

FMD Tutorial

Table of contents

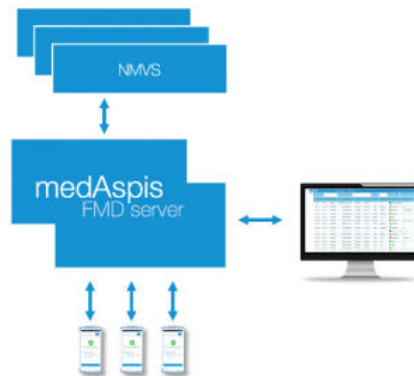
1	The System Design	3
1.1	Das Grunddesign des medAspis FMD Systems	3
2	The User Interface	4
2.1	The Speed Scanner	4
2.1.1	Das User Interface des Speed Scanners	4
2.2	The Control Panel	5
3	Setting up the System	6
3.1	Create an account	6
3.2	Log on to the system	6
3.2.1	Password complexity	7
3.3	Complete organisation	7
3.4	Setting up a Speed Scanner (server side)	8
3.5	Setting up a Speed Scanner (device)	9
3.6	Register at NMVS	9
3.6.1	Access to the Arvato system	10
3.6.2	Access to the Solidsoft system	11
3.6.3	Access to the securPharm system	11
3.7	User login to the Speed Scanner	12
3.8	First steps	14
4	The Speed Scanner	15
4.1	Working with the Speed Scanner	15
4.1.1	Available FMD Operations	16
4.2	Transfer the recorded code to the NMVS	16
4.2.1	Scan a 2D matrix code	16
4.2.2	Scan Accelerator	16
4.2.3	Processing of NMVS Response	16
4.2.4	Batch Control	17
4.3	Performing FMD Operations	17
4.3.1	Verify	17
4.3.2	Dispense	18
4.3.3	Double Dispense	18
4.3.4	Reactivate	19
4.3.5	Manual Entry	19
4.4	The Speed Scanners settings	20
5	The Scan History	21
5.1	Working with the Scan History	21
5.1.1	Sort data	21
5.1.2	Standard filters	21
5.1.3	General filters	22
5.1.4	Export data	22

5.1.5	Display of additional Information	23
5.2	Settings of the Scan History	23
5.2.1	Number of records displayed	23
5.2.2	Detailed information to a Scan	24
5.2.3	Visible Columns in the Scan History	24
6	Performing Grouping Operations	26
6.1	Groupings	26
6.1.1	Grouping on the Speed Scanner	26
6.1.2	Grouping on the Control Panel	27
6.1.3	View of a Single Grouping	27
6.2	FMD Operations on groupings	29
6.2.1	Perform FMD operations on groupings	29
6.2.2	Special features of bulk operation in the Arvato system	30
6.3	Working with Groupings	30
6.3.1	Status of a Grouping	30
6.4	Aggregation as a special form of grouping	31
6.4.1	Aggregation Code as primary key of any Grouping	31
6.4.2	Hierarchical structure of aggregates	31
6.4.3	Exporting aggregations	31
6.4.4	Aggregation codes on stickers	31
7	Attachment	32
7.1	Updating the Speed Scannner via F-Droid	32
7.1.1	Manual Software Updating	32
7.1.2	Automated Software Updating	34
7.2	Anlage: Icons	35
7.3	Attachment: XML format for importing pack data	36

1 The System Design

The medAspis system is essentially a server solution on which the functions of the FMD examination run. The data is delivered to the system with Speed Scanners.

The Speed Scanners are Android handheld devices that are connected to the Internet via WLAN or mobile data. The handheld devices communicate with the server via this channel. To ensure data security, communications between the devices and the server are encrypted. The HTTPS protocol is used for this purpose. To further ensure security, customers will be given ports and URL upon request to configure the respective firewall.



1.1 Das Grunddesign des medAspis FMD Systems

As many handheld devices as required can be connected to the server. Communication between the devices is not necessary. Each device always communicates directly with the server.

The server is connected to the respective NMVS. Depending on the NMVS technology, different protocols are supported.

With the Control Panel, a portal is available to monitor and control the system.

2 The User Interface

The medAspis system uses mobile handheld scanners to scan medicine packs on site. The device is called Speed Scanner. The scan results can be reviewed and further processed via the Control Panel web portal. The system can be booked in different expansion stages. The full expansion stage is described here.

2.1 The Speed Scanner

The Speed Scanner is a commercially available Android smart device with a scanner unit. The application described here runs on this unit. This application can be updated via the F-Droid application. This update can be done automatically or manually.

2.1.1 Das User Interface des Speed Scanners

The user interface is divided into different fixed areas.

2.1.1.1 In the middle of the screen:

The captured information of the last scan together with a timestamp is centrally located. Above this you will find the result of the check by the responsible NMVS. A symbol indicates whether the result was positive (green tick) or negative (red cross). The Solidsoft system issues a warning with a yellow icon. Other warnings – for example after scanning a barcode with the wrong format – come with a blue symbol. A list of all the symbols is to be found in the attachment.

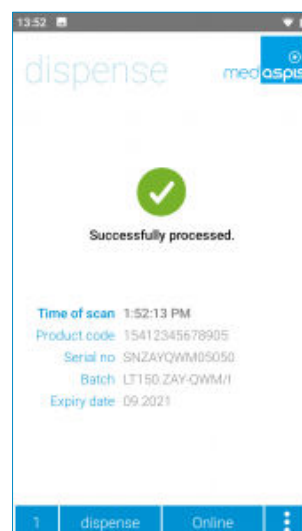
2.1.1.2 The lower control line:

On the left, in the lower corner, is a counter. This counter counts all scanned packs but ignores duplicate scans of the same pack. Clicking on the number resets it to zero.

To the right of the counter is the FMD menu. With this menu, the FMD operation can be selected. The last FMD operation selected remains until a new operation is selected. For better usability, the designation of the selected FMD operation is displayed repeatedly in the upper left-hand corner

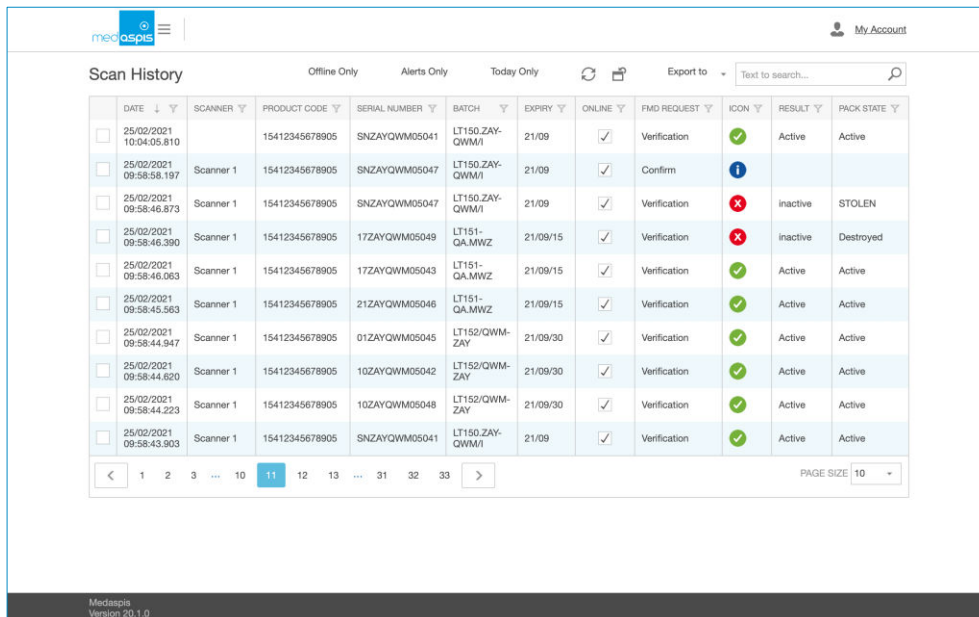
The half-right display shows whether the unit is currently connected to the medAspis FMD system via the Internet.

The three dots to the far right of it call up the settings for the application.



2.2 The Control Panel

The Control Panel is a web portal and is accessed via the address <https://panel.medaspis.org>. The Control Panel has a menu on the left side. By clicking on the three bars next to the medAspis logo, the menu can be folded away to make better use of the space on the screen. The Scan History is always displayed as the start screen. Other items in the menu are the scan archive and grouping (optional). The settings concern the organisation, the Speed Scanners used, access to the NMVS and a user administration for the Speed Scanners.



DATE	SCANNER	PRODUCT CODE	SERIAL NUMBER	BATCH	EXPIRY	ONLINE	FMD REQUEST	ICON	RESULT	PACK STATE
25/02/2021 10:04:05.810		15412345678905	SNZAYQWM05041	LT150.ZAY-QWMI	21/09	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:58.197	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWMI	21/09	<input checked="" type="checkbox"/>	Confirm			
25/02/2021 09:58:46.873	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWMI	21/09	<input checked="" type="checkbox"/>	Verification		inactive	STOLEN
25/02/2021 09:58:46.390	Scanner 1	15412345678905	17ZAYQWM05049	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification		inactive	Destroyed
25/02/2021 09:58:46.063	Scanner 1	15412345678905	17ZAYQWM05043	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:45.563	Scanner 1	15412345678905	21ZAYQWM05046	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:44.947	Scanner 1	15412345678905	01ZAYQWM05045	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:44.620	Scanner 1	15412345678905	10ZAYQWM05042	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:44.223	Scanner 1	15412345678905	10ZAYQWM05048	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification		Active	Active
25/02/2021 09:58:43.903	Scanner 1	15412345678905	SNZAYQWM05041	LT150.ZAY-QWMI	21/09	<input checked="" type="checkbox"/>	Verification		Active	Active

Medaspis Version 20.1.0

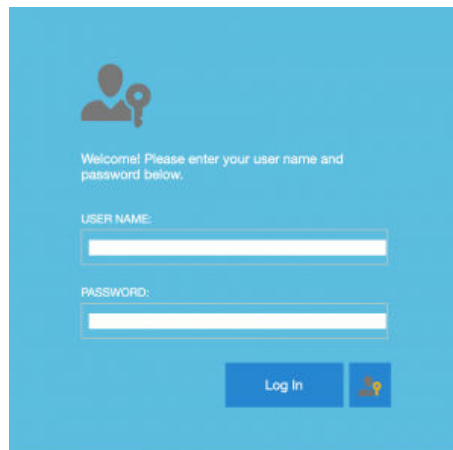
3 Setting up the System

3.1 Create an account

In principle, customers can register with medAspis themselves and manage their details.

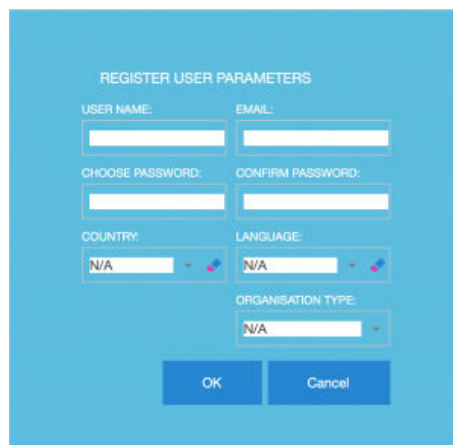
3.2 Log on to the system

The medAspis system can be reached at <https://panel.medaspis.org>. A login field appears. In the lower right corner of the blue login field, click the button with the figure and the key.



The screenshot shows a login interface with a blue background. At the top, there is an icon of a person with a key. Below it, the text reads: "Welcome! Please enter your user name and password below." There are two input fields: "USER NAME:" and "PASSWORD:". At the bottom right, there is a blue button labeled "Log In" and a small icon of a person with a key.

Another window with registration requests opens.



The screenshot shows a registration form titled "REGISTER USER PARAMETERS" on a blue background. It contains several input fields: "USER NAME:", "EMAIL:", "CHOOSE PASSWORD:", "CONFIRM PASSWORD:", "COUNTRY:", "LANGUAGE:", and "ORGANISATION TYPE:". The "COUNTRY:", "LANGUAGE:", and "ORGANISATION TYPE:" fields are dropdown menus, each currently showing "N/A". At the bottom, there are two buttons: "OK" and "Cancel".

The parameters requested for the registration process are:

- USER NAME: Future access under this name
- CHOOSE PASSWORD: Future password with high complexity
- COUNTRY: According to this country specification, the competent NMVO is selected
- EMAIL: Additional information on registration
- LANGUAGE: Language used in Speed Scanner and Control Panel
- ORGANISATION TYPE: Wholesale or pharmacy for system control

3.2.1 Password complexity

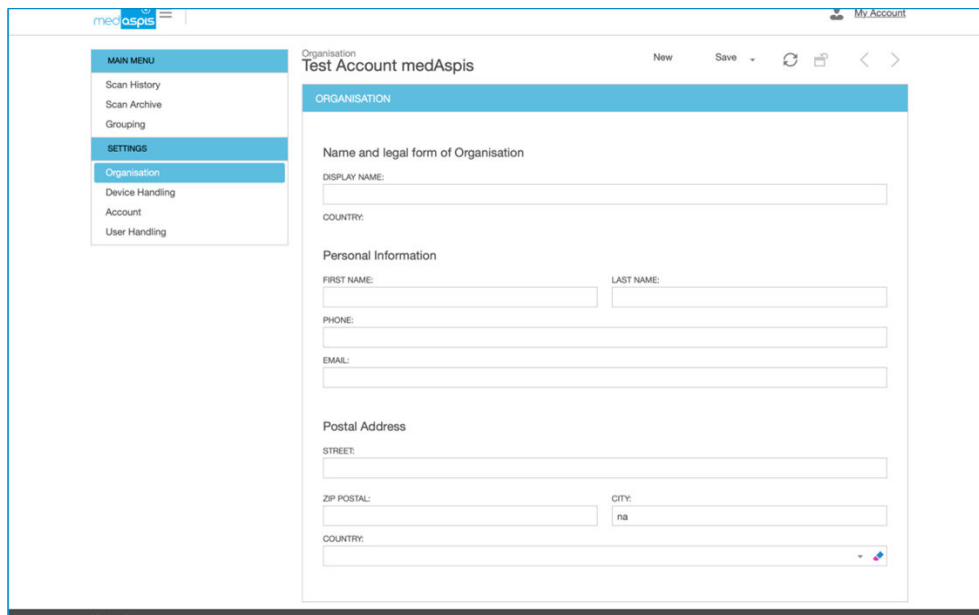
The password must not be too simple, it must be subject to a certain complexity. It is up to the user how to achieve this complexity. Basically, the following factors are included in the complexity calculation of the password:

- Password length
- Use of upper and lower case
- Use of special characters
- Use of digits

There is no rule that prescribes to use all the complexity elements mentioned above. A password can be complex enough if you do not use special characters, but the length of the password already forms a sufficient complexity.

3.3 Complete organisation

After entering this data, the control panel opens and further data of the organisation is requested. These are the name and address as well as a responsible person for further communication. This completes the registration process.

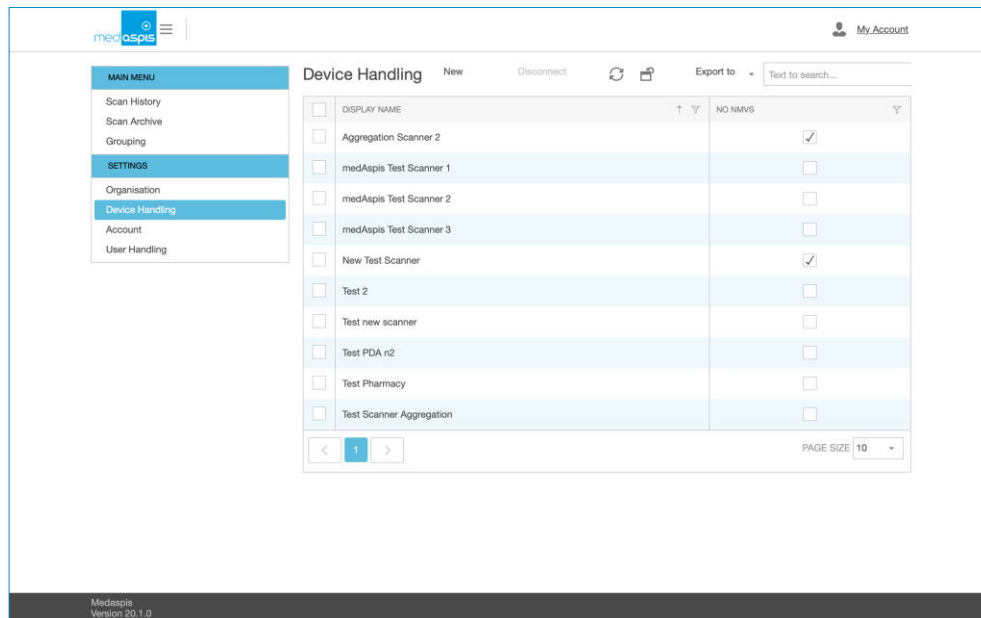


The screenshot shows the 'Organisation' registration form in the medaspis web application. The form is titled 'Test Account medAspis' and includes the following sections and fields:

- Organisation:**
 - DISPLAY NAME: [Text input field]
 - COUNTRY: [Text input field]
- Personal Information:**
 - FIRST NAME: [Text input field]
 - LAST NAME: [Text input field]
 - PHONE: [Text input field]
 - EMAIL: [Text input field]
- Postal Address:**
 - STREET: [Text input field]
 - ZIP POSTAL: [Text input field]
 - CITY: [Text input field, pre-filled with 'na']
 - COUNTRY: [Text input field]

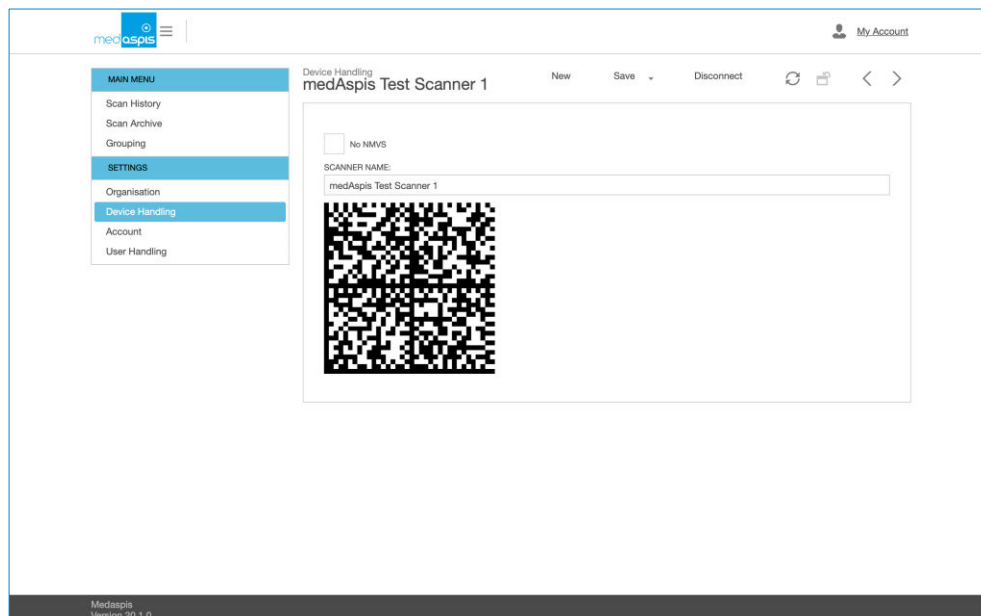
3.4 Setting up a Speed Scanner (server side)

Each Speed Scanner used must be logged into the customer account. To do this, a new device must be registered in the Control Panel under the menu item "Device Handling".



After opening the window, you can see all the scanners that have been registered so far. The scanners are displayed with their name and the parameter "No NMVS".

With the button "New" a new scanner can be registered.



Two fields must be specified for the new scanner:

NAME: The name of the scanner. This name is later visible in the Settings menu of the scanner and the scans appear under this name in the Scan History.

NO NMVS: If this value is clicked, the scanned data is not transmitted to the NMVS. Customers use this setting to read 2D matrix codes, but not to evaluate them via the NMVS. ^

The process is completed with the “Save” button. A large enrolment code appears on the screen. This must be read in by the Speed Scanner to be connected in the enrolment process in order to connect it to your own system.

Each scanner can be logged in and out of the system as required. To disconnect the scanner from the control panel, use the “Disconnect” button. New registrations are always made by entering a scanner in the scanner list of the menu item “Device Handling”.

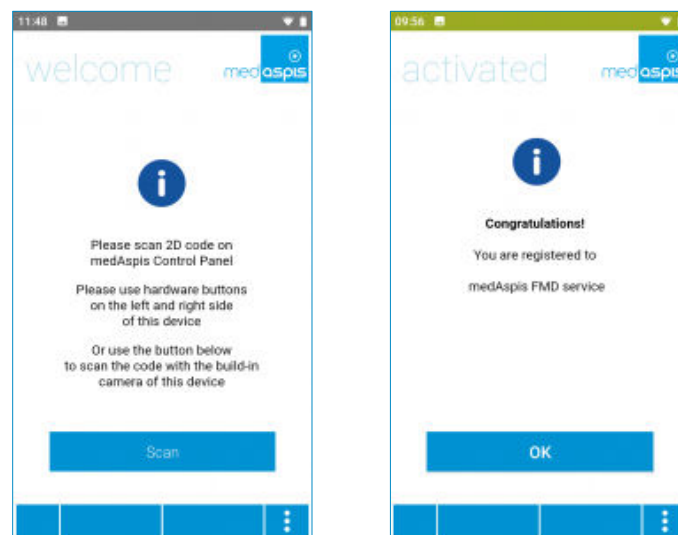
Once a scanner has been created, it cannot be deleted. This ensures that it is always possible to determine which data was read in with which scanner (data integrity, audit trail).

3.5 Setting up a Speed Scanner (device)

If the scanner is not in enrolment mode, please go to the application settings and click five times on the medAspis logo. The application immediately starts the teach-in process.

The scanner now scans the enrolment code from the control panel. If the scanner cannot detect the code due to possible reflections of the computer display, the “Scan” button on the Speed Scanner display can be activated. A new window opens and the enrolment code can be captured from the screen with the Speed Scanner’s built-in camera.

After a second confirmation screen, a Congratulations screen appears and the Speed Scanner is connected to the system.

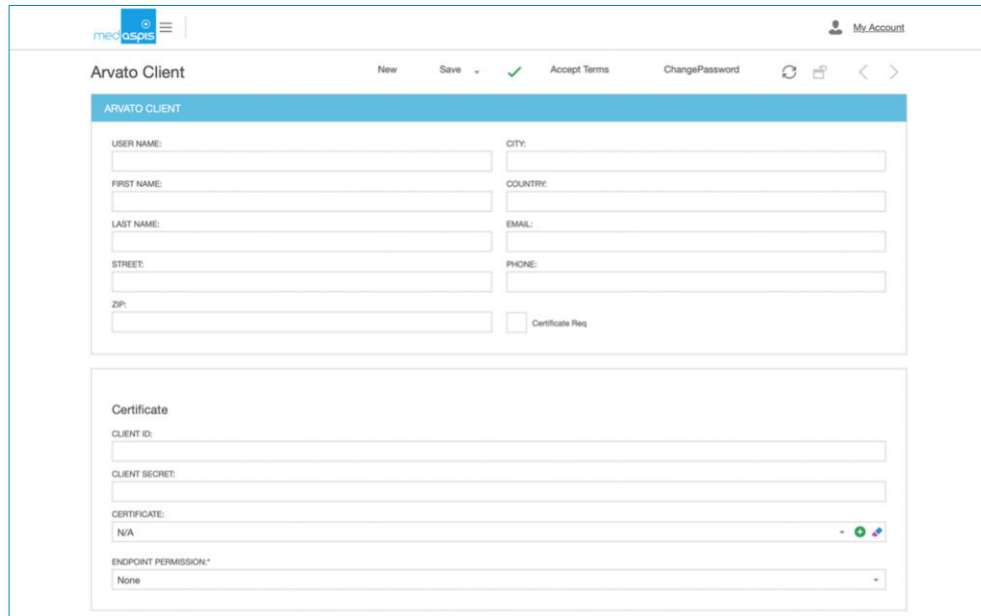


3.6 Register at NMVS

The system must be connected to the responsible NMVS in order to be able to perform the FMD tasks. Three different systems are in use in Europe. medAspis has the capability to connect to all three systems (securPharm, Arvato, SolidSoft). The necessary steps for registration are carried out in the menu item “Device Handling”. Different registration steps are required for each of the three systems.

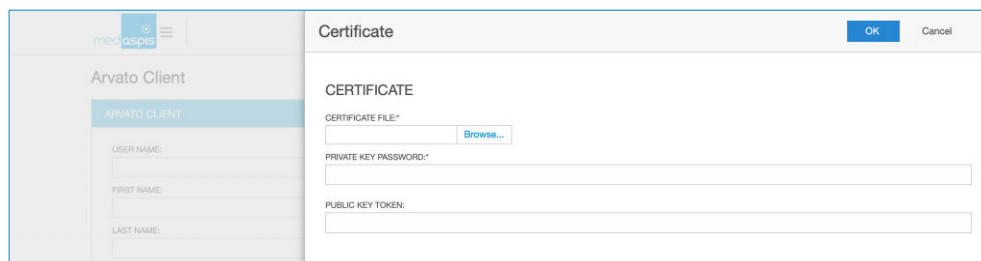
3.6.1 Access to the Arvato system

This system is used in Austria, Belgium, Cyprus, Estonia, Finland, France, Hungary, Latvia, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain and the United Kingdom (Northern Ireland).



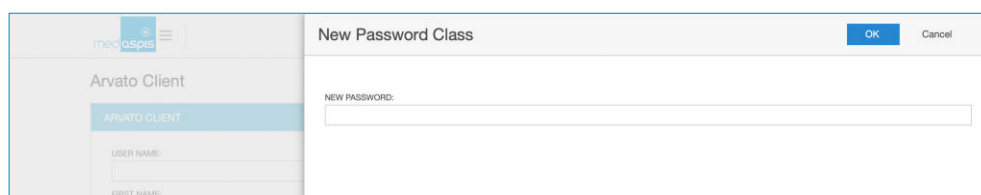
Before this process step can be performed, the user has to be registered with his responsible NMVS and received the access data to be entered here. First, all user data is entered and then the username and initial password received from the NMVO are entered in the "Certificate" section.

The certificate is then downloaded. First, the certificate window must be opened by clicking the "plus" symbol.



The certificate file (p.12) previously provided by the NMVO is uploaded and the certificate password and password token are entered. Both data are provided by the NMVS. The certificate window is closed with OK and the entire process is completed with "Save".

Afterwards, the Arvato Terms and Conditions are confirmed in the Arvato main window and the initial password is changed. Buttons are available for both processes in the upper part of the window.

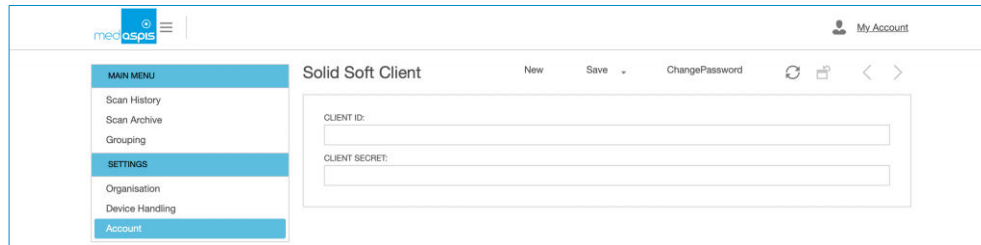


The new password is confirmed with OK. The password window closes.

The process is completed, the system is connected to the responsible NMVS.

3.6.2 Access to the Solidsoft system

This system is in use in Bulgaria, Denmark, Ireland, Iceland, Croatia, Liechtenstein, Lithuania, Sweden, Switzerland, Slovakia and the Czech Republic.

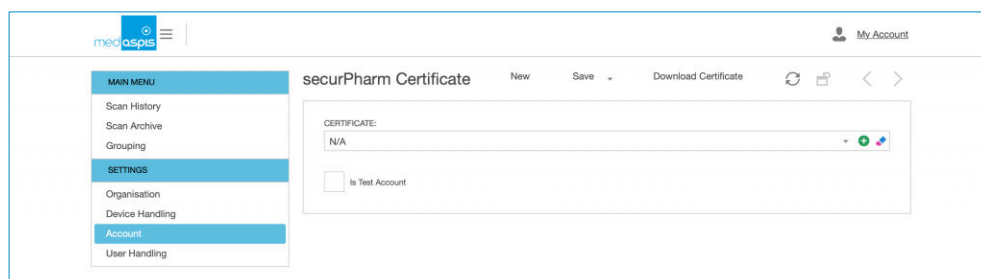


Before this process step can be performed, the user has to be registered with his responsible NMVS and received the access data to be entered here. The "Client ID" and the "Client Secret" are entered and saved with the "Save" button.

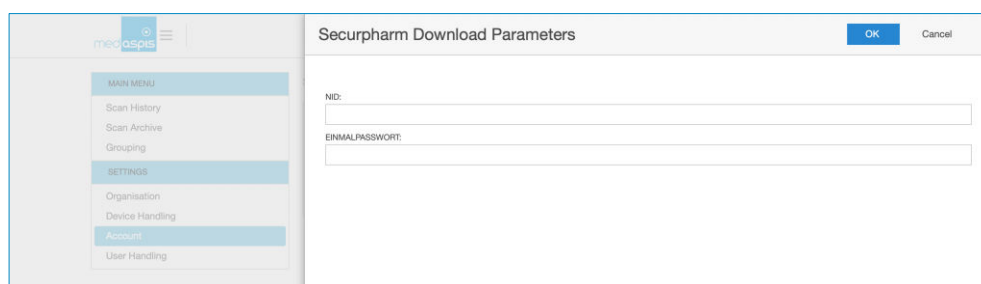
The process is completed, the system is connected to the responsible NMVS.

3.6.3 Access to the securPharm system

This system is only used in Germany.



First, the button "Download Certificate" opens a new window in which the securPharm certificate can be loaded. To download the certificate, the customer has received a so-called company number N-ID (format APOxxxxxx) and a password from NMVO. These two values are entered in the fields provided and acknowledged with "OK" at the top of the window.

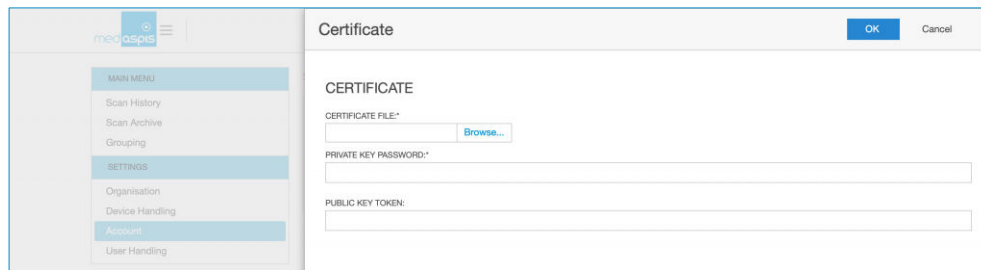


The window closes again and the certificate downloaded from the NMVS in the meantime is displayed. Now the process must be saved in the securPharm main window by clicking the "Save" button at the top of the window.

3.6.3.1 Alternative registration

If you have already downloaded your certificate from NGDA yourself, you will have a file with your company number as "Name and. p12" as suffix (APOxxxx.p12).

Please click on the green plus at the input field "Certificate" first. A new window opens:

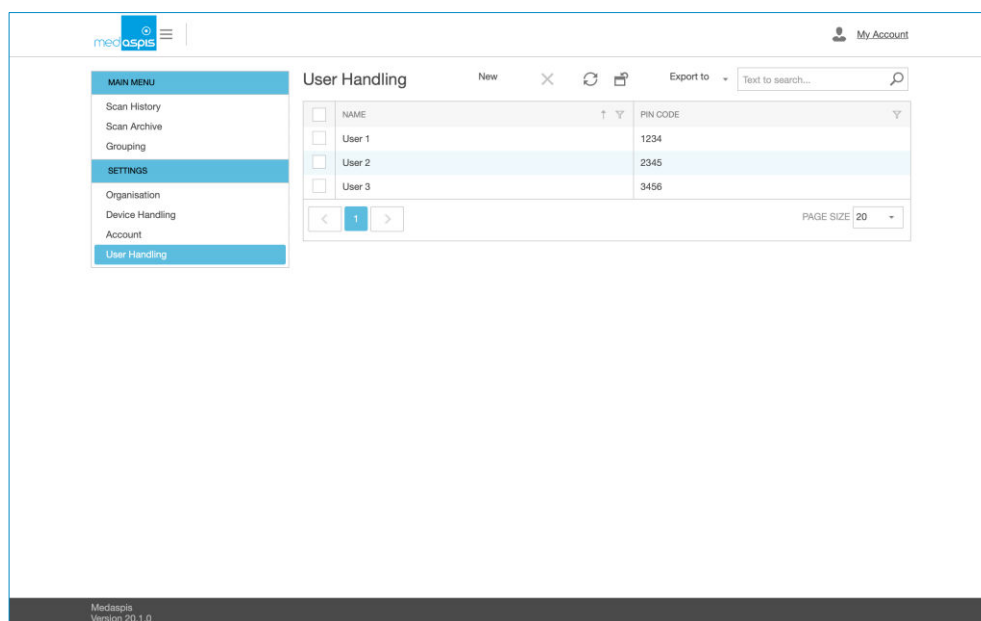


In this window the certificate can be uploaded, the corresponding password must be entered, the “PUBLIC KEY TOKEN” must remain empty.

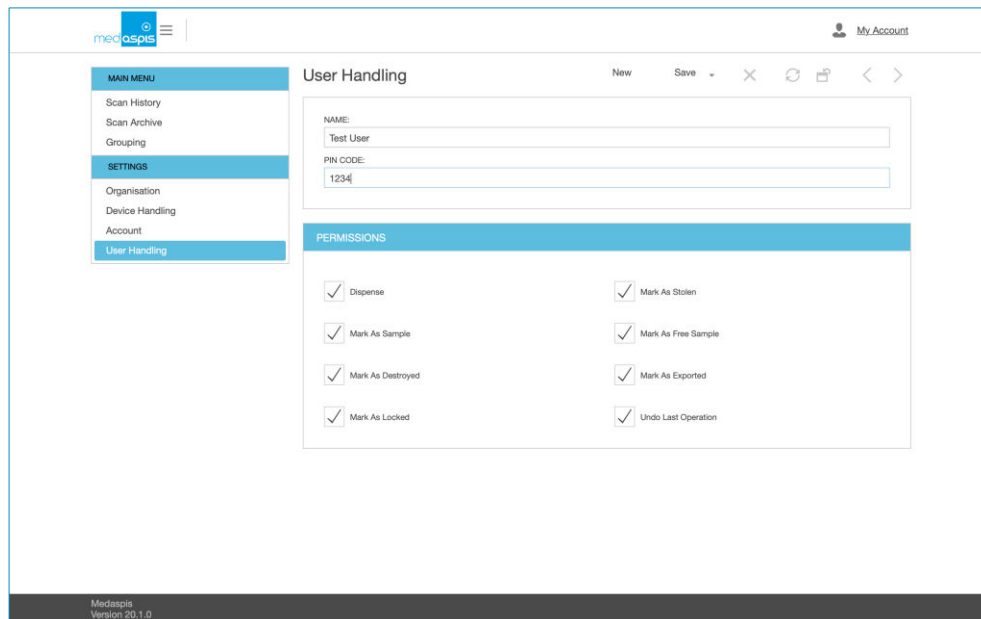
The process is completed, the system is connected to securPharm.

3.7 User login to the Speed Scanner

Optionally, the users of the Speed Scanners can be entered. Each time the users scan packs, the specified username is saved to that scan. The names can be displayed in the Scan History.



With the button “New” a new user can be created.



For this purpose, the username and a numeric (digit) password of any length are entered. The username appears in the “User” field in the Settings of the Speed Scanner and in the Scan History. The password is requested in the handheld device as an identity check. In addition, the permitted FMD operations can be restricted for each user.

After completion, the entries are saved with “Save”.

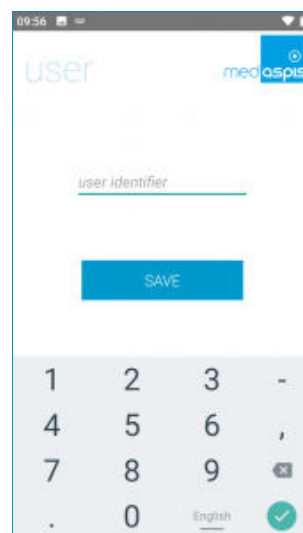
User management is an identity control and thus a measure for organising operations. User management is not a function in the sense of system security.

3.7.1.1 Access rights

Individual usage rights can be assigned for each user. The FMD operations allowed in the “Permissions” field are displayed in the FMD menu of the hand-held scanner, the others are not offered.

3.7.1.2 In use on the Speed Scanner

A user can only use the Speed Scanner if he has entered the correct password beforehand.

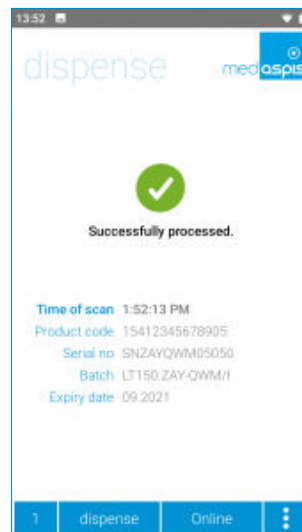


3.8 First steps

Switch on the Speed Scanner and open the “Connector+” application.



Switch on the Speed Scanner and open the “Connector+” application. You already know the unit and the application from the introduction.



Important:

If you receive a warning or an unclear message after the first scan: Please stop your first attempt and contact us immediately. It is possible that one of the credentials (user ID, password, certificate password) is incorrect. If you scan more than 5 times, your NMVS account may be blocked.

If no warnings are displayed, go to the main menu and click on the Scan History again. On this page you can see all the scans and the corresponding response from the NMVS.

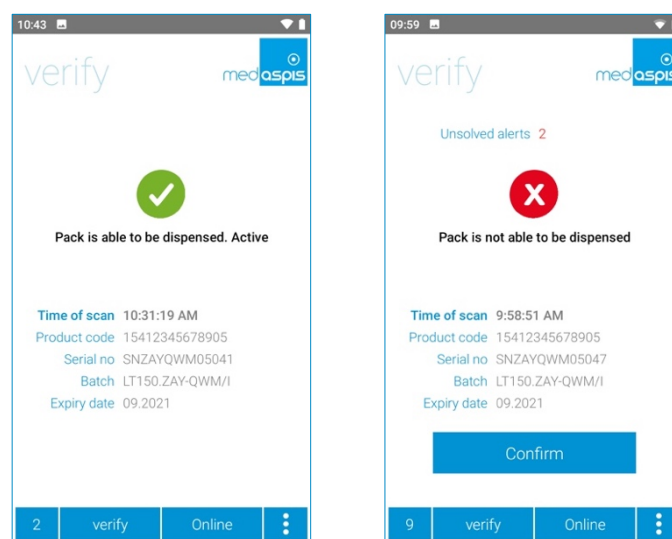
Congratulations - you are now FMD compliant!

4 The Speed Scanner

The user will select the FMD option in the FMD menu of the FMD Speed Scanner application and scan the 2D Matrix Code. The information will be transferred to the NMVS and from there back to the FMD Speed Scanner. The data received from the NMVS is displayed on the screen.

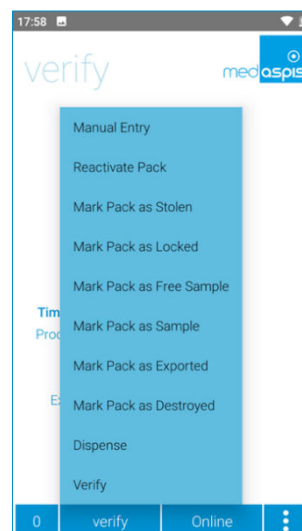
In case the result is positive, the user will scan the next code. In case the result is negative the user must confirm the alert which is displayed on the screen of the FMD Speed Scanner. In both cases the scan data and the FMD result is visible in the Scan History of the Control Panel. In case of a negative result, the user confirmation is registered in the Control Panel as well.

The data can be processed further in the Control Panel. The most important function is the visualisation of the scan data. These can be filtered and exported almost as required.



4.1 Working with the Speed Scanner

First, the required FMD operation is selected via the FMD menu on the Speed Scanner. If no selection is made, the default operation is "verify".



4.1.1 Available FMD Operations

All FMD operations provided by the NMVO are applicable in the medAspis system. Some of the operations are locked for pharmacies. However, they are still displayed in the menu. If a non-permitted operation is performed, an error message is returned by the NMVS.

Menu option	wholesale	pharmacy
verify	x	x
dispense	x	x
mark pack as destroyed	x	x
mark pack as exported	x	-
mark pack as sample	x	x
mark pack as free sample	x	-
mark pack as locked	x	-
mark pack as stolen	x	x
reactivate pack	x	x

4.2 Transfer the recorded code to the NMVS

The Speed Scanner immediately sends all captured records to the medAspis FMD server. Here the code is prepared and sent for processing to the NMVS. As soon as the result is sent back, the response is forwarded to the Speed Scanner.

4.2.1 Scan a 2D matrix code

The Speed Scanner captures a 2D matrix code from a medicine box and processes the captured data stream. If the scanned code does not correspond to the expected syntax in GS1 coding or PPN coding (only available in Germany), the scanning process is aborted and the message "NO FMD" is displayed. The scan attempt is also displayed in the Scan History with the same result.

4.2.2 Scan Accelerator

The Speed Scanner is able to scan faster than the NMVS can process the codes. Only one request can be made to the NMVS at a time. The unprocessed requests from the Speed Scanner go into a queue if the NMVS is slower than the Speed Scanner sends requests.

The number of records in the queue is displayed on the Speed Scanner. With fast scanning and slow NMVS, with technically undisturbed operation, up to 5 packs can be expected in the queue.

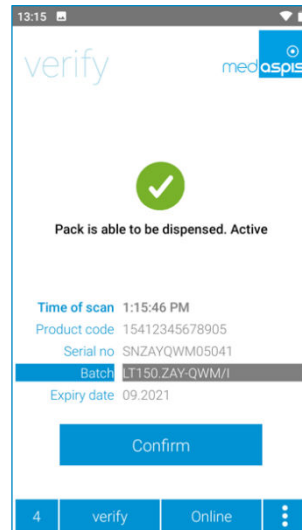
4.2.3 Processing of NMVS Response

Both the Unique Identifier scanned by the 2D Matrix Code and the data set returned by the NMVS are stored completely in the data structure of the medAspis FMD system. The result is analysed and interpreted. The corresponding result is shown in the Speed Scanner display and saved in the Scan History.

4.2.4 Batch Control

The Batch Control option can be switched on in the settings of the Speed Scanner. The Speed Scanner gives a warning if a batch or product code is scanned differently from a reference pack.

The reference pack is determined by the first scan after a counter reset in the Speed Scanner screen at the bottom left.



4.3 Performing FMD Operations

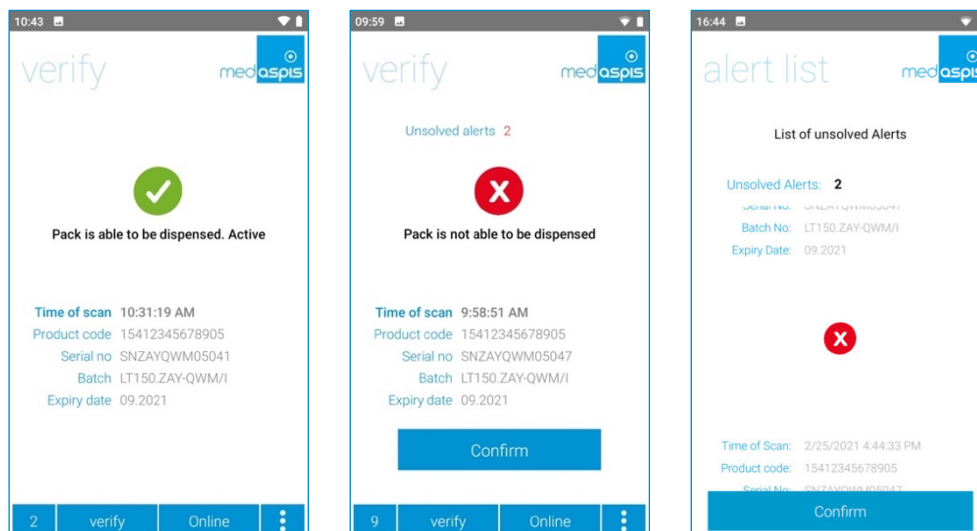
This section describes the main states the system can have when processing FMD operations. Similar functions are described only once. "exported", "stolen", "sample", "free sample", "locked", "destroyed" are analogue to "dispense". In this description, "dispense" is explained in detail, the subtypes work similar.

4.3.1 Verify

The FMD mode of the Speed Scanner is set to "verify". The 2D matrix code of a pack is scanned. A "Verify" command is sent to the responsible NMVS.

A pack can be verified as often as required. A separate line appears in the Scan History for each "Verify" command. Packs with the same serial number can be scanned as often as required and each will be found in the Scan History.

The result of a "Verify" check can be negative.



In this case, the scanner is stopped, you can no longer scan, you have to take care of the alert. This process is documented by clicking the “Confirm” button on the Speed Scanner display. Analogously, this is noted in the Scan History.

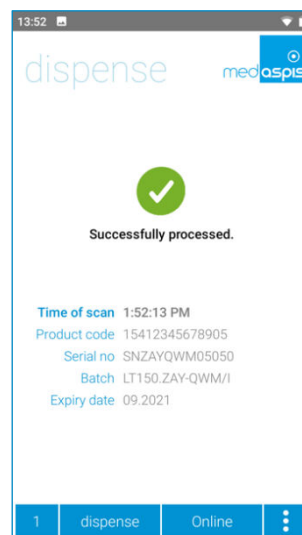
In addition, the packs concerned are secured in the Speed Scanner. The packs can be checked in the alert list. When the errors are acknowledged, the “unsolved alert” counter is reset to zero.

4.3.2 Dispense

The FMD mode of the Speed Scanner is set to “dispense”. The 2D matrix code of a pack is scanned. A „Dispense” command is sent to the responsible NMVS. The result can be positive or negative, just like “verify” and all other FMD operations.

The command “dispense” sets the status of the pack from “active” to “inactive”. A pack that is set “inactive” cannot be dispensed again.

A separate line appears in the Scan History for each Dispense command.

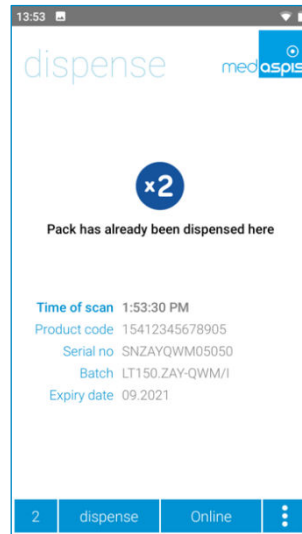


4.3.3 Double Dispense

Redispensing an already inactive pack will result in an NMVS error. This error may occur very often because packs are dispensed several times due to carelessness.

Under certain conditions, the medAspis system recognises a dispensing as a duplicate and does not send it again to the NMVS. Instead, the result of the previous dispense is displayed again, but with the “Double Dispense” icon. The same response is also displayed in the Scan History, again with the Double Dispense icon.

The condition for detecting a double is that the same pack has been deactivated with the same FMD command within the last 20 minutes.



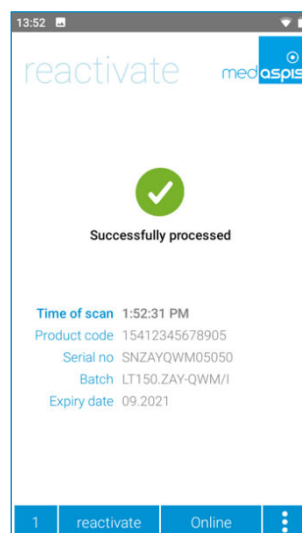
4.3.4 Reactivate

The FMD menu of the Speed Scanner is set to "reactivate". The 2D matrix code of a pack is scanned. A reactivation command is sent to the responsible NMVS. It is not necessary to specify the original FMD operation to be reset now. This attribute, which is necessary for the NMVS, is automatically added to the reactivation command by medAspis system.

Excluded from this are the statuses "marked as stolen" and "marked as destroyed". The NMVS system don't allow to reactivate those statuses.

Reactivation resets the status of the pack from "inactive" to "active". For various reasons, this operation can be negatively acknowledged. Then an error message appears.

The reactivation is displayed as a separate line in the Scan History.



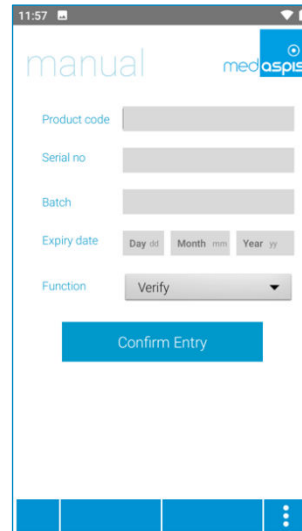
4.3.5 Manual Entry

If a 2D matrix code cannot be scanned by the scanner, the data can be entered manually. To do this, the predefined fields must be filled in and the required FMD operation must be specified.

If an expiry date has only year and month, the day in the display is either left blank or filled with 0 (zero).

The NMVS response appears again on the main screen of the FMD Speed Scanner.

In the Scan History, the manual display is not specially marked. The FMD command resulting from the manual input is displayed exactly as if it had been generated by the scanner.



4.4 The Speed Scanners settings

Various settings can be made on the Speed Scanner.

The light blue box contains information about the account, the scanner name and the current user of the device.

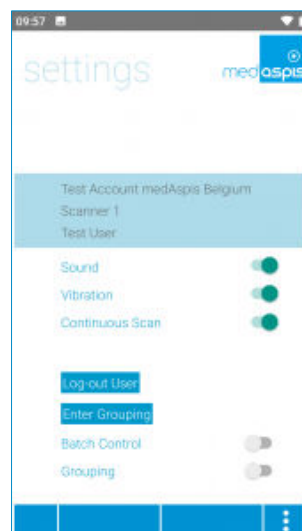
The three switches below control the scanner unit. You can switch the sound and vibration on and off separately. In continuous mode, the scanner is switched on permanently using the side buttons or the pistol grip. 2D matrix codes are now continuously captured until the scanner is manually switched off again. If the continuous mode is switched off, 2D Matrix Code can only be scanned one at a time.

“Log Out User” logs out the current user. You have to register again for the next service.

“Enter Grouping” forces the entry of a new grouping.

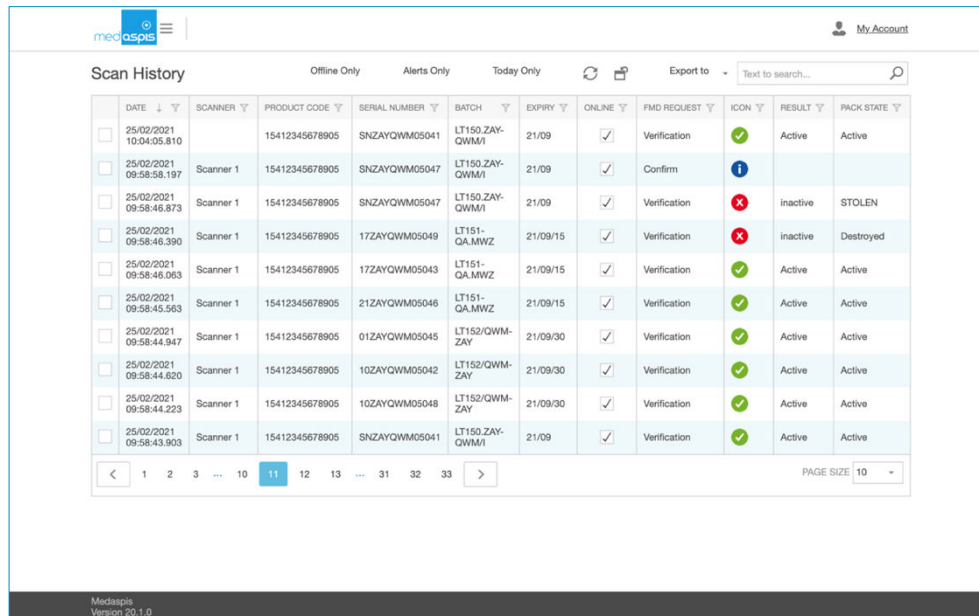
“Batch Control” switches on the automatic batch control.

“Grouping” switches on the grouping function.



5 The Scan History

The Scan History shows all data sets acquired with the Speed Scanners and the corresponding result of the NMVS. The data is stored permanently.



DATE	SCANNER	PRODUCT CODE	SERIAL NUMBER	BATCH	EXPIRY	ONLINE	FMD REQUEST	ICON	RESULT	PACK STATE
25/02/2021 10:04:05.810		15412345678905	SNZAYQWM05041	LT150.ZAY-QWM1	21/09	✓	Verification	✓	Active	Active
25/02/2021 09:58:58.197	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWM1	21/09	✓	Confirm	!		
25/02/2021 09:58:46.873	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWM1	21/09	✓	Verification	✗	inactive	STOLEN
25/02/2021 09:58:46.390	Scanner 1	15412345678905	17ZAYQWM05049	LT151-QA.MWZ	21/09/15	✓	Verification	✗	inactive	Destroyed
25/02/2021 09:58:46.063	Scanner 1	15412345678905	17ZAYQWM05043	LT151-QA.MWZ	21/09/15	✓	Verification	✓	Active	Active
25/02/2021 09:58:45.563	Scanner 1	15412345678905	21ZAYQWM05046	LT151-QA.MWZ	21/09/15	✓	Verification	✓	Active	Active
25/02/2021 09:58:44.947	Scanner 1	15412345678905	01ZAYQWM05045	LT152/QWM-ZAY	21/09/30	✓	Verification	✓	Active	Active
25/02/2021 09:58:44.620	Scanner 1	15412345678905	10ZAYQWM05042	LT152/QWM-ZAY	21/09/30	✓	Verification	✓	Active	Active
25/02/2021 09:58:44.223	Scanner 1	15412345678905	10ZAYQWM05048	LT152/QWM-ZAY	21/09/30	✓	Verification	✓	Active	Active
25/02/2021 09:58:43.903	Scanner 1	15412345678905	SNZAYQWM05041	LT150.ZAY-QWM1	21/09	✓	Verification	✓	Active	Active

For each scan, the time stamp, the pack information (product code, serial number, batch number, expiry date), the online status and the FMD result including the current pack status are displayed. Each entry is displayed with the same icon that was previously visible in the Speed Scanner. If the user clicks the confirmation button after a negative result, this is also logged in the Scan History.

The time stamp is the time of the medAspis FMD server. The time stamps of the handheld devices are not logged. Thus, the time recording cannot be manipulated by changing the system time in the Speed Scanner units.

After 40 days, the Scan History entries are transferred to the Scan History Archive for performance reasons. The Scan Archive has the same functionality as the Scan History.

5.1 Working with the Scan History

The display of the data shown in the Scan History can be changed. It is not possible to change or manipulate the data itself.

5.1.1 Sort data

Sorting each individual column of the Scan History table is possible by clicking on the respective column header. The sorting is indicated by an arrow symbol to the right of the column title. Clicking again reverses the sort order.

The default setting is sorting by date. The most recent entry is displayed at the top.

5.1.2 Standard filters

The data displayed can be narrowed down with three standard filters.

- Filter Today Only: Only records of the same day are displayed
- Filter Offline Only: Only records that have been captured while the Speed Scanner is in offline mode are displayed.
- Filter Alert Only: Only records with a negative NMVS result are displayed.

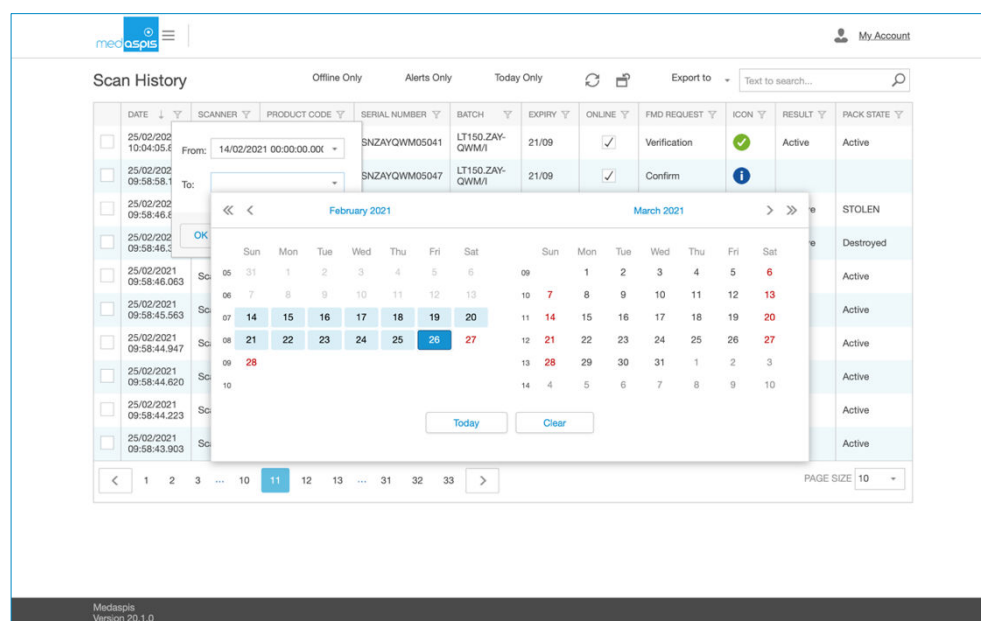
The three filters can be combined. For example, records from today can be filtered that were collected offline and had a negative result.

5.1.3 General filters

The data sets can be filtered as required, all filters can be combined. Each column has a funnel symbol next to the heading. By clicking on the funnel symbol, a window is displayed with which a filtering of the corresponding column can be carried out.

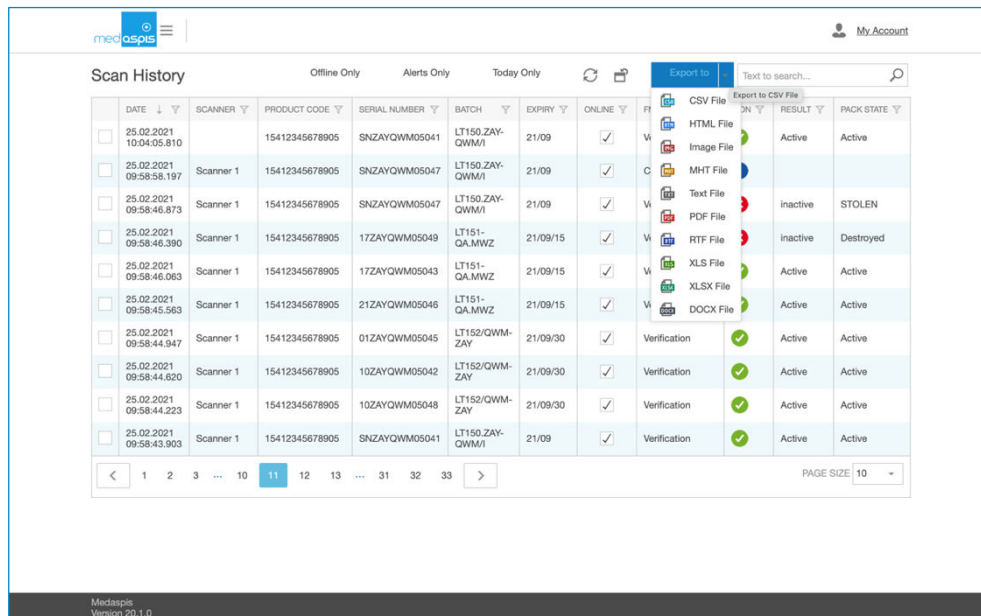
The date can be narrowed down with start and end date. A specific serial number can be filtered, a specific expiry date, a specific pack status, etc.

Set filters can be deleted by clicking on the "Clear" function at the bottom right of the screen.



5.1.4 Export data

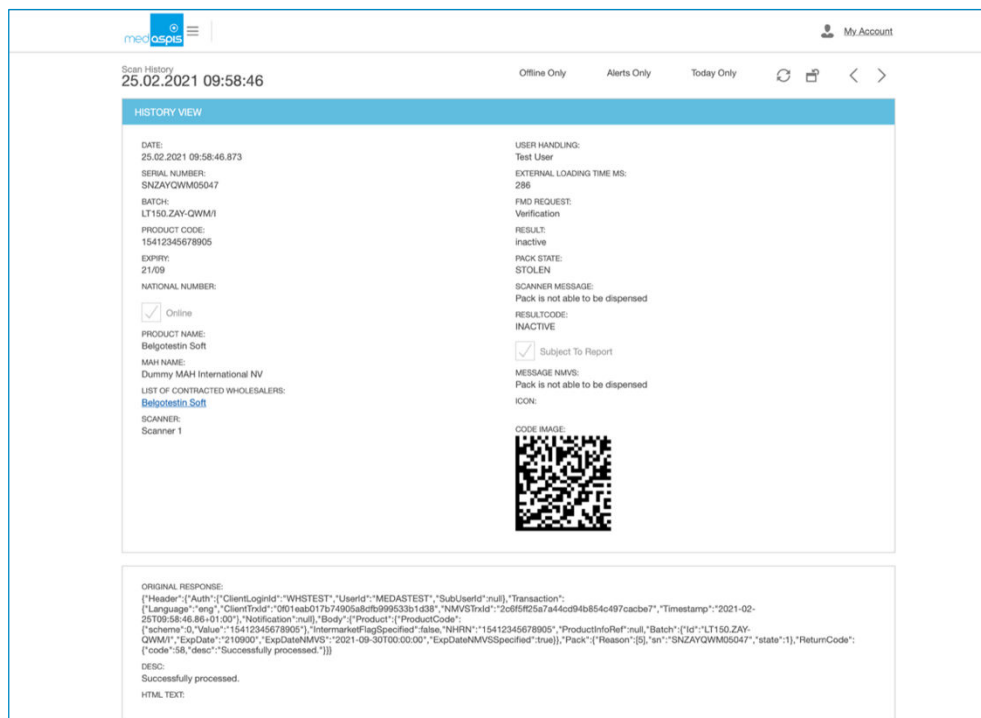
The selected and filtered data can be exported. All displayed parameters (displayed columns) and entries (displayed rows) can be exported from the system to CSV, XLS, XLSX and pdf formats. The data is provided via the download function of the browser.



DATE	SCANNER	PRODUCT CODE	SERIAL NUMBER	BATCH	EXPIRY	ONLINE	FMD REQUEST	RESULT	PACK STATE
25.02.2021 10:04:05.810		15412345678905	SNZAYQWM05041	LT150.ZAY-QWM/I	21/09	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:58.197	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWM/I	21/09	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:46.873	Scanner 1	15412345678905	SNZAYQWM05047	LT150.ZAY-QWM/I	21/09	<input checked="" type="checkbox"/>	Verification	inactive	STOLEN
25.02.2021 09:58:46.380	Scanner 1	15412345678905	17ZAYQWM05049	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification	inactive	Destroyed
25.02.2021 09:58:46.063	Scanner 1	15412345678905	17ZAYQWM05043	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:45.563	Scanner 1	15412345678905	21ZAYQWM05046	LT151-QA.MWZ	21/09/15	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:44.947	Scanner 1	15412345678905	01ZAYQWM05045	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:44.820	Scanner 1	15412345678905	10ZAYQWM05042	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:44.223	Scanner 1	15412345678905	10ZAYQWM05048	LT152/QWM-ZAY	21/09/30	<input checked="" type="checkbox"/>	Verification	Active	Active
25.02.2021 09:58:43.903	Scanner 1	15412345678905	SNZAYQWM05041	LT150.ZAY-QWM/I	21/09	<input checked="" type="checkbox"/>	Verification	Active	Active

5.1.5 Display of additional Information

All additional information can be displayed for each individual scan by clicking on the respective line.



DATE: 25.02.2021 09:58:46.873

SERIAL NUMBER: SNZAYQWM05047

BATCH: LT150.ZAY-QWM/I

PRODUCT CODE: 15412345678905

EXPIRY: 21/09

NATIONAL NUMBER: Online

PRODUCT NAME: Belgotestin Soft

MAH NAME: Dummy MAH International NV

LIST OF CONTRACTED WHOLESALERS: Belgotestin Soft

SCANNER: Scanner 1

USER HANDLING: Test User

EXTERNAL LOADING TIME MS: 286

FMD REQUEST: Verification

RESULT: inactive

PACK STATE: STOLEN


SCANNER MESSAGE: Pack is not able to be dispensed

RESULT CODE: INACTIVE

Subject To Report

MESSAGE NMVS: Pack is not able to be dispensed

ICON:

CODE IMAGE: 

ORIGINAL RESPONSE:

```

{"Header":{"Auth":{"ClientLoginId":"","WHSTEST":"","UserId":"","MEDATEST":"","SubUserId":""},"Transaction":{"Language":"eng","ClientTrid":"001eab017b74905a8c9b999533b1d38","NMVSTxid":"2c6f5f25a7a44cd94b854c497cacbe7","Timestamp":"2021-02-25T09:58:46.868+01:00"},"Notification":{"nuj"},"Product":{"ProductCode":{"scheme":"Value":"15412345678905"},"IntermarketTagSpecified":{"date","MAH":{"MAHName":"15412345678905"},"ProductInfoRef":{"id":"LT150.ZAY-QWM/I"},"ExpDate":{"ExpDate":"21/09/30","ExpDateNMVSSpecified":{"date","Pack":{"Reason":{"sn":"SNZAYQWM05047"},"state":"1"},"ReturnCode":{"code":"58","desc":"Successfully processed."}}}}}}

```

DESC: Successfully processed.

HTML TEXT:

5.2 Settings of the Scan History

5.2.1 Number of records displayed

ni10, 20, 50, 100 or 200 lines can be displayed per page. The setting can be made through a drop-down menu at the bottom right edge.

5.2.2 Detailed information to a Scan

More information is available for each record than is shown in the default setting of the Scan History. Values shown in the standard display are marked with x:

DATE	x	time and date of scan (server time)
SCANNER	x	name of scanner
PRODUCT CODE	x	product code of scanned pack
SERIAL NUMBER	x	serial number of scanned pack
BATCH	x	batch of scanned pack
EXPIRY	x	expiry date of scanned pack
ONLINE	x	yes / no, pack scanned while Speed Scanner was online
FMD REQUEST	x	requested FMD operation to the NMVS
ICON	x	icon of result (full list in attachment)
RESULT	x	text message of the result (full list in download area)
PACK STATE	x	status of the pack after the FMD operation was performed
CODE		the full unique identifier as scanned from the 2D matrix code
CODE IMAGE		a 2D matrix code interpretation of the value in CODE
DESC		AlertID (optional)
EXTERNAL LOADING TIME		processing time of NMVS for the performed scan
HTML TEXT		more detailed description of the alert message (optional)
SCANNER MESSAGE		alert message displayed on the Speed Scanner
PRODUCT NAME		full name of the scanned product (optional)
MAH NAME		name of MAH (optional)
NATIONAL NUMBER		national health reimbursement number (optional)
ORIGINAL RESPONSE		full JSON response from NMVS
LIST OF WHOLESALERS		list of designated wholesalers (optional)
MESSAGE NMVS		original alert response from NMVS
SUBJECT TO REPORT		yes / no, information if an alert is reported to the authorities
USER HANDLING		name of user who scanned the pack

5.2.3 Visible Columns in the Scan History

To change the display of the Scan History, right-click on the table header. A context-sensitive menu opens. Two menu items control the table view. "Hide Column" removes a selected column from the view. "Column Chooser" opens another window that shows all parameters not previously displayed. Use the mouse to drag the required information to the top of the table. The required parameter is permanently displayed at this point.

medaspis
My Account

Scan History
Offline Only Alerts Only Today Only
Export to
Column Chooser X

DATE	SCANNER	PRODUCT CODE	SERIAL NUMBER	ICON	RESULT	PACK STATE	FMC
25.02.2021 16:28:29.377	Scanner 1	15412345678905	SNZAYQWM05047		inactive	STOLEN	Veri
25.02.2021 16:28:28.863	Scanner 1	15412345678905	10ZAYQWM05048		Active	Active	Veri
25.02.2021 16:28:26.150	Scanner 1	15412345678905	10ZAYQWM05042		Active	Active	Veri
25.02.2021 16:28:25.723	Scanner 1	15412345678905	SNZAYQWM05041		Active	Active	Veri
25.02.2021 16:28:25.573	Scanner 1	15412345678905	SNZAYQWM05050		Active	Active	Veri
25.02.2021 16:28:22.823	Scanner 1	15412345678905	10ZAYQWM05042		Active	Active	Veri
25.02.2021 16:28:22.387	Scanner 1	15412345678905	SNZAYQWM05041		Active	Active	Veri
25.02.2021 16:28:21.890	Scanner 1	15412345678905	SNZAYQWM05050		Active	Active	Veri
25.02.2021 16:28:20.027	Scanner 1	15412345678905	10ZAYQWM05048		Active	Active	Veri
25.02.2021 16:28:19.833	Scanner 1	15412345678905	SNZAYQWM05041		Active	Active	Veri

< 1 2 3 4 5 6 7 ... 31 32 33 >
PAGE SIZE

CODE

CODE IMAGE

DESC

EXTERNAL LOADING TIN

HTML TEXT

LIST OF CONTRACTED V

MAH NAME

MESSAGE NMVS

NATIONAL NUMBER

OID

ORIGINAL RESPONSE

PACK DETAIL

PRODUCT NAME

RESULTCODE

SCANNER MESSAGE

STX

SUBJECT TO REPORT

USER HANDLING

Medaspis
Version: 20.1.0

6 Performing Grouping Operations

The medAspis system is able to process individual queries but can also work with groupings of packs. These groupings can be processed as a whole.

6.1 Groupings

Groupings are a list of packs that are grouped together under one key.

6.1.1 Grouping on the Speed Scanner

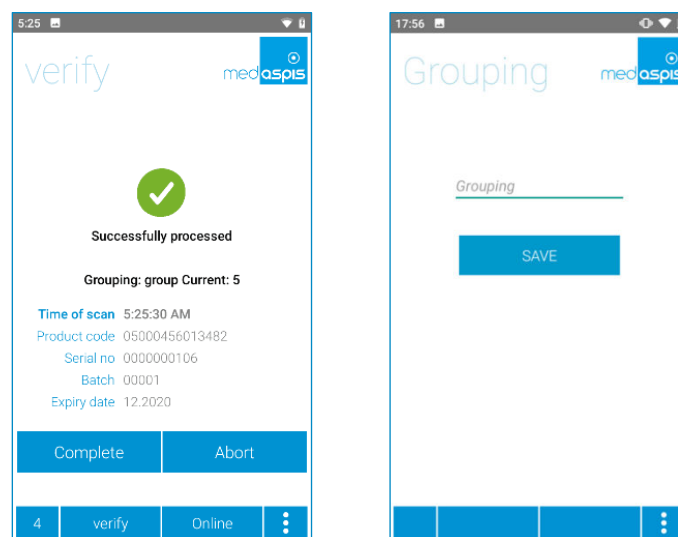
In the menu of the handheld device, the Grouping button is clicked. The device then expects the name of a grouping as the first input. This can be entered using the keyboard or a barcode is recorded. Alternatively, all machine-readable codes set in the handset menu will work, for example QR codes or 2D matrix codes.

The standard screen of the Speed Scanner changes. Additional information is provided. A line below the icon shows the name of the grouping and the number of packs already scanned into this group.

In addition, there are two buttons to complete or cancel the grouping. When the grouping is completed, this must still be confirmed with a "Confirm" button. The grouping can then be seen in the control panel under the menu item "Grouping".

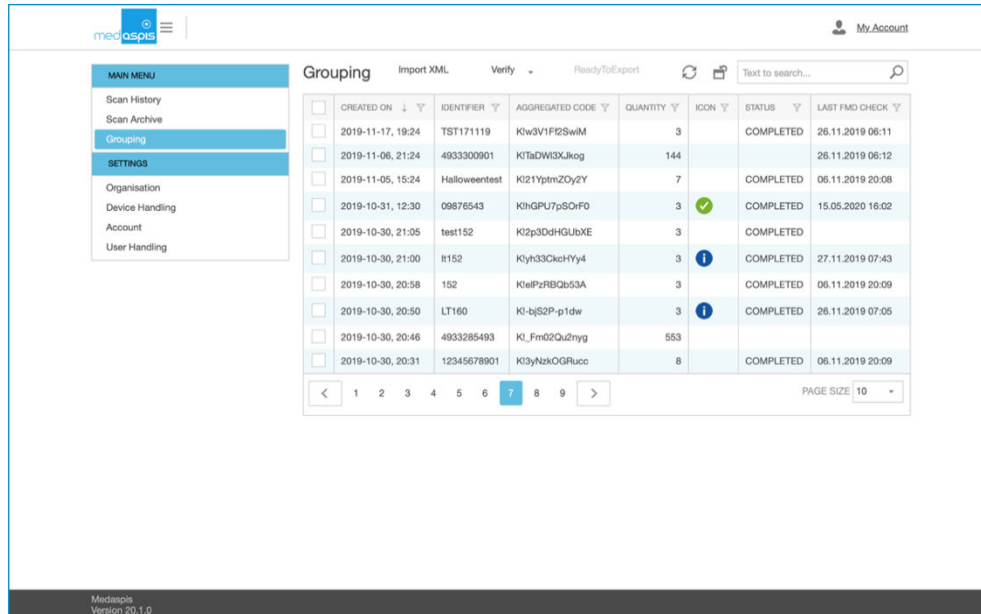
If Batch Control is switched on, no packs with a different batch or product number are included in the grouping.

The entire FMD functionality is retained. FMD alert messages are always treated with top priority.



6.1.2 Grouping on the Control Panel

Groupings are called up via the menu in the control panel.



The screenshot shows the Medaspis control panel interface. On the left is a 'MAIN MENU' with options like 'Scan History', 'Scan Archive', 'Grouping', and 'SETTINGS'. The 'Grouping' section is active, displaying a table with columns: CREATED ON, IDENTIFIER, AGGREGATED CODE, QUANTITY, ICON, STATUS, and LAST FMD CHECK. The table contains 10 rows of data. Below the table is a pagination control showing page 7 of 9 and a 'PAGE SIZE' dropdown set to 10.

CREATED ON	IDENTIFIER	AGGREGATED CODE	QUANTITY	ICON	STATUS	LAST FMD CHECK
2019-11-17, 19:24	TST171119	Klw3V1F2SWM	3		COMPLETED	26.11.2019 06:11
2019-11-06, 21:24	4933300901	KTlaDWSXJkqg	144		COMPLETED	26.11.2019 06:12
2019-11-05, 15:24	Halloweentest	KI21YptmZCy2Y	7		COMPLETED	06.11.2019 20:08
2019-10-31, 12:30	09876543	KthGPU7pSOiFO	3	✓	COMPLETED	15.05.2020 16:02
2019-10-30, 21:05	test152	KI2p3DdHGubXE	3		COMPLETED	
2019-10-30, 21:00	It152	Klyh33CkclHYy4	3	!	COMPLETED	27.11.2019 07:43
2019-10-30, 20:58	152	KlelPzRBQb53A	3		COMPLETED	06.11.2019 20:09
2019-10-30, 20:50	LT160	KI-tyS2P-p1dw	3	!	COMPLETED	26.11.2019 07:05
2019-10-30, 20:46	4933285493	KI_Fm02Qu2nyg	553			
2019-10-30, 20:31	12345678901	KI3yNzkOGRucc	8		COMPLETED	06.11.2019 20:09

Different parameters are given for each grouping. These are:

CREATED ON	The creation date of the grouping
IDENTIFIER	The name of the grouping chosen by the user.
AGGREGATION CODE	The system-assigned name (primary key) of the grouping.
QUANTITY	The number of packs included
ICON	The icon of the last FMD operation on the grouping.
STATUS	The current status of the grouping
LAST FMD CHECK	The time of the last FMD operation performed.

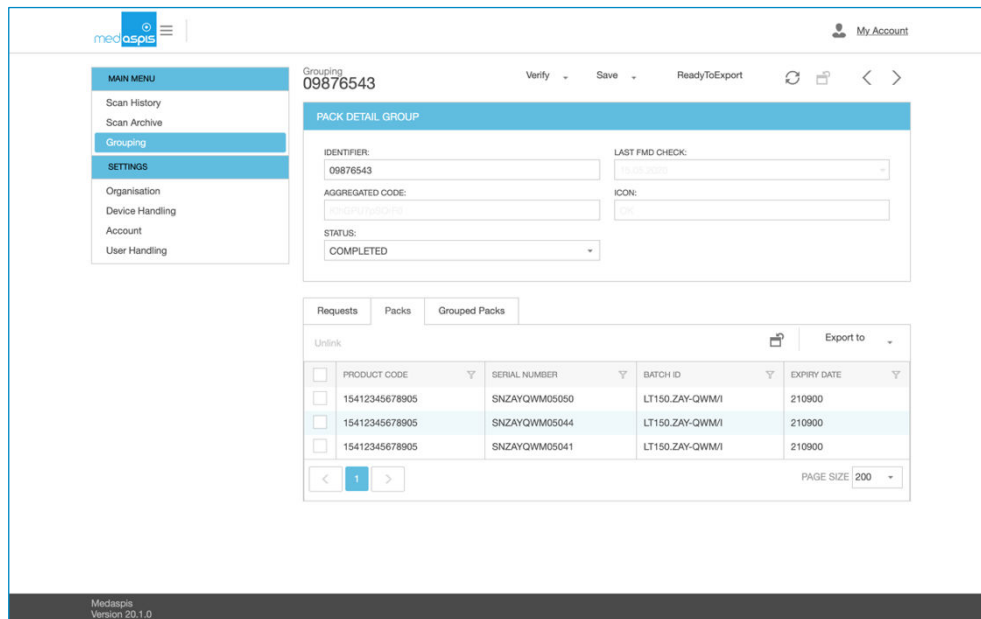
FMD operations can be performed on groupings. With the check boxes in the first column, groupings can be selected. The choices in the drop-down menu above are VERIFY, DISPENSE and EXPORT (see chapter 6.2).

Groupings can also be created by importing XML files with pack information. The XML format is described in Appendix 4.

Clicking on a line displays individual information of individual groupings.

6.1.3 View of a Single Grouping

From the list of groupings, individual groupings can be called up by clicking on the respective line of the overview.

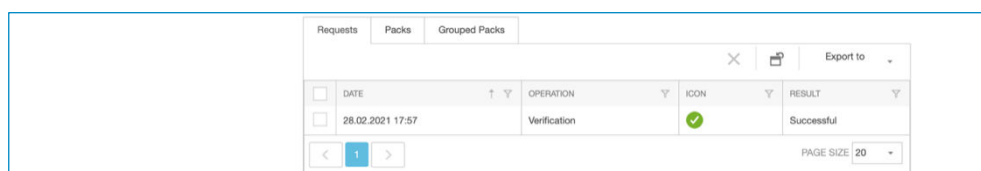


This view provides some general information about the grouping. The name and status of the grouping can be changed.

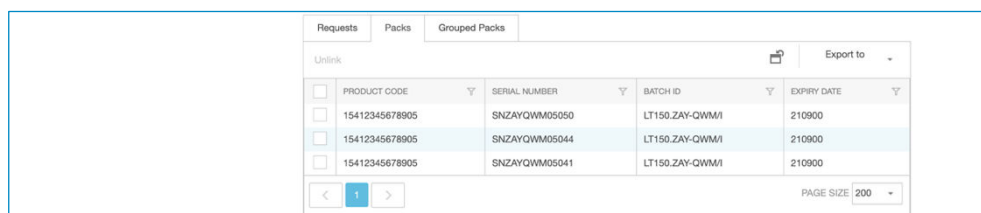
There are three tabs that contain further information of the grouping.

1. tab "Requests": All previous FMD operations on the entire grouping are displayed. The following parameters are displayed:

OPERATION	The selected FMD operation
DATE	The date of the operation
ICON	The icon of the result
RESULT	The result of the FMD operation



2. tab "Packs": A list of all packs included. The display corresponds to the Scan History display. The display of the parameters can be changed as in the Scan History.



3. tab "Grouped Packs": A list of all contained packs sorted by different product codes and batches. If a grouping is not homogeneous, you can see it here at a glance.

Requests		Packs	Grouped Packs
Unlink			
SERIAL NUMBER		EXPIRY DATE	
PRODUCT CODE: 15412345678905 (Count=3)			
BATCH ID: LT150.ZAY-QWM/I (Count=3)			
<input type="checkbox"/>	SNZAYQWM05050	210900	
<input type="checkbox"/>	SNZAYQWM05044	210900	
<input type="checkbox"/>	SNZAYQWM05041	210900	

6.2 FMD Operations on groupings

An FMD operation on the grouping is initiated with the pull-down button at the top of the screen. VERIFY, DISPENSE and EXPORT are available. The FMD operation is applied to all packs in the grouping.

6.2.1 Perform FMD operations on groupings

A grouping is applied in the so-called "bulk mode". The entire content of the grouping is transferred to the NMVS in a single step. Processing takes some time, the result is not returned but is waiting for retrieval on the NMVS server.

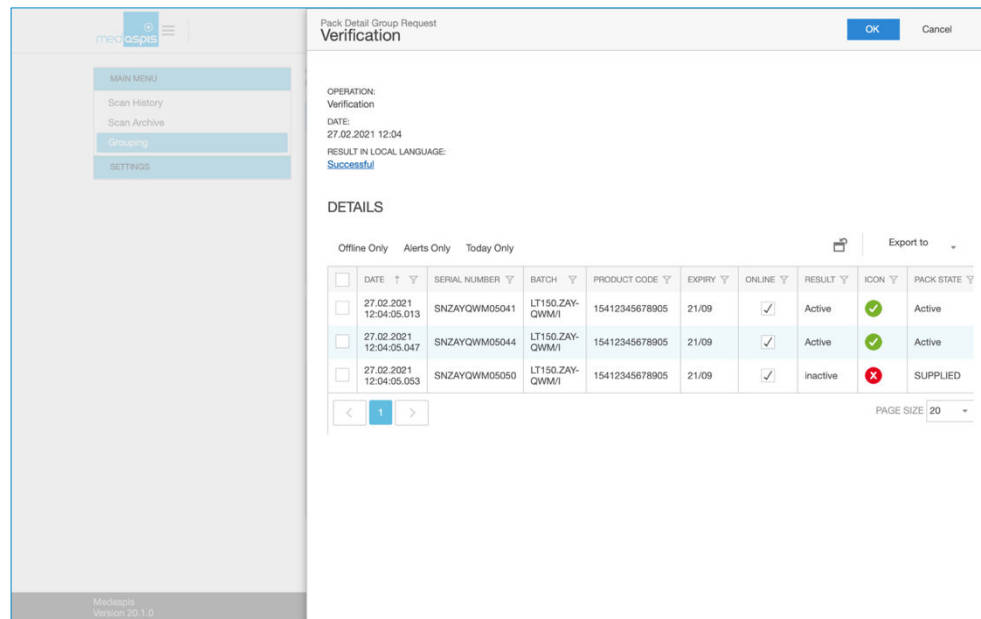
The medAspis system checks at increasing intervals whether the processing of the bulks is ready. As long as processing is not completed on the NMVS side, a blue icon with a rotated arrow is displayed.

Requests		Packs	Grouped Packs
OPERATION		DATE	ICON
<input type="checkbox"/>	Verification	15.05.2020 16:02	✓
<input type="checkbox"/>	Verification	25.02.2021 10:04	🔄
<input type="checkbox"/>	Verification	25.02.2021 10:04	✓

Whether processing is finished on the NMVS side can be determined by clicking the reload button. As soon as the data processing on the NMVS side is finished and can be retrieved, this icon is replaced by the result icon. The result of the bulk query then appears in the RESULT column and the corresponding green or red icon. The icon is a representation of the most negative single result of the packs. If only one pack has a negative result, the entire bulk is marked with the red cross.

Requests		Packs	Grouped Packs
DATE		OPERATION	ICON
<input type="checkbox"/>	15.05.2020 16:02	Verification	✓
<input type="checkbox"/>	25.02.2021 10:04	Verification	✓
<input type="checkbox"/>	27.02.2021 12:04	Verification	✗

More detailed information on the bulk operation is provided by clicking on the respective line. The immediately opening sub-window shows the packs contained in the grouping together with their respective FMD result. The view and functionality are the same as in the Scan History.



6.2.2 Special features of bulk operation in the Arvato system

Arvato handles the processing of bulk operations differently from the other two providers Solidsoft and securPharm in two respects:

Exception homogeneous bulks: Arvato allows wholesalers to process homogeneous bulks only. In these bulks, the product codes, batches and expiry dates must be the same for all packs. Only the serial number may vary. Requests with mixed bulks are returned as an error with no results reported on individual packs.

Exception: Return of individual pack results: As a rule, bulk operations return an individual pack result for each pack included. There is one exception to this rule at Arvato: If all the packs contained in a verify bulk operation have a positive result, an individual result is not delivered for each pack, but only for the entire bulk. There is only one result representing of all the packs included.

6.3 Working with Groupings

Groupings are usually used to apply FMD operations to existing business processes. Either packs of business processes such as deliveries are processed together, or packs in distribution units such as cartons or pallets are grouped together.

6.3.1 Status of a Grouping

Groupings can have different statuses. The status can be used to describe the state of the grouping. Example: Packs can still be added to an open grouping, a grouping with the status "Completed" can no longer be changed.

UNDEFINED	default value before usage
OPEN	a grouping is on the way to get established
COMPLETED	a grouping is finished and able to be used
VERIFIED	a grouping is checked the first time
EXPORT	an aggregation is exported to use by third party

6.4 Aggregation as a special form of grouping

Aggregations are sub-forms of groupings. Aggregations have all the attributes of groupings but no user-assigned name and they can be used more flexibly.

6.4.1 Aggregation Code as primary key of any Grouping

Groupings always have a primary key (unique name). In medAspis, the primary key is a 64bit long unique identifier in base-64 notation. In this notation, the primary key is formed from letters, numbers and common special characters. medAspis uses the characters: A-Z, a-z, 0-9, + and -. Prefixed with a "K!", an example is "K!E9j-I9S4TVI".



Each grouping – no matter what name the user assigns – has a primary key formed in this way. The reason: Within the medAspis system, all groupings must be clearly identifiable. However, it may be that different customers use the same delivery note numbers for their grouping, for example. To be sure that all groupings can always be reliably identified and assigned in the system, the primary key is the aggregation code automatically generated for each grouping. This can never be changed or manipulated.

6.4.2 Hierarchical structure of aggregates

Using the aggregation codes as primary keys, groupings can be organised hierarchically. Aggregations can be part of a super-aggregation. This hierarchical relationship can take place in as many levels as required.

6.4.3 Exporting aggregations

Aggregations can be made visible to third parties. If the status of an aggregation is set to EXPORT, the aggregation is visible for others and can be taken over into the own data structure. Aggregations are passed on, for example, by sticking the aggregation code on an aggregated box. The receiver sees the code, scans it and has taken the data into its own data structure.

6.4.4 Aggregation codes on stickers

For easy processing of aggregations, medAspis provides lists with aggregation numbers to its customers.

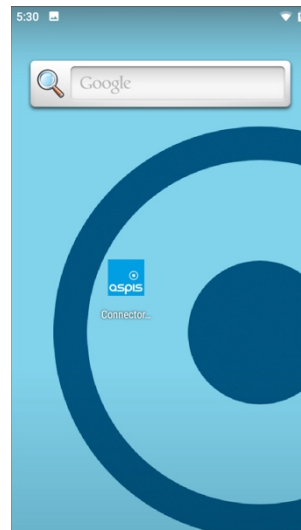
7 Attachment

7.1 Updating the Speed Scanner via F-Droid

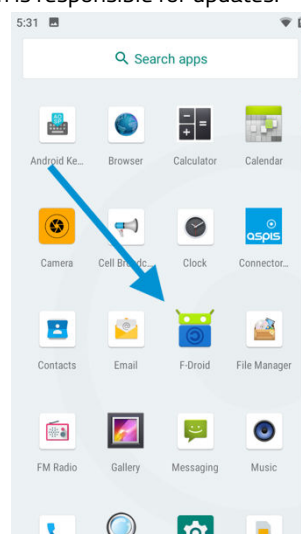
7.1.1 Manual Software Updating

medAspis will periodically issue updated versions of the application software. The system continuously checks for updates and installs them automatically. These automatic installations may – very rarely – not succeed, meaning the medAspis application update needs to be performed manually. Please see below the instructions for manual software updating.

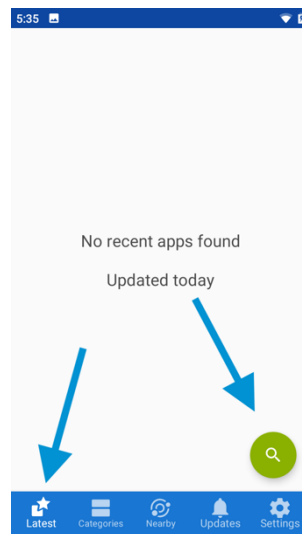
On the screen, just swipe up the screen and you open the list of programs on the device (Android users will be very familiar with this).



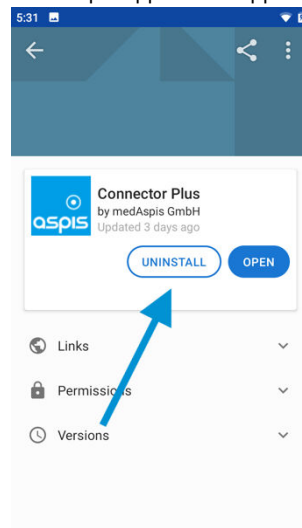
Select the application 'F-Droid'. This program is responsible for updates.



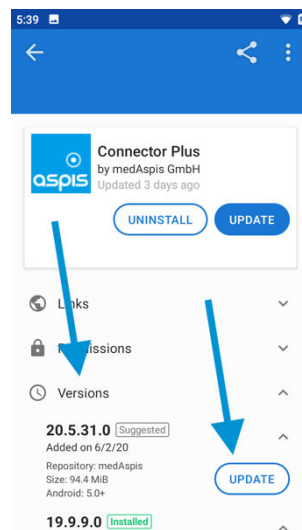
You should see the medAspis Connector+ application on the screen; if not, press 'Latest' on the bottom row. If you still do not see the medAspis Connector Plus application, try the search function on the bottom right and search for 'medAspis'. The application should be visible.



Tap the Connector+ application; details of the medAspis application appear.



You will be asked if you want to uninstall or open the medAspis application. Please choose to uninstall and complete the de-installation process. Do not worry, the application will not be lost; a fresh version will be reloaded.



Please click on 'Versions'. This shows several versions to choose from. Touch the top version labelled 'suggested' (this is the most up-to-date version).

Touch 'Install' and follow the installation instructions.

7.1.2 Automated Software Updating

Open the F-Droid (instructions are similar to Manual Software Updating) and click on Settings. A page will open that will be like the one in the picture below. Scroll down to see the Updates.



Configure the Automatic Updating similar to the settings in the picture. Make sure that the Speed Scanner remains connected to the Internet. Once a new release of software will be available, the F-Droid will register it and update the application.



7.2 Attachment: Icons

The symbols used in the system follow a colour scheme:

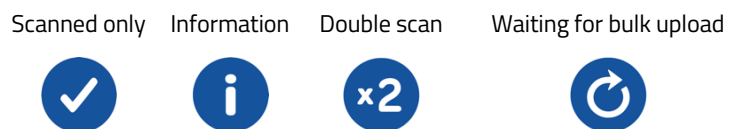
7.2.1.1 NMVS colours:

The symbols of the NMVS answers are shown in the familiar traffic light colours green, yellow and red.



7.2.1.2 System colours:

Other symbols for additional system information of the medAspis system are in blue.



7.3 Attachment: XML format for importing pack data

XML files with the following sample format can be imported.

```
<?xml version="1.0" encoding="UTF-8"?>
<Shipment snr="grouping">
  <Content dfi="IFA">
    <PPN>111234567842</PPN>
    <LOT>1A234B5</LOT>
    <EXP>151231</EXP>
    <SN>1234567890123456</SN>
  </Content>
  <Content dfi="GS1">
    <GTIN>04150123456792</GTIN>
    <LOT>1A234B6</LOT>
    <EXP>151232</EXP>
    <SN>1234567890123457</SN>
  </Content>
</Shipment>
```