

Information regarding

**LCOS Software Release 6.06**

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 6.06, as well as the modifications since release 5.20.

### **Warning Hint – Backup of the current configuration**

**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.**

**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 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 6.07 alternatively available which offers only bugfixes and no new features.**

### **Note about the ADSL 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 for 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”.

## **2. New features, modifications and history**

### **LCOS modifications from 6.04.0015 -> 6.06.0012**

#### **Corrections/Modifications:**

##### **VoIP:**

- Support for Direct Dial In (DDI) on ISDN lines
- Support for Keypad Facility for query of service features at the switching center / phone system
- On incoming SIP calls containing a leading "+" character within the phone number, the "+" character will be replaced by "00". Through this, the callback feature can be used, too.

##### **WLAN:**

- Improvements in DFS behaviour regarding phantom detection
- Improved compatibility with Symbol Scanners when using WPA

##### **Miscellaneous:**

- Corrected assignment of the ISDN interface <-> ISDN LED for the LANCOM 1722
- VPN connections between the LAN- and DMZ interface of a LANCOM 7011 working again
- The 802.1x username will be shown in the syslog
- Implementation of a new ADSL2+ linecode

### **LCOS modifications from 6.02.0008 -> 6.04.0015**

#### **Corrections/Modifications:**

##### **VPN:**

- IP addresses listed in the ESP statistics will now be shown correctly.
- Dynamic VPN connections may again be established via B channel.

##### **VoIP:**

- Phone calls via SIP T-Online account now possible
- Using a WEB.DE SIP account it is now possible to make a phone call, even if the quality settings are configured to „minimum bandwidth“.
- General improvements on the VoIP Call Manager.

##### **Miscellaneous:**

- If the mail server is not directly reachable (e.g. via VPN), mail delivery will not be blocked if the first delivery fails.
- Switching the protocol of the ADSL interface will be followed, even if there has not yet been a sync.
- DNS forwarding to routed connections working again.
- The Trace MAC may be changed within WEBconfig again.
- Usage of a second WLAN card in the 3x50 does no longer lead to a crash of the accesspoint, if the appropriate logical network is still deactivated.
- A RAS dial-in via V.110 will no longer be disconnected on high device load.

**LCOS modifications from 6.00.0017 -> 6.02.0008****Corrections/Modifications:****VoIP:**

- En-bloc-dialing detection deactivated for ISDN users
- Codec selection reworked
- Fixed problems with VPN peer-to-peer telephony connections
- The firewall does no longer filter RTP data streams on masked VPN connections

**Miscellaneous:**

- The UMTS cards Novatel U530 / U630 will be recognized by the LANCOM 3X50
- Reworked connection establishment for channel bundling
- Changing the table entries in wEBconfig2 does no longer lead to duplicate entries
- VPN negotiation will now be made on the correct load-balancing channel

**LCOS modifications from 5.20.0057 -> 6.00.0017****New Features:****VoIP:**

- Implementation of the VoIP Call Manager (VCM)

**Routing:**

- Throughput improvements
- Loadbalancing may now be used with unmasked connections (e.g. LAN-LAN coupling)

**Miscellaneous:**

- Support for the new UMTS/HSDPA card of the German Telekom named GT 3G+ EMEA

**Corrections/Modifications:****VPN:**

- A VPN connection with routing tag 1 may now be initiated using the D- or B-channel.
- A failure in line polling of an internet connection will invoke a backup connection which was assigned directly to a VPN connection.

**WLAN:**

- The column „Reason“ in the WLAN log table has been extended, so that longer entries will no longer be cut off.

**Routing:**

- Passive FTP may be used again via LAN-LAN routing.
- Proxy ARP may be used without having a block route configured for the own network.
- Multi-/Broadcasts will no longer be redirected to other interfaces by an exclusively used DSLoL interface.
- Correction of the TCP packet confirmation, so that the TCP data stream does not slow down (e.g. Telnet sessions)

## Miscellaneous:

- Correction of the LAN connection settings
- The validity period of the NetBIOS registration may now be configured.
- The DNS/NetBIOS name of an accounting station will only be determined every 5 minutes which leads to an increase in performance.
- The firewall now recognizes multiple DNS requests with the same source port from a client and allocates those requests to the same session.
- Using a RAS dial-in with call-back it is again possible to allocate an IP address from a pool.
- Script commands will now be created consistent with the used language.
- The CRON table will now be filled correctly when using scripting.
- An ICMP connection error on Plain IP connections will initiate the VRRP backup case.
- A script may be written to the device without having to use "exit" afterwards.

## 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.