valentin DRUCKSYSTEME

OPTION WLAN

Operating Manual

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1 General Information

1.1 Technical Data

Physical/Datalink protocols	IEEE 802 11, b, g, n, e, i
Frequency band	2.4 GHz ILM band
Transmission speed	1 … 150 MBit/s
Supported security protocols	64 bit/128b bit WEP, TKIP, AES, WPA, WPA2
Port	USB 2.0
Network/Transport protocols	ARP; ICMP; DHCP; IP; TCP
Print protocol	TCP/IP direct print (Raw TCP/IP, Port9100)

1.2 Specific WLAN information

In addition to the indication about IP address, netmask and Gateway for the function of WLAN the following information is needed.

SSID Service Set Identifier

SSID (Service Set Identifier) is the identification of a wireless network that is based on IEEE 802.11.

Each wireless LAS possesses a configurable, so called SSID to identify the wireless network, i.e. the name of the network is indicated.

The SSID character string can be long up to 32 characters. This is configured in the base station of a wireless LAN and adjusted to all clients that should have access.

Encryption

Depending on the configuration of a wireless network an encryption must be indicated.

Popular methods are WEP64, WEP128, TKIP, AES, WPA and WPA2.

Wired Equivalent Privacy (WEP) is the former standard encryption algorithm for WLAN. It should regulate both access to the net and guarantee the privacy and integrity of data. WEP is supported by most devices, however, is not considered as safe.

WPA2 is the current and safe encryption method in wireless networks.

Each participant of a wireless network must be configured with the same method and have to be indicated the same password.

This password consists for WEP64 of 10, for WEP128 of 26 and for WPA2 of 64 hex characters (figures from 0 to 9 and letters from A to F) or a passphrase which consists of 8 to 63 characters.

2 Create a WLAN Connection to the Printing System

NOTICE!

- The WLAN option is available starting with firmware version 2.01 Build 18.
- The length of the WLAN password is max. 18 characters.
- The WLAN option only supports the 2.4GHz frequency band / IEEE 802.11n (b,g,n,e,i).

2.1 ConfigTool

NOTICE!

To create the connection, install the latest ConfigTool version from our website.

https://www.carl-valentin.de/downloads/software/

1. Plug the network cable into the printing system.

NOTICE!

The LAN cable must be connected to the printing system and the appropriate network where the WLAN will later be located.

2. Switch on the printing system and wait until it boots completely.
3. Insert the WLAN stick into a free USB port. Wait a few seconds until the WLAN stick is synchronized.
4. Open ConfigTool and click the *Search* icon.
5. Select the printing system to be configured with WLAN. The status of the installed printing system must be I*dle*.
6. On the *Home* tab go to *Settings* and select *Port Settings* and then click *Wir*eless Network Port
7. Click *WLAN* to display advanced settings.
8. Enter the name of the existing network in the *WLAN SSID* field.
9. In the *WLAN password* field, enter the password name for the existing network entered above.
10. Click *Advanced* to configure the advanced settings.
11. Enter the WLAN/network specific information in the fields.
12. Click the *Refresh* icon and the settings will be transferred to the printing system.

Checking the printing system

13. In the function menu of the printing system, go to *WLAN* and check whether the *WLAN status* displays DHCP.
14. The WLAN connection to the printing system is now complete and the network cable can be removed.

NOTICE!

If data transfer is not possible despite an existing connection, the cause may be an incorrect password, incorrect encryption type or a radio signal that is too weak.

2.2 Web Interface

1. Plug the network cable into the printing system.

NOTICE!

The LAN cable must be connected to the printing system and the appropriate network where the WLAN will later be located.

2. Switch on the printing system and wait until it boots completely.
3. Insert the WLAN stick into a free USB port. Wait a few seconds until the WLAN stick is synchronized.
1. Open the CV Web Interface. For this purpose, enter the IP address of the printing system in your browser's address bar.
2. Click the *Configuration* button and select the *WLAN* menu.
3. The *WLAN DHCP* function must be set to *On*.
4. Check the box next to *WLAN Scan SSID* to search for the WLAN SSID.
5. After a few seconds, click the *Refresh* button to display the list of available SSIDs.
6. Select one of the available network names. The WLAN SSID field will be automatically filled.
7. Enter the required WLAN password.
8. Confirm *Apply Network Settings* and click the *Refresh* icon.
9. Click the *Refresh* button to transfer the settings to the printing system.

Checking the printing system

10. In the function menu of the printing system, go to *WLAN* and check whether the *WLAN status* displays DHCP.
11. The WLAN connection to the printing system is now complete and the network cable can be removed.

NOTICE!

If data transfer is not possible despite an existing connection, the cause may be an incorrect password, incorrect encryption type or a radio signal that is too weak.

2.3 Setting Parameters via Interface

To create a connection to a wireless network, the following parameters must be configured via a printer interface (serial, USB or Ethernet) before commissioning:

IP settings

- Dynamic with DHCP
- Static with IP address, netmask and gateway

WLAN settings

- SSID
- Encryption
- Password

To configure the printing system via the printer protocol, a special file must be sent to the device via a functioning port. This file contains parameter sets to specify the settings.

Configuration via Parameter Sets

NOTE!

After the parameter sets have been transferred once, the settings are permanently saved.

The parameter sets listed below must not be sent via the WLAN interface. To configure the WLAN option, a different connection (serial, USB or Ethernet) must be used.

2.4 Parameter Sets

Set IP address (e.g. 192.168.1.21)

SOH	F	C	W	I	-	-	r	x	ETB

x = 192.168.1.21

Enquire IP address

SOH	F	C	W	I	-	-	w	p	p	p	p	p	p	p	p	ETB

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	1	ETB

Set netmask (e.g. 255.255.255.0)

SOH	F	C	W	M	-	-	r	x	ETB

x = 255.255.255.0

Enquire netmask

SOH	F	C	W	M	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	2	5	5	.	2	5	5	.	2	5	5	.	0	ETB

Set gateway address (e.g. 192.168.1.2)

SOH	F	C	W	G	-	-	r	x	ETB

x = 192.168.1.2

Enquire gateway address

SOH	F	C	W	G	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	1	9	2	.	1	6	8	.	1	.	2	ETB

Set DHCP support

SOH	F	C	W	D	-	-	r	x	ETB

x: 0 = Off
x: 1 = On

Enquire DHCP support

SOH	F	C	W	D	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	-	-	-	-	-	-	-	p	p	p	p	p	p	p	p	ETB

Set SSID (Service Set Identifier) identification (e.g. TESTWLAN)

SOH	F	C	W	S	-	-	r	x	ETB

x = TESTWLAN

Enquire SSID identification

SOH	F	C	W	S	-	-	w	p	p	p	p	p	p	p	p	ETB

Answert

SOH	A	T	E	S	T	W	L	A	N	;	ETB

Set WEP64 encryption

SOH	F	C	W	V	-	-	r	x	ETB

x = Hex string, 10 characters

Set WEP128 encryption

SOH	F	C	W	W	-	-	r	x	ETB

x = Hex string, 26 characters

Example: `(SOH)FCWV--r12345ABCDE(ETB)`

Set PSK enryption

SOH	F	C	W	K	-	-	r	x	ETB

x = Hex string, exact 64 characters or character string (numbers, letters and special characters) with a length up to 63 characters

Example 1: (SOH)FCWK—
r0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF012
3456789ABCDEF(ETB)

Example 2: (SOH)FCWK--rThisIsAPSKPassphrase(ETB)

Set encryption type

SOH	F	C	W	E	-	-	r	x	ETB

x: 0 = Off
x: 1 = WEP64
x: 2 = WEP128
x: 3 = PSK

Enquire encryption type

SOH	F	C	W	E	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	;	ETB

Accept settings

SOH	F	C	W	X	-	-	r	ETB

Set high speed data connection

SOH	F	C	W	H	-	-	r	x	ETB

This setting is specified at the printing system and if an active connection to the WLAN module exists, in the WLAN module, too. Subsequently the printing system is again started.

x: 0 = Normal speed (115200 baud, no handshake)
x: 1 = High speed (921600 baud (adjustable), RTS/CTS handshake)

Enquire high speed data connection

SOH	F	C	W	H	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	x	p	p	p	p	p	p	p	p	ETB

Set high speed baud rate

SOH	F	C	W	B	-	-	r	b	ETB

This setting is specified at the printing system and if an active connection to the WLAN module exists, in the WLAN module, too. Subsequently the printing system is again started.

b = Baud rate (115200, 230400, 460800, 921600)

Enquire high speed baud rate

SOH	F	C	W	B	-	-	w	p	p	p	p	p	p	p	ETB

Answer

SOH	A	b	p	p	p	p	p	p	p	p	ETB

3 Error Correction

To check whether a connection to the printing system exists at all, you can use the 'ping' command. From the command line/MS DOS prompt, you can test whether the printing system responds with the IP address xxx.xxx.xxx.xxx by entering the following command:

ping xxx.xxx.xxx.xxx

If everything is OK, the printing system should respond with the following message:

Answer from xxx.xxx.xxx.xxx: Bytes=32 time<10ms TTL=30

If an error occurs, you will receive timeouts:

Request timeout.

To check whether a connection to the printing system is established, you can start a status print on the printing system. In addition to the parameters set on the printing system, the WLAN settings will also be displayed.

In case of an error, check the following:

Is the WLAN connection active?

- Check the LED on the WLAN stick. If the LED flashes blue, the WLAN connection is active.

The printing system does not respond to a ’ping’.

- Ensure that the network parameters, SSID, encryption type, password, IP address, network mask and gateway are configured correctly. Contact your network administrator for more information.
- Check if a WLAN connection is established and the signal strength is sufficient. The list of connected devices can be queried on the access point. Contact your network administrator for more information.
- If using DHCP: Check if the printing system has been assigned a valid IP address. The IP address can be found on the status print.

The printing system is correctly connected to WLAN, but printing is not possible.

- Check the correct setting of the start/stop characters and the selection of the device type.

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