LANCOM Systems

Information regarding

LCOS Software Release 8.50 RU4

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1. Preface

LCOS („LANCOM Operating System“) is the operating system for all LANCOM routers, wireless LAN access points and WLAN controllers. 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 8.50 RU4, as well as the changes since release 8.00

Warning hints – Backing up the current configuration

Before upgrading your device to a new LCOS version it is **essential** to backup the configuration of your router. Due to extensive features it is not possible to downgrade 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.

Warning hint – LCOS upgrade for devices LANCOM OAP/IAP-321-(3G) and LANCOM 1780EW-3G

Some of the current LANCOM WLAN routers and access points with LCOS 8.5 or earlier, which are to receive new firmware or extensive new configurations over the wireless LAN interface, may under certain circumstances suffer from WLAN connection loss. The result of this error is that the wireless link is interrupted and, in the worst case —such as with an outdoor point-to-point link— the device may lose contact completely. In this case, re-establishing the radio link would require a manual restart of the remote device by pressing the reset button. To prevent this we recommend to configure an alive test before uploading a new firmware.

Note – Upgrading central site components

We strongly recommend updating productive systems only after internal tests in client environment. Despite intense internal and external quality assurance procedures possibly not all risks can be eliminated by LANCOM Systems.

Note – Using converter firmware

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 firmsafe 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.

Note – 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.
Any other Dynamic VPN operation mode (e.g. transmitting the IP address via ICMP, provoking a callback etc.) does not require 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.

Note – Using VoIP options

VoIP options for LANCOM 1821 Wireless ADSL are discontinued with LCOS 7.20. The final version containing the VoIP Call Manager is LCOS 6.32.
As from LCOS 7.5x support for VoIP options for the devices LANCOM 1511 Wireless DSL and 1521 Wireless ADSL is discontinued. The final version containing the VoIP Call Manager is LCOS 7.30.
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.
For T-Systems Business LAN R800+ VoIP functionality is discontinued in LCOS 7.60
LCOS 7.70 is the final version supporting VoIP options for the remaining „VoIP ready“ devices.

Note – Device specific support of the current LCOS version

As from LCOS 8.50 support for the following devices is discontinued:
- LANCOM 1811 Wireless
- LANCOM 1721 VPN

2. Known Issues

Latest support notes and known issues regarding the current LCOS version can be found in the download area of our website http://www.lancom-systems.eu/Common-Support-Hints.64.0.html

3. New Features, Changes and History

LCOS changes 8.50.0191 RU3 ► 8.50.0214 RU4

Bugfixes / Changes

VoIP:

- Using the SIP provider OZMO does no longer lead to a device reboot
- Outgoing connections via provider „1und1" are not disconnected after one minute

WLAN:

- Dynamic VLAN assignment can be used with a Layer-3 tunnel
- No client connection loss via EAP-TLS when comparing certificates

Network Connectivity:

- A possible MAC address change is regarded on a gratuitous ARP
- For devices LANCOM 1711+, LANCOM 1721+, LANCOM 7100 and LANCOM 9100 with activated Public Spot option the default Public Spot illustrations are displayed within the browser
- VPN rules with target „ANY" are generated again
- Multilink PPP connections can be used with LANCOM 1781 devices without error
- Packets with source- and destination address in the LANCOM device's IP (ARF) network are no longer forwarded (backrouting trap).
- HTTPS connections are not rejected with disabled and expired content filter
- RIP routes are no longer passed falsely at the first configuration change after device restart
- Extended the "Load" command URL length to 256 characters
- In the user-defined rollout wizard the system time check can be linked to a particular resource

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LCOS changes 8.50.0161 RU2 ► 8.50.0191 RU3

Bugfixes / Changes

VoIP:

- Register packets are no longer sent with wrong sender address
- No more changes in DTMF tone codecs

WLAN:

- Using its WAN interface, a LANCOM accesspoint can be connected to a WLC
- Further roaming improvements for Apple clients
- If client profiles with different encryptions are used (WEP and WPA), the client is able to authenticate correctly even after a fallback to WEP
- WLAN log table extended to 100 entries
- MAC broadcasts received via WLAN are no longer forwarded to the routing module
- When detecting radar on a Point to Point connection the 40MHz mode is considered when selecting new channels
- The serial number of a managed access point is displayed correctly

Network Connectivity:

- The LANCOM itself is not displayed in accounting
- Fixed a possible LCOS watchdog when using VPN hardware acceleration
- Unnecessary packet retries are avoided if the client sends user data during TCP negotiation
- Fixed errors in the LANCOM 1721(+) MIB
- If a rating server of a content filter sends an invalid answer, another server is selected
- MC8705 UMTS modules which up to now could only establish HSUPA connections can now be used with HSPA+

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LCOS changes 8.50.0142 RU1 ► 8.50.0161 RU2

Bugfixes / Changes

VoIP:

- If a voice call is back-forwarded to a LAN SIP client via VPN, no single-sided voice connection will occur

WLAN:

- No multiple same station display in the WLC when roaming
- An LCOS update via WLC can be done with a Microsoft IIS which uses a virtual directory
- Improvements in roaming with Apple clients
- Improved data transfer stabillity when using power saving

Network Connectivity:

- If there is a gateway in the routing table which is accessible after DHCP address allocation only, this route is merged into the real routing table after address allocation
- Reduced VDSL connection breakdowns due to modem heartbeat timeout for the LANCOM 1681V
- EasyCash terminals can receive an IP address from a LANCOM DHCP server
- Accelerated LCOS upload via http
- The LANCOM 1781 with built-in ADSL modem supports PPPoA and IPoA connections

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LCOS changes 8.50.0091 Release ► 8.50.0142 RU1

Bugfixes / Changes

VoIP:

- Incoming SIP calls on an Inexio trunk line are forwarded to the correct internal user (complete callnumber in the TO Header field).
- SIP clients which transmit the display name only in the TO field are displayed correctly in the user table

WLAN:

- Transmit power reduction and antenna gain can be used error-free in combination with a WLAN controller
- Reliable association of WLAN-Clients on accesspoints with frequently changing WLAN clients (e.g. HotSpots) is possible
- WPA2 is configurable on a WLC-4006 again
- LANCOM OAP/IAP-321-(3G) and LANCOM 1780EW-3G remain accessible via WLAN after LCOS update or configuration change via WLAN interface. **Please make sure to read the warning hint in Chapter 1!**
- The Logitech Squeezebox can connect to a LANCOM 802.11n accesspoint

Network Connectivity:

- Distance is no longer changed to „0“ for disabled routes
- A VPN tunnel can be established via VPN Path Finder option of the LANCOM Advanced VPN client
- If a LANCOM proxy answers to ARP broadcasts from the Layer3 tunnel, the answer is sent through the tunnel, too
- The WEBconfig Internet Wizard shows the correct selection of ethernet ports for an IAP-321-3G
- Correct checksum in VRRP packets
- When establishing KeepAlive connections, the next remote gateway is not selected until 3 conenction requests are failed due to a missing physical connection
- The LANCAPI client is able to connect to a LANCOM router again
- If HTTPS access rights are limited for the local network, devices can be reached via VPN tunnel using HTTPS, even if the tunnel was estabished with VPN Path Finder
- If a remote station name contains a „\“, the PPP check can be done using MSCHAPv2, anyhow
- Bugfix for Content Filter when dealing with uncategorized websites
- If the main connection of a VRRP master router is re-established, incoming data packets on this connection are no longer discarded with an IDS error message
- COM Port server support of the LANCOM IAP-3G for serial communication with parity
- Improvements in starting the modem of a LANCOM 1681V.
- The LANCOM device removes incomplete TCP connections after 2 minutes

LCOS changes 8.50.0081 RC3 ► 8.50.0091 Release

Bugfixes / Changes

VoIP:

- Short DNS TTLs on a 1&1 SIP line do no longer lead to voice disconnects
- VoIP can be used with VLAN-IDs bigger than 255

Network Connectivity:

- Template files can be used within the programmable Rollout Wizard
- A reset is signaled by red LEDS on a 1780EW-3G
- Reworked ARP table information for transparent WAN connections (IPoE, DHCPoE etc.)
- The QoS branch of the ADSL/VDSL interfaces can be displayed in LANmonitor again
- Stability improvements for VRRP status changes
- PPPoEoA connections can be established via the internal VDSL modem of the LANCOM 1681V

LCOS changes 8.50.0050 RC2 ► 8.50.0081 RC3

Bugfixes / Changes

WLAN:

- Error correction for WLAN module noise value detection
- Reworked LANCOM OAP-54-1 MIB
- Fixed beacon transmit failures for devices LANCOM 1780EW-3G and LANCOM L-32x

Network Connectivity:

- Improved fax receive stability when using LANCAPI
- Completion of the PPP trace
- Established VPN connections using IKE config mode will persist after configuration changes made with LANconfig, even when rekeying is pending
- VPN connections to a central site using a load balancer can be used furthermore, if no delete notification could be sent to the central site when disconnecting (e.g. DSL provider forced disconnect)
- Fixed a masquerading error which occurred when using a VPN extranet address
- Prevent memory fragmentation when using the OSCP client
- Firewall: improvements in automatic bandwidth reservation for VoIP connections
- The content filter of the LANCOM 1721+ can be configured via WEBconfig
- ADSL connections using VPI 0 can be established again with LCOS 8.50
- Corrected automatic S0 bus protocol recognition
- Script up- and downloads are alerted via Syslog
- Default routes are propagated via RIP again
- Fixed a bug when reading the internal temperature sensor which could lead to a device reboot
- An HSPA connection is no longer alerted as HSUPA connect
- The VPN LED shows the connection state correctly, even for connections without KeepAlive

LCOS changes 8.50.0039 RC1 ► 8.50.0050 RC2

Bugfixes / Changes

WLAN:

- Plainly reduced amount of beacon transmit failures when operating in 40 MHz mode

Network Connectivity:

- Reworked error messages from the Content Filter
- PPP polling recognizes VPN disconnects
- Improved establish time for VPN connections
- Corrected interpretation of the DHCP broadcast bit when using DHCP clusters

LCOS changes 8.00.0221 RU2 ► 8.50.0039 RC1

New Features:

Network Connectivity:

- A PKCS#12 container can be added to the „load“ command to enable HTTPS server authentication of the device
- Certificates can be loaded from a server via load command
- After reset, a default PKCS#12 container is available for alternative boot configuration
- The default certificate can be upgraded via SCEP
- Simplified rollout using the rollout wizard. The wizard can be configured to user needs and uploaded to the device subsequently
- The „loadfirmware“ command can optionally check the version of the LCOS to be loaded. If the current version on the device matches the version on the server, the upgrade will not be executed
- Similar to the “loadfirmware“ command, the commands „loadconfig“ and „loadscript“ will also check versions before executing the changes
- By using additional command variables, LCOS version, loader version and hardware release can be transmitted to other systems
- Configurable SSL certificate for WEBconfig
- Support for a simple LAN bandwidth limitation for devices with integrated WLAN interface(s)
- Support for OCSP (Online Certificate Status Protocol)
- Accesspoints and WLAN controllers can be interconnected using Layer3 tunnels
- Via serial interface LANCOM accesspoints can exchange necessary information for establishing a WLAN point-to-point connection
- PublicSpot option available for LANCOM 1711+, 1721+, 7100 and 9100
- If desired, the Content Filter checks HTTPS URLs
- Doubled possible user count for Content Filter devices

Bugfixes / Changes

Network Connectivity:

- If scripts are used with HTTP, a CRLF conversion will be executed
- NAT-T and DPD negotiations during the IKE-Rekeying versus a CISCO ASA were adjusted
- Scripts and Configuration files can be fetched successfully from an Apache Web server
- A „Destination unreachable“ is no longer seen as an ICMP polling answer
- If a draft method negotiation starts after NAT-T is negotiated in RFC mode, the LANCOM device will accept this
- The deletion of a field in a table row in WEBconfig ist applied immediately
- Improvements in memory consumption when using a USB UMTS modem
- If a script which is not stored in flash memory is uploaded by USB autoload, all configuration parameters are applied completely
- The default route is set correctly when using the WEBconfig internet wizard
- Support for UMTS stick Huawei E1750
- Support for UMTS stick Huawei K4505
- Support for UMTS stick Huawei K3765
- Simplified override usage within the Content Filter
- Performance improvements for Content Filter
- SNMP traps are sent again for dial-up connections
- Table columns are displayed correctly if a script is created containing default values,
- If a chain of firewall rules is processed (observe futher rules after this rule matches), the last matching rule instead of the first is displayed
- The message „Content Filter is starting“ is only displayed on initial start
- If the Content Filter can not establish the server-side connection (e.g. web server not reachable), the user gets an appropriate error page
- ISDN LED indicates data transfer via LANCAPI
- Fixed memory loss when dealing with broken TCP sessions within the Content Filter
- T.30 support can be used again for devices LANCOM 1723, 1823 and 1724
- Improvements in QoS functionality
    - Up to 60% higher performance when sending small data packets with high CPU load for devices with activated bandwidth limitation
    - Full upstream performance for LANCOM 1681V
    - Deutsche Telekom EthernetConnect connections can be utilized without packet loss
- A „read only“ user can no longer execute the „show script“ command. This prevents a „read only“ user from spying passwords which are transferred whithin a script in plain text.
- Improvements in stability for LANCAPI connections

4. Comments

If you want to upgrade the firmware of your device to a new version, please install the latest LCMS version 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.

