

Information regarding

LCOS Software Release 5.08

for LANCOM Routers and Wireless LAN Access-Points

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1. Introduction

LCOS („LANCOM Operating System“) is the operating system for all Wireless LAN Access Points and Routers. In the context of the hardware given by the products the at a time latest LCOS version is available for all LANCOM products and is available free of charge for download from LANCOM Systems.

This document describes the innovations within LCOS software release 5.08, as well as the modifications since release 4.12.

Warning

Please backup the configuration of your router before upgrading the firmware to LCOS 5.0. Due to extensive features it is not possible to downgrade to a previous firmware without using the backup configuration.

Note when using Certificates

Prior to loading certificates into the LANCOM you must install the current converter. The appropriate converter file can be found in your device's download directory on the LANCOM homepage. Flashing the converter file works similar to a firmware upgrade.

Note

By reason of patent you have to register the functionality „Dynamic VPN“ with IP address transmission over ISDN. This operating mode is usually required when you configure a VPN tunnel with dynamic IP addresses on both sides without dynamic DNS services.

All other Dynamic VPN operation modes (e.g. transmitting the IP address via ICMP, provoking a callback etc.) do not require a registration.

The registration process is fully anonymous - no personal or company data will be transmitted. The registration of the Dynamic VPN option requires administrator rights on the LANCOM device.

Registration with LANconfig

When scanning the device (e.g. right after program start) LANconfig automatically recognizes devices which have to be activated. After confirming the arising hint LANconfig automatically transmits solely the device's serial number to the LANCOM Systems registration server. The registration code is automatically transmitted back, thus the option will be activated. The state of this procedure is visible in LANconfig.

Registration with WEBconfig

For the registration with WEBconfig the serial number of the device is required. You can find this information on the bottom of your device.

Using WEBconfig you will find a link on the first page which leads you to the LANCOM Systems registration server. Here you must enter your device's serial number and –optional- your e-mail address. After transmitting the data you will receive a registration code for the option.

To load this code into your device, please proceed as follows:

Log in to the device with administrator rights. Select “Enable Software Option”, which is placed on the entry page. On the following page enter the registration code and confirm by clicking on “Apply”.

2. New features, modifications and history

LCOS modifications from 5.06.0005 -> 5.08.0005

Corrections/modifications:

WLAN:

- DFS corrections
- The IP redirect functionality may be used again

Miscellaneous:

- The configuration lock now also works for SNMP requests not containing the correct password
- PPTP tunnel may now be established over a LAN connection

LCOS modifications from 5.04.0039 -> 5.06.0005

Corrections/Modifications:

Miscellaneous:

- DSL channel bundling works for all devices without integrated ADSL modem
- Fixed connection establishment problems of WAN connections using DSLoL
- The UMTS profile table will now be filled with default entries while activating the UMTS/VPN option
- An incorrect configured PIN does no longer lead to a SIM card blocking
- In case a PPP connection termination was not successful, the connection will nevertheless be correctly terminated using LCP Polling

LCOS modifications from 5.02.0020 -> 5.04.0039

Corrections/Modifications:

VPN:

- Polling table dimension adapted to the various VPN options
- IP passthrough now works even if more than one VPN network was negotiated

WLAN:

- Better channel selection handling when using DFS results in a quicker wireless reconnection between master and slave accesspoint
- 802.1x negotiations will now be shown in the syslog
- If more than eight clients are authenticated to an access point, notification now works for all clients, for which data had been buffered while being in powersaving mode

Miscellaneous:

- Firewall filters for MAC addresses on plain IP connections working again
- Configuration access via SSH and SSL may now be restricted to VPN, too
- The LANCOMs Intranet IP address may now be pinged from telnet, even with activated firewall
- IP masquerading ports will be reused soonest after twice the maximum segment lifetime has elapsed
- PPTP connection management reworked
- Connection clearing reworked
- The „readscript“ command may now be invoked using miscellaneous telnet paths
- Connecting to a web server within the LAN is now possible by using an analog RAS connection
- A config reset now deletes all certificates within the device and the status message
- Reworked connection time calculation
- A change of the retry time for email delivery will now be immediately effective
- Disconnecting a MultiPPPoE DSL connection will not affect other internet connections
- Using two DHCP servers within the same network will delete a client's IP from the first server, when the second server has allocated the IP address to the client
- The name of a DSL connection layer may now contain up to 9 characters
- On an existing connection the LANCOM uses no longer a fixed RIP distance of „1“

LCOS modifications from 5.00.0016 -> 5.02.0020

Corrections/modifications:

VPN:

- An initiator call will now be rejected, even though the VPN tunnel is already established
- Using NETBIOS in combination with static VPN all VPN tunnels will be established, even if a remote station does not answer.
- Reworked ICMP polling for dynamic VPN

WLAN:

- Correction of the transmit power calculation in the 2,4 GHz „g-only“ mode
- Clients which are assigned to the same accesspoint may again communicate among themselves, if this is permitted in the configuration

Miscellaneous:

- Improved memory usage
- The ISDN dial prefix will again be used for all LANCAP1 devices
- Reworked DNS forwarding
- Accounting data will now be updated every 30 minutes, not only after disconnecting
- Setting of the default language will now persist a cold boot
- A firmware upgrade from a version less than 3.4x will now convert the VPN proposal lists completely

LCOS modifications from 4.12.0031 -> 5.00.0016

New Features:

VPN:

- certificates: VPN with RSA signature with a one-stage certificate hierarchy including PKCS#12 interface
- VPN support of AES with 192 / 256 bit and Blowfish with up to 448 Bit
- VPN with compression (IPCOMP DEFLATE/LZS)

WLAN:

- Improved reconnect for the 802.11a standard
- Support of fully transparent client bridge mode
- Individual clients can be deleted from the station table; this results in disassociation.
- Support for additional countries with 802.11a standard and adaption of the legal facts

Routing:

- Load Balancing with Multi-PPPoE
- Policy-based routing
- The MAC address used by the LANCOM for a WAN connection can now be defined for each remote station.
- For current devices featuring a 4-port switch, individual switch ports can be defined as additional WAN interfaces.

Miscellaneous:

- A router connected to ISDN can determine its location and, if necessary, will cease to operate (anti-theft device).
- A script can be generated from a configuration and then executed on other LANCOMs. This allows the full configuration, or parts of it, to be transferred to other devices.
- The Alive Test is now available for all LANCOM devices
- A switch port may be used as an ethernet-sniffer port for debugging purposes. This makes it possible to log the complete data traffic on the LANCOM switch (not for LANCOM 821/1621).
- Variables can be used with the commands loadscript and loadconfig.
- UMTS-card support for LANCOM 3x50 Wireless (as of firmware 4.20)

Corrections/modifications:

WLAN:

- Point-to-point Slaves now report radar interference to the Master and do not switch radio channels independently.
 - The channel list maintains an evaluation of the radio channels even after booting.
 - 802.11i has been adapted to the current standard
 - During a DFS recognition, the switch to the new channel is now faster.
 - IAPP handover packets are now sent with the VLAN ID and the client's MAC address again so that VLAN switches continue to reach the client when roaming.
 - Restarting the router when using IAPP is now avoided.
 - The DHCP auto mode now allows existing DHCP servers located on the WLAN side of the access point and deactivates the LANCOM's DHCP, if necessary.
 - For situations where key "0" is not used in 802.11i AES encryption (e.g. with 802.1x), the use of the full packet size for Ethernet no longer leads to transmission errors. These packets are now fragmented so that the checksum does not exceed the maximum packet length.
 - DHCP now also works when using DSLoL on the WLAN
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- If a client switches to power-save mode during 802.11i / 802.11x authentication, the access point will transmit the pending packages once the client has answered again.

VPN:

- The VPN proposal tables have been reworked to facilitate an easier manual configuration.
- DNS resolutions for VPN connections no longer hold connections.

Miscellaneous:

- Checksum adjustment for fragmented packets has been corrected
- The ISDN time check carried out when the device is switched on now also functions with a fixed setting for the ISDN protocol.
- A limit is set on the maximum number of packets transmitted by a NetBIOS adjustment after connection establishment so that the transmission of a VoIP packet is not compromised.
- PPTP connections set up with Keep Alive are now automatically re-established if the necessary WAN connection is still being established.
- The WAN status LED now displays the WAN interface connection status properly.
- No error messages are displayed when WEBconfig is used to boot the device
- Incoming analog telephone calls are no longer treated as an admin access if the admin MSN is assigned.

3. Remarks

If you want to upgrade the firmware of your device to a new version, please install the latest LANtools first. **Before running the firmware-upload you should save the router configuration to a file.** After that you can use LANconfig to load the latest LCOS-version into the device.

In principle, we suggest upgrading the firmware of your device only if you are in need of the latest features.

Please note that different firmware files might be available for your device. Further information can be found in the file README.PDF in the download area of our homepage.