LANCOM
Systems

Information regarding

LCOS Software Release 7.58

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 dowload from LANCOM Systems.

This document describes the innovations within LCOS software release 7.58, as well as the modifications since release 7.28.

Further common information can be found in the support area on our website www.lancom.eu/support-topics

Warning Hint – Backing up the current configuration

Before upgrading the firmware to LCOS 7.58 it is <u>essential</u> to backup the configuration of your router. Due to extensive features it is <u>not possible to downgrade</u> to a previous firmware without using the backup configuration.
Please see the reference manual for instructions on how to backup the router configuration.

If you want to upgrade devices which are only accessible via router connections or WLAN bridges, please keep in mind to upgrade the remote device first and the local device afterwards.

Note when using managed Access Points

Prior to managing a LANCOM accesspoint using a WLAN controller, you have to upgrade your access point with the latest converter. The corresponding converter file can be found in your device's download directory on the LANCOM homepage. The converter upload is similar to a firmware upgrade.

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 when using converter firmwares

You will need enough free memory to use a firmware 6.0 and newer in your LANCOM 15x1, 1611+, 821+ and DSL/I-10+.
Due to the implementation of several new features within the current build of the firmware, it is no longer possible to store two main firmware versions side by side. To gain more free space for the current version, it is now necessary to upload a converter firmware into your device. The converter-firmware has a much smaller size, so that it is now possible to store the main release of the firmware besides the converter-firmware.
This setup is only necessary once for a single device and is done with the so-called converter-firmware (see readme.pdf of the affected devices).
After having flashed the converter-firmware the firmsave function of the LANCOM device is available only on a limited scale. The update to a newer firmware is furthermore possible. However, in case of an update failure the LANCOM will only work with a minimal-firmware which allows just local access to the device. Any extended functionality, in particular remote administration, is not possible when running the minimal-firmware.

To assure the full firmsafe functionality for the LANCOM 1611+, there is a firmware 7.59 alternatively available which offers only bugfixes but no new features.

Note about the ASDL linecode

LCOS versions 5.20 and newer do contain a new ADSL linecode for LANCOM 821+, 1521, 1721 and 1821. This new linecode supports ADSL2+ for LANCOM 821+, 1721, 1722 and 1821(from rev. E).
For the LANCOM 1521, this linecode supports ADSL2. Needless to say that conventional ADSL interfaces are furthermore supported. Anyhow, there is an LCOS version 5.21 (6.x1...) available, which solely uses the previous ADSL linecode, and may alternatively be used.

Note on Dynamic VPN registration

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 selecting "Apply".

Note when using VoIP with LANCOM 1511 Wireless DSL

With LCOS 7.5x and succeeding versions the VoIP Basic Option is no longer supported due to technical causes. Please use LCOS 7.30 instead when the VoIP Call Manager is needed.

Announcement regarding the usage of VoIP options

For the „VoIP ready" routers LANCOM 1711 VPN, 1721 VPN and 1811 Wireless DSL support for the subsequently installed VoIP option will be discontinued with LCOS version 7.56. If you want to continue using your VoIP option, please do only use LCOS versions up to and including 7.54.

2. New features, modifications and history

LCOS modifications 7.56.0046 -> 7.58.0045

Bugfixes / Modifications:

WLAN:

- A heavy rise of the noise level does no longer lead to a break in data transmission
- Performance improvements in 802.11n mode when using 40MHz channel width
- The stored DNS configuration in a WLC will now be adopted completely by the access point

VoIP:

- If a client activates call routing to a group which he himself is member of, this loop will be recognized and there is no router restart
- Fixed problems with DTMF signalizing
- Default entries in VCM can no longer be modified or deleted

Network Connectivity:

- The LANCOM transmits bootserver and bootimage in every DHCP offer, if this is stored in the BOOTP table
- The LANCOM DHCP server forwards answers from relay agents to local clients
- If the default route is placed into the VPN tunnel, the corresponding VPN rules will be generated correctly
- The backup RADIUS server is considered for forwardings
- Opening many FTP data sessions on a command session does no longer lead to sequence number problems
- If the LAN interface is configured to 1GB fullduplex, the device remains reachable
- The QoS data rates are now available for all PPPoE connections running via one physical connection
- No more error messages in the WEBconfig internet wizard when specifying user authentication data
- After bugfixing the USB driver the UMTS card „Option GE0301" may be used again
- A DHCPoE connection backup is initiated even if the master session could not be established since router start
- A change of polling in a PPP entry will be adopted after disconnect

Miscellaneous:

- If a switch port is activated after router start, the link state is displayed correctly
- LANCAPI may be used with activated VLAN module, too
- The loopback address in the page table of the public spot module is maintained after reboot
- New ADSL2+ linecode for Annex B

LCOS modifications 7.54.0030 -> 7.56.0046

Bugfixes / Modifications:

WLAN:

- Multi- and broadcasts from VLANs will no longer be forwarded on managed Multi-SSID access points to other VLANs if those are configured for any other VLAN
- The Siemens SL-75 is again able to log in to a WPA encrypted WLAN network
- A LANCOM working as WLAN client can authenticate itself to a Windows radius server via PEAP
- The WPA key may start with a „=" character
- If a WLAN client roams between managed access points, this information will be forwarded via WLAN controller. Thus IAPP is no longer needed in such a network
- Performance improvements when using centrino clients with 802.11n

VoIP:

- The configurable parameter „Register-Time" has again effect on the register behaviour of the SIP registrar
- On fax transmissions the T.38 codec is shown in the call status table, if used
- SIP lines will do a reregistration after an internet disconnect
- A switchover to T.38 will only be done if there is enough available bandwidth
- Improved codec filtering
- RTP data of the media proxy is collected for accounting
- VoIP table „User Settings" expanded to 80 items, so corresponding entries can be configured for every user
- Early-Media announcements from PSTN are transmitted via PBX line
- Removed the Voice Call Manager from the devices LANCOM 1711 VPN , LANCOM 1721 VPN and LANCOM 1811 Wireless DSL
- Support for Late Media (RFC 3261)
- Backup lines will be used, even if not configured in ascending order (e.g.: 2nd target line not set)
- The display name „anonymous" will be transmitted to the SIP provider if CLIR is set
- The user-sent display name is forwarded to the SIP provider

Network Connectivity:

- RAS dial-in possible on the internal S0 bus
- Improved fragmentation of bigger data packets on the LAN
- Masquerading ports can be forwarded. As a result, these ports will no longer be used for masquerading
- RAS dial-in using V.110 again possible on VoIP routers
- Data transfer of nested VPN tunnels works in both directions
- Configured VoIP codecs are displayed correctly in WEBconfig
- DHCP offers are sent to all LAN ports linked to the corresponding VLANs
- Operating system determination by FTP clients using „SYST" has no negative effect on the FTP autodetection
- Setting up a Public Spot user by wizard there are defaults for the access validity
- Both linecode types (ADSL1 and ADSL2+) available in LCOS. Additional both annex versions are available on a LANCOM 1751 UMTS.
- Improved RIP reliability
- Data uploads via UMTS will no longer lead to connection loss

Miscellaneous:

- Accounting snapshots may be used again
- Support for UMTS card „Sierra Wireless AirCard 880"
- Syslog sources configurable with WEBconfig
- The SMTP account user name may consist of up to 63 characters

LCOS modifications 7.52.0058/59 -> 7.54.0030

Bugfixes/Modifications:

WLAN:

- If a smaller than valid backgroud scan interval is configured, the smallest valid interval is chosen and will be written to the device configuration
- Authentication works again for all configured Public Spot users

VoIP:

- Internal subscribers may be called, even if the LANCOM's VLAN module is used
- Dial tone recognition for analog lines now supports dual tones
- User data is transmitted correctly for a non-authenticated SIP user who wants to call via a superordinate PBX requiring authentication

Network Connectivity:

- ISDN LAN-LAN interconnections with activated compression do no longer lead to a router restart
- New supported UMTS cards:
    - Huawei E220
    - Huawei E172
    - Novatel MC950D
- A station which is located in the VLAN of a LANCOM can be waked by wakeup command
- Modified character set of the RADIUS server
- If RIP learns a route with better metric than a statically configured one, established sessions will be transferred to the better route
- The BOOTP image information is already passed in DHCPOFFER
- Active FTP connections can be used again
- Fixed performance issues on connections via Modem Adapter Kit
- Fixed unnecessary disconnects of VPN client connections when disconnecting other clients or on configuration changes
- New ADSL linecode for the odd-numbered LCOS version

Miscellaneous:

- Scripts containing long rows in tables can be uploaded without generating an error
- The LANCOM is again able to send its own mails

LCOS modifications 7.50.0034 -> 7.52.0058
LCOS modifications 7.50.0034 -> 7.52.0059 (for LANCOM WLC)

New Features:

WLAN:

- Point to point connections can be established using station names
- Configurable time unit for Background Scanning
- Firmware management with automatic update for LANCOMs which are managed by a WLAN controller
- Scripts may be distributed via WLAN controller
- Automatic channel optimization for access points which are managed by a WLAN controller
- User authentication / PublicSpot integration for WLAN controllers
- PublicSpot vouchers can be generated with PublicSpot devices using a wizard
- Compliance with the new DFS standards ETSI 301 893, v1.3 for WLAN devices placed into circulation as from april 2008
- Configurable sender-IP for PublicSpot requests

VoIP:

- TP data can be managed in the LANCOM using the new media proxy

Network Connectivity:

- Support for multi-level certificates
- Support for two IP addresses as remote stations in the DNS forwarding table, where the second IP address works as a backup server
- Improvements in RIP communication caused by new configuration items

Miscellaneous:

- New Setup Wizards in WEBconfig
- Performance improvements for SNMP

Bugfixes/Modifications:

WLAN:

- Correct handover of the 2,4GHz mode by the WLAN controller
- Fixed WLAN controller memory shrinking
- A subsequent configuration of a fixed IP address on a managed access point activates this change immediately

VoIP:

- The input-side codec filtering on a Provider-/PBX-line works again
- Extended line prefix of the PBX line to 19 characters
- Corrected mapping of the called party number on a trunk line
- QoS allows for inband tones while ringing
- The LED of an analog user shows the line state correctly on consultation hold
- The calling ID will be operated correctly on ISDN users transfers
- Corrected call table status display
- The call routing table in WEBconfig will be displayed completely
- Overlap Dialing works on a SIP line in gateway mode
- A SIP user can set call redirection in the switching center using the keypad facility
- Improved mail notification for incoming/outgoing phone calls

Network Connectivity:

- If the access via WAN interface is forbidden, the device is no longer reachable via HTTP on its WAN IP from the local network
- Using the UMTS card Huawei E620 does no longer lead to a boot-loop
- Modified ICMP answer „Destination unreachable", according to RFC 792
- The PPPoE-Server will not reject connections without host tags
- If a valid proposal was found in the VPN negotiation, previously generated errors will be reset
- Reworked display of connection times
- If the DHCP-Client was configured for a network, DHCP answers will even be „forwarded" if DHCP was deactivated in the port table for the particular interface
- IP-Broadcasts are transmitted using the bridge of the LANCOM
- Remote workgroups of a NetBIOS area are shown in the network environment

LCOS modifications 7.28.0031 -> 7.50.0034

Bugfixes/Modifications:

Miscellaneous:

- Network names consisting of 16 characters do no longer lead to problems when using DHCP address allocation
- The Advanced VPN Client is able to establish a VPN tunnel with only one target address
- No more PPTP tunnel traffic filtering by the firewall

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.