Datafox GmbH • Dermbacher Straße 12-14 • D-36419 Geisa • www.datafox.de

Software Version 04.03.15
Datafox Companion

Flexible Data Acquisition Method

Issued: July 06th 2020 / 04.03.15.01

The software companion is an addition to the current manuals. It describes new functionality available with this software release.

The following figure shows, for which devices the following section apply – if no additional information is present there.
The affected individual devices are marked using the ☒ symbol.

			 4.3/4.6	 2.8/3.5	 Universal	 Inloc	 Mobil Box	 IO-Box	 Oneloc			 EVO-PC
☒	☒	☒	☒	☒	☒	☒	☒	☒	☒			☒

Content

1. Introduction

We appreciate your interest in the extended functionality of the new software release.

We aim to provide a quick start into the functional enhancements of firmware version 04.03.15 by providing this document.

The most recent software companion was associated to release 04.03.15 – you can access it though at the Datafox Website → “Download” → “Downloads Datafox Software” → “Download – Software Master IV – Hardware Version 4“.

1.1. Overview

With this firmware release we extended the functionality provided by our device generation V4.

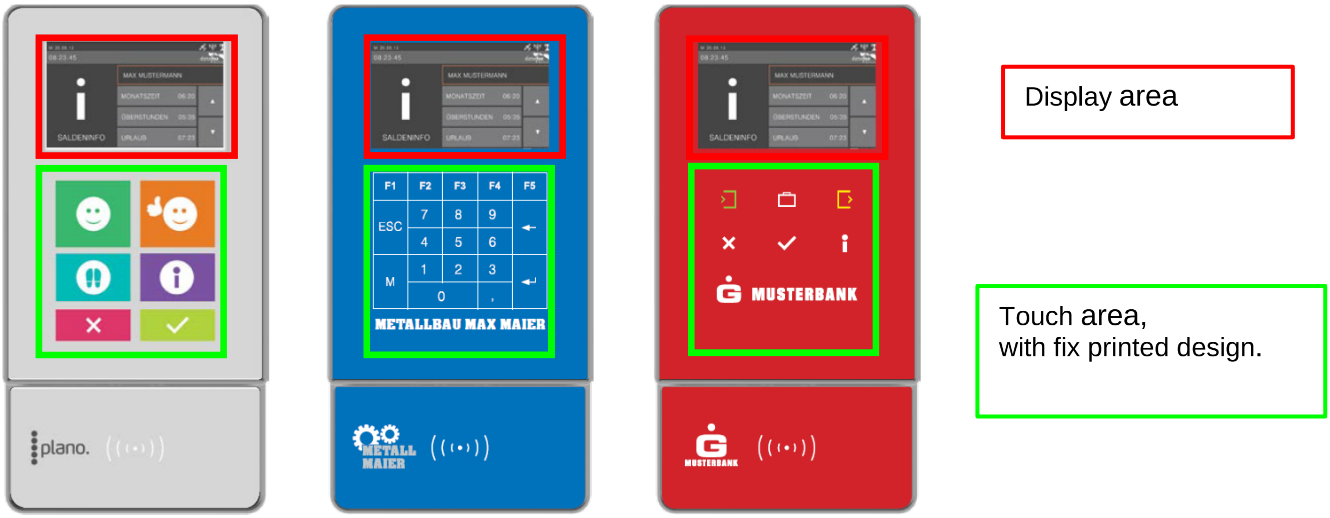
The most prominent feature is:

- New Device, Datafox EVO 4.6 Flex-Key
- New Device KYO-Cenloc Access-control Center
- KYO-Oneloc as adapter for interfacing with Wiegand readers and controllers
- Support for Hitag1 transponders using Feig ID encoding
- Sampling inputs with up to 5 Hz
- Table data manipulation directly at the device using http protocol
- Conversion of the device setup to and from an XML representation
- Network scanner for Datafox device included into DatafoxStudioIV.
- Fingerprint sensor administration for IPCs (optical fingerprint sensor)

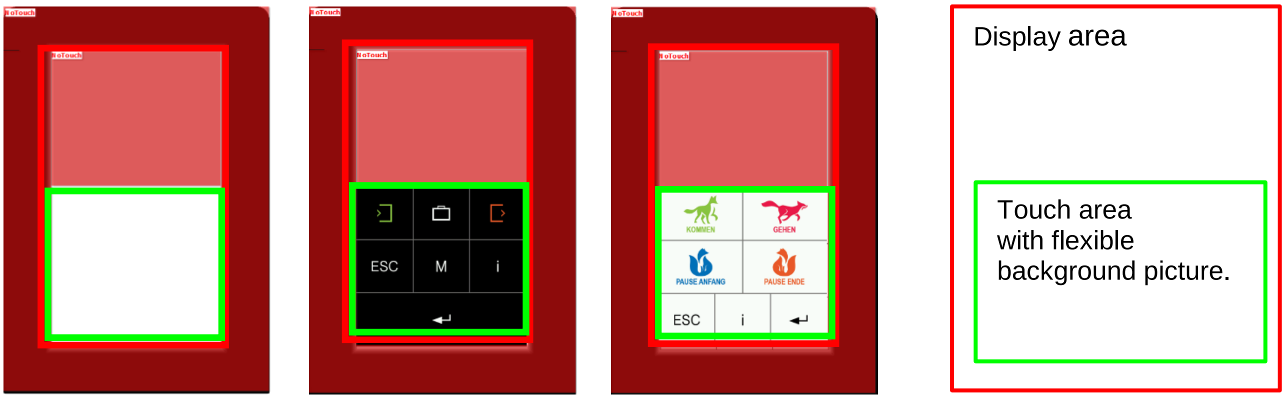
2. New Device, Datafox EVO 4.6 Flex-Key

You know our top seller EVO 4.3 Multi-Function Terminal.
Here you can let your imagination run wild when designing the device. Now it has been given another highlight, as you can give the design of the terminal a new touch at any time.
With the new terminal you can change the layout of the keyboard at any time.
So you are no longer bound to the fixed design of the function keys.

compare: EVO 4.3



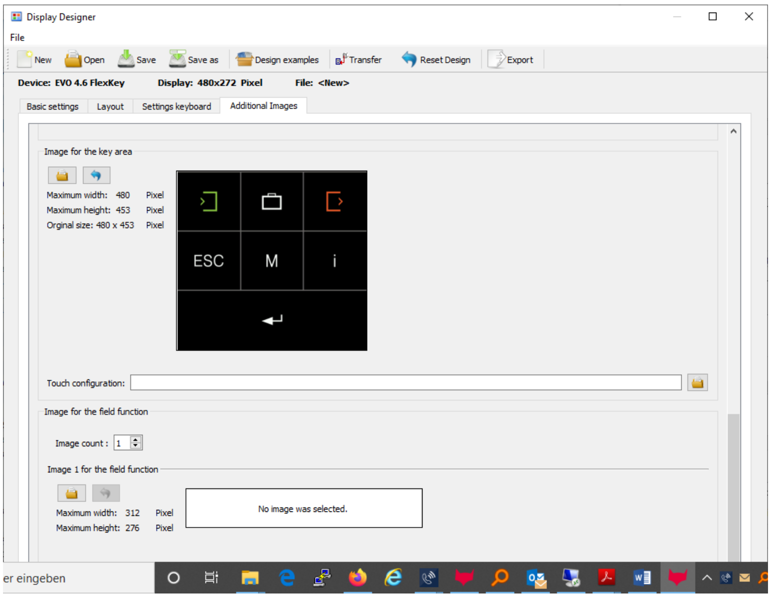
and: EVO 4.6 Flex-Key
The EVO 4.6 can be designed with a flexible background picture:



2.1. Keyboard graphics and touch configuration for the EVO 4.6 FlexKey

The representation of the touch buttons (Keyboard area) of the EVO 4.6 unlike the EVO 4.3, not by a printed layout of the glass front, but as a graphic file, which is shown on the display. This is individually changeable and customizable as needed. This keyboard graphic and the associated touch configuration can be edited in the menu "Image for the key area" on the EVO 4.6. The following apply to the graphic restrictions:

width:	up to 480 pixels
height:	up to 453 pixels
filename:	*touch_buttons.bmp*



Device: EVO 4.6 FlexKey Display: 480x272 Pixel File: <New>

Image for the key area

Maximum width: 480 Pixel
Maximum height: 453 Pixel
Orginal size: 480 x 453 Pixel

Touch configuration:

Image for the field function

Image count : 1

Image 1 for the field function

Maximum width: 312 Pixel
Maximum height: 276 Pixel

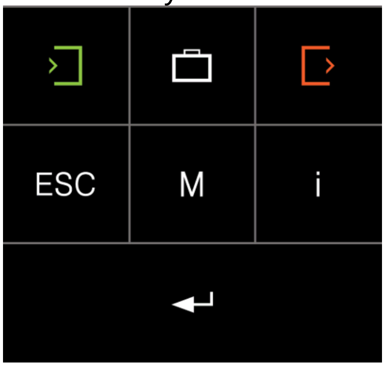
No image was selected.

> ☞ **Note:**
> After the graphic has been transferred to the device, it is displayed immediately. This also applies when replacing an existing keyboard graphic.

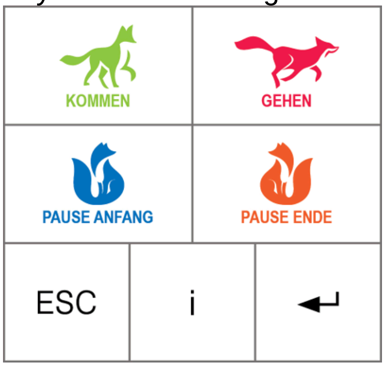
The associated touch file can be created as usual in the DatafoxStudioIV for the respective keyboard layout. See chapter "Configuration of touch data".
This can be selected directly for the corresponding keyboard image and transferred together with the display design.

Example picture for the touch:

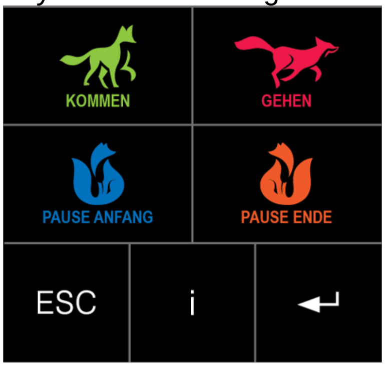
Standard Layout



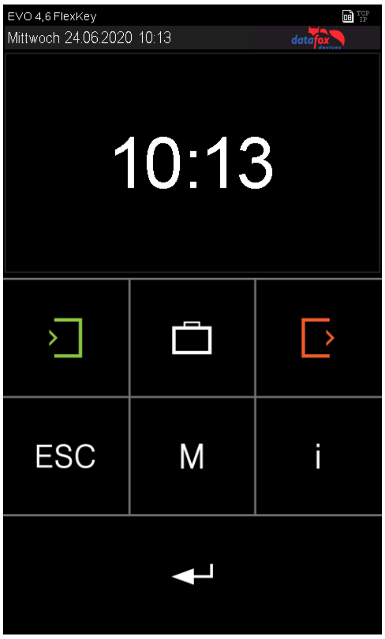
Layout with fox-design white

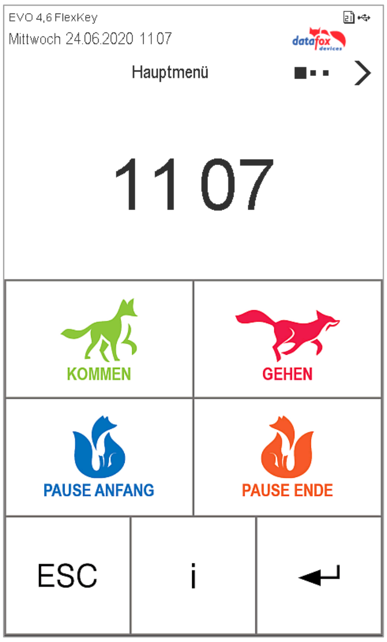


Layout with fox-design black



Example complete display:





Note:
You find the graphic in the installation file of the DatafoxStudioIV.
Here the directory path: C:\ or D:\DatafoxStudioIV 04.03.15.01\data\ui\EVO_4_6

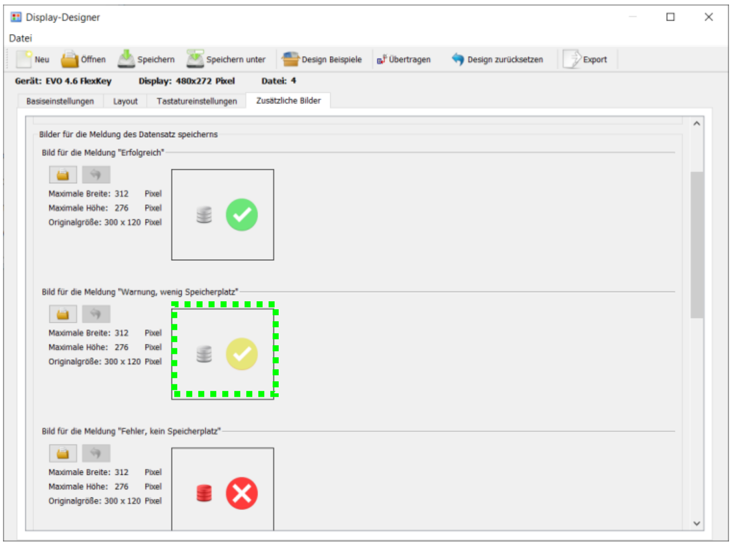
2.2. Picture for save record message

The three confirmation messages after completion and storage of a Record can Now be shown with a Graphic.

The graphics to be seen are standard and are instead of the messages shown on the display of the terminal.

If you want to set your own pictures for these messages, they have to be set and transmitted once.

The file names must follow name restrictions as followed:



Gerät: EVO 4.6 FlexKey   Display: 480x272 Pixel   Datei: 4

Bilder für die Meldung des Datensatz speicherns

Bild für die Meldung "Erfolgreich"

Maximale Breite: 312 Pixel
Maximale Höhe: 276 Pixel
Originalgröße: 300 x 120 Pixel

Bild für die Meldung "Warnung, wenig Speicherplatz"

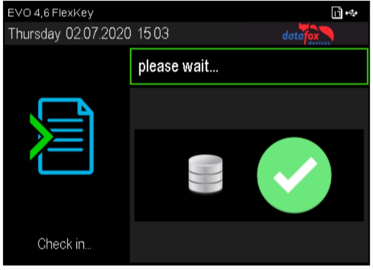
Maximale Breite: 312 Pixel
Maximale Höhe: 276 Pixel
Originalgröße: 300 x 120 Pixel

Bild für die Meldung "Fehler, kein Speicherplatz"

Maximale Breite: 312 Pixel
Maximale Höhe: 276 Pixel
Originalgröße: 300 x 120 Pixel

filename - Data storage successful !:	*save_ok.bmp*
filename - Data storage almost full:	*save_warning.bmp*
filename - Data store full! Notify admin !:	*save_error.bmp*

Data storage successful !



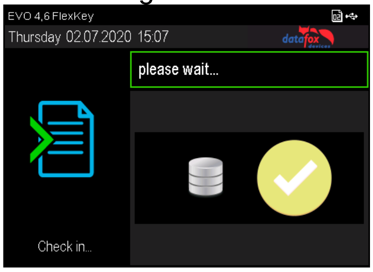
EVO 4,6 FlexKey

Thursday 02.07.2020 15:03

please wait...

Check in...

Data storage almost full



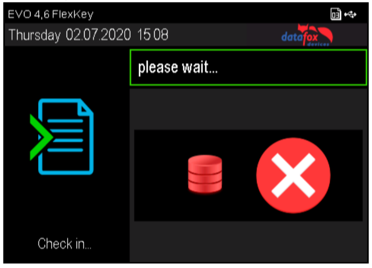
EVO 4,6 FlexKey

Thursday 02.07.2020 15:07

please wait...

Check in...

Data store full!
Notify admin !



EVO 4,6 FlexKey

Thursday 02.07.2020 15:08

please wait...

Check in...

☞ **Note:**
The graphics do not have to be activated separately, i.e. it is sufficient to transfer them to the device. As soon as one of the graphics is available, it is always displayed instead of the text.

This option is available for all terminals with colour display:

PZE-MasterIV	PZE-MasterIV Basic	AE-MasterIV	EVO 4.6	EVO 4.3	EVO 3.5 Pure	EVO 3.5 Universal	EVO 2.8 Pure
☒	☒	☒	☒	☒	☒	☒	☒

2.3. Image display in the main menu

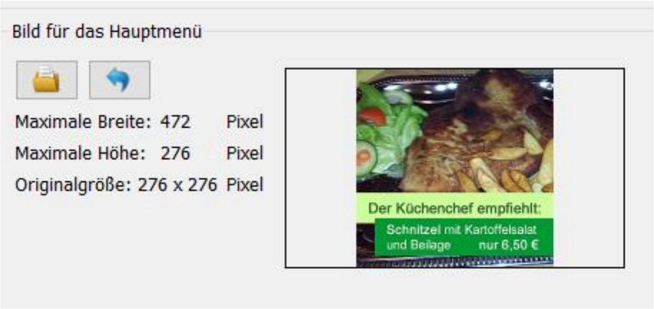


Bild für das Hauptmenü

Maximale Breite: 472 Pixel

Maximale Höhe: 276 Pixel

Originalgröße: 276 x 276 Pixel

Der Küchenchef empfiehlt:
Schnitzel mit Kartoffelsalat
und Beilage nur 6,50 €

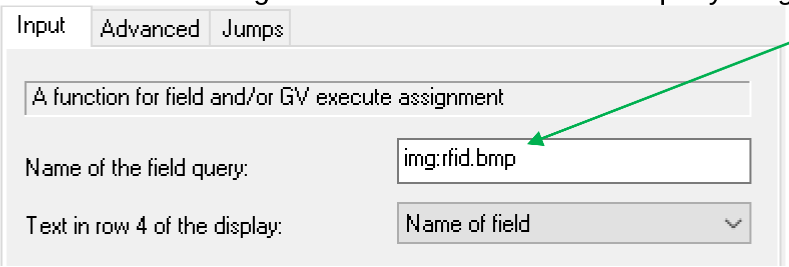
In the main menu of the terminal you can now choose a graphic instead of the "big clock", global variables, etc.
This can include information such as the appointment for the next company party or the current canteen meal plan.

File name: *main.bmp*

☞ **Note:**
To activate the graphic, it is sufficient to transfer it to the device. I.e. as soon as it is available in the device, it is displayed preferentially when changing to the main menu. The other main menu pages activated in the display designer can still be reached by swiping.

2.4. Show images during inputs

In the input fields "Normal", "Fingerprint", "Confirmation" and "Display or wait message" it is possible to display an image instead of text or the large clock.
The name of the input field defines which stored image is displayed. The image name must be entered in the following form in the name of the field query. *:img: images.bmp*



A function for field and/or GV execute assignment

Name of the field query: img:rfid.bmp

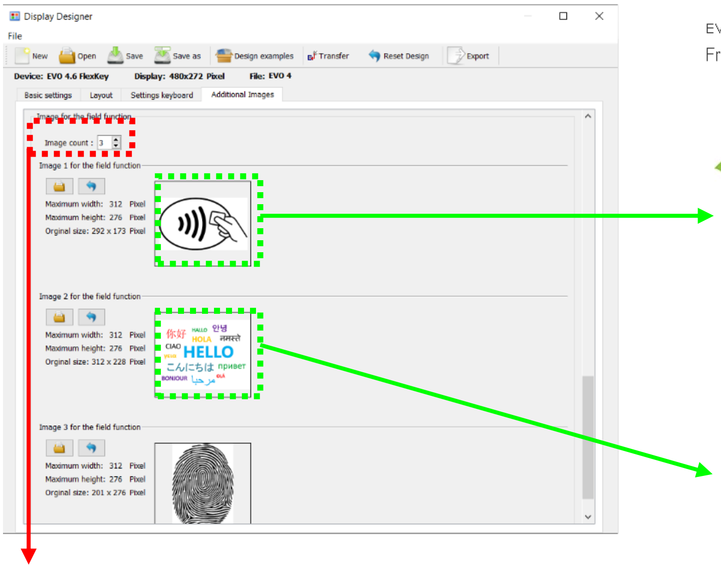
Text in row 4 of the display: Name of field

Here you must replace images.*bmp* with the name of the images. Ex. *„rfid.bmp*“.

! **Caution:**
Since a maximum of 16 characters can be entered for the name of the field query and the label for an image must begin with ": img:", the actual image name may consist of a maximum of eleven characters.

! **Caution:**
With the PZE and AE MasterIV devices, this function is only available in conjunction with a color display. This feature is not possible for EVO 2.8 Pure, EVO 3.5 Pure and EVO 3.5 Universal, otherwise the F-keys for operation could no longer be displayed.

Example: Field function „Normal“ & „Show message“:



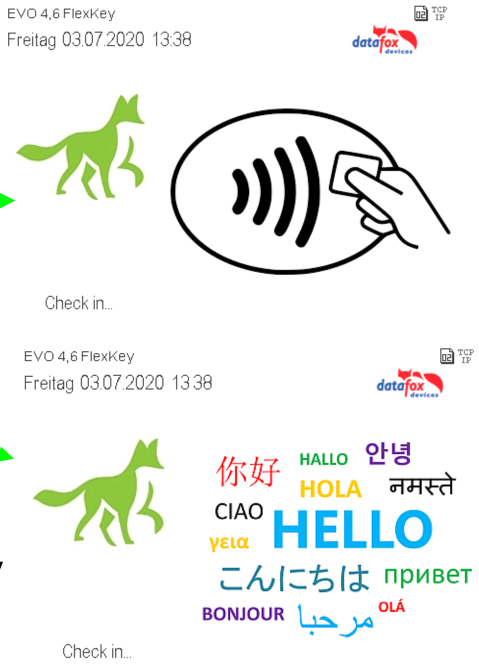
Device: EVO 4.6 FlexKey Display: 480x272 Pixel File: EVO 4

Image count : 3

Image 1 for the field function: Maximum width: 312 Pixel; Maximum height: 276 Pixel; Orginal size: 292 x 173 Pixel

Image 2 for the field function: Maximum width: 312 Pixel; Maximum height: 276 Pixel; Orginal size: 312 x 228 Pixel

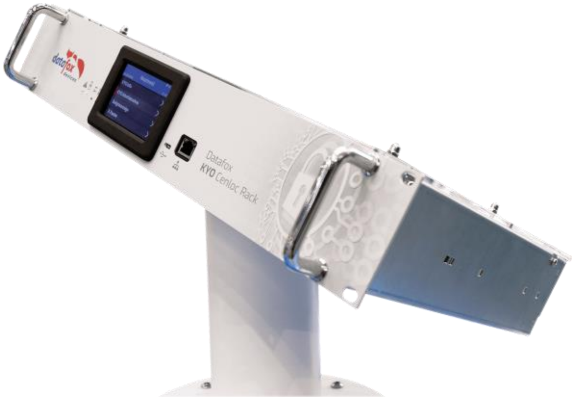
Image 3 for the field function: Maximum width: 312 Pixel; Maximum height: 276 Pixel; Orginal size: 201 x 276 Pixel

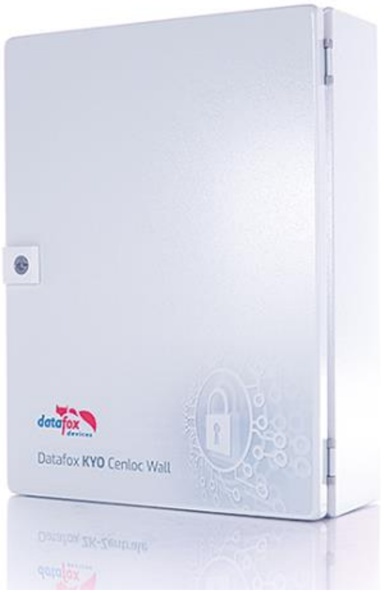


The number of images to be loaded can be individually set. All the pictures linked here
are also transferred to the terminal.
If these are not referenced in an input field,
the images are not displayed either.
In this case, note that the available
storage space in the terminal is thereby reduced.

3. Access-control central „KYO-Cenloc“

We have achieved a milestone in the area of access with the new access control center.
The KYO-Cenloc is available in 19-inch and as a wall housing.





The main features:

- Up to 16 readers star-shaped
- Up to 64 ZK readers
- Up to 32 relays
- Up to 32 digital inputs
- Burglar alarm system connection

You will find a detailed description in the manual.
https://www.datafox.de/downloads-datafox-kyo-cenloc.de.html?file=files/Datafox_Devices/Downloads_Geraete_Zubehoer/350_KYO-Cenloc/Datafox%20KYO%20Cenloc%20V4%20Handbuch%20V04.03.13%202019.11.05-DE.pdf

4. KYO-Oneloc as adapter for interfacing with Wiegand systems

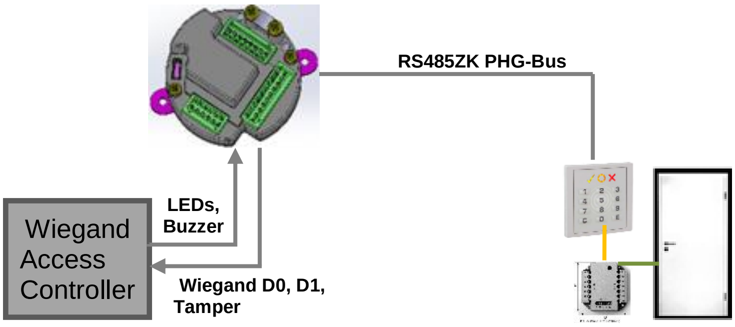
A detailed description is available in the KYO-Oneloc manual.

https://www.datafox.de/downloads-datafox-kyo-oneloc.de.html?file=files/Datafox_Devices/Downloads_Geraete_Zubehoer/340_ZK-Knoten/Datafox%20KYO%20Oneloc%20Handbuch%20V04.03.14%202020.02.04%20DE.pdf

4.1. Using the KYO-Oneloc to interface with a Wiegand Controller (CWC)

The converter enables connecting an access control reader with RS 485 interface and phg_crypt protocol to an access controller with Wiegand interface.

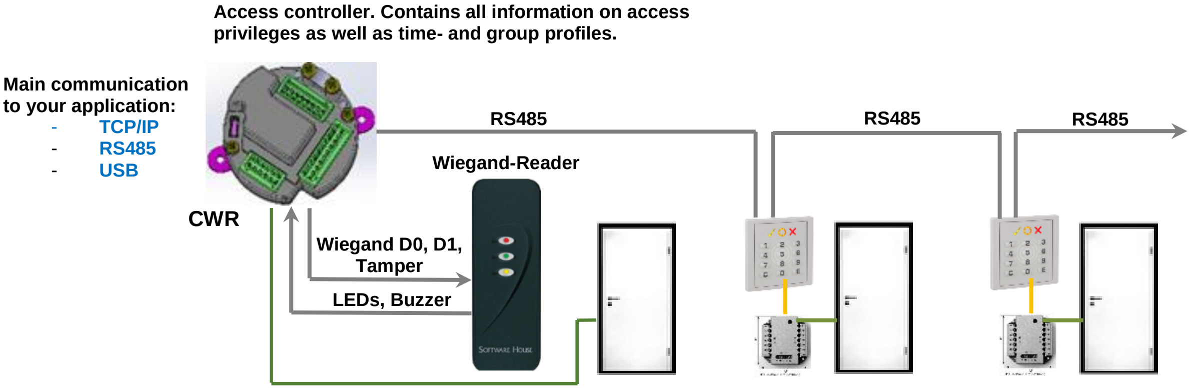
Schematics:



4.2. Using the KYO-Oneloc as access controller with a Wiegand Reader (CWR)

The KYO-Oneloc CWR can be used as an access controller so that no additional controller is required.
CWR consists out of a KEY-Oneloc with additional transponder module 047.

Schematics


Access controller. Contains all information on access privileges as well as time- and group profiles.

Main communication to your application:
- TCP/IP
- RS485
- USB

5. Support for Hitag1 transponders using Feig ID encoding

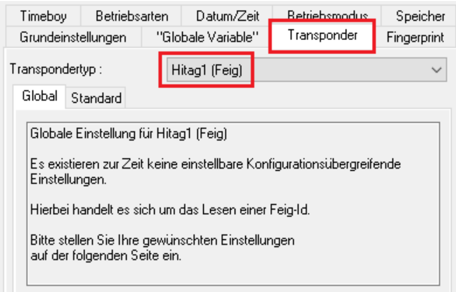
Tags using the transponder method Hitag1, may have an ID encoded into segments in addition to the transponder's serial number – the Feig ID. The Feig ID consists out of 24 hexadecimal digits and can be decoded using a specific algorithm and the serial number from the data segments.

In order to decode the Feig ID from a Hitag1 transponder, the Datafox Firm- and Software has been extended. These extensions are part or release 04.03.15. To access a Hitag1 transponder, a MasterIV device and a 125 kHz transponder reader is required – either within the terminal or an access control bus. The Feig ID may be used for time and attendance tracking as well as for access control.

5.1. Configuration using the DatafoxStudioIV

5.1.1. Selection of the transponder method

The transponder type at the tab „Transponder“ has to be set to „Hitag1 (Feig)”. The sub-tab "Standard" has additional settings for data processing explained in the next section.



Transpondertyp : Hitag1 (Feig)

Globale Einstellung für Hitag1 (Feig)

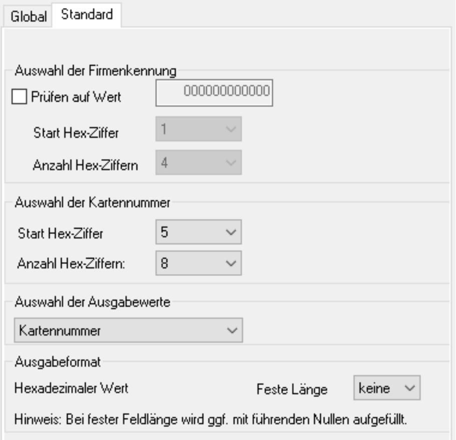
Es existieren zur Zeit keine einstellbare Konfigurationsübergreifende Einstellungen.

Hierbei handelt es sich um das Lesen einer Feig-Id.

Bitte stellen Sie Ihre gewünschten Einstellungen
auf der folgenden Seite ein.

5.1.2. Settings concerning the Feig-ID decode algorithm

Depending on the use case, the Feig ID is separated into a company ID and a card ID. Using the company ID different company locations may be distinguished. Combination of company ID and card ID results in a unique ID.



Auswahl der Firmenkennung

☐ Prüfen auf Wert 000000000000

Start Hex-Ziffer 1

Anzahl Hex-Ziffern 4

Auswahl der Kartennummer

Start Hex-Ziffer 5

Anzahl Hex-Ziffern: 8

Auswahl der Ausgabewerte

Kartennummer

Ausgabeformat

Hexadezimaler Wert Feste Länge keine

Hinweis: Bei fester Feldlänge wird ggf. mit führenden Nullen aufgefüllt.

Using the setting „Selection of the company identified“ the sub-section of the Feig-ID containing the company ID may be specified. In addition the device can be instructed to match a specific company ID here. Should the transponder not match this company ID, the attempt to perform **time and attendance** clocking is rejected and a message displayed (provided the device is equipped with a display).

In the access control context the controller does not check a clocking with mismatching company ID, so it is not possible to store the transponder id in a data record. Thus transponders with card ID contained in the identification list are rejected if the company ID is incorrect.

!

Attention:
If an access control clocking is rejected due to mismatching company ID, no data record containing the transponder ID is created. The only way to retrieve the transponder value is by accessing the device’s system log.

The section „Selection of card number“ is used to define the part of the Feig ID containing the card ID. Additionally “Selection of output values” may be used to choose, if the card ID is returned either with or without the company ID prefix. Storing the result is done in hexadecimal encoding – the length may be defined by the “Fixed length” control.

6. Enhancements to the http API

6.1. New function

The functions described here are part of the „Datafox data protocol http(s)-communication“, Version 1.10. The subsections here are copied from before mentioned document.

6.1.1. Count number of records within a table (df_table_count) [04.03.15.01]

Returns the number of records stored inside a table. These values are differentiated into

- The total number of active table rows (rows, that are not marked as having been deleted),
- The number of lines added to the table without being sorted,
- The number of deleted lines.

Parameter name	**Meaning**
Table/List name	LIST.<name> or ACCESS.<name>

The result is sent as a KVP records with following structure:

URL	**Description**
`http://<host>:<port>/<base-url>?`	
`df_api=1&`	
`df_type=kvp&`	No data record – a key value pair is being sent.
`kv=table,list.PID&`	Name of the table for which statistical data is being sent.
`kv=count,220&`	The table contains 220 active entries.
`kv=appended,12&`	There are 12 rows that are appended to the table.
`kv=deleted,18`	Within the table there are 18 rows marked as having been deleted.

☞ **Please note:**
The performance for accessing a table’s data will deteriorate as more and more data is either being deleted or appended in an unsorted way. If the access times are not good any more, consider reading the table’s data, sorting it and rewriting the table to the device. Having a sorted table store inside the device offers best access time when using the key column based queries.

! **Attention:**
The list data transferred to the device has to be **sorted according to the key column** configured by the setup.
List data provided in an unsorted way is marked as being unsorted by the device and may result in longer access times.

6.1.2. Select a row from a table (df_table_select) [04.03.15.01]

This command allows retrieving list data – or a part thereof – and allows sending it to the server.

Examples:

```
df_table_select=list.PID
df_table_select=access.IDENTIFICATION
```

Parameter name	Meaning
Table/List name	LIST.<name> or ACCESS.<name>
Server path	Path on the server where the file containing the data is to be uploaded to.
Fist filter criterion	<Column name>=<Value>
Second filter criterion	<Column name>=<Value>

Examples (the table PID consists out of four columns: PID, Name, Department (“Abteilung”), Date (“Datum”):

```
df_table_select=list.PID,/upload/form
df_table_select=list.PID,/upload/form,Abteilung%3dEntwicklung
df_table_select=list.PID,/upload/form,Abteilung%3dEntwicklung,PID%3d5
```

Above selection provide

- all list entries from the PID table,
- all list entries where the Department is set to „Entwicklung“
- all list entries where the Department is set to „Entwicklung“ and the PID is 5

6.1.3. Append data to a table (df_table_append) [04.03.15.01]

Append a single line to a table. For sorted table the entry is appended in an unsorted section of the table. It is required to send all table fields as a comma separated list.

Parameter name	Meaning
Table/List name	LIST.<name> or ACCESS.<name>
Data records	The data to be appended to the list.

Examples (the table PID consists out of four columns: PID, Name, Department (“Abteilung”), Date (“Datum”):

```
df_table_append=list.PID,5,Sven%20Meyer,Entwicklung,
df_table_append=list.PID,9999,,Besucher,
```

The operation will be confirmed by sending a system message that informs on success or error when appending the data row.

6.1.4. Update a table (df_table_update) [04.03.15.01]

Parameter name	Meaning	
Table/List name	LIST.<name> or ACCESS.<name>	
Fist filter criterion	<Column name>=<Value>	
Second filter criterion	<Column name>=<Value>	
First column to be changed	<Column name>=<Value>	Values from maximally 4 columns may be changed in this way.
Optional additional columns to be changed	<Column name>=<Value>	

Examples (the table PID consists out of four columns: PID, Name, Department (“Abteilung”), Date (“Datum”):

```
df_table_update=list.PID,,,Abteilung%3d
df_table_update=list.PID,Abteilung%3dEntwicklung,,Abteilung%3dDevelop-
ment
df_table_update=list.PID,Abteilung%3dEntwicklung,PID%3d5,Datum%3d2019-
09-06T06:23:00
```

The first instruction clears the “Abteilung”-column from the PID table.

The second instruction changes the “Abteilung” column’s value to “Development” wherever the column contained “Entwicklung” previously.

The third instruction changes the “Datum” column’s value to 06:23:00 on September 6th 2019 for all rows where PID column has the value 5. You may change the values of up to four columns by a single df_table_update statement.

! **Attention:**
Internally the rows selected are marked as deleted and new rows are appended to the table.

6.1.5. Delete data from a table (df_table_delete) [03.04.15.01]

Parameter name	Meaning
Table/List name	LIST.<name> or ACCESS.<name>
Second filter criterion	<Column name>=<Value>
First column to be changed	<Column name>=<Value>

Examples (the table PID consists out of four columns: PID, Name, Department (“Abteilung”), Date (“Datum”):

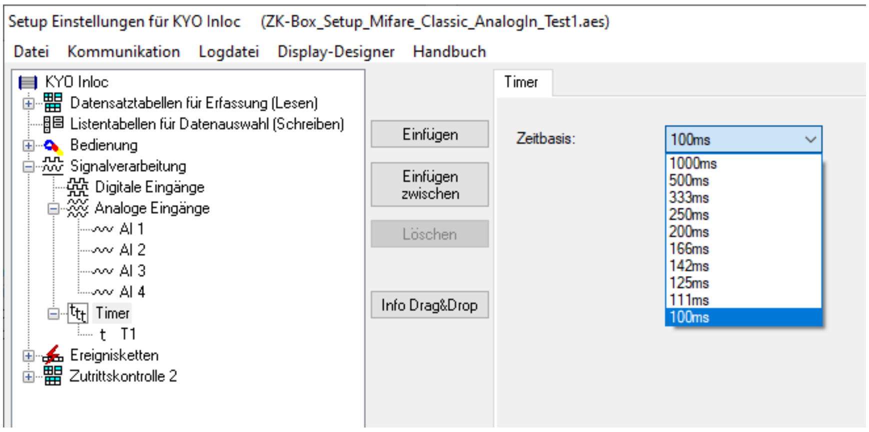
```
df_table_delete=list.PID
df_table_delete=list.PID,Abteilung%3dEntwicklung
df_table_delete=list.PID,Abteilung%3dEntwicklung,PID%3d5
```

Similar to the `df_table_select` command, this command deletes the rows matched by the filter criteria. Above examples delete

- All rows from the table PID,
- All rows from the table PID where the column „Abteilung“ contains the value „Entwicklung“
- All rows from the table PID where the column „Abteilung“ contains the value „Entwicklung“ and „PID“ contains the value „5“.

7. Sampling input with up to 5 Hz

In order to use times to record more than one record per second, timeout periods less than a second have to be specified. Since the setup only allows integers here, a global divider has been added that influences **all** times.
The divider may have values from 1 to 10.
This results in the following “time bases”:



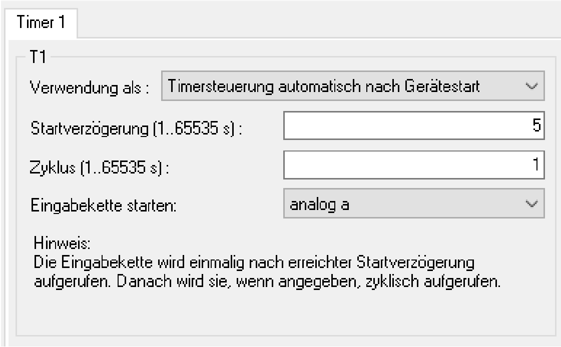
Setup Einstellungen für KYO Inloc (ZK-Box_Setup_Mifare_Classic_AnalogIn_Test1.aes)

Zeitbasis: 100ms

1000ms
500ms
333ms
250ms
200ms
166ms
142ms
125ms
111ms
100ms

Examples:

- A Timer with cycle setting of 10 and a base time of 100ms fires every second.
- A Timer with cycle setting of 10 and a base time of 500ms fires every 5 seconds.
- A Timer with cycle setting of 10 and a base time of 250ms fires every 2.5 second.



Verwendung als : Timersteuerung automatisch nach Gerätestart

Startverzögerung (1..65535 s) : 5

Zyklus (1..65535 s) : 1

Eingabekette starten: analog a

Hinweis:
Die Eingabekette wird einmalig nach erreichter Startverzögerung aufgerufen. Danach wird sie, wenn angegeben, zyklisch aufgerufen.

!

Attention:
Please ensure that retrieving records from the device is necessary and take precautions against server or network failure. Producing data records at a cycle time less than 1 second will result in many data records being produced.

You should not try to create more than 10 records per second with the device. Otherwise the server will not be able to read the records as quickly as they are being produced.

☞

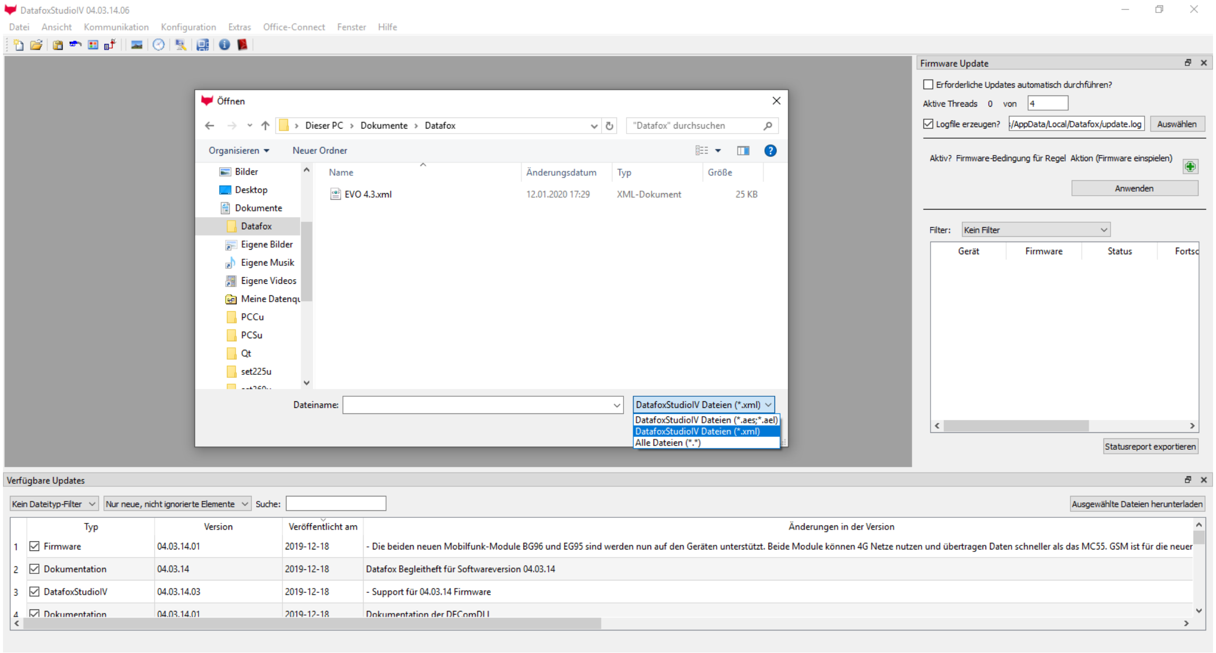
Please note:
The timer base is evaluate when starting the device. It is necessary to restart the device when changing the timer basis.

8. Conversion of the device setup to and from an XML representation

Starting with Version 04.03.14.06 Datafox Studio and the DFCom Communication library support the setup file in plain text format (XML based). This document sums up how to use and implement the extensions.

8.1. Datafox Studio: Open setup file

The action “Open…” has been extended, so that file of type XML can be read (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). When the file is opened, the XML structure is analyzed and checked to see if it is a processable setup configuration.



Name	Änderungsdatum	Typ	Größe
EVO 4.3.xml	12.01.2020 17:29	XML-Dokument	25 KB

Dateiname:

DatafoxStudioIV Dateien (*.xml)

- DatafoxStudioIV Dateien (*.aes;*.ael)
- DatafoxStudioIV Dateien (*.xml)
- Alle Dateien (*.*)

☐ Erforderliche Updates automatisch durchführen?

Aktive Threads 0 von 4

☑ Logfile erzeugen? :/AppData/Local/Datafox/update.log Auswählen

Aktiv? Firmware-Bedingung für Regel Aktion (Firmware einspielen)

Filter: Kein Filter

Gerät	Firmware	Status	Fortsc

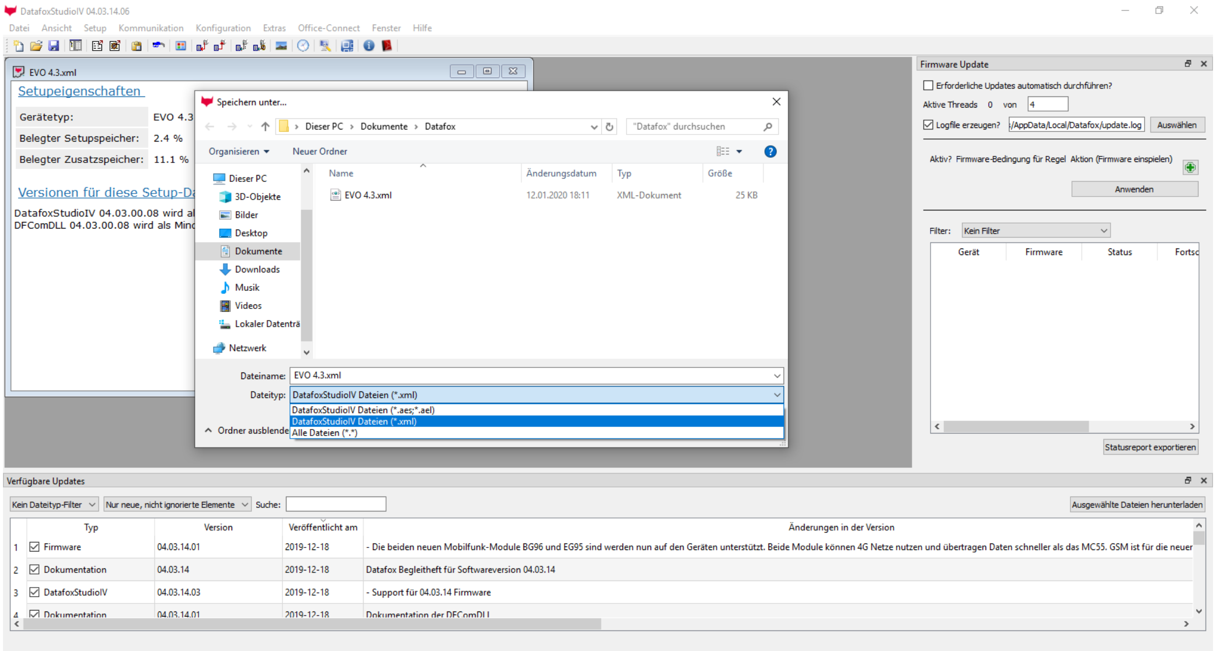
Kein Dateityp-Filter | Nur neue, nicht ignorierte Elemente | Suche:

	Typ	Version	Veröffentlicht am	Änderungen in der Version
1	☑ Firmware	04.03.14.01	2019-12-18	- Die beiden neuen Mobilfunk-Module BG96 und EG95 sind werden nun auf den Geräten unterstützt. Beide Module können 4G Netze nutzen und übertragen Daten schneller als das MC55. GSM ist für die neuer
2	☑ Dokumentation	04.03.14	2019-12-18	Datafox Begleitheft für Softwareversion 04.03.14
3	☑ DatafoxStudioIV	04.03.14.03	2019-12-18	- Support für 04.03.14 Firmware
4	☑ Dokumentation	04.03.14.01	2019-12-18	Dokumentation der DFComDLL

Figure 1 – Opening an XML file

8.2. Datafox Studio: Save file as

The action “Save as…” has been extended so that the active document may be saved as an XML document (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). Depending on the current setup’s format this implies duplicating the setup (if the setup was an XML file already) or converting it (if the setup was in binary format)



DatafoxStudioIV 04.03.14.06

EVO 4.3.xml

Setupeigenschaften

Gerätetyp:	EVO 4.3
Belegter Setupspeicher:	2.4 %
Belegter Zusatzspeicher:	11.1 %

Versionen für diese Setup-Da

DatafoxStudioIV 04.03.00.08 wird al
DFComDLL 04.03.00.08 wird als Minc

Speichern unter...

Dieser PC › Dokumente › Datafox

Name	Änderungsdatum	Typ	Größe
EVO 4.3.xml	12.01.2020 18:11	XML-Dokument	25 KB

Dateiname: EVO 4.3.xml

Dateityp: DatafoxStudioIV Dateien (*.xml)

- DatafoxStudioIV Dateien (*.aes;*.ael)
- DatafoxStudioIV Dateien (*.xml)
- Alle Dateien (*.*)

Firmware Update

□ Erforderliche Updates automatisch durchführen?

Aktive Threads 0 von 4

☑ Logfile erzeugen? :/AppData/Local/Datafox/update.log

Filter: Kein Filter

Verfügbare Updates

Kein Dateityp-Filter | Nur neue, nicht ignorierte Elemente | Suche:

	Typ	Version	Veröffentlicht am	Änderungen in der Version
1	☑ Firmware	04.03.14.01	2019-12-18	- Die beiden neuen Mobilfunk-Module BG96 und EG95 sind werden nun auf den Geräten unterstützt. Beide Module können 4G Netze nutzen und übertragen Daten schneller als das MC55. GSM ist für die neuer
2	☑ Dokumentation	04.03.14	2019-12-18	Datafox Begleitheft für Softwareversion 04.03.14
3	☑ DatafoxStudioIV	04.03.14.03	2019-12-18	- Support für 04.03.14 Firmware
4	☑ Dokumentation	04.03.14.01	2019-12-18	Dokumentation der DFComDLL

Figure 2 – Save XML file

8.2.1. Duplicate setup file

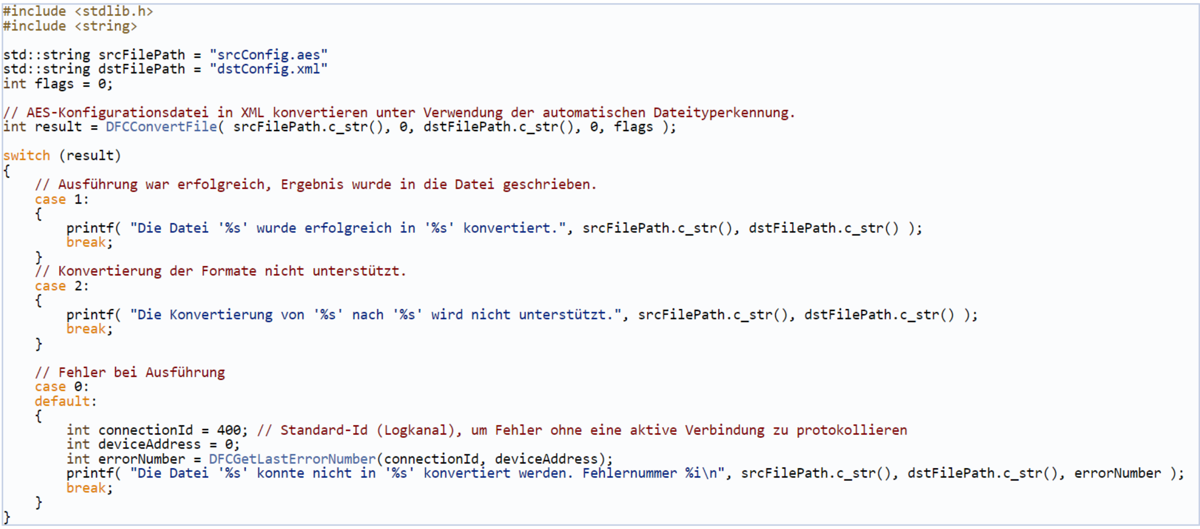
Saving a setup file with a new filename retains the file extension and thus the format.

8.2.2. Convert setup file

Choosing a different file format when saving a setup file will result in the setup file being converted automatically.

8.3. DFComDLL: Convert setup file

Using the communication library existing setup file (*.aes) may be converted directly to the XML format.



```
#include <stdlib.h>
#include <string>

std::string srcFilePath = "srcConfig.aes"
std::string dstFilePath = "dstConfig.xml"
int flags = 0;

// AES-Konfigurationsdatei in XML konvertieren unter Verwendung der automatischen Dateityperkennung.
int result = DFCConvertFile( srcFilePath.c_str(), 0, dstFilePath.c_str(), 0, flags );

switch (result)
{
    // Ausführung war erfolgreich, Ergebnis wurde in die Datei geschrieben.
    case 1:
    {
        printf( "Die Datei '%s' wurde erfolgreich in '%s' konvertiert.", srcFilePath.c_str(), dstFilePath.c_str() );
        break;
    }
    // Konvertierung der Formate nicht unterstützt.
    case 2:
    {
        printf( "Die Konvertierung von '%s' nach '%s' wird nicht unterstützt.", srcFilePath.c_str(), dstFilePath.c_str() );
        break;
    }

    // Fehler bei Ausführung
    case 0:
    default:
    {
        int connectionId = 400; // Standard-Id (Logkanal), um Fehler ohne eine aktive Verbindung zu protokollieren
        int deviceAddress = 0;
        int errorNumber = DFCGetLastErrorNumber(connectionId, deviceAddress);
        printf( "Die Datei '%s' konnte nicht in '%s' konvertiert werden. Fehlernummer %i\n", srcFilePath.c_str(), dstFilePath.c_str(), errorNumber );
        break;
    }
}
```

A detailed description of the function *DFCConvertFile* is part of the communication library’s documentation.

8.4. DFComDLL: Reading an XML setup file

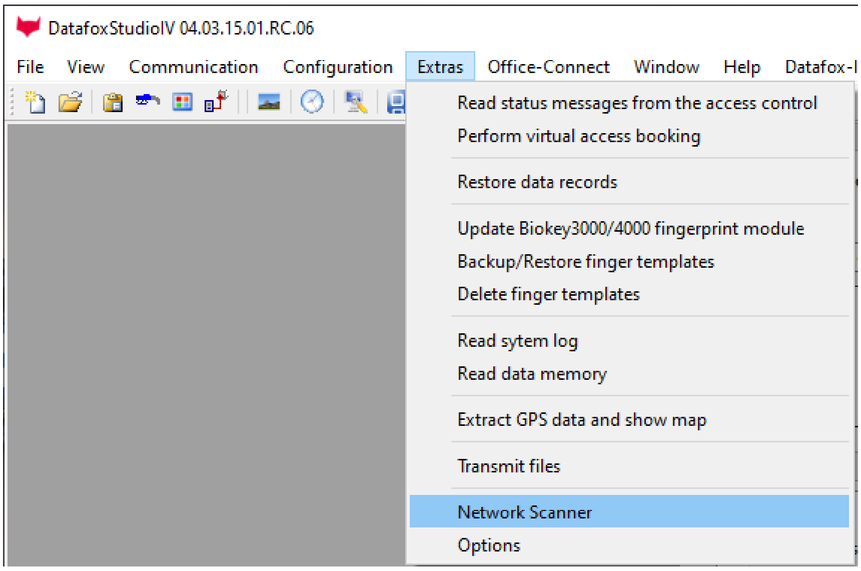
The function *DFCDownload* has been extended so that configuration files in XML format may be created directly when retrieving a setup from a device. Depending on the extension of the file to save to, the setup is stored in binary format (.aes / .ael) or as XML format (.xml).

8.5. DFComDLL: Writing an XML setup file

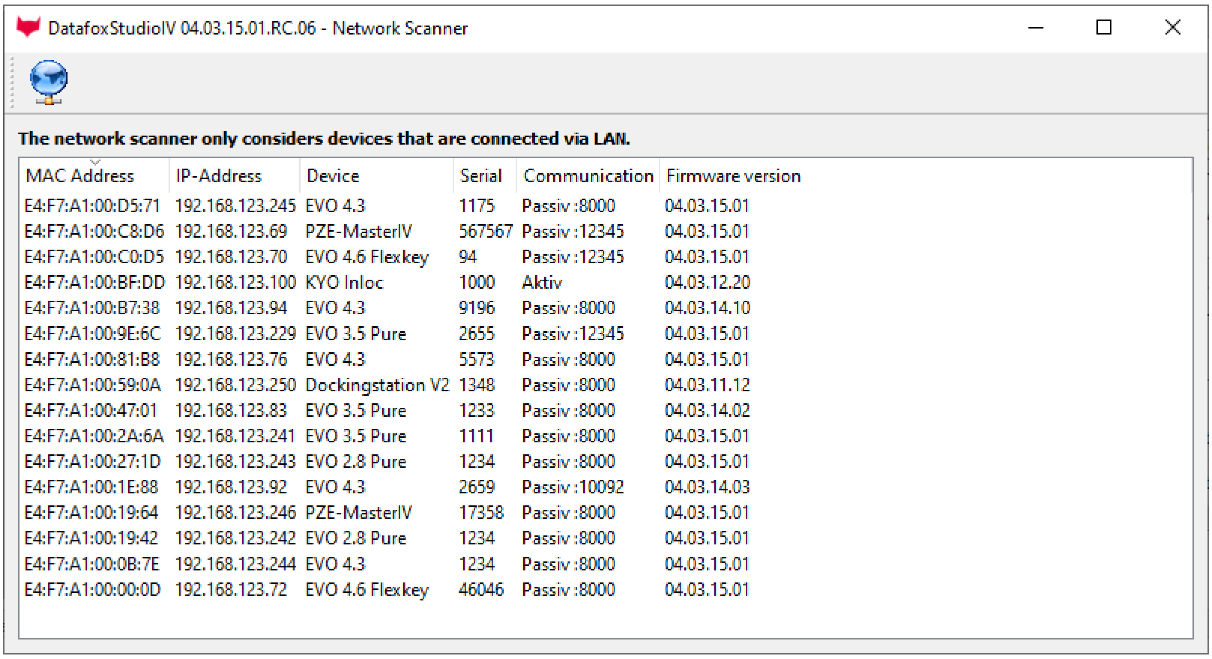
The function *DFCSetupLaden* has been extended, so that setups in XML format may be transferred directly to the device.

9. Network-scanner in the DatafoxStudioIV

The network scanner is accessible via the extras menu:


DatafoxStudioIV 04.03.15.01.RC.06
File
View
Communication
Configuration
Extras
Office-Connect
Window
Help
Datafox-I
Read status messages from the access control
Perform virtual access booking
Restore data records
Update Biokey3000/4000 fingerprint module
Backup/Restore finger templates
Delete finger templates
Read sytem log
Read data memory
Extract GPS data and show map
Transmit files
Network Scanner
Options

Activating the menu entry opens a new window in which the devices found in the LAN network are displayed:



The network scanner only considers devices that are connected via LAN.

MAC Address	IP-Address	Device	Serial	Communication	Firmware version
E4:F7:A1:00:D5:71	192.168.123.245	EVO 4.3	1175	Passiv :8000	04.03.15.01
E4:F7:A1:00:C8:D6	192.168.123.69	PZE-MasterIV	567567	Passiv :12345	04.03.15.01
E4:F7:A1:00:C0:D5	192.168.123.70	EVO 4.6 Flexkey	94	Passiv :12345	04.03.15.01
E4:F7:A1:00:BF:DD	192.168.123.100	KYO Inloc	1000	Aktiv	04.03.12.20
E4:F7:A1:00:B7:38	192.168.123.94	EVO 4.3	9196	Passiv :8000	04.03.14.10
E4:F7:A1:00:9E:6C	192.168.123.229	EVO 3.5 Pure	2655	Passiv :12345	04.03.15.01
E4:F7:A1:00:81:B8	192.168.123.76	EVO 4.3	5573	Passiv :8000	04.03.15.01
E4:F7:A1:00:59:0A	192.168.123.250	Dockingstation V2	1348	Passiv :8000	04.03.11.12
E4:F7:A1:00:47:01	192.168.123.83	EVO 3.5 Pure	1233	Passiv :8000	04.03.14.02
E4:F7:A1:00:2A:6A	192.168.123.241	EVO 3.5 Pure	1111	Passiv :8000	04.03.15.01
E4:F7:A1:00:27:1D	192.168.123.243	EVO 2.8 Pure	1234	Passiv :8000	04.03.15.01
E4:F7:A1:00:1E:88	192.168.123.92	EVO 4.3	2659	Passiv :10092	04.03.14.03
E4:F7:A1:00:19:64	192.168.123.246	PZE-MasterIV	17358	Passiv :8000	04.03.15.01
E4:F7:A1:00:19:42	192.168.123.242	EVO 2.8 Pure	1234	Passiv :8000	04.03.15.01
E4:F7:A1:00:0B:7E	192.168.123.244	EVO 4.3	1234	Passiv :8000	04.03.15.01
E4:F7:A1:00:00:0D	192.168.123.72	EVO 4.6 Flexkey	46046	Passiv :8000	04.03.15.01

With the button 🌐 you can do a rescan in the network.

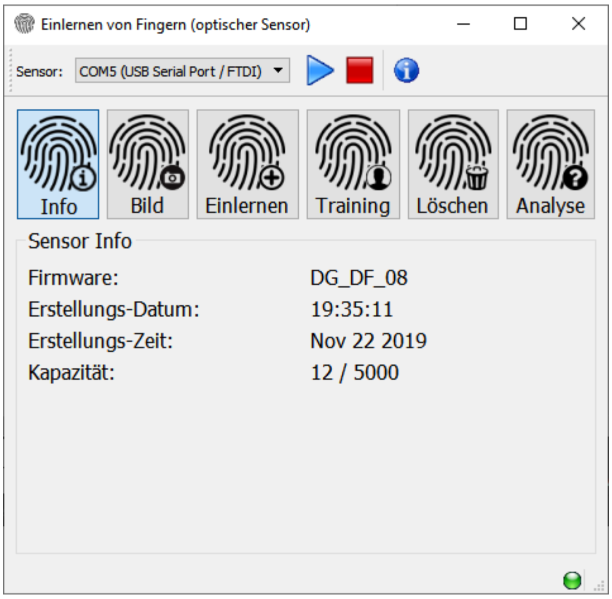
!

Caution:
Device with Wi-Fi and cellphone-cards won't be found by the scanner. It can only detect devices that,

- connect vie LAN,
- the main communication LAN activate and
- that are connect to a LAN segment **directly** reachable from the PC.

10. Administration-Application for optical fingerprint sensor in IPCs

The Administration application for display the following startup mask:



Einlernen von Fingern (optischer Sensor)

Sensor: COM5 (USB Serial Port / FTDI)

Sensor Info

Firmware: DG_DF_08
Erstellungs-Datum: 19:35:11
Erstellungs-Zeit: Nov 22 2019
Kapazität: 12 / 5000

Launch Screen of the fingerprint admin application on an IPC

The Application supports the following functions:

- Selection of the sensor and starting / stopping the “transparent mode” access to the sensor (the sensor is connected to the embedded component in the IPC)
- Retrieving information on the sensor (screenshot above)
- Retrieving the image of a finger placed on the sensor
- Enrolling a finger
- Training a finger
- Erasing a finger from the sensor
- Analysis of the sensor’s database

An established communication to the fingerprint sensor is precondition to the main functionality of the software. This means that selecting the sensor device and starting the transparent mode are the first steps before interacting with the sensor.

10.1. Selection of the sensor device

The IPC internally uses a USB-Serial-Converter. This converter is used to realize communication with the embedded component’s device that is accessed in transparent mode. The USB-Serial-Converter should be automatically detected by the IPC fingerprint admin application and selected when starting the application.

Starting the transparent mode is done by clicking the button with the blue triangle button..

10.2. Retrieving sensor information

As soon as the communication with the sensor has been established, the sensor’s properties are read and show. These are:

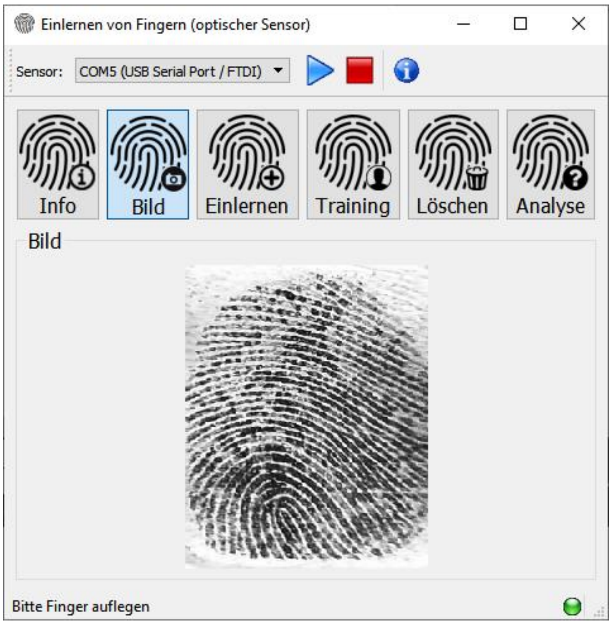
- Firmware version
- Build-Timestamp of the firmware.
- Statistics on the sensor’s database content.

As soon as a mask with above shown content is displayed, the communication to the sensor has been established.

☞ **Please note:**
Upon clicking the button “Info” again, the data displayed is retrieved again. You can observe this by then content of the dialog being erased and will be displayed again with new values shortly after that. You may use this method to very that communication to the sensor is established correctly.

10.3. Retrieving the image of a finger placed on the sensor

The sensor can be instructed to retrieve the image of the finger place onto it. After starting this mode by clicking onto the “Image” button the sensor waits for a finger being place onto the sensor. When detecting a finger, its image is retrieved and displayed:



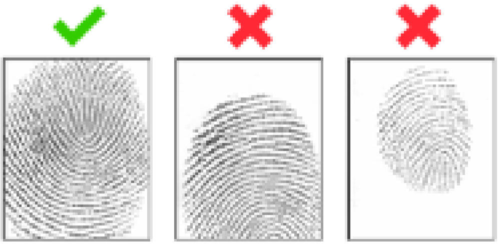
Sensor: COM5 (USB Serial Port / FTDI)

Bitte Finger auflegen

Please ensure that contrast and size of the finger place is reasonable!

- The contrast is affected by the “wet/dry-finger-effect”:
  - Dry fingers have very little contrast. The image display is greyish.
  - Wet fingers have large black areas

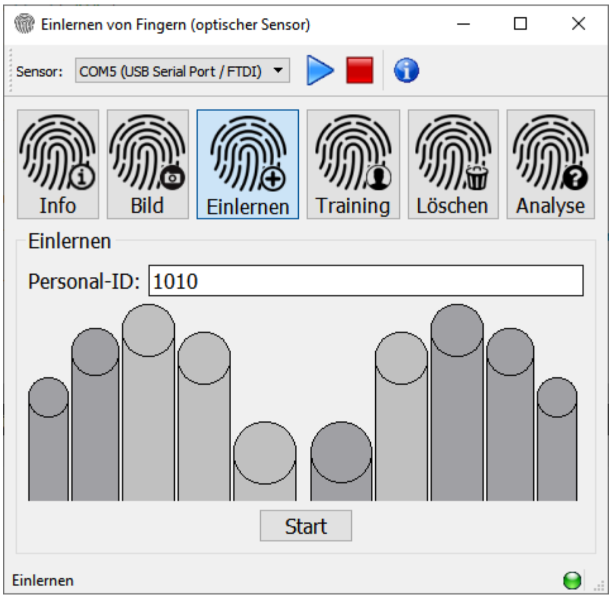
You should meet the following recommendation for the sensor “seeing” a finger:



Finger place well / Finger place too far downwards / Finger too small or to little pressure applied

10.4. **Enrolment of fingers**

During enrolment one or more fingers of a person are added to the sensor's template database. After entering the Personal ID of the person to be enroled, the display fingers already enroled in light grey, fingers not enroled are shown in darker grey.


Einlernen von Fingern (optischer Sensor)
Sensor:
COM5 (USB Serial Port / FTDI)
Info
Bild
Einlernen
Training
Löschen
Analyse
Einlernen
Start
Einlernen

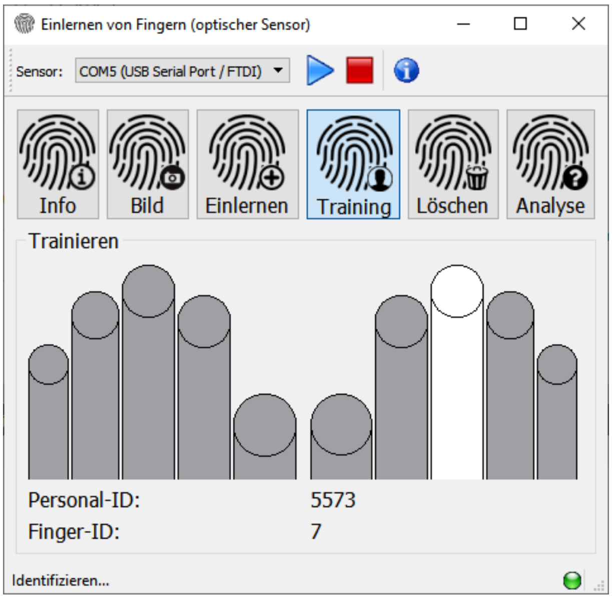
Personal-ID: 1010

In order to start enrolling, please klick the "Start" button. You are asked to place the same finger three times onto the sensor.

10.5. **Training of fingers**

During finger training the sensor typically discovers additional features of a finger and enhances the template data stored. The image shown below highlights the finger just recognized b then sensor. The highlight colours have the following meaning:

- White: The finger was recognized, no new features have been discovered
- Green: The finger was recognized and new features were added to the template

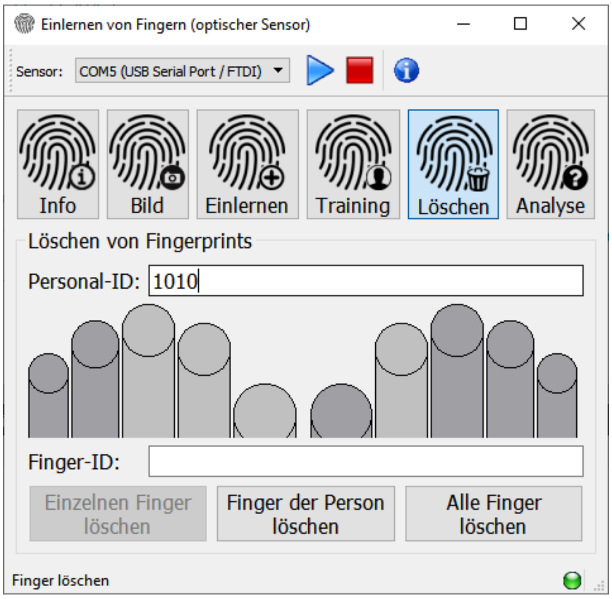

Einlernen von Fingern (optischer Sensor)
Sensor: COM5 (USB Serial Port / FTDI)
Info
Bild
Einlernen
Training
Löschen
Analyse
Trainieren

Personal-ID: 5573
Finger-ID: 7
Identifizieren...

The right middle finger was detected.

10.6. Erasing a finger from the sensor

In order to erase a finger from the sensor's database, you have to enter the PID of the colleague to whom the finger belongs. The fingers stored in the sensor's database are shown in light grey here.



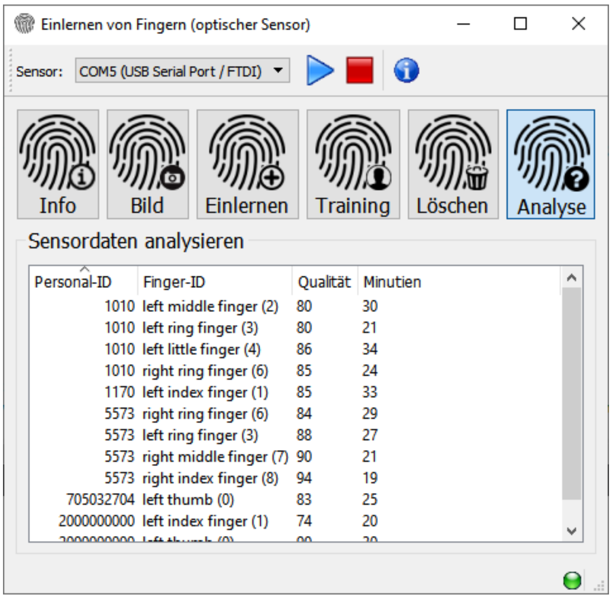
Personal-ID: 1010
Finger-ID:
Finger löschen

You may select to

- Remove all fingers from the sensor: The sensor's database is empty afterwards.
- Remove all fingers of the specified person
- A single finger of the specified person. (This finger has to be selected previously. You may do so by clicking the finger with the left mouse button. The "Finger-ID" text field is filled accordingly when clicking the finger.)

10.7. Analysis of the sensor's content

The IPC Administration application offers and analysis function for data store on the sensor. The Screenshot display following display all templates stored on the sensor by showing Personal-ID, Finger-ID, Quality and Count of Minutiae.



Einlernen von Fingern (optischer Sensor)

Sensor: COM5 (USB Serial Port / FTDI)

Sensordaten analysieren

Personal-ID	Finger-ID	Qualität	Minutien
1010	left middle finger (2)	80	30
1010	left ring finger (3)	80	21
1010	left little finger (4)	86	34
1010	right ring finger (6)	85	24
1170	left index finger (1)	85	33
5573	right ring finger (6)	84	29
5573	left ring finger (3)	88	27
5573	right middle finger (7)	90	21
5573	right index finger (8)	94	19
705032704	left thumb (0)	83	25
2000000000	left index finger (1)	74	20
2000000000	left thumb (0)	90	20