

LCOS LX 7.10

Addendum

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SYSTEMS

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This product contains separate open-source software components. These are subject to their own licenses, in particular the General Public License (GPL). License information relating to the device firmware (LCOS LX) is available on the CLI by using the command `show 3rd-party-licenses`. If the respective license demands, the source files for the corresponding software components will be made available on request. Please contact us via e-mail under gpl@lancom.de.

Products from LANCOM Systems include software developed by the "OpenSSL Project" for use in the "OpenSSL Toolkit" (www.openssl.org).

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1 Addendum to LCOS LX version 7.10

This document describes the changes and enhancements in LCOS LX version 7.10 since the previous version.

2 Multi-Link Operation (MLO)

As of LCOS LX 7.10, Multi-Link Operation (MLO) is supported. For this purpose, the configuration has been extended with the options described below.

Under **Wireless-LAN > WLAN-Networks > Network** you will find the new option **MLO mode**.

Network - New Entry

Network-Name: NETWORK

SSID-Name: LANCOM

Key (PSK): ☐ Show

Generate password

Radios: 2.4 + 5 + 6 GHz

Encryption-Profile: P-PSK-WPA2-3

Idle-Timeout: 300

Tx bandwidth limit: 0 kBit/s

Rx bandwidth limit: 0 kBit/s

VLAN-ID: 0

Inter-Station-Traffic: Yes

Client Isolation: No

Suppress SSID broadcast: No

Maximum client count: 0

Minimal client signal str.: 0

Exclude From Client Mgmt: No

Timeframe: ALWAYS

Block Multicast: No

Client Tx bandwidth limit: 0 kBit/s

Client Rx bandwidth limit: 0 kBit/s

Multicast-to-Unicast: No

Bridge: br-lan

WLC-Continuation-Time: 9.999

ARP-Handling: Off

Mobility-Domain:

WDS-Link:

U-APSD: Yes

RRM: No

DTIM Period: 1

RTS Threshold: 2.347

Network ID:

MLO mode: Disabled

MLO mode

With Multi-Link Operation (MLO), Wi-Fi 7-capable WLAN clients can manage multiple associations with the same access point simultaneously. This increases throughput and reduces latency.

For WLAN clients with only one radio module, it is possible to switch quickly between the better-quality frequency bands. This significantly reduces disconnections in high-density wireless environments and provides more stable WLAN connectivity.

WLAN clients with multiple radios can use several frequency bands simultaneously to maximize data throughput.



Certain encryption settings are mandatory for standards-compliant Wi-Fi 7 and Multi Link Operation:

- The WPA session key type must include AES-GCMP-256
- The Group Mgmt Cipher must be BIP-GMAC-256
- The SAE/OWE-DH groups must include DH-19, DH-20, and DH-21
- Protected Management Frames (IEEE 802.11w) must be enabled
- Beacon Protection must be enabled

To simplify the use of these settings, the additional encryption profile “P-PSK-WiFi7” is included in the configuration as of LCOS LX 7.10 and can be used.



Since some of these settings may cause compatibility issues with existing (legacy) clients, we recommend configuring a separate SSID for Wi-Fi 7, MLO, and the above-mentioned encryption settings, and using it exclusively with Wi-Fi 7 clients.

Possible values:

Auto

MLO is enabled for all Wi-Fi 7 / IEEE 802.11be-capable radios where the SSID is broadcast.

Single-Link

Each Wi-Fi 7 / IEEE 802.11be-capable radio is treated as a standalone MLD (Multi-Link Device). In this case, the MLO “infrastructure” is used, but the radios remain separated. This mode may be useful in cases of compatibility issues.

Disabled

MLO is not used. The radios are not configured as MLDs.

2.1 Additions to the Setup menu

2.1.1 MLO-Mode

With Multi-Link Operation (MLO), Wi-Fi 7-capable WLAN clients can manage multiple associations with the same access point simultaneously. This increases throughput and reduces latency.

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SNMP ID:

2.20.1.42

Console path:

Setup > WLAN > Network

Possible values:**Auto**

MLO is enabled for all Wi-Fi 7 / IEEE 802.11be-capable radios where the SSID is broadcast.

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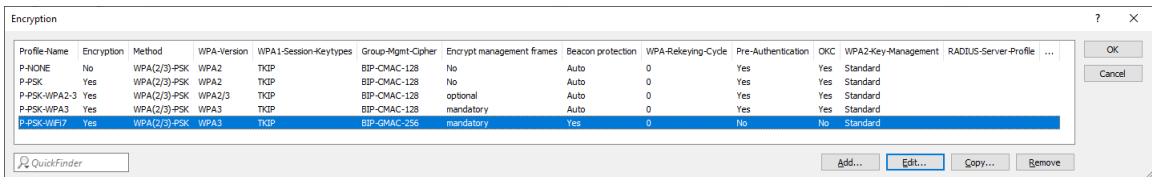
Disabled

MLO is not used. The radios are not configured as MLDs.

3 Encryption Profile for Wi-Fi 7 and MLO Operation

Standards-compliant Wi-Fi 7 certified operation according to the specifications of the Wi-Fi Alliance requires specific encryption settings. A new, dedicated encryption profile makes this easy to configure as of LCOS LX 7.10.

Under **Wireless LAN > WLAN Networks > Encryption**, the new encryption profile “P-PSK-WiFi7” is now available.



Profile-Name	Encryption	Method	WPA-Version	WPA1-Session-Keytypes	Group-Mgmt-Cipher	Encrypt management frames	Beacon protection	WPA-Rekeying-Cycle	Pre-Authentication	OKC	WPA2-Key-Management	RADIUS-Server-Profile	...
P-NONE	No	WPA(2/3)-PSK	WPA2	TKIP	BIP-CMAC-128	No	Auto	0	Yes	Yes	Standard		
P-PSK	Yes	WPA(2/3)-PSK	WPA2	TKIP	BIP-CMAC-128	No	Auto	0	Yes	Yes	Standard		
P-PSK-WPA2-3	Yes	WPA(2/3)-PSK	WPA2/3	TKIP	BIP-CMAC-128	optional	Auto	0	Yes	Yes	Standard		
P-PSK-WPA3	Yes	WPA(2/3)-PSK	WPA3	TKIP	BIP-CMAC-128	mandatory	Auto	0	Yes	Yes	Standard		
P-PSK-WiFi7	Yes	WPA(2/3)-PSK	WPA3	TKIP	BIP-CMAC-256	mandatory	Yes	0	No	No	Standard		

P-PSK-WiFi7

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ⓘ Since some of these settings may cause compatibility issues with existing (legacy) clients, we recommend configuring a separate SSID for Wi-Fi 7, MLO, and the above-mentioned encryption settings, and using it exclusively with Wi-Fi 7 clients.

4 Default Encryption Profile

As of LCOS LX 7.10, the default encryption profile for newly created WLAN networks has been changed from P-PSK to P-PSK-WPA2-3.