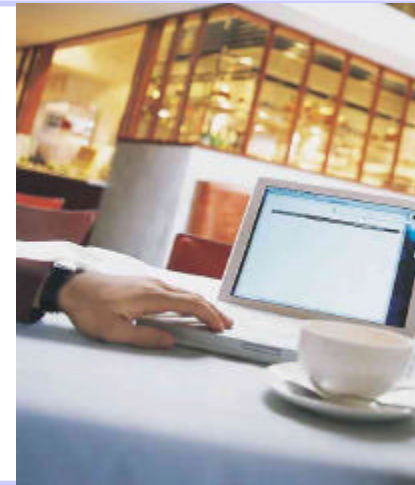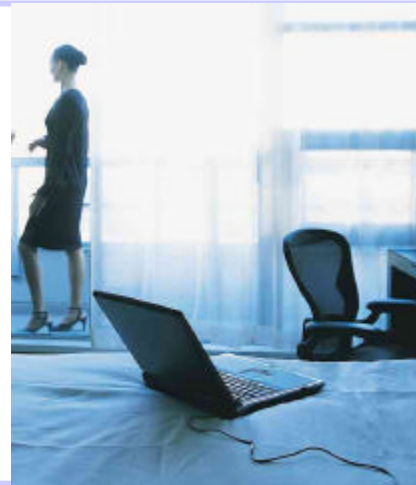# LANCOM Systems

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LANCOM software version 3.50

August 2004

LC.OS 3.50

[LANCOM OPERATING SYSTEM]

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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:

▶ New version LCOS 3.50 - highlights

▶ 802.11i with LANCOM Wireless

▶ 802.11i with AirLancer Client Adapters

▶ Service and Support

Regarding previous LCOS versions you will find information on the LANCOM CD: ‚documentation'

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New LCOS version 3.50

▶ Supports all
LANCOM models.
▶ Also suited for
Telekom Business
LAN
▶ compatible to
AirLancer MC-
54g/ag, PCI-54ag
with drivers of
version 3.1. and
higher

Highlights:

Introducing new security standards for Wireless LAN:

▶ WPA

▶ 802.11i

▶ New LANCOM Reference Manual

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New security standards for Wireless LAN

Hardware AES encryption is integrated in LANCOM L-54g/ag, 1511, 1521, 1811, 1821, 3550, 3050 (with external AirLancer MC-54g/ag) **and** in AirLancer MC-54g, AirLancer MC-54ag and AirLancer PCI-54ag Client Adapters

▶ 802.11i with passphrase for all 54Mbps Wireless products

▶ A maximum of security and performance utilizing the integrated hardware AES encryption

Cit. Heise Ticker (c't, Germany):

„The newly ratified standard IEEE 802.11i includes all capabilities of WPA and additionally requiers the use of the Advanced Encryption Standard (AES). AES offers enough security to fulfil the specifications of the Federal Information Standard (FIPS) 140-2 which are requested by most of governemental authorities. "

802.11i
Enhanced Security with AES Hardware Encryption

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IEEE 802.11i – the components

Basis: WPA (WiFi Protected Access)

▶ Encryption method: TKIP, MIC („Michael')

▶ Mostly used with Passphrase (Pre-Shared-Key)

　▶ More comfortable setup than typing in Hex WEP keys. Only a simple ASCII string of 8-63 signs is required.

The new standard: IEEE 802.11i

▶ = WPA + AES

▶ downwards compatible to WPA/TKIP (switched)

▶ AirLancer 54 Clients do AES in hardware without loosing performance (AirLancer MC-54g/ag und PCI-54ag)

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IEEE 802.11i – the advantages

Highest possible security level

▶ AES is State-Of-The-Art comparable to VPN

▶ no more loopholes in WLAN

Easily to set up

▶ Utilising the passphrase reduces the key to a simple ASCII string (8-63 signs)

▶ The encryption key is automatically calculated out of it

▶ Automatic temporary key change enhances the security

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WEP vs. IEEE 802.11i/WPA

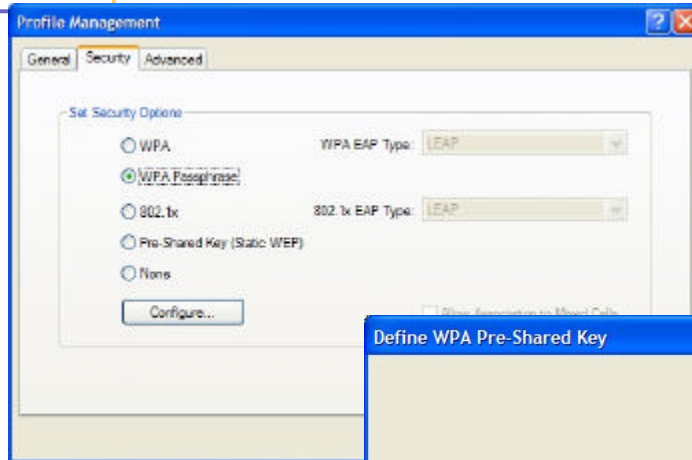|	WEP	WPA	802.11i
Encryption	Uses ‚weak' Keys. Tools hack it within short time.	By TKIP and MIC better encryption. Theoretically: Time until key is repeated takes very long.	By AES similar security as VPN.
	40bit/104bit/128bit RC4	128bit RC4	128bit AES
	Key distribution by hand, Man-in-the-middle attack possible	By passphrase automatic key calculation	Automatic key calculation, AES in hardware
Authentication	none	4 way handshake with session and group key	4 way handshake with session and group key

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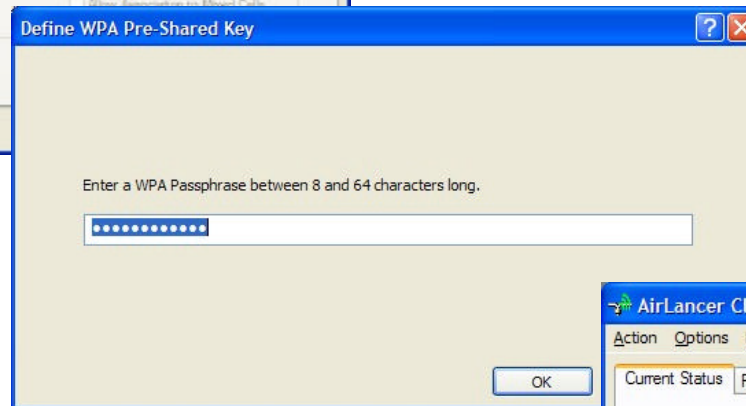Systems

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AirLancer Client Adapter Version 3.1.
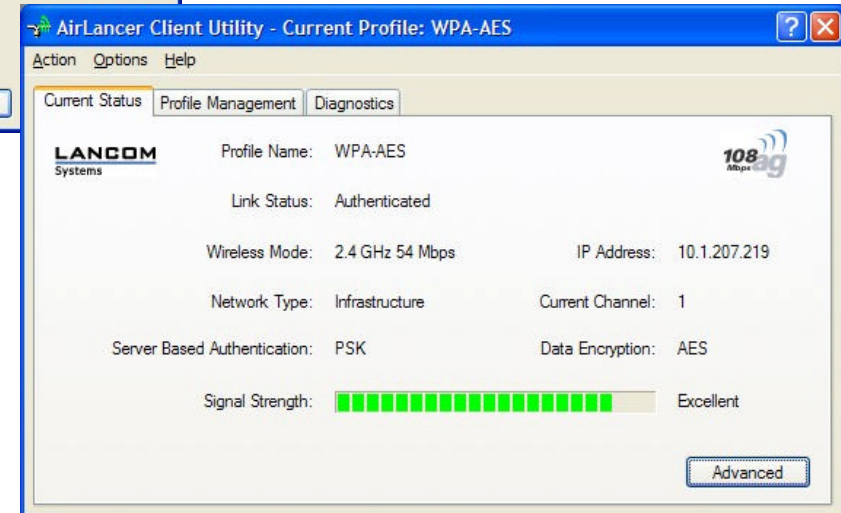
1.: Select WPA Passphrase

2.: Enter the WPA Passphrase

▶**Drivers for AirLancer 54 Client Adapter are available under**

www.lancom.de
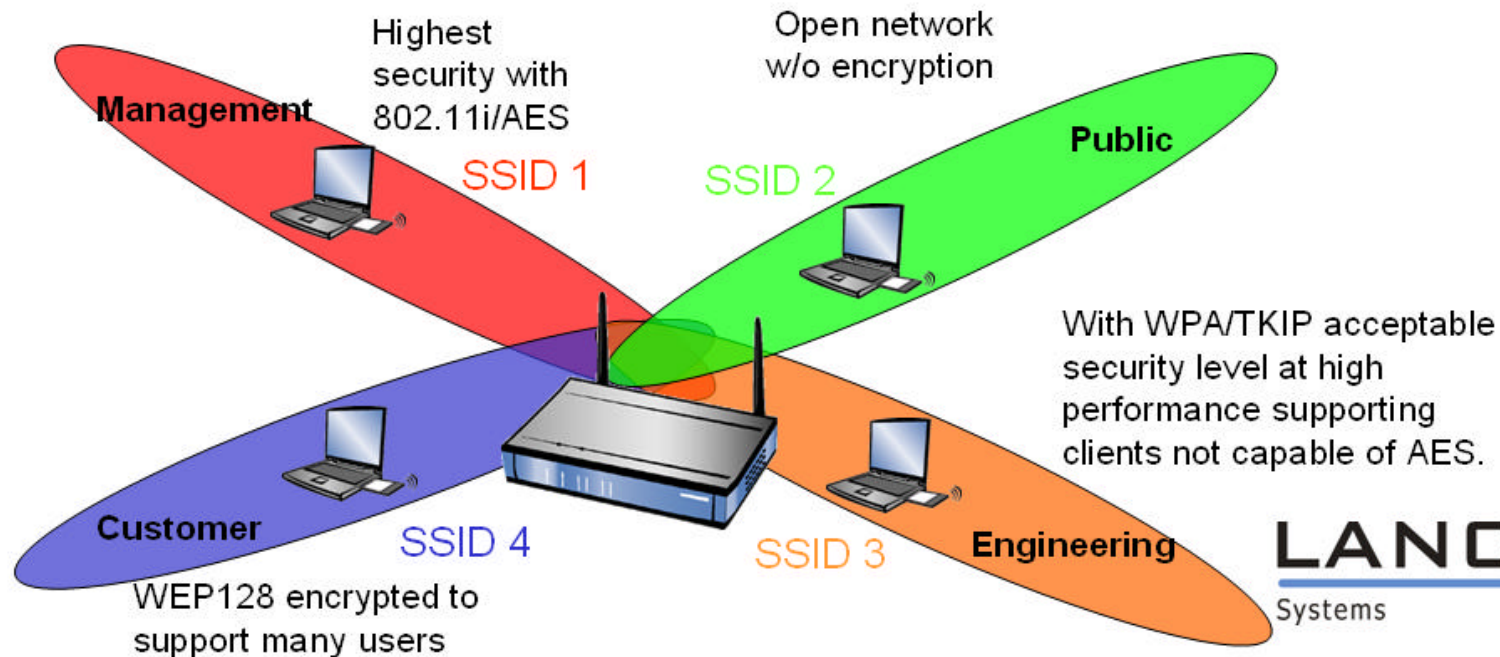
3.: PSK+AES=802.11i it works!

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Migration from WEP→WPA→802.11i

Techpaper according to
► **802.11i,**
► **Multi SSID and**
► **108 MBit/s are available for download under** www.lancom.de

Utilizing the possibility to define up to 8 WLAN networks for every WLAN interface, the administrator can offer to each user the level of security his personal wireless client card requires. One network can be set up for clients using WEP only. Another network offers simultaneously maximum security using 802.11i with AES exclusively. These different security levels can furthermore be supported internally using VLAN to separate them from each other in the complete network.

Highest security with 802.11i/AES — Management — SSID 1

Open network w/o encryption — Public — SSID 2

With WPA/TKIP acceptable security level at high performance supporting clients not capable of AES. — Engineering — SSID 3

Customer — SSID 4 — WEP128 encrypted to support many users

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IEEE 802.11i – highlights

IEEE 802.11i

▶ The long awaited security standard

▶ Full speed using hardware AES

▶ Easy to use

▶ No more loopholes left

▶ Supports WDS (Wireless P2MP, P2Station, Client Mode)

▶ Interoperability matrix available in the internet

Outlook

▶802.11i with 802.1x starting with LCOS version 4

▶P2P suport for 802.11i/WPA with LCOS Version 4

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Reference Manual

LANCOM Reference Manual – new edition

▶ 300 pages of background information, tips for your realisation and detailed description of all functions

▶ New chapters:

  ▶ Wireless LAN with 802.11i and WPA/TKIP

  ▶ As PDF in Download Area and on LANCOM CD

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Sonstige Änderungen

You can find a complete and **detailed history of changes**, documents and LCOS versions on our website:

www.lancom.de/download

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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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