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71356249
SOFTWARE VERSION: V1.4.0

Operating Manual
FDM Reporting Software

Field Data Manager Software, MS20 / MS21

PC software for data management and visualization

Endress+Hauser
People for Process Automation

Revision history

Manual version	Software version	Revisions	Date
13.10	Version V1.00.00.06 or higher		09.2010
01.11	Version V1.01.00.00 or higher	Software updates	02.2011
02.12	Version V1.01.01.xx or higher	Software updates	01.2012
03.13	Version V1.01.02.xx or higher	New devices supported; Essential/Professional version; bug fixes; optimized database performance	07.2013
04.13	Version V1.02.00.xx or higher	Possible to split graphic over several pages for print-out; bug fixes	12.2013
05.14	Version V1.02.00.17 or higher	Windows 8 support; bug fixes	09.2014
06.15	Version V1.02.00.24 or higher	Online connection to Liquiline platform; French operating language; bug fixes	05.2015
07.15	Version V1.03.00.xx or higher	Memograph M RSG45 support; Integrated instantaneous value display; optimized performance; bug fixes	09.2015
08.16	Version V1.03.01.00 or higher	Reporting functionality incorporated	04.2016
09.17	Version V1.4.0 or higher	Software License Management; E-mail notification	05.2017

Version comparison

The following table provides an overview of the different functions and features provided with the different versions of the software:

Function/feature	Essential version (Freeware)	Professional version (Trial period: 60 days + 30 on request	Professional version with reporting option
Supported databases:			
Postgre SQL™	X	X	X
Oracle™		X	X
Microsoft SQL Server™		X	X
Supported devices:			
Ecograph RSG20		X	X
Ecograph A RSG22		X	X
Ecograph C RSG24		X	X
Ecograph T RSG30	X	X	X
Ecograph T RSG35	X	X	X
Memograph RSG10		X	X
Memograph S RSG12		X	X
Memograph M RSG40	X	X	X
Memograph M RSG45	X	X	X
EngyCal RH33		X	X
EngyCal RS33		X	X
RA33		X	X
Liquiline CM44x		X	X
Liquistation CSFxx		X	X
Liquiline System CA80xx		X	X
User administration		X	X
Multiple access to the database from different PCs at the same time		X	X
Data of multiple devices in one template		X	X
Automatic readout	X	X	X
Automatic deletion	X	X	X
Automatic binary export	X	X	X

Automatic XLS/CSV export		X	X
Automatic PDF export		X	X
Export ready for eSight (energy monitoring software)		X	X
Import of ReadWin 2000 data	X	X	X
Online visualization of instantaneous values ("Live Data")		X	X
Visualization of standard reports			X
Visualization of customer-specific reports			X
E-mail notification		X	X
Update search		X	X

Please note that in order to use the Demo version as a Professional or Essential version (freeware), it must be activated after the trial period has elapsed.

It is possible to switch from the Essential version (freeware) to a commercial version at any time by entering a software ID and then activating the product.

Switching from the Demo version to the Essential version (freeware) may result in certain functions no longer being available. For example, templates created with data from multiple devices will no longer work and neither will automatic exports. Devices that are included only in the Professional version can no longer be read out in the Essential version (freeware).

Contents

1. Introduction

1.1 Preface

The Reporting Software offers central data management and visualization of recorded data.

This allows complete documentation of the data of a measuring point, e.g.:

- Measured values
- Diagnostic events
- Reports

The evaluation software stores data in a SQL database. The database can be operated either locally or in a network (client /server).

NOTICE

When using the Essential version, a database stored in the network cannot be accessed simultaneously by multiple PCs.

1.2 Notes on safety conventions and icons

NOTICE
Note: Failure to observe instructions can damage the device or lead to a device malfunction!


Tip: Indicates additional information.

1.3 Safety instructions

NOTICE
Observe the following points:

- The manufacturer accepts no liability for damages resulting from incorrect use or use other than that designated.
- Observe all safety instructions in the Operating Manuals for the devices connected to the system.
- Installation, commissioning, operation and maintenance of the measuring system must be carried out by trained, skilled personnel authorized to perform such work by the facility's owner-operator. The skilled personnel must have read and understood these Operating Instructions and follow the instructions they contain.

1.3.1 Liability disclaimer

This software and the corresponding documentation can be revised or updated by the manufacturer without prior notice. In case of a revision or update, the end user has no claim to automatic delivery free of charge of the revised or updated software or the corresponding documentation.

It is at the manufacturer's discretion to decide whether or not a revision or update of the software is carried out, and when.

The documentation includes the printable version of the Operating Manual and brief operating instructions. The printable version of the Operating Manual is valid for the version specified on the cover sheet. The version number of the currently installed version is provided in the “Help” menu item.

Likewise, there is no warranty that this software will function on all hardware platforms or in conjunction with other software. We exclude all further claims due to any damages that occur.

NOTICE
The complete end-user license agreement can be called up anytime after installation in the main menu under "Help -> License agreement".

1.3.2 Safety instructions for Memograph M RSG45 with FDA approval

NOTICE
The following information concerning FDA 21 CFR Part 11 compliance is the responsibility of the user:

- Termination of the automatic system service must be regulated by Windows user rights.
- If a user does not log out of the software, a screensaver is automatically activated via Windows system settings.
- The software may only be operated via Windows login. The user must secure (lock) the computer when leaving the PC.
- If the administrator has forgotten the password, a time-limited master password is permitted. This is sent to the client on request and following authorization.
- It is possible to use and operate the software without identification and password protection. The client is responsible for the use of the software.

- Select "Enable user management " and "Password protection compliant to FDA21 CFR PART 11" in the software under "Extras -> Settings -> User administration".
- To prevent misuse of identity, the password must be changed when the user logs in for the first time (configurable).
- The period of password validity can be configured. This is the responsibility of the administrator.
- As the PC time is used for the PC software audit trail, it is possible to manipulate the time stamp. The operator is responsible for any changes to the PC time.
- User administration must be active in order to record the ID and user name in the audit trail.
- The user must perform data backup and/or preventive maintenance regularly.
- After printing out data, the user must check that the printout content is correct by manually comparing the data displayed on the screen against the printout and, where necessary, confirm the integrity of the data by providing a separate "non-electronic" signature on the printout.
- If the printer settings are changed to a printer that is not available, there is no printout! The software cannot configure the device or set device parameters.
  Exception: The software can synchronize the device time; the PC time and the device time may only deviate from one another within a certain tolerance range. Otherwise the time is not accepted for the device. The operator is responsible for ensuring the PC time is correct.
- A regular review of the error list (log file) is recommended. The "WindowsServiceLog.txt" is generated under "Automatic -> Job Type: Event view".
- When printing out a visualization, it is possible to restrict the output of values, diagrams, events and audit trail entries. Changes to the standard configuration are the responsibility of the user and are recorded in the audit trail.

1.3.3 Register trademarks

Pentium™: Registered trademark of the Intel™ Corporation

AMD™: Registered trademark of Advanced Micro Devices

Windows™, Vista™, Microsoft SQL Server™: Registered trademarks of the Microsoft™ Corporation

Oracle™: Registered trademark of the Oracle™ Corporation

CodeMeter®: Registered trademark of WIBU SYSTEMS

1.4 Hardware and software requirements

The following requirements must be met before installing and operating the PC software:

1.4.1 Hardware:

1.4.1.1 Hardware requirements for the FDM software

- PC with Pentium 4 (≥2 GHz),
- PC with Pentium M (≥1 GHz),
- PC with AMD (≥1.6 GHz)
- Minimum 1 GB RAM cache
- Minimum 20 GB free disk space
- Screen resolution of at least 1024 x 800 pixels
- CD/DVD drive

1.4.1.2 Hardware requirements for the reporting server

- Installation of the reporting server (the BPI Dashboard) requires approximately 1 GB of hard disk memory. Additional memory is required for report projects.
- The dashboard's Tomcat service requires approx. 1.5 GB of working memory. If the server is only used for reporting, 4 GB of working memory is sufficient. If other applications are operated here, this must be factored into the size of the working memory.

1.4.2 Software:

1.4.2.1 Operating system/software for the FDM software

- Microsoft Windows Server 2003 R2 SP2 Standard, Enterprise (32 bit)
- Microsoft Windows Server 2008 (32/64 bit)
- Microsoft Windows Server 2012 (64 bit)
- Microsoft XP SP3 (32 bit)
- Microsoft Vista (32/64 bit)
- Windows 7 (32/64 bit)
- Windows 8, Windows 8.1 (32/64 bit)
- Windows 10 (32/64 bit)
- Windows .NET 2.0 SP1

1.4.2.2 Operating system for the reporting server

- Windows 7 (64 bit)
- Microsoft Windows Server 2008 (64 bit)
- Microsoft Windows Server 2012 R2 (64 bit)

1.4.3 User rights for installation

- Logged in with Windows administrator user rights
- User Account Control (UAC) confirmation if enabled

1.4.4 Changes made during the installation:

1. Installation directory added
2. Files copied to installation directory
3. Application directory added
   - Windows 2000: %system drive%\Documents and Settings\All Users\Application Data\Endress+Hauser
   - Windows XP: %system drive%\Documents and Settings\All Users\Application Data\Endress+Hauser
   - Windows Server 2003: %system drive%\Documents and Settings\All Users\Application Data\Endress+Hauser
   - Windows Vista, Windows 7, Windows 8 and Windows Server 2008: %system drive%\ProgramData\Endress+Hauser
4. Windows .NET 2.0 SP1 installed (optional)
5. Field Data Manager Windows Service (FDM WS) installed (autorun, optional)
6. Field Data Manager Tray Icon Application (FDM TI App) installed (autorun, optional)
7. PostgreSQL server installation (optional)
8. Installation of the WIBU CodeMeter license server
9. Program shortcut created

10. FrameApplicationTomcat installed (Reporting components, optional)
11. Registry entries
12. Installation log file created (%tmp%)

1.4.5 Components

1.4.5.1 FDM TI App is executed with the user rights of the logged-in user

Read and write access to the following directories (version 1.01.01.06 and higher):

- Installation directory
- Application directory
- Allocated network drives (optional)

1.4.5.2 FDM WS is executed with the local system account

Read and write access to the following directories (version 1.01.01.06 and higher):

- Installation directory
- Application directory
- Allocated network drives (optional)

1.4.5.3 FDM application is executed with the user rights of the logged-in user

Read and write access to the following directories (version 1.01.01.06 and higher):

- Installation directory
- Application directory
- %tmp%

1.4.5.4 The reporting service (FrameApplicationTomcat) is executed with the local system account.

Read and write access to the following directories:

- Installation directory
- C:\ProgramData\

1.4.6 Firewall

- Communication port used for field devices (default: TCP port 8000, incoming/outgoing)
- Microsoft SQL database server (default: TCP 1433, incoming/outgoing)
- PostgreSQL database server (default: TCP 5436, incoming/outgoing)
- Oracle database server (default: TCP 1521, incoming/outgoing)
- LDAP network service (optional, default: TCP/UDP port 389, incoming/outgoing)
- Network printer (optional)
- Reporting server ? FDM: (default: TCP port 8080)
- Reporting server database port (default: TCP port 1552)
- Reporting server AJP port (default: TCP port 8052)
- Reporting server Tomcat shutdown port (default: TCP port 8012)

1.4.7 User

See 1.4.5 Components

1.4.8 User Account Control (UAC)

No special authorization is required after installation (unless the FDM user will start/stop FMD WS).

1.5 Installation / Uninstalling

NOTICE

You can find a detailed description of the installation in the Brief Operating Instructions supplied.

- Insert the DVD.
- If autostart is enabled, the installation is started automatically; otherwise
- Start the "Setup.exe" from the DVD.
- Follow the instructions of the installation program.

If you confirm the installation of the automatic component, an additional Windows system service is set up. This system service enables you to trigger and control automatic actions through the Reporting Software. These include, for example, automatic device read-out, automatic printing of reports, and automatic report generation (see Section 5.4. "Automatic").

The following databases are supported:

- PostgreSQL (for the Essential, Demo and Professional versions)

You can install and use the free PostgreSQL database provided on the installation DVD. No manual installation and configuration is necessary to do so. The database is configured automatically during the installation.

- Oracle (for the Demo and Professional version)

Version 8i or higher. Please contact your database administrator to set up the Reporting Software with the Oracle database. You can find a detailed description of the installation in the Brief Operating Instructions supplied.

- Microsoft SQL Server (for the Demo and Professional version)

Version 2005 or higher. Please contact your database administrator to set up the Reporting Software with the Microsoft SQL Server. You can find a detailed description of the installation in the Brief Operating Instructions supplied.

1.5.1 Software license

1.5.1.1 License server

From version 1.4.0, the WIBU CodeMeter is installed as part of the setup. CodeMeter manages the licenses for this software as well as software tools from other manufacturers.

1.5.1.2 Replacing hardware

The license technology used supports your productivity by allowing up to approx. 30% of the client hardware to be replaced without the license losing its validity.

1.5.1.3 License violation / Blocked license

License abuse and the replacement of more than 30% of the hardware will result in a license violation. In this case, the FDM can no longer be operated and no license operations are supported. Please take this into account in the case of maintenance and disaster recovery.

1.5.1.4 Blocked license container

License abuse results in the license container being blocked. Please note that this means that all Endress+Hauser applications activated on the client lose their valid license and can no longer be used.

1.5.1.5 Replacement license

Provided that you have not used up your allocation of activations, you will automatically receive an additional activation every 24 months. In the event that disaster recovery is performed on your client and you are unable to return the license, you will be able to re-activate the FDM independently and without having to contact Endress+Hauser.

1.5.1.6 Setting up client again

If there are no changes to the hardware, the FDM can be activated by re-installing the old activation file ('*.EHu).

1.5.1.7 Virtual environments

The FDM supports virtual environments on the same host if "moved". The copying (moving) of a VM image within the same host or to another host is not supported.

1.5.1.8 Software backup

Backup and restore of licenses is not supported. As a rule, a license can no longer be used after a restore! Use the "License server" function to transfer the licenses to another host if you need to back up the computer.

1.5.2 Software update/upgrade

You can find a detailed description of the installation in the Brief Operating Instructions supplied.

1.5.3 Uninstalling software

If you wish to uninstall the software, proceed according to the following steps:

1. Return the license (see section 1.7.2)
2. Deactivate Automatic Services, terminate Tray Icon application and analysis software
3. In the Control Panel, select the "Field Data Manager x.x.x." software under "Uninstall or change a program".
4. Select "Uninstall" and follow the instructions.

NOTICE

The WIBU CodeMeter remains on the system and is not uninstalled.

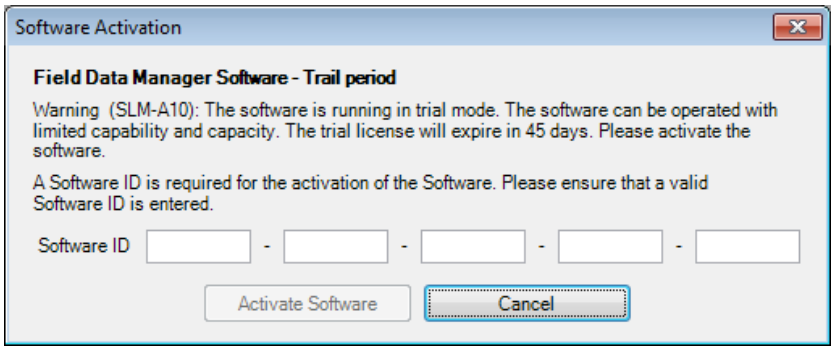
1.6 Starting the program, selecting the operating language

Under "Start -> Programs", you will find the newly installed "Field Data Manager Software" program. Start the program and, if necessary, change the operating language under "Extras -> Settings -> Language". The changed operating language is applied after the program is restarted.

1.7 License management and software activation

NOTICE

In order to use the Professional version or reporting function, a valid software ID is required and the software must be activated.
If there is no software ID, you will be notified of this when starting the program:



Enter your software ID here. You will find this information on the sleeve of the DVD. The software can then be activated.

1.7.1 Activating software

To activate the software, proceed as follows:

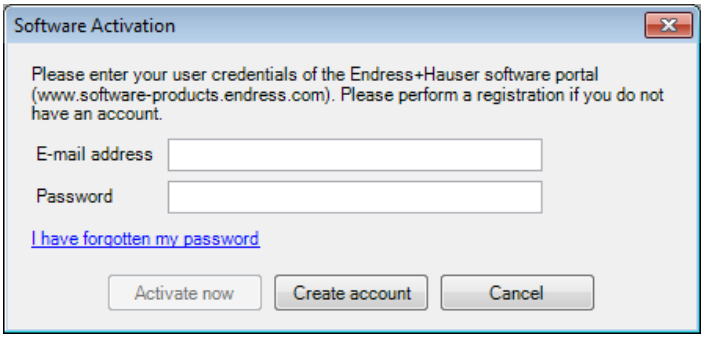
1. Click the menu item "Help -> License information"
2. Click "License information".

3. Click "Activate software".

NOTICE

To activate the software, you will need an account for the Endress+Hauser Software Portal at:
https://software-products.endress.com

The Software Portal allows you to manage licenses for Endress+Hauser products. If you do not know the details required to log in to the Software Portal, please contact the person responsible for licenses in your company, or click "Create account":

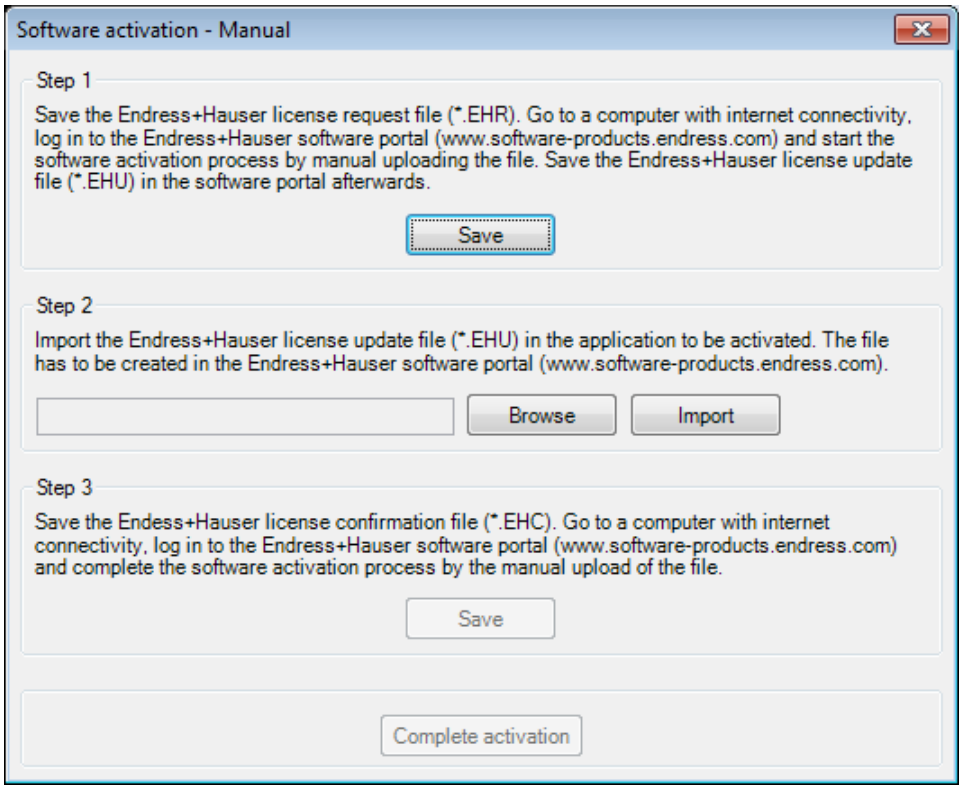


4. Click "Activate now".

NOTICE

Manual activation (offline activation)

In the event that online activation is not possible, the program switches automatically to manual activation. A dialog box for manual activation opens. Follow the instructions.



1.7.2 Returning the license

If you wish to install the software on a new computer, for example, you must return the already used license to the Endress+Hauser Software Portal.

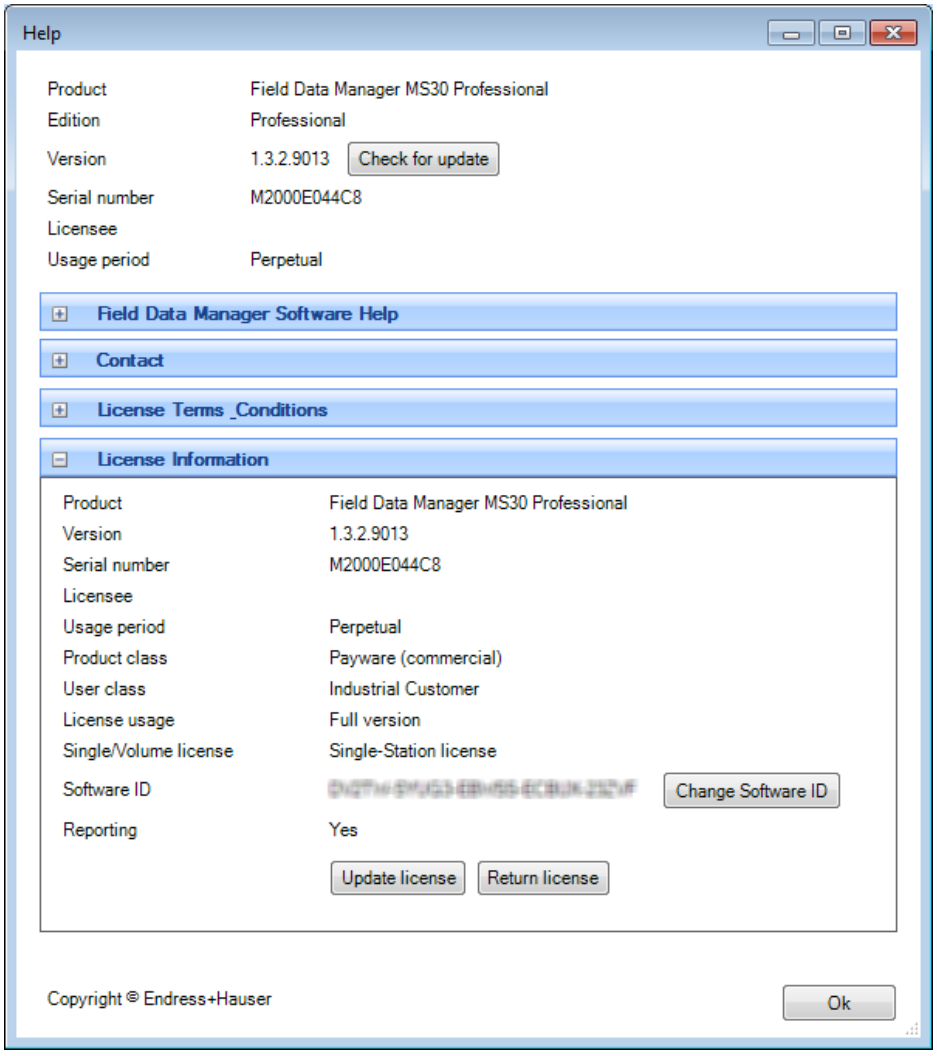
NOTICE

Once the license has been returned, the software can no longer be used on this computer.

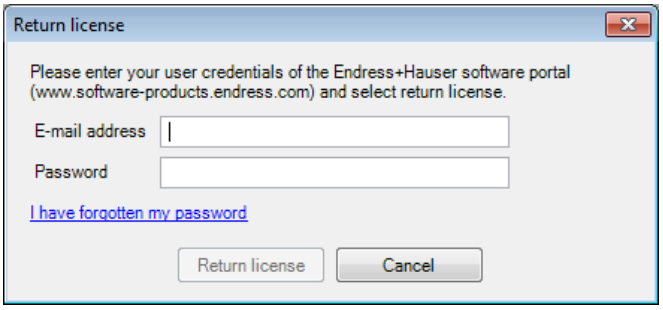
Once it is installed on a new computer, the license can be reactivated and used again.

To return the license, proceed as follows:

1. Click the menu item "Help -> License information"
2. Click "License Information".



3. Click "Return license" to open the following dialog box:



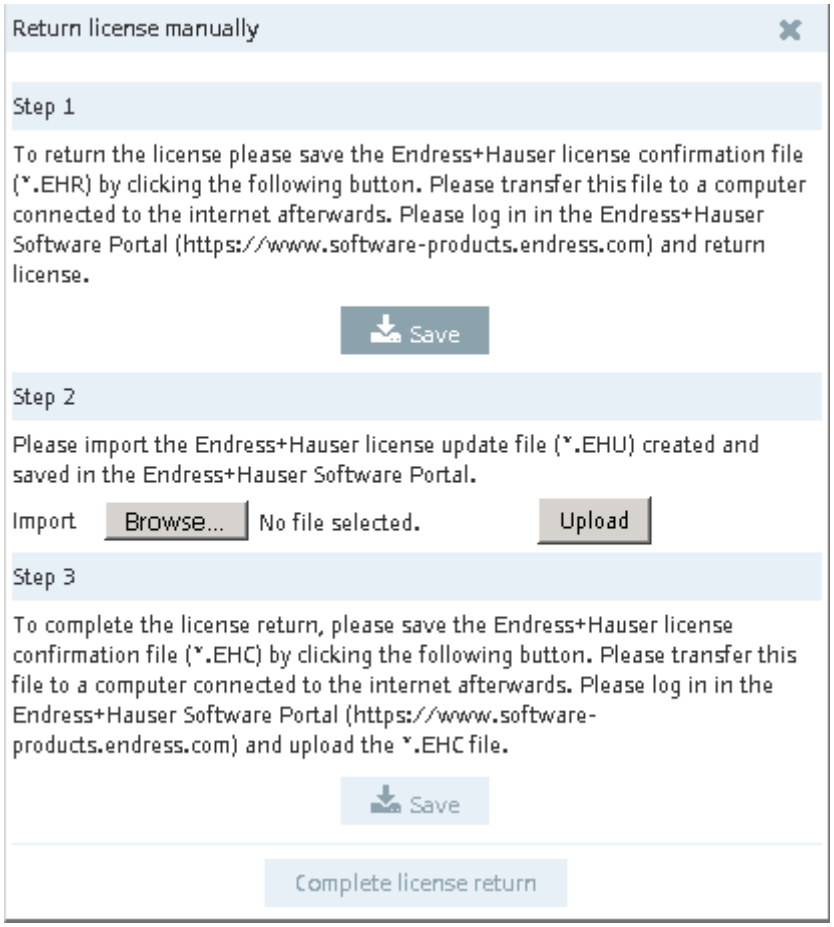
4. Enter your login details and confirm your login information by clicking on "Return license" again.

You will receive confirmation that the license has been returned successfully.

NOTICE

Manual return of license (offline mode)

In the event that online license returns are not possible, the program switches automatically to manual license returns. A dialog box for manual license returns opens. Follow the instructions.



1.7.3 Upgrading and updating license

1.7.3.1 Upgrading license

If you require additional functions, modules (e.g. reporting) or additional users (multi-user license), your license can be upgraded accordingly.

1. Please contact your Endress+Hauser sales office.
2. Order the license upgrade suited to your needs. Endress+Hauser upgrades your license and sends you confirmation of the license upgrade.
3. Update your license when you receive confirmation of the license upgrade.
4. Check your license under "Help -> License Information -> License Information"

1.7.3.2 Updating license

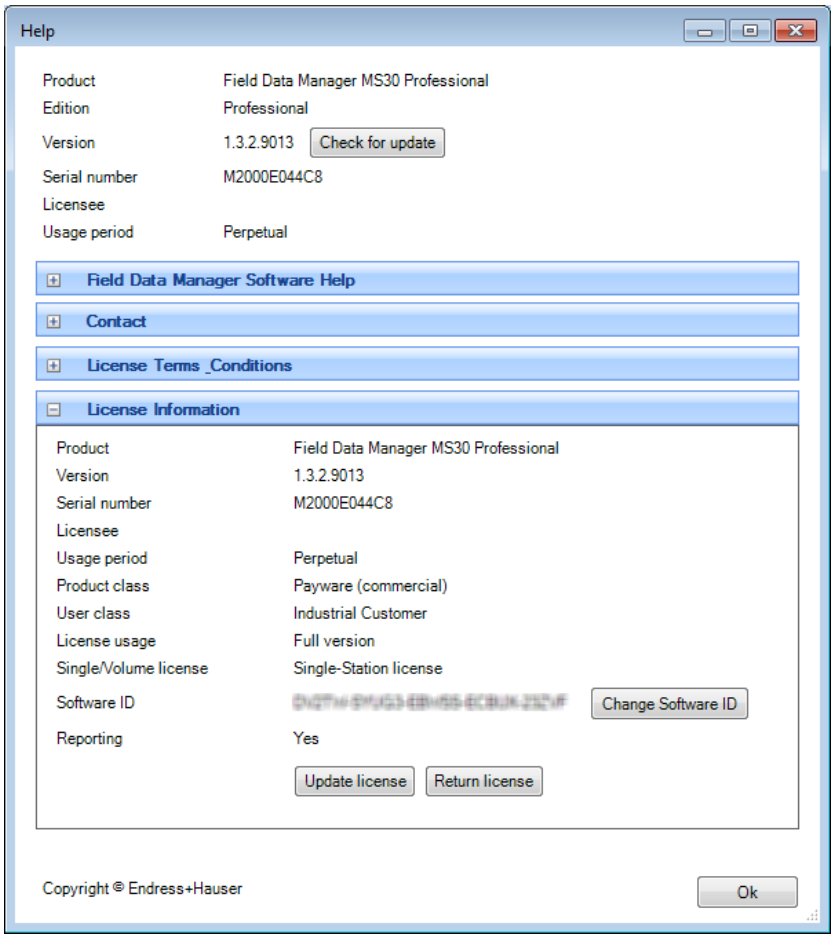
A license update means that you have updated your contract with the Endress+Hauser sales office and purchased new functions (e.g. reporting function) or additional licenses.In order to activate the new components of the contract, the license must simply be updated.

NOTICE

Updating the license does not require that the software be re-installed.

To update the software with the license upgrade, proceed as follows:

1. Click the menu item "Help -> License Information"
2. Click "License Information".

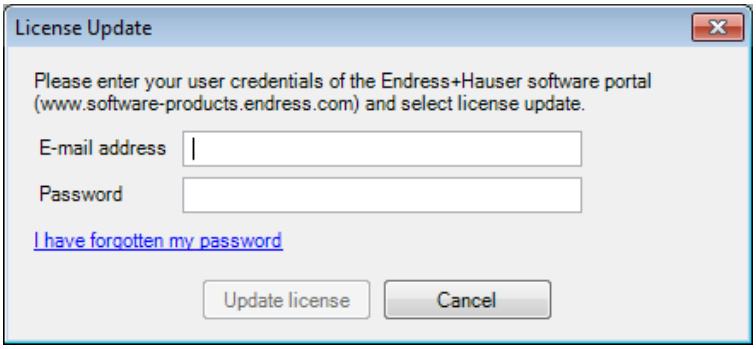


3. Click "Update license".

NOTICE

To update the license, you will need the login details for your account with the

Endress+Hauser Software Portal at:
https://software-products.endress.com.
If you do not know the details required to log in to the Software Portal, please contact the person responsible for licenses in your company:

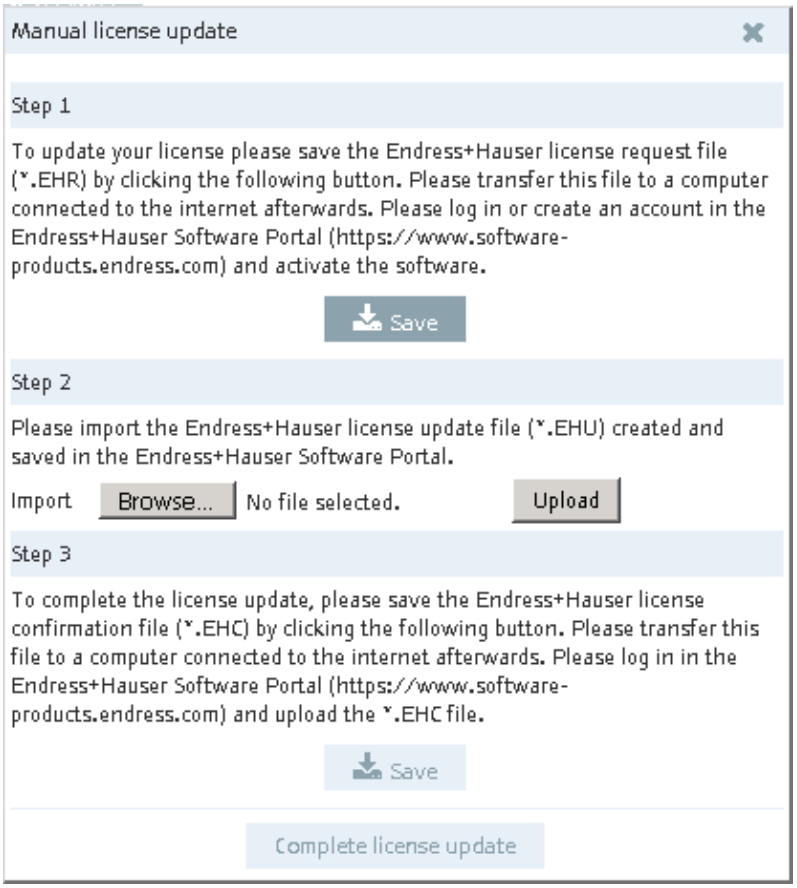


4. Click "Update license".

You will receive confirmation that the update was successful.

NOTICE

Manual license update (offline mode)
In the event that online updates are not possible, the program switches automatically to manual license updates. A dialog box for manual license updates opens. Follow the instructions.



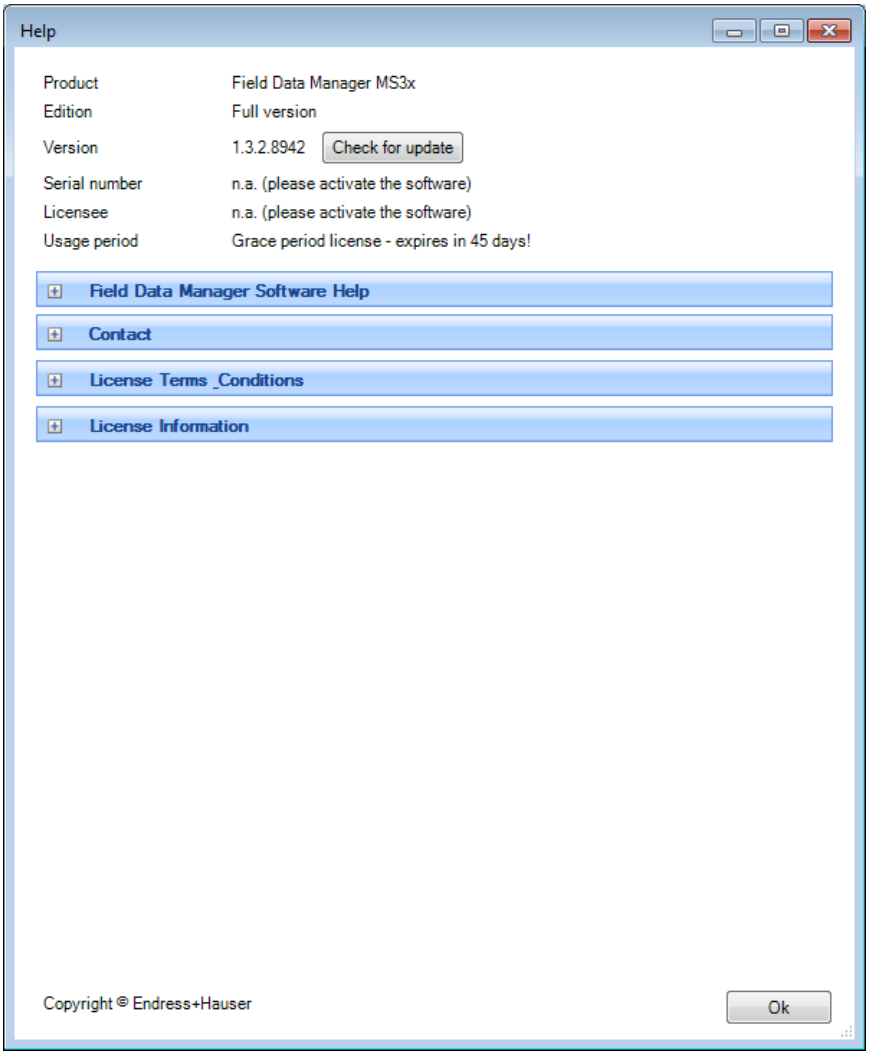
1.7.4 Searching for updates The software provides the option to search for updates.

NOTICE

This function is available exclusively in the Professional version.

If an update is available and you wish to update your version, please contact your Endress+Hauser sales office.

1. Click "Help -> License information". The following screen appears:



2. Click "Check for update".
3. A connection to the Endress+Hauser server is established and a web browser window opens. A message appears in this window informing you whether or not updates are available.

1.8 Getting started, switchover from ReadWin 2000

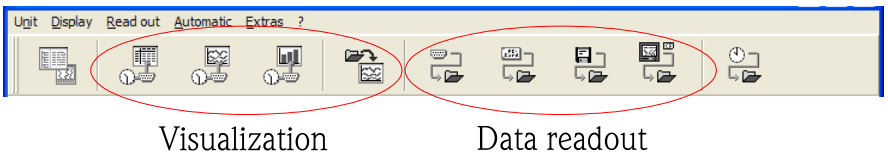
NOTICE

In contrast to ReadWin 2000, the Reporting Software does not support device configuration.

All the readout functions of ReadWin 2000 have been merged into the "Data Readout" task in the Reporting Software. Here, the data can be read out via an interface – i.e. connected to the device online – or via a data storage medium.

In addition, the functions for displaying the read-out data have been merged into one "Visualization" task in the Reporting Software. It is possible to select the display mode (bar graph – histogram, line chart or table) and visualize the data directly via the chart settings or channel settings (as users will know from Excel for example). This means that individual channels can be displayed differently in a single chart.

Functions in ReadWin 2000 compared to the new Reporting Software:



In the Reporting Software, the device settings (communication, automatic functions) are configured via the plant tree structure by right-clicking the device or directly in the individual visualization steps or when reading out the device data.

As with ReadWin 2000, the settings for configuring the automatic function are grouped in one point under "Data Management –> Automatic".

The automatic function is set up as a system service and runs in the background. The Reporting Software does not necessarily have to be started to run an automatic task.

1.9 Applying the Plant View from FieldCare

To apply the Plant View from FieldCare, you have to first export the view from FieldCare or save it as a CSV file. For this purpose, FieldCare enables you to export the Plant View in CSV format via "File -> Import/Export -> Export as CSV" and to store it at a location to be defined. This device tree can then be adopted in the Reporting Software.

The Reporting Software enables you to apply an existing, saved device tree or an existing Plant View from another program (e.g. FieldCare). This functionality is provided in the "Data Management -> Plant View" task.

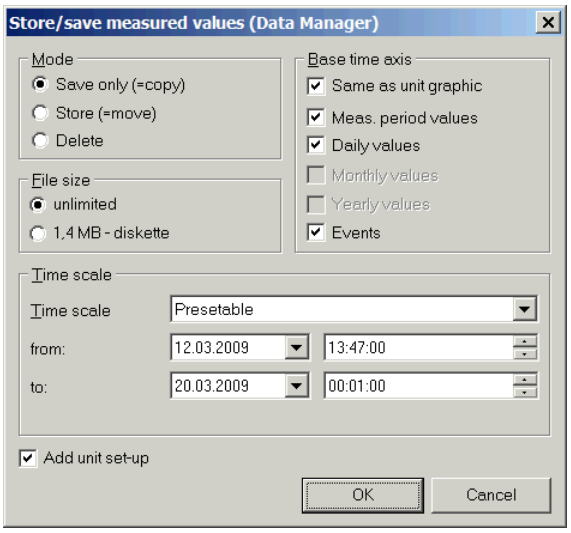
Pressing the "Box with arrow"  icon opens the menu structure of the computer. Select the storage location and the corresponding CSV file of the Plant View. Then, the tree structure is read into the database and stored there. The same functionality is provided by selecting the enterprise, then right-clicking and selecting "Import Plant View" (see Section 5.1 Data management -> Plant view) .

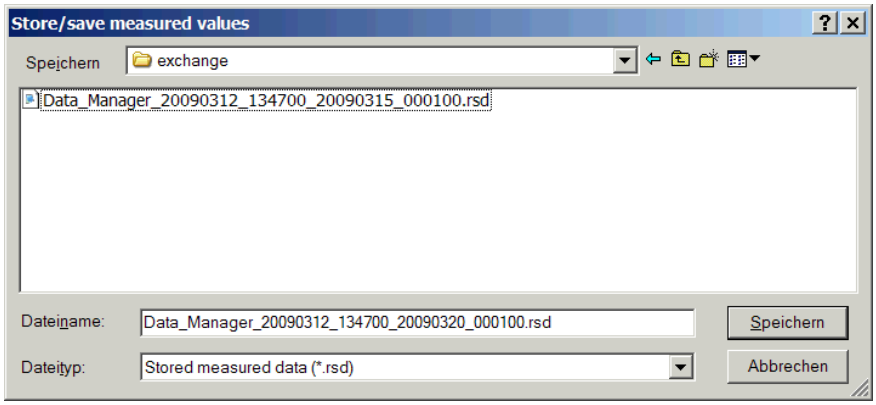
NOTICE

As the Essential version does not support all devices, only data from supported devices can be imported in this version!

1.10 Importing data from ReadWin 2000

To import data from ReadWin 2000 to the SQL database of the Reporting Software in a tamper-proof manner, the process begins with the secure data export from ReadWin 2000. For this purpose, the data for the corresponding devices are exported to a storage medium or drive (Extras -> Store/Save Measured Values):

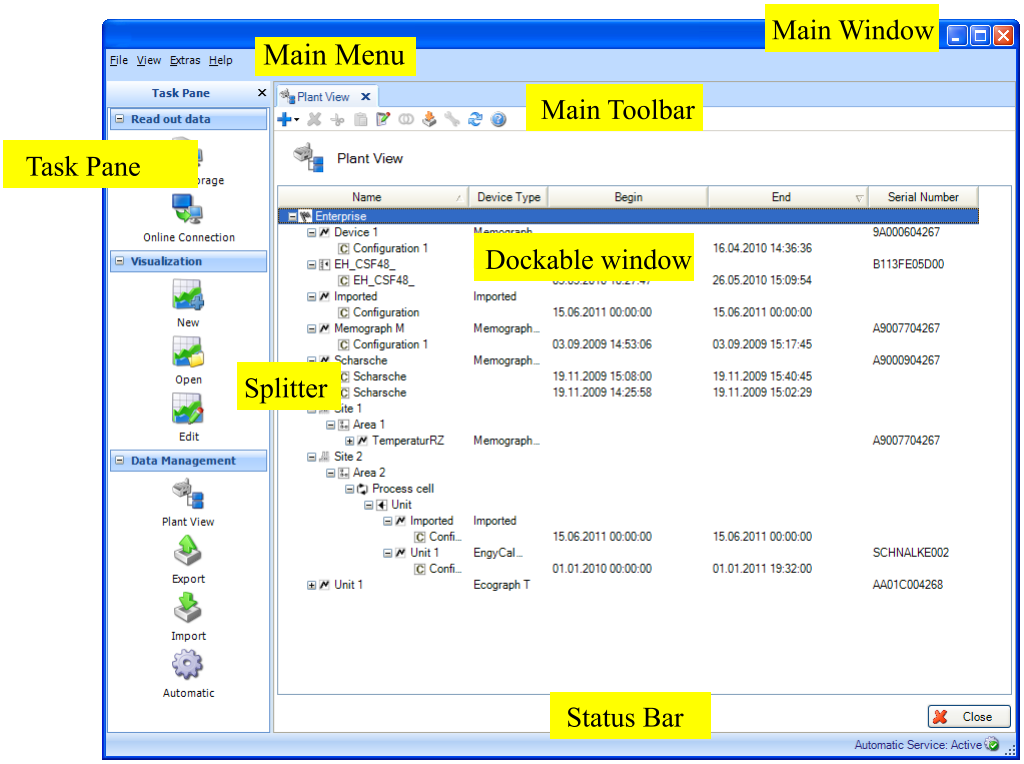




Subsequently, the data of the individual devices are imported into the SQL database via the import function of the Reporting Software. For this purpose, select the "rsd" data format. See the description of the import function in Section 5.3 on page 76.

1.11 The main window

The general layout of the Reporting Software user interface is illustrated in the graphic below:



1.11.1 Main menu

The main menu at the top contains the menu bar with function groups for software settings.

File -> End program

View -> View settings

Extras -> Settings for the database, language, user administration, audit trail

Help -> Start online help, software information, change/activate license

1.11.2 Toolbar

The toolbar in the dockable window allows quick access to functions such as printing, saving or the online help.

1.11.3 Task pane

The task pane is located on the left. The task pane can be displayed and hidden via the "View" function in the main menu. Click on a task to open the task. The functions contained are displayed:

Read out data -> read out data via mass storage or online connection to the device

Visualization -> open, edit, delete or create a new visualization template

Reporting (optional) -> create, open or delete dashboards/reports, assign dashboards, manage report projects

Data management -> plant view, device data export and import

1.11.4 Main window

The main window contains the dockable windows. Tabs are displayed when more than one dockable window is present.

1.11.5 Dockable window

A dockable window can be docked in the main window or can “hover” outside the window. It is possible to position the window without blocking other windows. There is a button for closing the window (X) on the right.
Every dockable window has a title bar (at the top of the window) with the name of the sub-element
and the associated icon on the left-hand side. A toolbar containing window-specific icons, quick information and functionalities is located below the title bar. The main area of the dockable window starts below the toolbar.

1.11.6 Status bar

The status bar shows the login status and other information.

1.11.7 Splitter

The splitter separates the task pane from the main window. The splitter can only be moved if the task pane and main window are visible. Change the position of the splitter to change the size of the task pane and main window.

2. Task pane -> Read out data

Read out data and store them to the database – "Read Out Data"

By selecting the "Read Out Data" task from the task pane, you can carry out the configuration, read out measurement data or other data stored in the device and simultaneously store the data to a database so that they are tamper-protected.

The free PostgreSQL database supplied with the Reporting Software or existing SQL databases (Oracle and Microsoft SQL server) can be used as the target database. For the settings for selecting the database, refer to Section 6.1.2 .

NOTICE The Essential version only supports the free PostgreSQL database provided.

In the "Read Out Data" task, the two types of readout, "Mass Storage" or "Online Connection", are available.

Clicking the corresponding icon opens an additional working window in the right half of the screen. This window guides you step-by-step through the items to be defined.

Icons in the upper area help you navigate through the individual steps:

- Green arrow pointing left: Corresponds to the "Back" button; jump to the previous definition step.
- Green arrow pointing right: Corresponds to the "Next" button; jump to the next definition step.
- Question mark: Help; call up the help function for the corresponding definition step.

2.1 Read out data -> Mass storage

In this task, you can read out and store data (binary *.dat) from storage media such as SD cards, USB sticks or a drive.

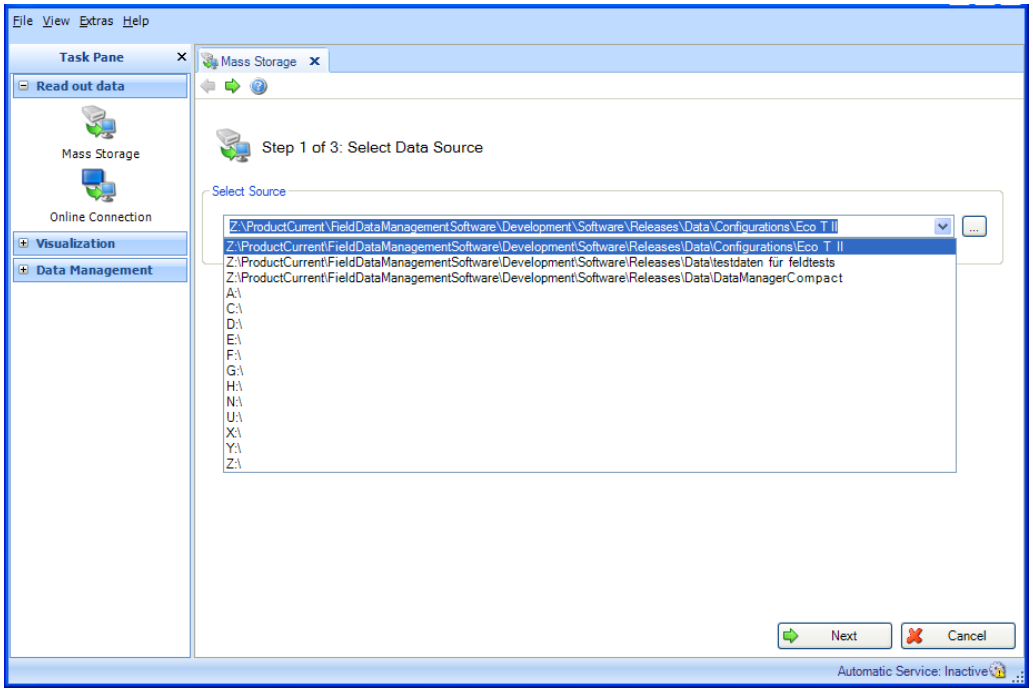
2.1.1 Step 1 of 3: Select data source

Where are the data to be read out stored?

Select the data source.

The "…" button opens the folder and interface structure of Explorer and the workstation.

The drop-down menu suggests storage locations and storage media that were already used earlier:



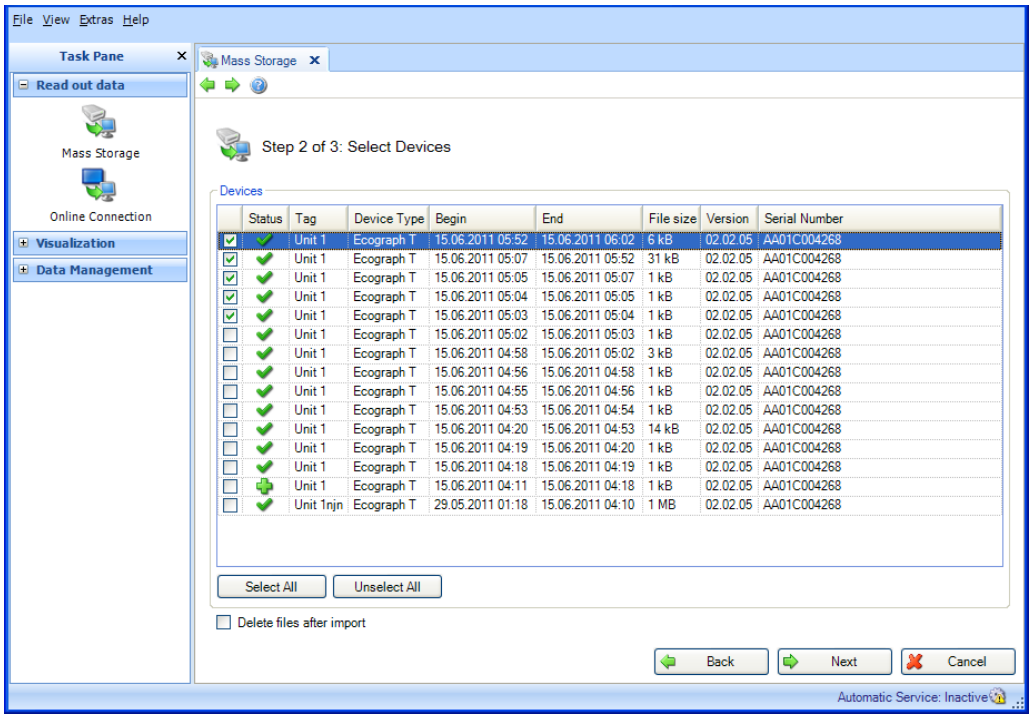
After selecting the data source or storage location of the data to be read out, you can jump to the next step using "Next".

Clicking "Cancel" terminates this action, closes the window and stops the process.

2.1.2 Step 2 of 3: Select device

From which device are the data to be read out?

In this second step, the corresponding devices and the data time range are selected:



The "Devices" area lists the devices found on the storage medium.

There, you can select a device or devices by checking them. This means that you do not have to read out the entire data volume of the storage medium.

You can select them all using the "Select All" button. "Unselect All" removes the selection.

By checking the box for "Delete Files after Import", the selected data are deleted from the data storage medium as soon as these data have been stored successfully to the database.

NOTICE Once data are deleted from the storage medium, this cannot be undone!

When you have finished selecting the devices to be read out, define the volume of data to be stored. This data is then read out in the next step.

Finish your selection by pressing "Next".

You can return to the previous view by selecting "Back".

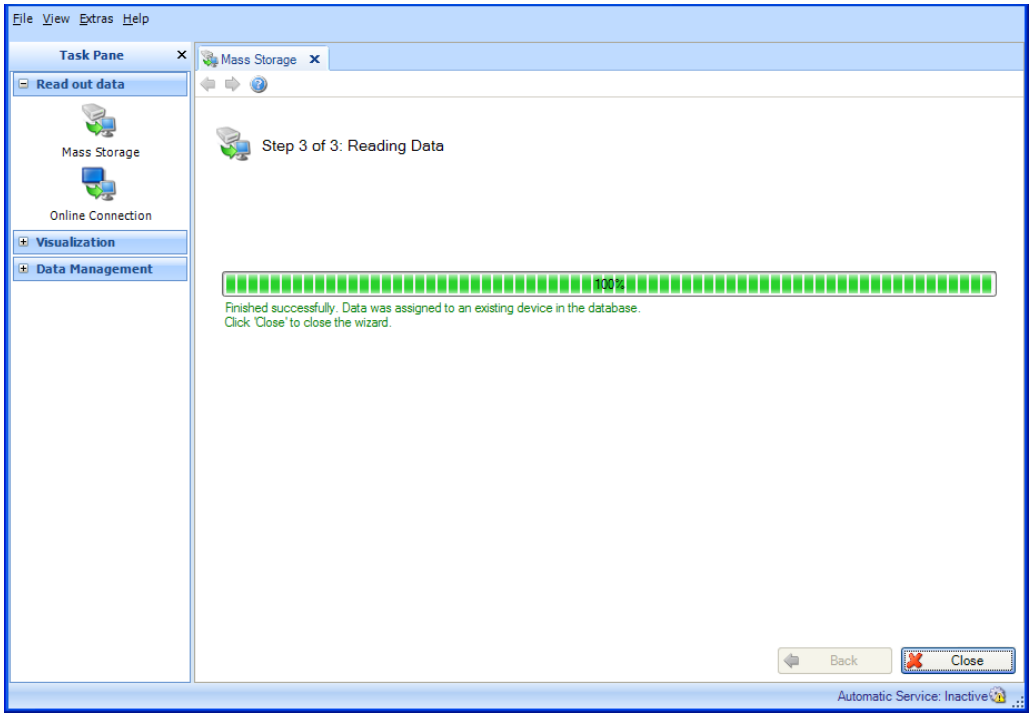
Clicking "Cancel" terminates this action, closes the window and stops the process.

2.1.3 Step 3 of 3: Reading data

The defined data are read out and stored to the database.

A progress bar shows the progress in % and displays the estimated time remaining. The duration of the read-out process depends on the data volume and the storage medium used. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

Once the action has been completed, a confirmation text appears below the progress bar:



The data defined in steps 1 and 2 have now been read in from the storage medium successfully and stored to the database.
If, in step 2, the "Delete Files after Import" check box was ticked, the stored data will also have been successfully deleted from the storage medium.

Select "Close" to end the process. The window closes.

2.2 Read out data -> Online connection

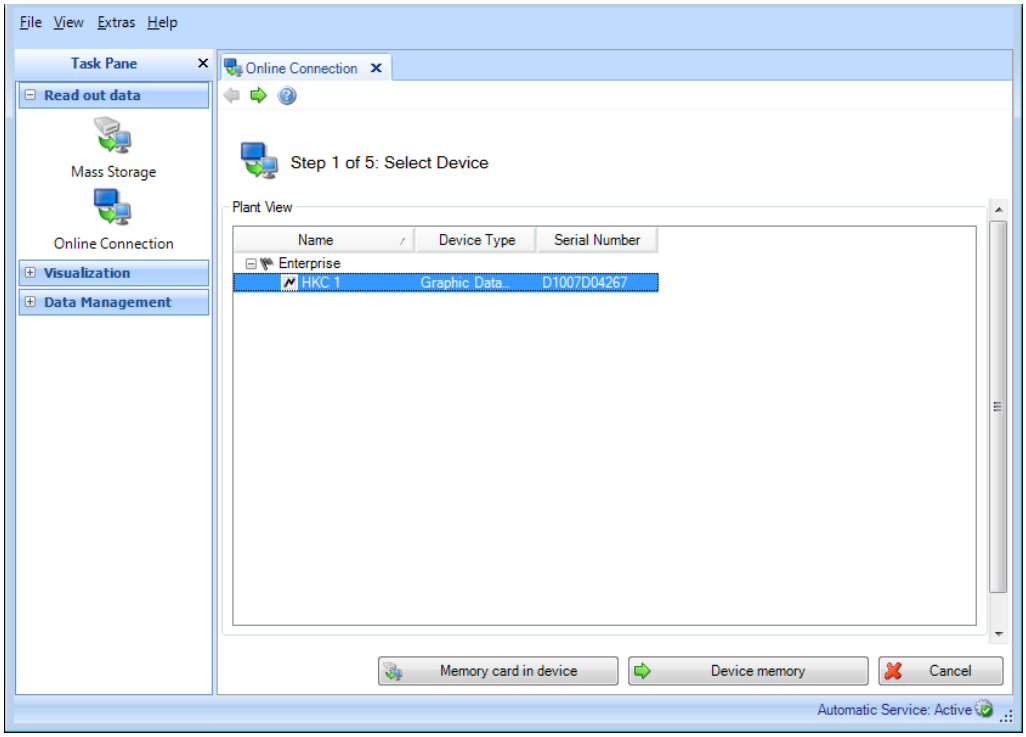
2.2.1 Read data from a device which has already been created

2.2.1.1 Step 1 of 5: Select device

From which device do you want to read out?

NOTICE Not all devices are supported in the Essential version. Unsupported devices which have already been installed are displayed along with their configuration. However, the available functionality cannot be applied to them.

The device to be read out is selected in step 1. The view shows the Plant View already created. This view can be restructured and expanded (see 5.1 Data management -> Plant view)"".



The "Memory card in device" and "Device memory" buttons are used to select the device data to be read out.
"Memory card in device": The data on the memory card of the selected device are read out.
"Device memory": The data in the internal memory of the selected device are read out.

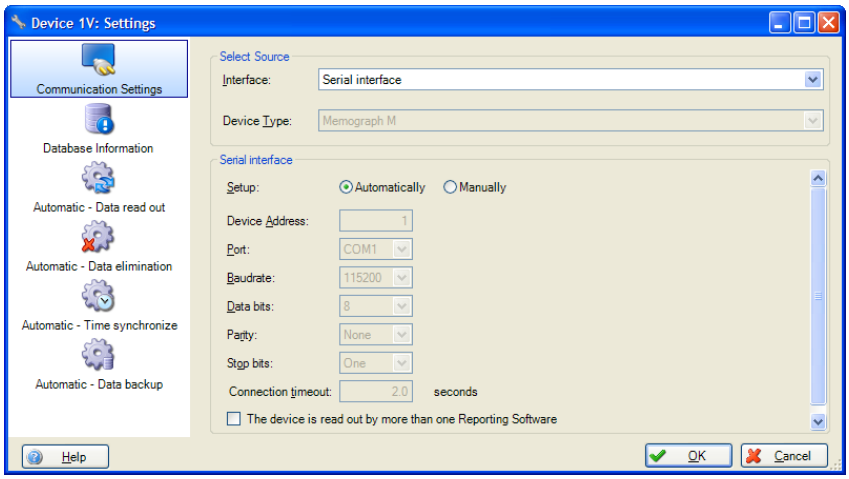
As soon as the selected data have been stored successfully to the database they are deleted from the device memory or from the memory card in the device.

NOTICE
Once data are deleted, this cannot be undone!

You can activate an immediate readout by right-clicking and then selecting "Read Out Data" or by selecting "Next". Then, step 5, "Read Out Data", opens.

Reading out via a communication interface requires a defined communication with the device. Communication can be configured or modified via data management, when creating devices in the Plant View, or in this step.

Selecting the device and right-clicking, then selecting "Configure Interface..." opens the Communication Settings:



Clicking "Cancel" terminates this action, closes the window and stops the process.

2.2.1.2 Step 2 of 5: Configure device settings

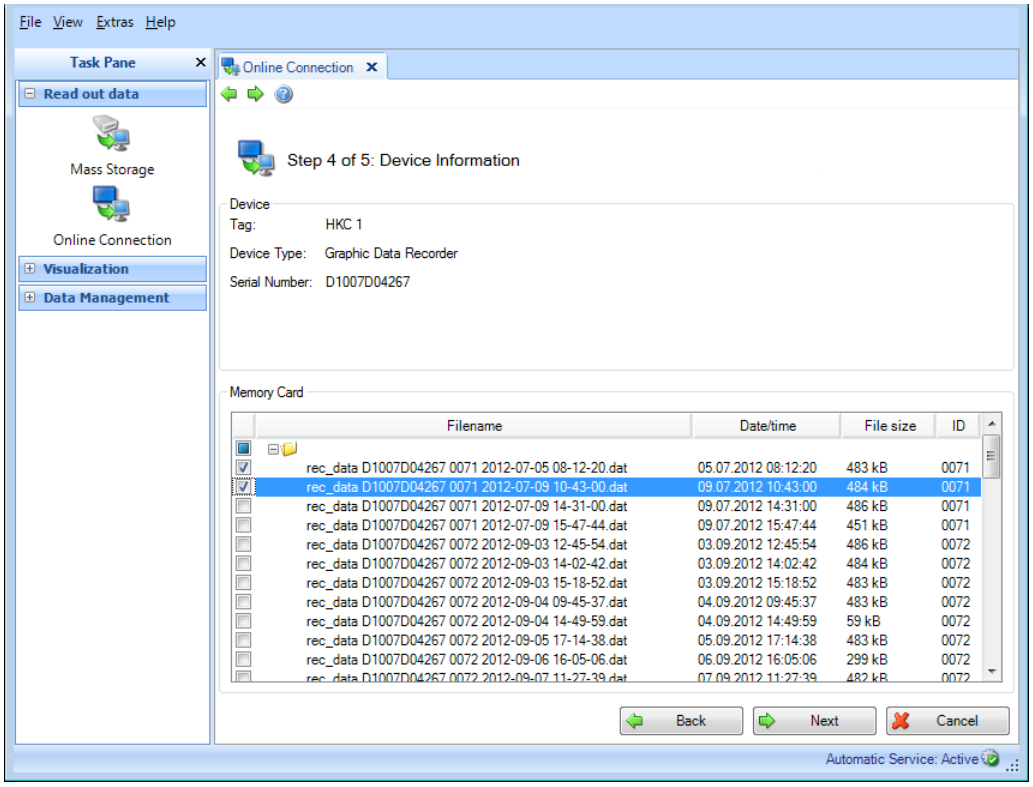
Step 2 is skipped automatically, as the device settings are already stored in the saved device.

2.2.1.3 Step 3 of 5: Configure automatic

Step 3 is skipped automatically, as the automatic configuration is already stored in the saved device.

2.2.1.4 Step 4 of 5: Device information

If "Readout memory card in device" is selected in step 1:
The software tests the connection to the device and loads the specific device information.
The screen displays the data on the memory card. These data can be individually selected for readout:



To modify the selected device or the communication specifications, you can return to the previous steps via "Back".

Clicking the "Next" button activates reading out of data from the device.

Clicking "Cancel" terminates this action, closes the window and stops the process.

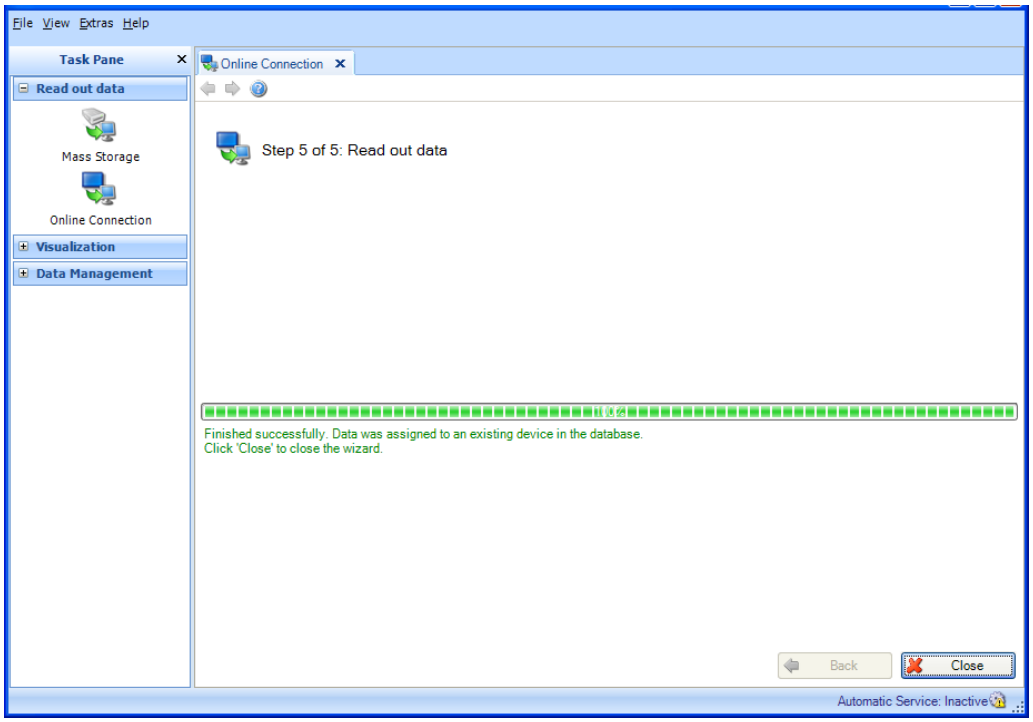
If "Readout device memory“ is selected in step 1:
Step 4 is skipped automatically, and all the data are read out of the device memory.

2.2.1.5 Step 5 of 5: Read out data

The defined data are read out and stored to the database.

A progress bar shows the progress in % and displays the estimated time remaining. The duration of the read-out process depends on the data volume and the storage medium used. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

Once the action has been completed, a confirmation text appears below the progress bar:



The defined data have now been read out of the device successfully and stored to the database. The stored data have also been successfully deleted from the device memory.

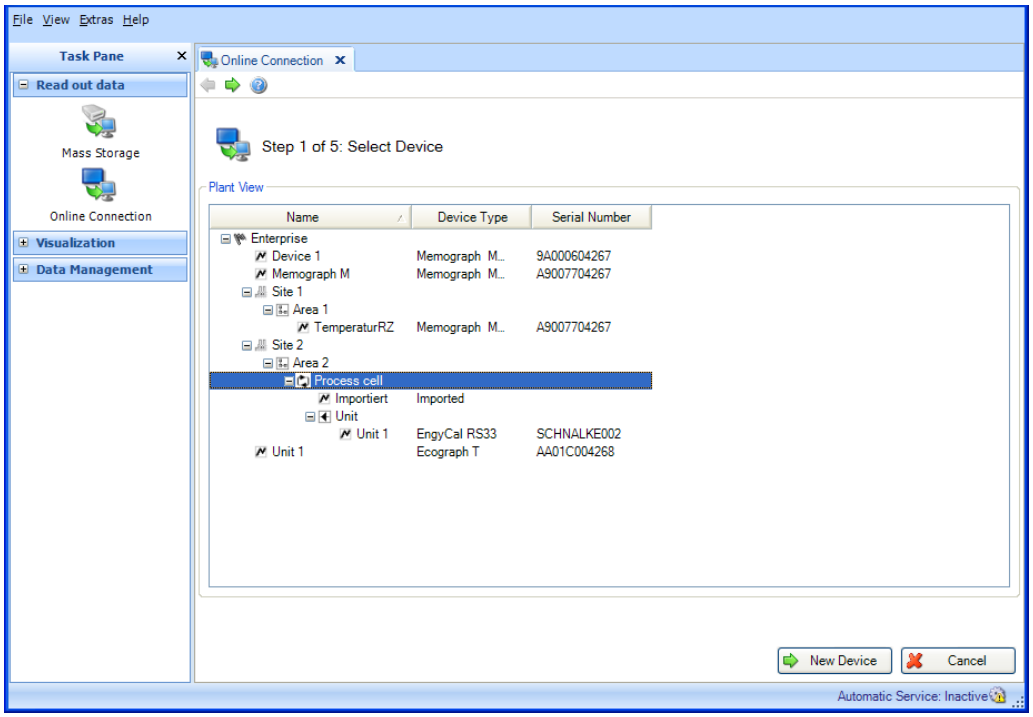
Select "Close" to end the process. The window closes.

2.2.2 Reading out a new device not yet created

2.2.2.1 Step 1 of 5: Select device or create new device

The view shows the Plant View already created. This view can be restructured and expanded (see 5.1 Data management -> Plant view)"".

If the device to be read out is not yet created, you can create a new device using the "New Device" button. Pressing this button jumps to step 2.



Clicking "Cancel" terminates this action, closes the window and stops the process.

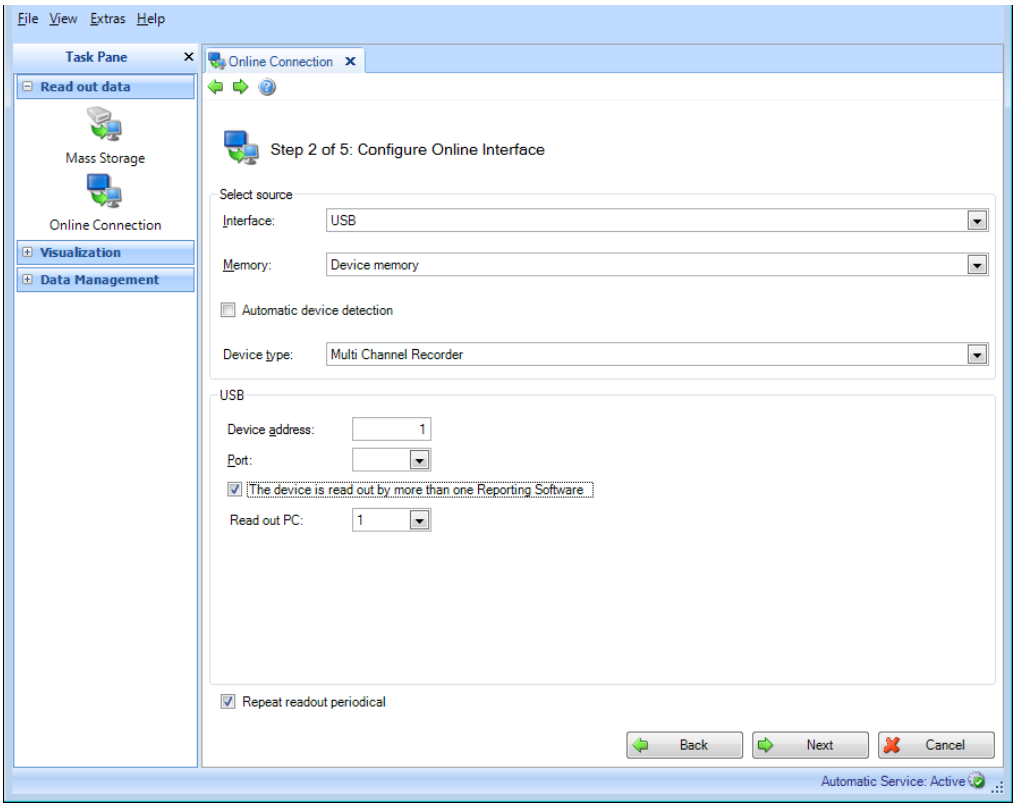
2.2.2.2 Step 2 of 5: Configure device settings

In step 2, the new device to be created and read out is defined.

To so do, define the interface to the device, the device type and the memory to be read out (device memory, mass storage) in the "Select Source" area.

Automatic device detection: In the case of automatic device detection, the device type is automatically detected when the required interface parameters are specified. Automatic detection is enabled as standard. If automatic device detection is disabled, a drop-down list of all supported device types appears once the interface is specified.

Then, in the lower area, define the communication/interface in greater detail.



By checking the box for "The device is read out by more than one Reporting Software", it is possible to read out up to 4 PCs.

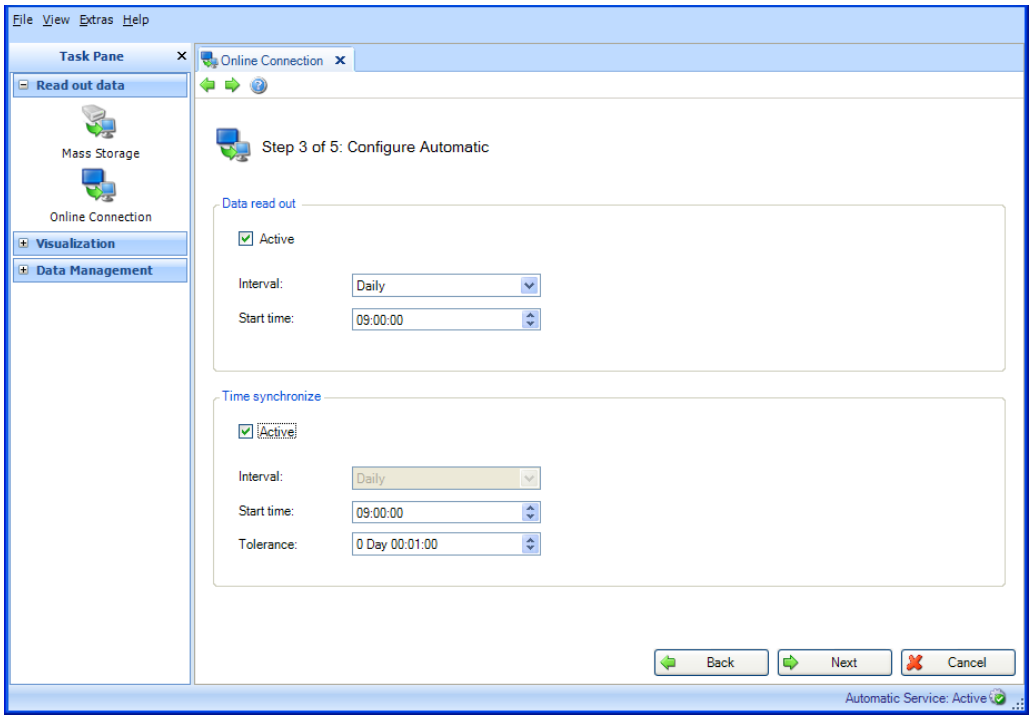
Checking the box for "Repeat readout periodical" enables regular automatic readout. You can define the automatic function for the corresponding device in the next step or via the automatic configuration 7.3). The automatic readout requires a continuous connection to the device.

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

2.2.2.3 Step 3 of 5: Configure automatic

NOTICE

This is possible only if "Repeat readout periodical" has been selected in the previous step.



Data read out:
The regularity of the automatic function is defined here. For this purpose, the "Active" check box must be selected.
Interval: How often does the export take place?
Depending on the selected interval, define the repetition, start day and start time (see Section 7.3).

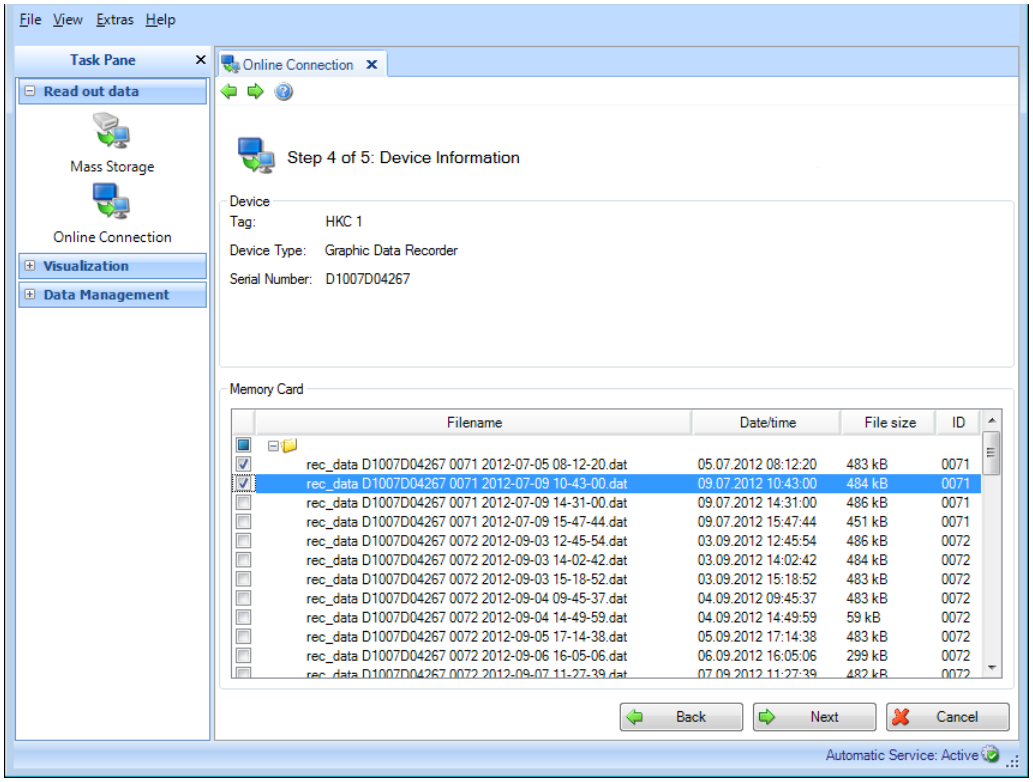
Time synchronize:
Here, you can synchronize the device time with the system time of the computer.
To define the regularity of the synchronization, the "Active" check box must be selected (see Section 7.5).

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

2.2.2.4 Step 4 of 5: Device information

This tests the communication defined for the device.
The software tests the connection to the device and loads the specific device information.

In addition, if "Readout memory card in device“ is selected (in step 2), the data which are contained on the memory card and which can be individually selected for readout are displayed:



To modify the selected device or the communication specifications, you can return to the previous steps via "Back".

Clicking the "Next" button activates reading out of data from the device.

As soon as the selected data have been stored successfully to the database they are deleted from the device memory or from the memory card in the device.

NOTICE

Once data are deleted, this cannot be undone!

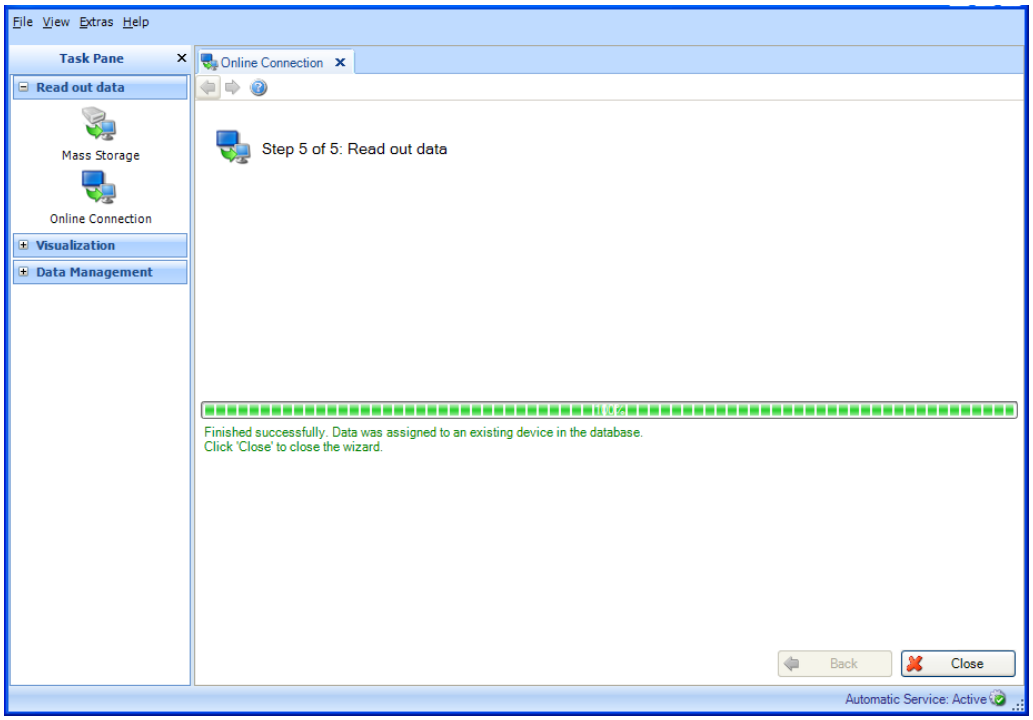
Clicking "Cancel" terminates this action, closes the window and stops the process.

2.2.2.5 Step 5 of 5: Read out data

The defined data are read out and stored to the database.

A progress bar shows the progress in % and displays the estimated time remaining. The duration of the read-out process depends on the data volume and the storage medium used. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

Once the action has been completed, a confirmation text appears below the progress bar:



The defined data have now been read out of the device successfully and stored to the database. The stored data have also been successfully deleted from the device memory or the memory card in the device.

Select "Close" to end the process. The window closes.

3. Task pane -> Visualization

In the Task pane, the "Visualization" task includes all items that pertain to displaying the stored or current data.

Basically, the three functions "New", "Open" or "Edit" are available.

The "New" function creates a new visualization. By clicking "Open", visualizations (templates) that have been defined earlier and stored are available. By clicking "Edit", templates that have been defined earlier can be changed (e.g. select additional channels, delete templates etc.).

Clicking the corresponding icon opens a working window in the right half of the screen. This window takes you step-by-step through the process for displaying the stored data in the desired variant.

Icons in the upper area help you navigate through the individual steps: Icons in the working window that are grayed out are not available for the corresponding work step.

-  Green arrow pointing left: Corresponds to the "Back" button; jump to the previous definition step.
-  Green arrow pointing right: Corresponds to the "Next" button; jump to the next definition step.
-  Question mark: Help; call up the help function for the corresponding definition step.

NOTICE

In the Essential version, templates can be created, displayed and edited only if they contain data from devices supported by this software version! Only one device can be assigned in each case to the templates!

3.1 Visualization of saved data

3.1.1 Visualization -> New

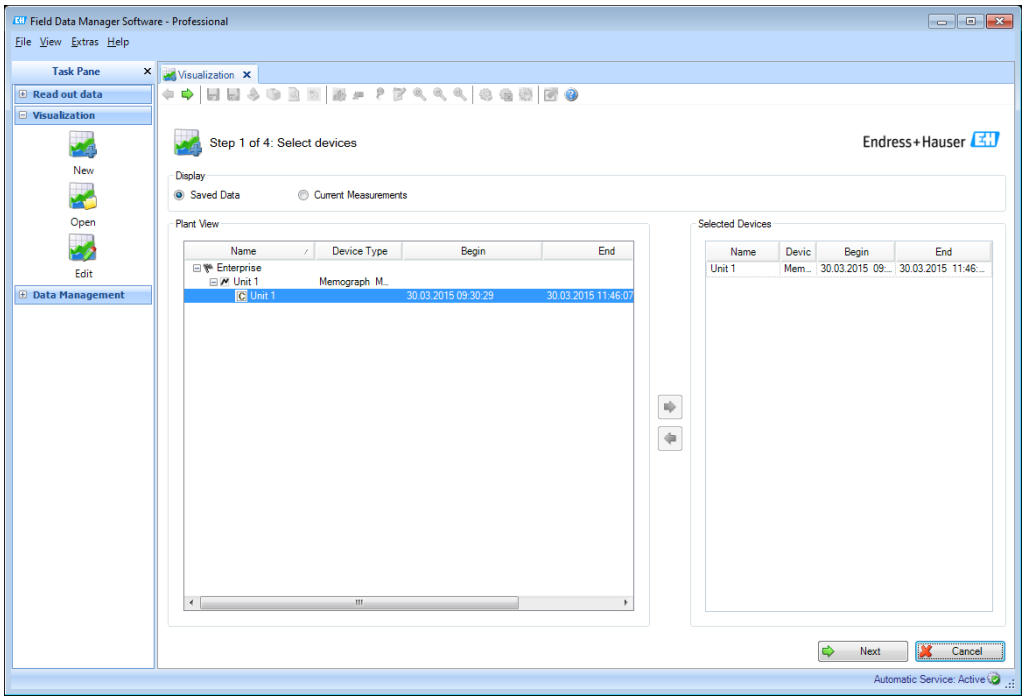
3.1.1.1 Step 1 of 4: Select device

In step 1, the source devices are selected. On the left side of the working window, you can see the Plant View (see 5.1 Data management -> Plant view). This view lists all devices for which you can visualize the data.

NOTICE

Only supported devices can be selected in the Essential version!
No more than one device can be selected!

The right side of the working window shows the summary of the selected devices:



You can select a device for the visualization by checking the device in the Plant View and clicking or double-clicking the blue arrow that appears.

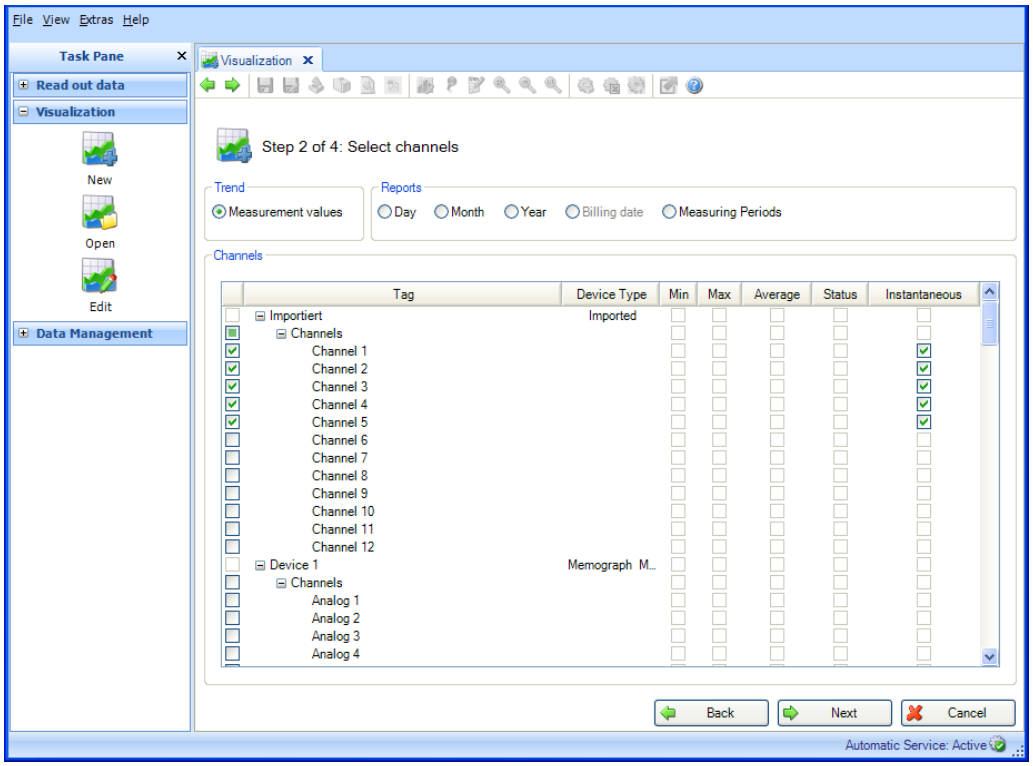
If you later want to remove a device from the list of selected devices, select it in the right-hand list, then double-click the selected device or click the blue arrow that points towards the left to remove it from the list.

If at least one device has been selected, the "Next" button appears. Click this button to jump to the next step.

Clicking "Cancel" terminates this action, closes the window and stops the process.

3.1.1.2 Step 2 of 4: Select channel

In step 2, select the reports and channels:



Functions:

Trend:
Measurement values: Instantaneous values (analog values) of the selected device can be selected.

Reports:
Reports can be selected for the selected device, e.g. day, week, month, external (selection only possible if these reports are stored in the device).

Channels:
Device designation/TAG, device type: This shows information about the selected device.
Min, max, average, instantaneous: Selection of the analog values of the device.
Status: Selection of the digital values of the device.

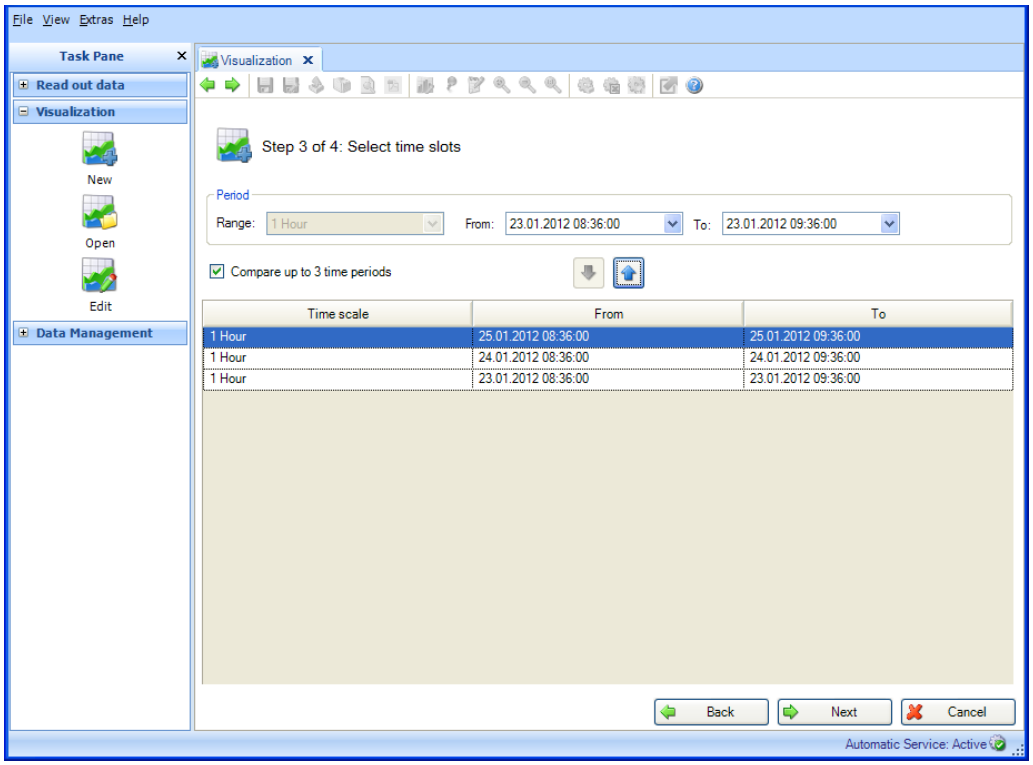
After selecting the analyses and channels for the data to be visualized, you can jump to the next step using "Next".

Clicking "Cancel" terminates this action, closes the window and stops the process.

You can return to the previous view by selecting "Back".

3.1.1.3 Step 3 of 4: Select time slot or batch

In step 3, select the time slot (or the batch, if available) of the data to be visualized:



After selecting at least one time slot for the data to be visualized, you can jump to the next step using "Next".

NOTICE

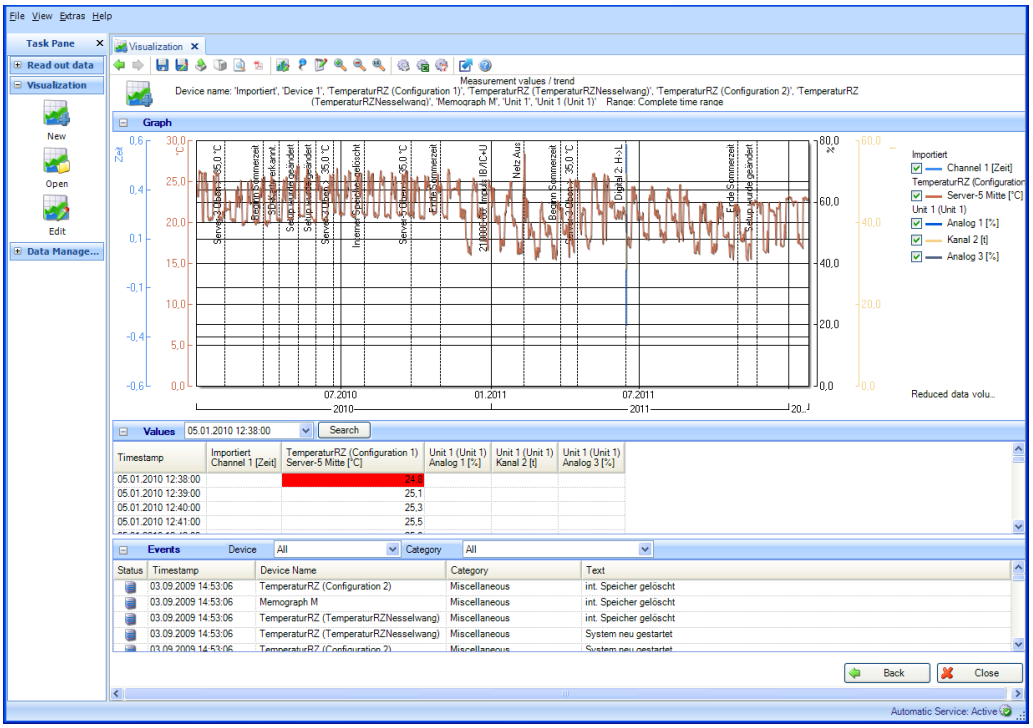
A maximum of 3 identical time ranges can be selected and thus compared with each other.

Clicking "Cancel" terminates this action, closes the window and stops the process.

You can return to the previous view by selecting "Back".

3.1.1.4 Step 4 of 4: Graph

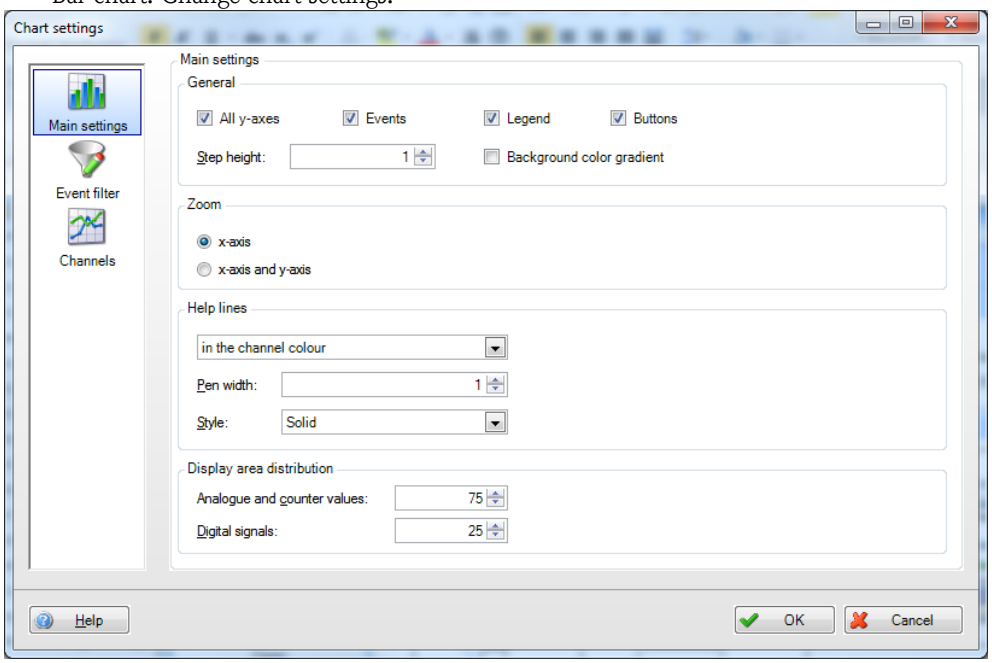
Step 4 displays the Graph, Values and Events of the selected Time Slot:



The following functions of the icons are possible:

- Disk: Save the visualization; if it has not yet been saved, a new template is created. This template is then available for future visualizations.
- Disk with pen: Save as; create a new template, assign a new name for the template.
- Box with arrow: Export; enables you to export the selected data in the *.csv or *.xls formats.
- Printer icon: Print; allows you to print the current window.
- Adobe Acrobat® icon: Export as PDF file.

- Bar chart: Change chart settings:

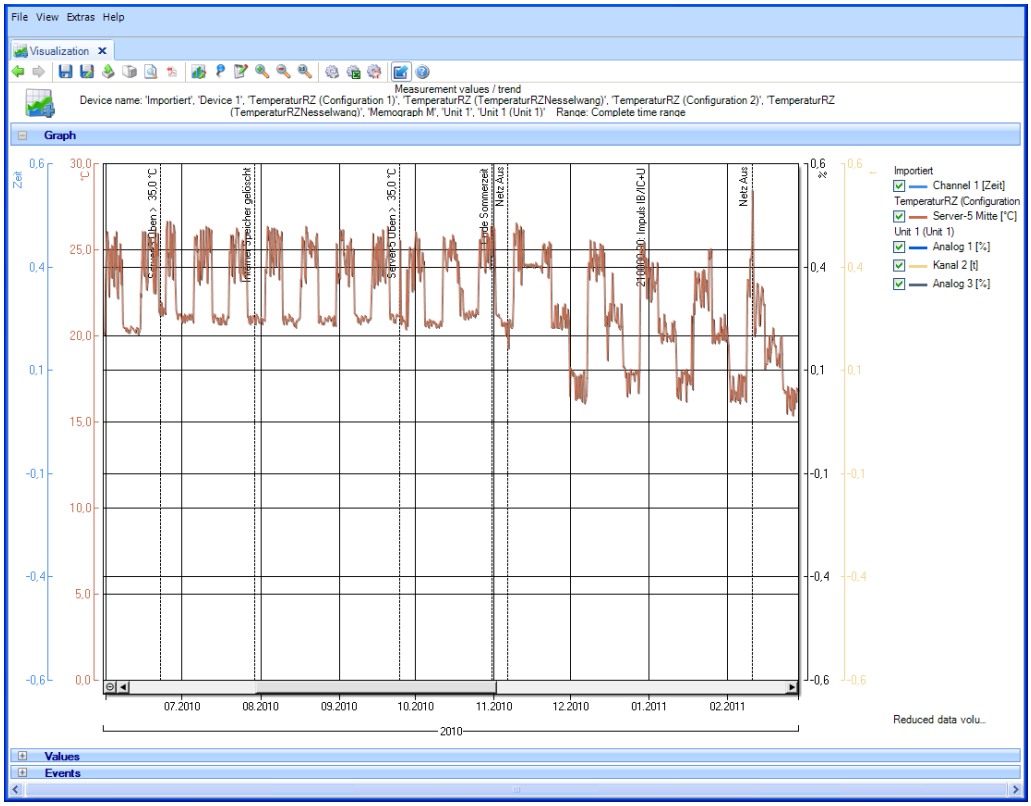


- Pin: Enable or disable value cursor. If you move the cursor over the chart, the value displayed below the graph is automatically updated according to the position of the cursor. By pressing the left mouse button, the displayed values in the "Values" and "Events" area are also updated.
- Notepad: Add comment; enables you to add comments in the chart area, this option is available for the chart view exclusively.
- Magnifying glass+: Zoom in
- Magnifying glass-: Zoom out
- Magnifying glass 1:1: Reset zoom
- Gear with printer: Automatic print out
- Gear with Excel: Automatic Excel/ CSV export
- Gear with Adobe Acrobat® icon: Automatic PDF export
- Rectangle with blue arrow: Maximize or minimize the chart

NOTICE

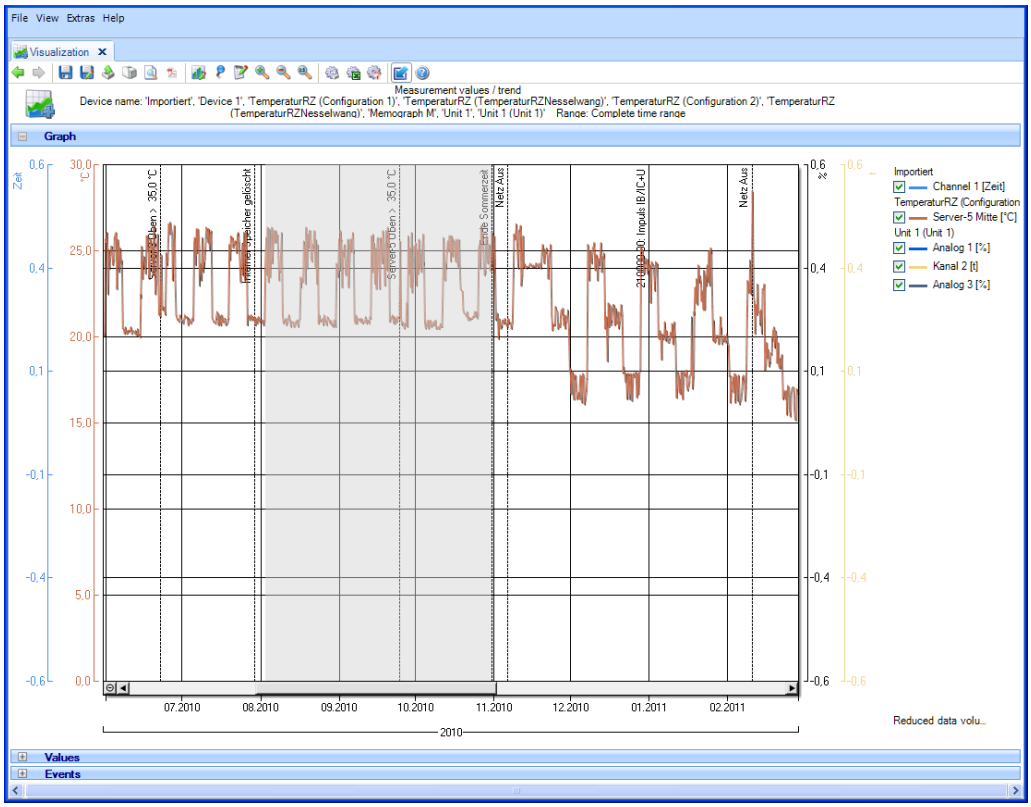
The "Automatic print out", "Automatic Excel/CSV export“ and "Automatic PDF export“ functions are not supported in the Essential version and therefore cannot be selected.

"Graph" area:
Double-clicking the header in the "Graph" area enlarges the graphic view and shows it in full-screen mode. The function corresponds to the "Maximize the Chart" icon. This enables you to work more conveniently without additional scrolling effort:

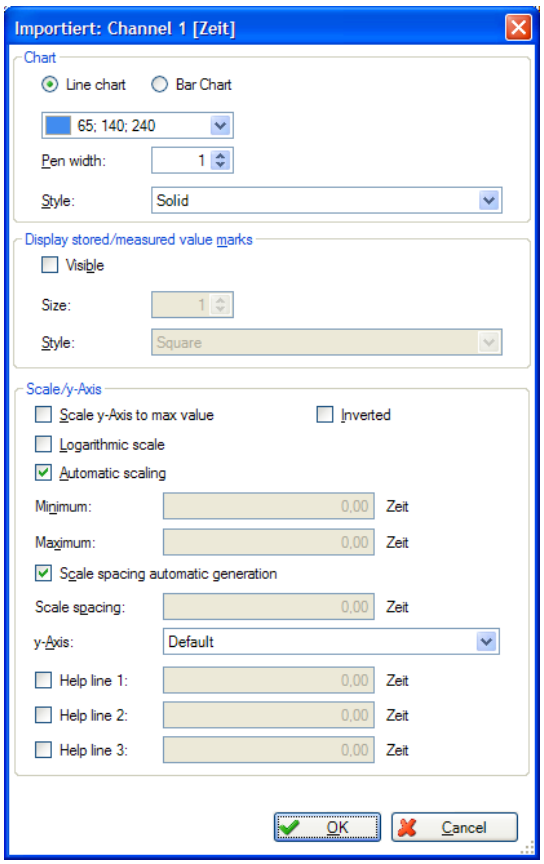


The note "Reduced data volume" means that the data have been reduced automatically to compile the chart. This enables a fast display. If you zoom into the chart (multiple times), this note no longer appears, as all values must be used for the display.

You can left-click to draw a frame in the chart field. This enables you to enlarge the selected area:

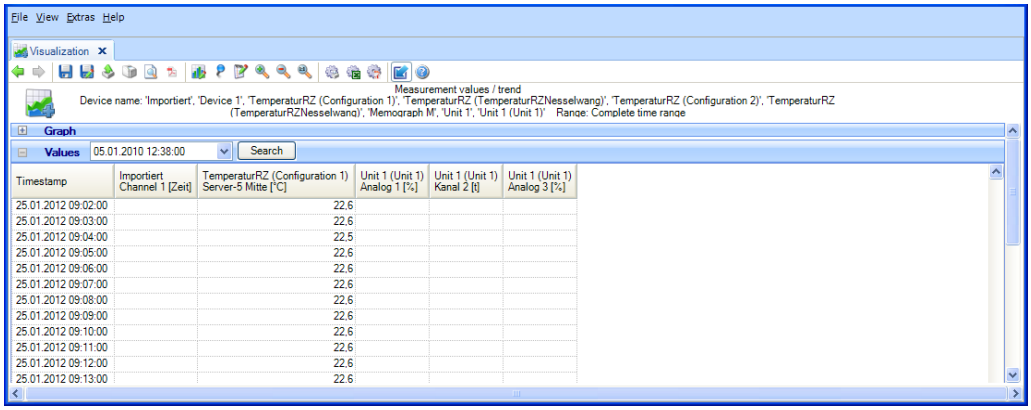


Left-clicking an entry in the legend (right) opens a window with additional chart settings:



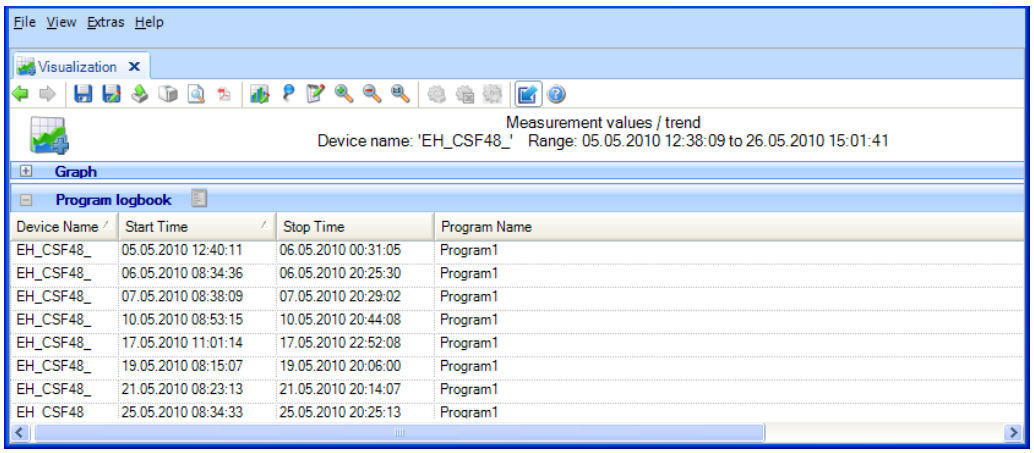
"Values" area:
Display all values with a time stamp. You can select "Search" to search for values for a specific day/time.

If the cursor  is enabled, pressing the left mouse button updates the displayed values according to the position of the cursor in the diagram:

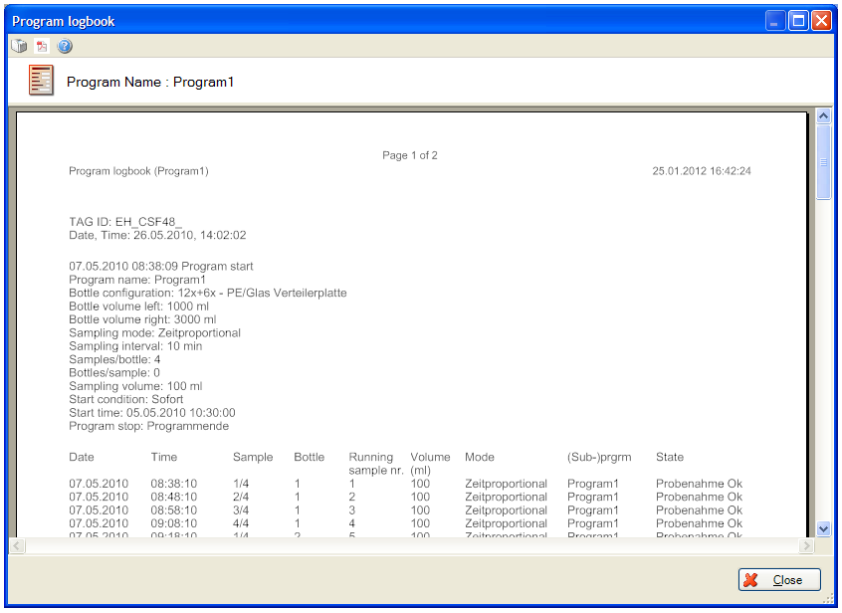


"Program Logbook" area:

When measured values of a sampler are selected, the program logbook is displayed in an additional area. It contains all the sample programs that have been fully completed in the selected time period. There is a "Document" button beside the 'Program logbook' header:

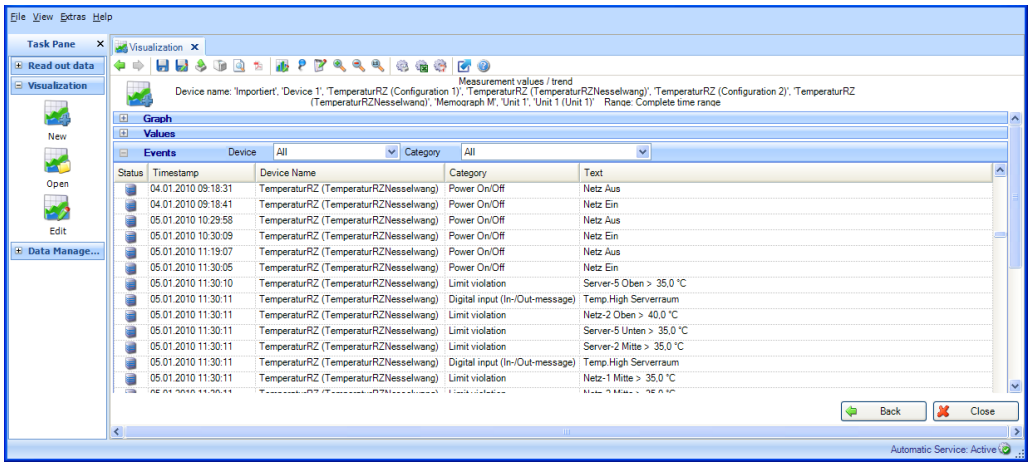


Once a sample program has been selected, it can be opened with the "Document" button and then saved and printed out:



"Events" area:
Events of the selected device are shown here.

If the cursor is enabled, pressing the left mouse button updates the displayed events according to the position of the cursor in the diagram:



Select "Close" to end the visualization. The window closes.

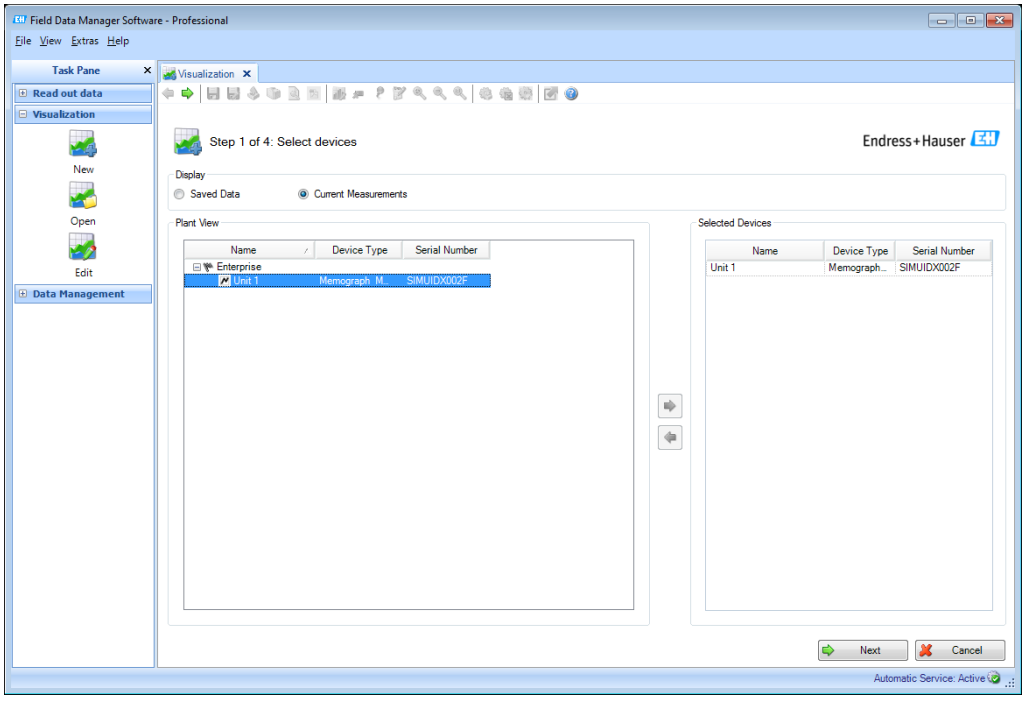
You can return to the previous view by selecting "Back".

3.2 Visualization of current data (Live View)

3.2.1 Visualization -> New

3.2.1.1 Step 1 of 4: Select device

In step 1, the device to be visualized is selected:



The selected device appears on the right-hand side.

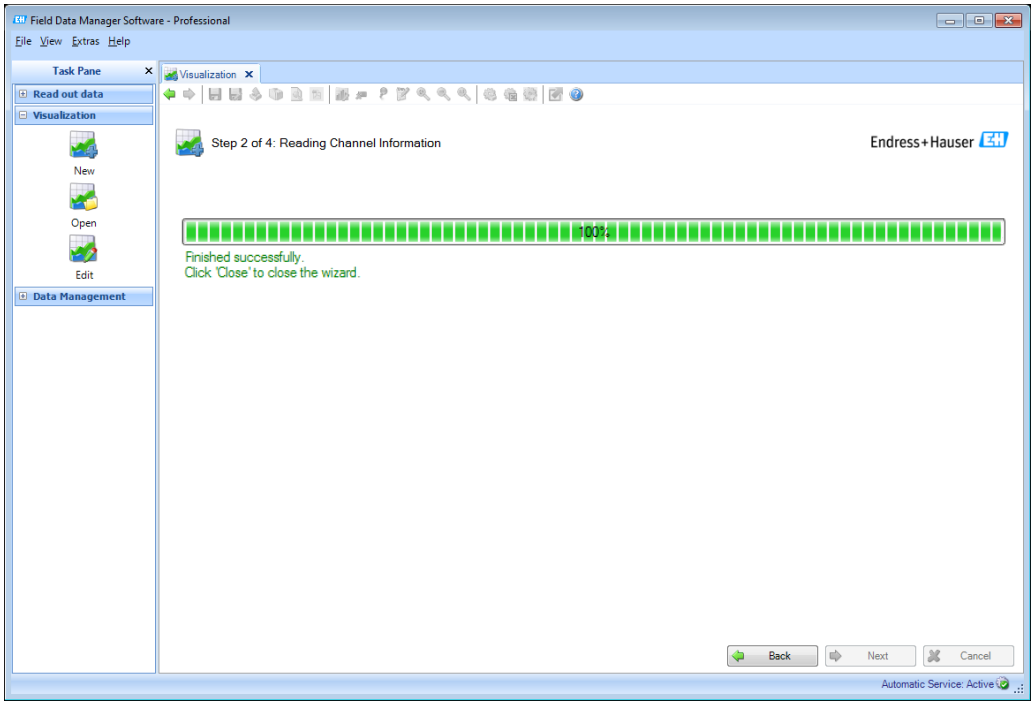
If you later want to remove a device from the list of selected devices, select it in the right-hand list, then double-click the selected device or click the blue arrow that points towards the left to remove it from the list.

If a device has been selected, the "Next" button appears. Click this button to jump to the next step.

Clicking "Cancel" terminates this action, closes the window and ends the process.

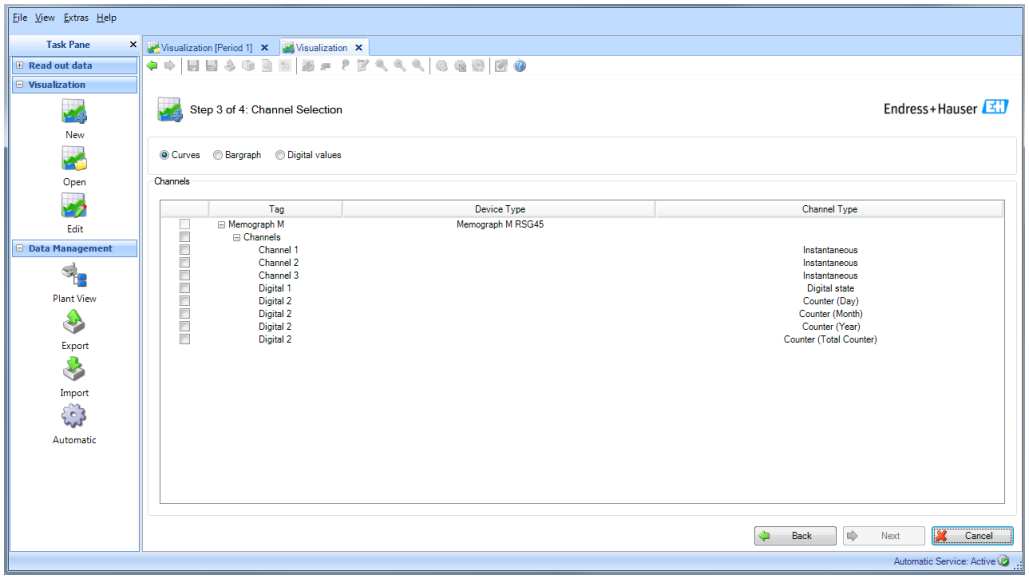
3.2.1.2 Step 2 of 4: Read channel information

In step 2, the software reads out the channels of the connected device. Once the read process is completed, the device automatically skips to step 3.



3.2.1.3 Step 3 of 4: Select channels and display format

In step 3, select the channels and display format:



NOTICE

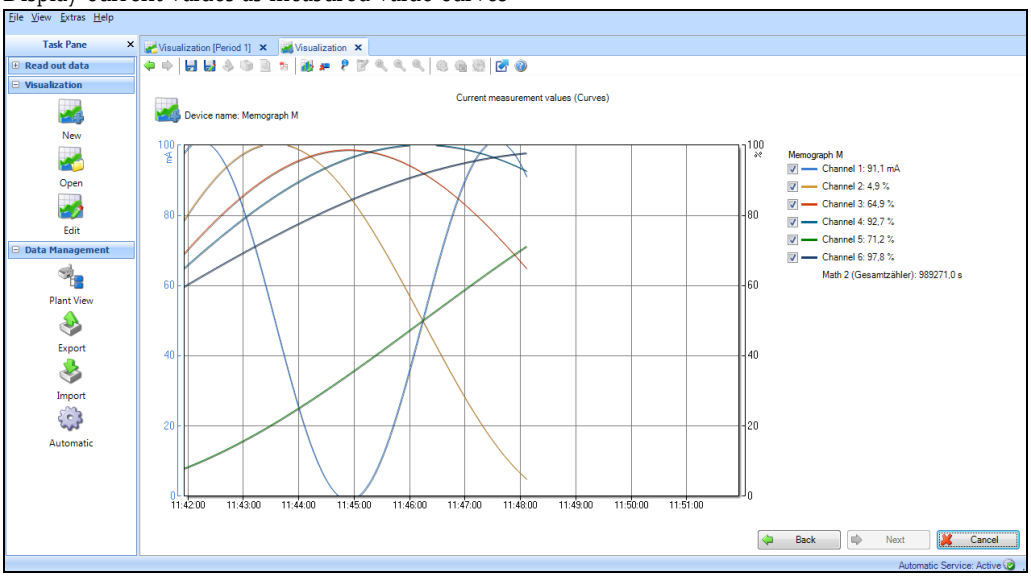
Up to 40 channels or 100 digital inputs can be selected.

Select the channels to be selected and the display format. Measured value curves, bar graphs and digital values are available as possible display formats.

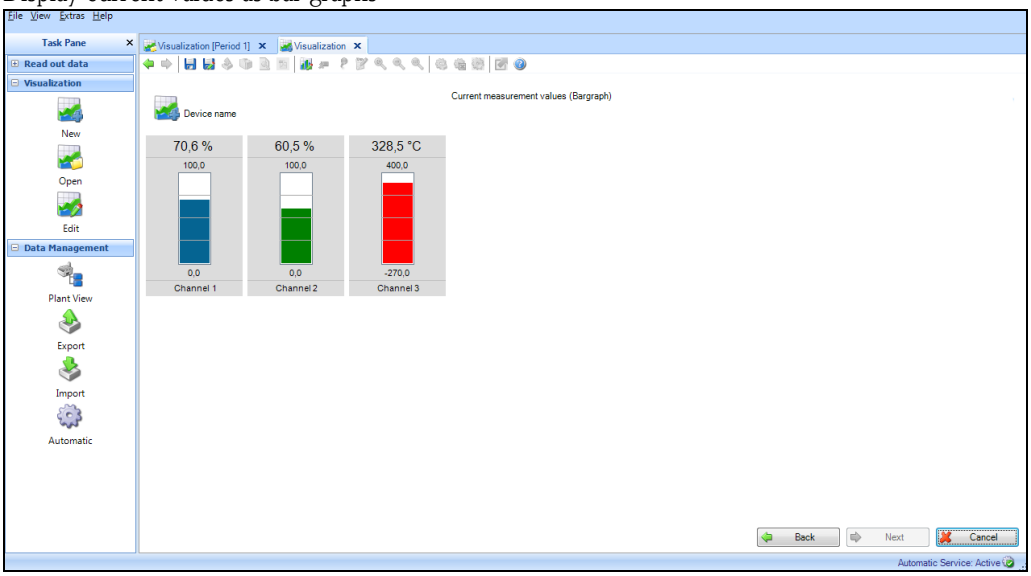
If at least one channel has been selected, the "Next" button is enabled and it is possible to skip to the Live View.

3.2.1.4 Step 4 of 4: Display current values (Live View)

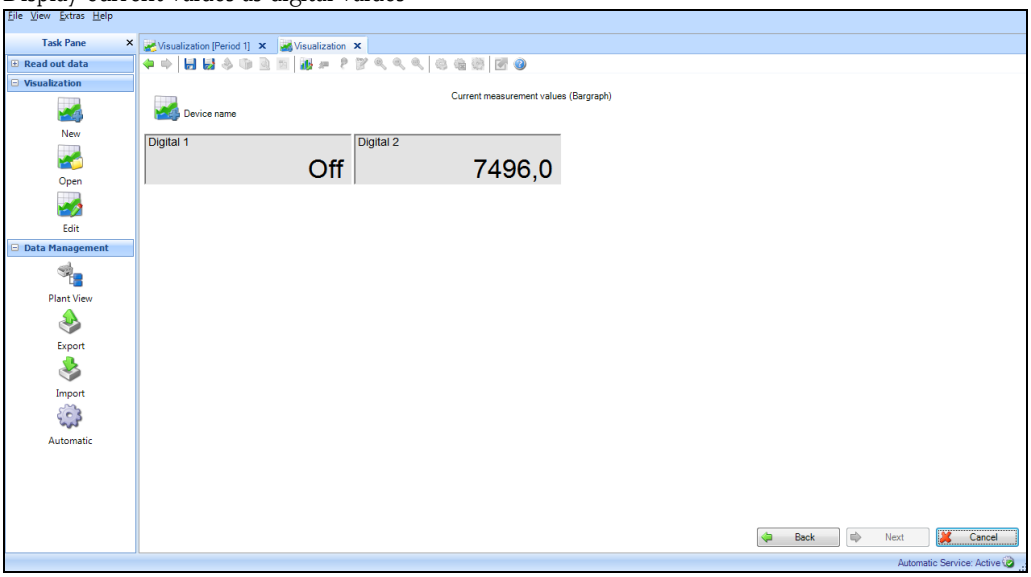
Display current values as measured value curves



Display current values as bar graphs



Display current values as digital values



In step 4, the current data for the selected channels/inputs are displayed.

The following functions of the icons are possible:

Back. Return to the previous step

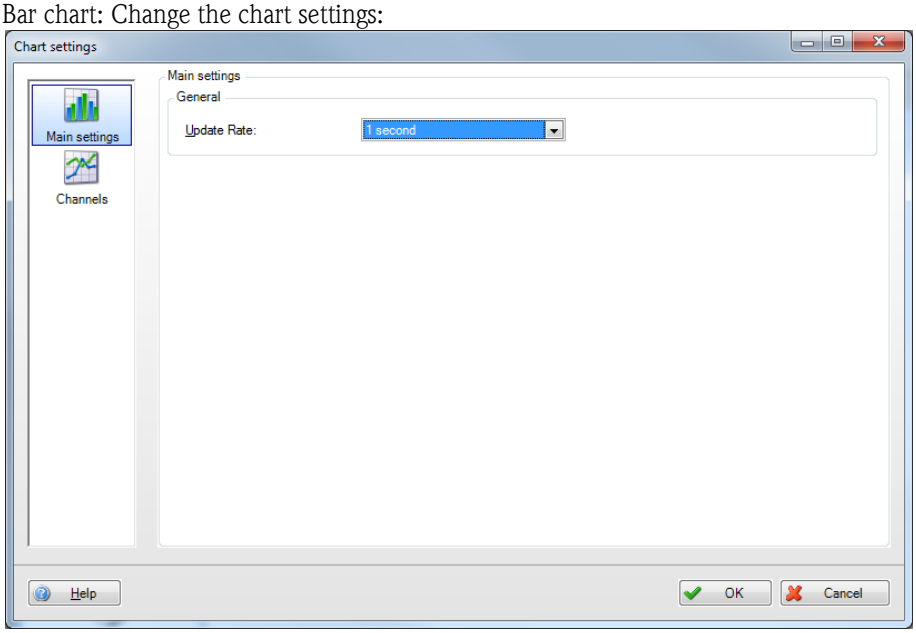
Next. Skip to the next step. Only active if "Back" was pressed beforehand.

Disk: Save the visualization. Save the current visualization as a template. If a template has been opened and modified, the template is overwritten with the new settings.

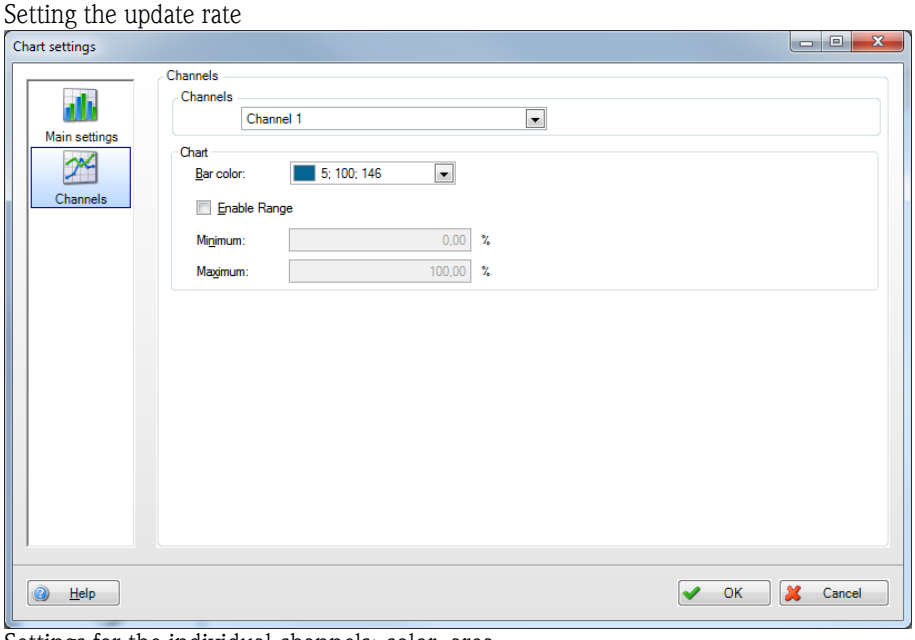
Disk with pen: Save as. Create a new template, assign a new name for the template.

Adobe Acrobat® icon: Export as PDF file. Export current view as PDF (only for graph display).

Bar chart: Change the chart settings:



Setting the update rate



Settings for the individual channels: color, area

Reset line chart. Reset the measured value curve (only for measured value curve view).

Pin: Enable or disable value cursor (only for measured value curve view). If you move the cursor over the chart, the value displayed below the graph is automatically updated according to the position of the cursor. By pressing the left mouse button, the displayed values in the "Values" and "Events" area are also updated.

Rectangle with blue arrow: Maximize or minimize the chart

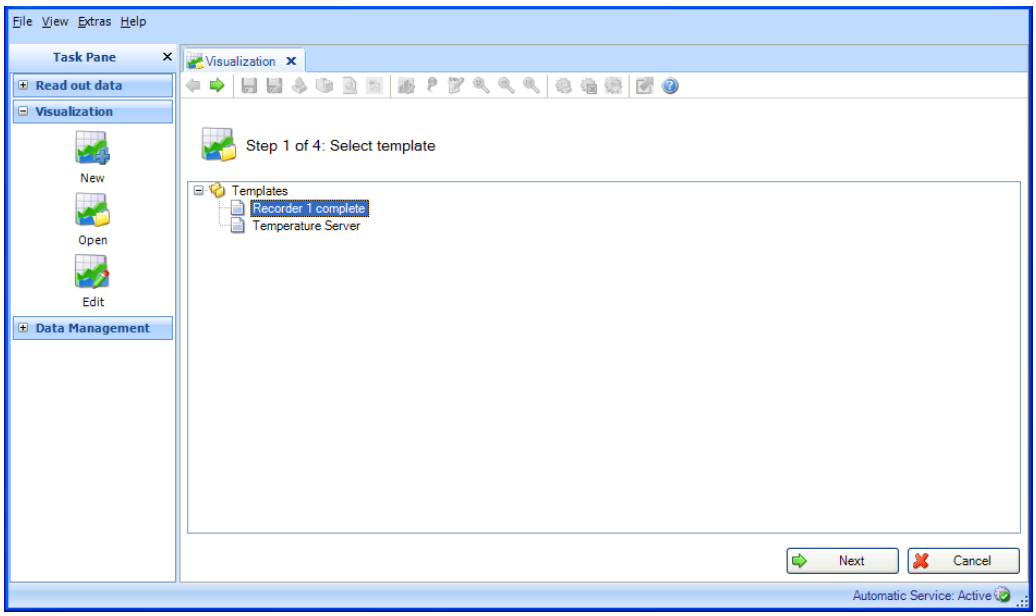
By pressing the "Back" button you can call up and change the channel selection again.

All the channels selected in step 3 are displayed in the right-hand section of the window. The channels can be displayed and hidden by checking and unchecking the check boxes.

3.3 Visualization -> Open

3.3.1 Step 1 of 4: Select template

In step 1, you can select the template of the data to be visualized:



If a template has been selected, the "Next" button appears. If there is a template for saved data, you go directly to step 3. If there is a template for current data, measured value display commences immediately.

NOTICE

In the Essential version, templates can be selected and opened only if they contain data from devices supported by this software version! Templates with more than one device cannot be opened!

Clicking "Cancel" terminates this action, closes the window and stops the process.

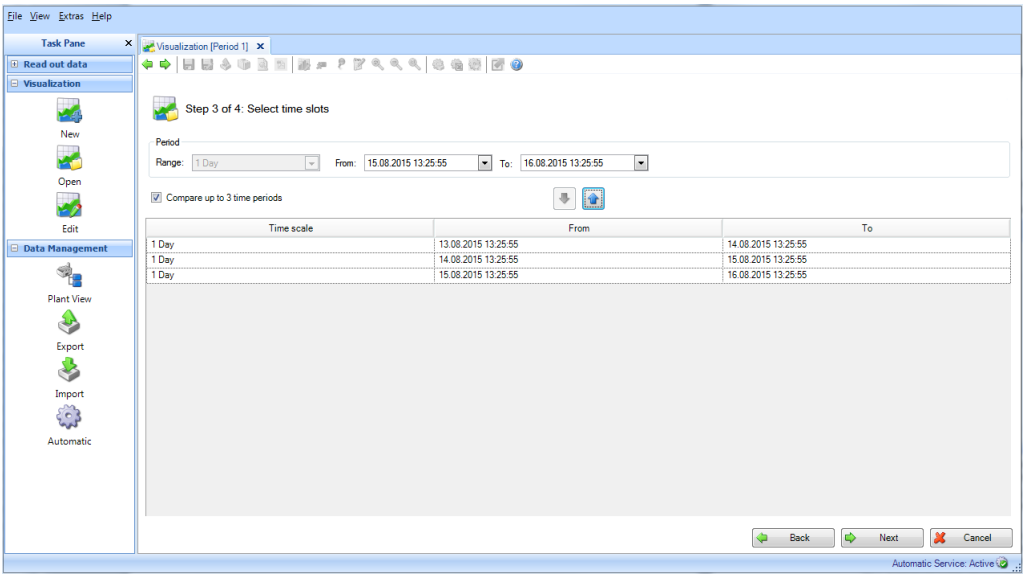
3.3.2 Step 2 of 4: Select channel

Step 2 is skipped automatically as the reports and channels of the source devices are already stored in the selected template.

3.3.3 Step 3 of 4: Select time slot or batch

Only for the visualization of saved data. This step is skipped if there is a template for displaying current measured values.

In step 3, select the time slot (or the batch, if available) of the data to be visualized:



After selecting at least one time slot for the data to be visualized, you can jump to the next step using "Next".

NOTICE

A maximum of 3 identical time ranges can be selected and thus compared with each other.

Clicking "Cancel" terminates this action, closes the window and stops the process.

You can return to the previous view by selecting "Back".

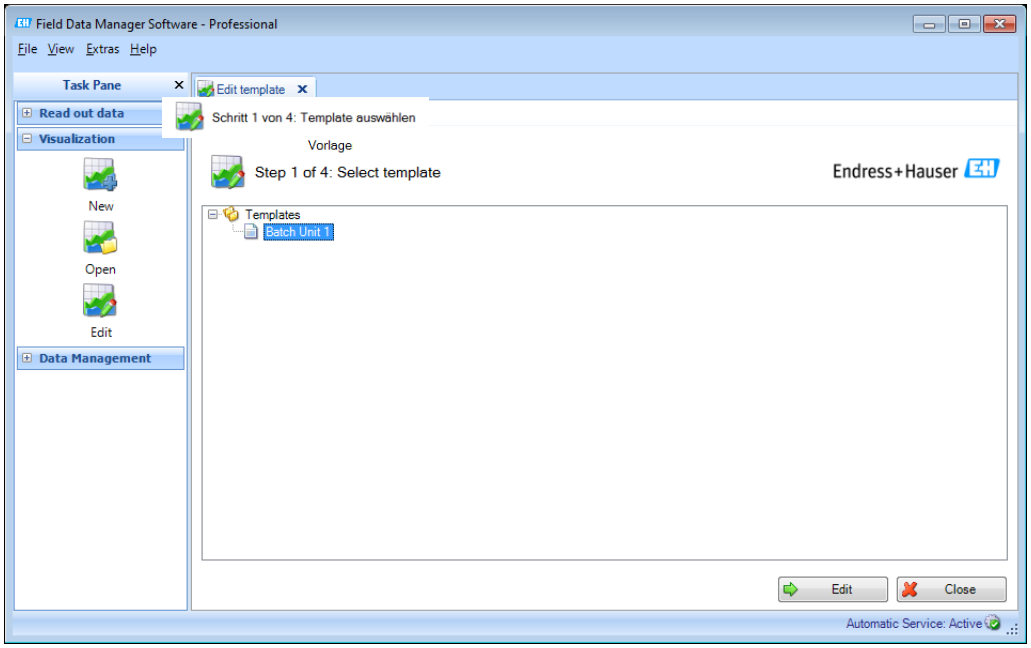
3.3.4 Step 4 of 4: Graph

Step 4 displays the graph, values and events of the selected time slot or live data (for descriptions, see Section 3.1.1.4 or 3.2.1.4).

3.4 Visualization -> Edit template

3.4.1 Step 1 of 4: Select template

You can edit stored templates here:



By selecting a template and right-clicking, you can delete or rename the selected template.

After selecting a template, you can jump to the next step using "Edit" and edit the template.

NOTICE

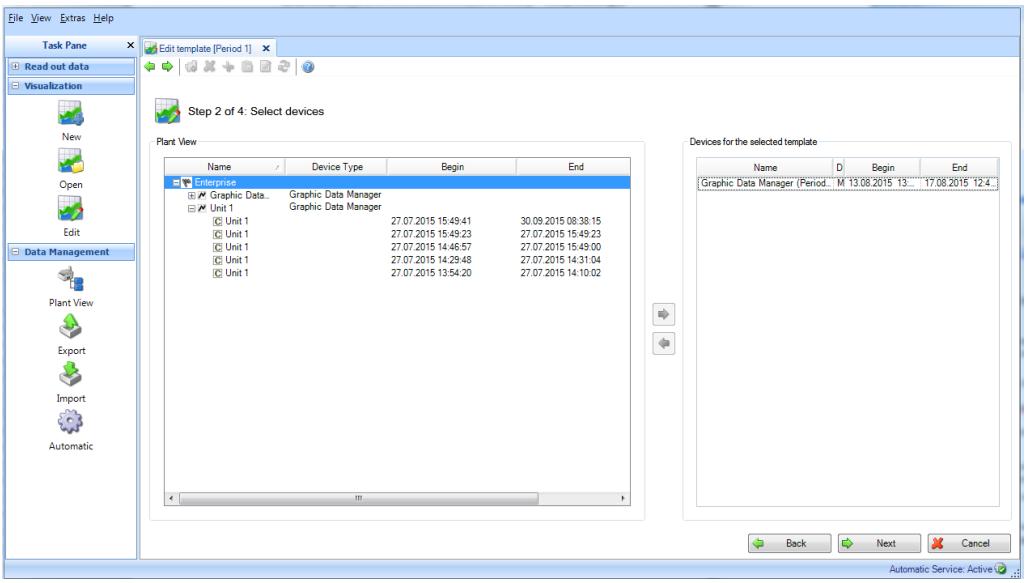
In the Essential version, templates can be selected and edited only if they contain data from devices supported by this software version! Templates with more than one device cannot be edited!

Select "Close" to end the process. The window closes.

3.4.2 Step 2 of 4: Select devices

In step 2, the source devices are selected. On the left side of the working window, you can see the Plant View (see 5.1 Data management -> Plant view). This view lists all devices for which you can visualize the data.

The right side of the working window shows the devices saved in the visualization template:



You can select a device for the visualization by checking the device in the Plant View and clicking or double-clicking the blue arrow that appears.

If you later want to remove a device from the list, select it in the right-hand list, then double-click the selected device or click the blue arrow that points towards the left to remove it from the list.

NOTICE

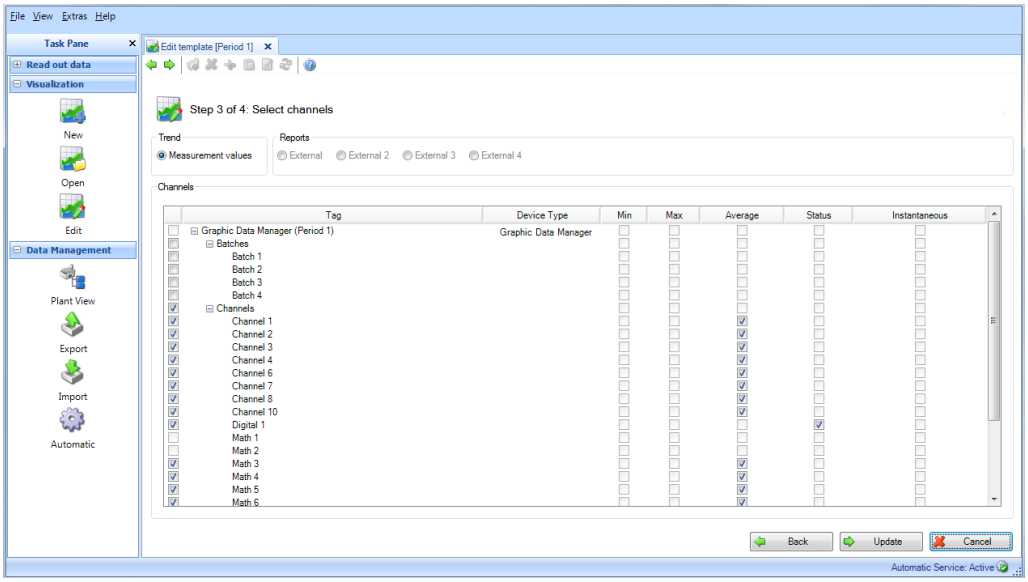
Only supported devices can be selected in the Essential version!
No more than one device can be selected!

If at least one device has been selected, the "Next" button appears. Click this button to jump to the next step.

Clicking "Cancel" terminates this action, closes the window and stops the process.

3.4.3 Step 3 of 4: Select channels

In step 3, select the reports and channels:



Functions:

Trend:
Measurement values: Instantaneous values (analog values) of the selected device can be selected.

Reports:
Reports can be selected for the selected device, e.g. day, week, month, external (selection only possible if these reports are stored in the device).

Channels:
Device designation/TAG, device type: This shows information about the selected device.
Min, max, average, instantaneous: Selection of the analog values of the device.
Status: Selection of the digital values of the device.

After selecting the reports and channels for the data to be visualized, the selected template is overwritten by selecting "Update".

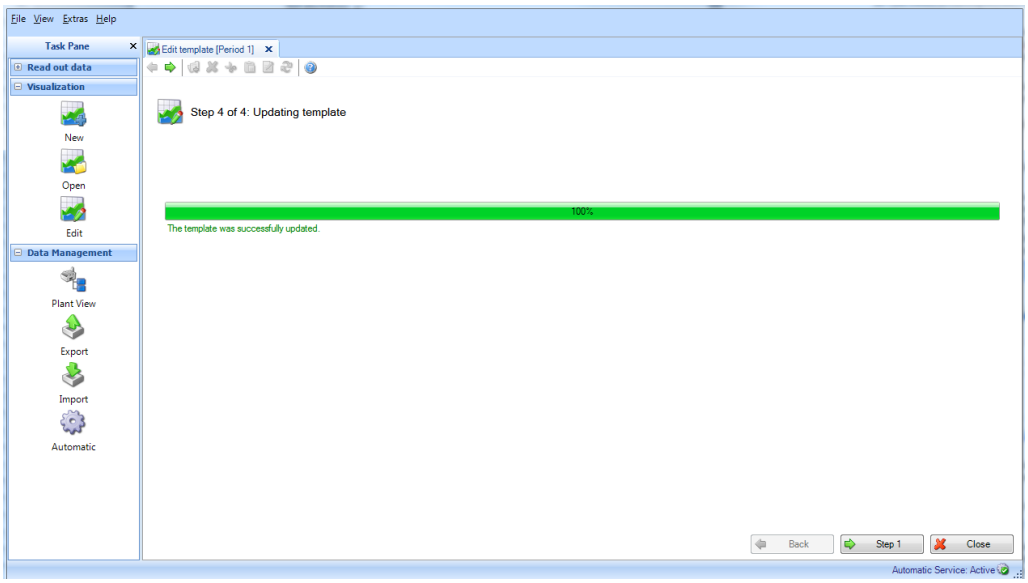
Clicking "Cancel" terminates this action, closes the window and stops the process.

You can return to the previous view by selecting "Back".

3.4.4 Step 4 of 4: Update template

In step 4, you update the template selected in step 1.

A progress bar shows the progress in % and displays the estimated time remaining.
Once the action has been completed, a confirmation text appears below the progress bar:



To modify additional templates, you can return to step 1 by selecting "step 1".

Select "Close" to end the process. The window closes.

4. Task pane -> Reporting

NOTICE

The "Reporting" section is only available if the license was ordered with the Reporting functionality (optional). The reporting functionality is described in detail in Section 9.1 Reporting.

5. Task pane -> Data management

The task "Data Management" includes all functions that pertain to the management of data and devices.

The data are managed by importing data (e.g. in non-secure format as *.csv or *.xls or in secure format as *.fdm). The data can also be relocated from the database to reduce the volume of the database.

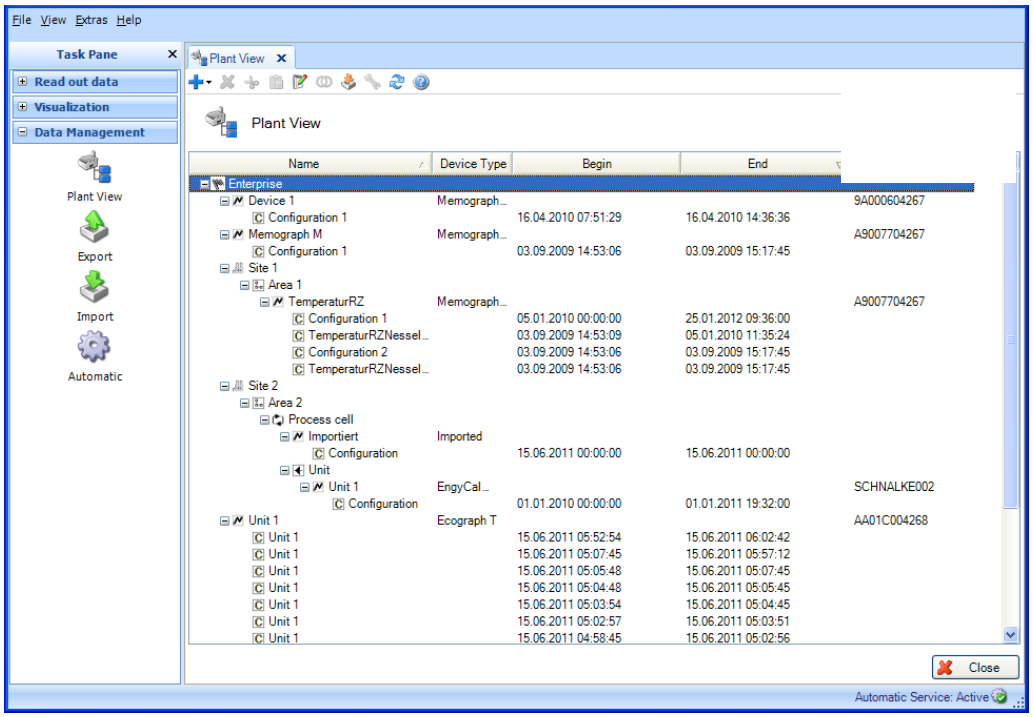
The device management takes place primarily via the Plant View, i.e. the tree structure in which all available devices are listed.

5.1 Data management -> Plant view)

You can open the Plant View via the "Data Management —>Plant View" task.

Before you can create devices, an enterprise must be present (is already defined as a default setting). The entire enterprise can then be divided into Site, Area, Process Cell and Unit.

This division results in a tree structure with multiple nodes. You can assign multiple devices to each node:

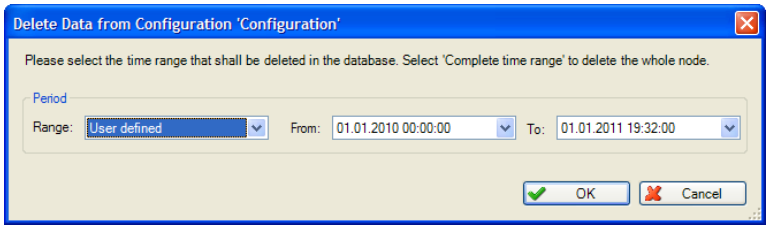


NOTICE Not all devices are supported in the Essential version. Only devices supported by this software version can be assigned to the nodes.

The Main Toolbar of the Plant View gives you the following options:

- "Plus": Add a new node, i.e. further subdivide the structure of the enterprise; the hierarchy is as follows: Enterprise, Site, Area, Process Cell and Unit. Devices can be assigned to these nodes. These device nodes can also be renamed, deleted or moved to other plant areas (other higher-level nodes).

- "X": Delete a selected node, a device or data from the database. When you delete device data, the time range can be selected:



NOTICE

When you delete a node, the corresponding allocated subnodes and the devices assigned to these nodes are deleted along with all of the data.

- "Scissors": Cut out the selected node and copy it to the clipboard. You can then reinsert the node by pasting it at another location in the Plant View.
- "Clipboard": Paste a node copied to the clipboard earlier
- "Pad with pen": Rename the selected node
- "Rings": Merge data (see Section 5.1.1)
- "Box with arrow": Import an existing Plant View / device tree (e.g. from FieldCare) (see Section 1.9)
- "Wrench": Open the Communication Settings of the selected device (see Section 7.1)
- "Two arrows": Load the Plant View from the database; this function is needed in order to update the Plant View (e.g. after creating a new device during the first read-out process).

The options listed above (creating, deleting, renaming nodes; merging data; etc.) are also available in the context menu that appears when you right-click.

Creating a new device:

The read-out process for a new device creates a new device node in the Plant View. The readout can take place via the interface or from the storage medium (see Section 2). The data are analyzed while they are read out. If the read-out device is already stored in the database (with serial number and device designation/TAG and the same device configuration) the data are automatically assigned to the corresponding device node and thus to the known device. If there are deviations of the read-out device in the serial number or device designation/TAG, a new device node is created automatically. If the serial number and device designation/TAG do not differ, but the configuration was changed between the last read-out process and the current read-out process, a new configuration node is created for the data under the existing device node. The read-out data are then assigned to this new configuration node.

Importing an existing Plant View/existing device tree:

The Reporting Software allows you to apply an existing, saved device tree or an existing Plant View from another program. This functionality is provided in the "Data Management -> Plant View" task.

Pressing the "Box with arrow" icon opens the menu structure of the computer. Select the storage location and the corresponding CSV file of the Plant View. Then, the tree structure is read into the database and stored there. The same function is provided by selecting the enterprise, then right-clicking and selecting "Import Plant View".

Device settings:

Settings that are assigned directly to a corresponding device can be defined using the setting menu in the Plant View.

To do so, select the corresponding device, then open the settings window by clicking the "Wrench" icon or by right-clicking "Change Settings" from the context menu. For a detailed description, see Section 7.

5.1.1 Merging configurations

Individual devices which have been read out are identified in the Reporting Software via the device designation/TAG and serial number. In addition, the configuration of the channels is evaluated.
If the read-out data can be clearly assigned to a device (via the serial number and device designation/TAG) but the configuration of the read-out device data does not match the stored device configuration, a new configuration is created below the device node.
This can happen, for example, if the configuration of the device has been changed (e.g. a channel has been switched off or the unit of a channel has been changed) or the device has been used as a portable measuring instrument at different measuring points with a different configuration.

If you want to merge data despite a different configuration, to ensure a continuous database and thus a continuous analysis, you can do so using the "Merge Configurations" function.

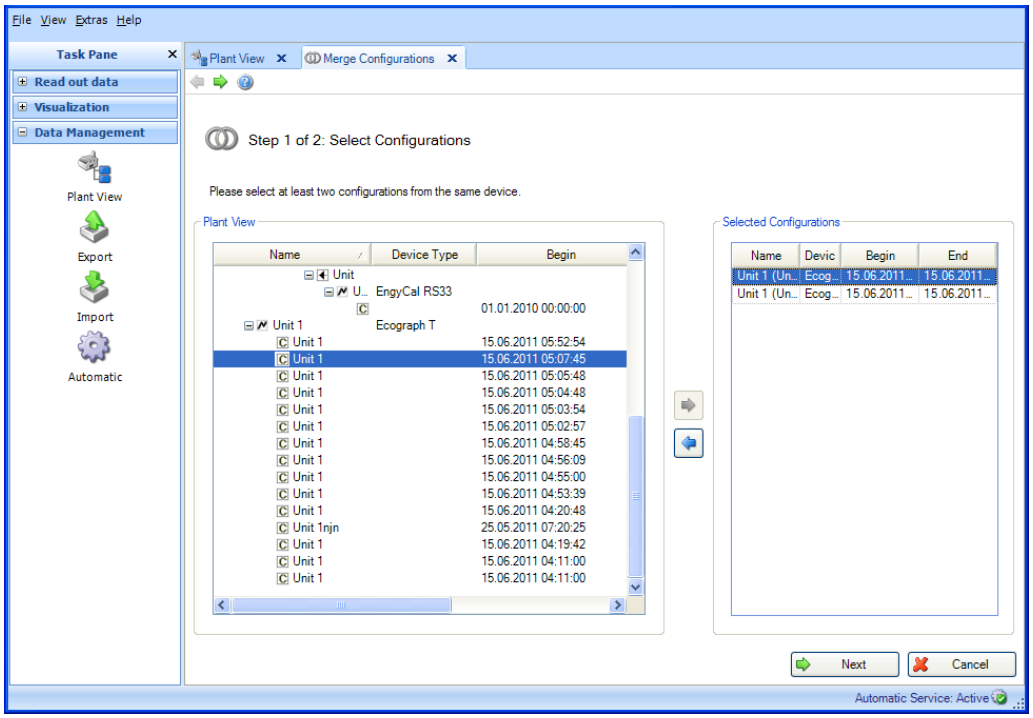
When merging, the measuring data are always assigned to the latest, most recent configuration.

Select a configuration in the Plant View in the task "Data Management -> Plant View" 5.1. This selected configuration is then assigned the data of the other configurations, i.e. the selected configuration remains in place. Clicking the "Rings" icon or the context menu that appears when you right-click "Merge Configurations" opens a new dialog window:

5.1.1.1 Step 1 of 2: Select configurations

The left side displays the devices available in the database and their assigned configurations. By double-clicking a configuration, selecting the configuration and clicking the arrow that points to the right in the center of the two boxes or dragging and dropping using the mouse, you can move the configurations to be merged to the right side.

All data of these configurations in the right-hand box are merged and assigned to the configuration selected in the Plant View and the corresponding device.



NOTICE

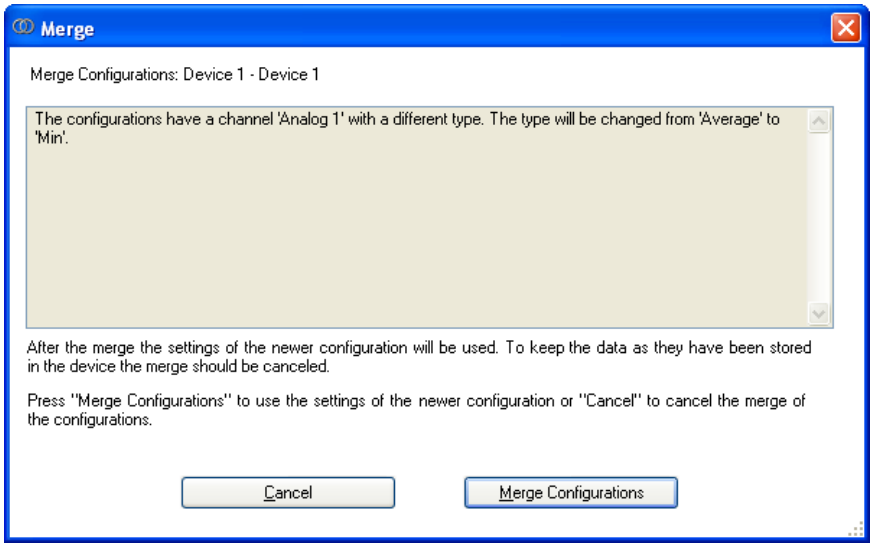
Once devices and device configurations are merged, this cannot be undone.

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to step 2 and merges the configurations.

5.1.1.2 Step 2 of 2: Merge

It is only possible to merge configurations if no data are lost as a result of the merge. Example: A device has 2 configurations. 2 channels were active in the older configuration while one channel was switched off in the more recent configuration. As a result of the merge, all the data are assigned to the latest (more recent) configuration. In this example, only one channel would now be active. It would not be possible to access the data of the second channel. For this reason, in our example it is not possible to merge the configurations. In such situations a message is displayed.

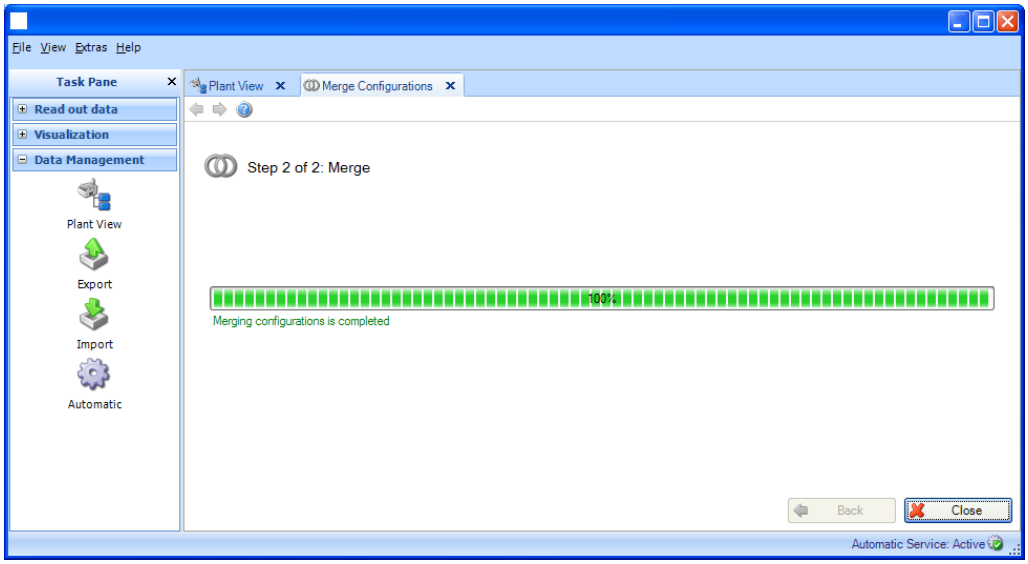
Other situations can, however, occur in which the user can decide whether the configurations are to be merged or not. An example would be changing a unit of a channel or switching a channel from average to minimum. A message is displayed here, e.g.:



Select the appropriate button to either merge the configurations or cancel the merge.

A progress bar shows the progress in % and displays the estimated time remaining. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

Once the action has been completed, a confirmation text appears below the progress bar:



Select "Close" to end the process. The window closes.

5.1.2 Merge devices

Individual devices which have been read out are identified in the Reporting Software via the device designation/TAG and serial number.

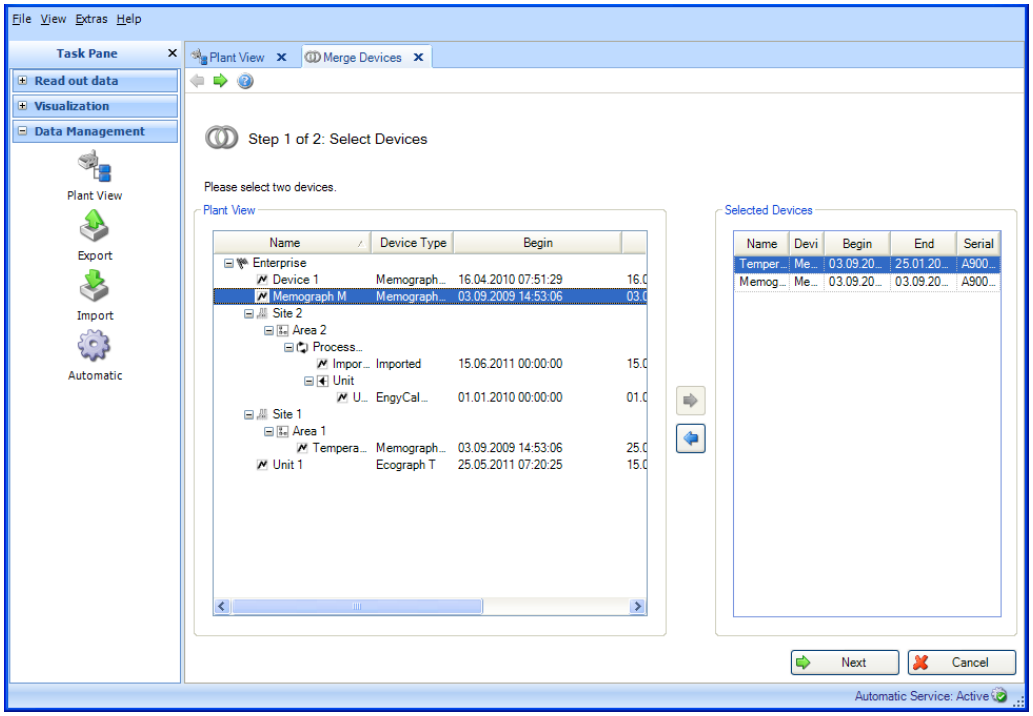
If devices do not match in these points, they are created as separate devices in the Plant View.

For replacement devices/spare devices, you are prompted to merge the data despite the different serial numbers to ensure a continuous database and thus a continuous analysis. The "Merge Devices" function enables you to do this.

You can select one of the devices to be merged in the Plant View in the task "Data Management -> Plant View" 5.1. The selected device remains, and all data of the devices to be merged are assigned to this selected device from now on. Clicking the icon or the context menu that appears when you right-click "Merge Devices" opens a new dialog window:

5.1.2.1 Step 1 of 2: Select devices

The left side stores the devices available in the database.
By double-clicking a device, selecting the device and clicking the arrow that points to the right in the center of the two boxes or dragging and dropping using the mouse, you can move the devices to be merged to the right side.
All data of these devices in the right-hand box are merged and assigned to the device selected in the Plant View:

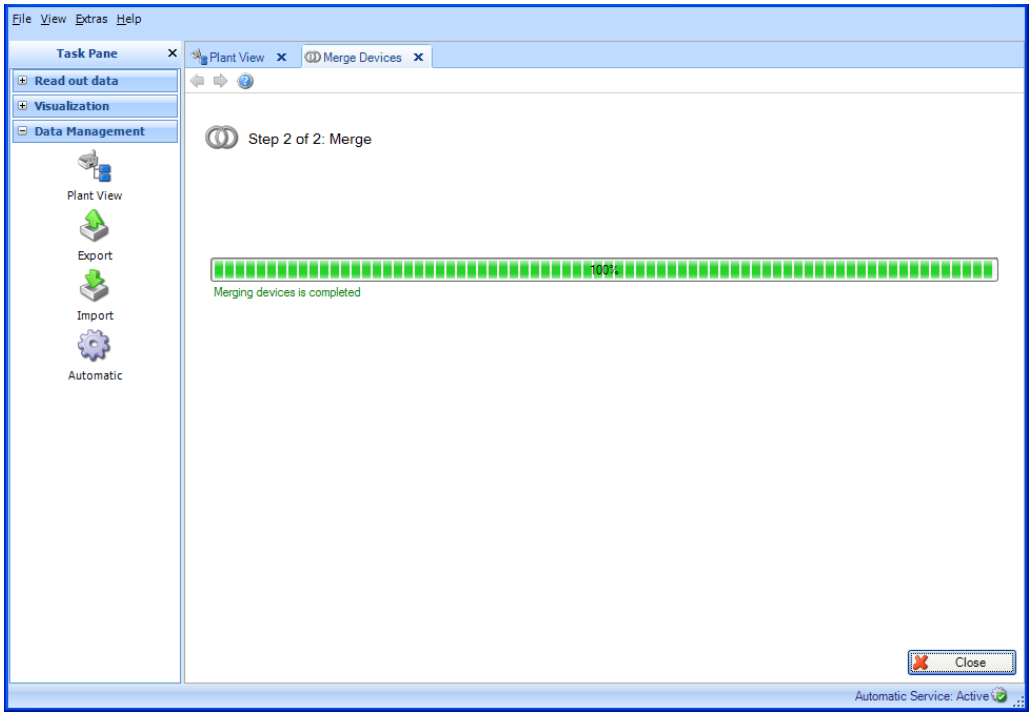


Pressing the "Next" button or the green arrow in the Main Toolbar jumps to step 2 and merges the data of the devices.

5.1.2.2 Step 2 of 2: Result: merge devices

A progress bar shows the progress in % and displays the estimated time remaining. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

After the devices and their data have been merged successfully, a confirmation text appears below the progress bar:



NOTICE

Once devices are merged, this cannot be undone.

Select "Close" to end the process. The window closes.

5.2 Data management -> Export

You can export the data stored in the database.
Various options exist for doing so:

- Tamper-proof export in a secure format (binary files *.fdm)
- Export to non-secure formats (Excel / CSV)

Data that are exported in the secure format cannot be modified. This enables you to securely relocate the data to reduce the data volume in the database or to transfer data to another database or another user so that they are secured against tampering.
If data in the secure format are read back into the Reporting Software, they are treated the same as original data.
If data are stored in Excel or CSV format, they are identified as manual data.

The differentiation of the type of export takes place in the first step by selecting the file type/format.

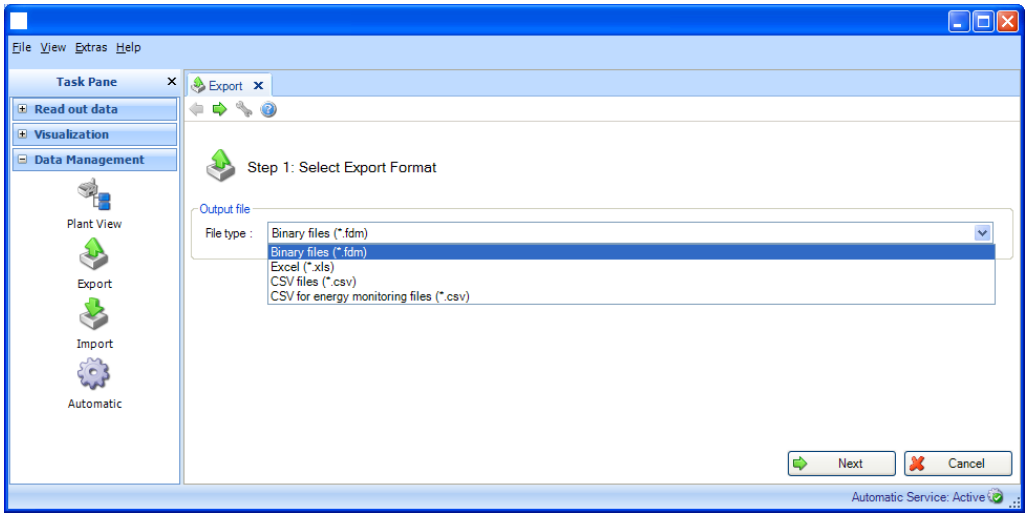
5.2.1 Export in a secure format (binary files, *.fdm)

To export data, the export function under "Data Management –> Export" is used. The export in the secure format takes place in 6 steps:

5.2.1.1 Step 1: Select export format

You can choose between "binary files (*.fdm), Excel (*.xls)", "CSV files (*.csv)" or "CSV for energy monitoring files (*.csv)".

To export in the secure format, select "binary files (*.fdm)" here:



Note about export for energy monitoring:

Data for energy monitoring are exported in a non-protected format (*.csv) with specially matched properties (column limit, date and time format are set by default). To import measured values of the evaluation software to the energy monitoring software, you have to enter an import code there. The import code is composed of <channel name>-<type>, i.e. the combination of the first two cells in each column.
Example: "Analog 1-average" or "Analog 2-"

NOTICE A "CSV for energy monitoring files (*.csv)" export is not supported in the Essential version.

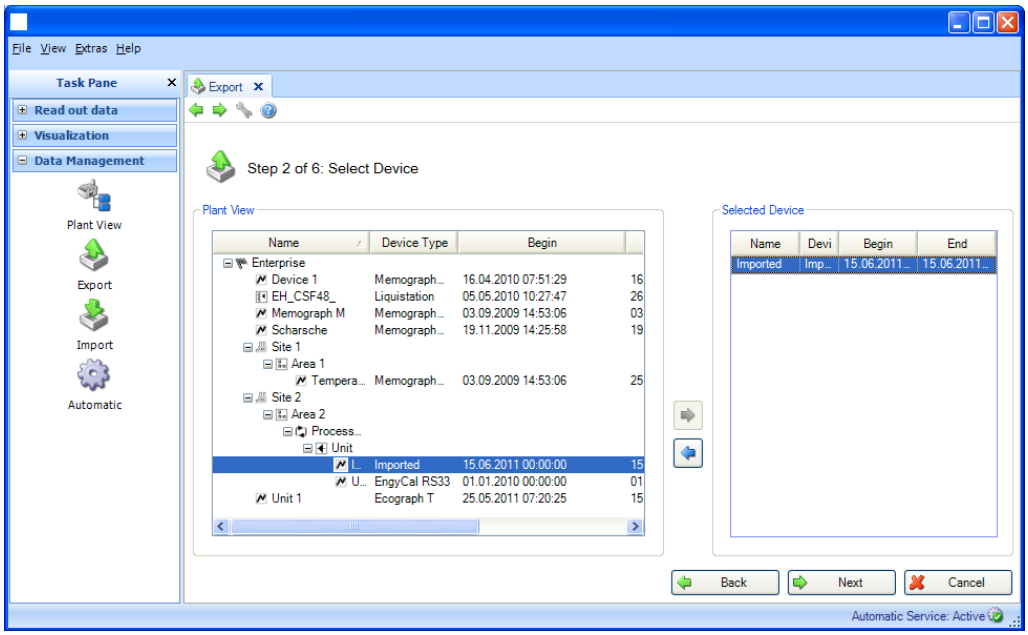
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.1.2 Step 2 of 6: Select device

The left side shows the devices available in the database.

By double-clicking a device, selecting the device(s) and clicking the arrow that points to the right in the center of the two boxes or dragging and dropping using the mouse, you can move the device(s) to be exported to the right side.

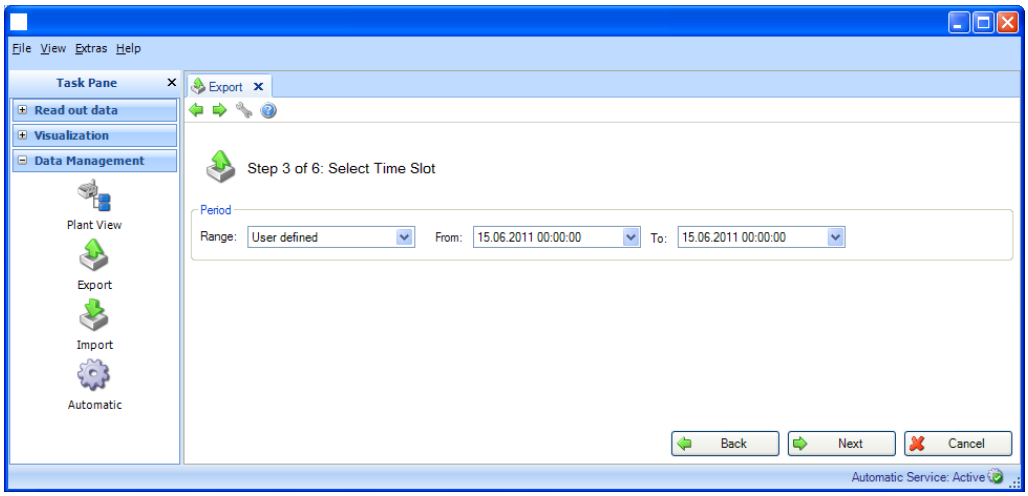
You can export the data of the device on the right side.



Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.1.3 Step 3 of 6: Select time slot

You can define a time range using the drop-down lists provided. All stored data of the selected devices that lie within this time range are exported.

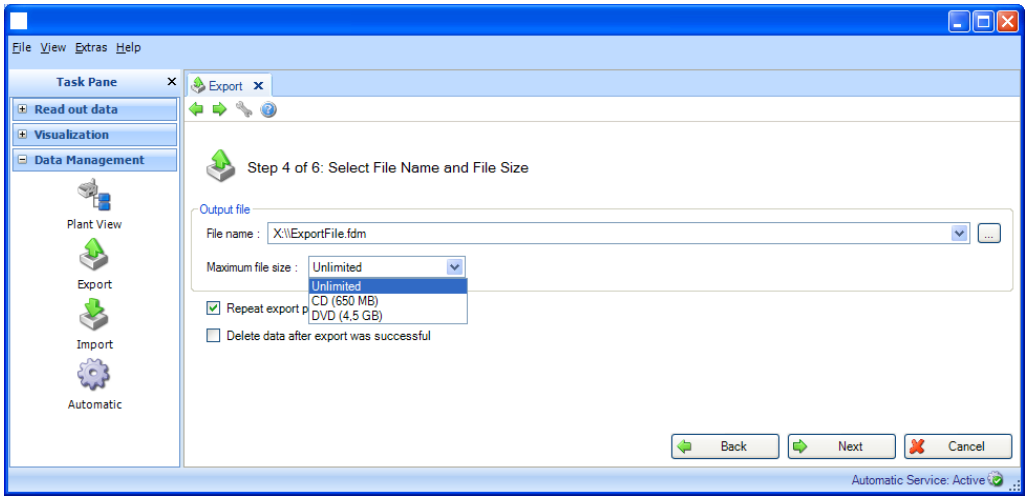


Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.1.4 Step 4 of 6: Select file name and file size

Output File:
File name: You can define the storage location here. Clicking the "..." button opens the menu structure of the computer and the storage location for the export can be selected.

Maximum file size: To limit the size of the export file or adapt it to the medium of the target storage location (such as DVD, CD), you can select the target medium using the drop-down list:



Beneath that, two additional functions are offered:

Repeat export periodically:
Automatic export and automatic storage of data in secure format. Enabling/checking this check box activates an automatic function for export.

Delete data after export was successful:
Enabling this check box deletes the successfully exported data from the database. This means that the data are no longer available in the database, but only as a secure export file.

NOTICE

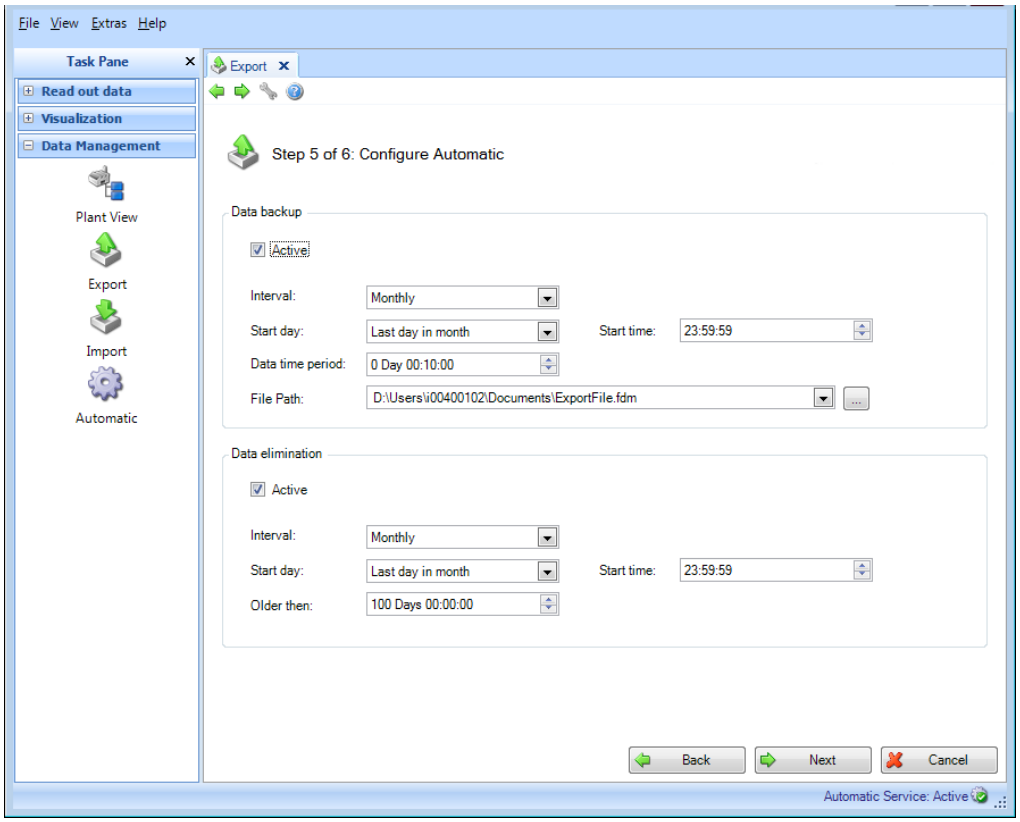
Once data are deleted from the database, this cannot be undone! If you want the data to be available later for reports or visualizations, these data exported in the secure format must be re-imported into the Reporting Software.

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.1.5 Step 5 of 6: Configure automatic

NOTICE

This is visible only if "Repeat export periodically" has been selected in the previous step:



Data backup:
The interval for automatic export is defined here. For this purpose, the "Active" check box must be selected.

Interval: How often does the export take place?
Depending on the selected interval, define following points, such as repetition, Start day and Start time.

Data time period: This selects the time range for export. This means that the export at the defined point in time contains the data of the selected time range, beginning at the start date/time of export and going back (see Section 7.6).

File path: If a network drive is selected, you are also asked to enter a user and password. The setting is then saved and can be modified under "Extras -> Settings -> Automatic" (see Section 6.1.6).

NOTICE

Logon for the automatic service must be modified to allow the automatic function access to the network drive (see Section 6.1.6).

Data elimination:

NOTICE

Once data are deleted from the database, this cannot be undone! Ensure that data that are deleted from the database are really no longer needed, or have already been saved to another storage location as a secure export so that they are available later if needed.

This configures the automatic function for deleting the data from the database. If you select the "Active" check box, exported data are deleted irretrievably from the database (see Section 7.4).

NOTICE

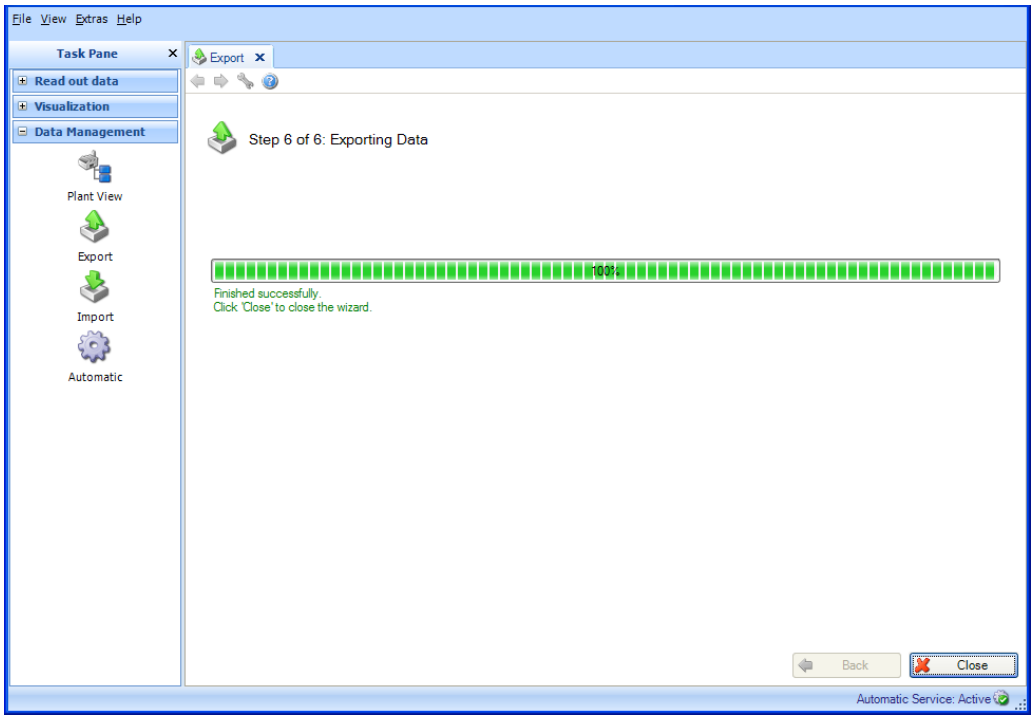
Before confirming with the "Next" button, please check the selection you have made:
Do you really want to delete the data? Do the automatic export function and automatic deletion overlap? Have you ensured that the data are not deleted before the secure export?

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step, starts the export, deletes the data and starts the automatic function (if selected).

5.2.1.6 Step 6 of 6: Export data

A progress bar shows the progress in % and displays the estimated time remaining. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

After the data are exported successfully, a confirmation appears below the progress bar:



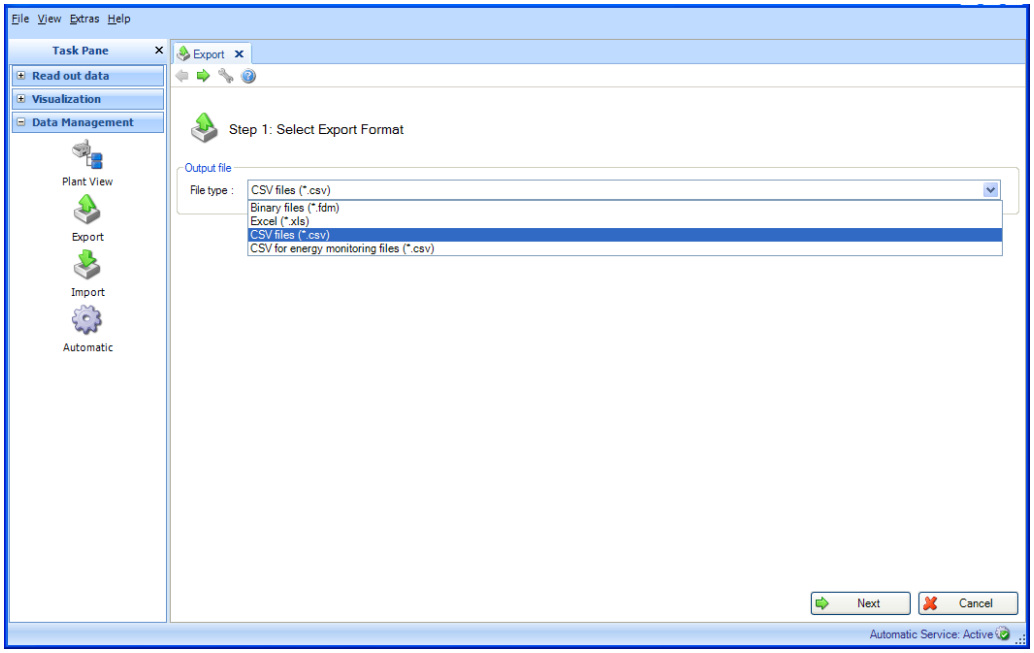
Select "Close" to end the process. The window closes.

5.2.2 Exporting in a non-secure format (Excel/CSV, energy monitoring)

To export data, the export function under "Data Management –> Export" is used. The export to a non-secure format (Excel/CSV) takes place in 8 steps:

5.2.2.1 Step 1 of 8: Select export format

You can choose between "Excel (*.xls)", "CSV files (*.csv)" or "CSV for energy monitoring files (*.csv)":



Note about export for energy monitoring:

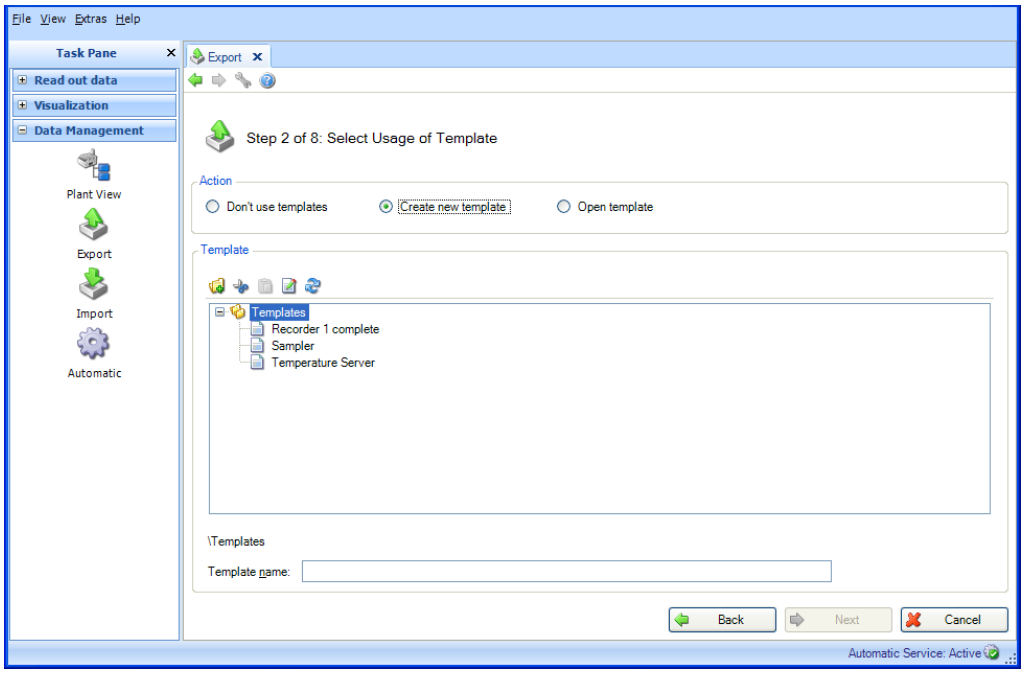
Data for energy monitoring are exported in a non-protected format (*.csv) with specially matched properties (column limit, date and time format are set by default). To import measured values of the evaluation software to the energy monitoring software, you have to enter an import code there. The import code is composed of <channel name>-<type>, i.e. the combination of the first two cells in each column.
Example: "Analog 1-average" or "Analog 2-"

NOTICE A "CSV for energy monitoring files (*.csv)" export is not supported in the Essential version.

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.2.2 Step 2 of 8: Select usage of template

Here, you can select which data are exported:



Don't use templates:
If the following device and channel selection should apply for the export only, and if the report to be defined is not needed for other automatic actions (automatic visualization/automatic print out), you can select the "Don't Use Templates" option here.

Create new template:
If you want to define a new template, you can select the "Create New Template" option here. In this case, the template is also available for later visualizations. Templates are predefined reports with preselected devices and channels.
Using the "Template Name" line, you can assign a new name for the template to be created. Only after a name is defined can you jump to the next step.
You cannot use names that have already been assigned as in this case the existing template would be overwritten. If you want to change an existing name of a template to identify it uniquely, you can do so by right-clicking and selecting "Rename".

Open Template:If a report to be generated has already been defined as a visualization and stored as a template, you can select the template (which already contains the corresponding devices and channels) here.

NOTICE In the Essential version, templates can be selected only if they contain data from devices supported by this software version! Templates containing more than one device cannot be edited!

If you want to make changes in the device or channel selection, you can do so by clicking the "Back" button or the corresponding green arrow icon in the Main Toolbar.

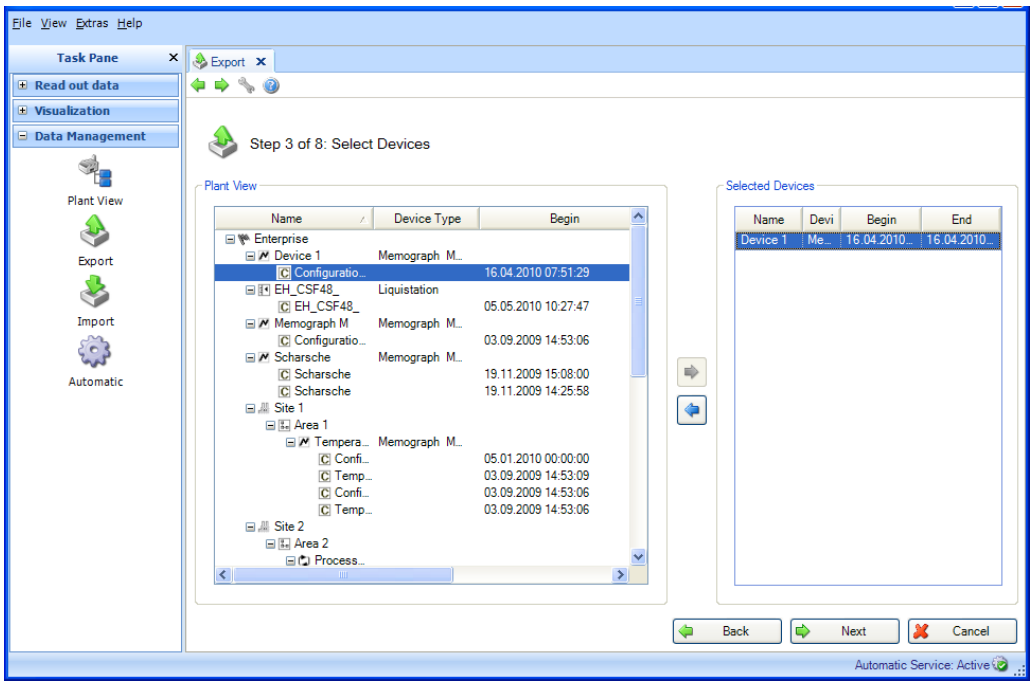
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.2.3 Step 3 of 8: Select devices

NOTICE

This step is skipped if you are using an existing template.

The left side displays the devices available in the database and their configurations.
By double-clicking a configuration, selecting the configuration and clicking the arrow that points to the right in the center of the two boxes or dragging and dropping using the mouse, you can move the devices to be exported to the right side.
You can export the data of the devices on the right side.



NOTICE

Only supported devices can be selected in the Essential version!
No more than one device can be selected!

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

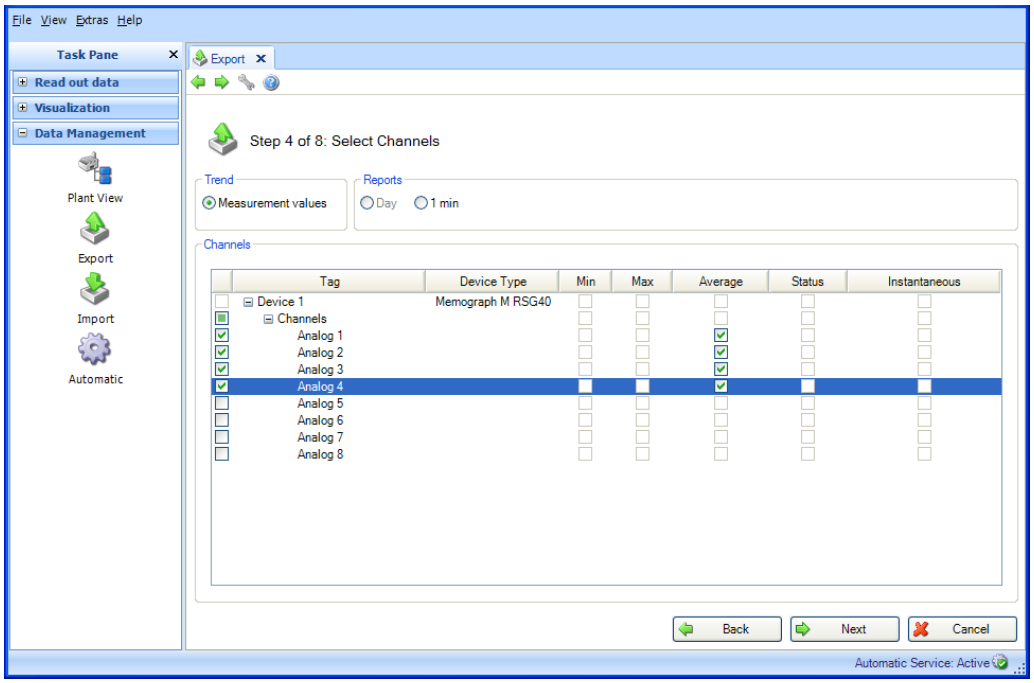
5.2.2.4 Step 4 of 8: Select channels

NOTICE

This step is skipped if you are using an existing template.

The left side displays the active channels of the selected devices/configurations. You can select the corresponding channels by selecting the check boxes.

You can select all active channels by selecting the check box of the configuration (of the respective higher-level check box).



Functions:

Trend:
Measurement values: Instantaneous values (analog values) of the selected device can be selected.

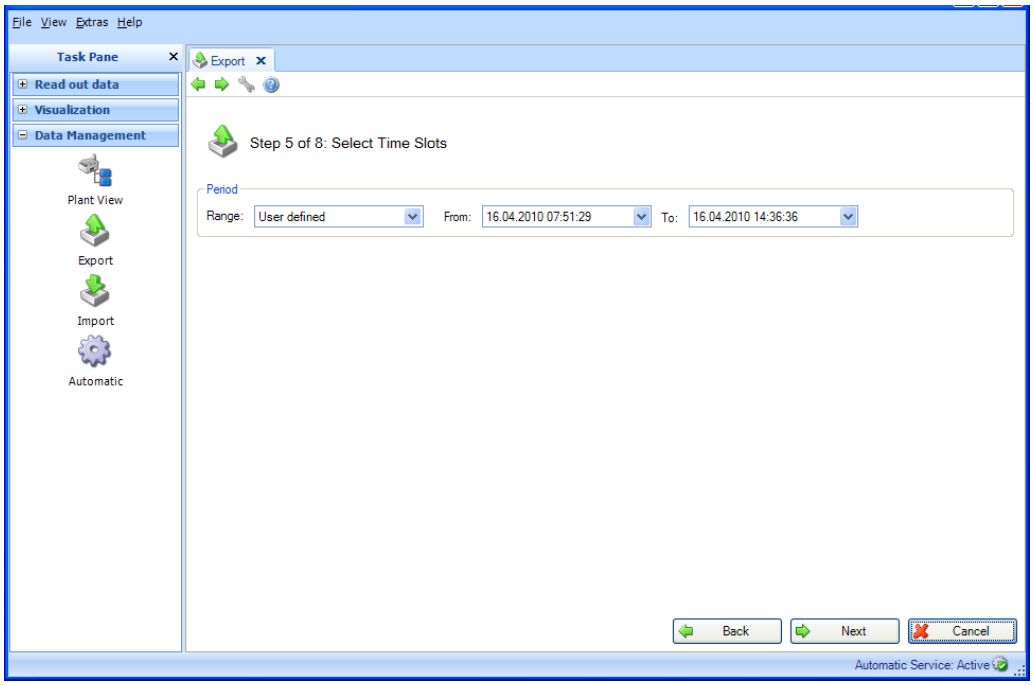
Reports:
Reports can be selected for the selected device, e.g. day, week, month, external, measuring periods (selection only possible if these reports are stored in the device).

Channels:
Device designation/TAG, device type: This shows information about the selected device.
Min, max, average, instantaneous: Selection of the analog values of the device.
Status: Selection of the digital values of the device.

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.2.5 Step 5 of 8: Select time slots or batches

You can define a time range (or the batches if available) using the drop-down lists provided. All stored data of the selected devices that lie within this time range are exported.

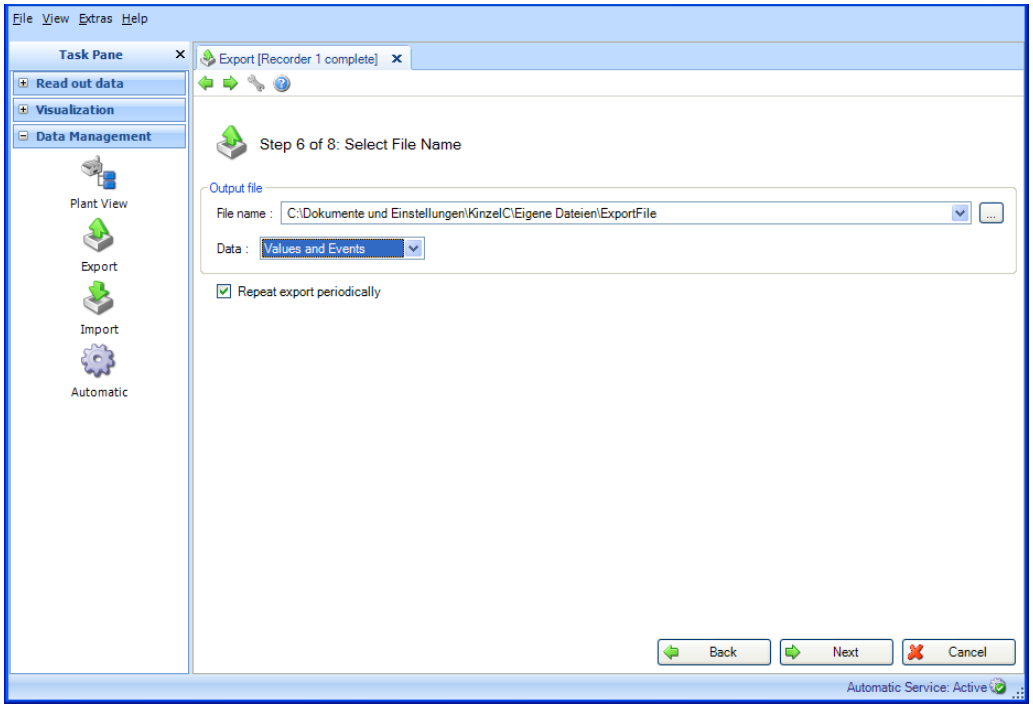


Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.2.6 Step 6 of 8: Select file name

You can define a storage location in the "Output File" box. Clicking the "..." button opens the menu structure of the computer and the storage location for the export can be selected.

Data: Select whether only values and/or events should be exported.



Repeat export periodically: Automatic export and automatic storage of data in non-secure format. Enabling/checking this check box activates an automatic function for export.

NOTICE Automatic export and automatic storage of data in a non-secure format are not supported in the Essential version.

NOTICE
"Repeat export periodically" is possible only when using a template. (See step 2 of 8).

Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.2.2.7 Step 7 of 8: Configure automatic

NOTICE
This is visible only if "Repeat export periodically" has been selected in the previous step.

In the "Excel/CSV Export" box, you can define the interval (repetition rate) of the automatic export. For this purpose, the "Active" check box must be selected.

Interval: How often does the export take place?
Depending on the selected interval, define the following points, such as repetition, start day and start time (see Section 7.6).

Data time period: This selects the time range for export. This means that the export at the defined point in time contains the data of the selected time range, beginning at the start date/time of export and going back.

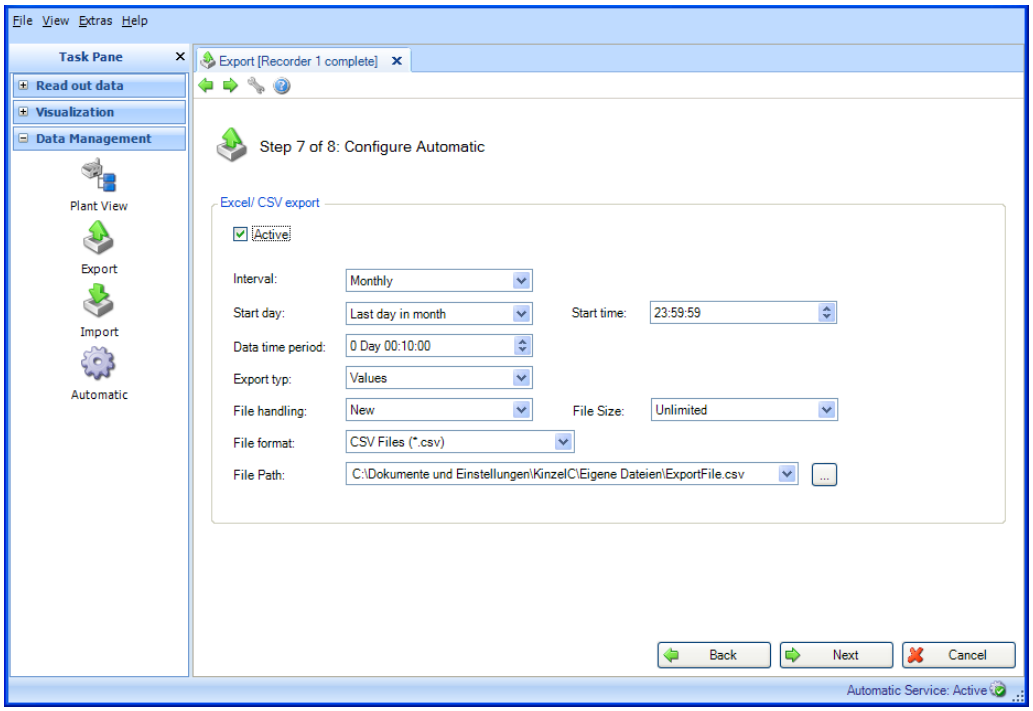
Export type: Select whether only values and/or events should be exported.

File handling: Select whether a new export file should be created, whether the export file should be appended to an existing file or whether the existing file should be overwritten.

File size: In order to restrict the size of the export file or to adjust it to the medium of the storage location (such as DVD, CD) the target medium can be selected in the drop-down list.

File path: If a network drive is selected, you are also asked to enter a user and password. The setting is then saved and can be modified under "Extras -> Settings -> Automatic" (see Section 6.1.6).

NOTICE
Logon for the automatic service must be modified to allow the automatic function access to the network drive (see Section 6.1.6).

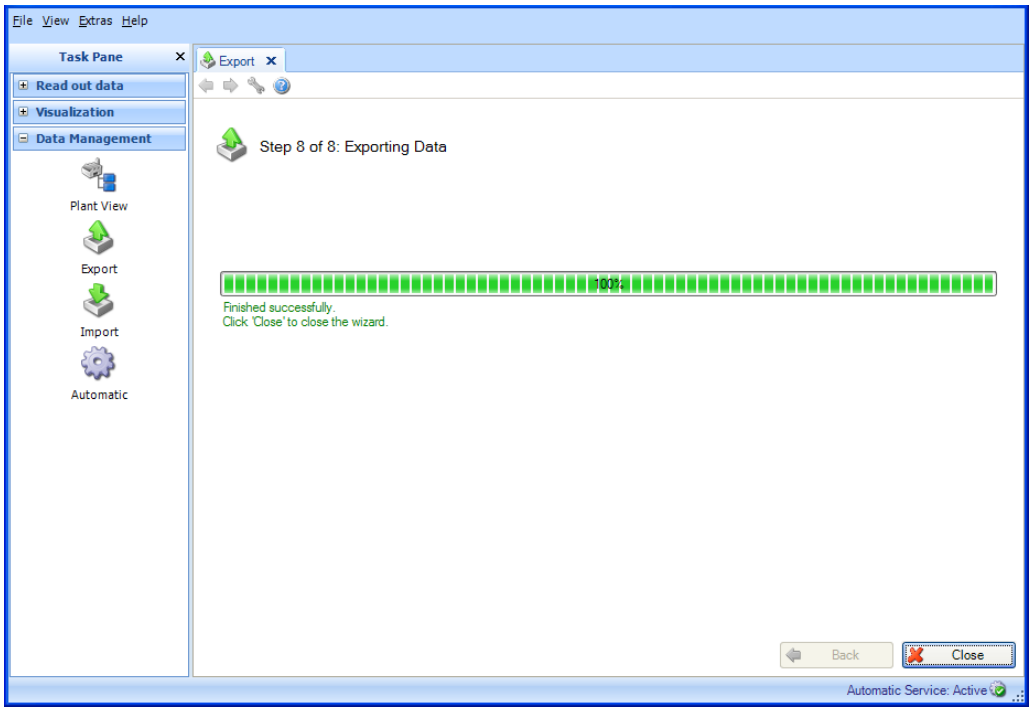


Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step and starts the export and the automatic function (if selected).

5.2.2.8 Step 8 of 8: Export data

A progress bar shows the progress in % and displays the estimated time remaining. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

After the data are exported successfully, a confirmation appears below the progress bar:



Select "Close" to end the process. The window closes.

5.3 Data management -> Import

The Reporting Software allows you to import data into the database.
These data can be provided by devices as well as files.
For this purpose, you have the option of importing data that were previously exported in the secure format using the *.fdm format. This format ensures that data are tamper-protected and thus are genuine measured data.

It is possible to import data from the ReadWin 2000 PC software via the rsd format (see Section 1.10).

NOTICE The transfer of data from ReadWin 2000 is not supported in the Essential version!

It is also possible to import data from Excel (*.xls) or as a CSV file (*.csv). This can be used for planning data, for example. This enables you to carry out direct comparisons of planning data and actual measured data.
Data imported in XLS or CSV format are identified as manual data.

Import format for Excel (*.xls) or CSV (*.csv) files:
If data are to be imported into the Reporting Software using Excel or CSV, the values (measured values, channel names etc.) must be entered into the corresponding file. It is important that the time stamp cell has the format (e.g. YYYY-MM-dd hh:mm:ss).
ISO 8601 must be taken into consideration for the format of the time stamp cell. The dash "-" is defined as the separator for the day, month and year.

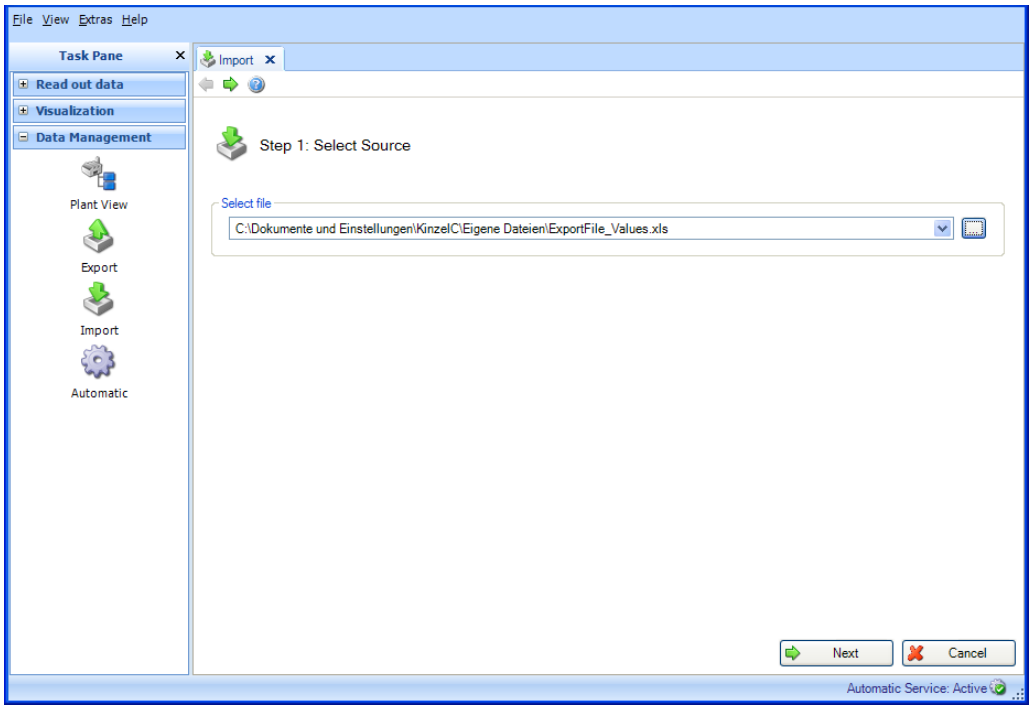
Example:

Time format (YYYY-MM-dd hh:mm:ss)	Channel 1 name Channel 1 unit	Channel 2 name Channel 2 unit	Channel 3 name Channel 3 unit	Channel 4 name Channel 4 unit	... ...
2000-11-23 23:48:34	0.0002	0.01	12	2778	
2000-11-23 23:48:35	0.345	0.03	24	56456	
2000-11-23 23:48:36	0.0688	0.05	36	110134	
2000-11-23 23:48:37	0.1031	0.07	48	163812	
2000-11-23 23:48:38	0.1374	0.09	60	217490	
2000-11-23 23:48:39	0.1717	0.11	72	271168	

5.3.1 Step 1 of 3: Select source

You can define a storage location for the data in the "Select File" box. Clicking the "..." button opens the menu structure of the computer and you can select the file to be imported.

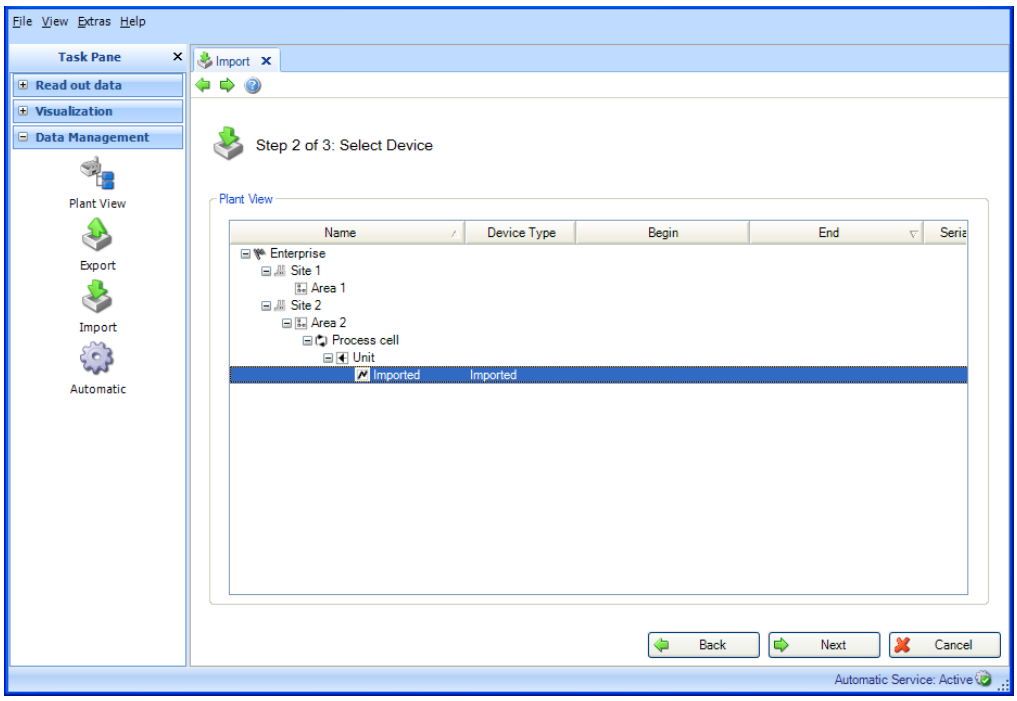
If you select a file in the secure format (*.fdm), step 2 is skipped, as the devices to be imported have already been defined by the format.



Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.3.2 Step 2 of 3: Select device

Select a device or a node in the Plant View. The data to be imported are then assigned organizationally to this plant section:

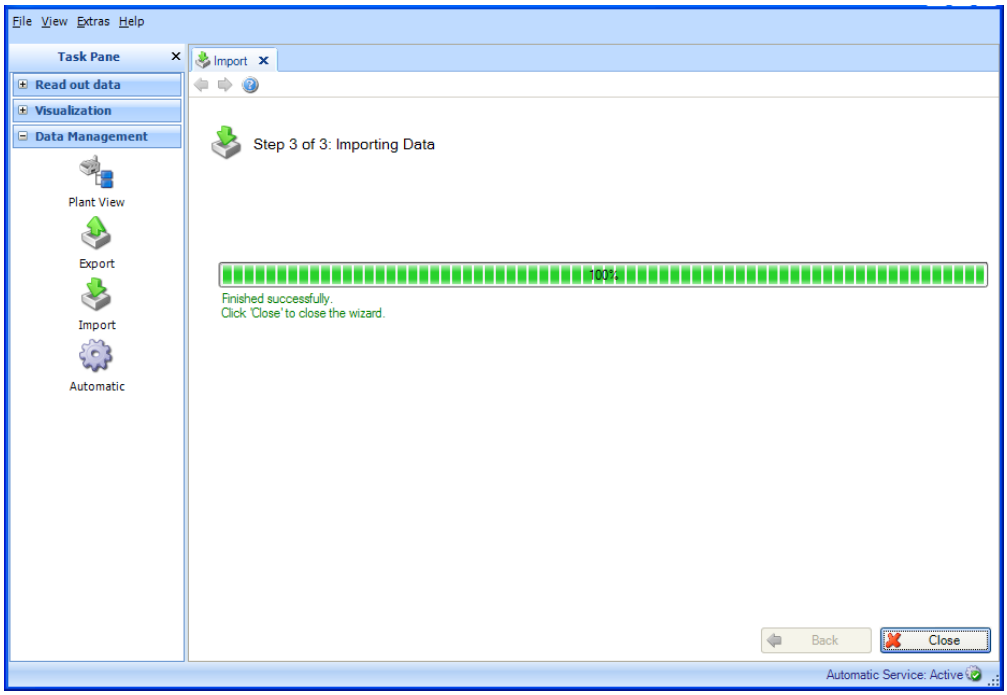


Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step and starts the import.

5.3.3 Step 3 of 3: Import data

A progress bar shows the progress in % and displays the estimated time remaining. You can stop the action during this procedure by pressing the "Cancel" button. You can return to the previous view by selecting "Back".

After the data are imported successfully, a confirmation appears below the progress bar:



Select "Close" to end the process. The window closes.

5.4 Data management -> Automatic

The automatic function is set up as a system service and runs in the background. Before you can activate an automatic function, you have to install the automatic component during the initial installation of the Reporting Software. If the automatic component is installed, the 

icon appears on the bottom right of the window. If this icon is not present, the component has to be installed. This is available on the installation DVD (see Chapter 1.5).

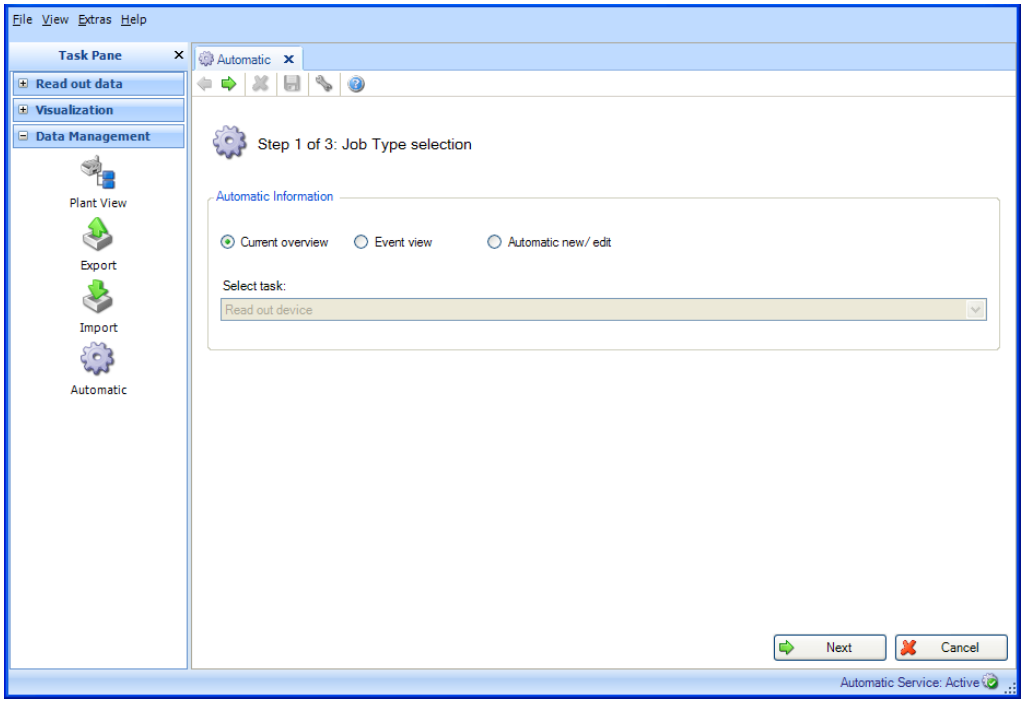
NOTICE Only automatic readout, automation deletion of data in the device following successful readout and automatic binary export are supported in the Essential version. The "Automatic XLS/CSV export", "Automatic PDF export" and "Automatic print out" functions are not available in this software version.

5.4.1 Automatic information: Current overview

All the automatic functions are set up in the "Data Management –> Automatic" task. In addition, the task also provides an overview of all the active or inactive automatic processes.

NOTICE
The automatic functions defined in the individual steps are still valid and can also be managed via the central task described here.

5.4.1.1 Step 1 of 3: Job type selection



Automatic information: Select the desired information.
Options: Current overview, Event view, Automatic new/edit.

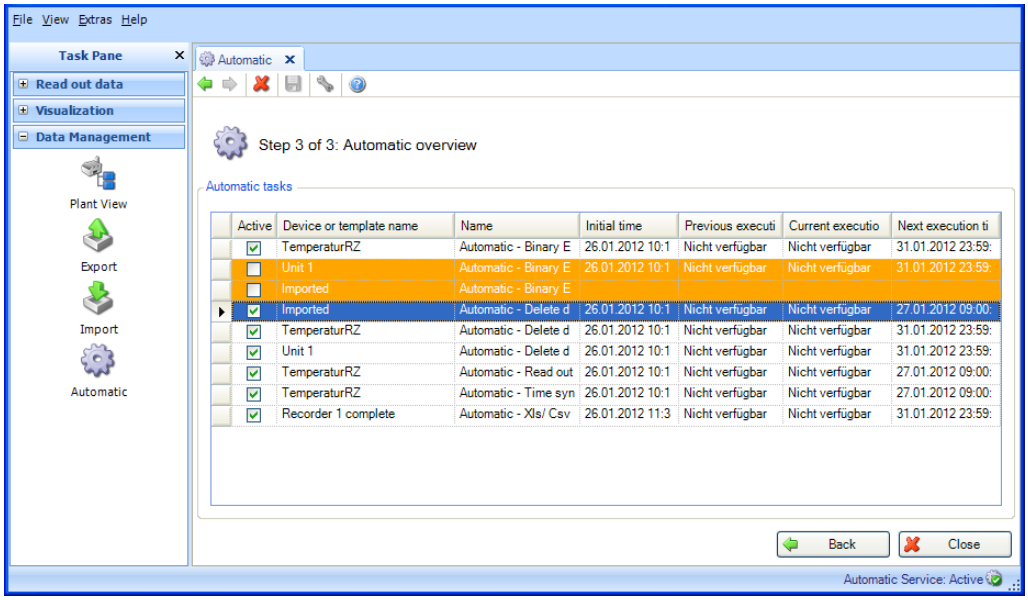
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.4.1.2 Step 2 of 3: Select template or device

Step 2 is skipped automatically as it is not necessary to make a selection for the automatic overview.

5.4.1.3 Step 3 of 3: Automatic overview

An overview of all the automatic tasks is provided in step 3:



The individual automatic task can be enabled or disabled here.

Color code:
Orange: Automatic task is disabled
White: Automatic task is enabled and ready for execution
Green: Automatic task is currently being executed
Blue: Automatic task is selected and can be deleted by clicking "X" in the toolbar.

Red: Status of the automatic service is unknown (error, e.g. automatic function uninstalled)

Select "Close" to end the process. The window closes.

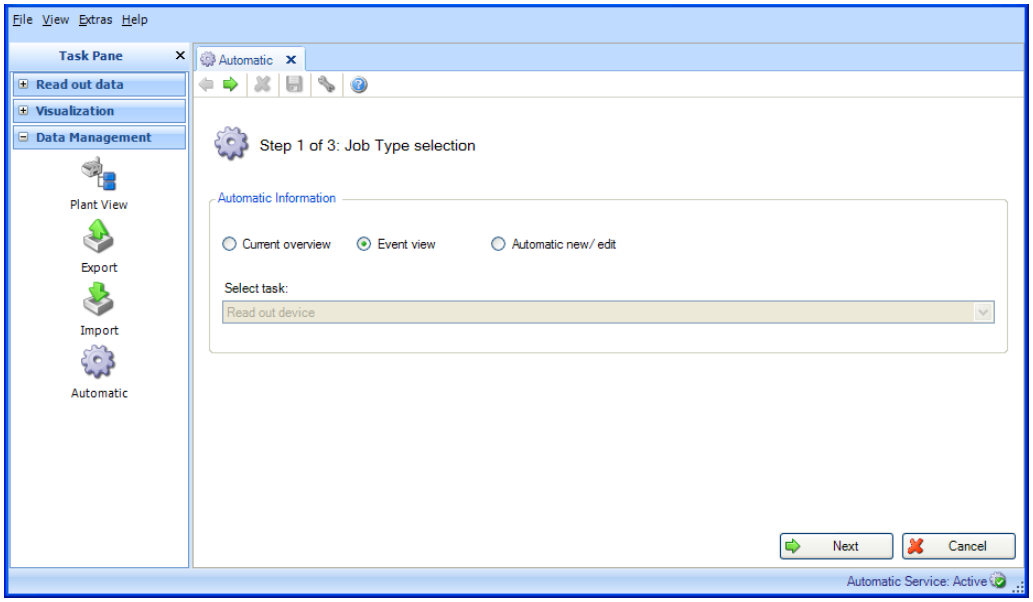
5.4.2 Automatic information: Event view

All the automatic functions are set up in the "Data Management –> Automatic" task. In addition, the task also provides an overview of all the active or inactive automatic processes.

NOTICE

The automatic functions defined in the individual steps are still valid and can also be managed via the central task described here.

5.4.2.1 Step 1 of 3: Job type selection



Automatic information: Select the desired information.
Options: Current view, Event view, Automatic new/edit.

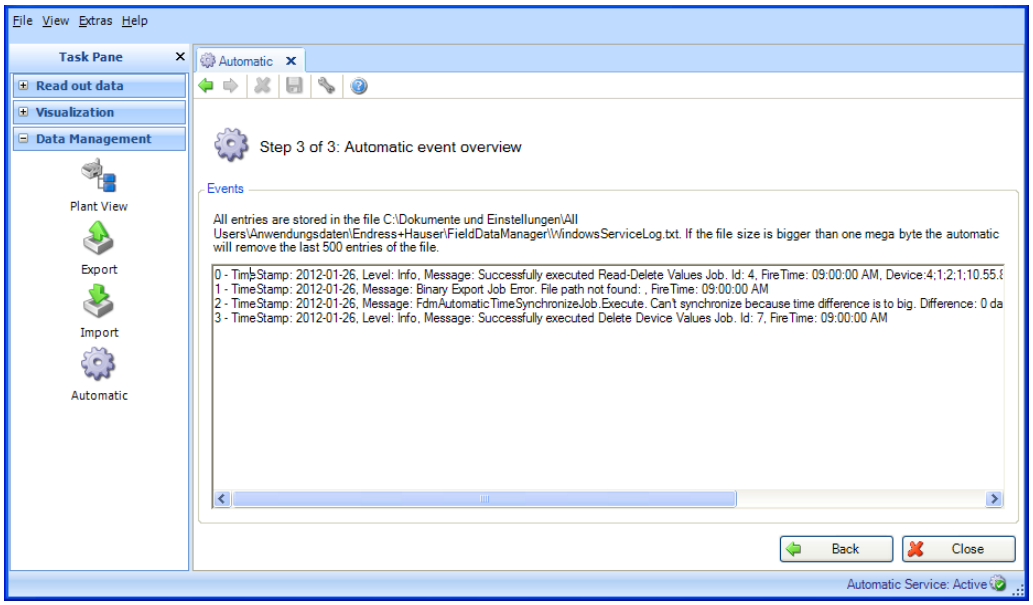
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.4.2.2 Step 2 of 3: Select template or device

Step 2 is skipped automatically as it is not necessary to make a selection for the event overview.

5.4.2.3 Step 3 of 3: Automatic event overview

An event overview of all the automatic tasks is provided in step 3:



Select "Close" to end the process. The window closes.

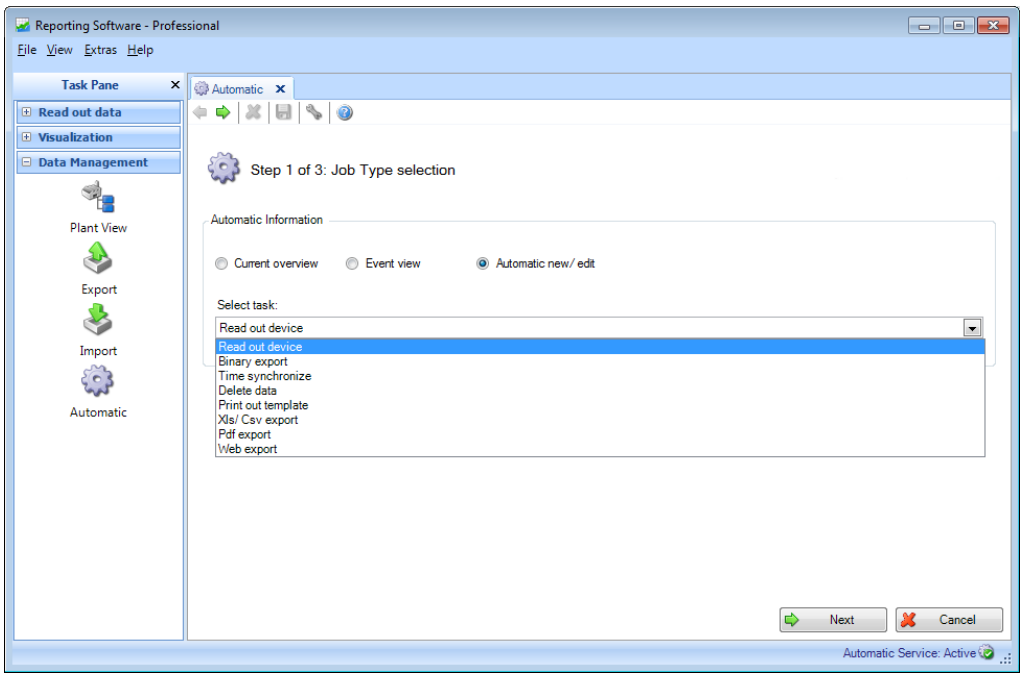
5.4.3 Automatic new/edit

All the automatic functions are set up in the "Data Management –> Automatic" task.

NOTICE

The automatic functions defined in the individual steps are still valid and can also be managed via the central task described here.

5.4.3.1 Step 1 of 3: Job type selection



Automatic information: Select the desired information.
Options: Current overview, Event view, Automatic new/edit.

Select task (only possible for "Automatic new/edit"):

- Read out device: The data stored in the field devices are automatically saved to the database.
- Binary export: Is used for secure data export from the database, e.g. to relieve the SQL server.
- Time synchronize: For regular, automated time synchronization, i.e. the time of the device is synchronized with the system time.
- Delete data: Makes it possible to automatically delete data from the database.
  NOTICE
  Once data are deleted from the database, this cannot be undone!
- Print out template: Makes it possible to automatically print out a visualization template at regular intervals, i.e. a report/visualization that has been defined is saved as a template and is regularly regenerated automatically and printed out.
- XLS/CSV export: Makes it possible to automatically export data in XLS or CSV format at regular intervals. A template must also be selected here, i.e. a report that has been defined is saved as a template and is regularly regenerated automatically and exported.
- PDF export: Makes it possible to automatically export data in PDF format at regular intervals. A template must also be selected here, i.e. a report that has been defined is saved as a template and is regularly regenerated automatically and exported.
- Web export: Makes it possible to automatically export data to other systems via Endress+Hauser middleware. A template must also be selected here, i.e. a report that has been defined is saved as a template and the data are automatically sent to the middleware at regular intervals.

NOTICE

Only automatic readout, automation deletion of data in the device following successful readout and automatic binary export are supported in the Essential version. The "Automatic XLS/CSV export", "Automatic PDF export" and "Automatic print out" functions are not available in this software version.

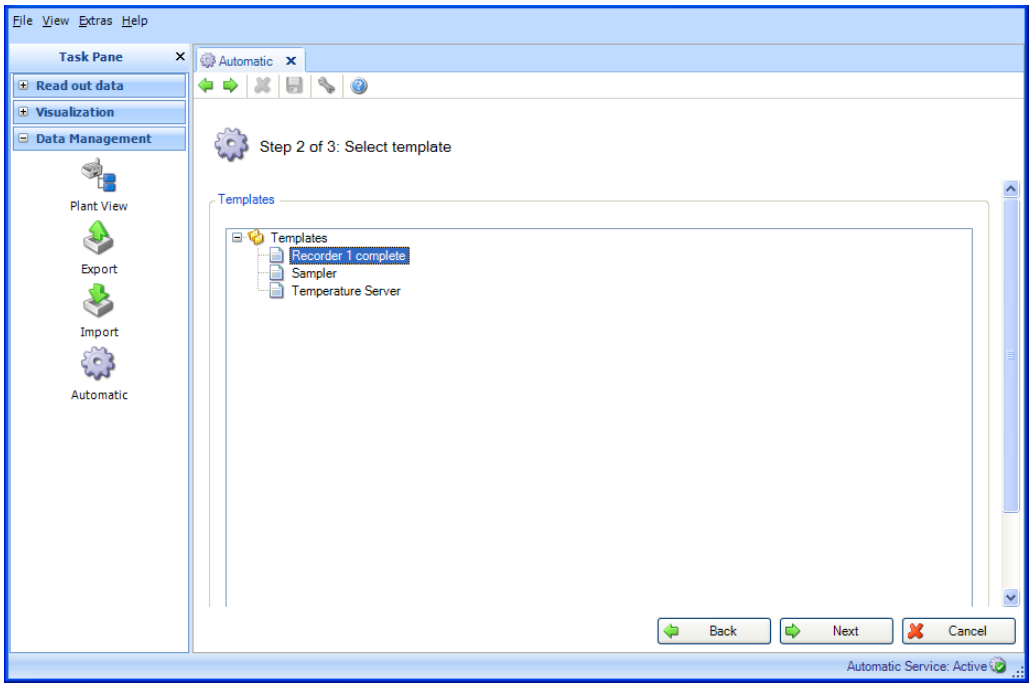
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

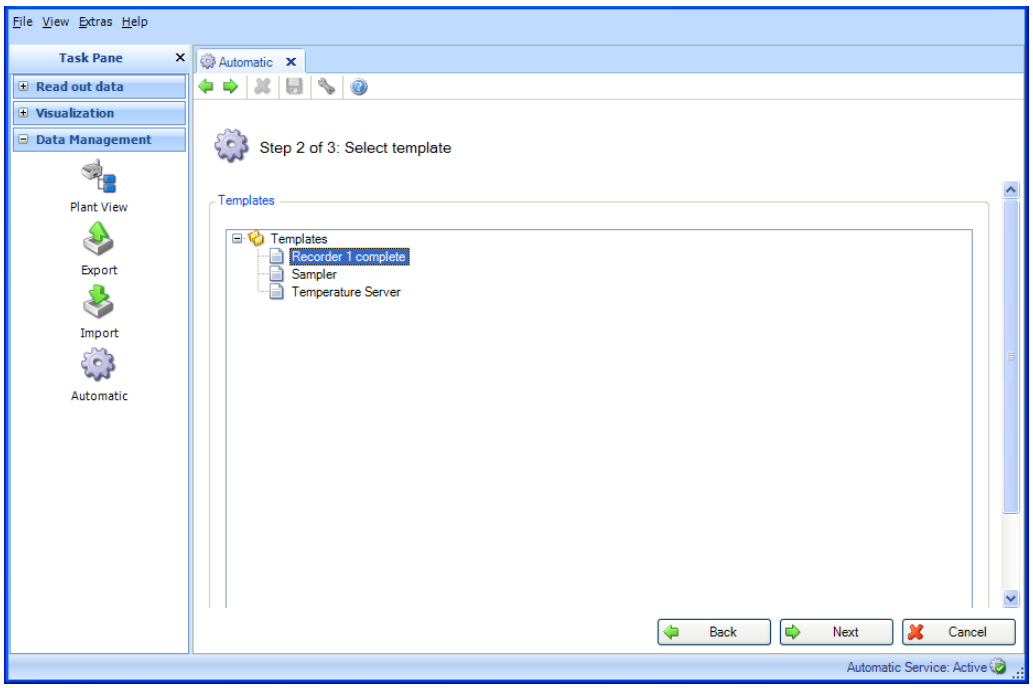
5.4.3.2 Step 2 of 3: Select template or device

NOTICE

Only possible if "Automatic new/edit" is selected in step 1.

In step 2, the appropriate template or the device to be read out must be selected:





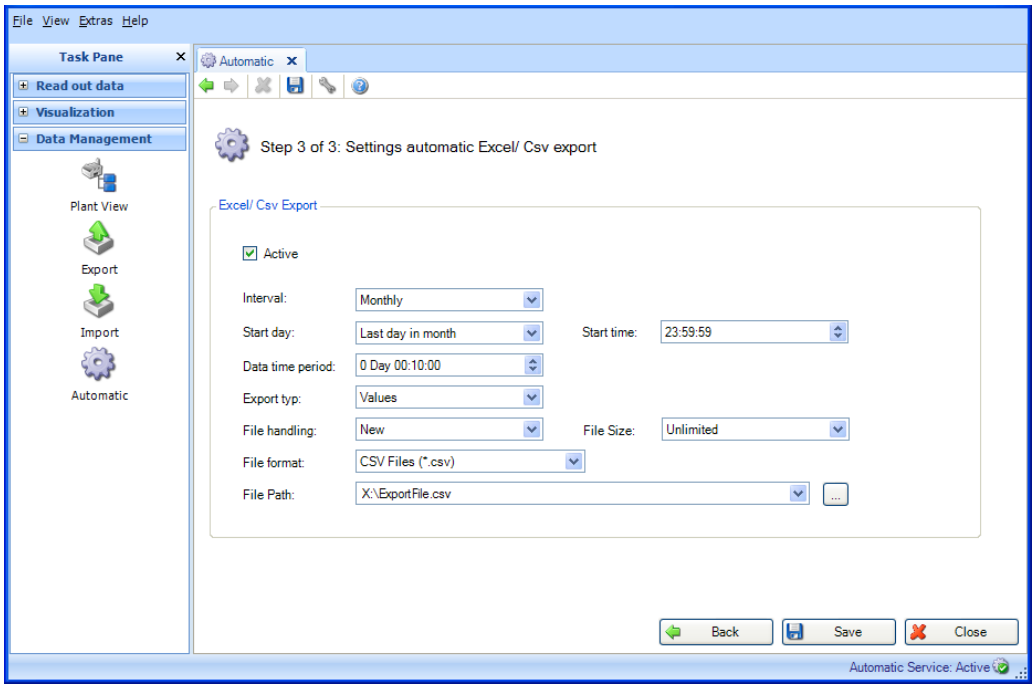
Pressing the "Next" button or the green arrow in the Main Toolbar jumps to the next step.

5.4.3.3 Step 3 of 3: Settings automatic

NOTICE

Only possible if "Automatic new/edit" is selected in step 1.

The frequency is defined in step 3. For this purpose, the "Active" check box must be selected:



You can then define the frequency using the interval, and define the start time (see Section 7.6).

A data time period also has to be defined for the automatic tasks "Delete Data," "Create PDF", "CSV Export", "XLS Export" and "Binary Export" (secure format).

File handling (for Excel/CSV export): Select whether a new export file should be created, whether the export file should be appended to an existing file or whether the existing file should be overwritten.

File size (for Excel/CSV export): In order to restrict the size of the export file or to adjust it to the medium of the storage location (such as DVD, CD) the target medium can be selected in the drop-down list.

File path: The location of the data report to be exported must be defined for all export automatic tasks. Clicking the "..." button opens the Explorer tree.
If a network drive is selected, you are also asked to enter a user and password. The setting is then saved and can be modified under "Extras -> Settings -> Automatic" (see Section 6.1.6).

NOTICE

Logon for the automatic service must be modified to allow the automatic function access to the network drive (see Section 6.1.6).

Timeout (s) (for Web export): Timeout for the transmission of data to the middleware
User name / password (for Web export): User that is configured in the middleware.
Web URL (for Web export): Web address of the middleware
Certificate (for Web export): If communication with the middleware is to take place via https (encrypted connection), the corresponding certificate must be available permanently for the automatic service.
Connection test (for Web export): To test the connection to the middleware.

Clicking "Save" enables, saves and completes the configuration.
Select "Close" to end the process. The window closes.

5.4.4 Automatic service

The automatic symbol 

for the system service is displayed in the bottom, right-hand corner of the Reporting Software. The system service can have different states: pending, paused, stopped, not installed, inactive, undefined status or active.

Explanation of the various states:

- "Pending": The service is currently locked and is waiting to be enabled. If this state does not change within 2 minutes, please notify your system administrator and restart the system service.
- "Stopped", "Paused", "Ended": The service is not currently running. This can happen if the system administrator interrupts the service.
- "Not Installed": The Reporting Software can also be installed without automatic service/automatic components. All automatic settings are inactive in this case. If you would like to subsequently install the automatic component, do so via the setup routine (like when installing for the first time). The "Install Automatic Component" option must be selected (ticked) in the setup routine (see Section 1.5).
- "Inactive": The user can activate or deactivate the internal state of the defined automatic jobs in the Tray Icon menu (see Section 5.4.6).
- "Active": The Windows system service/automatic function is active and running.
- "Undefined Status": This state can appear if the database connection is not available, interrupted or if the service is in an undefined state. Please close the Reporting Software and all the automatic components and restart them. If the status still does not change, please notify your system administrator.

Once an automatic service is started it remains active until is stopped manually, for example via the Tray Icon (see Section 5.4.6).

5.4.5 E-mail notification

If an error occurs when executing an automatic function (e.g. "Data readout"), the analysis software automatically sends a one-off e-mail notification to all configured recipients.

The text-based e-mail contains in the subject line the general information "Automatic function failed". The body of the e-mail contains a meaningful error message with cause and corrective measures.

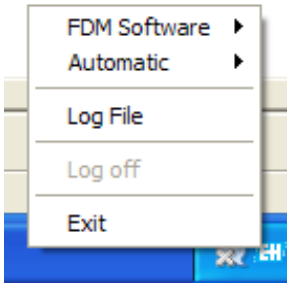
This is noted in the log file, regardless of whether the e-mail is sent correctly or not.

The analysis software does not verify if the e-mail was delivered correctly. This can be done only by the higher-level mail system.

A description of how to configure e-mail notification can be found in section **Fehler! Verweisquelle konnte nicht gefunden werden.**.

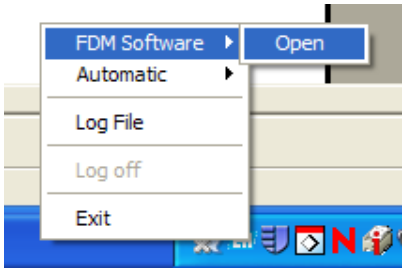
5.4.6 Tray Icon

The 'Tray Icon Application' is started automatically during system startup. Once the application has started, the tray icon appears in the Windows menu program.
Right-clicking the icon opens a local menu:

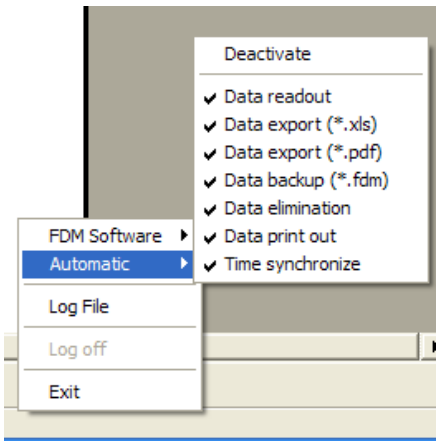


The tray icon changes to as soon as an automatic action is busy. The default icon is displayed when the automatic service is active but not currently executing an action.

Reporting Software:
The first entry has a subitem to open and close the Reporting Software:



Automatic:



The Automatic function can be activated or deactivated in the next entry. Activation is only possible if the Windows service is started under "Extras -> Settings -> Automatic" (see Section 6.1.6).
All the defined automatic functions appear in the Automatic subitem. Individual tasks can be manually set to active or inactive. If a task is set to inactive, it is not executed at the time of the next service.
Each time you click the Tray Icon Application, the view of the defined tasks is synchronized with the Reporting Software and the display is refreshed.

Log file:
The entry opens the documentation file (WindowsServiceLog.txt), which documents all the activities of the system service. The documentation file is saved under:
Windows 2000 / XP: "C:\Documents and settings\All Users\Application data\

Endress+Hauser\ FieldDataManager”
Windows VISTA and higher: “C:\ProgramData\Endress+Hauser\FieldDataManager”

Log off:
When user administration is active, the user is also requested to log on for the Tray Icon application. Only then is the functionality available. Once the user has logged on, no further check is carried out unless the user logs off again using the "Log off" function. Logging on for the Tray Icon is independent of logging on for the Reporting Software.

Exit:
"Exit" closes the Tray Icon window. This does not affect the system service, however.

If the Tray Icon should not be started automatically, this can be disabled in the Reporting Software under "Extras -> Settings -> Automatic" (see Section 6.1.6). If user administration is enabled in the Reporting Software, the user code must be entered beforehand.

6. Extras menu

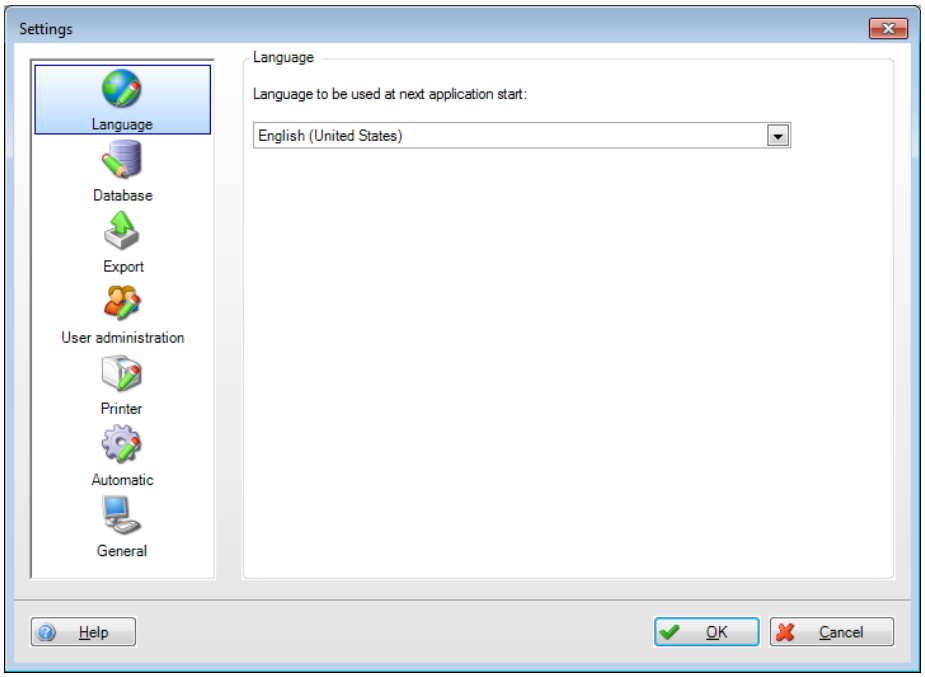
6.1 Extras -> Settings

Here, you can configure general settings for the database, language, export format and user administration.

6.1.1 Language

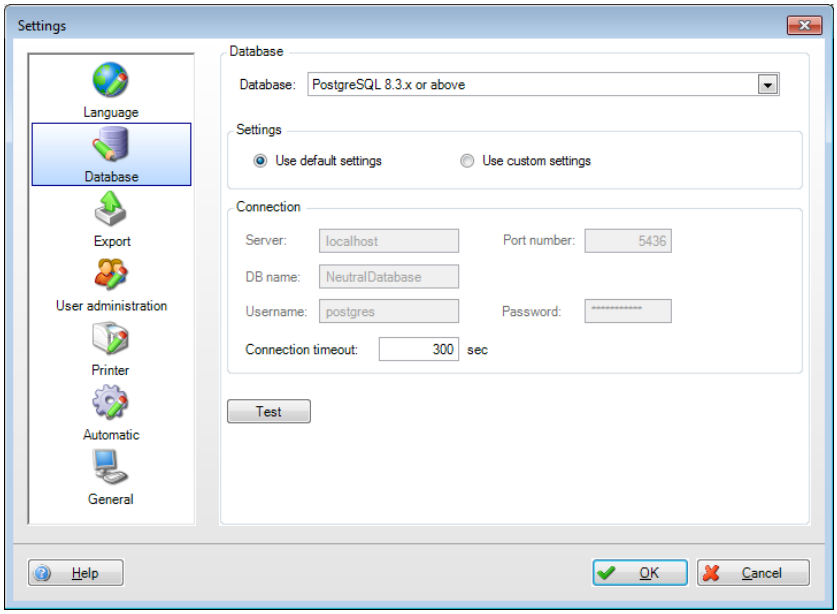
You can select the languages available in the Reporting Software via the drop-down menu.

If you change the language setting, the change does not take effect until after the software is restarted.



6.1.2 Database

In the database settings allow you to select the database used or the corresponding SQL server. You can configure detailed, user-defined settings using the box in the bottom section of the dialog window. To do so, you can assign the server name and port number for existing databases and configure a timeout for automatic disconnection.
If a certain username and password are required for an existing SQL server database, this information can also be entered here.

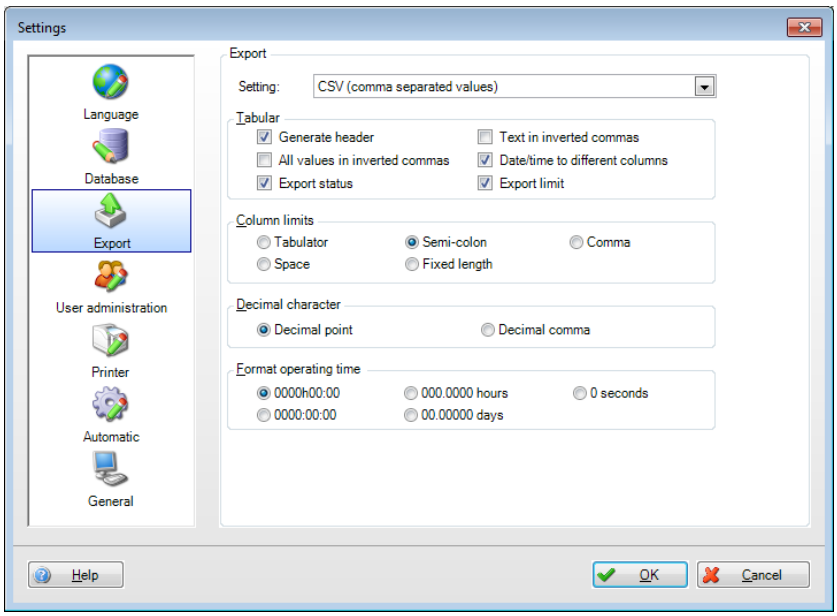


NOTICE

Only the PostgreSQL™ database is supported in the Essential version!
When using the Essential version, a database stored in the network cannot be accessed simultaneously by multiple PCs.

6.1.3 Export

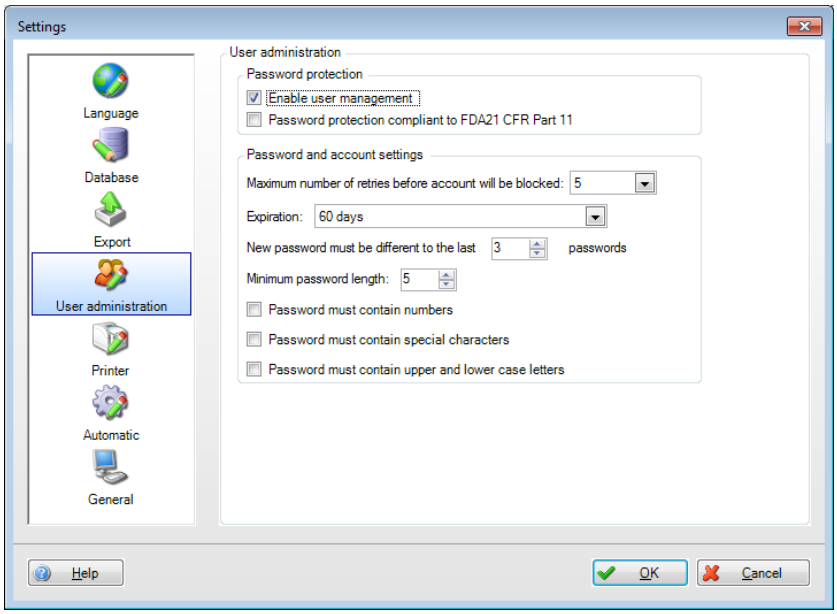
Configure the export formats. For descriptions, refer to Section 5.2 "Data Management -> Export":



6.1.4 User administration

Activate the security system via the user administration if you want to protect the unit against unauthorized operation. After the initial installation of the Reporting Software, the user administration function is disabled by default.

Basic user administration settings are available in the "Extras –> Settings –> User Administration" menu:



The user administration can be enabled in the settings. If enabled, the first user is automatically assigned the role of administrator.

In addition to enabling the User Administration, you can define the corresponding requirements are defined that must be fulfilled by the passwords.

To comply with the more stringent documentation and security requirements of FDA21 CFR Part 11, this function must also be enabled.
As a result of this function, the user has to identify himself or herself with a user ID and password whenever carrying out an action that affects the database (such as creating templates, creating or changing devices/device settings, deleting devices, etc.).

Use of the reporting functionality is not possible if security requirements in accordance with FDA21 CFR Part 11 are enabled.

The administration of users takes place in the function "Extras –> User Administration" (see Section 6.3).

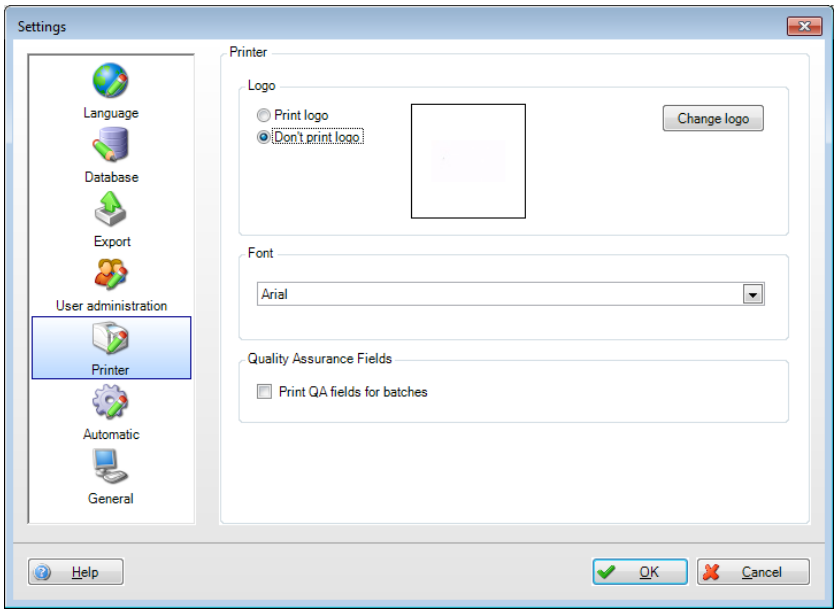
NOTICE

User administration can be enabled only in the Professional and Demo versions!

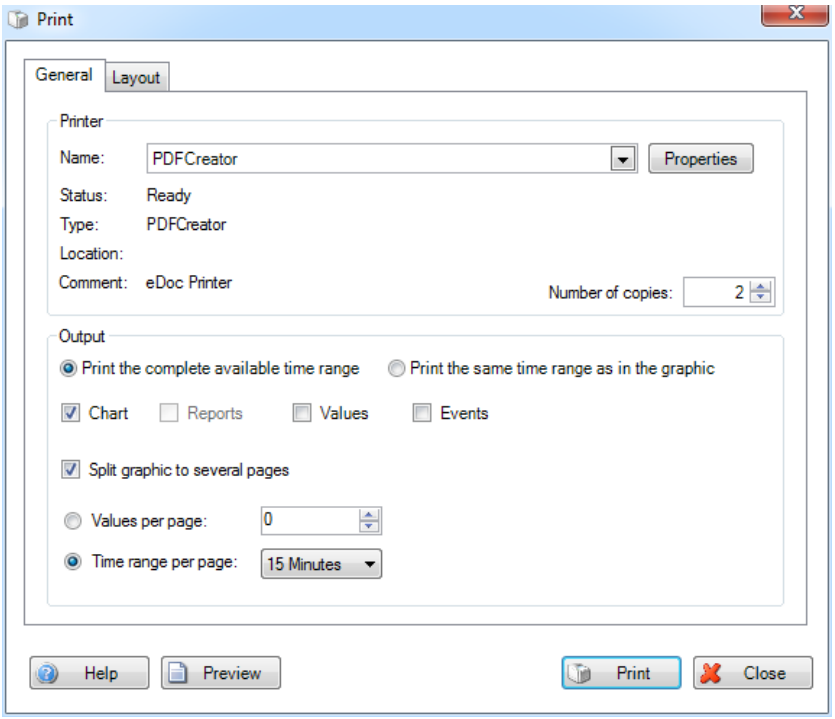
6.1.5 Printer

The printout format is defined in the "Printer" menu. If a logo is to appear on the printout, this can be selected and defined via the "Change Logo" button.

You can define the font using the drop-down list:



The following menu opens if the printer icon  is clicked in the Reporting Software, e.g. in visualization:



The required printer, the print layout and settings can be selected here. A print preview is also possible.

In the visualization printer settings, you can select if the print-out is to be line-based or column-based. The column-based layout is enabled as standard. The line-based layout is enabled only for templates which contain analyses.

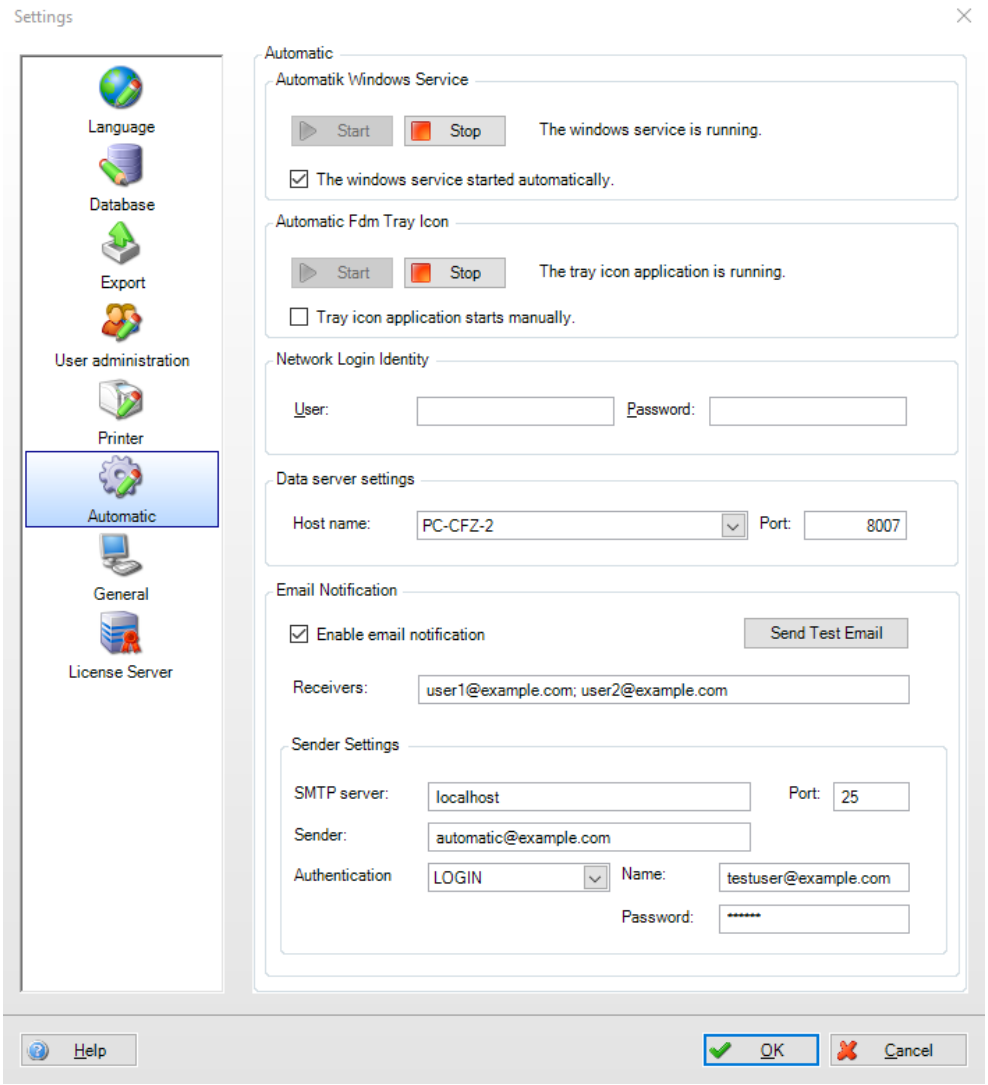
6.1.6 Automatic

NOTICE

If user administration is enabled, an administrator must be logged on before these automatic task settings can be changed.

6.1.6.1 Windows System Service

The "Automatic" menu contains start and stop functions for Windows System Service and for the Tray Icon Application. In addition, you can also define whether these functions should be started automatically here:

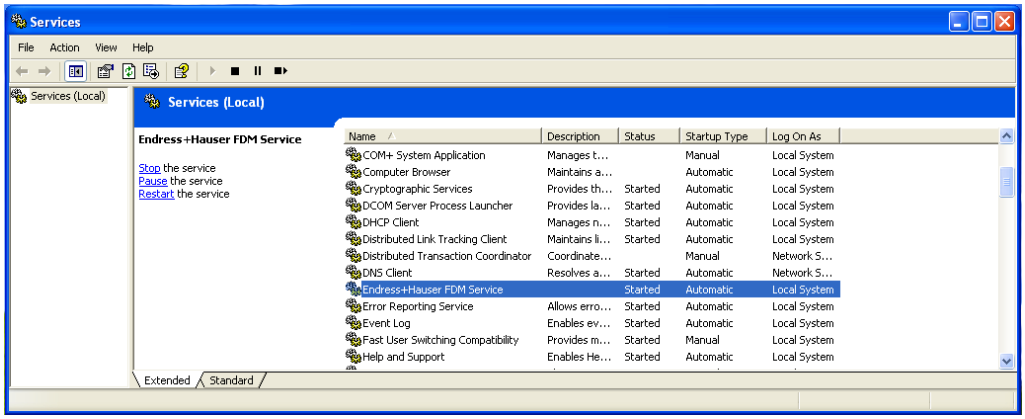


Network login identity:
The automatic function requires a user and a password in order to log onto a remote computer and get access to a directory. This user must have the appropriate rights for the selected directory.

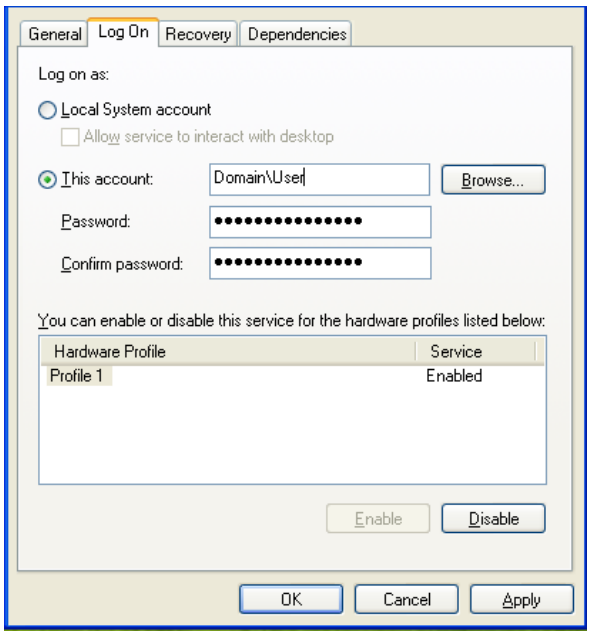
NOTICE

Logon for the automatic service must be modified to allow the automatic function access to the network drive:

1. Open 'Endress+Hauser FDM Service': "Control Panel -> System and Security -> Administration -> Services -> double-click "Endress+Hauser FDM Service":

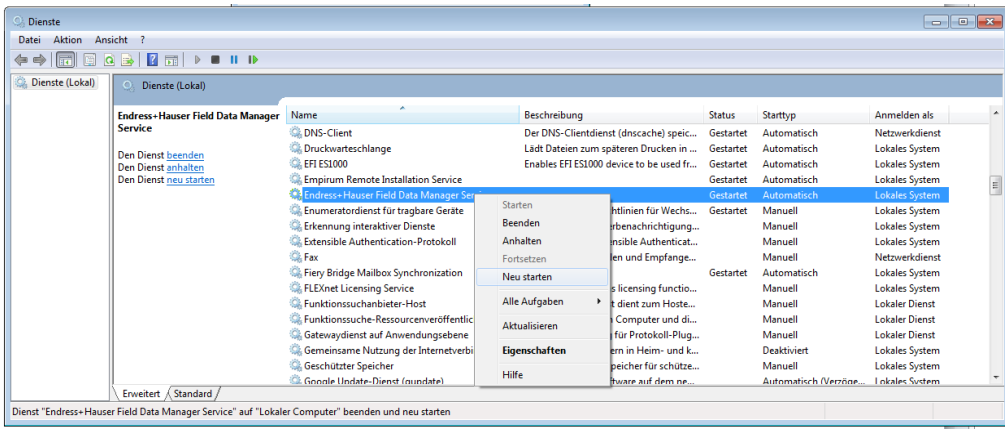


2. Switch to "Log on". Create a user with appropriate rights under "This account":



Click "Apply" and "OK" to save the settings.

3. The service must be restarted in order to activate the new setting:



Data server settings:
Configuration of data server connection for the online data of devices set up in the analysis software. The host name is identical to the computer on which the automatic service is running.

Port: The port is preconfigured to "8007". Any change is automatically adopted by the data server.

6.1.6.2 E-mail configuration

The mail function can be activated or deactivated, as required. The function is deactivated as standard. To enable e-mails to be sent correctly, the following settings are required:

Recipient:
Up to 10 recipient addresses can be entered. Individual e-mail addresses are separated by a semicolon (;).

SMTP Server / Port:
Enter the SMTP server and port used.

Sender:
Name or e-mail address for sending mail (sender of notification mail).

Authentication:
For authentication, you can choose between "automatic detection", "no authentication", "PLAIN authentication" and "LOGIN authentication". If an authentication mechanism is selected, the user must enter a user name and password.

NOTICE

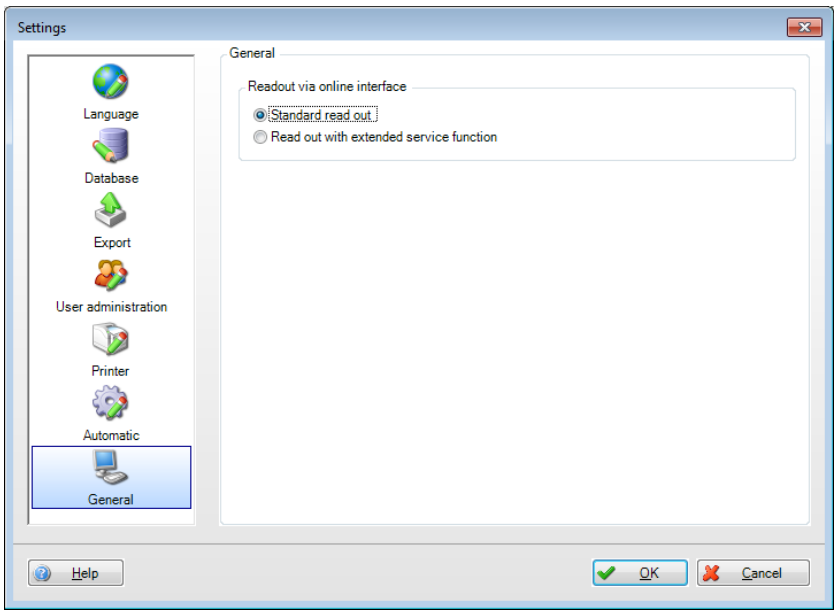
For queries regarding sender settings, contact your network administrator or e-mail provider if necessary.

To verify and activate the mail function, you must first send a test mail by activating the "Send test e-mail" button.

The test mail must be sent successfully before the entries can be accepted with "OK".

6.1.7 General

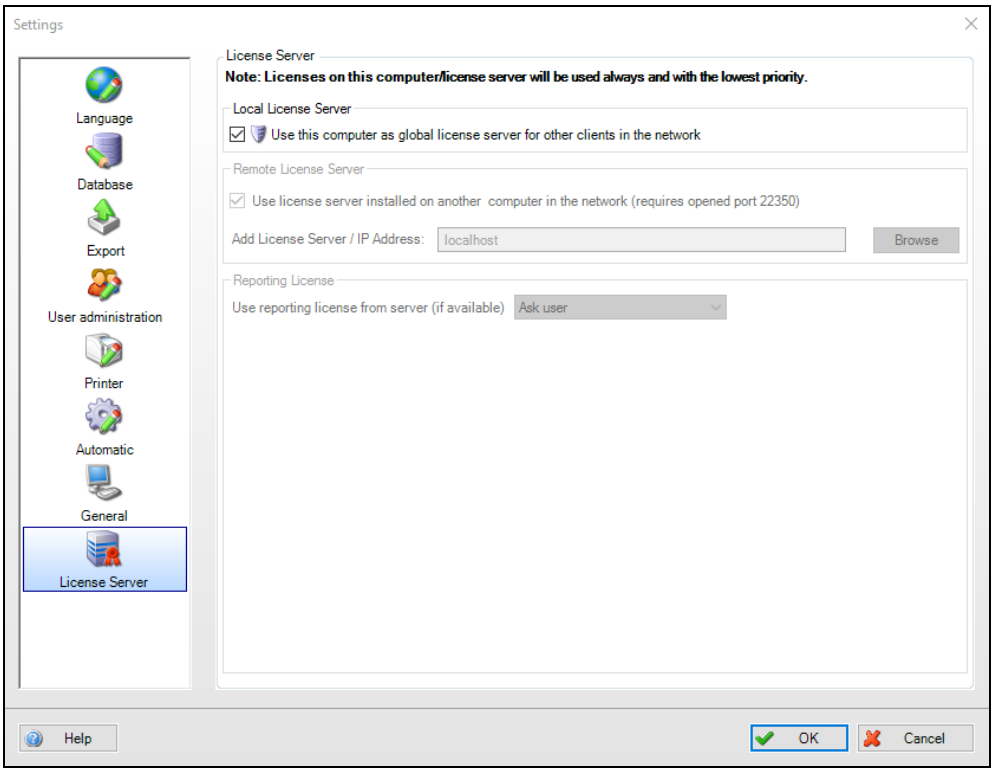
In the General menu items, readout with extended service function can be enabled. If this is enabled, a field appears in the readout menu with the option not to delete data from the device once the data have been read out successfully.



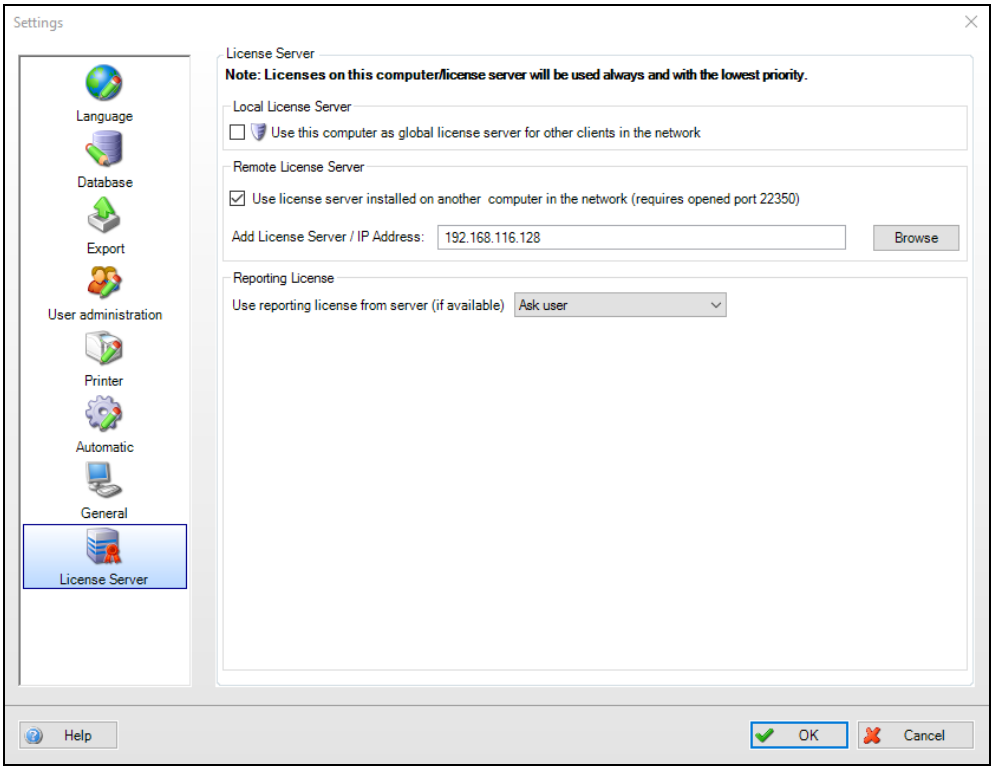
6.1.8 License server settings

The license server is an independent program that is installed locally with the software and used locally.

By activating it, it is possible to make this local license server available as a central license server to additional software installations on other network computers:



The use of a central license server is enabled by specifying the IP address or host name of the computer where the license server is installed. In addition, it is necessary to configure the port used (TCP: 22350):



If you have queries relating to these fields, please contact your IT support department. The data are saved permanently.

6.2 Extras –> Audit trail

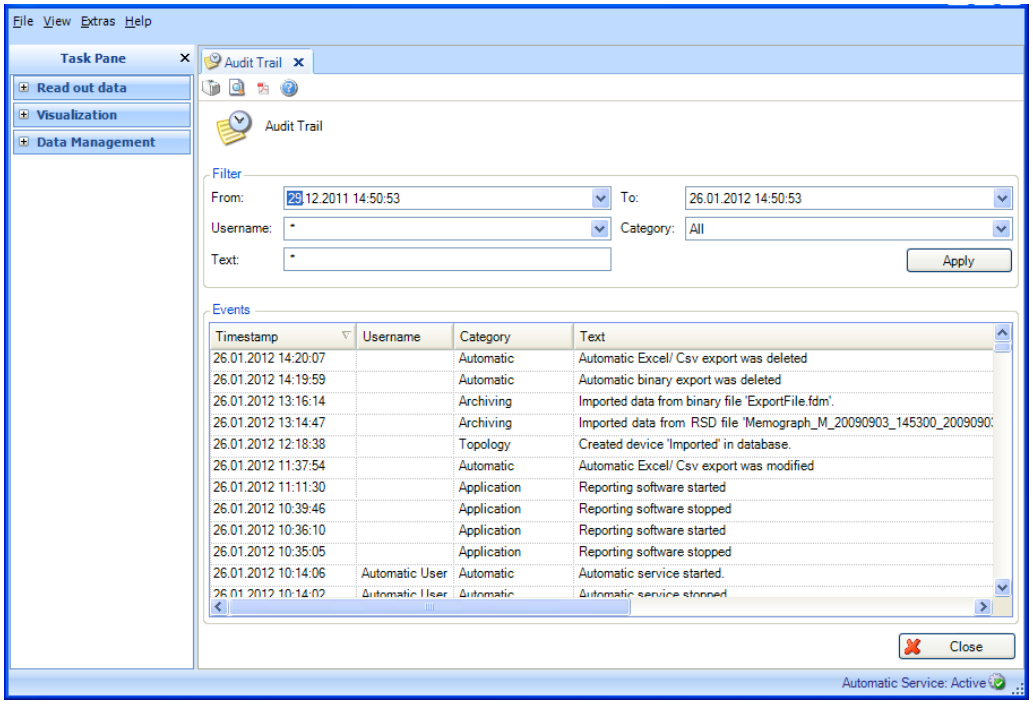
For complete documentation, the audit trail function offers the display of all actions carried out by the Reporting Software and on the corresponding database.

Any action that has an effect on the database is documented in the audit trail with the time stamp and user name (when User administration is enabled). This includes, for example, the following functions: create a new device, read out data, create template, user logs in, user logs out, report is generated, etc.

In the Audit Trail, you can search for certain entries using the filter (Time, Text, User, Category).

You can print out the Audit Trail using the printer icon  .

The  icon allows you to export the audit trail as a PDF file.

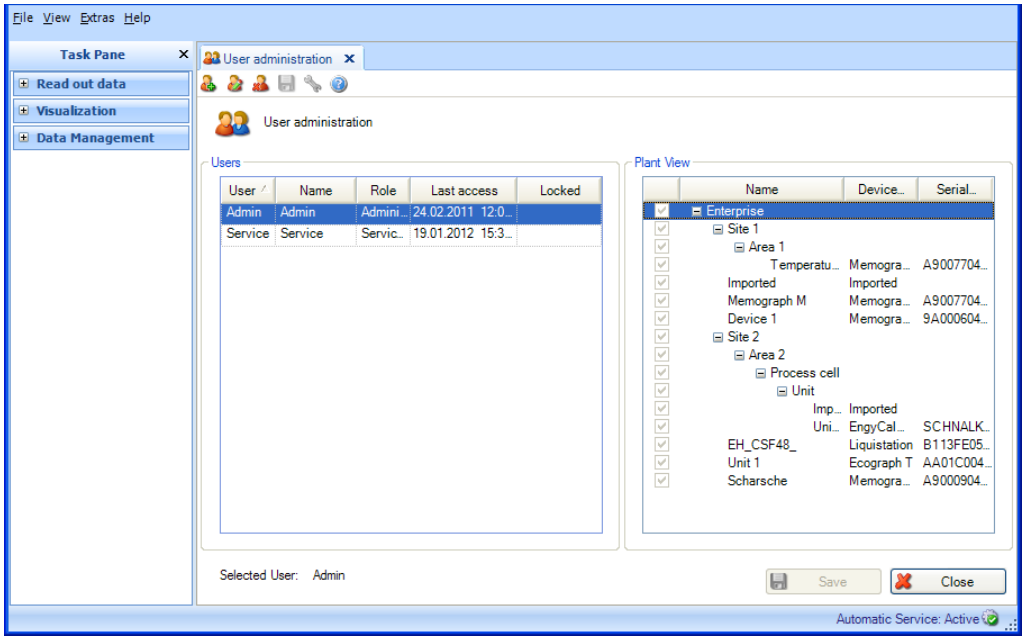


6.3 Extras -> User administration

NOTICE

User administration can be enabled only in the Professional and Demo versions!

The administration of users takes place in the function "Extras –> User Administration". This menu item can be accessed by administrators only. The administrator can create up to 50 users. Once a user is created, he or she appears in the overview in the left box:



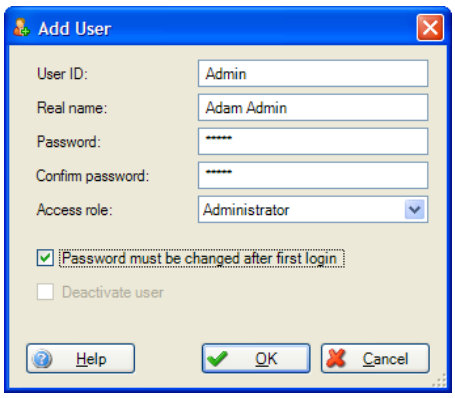
Create a user:

You can add new users using the "Person with plus sign" icon  .

User ID: For each user, the administrator has to assign a unique User ID. Max. 8 characters

Password, password confirmation: For the initial login of the user, the administrator has to assign a password. Max. 10 characters

Selecting the "Password Must be Changed after First Login" function ensures that the new user has to change the first password he or she is assigned:



When logging in for the first time, the user must enter the password assigned by the administrator at the first login and assign a new password.

Access role: You can assign various access roles to the user. These define the scope of user and access rights.
The following overview defines the rights for the individual user roles:

Access roles and access rights	Adminis	Service	Planning	Maintenance	System	Observer

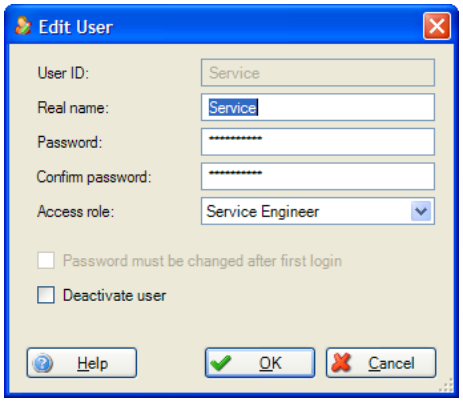
Responsibility	trator	Engineer	Engineer	Engineer	Operator	
Create new site	X		X			
Create new area, unit	X		X			
Create new devices	X		X	X	X	
Move sites and devices	X		X			
Rename devices	X		X	X		
Site import from FieldCare CSV	X		X			
Data readout	X		X	X	X	
Data export	X		X	X		
Data import	X		X	X		
Import tamper-proof data	X		X	X	X	
Export tamper-proof data	X		X	X		
Visualization, printout, PDF, CSV	X		X	X	X	X
Create, modify, delete automatic functions	X		X	X		
Start/stop automatic	X		X	X	X	
Select, merge data	X		X	X		
Delete data	X		X	X		
Change language	X		X	X	X	X
Change export settings	X		X	X		
Password settings	X					
User administration	X					
Audit trail view	X	X				

NOTICE

The user rules for reporting are explained in Section 9.1.1 User roles.

Edit user:

Using the "Person with pen" icon  you can modify the information about the user and reset the password. The dialog for changing the user information corresponds to the settings for creating a new user:



The "Deactivate user" function enables you to block a user temporarily. In this case, a lock icon for "Locked" appears in the user overview.

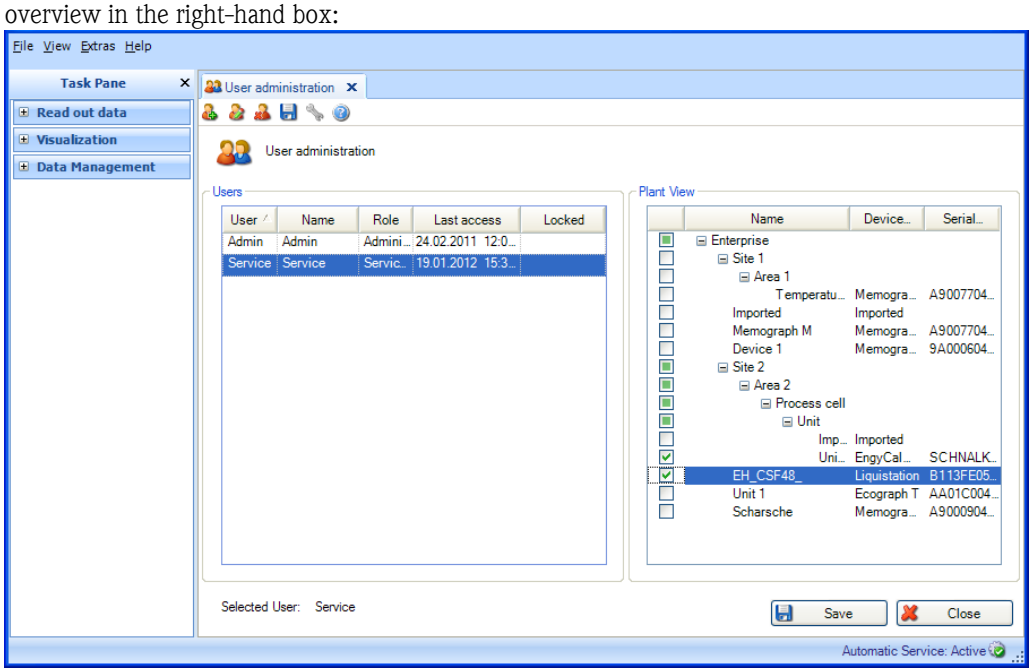
If the user enters incorrect information multiple times when logging in, the user also shows up as locked. The administrator can remove the lock by resetting the password. The user can then change the password again.

Delete user:

The "Person with red X" icon  allows you to delete a user selected in the list. Before the user is deleted, you are prompted for additional confirmation in a dialog window. If you confirm the deletion of the user, the corresponding account is deleted immediately.

User rights for plant sections:

In addition to the assignment of the user role, you can limit access to additional devices or plant sections. The assignment of the user rights for devices and plant sections takes place in the overview in the right-hand box:



By selecting the user in the list, you can give this user defined access to individual devices and plant sections. In doing so, the administrator selects a node. This gives the user access to the corresponding node (e.g. site, area etc.) and to all assigned subnodes.

If a user does not obtain access to certain plant sections or devices (node is not selected), these plant sections or devices are also not visible to the corresponding user in the Plant View.

Access rights to templates:
The access rights to the templates are defined via the corresponding devices. A user has access to a template only if he or she has access to the corresponding devices.

Access rights to devices:
Access rights to devices are defined in the user administration function via the Plant View. If a user is the first to create and read out a device, the user who carries out the readout automatically obtains access rights to this device.

Login as user:
The user logs in with his or her user ID and password. These are case-sensitive. When logging in for the first time, the user must enter the password assigned by the administrator at the first login and assign a new password where applicable. Every logon, whether successful or not, generates an entry in the audit trail of the Reporting Software.

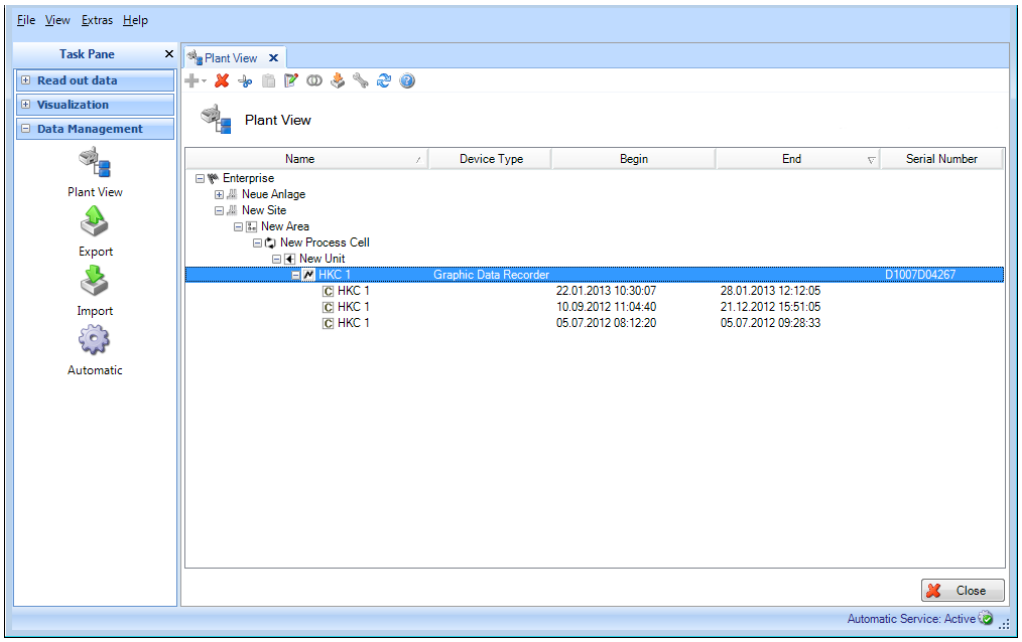
Logout as user:
The user can log out in different ways:

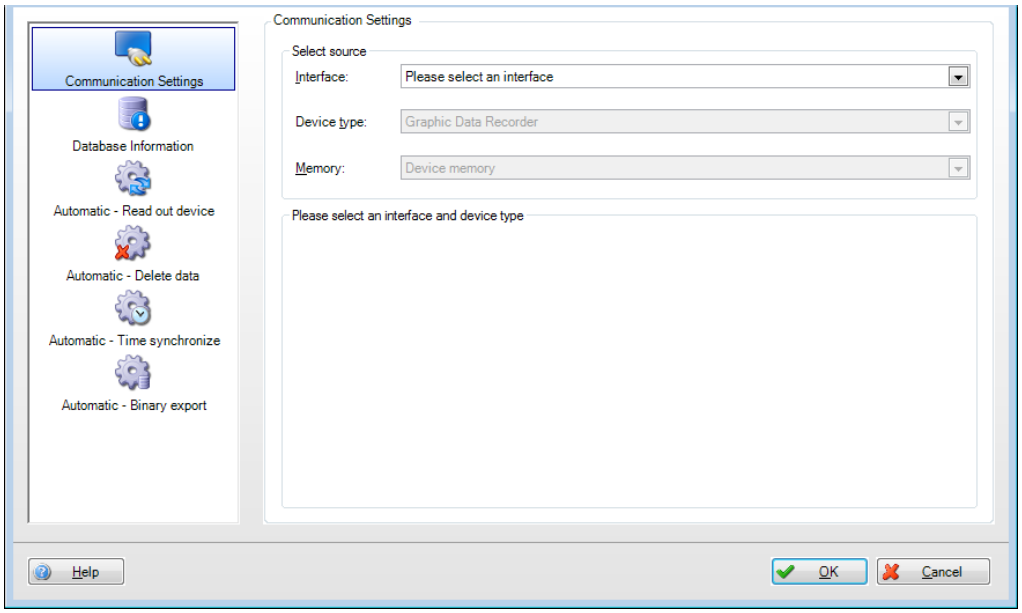
- By closing the Reporting Software
- By selecting "File -> Logout"
- By selecting "File -> Login under another user name..."

Every logout, whether successful or not, generates an entry in the Audit Trail of the software.

7. Device Settings dialog

Settings that are assigned directly to a device can be defined using the setting menu. To do so, in the task pane select the corresponding device under "Data Management -> Plant View", then open the settings window by clicking the "Wrench" icon or by selecting "Change Settings ..." from the context menu that appears when you right-click:





7.1 Communication Settings

The Communication Settings of the devices are defined during the first read-out process. You can change already defined Communication Settings in the setting menu.

The setting of the communication depends on the selected communication type and thus on the field device connected.
In the first step, select the type of communication with the field device in the top area, "Select Source". The device type is defined by default through the selection of the device in the Plant View.

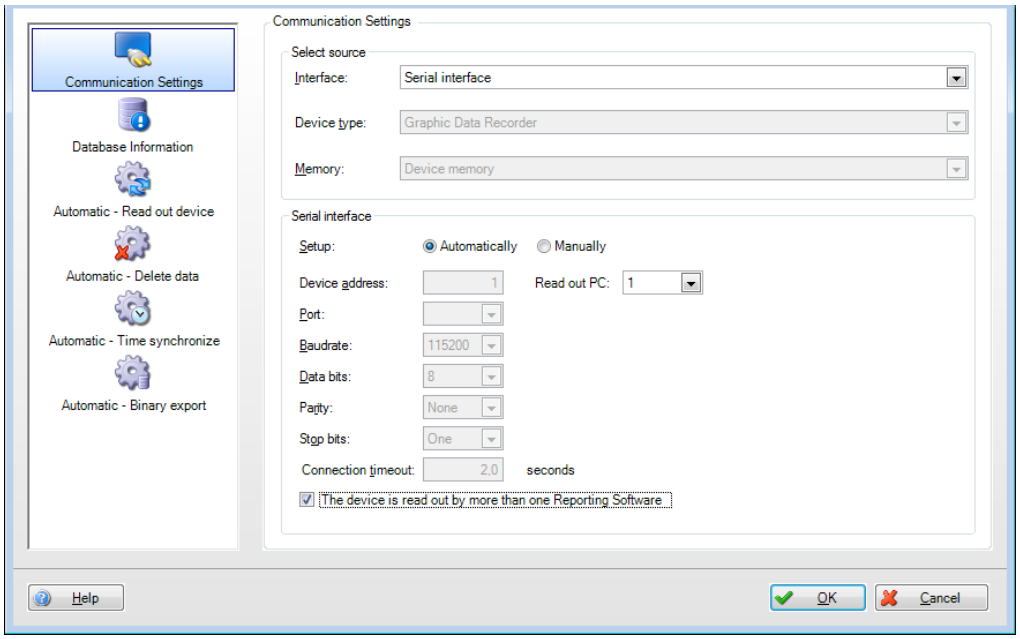
After selecting the communication type, define the communication parameters in the lower area. To confirm and save the Communication Settings, you have to exit the menu using the "OK" button.

Communication types and Communication Settings:

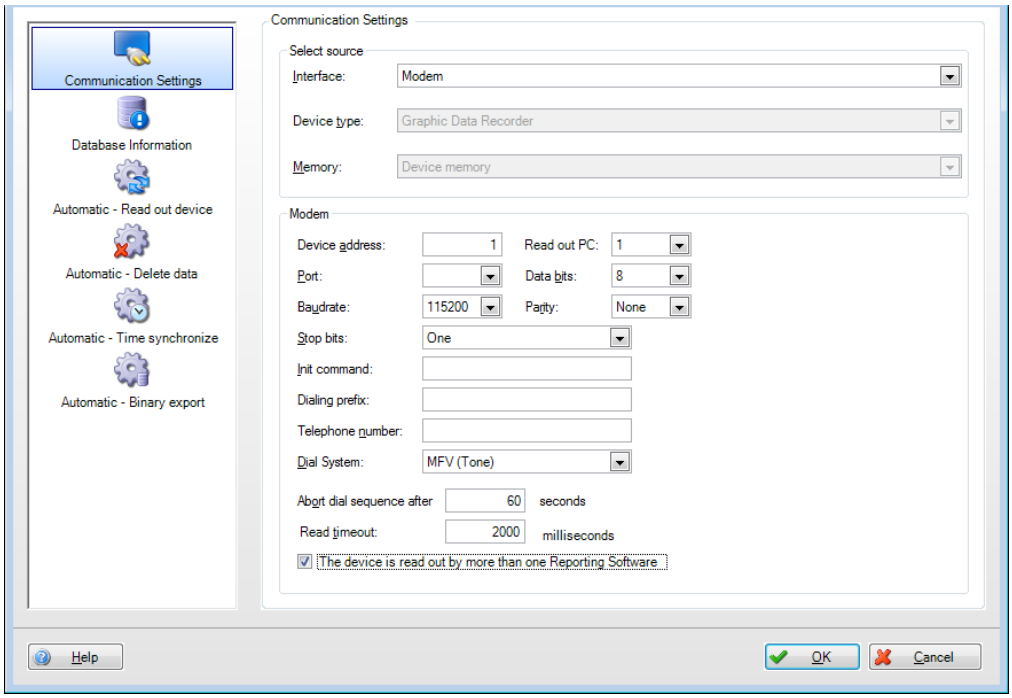
Serial communication: For serial communication (RS232/485, etc.), configure the specified parameters.

"Automatic": All available serial interfaces are scanned, thus providing automatic detection of the connected device and the necessary communication settings.

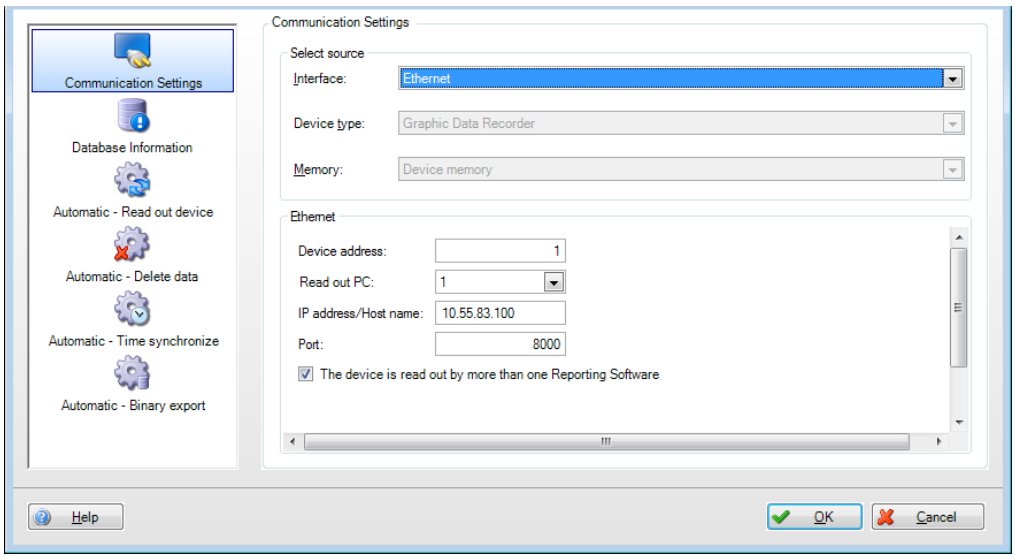
"Manual": Define the communication parameters manually and enter them into the specified fields.



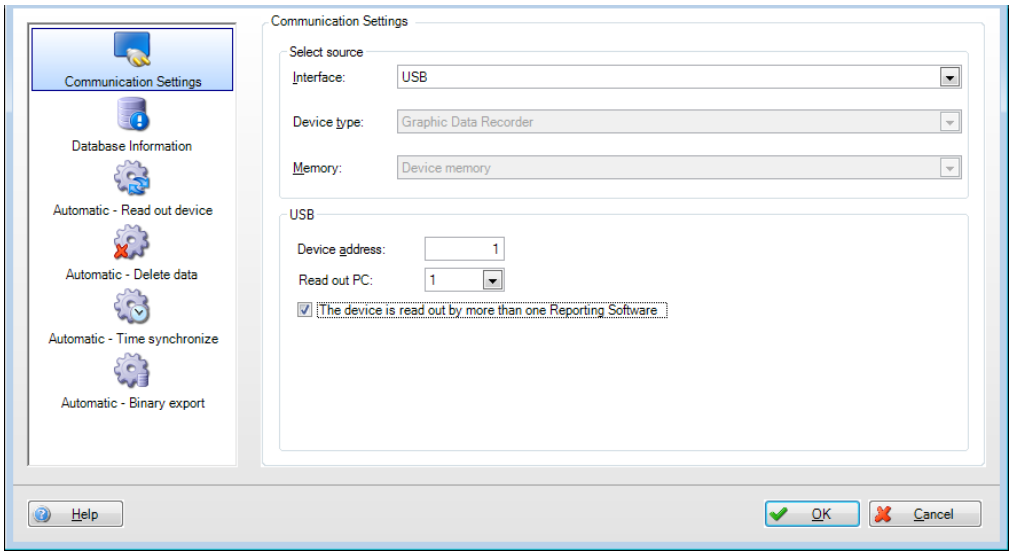
Modem: Enter the communication parameters in the specified fields. In some cases, these are provided in the documentation of the modem and from the wireless provider.



Ethernet: Enter the Ethernet communication parameters manually in the specified fields. For detailed information such as the port number, contact your system administrator.

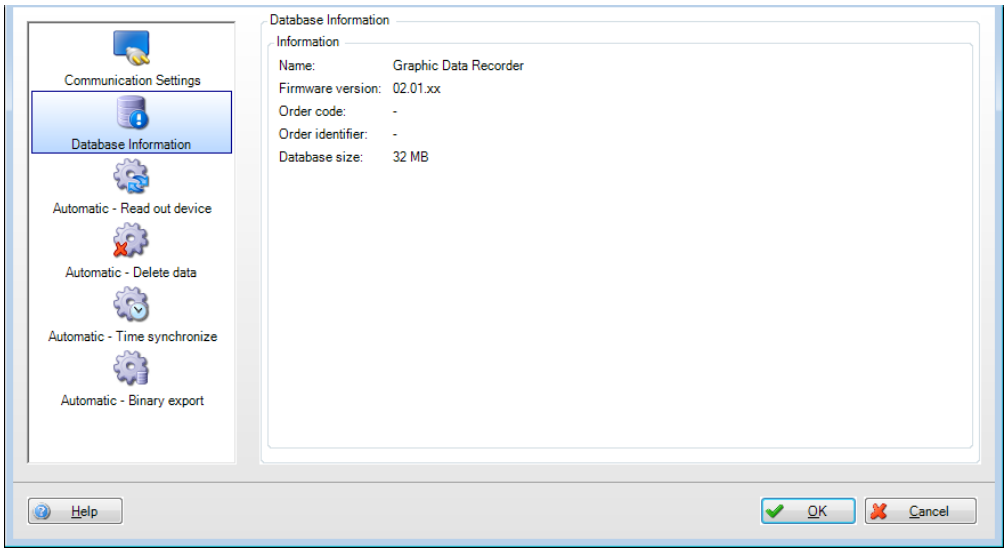


USB: You can usually keep the default USB setting. If necessary, change the "Device Address" and "Readout ID" parameters manually.



7.2 Database information

The database information in the device dialog provides information about the device data and the volume of data that has been read out of the device and imported into the database:



Name: Name of the device

Firmware version: Firmware version of the device

Order code: Identifies the device with the ordered and delivered options

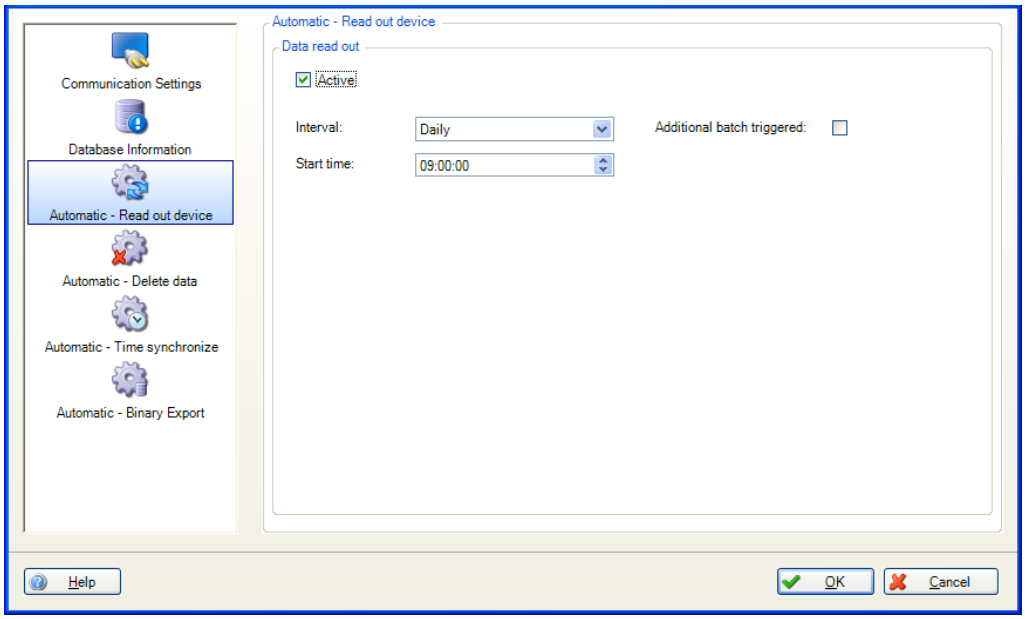
Order identifier: Number identifying the device, order and customer

Database size: Size of the device data that are stored in the SQL database.

Additional device information can be accessed via the Endress+Hauser W@M portal using the order code and the order ID. This is relevant for device management over the entire life cycle of the plant.

7.3 Automatic – Read out device

The automatic function for reading out the device is enabled/disabled in the Settings menu:



(For more details, see Section 5.4 "Data Management –> Automatic")

Active: Enables or disables the "Data Readout“ automatic function.

Interval: Select the interval for this automatic function.
Options: Minutely, hourly, daily, weekly, monthly

Repeat every (only if minutely or hourly is selected for the interval): Select the time lag for the automatic function of the selected interval.

Start day (only if weekly or monthly is selected for the interval): Select the day of the week for the automatic function of the selected interval.

Start time (only if daily, weekly or monthly is selected for the interval): Select the starting time for the automatic function of the selected interval.

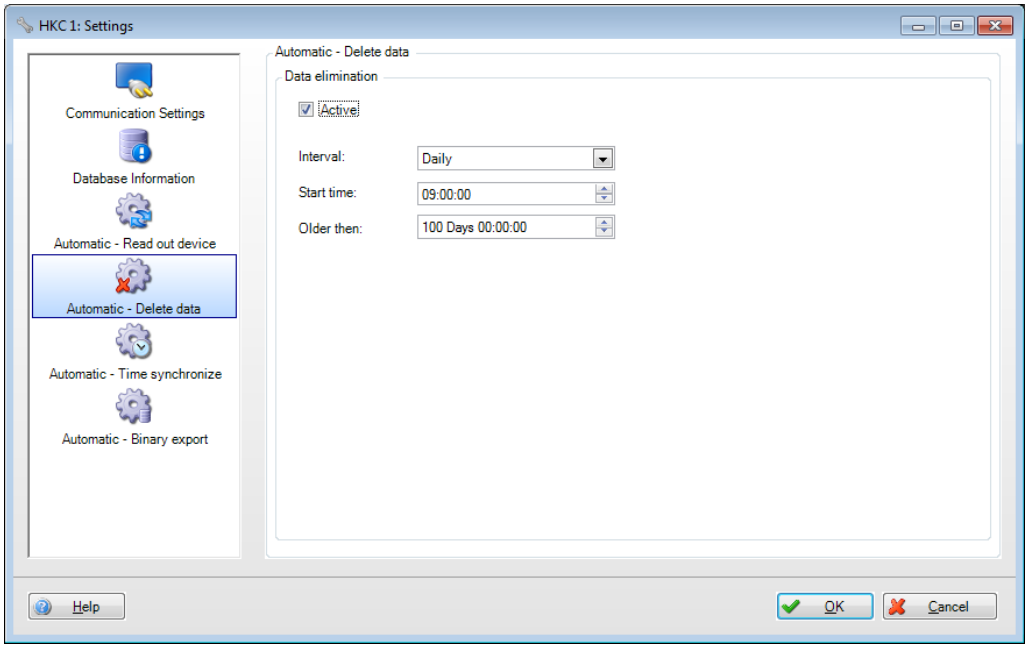
Additional batch triggered:
Can only be selected for the following automatic functions: Read out device, Print out template, XLX/CSV export and PDF export, if batch data are available.
As soon as the batch job is completed, the automatic function is run.

7.4 Automatic – Delete data

NOTICE

Once data are deleted, this cannot be undone! Ensure that data that are deleted from the device are really no longer needed, or have already been saved to another storage location as a secure export so that they are available later if needed.

The automatic function for deleting data is enabled/disabled in the Settings menu:



Active: Enables or disables the "Data Elimination" automatic function.

Interval: Select the interval for this automatic function.
Options: Minutely, hourly, daily, weekly, monthly

Repeat every (only if minutely or hourly is selected for the interval): Select the time lag for the automatic function of the selected interval.

Start day (only if weekly or monthly is selected for the interval): Select the day of the week for the automatic function of the selected interval.

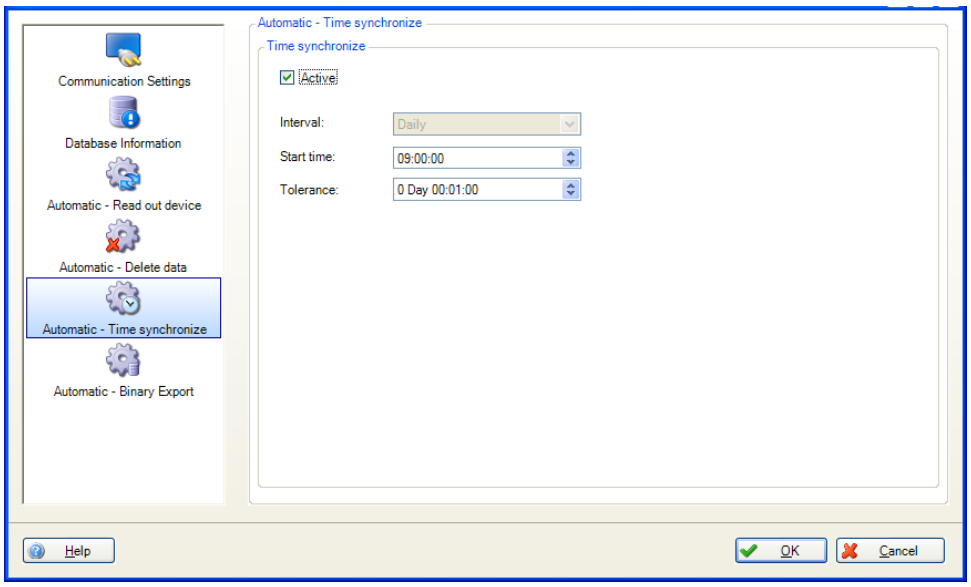
Start time (only if daily, weekly or monthly is selected for the interval): Select the starting time for the automatic function of the selected interval.

Time slot: Select the time slot for deleting the data. The data of the set time are not deleted.

Example:
Interval: Daily; start time: 23:59:00; time slot: 0 day 00:09:00
The data are deleted daily at 23:59. The data of the last 9 minutes are retained in the memory.

7.5 Automatic – Time synchronize

Here, you can automatically synchronize the device time with the system time of the computer. The automatic function for time synchronization is enabled/disabled in the Settings menu:



Active: Enables or disables the "Time Synchronize" automatic function.

Interval: Select the interval for this automatic function.

NOTICE

The possible options for the interval depend on the device.

Repeat every (only if minutely or hourly is selected for the interval): Select the time lag for the automatic function of the selected interval.

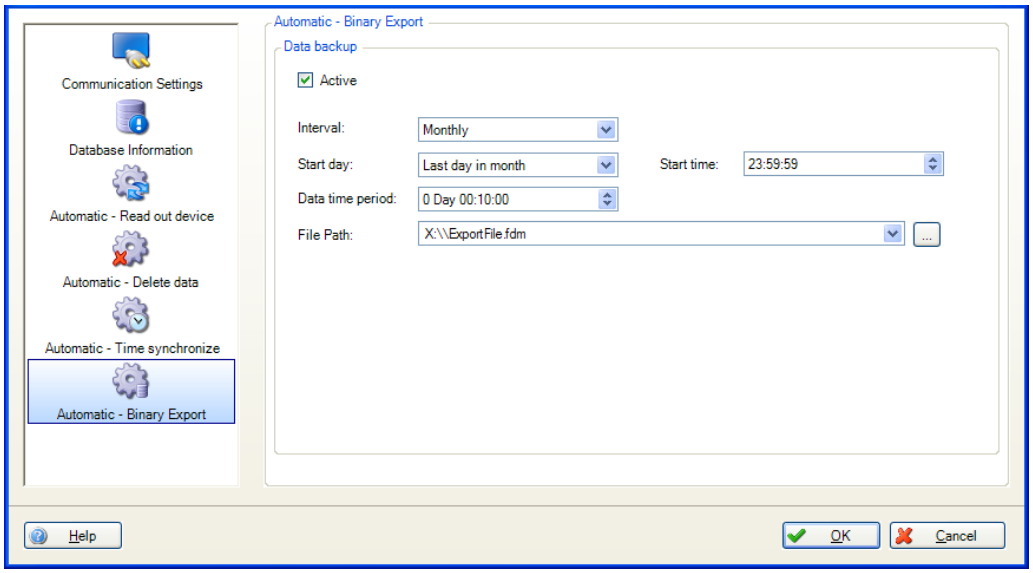
Start day (only if weekly or monthly is selected for the interval): Select the day of the week for the automatic function of the selected interval.

Start time (only if daily, weekly or monthly is selected for the interval): Select the starting time for the automatic function of the selected interval.

Tolerance: Select the tolerance for time synchronization. If the system time between the device and computer differs by more than the tolerance set here the time is not synchronized.

7.6 Automatic – Binary export

The automatic function for data backup is enabled/disabled in the Settings menu:



Active: Enables or disables the "Data Backup" automatic function.

Interval: Select the interval for this automatic function.
Options: Minutely, hourly, daily, weekly, monthly

Repeat every (only if minutely or hourly is selected for the interval): Select the time lag for the automatic function of the selected interval.

Start day (only if weekly or monthly is selected for the interval): Select the day of the week for the automatic function of the selected interval.

Start time (only if daily, weekly or monthly is selected for the interval): Select the starting time for the automatic function of the selected interval.

Data time period: Select the time period of the data to be backed up
(e.g.: "0 day 10:00:00" saves the data of the last 10 hours).

File path: The file storage location is defined here. Clicking the "..." button opens the menu structure of the computer and you can select the storage location.
If a network drive is selected, you are also asked to enter a user and password. The setting is then saved and can be modified under "Extras -> Settings -> Automatic" (see Section 6.1.6).

NOTICE

A new file is created each time a backup copy of the data is created. The time stamp with the format "year-month-day h-m-s" is automatically added to the file name
(e.g.: automatic_test_ 2010-06-25 08-09-30.fdm).

8. Troubleshooting

8.1 System error messages

Error messages during data readout:

Error code	Problem, cause	Remedy
0x20000001	An internal error occurred during data readout.	Please try again.
0x20000002	Unable to access the file.	Please check the file path.
0x20000003	Unable to access the data.	Please check your access authorization.
0x20000004	An error occurred when connecting to the device.	Please try again.
0x20000005	An error occurred when communicating with the device.	Please try again.
0x20000006	The communication settings are not correct.	Please check the settings.
0x20000007	An error occurred when communicating with the device.	Please try again.
0x20000008	An error occurred when communicating with the device.	Please try again.
0x20000009	An error occurred when communicating with the device.	Please try again.
0x2000000A	The Reporting Software does not support the connected device.	Please select another device.
0x2000000B	An error occurred when communicating with the device.	Please try again.
0x2000000C	The configured device address is not correct.	Please check the configuration.
0x2000000D	The connection to the device has been interrupted.	Please try again.
0x2000000E	No device found at the interface.	Please check the connection and interface settings.
0x2000000F	An error occurred when communicating with the device.	Please try again.
0x20000010	The IP address or host indicated cannot be found.	Please check the settings.
0x20000011	The COM port indicated is being used by another application.	Please check the connection settings.
0x20000012	The COM port does not exist.	Please check the connection settings.
0x20000013	The data are corrupted and cannot be read in.	Please notify Support.
0x20000014	Unable to find the indicated path.	Please check the file path.
0x20000015	No data are available for the time range indicated.	Please choose another time range.
0x20000016	The data are from an unknown device type and cannot be read in.	Please notify Support.
0x20000017	The connected modem could not be initialized.	Please check the connection to the modem and try again.
0x20000018	The connected modem does not answer.	Please check the connection and the settings.

0x200000 19	General modem error.	Please try again.
0x200000 1A	Currently not possible to access the device as all the available communication channels are busy.	Please try again.
0x200000 20	Device is already being accessed.	Please check the manual and automatic configuration.
0x200000 21	No other device data are available.	Please try again later.
0x200000 22	Device is already being accessed.	Please check the manual and automatic configuration.
0x200000 23	Error updating the device time. Possible limitations in time synchronization.	Please try again later.
0x200000 24	Another device has been detected.	Please check the specified device type.
0x200000 25	Incompatible file format found.	Please update the Reporting Software.

Error messages associated with automatic service:

Error code	Problem, cause	Remedy
0x40000000	The Automatic Service and the Tray Icon Application of the Reporting Software are not installed.	Please install the Automatic components.
0x40000001	The Automatic Service of the Reporting Software is stopped.	Please start the Automatic Service.
0x40000002	An error has occurred in the Automatic Service.	Please check the automatic settings.
0x40000003	An error occurred when reading out a device.	Please check the automatic settings.
0x40000004	An error occurred when storing the transmitted data.	Please check the automatic settings.
0x40000005	An error occurred when automatically deleting the data.	Please check the automatic settings.
0x40000006	No communication possible between the Service and Tray Icon.	Please notify Support.
0x40000007	An error occurred when automatically exporting the data in binary format.	Please check the automatic settings.
0x40000008	An error occurred when automatically exporting the data in XLS or CSV format.	Please check the automatic settings.

Error messages during database access:

Error code	Problem, cause	Remedy
0x60000000	An error occurred when accessing the database.	Please check the database settings and the database availability.
0x60000001	Error when accessing the database.	Please check the database settings and the database availability.

Error messages associated with user administration:

Error code	Problem, cause	Remedy
0x60010000	The user account has been blocked by an administrator.	Please contact the administrator.
0x60010001	The current user is not an administrator. Administrator rights are required for this action.	Please contact the administrator.
0x60010002	Administrator rights are required.	Please contact the administrator.
0x60010003	The password has not been changed. The new password was not accepted.	Please assign a different password.
0x60010004	Password modification has failed.	Please assign a different password.
0x60010005	User deletion has failed.	Please try again or contact the administrator.
0x60010006	User administration cannot be activated as an administrator has not been configured.	Please set up an administrator in the user administration function.
0x60010007	User account has been blocked after incorrect password entered {0} times.	Please contact the administrator.
0x60010008	User account has been blocked for 10 minutes after incorrect password entered {0} times.	Please try again after 10 minutes.
0x60010009	Login has failed.	Please try again.
0x60010010	Incorrect user ID or password	Please try again.
0x600100	The password has expired and a new password is	Please assign a new password.

Error code	Problem, cause	Remedy
11	required.	
0x600100 12	Not possible to delete all the administrators if user administration is enabled.	Please disable user administration.
0x600100 13	The user currently logged in cannot be deleted.	Please log in under another user name to delete this user.
0x600100 14	There should always be at least one administrator while user administration is enabled!	Please set up an administrator in the user administration function.
0x600100 15	The new password and the confirmed new password are not identical.	Please enter the two passwords again.
0x600100 19	The new password must differ from the last {0} passwords.	Please assign a different password.
0x600100 20	The password must contain at least {0} characters.	Please assign a different password.
0x600100 21	The password must contain at least five characters.	Please assign a different password.
0x600100 22	The password must contain digits.	Please assign a different password.
0x600100 23	The password must contain special characters.	Please assign a different password.
0x600100 24	The password must contain upper case and lower case characters.	Please assign a different password.
0x600100 25	No more users can be created. The Reporting Software permits a maximum of 50 users.	Please delete old user accounts first.
0x600100 27	This user ID already exists.	Please assign a different user ID.
0x600100 28	User administration cannot be activated as an administrator has not been created in the database.	Please set up an administrator in the user administration function.
0x600100 32	You are not authorized to change the database setting. The database setting has not been changed.	Please contact the administrator.

Error messages during data readout:

Error code	Problem, cause	Remedy
0x600200 00	Data storage not successful. The following files are corrupted: '{0}'	Please check the file and/or try again.
0x600200 01	Error when accessing the database. The following files could not be stored: '{0}'.	Please try again.
0x600200 02	Data storage not successful. The following files could not be stored: '{0}'.	Please try again.
0x600200 03	Data readout was not successful. Not possible to connect to the device.	Please try again.
0x600200 04	Data readout was not successful. A new device could not be created in the database as the current user does not have appropriate access authorization. The following file could not be stored: '{0'}	Please check your access authorization.
0x600200 05	Configurations '{0}' and '{1}' could not be merged as data would be lost.	Please choose other configurations.
0x600200 06	The configurations could not be merged as there is a time overlap between configurations '{0}' and '{1}'.	Please choose other configurations.
0x600200 07	Cannot establish connection to the database server!	Please check the settings.

0x60020008	Not possible to connect to the database server with the new settings. The changes to the database settings are not accepted!	Please check the settings.
0x60020009	Invalid database settings	Please check the settings.
0x60020010	Files not deleted successfully.	Please delete the data manually.
0x60020011	The data that have been read out could not be deleted from the device.	Please delete the data manually.
0x60020012	An error occurred when connecting to the device.	Please check the communication settings and try again.
0x60020013	The devices could not be merged because device '{0}' and device '{1}' are different types of device.	Please choose two devices of the same type.
0x60020014	The devices could not be merged as there is a time overlap between devices '{0}' and '{1}'.	Please choose two devices that do not overlap timewise.
0x60020015	A new node could not be added.	Please try again.
0x60020016	Node addition has failed.	Please try again.
0x60020017	Impossible to add a new node.	Please log in with a higher-level user role (e.g. administrator).
0x60020018	Add node	Please log in with a higher-level user role (e.g. administrator).
0x60020019	The selected node may not be deleted.	Please log in with a higher-level user role (e.g. administrator).
0x60020020	Delete node	Please log in with a higher-level user role (e.g. administrator).
0x60020021	The selected node may not be moved.	Please log in with a higher-level user role (e.g. administrator).
0x60020022	Move node	Please log in with a higher-level user role (e.g. administrator).
0x60020023	The selected node may not be renamed.	Please log in with a higher-level user role (e.g. administrator).
0x60020024	Rename node	Please log in with a higher-level user role (e.g. administrator).
0x60020025	A new node could not be created.	Please check the settings.
0x60020026	Node creation has failed.	Please check the settings.
0x60020027	The selected node could not be deleted.	Please check the settings.
0x60020028	Node deletion has failed.	Please check the settings.
0x60020029	Node deletion has failed.	Try again. You might have to increase the timeout value in the database connection.
0x60020030	The selected node could not be deleted.	Try again. You might have to increase the timeout value in the database connection.
0x60020032	An error occurred during the import. {0} of {1} lines have not been imported!	
0x60020034	The selected node could not be moved.	Please check the settings.
0x60020035	Not possible to move the node.	Please check the settings.
0x60020036	Unable to open the file '{0}'!	Please check whether the file can be read.
0x60020037	The plant view could not be refreshed.	Please check the settings.

0x60020038	Plant view refresh has failed	Please check the settings.
0x60020039	The template view could not be refreshed.	Please check the settings.
0x60020040	Template view refresh has failed	Please check the settings.
0x60020041	The selected node cannot be renamed.	Please make sure that the name is not longer than 30 characters.
0x60020042	Node renaming has failed.	Please make sure that the name is not longer than 30 characters.
0x60020043	Failure to update the communication settings.	Please check the settings.
0x60020044	Failure to update the communication settings.	Please check the settings.
0x60020045	Cannot establish connection to the database server. Database scheme has not been generated.	Please contact your administrator.
0x60020046	Invalid communication settings!	Please select "Back" and change the communication settings.
0x60020047	Configuration merge has failed.	Please try again or select other configurations.
0x60020048	Device merge has failed.	Please try again or select other devices.
0x60020049	There are no communication settings for the selected device.	Please change the communication settings for the selected device.
0x60020050	No files available with data.	Please select another directory.
0x60020051	An error occurred when reading the device information.	Please check the connection and try again.

Error messages during export:

Error code	Problem, cause	Remedy
0x60030000	Finished with an error.	Try again. Click 'Close' to exit the Wizard.
0x60030001	Finished with an error. The data have been exported from the database but could not be deleted.	Click 'Close' to exit the Wizard.
0x60030002	There are no data in the database for the selected time range. No file has been generated.	Please choose a valid time range.
0x60030003	The selected template contains devices that are no longer available in the database.	Please delete the template.
0x60030004	Missing devices	Please delete the template.
0x60030005	The selected template contains at least one device that is no longer in the database.	Please delete the template.
0x60030006	Missing device	Please delete the template.
0x60030007	The selected template is no longer in the database. It has probably been deleted in the meantime.	Please choose another template.
0x60030008	Template not available	Please choose another template.
0x60030009	You cannot open this template as you do not have access authorization for at least one device in this template.	Please contact the Reporting Software administrator. He/she can assign you the necessary authorization.

0x600300 10	No access authorization	Please contact the Reporting Software administrator. He/she can assign you the necessary authorization.

Error messages during import:

Error code	Problem, cause	Remedy
0x600400 00	The binary file has been saved with a more recent version of the Reporting Software and cannot be imported.	Update the Reporting Software to the current version.
0x600400 01	Finished with an error. No data have been imported.	Please check the import file. Click 'Close' to close the Wizard.
0x600400 02	Finished with a warning. Some data could not be imported.	Click 'Close' to exit the Wizard.
0x600400 03	Import not successful. The import file indicated does not contain any data. No data have been imported.	Please check the file.

Error messages associated with visualization:

Error code	Problem, cause	Remedy
0x600500 00	The changes to the automatic function cannot be saved as the template has not been saved!	Please save the template.
0x600500 01	An error occurred when saving the template. The template was not saved in the database.	Please check the database settings.
0x600500 02	Error when saving the template.	Please check the database settings.
0x600500 03	An error occurred during the export. Export was not successful.	Please check whether there is sufficient space in the selected directory and whether you have write-access for this directory.
0x600500 04	The "Minimum" value must be smaller than the "Maximum" value!	Please correct the values chosen.
0x600500 05	There are no data in the database for the selected time range.	Please choose another time range.
0x600500 06	No data available	Please choose another time range.

Error messages associated with the installation or database:

Error code	Problem, cause	Remedy
0x600600 00	The Demo version test period has expired. You cannot start this application any more.	Please order a serial number for the full version.
0x600600 01	The Demo version test period has expired. You cannot start this application any more.	Please order a serial number for the full version.
0x600600 02	The license information is incorrect.	Please start the installation program again.
0x600600 03	The license information is incorrect.	Please start the installation program again.
0x600600 04	The new language setting is enabled once the program has been restarted.	Please start the Reporting Software again.
0x600600 05	The new language setting is enabled once the program has been restarted.	Please start the Reporting Software again.
0x600600 06	There is no valid database on the database server that is currently connected, or the wrong version of the database is available.	Please contact your administrator.
0x600600 07	Incorrect database	Please contact your administrator.

Error messages during printout:

Error code	Problem, cause	Remedy
0x600700 00	The document requires more than 1000 pages.	Please select a shorter time frame to avoid this problem.
0x600700 01	Document creation was stopped after 1000 pages because the maximum number of pages has been reached.	Please select a shorter time frame to avoid this problem.

9. Appendix

9.1 Reporting

The "Reporting" task area contains functions to create and edit dashboards (reports) and to manage report projects.

An icon with the name defined by the user is displayed for every dashboard saved. The items are sorted alphabetically.

NOTICE

If user administration is enabled, the only dashboards displayed are those available to the user role of the user that is logged in.

The final items in the Reporting section are for creating new dashboards, assigning dashboards to user roles (only if user administration is enabled) and for managing report projects.

Reports are created from stored measured values. Clicking on the required dashboard opens the reports in a working window in the right half of the screen.

NOTICE

The "Reporting" section is only available if the license was ordered with the reporting functionality (optional).

Use of the reporting functionality is not possible if security requirements in accordance with FDA21 CFR Part 11 are enabled.

9.1.1 User roles

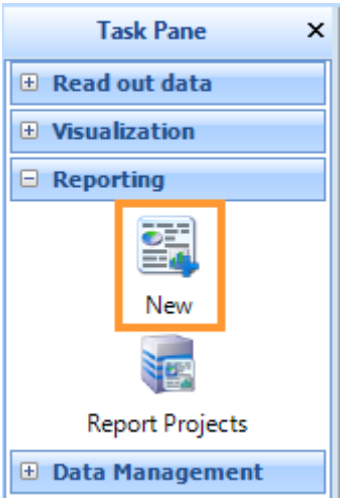
User roles determine rights within Reporting if user administration is enabled. There are only two types of user role within Reporting; "Administrator" and "User".

The table below shows the relation between FDM user roles and reporting roles and the impact within reporting:

Responsibility	Administrator	Service Engineer	Planning Engineer	Maintenance Engineer	System Operator	Observer
Administrator in Reporting	X		X	X		
User in Reporting					X	X
Open dashboards	X		X	X	X	X
Create public dashboards	X		X	X		
Assign public dashboards	X		X	X		
Create private dashboards					X	X
Manage report projects	X		X	X		
All reports are available	X		X	X		
Available reports configurable					X	X

Access to individual devices or plant sections of the user is also valid in Reporting. A user may thus have access to a specific dashboard. However, if access is not allowed to the device used, no data are displayed.

9.1.2 Creating a new dashboard



A new dashboard is created by clicking on "New" in the task pane under "Reporting".

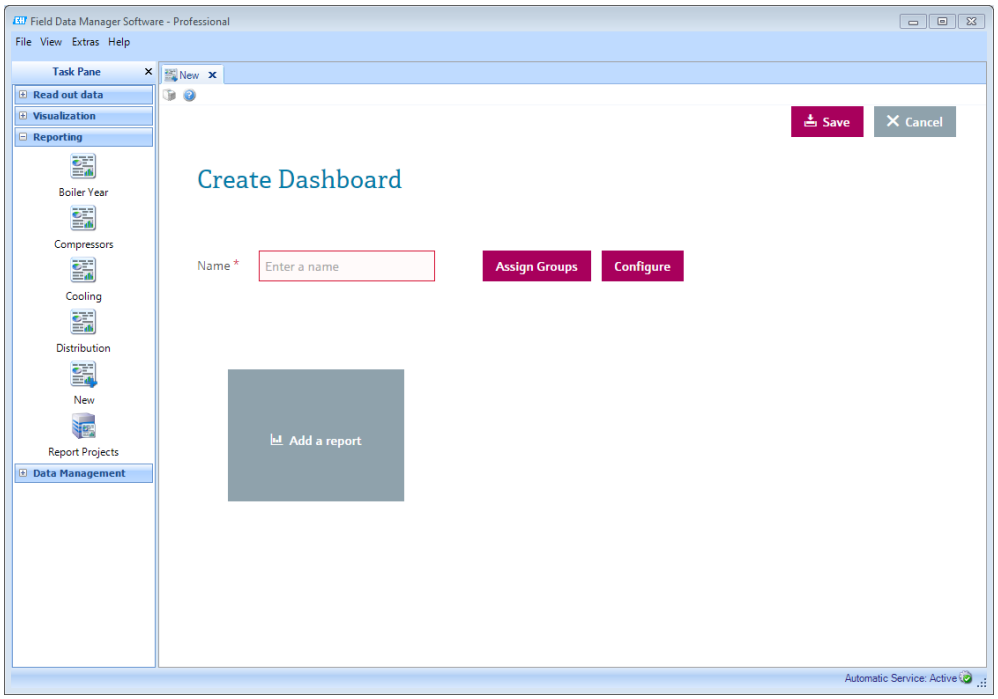
Dashboards can be public or private. As a general rule, "Administrators" create public dashboards in Reporting and "Users" private dashboards (see 9.1.1 User roles).

- Private dashboards are only visible to the person who creates them and can only be edited or deleted by this person.
- Public dashboards are visible and can be edited by all "Administrators“ in Reporting. Public dashboards can be made visible to "Users" using the "Assign Groups" function.

If user administration has been disabled, only public dashboards that are visible to everybody are created.

9.1.2.1 Step 1 of 4: Create a dashboard

A name must be entered for a new dashboard and the report(s) to be displayed must be selected (by clicking on "Add a report").

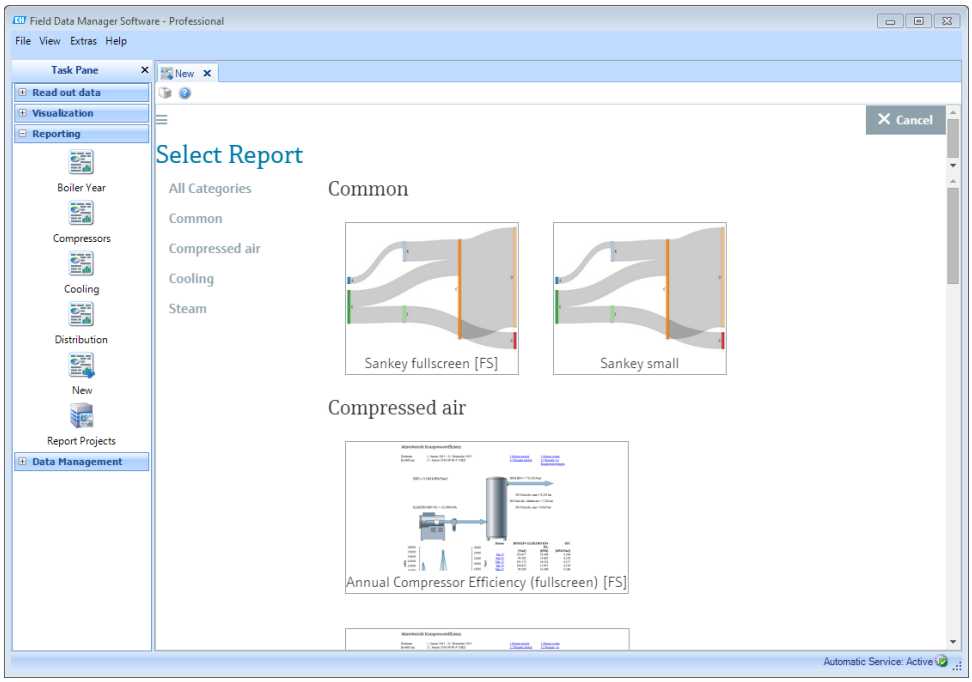


9.1.2.2 Step 2 of 4: Add a report

Reports are grouped into subject areas. The standard reports provided are described in Section 9.2.1 Standard reports.

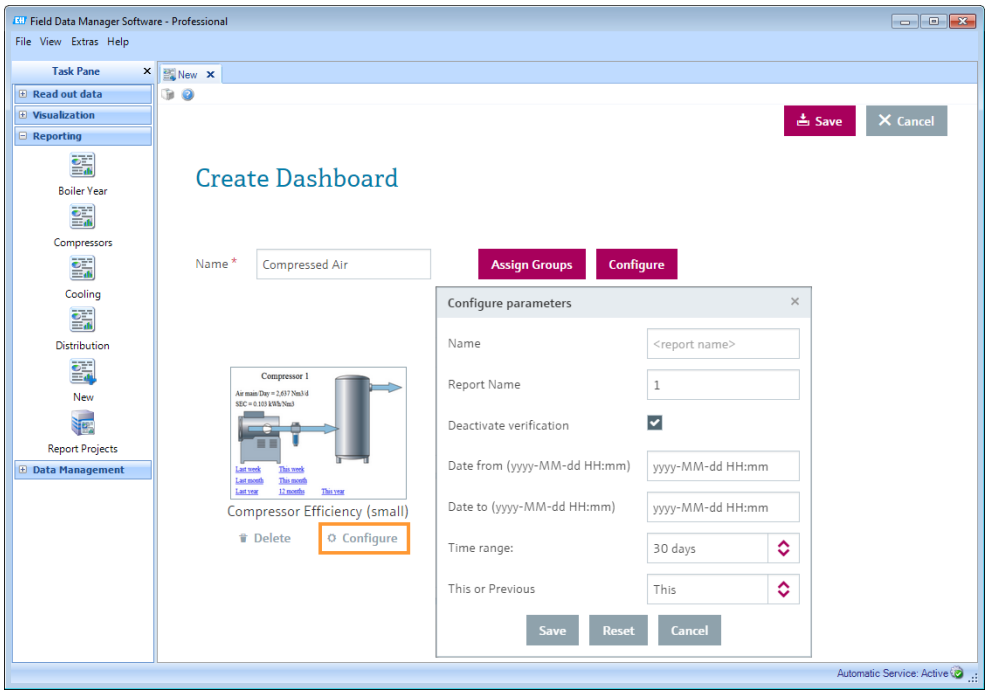
There are two different types of report:

1. Overview reports: These can be grouped as small "Tiles" on a dashboard (e.g. to compare a number of similar plants). The overview reports generally contain links to further detailed reports which are then displayed in full-screen size.
2. Detail reports: These full-screen detail reports can only be displayed on their own on a dashboard. If an overview report is already selected on a dashboard, a full-screen report cannot be added.



9.1.2.3 Step 3 of 4: Configure report

Most of the reports contain various parameters which can be configured.



The first parameter "Name" is the report title in the dashboard. The name of the template is used (e.g. "Compressor Efficiency (small)") if no name is entered.

The function of the remaining parameters in standard reports is explained in Section 9.2.1 Standard reports.

9.1.2.4 Step 4 of 4: Assign groups, configure layout and save

To complete creation of a new dashboard, groups can be assigned to the dashboard (only makes sense if user administration is enabled).

Furthermore, the layout of the dashboard can be adapted using the "Configure" option.

Finally the dashboard must be saved by clicking on "Save".

9.1.3 Opening/editing a dashboard

All of the available dashboards are displayed in the task pane in alphabetical order.

A dashboard is opened on the right-hand side of the working window by clicking on it.

A dashboard can be changed or deleted if user administration has been disabled, if the logged in user belongs to the administrator group in the Reporting section or if a private dashboard was opened. The functions for changing are identical to those when creating a dashboard.

9.1.4 Printing a dashboard, exporting a dashboard as a file

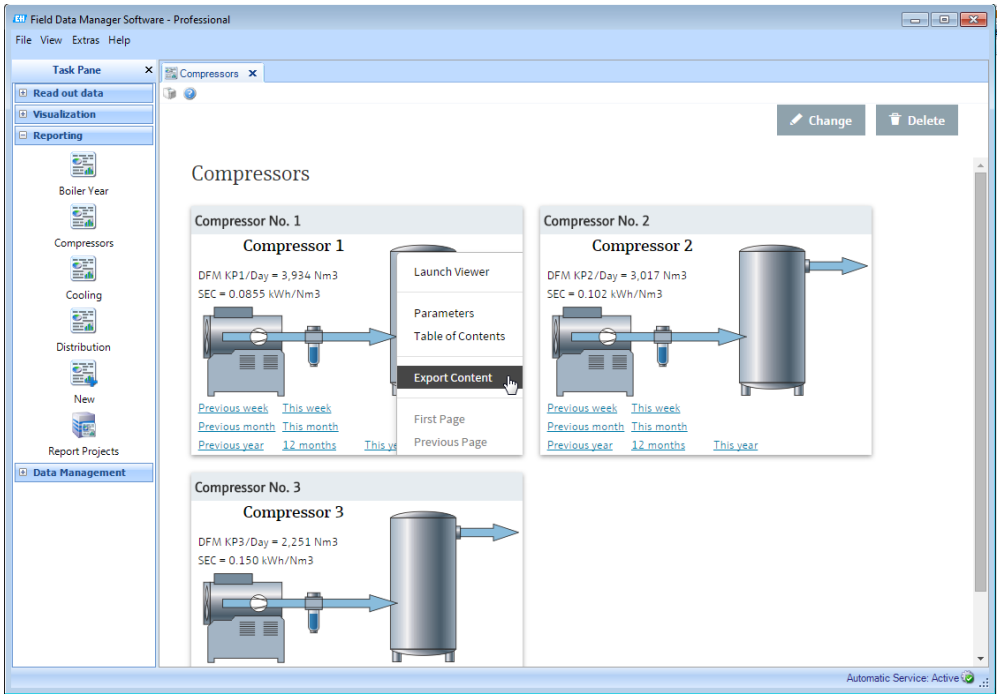
There are various ways of printing a dashboard. The page shown in FDM is similar to a web site which is opened in a browser. And, similar to a web site, the displayed content of the dashboard can be printed out. This is done by clicking on the printer symbol in the tool bar of the open dashboard. 

The page is then sent to the printer as displayed. If a full-screen report is not completely visible on the screen, then it will also be cropped in the printout. Multi-page reports cannot be printed out completely in this way.

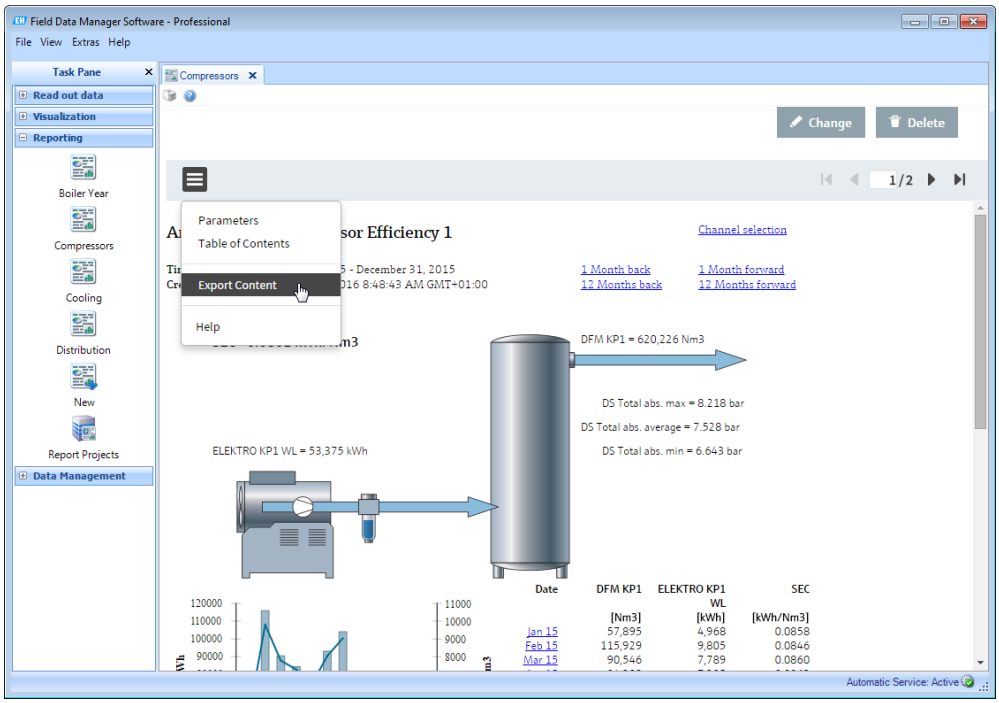
Alternatively, the report itself can be exported as a file and then saved and printed. There are various formats available for exporting; however, images, graphics and diagrams are displayed differently in some cases. PDF format displays the report practically identical to the way it is shown on the screen.

To create the report as a PDF, select the "Export Content" function.

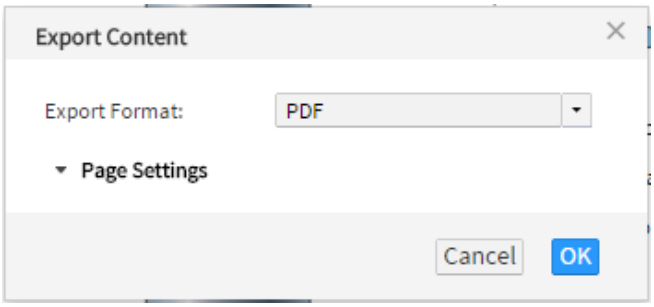
In the case of overview reports (tiles), right-click on the report for this function:



For full-screen reports, this function is called up using the  menu icon.



A menu then opens from which you can select the export format (file format). If necessary, the page settings can also be adjusted (e.g. selection of the pages to be exported can be adapted for multi-page reports).



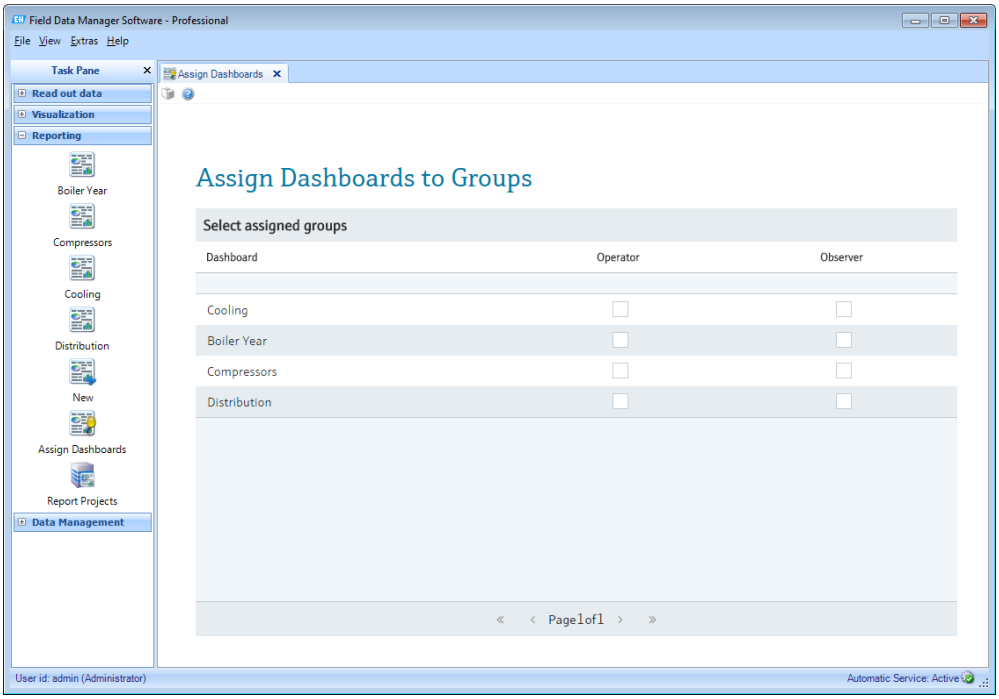
Clicking on OK opens a dialog to save the file.

9.1.5 Page navigation for multi-page reports

The buttons at the top of the report are used to navigate between the pages in multi-page reports. You can enter the required page number in the edit box or use the arrows to go to the previous/next page or to the first/last page.

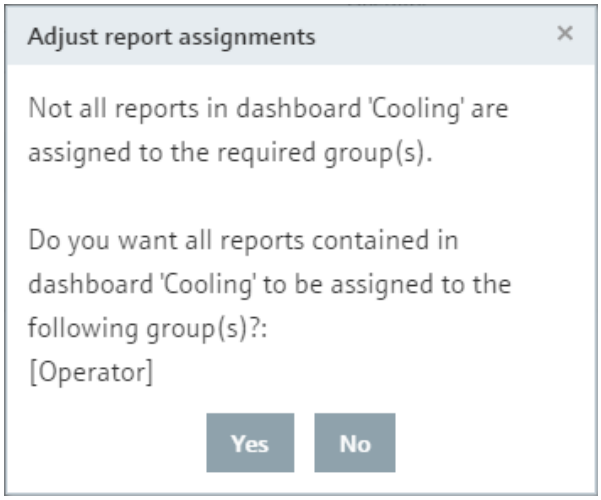
9.1.6 Assigning dashboards

This function is only available if user administration is enabled and the user is logged in as an administrator in the Reporting section.



The available dashboards are listed. For every user role within FDM (referred to as groups here), you can select whether the dashboard is visible for a group or not.

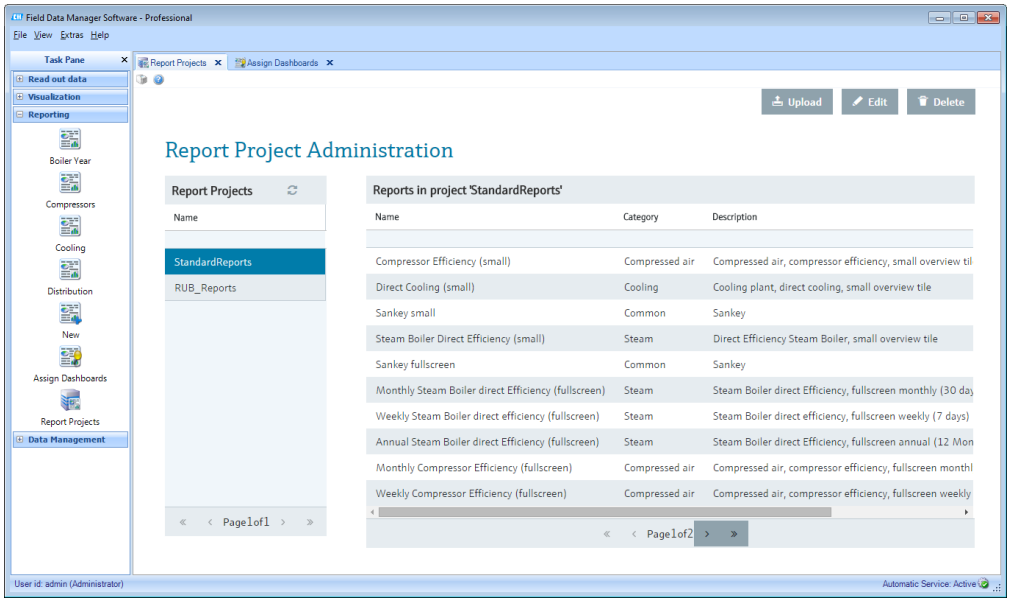
If a dashboard contains reports which are not available to the group, an appropriate message is displayed and the reports can be made available to the group.



9.1.7 Editing report projects

A selection of standard reports are installed when the reporting framework is installed. The reports are grouped into "Projects". Other report projects are included on the FDM installation medium, e.g. for rain spillway basins. Furthermore, Endress+Hauser can create special user-specific reports.

Click on "Report Projects" in the task pane to access Report Project Administration.

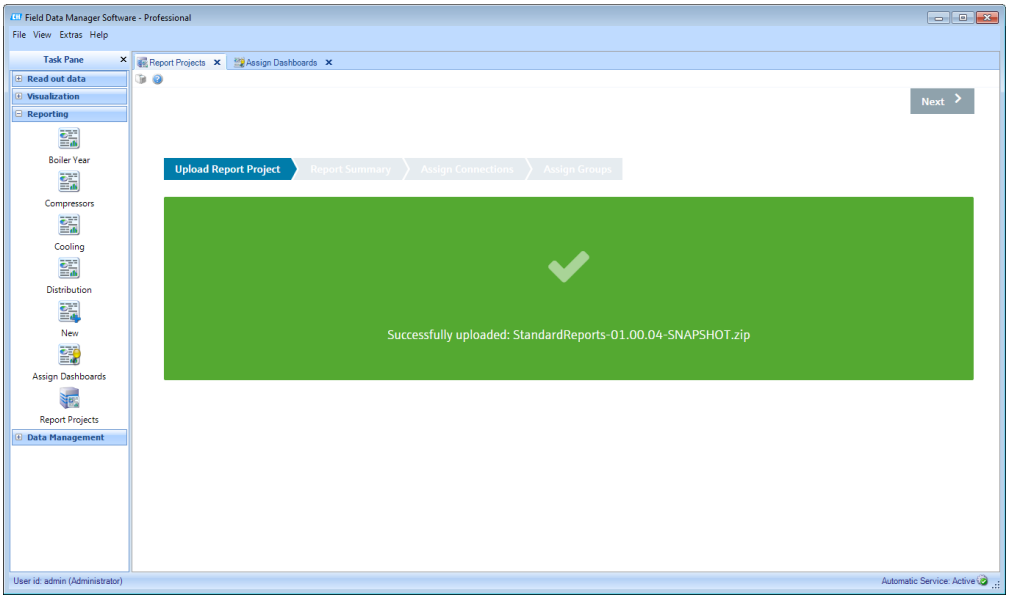


You can upload new projects or newer versions of available projects in this section or edit existing projects. You can also delete projects that are not required.

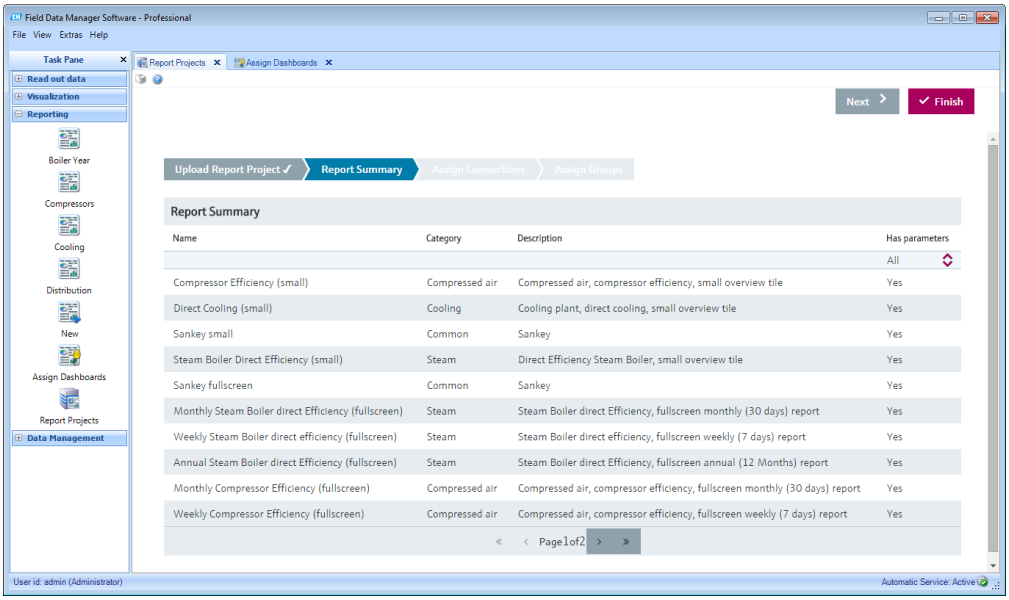
9.1.7.1 Uploading report projects

Report projects are uploaded by dragging & dropping the project file into the gray area.

After a successful check of the project file, the project can be configured by clicking on "Next" (top, right of window).

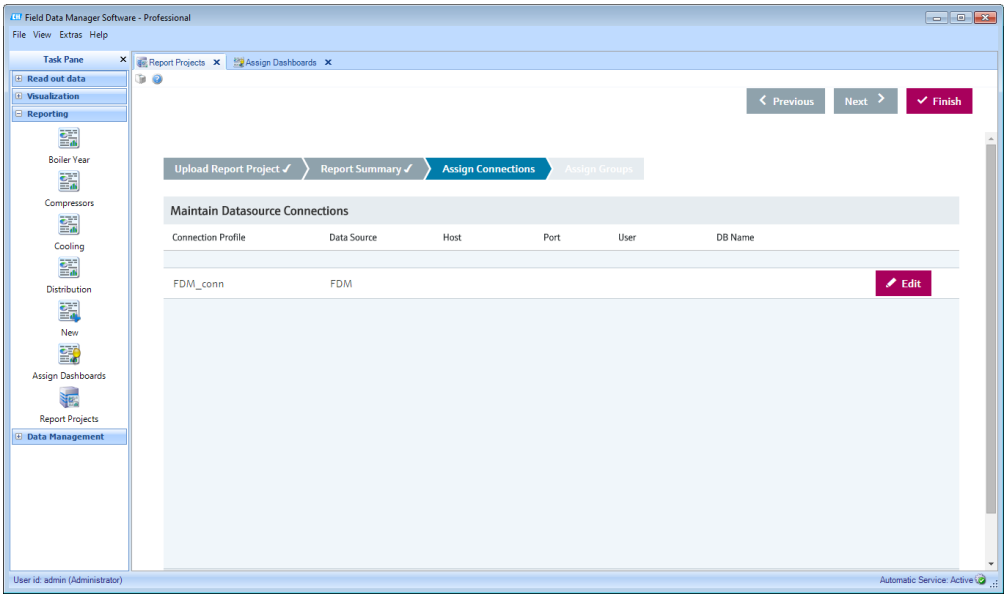


The available reports of the project are listed in the next step.

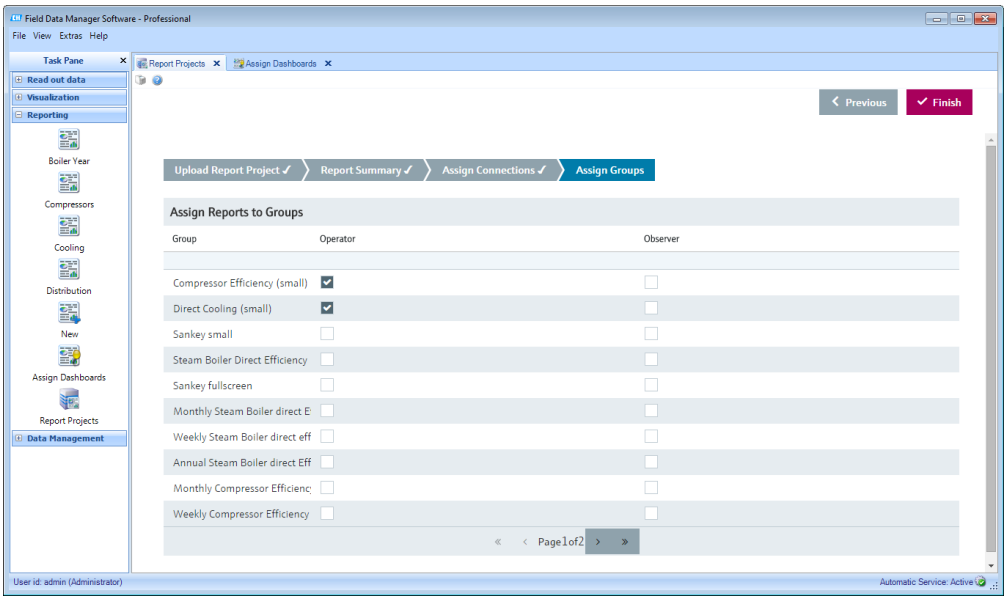


The reports contain one or more database connections. The database connection is not yet set in new report projects. The connection settings can be entered using the "Edit" field and tested.

No adjustment is necessary for connections with the name "FDM_conn". This is carried out automatically when you click on "Finish".



The reports of the project can be made available to the user groups in the final step. Those with administrator access to Reporting always see all reports.



9.1.8 Troubleshooting

Problem, cause	Remedy
Report shows the message: "No channel selection file could be found. Please configure the report through this link."	The channels of a device in the FDM database must be selected for the report. The file stored during this process could not be found or was not yet created. Open channel selection by clicking on the link, select channels and save the file (see 9.2.1.2).
Report shows the message: "The used configuration is not the latest one, changing the configuration might be required."	The channel selection file does not point to the most recent device configuration. It may be necessary to open channel selection and modify accordingly.

Report shows the message: "Data is not available, maybe due to restricted user's access rights."	No measured values could be loaded. There are a number of possible reasons for this: 1. There are no measured values in the FDM database for the selected time period § Change the time period or read values from the device again and open the report once more 2. The logged in user does not have the authorization to view data for the selected measuring device. § Change user rights or log in as a different user.
Report shows the message: "Table contains manipulated data."	Verification of the data has shown that measured values in the database may have been manipulated.
Report shows the message: "Verification of data is switched off. Manipulated data cannot be recognized."	Verification of the data to check for manipulation has been switched off. This means the report can be displayed faster. This is for informational purposes only in case verification is not required. No further action is necessary.
Report shows the message: "Device and/or Configuration do not match, please verify channel selection and save it."	The device or the configuration is not identical to the saved file selected. The configured channels must be checked.
Report shows the message: "Version of saved channel selection file does not match the report version. Please verify channel selection and save it."	Channel selection must be checked. If the channels are correctly selected, save the settings.
Report shows the message: "Changed channel selection can only be saved by its creator or users of roles Administrator, Planning Engineer and Maintenance Engineer."	Users with "System Operator" and "Observer" roles can only save the channel selection if they created it themselves. Please log in as a different user.

9.2 Reports provided as standard

9.2.1 Standard reports

A number of standard reports are provided when the reporting functionality is installed. They are available directly after installation.

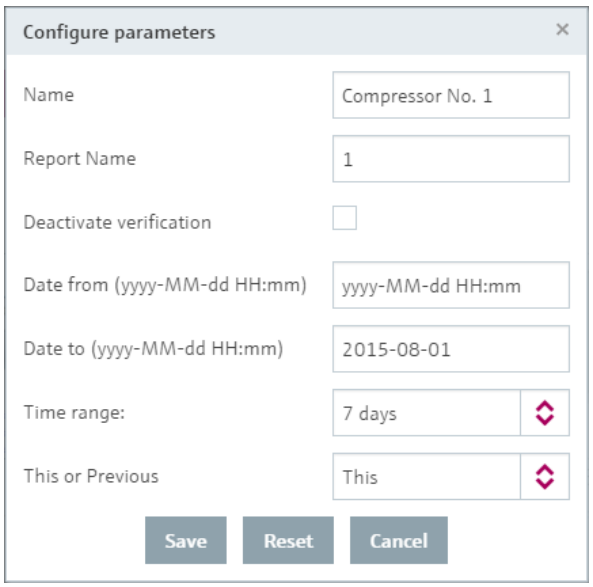
NOTICE

Other reports can be loaded subsequently. For further details, see 9.1.7.1 Uploading report projects

9.2.1.1 Report parameters

Depending on the report, different parameters can be configured in order to determine the information displayed or the time period.

Most standard reports use the following parameters:



"Report Name"
Channels must be defined for the report in all standard reports (device selection from the FDM database and channel assignment). This assignment is saved in a file on the report server. The reference between the report and the channel selection file is the "Report Name" parameter. Please refer to Section 9.1.2 Creating a new dashboard for information on how to configure the parameters. For example, if reports for one steam boiler are to be displayed in different dashboards, the "Report Name" parameter must be identical for each report in order to use the same assignment.

"Deactivate verification"
The "Deactivate verification" parameter is available for most standard reports. This parameter allows users to control whether the data displayed in the report is to be checked for manipulation. Verification for manipulation can be very resource-intensive and can therefore be switched off in order to speed up the report loading time. A message appears in the report to this effect.

"Date"
Up to four parameters are available to set the date range for a report. If a fixed time frame is to be used, enter it in the "Date from" and "Date to" text parameter. When doing so, please pay attention to the format [year four digits]-[month two digits]-[day two digits] [hour two digits, optional]-[minutes two digits, optional].

Example: 1 February 2016 must be entered as: "2016-02-01"

If the "Date from" and "Date to" parameters are set, the "Time range" and "This or Previous" parameters are ignored. If only one of the parameters "Date from/to" is set, the "Time range" parameter is also used to calculate the time frame.

9.2.1.2 Channel assignment

If reports are to be displayed correctly, the user must select the device in the FDM database to be used and which channels of the device are to be used in the report.

A special report is used to assign both. This is saved in a file on the report server.

If user administration is enabled, an existing file can only be changed by users with "Administrator in Reporting" access rights or by the user who created the file.

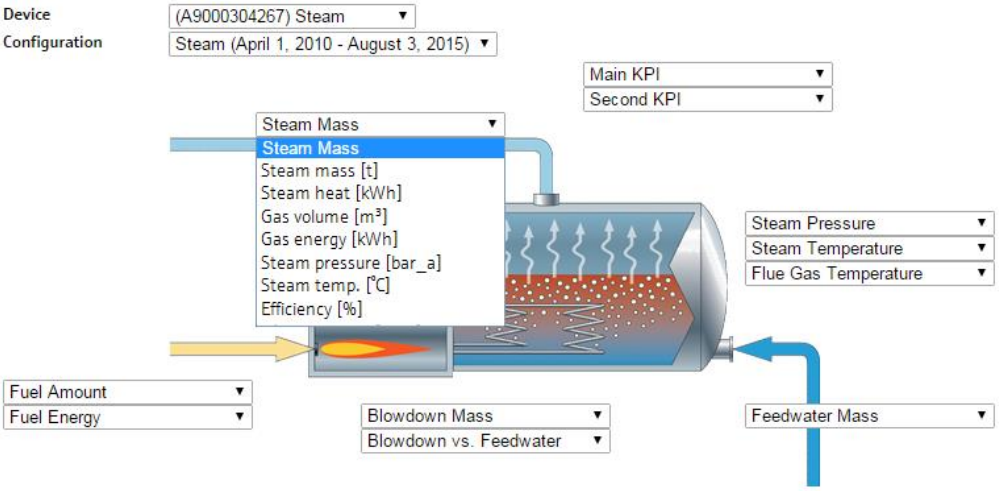
If there is no mapping file available for a report, a message to this effect appears in the report. No measured values can be displayed in the report in this case. The message text acts as a hyperlink to the configuration at the same time.

In channel assignment, a device from the FDM database must first be selected and a configuration. The Sankey report is an exception here and is described in more detail in Section 9.2.1.6.

The channel assignment report shows a schematic diagram of the plant in the background (e.g. steam boiler or cooling generator). Selection fields are arranged on top of this which allow users to select and assign measuring channels to specific functions in the report. The function appears first in the selection list (in the graphic below e.g. the function is "Steam mass", and the selected channel is "Steam mass [t])".

If a function remains selected on the description (the first option in the selection list), this means the function is not considered to be set and cannot be displayed in the report. In the graphic below, for example, "Blowdown Mass" is not measured in the process and should therefore not appear in the report.

The channels of the device are displayed with the appropriate unit in square brackets.

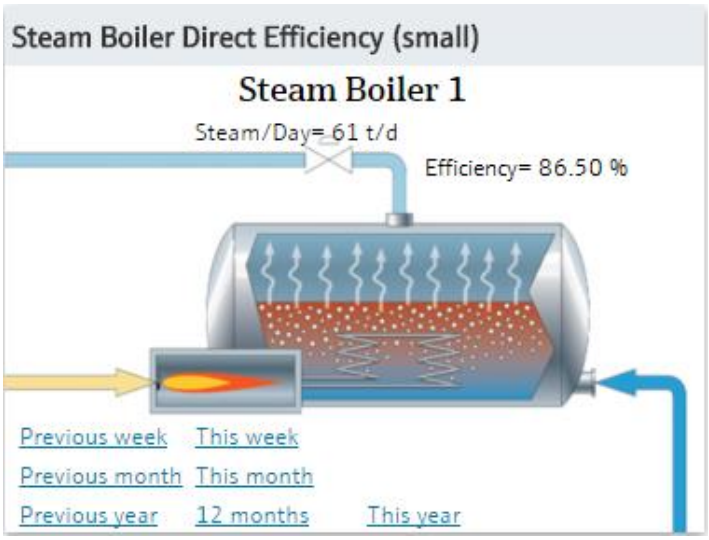


9.2.1.3 Steam boiler efficiency

Various reports are available for steam boilers.

Overview (small tile)

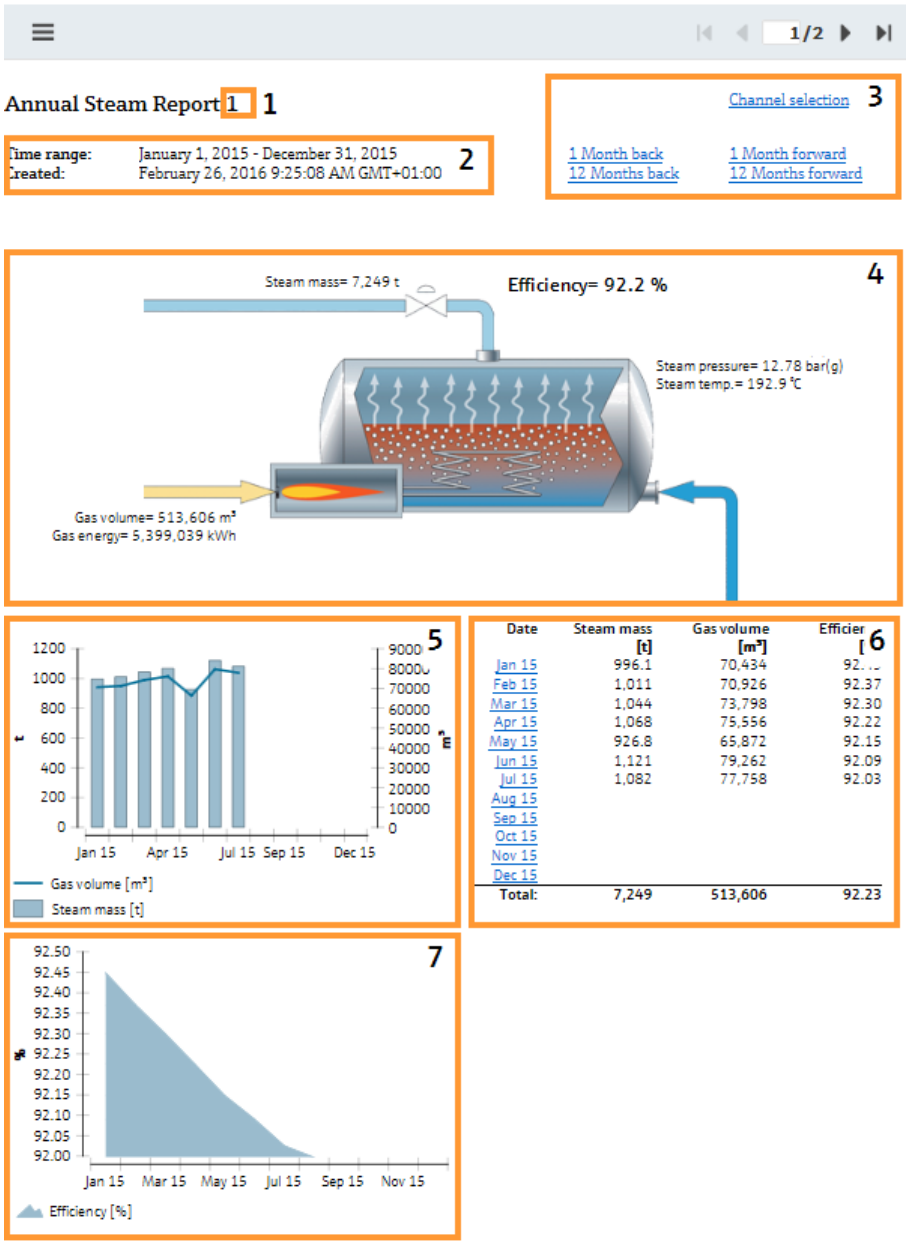
An overview report is available (like a small "tile") in which a summary of the main key performance indicators is displayed. A number of these tiles can be shown together on one dashboard to provide an overview of several boilers for example. Hyperlinks in the report enable you to access other reports within this area.



The average steam quantity by day and efficiency of the boiler are displayed.

There are also full-screen reports with more detailed information. These reports are available for the following time ranges: week, month, year (or 12 months).

Annual report, page 1



1: Report name

2: Time period of the report and time stamp from when the report was created

3: Navigation area to jump forward/backward within the time range, or link to channel selection (not available as a PDF)

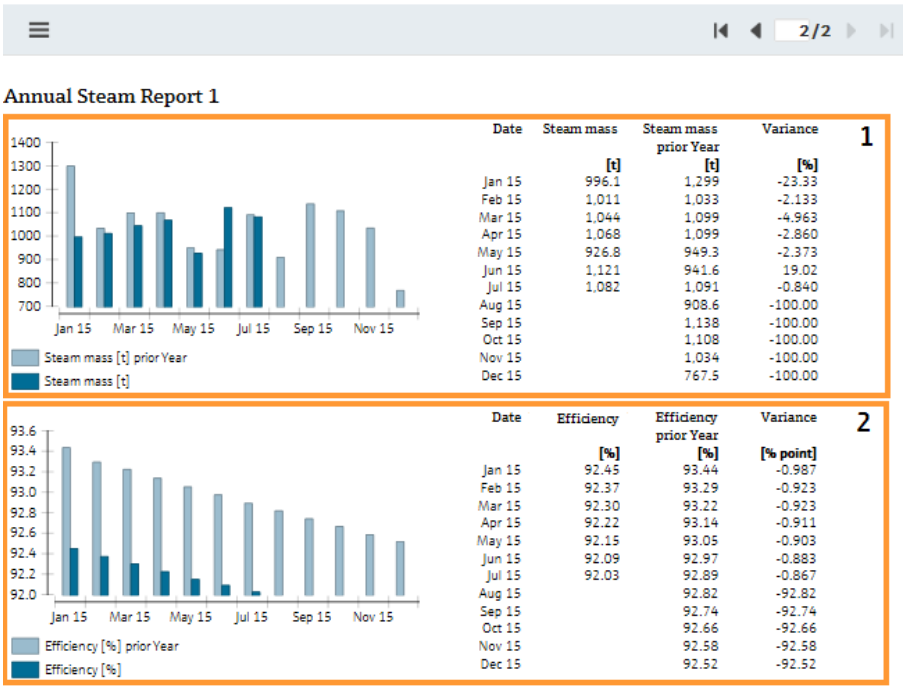
4: Schematic diagram of a steam boiler showing totals for steam, fuel and feedwater if applicable, blowdown; average values for efficiency, pressure, temperature.
The information displayed here can vary depending on the channels/measured values selected. For example, a second KPI (Key Performance Indicator), the specific fuel consumption may be displayed.

5: Diagram showing monthly consumption of steam and fuel

6: Table showing monthly consumption and efficiency with the date as a hyperlink to the monthly report (no hyperlinks in the PDF)

7: Diagram showing the monthly efficiency calculated and specific consumption where applicable

Annual report, page 2



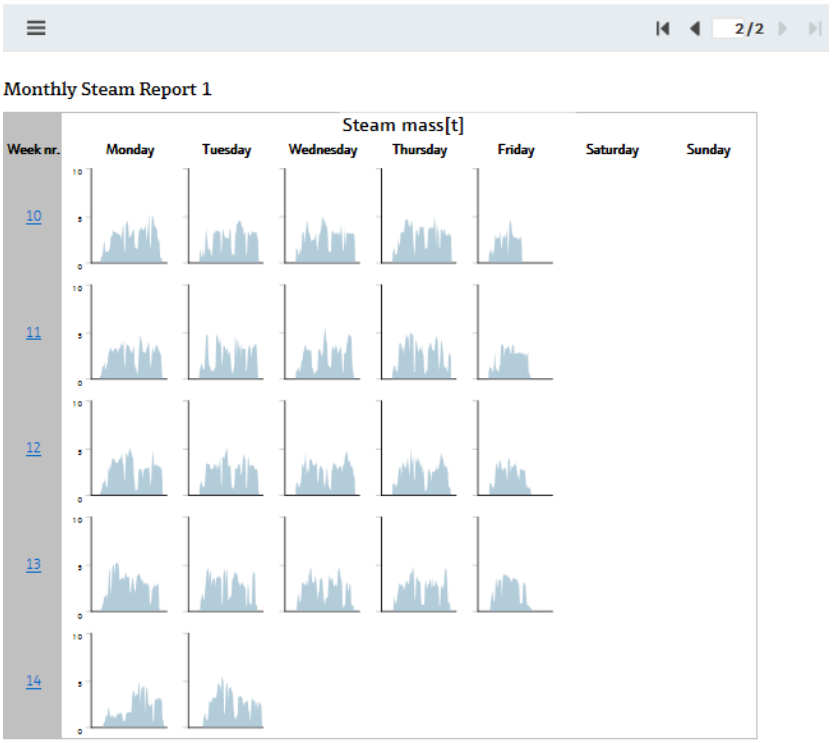
1: Diagram and table showing steam consumption for the current year compared to the previous year

2: Diagram and table showing efficiency for the current year compared to the previous year

Monthly report, page 1

The structure of page 1 of the monthly report is comparable to the annual report. The difference is that the information displayed in both the diagram and table is day-based; the hyperlink in the date links to the weekly report.

Monthly report, page 2



The second page of the monthly report is similar to a calendar view with diagrams on daily steam consumption.

Weekly report, page 1

The structure of page 1 of the weekly report is comparable to the annual report but the information displayed in both the diagram and table is day-based.

Weekly report, page 2 ff.

The second (and subsequent) pages of the weekly report contain a diagram with detailed boiler data for each day. All of the channels configured in channel selection are displayed.

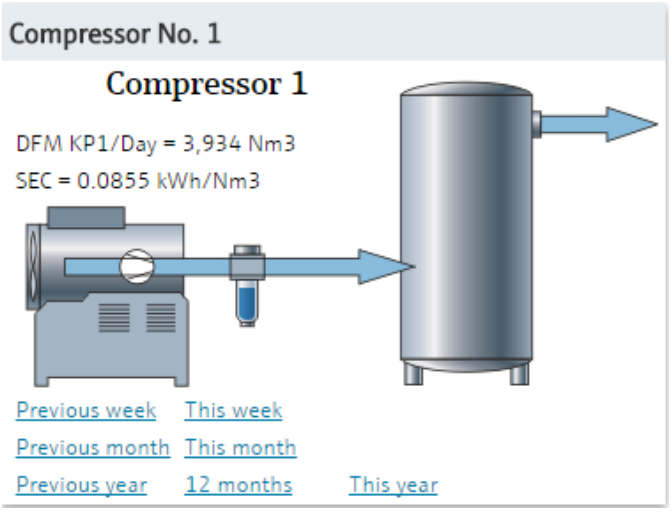
The channel can be shown/hidden by clicking on the channel name in the legend for each diagram.

9.2.1.4 Compressed air compressor efficiency

Various reports are available for compressors.

Overview (small tile)

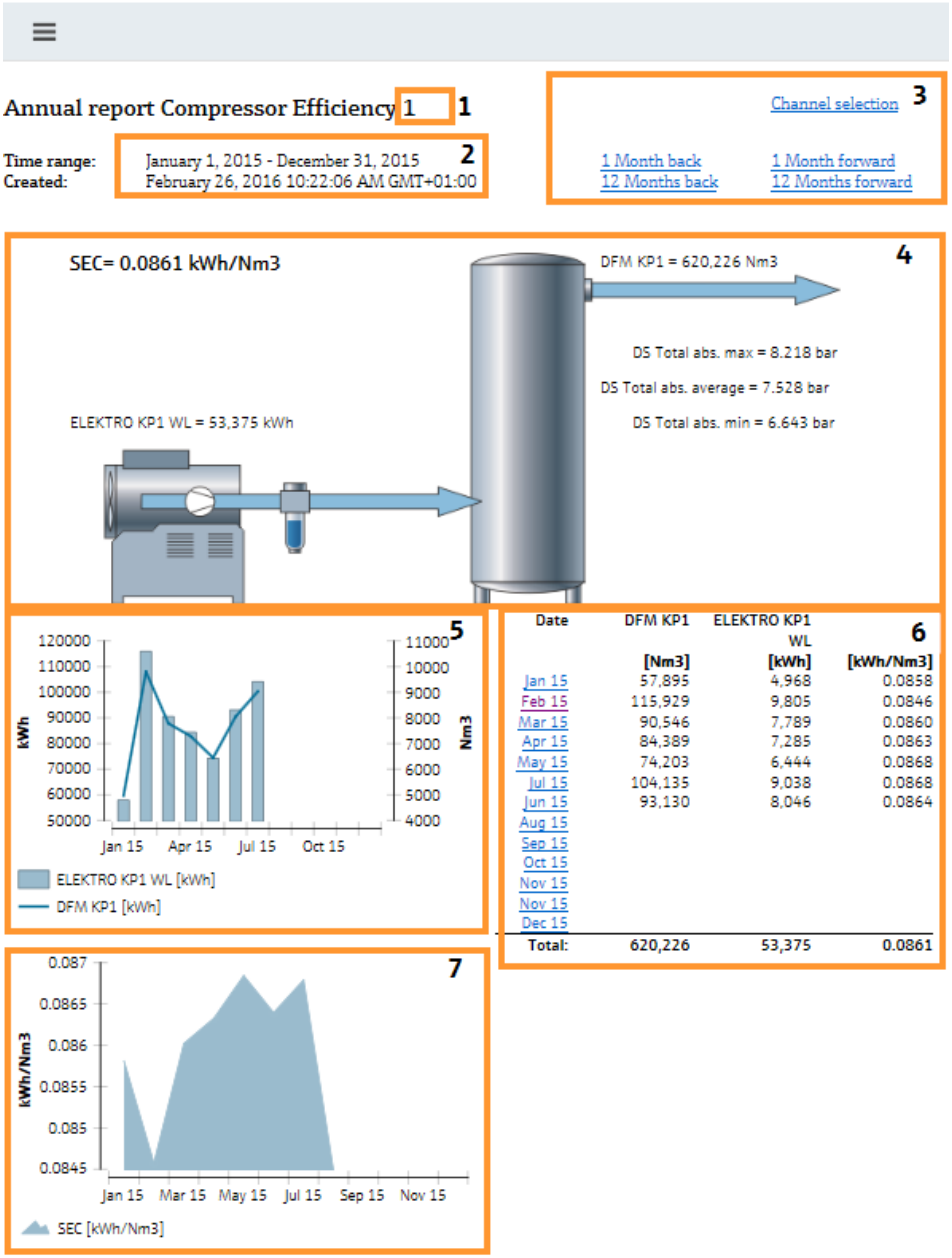
An overview report is available (like a small "tile") in which a summary of the main key performance indicators is displayed. A number of these tiles can be shown together on one dashboard to provide an overview of several compressors for example. Hyperlinks in the report enable you to access other reports within this area.



The average quantity of compressed air per day and the specific energy consumption (SEC = Specific Energy Consumption) are displayed.

There are also full-screen reports with more detailed information. These reports are available for the following time ranges: week, month, year (or 12 months).

Annual report, page 1



1: Report name

2: Time period of the report and time stamp from when the report was created

3: Navigation area to jump forward/backward within the time range, or link to channel selection (not available as a PDF)

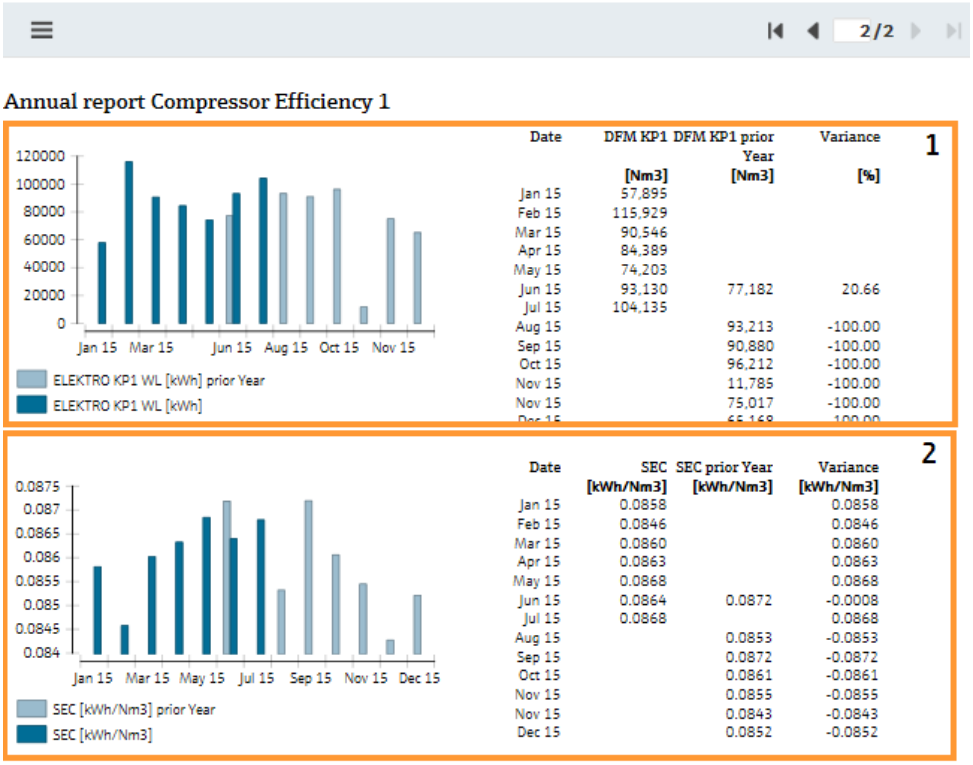
4: Schematic diagram of a compressed air compressor showing totals for compressed air consumption, electricity; pressure minimum/maximum and average values; specific energy consumption (SEC, Specific Energy Consumption).
The information displayed here can vary depending on the channels/measured values selected. For example, the leakage can be shown.

5: Diagram showing monthly consumption of compressed air and electricity

6: Table showing monthly specific energy consumption and leakage where applicable with the date as a hyperlink to the monthly report (no hyperlinks in the PDF)

7: Diagram showing the monthly specific energy consumption calculated and leakage where applicable

Annual report, page 2



1: Diagram and table showing compressed air consumption for the current year compared to the previous year

2: Diagram and table showing specific energy consumption (SEC) for the current year compared to the previous year

Monthly report, page 1

The structure of page 1 of the monthly report is comparable to the annual report. The difference is that the information displayed in both the diagram and table is day-based; the hyperlink in the date links to the weekly report.

Monthly report, page 2

The second page of the monthly report is similar to a calendar view with diagrams for daily steam consumption.

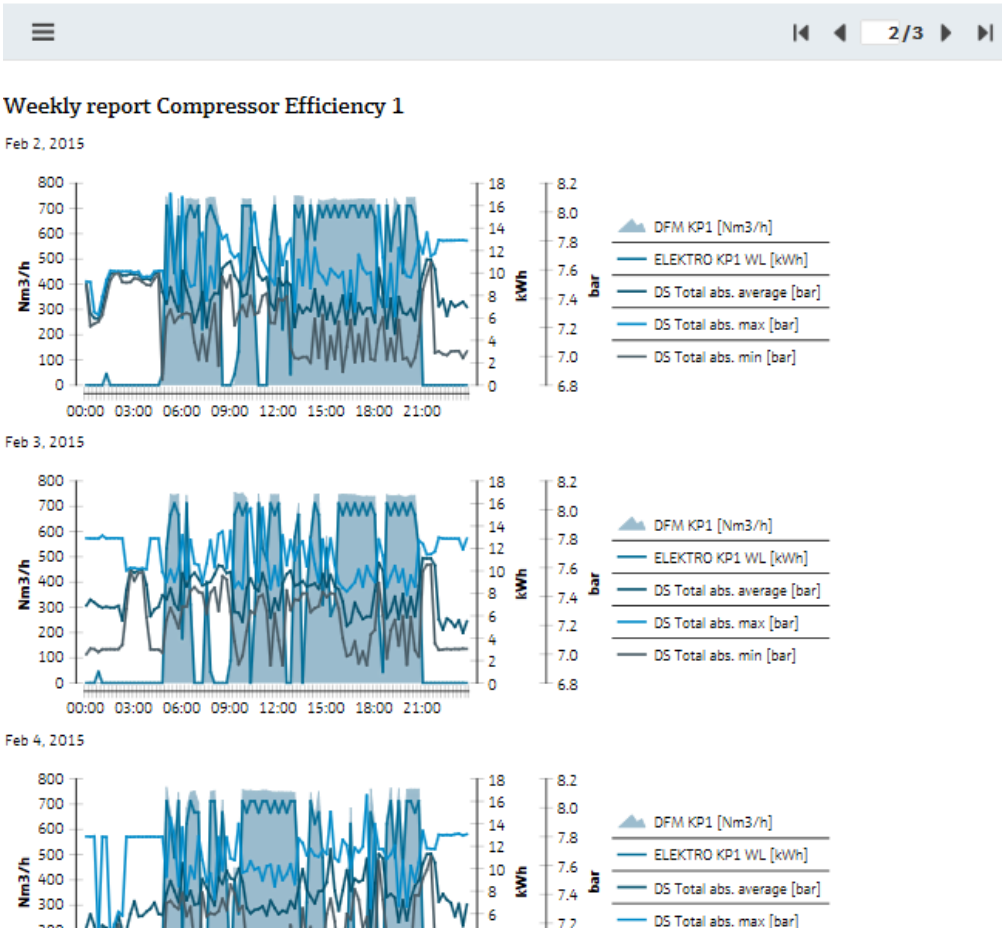
Weekly report, page 1

The structure of page 1 of the weekly report is comparable to the annual report but the information displayed in both the diagram and table is day-based.

Weekly report, page 2 ff.

The second (and subsequent) pages of the weekly report contain a diagram with detailed boiler data for each day. All of the channels configured in channel selection are displayed.

The channel can be shown/hidden by clicking on the channel name in the legend for each diagram.

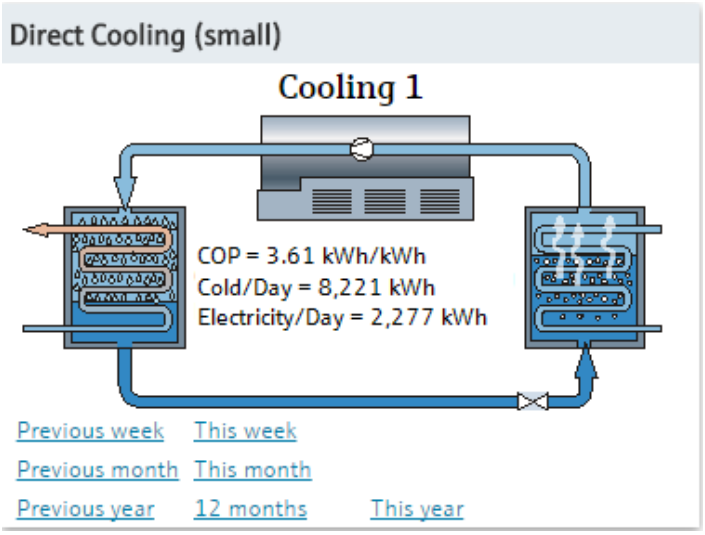


9.2.1.5 Cooling machine efficiency

Various reports are available for cooling generators.

Overview (small tile)

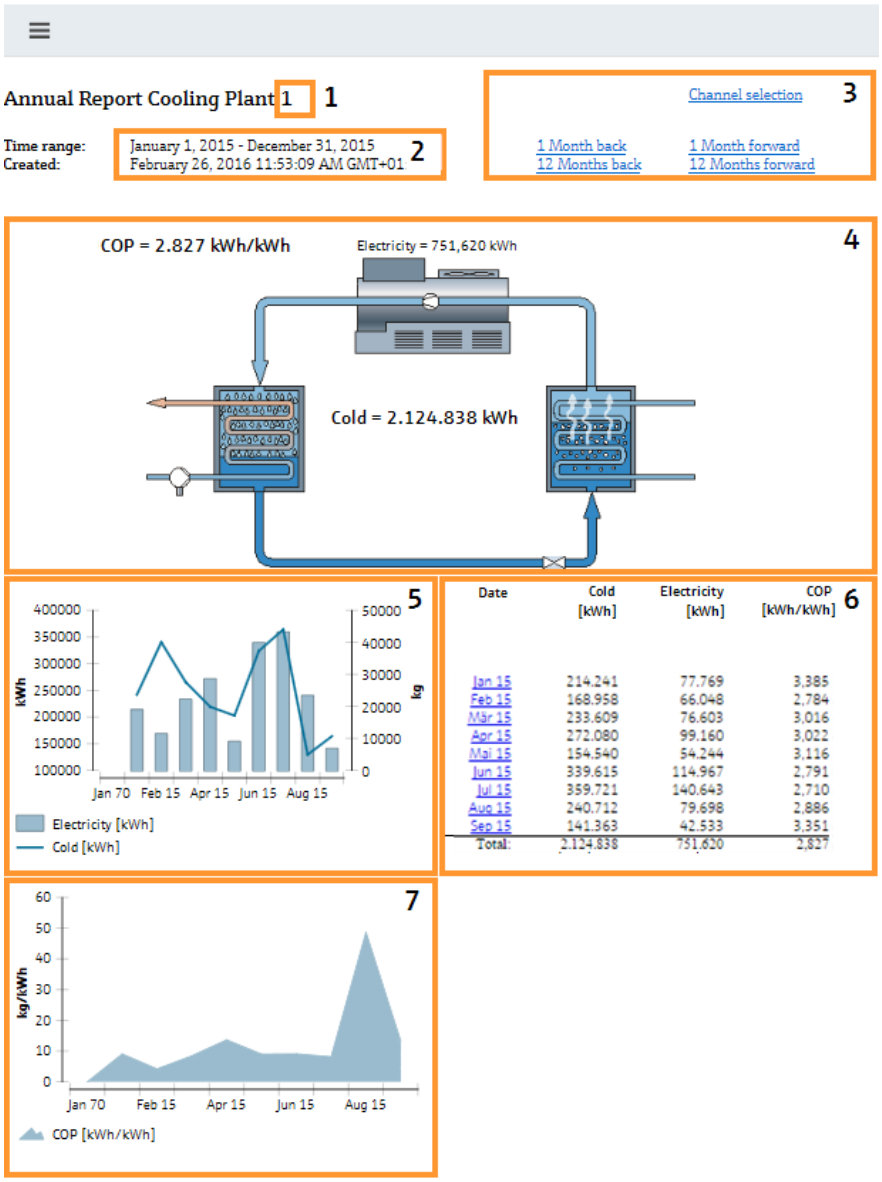
An overview report is available (like a small "tile") in which a summary of the main key performance indicators is displayed. A number of these tiles can be shown together on one dashboard to provide an overview of several cooling machines for example. Hyperlinks in the report enable you to access other reports within this area.



The average cooling energy per day, the average power consumption per day and the specific energy consumption (SEC = Specific Energy Consumption) are displayed.

There are also full-screen reports with more detailed information. These reports are available for the following time ranges: week, month, year (or 12 months).

Annual report, page 1



1: Report name

2: Time period of the report and time stamp from when the report was created

3: Navigation area to jump forward/backward within the time range, or link to channel selection (not available as a PDF)

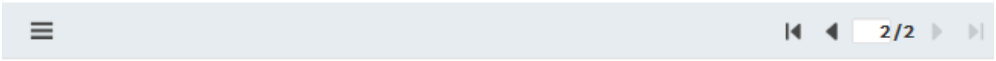
4: Schematic diagram of a cooling compressor showing totals of cooling energy, cooling compressor electricity, condensator electricity; COP (Coefficient of Performance) and COP2 where applicable (if configured on the Memograph M)

5: Diagram showing monthly consumption of cold and electricity

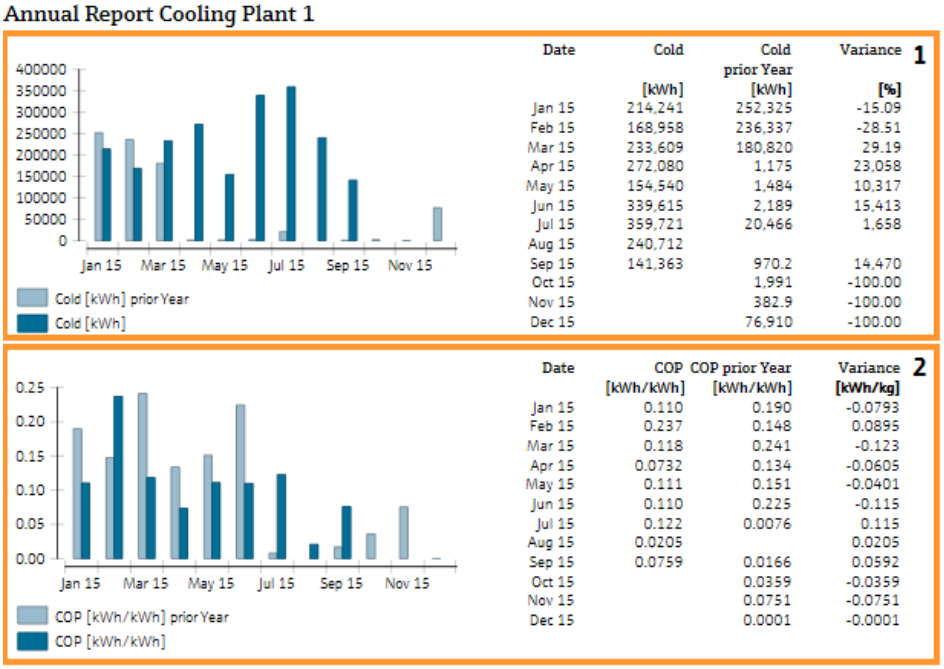
6: Table showing monthly energy consumption and COP with the date as a hyperlink to the monthly report (no hyperlinks in the PDF)

7: Diagram showing the monthly COP (and where applicable COP 2) calculated

Annual report, page 2



Annual Report Cooling Plant 1



Date	Cold [kWh]	Cold prior Year [kWh]	Variance [%]
Jan 15	214,241	252,325	-15.09
Feb 15	168,958	236,337	-28.51
Mar 15	233,609	180,820	29.19
Apr 15	272,080	1,175	23,058
May 15	154,540	1,484	10,317
Jun 15	339,615	2,189	15,413
Jul 15	359,721	20,466	1,658
Aug 15	240,712		
Sep 15	141,363	970.2	14,470
Oct 15		1,991	-100.00
Nov 15		382.9	-100.00
Dec 15		76,910	-100.00

1

Date	COP [kWh/kWh]	COP prior Year [kWh/kWh]	Variance [kWh/kg]
Jan 15	0.110	0.190	-0.0793
Feb 15	0.237	0.148	0.0895
Mar 15	0.118	0.241	-0.123
Apr 15	0.0732	0.134	-0.0605
May 15	0.111	0.151	-0.0401
Jun 15	0.110	0.225	-0.115
Jul 15	0.122	0.0076	0.115
Aug 15	0.0205		0.0205
Sep 15	0.0759	0.0166	0.0592
Oct 15		0.0359	-0.0359
Nov 15		0.0751	-0.0751
Dec 15		0.0001	-0.0001

2

1: Diagram and table showing cold for the current year compared to the previous year

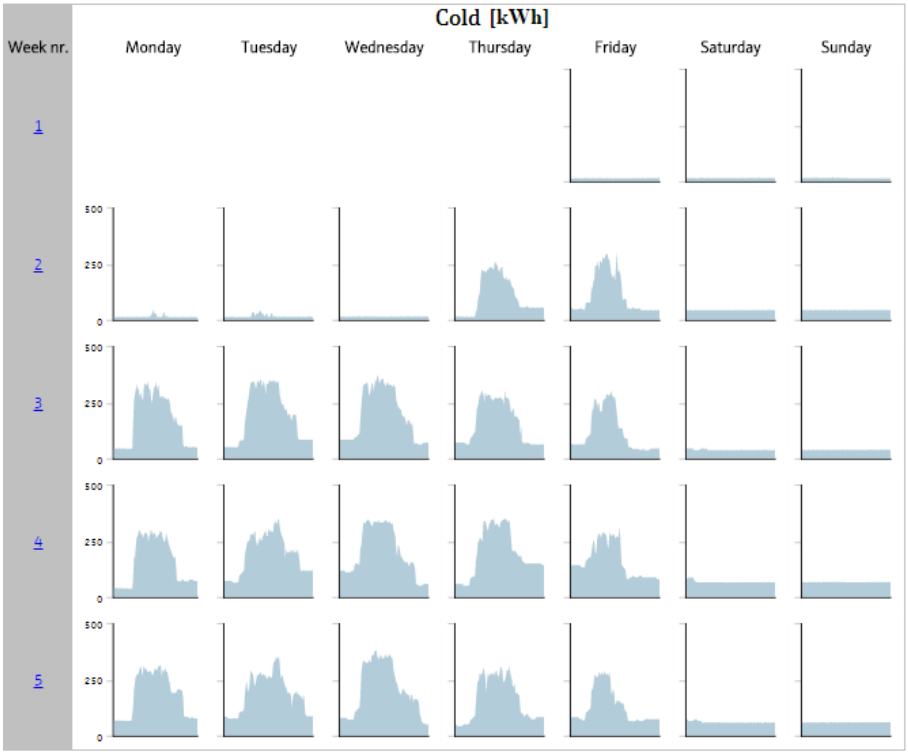
2: Diagram and table showing COP for the current year compared to the previous year

Monthly report, page 1

The structure of page 1 of the monthly report is comparable to the annual report. The difference is that the information displayed in both the diagram and table is day-based; the hyperlink in the date links to the weekly report.

Monthly report, page 2

Monthly Report Cooling Plant 1



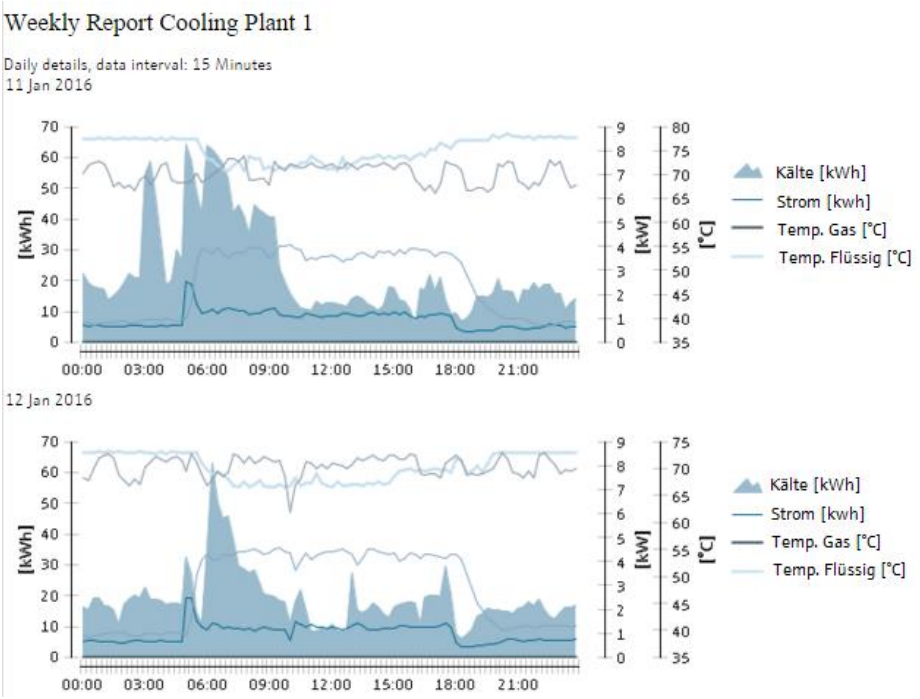
Weekly report, page 1

The structure of page 1 of the weekly report is comparable to the annual report but the information displayed in both the diagram and table is day-based.

Weekly report, page 2 ff.

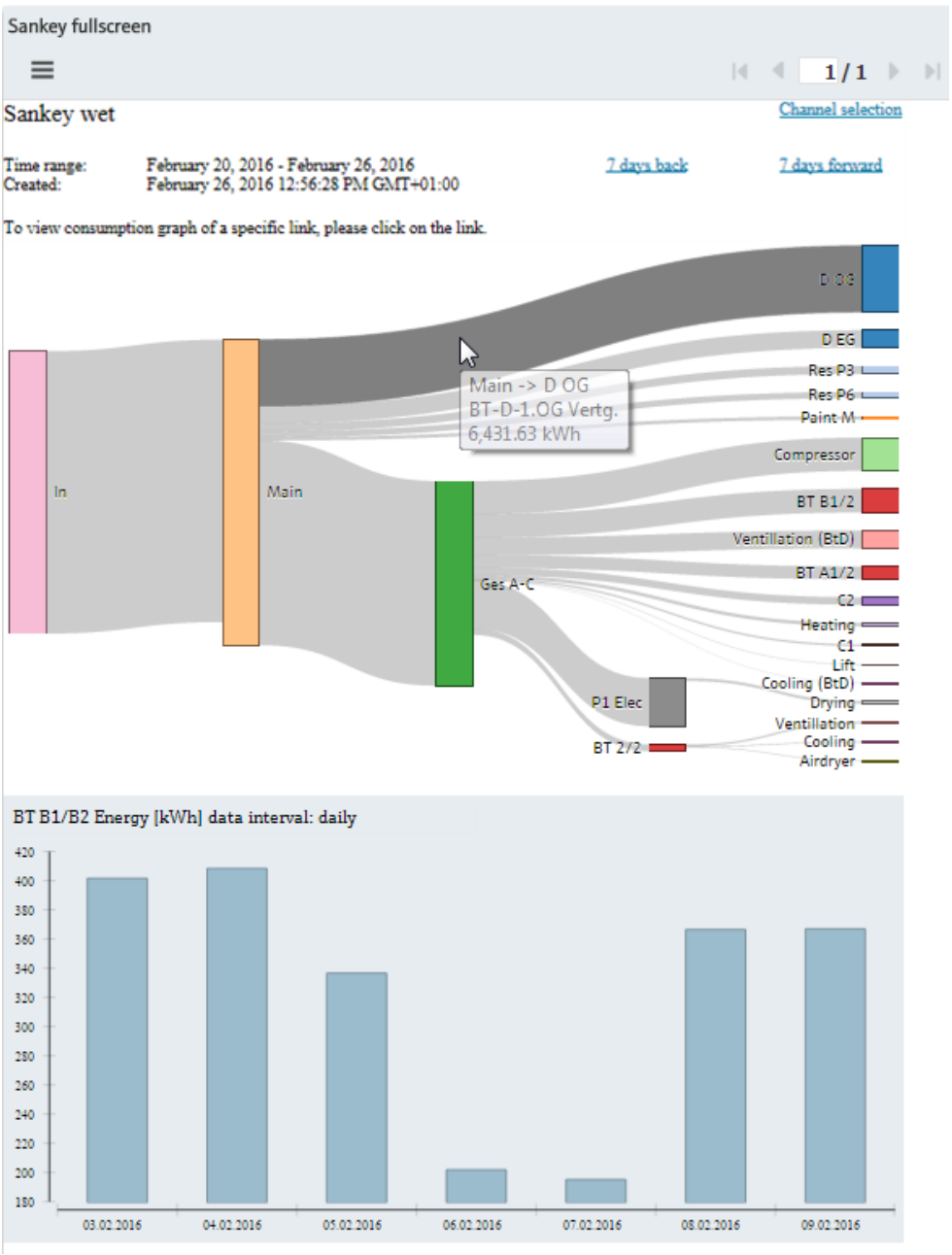
The second (and subsequent) pages of the weekly report contain a diagram with detailed cooling machine data for each day. All of the channels configured in channel selection are displayed; i.e. the pressure/temperature of the coolant (if configured).

The channel can be shown/hidden by clicking on the channel name in the legend for each diagram.



9.2.1.6 Sankey

A Sankey diagram is a graphic representation of quantity flows. Unlike a flow diagram, quantities are illustrated as arrows. The width of the arrow is proportional to the size of the flow.



A Sankey diagram consists of "nodes" (the rectangles) which are connected by "links". The elements in the Sankey diagram are automatically placed in position when it is created; the nodes can however be moved.

Clicking on a link opens the consumption diagram associated with that link.

9.2.2 Rain spillway basins

A special report for rain spillway basins (in accordance with BayLfW 2001/2006 [7], [10]) is included in the installation files; it is not installed as standard however.

Proceed as described in Section 9.1.7.1 to be able to use this report.

9.2.3 Specific reports

In principle reports can also be created by customer request. For more detailed information, please contact your Endress+Hauser sales office.

10. Index

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People for Process Automation