EN

Electronic-Key-Manager **EKM**

User Manual

EUCHNER

More than safety.

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Introduction

Part I

1 Introduction

1.1 What is the EKM

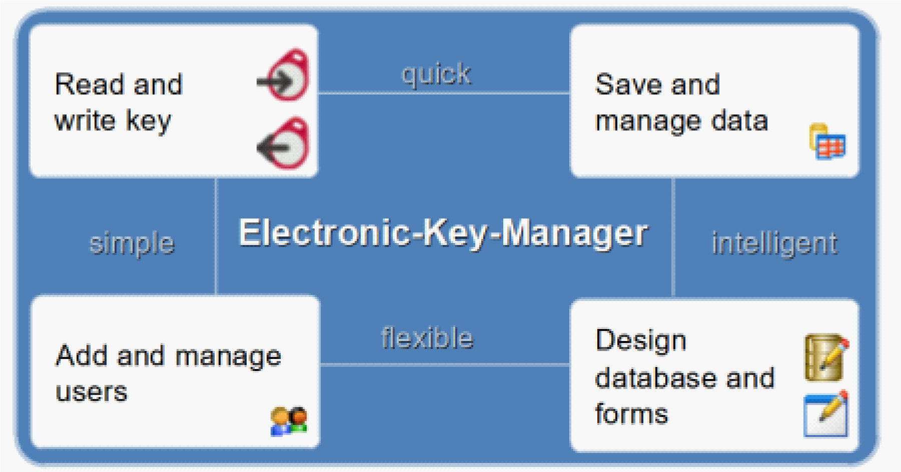
The Electronic-Key-Manager EKM is a comprehensive software solution for programming and managing the Electronic-Key System EKS. The EKS provides access control on PCs and control units in an industrial environment. in comparison to the issue of a password, considerably more responsibility is assigned to the owner of an Electronic-Key. The Electronic-Key provides protection against unauthorized access to control and visualization systems.

EKS basically comprises two components:
an Electronic-Key and the matching Electronic-Key adapter. It is an inductive Identification System. A memory chip and an antenna are built into the Electronic-Key (transponder). In principle, the Electronic-Key adapter is a read/write system with integrated evaluation unit and interface.

EKM supplements the EKS with a flexible, customizable software environment.

Benefits for you:

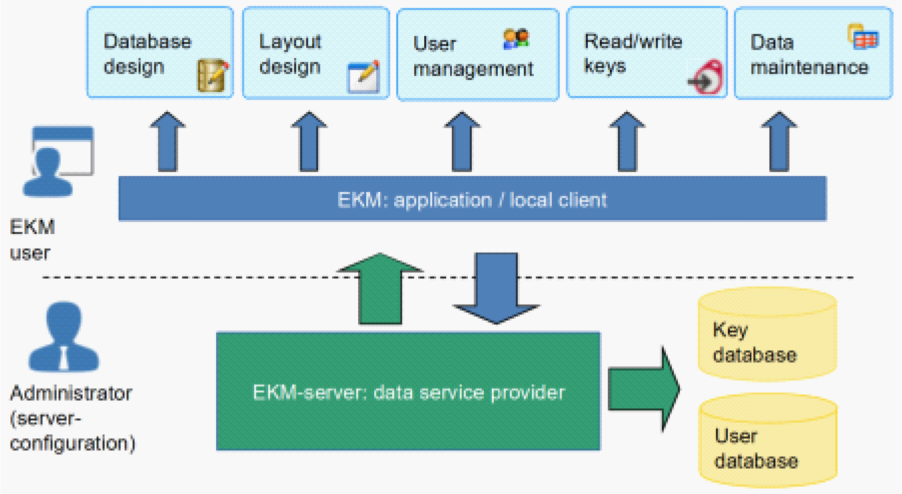
- Electronic-Key programming
- Database-based management of the Electronic-Keys
- Display of data and writing of data to the keys using a flexible user interface
- Expansion of the key memory areas with customizable database fields
- Role-based management of access rights



1.2 System overview

EKM is based on a client/server architecture comprising the EKM client and the EKM server.

The Database Designer and Layout Designer are intelligent tools that enable you to design the database and user interface and to customize them without the need for specialist knowledge. The role-based user management makes it possible to simply and rapidly structure users into groups and to assign user rights. This aspect includes comprehensive program functions as well as the clarity and editing features of specific form components.



When a key is read, the data read are displayed on the customizable key data form. During this process, the data from the key are interpreted and formatted using the format from the form. The data can be changed on the form and transferred to the key using the write function. In parallel to writing to the key, the key data are transferred to the EKM server where they are saved centrally in the key database. You can access the key database and maintain the data for the Electronic-Key with the aid of a database viewer.

1.3 System requirements

EKM has the following system requirements (full version):

- Commercially available PC with x86/x64 processor
- Operating system Windows 7 / Windows 10 / Windows 11
  Windows Server 2008 R2 / Windows Server 2012 / Windows Server 2012 R2 / Windows Server 2016 / Windows Server 2019 / Windows Server 2022
- A network with TCP/IP protocol installed
- A serial or USB interface

To read and write Electronic-Keys, you will need an EKS Electronic-Key adapter with serial or USB interface.
EKM can be operated with read/write Electronic-Keys.

1.4 Demo version

The demo version of the EKM allows you to test the full version of the product so that you can see for yourself the advantages.

At a glance:

- Functionality of the full version
- Limited to 10 weeks runtime
- Data, database and forms prepared can continue to be used with the full version

The demo version has the complete functionality of the full version of the EKM. The runtime of this version is limited to 10 weeks. The demo version has no network support: client and server must be installed on one computer. All data prepared with the demo version can continue to be used with the full version without problems.

ℹ The demo version is only allowed to be used for demonstration, test and evaluation purposes. Further information can be found in the license agreement.

1.5 Light version

The EKM Light version is a functionally restricted version based on the single-user version.

The following restrictions exist
a) in the client:

- No access to the *database viewer*
- No history log
- No template functions
- Export/import only for individual keys
- Only local EKM client possible

b) in the server:

- REST API not available
- No access to the server
- No display of the icon on the tray bar
- The client automatically starts the server

It is possible to upgrade to the single-user or full version. New data are saved in the database and become visible on activation.

The TCP/IP protocol is also required for the EKM Light version.

1.6 Single-user version

The EKM single-user version is a functionally restricted version based on the full version.

The following restrictions exist
a) in the client:

- No history log
- Only local EKM client possible
- Data, database and forms prepared can continue to be used with the full version

b) in the server:

- REST API not available
- The client automatically starts the server

The single-user version has no network support: client and server must be installed on one computer. All data prepared with the single-user version can continue to be used with the full version without problems.

The TCP/IP protocol is also required for the EKM single-user version.

1.7 Full version

The EKM full version has a client/server architecture and full network support.

At a glance:

- Includes all documented functions
- Client/server architecture
- Network support
- REST API available
- System requirements cf."System requirements"

1.8 Explanation of symbols

The following symbols are used in this manual to identify important instructions and useful information:

💡 Tip!
This symbol marks tips and tricks.

ℹ **Information!**
This symbol marks general important notes.

⚠ Attention!
This symbol marks instructions that you should perform to avoid the risk of the loss of data. This symbol therefore appears next to notes that you must observe to be able to use the functionality of EKM.

Getting started

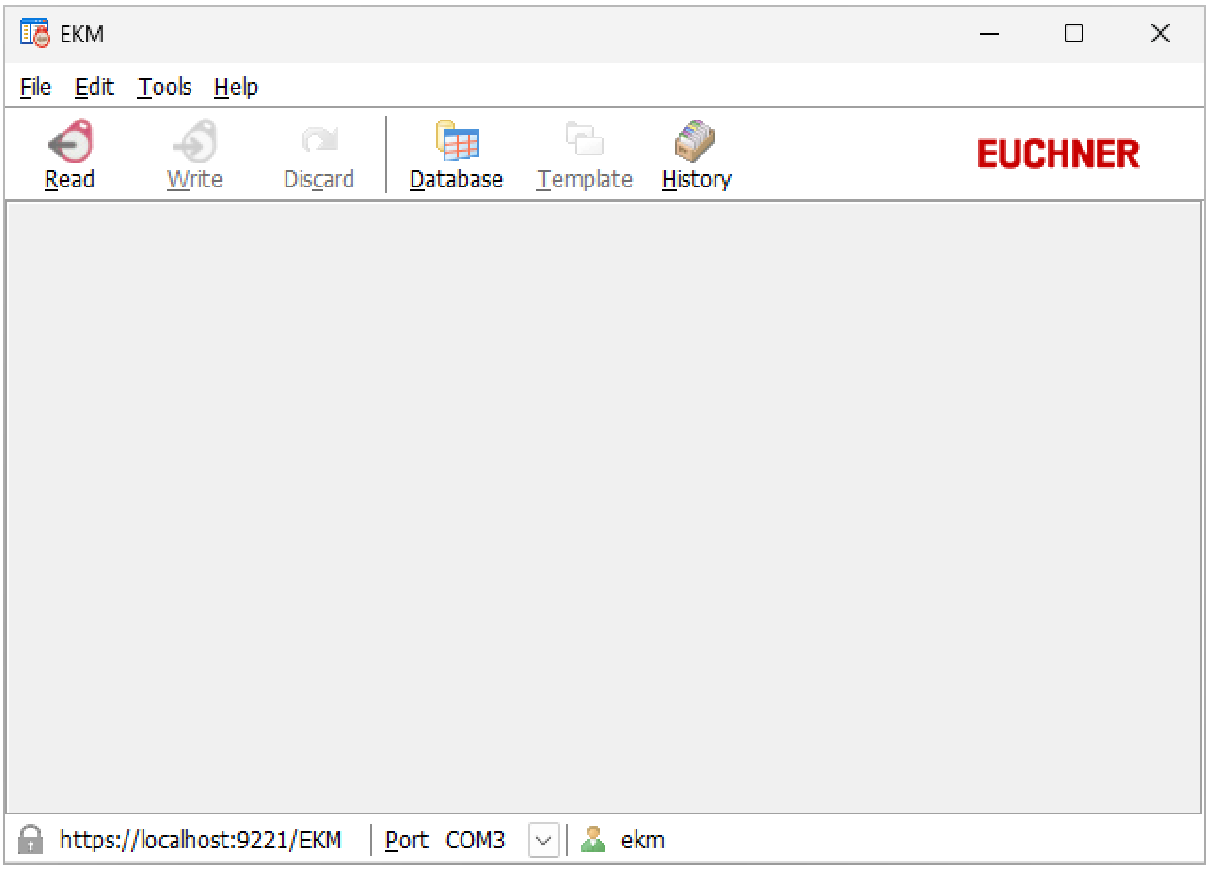
Part II

2 Getting started

The "Getting started" section provides examples of the necessary steps that you must take the first time you use EKM before you read or write Electronic-Keys. During this process, you will obtain an overview of the basic functions of the program.

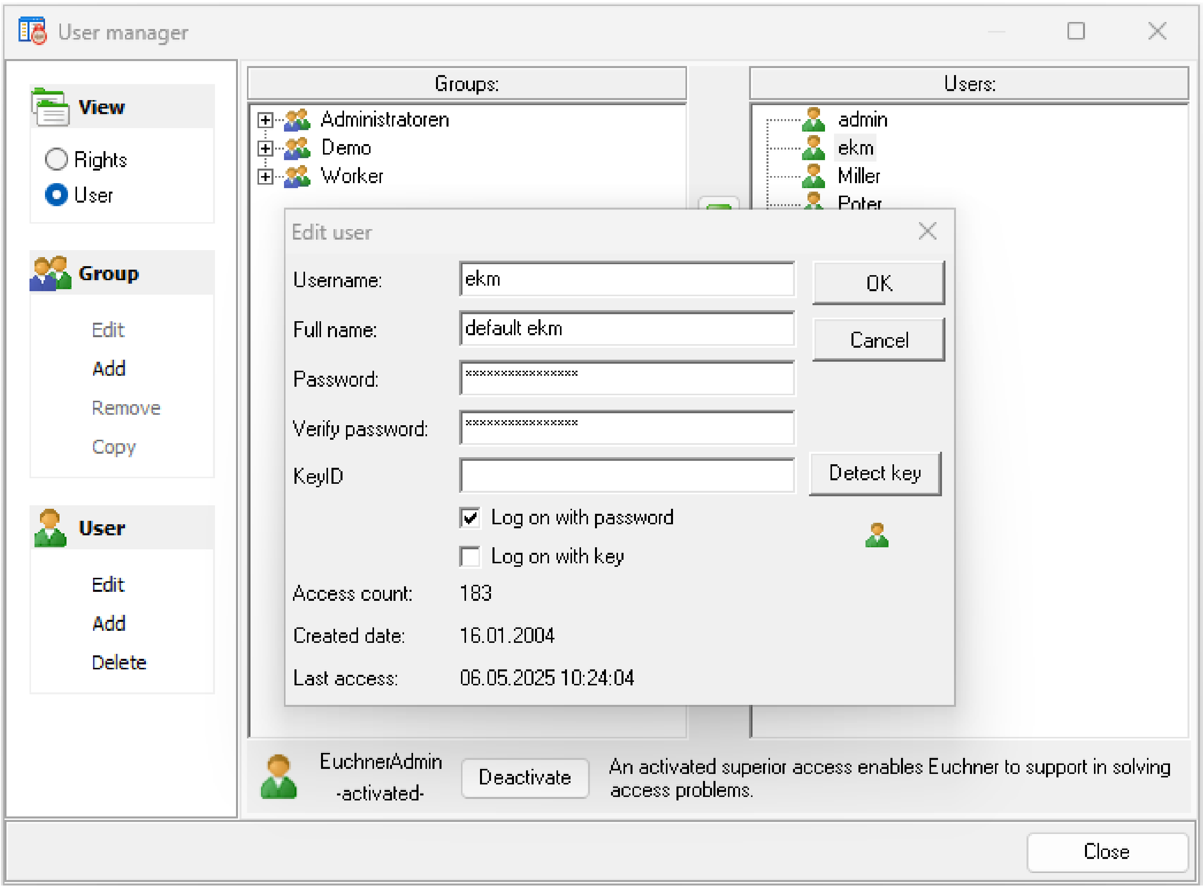
2.1 Starting program

Start EKM using the entry in the Windows Start menu. On the full version, the EKM server must be started first. Alternatively, EKM can be started in the installation folder by double-clicking the *EKM.exe* or *EKMServer.exe* file. Specify the connection parameters of the EKM server. Log on as the default user *ekm* using the password *ekm*. The main EKM window opens with an empty form area.



2.2 Changing default user

Open the user manager using *Tools -> User*. Change the name and password for the default user by clicking *User* on the *View* tab, selecting the user *ekm* and then clicking *Edit* on the *User* tab. The *Edit user* window opens where you can enter the new user data. Assign the user to the *Administratoren* user group.



Username: ekm

Full name: default ekm

Password: ****************

Verify password: ****************

KeyID

☑ Log on with password

□ Log on with key

Access count: 183

Created date: 16.01.2004

Last access: 06.05.2025 10:24:04

EuchnerAdmin -activated-

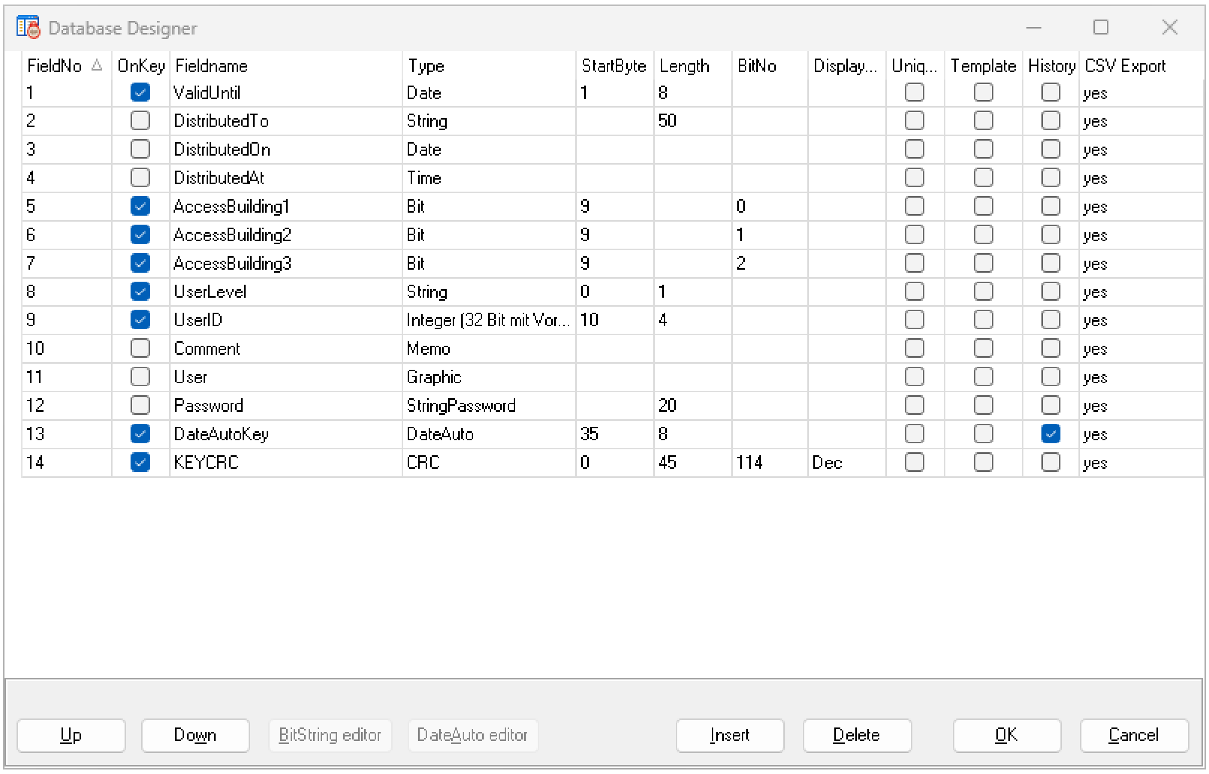
An activated superior access enables Euchner to support in solving access problems.

If necessary, add new user groups and users and assign the appropriate rights to the individual user groups.

⚠ When assigning rights, ensure that the Administratoren group has all available rights (cf. "Rights available"). Leave the user manager with *Close* and log on as a user with administrator rights using *File ->Logon*.

2.3 Administring a database

Use *Tools* -> *Design mode* to change to the design mode. Now click the *Database icon.* The *Database Designer* opens.



FieldNo	OnKey	Fieldname	Type	StartByte	Length	BitNo	Display...	Uniq...	Template	History	CSV Export
1	☑	ValidUntil	Date	1	8			☐	☐	☐	yes
2	☐	DistributedTo	String		50			☐	☐	☐	yes
3	☐	DistributedOn	Date					☐	☐	☐	yes
4	☐	DistributedAt	Time					☐	☐	☐	yes
5	☑	AccessBuilding1	Bit	9		0		☐	☐	☐	yes
6	☑	AccessBuilding2	Bit	9		1		☐	☐	☐	yes
7	☑	AccessBuilding3	Bit	9		2		☐	☐	☐	yes
8	☑	UserLevel	String	0	1			☐	☐	☐	yes
9	☑	UserID	Integer (32 Bit mit Vor...	10	4			☐	☐	☐	yes
10	☐	Comment	Memo					☐	☐	☐	yes
11	☐	User	Graphic					☐	☐	☐	yes
12	☐	Password	StringPassword		20			☐	☐	☐	yes
13	☑	DateAutoKey	DateAuto	35	8			☐	☐	☑	yes
14	☑	KEYCRC	CRC	0	45	114	Dec	☐	☐	☐	yes

Add all the required data fields to the database. During this process, define the properties of the data field:

- *OnKey* (data are written to the key)
- *Field name*
- *Data type*
- *StartByte*
- *Length* (if the data field is written to the key)
- *BitNo* (if the data type is Bit)
- *DisplayType* (for the data types Nibble, Byte, Word, CRC: *Dec* for the decimal notation and *Hex* for the hexadecimal notation)
- *Unique* (activate to prevent duplicate entries)
- *Template* (activate to enable field for templates)
- History (activate to display changes in the History log)
- CSV export (yes: export column with all data, no: do not export column, header: export column without data)

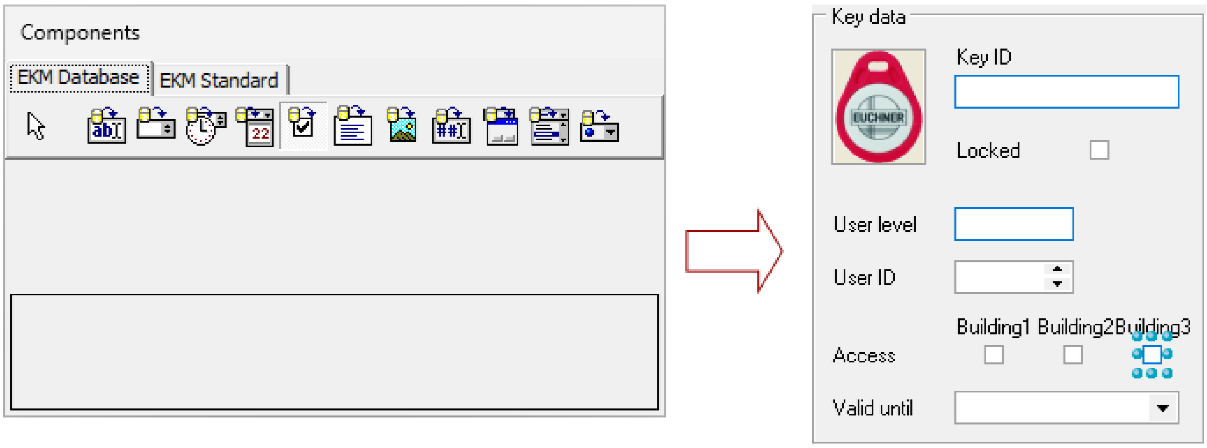
The order of the fields displayed in the *database viewer* is displayed in the *FieldNo* field. The data fields *KEYID* (data type String) and *LOCKED* (data type Bit) are hard programmed and are not visible in the Database Designer. Accept your entries with *OK.* The *Database Designer* is then closed.

2.4 Designing user interface and selecting data source

Click the *Layout* icon. The EKM designer opens. The *EKM Database* and *EKM Standard* tabs on the EKM Designer component bar contain various form components:

- EKM database components: form fields that are bound to the key database and display the data read when the keys are edited.
- EKM standard components: fixed form components such as form field names, images, etc.

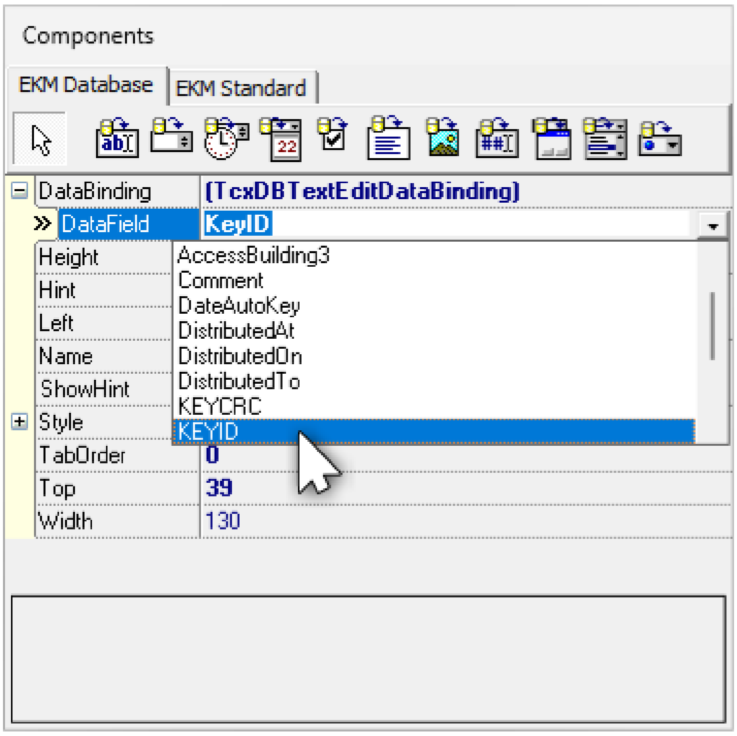
To insert form components into the key data form, click the component you require on the *component bar.* Then click the form area in the position where you want to insert the form component.



You can change components added:

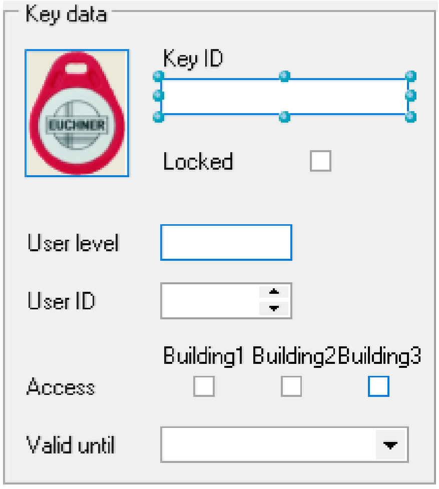
- In the *component inspector*, you can enter or select values for the properties
- You can move a marked component using the mouse.
- The size of a component can be reduced or increased using Shift + left/right arrow key.
- A component can be moved using Ctrl + left/right arrow key.

Design the form and enter the data source for all EKM database components by marking a component and selecting a database field in the component inspector using *DataBinding -> DataField* .



DataBinding	(TcxDBTextEditDataBinding)
DataField	KeyID
Height	
Hint	
Left	
Name	
ShowHint	
Style	
TabOrder	0
Top	39
Width	130

AccessBuilding3
Comment
DateAutoKey
DistributedAt
DistributedOn
DistributedTo
KEYCRC
KEYID



Key ID
Locked □
User level
User ID
Building1 Building2 Building3
Access □ □ □
Valid until

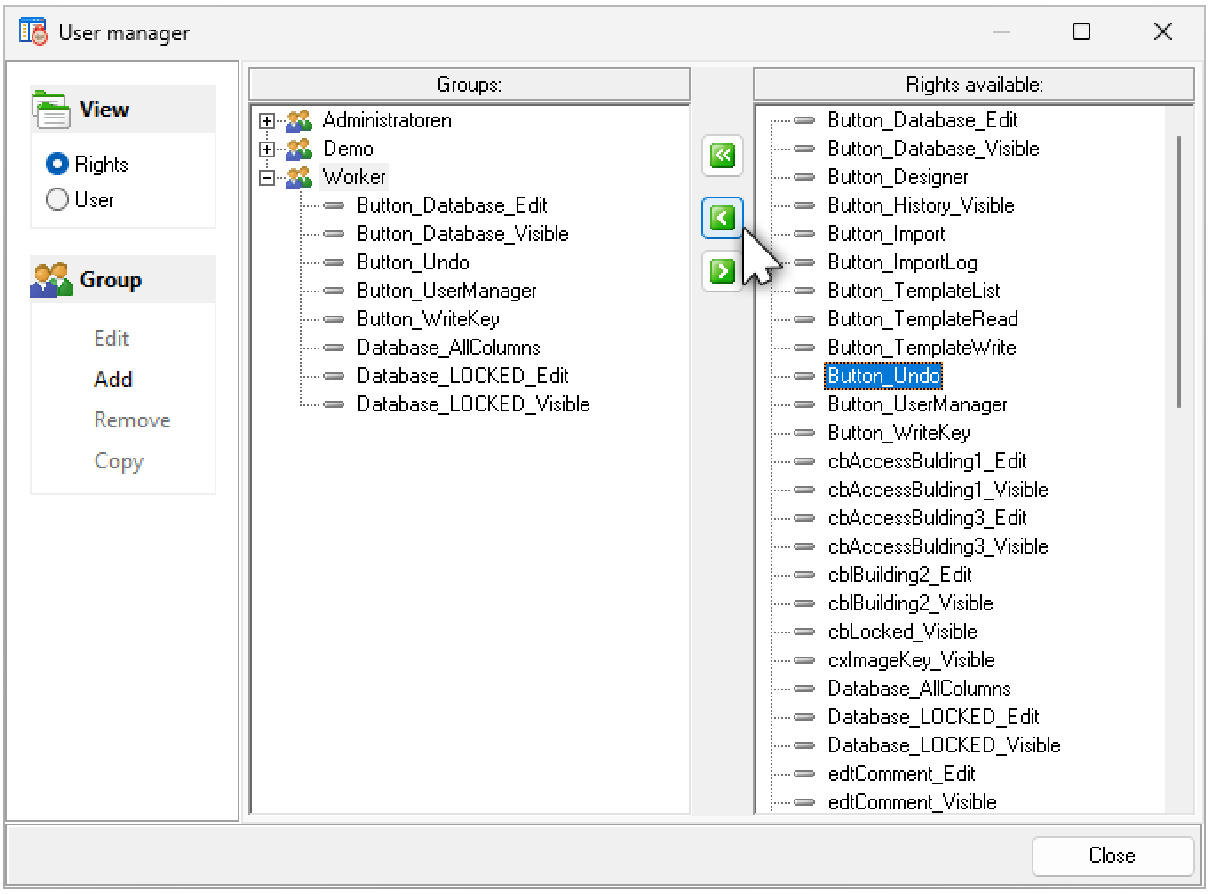
Ensure the database component matches the data type for the selected data field (cf. "Properties of EKM database components").

2.5 Applying your work in the EKM Designer

Once you have finished designing the form for the key data, click *Apply* on the toolbar. Layout design is closed and the program then uses the current layout in the general design mode. Click *Apply* on the toolbar again. EKM changes automatically from the design mode to the read and write mode. You can transfer the form and the database design to the EKM server and save them using *Apply*. A read right and an edit right is created for all form components. To enable users to view and edit the form fields, the related rights must be assigned to the corresponding groups.

2.6 Assigning user rights

Open the user manager using *Tools -> User*. On the *View* tab, select the *Rights* option so that the rights available are displayed in the window on the right.



Assign the rights to the user groups:

‹ Allocate the right marked to the user group marked

« Allocate all rights available to the user group marked

Close the user manager. All authorized users can now read and write keys.

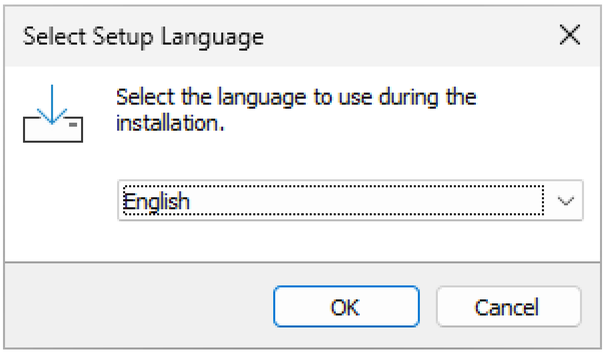
EKM

Part III

3 EKM

3.1 Installation

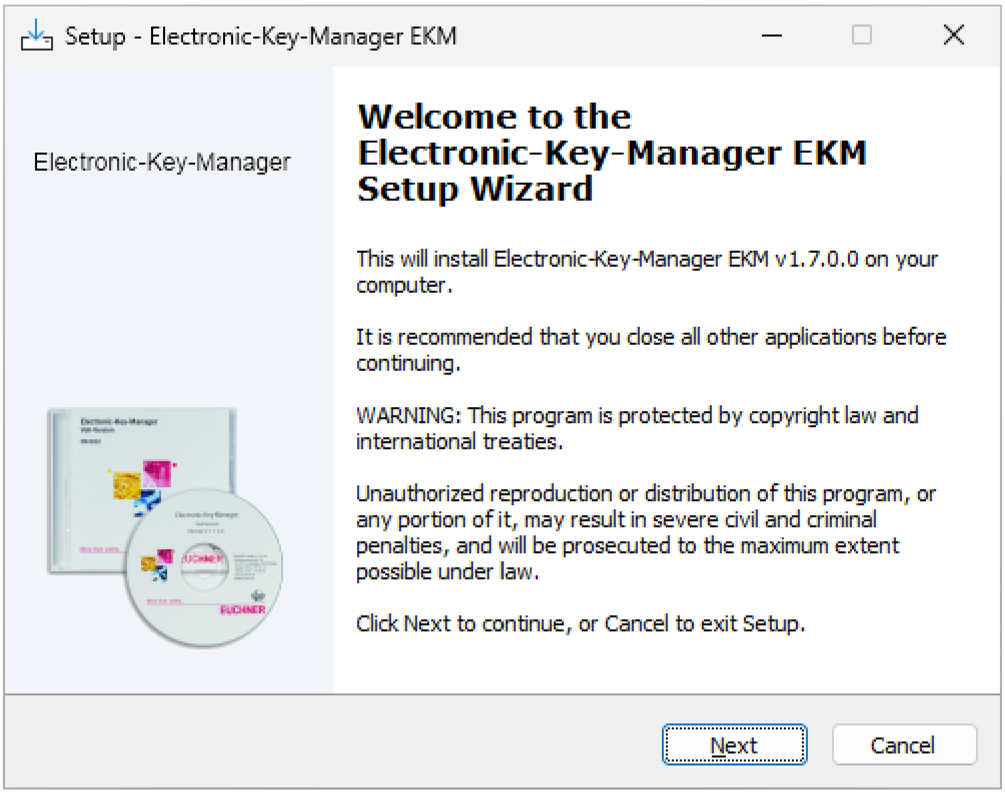
To install the EKM, start the installation program "Setup.exe". The installation program guides you through the installation of the application and allows you to choose the folder for the installation and the components installed. Please pay attention to the prompts displayed during the installation.



Select Setup Language

Select the language to use during the installation.

English



Setup - Electronic-Key-Manager EKM

Electronic-Key-Manager

Welcome to the Electronic-Key-Manager EKM Setup Wizard

This will install Electronic-Key-Manager EKM v1.7.0.0 on your computer.

It is recommended that you close all other applications before continuing.

WARNING: This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.

Click Next to continue, or Cancel to exit Setup.

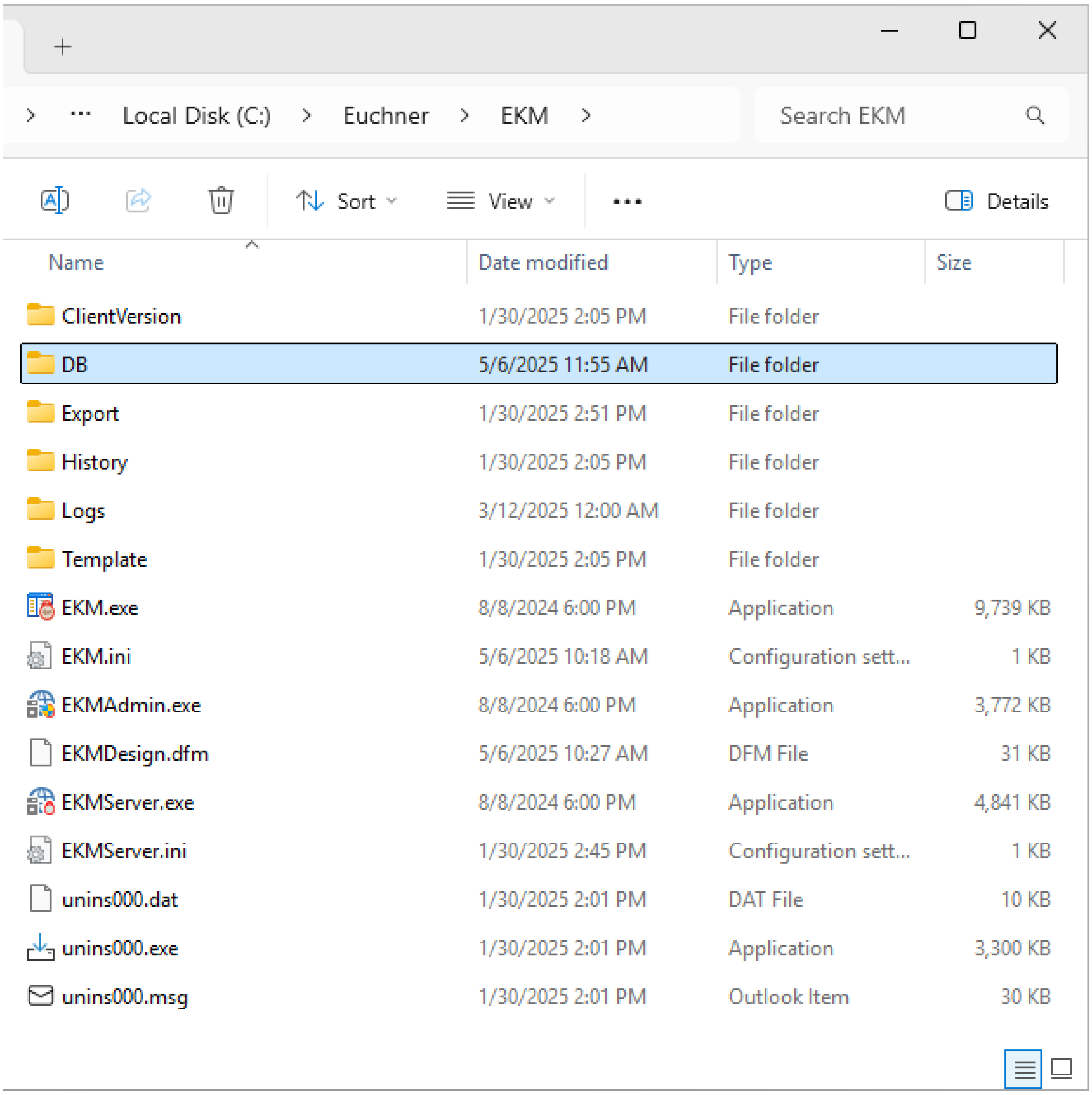
3.1.1 EKM files

All files used by EKM are saved in the EKM installation folder.

⚠ When EKM is installed on Windows 7, Windows Server 2008 or newer and the installation path is "C:\Program Files\<EKM>" or "C:\Program Files (x86)\<EKM>", the operating system redirects user-specific files to the VirtualStore. The VirtualStore is located under: "C:\Users\<User>\AppData\Local\VirtualStore\Program Files\<EKM>".

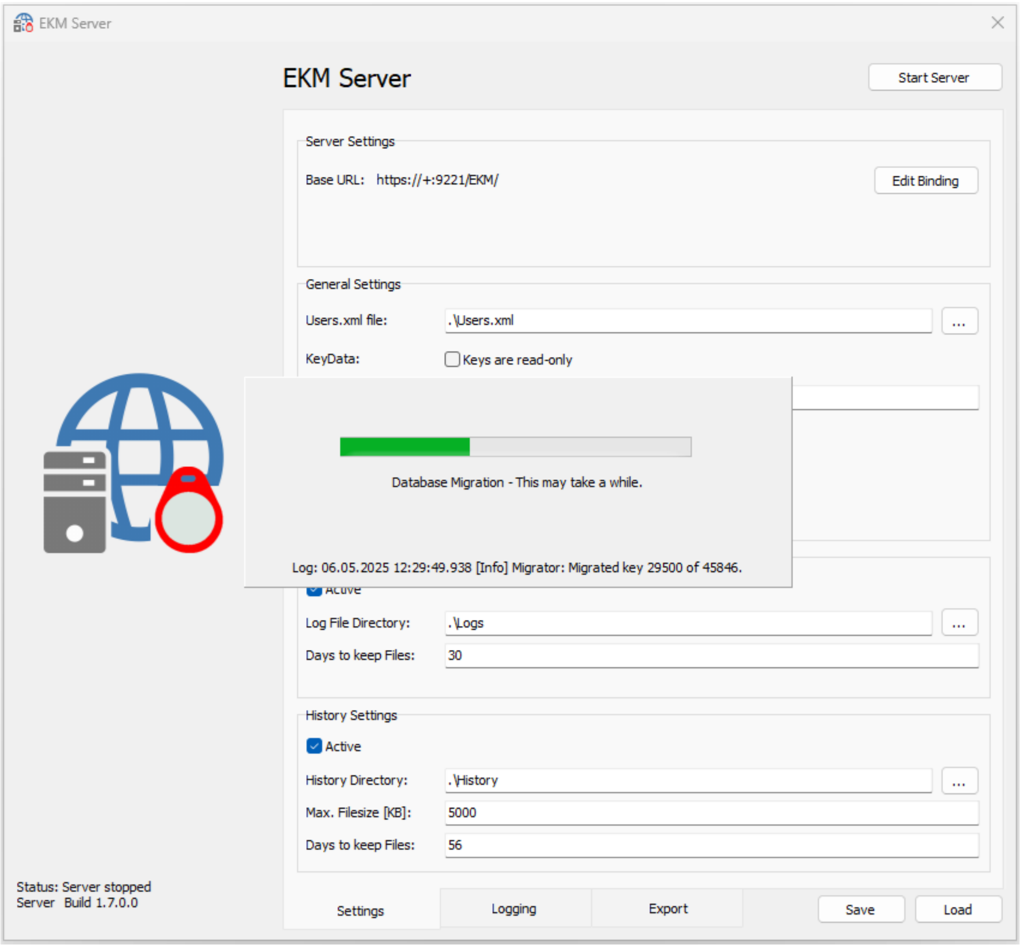
3.2 Migration and data transfer

In EKM versions from 1.7, new functions and protocols for transferring and saving the key data are used to improve data security. Existing data from the previous versions will be migrated to the new formats. To do this, you can use the same installation path as before or manually copy the "DB" folder with the data from the previous version to the installation path of the new version. The new version saves the data to the "ServerDatabase" sub-folder.



Name	Date modified	Type	Size
ClientVersion	1/30/2025 2:05 PM	File folder	
DB	5/6/2025 11:55 AM	File folder	
Export	1/30/2025 2:51 PM	File folder	
History	1/30/2025 2:05 PM	File folder	
Logs	3/12/2025 12:00 AM	File folder	
Template	1/30/2025 2:05 PM	File folder	
EKM.exe	8/8/2024 6:00 PM	Application	9,739 KB
EKM.ini	5/6/2025 10:18 AM	Configuration sett...	1 KB
EKMAdmin.exe	8/8/2024 6:00 PM	Application	3,772 KB
EKMDesign.dfm	5/6/2025 10:27 AM	DFM File	31 KB
EKMServer.exe	8/8/2024 6:00 PM	Application	4,841 KB
EKMServer.ini	1/30/2025 2:45 PM	Configuration sett...	1 KB
unins000.dat	1/30/2025 2:01 PM	DAT File	10 KB
unins000.exe	1/30/2025 2:01 PM	Application	3,300 KB
unins000.msg	1/30/2025 2:01 PM	Outlook Item	30 KB

EKM installation path before data migration



Server Settings

Base URL: https://+:9221/EKM/

General Settings

Users.xml file: .\Users.xml

KeyData: ☐ Keys are read-only

Database Migration - This may take a while.

Log: 06.05.2025 12:29:49.938 [Info] Migrator: Migrated key 29500 of 45846.

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

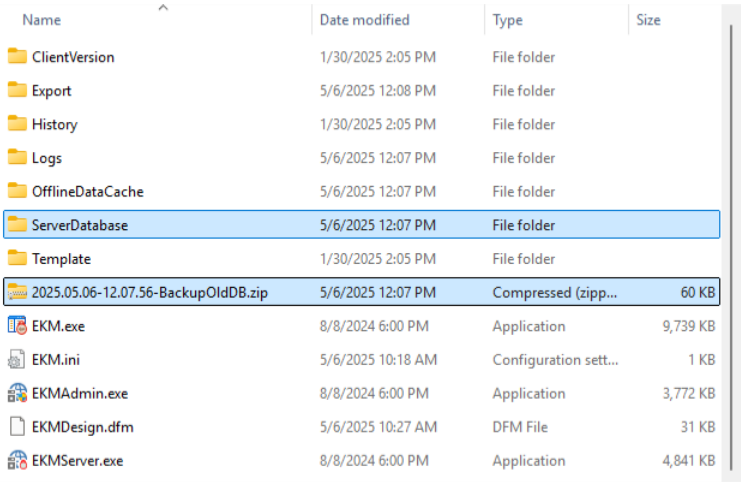
History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

Status: Server stopped
Server Build 1.7.0.0

Data migration is also started the first time the new EKM server is started:



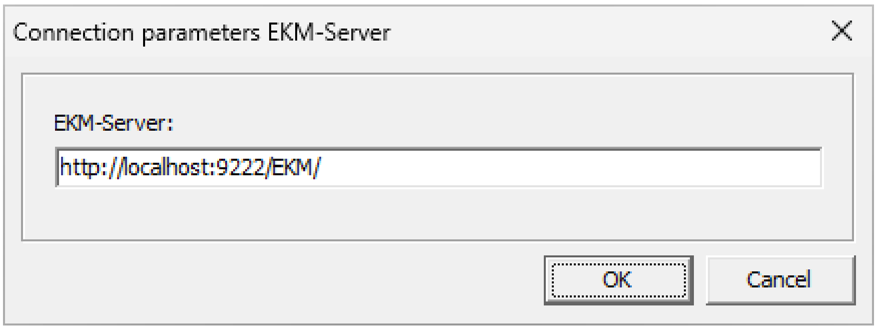
Name	Date modified	Type	Size
ClientVersion	1/30/2025 2:05 PM	File folder	
Export	5/6/2025 12:08 PM	File folder	
History	1/30/2025 2:05 PM	File folder	
Logs	5/6/2025 12:07 PM	File folder	
OfflineDataCache	5/6/2025 12:07 PM	File folder	
ServerDatabase	5/6/2025 12:07 PM	File folder	
Template	1/30/2025 2:05 PM	File folder	
2025.05.06-12.07.56-BackupOldDB.zip	5/6/2025 12:07 PM	Compressed (zipp...	60 KB
EKM.exe	8/8/2024 6:00 PM	Application	9,739 KB
EKM.ini	5/6/2025 10:18 AM	Configuration sett...	1 KB
EKMAdmin.exe	8/8/2024 6:00 PM	Application	3,772 KB
EKMDesign.dfm	5/6/2025 10:27 AM	DFM File	31 KB
EKMServer.exe	8/8/2024 6:00 PM	Application	4,841 KB

After the data migration, the data will be transferred to the "ServerDatabase" sub-menu. The previous "DB" folder will be deleted, and the content will be secured in compressed form in a backup file.

⚠ To prevent a security risk, it is recommended to delete the old data after a data transfer or to store them in a protected location.

3.3 Starting program

Start EKM using the entry in the Windows Start menu. On the full version, the EKM server must be started first. Alternatively, EKM can be started in the installation folder by double-clicking the *EKM.exe* or *EKMServer.exe* file. The first time the program is started, the *Connection parameters EKM-Server* window opens in front of the program splash screen.

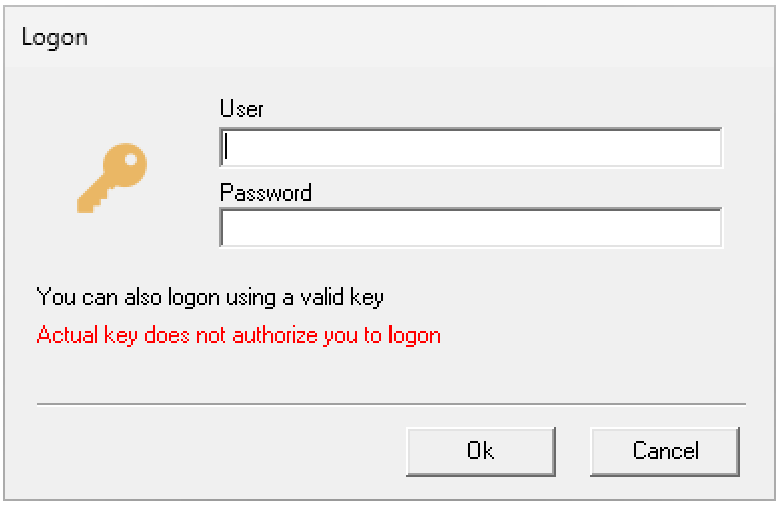


http://localhost:9222/EKM/

Enter the IP address of the EKM server and the port for the server, and accept the values using *OK*. For local operation, the IP address *127.0.0.1* can be used. If a connection is not established, please check,

- Whether the EKM server has been started.
- Whether the IP address and the port for the EKM server have been entered correctly.
- Whether the TCP/IP protocol is correctly installed.

Following successful establishment of the connection, the *Logon* window opens. To log on, please enter your user name and password. If log on with key has been activated in your user profile, you can log on by inserting your key into the EKS Electronic-Key adapter. If the key does not authorize you to log on, a corresponding notice is displayed in the Logon window. The first time you start the program, logon as the user *ekm* using the password *ekm*.



You can also logon using a valid key

Actual key does not authorize you to logon

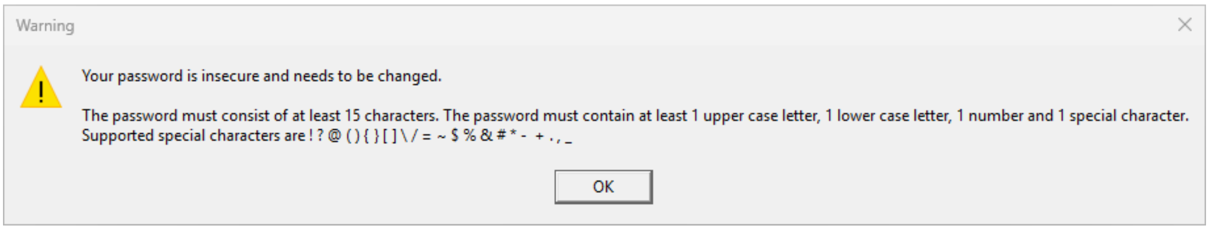
The EKM main window opens. If necessary, choose a different port for the EKS Electronic-Key adapter (cf. "EKS interface"). Then open the user manager using *Tools* -> *User* and change the data for the default user(cf. "Managing user rights"), add new groups and users in the user manager, and manage the user rights.

💡 When the program is quit the connection parameters and the port set for the EKS Electronic-Key adapter are written to the configuration file ekm.ini. You will not be prompted to enter the data again when the program is opened; the data will be retrieved from the configuration file.

⚠ For security reasons, do not forget to change the ekm user setup as an administrator when the program is installed.
If support from the manufacturer is not required in the event of access problems, manufacturer access can be deactivated (cf. "Manufacturer access")

3.3.1 Password quality

A high password quality increases the password's resistance to guessing or to automatically trying out commonly used combinations. The use of secure passwords can be set on the EKM server (cf.EKM server General Settings).
If inspection of the password quality by the EKM server is set, all users will be prompted to adapt the password used to the quality requirements at the next logon.



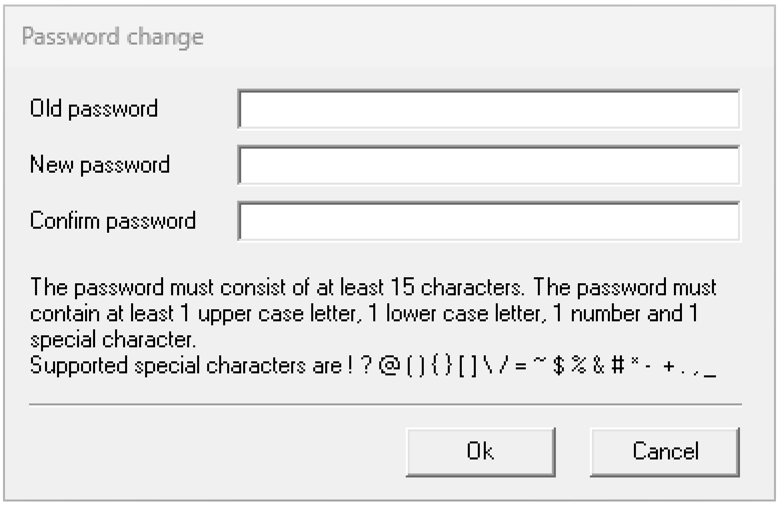
Warning

Your password is insecure and needs to be changed.

The password must consist of at least 15 characters. The password must contain at least 1 upper case letter, 1 lower case letter, 1 number and 1 special character.
Supported special characters are ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - + . , _

The password must be adapted to the quality requirements in the following dialog box.
General rule: The longer, the better. Length and complexity are decisive for a good password. However, the new password must fulfill at least the specified criteria:

- The password must consist of at least 15 characters.
- It must contain at least 1 uppercase letter, 1 lowercase letter, 1 number and 1 special character.
- Permissible special characters are ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - +. , _



Password change

Old password

New password

Confirm password

The password must consist of at least 15 characters. The password must contain at least 1 upper case letter, 1 lower case letter, 1 number and 1 special character.
Supported special characters are ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - + . , _

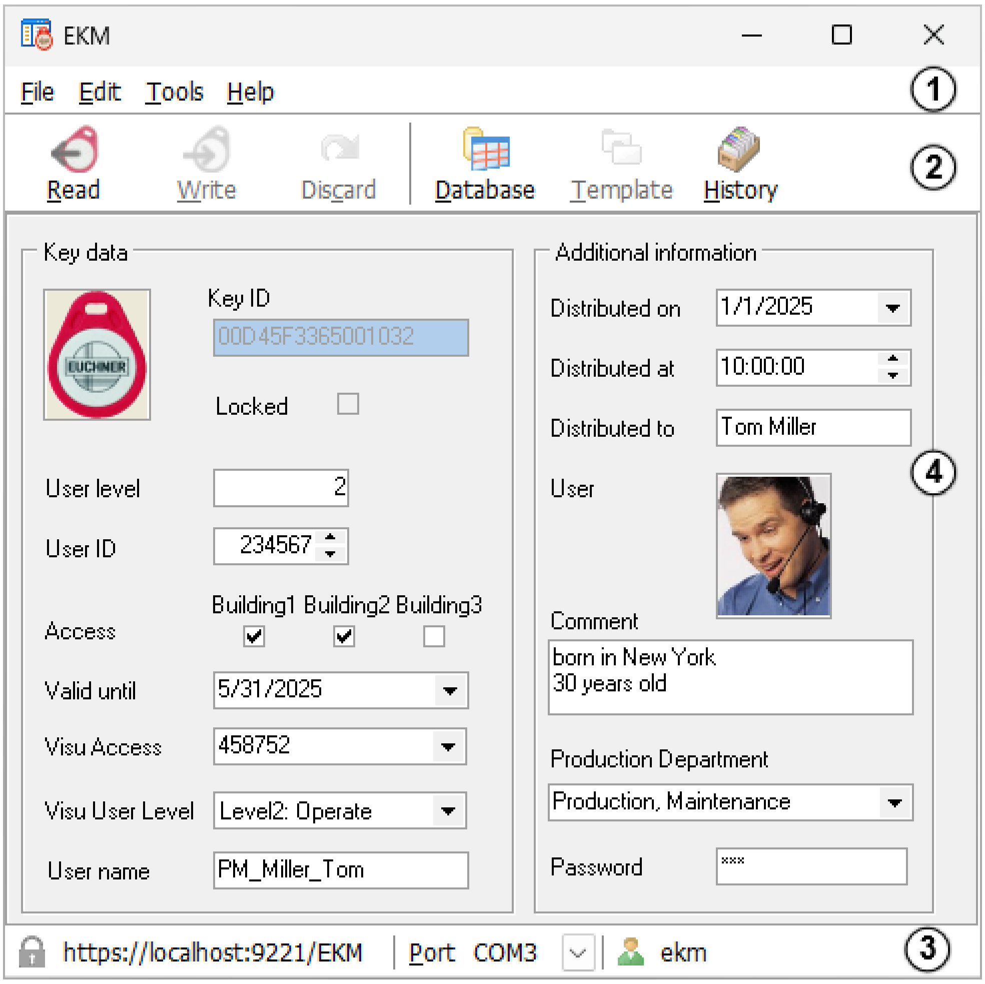
3.4 Quitting program

To quit the EKM, click *Exit* in the *File* menu.

3.5 User interface

3.5.1 Main window

The *EKM* window is the main window of the EKM program. It opens when the program is started:



Key ID: 00D45F3365001032

Locked □

User level: 2

User ID: 234567

Access: Building1 ☑ Building2 ☑ Building3 □

Valid until: 5/31/2025

Visu Access: 458752

Visu User Level: Level2: Operate

User name: PM_Miller_Tom

Distributed on: 1/1/2025

Distributed at: 10:00:00

Distributed to: Tom Miller

User

Comment: born in New York
30 years old

Production Department: Production, Maintenance

Password: ***

https://localhost:9221/EKM | Port COM3 | ekm

The EKM main window is divided into the following areas:

① Menu bar ② Toolbar ③ Status bar

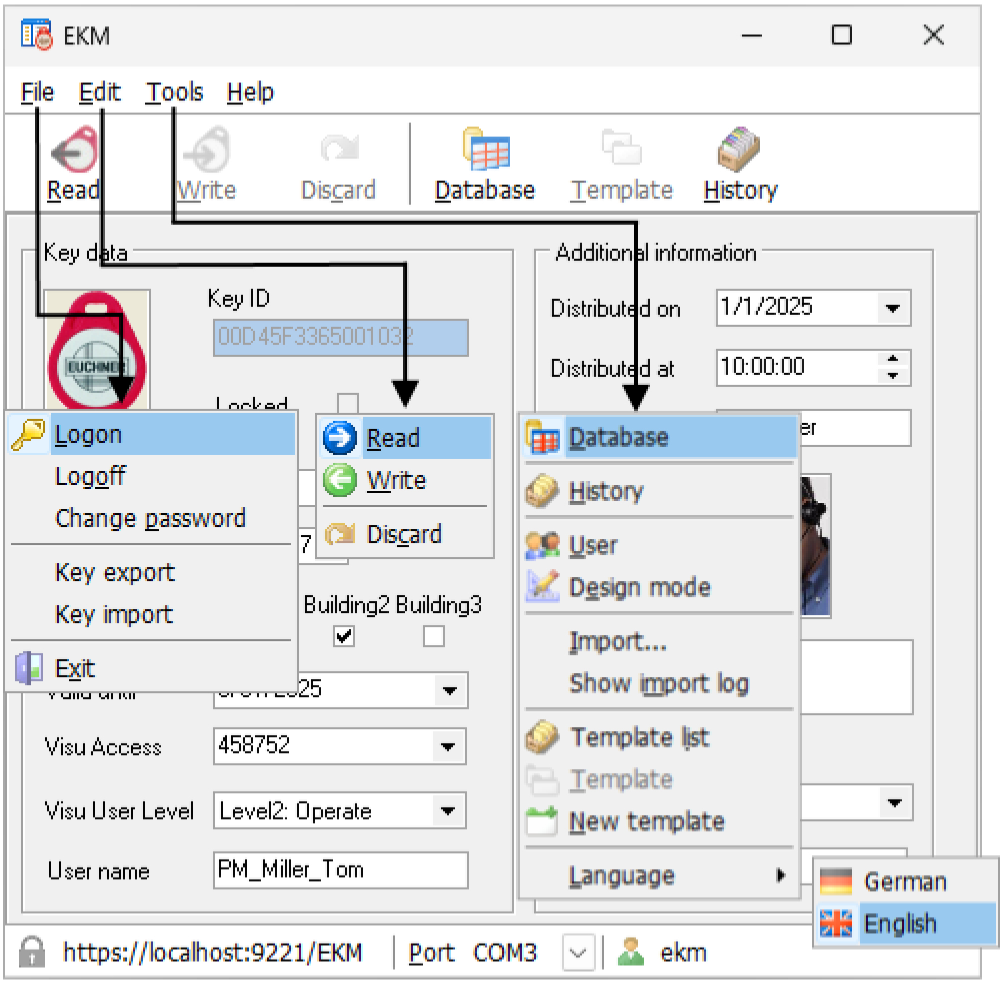
④ Form area The data allocated to the key are displayed and can be changed in this area. The design of this area can be customized to the user's specific needs in the design mode.

The size of the window can only be changed in the design mode.

3.5.2 Menus and toolbars

The menus and the toolbar contain different commands and icons depending on the mode in which you are working. The content in the read/write mode is shown in the following as an example.

Menu bar and toolbar

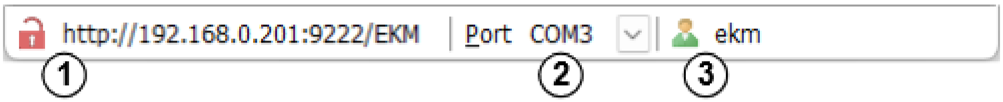


Key ID 00D45F3365001032
Locked □
Building2 ☑ Building3 □
Visu Access 458752
Visu User Level Level2: Operate
User name PM_Miller_Tom
Distributed on 1/1/2025
Distributed at 10:00:00
https://localhost:9221/EKM Port COM3 ekm

The functionality on the menus and the toolbar is dependent on the user rights assigned. In the figure shown above, a user with all administrator rights is assumed.

Menus and commands have shortcut keys: Press Alt and the letter underlined in the menu name or command.

Status bar



The following information is displayed on the status bar:

① EKM server status The icon indicates the status of the connection to the EKM server:

🔒 Green icon: The connection to the EKM server is securely encrypted with HTTPS. The certificate is valid and has been issued by a trustworthy certification authority.

🔒 Gray icon: The connection to the EKM server is encrypted with HTTPS. The certificate has not been issued by a trustworthy certification authority.

🔓 Red icon: The connection to the EKM server is not secure with HTTP.

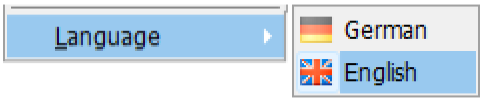
② Port selection — The port selected for the EKS Electronic-Key adapter is displayed in the Port field. You can select a different port from the drop-down list (cf."EKS interface").

③ User indication — The name of the user logged on is displayed next to the user icon.

⚠ HTTP connections are not secure due to the lack of encryption. All data are sent in plain text and without security mechanisms. Therefore, the use of HTTP connections is not recommended (cf. "Data traffic encryption").

3.5.3 Language selection

You can change between German and English while the program is running.



3.6 Reading and writing

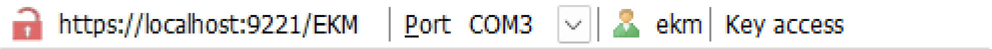
To read key data or to write keys, proceed as follows:

- Check the settings for the EKS Electronic-Key adapter using the manual on the EKS (key-specific settings).
- Connect the EKS Electronic-Key adapter to a power source.
- Connect the EKS Electronic-Key adapter to a serial interface or USB interface on your computer.
- Choose the port for the serial interface.

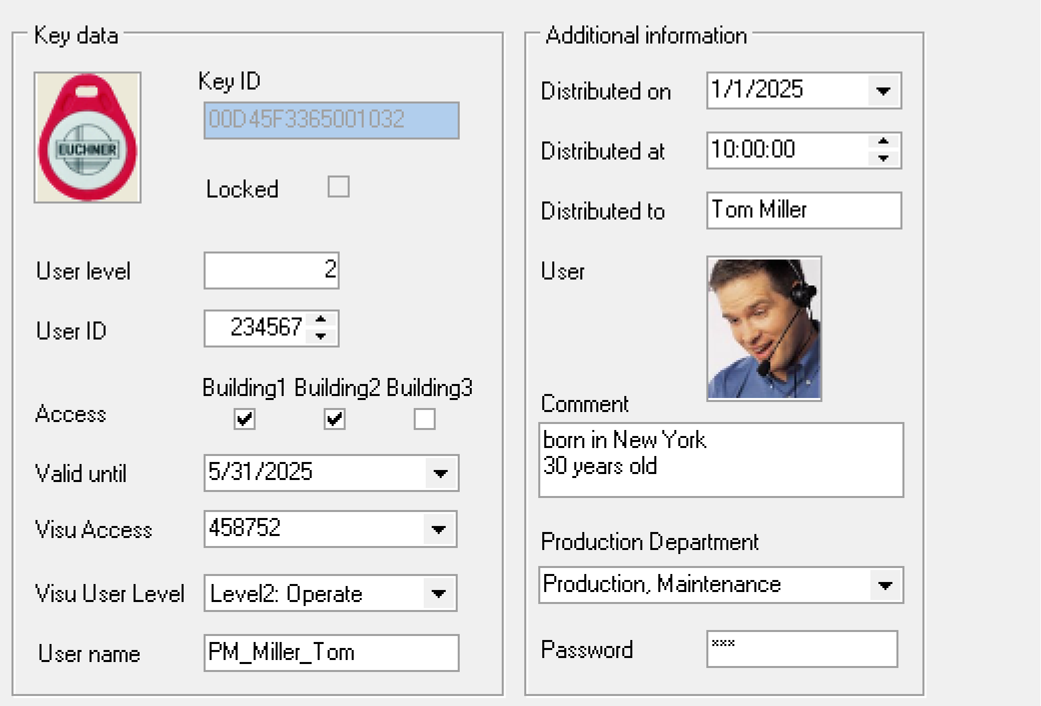
Start the EKM or change from the design mode to the basic setting of the program.

3.6.1 Reading a key

To read a key, push the key into the EKS Electronic-Key adapter. The read process starts automatically. Progress during the read process is displayed in *Key access* on the status bar.



When the key is read, the data on the key are automatically transferred to the EKM server database. Once the read process is complete, the data are displayed on the key form.



Key data

Key ID: 00D45F3365001032

Locked □

User level: 2

User ID: 234567

Access: Building1 ☑ Building2 ☑ Building3 □

Valid until: 5/31/2025

Visu Access: 458752

Visu User Level: Level2: Operate

User name: PM_Miller_Tom

Additional information

Distributed on: 1/1/2025

Distributed at: 10:00:00

Distributed to: Tom Miller

User

Comment:
born in New York
30 years old

Production Department: Production, Maintenance

Password: ***

You can also start the read process manually:

Click the *Read* icon on the toolbar or the *Read* command in the *Edit* menu.

⚠ The data displayed on the form are overwritten on renewed reading.

Note that the read process is dependent on the activation of the field property *OnKey*:

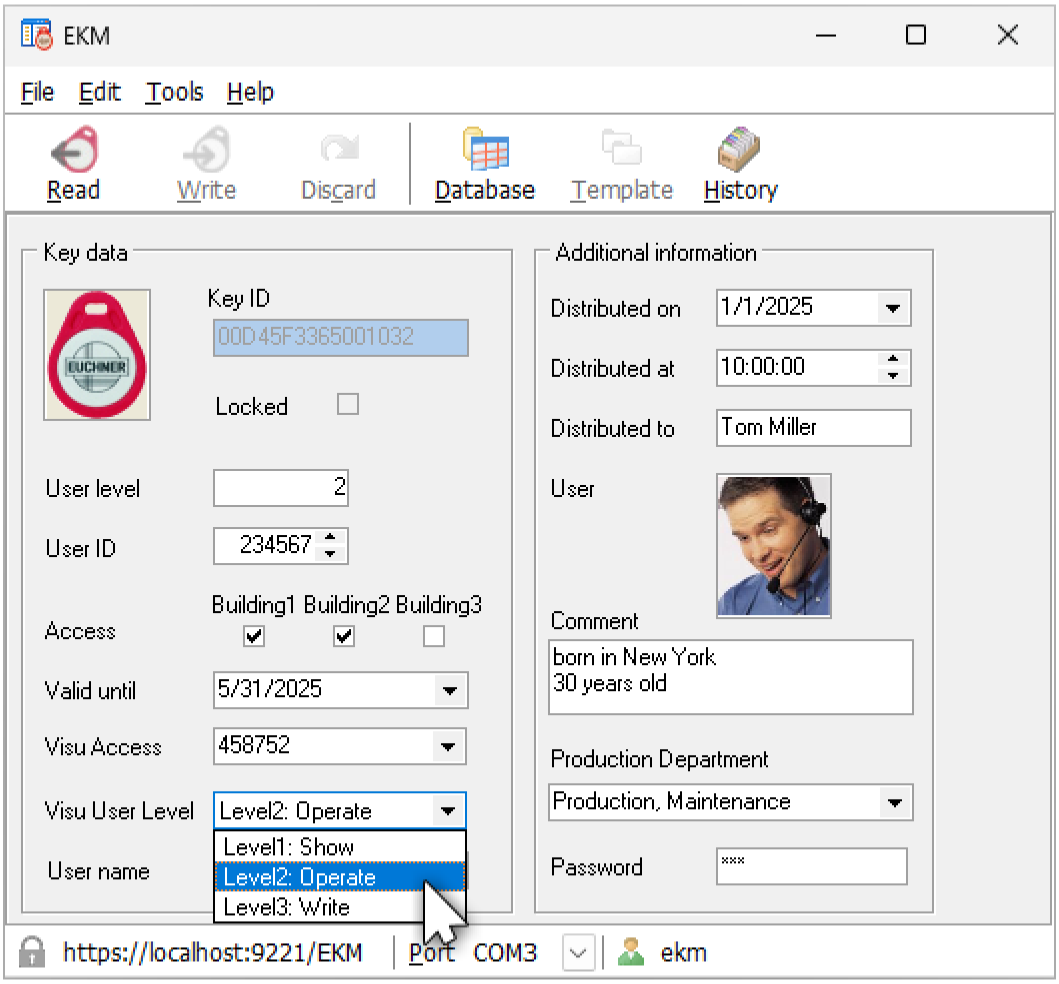
OnKey activated: On reading, the value is read directly from the key, transferred to the database and displayed on the form. If the key does not contain any valid data, a notice will be displayed and the invalid value will be replaced by a default value. This default behavior can be changed using the EKM server setting "Data Synchronization". With the "Database is Master" setting, the value is transferred from the database to the key after the key has been read.

OnKey deactivated: On reading, the value is read directly from the database and displayed on the form.

The first time fields are read without *OnKey* activated, the database fields are ZERO. Blank fields are displayed on the form.

3.6.2 Writing a key

To write to a key, push the key into the EKS Electronic-Key adapter. First, the read process starts automatically. Then enter the data on the form (for information on data entry,cf. "Data entry").



Key ID 00D45F3365001032

Locked □

User level 2

User ID 234567

Access: Building1 ☑ Building2 ☑ Building3 □

Valid until 5/31/2025

Visu Access 458752

Visu User Level Level2: Operate

User name

Distributed on 1/1/2025

Distributed at 10:00:00

Distributed to Tom Miller

User

Comment
born in New York
30 years old

Production Department
Production, Maintenance

Password ***

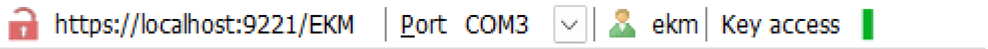
https://localhost:9221/EKM Port COM3 ekm

To start the write process, click

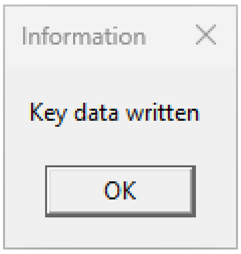
Write

the *Write* icon on the toolbar or the *Write* command in the *Edit* menu.

The progress during the write process is displayed in Key access on the status bar.



The data are automatically transferred to the EKM database when the key is written. Once the write process has been completed successfully, a message is displayed:



Key data written

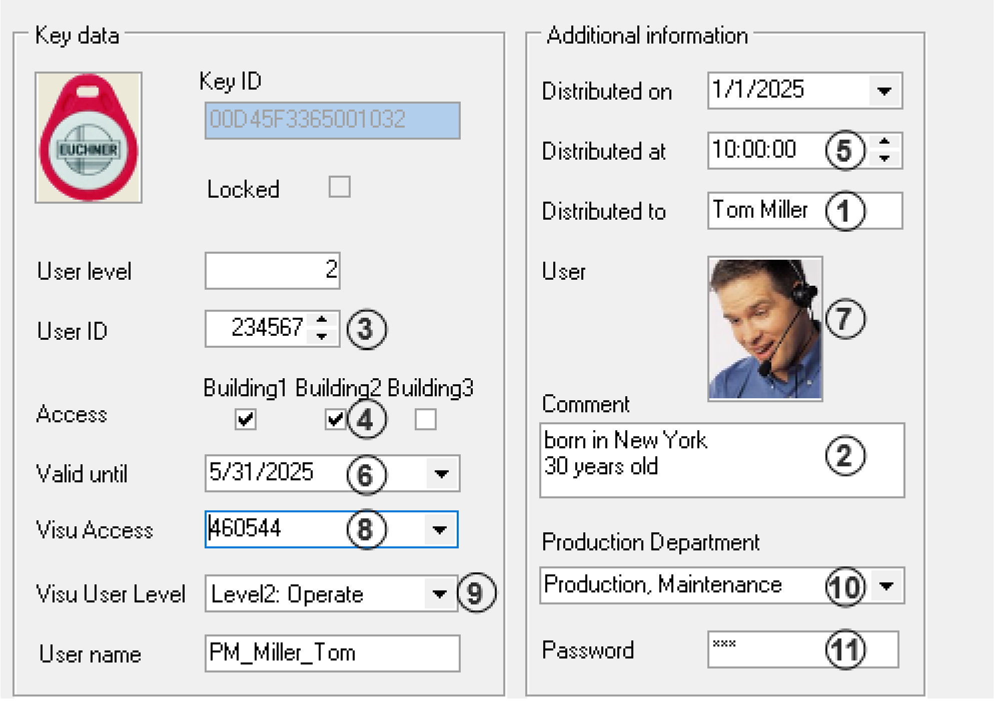
Accept the message with *OK*.

⚠ The key must not be removed during the write process.

The writing of duplicates to Unique fields is detected before the write process is performed: you will receive an error message if you have entered a value that has already been used in a field with the Unique restriction.
The write process is not executed.

3.6.2.1 Data entry

Data entry when writing to a key varies depending on the form component.



Key data

Key ID	00D45F3365001032
Locked	□
User level	2
User ID	234567
Access	Building1 ☑ Building2 ☑ Building3 □
Valid until	5/31/2025
Visu Access	460544
Visu User Level	Level2: Operate
User name	PM_Miller_Tom

Additional information

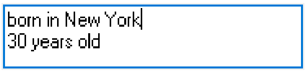
Distributed on	1/1/2025
Distributed at	10:00:00
Distributed to	Tom Miller
User	
Comment	born in New York 30 years old
Production Department	Production, Maintenance
Password	***

①

Tom Miller

cxDBTextEdit: Click the field and enter one line of text.

②



born in New York
30 years old

cxDBMemo: Click the field and enter several lines of text.

③

234567

cxDBSpinEdit: Click one of the arrows. The number is increased or decreased. You can also enter a number directly by clicking the field.

④

Building1 ☑

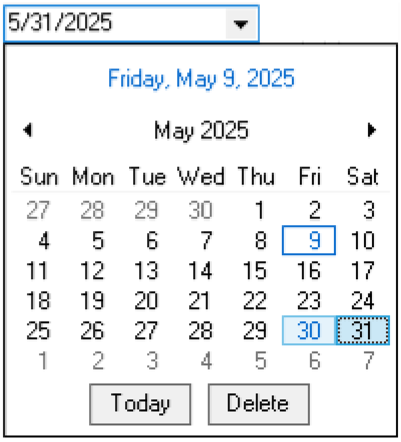
cxDBCheckBox: Click the check box to set or activate the defined property. A check mark appears in the check box. To deactivate the field, click the activated check box. The check box is now empty.

⑤

10:00:00

cxDBTimeEdit: Click one of the arrows. The time is put forward or put back. You can also place the cursor directly in the field and enter a time. The cursor moves forward automatically so that the entry is always in the correct format.

⑥



5/31/2025

Friday, May 9, 2025

May 2025

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

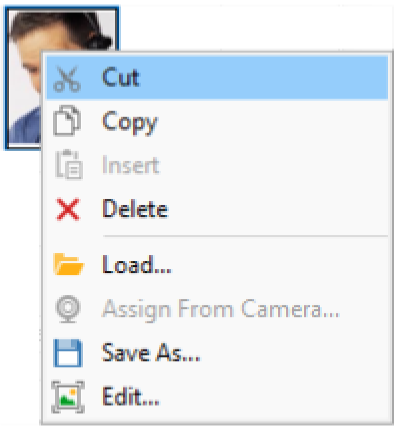
cxDBDateEdit:Click the arrow. A calendar opens. Choose a date by clicking a day directly on the calendar. Click the month bar to choose a different month.

You can page through the calendar using the arrow buttons on the month bar, i.e. move back and forward.

Click the *Today* button to chose today's date.

Click the *Delete* button to remove a selected date.

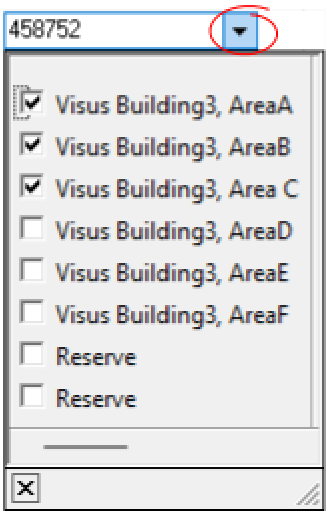
⑦



cxDBImage: Click the form component using the right mouse button. A context menu appears:

- *Cut* removes the image from the form component and saves it to the Windows Clipboard.
- Using *Insert*, you can paste an image from the Clipboard into a form component of type cxDBImage.
- Using *Copy*, you can copy the image from the form component to the Clipboard.
- Using *Delete*, you can delete an image from the form component.
- Using *Load*, you can open a dialog box for opening a file. Select an image file and accept your selection by clicking the *Open* button.
- You can save an image using *Save As*. The *Save As* window opens first. Select a folder, enter a file name and accept your entries by clicking the *Save* button.

⑧

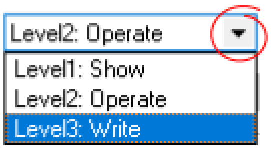


458752

☑ Visus Building3, AreaA
☑ Visus Building3, AreaB
☑ Visus Building3, Area C
□ Visus Building3, AreaD
□ Visus Building3, AreaE
□ Visus Building3, AreaF
□ Reserve
□ Reserve

cxBitstring: Click the arrow. A dialog box with check boxes opens containing the bits to be set. Comments related to the bits are displayed. Set the bits in the dialog box by selecting the related check boxes. When you close the dialog box, the bits set are displayed in a corresponding decimal or hexadecimal character string.

⑨

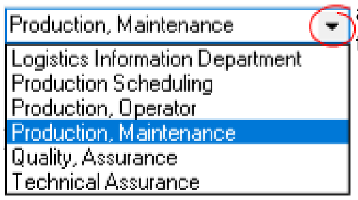


Level2: Operate

Level1: Show
Level2: Operate
Level3: Write

***cxDBExComboBox**:* Click the arrow to open the pull-down menu. Select an entry on the pull-down menu. The selected value is not written to the key, instead a value saved in the Layout Designer for this menu entry is written to the key. You cannot enter any text in the field.

⑩



Production, Maintenance

Logistics Information Department
Production Scheduling
Production, Operator
Production, Maintenance
Quality, Assurance
Technical Assurance

***cxDB_ComboBox**:* Click the arrow to open the pull-down menu. Select an entry on the pull-down menu. You can also enter text in the field and transfer the text to the key or to the database using *Write*.

⑪

***

***cxDBPassword**:* Click the field and enter text. The text entry is hidden using the character " * ". For data security reasons " *** " is displayed when you leave the field with the cursor.

3.6.3 Using templates

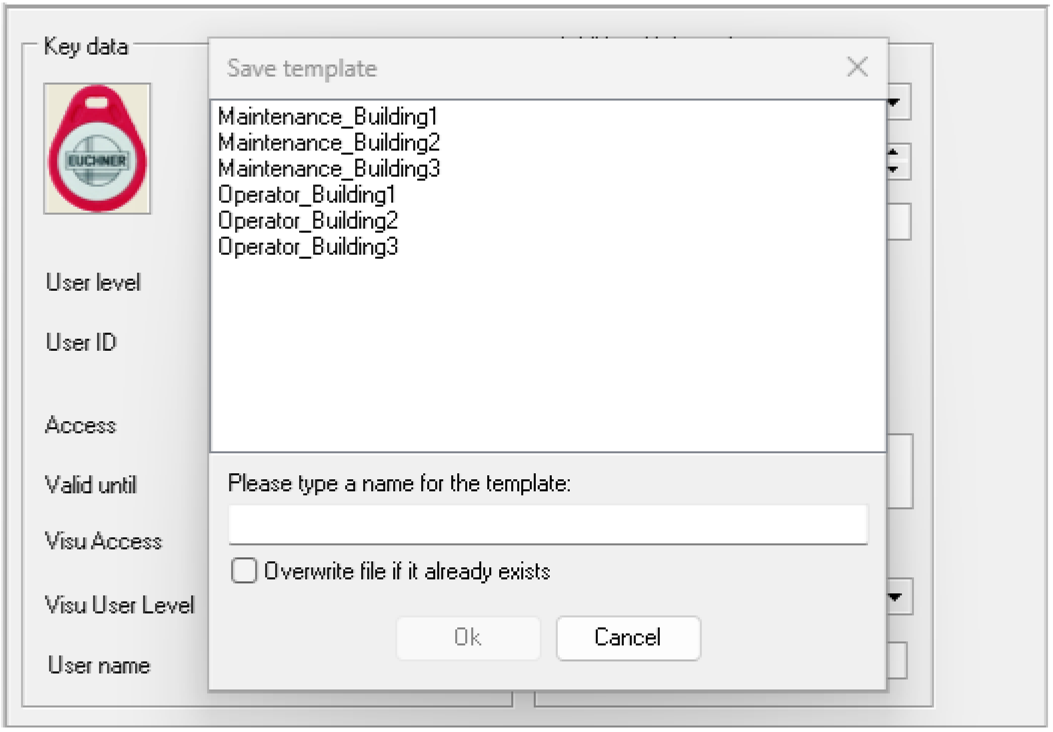
Using templates, you can save defined values in form fields and use these values as required. Templates can be used to speed up writing similar data to keys.

To create and use templates, proceed as follows:

First create a template:

- Enter the required values on your form. There must be a key in the EKS Electronic-Key adapter to enter data.

- Click *Tools -> New Template*. Enter a name for the new template in the *Save template* window and accept your entries with *OK*.



Save template

Maintenance_Building1
Maintenance_Building2
Maintenance_Building3
Operator_Building1
Operator_Building2
Operator_Building3

Please type a name for the template:

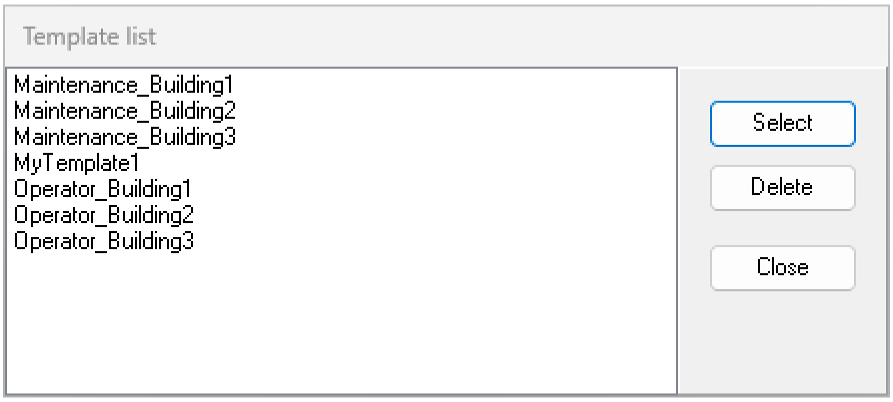
□ Overwrite file if it already exists

All fields that have been enabled in the Database Designer for use in template creation are saved in the template with the values entered (cf. "Properties of the data fields").

The template is a TXT file that is saved on the EKM server.

How to use a template:

- Click *Tools* -> *Template list*. A list is opened with the templates already added. Select the template you want to use.

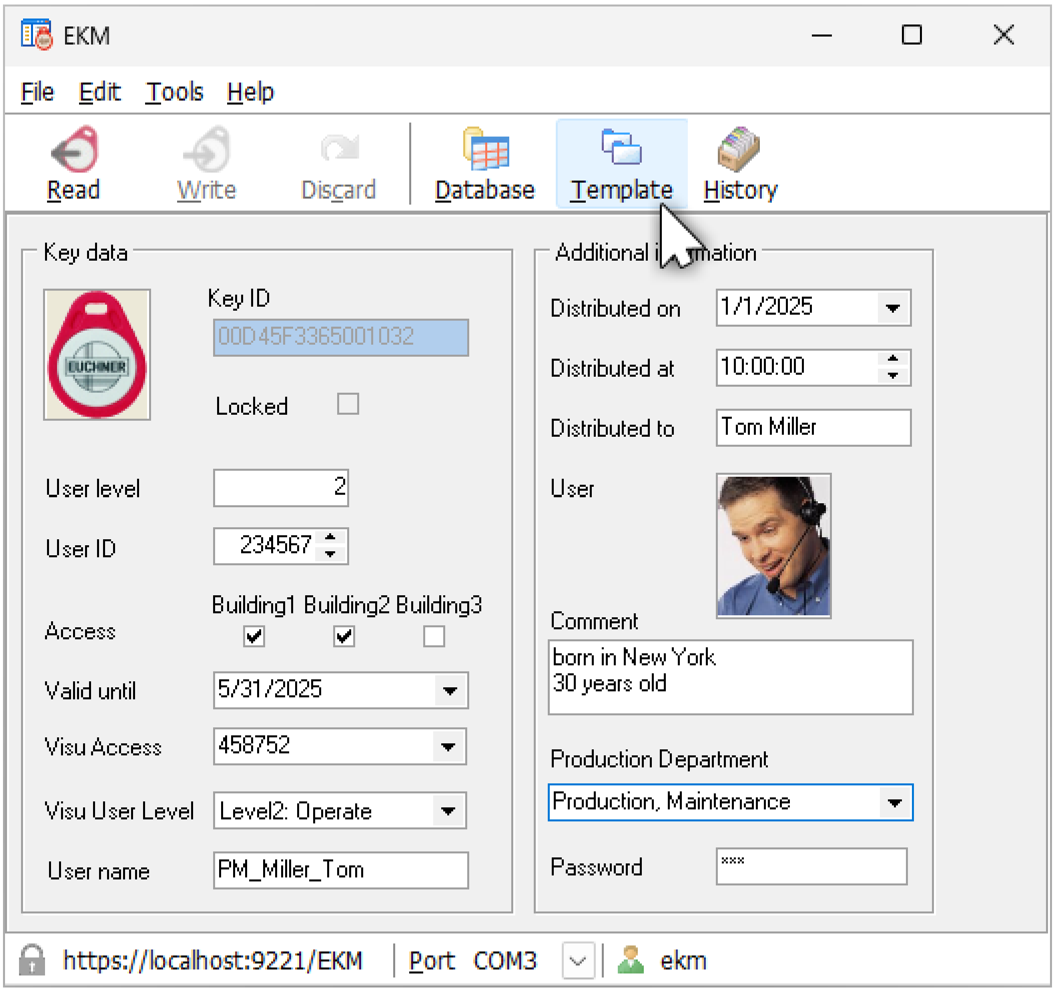


Template list

Maintenance_Building1
Maintenance_Building2
Maintenance_Building3
MyTemplate1
Operator_Building1
Operator_Building2
Operator_Building3

Once a template has been selected, the template icon is available on the toolbar.

- Insert the key you want to write in the EKS Electronic-Key adapter. Click the *Template* icon on the toolbar or use the *Template* command in the *Tools* menu. The values saved in the template fields appear on the form.



Key data

Key ID 00D45F3365001032

Locked □

User level 2

User ID 234567

Access: Building1 ☑ Building2 ☑ Building3 □

Valid until 5/31/2025

Visu Access 458752

Visu User Level Level2: Operate

User name PM_Miller_Tom

Additional i mation

Distributed on 1/1/2025

Distributed at 10:00:00

Distributed to Tom Miller

User

Comment
born in New York
30 years old

Production Department Production, Maintenance

Password ***

https://localhost:9221/EKM | Port COM3 | ekm

- If necessary, add data to the form and click *Write* to transfer the data to the key.

3.6.4 Discarding changes

If you do not want to save changes to key data, but instead want to discard the changes, click

Discard

the *Discard* icon on the toolbar or the *Discard* command in the *Edit* menu.

The data last transferred to the key are displayed on the form.

3.7 Database viewer

The database viewer displays the entered key data in tabular form for the components on the form.

To open the database viewer, click

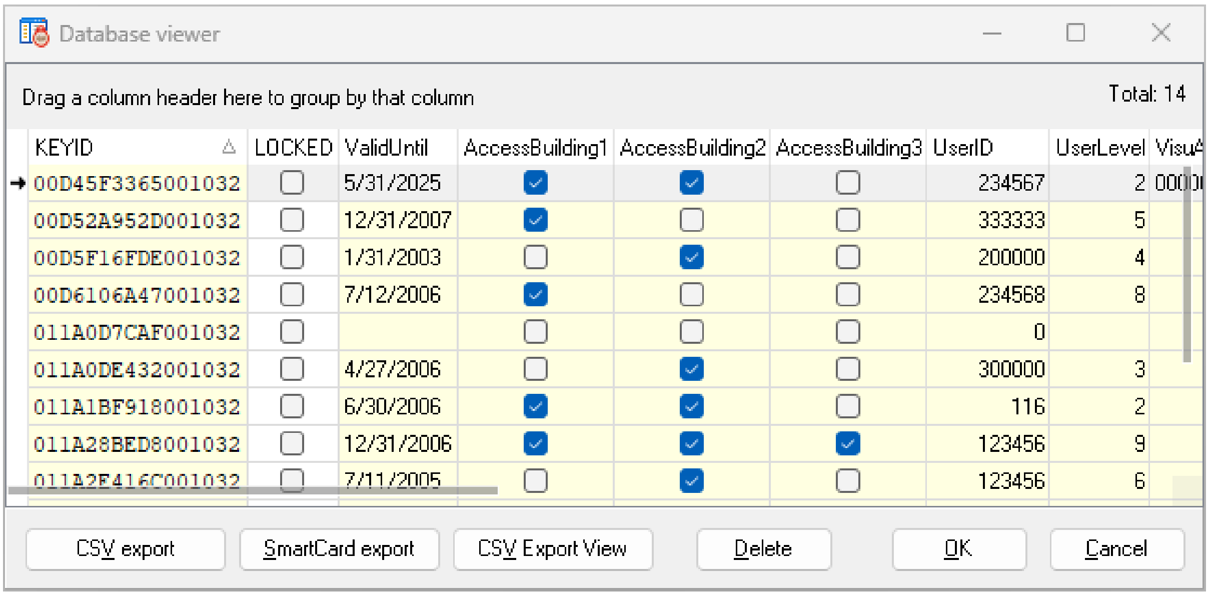
Database

the *Database* command in the *Tools* menu or

Database

the *Database* icon on the toolbar.

The *Database viewer* window opens:



Database viewer

Drag a column header here to group by that column

Total: 14

KEYID	LOCKED	ValidUntil	AccessBuilding1	AccessBuilding2	AccessBuilding3	UserID	UserLevel	VisuA
00D45F3365001032	☐	5/31/2025	☑	☑	☐	234567	2	0000
00D52A952D001032	☐	12/31/2007	☑	☐	☐	333333	5	
00D5F16FDE001032	☐	1/31/2003	☐	☑	☐	200000	4	
00D6106A47001032	☐	7/12/2006	☑	☐	☐	234568	8	
011A0D7CAF001032	☐		☐	☐	☐	0		
011A0DE432001032	☐	4/27/2006	☐	☑	☐	300000	3	
011A1BF918001032	☐	6/30/2006	☑	☑	☐	116	2	
011A28BED8001032	☐	12/31/2006	☑	☑	☑	123456	9	
011A2F416C001032	☐	7/11/2005	☐	☑	☐	123456	6	

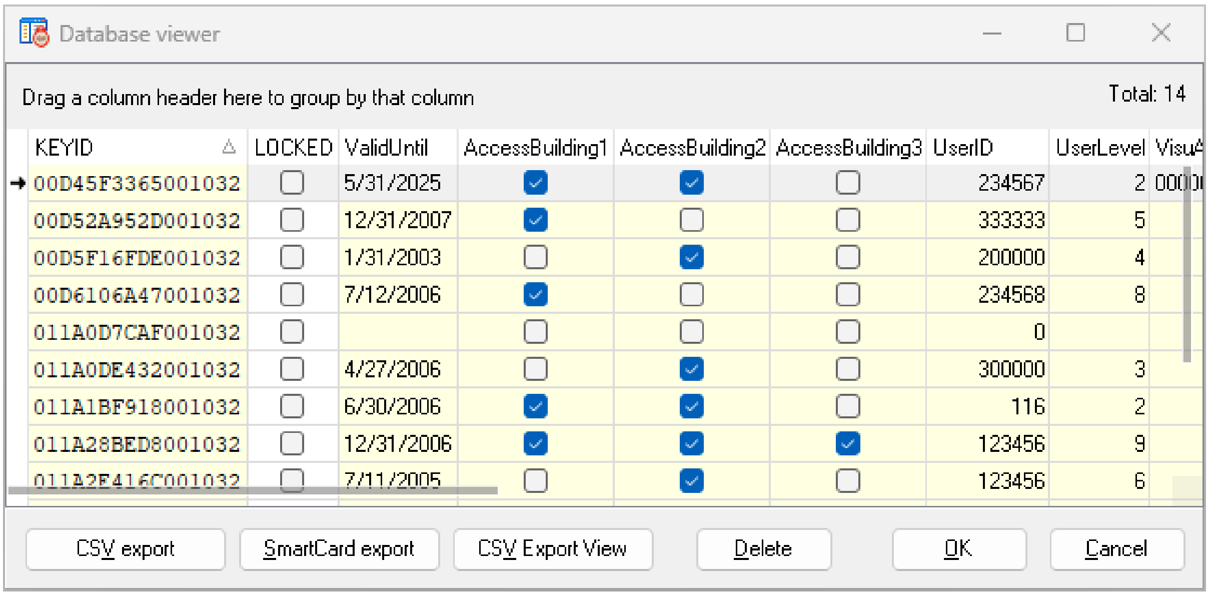
The following has to be noted:

- Only the values that the logged-on user sees on the form are displayed in the database viewer.
- The data fields that are also saved on the key have a yellow background.

- Only values that can also be changed on the form for the user can be changed. Exceptions: Data fields that are also saved on the key can be changed with the "Database is Master" setting (cf. "EKM server settings").
- All columns will be displayed if the logged-on user has the *Database_AllColumns* right.
- The *LOCKED* column is displayed if one of the following rights is available: *Database_LOCKED_Visible, Database_LOCKED_Edit, Database_AllColumns.*
- The *LOCKED* column can be changed if one of the following rights is available: *Database_LOCKED_Edit, Database_AllColumns*.

3.7.1 Working with data

Lists of data records are displayed in tabular form in the EKM. Examples of these data tables are the data views in the *database viewer* and in the Database Designer. The figure below shows all key data already read into the *database viewer*.



Database viewer

Drag a column header here to group by that column

Total: 14

KEYID	LOCKED	ValidUntil	AccessBuilding1	AccessBuilding2	AccessBuilding3	UserID	UserLevel	VisuA
00D45F3365001032	☐	5/31/2025	☑	☑	☐	234567	2	0000
00D52A952D001032	☐	12/31/2007	☑	☐	☐	333333	5	
00D5F16FDE001032	☐	1/31/2003	☐	☑	☐	200000	4	
00D6106A47001032	☐	7/12/2006	☑	☐	☐	234568	8	
011A0D7CAF001032	☐		☐	☐	☐	0		
011A0DE432001032	☐	4/27/2006	☐	☑	☐	300000	3	
011A1BF918001032	☐	6/30/2006	☑	☑	☐	116	2	
011A28BED8001032	☐	12/31/2006	☑	☑	☑	123456	9	
011A2F416C001032	☐	7/11/2005	☐	☑	☐	123456	6	

Various functions are integrated into the tabular view:

- Searching
- Changing the position of a column
- Sorting by columns
- Grouping by columns
- Filtering data

You can mark a row by clicking the row using the mouse pointer. The functions for changing lists of data described here are not saved when the related data view is closed.

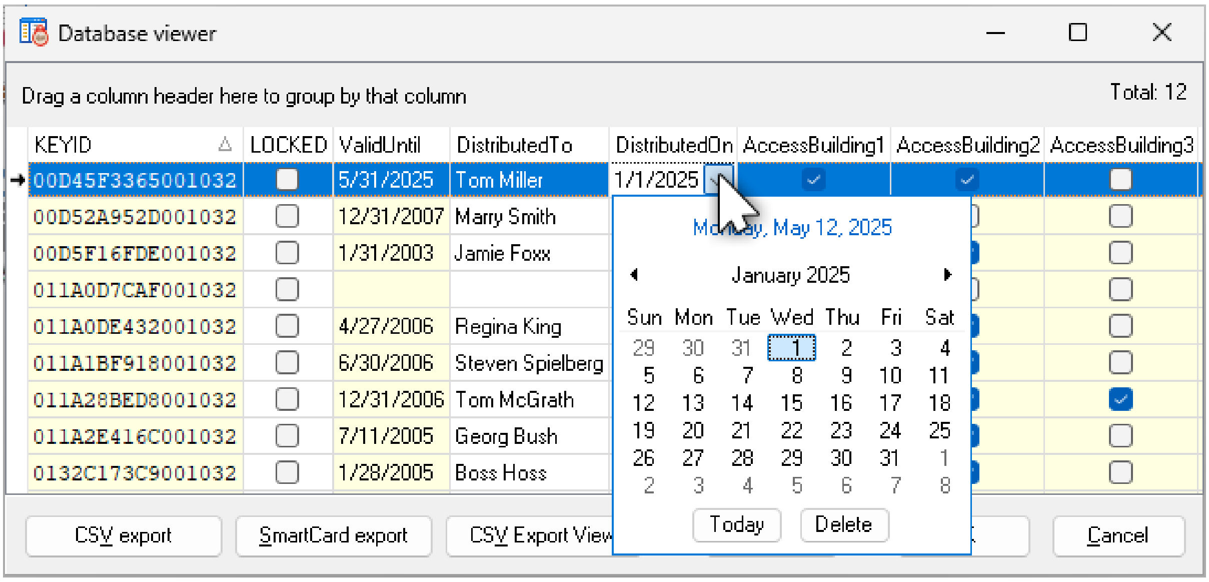
These functions are not always integrated into every data table in their entirety.

3.7.2 Changing data in the database viewer

In the database viewer, you can change the data only if you have the corresponding rights (cf. "Database viewer").

Data fields that are also saved on the key have a yellow background. They can be changed only with the "Database is Master" setting (cf. "EKM server settings").

To change data, click the data field you want to change. Overwrite the data field with the value that you want to enter in the data field.



Database viewer

Drag a column header here to group by that column

Total: 12

KEYID	LOCKED	ValidUntil	DistributedTo	DistributedOn	AccessBuilding1	AccessBuilding2	AccessBuilding3
00D45F3365001032	□	5/31/2025	Tom Miller	1/1/2025	☑	☑	□
00D52A952D001032	□	12/31/2007	Marry Smith				□
00D5F16FDE001032	□	1/31/2003	Jamie Foxx				□
011A0D7CAF001032	□						□
011A0DE432001032	□	4/27/2006	Regina King				□
011A1BF918001032	□	6/30/2006	Steven Spielberg				□
011A28BED8001032	□	12/31/2006	Tom McGrath				☑
011A2E416C001032	□	7/11/2005	Georg Bush				□
0132C173C9001032	□	1/28/2005	Boss Hoss				□

Monday, May 12, 2025

◂ January 2025 ▸

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

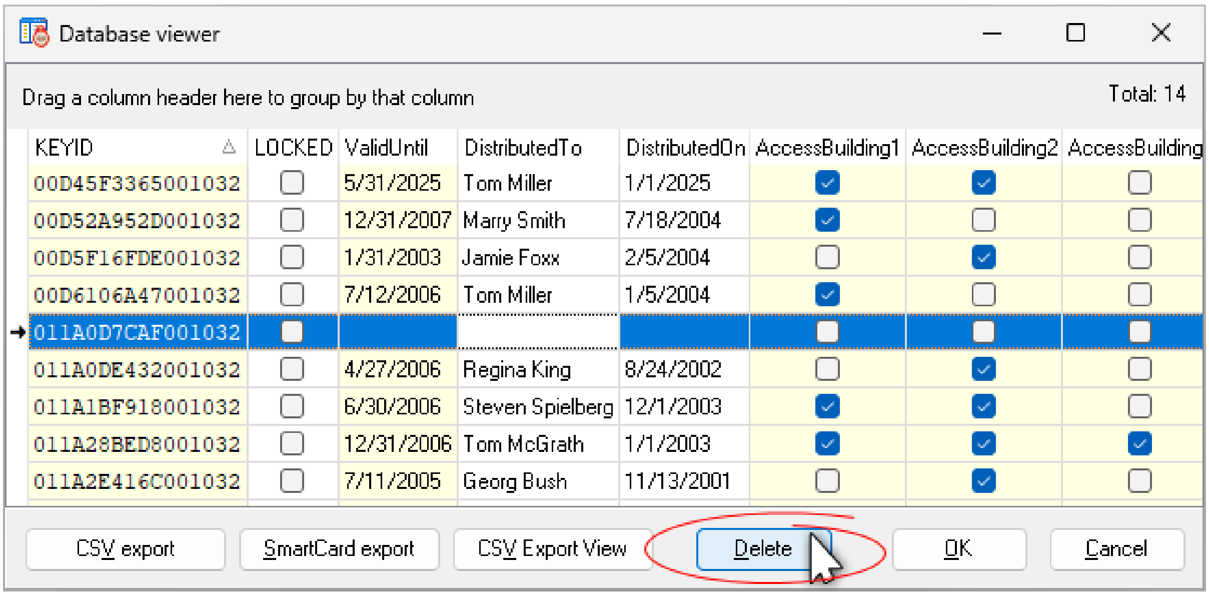
Once you have made all the necessary changes, leave the database viewer using *OK*.

⚠ Your changes will be transferred to the EKM server as soon as you leave the modified field in the database viewer with the cursor or close the database viewer.

💡 The database viewer includes the field-specific windows, pull-down menus and pre-formatted fields for entering data (cf. "Data entry").

3.7.3 Deleting database records in the database viewer

To delete data records in the database viewer, select a data record by clicking it. Then click the *Delete* button.



KEYID	LOCKED	ValidUntil	DistributedTo	DistributedOn	AccessBuilding1	AccessBuilding2	AccessBuilding
00D45F3365001032	□	5/31/2025	Tom Miller	1/1/2025	☑	☑	□
00D52A952D001032	□	12/31/2007	Marry Smith	7/18/2004	☑	□	□
00D5F16FDE001032	□	1/31/2003	Jamie Foxx	2/5/2004	□	☑	□
00D6106A47001032	□	7/12/2006	Tom Miller	1/5/2004	☑	□	□
011A0D7CAF001032	□				□	□	□
011A0DE432001032	□	4/27/2006	Regina King	8/24/2002	□	☑	□
011A1BF918001032	□	6/30/2006	Steven Spielberg	12/1/2003	☑	☑	□
011A28BED8001032	□	12/31/2006	Tom McGrath	1/1/2003	☑	☑	☑
011A2E416C001032	□	7/11/2005	Georg Bush	11/13/2001	□	☑	□

You can also select and delete several data records:

- Using Shift + mouse button, you can select sequential data records block by block.
- Using Ctrl + mouse button, you can supplement or reduce the selection by individual data records.
- Using Ctrl + A, you can select all displayed data records. Previously filtered data records will not be taken into account.

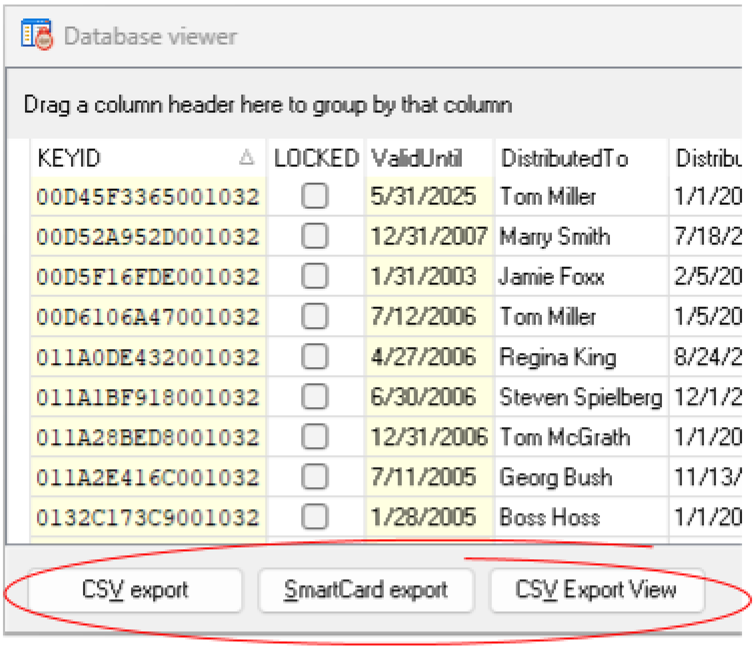
The selected data records will be highlighted in color and marked with a dot on the left side.
The selection of multiple data records can be canceled at any time by clicking with the mouse without pressing the Ctrl or Shift key.

The number of selected data records, the displayed data records and the total number of data records in the database are displayed on the right in the header.

⚠ You will receive a warning message before the deletion process takes place. Accept the message with *Yes* if you want to delete the selected data records and their associated data. Your changes will then be transferred to the EKM server.

3.7.4 Exporting data

In the database viewer, you can export key data.

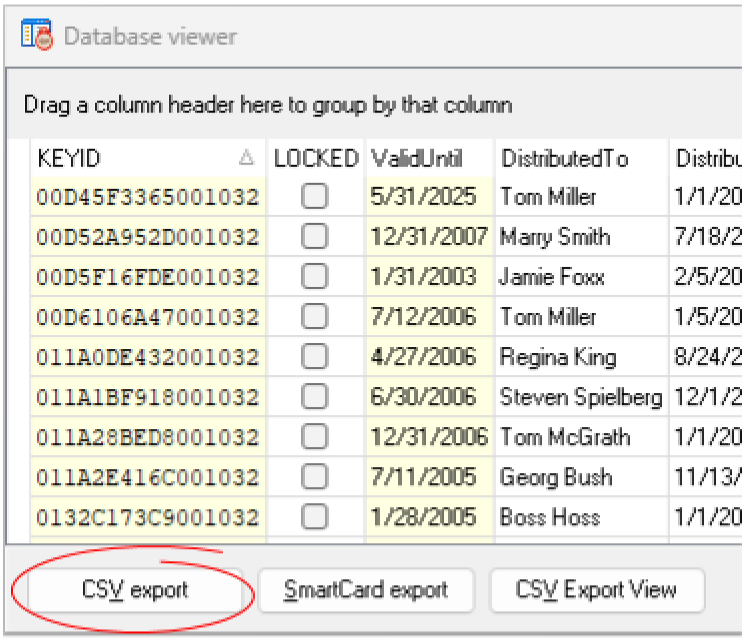


KEYID	LOCKED	ValidUntil	DistributedTo	Distribu
00D45F3365001032	□	5/31/2025	Tom Miller	1/1/20
00D52A952D001032	□	12/31/2007	Marry Smith	7/18/2
00D5F16FDE001032	□	1/31/2003	Jamie Foxx	2/5/20
00D6106A47001032	□	7/12/2006	Tom Miller	1/5/20
011A0DE432001032	□	4/27/2006	Regina King	8/24/2
011A1BF918001032	□	6/30/2006	Steven Spielberg	12/1/2
011A28BED8001032	□	12/31/2006	Tom McGrath	1/1/20
011A2E416C001032	□	7/11/2005	Georg Bush	11/13/
0132C173C9001032	□	1/28/2005	Boss Hoss	1/1/20

- During the **CSV export**, all enabled key data with the exception of key types Memo and Graphic are exported to a CSV file.
- The first row in the export file contains the names of the database fields
- Order of the database fields:
  - Database field KEYID
  - Database field LOCKED
  - Database fields with the key data. The sequence is the same as the order on the key. When a byte is broken down (data type Bit or Nibble), export will take place in the sequence from Low bit to High bit
  - Remaining database fields. The sequence is the same as the order defined in the Database Designer
- Database fields of type StringPassword are encrypted using Secure Hash Algorithm (SHA-1). You can find information about SHA-1 at:https://en.wikipedia.org/wiki/Secure_Hash_Algorithms
- During the **SmartCard export**, the serial numbers of the keys (KEYID) are converted to the card code for the SmartCard and saved as file names for zero-byte files.
- With the **CSV Export View**, only the displayed key data with exception of the data types Memo and Graphic are exported to a CSV file.
- You define the approval of the database fields for the CSV export in the *CSV Export* column in the *Database Designer* (cf. "Designing a database").

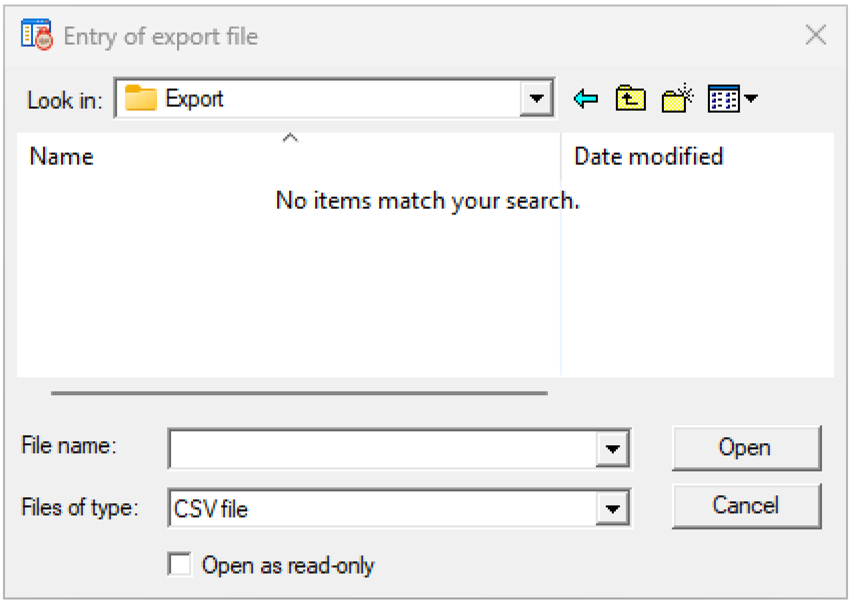
3.7.4.1 CSV export

If you want to save the key data to a CSV file, click the *CSV export* button in the database viewer.



KEYID	LOCKED	ValidUntil	DistributedTo	Distribu
00D45F3365001032	☐	5/31/2025	Tom Miller	1/1/20
00D52A952D001032	☐	12/31/2007	Marry Smith	7/18/2
00D5F16FDE001032	☐	1/31/2003	Jamie Foxx	2/5/20
00D6106A47001032	☐	7/12/2006	Tom Miller	1/5/20
011A0DE432001032	☐	4/27/2006	Regina King	8/24/2
011A1BF918001032	☐	6/30/2006	Steven Spielberg	12/1/2
011A28BED8001032	☐	12/31/2006	Tom McGrath	1/1/20
011A2E416C001032	☐	7/11/2005	Georg Bush	11/13/
0132C173C9001032	☐	1/28/2005	Boss Hoss	1/1/20

The *Entry of export file* window opens.



Look in: Export

No items match your search.

File name:

Files of type: CSV file

☐ Open as read-only

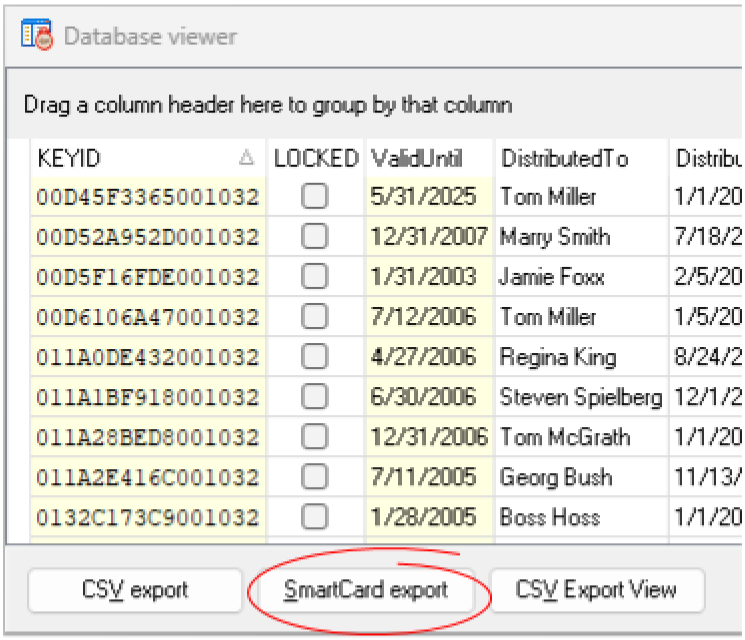
Select a folder and enter a file name for the CSV file. Accept using *Open*. After the export, a message is displayed:"Export completed successfully".

3.7.4.2 SmartCard export

The SmartCard export is used to convert the key serial numbers (KEYID) to the card code for the SmartCard. The card code is saved in the file name for a zero-byte file using the following syntax:

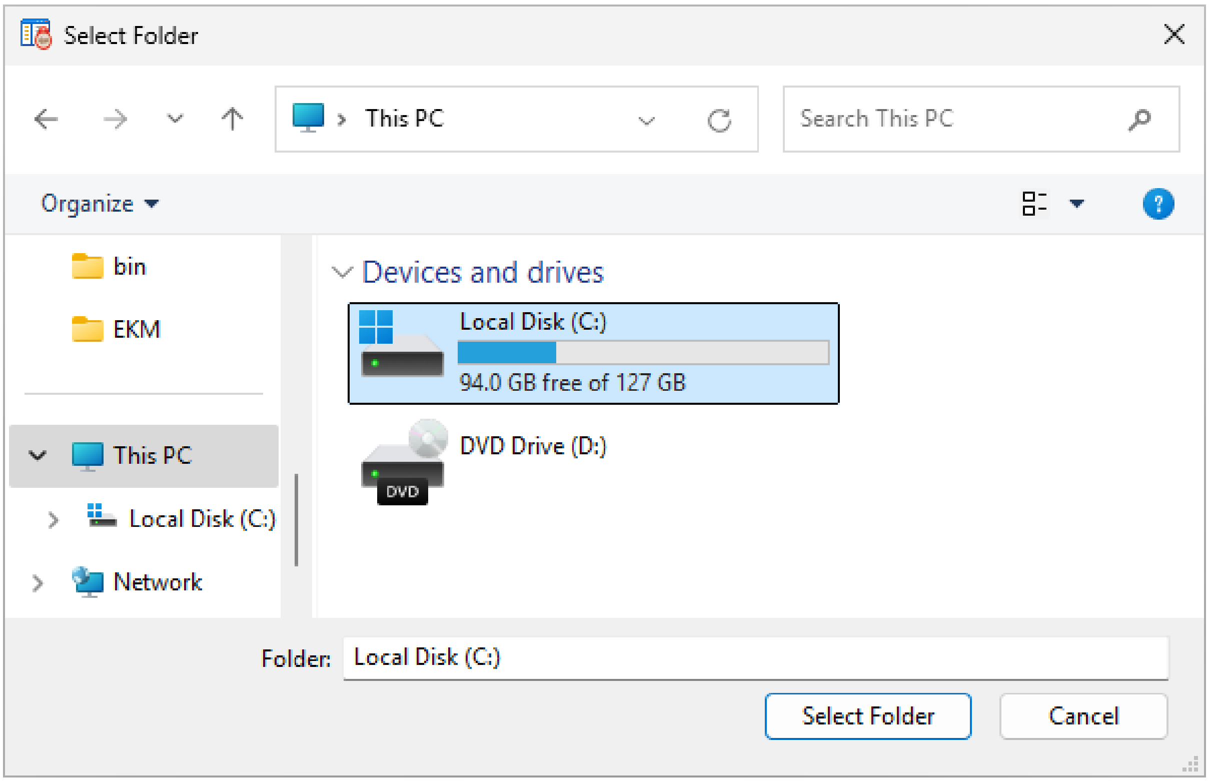
USERMAN_CARDxxxxxxxx.DAT
(xxxxxxxx stands for the card code).

To export the serial numbers for entered keys as SmartCard card code, click the *SmartCard export* button in the database viewer.



KEYID	LOCKED	ValidUntil	DistributedTo	Distribu
00D45F3365001032	☐	5/31/2025	Tom Miller	1/1/20
00D52A952D001032	☐	12/31/2007	Marry Smith	7/18/2
00D5F16FDE001032	☐	1/31/2003	Jamie Foxx	2/5/20
00D6106A47001032	☐	7/12/2006	Tom Miller	1/5/20
011A0DE432001032	☐	4/27/2006	Regina King	8/24/2
011A1BF918001032	☐	6/30/2006	Steven Spielberg	12/1/2
011A28BED8001032	☐	12/31/2006	Tom McGrath	1/1/20
011A2E416C001032	☐	7/11/2005	Georg Bush	11/13/
0132C173C9001032	☐	1/28/2005	Boss Hoss	1/1/20

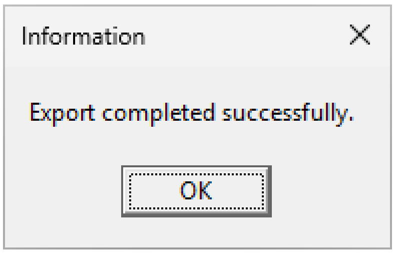
The *Entry of export folder* window opens.



Folder: Local Disk (C:)

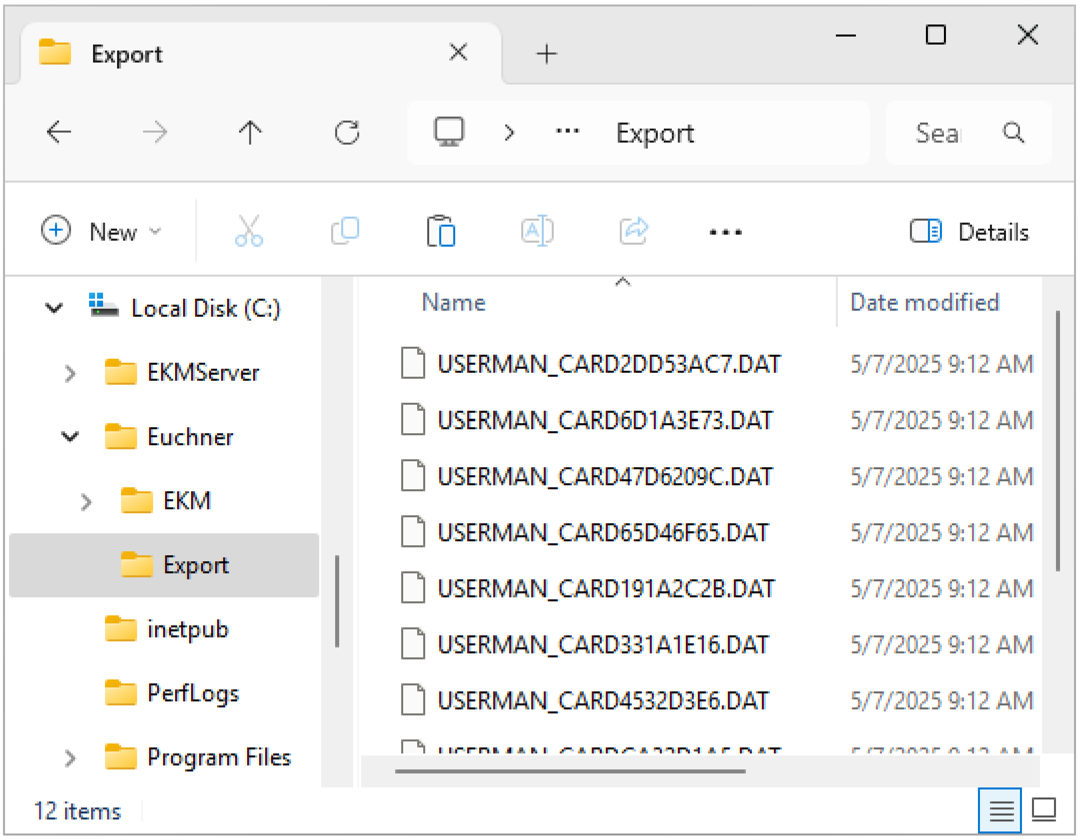
Select a folder and accept your selection using *OK*.

After the export, a message is displayed:



Export completed successfully.

In the export folder, you will now see the files with the related card codes:



Name	Date modified
USERMAN_CARD2DD53AC7.DAT	5/7/2025 9:12 AM
USERMAN_CARD6D1A3E73.DAT	5/7/2025 9:12 AM
USERMAN_CARD47D6209C.DAT	5/7/2025 9:12 AM
USERMAN_CARD65D46F65.DAT	5/7/2025 9:12 AM
USERMAN_CARD191A2C2B.DAT	5/7/2025 9:12 AM
USERMAN_CARD331A1E16.DAT	5/7/2025 9:12 AM
USERMAN_CARD4532D3E6.DAT	5/7/2025 9:12 AM

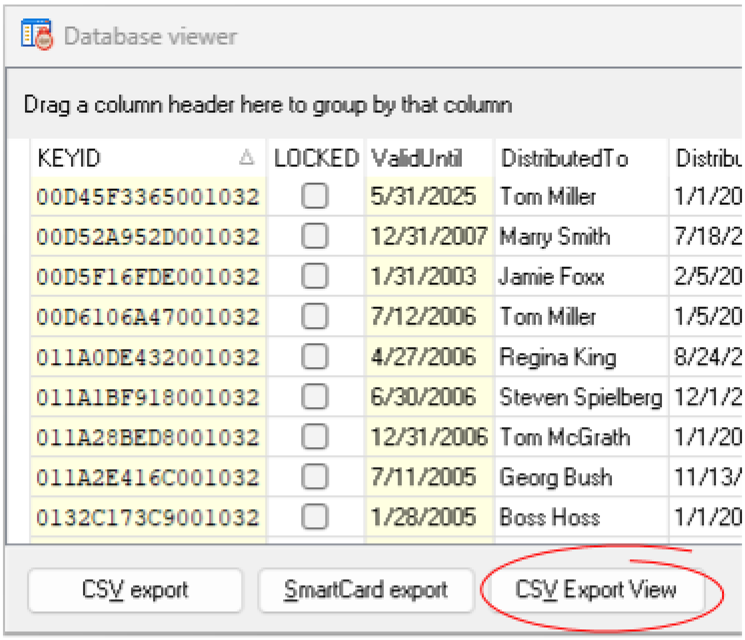
⚠ Locked keys are not saved.

The key serial number is a sixteen-digit hexadecimal number (8 bytes). For the conversion to the card code, this number must be converted into an eight-digit hexadecimal number (4 bytes):

- The 8 byte key serial number is divided into two 4 byte values.
- The two 4 byte values are added together. Any overflow is ignored. The resulting 4 byte value is the card code.

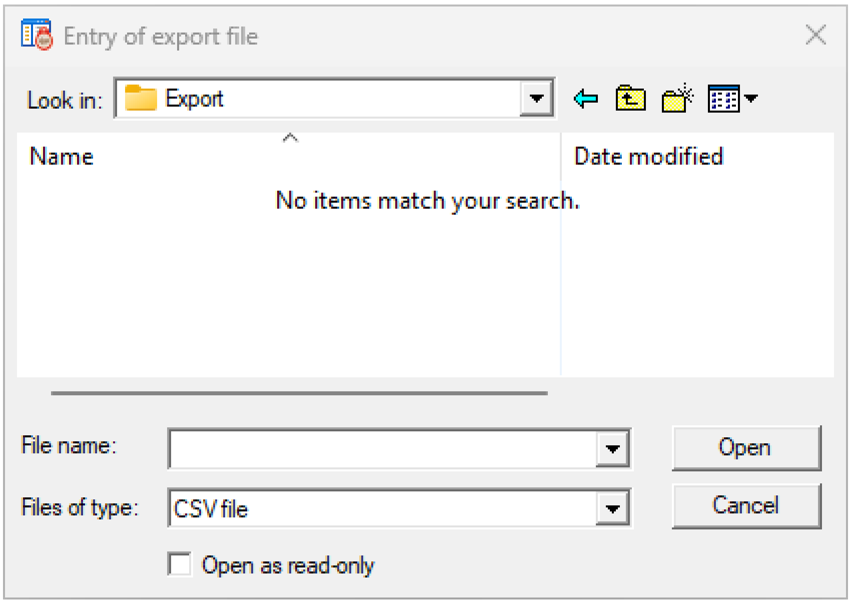
3.7.4.3 CSV Export View

If you want to save a filter-restricted list of the key data in a CSV file, click the *CSV Export View* button in the database viewer.



KEYID	LOCKED	ValidUntil	DistributedTo	Distribu
00D45F3365001032	□	5/31/2025	Tom Miller	1/1/20
00D52A952D001032	□	12/31/2007	Marry Smith	7/18/2
00D5F16FDE001032	□	1/31/2003	Jamie Foxx	2/5/20
00D6106A47001032	□	7/12/2006	Tom Miller	1/5/20
011A0DE432001032	□	4/27/2006	Regina King	8/24/2
011A1BF918001032	□	6/30/2006	Steven Spielberg	12/1/2
011A28BED8001032	□	12/31/2006	Tom McGrath	1/1/20
011A2E416C001032	□	7/11/2005	Georg Bush	11/13/
0132C173C9001032	□	1/28/2005	Boss Hoss	1/1/20

The *Entry of export file* window opens.



Look in: Export

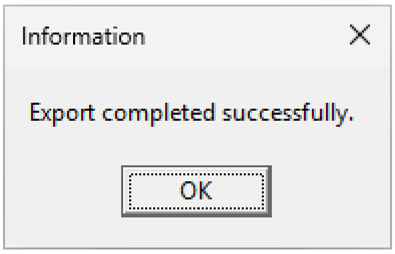
No items match your search.

File name:

Files of type: CSV file

□ Open as read-only

Select a folder and enter a file name for the CSV file. Accept using *Open*. After the export, a message is displayed:

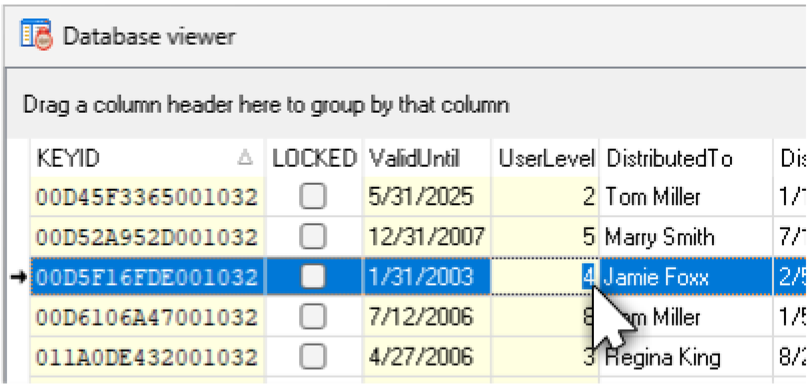


Information

Export completed successfully.

3.7.5 Searching for data

Mark a field in a column with a yellow background in your table view and type the search term or the character string you want to find. the cursor jumps to the next data record that starts with the character string entered.



Database viewer

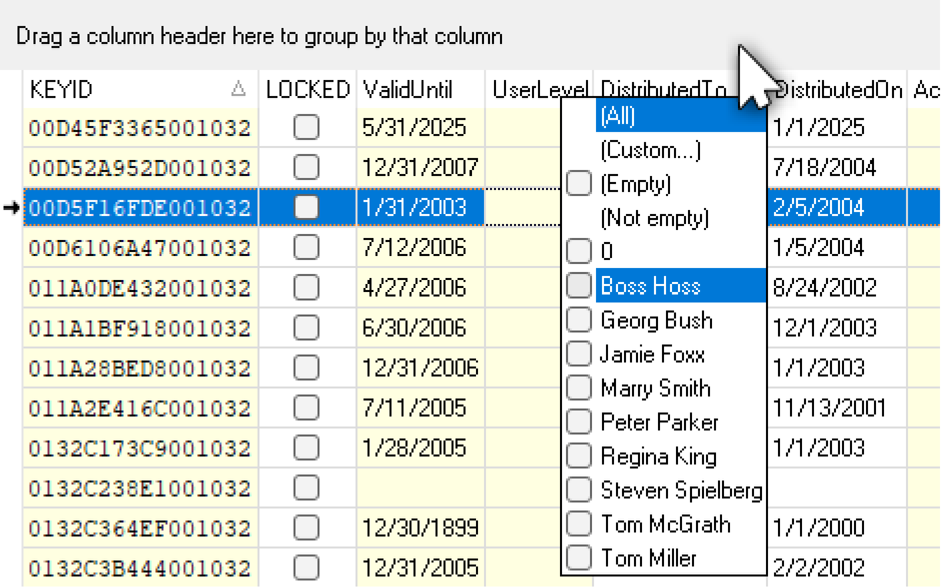
Drag a column header here to group by that column

KEYID	LOCKED	ValidUntil	UserLevel	DistributedTo	Dis
00D45F3365001032	☐	5/31/2025	2	Tom Miller	1/
00D52A952D001032	☐	12/31/2007	5	Marry Smith	7/
00D5F16FDE001032	☐	1/31/2003	4	Jamie Foxx	2/5
00D6106A47001032	☐	7/12/2006	8	m Miller	1/5
011A0DE432001032	☐	4/27/2006	3	Regina King	8/2

The search function is integrated into the database viewer only for the fields with a yellow background. These fields cannot be changed in the database viewer (cf. "Changing data in the database viewer").

3.7.6 Filtering data

When you filter data, you formulate criteria that are used to select the data for the view. To activate the filter selection, click the filter selection for a column. A list of possible selection conditions opens.



Drag a column header here to group by that column

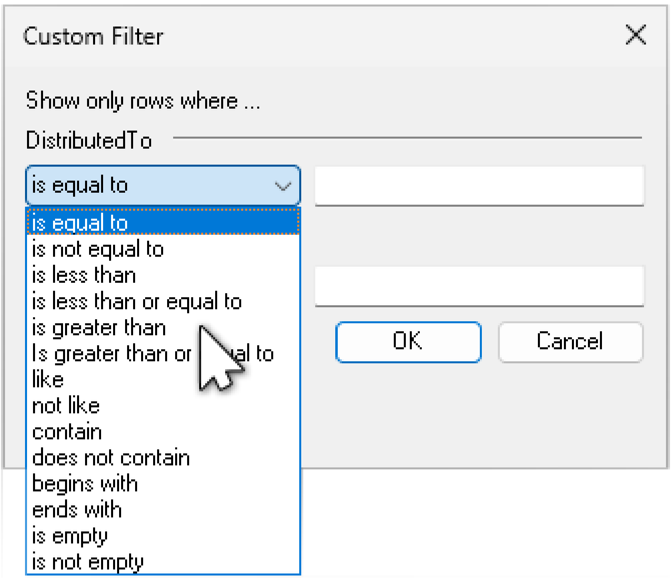
KEYID	LOCKED	ValidUntil	UserLevel	DistributedTo	DistributedOn	Ac
00D45F3365001032	☐	5/31/2025			1/1/2025	
00D52A952D001032	☐	12/31/2007			7/18/2004	
00D5F16FDE001032	☐	1/31/2003			2/5/2004	
00D6106A47001032	☐	7/12/2006			1/5/2004	
011A0DE432001032	☐	4/27/2006			8/24/2002	
011A1BF918001032	☐	6/30/2006			12/1/2003	
011A28BED8001032	☐	12/31/2006			1/1/2003	
011A2E416C001032	☐	7/11/2005			11/13/2001	
0132C173C9001032	☐	1/28/2005			1/1/2003	
0132C238E1001032	☐					
0132C364EF001032	☐	12/30/1899			1/1/2000	
0132C3B444001032	☐	12/31/2005			2/2/2002	

If you have selected *Custom* as the criterion, the *Custom Filter* window opens.

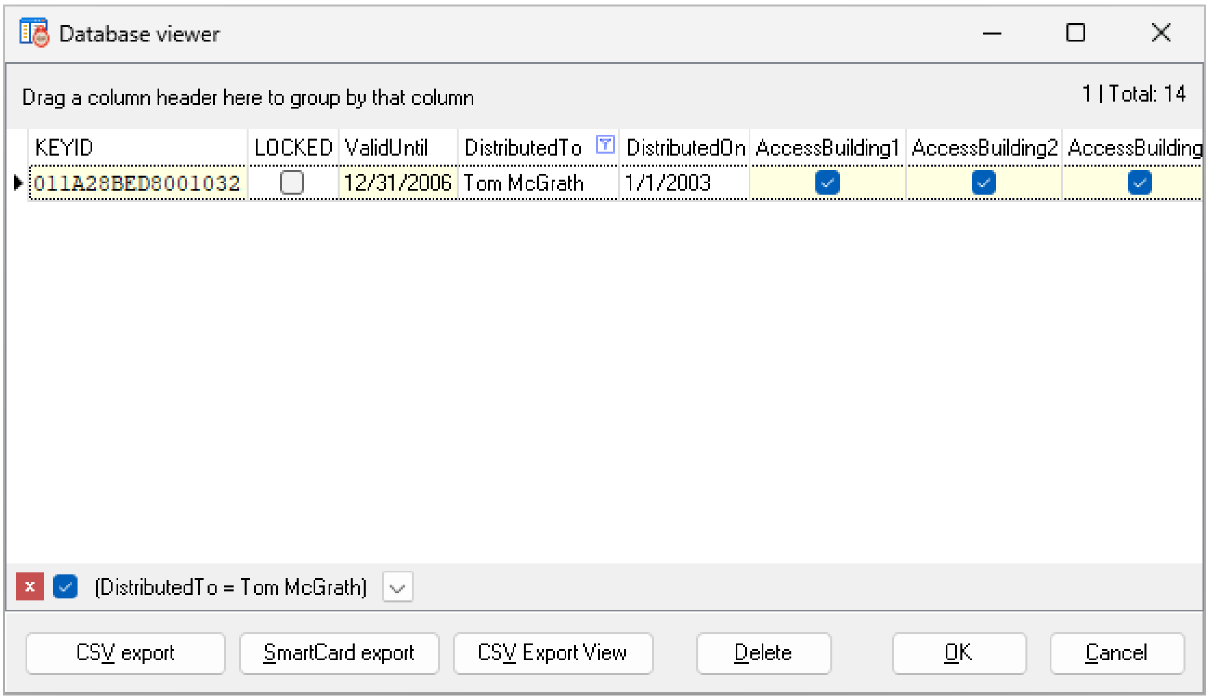
Here you can link two conditions using ...

- *and* (both expressions are true)
- *or* (at least one expression is true)

. A list of operators is available for formulating the specific condition.



Once you have used a filter on a table, the expression appears on the filter status bar.

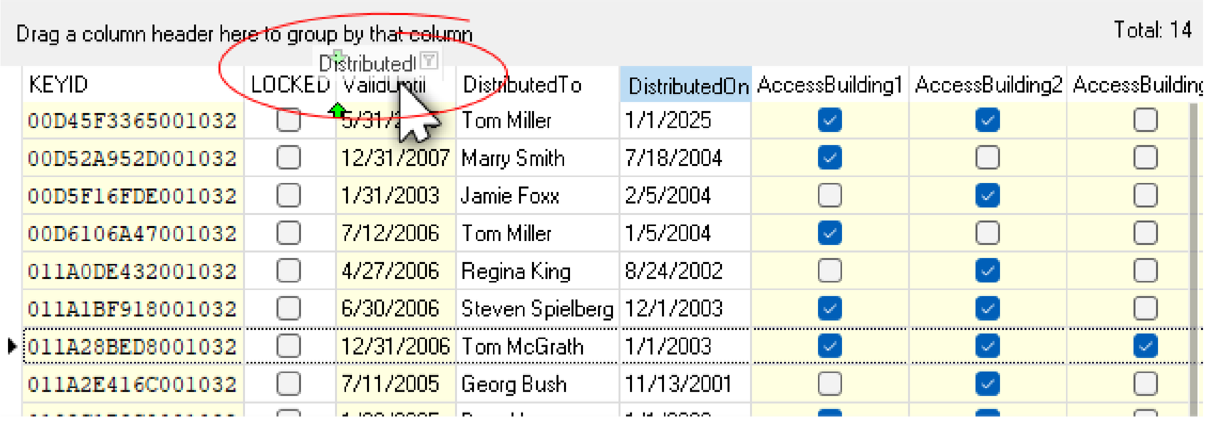


KEYID	LOCKED	ValidUntil	DistributedTo	DistributedOn	AccessBuilding1	AccessBuilding2	AccessBuilding
011A28BED8001032	□	12/31/2006	Tom McGrath	1/1/2003	☑	☑	☑

☒ ☑ (DistributedTo = Tom McGrath)

3.7.7 Moving columns

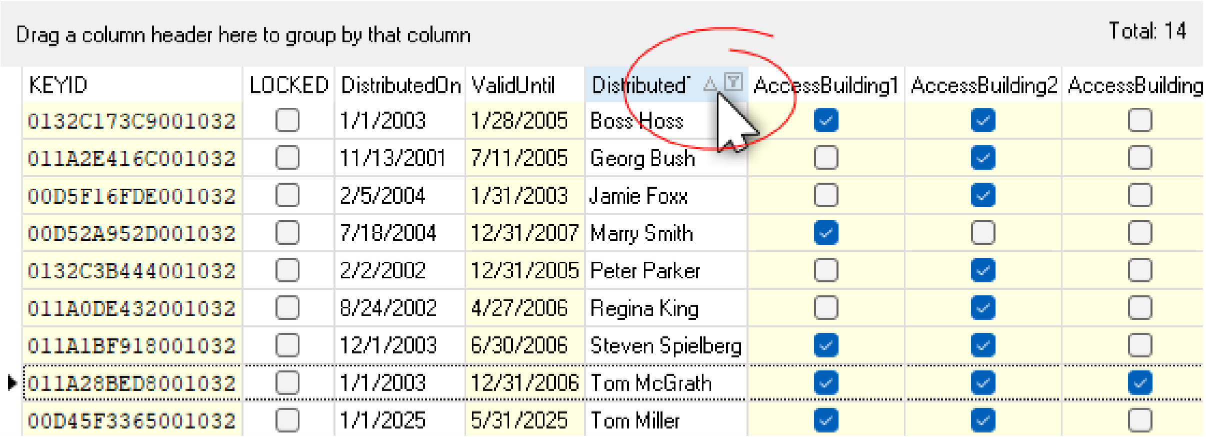
To change the position of a column in a table, drag the column to the right or left. Two green arrows will indicate the new position of the column. The column is moved when you release the mouse button.



	KEYID	LOCKED	ValidUntil	DistributedTo	DistributedOn	AccessBuilding1	AccessBuilding2	AccessBuilding
	00D45F3365001032	☐	5/31/2	Tom Miller	1/1/2025	☑	☑	☐
	00D52A952D001032	☐	12/31/2007	Marry Smith	7/18/2004	☑	☐	☐
	00D5F16FDE001032	☐	1/31/2003	Jamie Foxx	2/5/2004	☐	☑	☐
	00D6106A47001032	☐	7/12/2006	Tom Miller	1/5/2004	☑	☐	☐
	011A0DE432001032	☐	4/27/2006	Regina King	8/24/2002	☐	☑	☐
	011A1BF918001032	☐	6/30/2006	Steven Spielberg	12/1/2003	☑	☑	☐
▶	011A28BED8001032	☐	12/31/2006	Tom McGrath	1/1/2003	☑	☑	☑
	011A2E416C001032	☐	7/11/2005	Georg Bush	11/13/2001	☐	☑	☐

3.7.8 Sorting data

To sort a table based on the content in a column, click the column. The arrow indicates whether the sort order is ascending or descending. The existing sorting is reversed if you click the column again.



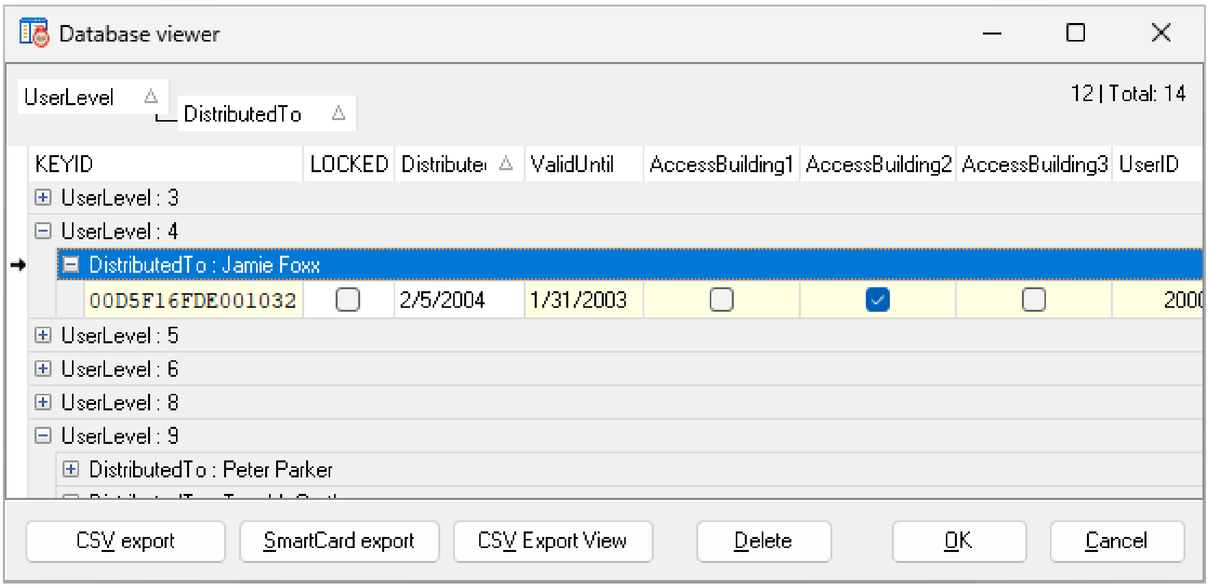
	KEYID	LOCKED	DistributedOn	ValidUntil	Distributed	AccessBuilding1	AccessBuilding2	AccessBuilding
	0132C173C9001032	☐	1/1/2003	1/28/2005	Boss Hoss	☑	☑	☐
	011A2E416C001032	☐	11/13/2001	7/11/2005	Georg Bush	☐	☑	☐
	00D5F16FDE001032	☐	2/5/2004	1/31/2003	Jamie Foxx	☐	☑	☐
	00D52A952D001032	☐	7/18/2004	12/31/2007	Marry Smith	☑	☐	☐
	0132C3B444001032	☐	2/2/2002	12/31/2005	Peter Parker	☐	☑	☐
	011A0DE432001032	☐	8/24/2002	4/27/2006	Regina King	☐	☑	☐
	011A1BF918001032	☐	12/1/2003	6/30/2006	Steven Spielberg	☑	☑	☐
▶	011A28BED8001032	☐	1/1/2003	12/31/2006	Tom McGrath	☑	☑	☑
	00D45F3365001032	☐	1/1/2025	5/31/2025	Tom Miller	☑	☑	☐

You can use several columns for the sorting by holding the Shift key when you click the column headings. If you click a column with the Ctrl key pressed, this column is no longer used for sorting.

3.7.9 Grouping data

Grouping the data in a table by a column means that all data records with identical fields in the related column are combined to form a group.

To group by a column, simply drag the column to the grouping bar. You will see this data view:

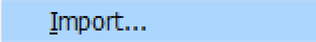


KEYID	LOCKED	Distributer △	ValidUntil	AccessBuilding1	AccessBuilding2	AccessBuilding3	UserID
⊞ UserLevel : 3							
⊟ UserLevel : 4							
⊟ DistributedTo : Jamie Foxx							
00D5F16FDE001032	□	2/5/2004	1/31/2003	□	☑	□	200
⊞ UserLevel : 5							
⊞ UserLevel : 6							
⊞ UserLevel : 8							
⊟ UserLevel : 9							
⊞ DistributedTo : Peter Parker							

Groups can be formed based on the content of several columns. The order for forming the groups can be changed in the grouping bar.

To undo a grouping, drag the column back to the column bar.

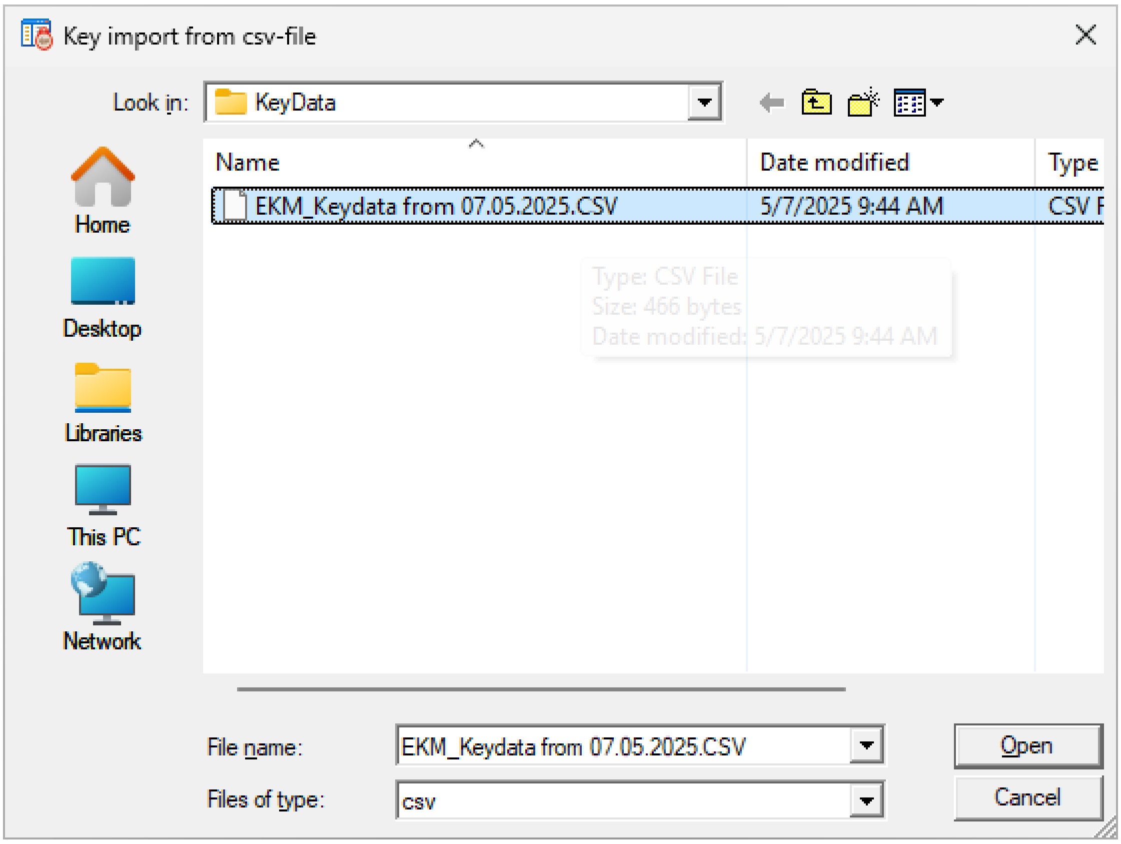
3.8 Importing data



You can import key data into the key database. The data to be imported must be in CSV format. The first row in the CSV file contains the database field names. Only fields that can be unambiguously allocated and that match existing database fields are imported. The file to be imported must contain as a minimum the data field KEYID with values. If database fields are missing during the import, these fields are ZERO after the import.

To edit the CSV file, use an editor that does not change the structure of the file.

To import key data into the key database, click *Import* in the *Tools* menu. The *Database import from CSV file* window opens.


Key import from csv-file

Look in: KeyData

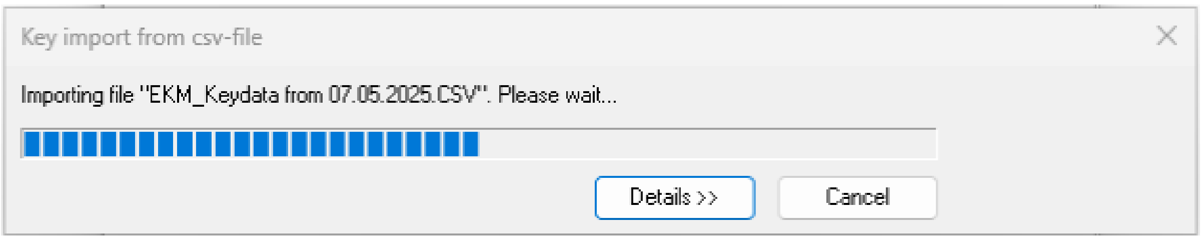
Name	Date modified	Type
EKM_Keydata from 07.05.2025.CSV	5/7/2025 9:44 AM	CSV F

Type: CSV File
Size: 466 bytes
Date modified: 5/7/2025 9:44 AM

File name: EKM_Keydata from 07.05.2025.CSV

Files of type: csv

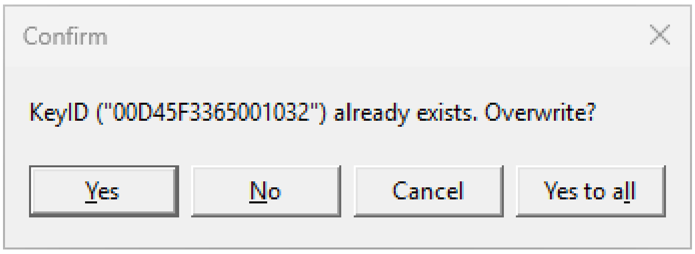
Select the file to be imported and accept using *Open*. The import progress and, on completion of the import, the import logger are displayed in the *Database import from CSV file* window.


Key import from csv-file

Importing file "EKM_Keydata from 07.05.2025.CSV". Please wait...

Using *Details*, you can close or open the import logger.

If the import file contains data records that already exist in the key database, you will receive a message:


Confirm

KeyID ("00D45F3365001032") already exists. Overwrite?

Select ...

- *Yes* if you want to overwrite the key data for the KEYID displayed with the data from the import file.
- *No* if the key data for the KEYID displayed are not to be overwritten.
- *Cancel* if you want to cancel the import. The data already imported are retained.
- *Yes to all* if you want to overwrite the key data for all already existing KEYIDs with the data from the import file.

Please note that a data record will be ignored during the import in the following cases:

- The data record contains invalid data. Example:
  - Characters that are not allowed in the related data field
  - Values that are below the minimum or above the maximum for the related data field
- The data record contains a duplicate value for a database field with the Unique restriction.

Using *Tools -> Show import log*, you can open the import logger for the last import. The log file is saved on the EKM server in the ImportLog folder.

3.9 Key export/import

The data record of the **currently displayed** key can be exported in a CSV file to any folder or read from it using the Key export or Key import function.

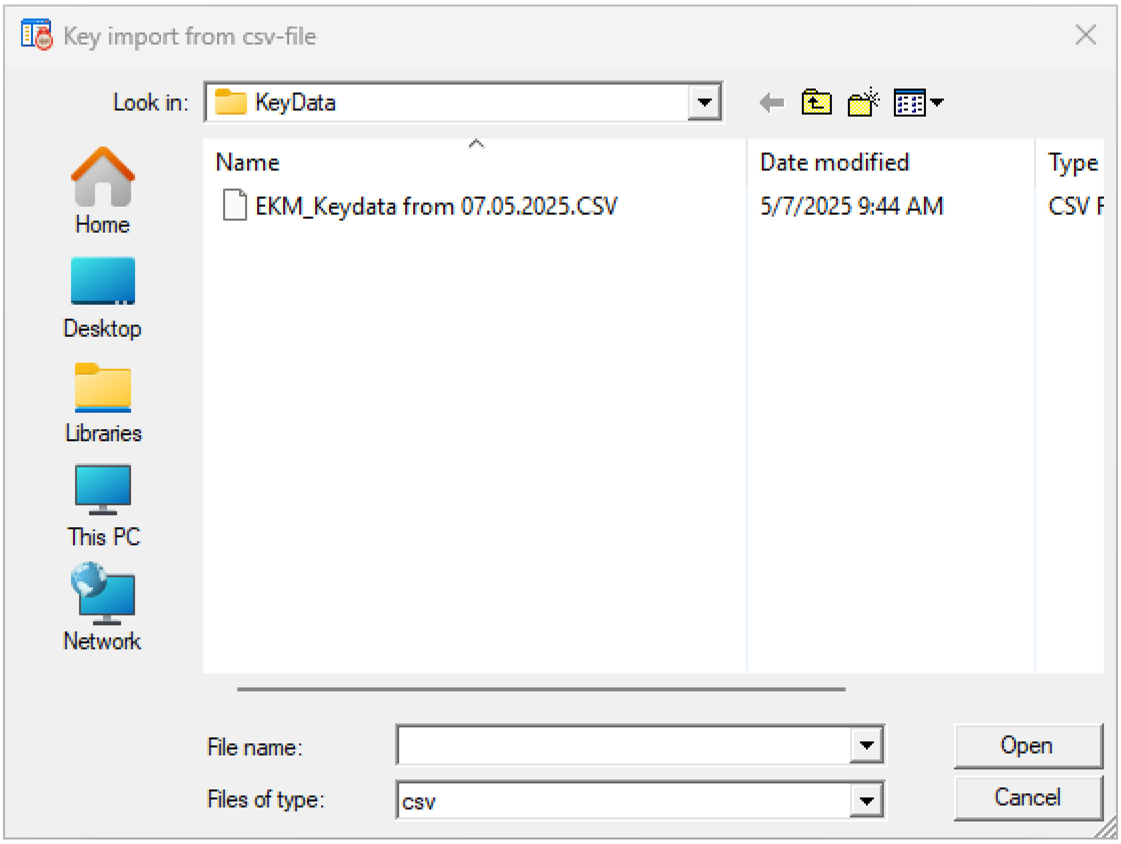
Key export
To export the data record, click the *Key export* command in the *File* menu.

The *Key export from CSV-file* window opens.

Enter a file name and save the file with *Open*.

Key import
To import the data record, click the *Key Import* command in the *File* menu.

The *Key import from CSV-file* window opens.

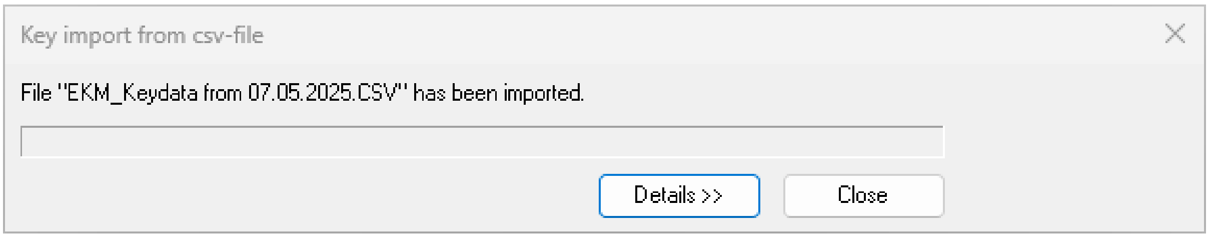


EKM_Keydata from 07.05.2025.CSV 5/7/2025 9:44 AM CSV F

Files of type: csv

Select the file to be imported and accept using *Open*.

The import progress and, on completion of the import, the import logger are displayed in the *Key import from CSV-file* window.



Key import from csv-file

File "EKM_Keydata from 07.05.2025.CSV" has been imported.

Using *Details*, you can close or open the import logger.

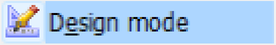
The values read are displayed on the interface but are not applied in the database yet. The values read are written to the key and to the database only using the *Write* function.

Please note that a data record will be ignored during the import in the following cases:

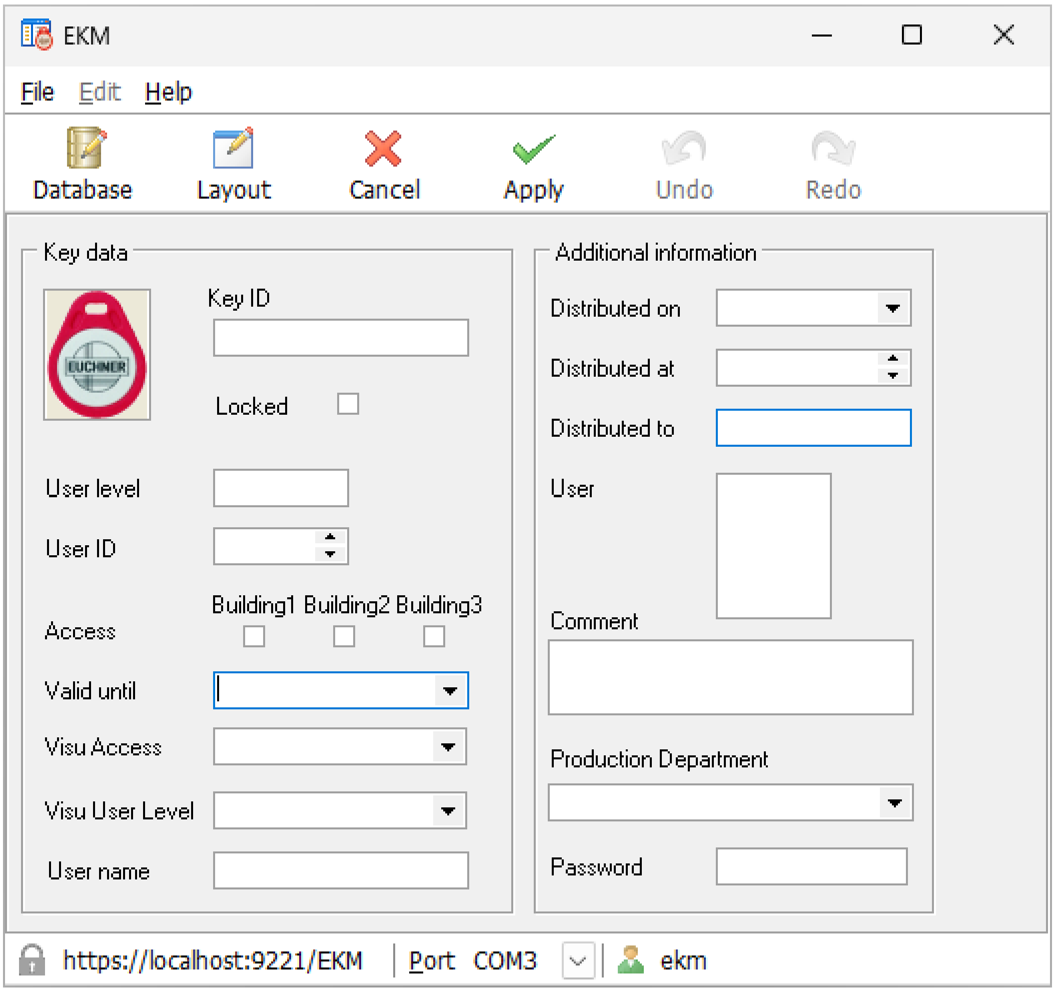
- The data record contains invalid data, for example:
  - Characters that are not allowed in the related data field
  - Values that are below the minimum or above the maximum for the related data field
- The data record contains a duplicate value for a database field with the Unique restriction
- Data for database fields of type Stringpassword will not be imported

- The Import and Export functions can be performed only when the key is inserted.
- The KeyID will not be imported.
- Data fields of type Memo and Graphic will not be exported.
- Only data approved for CSV export will be exported.
- Database fields of type StringPassword will be encrypted via Secure Hash Algorithm (SHA-1) during export. You can find information about SHA-1 at:https://en.wikipedia.org/wiki/Secure_Hash_Algorithms
- Database fields of type StringPassword will not be imported.

3.10 Design mode



To open the design mode, click *Design mode* in the *Tools* menu. The *Database, Layout*, *Cancel*and *Apply* icons appear on the toolbar.



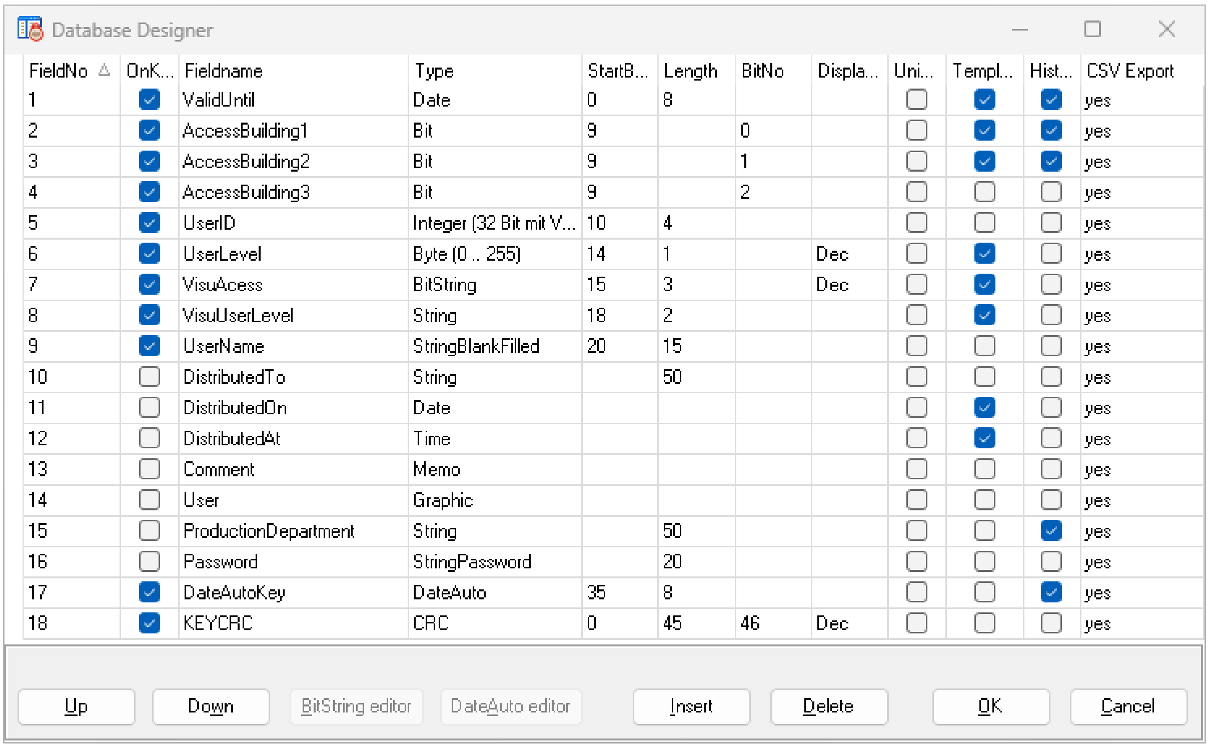
https://localhost:9221/EKM | Port COM3 | ekm

In the design mode, you can:

- Design the database for the key data
- Design the layout for the key data forms
- Transfer all changes to the key data form and all changes to the database to the EKM server using *Apply*
- Discard your changes to the key data form and to the database using *Cancel*

3.10.1 Designing a database

To design a database for key data, click the *Database* icon in the design mode. The *Database Designer* window opens.



FieldNo △	OnK...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
1	☑	ValidUntil	Date	0	8			☐	☑	☑	yes
2	☑	AccessBuilding1	Bit	9		0		☐	☑	☑	yes
3	☑	AccessBuilding2	Bit	9		1		☐	☑	☑	yes
4	☑	AccessBuilding3	Bit	9		2		☐	☐	☐	yes
5	☑	UserID	Integer (32 Bit mit V...	10	4			☐	☐	☐	yes
6	☑	UserLevel	Byte (0 .. 255)	14	1		Dec	☐	☑	☐	yes
7	☑	VisuAcess	BitString	15	3		Dec	☐	☑	☐	yes
8	☑	VisuUserLevel	String	18	2			☐	☑	☐	yes
9	☑	UserName	StringBlankFilled	20	15			☐	☐	☐	yes
10	☐	DistributedTo	String		50			☐	☐	☐	yes
11	☐	DistributedOn	Date					☐	☑	☐	yes
12	☐	DistributedAt	Time					☐	☑	☐	yes
13	☐	Comment	Memo					☐	☐	☐	yes
14	☐	User	Graphic					☐	☐	☐	yes
15	☐	ProductionDepartment	String		50			☐	☐	☑	yes
16	☐	Password	StringPassword		20			☐	☐	☐	yes
17	☑	DateAutoKey	DateAuto	35	8			☐	☐	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	☐	☐	☐	yes

In the Database Designer, you can:

- Insert data fields
- Delete data fields
- Change data fields

You can use the buttons in the Database Designer by:

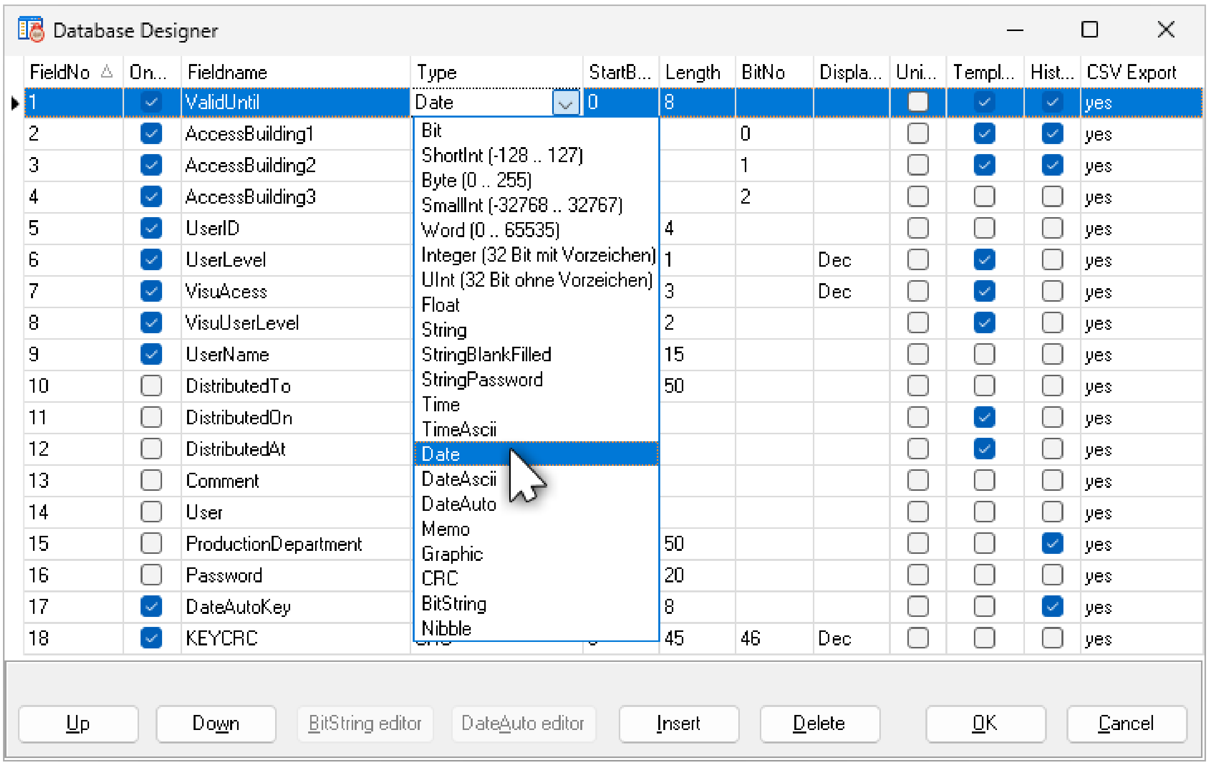
- Clicking the buttons directly using the mouse or
- Using shortcut keys *Alt+* the underlined letter

The fields with the *OnKey* option are saved on the key.

On leaving the design mode, do not forget to transfer your changes to the EKM server using *Apply* (cf. "Applying your work in the EKM Designer").

3.10.1.1 Properties of the data fields

You can design the database for the key data to suit your requirements using the EKM in the design mode.
Exceptions are the *KEYID* and *LOCKED* data fields that are hard programmed. These fields are added automatically when the database is created. The *KEYID* field can only be read. The *LOCKED* field can be changed using the database viewer only if you have the *Database_LOCKED_Edit* or *Database_AllColumns* right.



FieldNo	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
1	☑	ValidUntil	Date	0	8			□	☑	☑	yes
2	☑	AccessBuilding1				0		□	☑	☑	yes
3	☑	AccessBuilding2				1		□	☑	☑	yes
4	☑	AccessBuilding3				2		□	□	□	yes
5	☑	UserID			4			□	□	□	yes
6	☑	UserLevel			1		Dec	□	☑	□	yes
7	☑	VisuAcess			3		Dec	□	☑	□	yes
8	☑	VisuUserLevel			2			□	☑	□	yes
9	☑	UserName			15			□	□	□	yes
10	□	DistributedTo			50			□	□	□	yes
11	□	DistributedOn						□	☑	□	yes
12	□	DistributedAt						□	☑	□	yes
13	□	Comment						□	□	□	yes
14	□	User						□	□	□	yes
15	□	ProductionDepartment			50			□	□	☑	yes
16	□	Password			20			□	□	□	yes
17	☑	DateAutoKey			8			□	□	☑	yes
18	☑	KEYCRC			45	46	Dec	□	□	□	yes

The database comprises:

- Fields that are written to the key during the write process.
- Data that can be retrieved centrally from the database, but not written to the key.

⚠ The amount of memory space for the data fields written to the key is limited. Please see the data sheet on the Electronic-Key for information on the amount of memory available on the key used.

ℹ Data fields that are not written to the key can be added almost without limitation. However, for fast data transfer, it should be ensured that excessively large image files are not used.

The following data field properties must be defined when designing the database:

FieldNo Information on the order in which the fields are displayed in the *database viewer*. A field can be moved up or down in the display order using *Up* and *Down*. The number is changed automatically when a field is moved. The number is automatically incremented when a field is added.

OnKey

- Activated: The field data are saved on the key when data are written to the key.
- Deactivated: The field data are not saved on the key when data are written to the key and can be seen only on the data form.

Fieldname Name of the data field
Spaces and special characters cannot be used, with the exception on the underscore ("_").

Type Data type
The data types listed below are available:

Data type	Possible on key	Number of bytes
Bit	X	8 bits = 1 byte
ShortInt (-128...127)	X	1 byte
Byte (0...255)	X	1 byte
SmallInt (-32768...32767)	X	2 bytes
Word (0...65535)	X	2 bytes
Integer (32 bits, signed)	X	4 bytes
UInt (32 bits, unsigned)	X	4 bytes
Float	X	8 bytes
String	X	max. 116 bytes
String		max. 250 bytes
StringBlankFilled: string filled with ASCII blanks (= 20hex)	X	max. 116 bytes
StringBlankFilled: string filled with ASCII blanks (= 20hex)		max. 250 bytes
StringPassword: string hidden with "***" on the display		max. 250 bytes
Time	X	8 bytes
TimeAscii: ASCII time format Format on key: hhmmss00	X	8 bytes
Date	X	8 bytes
DateAscii: ASCII date format Format on key: YYYYMMDD	X	8 bytes
DateAuto: date is calculated by means of a formula. The format on the key corresponds to the type DateAscii.	X	8 bytes
Memo		
Graphic		
CRC: checksum on key	X	2 bytes
BitString: integer multiple of 1 byte	X	max. 8 bytes
Nibble	X	4 bits

Fields with the data types CRC, DateAscii or TimeAscii can only be defined as OnKey fields.

StartByte

Defines the first byte of the data field on the key
The numbering starts with " 0 "

Length

Defines the length of the data field in bytes. This length can be freely defined only for the data types *BitString* and *String*.

BitNo

Defines the bit used in the byte

- On a field of the type Bit.
- The StartByte is defined here on a field of the type CRC.
- On fields of the type Nibble: **0** - bit no. 0-3; **4** - bit no. 4-7.

DisplayType

For the data types Nibble, Byte, Word, Bitstring and CRC, you can choose between decimal and hexadecimal notation for display.

Template

- Activated: The field is enabled for integration in a template: The value from the allocated form field is applied when a template is created, i.e. the value is saved in the template.
- Deactivated: The field is ignored when a template is created.

The template function cannot be activated for the fields of type Memo, Graphic, CRC and StringPassword.

Unique

- Activated: It is not possible to save duplicate or multiple entries in the field. Duplicates will be detected on writing.
- Deactivated: There is no Unique restriction for the field.

History

- Activated: The field is activated for the recording of changes.
- Deactivated: There is no recording of this field.

CSV export

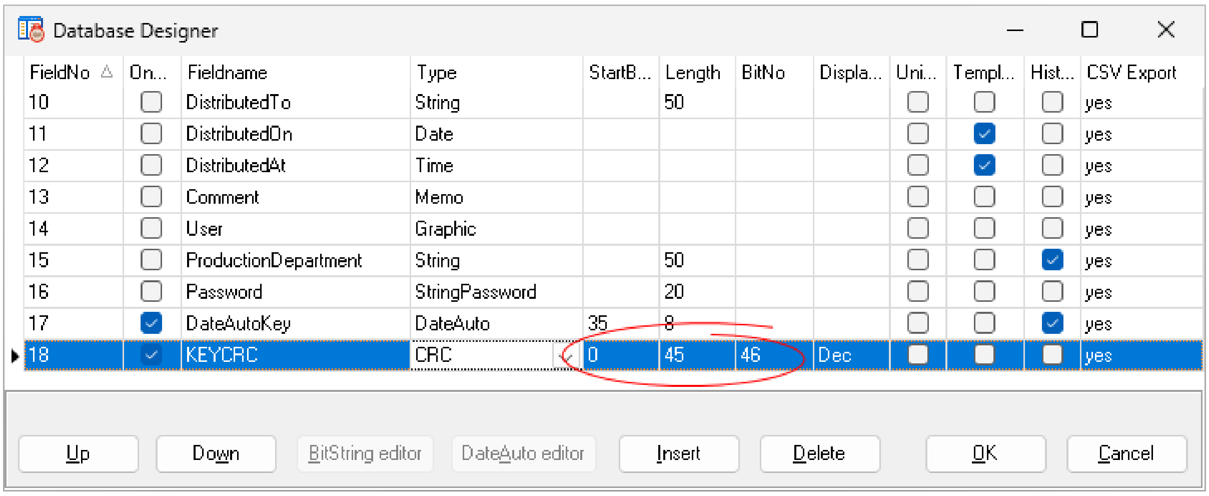
- Yes: The field is enabled for CSV export.
- No: The field is not enabled for CSV export.
- Header: Only the field header is exported, field contents are not exported.

Notes on the data type CRC

The CRC field forms a checksum using a configurable part of the key user data and the serial number. The area of the user data included in the checksum is defined using the ***StartByte*** and ***Length*** fields.

The CRC field can be placed with a freely selectable StartByte on the key in a flexible manner. The ***BitNo*** field is used for entering the StartByte.

Example:



FieldNo	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
10	□	DistributedTo	String		50			□	□	□	yes
11	□	DistributedOn	Date					□	☑	□	yes
12	□	DistributedAt	Time					□	☑	□	yes
13	□	Comment	Memo					□	□	□	yes
14	□	User	Graphic					□	□	□	yes
15	□	ProductionDepartment	String		50			□	□	☑	yes
16	□	Password	StringPassword		20			□	□	□	yes
17	☑	DateAutoKey	DateAuto	35	8			□	□	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	□	□	□	yes

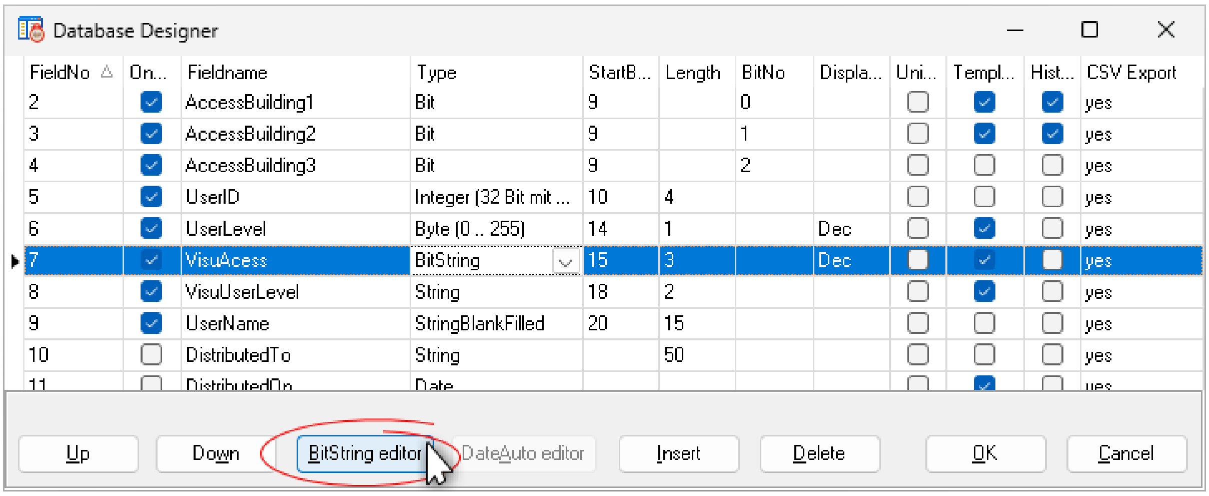
In the example above, the checksum is formed using the key user data from byte no. 0 to byte no. 44. The CRC field is saved in the bytes no. 46 and 47.

- You can define only **one** field of type CRC per database design.
- The field name is KEYCRC and cannot be changed.
- An error message will be displayed if the Startbyte is within the monitored CRC area.
- The checksum is calculated only when data are being written to the key.

Notes on the data type BitString

The *BitString* field contains a defined number of bytes. The field is used in conjunction with the *cxDBBitstring* form component for defining bits. You can save comments on the bits in the Database Designer.

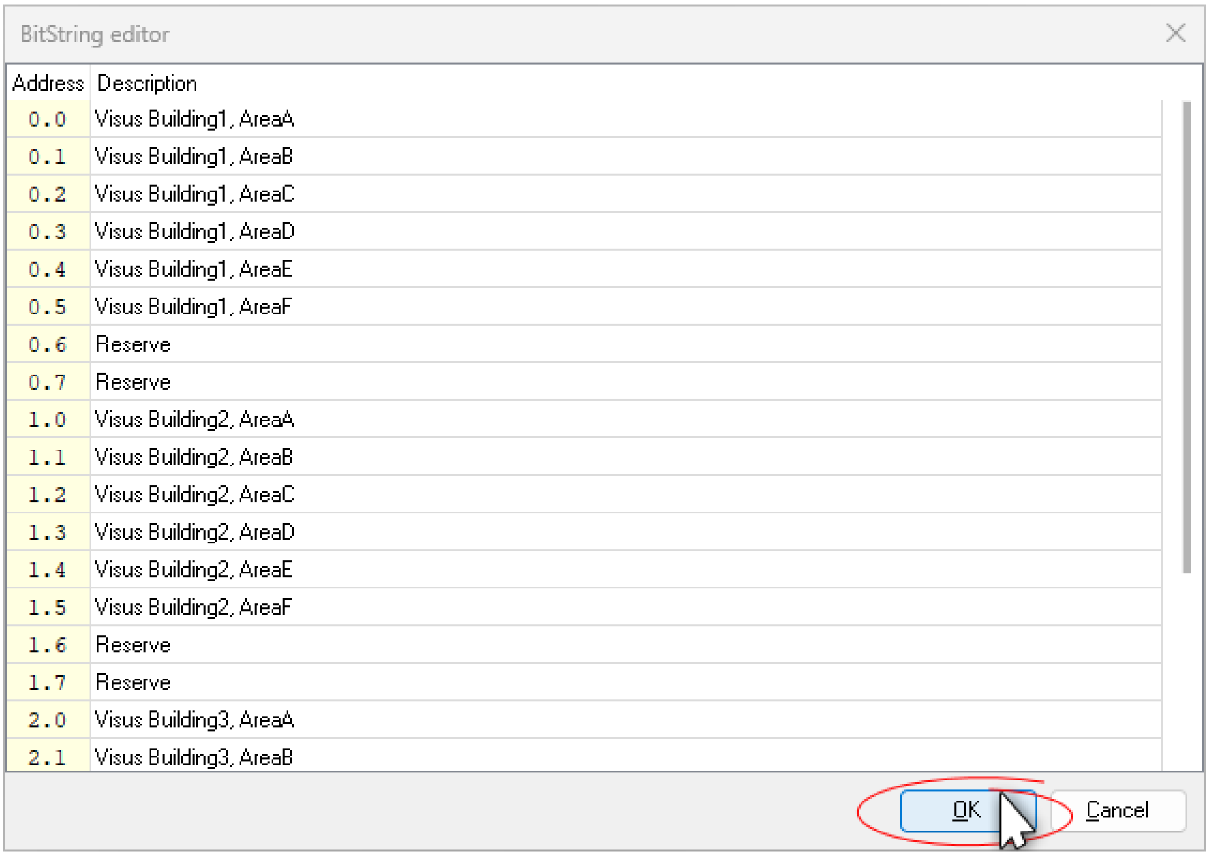
To save comments on the *BitString* field in the Database Designer, place the cursor on a BitString field and click the *BitString Editor* button.



Database Designer

FieldNo	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
2	☑	AccessBuilding1	Bit	9		0		□	☑	☑	yes
3	☑	AccessBuilding2	Bit	9		1		□	☑	☑	yes
4	☑	AccessBuilding3	Bit	9		2		□	□	□	yes
5	☑	UserID	Integer (32 Bit mit ...	10	4			□	□	□	yes
6	☑	UserLevel	Byte (0 .. 255)	14	1		Dec	□	☑	□	yes
7	☑	VisuAcess	BitString	15	3		Dec	□	☑	□	yes
8	☑	VisuUserLevel	String	18	2			□	☑	□	yes
9	☑	UserName	StringBlankFilled	20	15			□	□	□	yes
10	□	DistributedTo	String		50			□	□	□	yes
11	□	DistributedOn	Date					□	☑	□	yes

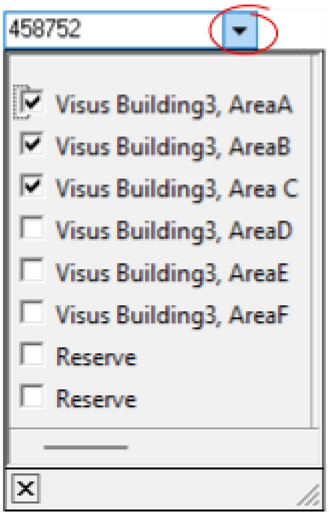
The *BitString editor* opens. Enter the comments on the bits in the *Description* field:



BitString editor

Address	Description
0.0	Visus Building1, AreaA
0.1	Visus Building1, AreaB
0.2	Visus Building1, AreaC
0.3	Visus Building1, AreaD
0.4	Visus Building1, AreaE
0.5	Visus Building1, AreaF
0.6	Reserve
0.7	Reserve
1.0	Visus Building2, AreaA
1.1	Visus Building2, AreaB
1.2	Visus Building2, AreaC
1.3	Visus Building2, AreaD
1.4	Visus Building2, AreaE
1.5	Visus Building2, AreaF
1.6	Reserve
1.7	Reserve
2.0	Visus Building3, AreaA
2.1	Visus Building3, AreaB

Accept your entries with *OK*. During data entry, the comments added are displayed in a *cxDBBitstring* form component related to the BitString field:



458752

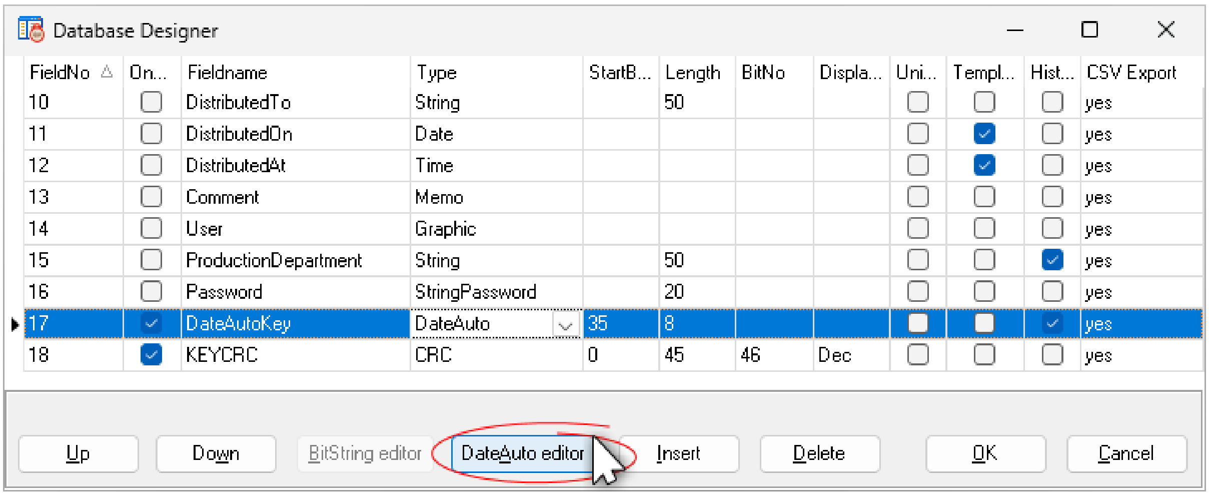
- ☑ Visus Building3, AreaA
- ☑ Visus Building3, AreaB
- ☑ Visus Building3, Area C
- ☐ Visus Building3, AreaD
- ☐ Visus Building3, AreaE
- ☐ Visus Building3, AreaF
- ☐ Reserve
- ☐ Reserve

Notes on the data type DateAuto

A field of type DateAuto contains an automatically generated date. It is calculated based on the EKM server's system date. The new date corresponds to the current date or is a date in the future (an expiry date, for example). The latter is defined corresponding to a difference number of days or weeks.

Immediately on insertion of the key, the new date is automatically applied in the database and, with OnKey identification, additionally transferred to the key memory.

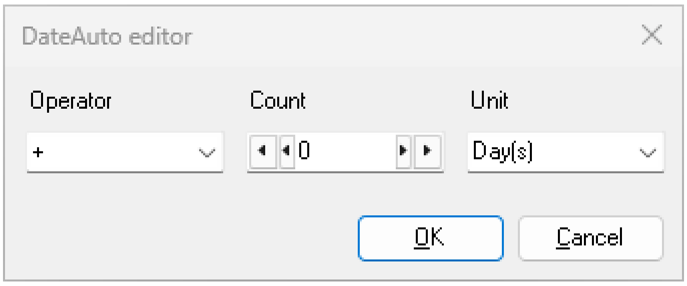
You can change the field calculation formula in the Database Designer:



Database Designer

FieldNo	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
10	☐	DistributedTo	String		50			☐	☐	☐	yes
11	☐	DistributedOn	Date					☐	☑	☐	yes
12	☐	DistributedAt	Time					☐	☑	☐	yes
13	☐	Comment	Memo					☐	☐	☐	yes
14	☐	User	Graphic					☐	☐	☐	yes
15	☐	ProductionDepartment	String		50			☐	☐	☑	yes
16	☐	Password	StringPassword		20			☐	☐	☐	yes
17	☑	DateAutoKey	DateAuto	35	8			☐	☐	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	☐	☐	☐	yes

Select the corresponding data record and open the *DateAuto editor*.



DateAuto editor

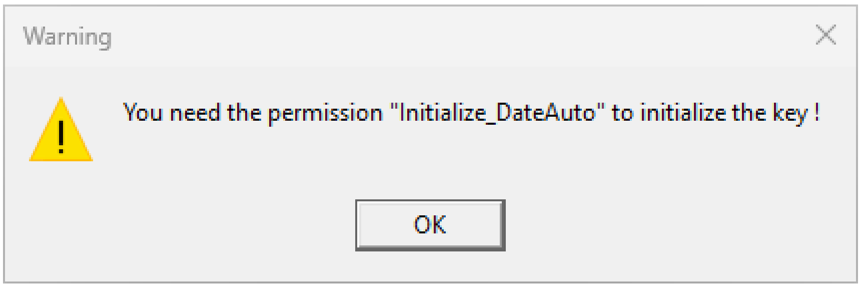
Operator: +
Count: 0
Unit: Day(s)

You can see the default settings here.

The following input options are available:

Operator	+, -
Count	decimal value
Unit	days, weeks

- The function is executed only if the key is **not locked**.
- The function is executed on a **new key** only if the user has the right *Initialize_DateAuto*.



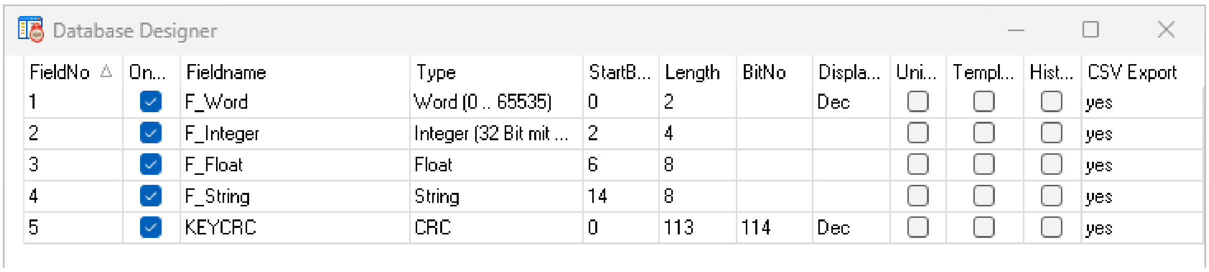
Warning

You need the permission "Initialize_DateAuto" to initialize the key !

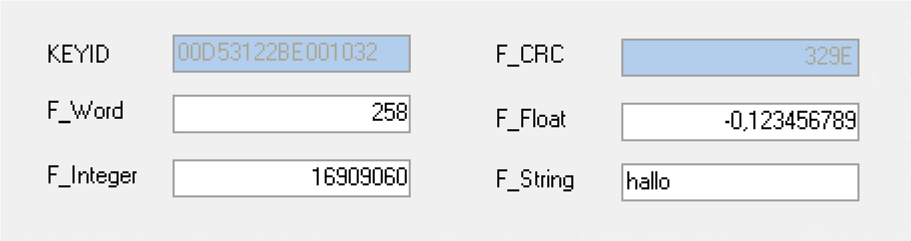
- A data field of type *DateAuto* **cannot** be edited on the form or in the database viewer.
- Only the **cxDBDateEdit** component can be used for display.

3.10.1.2 Order of the bytes on the key

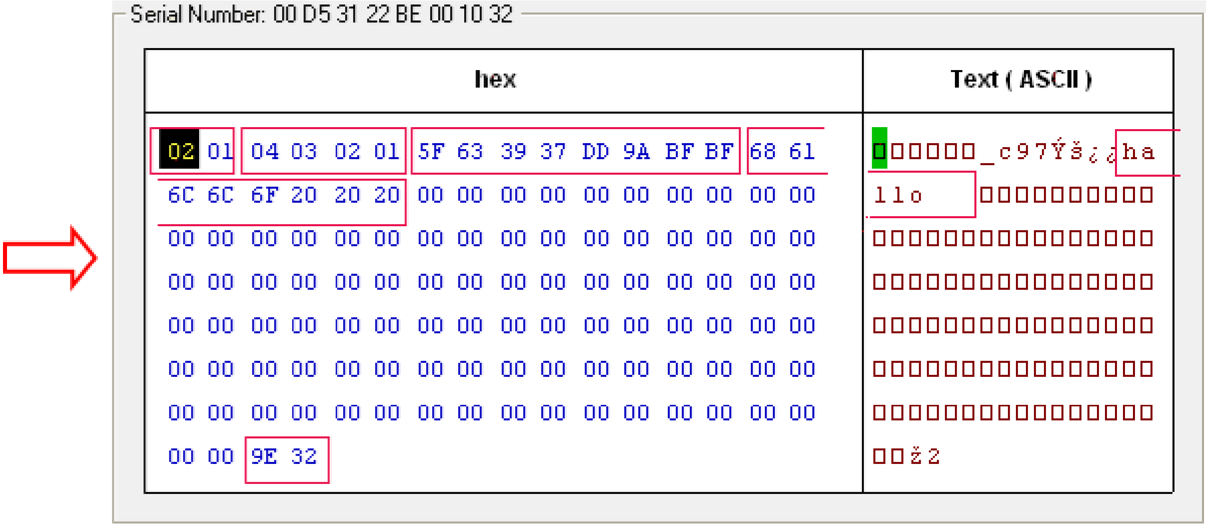
The data are saved on the key using the following scheme:



FieldNo △	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
1	☑	F_Word	Word (0 .. 65535)	0	2		Dec	□	□	□	yes
2	☑	F_Integer	Integer (32 Bit mit ...	2	4			□	□	□	yes
3	☑	F_Float	Float	6	8			□	□	□	yes
4	☑	F_String	String	14	8			□	□	□	yes
5	☑	KEYCRC	CRC	0	113	114	Dec	□	□	□	yes



KEYID	00D53122BE001032	F_CRC	329E
F_Word	258	F_Float	-0,123456789
F_Integer	16909060	F_String	hallo



Serial Number: 00 D5 31 22 BE 00 10 32

```
hex                                                 Text ( ASCII )
02 01 04 03 02 01 5F 63 39 37 DD 9A BF BF 68 61     □□□□□□_c97Ýš¿¿ha
6C 6C 6F 20 20 20 00 00 00 00 00 00 00 00 00 00     llo   □□□□□□□□□□
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     □□□□□□□□□□□□□□□□
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     □□□□□□□□□□□□□□□□
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     □□□□□□□□□□□□□□□□
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     □□□□□□□□□□□□□□□□
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00     □□□□□□□□□□□□□□□□
00 00 9E 32                                         □□ž2
```

The little endian format is used for the order of the bytes on the key:

- Word — 2 bytes
  Order on key — Low byte - high byte
  Example
  Dec. value — 258
  -> hex. value

01	02

  On key

02	01
LB	HB

- Integer — 4 bytes
  Order on key — Low word - high word
  Example
  Dec. value — 1609060
  -> hex. value

01	02	03	04

  On key

04	03	02	01

- CRC — 2 bytes

Order on key Low byte - high byte
Example
Dec. value 12958
-> hex. value

32	9E

On key

9E	32
LB	HB

- Float 8 bytes

A floating number with eight bytes (64 bits) is divided into three fields:

1	11	52
s	*e*	*f*

The value v for the number is defined as follows:

If 0< *e* < 2041, v = -1 s * 2 (*e* -1023) * (1.*f*)

If *e* =0 and f<>0, v = (-1) s * 2 (-1022) * (0.f)

If *e* =0 and f=0, v = (-1) s * 0

If *e* =2047 and f=0, v = (-1) s * Inf

If *e* =2047 and f<>0, v is an NaN value

- Date and Time 8 bytes

A floating number in accordance with IEEE 754 with eight bytes (64 bits) is divided into three fields. The integer part corresponds to the number of days since 30.12.1899. The fractional part defines the time.

- DateAscii/DateAuto 8 bytes
Order on key YYYYMMDD
Example
Date May 13, 2005
On key

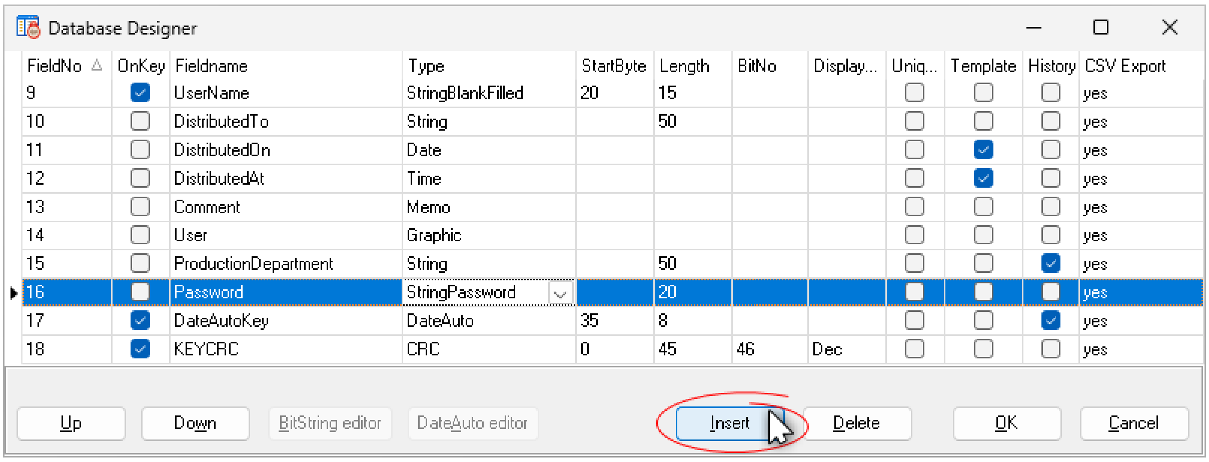
32	30	30	35	30	35	31	33

- TimeAscii 8 bytes
Order on key HHMMss00
Example
Time 12:35:48
On key

31	32	33	35	34	38	30	30

3.10.1.3 Inserting data fields

To insert new data fields, go to the *Database Designer* and click the *Insert* button.

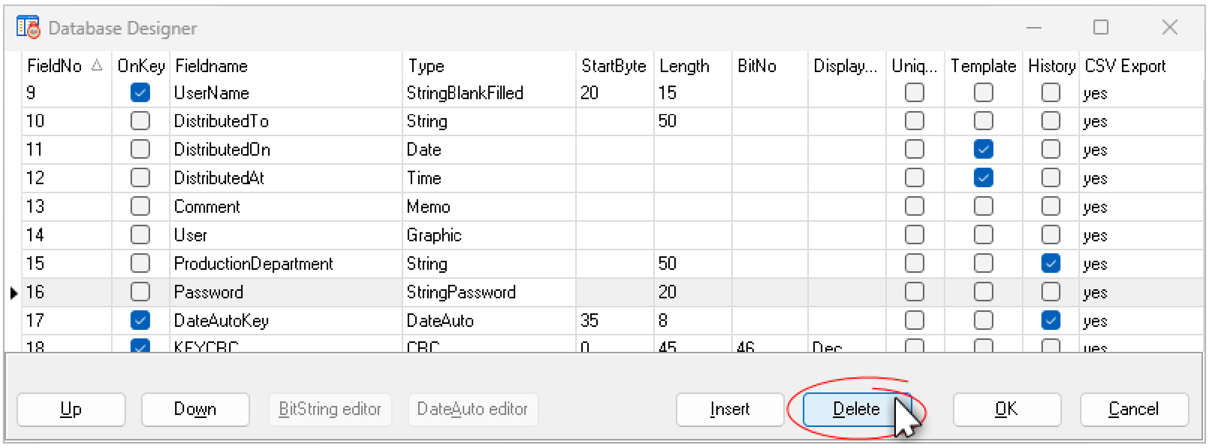


FieldNo	OnKey	Fieldname	Type	StartByte	Length	BitNo	Display...	Uniq...	Template	History	CSV Export
9	☑	UserName	StringBlankFilled	20	15			□	□	□	yes
10	□	DistributedTo	String		50			□	□	□	yes
11	□	DistributedOn	Date					□	☑	□	yes
12	□	DistributedAt	Time					□	☑	□	yes
13	□	Comment	Memo					□	□	□	yes
14	□	User	Graphic					□	□	□	yes
15	□	ProductionDepartment	String		50			□	□	☑	yes
16	□	Password	StringPassword		20			□	□	□	yes
17	☑	DateAutoKey	DateAuto	35	8			□	□	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	□	□	□	yes

Once you have entered the properties for the new data field and have selected the data type for the field, click *OK* to apply the changes to the database locally. In the layout design mode, you can now bind a form field to the new data field (cf. "Properties of EKM database components").
To transfer your changes to the EKM server, click *Apply* on the toolbar
(cf. "Applying your work in the EKM Designer").

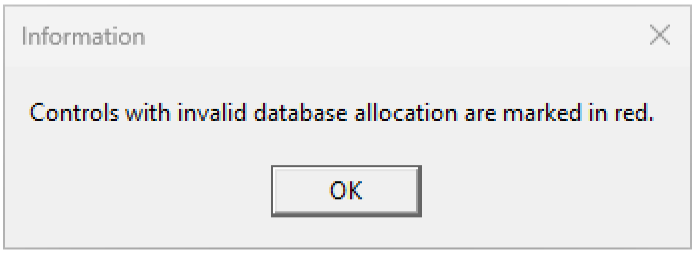
3.10.1.4 Deleting data fields

To delete data fields, select the data field to be deleted in the *Database Designer* and click the *Delete* button.



FieldNo	OnKey	Fieldname	Type	StartByte	Length	BitNo	Display...	Uniq...	Template	History	CSV Export
9	☑	UserName	StringBlankFilled	20	15			□	□	□	yes
10	□	DistributedTo	String		50			□	□	□	yes
11	□	DistributedOn	Date					□	☑	□	yes
12	□	DistributedAt	Time					□	☑	□	yes
13	□	Comment	Memo					□	□	□	yes
14	□	User	Graphic					□	□	□	yes
15	□	ProductionDepartment	String		50			□	□	☑	yes
▶ 16	□	Password	StringPassword		20			□	□	□	yes
17	☑	DateAutoKey	DateAuto	35	8			□	□	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	□	□	□	yes

A warning is displayed first. If you want to delete the selected data field or the selected row in the *Database Designer*, accept the warning with *Yes*. If the deleted data field was bound to form components, these bindings will also be deleted. A message is displayed:



Controls with invalid database allocation are marked in red.

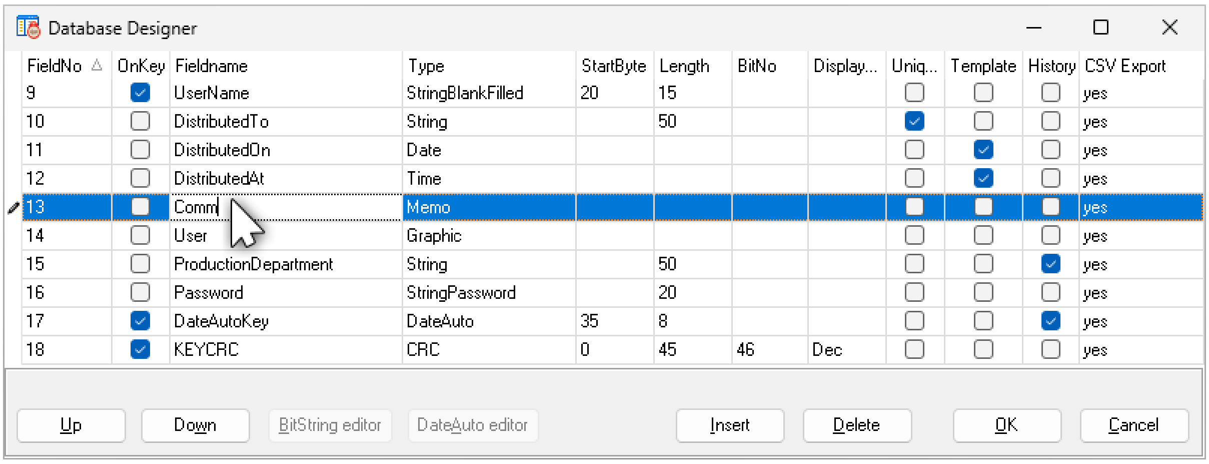
The form fields with a red background must be re-assigned to a data field.

Your changes are initially applied locally.
To transfer the modified database design to the EKM server, you must click *Apply* on the toolbar (cf. "Applying your work in the EKM Designer").

⚠ Note that on the deletion of a data field, all related data in the database will also be deleted!

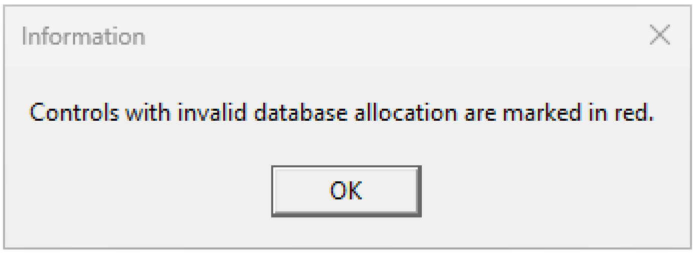
3.10.1.5 Changing data fields

To change data fields, click the data field in the *Database Designer* and overwrite the property to be changed or select a different property.



FieldNo	OnKey	Fieldname	Type	StartByte	Length	BitNo	Display...	Uniq...	Template	History	CSV Export
9	☑	UserName	StringBlankFilled	20	15			□	□	□	yes
10	□	DistributedTo	String		50			☑	□	□	yes
11	□	DistributedOn	Date					□	☑	□	yes
12	□	DistributedAt	Time					□	☑	□	yes
13	□	Comm	Memo					□	□	□	yes
14	□	User	Graphic					□	□	□	yes
15	□	ProductionDepartment	String		50			□	□	☑	yes
16	□	Password	StringPassword		20			□	□	□	yes
17	☑	DateAutoKey	DateAuto	35	8			□	□	☑	yes
18	☑	KEYCRC	CRC	0	45	46	Dec	□	□	□	yes

If the modified data field was bound to form components, these bindings will be deleted. The following message is displayed:



Controls with invalid database allocation are marked in red.

The form fields with a red background must be re-assigned to a data field.

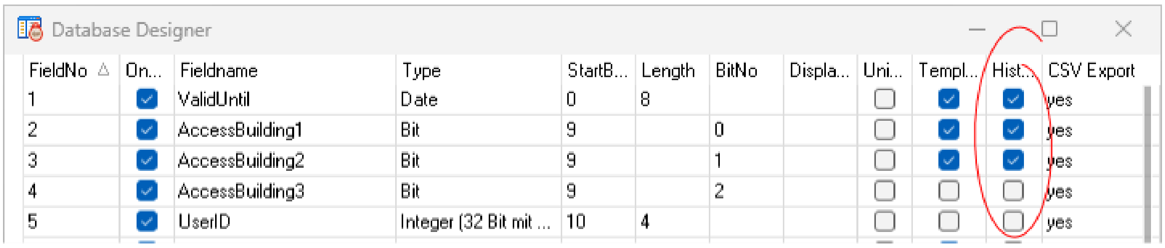
Your changes are initially applied locally. To transfer the modified database design to the EKM server, click *Apply* on the toolbar (cf. "Applying your work in the EKM Designer").

⚠In some circumstances, all database entries in the modified column will be deleted if changes are made to the data fields: This situation will occur if **data type** is changed
A change to the string length is **not** a data type change! If the string length of a data field is **shortened**, characters extending beyond the new length will be truncated.
If you activate the Unique property for a field and the column contains duplicate entries in the database, the duplicate entries will be deleted.

3.10.2 History recording

The history recording function records changes in the key database.

- The function is available only after activation in *EKMServer.ini*.
- You define the data fields to be recorded in the *History* column in the *Database Designer*.
- The *LOCKED* column is also recorded.



Database Designer

FieldNo △	On...	Fieldname	Type	StartB...	Length	BitNo	Displa...	Uni...	Templ...	Hist...	CSV Export
1	☑	ValidUntil	Date	0	8			☐	☑	☑	yes
2	☑	AccessBuilding1	Bit	9		0		☐	☑	☑	yes
3	☑	AccessBuilding2	Bit	9		1		☐	☑	☑	yes
4	☑	AccessBuilding3	Bit	9		2		☐	☐	☐	yes
5	☑	UserID	Integer (32 Bit mit ...	10	4			☐	☐	☐	yes

➢ Select the corresponding fields in which you want to record the changes.

⚠ Fields of types *StringPassword*, *Memo* and *Graphic* **cannot** be selected for the history function.

Activating the history protocol function

The history protocol function is activated by an entry in the *EKMServer.ini* configuration file:

Section	Configuration entry	Description

`[HistoryProtocol]`	`Active=0|1`	`Activate function`
		`Default: 0`

	`Path=`	`Path for storing the history protocols`
		`Default: installation path`

- When the history function is activated, the EKMServer creates the protocol file *EKM_HistoryProtocol_active.csv*.

Archiving the history protocol files

The history protocol can be archived by two variants:

1. by file size
2. By date

This is also defined via the *EKMServer.ini* configuration file.

1. by file size

When the file size set in the *EKMServer.ini* configuration file is reached, the current protocol file will be renamed to

EKM_HistoryProtocol_[year]_[month]_[day]_[hour][minute][second].csv

and a new *EKM_HistoryProtocol_active.csv* protocol file will be created.

Entry in the INI file:

Section	Configuration entry	Description

`[HistoryProtocol]`	`FileSize [kB]=`	`Maximum size of protocol file`
		`Default: 5000`

2. **By date**

   Optionally or in addition to archiving by file size, archiving by date on a specific day of the month can be selected.

Section	Configuration entry	Description
`[HistoryProtocol]`	`ArchiveDay=`	`Days in the month on which a new protocol file is to be created.`

☯ Permissible values 1-31, separated by semicolons.

☯ If no values are specified, archiving will not take place by date.

☯ If all days were to be entered, for example, archiving with date would occur every day.

Example

Archiving by date on the 1st and 8th and the 15th and 22nd days of each month

```
[HistoryProtocol]
Active=1
Path=C:\Euchner\EKM\HistoryProtocol
FileSize [kB]=5000
ArchiveDay=1;8;15;22
```

Access right for loading the protocols

In order to be able to view the history protocols, you need the corresponding access right.

➢ For this, enter the user management by clicking *User* in the *Tools* menu.

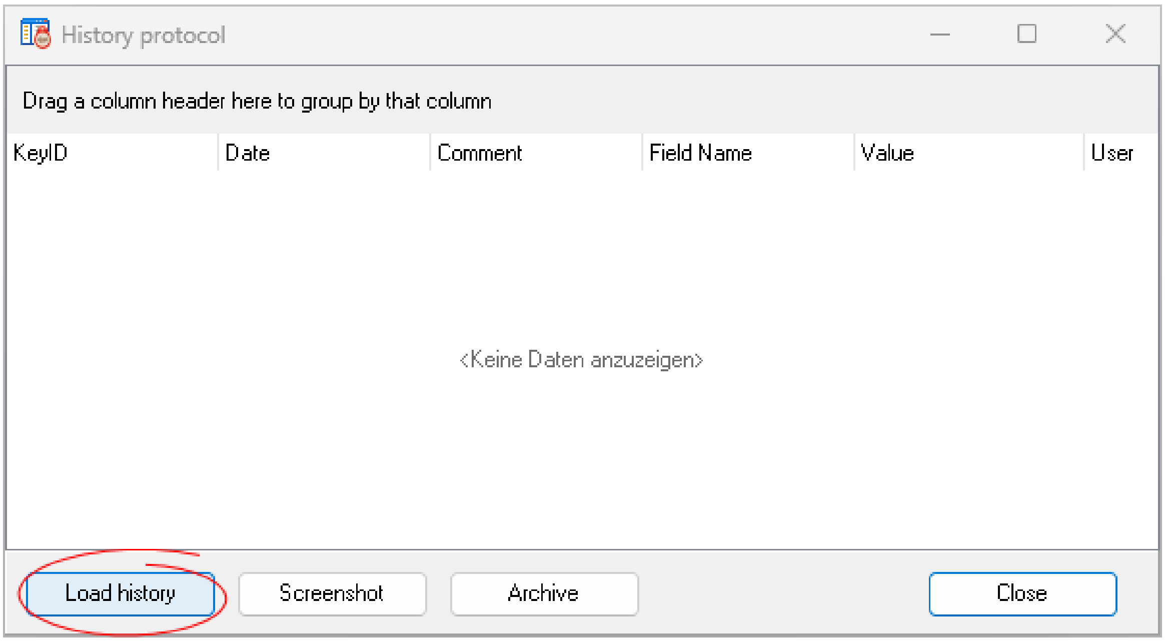
➢ Add the *Button_History_Visible* right to the corresponding groups.

☯ The *History* button is shown in the main window.

Displaying the protocols

➢ Click the *History* icon on the toolbar or the *History* command in the *Tools* menu.

☯ The *History protocol* window opens.



History protocol

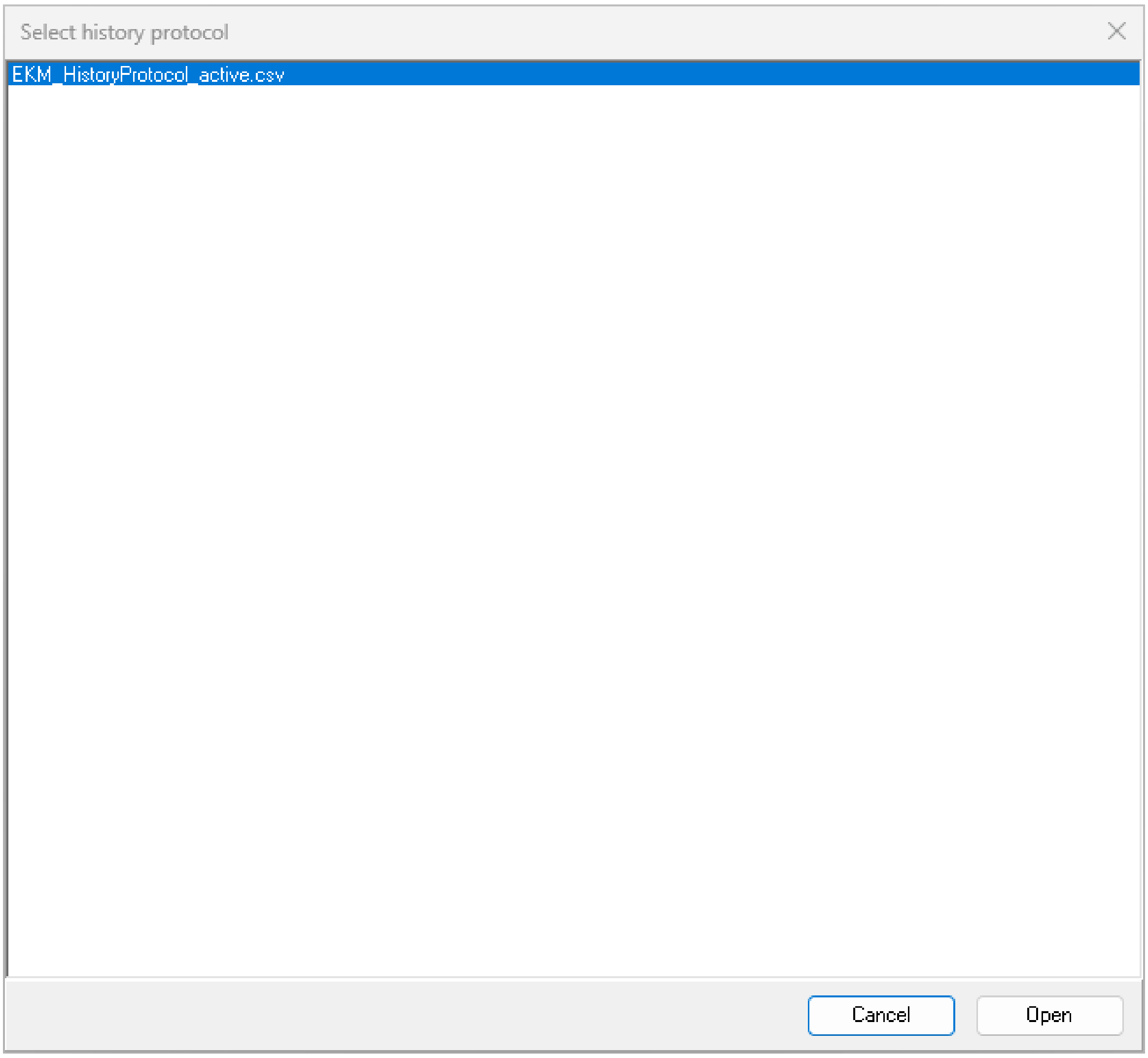
Drag a column header here to group by that column

KeyID	Date	Comment	Field Name	Value	User

<Keine Daten anzuzeigen>

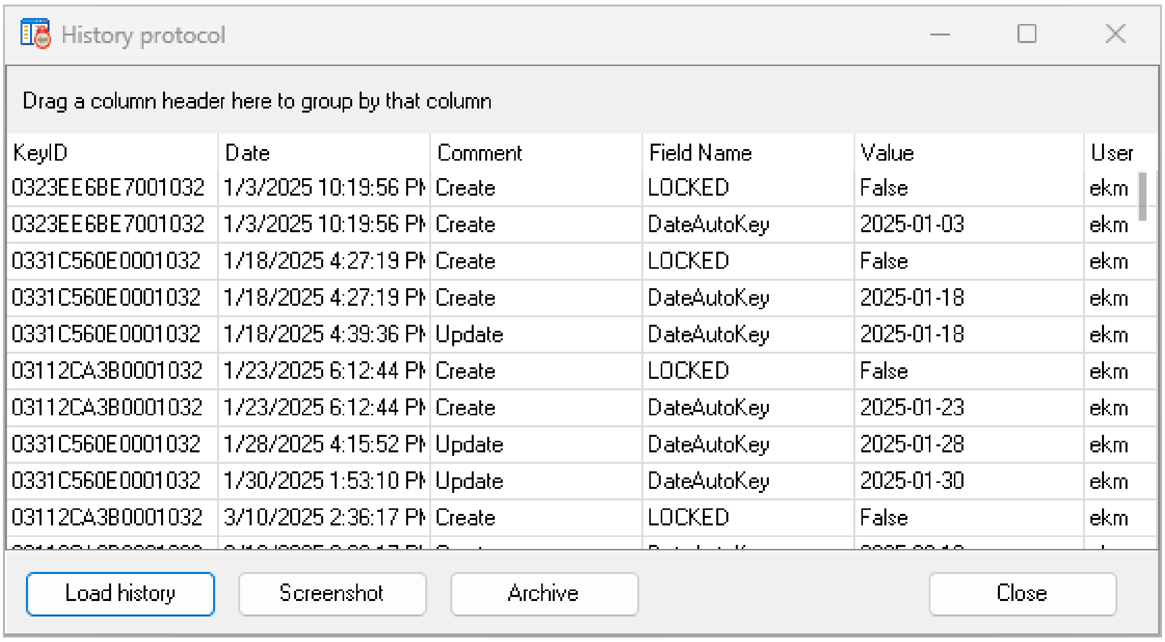
➢ Click the *Load history* button.

☯ The *Select history protocol* window opens.



➢ Select a file and click the *Open* button.

☯ The protocol file is transferred from the server to the client, opened and displayed in tabular form.



KeyID	Date	Comment	Field Name	Value	User
0323EE6BE7001032	1/3/2025 10:19:56 PI	Create	LOCKED	False	ekm
0323EE6BE7001032	1/3/2025 10:19:56 PI	Create	DateAutoKey	2025-01-03	ekm
0331C560E0001032	1/18/2025 4:27:19 PI	Create	LOCKED	False	ekm
0331C560E0001032	1/18/2025 4:27:19 PI	Create	DateAutoKey	2025-01-18	ekm
0331C560E0001032	1/18/2025 4:39:36 PI	Update	DateAutoKey	2025-01-18	ekm
03112CA3B0001032	1/23/2025 6:12:44 PI	Create	LOCKED	False	ekm
03112CA3B0001032	1/23/2025 6:12:44 PI	Create	DateAutoKey	2025-01-23	ekm
0331C560E0001032	1/28/2025 4:15:52 PI	Update	DateAutoKey	2025-01-28	ekm
0331C560E0001032	1/30/2025 1:53:10 PI	Update	DateAutoKey	2025-01-30	ekm
03112CA3B0001032	3/10/2025 2:36:17 PI	Create	LOCKED	False	ekm

- You can create a screenshot of the window. Click the *Screenshot* button and save the JPEG file in the desired folder.
- You can archive the protocol file immediately using the *Archive* button.

Structure of the protocol file

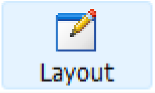
- The protocol file contains the following columns:
  <KeyID>;<Change Date>;<Comment>;<Field Name>;<Value>;<User>

- The type of change is specified in more detail in the *Comment* column:

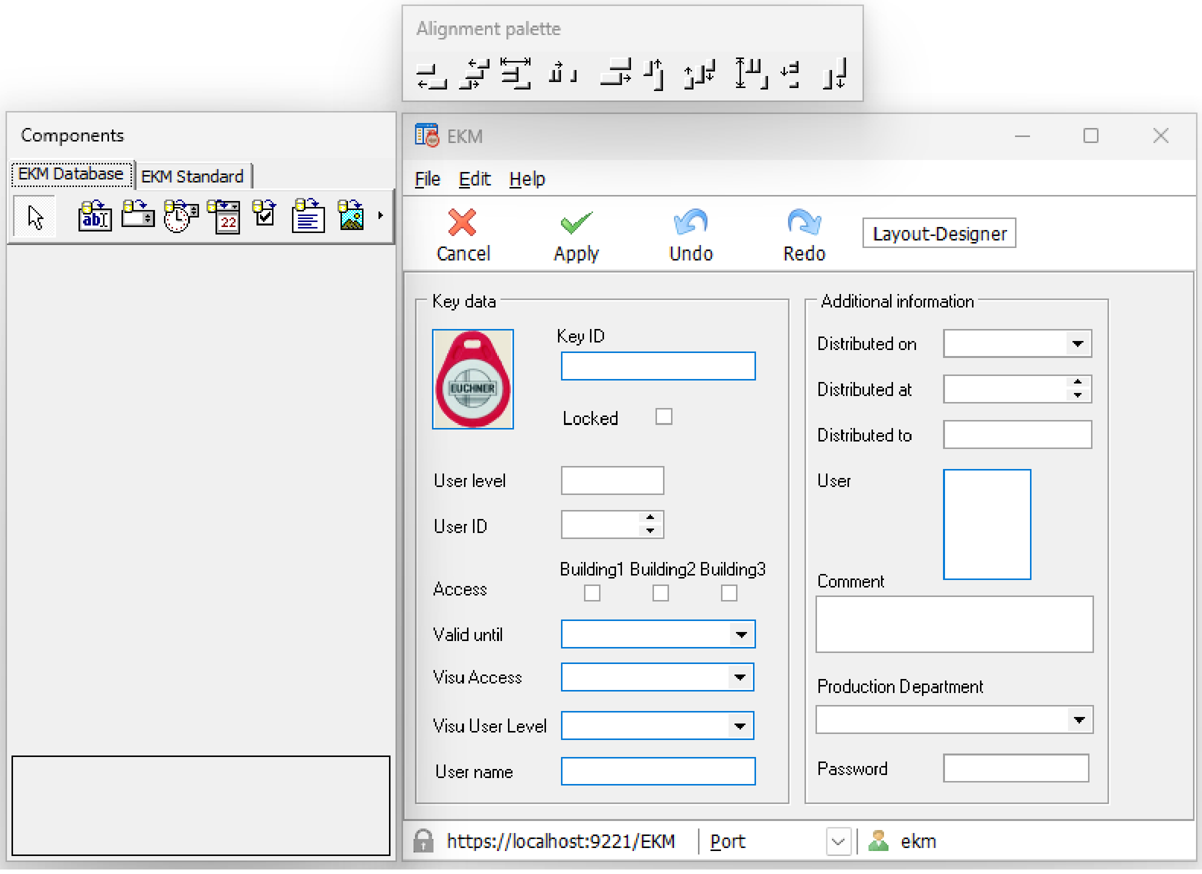
Comment	**Description**
Insert	The key was newly added to the database
Update	The value was changed
Delete	The key was deleted from the database
AddHistory	The "History" definition was set in the Database Designer
DeleteHistory	The "History" definition was deleted in the Database Designer

- A protocol entry will be created for each changed history column of a data record.

3.10.3 Designing the layout



To design the layout for the key data form, click the *Layout* icon in the design mode. The *EKM Designer* and *Alignment palette* windows open. These windows are beside and above the EKM main window and can be moved as required.



Using the EKM Designer, you can design and change the key data forms by:

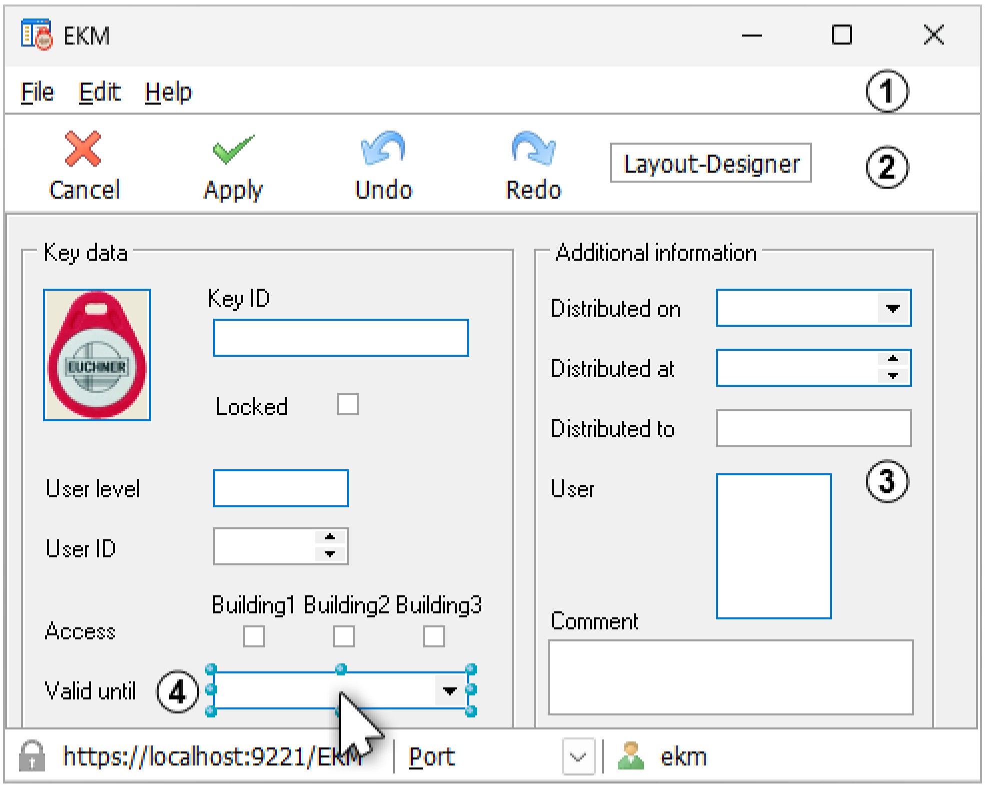
- Inserting form components in the key data form
- Assigning properties to form components
- Moving form components
- Aligning form components
- Deleting form components

Make sure that you enable newly added form components for viewing and editing in the user manager once you have completed your work in the Layout Designer (cf. "Assigning rights to a group"). On leaving the design mode, do not forget to transfer your changes to the EKM server using *Apply* (cf. "Applying your work in the EKM Designer").

3.10.3.1 An overview of the EKM Designer

You can use the Layout Designer to create and design forms for viewing and changing key data. You can design the layout of key data forms with the aid of three windows:

- EKM (the form window)
- EKM Designer
- Alignment palette



① *Edit* menu with the commands:
Undo, Redo, Cut, Copy, Insert
The commands in the *Edit* menu relate to the last action in the layout design or to selected form components or form components saved to the Clipboard.

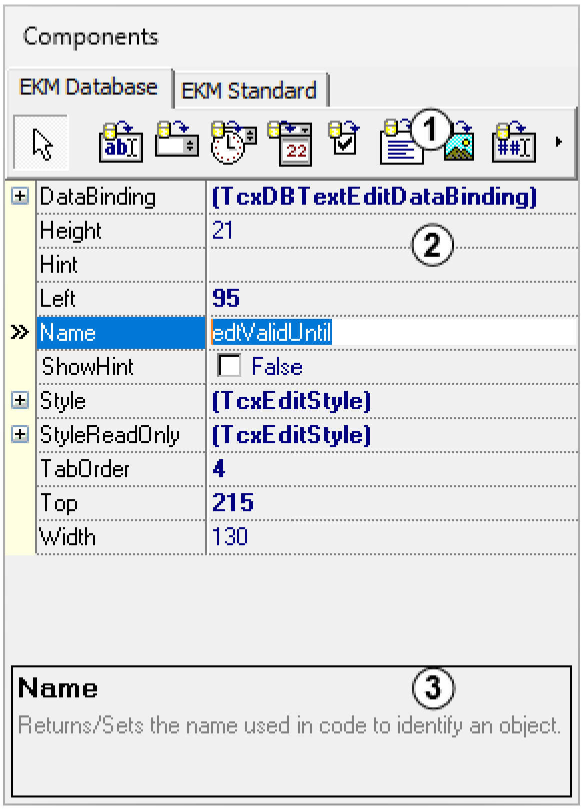
② Toolbar:
Apply quits the layout design and saves the current form temporarily and locally: The client application continues to use the current form. When Apply is clicked, the program changes to the first window in the design mode (cf. chap. "Design mode"). The program continues to use the current form. To transfer the form to the EKM server and finally save it, click the *Apply* icon on the toolbar again. Using *Cancel*, you can return to the last form design applied.

③ Form area:
Area where the form components are inserted and viewed. If no forms have been created, the form area is empty.

④ Marked form component:
In the form area, you can move and position the component as required; the appearance of the component and other properties such as the binding to a database field can be changed in the EKM Designer.

You can also change the size of the main window in the design mode.

EKM Designer



Components

EKM Database | EKM Standard

⊞ DataBinding	(TcxDBTextEditDataBinding)
Height	21
Hint	
Left	95
» Name	edtValidUntil
ShowHint	□ False
⊞ Style	(TcxEditStyle)
⊞ StyleReadOnly	(TcxEditStyle)
TabOrder	4
Top	215
Width	130

Name

Returns/Sets the name used in code to identify an object.

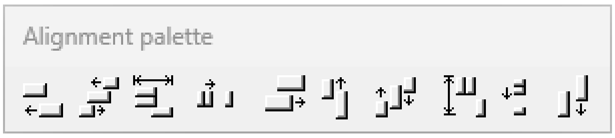
① Component bar:
Here, choose here the type of form component you want to insert on your form.

② Component inspector:
Displays a list with all the properties for the component currently marked. To edit a property, click the row for the property.

③ Status bar:
Displays the description for the property you are currently editing.

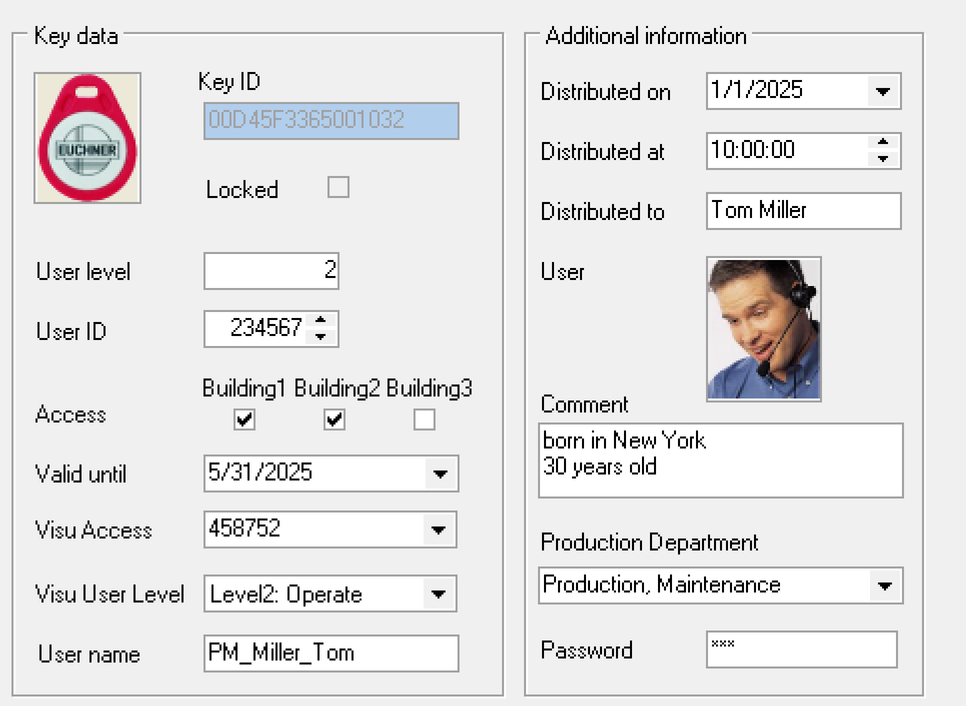
Alignment palette

Use the alignment palette to align several form components in the form area.



3.10.3.2 Form components

Forms for viewing the key data can contain various form components.



Key data

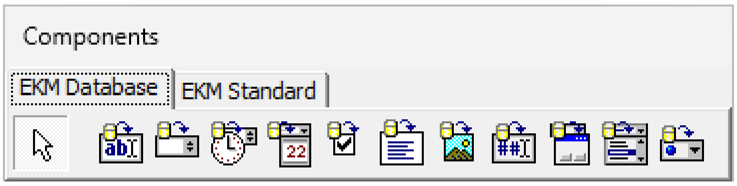
Key ID	00D45F3365001032
Locked	□
User level	2
User ID	234567
Access	Building1 ☑ Building2 ☑ Building3 □
Valid until	5/31/2025
Visu Access	458752
Visu User Level	Level2: Operate
User name	PM_Miller_Tom

Additional information

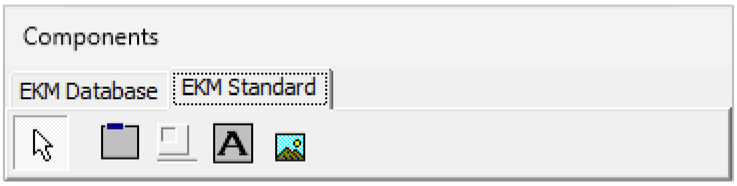
Distributed on	1/1/2025
Distributed at	10:00:00
Distributed to	Tom Miller
User	
Comment	born in New York 30 years old
Production Department	Production, Maintenance
Password	***

The form components are divided into

- EKM database components: form fields containing data that are bound to the key database and display key-dependent data.



- EKM standard components: form components without data binding for fixed text, images, borders, etc.



You will find the components on the component bar in the *EKM Designer* on the *EKM Database* and *EKM Standard tabs.*

EKM database components are:

cxDBTextEdit Text field: is used for displaying and entering text of limited length.

cxDBSpinEdit Spin-edit field: displays integers. The number can be increased or decreased using the arrow buttons.

cxDBTimeEdit Time-edit field: is used for displaying and for entering the time.

cxDBDateEdit List box with calendar: is used for displaying and for entering the date.

cxDBCheckBox Check box: is used for activating and deactivating defined criteria.

cxDBMemo Memo field: is used for displaying and entering text of unlimited length.

cxDBImage Graphic field: can be bound to database fields of type Graphic. Graphic formats: JPG, JPEG.

cxDBPassword Password field: is used for the hidden entry of passwords and is bound to database fields of type StringPassword.

cxDBBitstring Bit entry window: is used for setting bits in a defined number of bytes. The display type in the form field and in the database viewer is a character string in hexadecimal or decimal notation.

cxDB_ComboBox Pull-down menu: is used for the selection of a menu entry. With the selected menu entry, a saved value is written to the database and possibly to the key. The form field can be bound to database fields of the type String.

cxDBExComboBox Pull-down menu: is used for the selection of a menu entry. With the selected menu entry, a saved value is written to the database and possibly to the key. The form field can be bound to database fields of the type String, Nibble, Byte and Word. The displayed value and the value of the data can be different.

EKM standard components are:

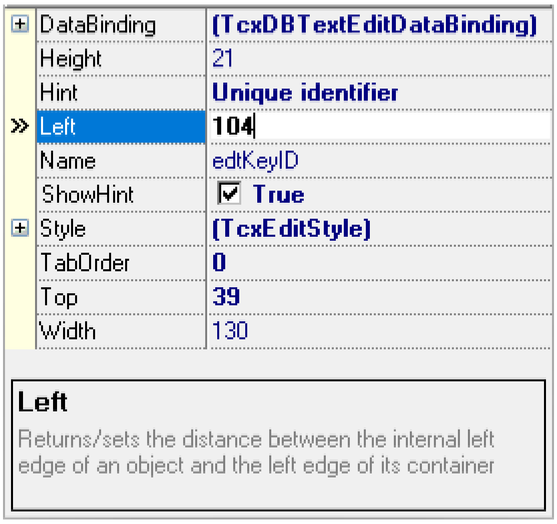
cxGroupBox Group box: is used to visually combine several form fields in a group; the group box features a label that can be assigned in the component inspector. When a group box is moved, all allocated elements are moved as one element.

Bevel 3D blank field: is used as a fixed structuring element.

cxLabel Label: is used for inserting labels.

cxImage Image field: is used for inserting graphics; the following formats are accepted: JPG, JPEG, BMP, ICO, EMF, WMF

The list of properties for the currently marked component is displayed in the component inspector.



⊞ DataBinding	(TcxDBTextEditDataBinding)
Height	21
Hint	Unique identifier
» Left	104
Name	edtKeyID
ShowHint	☑ True
⊞ Style	(TcxEditStyle)
TabOrder	0
Top	39
Width	130

Left

Returns/sets the distance between the internal left edge of an object and the left edge of its container

In the component inspector, you can access the properties for the form components and change the properties. The component properties are displayed in alphabetical order.

All form components have general properties:

- Design of the component (border, background color, font, shading, etc.)
- Internal name for the component
- Position on the form or within a group box
- Size of the form component
- Hint for a form component
- Sequence number for navigation on the form using the Tab key

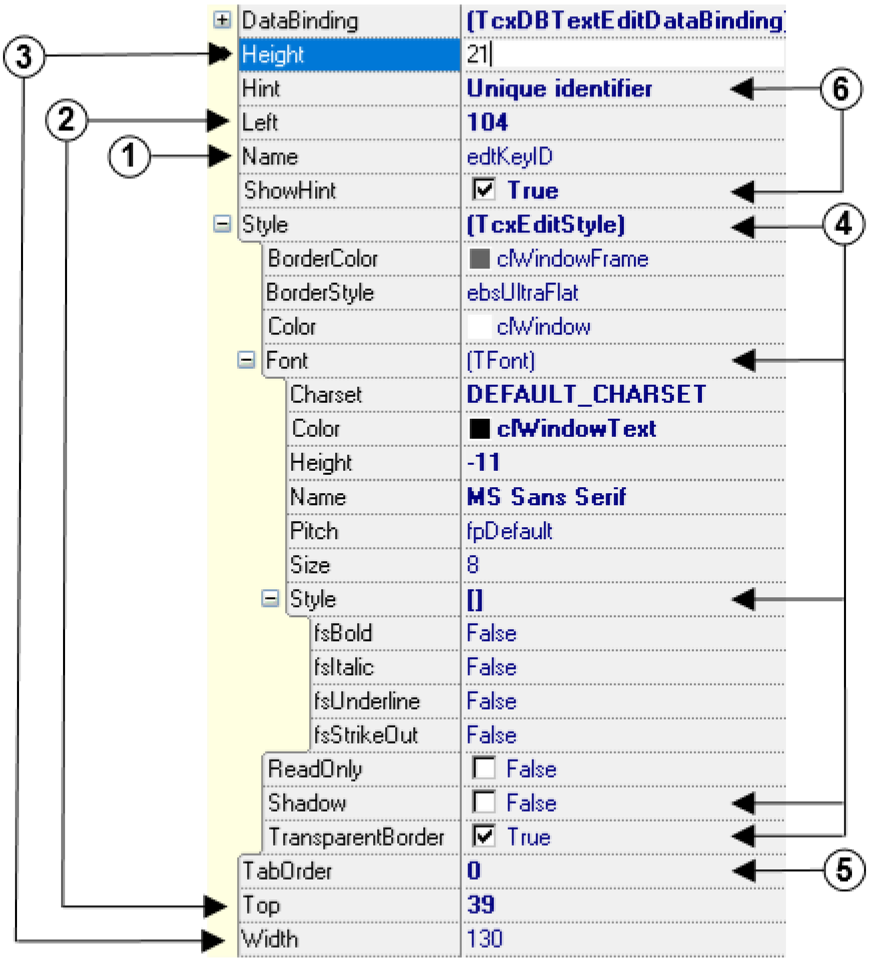
In addition to these properties, you can make other settings in the component inspector as a function of the form component inserted:

- For EKM database components, a data field must also be selected for the components using *DataBinding* -> *DataField* to bind the component with the database field. When a database component is inserted, there is initially no binding to a data field.
- For the EKM database components *cxDB_ComboBox* and *cxDBExComboBox*, menu entries for display in pull-down menus can be entered using *Items*. For the component *cxDBExComboBox*, a value in the format String, Byte or Word is saved for the menu entry. The menu entries are added after binding to a data field.
- Using the EKM standard components *cxGroupBox* and *cxLabel*, you can enter the label text for the components. By default, the labels are *cxGroupBox1*, *cxGroupBox2* or *cxLabel1, cxLabel2*.
- With the EKM standard component *cxImage*, you can also select an image file in one of the formats JPG, JPEG, BMP, ICO, EMF, WMF. By default, an image file is not selected.

Note that the properties are grouped in the component inspector. If you want to view a group of properties, click the plus sign in front of the group; if you want to hide a sub-group, click the minus sign in front of the group.

General properties

All components have general properties. You can change these properties in the component inspector by clicking a property field and entering the value required.



⊞ DataBinding	(TcxDBTextEditDataBinding)
Height	21
Hint	Unique identifier
Left	104
Name	edtKeyID
ShowHint	☑ True
⊟ Style	(TcxEditStyle)
BorderColor	■ clWindowFrame
BorderStyle	ebsUltraFlat
Color	□ clWindow
⊟ Font	(TFont)
Charset	DEFAULT_CHARSET
Color	■ clWindowText
Height	-11
Name	MS Sans Serif
Pitch	fpDefault
Size	8
⊟ Style	[]
fsBold	False
fsItalic	False
fsUnderline	False
fsStrikeOut	False
ReadOnly	□ False
Shadow	□ False
TransparentBorder	☑ True
TabOrder	0
Top	39
Width	130

The following list contains all the general properties and the valid entries:

① Internal component name

Name	Description	Valid values
Name	Defines the internal form field name: Pay attention to clear labeling: e.g. PersonnelNumber or cxDBTextEdit3_Name.	All characters except special characters such as ö, ä, etc., as well as the hyphen ("-"), forward slash ("/"), backslash ("\") and blank (" ").

② Position of the component

Name	Description	Valid values
Left	Defines the position of the left edge of the component in pixels, starting from the left edge of the form or the group box.	Integer
Top	Defines the position of the top edge of the component in pixels, starting from the top edge of the form or the group box.	Integer

③ Size of the component

Name	Description	Valid values
Height	Defines the height of the component in pixels	Integer
Width	Defines the width of the component in pixels	Integer

The height can be entered directly in the Height field only for the form components cxDBMemo, cxDBImage, cxGroupBox, Bevel, Image. The height of the other components is automatically adjusted to the font size set (Style -> Font -> Size).

④ Design of the component: Style

Name	Description	Valid values
⊞ Style		
BorderColor	Color of the component border	Select a color from the pull-down menu
BorderStyle	Style for the component border: e.g. flat, 3D, etc.	Select a style from the pull-down menu
Color	Component background color	Select a color from the pull-down menu

④ Design of the component: Font

Name	Description	Valid values
⊞ Font	Font for the component content	In the Font field, you can open a dialog box where you can access the fonts installed in the operating system. The font, its size and color, etc., can be selected in the dialog box.
Charset	Character set that is used as the basis for the component content.	Select a character set from the pull-down menu
Color	Font color	Select a color from the pull-down menu
Height	Scaling value for the font size referred to the screen resolution	Integer
Name	Font	Select a font from the pull-down menu
Pitch	Adjusts the character spacing	
Size	Font size	Select a font size from the pull-down menu

④ Design of the component: Font → Style

Name	Description	Valid values
⊞ Style		
fsBold	Bold font	Activated / deactivated
fsItalic	Italic font	Activated / deactivated
fsStrikeOut	Struck-through font	Activated / deactivated
fsUnderline	Underlined font	Activated / deactivated

④ Design of the component

Name	Description	Valid values
Shadow	Shadow: places a shadow behind the component	Activated / deactivated
Transparent Border	Transparent border	Activated / deactivated

⑤ Navigation using the Tab key

Name	Description	Valid values

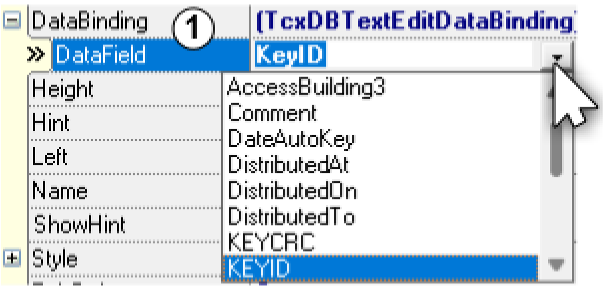
TabOrder	Defines the order in which the cursor moves between the components when the Tab key is used for navigation	Integer

⑥ Hint for component

Name	Description	Valid values
Hint	Hint that appears when you move over the component with a key inserted	All characters except special characters
ShowHint	Defines whether the hint is shown	Activated / deactivated

Properties of EKM database components

EKM database components have general properties as well as an allocation to a database field:



① Data used for field content

Name	Description	Valid values
⊞ DataBinding	Indicates the type of component	
DataField	Indicates the data field that is used to provide the data for the form component	Select a database field from the pull-down menu

The selected form component must match the data type of the database field allocatedcf. "Properties of data fields"). Valid bindings between form components and data types for an allocated database field are:

cxDBTextEdit

Text field: can be bound to database fields of type String (*String, StringBlankFilled*) and Number (*SmallInt*, *ShortInt, Byte, Nibble, Word, Integer, UInt, Float*), the *KEYCRC* field or the hard programmed *KEYID* field.

cxDBSpinEdit

Spin-edit field: can be bound only to database fields of type Number.

cxDBTimeEdit

Time-edit field: can be bound only to database fields of type *Time* and *TimeAscii*.

cxDBDateEdit

Date field: can be bound only to database fields of type *Date*, *DateAscii* and *DateAuto*. A list box with calendar is available for types *Date* and *DateAscii*.

cxDBCheckBox

Check box: can be bound to database fields of type *Bit* and to the hard programmed *LOCKED* field.

cxDBMemo

Memo field: can be bound to database fields of type *Memo*.

cxDBImage

Graphic field: can be bound to database fields of type *Graphic*. Graphic formats: JPG, JPEG.

cxDBPassword

Password field: can be bound only to database fields of type *StringPassword*.

cxDBBitstring

Bit entry window: can be bound only to database fields of type *BitString*.

cxDB_ComboBox

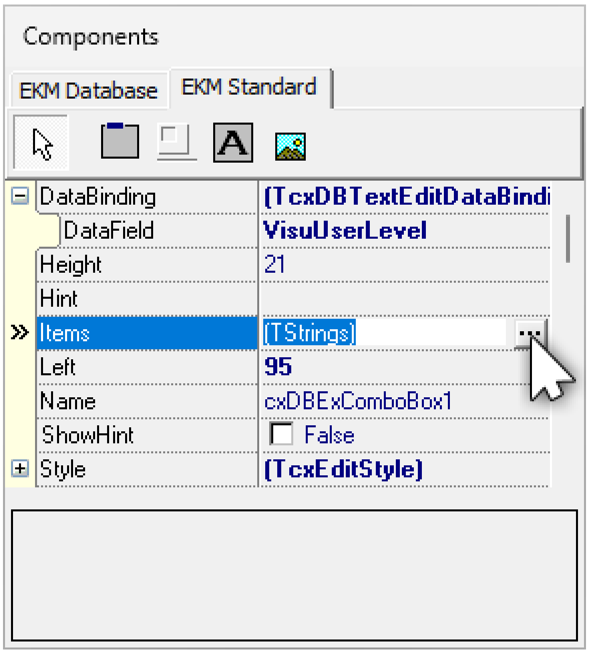
Pull-down menu: can be bound only to database fields of type *String*.

cxDBExComboBox

Pull-down menu with saved values: can be bound to database fields of type *String*, *Byte, Nibble* and *Word*. The database field selection is based on the values that are to be saved for the entries visible on the menu:
Example: menu entry: Level1 - saved value: 001 =>
Field with data type *String*

Menu items can be saved for the combo boxes cxDB_ComboBox and cxDBExComboBox using Items:

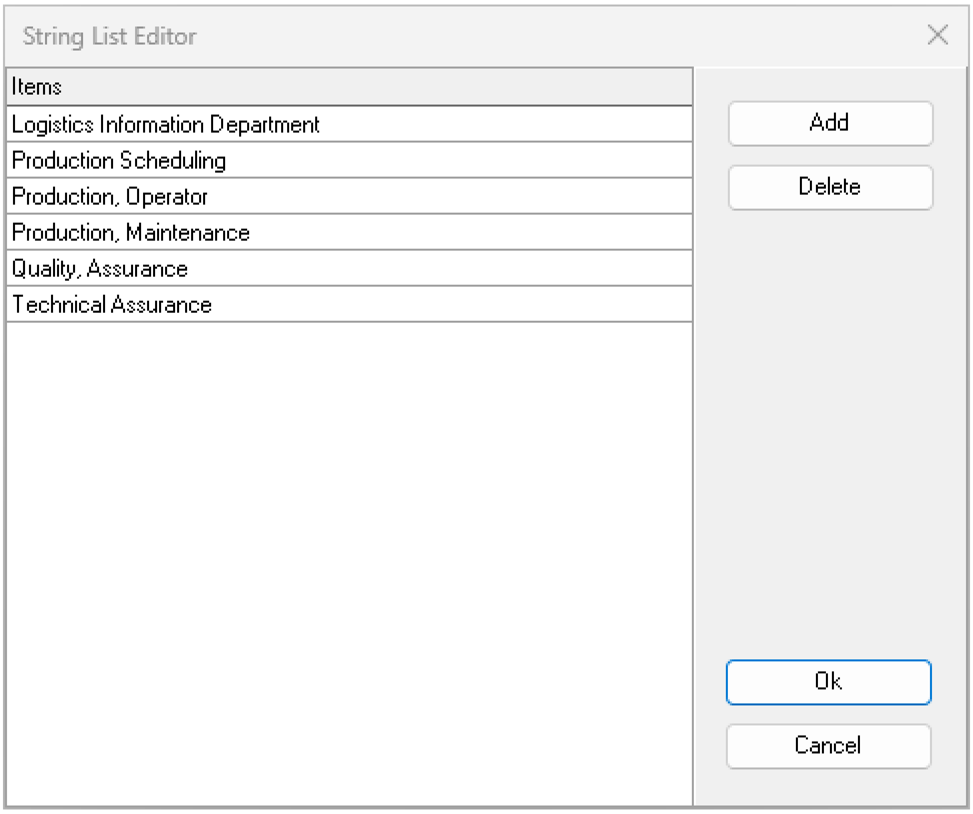
Click the button in the *Items* field after you have bound the combo box to a data field.



⊟ DataBinding	(TcxDBTextEditDataBindi
DataField	VisuUserLevel
Height	21
Hint	
» Items	(TStrings)
Left	95
Name	cxDBExComboBox1
ShowHint	□ False
⊞ Style	(TcxEditStyle)

A field-specific string list editor opens:

String list editor: cxDB_ComboBox



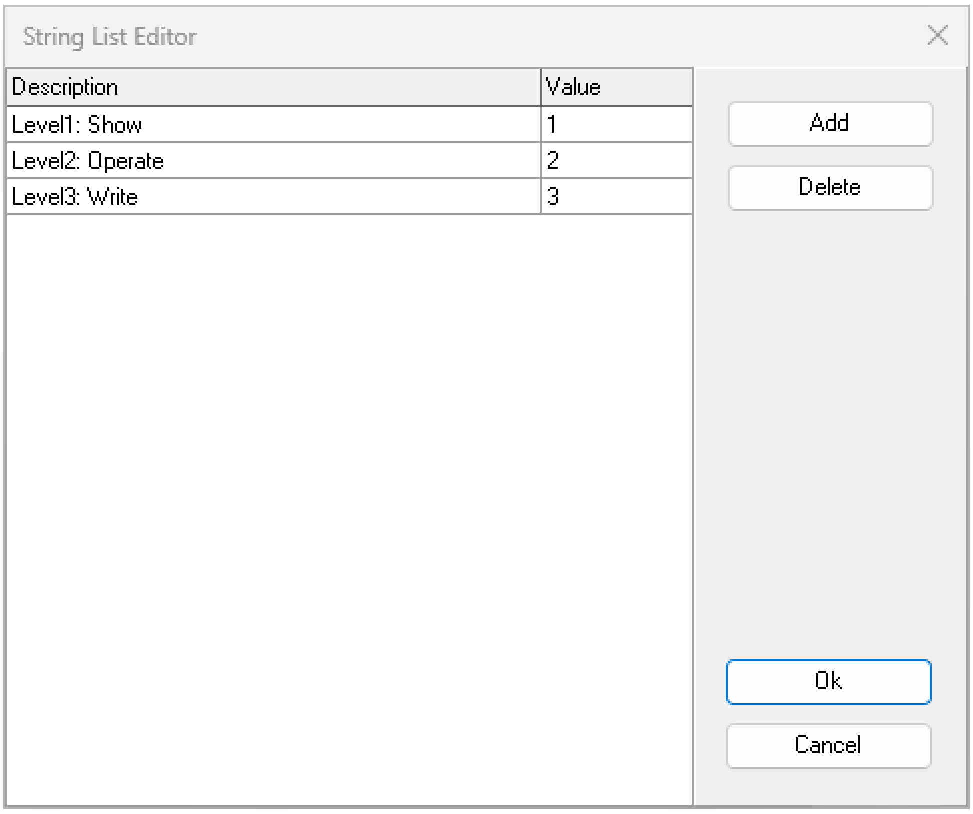
String List Editor

Items
Logistics Information Department
Production Scheduling
Production, Operator
Production, Maintenance
Quality, Assurance
Technical Assurance

Using the *Add* button, you can add new entries that are to be displayed in the pull-down menu.

To delete entries, click the row to be deleted and click the *Delete* button.

String list editor: *cxDBExComboBox*



String List Editor

Description	Value
Level1: Show	1
Level2: Operate	2
Level3: Write	3

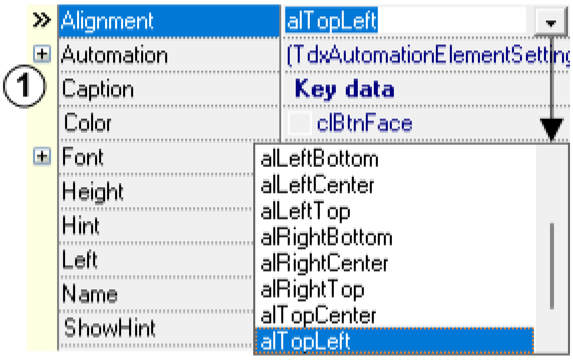
Add a new row per menu item using the *Add* button. In *Description*, enter the text that is to be displayed as the menu entry in the pull-down menu. In *Value*, enter the value that is to be saved on the selection of the related menu item. Ensure that the data entered under *Value* match the related database field.

To delete entries, click the row to be deleted and click the *Delete* button.

Properties of EKM standard components

EKM standard components feature some of the basic properties and component-specific properties:

- cxGroupBox



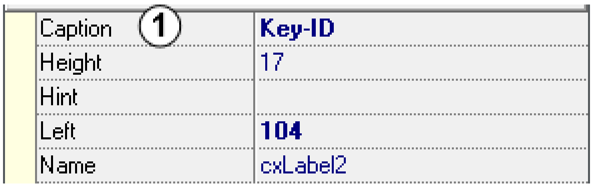
Alignment	alTopLeft
Automation	(TdxAutomationElementSetting
Caption	Key data
Color	clBtnFace
Font	
Height	
Hint	
Left	
Name	
ShowHint	

① Labeling

Name	Description	Valid values
Caption	Text that is used to label the group box	All characters including the special characters
Alignment	Indicates how the label is aligned on the group box	Select an alignment from the pull-down menu

To insert components in a group box, the group box must first be inserted in the form, then form components can be positioned directly in the group box. However, you can also insert the form components into the group box using Cut and Insert. If you move a group box, the form components contained in the group box are also moved.

- cxLabel

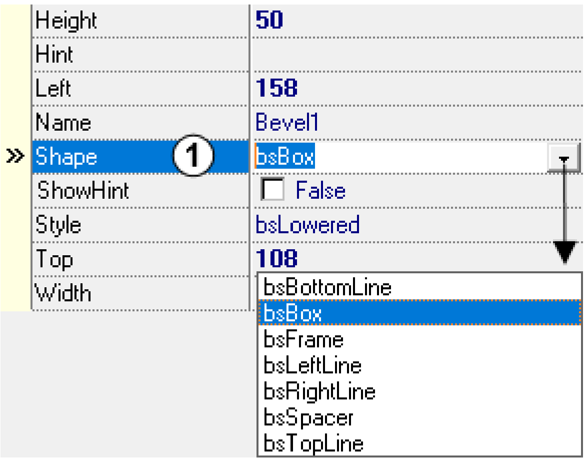


Caption	Key-ID
Height	17
Hint	
Left	104
Name	cxLabel2

① Labeling

Name	Description	Valid values
Caption	Text used for the label	All characters including the special characters

- Bevel

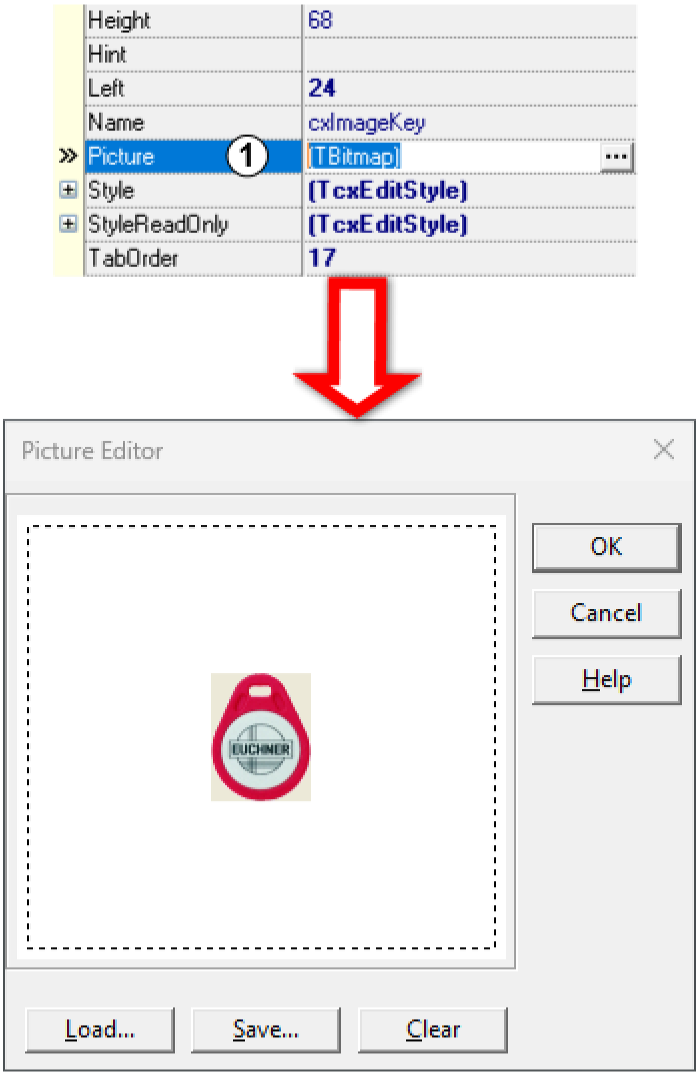


Height	50
Hint	
Left	158
Name	Bevel1
Shape	bsBox
ShowHint	□ False
Style	bsLowered
Top	108
Width	

① Profile

Name	Description	Valid values
Shape	Assigns a profile to the empty field	Select a profile from the pull-down menu

- cxImage



Height	68
Hint	
Left	24
Name	cxImageKey
Picture ①	(TBitmap)
Style	(TcxEditStyle)
StyleReadOnly	(TcxEditStyle)
TabOrder	17

① **Image source**

Name	Description
Picture	The Picture-Assistent is displayed. The Picture Assistent is used to insert images into the *cxImage* component or remove them from it:

You can perform the following operations in the Picture-Assistent:

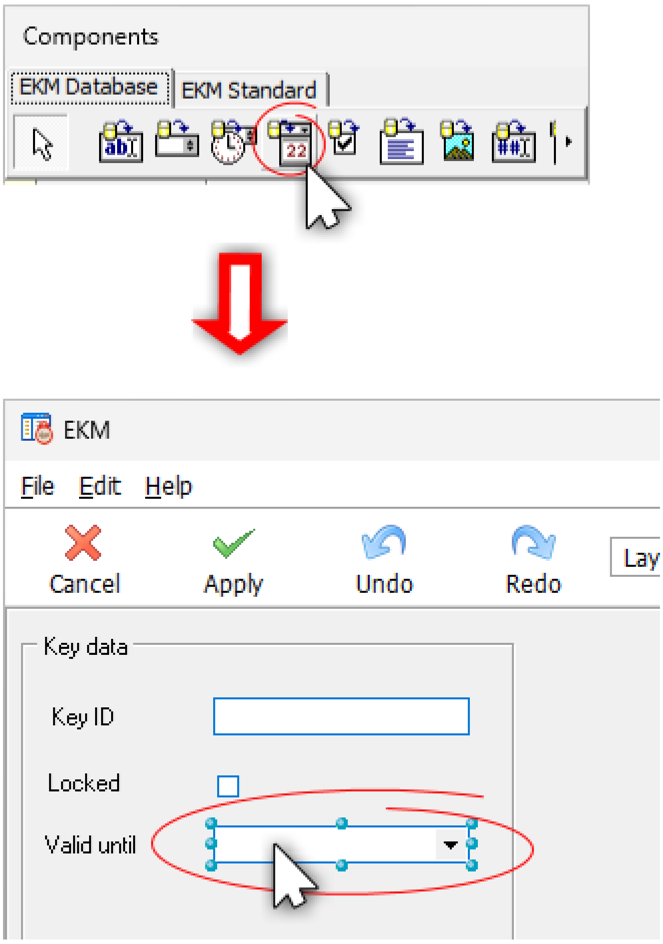
Load Click *Load...* to open an image file and to insert it into the image field. You can insert image files with the following formats: JPG, JPEG, BMP, ICO, EMF, WMF.

Save Using *Save...*, you can save an image that you have opened in the Picture-Assistent.

Clear Using *Clear*, you can remove an opened image from the Picture-Assistent. The image is then also removed from the image field.

3.10.3.3 Inserting form components

To insert form components, click the required component on the *component bar.* Then click the form area in the position where you want to insert the form component.

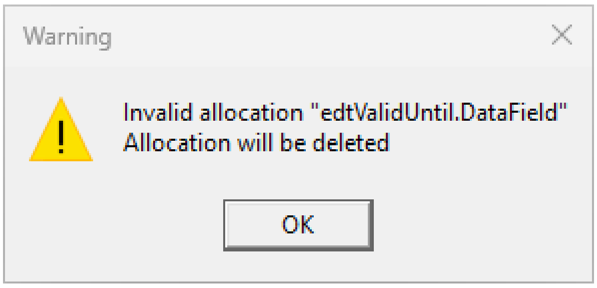


The form component is inserted in the form with default properties. Change the properties of the new form component in the component inspector. You can also move the form component again if required. The component that was last inserted is at the front.

To insert components in a group box, the group box must first be inserted in the form, then form components can be positioned directly in the group box. However, you can also insert the form components into the group box using *Cut* and *Insert*.

⚠ Make sure that you enable newly added form components for viewing and editing in the user manager once you have completed your work in the Layout Designer (cf. "Rights available").

⚠ If you bind an EKM database component to an invalid database field, you will receive a message:



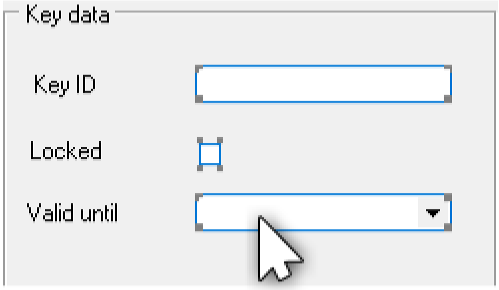
Invalid allocation "edtValidUntil.DataField"
Allocation will be deleted

An invalid binding to a database field occurs if the data type for the selected database field does not match the form field. The invalid database binding is deleted.

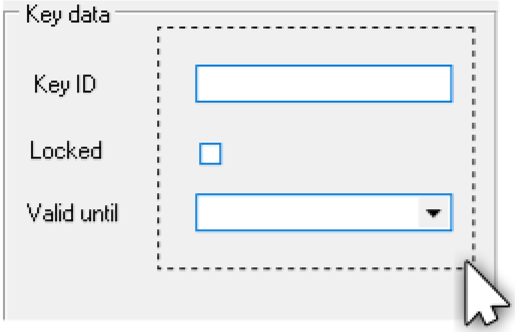
3.10.3.4 Selecting form components

You can see which form component is selected using the black anchor points. There are several ways you can select a component or several components:

- Click the components using the mouse. If you keep the Shift key pressed, you can select several components.



- Keep the Ctrl key pressed and, using the left mouse button, drag an area around the form components you want to mark. When you release the mouse button, all components in the area are marked.

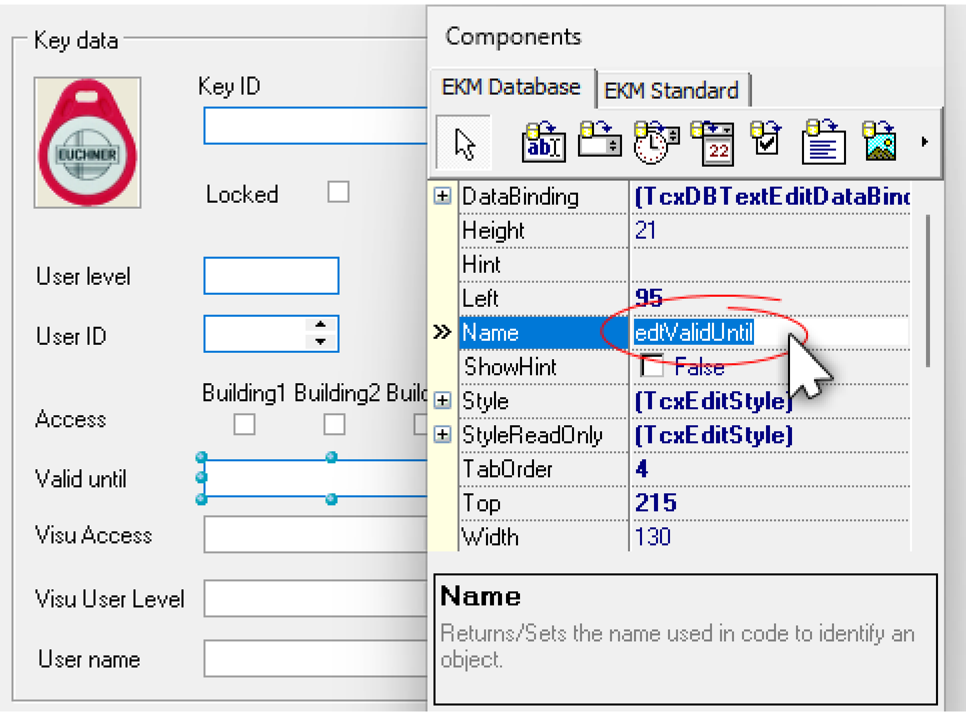


If you want to remove a component from the selection, click the component with the Shift key pressed. To clear a selection, click an empty part of the form area.

3.10.3.5 Changing form components

When form components are inserted, the components have the default properties. You can change the position and the size of the component using the mouse pointer and keyboard commands. All the properties of a component can be changed in the component inspector:

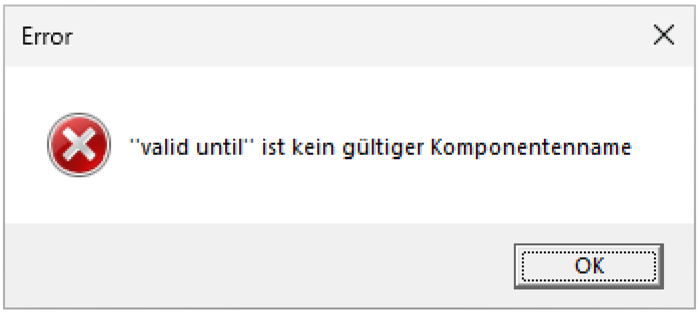
- Select a component by clicking it. All the properties of the selected component are displayed in the component inspector.
- Change a property by clicking the property field. When the field is clicked, it is opened for editing, i.e. it is possible to write to the field.
- Enter the required values in this field.



DataBinding	(TcxDBTextEditDataBinc
Height	21
Hint	
Left	95
Name	edtValidUntil
ShowHint	□ False
Style	(TcxEditStyle)
StyleReadOnly	(TcxEditStyle)
TabOrder	4
Top	215
Width	130

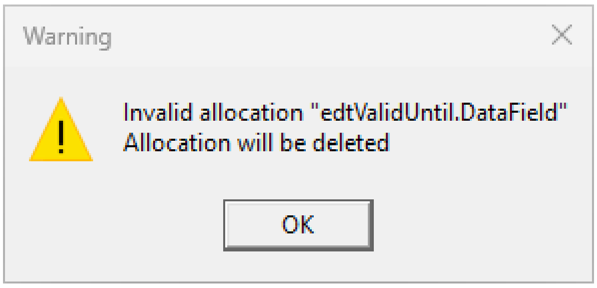
Name
Returns/Sets the name used in code to identify an object.

If you enter invalid values for properties, the changes are not applied (cf. "General properties"ff.). A message is displayed:



"valid until" ist kein gültiger Komponentenname

If you bind an EKM database component to an invalid database field, you will receive the message:

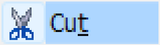

Warning

Invalid allocation "edtValidUntil.DataField"
Allocation will be deleted

An invalid binding to a database field occurs if the data type for the selected database field does not match the form field. The invalid database binding is deleted.

3.10.3.6 Cutting form components

Select one or several form components:

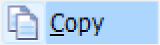


- In the *Edit* menu, click the *Cut* command
- Or press *Ctrl* + *X*

The selection is now on the Clipboard and can be inserted in a different position.

3.10.3.7 Copying form components

Select one or several form components:

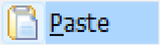


- In the *Edit* menu, click the *Copy* command
- Or press *Ctrl* + *C*

The copy is now on the Clipboard and can be inserted.

3.10.3.8 Inserting a form component

You can insert form components you cut or copied to the Clipboard by:



- Clicking the *Paste* command in the *Edit* menu
- Or pressing *Ctrl* + *V*

You will see the new component on the form.

On insertion, the internal component name is changed if a component with the same name already exists on the form.

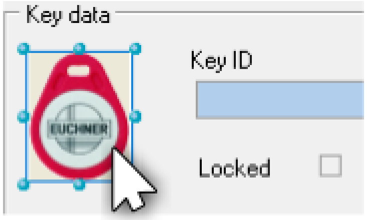
3.10.3.9 Removing form components

Select one or several form components and press the Delete key.

3.10.3.10 Moving form components

To move a component, proceed as follows:

- Select a component.
- Drag the component over the form with the mouse button pressed. You will be to see the new position of the selected component using the black border. The coordinates for the new position are also displayed in the hint (yellow field underneath the mouse pointer).
- Release the mouse button when you have reached the desired position.



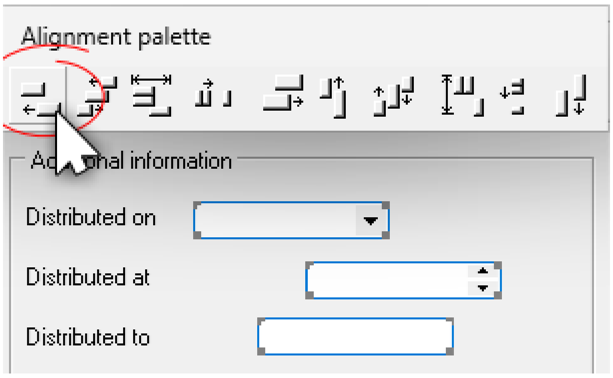
You can also move one or several marked form components using keyboard commands:

- Select one or several form components
- Press the Ctrl + arrow keys to move the component up, down, to the right or to the left.

If you move a group box, the form components contained in the group box are also moved.

3.10.3.11 Aligning form components

Select form components and click an alignment tool in the *alignment palette*.



The following alignment tools are available:

Aligns the left edges of the form components with the component marked first

Aligns the vertical center line of the form components with the component marked first

Centers the form component horizontally in the form area or in a group box

Evenly spaces the form components horizontally

Aligns the left edges of the form components with the component marked first

Aligns the top edges of the form components with the component marked first

Aligns the horizontal center line of the form component with the component marked first

Centers the form components vertically in the form area or in a group box

Evenly spaces the form components vertically

Aligns the bottom edges of the form components with the component marked first

3.10.3.12 Increasing and reducing the size of form components

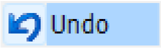
You can increase or reduce the size of one or several marked form components using keyboard commands:

- Select one or several form components.
- Press Shift + arrow keys to change the size of the component.

The height can only be set for the form components cxDBMemo, cxDBImage, cxGroupBox, Bevel, Image. The height of the other components is automatically adjusted to the font size set (Style -> Font -> Size).

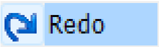
3.10.3.13 Undoing actions on the form design

You can undo the last actions in the Layout Designer by



- Clicking the *Undo* command in the *Edit* menu
- Or pressing *Ctrl* + *Z*

3.10.3.14 Redoing actions on the form design

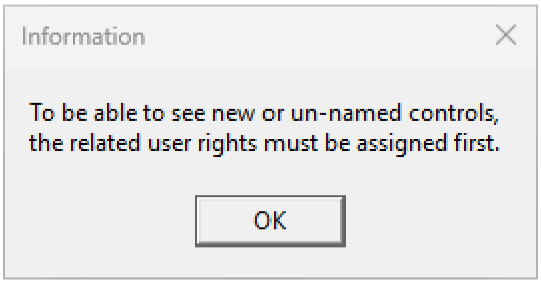


You can repeat the last actions in the Layout Designer by clicking the *Redo* command in the *Edit* menu.

3.10.4 Applying your work in the EKM Designer

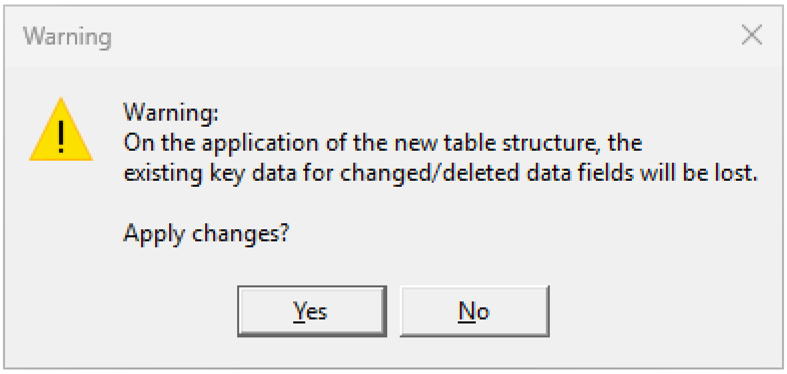
Once you have finished designing the database or a form for the key data, click the *Apply* icon on the toolbar. EKM changes automatically from the design mode to the read and write mode. You can transfer the form and the database design to the EKM server and save them using *Apply*.

If you have changed the form, you must assign the corresponding user rights to the newly added form components. Otherwise it will not be possible to edit the form components and the components will also not be shown. For this reason, when you apply a modified form the following message is displayed:


Information

To be able to see new or un-named controls, the related user rights must be assigned first.

If you have changed the database design, the data in the database may be deleted in certain circumstances (cf. "Changing data fields"). For this reason when you apply a modified database design, the following message is displayed:


Warning

Warning:
On the application of the new table structure, the existing key data for changed/deleted data fields will be lost.

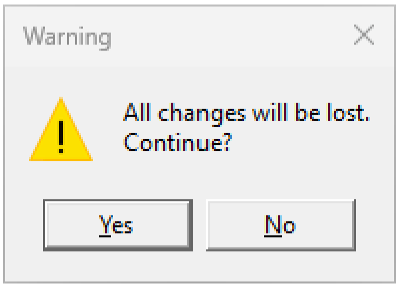
Apply changes?

⚠ If you activate the Unique property for a field and the column contains duplicate entries in the database, the duplicate entries will be deleted.

3.10.5 Cancelling your work in the EKM Designer

If you want to cancel your work on the database or on a form, click the *Cancel* icon on the toolbar.

⚠ Your changes will not be saved and will also not be transferred to the EKM server. For this reason, when you use Cancel the following warning is displayed:

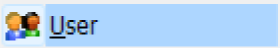


Warning

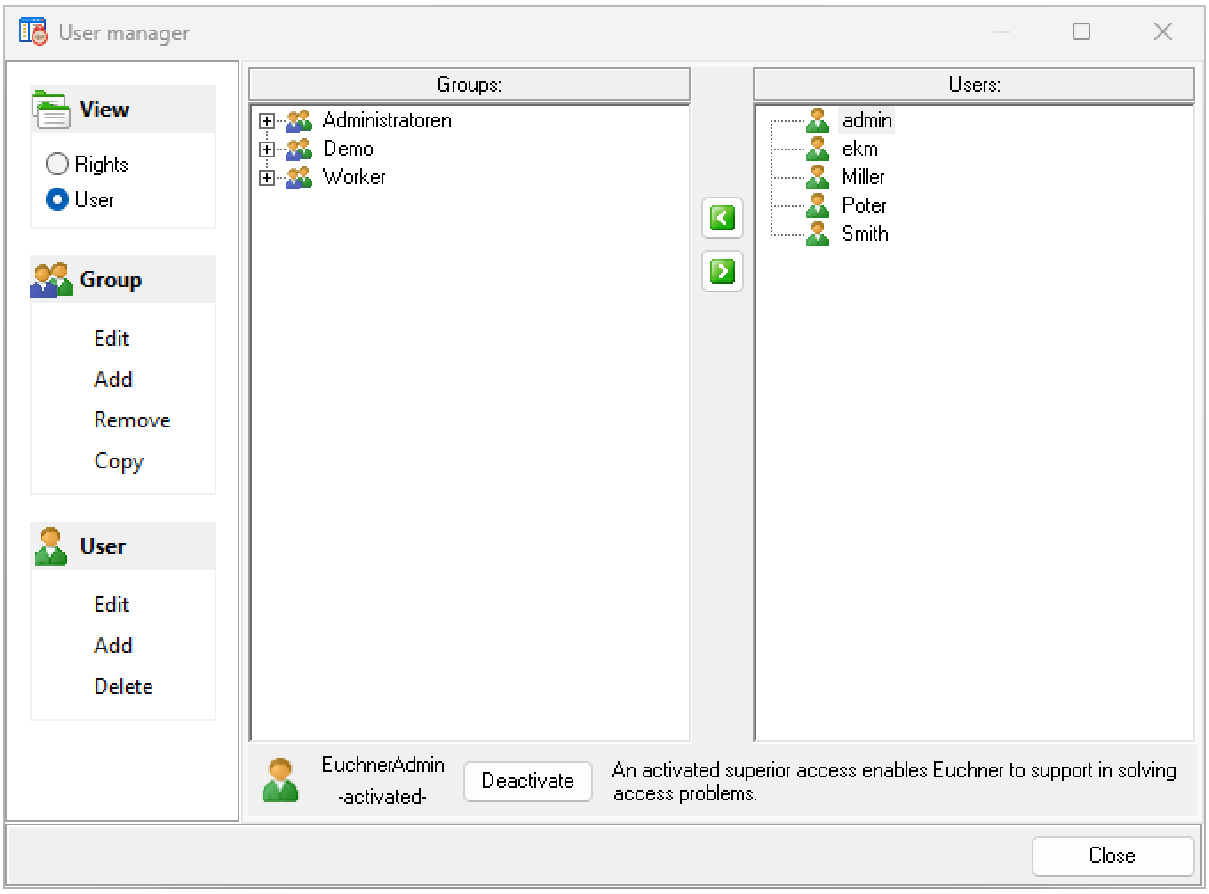
All changes will be lost.
Continue?

Accept using *Yes* if you want to cancel your work in the design mode. EKM automatically changes from the design mode to the read and write mode and loads the last form that was applied.

3.11 User rights



Click the *User* command in the *Tools* menu to manage users, groups and rights. The *User manager* window opens.



○ Rights
● User

An activated superior access enables Euchner to support in solving access problems.

In the *User manager* window, you can:

- View groups, rights available and users
- Edit, add, remove and copy groups
- Allocate rights to the groups or remove rights from the groups
- Edit, add and remove users
- Allocate users to the groups or remove users from the groups
- Activate or deactivate the higher-level manufacturer access "EuchnerAdmin"

By default, the Administratoren group is created with the following rights and users:

Administratoren group ➔ Rights:
Button_Database_Edit
Button_Database_Visible
Button_Designer
Button_Import
Button_ImportLog
Button_TemplateList
Button_TemplateRead
Button_TemplateWrite

Button_Undo
Button_UserManager
Button_WriteKey

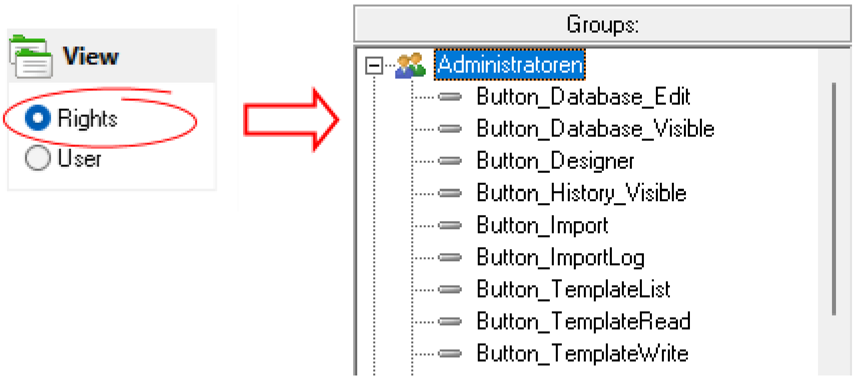
➔ User: ekm

After installation, change the user name and the password for the default administrator ekm. Add new users and new groups as necessary. Add the available rights to the related groups (cf. "Rights available").

Ensure that a user group has the right to access the user manager (= Button_UserManager) and note the related user names and passwords to ensure that it is possible to change the access rights and user data.

3.11.1 Managing groups

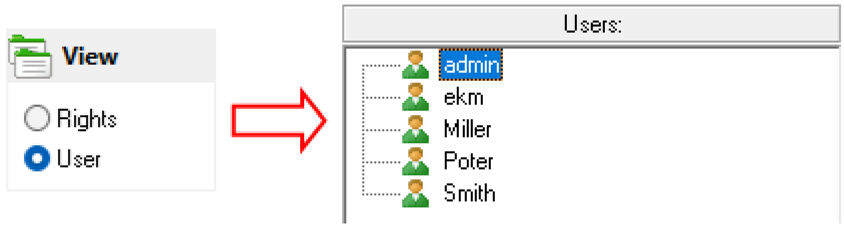
All groups already added are displayed in the left window under *Groups*. To display all rights held by a group, select *Rights* on the *View* tab. All rights assigned to a group are listed underneath the group name. To display the rights held by a group, click the plus sign in front of the group name. To hide the rights held by a group, click the minus sign in front of the group name. All the rights available can be seen in the window on the right.



View
● Rights
○ User

Groups:
- Administratoren
  - Button_Database_Edit
  - Button_Database_Visible
  - Button_Designer
  - Button_History_Visible
  - Button_Import
  - Button_ImportLog
  - Button_TemplateList
  - Button_TemplateRead
  - Button_TemplateWrite

To display all users in a group, select *Users* on the *View* tab. All users belonging to a group are listed underneath the group name. To display the users in a group, click the plus sign in front of the group name. To hide the users in a group, click the minus sign in front of the group name. All the users added can be seen in the window on the right.

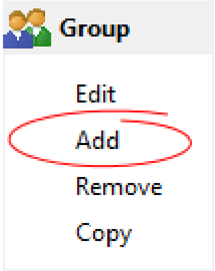


View
○ Rights
● User

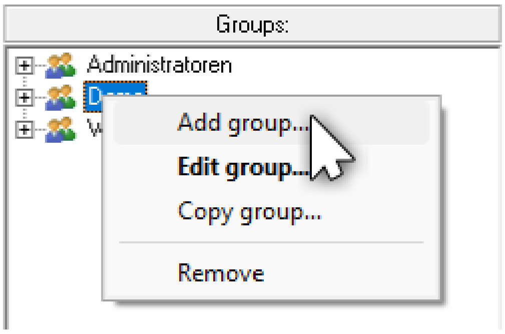
Users:
- admin
- ekm
- Miller
- Poter
- Smith

3.11.1.1 Adding groups

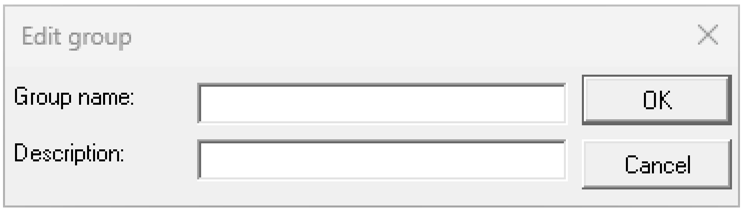
To add a group to the existing groups, click *Add* on the *Group* tab on the menu bar on the left.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Add group....*



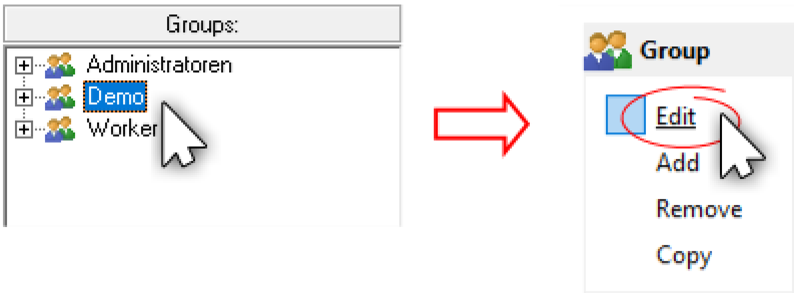
The *Edit group* window opens.



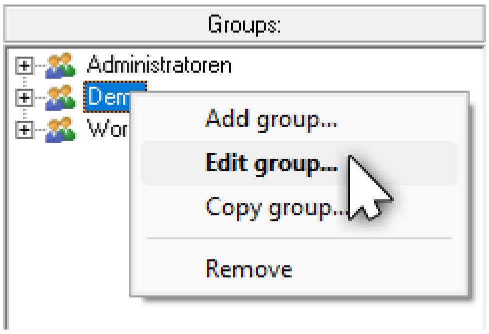
Enter the group name and also a description of the group as necessary.

3.11.1.2 Editing groups

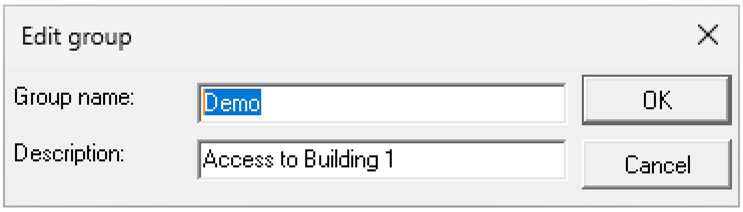
To edit a group, select a group in the window on the left under *Groups* by clicking it. Click *Edit* on the *Group* tab on the menu bar on the left.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Edit group….*



The *Edit group* window opens.


Edit group

Group name: Demo

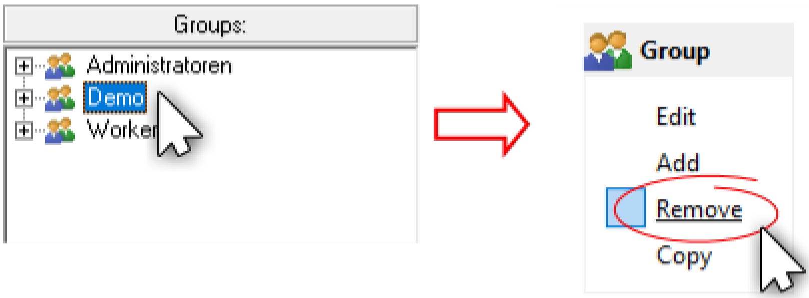
Description: Access to Building 1

You can change the name and the description of the group. Accept your changes by clicking the *OK* button.

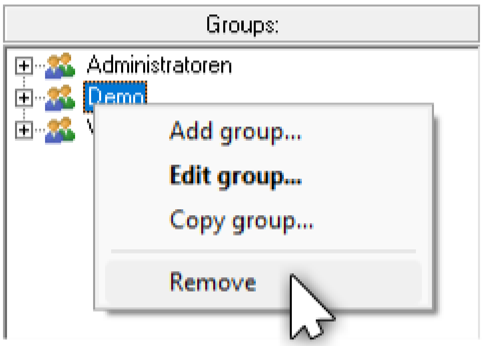
⚠ If you change the name of a group, the existing allocations of rights and users to the group will be deleted. You must again assign rights and users to the group.

3.11.1.3 Removing groups

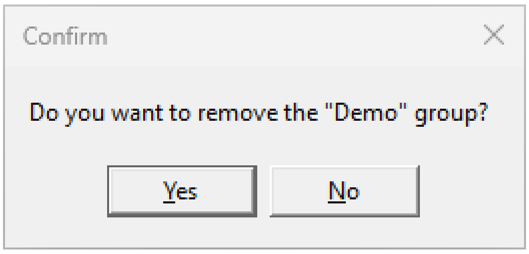
To remove a group, first select the User view. Now mark the related group by clicking the group. Click *Remove* on the *Group* tab on the menu bar on the left.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Remove*.



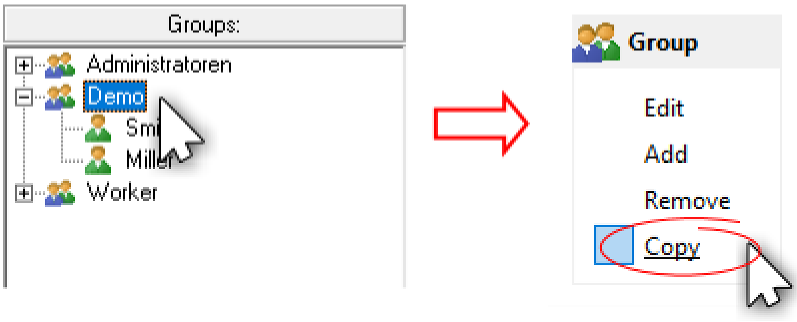
A window opens where you can accept your selection using *Yes* if you want to delete the group.



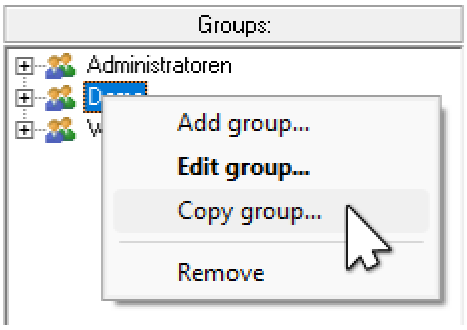
Do you want to remove the "Demo" group?

3.11.1.4 Copying a group

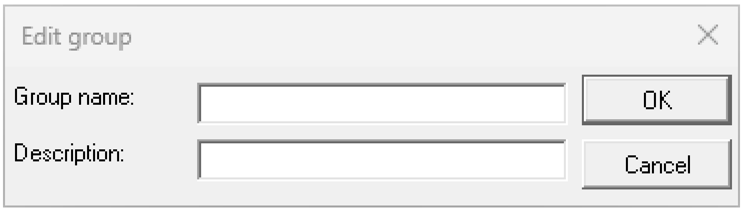
When a group is copied, all the rights assigned and, optionally, all the users assigned to the original group are copied. To copy a group, select the related group by clicking the group. Click *Copy* on the *Group tab* on the menu bar on the left.



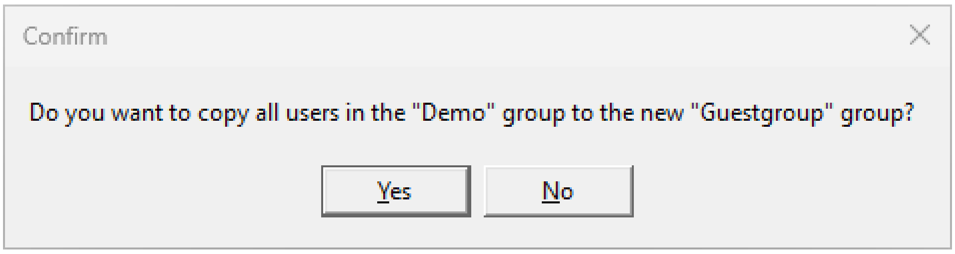
Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Copy group…*.



The *Edit group* window opens.

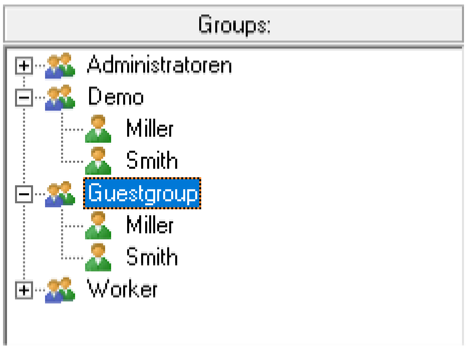


Assign a new group name and accept your entries using *OK*. In the next window, you can define whether you want to copy to the group all users assigned to the existing group.



Do you want to copy all users in the "Demo" group to the new "Guestgroup" group?

Accept the copying of the user allocations using *Yes* or reject the copying of the user allocations using *No*. The group is copied with all rights and, as required, users and added using the new group name.

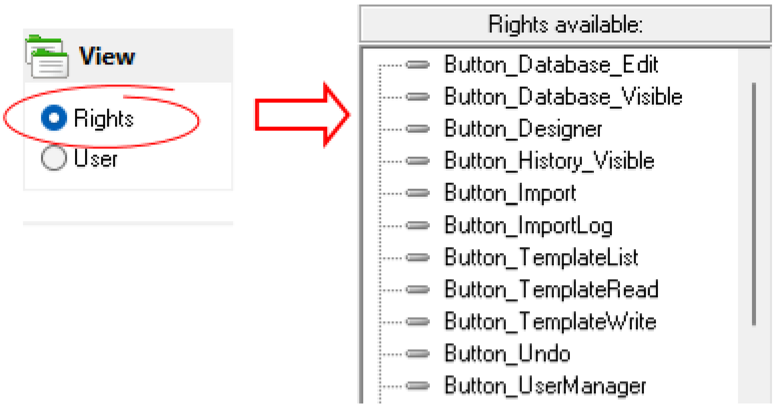


Groups:

- Administratoren
- Demo
  - Miller
  - Smith
- Guestgroup
  - Miller
  - Smith
- Worker

3.11.2 Managing rights

To display all the rights available, select *Rights* on the *View* tab. All rights available are displayed in the window on the right under *Rights available*.



View

● Rights

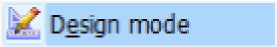
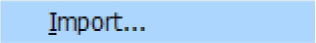
○ User

Rights available:

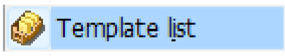
- Button_Database_Edit
- Button_Database_Visible
- Button_Designer
- Button_History_Visible
- Button_Import
- Button_ImportLog
- Button_TemplateList
- Button_TemplateRead
- Button_TemplateWrite
- Button_Undo
- Button_UserManager

3.11.2.1 Rights available

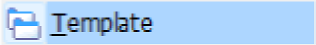
In the EKM, the following rights can be assigned in the user manager to the groups added:

Button_Database_Edit	Permits changes to database data in the database viewer
Button_Database_Visible 	Permits access to the database viewer
Button_Designer 	Permits access to the Database Designer and Layout Designer with all design features
Button_History_Visible 	Permits access to the history files
Button_Import 	Permits the import of key data in CSV format
Button_ImportLog	Permits access to the log file for the last import

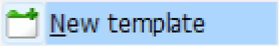
Button_TemplateList Permits the selection of a template



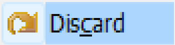
Button_TemplateRead Permits the use of a template on a key read



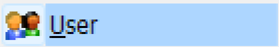
Button_TemplateWrite Permits the creation of a template



Button_Undo Permits changes to key data on the form to be discarded



Button_UserManager Permits access to the user manager with all features for making changes



Button_WriteKey Permits writing to the key

Database_AllColumns Permits the viewing and possibly the editing of **all** database columns in the database viewer, independent of the component rights, see below

Database_LOCKED_Edit The value of the *LOCKED* column can be changed in the database viewer

Database_LOCKED_Visible The *LOCKED* column is displayed in the database viewer

Initialize_DateAuto Permits the writing of a DateAuto field to a new key

In addition to these rights, each form component must be enabled so that it is visible to and can be edited by the individual groups:

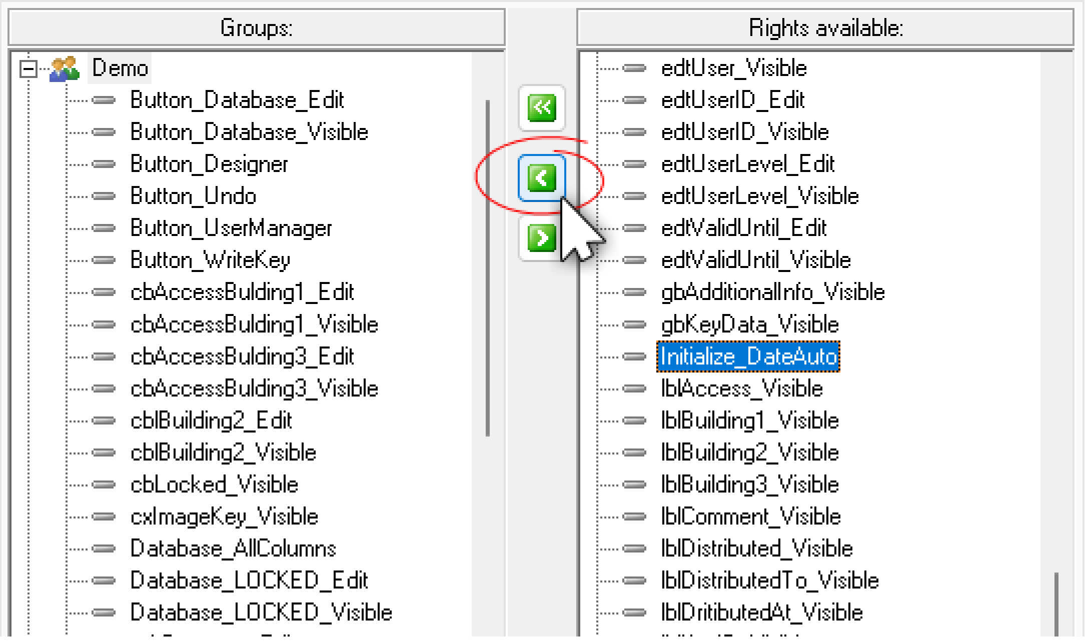
- Once you have added form components in the design mode, the *Komponentenname_Visible* right can be assigned for each component in the user manager. With this right, user groups can see the from components added in the main window.
- For EKM database components, it is also possible to assign the *Komponentenname_Edit* right. With this right, user groups can change the data read from the key in the form component.

3.11.2.2 Assigning rights to a group

Select a group by clicking the group in the window on the left.

Click the double arrow pointing to the left to assign all rights available to the selected group

To assign a single right to the selected group, select a right by clicking it in the window on the right. Click the single arrow pointing to the left or press *Ctrl* + *A*.



Groups:

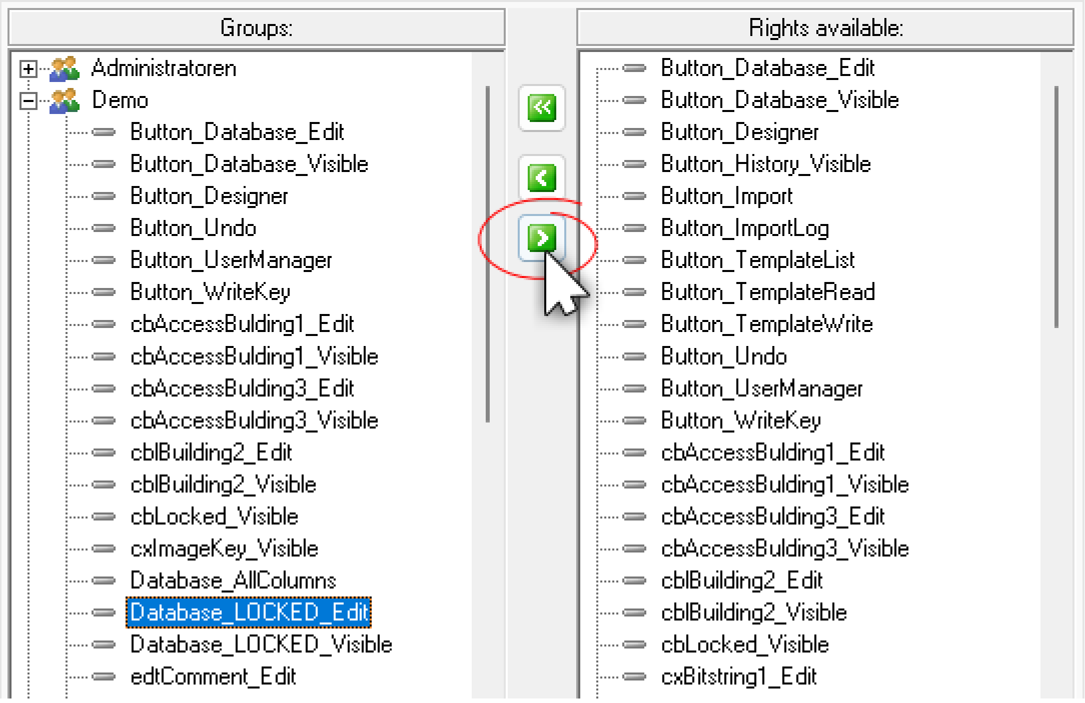
- Demo
  - Button_Database_Edit
  - Button_Database_Visible
  - Button_Designer
  - Button_Undo
  - Button_UserManager
  - Button_WriteKey
  - cbAccessBulding1_Edit
  - cbAccessBulding1_Visible
  - cbAccessBulding3_Edit
  - cbAccessBulding3_Visible
  - cblBuilding2_Edit
  - cblBuilding2_Visible
  - cbLocked_Visible
  - cxImageKey_Visible
  - Database_AllColumns
  - Database_LOCKED_Edit
  - Database_LOCKED_Visible

Rights available:

- edtUser_Visible
- edtUserID_Edit
- edtUserID_Visible
- edtUserLevel_Edit
- edtUserLevel_Visible
- edtValidUntil_Edit
- edtValidUntil_Visible
- gbAdditionalInfo_Visible
- gbKeyData_Visible
- Initialize_DateAuto
- lblAccess_Visible
- lblBuilding1_Visible
- lblBuilding2_Visible
- lblBuilding3_Visible
- lblComment_Visible
- lblDistributed_Visible
- lblDistributedTo_Visible
- lblDritibutedAt_Visible

3.11.2.3 Removing rights from a group

Select a right from a group b clicking a right in the *Groups* window on the left. Click the arrow that points to the right towards the *Rights available* window or press *Ctrl + R*.



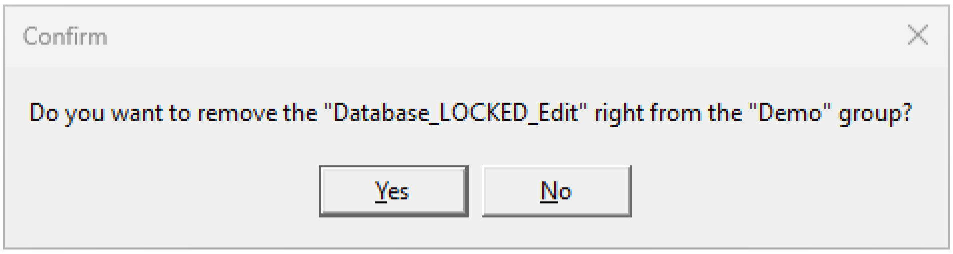
Groups:

- Administratoren
- Demo
  - Button_Database_Edit
  - Button_Database_Visible
  - Button_Designer
  - Button_Undo
  - Button_UserManager
  - Button_WriteKey
  - cbAccessBulding1_Edit
  - cbAccessBulding1_Visible
  - cbAccessBulding3_Edit
  - cbAccessBulding3_Visible
  - cblBuilding2_Edit
  - cblBuilding2_Visible
  - cbLocked_Visible
  - cxImageKey_Visible
  - Database_AllColumns
  - Database_LOCKED_Edit
  - Database_LOCKED_Visible
  - edtComment_Edit

Rights available:

- Button_Database_Edit
- Button_Database_Visible
- Button_Designer
- Button_History_Visible
- Button_Import
- Button_ImportLog
- Button_TemplateList
- Button_TemplateRead
- Button_TemplateWrite
- Button_Undo
- Button_UserManager
- Button_WriteKey
- cbAccessBulding1_Edit
- cbAccessBulding1_Visible
- cbAccessBulding3_Edit
- cbAccessBulding3_Visible
- cblBuilding2_Edit
- cblBuilding2_Visible
- cbLocked_Visible
- cxBitstring1_Edit

A window opens where you can accept your selection using *Yes* if you want to remove the right from the group.

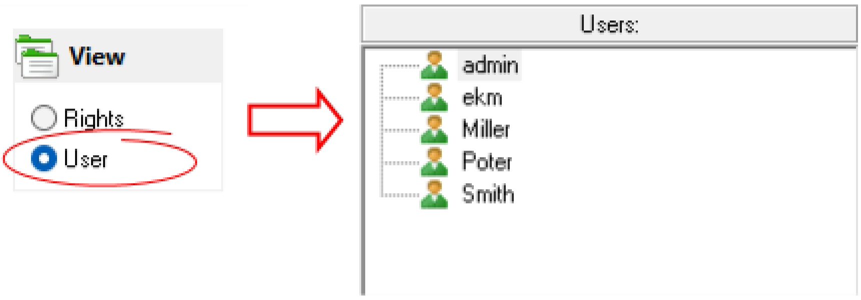


Confirm

Do you want to remove the "Database_LOCKED_Edit" right from the "Demo" group?

3.11.3 Managing users

To display all the users already added, select *User* on the *View* tab. All users already added are displayed in the window on the right under *Users*.



View

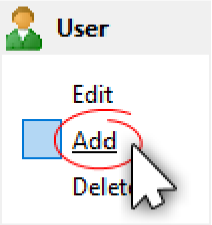
○ Rights
● User

Users:

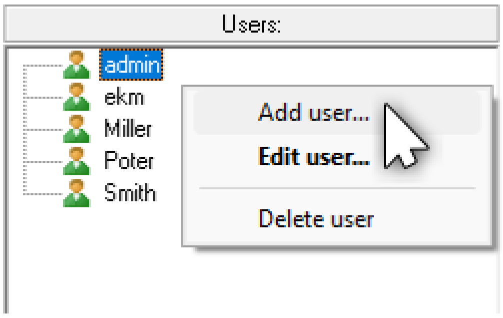
- admin
- ekm
- Miller
- Poter
- Smith

3.11.3.1 Adding users

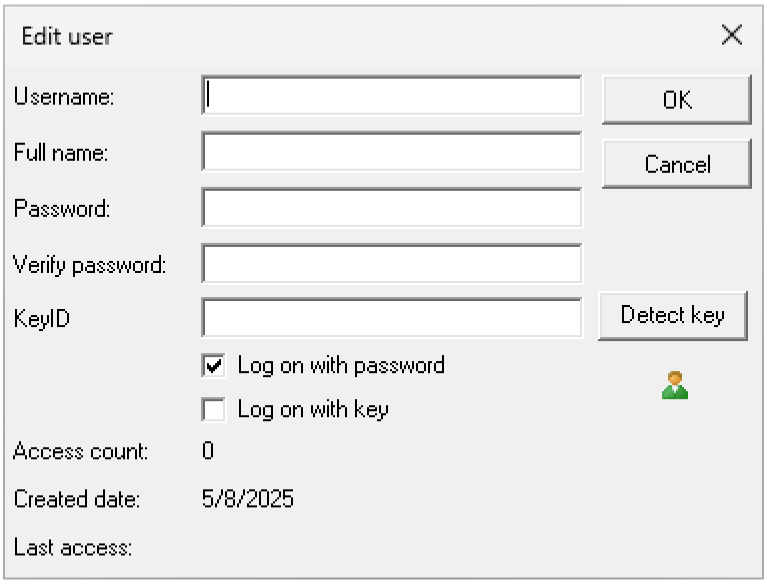
To add a new user, click *Add* on the *Users* tab on the left menu bar.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Add user…*.



The *Edit user* window opens.



Edit user

Username:	
Full name:	
Password:	
Verify password:	
KeyID	
	☑ Log on with password
	□ Log on with key
Access count:	0
Created date:	5/8/2025
Last access:	

Complete all fields and accept your entries by clicking the *OK* button.

You can enable the user profile for two different types of logon:

a) Log on with password:
On logon, the user enters his/her user name and password using the keyboard.

b) Log on with key:
On logon, the user inserts his/her key into the EKS Electronic-Key adapter.

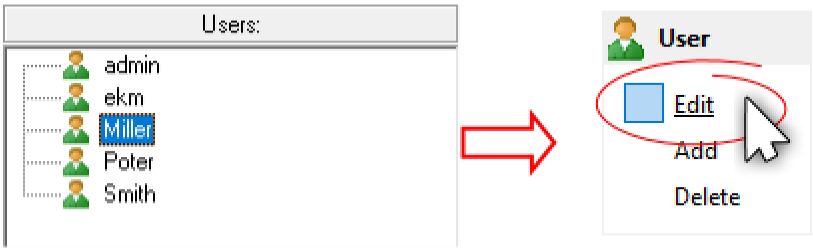
To activate log on with key, insert the key for the user you are editing into the EKS Electronic-Key adapter. Read the KEYID by clicking the *Detect key* button.

Activate the *Log on with key* check box.
When you save the new user data using *OK*, the KEYID read will be saved in the user's profile.

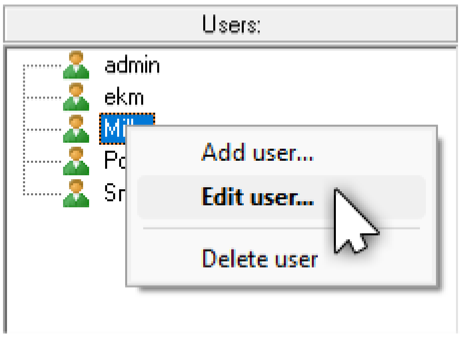
If both logon types - log on with password and log on with key - are deactivated, the user profile is inactive.

3.11.3.2 Editing users

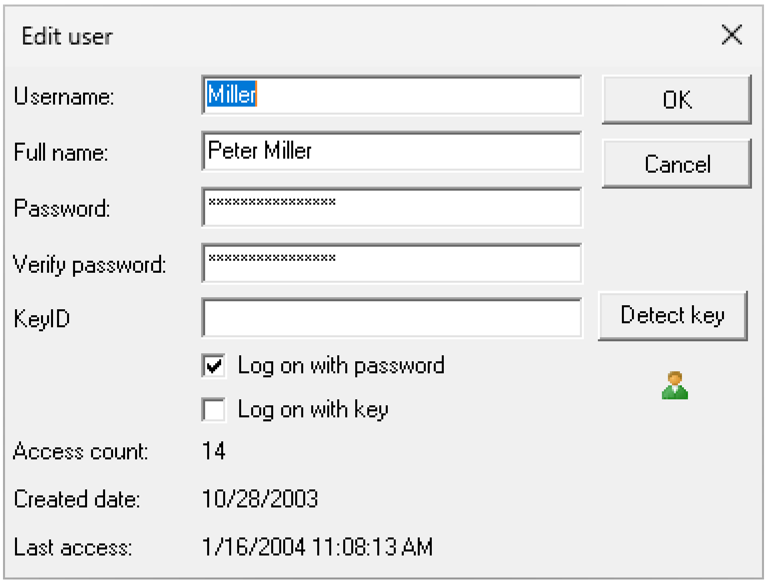
To edit a user, select a user in the window on the right under *Users* by clicking the user. Click *Edit* on the *User* tab on the menu bar on the left.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Edit user....*



The *Edit user* window opens.



Edit user

Username: Miller

Full name: Peter Miller

Password: ****************

Verify password: ****************

KeyID

☑ Log on with password

☐ Log on with key

Access count: 14

Created date: 10/28/2003

Last access: 1/16/2004 11:08:13 AM

Enter your changes and accept them by clicking the *OK* button.

To activate log on with key, insert the key for the user you are editing into the EKS Electronic-Key adapter. Read the KEYID by clicking the *Detect key* button.

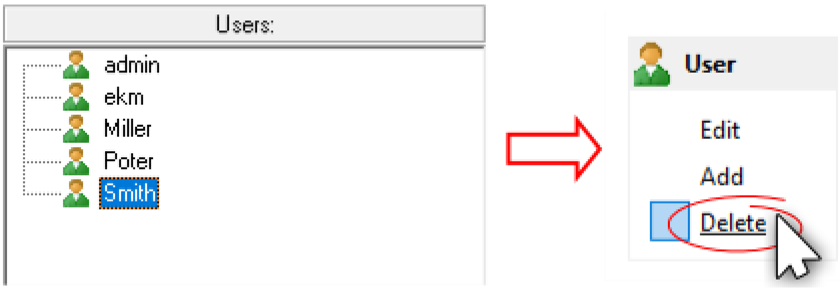
Activate the *Log on with key* check box. When you save the new user data using *OK*, the KEYID read will be saved in the user's profile.

If both logon types - log on with password and log on with key - are deactivated, the user profile is inactive.

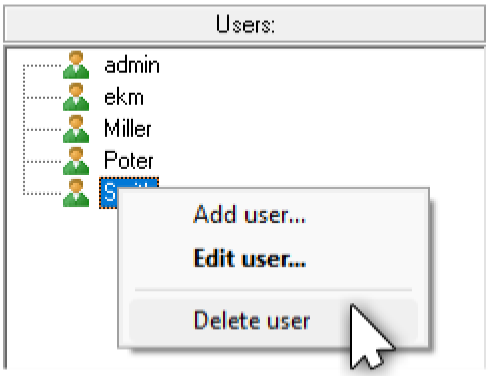
If the user name is changed, all existing allocations to groups will be deleted. The user must be allocated to a user group again.

3.11.3.3 Deleting users

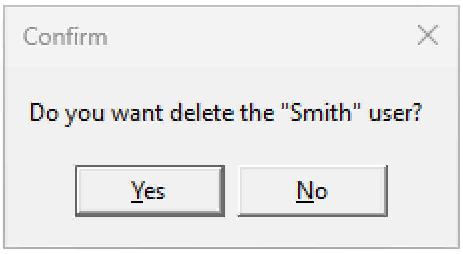
To delete a user, select a user by clicking the user. Click *Delete* on the *Users* tab on the menu bar on the left.



Alternatively, you can click with the right mouse button to open a pop-up window with a context menu and select *Delete users*.



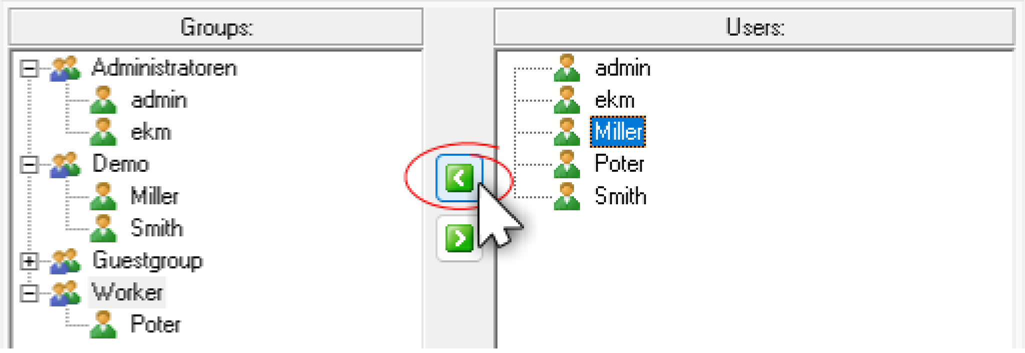
A window opens where you can accept your selection using *Yes* if you want to delete the user.


Confirm

Do you want delete the "Smith" user?

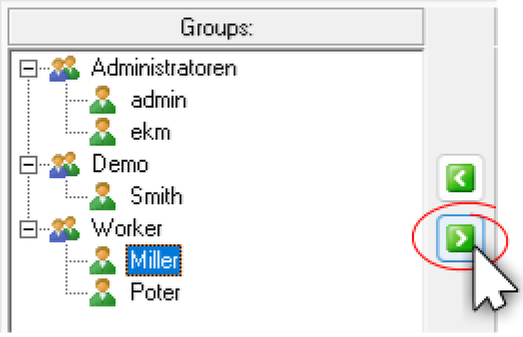
3.11.3.4 Adding users to a group

Select a group by clicking the group in the window on the left. Then select a user by clicking a user in the window on the right. Click the arrow that points to the left towards the *Groups* window or press *Ctrl* + *A*.

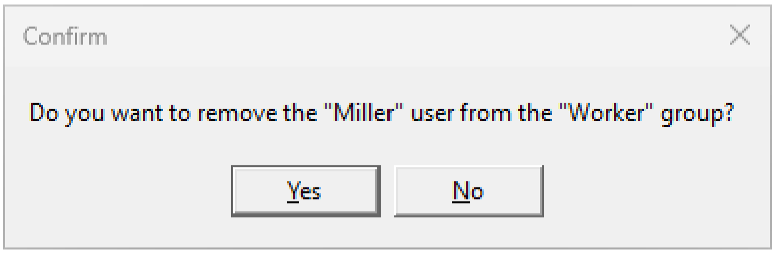


3.11.3.5 Removing users from a group

Select a user from a group by clicking a user in the *Groups* window on the left. Click the arrow that points to the right towards the *Users* window or press *Ctrl* + *R*.



A window opens where you can accept your selection using *Yes* if you want to remove the user from the group.

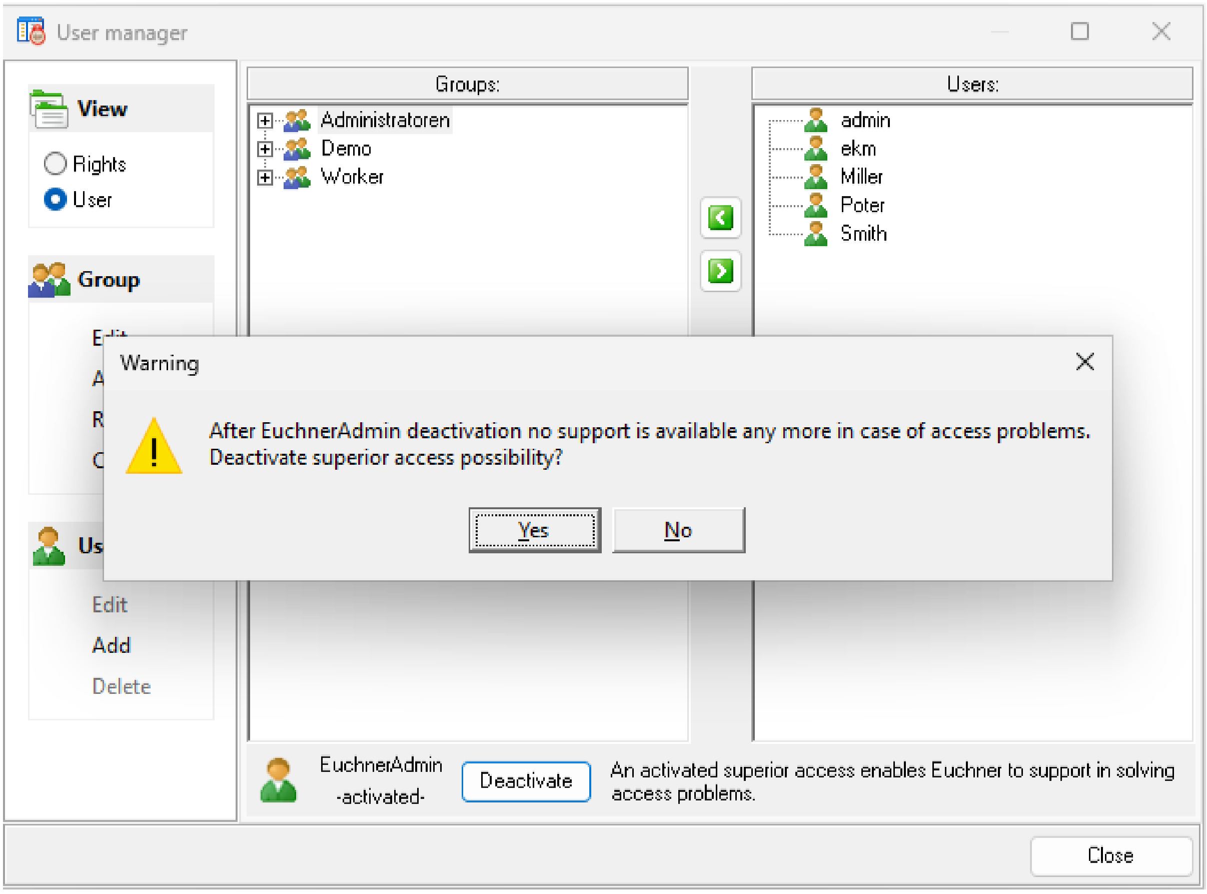


Confirm

Do you want to remove the "Miller" user from the "Worker" group?

3.11.4 Manufacturer access

Active, higher-level access enables Euchner to offer controlled support in solving access problems. Manufacturer access can be deactivated, but it cannot be deleted or edited.
To delete manufacturer access, click *Deactivate*.

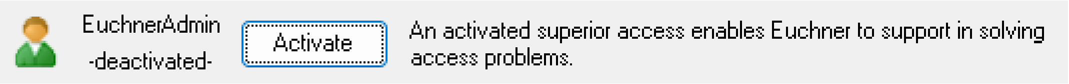


Warning

After EuchnerAdmin deactivation no support is available any more in case of access problems. Deactivate superior access possibility?

An activated superior access enables Euchner to support in solving access problems.

Manufacturer access will be deactivated after agreement by the user. Successful deactivation is displayed next to the icon and by the "Activate" button.

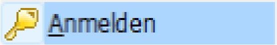


An activated superior access enables Euchner to support in solving access problems.

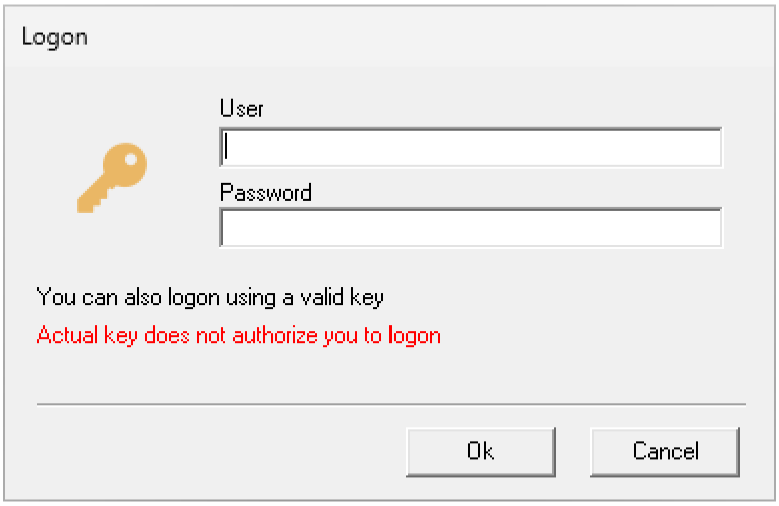
To reactivate manufacturer access, click A*ctivate*.

⚠ If you misplace the administrators' access data when manufacturer access is deactivated, this cannot be corrected.

3.11.5 Loggin on and logging off users



To log on a different user without quitting the program, click the *Logon* command in the *File* menu. In the *Logon* window, enter the name and the password of the user who wants to log on.


Logon

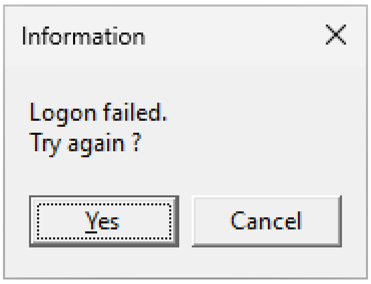
User

Password

You can also logon using a valid key

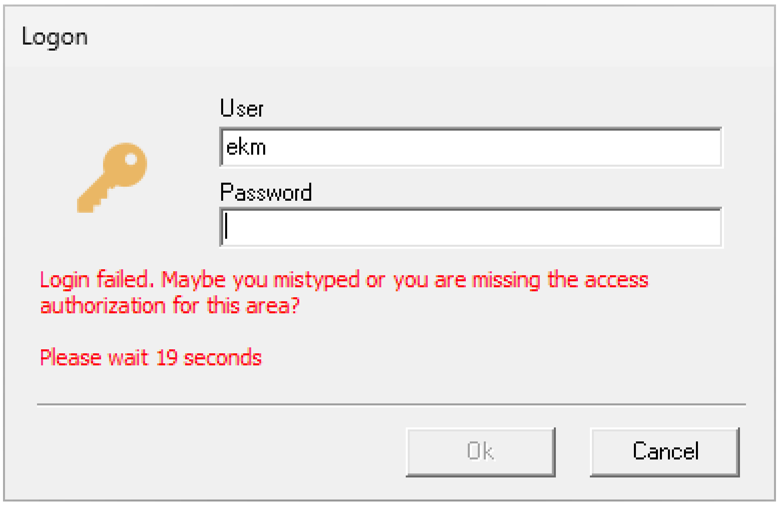
Actual key does not authorize you to logon

Accept your entries with *OK*. The program will be re-started and the user settings loaded. If log on with key has been activated in your user profile, you can log on by inserting your key into the EKS Electronic-Key adapter. If your user data are incorrect, you will receive a message:


Information

Logon failed.
Try again ?

The number of consecutive logon attempts is limited to 10 to prevent spying out the passwords using brute force attacks.
Brute force attacks attempt to determine passwords by automatically trying out common combinations. Possible passwords are entered in quick succession until the correct password is found.
The EKM application prevents the re-entry of further user/password combinations after 10 unsuccessful logon attempts by imposing a waiting time of 30 seconds.

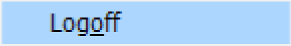


ekm

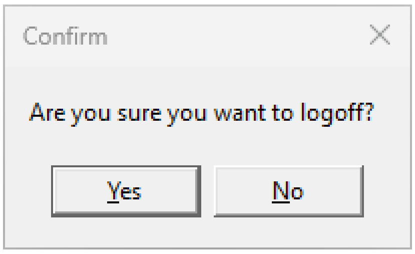
Login failed. Maybe you mistyped or you are missing the access authorization for this area?

Please wait 19 seconds

If you want to log off, click the *Logoff* command in the File menu.



Accept the logoff process.

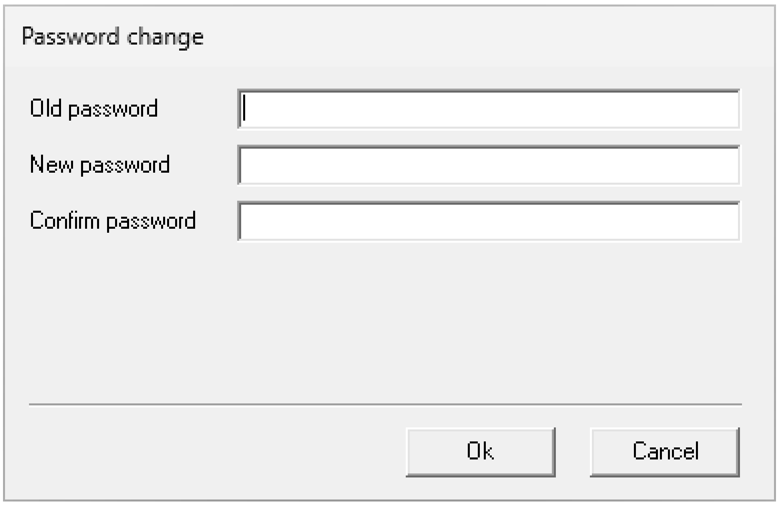


Are you sure you want to logoff?

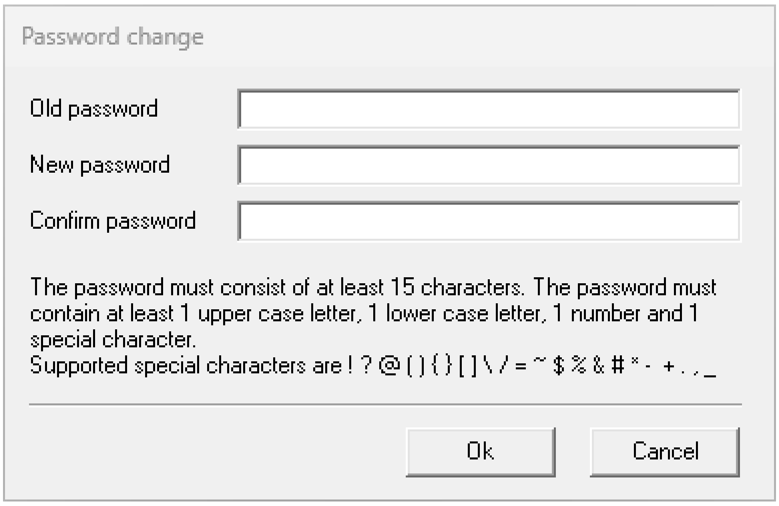
The user rights are reset when you log off. The *Logon* window opens.

3.11.6 Changing password

If you want to change your password, click *Change password* in the *File* menu. In the *Password change* window, enter your old password and the new password; accept your entries with *OK*.



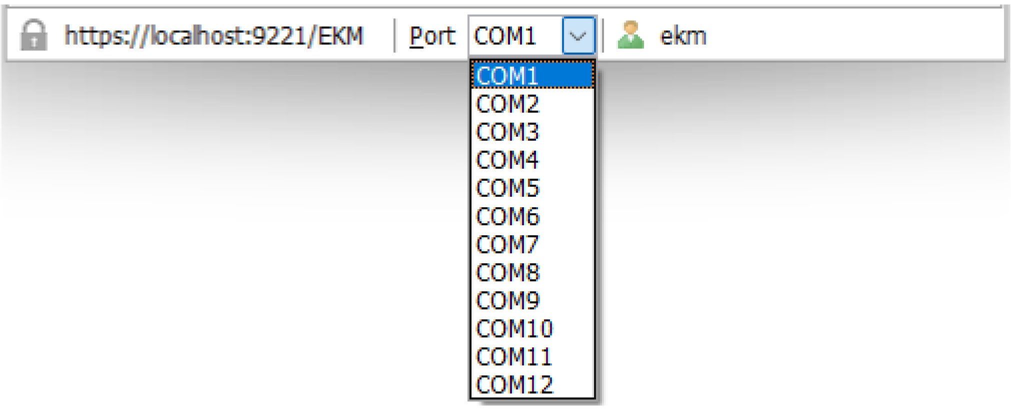
If the use of secure passwords is set on the EKM server (cf.EKM server General Settings), a notice about the password criteria is additionally displayed.
The password must consist of at least 15 characters.
The password must contain at least 1 uppercase letter, 1 lowercase letter, 1 number and 1 special character.
Permissible special characters are ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - +. , _



The password must consist of at least 15 characters. The password must contain at least 1 upper case letter, 1 lower case letter, 1 number and 1 special character.
Supported special characters are ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - + . , _

3.12 EKS interface

The EKS Electronic-Key adapter is connected to the computer via a serial interface. You can select a port for the device in the program. Select a COM port on the status bar in the main window:



If the selected port is not available or is used by another device, an error message is displayed. In this case, select a different COM port.

3.13 Server connection

You can change the connection parameters to the EKM server by:

- Deleting the file ekm.INI in the program folder. The *Connection parameters EKM-Server* window appears the next time the program is started (cf. "Installation"). Enter the new connection parameters.
- Opening the file ekm.INI and entering the new connection parameters under *Server Address* and *Server Port*.

3.14 Automatic station

Pop-up keys resulting from key reading/writing can be suppressed for an automatic station without control features. The *Key data written* pop-up window appears after automatic writing of a DateAuto field and is automatically closed after 3 seconds.

For this purpose, edit the *EKM.ini* configuration file by creating the configuration entry *Automatikstation=1* in the Settings section.

Section	Configuration entry	Description

`[Settings]`	`Automatikstation=0|1`	`Activate function`
		`Default: 0`

3.15 Uninstalling

You can open the *Uninstall EKM* uninstall routine using the Windows Start menu.

EKM server

Part IV

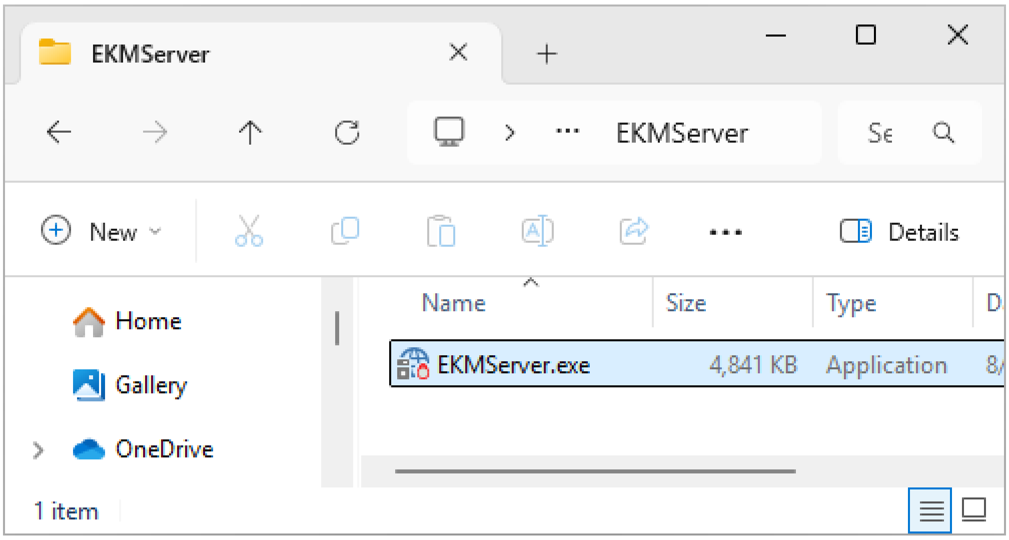
4 EKM server

4.1 Installation

You can use the EKM server as a service or as an application. The installation and removal of the server vary depending on how the server is used.

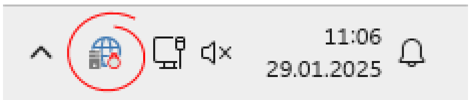
4.1.1 Installation as an application

To install the EKM server, add a new folder for the server and copy the file *EKMServer.exe* to the folder.



Name	Size	Type	D
EKMServer.exe	4,841 KB	Application	8/

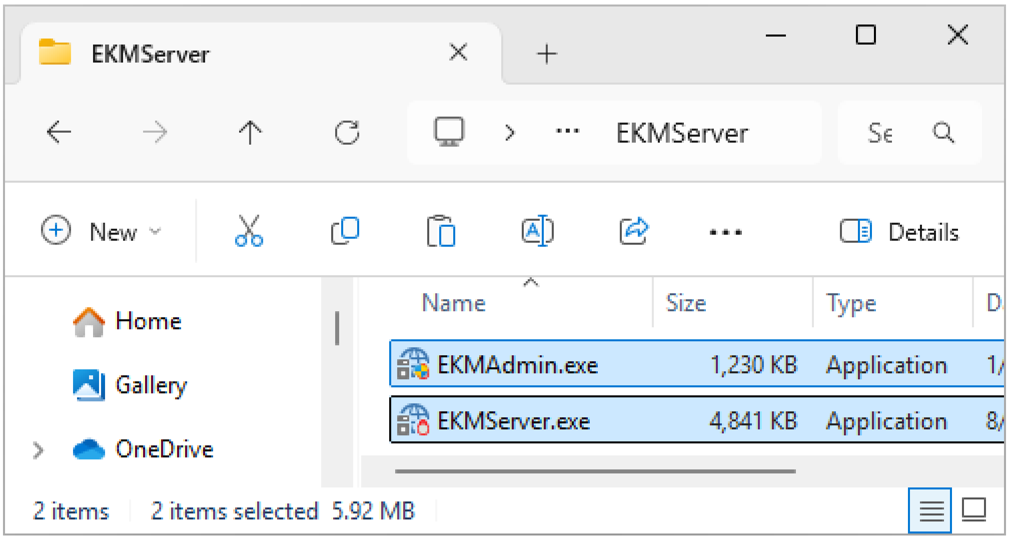
Start the application by double-clicking the file *EKMServer.exe*. The EKM server starts automatically. You will see the EKM server icon on the Windows taskbar.



Check the configuration of the EKM server (cf. "Configuration of the server").

4.1.2 Installation as service

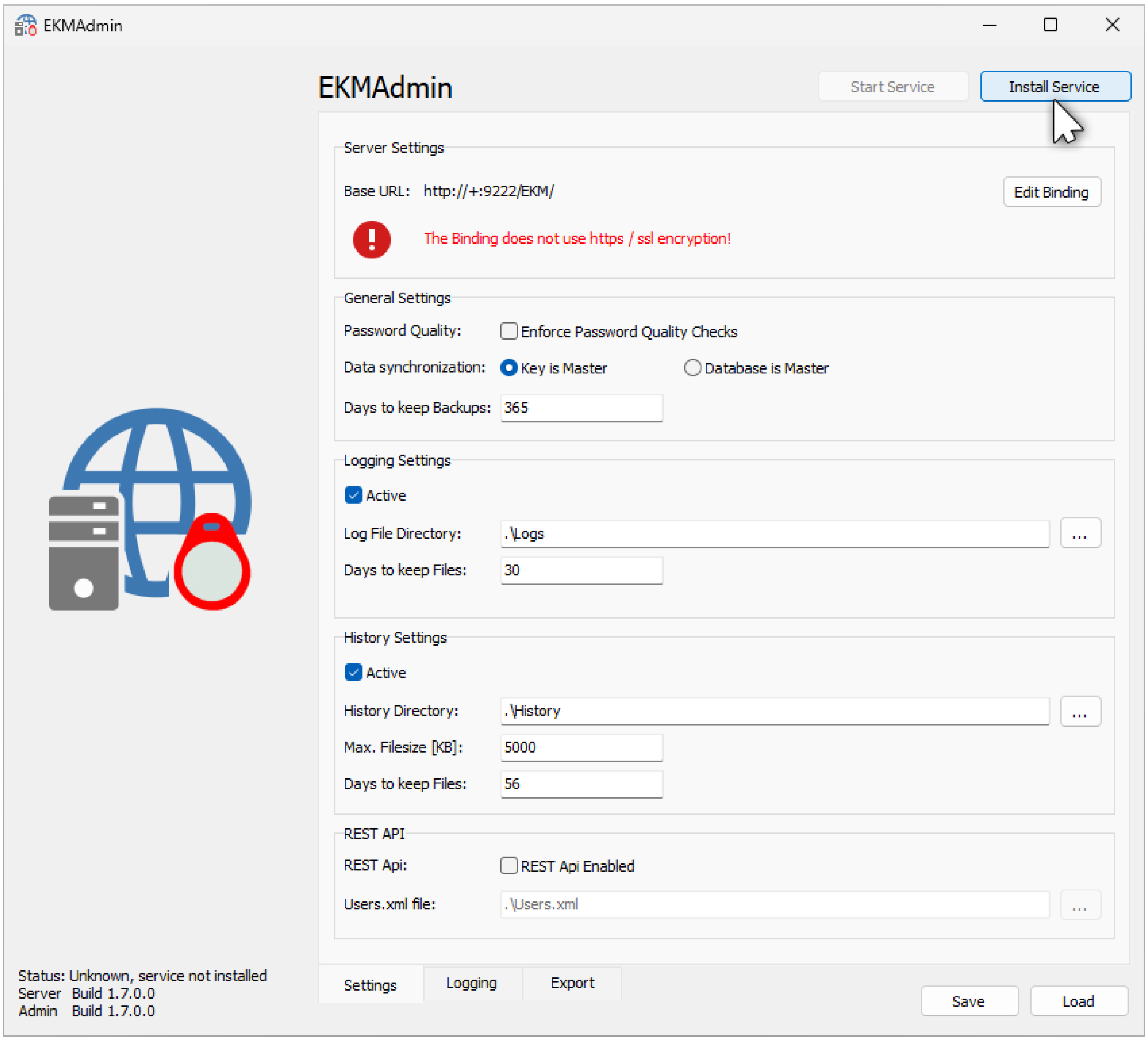
To install the EKM server, create a folder for the server and copy the files *EKMServer.exe* and *EKMAdmin.exe* to the folder.



Name	Size	Type	D
EKMAdmin.exe	1,230 KB	Application	1/
EKMServer.exe	4,841 KB	Application	8/

2 items 2 items selected 5.92 MB

Start EKMAdmin by double-clicking *EKMAdmin.exe*.



EKMAdmin

Start Service | Install Service

Server Settings

Base URL: http://+:9222/EKM/ Edit Binding

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs ...

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History ...

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST API

REST Api: □ REST Api Enabled

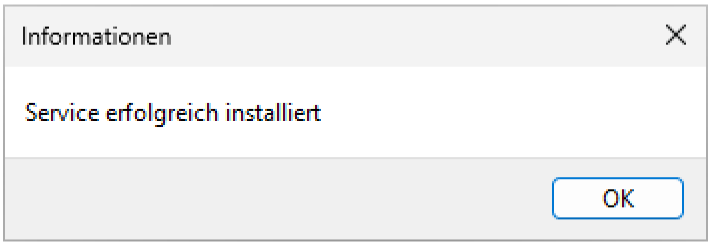
Users.xml file: .\Users.xml ...

Settings | Logging | Export

Save | Load

Status: Unknown, service not installed
Server Build 1.7.0.0
Admin Build 1.7.0.0

The administration tool appears. Install the service by clicking *Install Service* in the administration tool. On successful installation the following message is displayed:



Informationen

Service erfolgreich installiert

OK

You will find the EKM server as a service in the operating system in Services. The service starts automatically when the computer is re-started.
Before starting the service, check the EKM server configuration (cf. "Configuration of the server").

4.1.3 EKM files

All files used by EKM are saved in the EKM installation folder.

⚠ When EKM is installed on Windows 7, Windows Server 2008 or newer and the installation path is

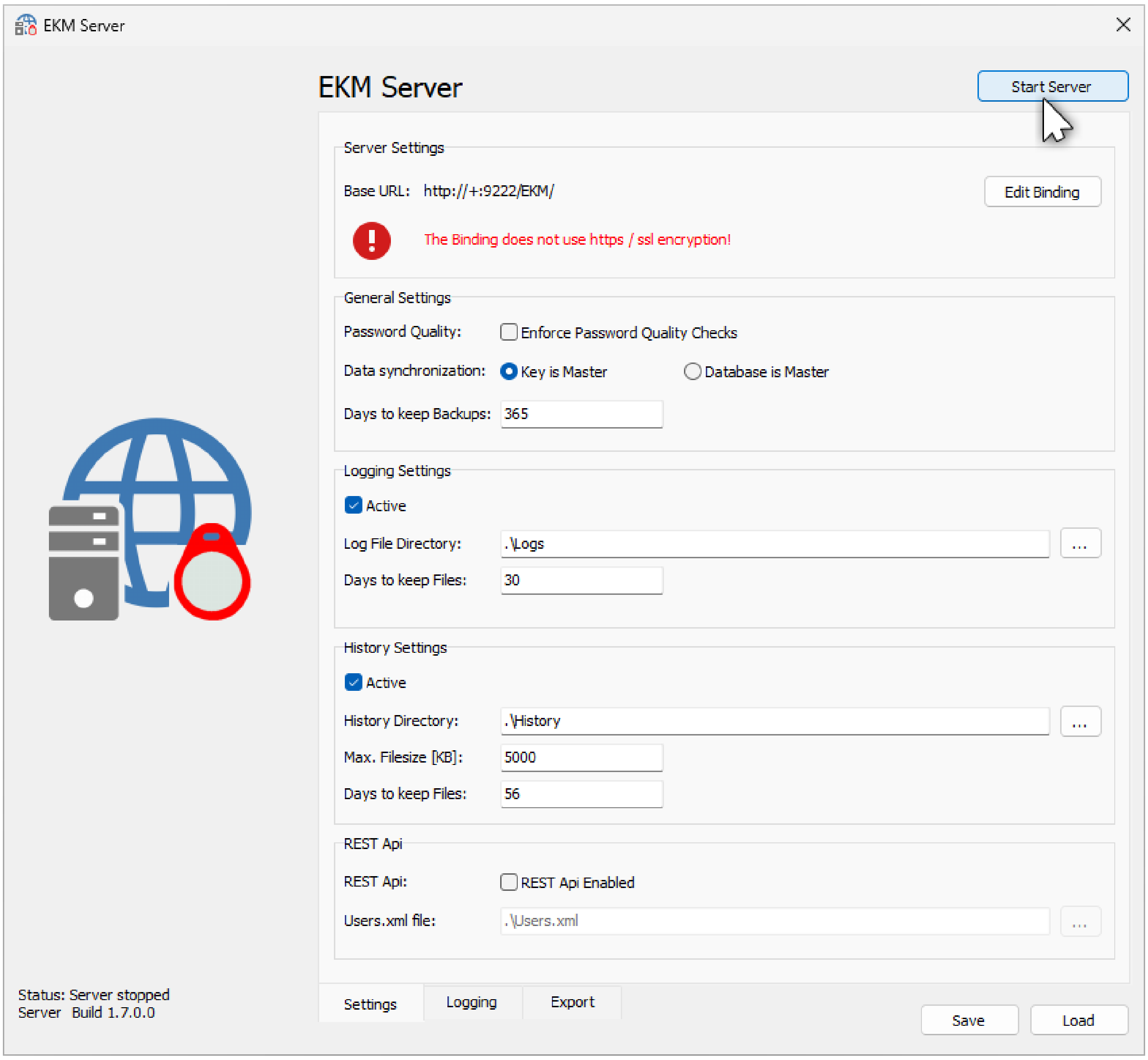
"C:\Program Files\<EKM>" or "C:\Program Files (x86)\<EKM>", the operating system redirects user-specific files to the VirtualStore. The VirtualStore is located under: "C:\Users\<User>\AppData\Local\VirtualStore\Program Files\<EKM>".

4.2 Starting the EKM server

Depending on the type of installation, the EKM server is started in different ways.

4.2.1 Starting the EKM server as application

If you installed the EKM server as an application, double-click the EKM server icon on the Windows taskbar. The configuration interface opens There, you can click *Start Server* at the upper right to start the server. If *Stop Server* is displayed at the upper right, the server has already been started.



Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST Api

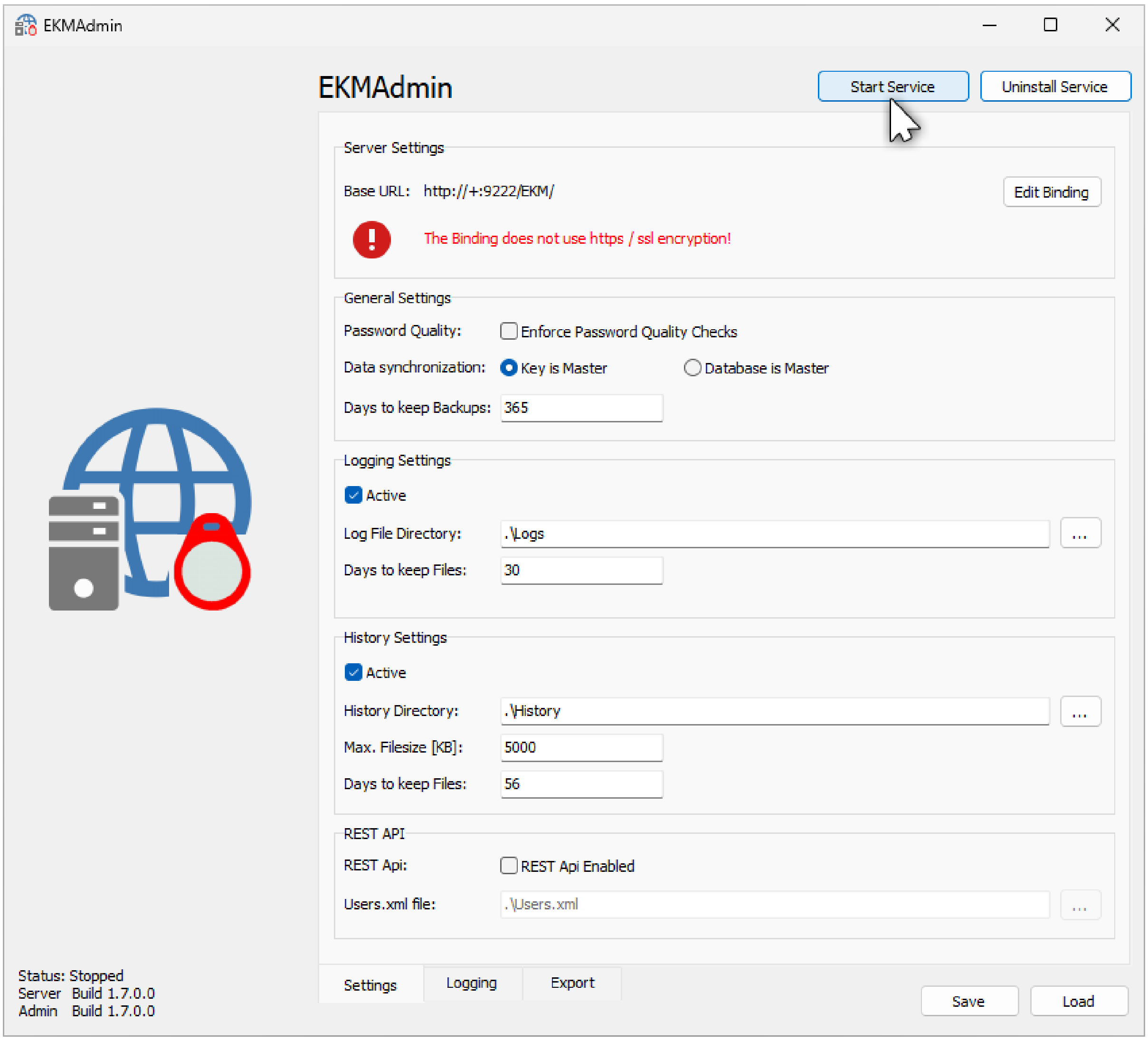
REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

Status: Server stopped
Server Build 1.7.0.0

4.2.2 Starting the EKM server as service

If you have installed the EKM server as a service, start the *EKMAdmin.exe* file in the EKM installation folder. The configuration interface opens There, you can click *Start Service* to start the service. If *Stop Service* is displayed at the upper right, the service has already been started.



Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST API

REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

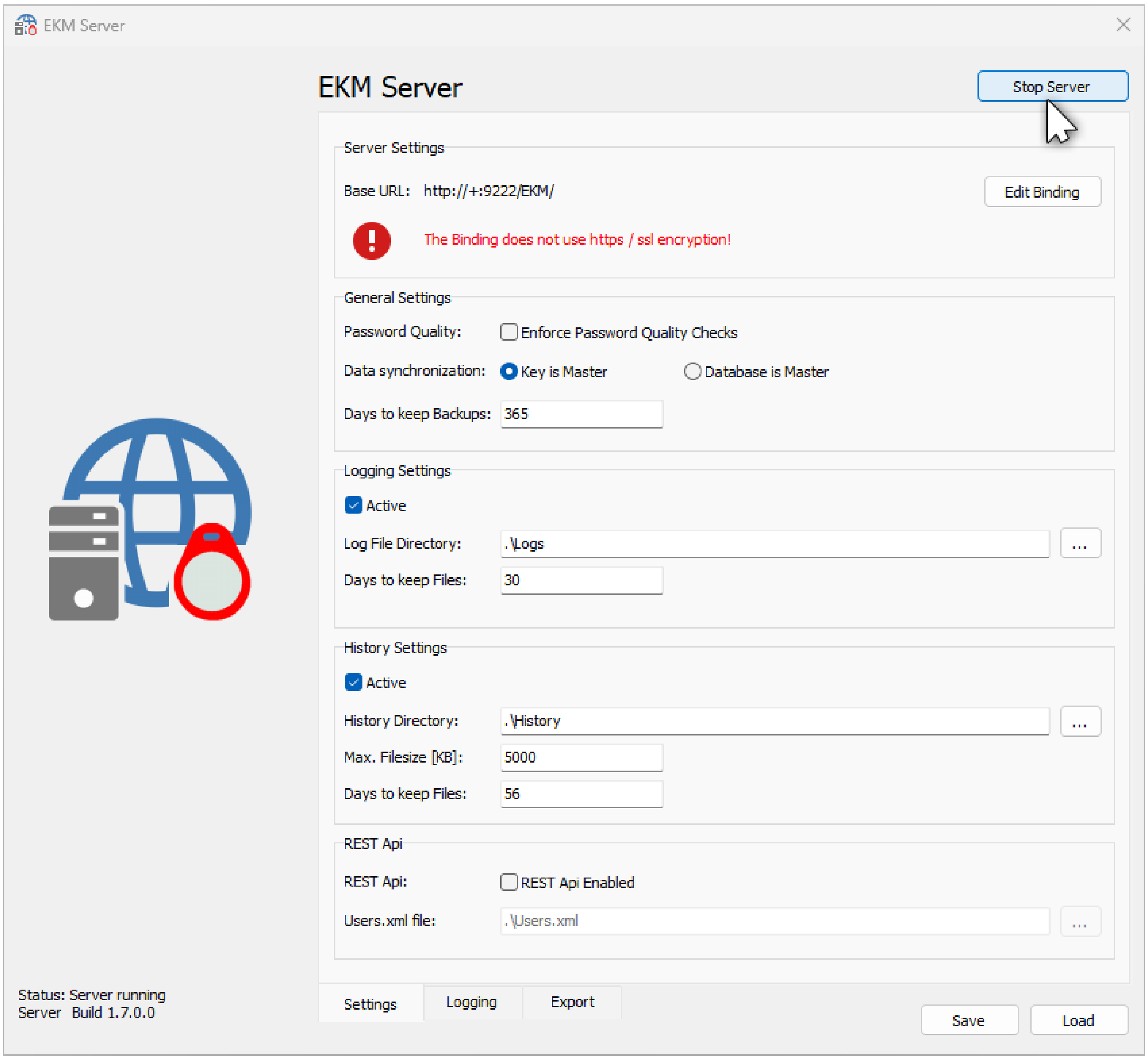
Status: Stopped
Server Build 1.7.0.0
Admin Build 1.7.0.0

4.3 Stopping the EKM server

Depending on the type of installation, the EKM server is stopped in different ways.

4.3.1 Stopping the EKM server as application

If you installed the EKM server as an application, double-click the EKM server icon on the Windows taskbar. The configuration interface opens There, you can click *Stop Server* at the upper right to stop the server. If only *Start Server* is displayed at the upper right, the server has already been stopped or was not started.



Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST Api

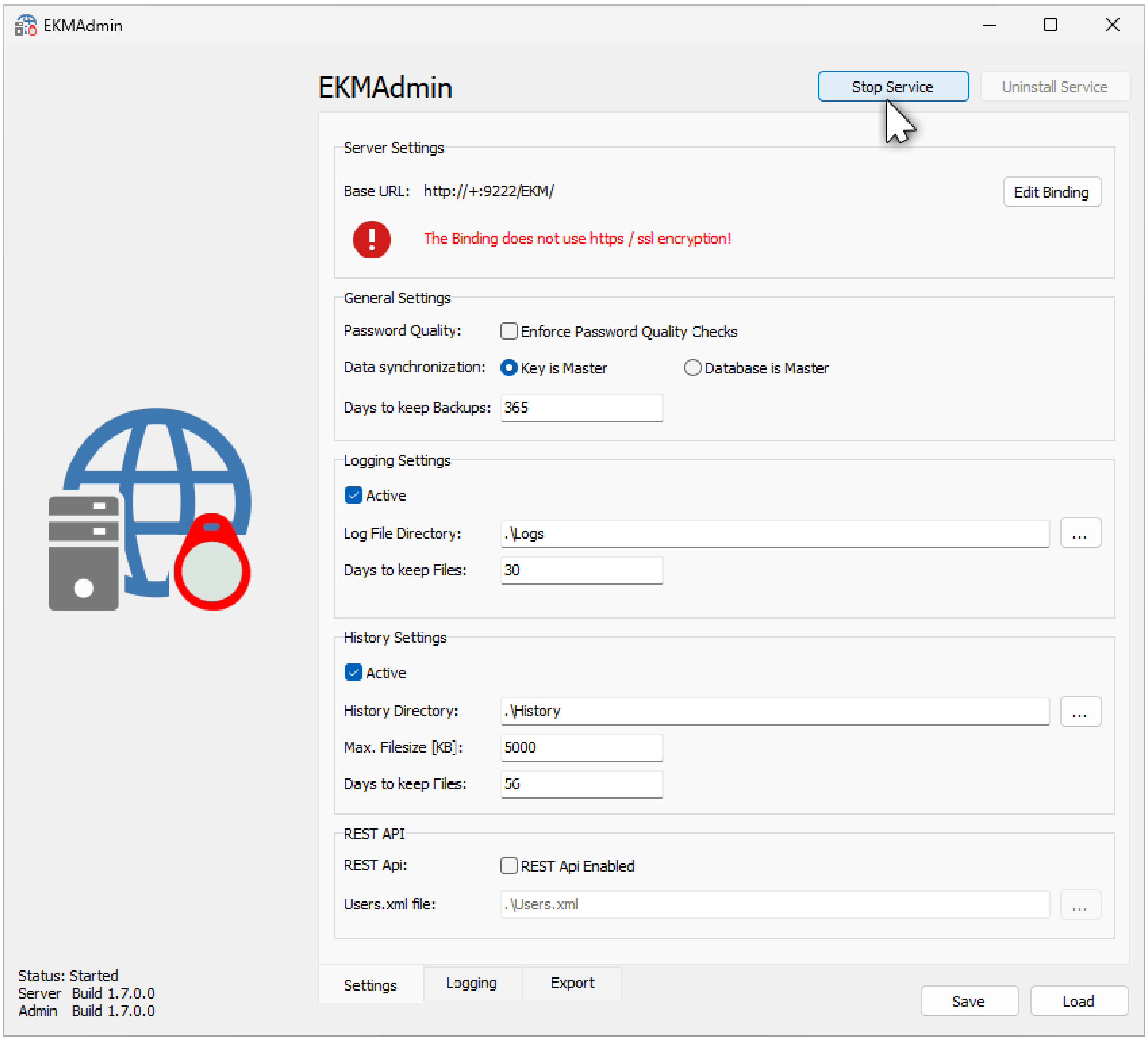
REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

Status: Server running
Server Build 1.7.0.0

4.3.2 Stopping the EKM server as service

If you have installed the EKM server as a service, start the *EKMAdmin.exe* file in the EKM installation folder. The configuration interface opens There, you can click *Stop Service* at the upper right to stop the service. If only *Start Service* is displayed at the upper right, the service has already been stopped or was not started.



Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST API

REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

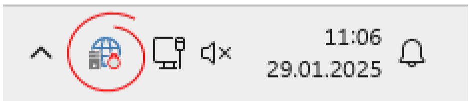
Status: Started
Server Build 1.7.0.0
Admin Build 1.7.0.0

4.4 Uninstalling

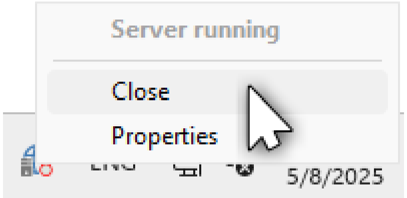
You can use the EKM server as a service or as an application. The installation and removal of the server vary depending on how the EKM server is used.

4.4.1 Uninstalling the EKM server as application

If you installed the EKM server as an application and started the server, you only need to quit the application to uninstall the EKM server. Click the EKM server icon on the Window taskbar using the right mouse button.



The EKM server context menu opens. Click the *Close* command.

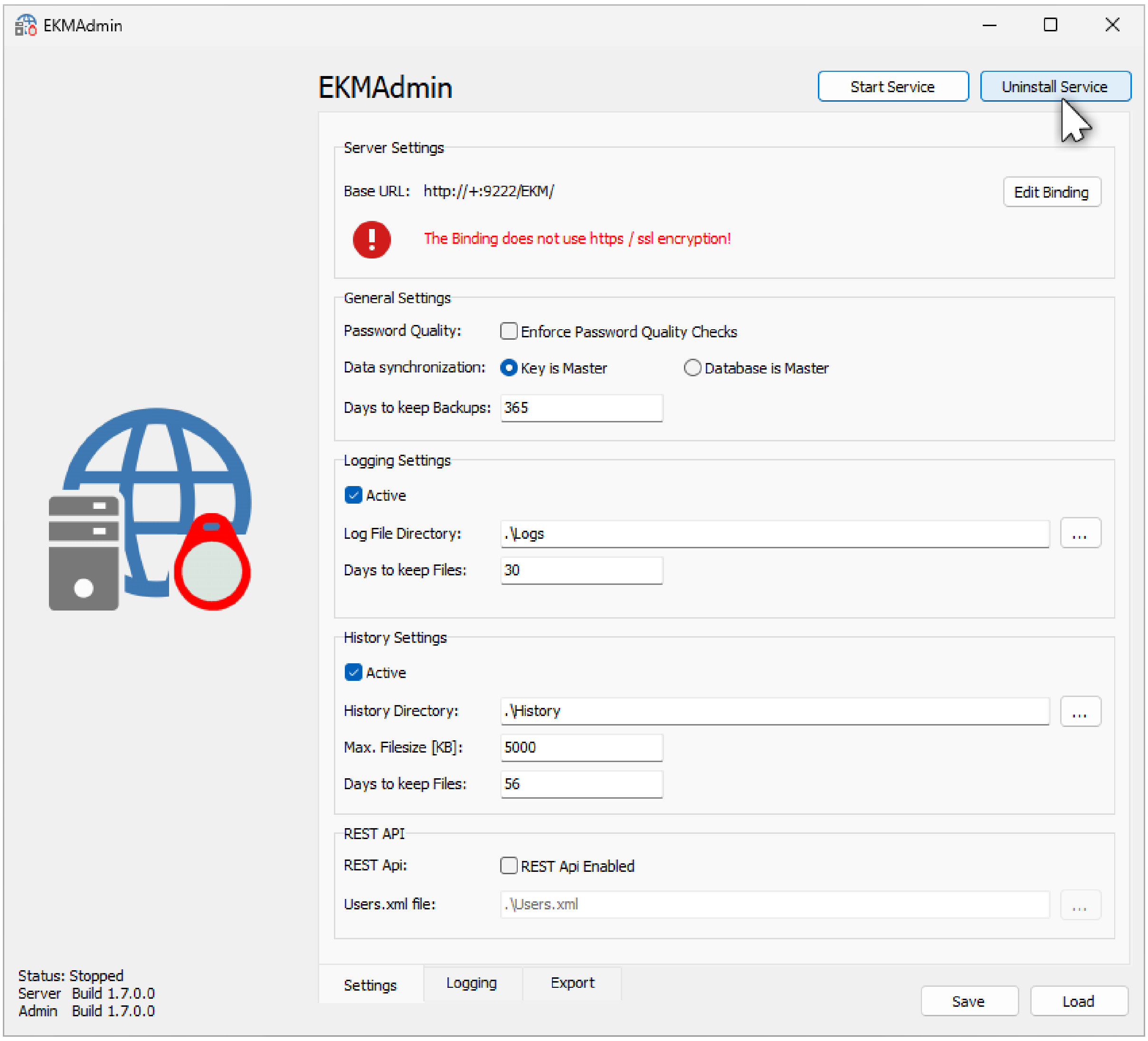


The EKM server icon disappears from the taskbar.

⚠ If you no longer want to use the EKM server, you can delete the program folder containing the file *EKMServer.exe*. Please note that the data saved on the EKM server will also be deleted during this process.

4.4.2 Uninstalling the EKM server as service

To uninstall the EKM server service, open the EKM installation folder. Start EKMAdmin by double-clicking *EKMAdmin.exe*.



EKMAdmin

EKMAdmin

Start Service | Uninstall Service

Server Settings

Base URL: http://+:9222/EKM/ Edit Binding

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs ...

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History ...

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST API

REST Api: □ REST Api Enabled

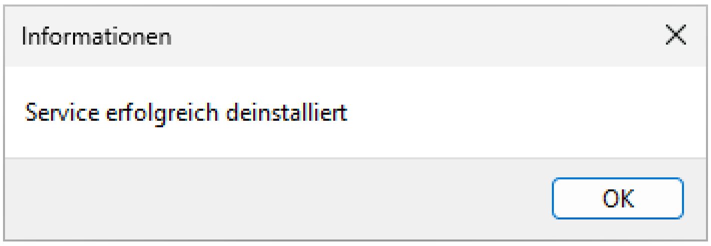
Users.xml file: .\Users.xml ...

Settings | Logging | Export

Save | Load

Status: Stopped
Server Build 1.7.0.0
Admin Build 1.7.0.0

The administration tool appears. Uninstall the service by clicking *Uninstall Service* in the administration tool. On a successful uninstall the following message is displayed:



Informationen

Service erfolgreich deinstalliert

OK

⚠ If you no longer want to use the EKM server, you can delete the program folder containing the files *EKMServer.exe* and *EKMAdmin.exe*. Please note that the data saved on the EKM server will also be deleted during this process.

4.5 Configuration

The EKM server is configured using the configuration interface. Using the configuration interface, you can

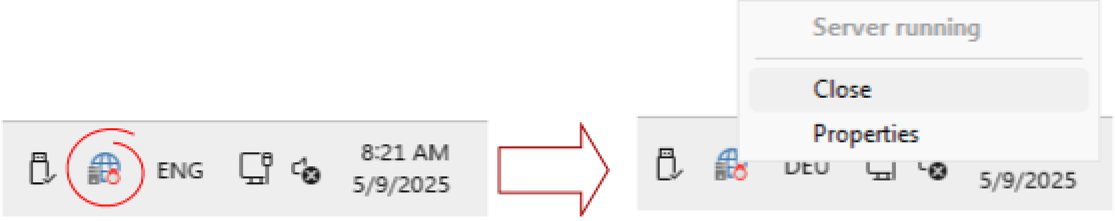
- Configure the server
- Display log entries
- Make export settings

4.5.1 Opening the configuration interface

Depending on the type of installation, you can open the configuration interface in different ways.

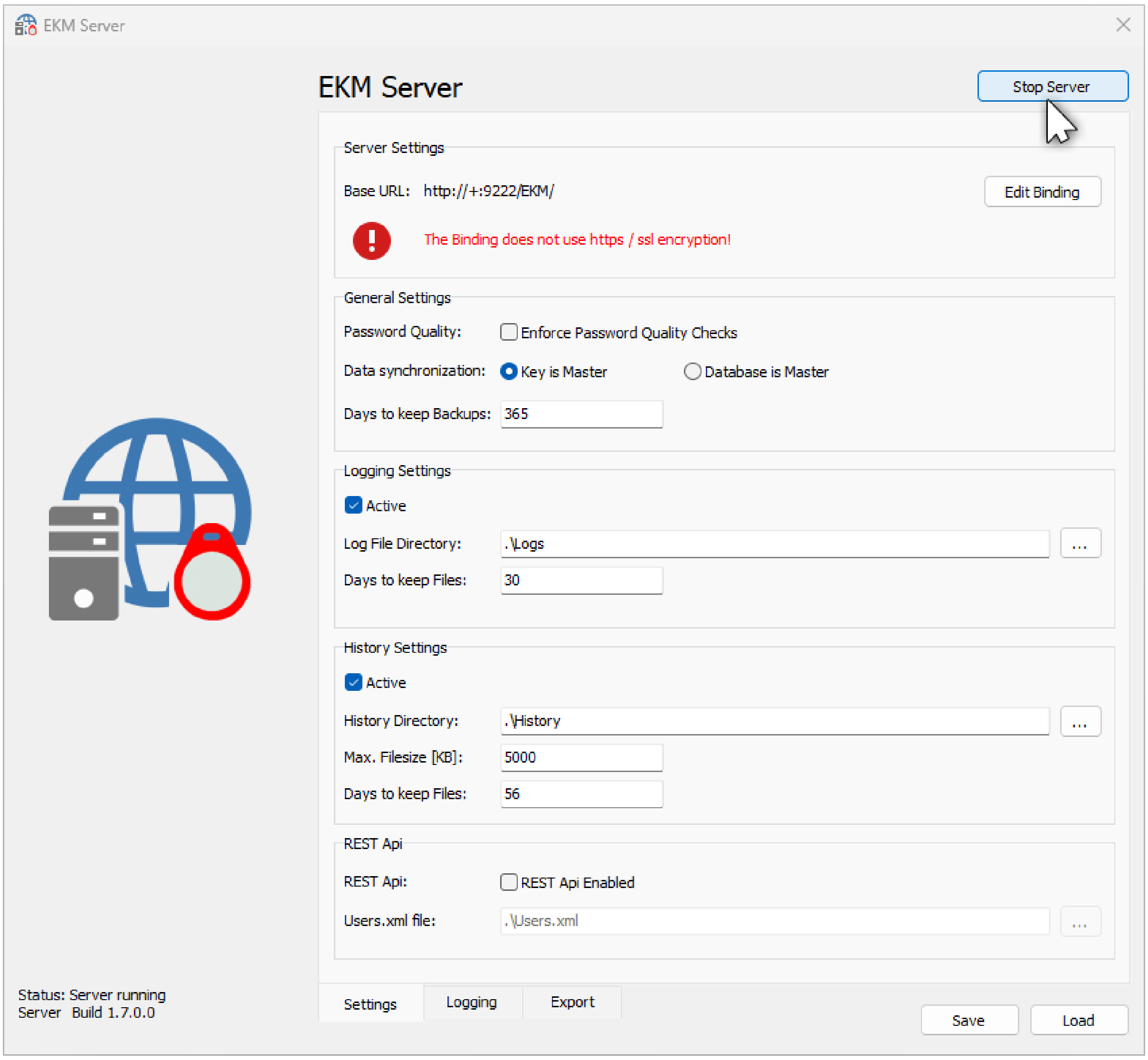
4.5.1.1 Configuration interface of the application

You open the configuration interface by ...



- Double-clicking the EKM server icon on the Windows taskbar.
- Opening the server context menu via the EKM server icon on the Windows taskbar using the right mouse button and clicking the *Properties* menu item there.

The configuration interface opens.



EKM Server

Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST Api

REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

Status: Server running
Server Build 1.7.0.0

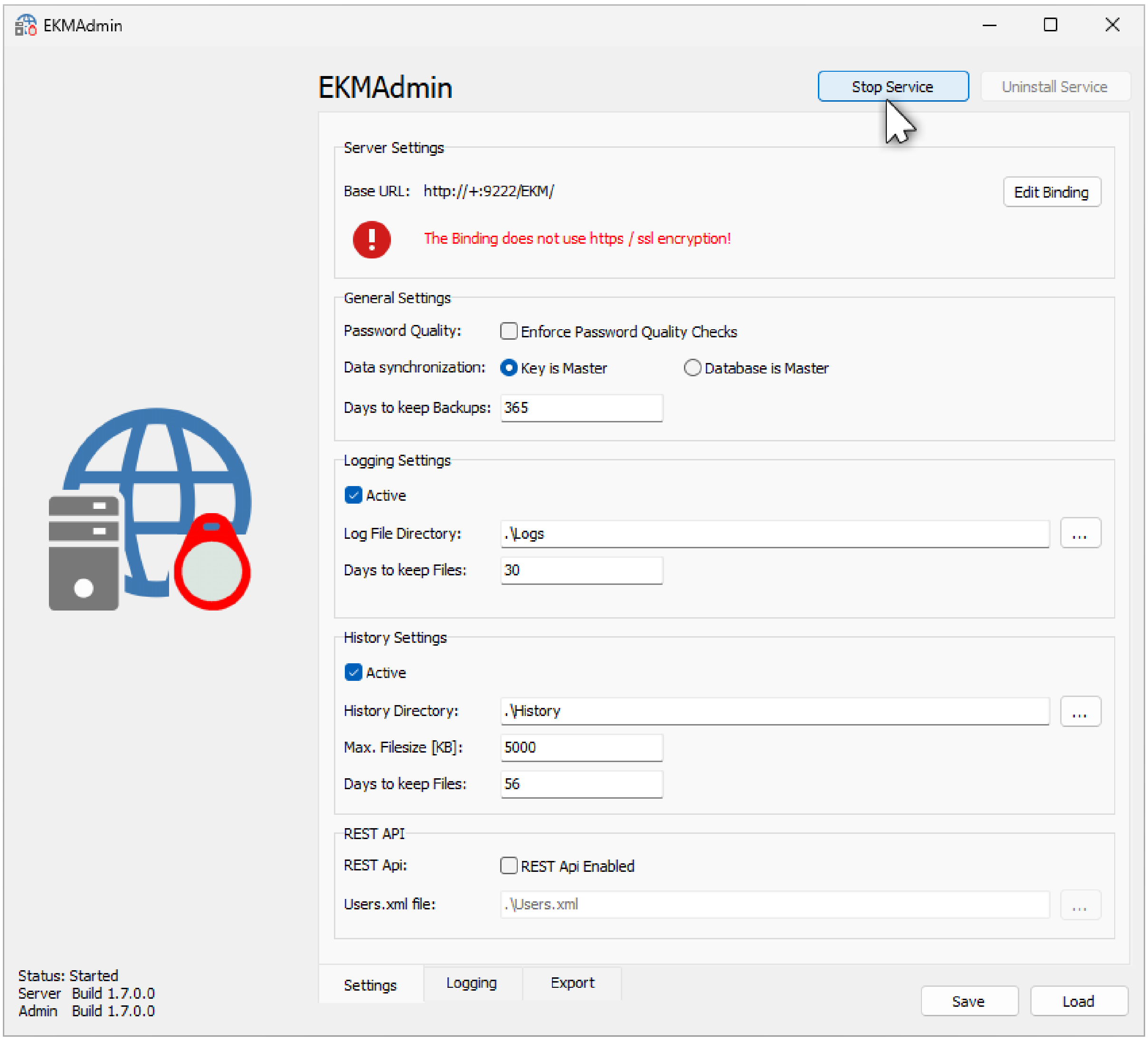
Before making changes to the configuration, stop the EKM server by clicking the *Stop Server* button.

4.5.1.2 Configuration interface of the service

If you have installed the EKM server as a service, start the EKMAdmin.exe file in the EKM installation folder. The configuration interface opens Before making changes to the configuration, stop the EKM server by clicking the *Stop Service* button.
Except for the "Install service" button, the configuration interface of the service does not differ from the configuration interface of the application. In the interest of better legibility of the manual, only images of the configuration interface of the application will be shown in the following sub-chapters.

4.5.2 Configuration of the server

To configure the EKM server, you must first stop the server. The configuration options are available only after the server has been stopped:



Server Settings
Base URL: http://+:9222/EKM/
The Binding does not use https / ssl encryption!

General Settings
Password Quality: □ Enforce Password Quality Checks
Data synchronization: ● Key is Master ○ Database is Master
Days to keep Backups: 365

Logging Settings
☑ Active
Log File Directory: .\Logs
Days to keep Files: 30

History Settings
☑ Active
History Directory: .\History
Max. Filesize [KB]: 5000
Days to keep Files: 56

REST API
REST Api: □ REST Api Enabled
Users.xml file: .\Users.xml

Status: Started
Server Build 1.7.0.0
Admin Build 1.7.0.0

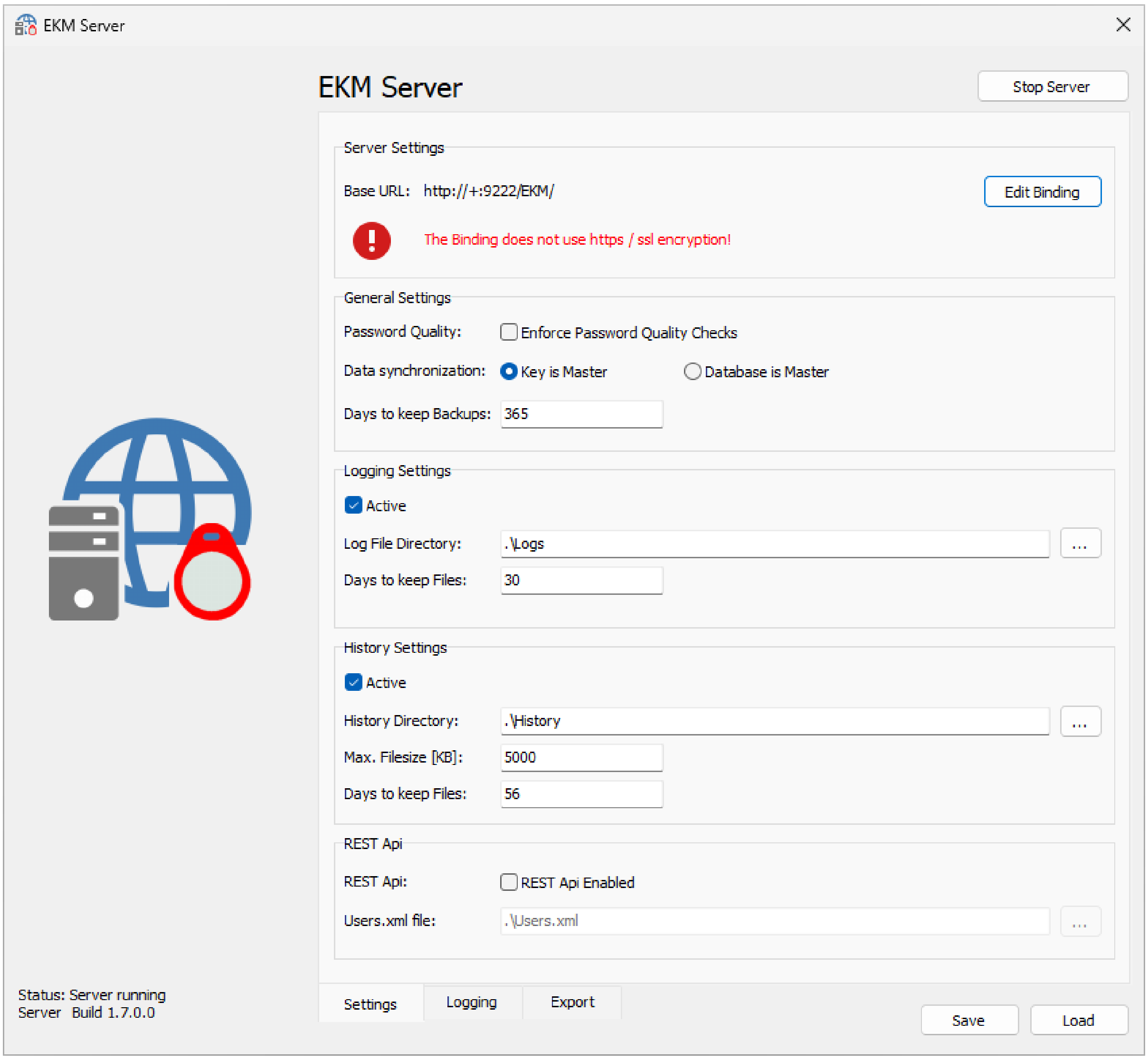
You can see the default settings in the figure. As a rule the options set on installation do not need to be changed. If necessary, the log function can be switched off to improve performance.

⚠ The server must be stopped to be able to make changes to the configuration. For this purpose, click the *Stop Server* button.

The configuration interface is subdivided into three tabs: Settings, Logging and Export. You can change between the tabs by clicking the button with the corresponding name in the lower area.
You can find further information about the content and options on the tabs in the following sub-chaptersSettings,LoggingandExport.

4.5.3 Settings

The basic settings for the EKM server can be made on the Settings tab. Always stop the server before changing any settings, and do not forget to save the changes before starting the server.



Server Settings

Base URL: http://+:9222/EKM/

The Binding does not use https / ssl encryption!

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST Api

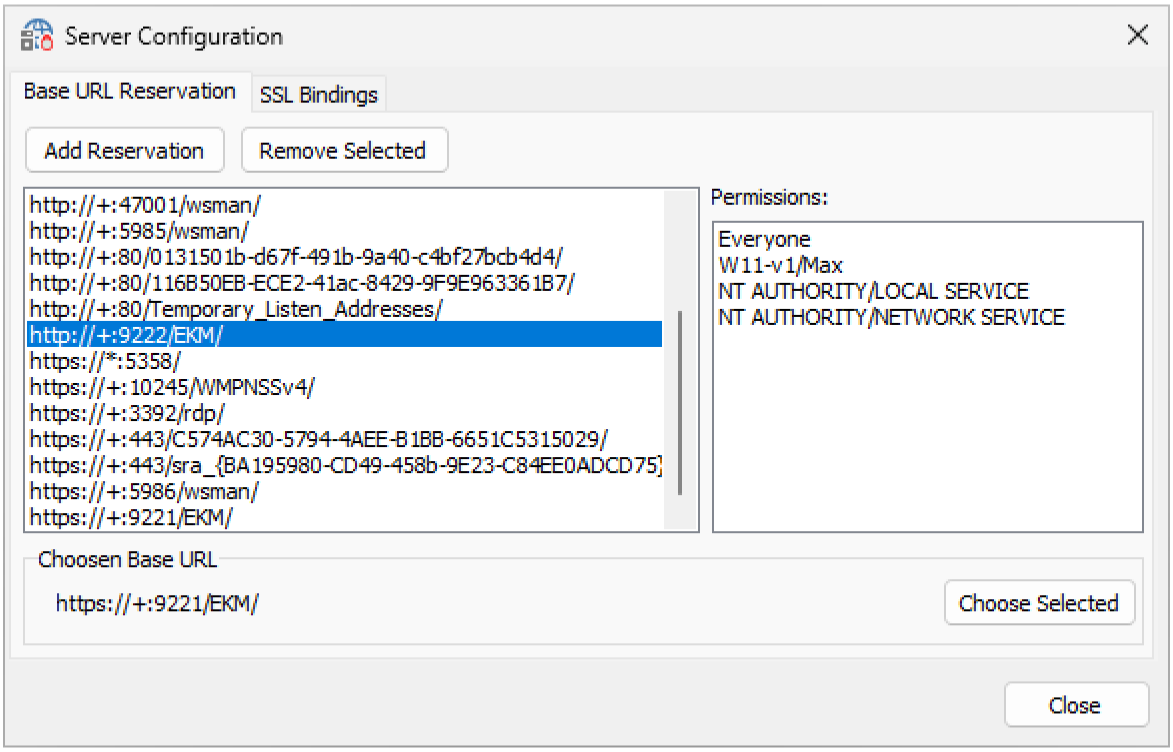
REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

Status: Server running
Server Build 1.7.0.0

4.5.3.1 Server Settings

The EKM server communicates with its clients via HTTP. A binding must be defined for the EKM server to notify it about the address and port it must use to listen for requests. If the defined binding was not created previously, the EKM server will create the binding when the server is started and remove it again when the server is stopped. If you do not wish to use a binding other than the default binding (http://+:9222/EKM/), you do not have to do anything. Please note that the default binding does not use encryption.
If you wish to use a different port, set up encryption or create the binding in advance, follow the instructions:
It can be useful in some cases to create the binding in advance. When creating the binding, please make sure that the port and the HTTP address path are not already being used by another program. More information about bindings is available in thedocumentation fromMicrosoft.
To create the binding, click the Edit Binding button in the Server Settings section of the configuration interface. A new window opens in which you can select the created binding, create new bindings and configure the SSL settings for the binding:



```
http://+:47001/wsman/
http://+:5985/wsman/
http://+:80/0131501b-d67f-491b-9a40-c4bf27bcb4d4/
http://+:80/116B50EB-ECE2-41ac-8429-9F9E963361B7/
http://+:80/Temporary_Listen_Addresses/
http://+:9222/EKM/
https://*:5358/
https://+:10245/WMPNSSv4/
https://+:3392/rdp/
https://+:443/C574AC30-5794-4AEE-B1BB-6651C5315029/
https://+:443/sra_{BA195980-CD49-458b-9E23-C84EE0ADCD75}
https://+:5986/wsman/
https://+:9221/EKM/
```

Everyone
W11-v1/Max
NT AUTHORITY/LOCAL SERVICE
NT AUTHORITY/NETWORK SERVICE

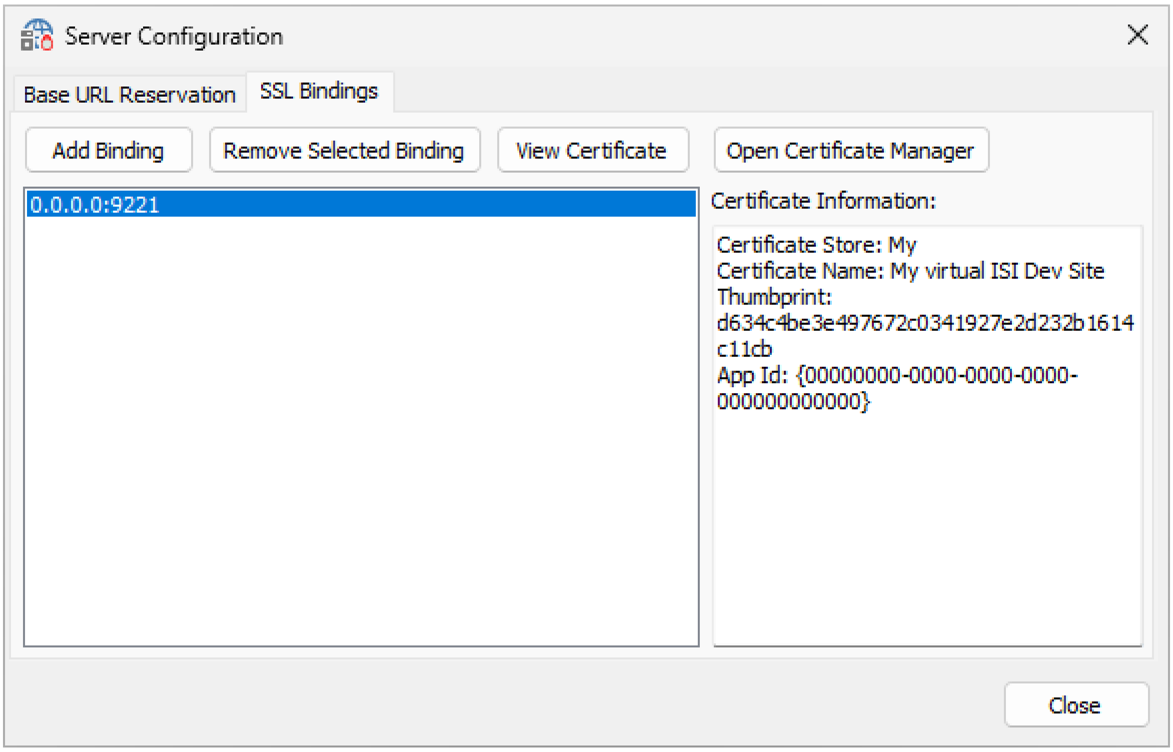
https://+:9221/EKM/

Create a new binding by clicking the Add Reservation button. A new window opens. Enter the required binding and check Everyone in Granted to Accounts. If you wish to use encryption for the data traffic, your binding must begin with https://. Otherwise your binding must begin with http://. Click OK to create your binding.
Then select the binding you just created by selecting it in the list on the left side and then clicking the Choose Selected button. You can use Remove Selected to delete a selected binding from the list permanently.

⚠ Do not delete any bindings that you did not create yourself. These bindings are often required for the proper function of the operating system and its services.

Encryption

You must use https binding to encrypt the data traffic between the EKM client and the EKM server. This binding requires a valid certificate including the associated private key. In the SSL Bindings section, you can select the certificate to be used for a defined port. Operating the EKM server without data traffic encryption is not recommended and does not comply with the current legal requirements for the transmission of personal data.
Open the SSL Bindings tab to assign a certificate to a port.

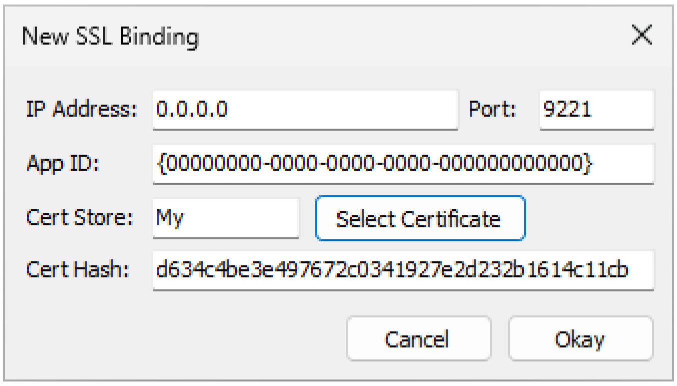


0.0.0.0:9221

Certificate Information:

Certificate Store: My
Certificate Name: My virtual ISI Dev Site
Thumbprint:
d634c4be3e497672c0341927e2d232b1614c11cb
App Id: {00000000-0000-0000-0000-000000000000}

If the port of the previously selected binding already has an assigned certificate, you can see it in the list on the left side. Select the entry and check whether the correct certificate is used. You can do this using the information displayed on the right side or using the View Certificate button.
If the binding's port does not appear in the list yet, create a new SSL binding by clicking the Add Binding button.



IP Address: 0.0.0.0 Port: 9221
App ID: {00000000-0000-0000-0000-000000000000}
Cert Store: My
Cert Hash: d634c4be3e497672c0341927e2d232b1614c11cb

In the following dialog box, enter the IP address of the network adapter to which the certificate is to be bound. With the IP address "0.0.0.0", the certificate is bound to all existing network adapters. Then enter your binding's port. Do not change the app ID. Subsequently click Select Certificate and select a suitable certificate in the displayed Windows Management Console for computer certificates.

Accept selection of the certificate with OK and then create the new SSL binding by clicking Okay. You can then close binding configuration. Click the Close button for this purpose.
To save the current configuration progress, click the Save button at the lower right in the configuration interface. If you are asked whether you wish to overwrite the configuration, confirm the prompt.

4.5.3.2 General Settings

You can define general server settings in this section.

- Password Quality:
  Activate this check mark to activate inspection of the password quality requirements. If inspection of the password quality by the EKM server is activated, all users will be prompted to adapt the password used to the quality requirements at the next logon. The password must consist of at least 15 characters. The password must contain at least 1 uppercase letter, 1 lowercase letter, 1 number and 1 special character. Permissible special characters are : ! ? @ ( ) { } [ ] \ / = ~ $ % & # * - +. , _
- Data Synchronization:
  With a new option, the direction of data synchronization between key and database of the "OnKey" fields on the key becomes adjustable.
  - Key is Master: Select this option if the values in the database are to be overwritten with the values on the key when a key is read.
  - Database is Master: Select this option if the values on the key are to be overwritten with the values in the database when a key is read. Before the write command is started, the user's agreement is requested using a dialog box on the EKM application. To avoid write errors, the key must not be removed during the write process. Changing the data in the "OnKey" fields in the database viewer is possible in this setting.
- Days to keep Backups:
  Number of days after which an automatically created database backup will be deleted. You will find further information about the database backup in the chapterData backup.

4.5.3.3 Logging Settings

You can configure server logging in this section.

- Active: Check to activate logging.
- Log File Directory: Relative or absolute path to a folder for saving the log files. Click the button on the right with the three dots (...) to open the directory selection dialog.
- Days to keep Files: The number of days after which a log file will be deleted.

4.5.3.4 History Settings

You can define the Key History settings in this section. The Key History documents the changes of EKM key values performed using the EKM client.

- Active: Check here to activate the Key History.
- History Directory: Relative or absolute path to a folder for saving the History files. Click the button on the right with the three dots (...) to open the directory selection dialog.
- Max. Filesize [KB]: The maximum file size of a History file. A new History will be created if this file size is exceeded.
- Days to keep Files: The number of days after which a history file will be deleted.

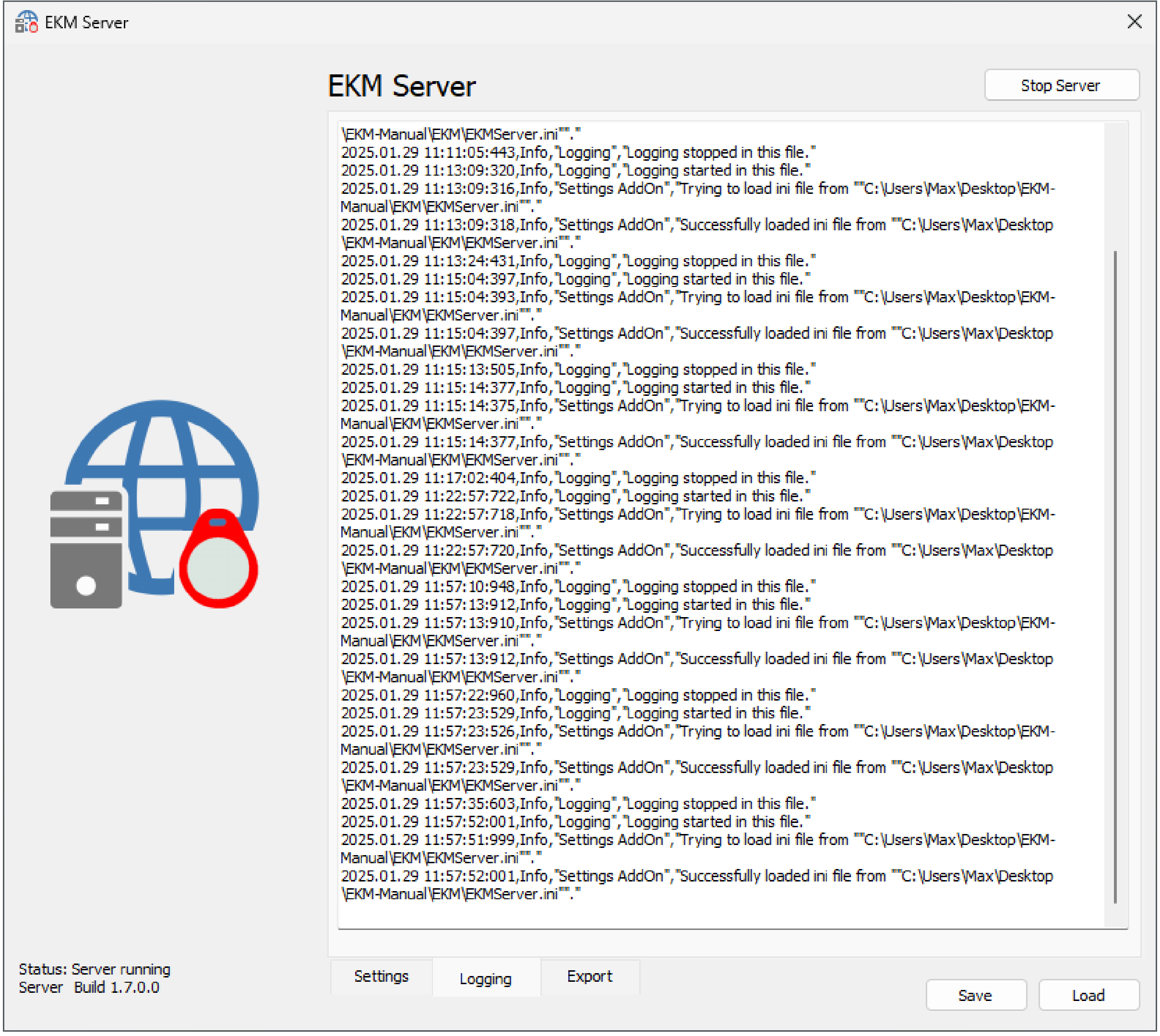
4.5.3.5 REST Api

You can configure the REST Api in this section. You will find further information about the REST Api in the REST Api sub-chapter.

- REST Api Enabled: Check here if you want to activate the REST Api.
- Users.xml file: path to the Users.xml file for the REST Api. Click the button on the right with the three dots (...) to open the file selection dialog.

4.5.4 Logging

You can access the Logging tab by clicking Logging in the lower area of the configuration interface. The Logging tab shows a live depiction of the server's current log file content.



```
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:11:05:443,Info,"Logging","Logging stopped in this file."
2025.01.29 11:13:09:320,Info,"Logging","Logging started in this file."
2025.01.29 11:13:09:316,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:13:09:318,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:13:24:431,Info,"Logging","Logging stopped in this file."
2025.01.29 11:15:04:397,Info,"Logging","Logging started in this file."
2025.01.29 11:15:04:393,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:15:04:397,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:15:13:505,Info,"Logging","Logging stopped in this file."
2025.01.29 11:15:14:377,Info,"Logging","Logging started in this file."
2025.01.29 11:15:14:375,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:15:14:377,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:17:02:404,Info,"Logging","Logging stopped in this file."
2025.01.29 11:22:57:722,Info,"Logging","Logging started in this file."
2025.01.29 11:22:57:718,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:22:57:720,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:10:948,Info,"Logging","Logging stopped in this file."
2025.01.29 11:57:13:912,Info,"Logging","Logging started in this file."
2025.01.29 11:57:13:910,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:13:912,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:22:960,Info,"Logging","Logging stopped in this file."
2025.01.29 11:57:23:529,Info,"Logging","Logging started in this file."
2025.01.29 11:57:23:526,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:23:529,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:35:603,Info,"Logging","Logging stopped in this file."
2025.01.29 11:57:52:001,Info,"Logging","Logging started in this file."
2025.01.29 11:57:51:999,Info,"Settings AddOn","Trying to load ini file from ""C:\Users\Max\Desktop\EKM-
Manual\EKM\EKMServer.ini""."
2025.01.29 11:57:52:001,Info,"Settings AddOn","Successfully loaded ini file from ""C:\Users\Max\Desktop
\EKM-Manual\EKM\EKMServer.ini""."
```

4.5.4.1 Configuration

EKM server logging can be configured on the Settings tab. You will find further information in the sub-chapterSettings.

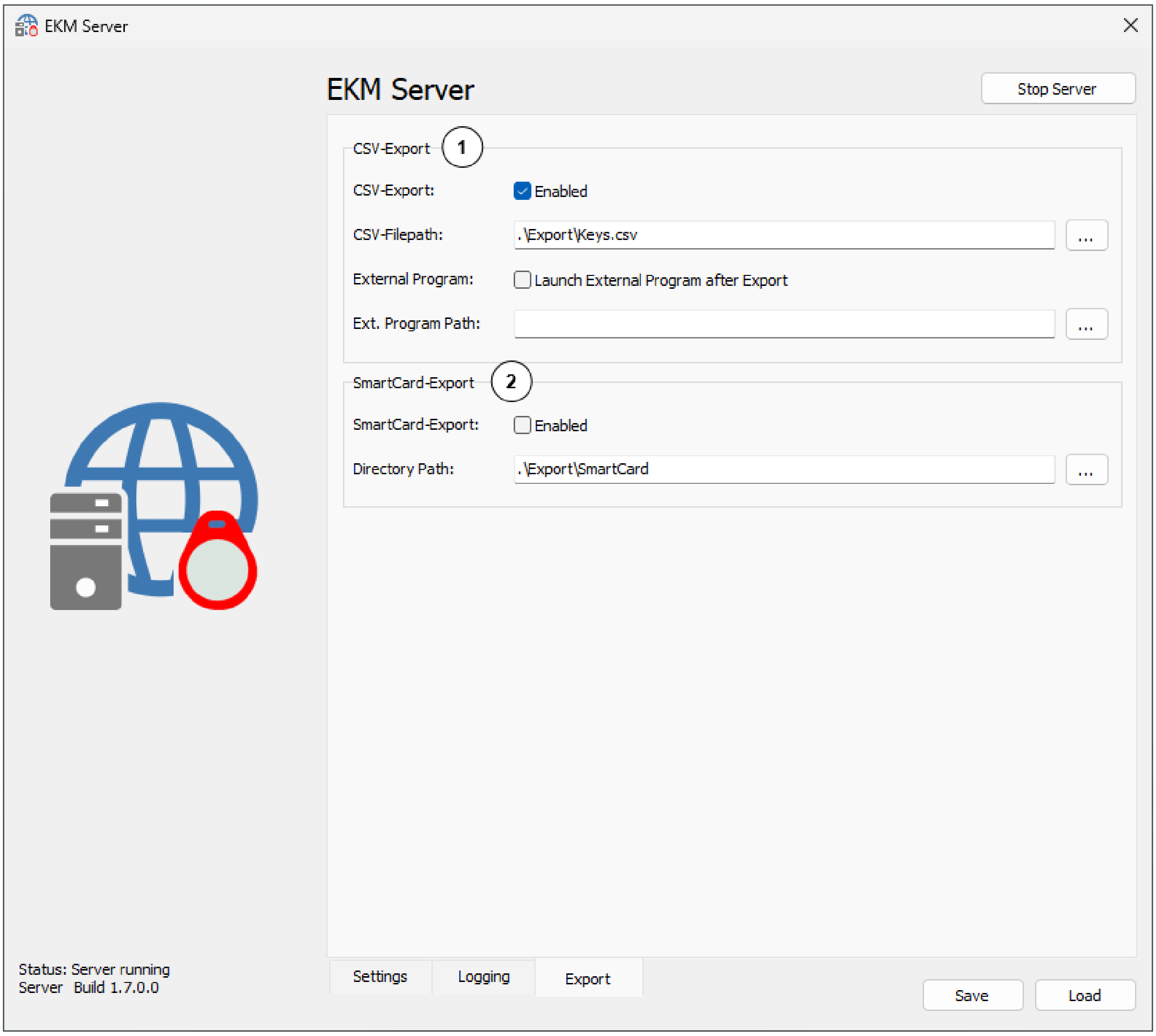
4.5.4.2 Key-Log

In addition to the server's log entries, the insertion and removal of a key is logged on a client. Date, time and KEYID are also logged with these Key-In / Key-Out events. The EKM server distinguishes between two events:

- Key-In: A key is inserted into the EKS Electronic-Key adapter.
- Key-Out: A key is removed from the EKS Electronic-Key adapter.

4.5.5 Export

In the configuration interface, click the Export tab to configure the CSV or SmartCard export functions. Always stop the server before changing any settings, and do not forget to save the changes before starting the server.



EKM Server

CSV-Export (1)

CSV-Export: ☑ Enabled

CSV-Filepath: .\Export\Keys.csv

External Program: □ Launch External Program after Export

Ext. Program Path:

SmartCard-Export (2)

SmartCard-Export: □ Enabled

Directory Path: .\Export\SmartCard

Status: Server running
Server Build 1.7.0.0

The server must be stopped to be able to make changes to the configuration. For this purpose, click the *Stop Server* button.

① CSV export

The CSV export is performed automatically after every change to the key data, and it creates a CSV file containing the key data. During the CSV export, all configured key data with the exception of data types Memo and Graphic are exported to a CSV file.

You can configure the CSV export with the following options in the CSV export section on the Export tab in the configuration interface:

- Enabled: You can activate the CSV export by checking Enabled.
- CSV file path: The file path where the CSV file is saved. To change the path, click the button on the right with the three dots (...).
- External Program: Check here to start a different program after the CSV export.

- Ext. Program Path: Indicates the file path of the external program. To change the path, click the button on the right with the three dots (...).

A CSV file with the following properties will be written during the CSV export:

- Encoding: Windows-1252 (ANSI)
- Separator: ;
- Quotes: "
- Newline: CRLF

Fields in the CSV file can be enclosed in quotes if necessary. Quotes in the field are identified using a quote character. Separators or Newline sequences in a field enclosed in quotes must be ignored during reading. For further information, see RFC 4180.

The first row in the export file contains the names of the database fields. The following rows each contain one key per row. The fields are arranged as follows:

- Database field KEYID
- Database field LOCKED
- Database fields with the key data. The sequence is the same as the order on the key. When a byte (data type Bit or Nibble) is broken down, export will take place in the sequence from Low bit to High bit.
- Remaining database fields. The sequence is the same as the order defined in the Database Designer.

Please note that only fields that have the value *yes* or *Header* in the Database Designer during CSV export will be exported. Fields with the value "no" will not be exported. Fields that have the value "Header" will be exported as empty columns without content (cf. "Designing a database"). Database fields of type StringPassword are saved as hashes using Secure Hash Algorithm (SHA-1). For further information about SHA-1, see RFC 3174.

If Launch External Program after Export is activated, the specified external program will be started after export. This program can then process the CSV file. A further export can be triggered only if the temporary CSV file has been deleted by the external program.
A possible example for an external program is the following: An application is used that encrypts the exported key data. When opened, the application accesses the CSV file, processes the key data and outputs the encrypted data in another file. Once the process is complete, the CSV file is deleted by the application.

② SmartCard-Export:

The SmartCard export creates a SmartCard file for each active (not locked) key in the database. These files have no content (size: 0 byte), but they do have a systematic name containing the card code. The card code is calculated from the keys' serial number (KEYID).

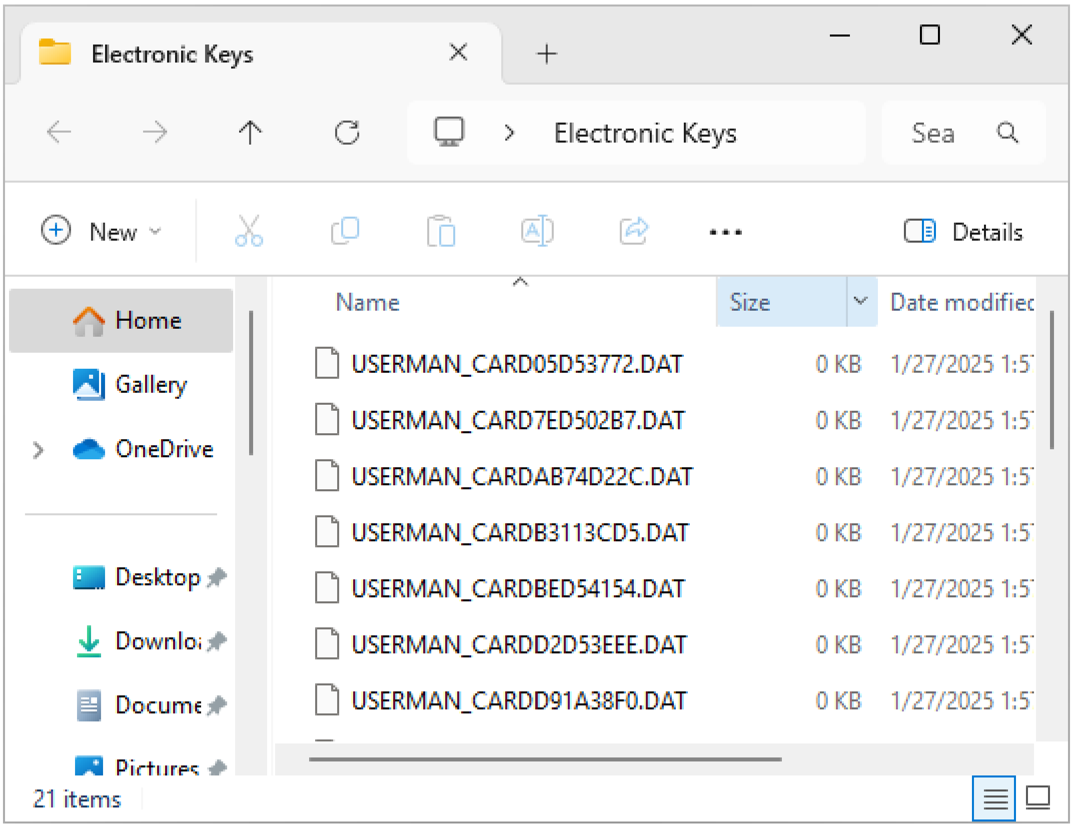
You can configure the SmartCard export with the following options in the SmartCard export section on the Export tab in the configuration interface:

- Enabled: You can activate the SmartCard export by checking Enabled.
- Directory Path: Relative or absolute path to a folder for saving the SmartCard files. Click the button on the right with the three dots (...) to open the directory selection dialog.

The file names have the following syntax (xxxxxxxx stands for the card code):
USERMAN_CARDxxxxxxxx.DAT

The key serial number is a sixteen-digit hexadecimal number (8 bytes). For the conversion to the card code, this number must be converted into an eight-digit hexadecimal number (4 bytes):

- The 8 byte key serial number is divided into two 4 byte values.
- The two 4 byte values are added together. Any overflow is ignored. The resulting 4 byte value is the card code.



Name	Size	Date modified
USERMAN_CARD05D53772.DAT	0 KB	1/27/2025 1:5
USERMAN_CARD7ED502B7.DAT	0 KB	1/27/2025 1:5
USERMAN_CARDAB74D22C.DAT	0 KB	1/27/2025 1:5
USERMAN_CARDB3113CD5.DAT	0 KB	1/27/2025 1:5
USERMAN_CARDBED54154.DAT	0 KB	1/27/2025 1:5
USERMAN_CARDD2D53EEE.DAT	0 KB	1/27/2025 1:5
USERMAN_CARDD91A38F0.DAT	0 KB	1/27/2025 1:5

⚠ Locked keys are not saved or deleted.

When the server is running, data are synchronized automatically between the EKM database and the SmartCard export directory every hour. SmartCard export is also initiated when the following events occur:

- Create key: corresponding SmartCard file is created
- Delete key: corresponding SmartCard file is deleted
- Disable key: corresponding SmartCard file is deleted
- Enable key: corresponding SmartCard file is created

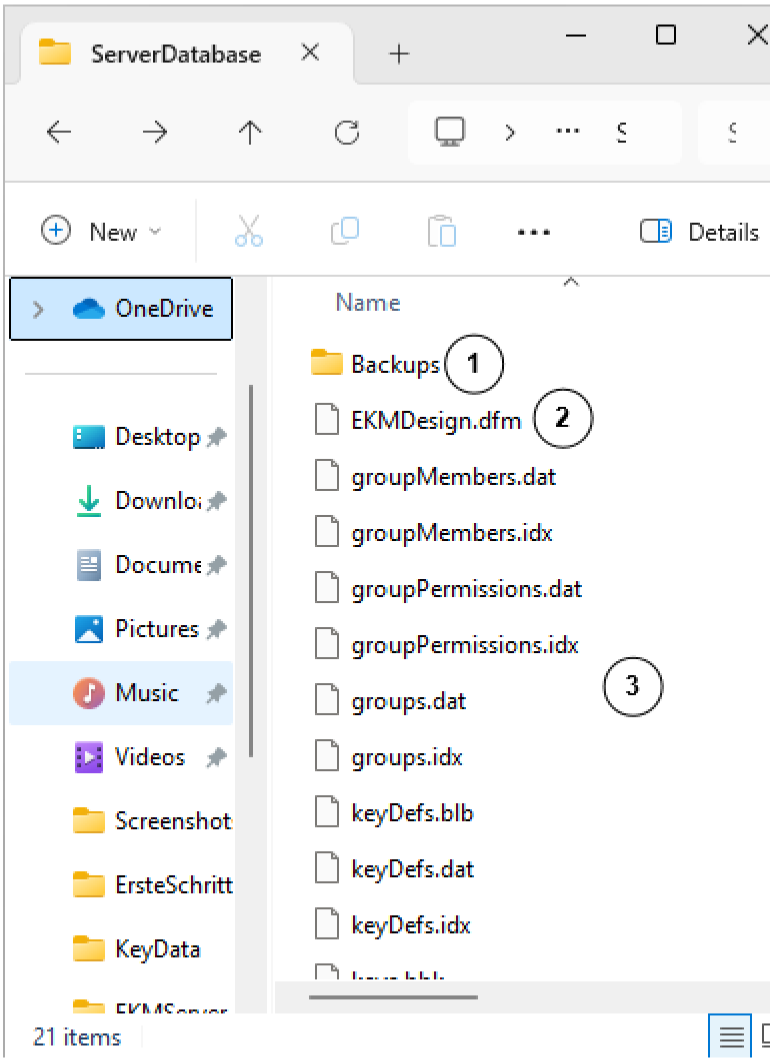
A SmartCard export will not take place if the data saved on the key are changed or if they are assigned to the key via the database.
If the server is stopped or if the export is deactivated, the SmartCard files will remain unchanged in the SmartCard export folder.

4.6 Update function

Electronic-Key-Manager EKM features an automatic update function for the EKM client. For this purpose the folder "ClientVersion" is automatically added to the program path for the EKM server on program start. You can save the current version of the EKM client in this folder.
If a new version of the EKM client is available, copy the file *EKM.EXE* to the EKM server's "ClientVersion" folder. To apply the new version, stop and start the EKM server. The EKM clients will receive the new version on the next logon. On the application of the new version, the EKM client is automatically quit and re-started.

4.7 Data backup

All data that EKM clients edit are saved on the server in *ServerDatabase* in the EKM server program folder:



The *ServerDatabase* folder contains the following sub-folders and files:
① Backup folder
② Layout
③ Database files

The database contains all key data and all user data

The layout for the key data form is saved separately in the file *ekmDesign.dfm*. When changes are made in the design mode, a backup copy of the last valid design is saved as a ZIP file in the backup folder: The ZIP files are named according to the current date and time. Depending on the changes made in the design mode, database files and/or the file *ekmDesign.dfm* are stored as a backup.

Back up the folder *ServerDatabase* at regular intervals.

4.8 User-specific logo

The logo displayed in the EKM client can be replaced with a user-specific logo. Save the required logo as a file with the name "CompanyLogo.bmp" in Windows Bitmap format. Then copy the file to the sub-folder "*ServerDatabase*" in the EKM server application path. All EKM clients will receive the user-specific logo the next time they log on. The logo image size is 150 (wide) x 40 (high) pixels.

4.9 REST Api

Using the REST Api, you can grant other programs restricted access to the key data of the EKM server. You can find instructions on configuring the REST Api in the chapterSettings.

The following operations can be performed:
- Determining the key data structure
- Reading key data
- Changing key data (restrictions apply)
- Deleting key data

New keys cannot be created or added using the REST Api. OnKey fields and the KEYID cannot be changed.

4.9.1 Access restriction

Access is restricted to predefined users who authenticate themselves using user name and password in the requests. The users are specified in the users.xml file. An example of the content of a users.xml file looks like this:

```
<rest-api-users>
 <user>
   <name>exampleUser1</name>
   <password>0edf3ed0.....</password>
   <role>0</role>
 </user>
 <user>
   <name>exampleUser2</name>
   <password>0edf3ed0.....</password>
   <role>2</role>
 </user>
</rest-api-users>
```

Each user entry in the XML file has three values:
- <*name*>: The user name, required for authentication

- *<password>*: The user's password as SHA-512 hash (represented as a hexadecimal string) according to RFC 6234. In the example, the hashes are shortened to improve legibility.
- *<role>*: The user's role. The role can have the value 0, 1 or 2.

The following user roles are possible that can be assigned to a user of the REST Api in the *users.xml* file:

- 0: Users with role 0 can perform the SQL commands SELECT and STRUCT. They thereby have only read access.
- 1: Users with role 1 can perform the SQL commands SELECT, STRUCT and UPDATE.
- 2: Users with role 2 can perform the SQL commands SELECT, STRUCT, UPDATE and DELETE.

4.9.2 REST request

REST requests are sent to the EKM server as HTTP requests. Depending on the configured binding, the request URI consists of:

```
URI = BINDING + "/db/keys"
```

Example: The default binding is http://+:9222/EKM/. If the computer's host name is ekm.server.local, the following URI results for the REST request:

```
http://ekm.server.local:9222/EKM/db/keys
```

The HTTP method for the request is *POST*. The body contains JSON (ISO/IEC 21778:2017, ECMA-404) data with the following structure:

```
{
   "authentication": {
       "user": "exampleUser1",
       "password": "my secret password"
   },
   "request": {
       "SQLQuery": "SELECT * FROM keys"
   }
}
```

The *authentication* object contains a *user* field containing the user name for the request and a *password* field displaying the user's password in plain text.
The *request* object contains a *SQLQuery* field containing the SQL query of the request. The EKM server performs the SQL query and returns a corresponding reply.

The SQLQuery supports only a subset of the SQL standard. The following SQL statements are supported.

- SELECT
- UPDATE
- DELETE

The following SQL operators and expressions are supported.

- WHERE
- AND
- OR
- <
- >
- =
- NOT
- LIKE

- NOW
- ORDER BY
- ASC
- DESC

Queries can be performed only on the *keys* table. Subqueries (nested queries) are not supported. Users must have the corresponding role for the queries performed, otherwise an error will be returned. In addition to the SQL standard, the *STRUCT* request is supported. This returns the structure of the *keys* table. A Struct query consists only of the *STRUCT* statement.

The server's reply is always a JSON object that, depending on the request, contains only a status or contains data in addition to the status.

4.9.3 Status codes

```
{
   "status": {
       "code": 200,
       "description": "Okay"
   }
}
```

Each reply object contains the *status* field. The *status* object has a *code* field and a *description* field. The following HTTP status codes are possible:

- 200: Okay
- 202: Accepted
- 400: Bad Request
- 401: Unauthorized
- 403: Forbidden
- 404: Not Found
- 405: Method not allowed
- 406: Not acceptable
- 429: Too Many Requests
- 500: Internal Server Error

For further information, seeRFC 9110 15. Status codes.

4.9.4 Struct request

On a successful request with the SQL query *STRUCT*, the result can appear as follows:

```
{
   "status": {
       "code": 200,
       "description": "Okay"
   },
   "data": [
       {
           "name": "KEYID",
           "onKey": true,
           "unique": true,
           "length": 16,
           "type": "String"
       },
       {
           "name": "LOCKED",
           "onKey": false,
           "type": "Bit",
           "unique": false
       },
       {
           "name": "HasPassedSafetyCheck",
           "onKey": true,
           "type": "Bit",
           "unique": false
       },
       {
           "name": "MyShortIntColumn",
           "onKey": false,
           "type": "ShortInt",
           "unique": false
       }
   ]
}
```

In addition to the *status* field, the object returned also has a *data* field. This consists of an array containing the field definitions of the keys table. Each field definition is an object with the following fields:

- *name*: Name of the field. JSON data type: String
- *onKey*: Indicates whether the field values are stored on the key. Data type: Boolean
- *type*: Indicates the field's data type. Possible values are "Bit", "ShortInt", "Byte", "SmallInt", "Word", "Integer", "UInt", "Float", "String", "StringBlankFilled", "StringPassword", "BitString", "Time", "TimeAscii", "Date", "DateAscii", "DateAuto", "Nibble", "CRC", "Memo" and "Graphic". JSON data type: String
- *unique*: Indicates whether the field's values must be unique. JSON data type: Boolean
- *length*: This field is present only if the field's data type is String or BitString. Indicates the field's length. JSON data type: Integer

4.9.5 Select request

On a successful request with a SELECT SQL query, the result can appear as follows:

```
{
    "status": {
        "code": 200,
        "description": "Okay"
    },
    "data": [
        {
            "LOCKED": false,
            "MyBooleanColumn": false,
            "ByteColumn": 255,
            "KEYID": "00D46217D9001032",
            "DB_Memo": "Text Information",
            "Key_Word": 65535,
            "DB_BitString": 15
        }
    ]
 }
```

In addition to the *status* field, the object returned also has a *data* field. This consists of an array containing the returned data records of the keys. Each key data record is a JSON object containing the fields selected by the SQL query. The field names correspond to the names of the defined columns. The JSON fields have different JSON data types depending on the key data:

- Empty field (not to be confused with the empty string or 0): zero
- ShortInt, Byte, SmallInt, Integer, Word, Nibble, CRC, UInt, BitString: Number (Integer)
- Bit: Boolean
- String, StringBlank, StringPassword, Memo: String
- Float: Number (Float)
- Date, DateAuto, DateAscii: String (format is yyyy-mm-dd)
- Time, TimeAscii: String (format is hh:mm:ss.zzz)
- Graphic: String (image bytes as Base64 string, see RFC 4648)

4.9.6 Examples

Examples of possible requests and the REST Api replies are shown below. The requests and replies can differ depending on the key table structure.

4.9.6.1 Reading all Electronic-Keys

Request:

```
    {
        "authentication": {
            "user": "admin",
            "password": "secret"
        },
        "request": {
            "SQLQuery": "SELECT * FROM keys"
        }
    }
```

Reply:

```
    {
        "data": [
            {
                "KEYID": "0000111122223333",
                "LOCKED": false,
                "First name": "Fabian",
                "Last name": "Keller",
                "Worker_ID": "B87",
                "Protection level": 3
            },
            {
                "KEYID": "0000111122223356",
                "LOCKED": false,
                "First name": "Theodor",
                "Last name": "Dach",
                "Worker_ID": "A19",
                "Protection level": 1
            },
            {
                "KEYID": "1111222233334444",
                "LOCKED": false,
                "First name": "Max",
                "Last name": "Mustermann",
                "Worker_ID": "A19",
                "Protection level": 4
            }
        ],
        "status": {
            "code": "200",
            "description": "Okay"
        }
    }
```

4.9.6.2 Reading selected Electronic-Keys

Request:

```
    {
        "authentication": {
            "user": "admin",
            "password": "secret"
        },
        "request": {
            "SQLQuery": "SELECT * FROM keys WHERE Schutzstufe = 4"
        }
    }
```

Reply:

```
    {
        "data": [
            {
                "KEYID": "1111222233334444",
                "LOCKED": false,
                "First name": "Max",
                "Last name": "Mustermann",
                "Worker_ID": "A19",
                "Protection level": 4
            }
        ],
        "status": {
            "code": "200",
            "description": "Okay"
        }
     }
```

4.9.6.3 Reading specific columns

Request:

```
{
    "authentication": {
        "user": "admin",
        "password": "secret"
    },
    "request": {
        "SQLQuery": "SELECT KEYID, First name, Last name FROM keys"
    }
}
```

Reply:

```
{
    "data": [
        {
            "KEYID": "0000111122223333",
            "First name": "Fabian",
            "Last name": "Keller"
        },
        {
            "KEYID": "0000111122223356",
            "First name": "Theodor",
            "Last name": "Dach"
        },
        {
            "KEYID": "1111222233334444",
            "First name": "Max",
            "Last name": "Mustermann"
        }
    ],
    "status": {
        "code": "200",
        "description": "Okay"
    }
}
```

4.9.6.4 Changing data

Request:

```
{
   "authentication": {
       "user": "admin",
       "password": "secret"
   },
   "request": {
       "SQLQuery": "UPDATE keys SET Last name = 'Muster' WHERE
KEYID='1111222233334444'"
   }
}
```

Reply:

```
{
   "status": {
       "code": 202,
       "description": "Accepted"
   }
}
```

4.9.6.5 Deleting data

Request:

```
{
   "authentication": {
       "user": "admin",
       "password": "secret"
   },
   "request": {
       "SQLQuery": "DELETE FROM keys WHERE KEYID='0000111122223333'"
   }
}
```

Reply:

```
{
   "status": {
       "code": 202,
       "description": "Accepted"
   }
}
```

4.9.6.6 Wrong authentication

Request:

```
{
   "authentication": {
       "user": "admin",
       "password": "wrongpassword"
   },
   "request": {
       "SQLQuery": "STRUCT"
   }
}
```

Reply:

```
{
   "status": {
       "code": 401,
       "description": "Unauthorized"
   }
}
```

4.9.6.7 Missing authorization

Request:

```
{
   "authentication": {
       "user": "userWithRole2",
       "password": "secret"
   },
   "request": {
       "SQLQuery": "DELETE FROM keys WHERE KEYID='0000111122223333'"
   }
}
```

Reply:

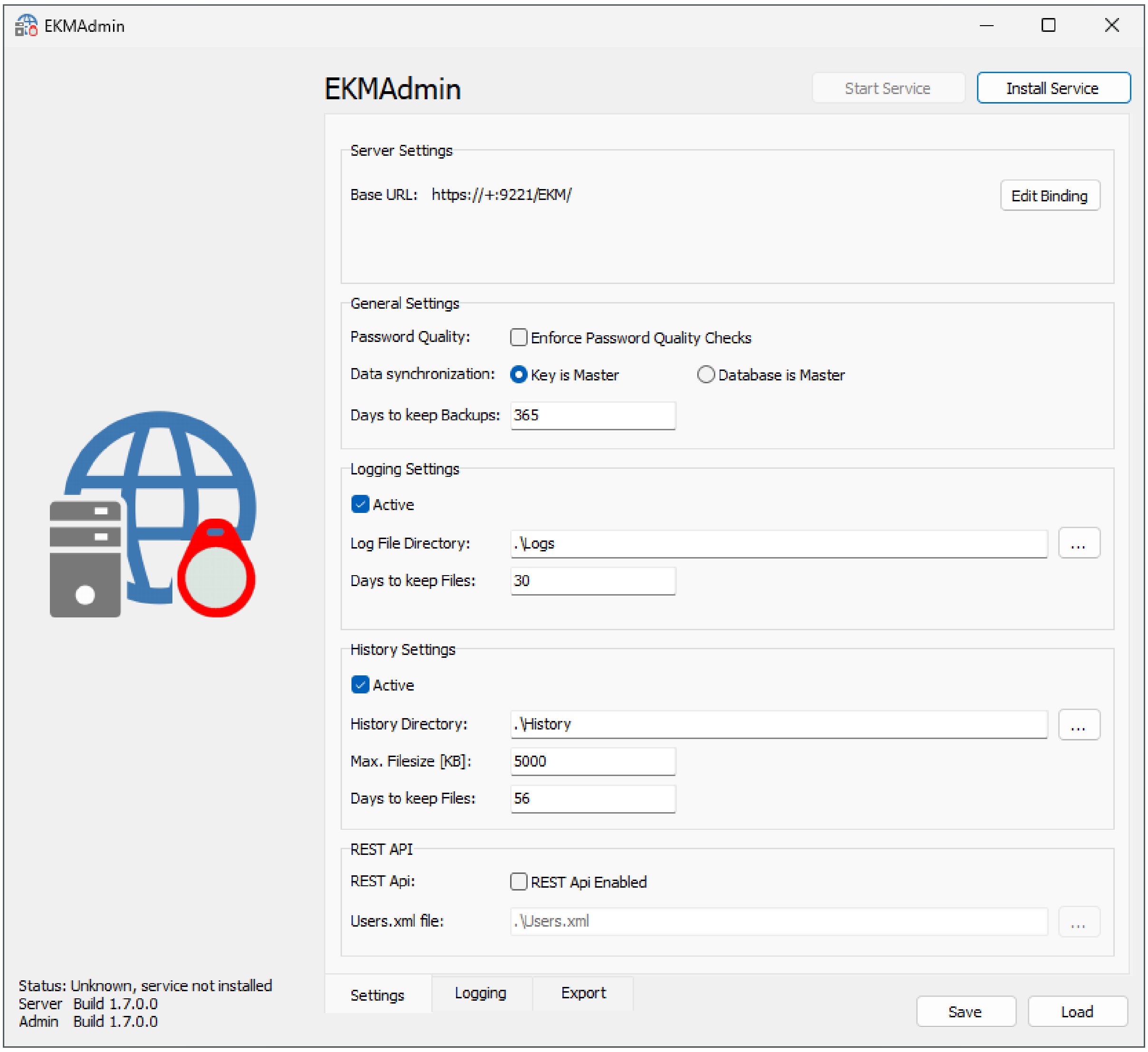
```
{
   "status": {
       "code": 403,
       "description": "Forbidden"
   }
}
```

EKM Admin

Part V

5 EKM Admin

EKM Admin is used for configuration of the EKM server if this was installed as a service. The interface and function correspond to the function of the EKM server. In addition to the interface of the EKM server, Admin displays the Install Service / Uninstall Service button with which the EKM server can be installed/uninstalled as a service.
EkmAdmin.exe and EKMServer.exe must both be located in the program folder. You will find further information about configuration in the sub-chapterConfiguration.



Server Settings

Base URL: https://+:9221/EKM/

General Settings

Password Quality: □ Enforce Password Quality Checks

Data synchronization: ● Key is Master ○ Database is Master

Days to keep Backups: 365

Logging Settings

☑ Active

Log File Directory: .\Logs

Days to keep Files: 30

History Settings

☑ Active

History Directory: .\History

Max. Filesize [KB]: 5000

Days to keep Files: 56

REST API

REST Api: □ REST Api Enabled

Users.xml file: .\Users.xml

Status: Unknown, service not installed
Server Build 1.7.0.0
Admin Build 1.7.0.0

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