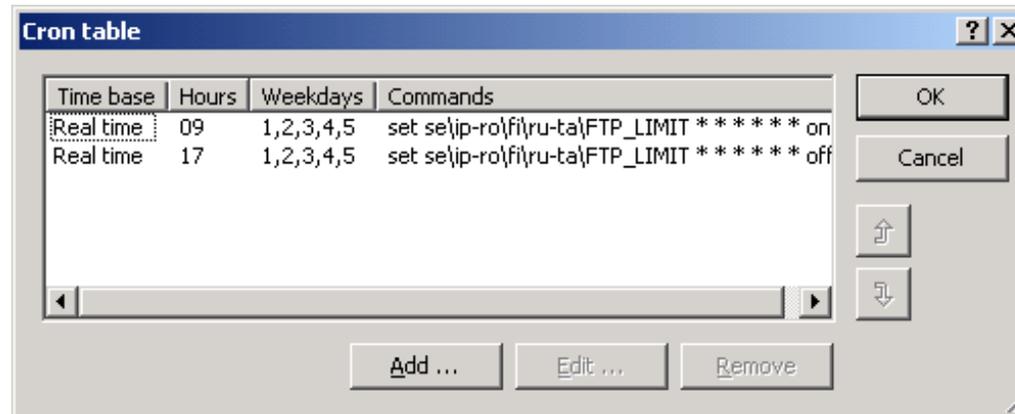
CRON table: In LANconfig under „Date & Time / General"

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▶ Scheduled Events

▶ **Other Highlights**

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Other Highlights (1/2)

LANCOM VPN Client and NetBIOS (Windows Networking)

Beginning with Version 3.10, LANCOM VPN Client features detailed settings for Windows networks. Access to shared files or printers can be set individually (depending on the operating system).

Enhanced ADSL linecode

Devices with integrated ADSL modems got an updated linecode for ADSL over ISDN connections (Annex B). This results in an enhanced signal to noise ratio, which is valuable under certain critical line conditions.

Adjustable Wireless LAN transmission power

The radio transmission power can be set manually for devices with integrated 54 Mbps radio cards. This enables operation of high-gain narrow-beam antennas, which would deliver too high gains beyond regulatory conformance themselves. With manual transmission power control, the effectively radiated power can exactly be set to the maximum allowed. Since this manual reduction affects the transmitted power solely, the entire antenna or booster gain is still available for the receive direction.Thus maximum radio link lenghts can be achieved. Another application would be the local restriction of Wireless LANs.

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Other Highlights (2/2)

More flexible firewall rules

All firewall rules are separately switchable now, and can be prioritized manually. This supports you when setting up complex firewall rule sets.

The complete version history can be found in the firmware directory on the CD:

▶ „version.txt"

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Service and Support

We wish you all the best with your new LANCOM product!

We would be glad to receive your feedback – either positive or negative, as well as feature suggestions via email to info@lancom.de.

Please find actual support information in the enclosed support leaflet, on our Internet support site, or in our Support database (KnowledgeBase) under www.lancom.de/support.

In case your were not able to resolve your questions by reading our manuals, please contact your local distributor for further assistance.

Your LANCOM Systems Team.

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