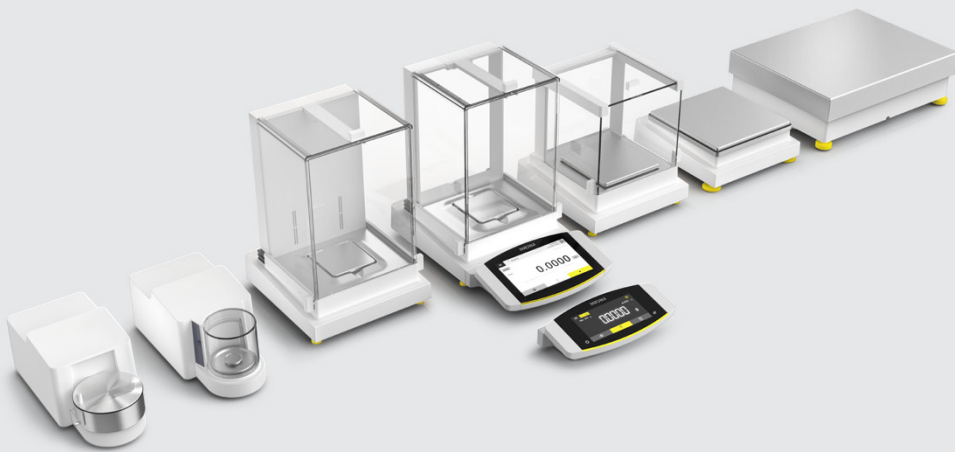


Cubis[®] MCA:

Wireless Printing With YDP30-NET



Technical Note

Scope

The setup of building an independent Wi-Fi network or Wi-Fi access to a company network for wireless printing with Cubis[®] MCA balances is described step-by-step.

In Annex A-B compatible Wi-Fi sticks and routers are listed and in Annex C the configuration of a compatible Wi-Fi router is explained.

1. Introduction and Overview

The Cubis[®] MCA supports wireless printing in different configurations. This document explains the possible setups, the configuration and pros and cons.

Note: The described functions are only available in the firmware 09-03-02.02.14 or later. Perform a firmware upgrade, if your balance is running on an earlier firmware version. Wireless printing with YDP30-NET is generally possible in 2 different setups.

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Scenario 1: Setup with independent Wi-Fi network

In this scenario the balance and the printer create an independent Wi-Fi network using standard Wi-Fi components. The advantage of this setup: No dependency on company network security policies or its network settings. This setup is recommended when no other network functions are used and simply printing is enough. The detailed steps for this setup are described in chapter 0.

Note: One or Multiple balances can connect to one printer. However, if two balances print exactly at the same time, only one printout will “win”. The other one will be lost and must be repeated manually from the report screen.



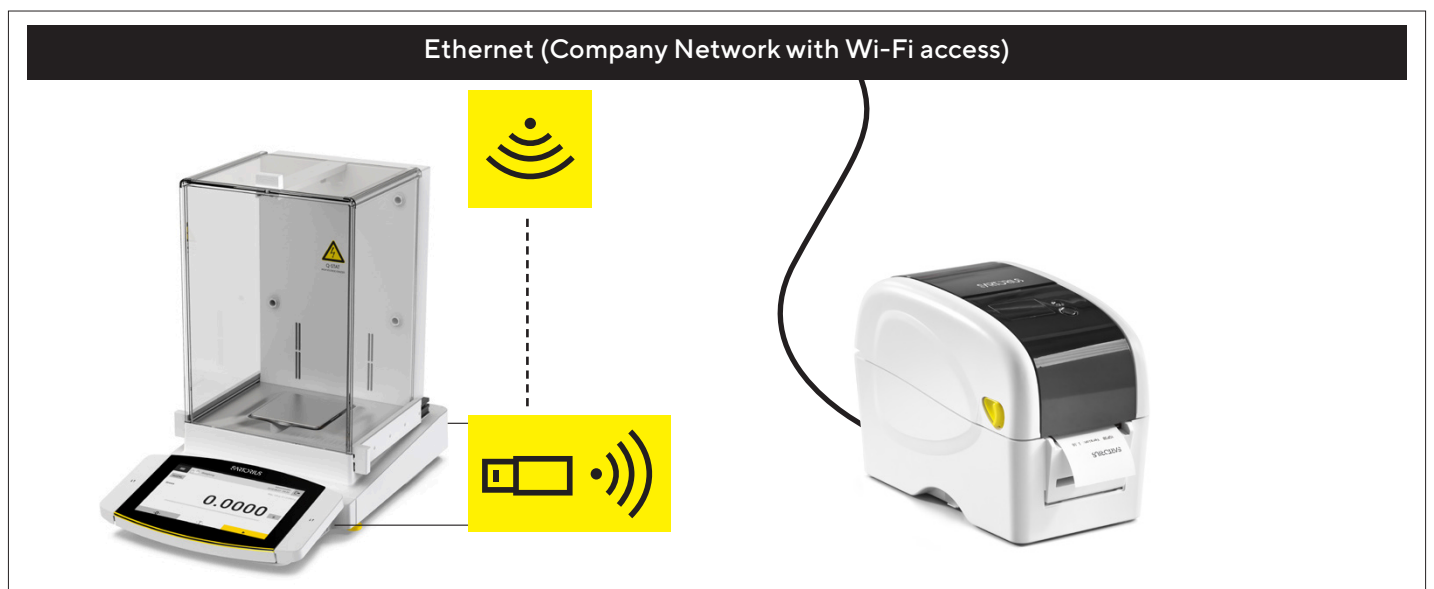
Scenario 2: Setup with Wi-Fi access to company network

In this scenario the balance and the printer use the company network. The balance connects via Wi-Fi to the company network and the printer connects via Ethernet to the company network. The advantage of this setup: It takes less cables and no mini-router. Additionally all the network functions of the balance can be used throughout the company network. However, this setup has two limitations:
1.) The login via Wi-Fi only supports standard authentication methods and no special security policies. In networks that requires special security policies the connection will not work.

2.) The network must provide a DHCP server. Working with fixed IP addresses is not supported by the printer. The detailed steps for this setup are described in **chapter 3**.

Note:

One or Multiple balances can connect to one printer. However, if two balances print exactly at the same time, only one printout will “win”. The other one will be lost and must be repeated manually from the report screen.



2. Setup with independent Wi-Fi network

Step 1: Needed Accessories and Preparations

1. Network-enabled line printer: YDP30-NET



3. Wi-Fi router: YWLAN02MS or another compatible router (Annex B: Compatible Wi-Fi Router)



2. Wi-Fi stick: YWLAN01MS or another compatible Wi-Fi stick (Annex A: Compatible Wi-Fi Sticks)



4. Make sure the balance has firmware 09-03-02.02.14 or higher installed.

Step 2: Installation of the printer

1. Unpack the wireless printer (YDP30-NET) and the Wi-Fi router (Y WLAN02MS).

2. Note the SSID and password on the bottom side of the Wi-Fi router for later use:



3. Connect printer and Wi-Fi router using the network cable.



4. Connect printer and Wi-Fi router to power supply.

5. Power on Wi-Fi router. Wait 60 seconds to finish boot process in Wi-Fi router.

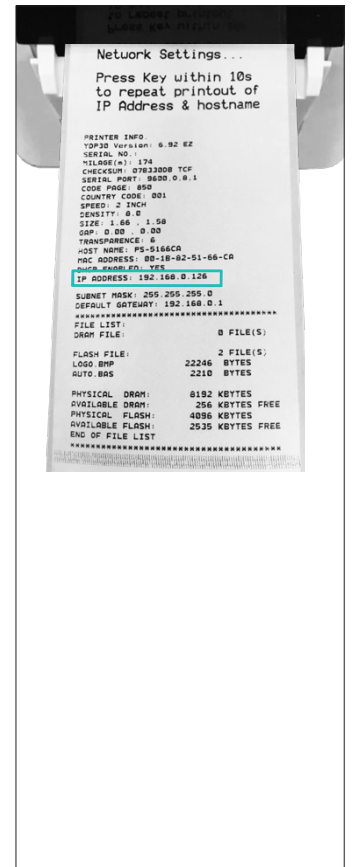
6. Power on printer. The printer prints the Sartorius logo and software version as shown in picture below.



7. Press the form feed button within 10 seconds after the printer has printed the logo. The printer will then print its status information.

8. Check for a valid the IP address on the printout. If it is 0.0.0.0 then press the form feed button again within 10 seconds (while LED is orange) to repeat printout. Typically the printer needs 20 seconds to establish a connection and get an IP address. See example below (left).

9. Keep the printout with the IP address for the configuration of the balance. See example below (right).

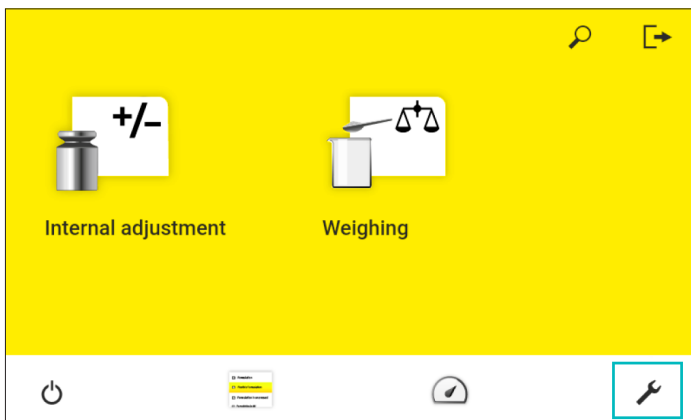


Step 3: Configure Wi-Fi in the balance

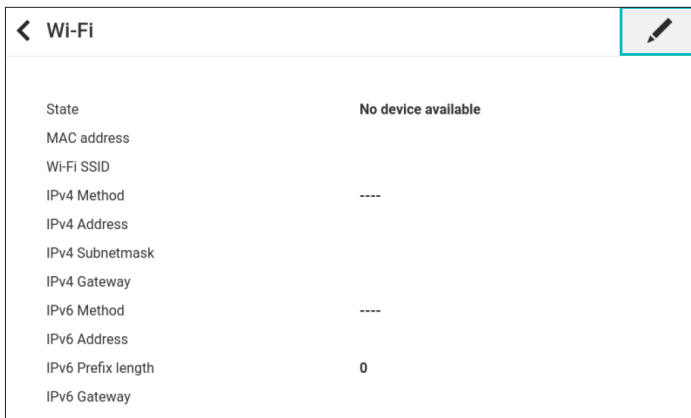
1. Plug Wi-Fi stick into balance into the right side of the display or the back of weighing module.



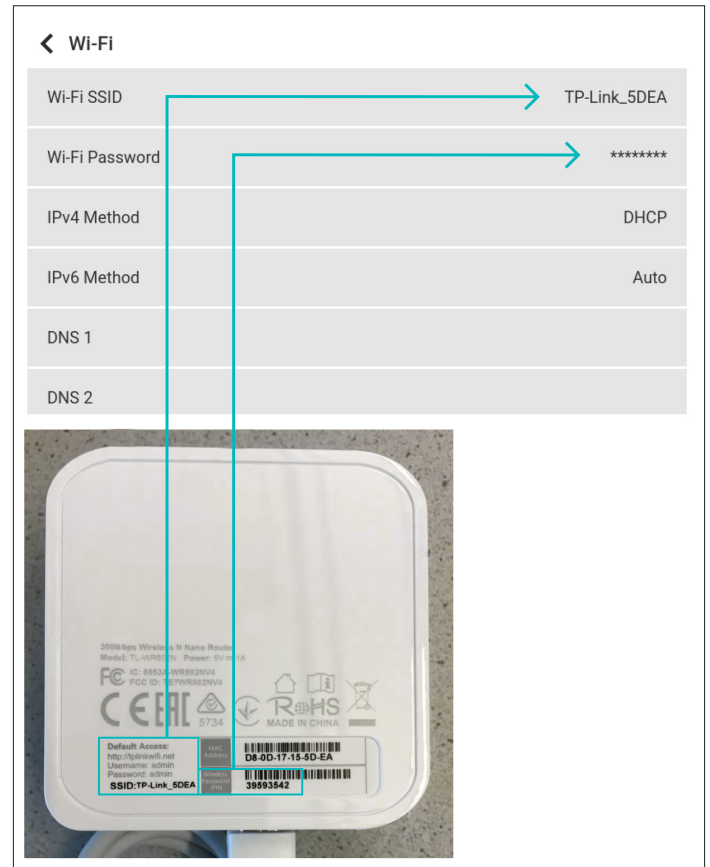
2. Login as administrator, service or any other user with administrator rights.



3. Go to Settings Menu -> Connections -> Network -> Wi-Fi Press the EDIT button on the top right.

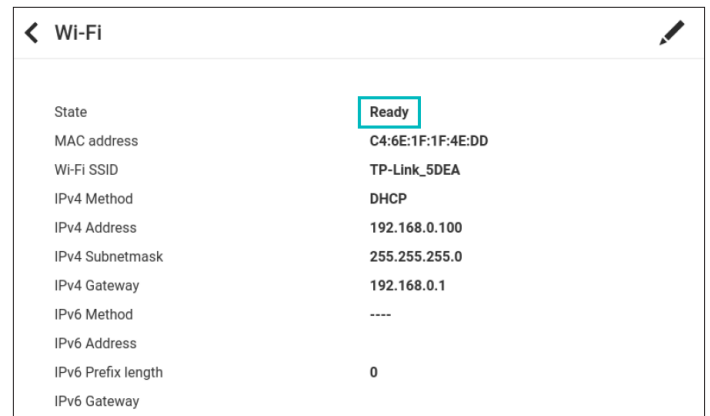


4. Enter the Wi-Fi settings of the Wi-Fi router (SSID and password).



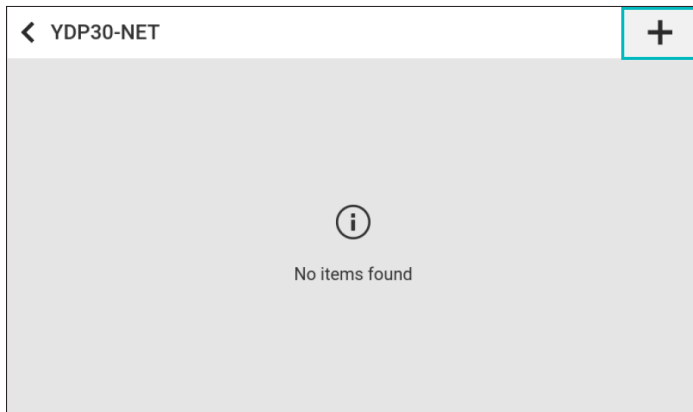
Note: It is possible to configure another SSID and Wi-Fi password in the Wi-Fi router.

5. Check the connection state in the overview screen. Within 10s it should change to "ready".

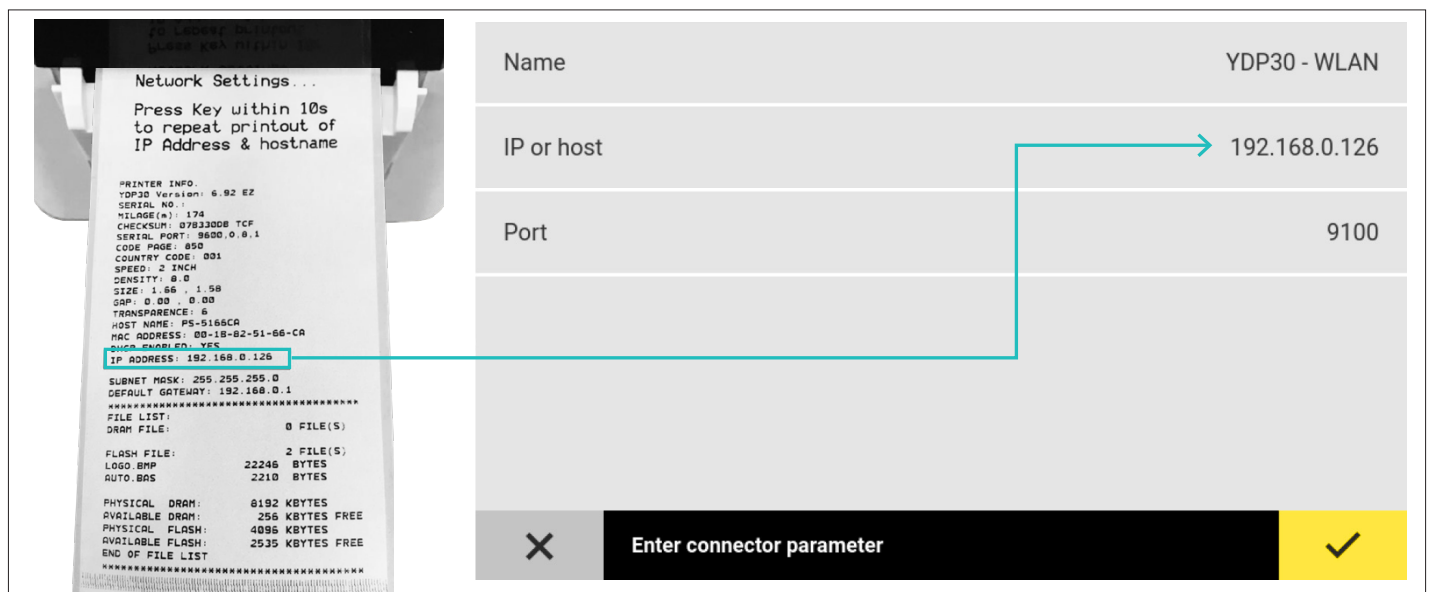


Step 4: Configure the network printer

1. Go to Settings Menu -> Connections -> Connector -> YDP30-NET
Press + button to configure a new printer.



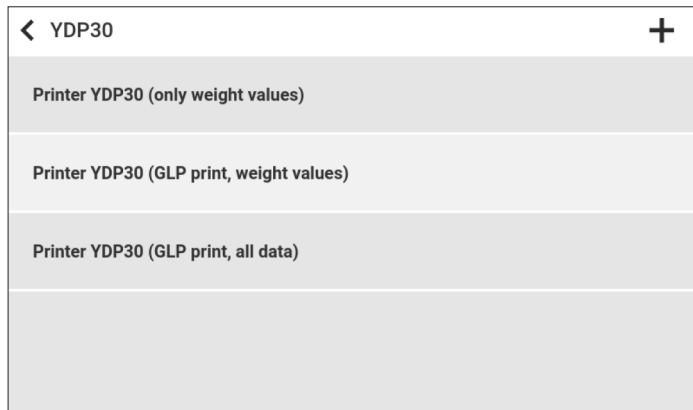
2. Enter a new name for the printer and the IP address (as shown on the configuration printout).



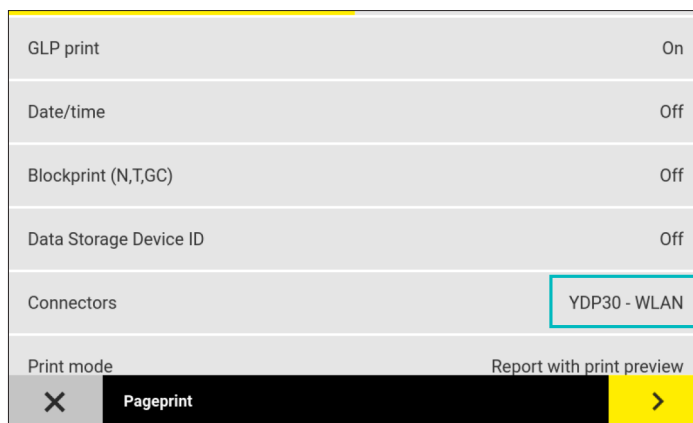
Step 5: Configure the Reporting profile & Task

1. Go to Settings Menu -> Weighing and Print Profiles -> YDP30

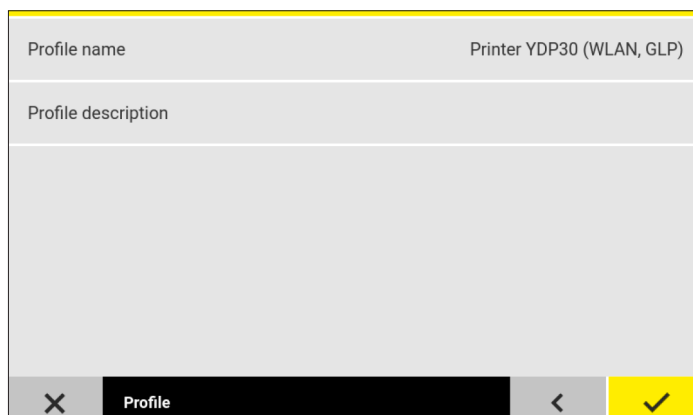
Press + button for new profile or select and edit a pre-configured profile.



2. Select the configured network printer in the setting for "Connectors".



3. Name and save the print profile for later use in Tasks.

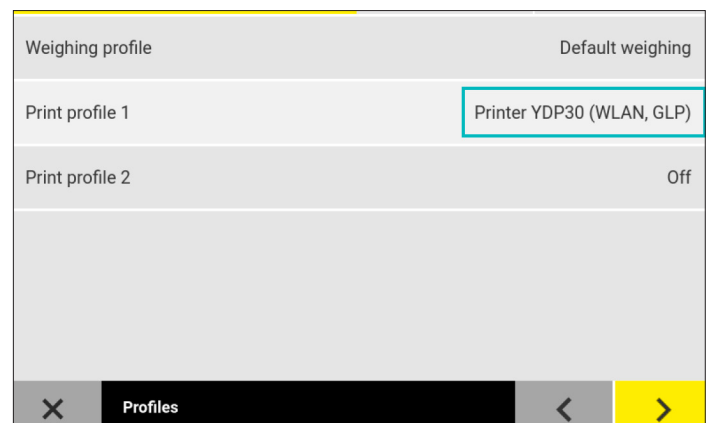


Step 6: Use Print Profile in Task

1. Go to Main Menu -> Task Management.
Create a new or select and edit an existing task.



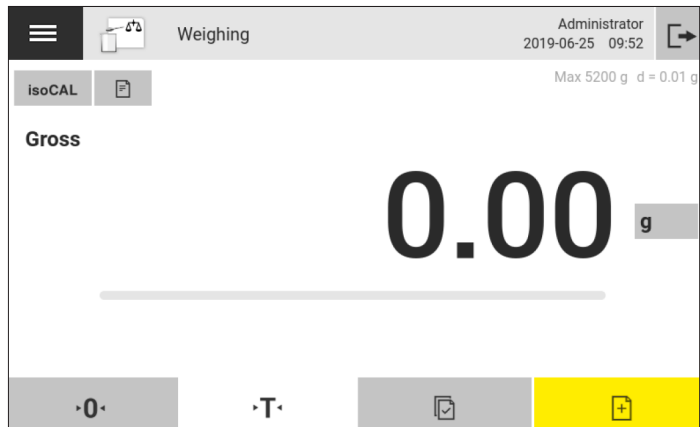
2. Use the configured print profile in this task. Save the task.



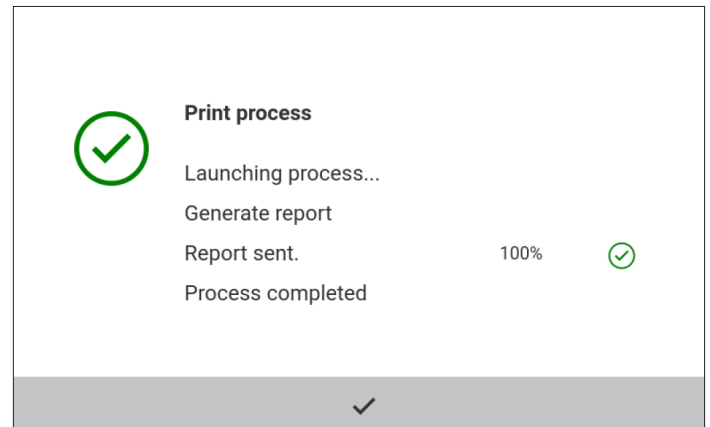
Step 7: Test Printout

1. Go to Main Menu and start the configured Task.

2. Take over some data.



4. Press Printout button.



3. Go to Print Preview.



5. The report should be printed as configured. Then the setup is finished.

3. Setup with Wi Fi access to company network

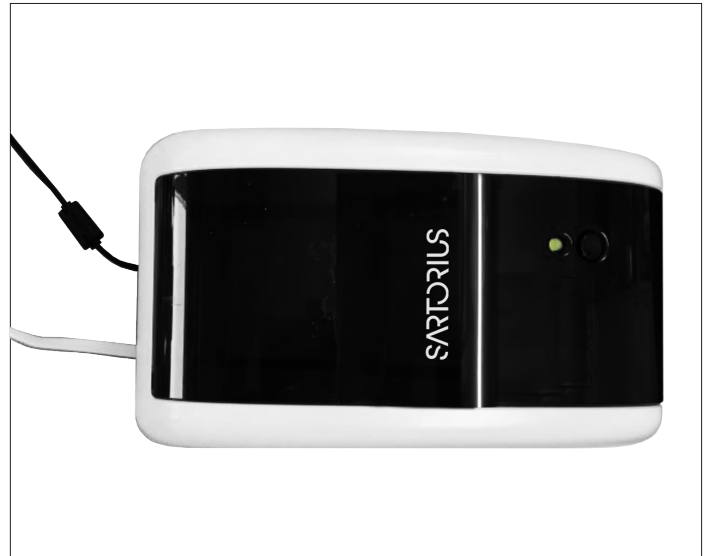
Step 1: Needed Accessories and Preparations

1. Network-enabled line printer:
YDP30-NET



Step 2: Installation of the printer

1. Unpack the wireless printer (YDP30-NET) and connect with Ethernet cable to Network.



2. Wi-Fi stick: YWLAN01 or another compatible Wi-Fi stick
(Annex A: Compatible Wi-Fi Sticks)



2. Power on printer. The printer prints the Sartorius logo and software version as shown in picture below.



3. Press the form feed button within 10 seconds after the printer has printed the logo. The printer will then print its status information.

3. Make sure the balance has firmware 09-03-02.02.14 or higher installed.

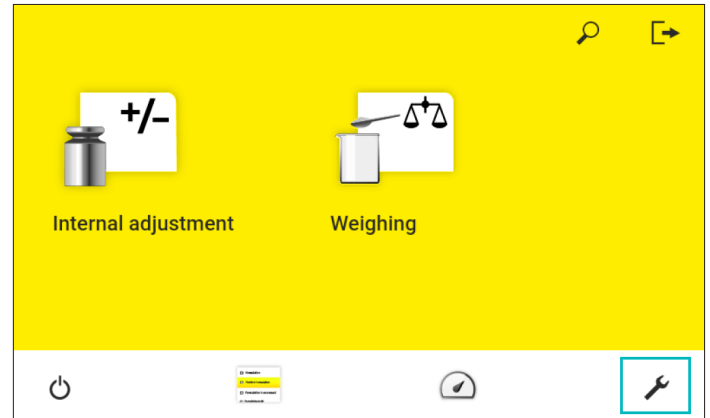
4. Check for a valid the IP address on the printout. If it is 0.0.0.0 then press the form feed button again within 10 seconds (while LED is orange) to repeat printout. Typically the printer needs 20 seconds to establish a connection and get an IP address. See example below (left).

5. Keep the printout with the IP address and the host name for the configuration of the balance. See example below (right).

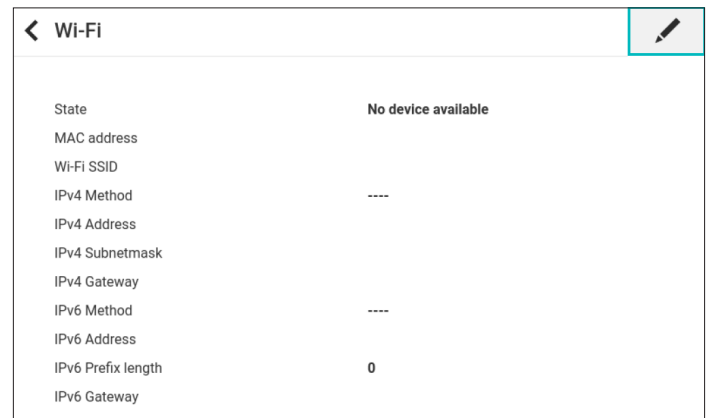
Note: If this step does not work then there is either a hardware defect or no connection to the DHCP server in the network.



7. Login as administrator, service or any other user with administrator rights.



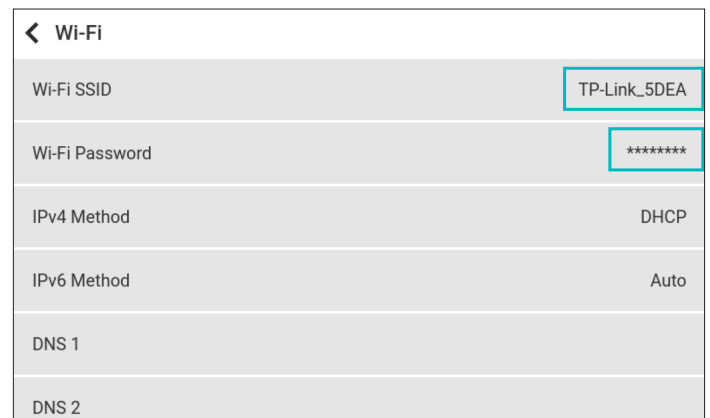
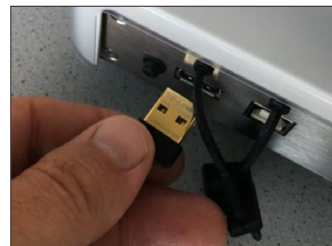
8. Go to Settings Menu -> Connections -> Network -> Wi-Fi Press the EDIT button on the top right.



9. Enter the Wi-Fi settings of the Wi-Fi network (SSID and password). The credentials must be provided by the network administrator.

Step 3: Configure Wi-Fi in the balance

6. Plug Wi-Fi stick into balance into the right side of the display or the back of weighing module.

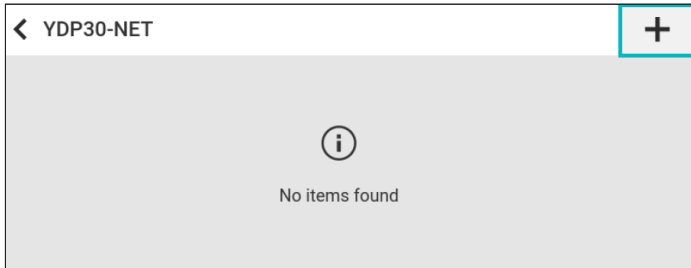


10. Check the connection state in the overview screen.
 Within 10s it should change to "ready".

Wi-Fi	
State	Ready
MAC address	C4:6E:1F:1F:4E:DD
Wi-Fi SSID	TP-Link_5DEA
IPv4 Method	DHCP
IPv4 Address	192.168.0.100
IPv4 Subnetmask	255.255.255.0
IPv4 Gateway	192.168.0.1
IPv6 Method	----
IPv6 Address	
IPv6 Prefix length	0

Step 4: Configure the network printer

1. Go to Settings Menu -> Connections -> Connector -> YDP30-NET Press + button to configure a new printer.



2. Enter a new name for the printer.

3. Enter either the host name or the IP address
 (as shown on the configuration printout)

The image shows a printer's network settings printout on the left and a configuration screen on the right. The printout includes the following information:

```

  NETWORK SETTINGS...
  Press Key within 10s
  to repeat printout of
  IP Address & hostname

  PRINTER INFO.
  YDP30 Version: 6.92 EZ
  SERIAL NO.:
  MSLABE (n): 174
  CHECKSUM: 0783300B TCF
  SERIAL PORT: 9600,0,0,1
  CODE PAGE: 800
  COUNTRY CODE: 001
  SPEED: 2 INCH
  DENSITY: 0.0
  SIZE: 1.66 , 1.58
  GAP: 0.00 , 0.00
  *****
  HOST NAME: PS-5166CA
  MAC ADDRESS: 00:18:92:51:66:CA
  IP ADDRESS: 192.168.0.126
  SUBNET MASK: 255.255.255.0
  DEFAULT GATEWAY: 192.168.0.1
  *****
  FILE LIST:
  DRAM FILE: 0 FILE(S)
  FLASH FILE: 2 FILE(S)
  LOGO.BMP 22246 BYTES
  AUTO.BAS 2210 BYTES

  PHYSICAL DRAM: 8192 KBYTES
  AVAILABLE DRAM: 256 KBYTES FREE
  PHYSICAL FLASH: 4096 KBYTES
  AVAILABLE FLASH: 2535 KBYTES FREE
  END OF FILE LIST
  *****
  
```

The configuration screen on the right has the following fields:

- Name: YDP30 - WLAN
- IP or host: 192.168.0.126
- Port: 9100

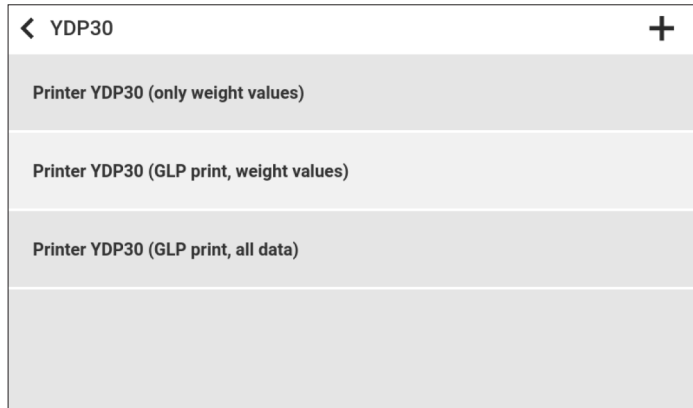
At the bottom of the configuration screen, there is a button labeled 'Enter connector parameter' with a checkmark icon on the right and a close icon (X) on the left.

Note: It depends on the network configuration and network traffic whether host name or IP address works better.
 Recommendation: Try the host name first. If the connection is delayed then switch to IP address.
 The disadvantage of IP address is that it can change over time depending on the DHCP network settings.

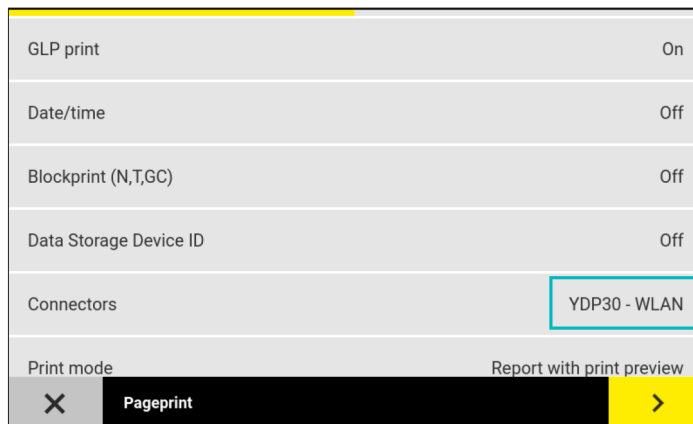
Step 5: Configure the Reporting profile & Task

1. Go to Settings Menu -> Weighing and Print Profiles -> YDP30

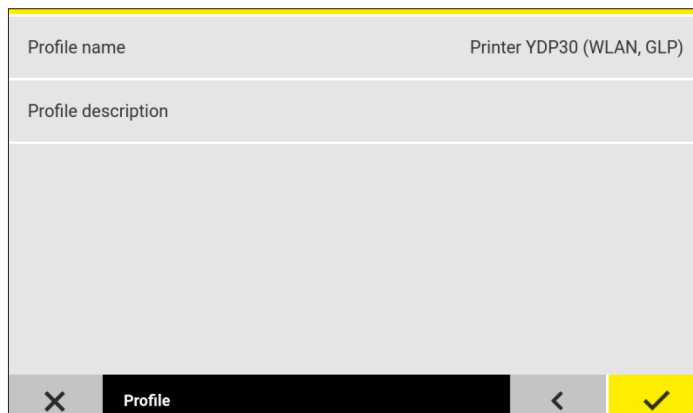
Press + button for new profile or select and edit a pre-configured profile.



2. Select the configured network printer in the setting for "Connectors".



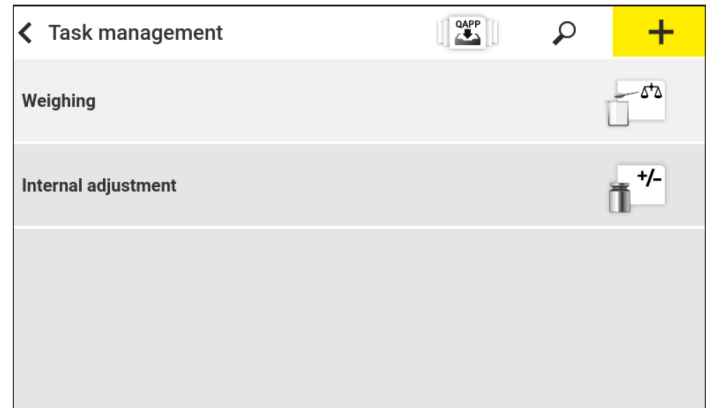
3. Name and save the print profile for later use in Tasks.



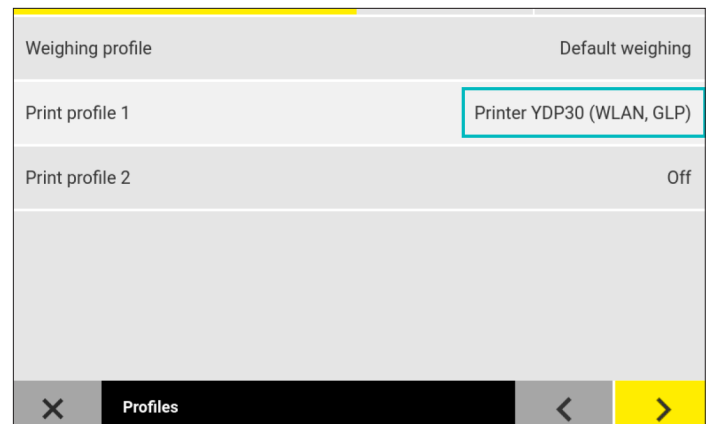
Step 6: Use Print Profile in Task

1. Go to Main Menu -> Task Management.

Create a new or select and edit an existing task.



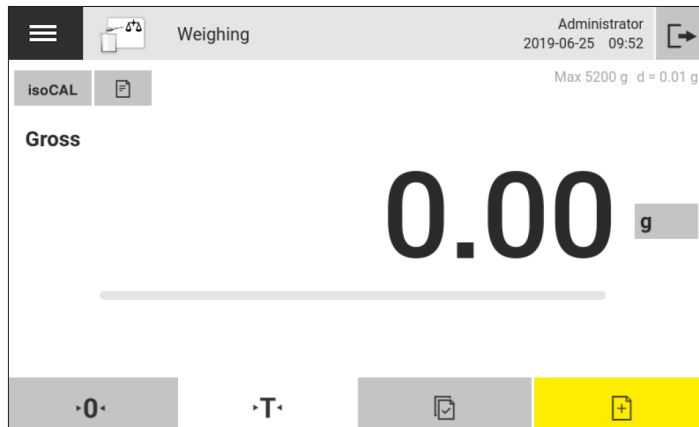
2. Use the configured print profile in this task. Save the task.



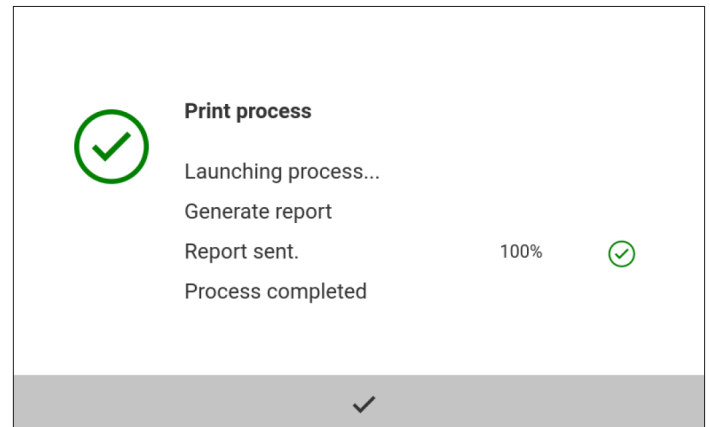
Step 7: Test Printout

1. Go to Main Menu and start the configured Task.

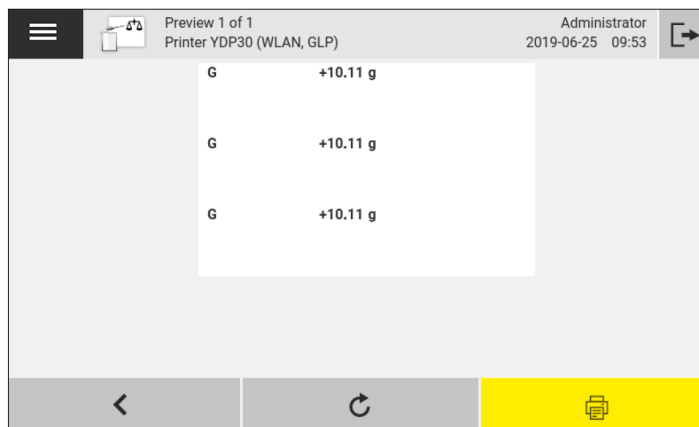
2. Take over some data.



4. Press Printout button.



3. Go to Print Preview.



5. The report should be printed as configured. Then the setup is finished.

4. Annex A: Compatible Wi-Fi Sticks

Cubis® MCA supports a wide selection of Wi-Fi sticks out of the box. In fact, most of the commonly available Wi-Fi stick will work.

For selection of a Wi-Fi stick we recommend the following guidelines:

1. Avoid no-name Wi-Fi sticks. Buy from a known brand. (e.g. TP-Link, LogiLink, NetGear) We tested the models TP-Link TL-WN725N and LogiLink WL0084E successfully.
2. Select older models. Avoid brand new models.
3. If possible check the datasheet of the Wi-Fi-stick to be sure it contains one of the following supported chipsets.

Supported Wi-Fi chipsets:

Atheros AR5523
Atheros AR9271
Atheros AR6004

Atmel at76c503, at76c505 or at76c505a

Broadcom BCM43235 (Revision 3)
Broadcom BCM43236 (Revision 3)
Broadcom BCM43238 (Revision 3)
Broadcom BCM43143
Broadcom BCM43242
Broadcom BCM43566
Broadcom BCM43569

Intersil's Prism54 chips ISL38xx

Marvell Libertas 8388 Libertas 8682
Marvell 8766/8797/8897

Ralink RT2571, RT2571W, RT2572, RT2573 & RT2671
(no firmware)
Ralink RT2770, RT2870 & RT3070, RT3071 & RT3072
& RT3370 (rt2870.bin)

Realtek RTL8192CU/RTL8188CU
Realtek RTL8712U/RTL8192SU
Realtek RTL8188EU
Realtek RTL8187 and RTL8187B

Redpine Signals Inc 91x

ZyDAS ZD1201
ZyDAS ZD1211/ZD1211B

5. Annex B: Compatible Wi-Fi Router

The printer YDP30-NET connects via standard network components. Therefore it can be configured using any Wi-Fi router that can be configured as a hotspot and provide a DHCP server.

We tested successfully and recommend the model **TP-Link TL-WR802N**.



The configuration of this router is explained in Annex C: Configuration of Wi-Fi Mini-Router TP-Link TL-WR802N.

For selection of another Wi-Fi router we recommend the following guidelines:

1. Avoid no-name products. Buy from a known brand. (e.g. TP-Link, LogiLink, NetGear)
2. The router must support the "hotspot operation mode" and a DHCP server.

6. Annex C: Configuration of Wi-Fi Mini Router TP Link TL WR802N

Tools needed:

- Laptop or PC with WLAN and Windows 10.

Step 1: Prepare Wi-Fi router

1. Unpack TP-Link TL-WR802N.



2. Note the SSID and the Password on the backside of the router.



3. Connect USB cable to Wi-Fi router

4. Power-on Wi-Fi router. Either use the included power supply or simply plug into any available USB port on a PC.

5. Wait approximately one minute for the router to boot.

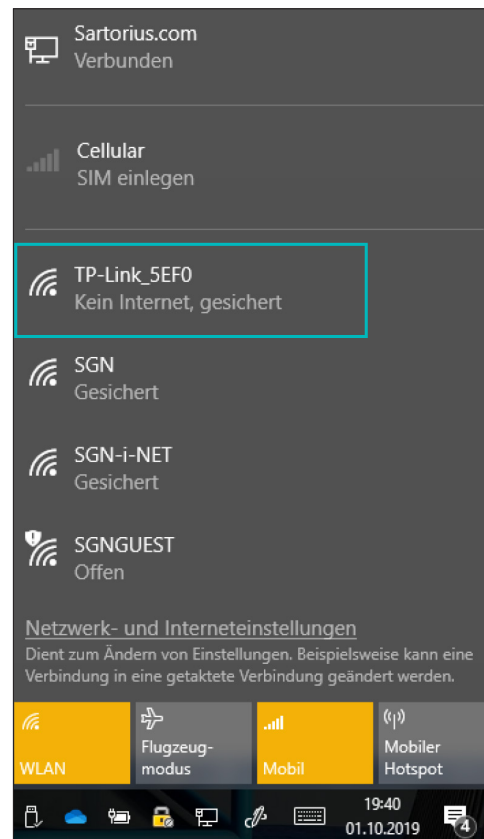
Step 2: Connect to Wi-Fi router via WLAN

1. Connect PC | Laptop to Wi-Fi network from router. Remark: In some setups it may be necessary to disconnect the PC | Laptop from Ethernet (LAN) during these steps. Simply unplug the cable.

2. Connect to WLAN as printed on backside of Wi-Fi router. Enter the password as printed on backside of Wi-Fi router.

3. Open Web browser, e.g. Microsoft Edge.

4. Type in the address of the router. Any of the following can work, depending on the setup: <http://192.168.0.1/> or tplinkwifi.net ≥ If successful, the login window appears.

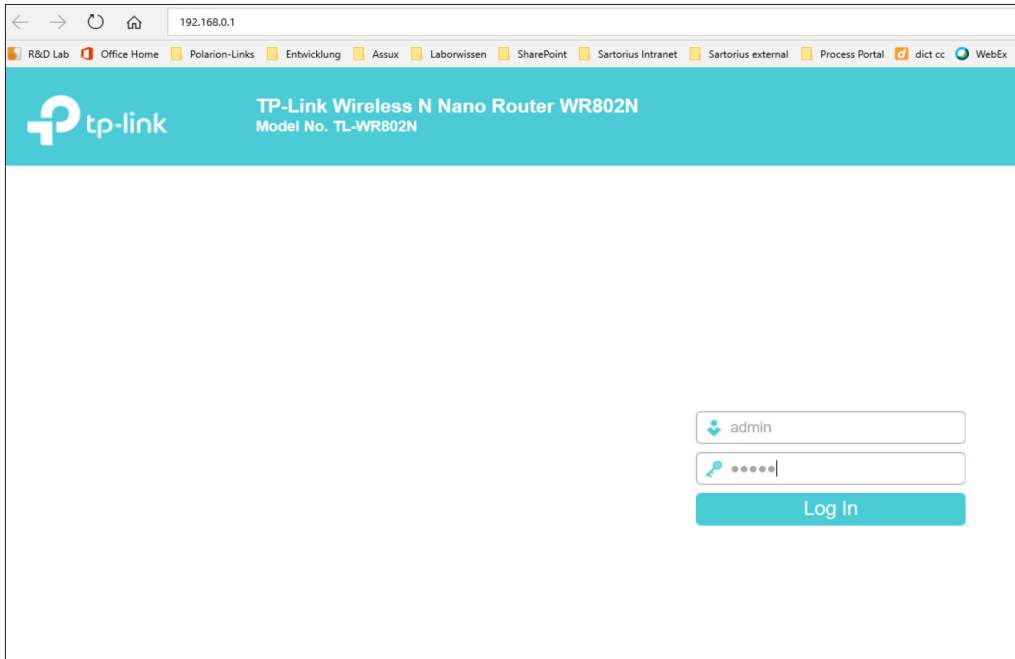


Step 3: Log in and configure Wi-Fi-Router

1. Log in with the default settings:

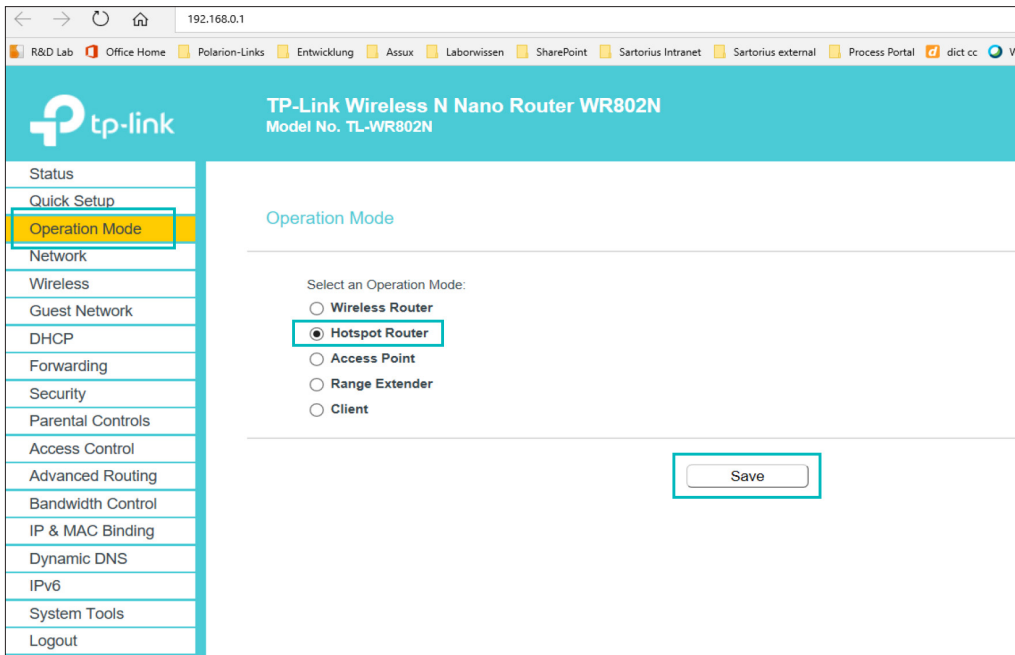
username: admin

password: admin



2. On the left side, select the menu "Operation Mode".

Then set the Selection to "Hotspot Mode" and click the "Save" button.




3. After reboot the device is ready to use.

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