

BEETLE /moPOS

Mobile POS Solution

End User's Guide Software - Getting Started (December 2015)

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1 Important Notes

The following safety instructions should be read carefully and strictly observed when handling technical appliances and before doing any work on the device. Further safety, installation, operating and maintenance instructions can be found in the manuals available on the internet:

http://www.wincor-nixdorf.com/internet/site_EN/EN/Support/Downloads/downloads_node.html

Should you have any questions, please contact your dealer or our service department.

Devices supplied by Wincor Nixdorf International GmbH (WN) comply with the respective safety regulations for data-processing devices and information technology devices, including electrical office equipment for use within an office or store environment.

- Always consult the installation and operating instructions before doing any work with an appliance. These manuals are available on the internet (see above).
- If an appliance is brought into the service area from a colder environment, condensation may occur. The appliance must be absolutely dry before activation. This requires an acclimatization time of at least two hours.
- Observe warning and information labels on the device.
- Appliances that are equipped with safety tested power cables must be plugged into a grounded socket.
- Always lay the supply leads and cables in such a way that they cannot be stepped on or tripped over.
- Make sure that there is always free access to the grounded sockets used or to the electrical circuit-breakers of the house installation.
- Check that the set nominal voltage of the appliance corresponds to the local mains voltage.
- In order to completely separate the appliance from the mains voltage, switch off the appliance and disconnect it from the mains.
- Ensure that no foreign objects (e.g. paper clips) or liquids enter the housing of the appliance. This may result in electric shock or short circuit.
- Always keep the ventilation slots free of obstruction to ensure adequate air circulation and avoid overheating.
- Data cables must not be plugged in or unplugged during electrical storms.
- Always hold the plug when removing the power cable or other cables. Never pull the cable itself. Have damaged power cables replaced immediately.
- Only use accessories and extension components that have been approved by Wincor Nixdorf. Nonobservance can result in damage to the device or violations of regulations concerning safety, radio interference and ergonomical requirements.
- Protect the appliance from vibrations, dust, moisture and heat.

- Transport the appliance only in its original packaging (to protect it against knocks and bumps).
- In case of an emergency (e.g. damaged controls or power cables, liquids or foreign objects in the device) take the following steps:

Deactivate the device immediately by:

- Disconnecting the plug connector of the power supply cable from the grounded socket in the building installation.

- Inform the customer service responsible for you.

- Properly dispose of worn out parts that may be environmentally hazardous (e.g. batteries).
- **If a lithium battery** is supplied with the appliance, ensure that the battery is replaced with an equivalent type. Otherwise there is danger of explosion! Lithium batteries may only be replaced with identical types or other types recommended by the manufacturer. Batteries must be disposed of according to **local regulations** on the disposal of **special waste**.
- Appliances may only be repaired by authorized technicians. Unauthorized opening of the housing or inexperienced repairs can result not only in considerable personal danger, but will also invalidate your warranty and liability protection.

1.1 LCD Displays

If the display element is damaged and the liquid crystal solution leaks out onto your hands or clothing, please wash your hands or clothing immediately under running water for at least 15 minutes, using soap or alcohol. If the liquid comes into contact with your eyes, consult a **medical doctor immediately**.

Before opening the device, make sure, that the device is disconnected from the main power supply. Only authorized personnel is permitted to open the device.

2 General

2.1 Abbreviations

Aka	Also known as
BR	Business Requirement
FIFO	First-in, first-out
FW	Firmware
HW	Hardware
JavaPOS	Java for Retail POS
JDK	Java Development Kit
LAN	Local area network: wired network infra structure
LSB	Linux Standard Base
OPOS	Ole for Retail POS
OS	Operating system
PDH	POS Device HUB
POS	Point of Service
SSID	SSID stands for S ervice S et I dentifier ; this is the name of a wireless network to be entered when connecting from mobile devices to a router
SW	Software
UPOS	Unified POS Programming Interface for POS applications to access peripheral devices
WEP	Wired Equivalent Privacy a type of weak encryption used for WiFi communication
WiFi	Wireless local area network aka WiFi
WPA	Wi-Fi Protected Access

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2.3 Summary

This End User's Guide "Getting Started" describes the first steps when getting a BEETLE /moPOS to run.

Chapter **4** contains just a reference to an additional external document giving a short overview of the BEETLE /moPOS concept and product.

Chapter **5** describes the necessary SW installations on tablet and configurations for POS Device HUB when setting up the participating devices of the BEETLE /moPOS environment to make the configuration run.

Chapter **6** describes the additional installation and configuration of an additional Java Demo POS application for showing a sample POS transaction.

Chapter **7** contains just a reference to an additional external document describing the Programming API for accessing the POS Device HUB and Admin Server.

Chapter **8** describes the LED states and the so-called LED service menu which can be entered at system boot for adjusting some basic settings of the POS Device HUB.

Chapter **9** describes how to download a firmware to the POS Device HUB.

Chapter **10** describes some recommendations when using a market-usual WiFi (aka WIFI) router in the BEETLE /moPOS configuration.

Chapter **11** and **12** describe the remote admin WebGUI interface of the POS Device HUB for configuring and for diagnostics.

Chapter **13** gives a short overview about upcoming plugin feature of the BEETLE /moPOS.

Chapter **14** gives a short overview about upcoming HTML5/javascript based interface for using the POS Device HUB from HTML5 based applications running on Windows Android or iOS tablets.

3 Introduction and Architecture: What is BEETLE /moPOS?

The Chapter “4 Introduction and Architecture: What is BEETLE /moPOS?” is provided as a separate document.

4 Getting Started

This chapter describes how to setup a complete set of devices for performing mobile applications of the BEETLE /moPOS.

For a complete environment you will need at least the following moPOS components:



1. The **mobile tablet**:

the mobile tablet is a Windows 8.1 based mobile computer for

- displaying the graphical user interface of a mobile POS application
- accepting input via the touch based surface of the tablet
- accessing the peripheral devices via the WiFi connection

2. the **POS Device HUB with Docking Unit**

allows

- connecting several peripheral devices such as one pos printer, one line display and/or a graphical display, one or two scanners and a cash drawer
- docking and undocking the mobile tablet
- charging of battery of a docked tablet
- getting the unique tablet id for authorization in case the tablet is docked.
- accessing of peripheral devices for registered tablets.
Registration at one central Admin Server software activated on one POS Device HUB.
- using optionally a so-called iButton for authorization of device access when tablet shall also be allowed to devices if undocked
- showing the current state of docking unit with a LED with different colors

3. **POS peripheral devices**

with possibly

- A USB or RS232 pos printer for printing tickets
- A USB or RS232 line display or a graphical display for displaying items
- A USB or RS232 bar code scanner for scanning items
- A cash drawer for handling cash money connected at the printer or at the POS device HUB itself
- An EFT device connected via LAN cable (not supported in the demo software).

4. **WiFi router**

the WiFi router performs the network connection between devices connected via a LAN cable and the mobile tablets connected wireless through the router.

The router needs to be configured in a proper way

see chapter "4.3 WiFi router: Configuring" in this document.

Each of the four components needs to be configured properly.

4.1 Overview Steps for configuring the several devices

For configuring the several participating devices in the BEETLE /moPOS concept you need to perform the following step:

1. Perform the 1st setup of the tablet (Windows related part)
2. Configure the WiFi router
3. Installing and configuring the moPOS SW layer on the tablet
4. Configuring the POS Device Hub

4.2 Tablet: Perform the 1st setup (Windows related part)

The first time you turn on your Windows 8.1 tablet you will realize a slight difference compared to an “old” PC with e.g. Windows 7 (or previous versions).

To begin the setup process, just go through the first-time setup process.

1. Choose your
 - Country or region
 - Language, keyboard layout and time zone?
click [Next] button
 - Enter the product key XXXXX-XXXXX-XXXXX-XXXXX-XXXXX ?
click [Next] button
2. License terms: Agree the license terms by
clicking [I accept] button
3. Personalize: Enter the Computer name and set the color scheme of Windows
click [Next] button
4. Get online: Pick a WiFi network and go online to finish setting up your PC? click the appropriate [network] or [Skip] button to pick a network later on.
5. Settings: Express settings: We recommend to select the express settings. You can customize these settings now or later. ? click [Use express settings] button
6. Your account: Type in your user name. The user name is mandatory. If you want to protect the user with a password, you can type in your password. The password is optional ? click on [Finish] to finalize the set-up. Now, the tablet will be restarted.
7. Done!

4.3 WiFi router: Configuring



The WiFi router is not a Wincor Nixdorf product. Therefore, a typical WiFi router can be used as long as it meets the requirements for usage with the mobile tablet:

- The WiFi router shall use a strong encryption such as **WPA/WPA2** with at least AES. Make sure a password with sufficient length is used for the WiFi connectivity.
- Configure the WiFi router to use DHCP for assigning TCP/IP addresses to the tablet(s) and the POS device HUB(s). Make sure that in the router a **hard binding of TCP/IP addresses** to the MAC address of devices is enabled. That is, the device will get always the same IP address by the router during startup of network communication.
- In a first step allow **routing of all ports** between WiFi and LAN devices.

Two ways of how to configure are possible:

- In case the router has already a WiFi SSID preconfigured by factory settings: connect it with your tablet to the WLAN of the router and perform the router configuration via tablet GUI in a browser such as IE or Firefox.
- Otherwise: connect a separate PC or notebook via LAN cable to the router and perform the router configuration via PC resp. notebook GUI in a browser such as IE or Firefox.

More detailed recommendations and consideration can be found in chapter 9 "Recommendations for configuration of WiFi routers", page 48.

4.4 Tablet: Installation and configuring moPOS SW layer on the tablet

This chapter describes how to install the tablet with the BEETLE /moPOS SW layer.



For installation of the interface SW on the tablet you need to install several installation packages. Please note all packages have to be installed as User *Administrator*.

4.4.1 Installation of the Unified POS Adapter

The Unified POS Adapter contains the SW library for the JavaPOS application to

- access the peripherals via Unified POS API
- access the AdminServer

The file containing the single installer is named as MOPOS-UnifiedPOS-Adapter-X.Y-Z.zip where X is the major version, Y the minor version and Z the build version of the BEETLE /moPOS Tablet SW.

For the FW release 1.0 the file name is: WNmoPOSUnifiedPOSAdapter-1.0-0-0-setup.zip.

The ZIP file contains the installer WNmoPOSUnifiedPOSAdapter-1.0-0-0-setup.exe.

You may install it silently by calling it with:

```
WNmoPOSUnifiedPOSAdapter-1.0-0-0-setup -setup.exe /SILENT
```

Per default the installation is done as follows:

- The package will be installed to
C:\Program Files\WincorNixdorf\mopos.
- in the directory
C:\Program Files \javapos
additional JavaPOS-related files are located which are not vendor-specific.
Applications shall include the file
C:\Program Files \javapos\setjavaposvars.bat
to get appropriate CLASSPATH and PATH settings for the JavaVM environment. The file will be setup correctly by the installer to include all jpos.xml files and JAR files in the CLASSPATH.

Note:

- You may choose to install interactively and modify some settings by calling the installer without option /SILENT
- In case you want to install the UnifiedPOS adapter to another directory you may specify another directory with the calling option /DIR=. Example:

```
WNmoPOSUnifiedPOSAdapter-1.0-0-0-setup.exe /SILENT
/DIR= C:\Retail\Software\javapos
```

4.4.2 Installing the Java Virtual Machine

Usually for accessing the Unified POS interface in its implementation of JavaPOS you need to install a JavaVM from Oracle. Depending on your application you may download a Java Runtime package with a version higher or equal to version 1.7. Downloads are available from

<http://www.oracle.com/technetwork/java/javase/overview/index.html>

You may install the UDM default runtime engine when just using the JavaPOS demo package for showing the functionality of BEETLE /moPOS.

Please note: the UDM default runtime engine can only be used for the JavaPOS demo and the sample application but not for 3rd party applications.

For silent installation of the UDM default runtime package just call:

```
WN_Ref_UDM_Default_Runtime_Engine-1.1-3-setup.exe /SILENT
```

4.4.3 Installation of the demo package

Therefore there is another package which contains a small demonstration POS application handling the different devices as connected at the BEETLE /moPOS POS Device HUB.

For installation of the demo package just call:




```
WNmoPOS-JavaPOSDemo-0.9-53-3-setup.exe
```

The demo package needs to be configured in a proper way for connection to the POS Device Hub. During installation you will be queried to enter the IP address of the BEETLE /moPOS where the Admin Server is running. For a complete description on how to configure the Demo1 application please look into chapter

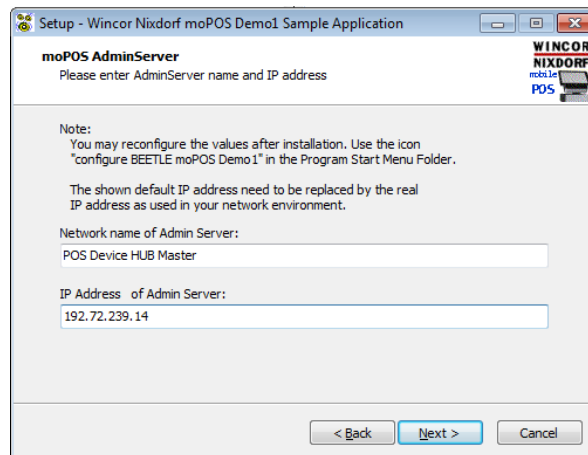
“5 JavaPOS Demo Application: Getting Started, page 25”.

In the next chapter it is described how to configure the demo application when using the BEETLE /moPOS Admin Server.

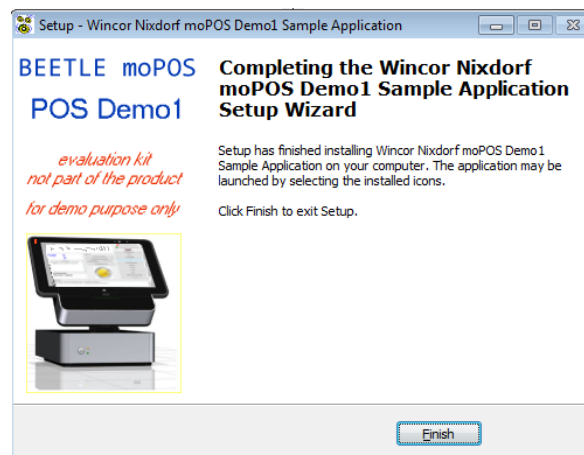
After installation of all packages you should see in the System Control Panel under "**All Control Items**" and "**Programs and Features**" the following packages:

	Wincor Nixdorf moPOS Demo1 Sample Application version 0.9-53	Wincor Nixdorf International G...	0.9-53
	Wincor Nixdorf moPOS Tablet UnifiedPOS Adapter version 0.9-52	Wincor Nixdorf International G...	0.9-52
	Wincor Nixdorf Reference Package WN_Ref_UDM_Default_Runtime_...		1.1-3

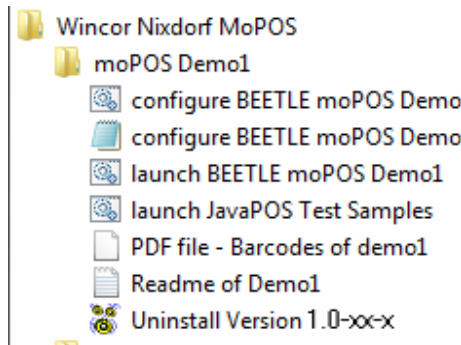
During installation you have to enter the IP address of the moPOS Admin Server. A dialogue appears and allows you to enter the name and the IP address of the Admin Server.



You may enter the values for the Admin Server here during installation or later by calling the Demo1 configuration tool. When installation has been finished the following window is shown:



After installation in the Program Start Menu Folder you find a sub directory the following Icons can be found:



4.4.4 Configuration the demo package

There are two ways of configuring the demo:

- Editing with text editor the property file
C:\Retail\Software\Demos\demo1\wn\properties\demo1.properties.
- Or using the configuration tool by selecting the icon "configure BEETLE /moPOS Demo1"

The configuration tool allows it much easier to adjust the settings.

4.4.4.1 Configuration with a text editor

There is a property file for the demo1 software containing all settings for the demo program.

You may use the standard windows text editor notepad, just call:

notepad C:\Retail\Software\Demos\demo1\wn\properties\demo1.properties

or use the icon in the Windows program start menu folder

Wincor Nixdorf moPOS \
moPOS Demo1 \
configure BEETLE /moPOS Demo1 with Text Editor

Search for the lines starting with "AdminServerConnectionHandler.activate=", "AdminServerConnectionHandler.useDummy=" and "AdminServerConnectionHandler.server=" modify the lines and adjust the line with the "AdminServerConnectionHandler.server=" field entry contains the IP address of your POS Device HUB which has the running Admin server. As port use the number 8025.

```
AdminServerConnectionHandler.activate=yes  
AdminServerConnectionHandler.useDummy=no  
AdminServerConnectionHandler.server=POS Device Hub 1@<ipadress>:<port>
```

To start the demo there is a start icon in the Windows program start menu folder under

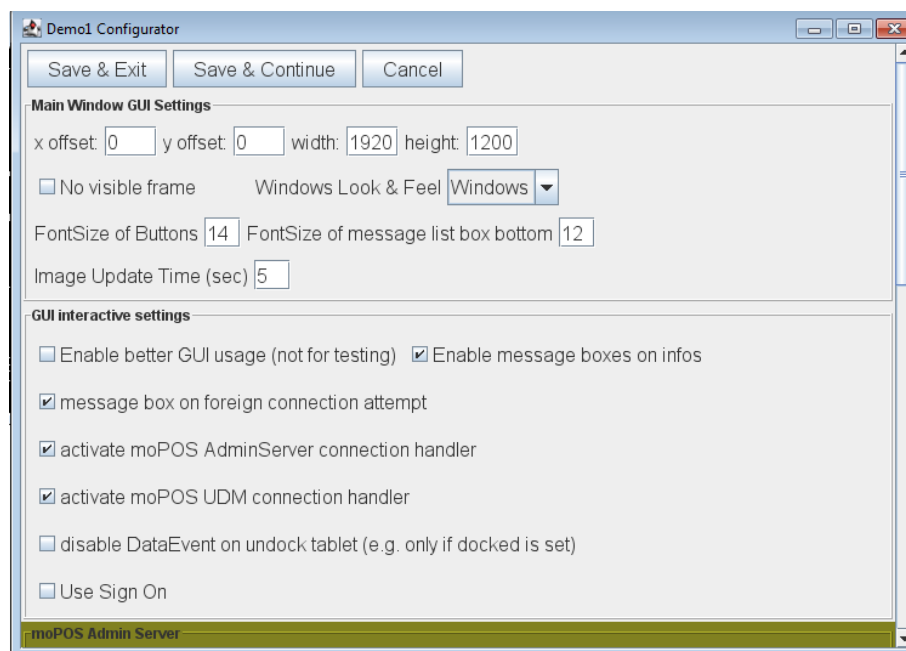
Wincor Nixdorf moPOS \
moPOS Demo1 \
launch BEETLE /moPOS Demo1

4.4.4.2 Configuration tool

The configuration tool is a GUI-based tool which allows configuring the demo1.properties file in a more comfortable way. To start the configuration tool you may choose the icon in the Windows program start menu folder

Wincor Nixdorf moPOS \
moPOS Demo1 \
configure BEETLE /moPOS Demo1

After calling the GUI of the configuration tool appears:



There are several settings that allow to configure the behavior of the demo program. The most important will be described here. When using the configuration tool usually describing texts will be shown as tool tip. Configuration parameters:

- **x offset, y offset, width, height :**
defines the position of the upper left corner of the demo1 main window
- **no visible frame:**
if set the main window will be shown without a frame
- **Windows Look & Feel:**
this ComboBox allows to define the so-called appearance of the main window

- **FontSize of Buttons:**
defines the height of the font as used in buttons of the demo program. This may be increased for better reading the text when using on the tablet
- **FontSize of message list box bottom:**
defines the height of the font as used in the message list box of the demo program. This may be increased for better reading the text when using on the tablet
- **Image Update:**
In case showing images has been selected in the demo1.properties this setting define the time how long an image shall be shown
- **Enable better GUI using:**
if set, some buttons will be disabled during operating dependent on current internal states. This helps to avoid wrong input in the demo program.
- **Enable message boxes on information:**
if set, information will be shown as message boxes which need to be accepted with an OK button. If not set the message is only shown in the message list box at the bottom of the demo program.
- **message box on foreign connection attempts:**
if set and if the tablet is connected to a POS Device HUB and if another tablet tries to connect to the same POS Device HUB a message box appears and allows the user to decide if the connection shall be allowed or not.
if not set, no message box appears and foreign connections are always disallowed.
- **activate moPOS AdminServer connection handler:** should always be set
- **activate moPOS UDM connection handler:** should always be set
- **disable DataEvent on undock tablet:**
if set, in case a tablet will be undocked at the POS Device HUB the demo will set DataEventEnabled of all participating Unified POS Devices which follow the Data Input Model to false. That is, those devices will not send further input to the demo.
if not set, in case a tablet will be undocked at the POS Device HUB. The demo does not change the DataEventEnabled property of such Uified POS devices.
- **Use Sign On:** should always be unset

The screenshot shows the 'Demo1 Configurator' window. It has a title bar with standard Windows window controls. The main content area is divided into several sections:

- moPOS Admin Server:** This section contains a checked checkbox 'Use AdminServer'. Below it, there are input fields for 'AdminServer : name' (containing 'POS Device HUB Master'), 'IP address' (containing '192.72.239.14'), and 'port' (containing '8025').
- NO USAGE OF moPOS Admin Server: Enter valid POS Device Hubs:** This section contains five rows of input fields for 'PDH #1' through 'PDH #5'. Each row has fields for 'name', 'IP address', and 'port'. PDH #1 has 'POS Device Hub 1', 'localhost', and '1131'. PDH #2 has 'POS Device Hub 2', '192.168.0.100', and '1131'. PDH #3, #4, and #5 have empty fields.
- Peripherals and Unified POS Device Manager:** This section contains a 'UDM connection timeout in ms' field with the value '10000'. Below this are several checked checkboxes: 'POSPrinter', 'Scanner1', 'Scanner2', 'LineDisplay', 'CashDrawer', 'POSPrinter: receipt shooting', 'POSPrinter: asynchronous printing', and 'LineDisplay: fast mode'.

- **Use Admin Server:**
If set, the BEETLE /moPOS Admin Server is used by the demo to handle the several POS Device HUB. Then also the name and the valid IP address have to be entered. If not set, the BEETLE /moPOS Admin Server is not used. All names and IP addresses of participating POS Device HUBs have to be named in the lists. The demo then allows supporting up to 5 POS Device HUB.
- **UDM connection timeout:**
This timeout specifies when connecting (claiming) the tablet to a POS Device HUB, how long the Unified POS Adapter Software should wait at most for an answer of the POS Device HUB before aborting the connection attempt.
- **POSPrinter, Scanner1, Scanner2, LineDisplay, CashDrawer:**
Depending on the peripheral set connected at the POS Device HUBs these switches need to be set.

4.5 Configuring POS Device HUB

This chapter describes how to configure the POS Device HUB.



By default, when the POS Device HUB is switched on in the booting phase

- It tries to get a valid TCP/IP address via DHCP via the LAN connection.
- It outputs the currently assigned IP address to a connected RS232 or USB line display BA63/66.
- **Please note: Booting the very first time it may take up to five minutes due to some extended initialization procedures.**

You may use this IP address to connect with a usual browser such as Firefox or Google Chrome to the Remote Administration WebGUI of the POS Device HUB.

Note: the default behavior of obtaining the IP address can also be changed in the so-called service menu which is described in chapter “7.1 LED Service Menu of POS Device HUB , page 38” below.

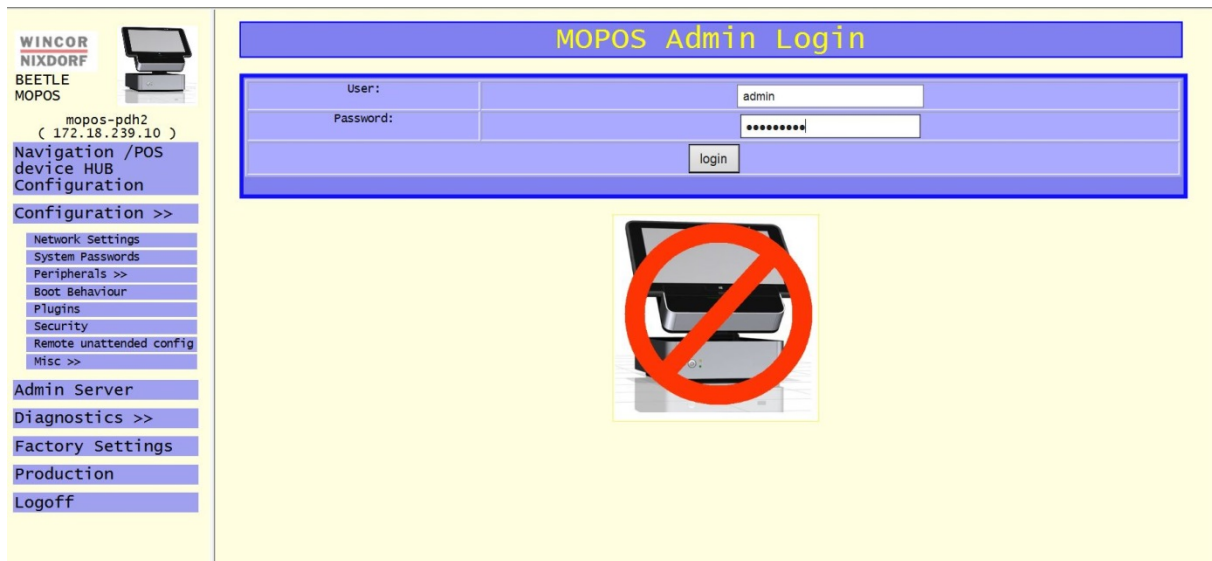
When starting the remote WebGUI just enter:

`https://<ip address of POS device HUB>`

to get a connection to the desired POS Device HUB. Please note that you need to use the **HTTPS** protocol. During the first access to the POS Device HUB you need usually to confirm the exchange of a certificate as sent by the POS Device HUB via HTTPS protocol.

4.5.1 Login WebGUI

After connection to the POS Device HUB you will obtain first the login dialog:



To login at the WebGUI you have to enter the user and the password. The default user is “admin” and the default password is “mopos1234”.

Important Note:

- It is strongly recommended to change the default passwords when using the POS Device HUB in an operational environment.

4.5.2 Start Up Screen of WebGUI

After that you come to the main page of the remote WebGUI:



You need to go through some dialogs to modify the settings to appropriate values. You need to do this for all POS Device HUB's you have in use. Mainly you have to set up the following items:

4.5.3 Configure network settings

It is recommended to use DHCP for assigning the IP address to the POS Device HUB. In the dialog "Network settings" you only need to set the "network host name" and the "network domain name".

Important note:

- Make sure that the network host name is unique in your network and is not used also on another POS Device HUB. This is essential for working with the BEETLE /moPOS. Additionally make sure that the "network domain name" is the same for all POS Device HUB's as used in the network environment.

After changing the network settings rebooting the POS Device HUB is necessary.

4.5.4 Setup peripheral devices

1. Setup the peripherals:

Peripherals such as printer, scanner, line display and cash drawer will be configured on each POS device by going into the sub dialog "**Peripheral Settings**".

The screenshot shows the 'Peripheral Settings' dialog box. The left sidebar contains a navigation menu with options like 'Navigation / POS device HUB Configuration', 'Configuration >>', 'Network Settings', 'System Passwords', 'Peripherals >>', 'Settings', 'Test', 'Boot Behaviour', 'Plugins', 'Security', 'Remote unattended config', 'Misc >>', 'Admin Server', 'Diagnostics >>', 'Factory Settings', 'Production', and 'Logoff'. The main area is titled 'Peripheral Settings' and contains the following sections:

- POS Printer:** Includes radio buttons for 'none', 'USB port', 'RS232: COM1', and 'RS232: COM2 (powered)'. It also has checkboxes for 'use JavaPOS plug-in' and a table for baud rate and parity settings.
- Line Display:** Includes a checkbox for 'use JavaPOS plug-in' and a field for 'open name (jposEntry):'.
- 1st Scanner:** Includes a checkbox for 'use JavaPOS plug-in' and a field for 'open name (jposEntry):'.
- 2nd Scanner:** Includes a checkbox for 'use JavaPOS plug-in' and a field for 'open name (jposEntry):'.
- 1st Cash Drawer:** Includes radio buttons for 'none', 'Port R312 at POS Device Hub', and 'connected at printer'.
- 2nd Cash Drawer:** Includes radio buttons for 'none', 'Port R312 at POS Device Hub', and 'connected at printer'.
- POS Keyboard:** Includes radio buttons for 'none', 'Wn keyboard at PS/2 at POS Device Hub', and 'Wn keyboard at USB'.
- MSR (Magnetic Stripe Reader):** Includes radio buttons for 'none' and 'Integrated in Wn keyboard'.
- MICR (Magnetic Ink Character Reader):** Includes radio buttons for 'none' and 'Integrated in printer'.
- Signature Capture:** Includes a checkbox for 'use JavaPOS plug-in' and a field for 'open name (jposEntry):'.
- PINPad:** Includes a checkbox for 'use JavaPOS plug-in' and a field for 'open name (jposEntry):'.

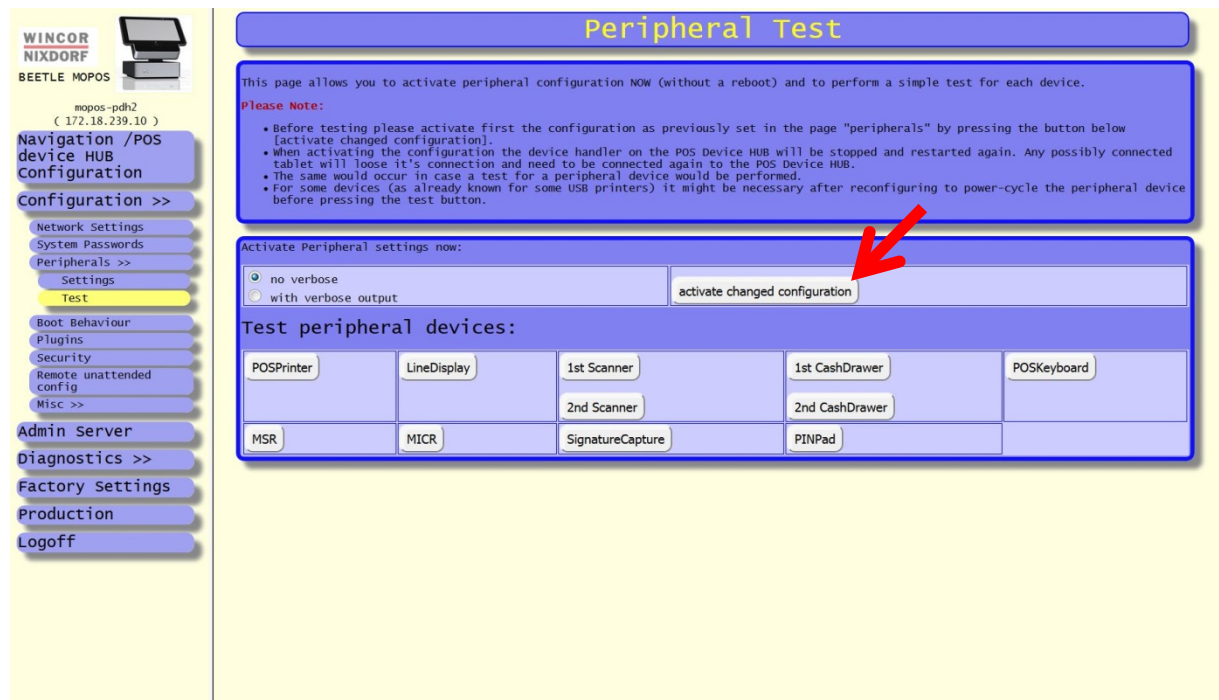
At the bottom of the dialog, there are 'reset' and 'change configuration' buttons.

Please setup the

- the connection type such as USB or RS232
- in case RS232 has been selected additionally the baud rate and the parity of the RS232 connection
- type of device

for each peripheral device. You may configure one POS printer, line display and cash drawer and two scanner devices (usually used when having both, a table top and a hand held scanner)

2. After setting the appropriate peripheral device you shortly check if the device works properly by using the sub menu **“Peripheral Test”**.



Press one time the button [activate changed configuration] and press for each device the appropriate button to test.

When pressing the button [Test POSPrinter] a short ticket is printed out. If not, check your configuration under **“Peripheral Settings”**:

When pressing the button [Test LineDisplay] a short text should be shown on the connected line display.

When pressing the button [Test 1st Scanner] and scanning an item with the scanner after performing the test the scanned bar code shall be shown in the WebGUI.

Additionally there is also a button [Test 2nd Scanner] which allows performing a test for a possibly connected second scanner.

When pressing the button [Test CashDrawer] the cash drawer will be opened and when closing it in time of at most 10 seconds the state changing of the cash drawer shall be shown in the Web GUI.

4.5.5 Enabling Admin Server on ONE POS Device HUB

On **one** designated POS Device HUB you need to activate and configure the BEETLE /moPOS /Admin Server in the sub dialog **“moPOS Admin Server”**.

Select for the item “Enable Admin Server Tool on this POS Device Hub” the state “ON” and press the “change settings” button:

Admin Server

Enable Admin Server Tool on this POS Device Hub: ☒ Off (admin server client only, server on another POS Device HUB) ☐ On ☐ disabled (no admin server at all)

BEETLE moPOS Admin Server Address in store: 172 18 239 10

reset change settings

all Tablets POS Device HUB's EFT's
Blacklist EFT assignments PDH claimed PDH docked

Tablet Devices

No	Name	IP address	ID	state
1 change	RU013	172.18.239.11	014B424240089100C2	
2 change	RU014	172.18.239.13	014B42424004540032	
3 change	W7-DEBLN0459	172.30.46.20	021F00000EF6971E01	
4 change	XW7-DEBLN0459y	172.30.46.13	014B42424004540032	
add				

POS device HUB's

No	Name	IP address	state
1 change	mopos-PDH1yyyyz	172.18.239.23	
2 change	mopos-pdh2	172.18.239.10	connected

On all other POS device HUB's you need to let the Admin Server disabled and enter the valid IP address of that POS Device HUB where the Admin Server is running. That is, select for the item "Enable Admin Server Tool on this POS Device Hub" the state "OFF" and press the "change settings" button.

After changing the appropriate settings you need to perform a reboot on each POS device HUB by pressing the button "[Reboot POS Device HUB NOW]" on the main page. After a while the POS device HUB has performed the reboot and is again back on the network. Usually this is the case when the LED bar at the front of the docking unit changes to color green.

At the POS Device HUB which is designated to have also the Admin Server running you need now to configure the Admin Server.

4.5.6 Configuring the Admin Server

For this, you have to go into the sub dialog "moPOS Admin Server" and add all tablets and POS Device HUBs you want to use in the table:

Admin Server

Enable Admin Server Tool on this POS Device Hub: ☐ Off (admin server client only, server on another POS Device HUB) ☒ On ☐ disabled (no admin server at all)

BEETLE moPOS Admin Server Address in store: 172 18 239 10

reset change settings

all Tablets POS Device HUB's EFT's
Blacklist EFT assignments PDH claimed PDH docked

Tablet Devices

No	Name	IP address	ID	state
1 change	RU013	172.18.239.11	014B424240089100C2	
2 change	RU014	172.18.239.13	014B42424004540032	
3 change	W7-DEBLN0459	172.30.46.20	021F00000EF6971E01	
4 change	XW7-DEBLN0459y	172.30.46.13	014B42424004540032	
add				

POS device HUB's

No	Name	IP address	state
1 change	mopos-PDH1yyyyz	172.18.239.23	
2 change	mopos-pdh2	172.18.239.10	connected

4.5.6.1 Adding a tablet

- Press the button [Tablets] to show only the list of available tablets.
- Press the button [start tablet ID learning mode] and dock into the POS Device HUB where the Admin Server is running a tablet. Then, press the [add] button to add a new tablet.
- Then you will see a new dialog showing the input form for adding tablets:

The dialog “Add Tablet entry” will appear and you may enter the fields “Name”, “IP Address” and “Tablet ID”:

- **Field “Name”:**
The hostname of the tablet as defined on the Windows OS of the tablet is to be entered. Usually you can get the name in the “Control Panel” of the operating system of the tablet.
- **Field “IP Address”:**
This is the IP address of the tablet which has been assigned by the network in the WiFi network as provided by the participating WiFi router. This is a four numbered entry where each number is separated by a “.”
Complete the network address in the field “IP Address” as assigned to the tablet. Usually the first three numbers of the IP address range are proposed in the field since those are usually the same for tablets and POS Device HUB’s since the same sub network is used.

To get the IP address of the tablet for Windows-based tablets you may proceed as follows:

start on the tablet the program **cmd.exe**: a small console will be shown and you may enter the command “**ipconfig**”. The tool will show the used IP Address of the tablet. This IP address is to be entered in the field “IP Address” of the dialog in the WebGUI

- **Field “Tablet ID”:**
This is the unique hardware ID of the desired tablet.
The field “Tablet ID” usually already contains the tablet ID of the currently

docked tablet in the POS Device HUB. The ID is read in by the Web GUI in case the “learning mode” has been activated.

- After completion of field contents press the [submit addition] button.
- Then you should see a new table entry as follows:

The screenshot shows the 'Admin Server' web interface. On the left is a navigation menu with options: Navigation /POS device HUB Configuration, Configuration >>, Admin Server, Diagnostics >>, Factory Settings, Production, and Logoff. The main content area has a header 'Admin Server' and a section for enabling the Admin Server Tool. Below this is a 'Tablet Devices' table with columns: No, Name, IP address, ID, and state. The table contains one entry with 'No' 1, 'Name' myTablet, 'IP address' 172.18.239.123, 'ID' 0148424240089100C2, and 'state' empty. Red arrows point to the 'Name', 'IP address', and 'ID' fields. There are also buttons for 'change', 'add', 'reset', and 'change settings'.

No	Name	IP address	ID	state
1	myTablet	172.18.239.123	0148424240089100C2	

Repeat the procedure for each participating tablet in your environment.

4.5.6.2 Adding a POS Device HUB

- The procedure is nearly the same as for tablets. However, here you have only to specify the two fields (no Tablet ID field):
 - **Field “IP Address “:**
This is the IP address of the POS Device HUB which has been assigned by the network via LAN cable. This is a four numbered entry where each number is separated by a “.”
You can obtain the network address of a POS Device HUB
- when having a line display BA63 or BA66 USB or COM connected to the desired POS Device HUB and rebooting the POS Device HUB. During boot the assigned IP Address is shown on the display.
- additionally in the WebGUI the IP Address is also shown.

The screenshot shows the 'BEETLE Mobile POS Configuration of POS device HUB' web interface. On the left is a navigation menu with options: Navigation /POS device HUB Configuration, Configuration >>, Admin Server, Diagnostics >>, Factory Settings, Production, and Logoff. The main content area has a header 'Welcome to BEETLE Mobile POS Configuration of POS device HUB' and a section for adding a new POS Device HUB. Below this is a table with columns: MOPOS PDH FIRMWARE VERSION, MOPOS PDH LOADER VERSION, DU FIRMWARE VERSION, and POS Device HUB. The table contains one entry with 'Name' pdh_operative, 'Version' 1.1-7, 'Long Version' 201511270921-3.0-1.1-7, 'Name' pdh_stage0, 'Version' 99-22, 'Long Version' 201510211317-3.0-99-22, 'Version' 1.1, 'HW_CTRL-ID' 1, 'HW_CONN-ID' 1, 'name: mopos-pdh2', 'IP address: 172.18.239.10', 'MAC: 00:01:2E:5C:58:77', 'CashDrawer: closed', 'Tablet: state:tablet docked ID:0148435050644004D'. There are also buttons for 'REBOOT POS Device HUB NOW!', 'SHUTDOWN POS Device HUB NOW!', and 'UNDock TABLET NOW!'.

MOPOS PDH FIRMWARE VERSION	MOPOS PDH LOADER VERSION	DU FIRMWARE VERSION	POS Device HUB:
Name: pdh_operative Version: 1.1-7 Long Version: 201511270921-3.0-1.1-7	Name: pdh_stage0 Version: 99-22 Long Version: 201510211317-3.0-99-22	Version: 1.1 HW_CTRL-ID: 1 HW_CONN-ID: 1	name: mopos-pdh2 IP address: 172.18.239.10 MAC: 00:01:2E:5C:58:77 CashDrawer: closed Tablet: state:tablet docked ID:0148435050644004D

- **Field “Name”:**
This is the hostname of the POS Device HUB.
The hostname can be obtained in the WebGUI of the desired POS Device HUB in the sub menu “Diagnostics / System”:
- After pressing the **[add]** Button a new entry for a POS Device HUB is added in the table of known POS Device HUB’s. The table of “POS device HUB’s” is extended by an additional row.
- Repeat the procedure for each participating POS device HUB in your environment.

After adding all POS Device HUB’s and tablets the BEETLE /moPOS /Admin Server configuration is completed.

5 JavaPOS Demo Application: Getting Started

The JavaPOS Demo Application may be installed additionally to show the working flow when using the POS Device HUB together with the tablet.

Please note: in case you want to use your own application you can omit reading this chapter.

The JavaPOS Demo Application provides a complete simple POS program allowing scanning barcodes displaying the items on the line display, printing the items on the receipt and opening a cash drawer at the end of a transaction.

The JavaPOS Demo software can be executed either with the UDM Default runtime engine which is based on OpenJDK 1.6. Alternatively, it can be executed with a JavaVM higher or equal version 6 from Oracle.

When using the demo software some settings need to be adapted after installation. The Demo applications should be installed in the directory

C:\Retail\Software\Demos

The configuration file “demo1.properties” for the Demo1 application is located in the subdirectory

“Demo1\wn\properties”.

5.1 Demo Application settings for experts

This section describes more in detail the content of the configuration file which handles different operational modes of the demonstration program.

The configuration file is named with the file **demo1.properties**. This file can be edited with a usual ASCII editor and contains typical lines containing `<name>=<value>` pairs. Please note the names and the values are case sensitive.

Lines starting with the sign “#” are comments and are only added for documentation.

The following configuration sections are important for your consideration:

- Application settings
- POS devices to be used with Demo1
- Remote usage with POS Device HUB
- POSPrinter settings

The main configuration keys of the property file demo1.properties which you may need to reconfigure are the following:

- **WindowWidth:**
This configuration parameter defines the width (in pixels) of the application window you wish to have. On the tablets, you have per default a resolution of 1920 x 1200. So you may want to use 1920.
- **WindowHeight**
This configuration parameter defines the height (in pixels) of the application window

you wish to have. On the tablets, you have per default a resolution of 1920 x 1200. So you may want to use 1200.

- **FontSize:**
Put here the desired font size used in the buttons and checkboxes. For a resolution of 1920 x 1200, we recommend at least a size of 30.
- **SignOn:**
Indicate here with yes/no if you wish to activate the login/logout mechanism for the demo application.
Please note that there is no verification of any sorts for authorized users: simply enter any identification credentials you like.
When using the Dummy Adminserver (see in later sections), we advise you to deactivate this login mechanism to ease the use of the application.

5.2 POS devices to be used with Demo1

The section “**# with/without JavaPOS device**” in the demo1.properties file indicates with yes/no which POS devices are connected on the POS Device HUB.

The section “**# OPOS/JavaPOS device service name**” indicates the open names of the JavaPOS device services (normally, you do not need to change anything here, if you had used the values from the demo1_moPOS.properties file. The values have been already set with the correct open names used in the moPOS context.

5.3 Remote usage with POS Device HUB

The demo1 application software has to connect to Unified POS Device Servers on one or more POS Device HUB's and to one Admin Server. In case the demo1 application shall be used without an Admin Server you may configure to use a Dummy Server implementation. In that case there is no central instance controlling the proper m:n assignments of POS Device HUBs and tablets.

5.3.1 Unified POS Device Manager Connection handler configuration

In the section “**Remote usage with POS Device HUB**” of the **demo1.properties**, you will find in the first part the UDM Connection Handler parameters which have the following configuration keys:

- **UDMConnectionHandler.activate:**
make sure that it is set to “yes”. The demo application allows a dialog for connecting to several POS device HUB's
- **UDMConnectionHandler.connect.timeout:**
indicate here the allowed timeout in milliseconds for the application when trying to connect to the POS Device HUB.
You can leave the value as it is to 10 000 ms (=10 seconds).
- **UDMConnectionHandler.connect.shouldNotify:**
indicate here with yes/no if a connection query event should be sent while attempting to connect to the POS Device HUB.
We strongly advise to leave this value to “yes”.

UDMConnectionHandler.servers:

put here the name, IP address and port of the POS Device HUBs, with the following format:

<POS Device HUB name>@<IP Address>:<Port number>

in a comma-separated list.

Example:

`UDMConnectionHandler.servers=POS Device HUB 1@172.18.238.18:1131, PDH 2@192.168.1.5:1131`

Note: the value is a comma-separated list of logical names (which are shown in the demo application) IP addresses and their ports. The port should be always 1131 which is the connection port of the Unified device Server at the POS Device HUB.

This entry is only valid if the parameter `AdminServerConnectionHandler.useDummy` is set to yes.

5.3.2 AdminServer Connection handler configuration

In the section “**Remote usage with POS Device HUB**” of the `demo1.properties`, you will find in the last part the AdminServer Connection Handler parameters which have the following configuration keys:

- **`AdminServerConnectionHandler.activate`:**
Make sure that it is set with “yes”. The demo application allows a dialog for connecting to several POS device HUB’s
- **`AdminServerConnectionHandler.useDummy`:**
indicate here with yes/no if the Dummy Admin Server implementation should be used. See below for more information about the Dummy Admin Server.
If this parameter is set to **yes** the parameter `AdminServerConnectionHandler.server` is to be set properly to the IP address of moPOS Admin Server.
If this parameter is set to **no** the parameter `AdminServerConnectionHandler.servers` (take care to not omit the “s” in the name *servers*) is to be set properly to a comma-separated list of several possible POS Device HUBs.

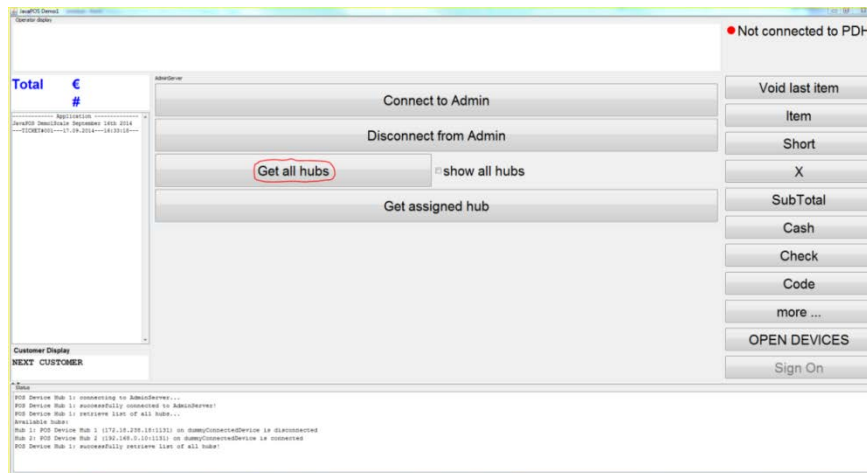
*Note: If you do **not** want to use the moPOS Admin Server, or if it is not correctly running, you need to set this parameter to “yes” to have a functioning demonstration application. In that case the parameter `UDMConnectionHandler.servers` need to be set properly.*

- **`AdminServerConnectionHandler.server`:**
put here the name and IP address or hostname of the Admin Server, with the following format:
`<POS Device HUB name>@<IP Address or hostname>:<port>`
Example:
`AdminServerConnectionHandler.server=POS Device HUB 1@localhost:8025`
If you use the dummy Admin Server implementation, the IP Address or the hostname are not relevant information, so you can leave the value as it is.
- **`AdminServerConnectionHandler.withNFCReader`:**
indicate here with yes/no if the NFC Reader should be activated.
Please note that in the current version of the Demo1 application (Version 1.1.0), the NFC Tag detection is implemented as dummy: The NFC reader can only detect the presence or absence of any NFC Tag and cannot differentiate if one differs to the other.

5.3.3 Dummy Admin Server implementation

As mentioned above, you may choose to activate the Dummy Admin Server implementation in the Demo1 application. The Dummy Admin Server will then do the following:

- Whenever an NFC Tag is presented on the tablet, it will always ask the user if he wants to connect to the first POS Device HUB configured under “UDMConnectionHandler.servers”.
- Whenever you ask the Admin Server to retrieve the list of all POS Device HUBs:



It will return the list of POS Device HUB’s retrieved from the configuration file demo1.properties under “UDMConnectionHandler.servers” and automatically jumps to the UDM POS Device HUB Usage panel. For odd server’s indexes (first, third, fifth, etc...) in the list, the Dummy Admin Server will mark these as **free** (=with DISCONNECTED status), while for even server’s indexes (second, fourth, sixth...), it will mark these as **claimed** (=with CONNECTED status).

Note: this is only for demonstration purpose and does not represent the real state of each individual POS device HUB.

5.4 The difference in using the moPOS Admin Server and a dummy Admin Server

The dummy admin server is only a feature for the Demo application when using just the Unified POS Interface of the POS Device HUB without usage of the moPOS Admin Server.

Usually when using a moPOS Admin Server which is running on **one** designated POS Device HUB the demo application will query the admin server via a defined interface which POS device HUB’s are really free and not already “claimed” by one connected tablet. Then the admin server responses to the demo application with a list of all HUB’s indicating which are free and which are already in use (or “claimed”) by another tablet. When not having a running Admin Server the list of all possible HUBs has to be named in the **demo1.properties** file in the parameter **UDMConnectionHandler.servers**.

When not having the Admin Server the automatic notification when docking a tablet into one POS Device HUB also does not occur. However, simultaneous connections from multiple tablets are then avoided alone by the Unified Device Manager of a POS Device HUB.

5.5 POSPrinter settings

Since the POSPrinter is not a local POSPrinter (physically connected on the tablet), but is physically connected on the POS Device HUB, you have to ensure that the used logo references the file on the POS Device HUB.

Please make sure that the configuration key “POSPrinterBitmap” is set with the value /opt/wn/javapos/images/wincornixdorflgo.gif (this should already be the case, if you are using the demo1_moPOS.properties).

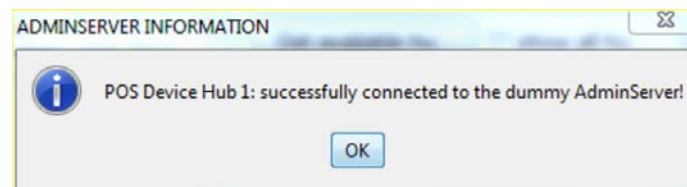
5.6 Operating the Demo1 application

Under Windows, you should see two created shortcuts for the Demo1 application. Please use the shortcut **“Wincor Nixdorf JavaPOS Demo1”** to launch the application.

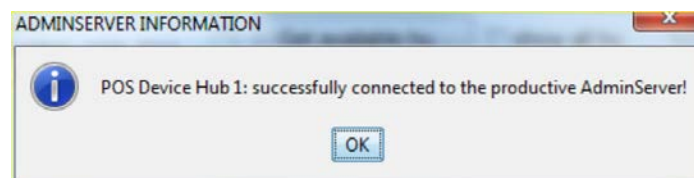
For manually start – using DOS command line - of the Demo1 open a cmd box and enter the following commands (note: don’t forget to pass the argument scale which is unfortunately in this version required):

```
cd C:\Retail\Software\Demos\demo1
rundemo1.bat scale
```

When the Demo1 application starts, it will automatically connect to the Admin Server (either the dummy one, or the “real” one), and you will see the following message box depending on which type you have configured:



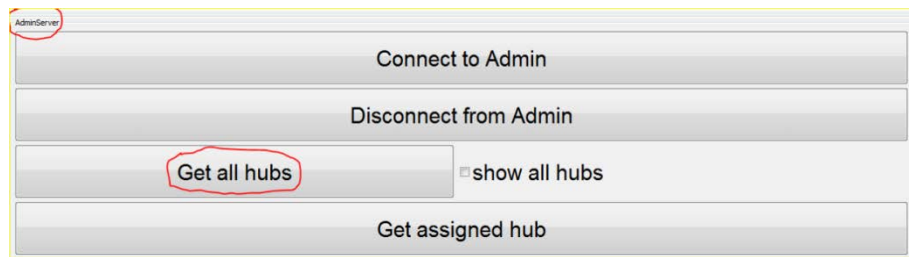
Or:



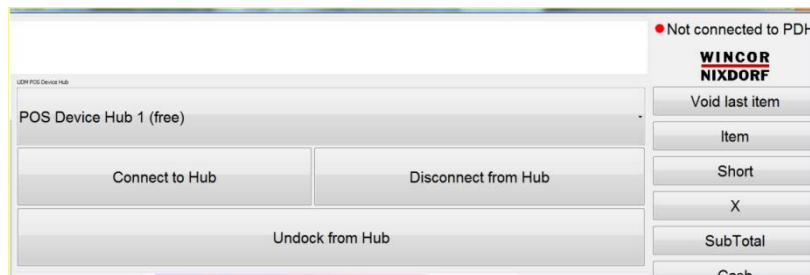
You can then click on the OK button to make the messagebox disappear.

5.6.1 Retrieving the list of POS Device HUBs

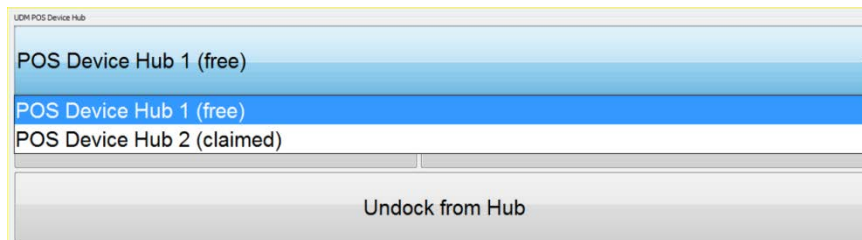
Click on the button “Get All HUBs” of the Admin Server Usage panel (you can see that this is the Admin Server usage panel on the upper left corner of the central component) to retrieve the list of POS Device HUB’s.



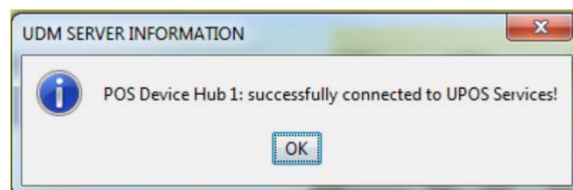
Afterwards, if the call is successful, the UDM POS Device HUB Usage panel will appear. On the top right corner of the application window, you can see that you are not connected to the PDH (=POS Device HUB).



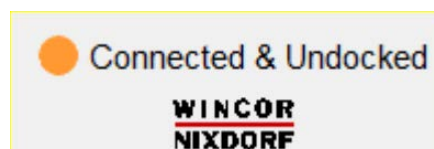
In the list box, you can select to which POS Device HUB you wish to connect:



Once you have selected it, click on the connect button: this will then connect to the POS device HUB and right after a successful connection, which you will see by the following message box:



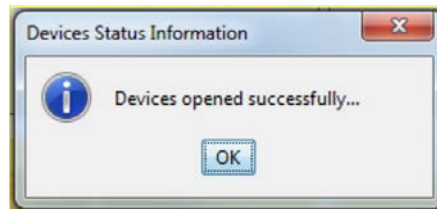
Please notice that on the upper right corner of the application window, you should now see:



After clicking OK on the message box, the POS devices on the POS device HUB will activate themselves and see on the Operator display window of the application, which POS device is currently being activated:



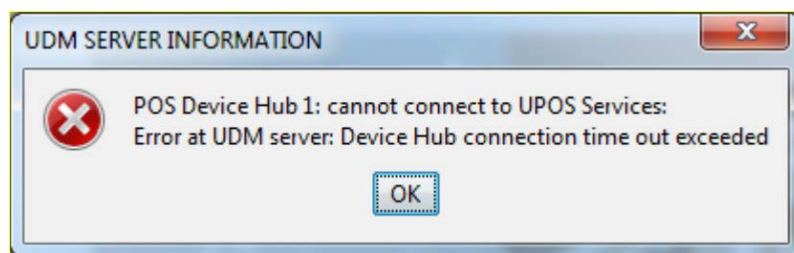
Once all POS devices are successfully activated, you will see the following message box:



Click OK to make the message box disappear, and you can then fully use the Demo1 application to demonstrate a check-out procedure, by scanning articles (if you have a scanner) or by selecting articles in the lists.



However, if you cannot connect to the desired POS Device HUB (for example, if it is already claimed by another application), you will see the following message box:



And no POS Devices will be activated.

5.6.2 Connecting to the first configured POS Device HUB by approaching an NFC tag

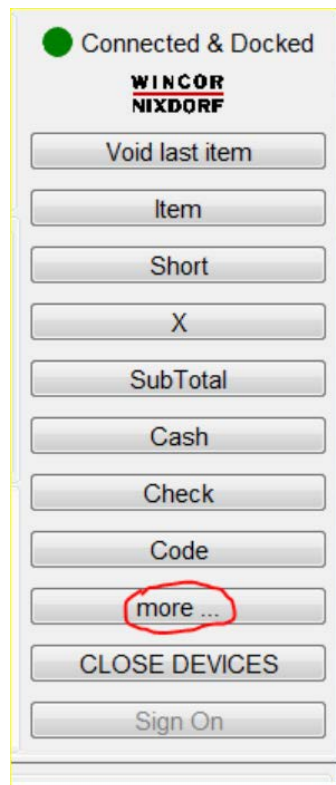
Approach an NFC tag to the back of the tablet and you will see a message box like this pop-up menu:



You can then connect to the mentioned POS Device HUB by clicking on the “Connect” button, or ignore this message.

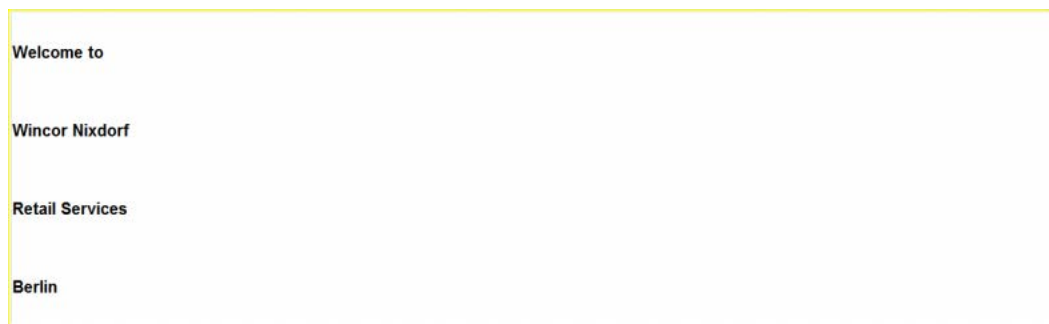
5.6.3 Available operations panels

To see the different operating panels, click on the “more...” button on the bottom right panel of the application:



This will iterate through the different available panels

1. Welcome panel:



2. Digits panel (to enter the article/item codes yourself):



3. Short-list article panel (where only the first 8 articles are listed):

Duplo	Knoppers
Lila Pause-Cocos	Maple Leaf
Vkorn Kekse	Zahnbürste
Mehrkornbrot	Franken-Thaler

4. Complete list of articles panel (which you can scroll and select):

UPC	ArticleName	Price	ShortCut
40084015	Duplo	0,15	1
40358802	Knoppers	0,40	2
76222351	Lila Pause-Cocos	0,40	3
87114621	Maple Leaf	0,13	4
4000264000804	Vkorn Kekse	1,05	5
4001478015721	Zahnbürste	1,79	6
4003796113080	Mehrkornbrot	1,89	7
4006952008114	Franken-Thaler	1,10	8

5. Admin Server panel:

AdminServer

Connect to Admin

Disconnect from Admin

Get available hubs ☒ filter available hubs

Get assigned hub

or here, when the checkbox is selected:

AdminServer

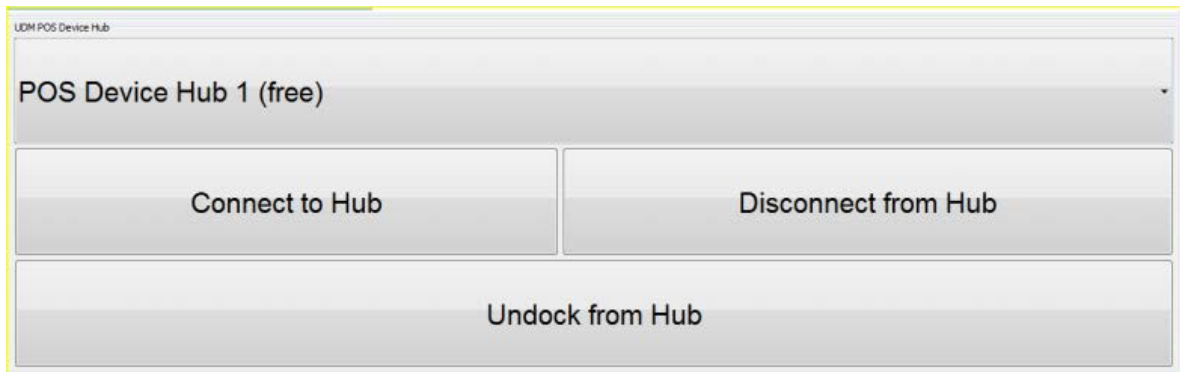
Connect to Admin

Disconnect from Admin

Get all hubs ☐ show all hubs

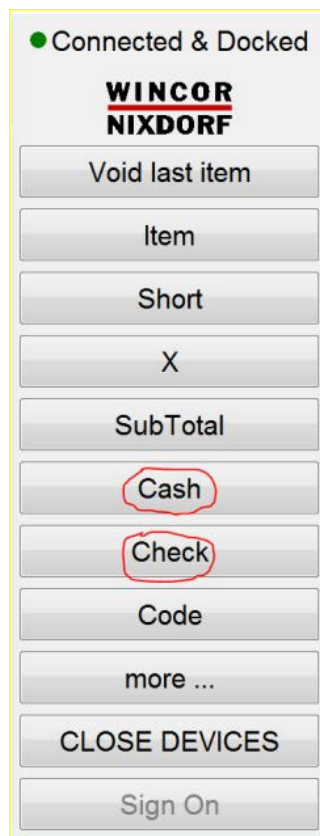
Get assigned hub

6. UDM Connection Handler panel:



5.6.4 End of transaction processing

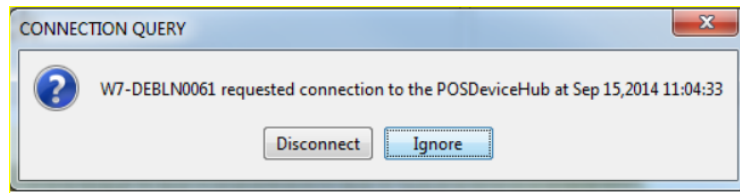
Once you have finished the transaction (after scanning articles/or entering them manually), you can end it either by pressing on the button "Cash" or "Check":



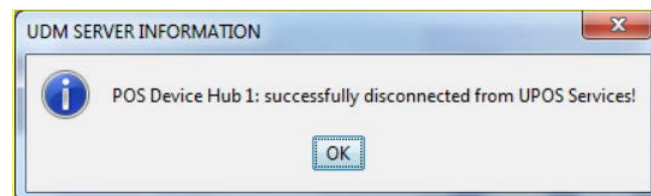
In both cases, the receipt is printed out and the cash drawer is opened. The end user has to close the cash drawer so that the next transaction can be performed.

5.6.5 Concurrent application access to the POS Device HUB

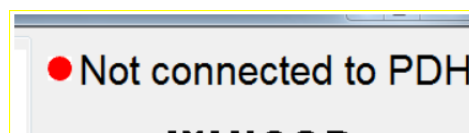
If tablet A is connected to a POS Device HUB and another tablet B wants to connect to the same POS Device HUB a message box may (in case it is configured in the demo1.properties configuration file) pop up to query the user if the current connection shall be closed:



In case the user presses the “Disconnect”- Button, tablet A will lose its connection to the POS Device HUB and all devices will lose their connection. On tablet A the message box



will be shown. Additionally, the shown connection state at the tablet A on the upper right corner will change to state “not connected”.



On tablet B, however, then the successful connection will be shown by a message box and the connection-state on the upper right corner. The re-activation of the devices from tablet B happens automatically, once you are connected to the POS Device HUB.

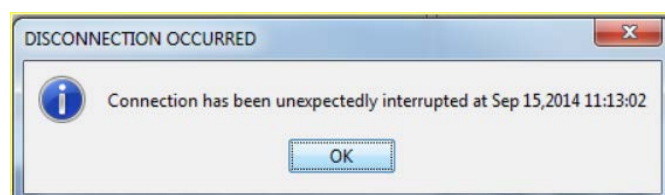
5.6.6 Reconnecting to the POS Device HUB

You can reconnect to any POS Device HUB, by proceeding like previously described in “Configuring POS Device HUB” or in “Installation and configuring the tablet”.

The re-activation of the devices happens automatically, once you are connected on the POS Device HUB.

5.6.7 Disconnection detection

If you are currently connected to the POS Device HUB and problems on the wireless network are detected, or if you are out of range of the Wireless Router, this will disconnect the application from the POS Device HUB, and you will then see the following message box:



Click on the OK button to make the message box disappear and you can then try again manually to reconnect to the desired POS Device HUB.

6 Programmers Guide for Application Providers

The Programmers Guide, the API description is provided in a separate document.

7 LED Service Menu during BOOT and operational LED States

Usually it is required to have a network connection with a browser interface to configure the POS Device HUB. However, this requires that a valid network configuration already exists. When booting the POS Device HUB for the first time it is configured to use the DHCP protocol for obtaining a valid TCP /IP network address. Of course, in configurations without a DHCP server it might be necessary to use static IP addresses.

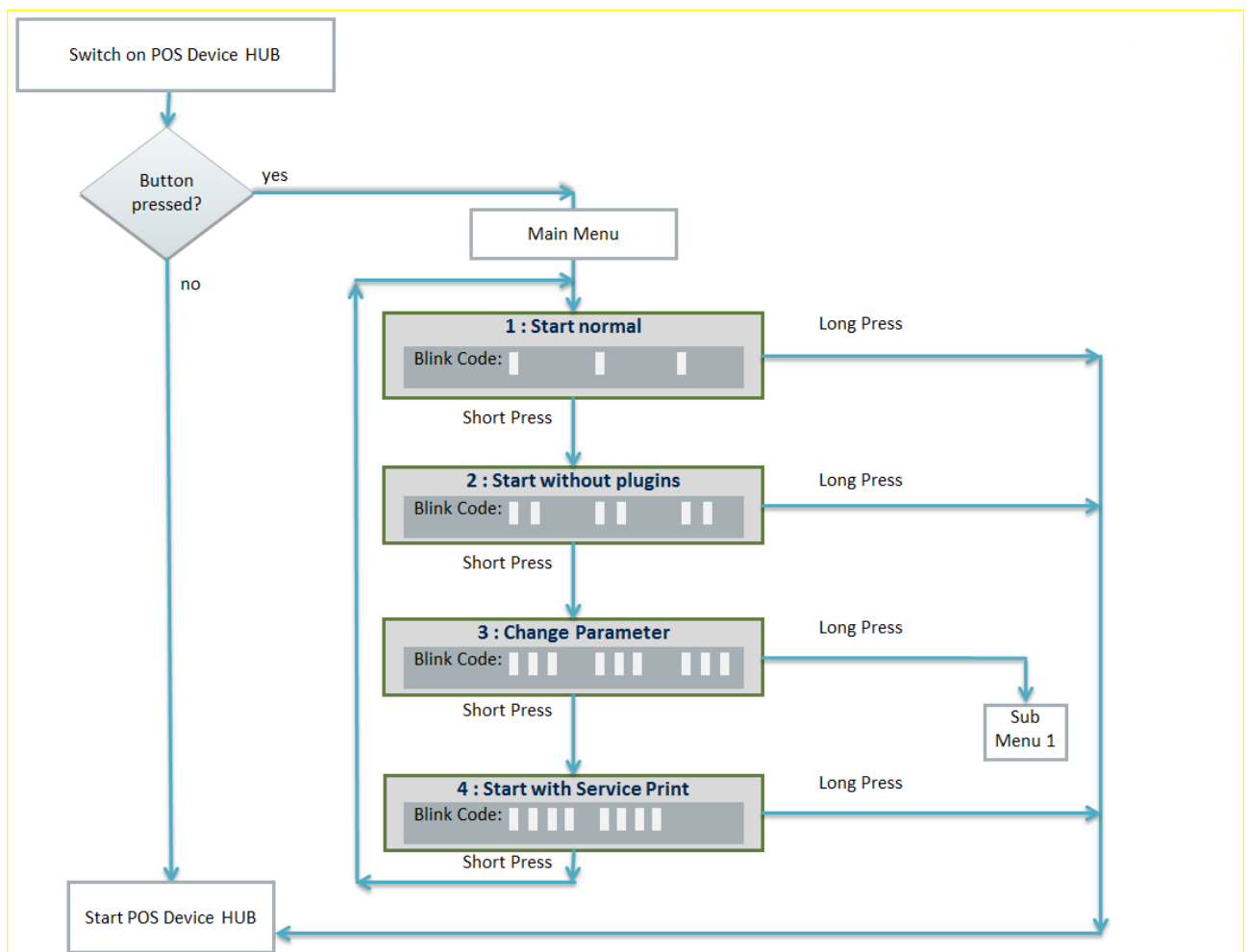
For such situations it is possible to configure the POS Device HUB with the so-called **Menu Button** at the rear back of the Docking Unit. When holding the Menu Button pressed during boot the POS Device HUB enters the LED Service Menu and indicates this by showing a blinking green state on the LED bar at the front of the POS device HUB. With the Menu Button you can navigate through the different menu items by pressing the Menu Button shortly.

7.1 LED Service Menu of POS Device HUB

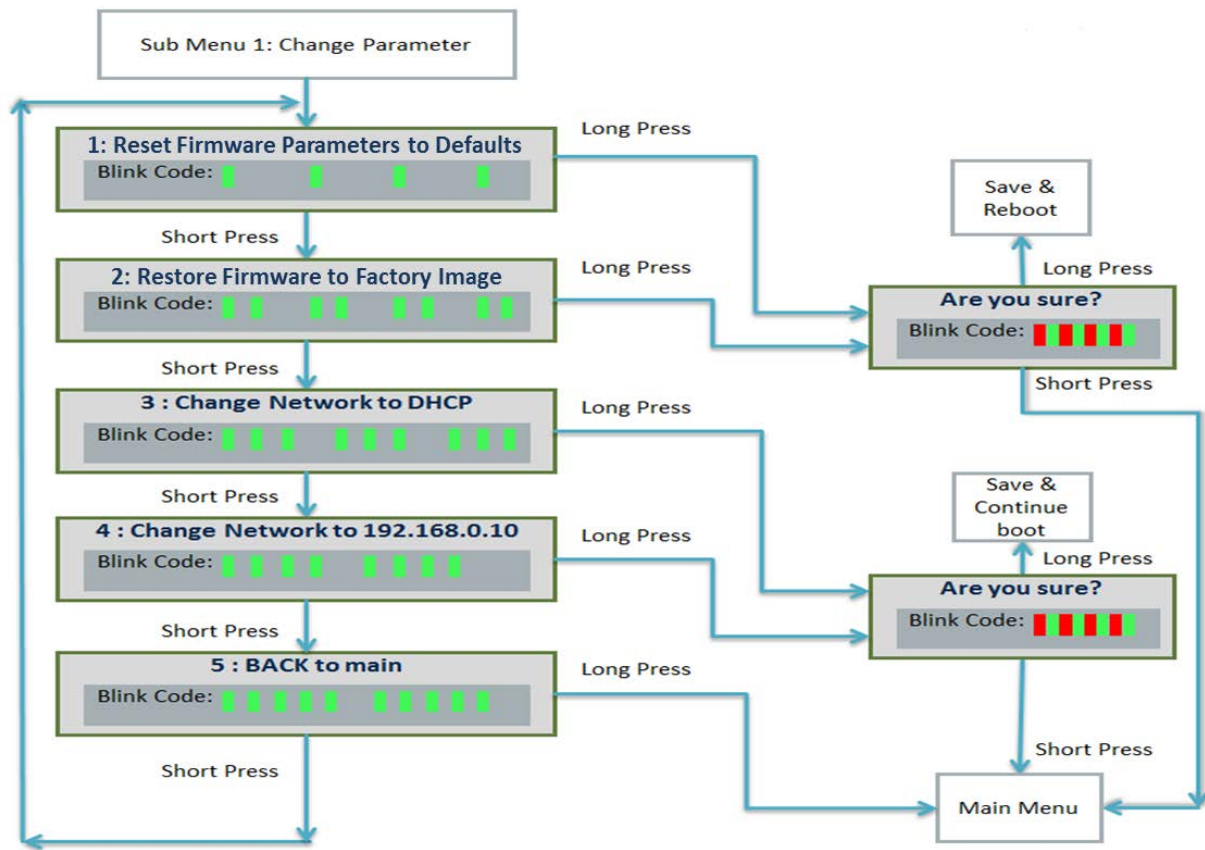
The POS Device HUB supports a so-called service menu when booting the system. That is, when switching on the POS Device HUB and pressing the button at the rear right side of the Docking Unit system does not start its operating system but remains in a so-called Service Menu.

In this Service Menu you can select several functions. You may navigate through several menu items via pressing the Menu Button shortly. When pressing the Menu Button longer than 2 seconds the menu item gets selected. The scheme below may show how to navigate through the different items.

7.1.1 Service Menu: Main menu



7.1.2 Service Menu: Sub Menu 1 - Change Parameter



7.1.3 Meaning of Service Menu selection items

Start Normal	When selecting this menu item the POS Device HUB starts as usual.
Start without plugins	<p>When selecting this menu item the POS Device HUB starts as usual – but without starting the additional customer plugins. This is very helpful in case a customer plugin has a fault behavior making the POS Device HUB not working properly. This may happen in case a plugin is consuming so many processor time that the whole system is working too slow for a reasonable usage. Then you may start the POS Device HUB without starting plugins and deactivate the fault plugin in the admin WebGUI.</p> <p>Note: the changes done by this menu are only valid for the current booting.</p>
Start with Service Print	<p>When selecting this menu item the POS Device HUB starts as usual but the option “Print Service Report on Printer during BOOT” is activated. In this case additionally during boot (and also future boot phases) the service report is printed on the configured receipt printer. You may disable again this option in the admin WebGUI of the POS Device HUB</p> <p>Note: the changes done by this menu item will be done permanently</p>
Change Parameter: Reset Firmware Parameters to Defaults	This menu item restores all configuration parameters which are changeable in the admin WebGUI to the defaults and starts the POS device HUB. Defaults are e.g.:

	<ul style="list-style-type: none"> • Usage of DHCP instead fixed IP address • Peripheral device selection as follows: printer is TH230+ USB, scanner is a usual hand held USB scanner, line display is a BA63 /USB and the cash drawer is disabled. • Passwords are reset to the delivery states. • Plugins are not removed but disabled. <p>Background: the parameters as stored in the wnlpos.conf will get set to their default values. Whereas possible parameters as used by an activated Admin Server will not be changed.</p> <p>Note:</p> <ul style="list-style-type: none"> • The changes performed by this menu item will be done permanently. • The devices as configured in the Admin Server persist this restore
Change Parameter: Restore Firmware to Factory Image	<p>This menu item restores the entire firmware back to the version as delivered from factory and restores all configuration parameters as described in the previous item. All user related data stored in the media/ or plugin/ directories will get destroyed.</p> <p>Unlike the other service menu items in this item the POS Device hub will be rebooted. Please note restoring the FW to factory defaults takes about 10 minutes before the POS device HUB is back and can be configured via the admin WebGUI.</p> <p>Note: the changes performed by this menu item will be done permanently.</p>
Change Parameter: Change Network to DHCP	<p>This menu item switches the network settings (permanently) to DHCP and starts the POS Device HUB. A connected USB or RS232 line display BA63 or BA66 will show during boot the currently assigned TCP/IP address. This address you need to use when configuring the POS DeviceHUB with the remote admin WebGUI with an HTML browser.</p> <p>Note: the changes done by this menu item will be done permanently.</p>
Change Parameter: Change Network to 192.168.0.10	<p>This menu item switches the network settings (permanently) to the fixed TCP/IP address 192.168.0.10 and starts the POS Device HUB. A connected USB or RS232 line display BA63 or BA66 will show during boot the currently assigned TCP/IP address. This address you need to use when configuring the POS DeviceHUB with the remote admin WebGUI with a web browser.</p> <p>Usually this menu item is required to be used when you are using static TCP/IP addresses instead of dynamic TCP/IP addresses as assigned by a DHCP server.</p> <p>In case your network infrastructure does not have a DHCP server:</p> <ol style="list-style-type: none"> 1. You need to create a one to one peer connection between a

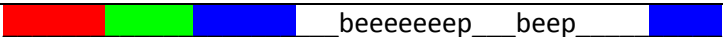
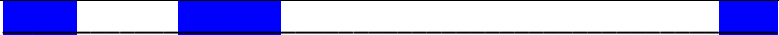
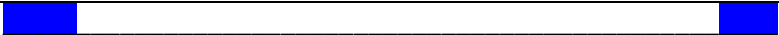
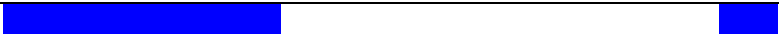

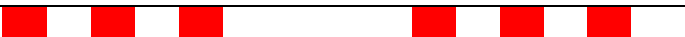


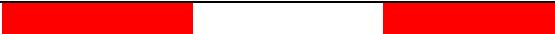
	<p>computer and the POS Device HUB with a network (patch) cable.</p> <ol style="list-style-type: none">2. Then you need to assign the desired IP address with the remote admin WebGUI.3. Then you can shut down the POS Device HUB, connect the POS Device HUB to your network infrastructure and switch on the POS Device HUB again. After booting the POS Device HUB will use the new assigned TCP/IP address as desired. <p>Note: the changes performed by this menu item will be done permanently.</p>
--	---

7.2 Operational LED States

The POS Device HUB has an additional LED bar showing always the current state of the HUB:



The defined codes consist of different colors and blinking codes phases with different durations:

#	State	Colours and blinking states
		0 1sec 2sec 3sec 4sec
1	Powered on ; after this code docking unit changes automatically to next state (DU self test)	
2	Standalone / idle (POS Device HUB start booting)	
3	Bootling phase 1	
4	Bootling phase 2	
5	Ready (booting finished), tablet not docked, not claimed and not present.	
6	Failure1 (the HUB is in an erroneous state)	
7	FW update in process	
8	Tablet docked or claimed and not present	
9	Tablet undocked & present & (claimed or not claimed) (this state is only an interims state in case tablet is not yet taken)	

8 Update of POS Device HUB firmware and other files

The POS Device HUB allows also downloading several types of files. Typically such files are

- **Firmware** update for the POS Device HUB, the Docking Unit and other peripheral devices such as printers and line displays via network
- Update of **configuration parameter files** allowing to configure the POS Device HUB not via WebGUI interactively but via distributing the configuration file remotely and unattended via network
- Update for **plugins** from POS application providers via network
- Update of **media** files such as pictures, bitmaps usable by the POS Device HUB operating system and/or POS application's plugins via network
- Update of **firmware** via USB stick

⇒ **Note for POSDeviceHUB-FW Release 1.0 (End-May 2015):**

- Update of configuration files is not yet part of the firmware

The Update can be performed with typical secure copy tools as available under Windows and/or Linux operating system. The data transfer of a firmware file is done via a LAN/WiFi TCP/IP connection. For security reasons the file transfer is encrypted.

In the following section the file update with the tool WINSCP is described.

8.1 Firmware Update from a Windows based host via network

Firmware update of the POS Device HUB, the Docking Unit and other peripheral devices can be performed with the tool WinSCP. This tool is an open source tool and available from

<http://winscp.net> .

Basically all firmware files can be updated with the same procedure. The corresponding firmware files are distinguished by their extensions and prefixes of the file names. During the boot phase of the POS Device HUB the operating system checks if there is any firmware file available and in case it is it will be updated to the appropriate device.

When updating of all firmware files has been done the firmware file on the POS Device HUB is deleted and the boot phase continues so that a reboot of a POS Device HUB does not again try to update the firmware. Also in case a firmware update had been started but failed, the file gets removed and the error output is reported into a log file. This log file can be obtained from the POS Device HUB with the same secure copy tools as been used for downloading the firmware.

The following firmware files are recognized by the POS Device HUB:

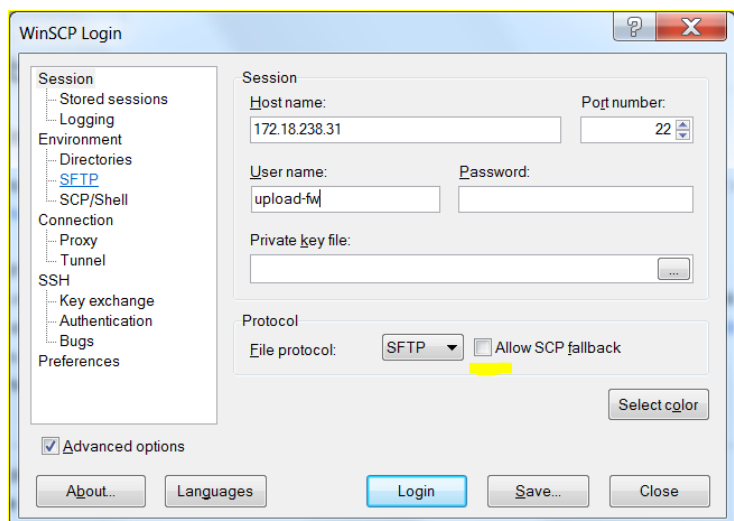
Device	Example of a name	Pattern for names	Remarks
POSDeviceHUB	mopos-fw-update-20150527-V0.9-57.img	moPOS-fw-update*.img	The number in the file name specifies the date of release in form YYYYMMDD
PDH Docking Station	MPDU1234.FRM	MPDU*.FRM	The number in the file name specifies the version of the firm-ware.
Printer TH230	TH230_1234.PUT TH230_1234.FRM TH230_1234.SST TH230_1234.LVF TH230_1234.FNT	TH230_*.PUT TH230_*.FRM TH230_*.SST TH230_*.LVF TH230_*.FNT	The four-digit number in the file name specifies the version. The files are several sub components of the firmware.
Printer TH230+	TH230_2_1234.PUT TH230_2_1234.FRM TH230_2_1234.SST TH230_2_1234.LVF TH230_1234.FNT	TH230_2_*.PUT TH230_2_*.FRM TH230_2_*.SST TH230_2_*.LVF TH230_*.FNT	The four-digit number in the file name specifies the version. The files are several sub components of the firmware.
Display BA63,BA66 USB	BA66_FRM_0204.dat	BA63_FRM_*.dat BA63_FRM_*.frm BA63_FRM_*.sst BA66_FRM_*.dat BA66_FRM_*.frm BA66_FRM_*.sst	The four-digit number in the file name specifies the version.

The steps to be performed are as follows:

- Download the firmware files with the tool WinSCP to the POS Device HUB
- Reboot the POS Device hub with the remote admin HTML WebGUI

When using the tool WinSCP make sure that

- the protocol SFTP is selected
- the user upload-fw is used



After pressing the Button „Login“ you need to enter the password which is by default *fw4mopos*.

Then change the current directory on POS Device HUB side to the directory “fw-update” and copy the firmware file (such as for example “*mopos-fw-update-20150601-V1.0-1.img*”) with drag and drop operation. After leaving the tool reboot the POS Device HUB with the remote admin WebGUI to start the automatic firmware update procedure during the next boot.

8.2 Firmware Update from a Linux based host

You may use the command line tool sftp as follows:

```
sftp upload-fw@current.ip.of.pdh
```

You will get asked to enter the current password, which by default is *fw4mopos*. Then change directory to fw-update/:

```
cd fw-update
```

and copy the new firmware file with the mput command:

```
mput /location/of/file/mopos-fw-update-20150601-V1.0-1.img
```

Then reboot with the remote admin WebGUI for updating the firmware.

8.3 Firmware Update via USB stick

The POS Device HUB additionally allows to update the Firmware from a USB stick.

You need to prepare a USB stick as follows:

- name the file system with "MOPOS-FW".
That is, use this name as label for the file system of the USB stick.
(note: all letters need to be in upper case)
- copy the firmware file of the POS Device HUB into the root directory on the USB stick. The firmware file has to have the extension ".img" (lower case characters)
- make sure that only one *.img file is in the root directory
- make sure that the USB Stick uses as file system VFAT (note: under Windows it is named FAT32)

Then you may plugin the USB stick into the POS Device HUB at the rear side in one of the USB ports and switch on the POS Device HUB.

The LED bar at the front of the POS Device HUB starts - after performing its initialization self test - blinking in color blue to indicate the booting phase:



In case a USB stick has been found and is prepared following the rules as described above, the POS Device HUB starts copying the firmware from the USB stick to the POS Device HUB into a temporary directory. During copy process the LED bar switches to red blinking to indicate the ongoing copy process:



After copying the complete FW file to the POS Device HUB the LED bar switches to blinking red/green:



It indicates the firmware file has been copied and USB stick is ready to be removed by the technician. If not removed, the POS Device HUB remains in this stage and waits until the stick has been removed. If removed, the firmware update process continues with the copied file from USB stick. This may need some minutes. The LED bar switches back to red blinking as above:



Now you may use the unplugged USB stick and plug in to the next POS Device HUB for updating its firmware.

After firmware update the POS device HUB performs a reboot.

Some notes:

- In case the stick has not been detected as a valid USB stick the stick will be ignored and after the booting phase the POS Device HUB will change either to permanent green color (to indicate a free POS Device HUB) or to permanent red color (to indicate a tablet has been docked)
- The copy process may take about one minute.
- the USB stick needs only to be plugged for copying the file but not for the firmware update itself.

9 Recommendations for configuration of WiFi routers

For connecting mobile devices and POS Device HUB's a market-usual WiFi router needs to be used. Some recommendations and prerequisites need to be fulfilled to have a working configuration.

The WiFi router is not a Wincor Nixdorf product. Usual WiFi routers from the market can be used as long as they meet the requirements and recommendation for communication with mobile tablets.

- The WiFi router shall use a strong encryption such as WPA/WPA2 with at least AES is used.
Even in context of PCI conform environments the weak encryption WEP is prohibited. PCI DSS version 2.0 specifies that WEP must not be used as a security control for wireless networks.
- Make sure a password with sufficient length is used for the WiFi connectivity.
- The WiFi router should use DHCP for assigning TCP/IP addresses to the tablet(s) and the POS device HUB(s). In case DHCP protocol is used make sure **that in the router a hard binding of TCP/IP addresses to the MAC address of devices is enabled**. That is, the device will get always the same IP address by the router during startup of network communication.
- For security reasons it is recommended to forbid routing ALL ports from the WiFi network to the LAN network. However, for usage of BEETLE /moPOS some ports are required to be routed:

Port	Meaning
80	http access (used also for WebSockets)
443	Allow Access of HTTPS WebGUI of POS Device HUB from tablet
1131	JavaPOS (UPOS) interface to the POS Device HUB
8025	Admin Server access

10 Using the WebGUI interface of the POS Device HUB

This chapter describes the possibility of changing administration settings of the POS Device HUB with the WebGUI interface as available in a browser.

To access the WebGUI interface use a typical browser and use as URL

<https://<ip-address>>

The IP address is the IP address of your POS Device HUB as assigned by your networking infrastructure.

Note:

typically the ip-address is displayed during boot on a line display BA63 or BA66 connected either via USB or via RS232 to the port COM2.

10.1 Login

After connection to the POS Device HUB you will obtain first the login dialog:



To login at the WebGUI you have to enter the user and the password. The default user is “admin” and the default password is “mopos1234”.

Please Note:

It is strongly recommended **to change the default password** when using the POS Device HUB in an operational environment to make sure that modifying the settings is only allowed to designated users.

10.2 Start up screen

After that you come to the main page of the remote WebGUI:



After login the startup screen is displayed. It contains the used software and firmware versions of the POS Device HUB:

- MOPOS PDH FIRMWARE VERSION ist the firmware version of the POS Device HUB
- MOPOS PDH LOADER VERSION ist the firmware version of the initial loader of the POS Device HUB
- DU FIRMWARE VERSION is the firmware version of the connected docking unit
- POS Device HUB: In this section some information about the POS device hub will be shown:
 - name: This is the network name of the POS Device HUB
 - IP address: this is the assigned TCP/IP adress either as configured or as assigned by a DHCP server in the network
 - MAC: this is the hardware MAC address of the network adapter
 - CashDrawer: in case a cash drawer is connected at the RJ-12 conector at the POS Device HUB the state is shown here
- Tablet: In case a table is docked the tablet ID and the current state is shown here

To modify the setting of the POS Device HUB you need to go through some dialogs selectable at the left side. Those are explained in the next chapters.

10.3 Network settings

WINCOR NIXDORF BEETLE MOPOS

mopos-pdh2
(172.18.239.10)

Navigation /POS device HUB Configuration

Configuration >>

- Network Settings
- System Passwords
- Peripherals >>
- Boot Behaviour
- Plugins
- Security
- Remote unattended config
- Misc >>

Admin Server

Diagnostics >>

Factory Settings

Production

Logoff

Network settings

DHCP: ☐ off ☒ On

IP address: 172 18 239 20

IP netmask: 255 255 255 0

IP gateway: 172 18 239 1

DNS Server 1: 192 168 0 254

DNS Server 2: 192 168 0 254

Network host name: mopos-pdh2

Network domain name: wincor-nixdorf.com

Network connection timeout settings:

TCP IP keep alive timeout (in seconds): 30

TCP IP number of probes : 4

TCP IP time intervall between two probes: 1

reset change settings

WINCOR NIXDORF BEETLE MOPOS

mopos-pdh2
(172.18.239.10)

Navigation /POS device HUB Configuration

Configuration >>

- Network Settings
- System Passwords
- Peripherals >>
- Boot Behaviour
- Plugins
- Security
- Remote unattended config
- Misc >>

Admin Server

Diagnostics >>

Factory Settings

Production

Logoff

Network settings

DHCP: ☐ off ☒ On

IP address: 172 18 239 20

IP netmask: 255 255 255 0

IP gateway: 172 18 239 1

DNS Server 1: 192 168 0 254

DNS Server 2: 192 168 0 254

Network host name: mopos-pdh2

Network domain name: wincor-nixdorf.com

Network connection timeout settings:

TCP IP keep alive timeout (in seconds): 30

TCP IP number of probes : 4

TCP IP time intervall between two probes: 1

reset change settings

In this dialog you are able to change the network settings.

IP address, IP netmask, IP gateway, DNS Server 1 and 2 are generated automatically, if the DHCP is activated. In the field "Network host name" you may assign a name of your choice. In the field "Network domain name" you should enter the domain name as used in your network infrastructure.

Additionally you may change the network connection timeout conditions. These settings determine the timeout after then the network lower layer shall message the error to upper layered software in case a network connection is interrupted. The field "keep alive timeout" is a timeout value (measured in seconds) the lower level network driver stack shall wait until it tries to reconnect to the other network device. The field "number of probes" defines how often an attempt of reconnecting shall be performed. The field "interval between two probes" defines the wait timeout between two probes in case a previous reconnection

attempt has been failed again (measured in seconds). So the total network timeout is calculated by:

$$<total\ timeout> = <keep\ alive\ timeout> + <number\ of\ probes> \times <interval>.$$

In case all probes of reconnecting have been failed after the total network timeout the lower level network driver stack messages an error to upper layer software and a disconnect situation has been occurred.

In case one reconnect attempt has been succeeded the connection is reestablished again and the firmware of the POS Device HUB continuous working without an error.

Usually the network connection timeout have a good presetting and do not need to be adjusted.

When doing all changes you have to confirm your changes, the button “change settings” needs to be clicked and the system must be rebooted.

10.4 System passwords

The screenshot shows the 'System Passwords' configuration page in the WINCOR NIXDORF BEETLE MOPOS webGUI. The left sidebar contains the following navigation links: Navigation / POS device HUB Configuration, Configuration >>, Network Settings, System Passwords (highlighted), Peripherals >>, Boot Behaviour, Plugins, Security, Remote unattended config, Misc >>, Admin Server, Diagnostics >>, Factory Settings, Production, and Logoff. The main content area is titled 'System Passwords' and contains five sections, each with a title, a 'password:' field, an 'enter password again:' field, and a 'change password' button.

System Passwords		
moPOS WebGUI password	password: [masked]	enter password again: [masked]
moPOS Firmware upload password	password: [masked]	enter password again: [masked]
moPOS Media upload password	password: [masked]	enter password again: [masked]
moPOS Plugins upload password	password: [masked]	enter password again: [masked]
moPOS Config Files upload password	password: [masked]	enter password again: [masked]

MoPOS webGUI password: Assign a password for the webGUI login.

The default password when delivering the BEETLE /moPOS / POS Device HUB or when restoring factory setting is *mopos1234*.

MoPOS Firmware upload password: Assign a password to perform firmware updates via SSH copy with the user *upload-fw*.

The default password when delivering the BEETLE /moPOS / POS Device HUB or when restoring factory setting is *fw4mopos*.

MoPOS Media upload password: Assign a password to upload media content (e.g. pictures) via SSH copy with the user *upload-media*.

The default password when delivering the BEETLE /moPOS / POS Device HUB or when restoring factory setting is *media4mopos*.

MoPOS Plugin upload password: Assign a password to install Plugins (e.g. apps) via SSH copy with the user *upload-plugins*.

The default password when delivering the BEETLE /moPOS / POS Device HUB or when restoring factory setting is *plugins4mopos*.

MoPOS Config Files upload password: Assign a password to upload new Config Files via SSH copy with the user *upload-config*.

The default password when delivering the BEETLE /moPOS / POS Device HUB or when restoring factory setting is *config4mopos*.

Note:

- For security reasons it is strongly recommended to assign to ALL these functions your own password after setting up the BEETLE /moPOS / POS Device HUB the first time.

After changing the settings the system needs to be rebooted.

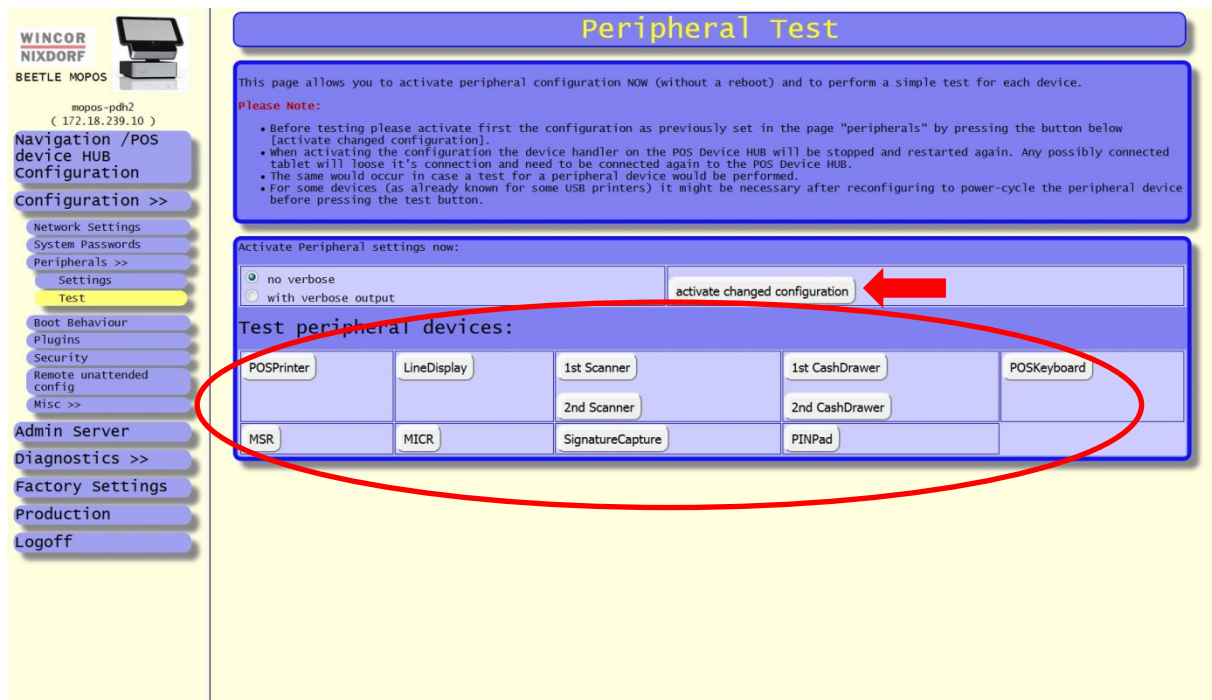
10.5 Peripheral – settings

By opening this dialog you may specify which peripheral types shall be connected to the POS Device HUB. Such peripherals can be devices like printers, line displays, up to two scanners and a cash drawer.

You need to choose, which kind of device you like to connect. On the left side are the possible connection ports (USB, RS232). If the additional device is connected by USB, the sections “Baudrate” and “Parity” are greyed out and you can chose which kind of “Device Type” you link to connect. In case RS232 is selected as communication line you need also to specify also the baud rate and the parity. The number of stop bits is set always to 1. Depending on the device type automatically CTS/RTS or another protocol is assigned.

To confirm your changes, the button “change settings” needs to be clicked. The settings are valid after rebooting the system.

10.6 Peripheral – testing



After specifying the peripheral devices in the previous dialog and connecting a device, you can test the new device if it's working properly. Therefore you first press the button "activate changed configuration" once. This allows making the settings already valid without performing the usually required reboot of the POS Device HUB. Afterwards you click one of the "test" buttons, depending on which kind of device you connected.

When pressing the button "Test POSPrinter" a short ticket is printed out. If not, check your configuration under "Peripherals- Settings":

When pressing the button "Test LineDisplay " a short text should be shown on the connected line display.

When pressing the button "Test 1st Scanner" and scanning an item with the scanner after performing the test the scanned bar code shall be shown in the WebGUI.

Additionally there is also a button "Test 2nd Scanner" which allows performing a test for a possibly connected second scanner.

When pressing the button "Test CashDrawer" the cash drawer will be opened and when closing it in time of at most 10 seconds the state changing of the cash drawer shall be shown in the Web GUI.

10.7 Boot behaviour

Boot Behaviour	
Show IP address on Line display during Boot	<input type="radio"/> off <input checked="" type="radio"/> On
Printer Service Receipt during Boot	<input checked="" type="radio"/> off <input type="radio"/> On
Start JavaPOS API Device Server UDM during BOOT	<input type="radio"/> off <input checked="" type="radio"/> On
Timeout of inactivity before disconnecting JavaPOS API Device Server UDM (measured in minutes)	20
In case UDM is enabled use just non-moPOS UDM Server Base (typically need to be switched to off)	<input checked="" type="radio"/> off <input type="radio"/> On
Start POS Device HUB with Graphical Interface	<input type="radio"/> off <input checked="" type="radio"/> On
Enable Plugin Usage	<input type="radio"/> off <input checked="" type="radio"/> On
<input type="button" value="reset"/> <input type="button" value="change settings"/>	

Show IP address on line display: during the system booting, the IP address is displayed on the line display, if you choose “on”

Printer Service Receipt: the printer prints during the system boot a receipt with several information's (e.g. the IP address), if you choose “on”

Start JavaPOS API Device Server UDM during boot: This is an option which defines if the Unified POS (UPOS) Interface of the POS Device HUB shall be activated. Per default this setting is switched on and Windows based tablets may connect to the POS Device HUB via the UPOS software layer.

In some applications the application may use an own written plugin to control the remote access to the POS peripherals and they do not want to use the Unified POS interface. In such a case this settings should be switched to “off” and the own plugin takes over the access.

Timeout of inactivity: The JavaPOS API Device Server UDM has a feature to automatically disconnect a tablet in case the tablet does not access the peripherals any more for a longer time. The time is to be specified in minutes. If time is set to zero no automatic disconnect feature is enabled.

Start POS Device HUB with Graphical Interface: The POS Device HUB also supports graphical display. Mainly three features are supported:

- a virtual Line Display with big letters on the graphical display with two lines and four 20 columns in case a separate hardware line display is not available,
- movie and picture playing on the graphical display (media files) and
- graphical output as done by customer plugins.

This setting need to be activated (switch to on) to start on the POS Device HUB also the graphical sub system.

Enable Plugin usage: This option allows activating generally the usage of own-written plugins on the POS Device HUB. How plugins are written and which prerequisites they will have is content of a separate document. Per default or when resetting the POS Device HUB to factory setting this feature is disabled.

To confirm your changes click the button “change settings”, but the system needs to be restarted to activate the modified settings.

10.8 Plugins

WINCOR NIXDORF BEETLE MOPOS

mopos-pdh2
(172.18.239.10)

Navigation / POS device HUB Configuration

Configuration >>

- Network Settings
- System Passwords
- Peripherals >>
- Settings
- Test
- Boot Behaviour
- Plugins**
- Security
- Remote unattended config
- Misc >>

Admin Server

Diagnostics >>

Factory Settings

Production

Logoff

Plugin Configuration

Enable Plugin Usage: ☐ off ☒ On

reset change settings

REBOOT POS Device HUB NOW!

#	Name	Version	type: c:console x:graphics j:javapos	Requires	Action
1	JavaPOS_Verifone	3.3.0.4	j		<input checked="" type="radio"/> activated <input type="radio"/> deactivated <input type="radio"/> remove plugin
2	MoPOSTestPlugin	0.1.0.2	c		<input checked="" type="radio"/> activated <input type="radio"/> deactivated <input type="radio"/> remove plugin

change settings

Enable Plugin usage: This option allows activating generally the usage of own-written plugins on the POS Device HUB. How plugins are written and which prerequisites they will have is content of a separate document. Per default or when resetting the POS Device HUB to factory setting this feature is disabled.

(Note : this switch is the same as in the previous dialog but has been added here for completeness of the dialog)

Plugins may be uploaded with a ssh copy with the user "upload-plugins" as ZIP or TAR file. More information can be found in a separate document handling the plugin usage.

In case a plugin has been uploaded and refreshing this page the plugin is shown. Please note after uploading the plugins the POS Device HUB needs to be restarted to start activated plugins. Therefore it is necessary to activate explicitly the plugin.

10.9 Security settings

Security Settings

Settings for peripherals using

POSPrinter	LINDisplay	Scanner	CashDrawer	POSKeyboard
<input checked="" type="checkbox"/> only if docked	<input type="checkbox"/> only if docked	<input checked="" type="checkbox"/> only if docked	<input type="checkbox"/> only if docked	<input type="checkbox"/> only if docked
<input type="checkbox"/> only if docked	<input type="checkbox"/> only if docked	<input checked="" type="checkbox"/> only if docked	<input type="checkbox"/> only if docked	<input type="checkbox"/> only if docked

Docking Unit

Dock Timeout in case Tablet will not be taken from open Docking Unit (measured in seconds): 30

Use Tablet ID from Docking Unit: ☐ No ☒ Yes

Use iButton ID: ☐ No iButton at all ☐ Use iButton in Docking Unit ☐ Test only: use any iButton in Docking Unit just for undocking tablet ☐ Use external USB iButton Reader ☒ Test only: use any iButton in external USB iButton Reader just for undocking tablet

Security Settings network_ports

Here you can configure the setting of the fire wall of your BEETLE / moPOS POS Device HUB. Some network ports are opened internally for usage with e.g. IDM, Admin Server and others. All other ports are closed and cannot be accessed from outside. In case you are using plugins which need additional network ports for communication you have to open those in this table.

NO	add	Protocol	Port Number
<input type="checkbox"/>	<input type="text"/>	<input type="radio"/> TCP <input type="radio"/> UDP	<input type="text"/>

Plugin Security

Allow peripherals to access USB and RS232 devices: ☐ No ☒ Yes

Allow JavaPOS plugins to use following additional serial RS232 ports via javax.comm (serial 2D implementation):

NOTE:

- The ports /dev/ttyS0, /dev/ttyS1, /dev/ttyACM0, -4 are already included
- Separate each entry with a double colon (:). Example: /dev/ttyS0:/dev/ttyS1

The dialog "security settings" allow to setup additional settings refereeing to some security issues.

10.9.1 Settings for peripherals using

Here you can define which peripherals are allows to be accessed also in case the tablet is not docked but only claimed (means connected with an application running on a tablet).

These settings are represented by the checkbox "only if docked" for each peripheral device category.

Press the button "change configuration" to make the changings valid.

10.9.2 Docking unit

This tab allows you to change some settings related to the docking unit:

- **Dock Timeout:**

The timeout time when a tablet will be redocked automatically again in case it has been undocked by the POS application and is not removed from the docking station by the user.

- **The usage of the Plugin Interface:**

the entry "Use New Plugin Interface Version 1.1" allows you to enable the new interface version for plugins. This interface is described in the document "*End Users Guide Software - Plugin Guide*", section "7. Getting information about a tablet and an iButton" and defines the interface for accessing the state of the docking unit, the tablet id, and others from inside a plugin.

Note: if not selected an internal "deprecated" interface is valid. Usually this setting has to be set to "yes" to use the new interface.

- **The usage of tablet ID:**

Set "use Tablet ID from Docking Unit" to make the POS Device HUB using the tablet ID of a docked tablet

- **The usage of iButton ID:**

Some POS Device HUBs may have also an iButton Reader assembled at the front as option. Alternatively an external USB iButton Reader is an option. In case the radio button "use iButton ID from Docking Unit" is set to "Yes" instead of using the tablet ID the iButton ID is used for identifying a tablet and/or a user-assign tablet. Later one may be a used in case iButtons are owned by users and are not assigned to individual tablets.

The selection "use iButton to undock tablet" is an additional setting for this configuration parameter and is mainly used only for demonstration purpose.

That is, if a tablet is docked you may undock the tablet by attaching any iButton to the iButton Reader on the front of the POS Device HUB.

10.9.3 Security settings network ports

Here you can configure the setting of the fire wall of your POS Device HUB. Some network ports are opened internally for usage with e.g. UDM, Admin Server and others. All other ports are closed and cannot be accessed from outside. In case you are using plugins which need additional network ports for communication you have to open those in this table.

10.10 Miscellaneous settings

- Power Button:

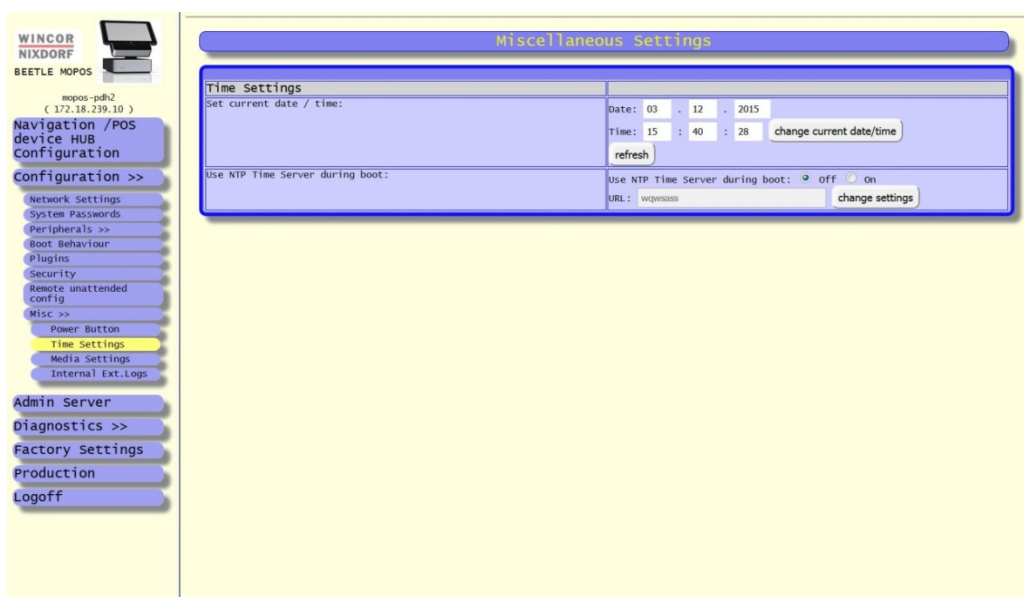
This setting allows you to define the reaction when pressing the power button. You may define a time how long the front power button on the POS Device HUB needs to be pressed before a shutdown resp. switch off the system will be performed.



- Time Setting:

There are two possibilities to set the time of the POS Device HUB. You may set the time manually by entering the values for date and time and pressing the button [change current date/time].

The other possibility is to use a separate NTP time server: set the feature "Use NTP Time Server during boot", add a valid URL of a time server in the text field and press the [change settings] button. During the next boot of the POS Device HUB the POS Device HUB tries to obtain a valid time from a time server.



- **Media Playing:**

In case the graphical sub system of the POS Device HUB is started you may choose these settings to allow video playing and picture showing in on an eventually connected display at the rear back.

- Movies need to be transferred as media files with a secure copy tool such as WinSCP (use the user *media-upload*). The process is the same as for firmware update.
- Movies may have the extension "mp4" , "mpeg" , "mov" , "avi"
- Pictures need to have the extension "bmp" , "jpg" , "png"
- The order of playing the files is as follow: first all pictures will be shown in alphabetical order then the movies will be played in alphabetical order.
- Please note: for media playing it is necessary to enable the graphical sub system of the POS Device HUB: you need to activate on the page "Configuration / Boot Behaviour" the setting *"Start POS Device HUB with Graphical Interface"*

Additionally you may choose **when** media playing shall be performed with the setting *"Select when to play pictures and/or movies"*. This can be done

- contineously (select *"Play always"*)
- or only in case no tablet is docked, or
- or only in case no tablet has access to the POS Device HUB ("claimed")
- or only in case no tablet is docked or has access to the POS Device HUB



10.11 BEETLE /moPOS Admin server

Admin Server

Enable Admin Server Tool on this POS Device Hub

☐ Off (Admin server client only, server on another POS Device Hub)
☒ On
☐ Disabled (no Admin server at all)

BEETLE moPOS Admin Server Address in store: 172.18.239.10

reset change settings

all Tablets POS Device HUB's EFT's
 Blacklist EFT assignments PDH claimed PDH docked

Tablet Devices

No	Name	IP address	ID	state
1 change	RU013	172.18.239.11	0148424240089100C2	
2 change	RU014	172.18.239.13	014842424004540032	
3 change	W7-DEBLN0459	172.30.46.20	011F000006F6971E01	
4 change	W7-DEBLN0459y	172.30.46.13	014842424004540032	
add				

POS device HUB's

No	Name	IP address	state
1 change	mopos-PDH1yyyyz	172.18.239.23	
2 change	mopos-pdh2	172.18.239.10	connected
3 change	xmopos-PDH1yyyyz	172.18.239.31	
add			

EFT devices

No	Name	IP address	state
add			

BLACKLIST tablets < -- > PDH's connections

No	POS Device HUB	Tablet
1 change	pos1	W7-DEBLN0459y
add blacklist entry		

LAN EFT devices assigned statically to POS Device HUB

No	POS Device HUB	LAN EFT Device
add EFT assignment		

POS Device HUB currently claimed(connected) with Tablet Devices

No	POS Device HUB	Tablet
----	----------------	--------

POS Device HUB currently docked.

No	POS Device HUB	Tablet
----	----------------	--------

Enable Admin Server Tool on this POS Device Hub:

Off	The Admin Server Tool is not running on this POS Device HUB but on another one. The IP Address of the other network device running the Admin Server has to be entered here.
On	The Admin Server Tool is running on this POS Device HUB handling this POS Device HUB and all other participating POS Device HUB's
Disabled.	No Admin Server Tool is used at all, only connection between tablets and POS Device HUB's are done via the UPOS interface and handling of multiple accesses to POS Device HUBS are handled by the application and the (extended) UPOS interface.

Start tablet ID learning mode: By clicking this button, the POS Device HUB switches into learning mode and allows reading the tablet ID of a currently docked tablet. This is useful when adding tablets into the table of valid tablets of the Admin Server. This function may be

used on the POS Device HUB running the Admin Server Tool when adding a tablet device in the table of known tablets of the Admin Server.

Blacklists: Certain tablets are not allowed to get a connection to a certain POS Device HUB.

Connections: You will see a list of tablets which are connected to the POS Device HUB.

Dockings: You will see a list of tablets which are docked in a docking station of a determined POS Device HUB.

10.12 Factory settings

The screenshot shows the 'Factory Settings' page of the Wincor Nixdorf Beetle moPOS web interface. The left sidebar contains navigation links: 'Navigation /POS device HUB Configuration', 'Configuration >>', 'Network Settings', 'System Passwords', 'Peripherals >>', 'Boot Behaviour', 'Plugins', 'Security', 'Remote unattended config', 'Misc >>', 'Power Button', 'Time Settings', 'Media Settings', 'Internal Ext.Logs', 'Admin Server', 'Diagnostics >>', 'Factory Settings' (highlighted), 'Production', and 'Logoff'. The main content area has a blue header 'Factory Settings' and a sub-header 'This page allows you to set the firmware parameters back or to set the POS Device HUB back to factory settings'. Below this, there are two buttons: 'reset the firmware parameter to default!' and 'reset the firmware to factory image!'. A note explains that the first button resets changeable parameters to defaults, while the second button resets the firmware to the factory image and reboots the PDH, removing all updates and plugins. The default firmware versions are listed in a table:

The default firmware versions are as follows:	
MOPOS PDH FIRMWARE VERSION	
Name	pdh_operative
ID	wnlpos3.0
Version	0.9-34
Long Version	201411280925-3.0-0.9-34
MOPOS PDH LOADER VERSION	
Name	pdh_stage0
ID	wnlpos3.0
Version	99-12
Long Version	201411271124-3.0-0.99-12
DU FIRMWARE VERSION	
FW MODSEG identification firmware: SMO05 141030 9908 MPDU____.FRM	

This page allows you to either

- reset all firmware parameters to its defaults
- or to restore the POS Device HUB to factory setting.

The latter one removes all firmware updates and parameter changing and all uploaded media files, plugins etc. So after pressing this button, the POS Device HUB is clean and has the state as delivered from factory.

10.13 Production

This page is not intended for end users but only for internal production. Please omit this page.

10.14 Logoff




If all changes and settings are done, you should log yourself out. Therefore you need to click on the logoff-button and this window should appear.

11 Diagnostics via WebGUI

There are some pages for service purposes. Here you can view some system information and settings of the POS Device HUB.

11.1 System diagnostics



mopos-pdh2
(172.18.239.10)

Navigation /POS device HUB Configuration

Configuration >>

Admin Server

Diagnostics >>

System

Service Report

Peripherals

Logfiles

Download Diagfile

licences documents and software

Factory Settings

Production

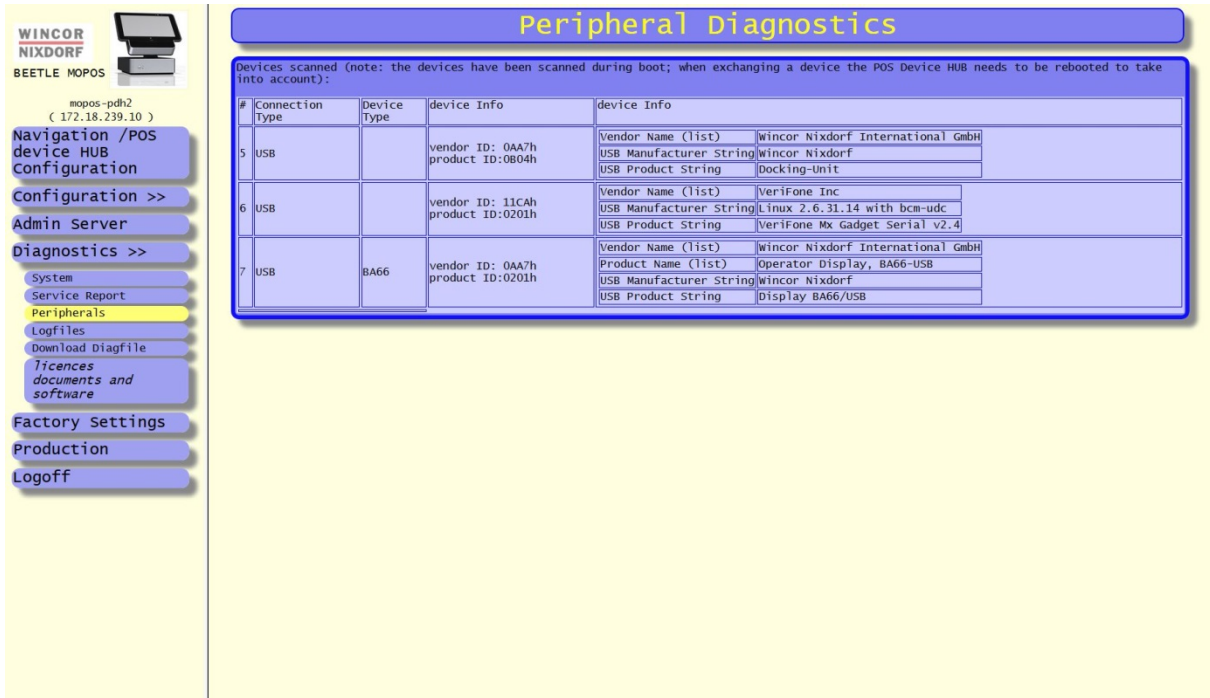
Logout

System Diagnostics

Network	IP address: 172.18.239.10 Netmask: 255.255.255.0 Gateway: 172.18.239.1 Hostname: mopos-pdh2 MAC address: 90:82:28:5C:58:77																																																																	
Current Tablet & Docking Unit information	Tablet ID: 0142435050064400AD Tablet serial#: BCS050064400AD iButton ID: LED state: tablet docked Charging State Tablet: 0 %																																																																	
System Up Time	6 days, 4:43																																																																	
load average last minute	last minute 2.0 % last 15 min. 0.0 %																																																																	
Current Date / Time	Thu Dec 3 15:53:50 CET 2015																																																																	
POSDevice HUB (PDH) & Docking Unit (DU)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> MOPOS PDH FIRMWARE VERSION Name: pdh_operative ID: wn1pos3.0 Version: 1.1-7 Long Version: 201511270921-3.0-1.1-7 </td> <td style="width: 50%;"> DU FIRMWARE VERSION Version: 1.1 Mc_CTRL-ID: 1 PCB Revision A Mc_CONN-ID: 1 PCB Revision A Electronic-key interface available: 1 Tablet-ID interface available: 1 Tablet-Lock available: 1 Charge-Enable available: 1 Buzzer: available: 1 LED 1 2 3 available: 1 1 1 FW MODSEG identification loader: SMOOS 140905 9901 MPDU.....SST FW MODSEG identification firmware: SMOOS 151106 0101 MPDU.....FBI </td> </tr> </table>			MOPOS PDH FIRMWARE VERSION Name: pdh_operative ID: wn1pos3.0 Version: 1.1-7 Long Version: 201511270921-3.0-1.1-7	DU FIRMWARE VERSION Version: 1.1 Mc_CTRL-ID: 1 PCB Revision A Mc_CONN-ID: 1 PCB Revision A Electronic-key interface available: 1 Tablet-ID interface available: 1 Tablet-Lock available: 1 Charge-Enable available: 1 Buzzer: available: 1 LED 1 2 3 available: 1 1 1 FW MODSEG identification loader: SMOOS 140905 9901 MPDU.....SST FW MODSEG identification firmware: SMOOS 151106 0101 MPDU.....FBI																																																													
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System information	BIOS Vendor: American Megatrends Inc. BIOS Version: WH STD 43/09 BIOS Release Version: 01/10/2014 Manufacturer of System: WNCOR NIXDORF Product Name of System: BEETLE Version of System: ###----- Serial # of System: ----- Manufacturer of Board: WNCOR NIXDORF Product Name of Board: J1.1-MQ10-MITX Version of Board: ----- Serial # of Board: ----- Processor Socket Designation: CPU 1 Processor Family: Other Processor Manufacturer: Intel Processor Signature: Intel(R) Atom(TM) CPU D2560 @ 2.00GHz Processor Version: 1998 MHz / 1998 MHz Processor Serial No: 2 / 1 Processor current/max speed: This is the BEETLE J1.1-MQ10-MITX Platform Number of cores / cores enabled: 1280x1024 BEETLE type: System Graphics:																																																																	
Memory Usage	Memory Total: 1018524 KB Memory Used: 1000464 KB Memory Free: 18060 KB																																																																	
Storage Usage	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Partition</th> <th>Total Blocks (1KB)</th> <th>Used Blocks (1KB)</th> <th>Available Blocks (1KB)</th> <th>Percentage used</th> <th>Mount Point</th> </tr> </thead> <tbody> <tr> <td>/dev/mapper/live-rw</td> <td>8256952</td> <td>1875104</td> <td>6297576</td> <td>23%</td> <td>/</td> </tr> <tr> <td>/tmpfs</td> <td>509260</td> <td>0</td> <td>509260</td> <td>0%</td> <td>/dev/shm</td> </tr> <tr> <td>/dev/sda1</td> <td>1007896</td> <td>142524</td> <td>814772</td> <td>15%</td> <td>/mnt/mopos-logging</td> </tr> <tr> <td>/dev/sda5</td> <td>126931</td> <td>5663</td> <td>114715</td> <td>5%</td> <td>/mnt/mopos-config</td> </tr> <tr> <td>/dev/sda6</td> <td>126927</td> <td>47730</td> <td>72644</td> <td>40%</td> <td>/mnt/mopos-db</td> </tr> <tr> <td>/dev/sda7</td> <td>1511892</td> <td>376428</td> <td>1058428</td> <td>27%</td> <td>/mnt/mopos-fw-update</td> </tr> <tr> <td>/dev/sda8</td> <td>9037860</td> <td>193424</td> <td>8385328</td> <td>3%</td> <td>/mnt/mopos-data</td> </tr> <tr> <td>/dev/sda1</td> <td>2093040</td> <td>636688</td> <td>1456352</td> <td>31%</td> <td>/mnt/mopos-start</td> </tr> </tbody> </table>			Partition	Total Blocks (1KB)	Used Blocks (1KB)	Available Blocks (1KB)	Percentage used	Mount Point	/dev/mapper/live-rw	8256952	1875104	6297576	23%	/	/tmpfs	509260	0	509260	0%	/dev/shm	/dev/sda1	1007896	142524	814772	15%	/mnt/mopos-logging	/dev/sda5	126931	5663	114715	5%	/mnt/mopos-config	/dev/sda6	126927	47730	72644	40%	/mnt/mopos-db	/dev/sda7	1511892	376428	1058428	27%	/mnt/mopos-fw-update	/dev/sda8	9037860	193424	8385328	3%	/mnt/mopos-data	/dev/sda1	2093040	636688	1456352	31%	/mnt/mopos-start									
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Storage MSATA Usage	Disk /dev/sda: 1946 cylinders, 255 heads, 63 sectors/track Units = sectors of 512 bytes, counting from 0 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Device</th> <th>Boot</th> <th>Start</th> <th>End</th> <th>#sectors</th> <th>Id</th> <th>System</th> </tr> </thead> <tbody> <tr> <td>/dev/sda1</td> <td>*</td> <td>2048</td> <td>4194351</td> <td>4194304</td> <td>b</td> <td>W95 FAT32</td> </tr> <tr> <td>/dev/sda2</td> <td></td> <td>4194352</td> <td>7268351</td> <td>3074000</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>/dev/sda3</td> <td></td> <td>7268352</td> <td>9316351</td> <td>2048000</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>/dev/sda4</td> <td></td> <td>9316352</td> <td>31277055</td> <td>21960704</td> <td>e</td> <td>955 Ext'd (LBA)</td> </tr> <tr> <td>/dev/sda5</td> <td></td> <td>9316353</td> <td>9578496</td> <td>262144</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>/dev/sda6</td> <td></td> <td>9578497</td> <td>9940640</td> <td>262143</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>/dev/sda7</td> <td></td> <td>9940642</td> <td>12912640</td> <td>3071999</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>/dev/sda8</td> <td></td> <td>12912642</td> <td>31277055</td> <td>18364414</td> <td>83</td> <td>Linux</td> </tr> </tbody> </table> Disk /dev/mapper/live-rw: 1044 cylinders, 255 heads, 63 sectors/track Disk /dev/mapper/live-osing-min: 1044 cylinders, 255 heads, 63 sectors/track			Device	Boot	Start	End	#sectors	Id	System	/dev/sda1	*	2048	4194351	4194304	b	W95 FAT32	/dev/sda2		4194352	7268351	3074000	83	Linux	/dev/sda3		7268352	9316351	2048000	83	Linux	/dev/sda4		9316352	31277055	21960704	e	955 Ext'd (LBA)	/dev/sda5		9316353	9578496	262144	83	Linux	/dev/sda6		9578497	9940640	262143	83	Linux	/dev/sda7		9940642	12912640	3071999	83	Linux	/dev/sda8		12912642	31277055	18364414	83	Linux
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refresh

11.3 Peripheral diagnostics



Peripheral Diagnostics

Devices scanned (note: the devices have been scanned during boot; when exchanging a device the POS Device HUB needs to be rebooted to take into account):

#	Connection Type	Device Type	device Info	device Info
5	USB		vendor ID: 0AA7h product ID: 0B04h	Vendor Name (list) Wincor Nixdorf International GmbH USB Manufacturer String Wincor Nixdorf USB Product String Docking-Unit
6	USB		vendor ID: 11CAh product ID: 0201h	Vendor Name (list) VeriFone Inc USB Manufacturer String Linux 2.6.31.14 with bcm-udc USB Product String VeriFone Mx Gadget Serial v2.4
7	USB	BA66	vendor ID: 0AA7h product ID: 0201h	Vendor Name (list) Wincor Nixdorf International GmbH Product Name (list) Operator Display, BA66-USB USB Manufacturer String Wincor Nixdorf USB Product String Display BA66/USB

This page shows the currently connected USB types and RS232 devices (partially) as far as detected. The scanning of peripheral devices will be done in the boot phase. If you connect a new device or disconnect another one you need to reboot the POS Device HUB to see the changings in the table.

11.4 Logfiles

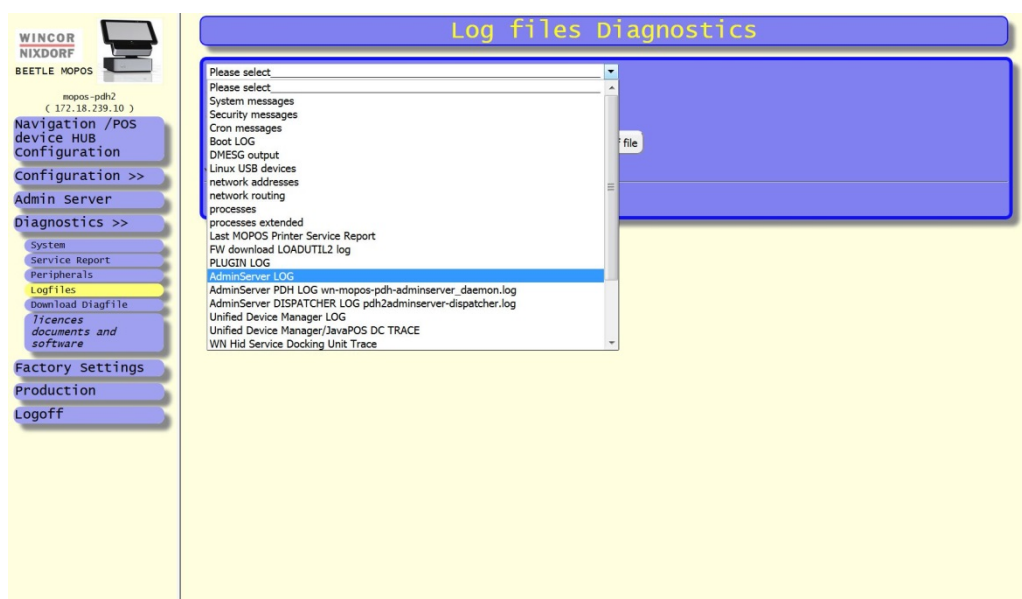


This page is mainly created for service purposes. In case of failure the reason for the failure is stored and the technician may find the failure easier.

Attention: This menu should only be used by system specialists with good knowledge of Linux.

This page allows you to get some system log information for several features in the embedded Linux OS of the POS Device HUB. Those log files can be shown by several settings:

- Select the type of log file in the choice box of the page:



- Press the button **[show log file]** to view a part of the log file starting at a line as entered in the text field "Offset of lines" and ending at the line as entered in the text field " Number of lines"
- Press the button **[show last lines of file]** to view the newest part of the log file. You may enter in the text field "show last lines" the number of last lines you want to view.
- Additionally, in case the text field "only lines with word" is not empty you may enter a string and only those lines with exactly matching this string will be shown.

And finally it is also possible to empty all current log files by pressing the button **[remove all log files]**.

Note:

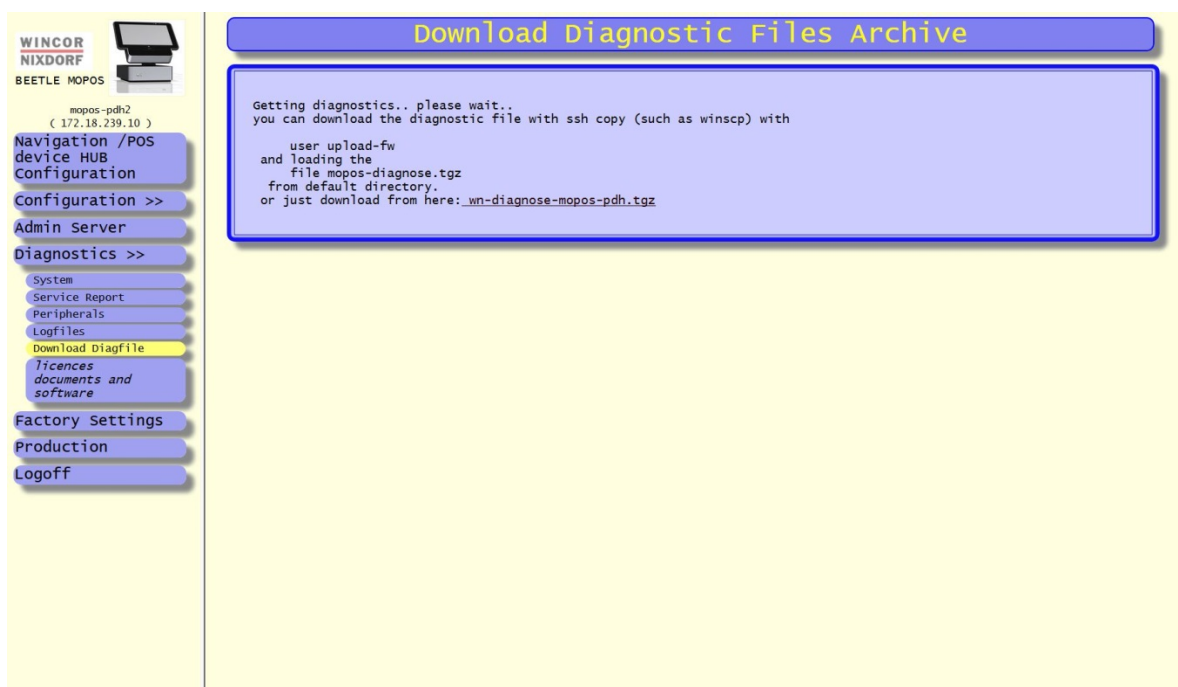
Log files will be truncated to an appropriate length during each reboot and once a day.

11.5 Download diagnostics files

This page may be used in case there is a problem reported to Wincor Nixdorf and it is required to get diagnostic data of the POS Device HUB.

When selecting the page "Download Diag file" the POS Device HUB will starts to collect all diagnostic data of the system and provides a download link for getting the compressed archive. it may take some seconds before the page appear because the collecting process need some time. After showing the page you may download the archive with the link as shown with " *or just download from here: [wn-diagnose-mopos-pdh.tgz](#)*"

This file needs to be sent to the requester at Wincor Nixdorf.



11.6 Licences documents and software

Here you can download from the POS Device HUB documentation and software for the Windows 8.1 tablet.

12 Plugin usage on POS device HUB

The POS Device HUB allows also POS application providers to write plugins for performing several functions. In case the Unified POS interface is not desired for peripheral access from a tablet application providers may write own plugins. Plugins may be written in

- Java :
Java plugins find an environment of a JavaVM (openjdk 1.7) and for peripheral access via JavaPOS
- Native Code Plugins:
Native code plugins need to be written as Linux programs running under CentOS 6 (kernel 2.6.32)

Plugins run as non-root user with restricted rights.

Plugins can be downloaded via SSH copy with user upload-plugin. Plugins need to be packages in a ZIP or a TGZ file following a defined format.

A more detailed description for plugin usage is not part of this documentation but a separate Documentation "BEETLE /moPOS / End User Guide Software - Plugin Guide"

13 Future enhancements for HTML5 based POS application

In the first step the POS Device just offers the Unified POS interface for existing POS application to allow migrating from Windows based traditional cash registers to the mobile world.

However, this interface cannot be used under tablets running Android and iOS operating systems. Additionally, in case POS applications are HTML5 based (even if running under Windows) a new HTML5 /JavaScript based interface is required to allow access to the peripheral devices as connected to the POS Device HUB.

This interface is currently under discussion and will define an interface for accessing peripheral devices such as POS printers, line display, scanners, cash drawers, fiscal printers and EFT devices for remote access from a tablet.

14 Appendix

14.1 Certifications



The device complies with the requirements of the EC directives 2004/108/EC with regard to “Electromagnetic compatibility” and, if applicable, 2006/95/EC “Low Voltage Directive” and RoHS directive 2011/65/EU.

Therefore, you will find the CE mark on the device or on it’s packaging.

14.2 Tested safety



In addition, the CINEO C1030 has received the UL symbol and cUL symbol.

14.3 FCC-Class A declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful inter-ference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications not authorized by the manufacturer may void users authority to operate this device. This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada.

14.4 Warranty

Wincor Nixdorf generally guarantees a warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all damages which occur despite a normal use of the product.

Damages because of

- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- inadequate location or surroundings

will not be covered by the warranty.

For further information on the stipulation consult your contract.

All parts of the product which are subject to wear and tear are not included in the warranty engagement. For detailed warranty arrangements please consult your contract documents.

14.5 Unpacking and checking the System

Unpack the system and verify that the scope of delivery is identical to the information on the delivery ticket.

Should you notice any

- transport damages or
- discrepancies between package contents and delivery ticket or
- functional defects,

please inform your contracting parties or the branch office of Wincor Nixdorf immediately. Please indicate the number of your delivery ticket and delivery ticket position and serial number of the respective device.

14.6 ESD (Electrostatic Sensitive Devices)



Assemblies containing electrostatic sensitive devices (ESD) may be labeled with this sticker.

When installing an assembly or drive, please follow the guidelines below, which apply to all electrostatic sensitive devices (ESD):

- Make sure you are not carrying a static charge before working with components marked as ESD by first touching a grounded object (such as a radiator from a hot water heating system).
- All tools and devices you use must be free from static charges.
- Always unplug the power cord before installing or removing any assemblies.
- Always handle assemblies by their edges.
- Never touch the terminal pins of the circuits on an assembly.

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Order No.: **01750280021A**