COPA-DATA
do it your way

zenon manual

Industrial Maintenance Manager (IMM)

v.8.00

Contents

1. Welcome to COPA-DATA help

ZENON VIDEO-TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel. The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com.

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LICENSES AND MODULES

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2. Industrial Maintenance Manager (IMM)

The Industrial Maintenance Manager (IMM) administers machine and maintenance data. Service intervals can comfortably be planned and administered. You can see at a glance which device, item of equipment, machine, etc. has to be maintained today / this week / next month etc. Additionally service work done in the past is logged.

3. Functionalities

- Devices can be copied and pasted; a consecutive number is added to the device name.
- The list view can be adjusted in the screen filter. Column selection, column width, column name and their order can be modified.
- Every list view can be displayed and printed as an HTML file via Stylesheet.
- The equipment identifier can only be created via the context menu in the tree.
- Multi-hierarchic equipment identifiers
- Devices can be created via the context menu in the tree or in the list, provided that an equipment was selected in the tree. This equipment is then automatically inserted in the device as equipment identifier.
- By clicking on the column button, the elements are sorted alphabetically.
- Multi-project capable
- Server-Client
- Deleting devices is subject to a userlevel, which allows to ways of deleting. On the one hand, deleting in the sense that data is retained in the database and history entries are not lost. For this method, the flag ACTIVE in the database is set to 0. Alternatively, a complete and final deletion: all data from the database, including the maintenance tasks and the history, are deleted.
- The checkboxes in the tree view for the equipment identifiers are a filter. If they are set, only devices, history entries and maintenance tasks belonging to this equipment identifier are displayed.

4. Limitations

The module stores all data in a Microsoft SQL Server database (SQL Server 2000 and higher). The MS SQL Server is not included in zenon. However, you can use the SQL Server Express Edition which is installed with the zenon Editor.

Other SQL servers like Oracle are not supported.

5. Preparatory works

5.1 Database

You need the **SQL Server Management Studio (SSMS)** to create a database.

Installation of SQL Server Management Studio

1. Download the most recent version from the Microsoft homepage.
2. Select the English-language setup for the download, because the following steps relate to the English version.
3. Carry out the setup.

Creation of the database

1. Start **SQL Server Management Studio**.
2. Establish a connection to the desired server.
3. In the **Object Explorer**, right-click on **Databases**.
4. Select the **New Database...** entry in the context menu.

   The dialog for configuration is opened.
5. Enter the chosen name.
6. Configure further options if required.
7. Close the dialog by clicking on **OK**.

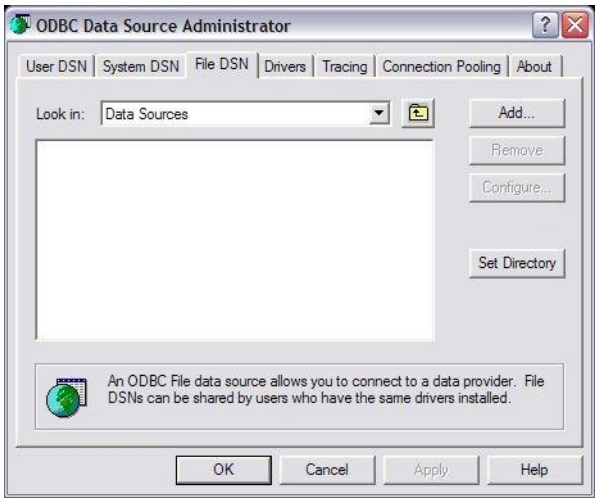
5.2 Engineering

Four tables are created in the database. The names of the tables are issued and fixed and correspond to the names that are used in the measuring point administration:

- **Table for devices**: `Devices`
- **Table for maint. works**: `MaintenanceWorks`
- **Table for history**: `MaintenanceHistory`
- **Table for documents**: `Documents`

DATABASE CONNECTION

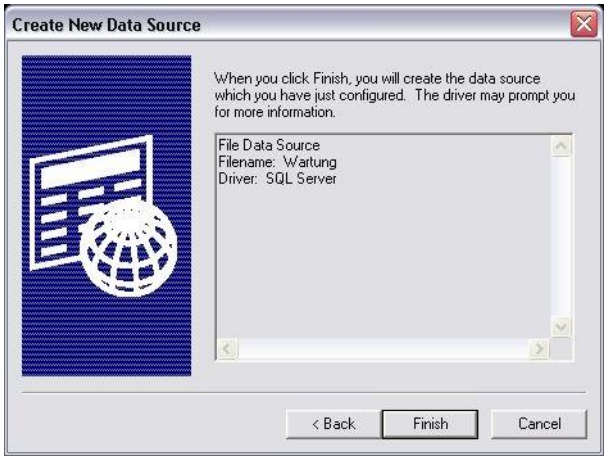
In the project properties, the ODBC string can be manually edited in the **Industrial Maintenance Manager** node by means of the **Database** property. Clicking on the ... button opens the dialog for configuration.



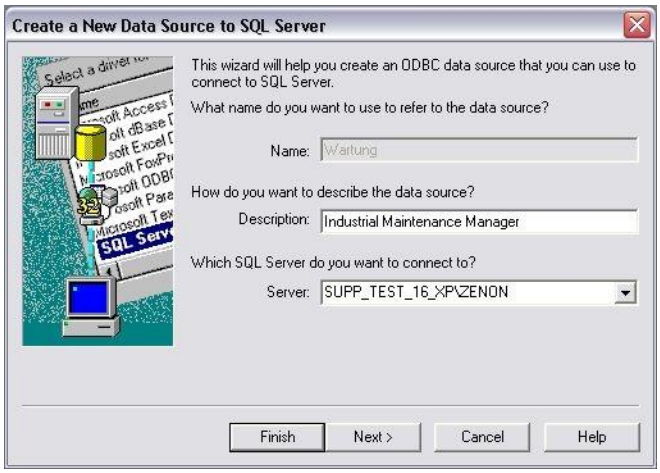
New...	Click on this button to add a new file data source.

In the dialog field 'Create new data source' select the driver **SQL Server** and click on **Next** in order to enter the name or the storage place of the new DSN file.

Again, click on **Next**'to display a summary of the new information.

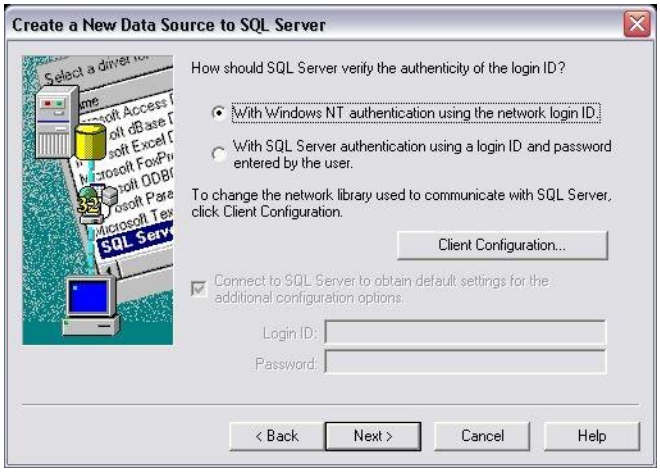


Click on **Finish** to open the driver specific setup dialog.

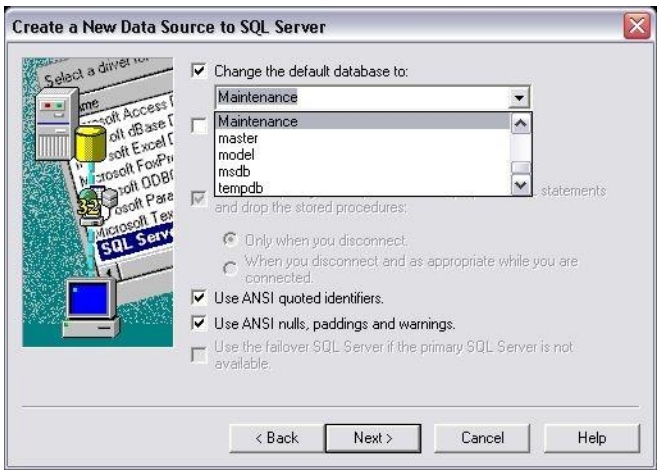


If you select a server name from the list, no further configuration settings are necessary.

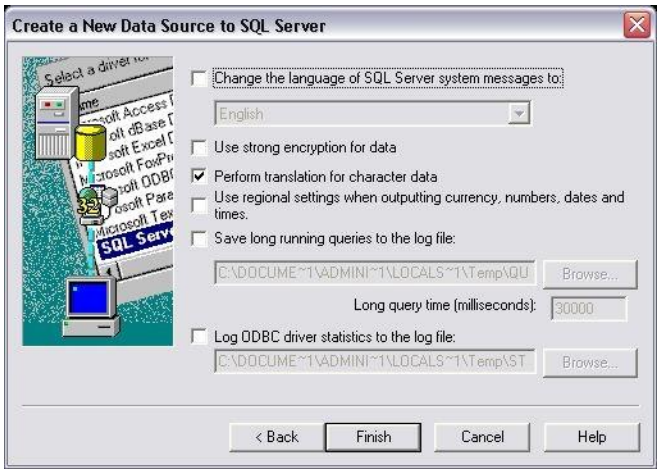
Again click on **Next** .



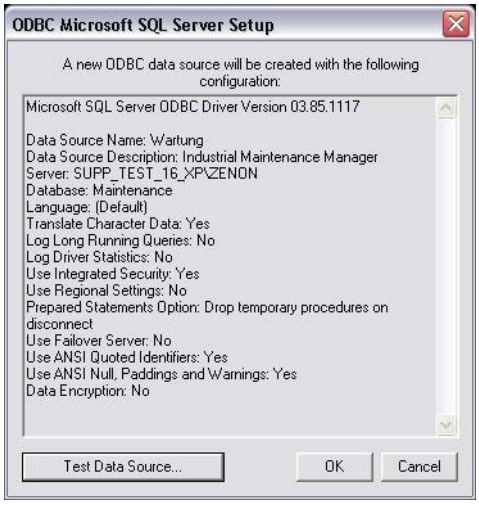
Again click on **Next**.



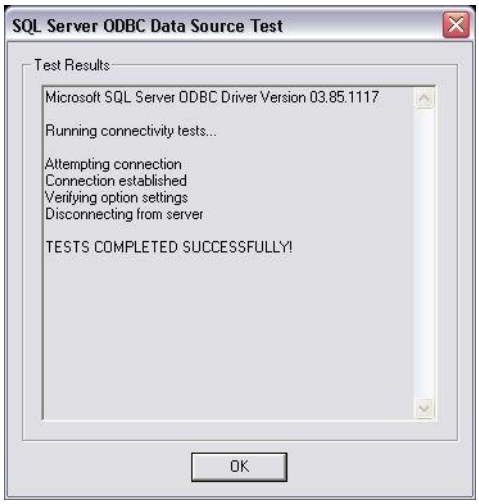
Now you can select the previously created database.

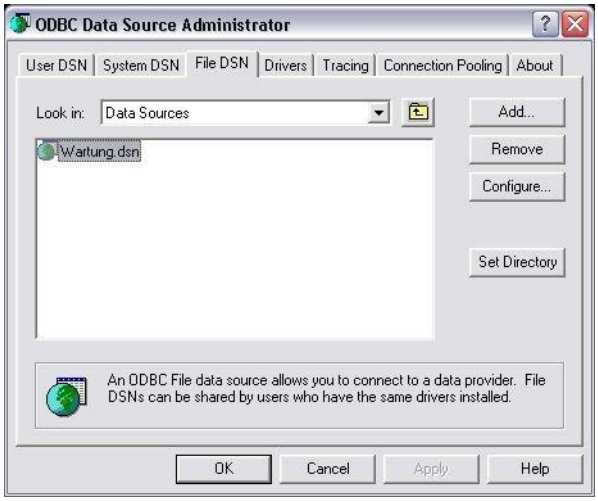


Click on **Finish**.



Now you can test the selected connection.





Attention

When using **Native Client 10** and **11**, the password is not automatically carried over to the provider string. It must be entered manually

e.g.: ...;**User ID=sqlExampleUser1;Password=secretPassword;...**

6. Creating a screen of the type IMM

ENGINEERING

There are two procedures for the creation of a screen from zenon version 8.00:

- The use of the screen creation dialog
- The creation of a screen using the properties

Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.

2. Change the properties of the screen:

   a) Name the screen in the **Name** property.

   b) Select `IMM` in the **Screen type** property.

   c) Select the desired frame in the **Frame** property.

3. Configure the content of the screen:

   a) select menu item **Control elements** from the menu bar

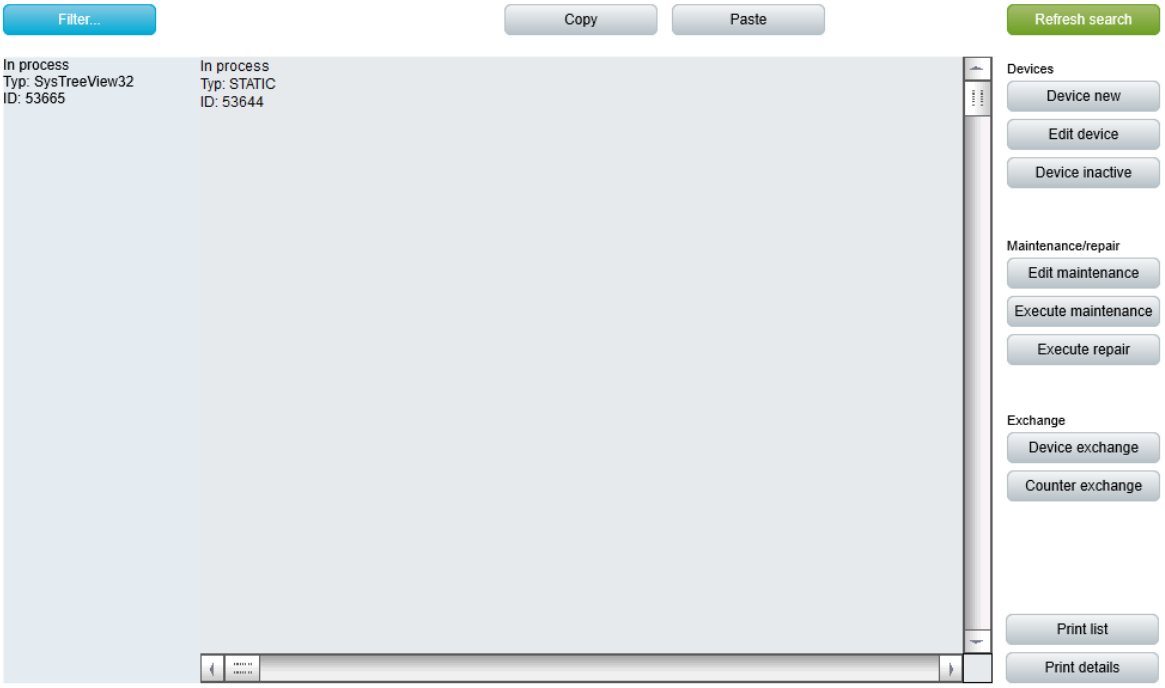
   b) Select `Insert template` in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.

   c) Remove elements that are not required from the screen.

   d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.

4. Create a screen switch function.

IMM screen:



Parameter	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.
List	List (on page 26) of processes which are displayed in the Runtime.
List functions	Control elements to control the list.
Filter	Applies filter.
New equipment identifier	Creates a new equipment identifier.
Delete equipment identifier	Deletes selected equipment identifier.
Device	Control elements for devices.
▸ **New**	Adds a new device.
▸ **Edit**	Makes it possible to edit the selected device.
▸ **Delete**	Deletes device.

▸ **Mark as inactive**	Switches device to inactive.
▸ **Replace**	Carries out device exchange.
Copy	Copies selected element to the clipboard.
Paste	Pastes the selected element from the clipboard.
Change counter	Carries out counter exchange.
Edit maintenance	Makes it possible to edit a maintenance.
Execute maintenance	Switches to carry out maintenance.
Execute repair	Switches to carry out repair.
Print list	Prints out list.
Print details	Prints out details.
Refresh	Refreshes view.
Filter profiles	Buttons for filter settings in Runtime.
Profile selection	Select profile from list.
Save	Saves current setting as a profile. Note: The name can be a maximum of 31 characters long and must only contain valid characters. Prohibited are: **! \ / : * ? < > | ""**
Delete	Deletes selected profile.
Import	Imports filter profiles from export file.
Export	Exports filter profiles in the file.

7. zenon functions

7.1 IMM screen switching

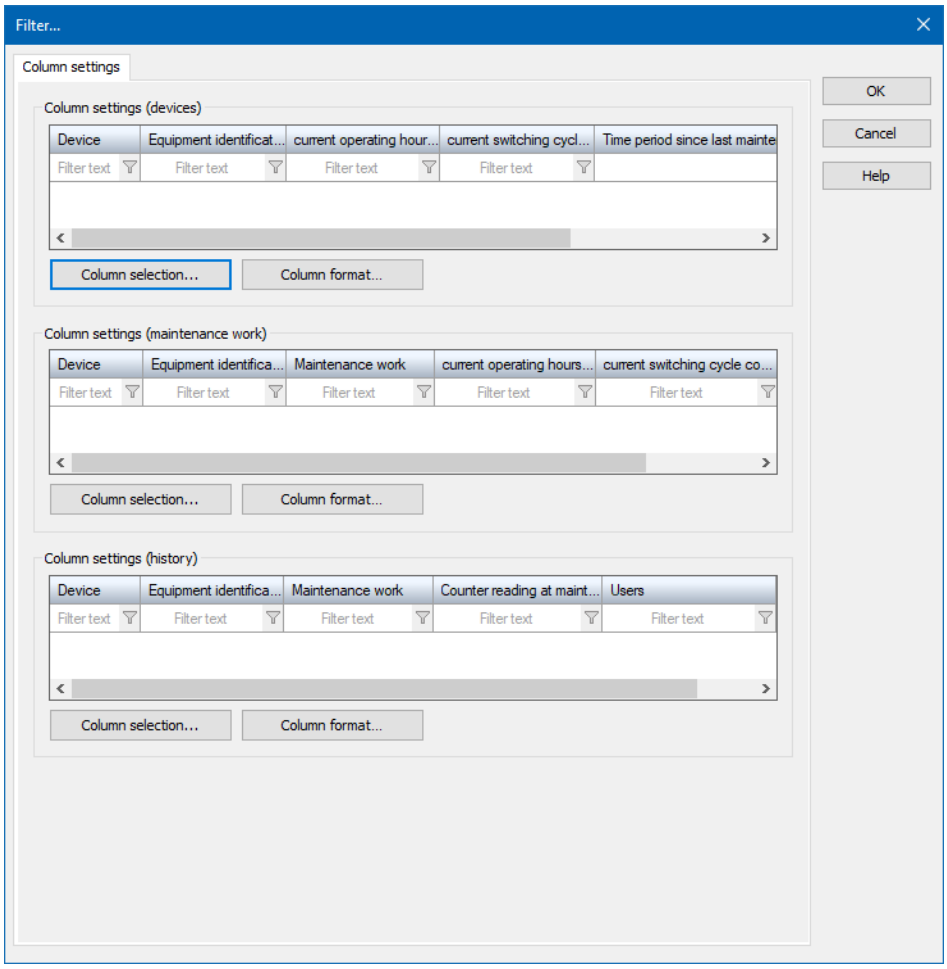
To open a Process Recorder screen in Runtime:

1. Configure an `Industrial Maintenance Manager`screen.
2. Create a function Screen switch for this screen.
3. Define the desired content for the view in Runtime.

CREATE A SCREEN SWITCH FUNCTION

A `screen switching` function is for calling up screens in Runtime.

For screen switching to an `Industrial Maintenance Manager` screen, you can also configure the structure for devices, maintenance work and history with configurable lists.



Parameter	Description
Column settings (devices)	Configurable lists for the columns of the devices and device data shown in Runtime. Available columns: ▸ Device (`default`) ▸ Equipment identification (`default`) ▸ Current operating hours counter (`default`) ▸ Current switching cycle counter (`default`) ▸ Time period since last maintenance (`default`) ▸ Identification ▸ Brand ▸ Date of putting into operation ▸ Serial number ▸ Status ▸ Type Configuration of the information to be displayed by clicking on the **Column selection...** button.
Column settings (maintenance work)	Configurable lists for the columns of the maintenance work shown in Runtime. Available columns: ▸ Device (`default`) ▸ Equipment identification (`default`) ▸ Maintenance work (`default`) ▸ Current operating hours counter (`default`) ▸ Current switching cycle counter (`default`) ▸ Time period since last maintenance (`default`) ▸ Due date `default`) ▸ Identification ▸ Internal - external ▸ Comment ▸ Status Configuration of the information to be displayed by clicking on the **Column selection...** button.

Column settings (history)	Configurable lists for the columns of the history shown in Runtime. Available columns: ▶ Device (`default`) ▶ Equipment identification (`default`) ▶ Maintenance work (`default`) ▶ Counter reading when maintenance is carried out (`default`) ▶ User (`default`) ▶ Date (`default`) ▶ Identification ▶ Comment Configuration of the information to be displayed by clicking on the **Column selection...** button.
Column selection...	Selection of the columns for display in Runtime. Clicking on the button opens the **column properties** dialog.
Column format...	Amendment of the display in Runtime. Clicking on the button opens the **column properties** dialog to configure the view.

CLOSE DIALOG

Options	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

CONFIGURATION IN THE EDITOR

Steps to create the function:

1. Create a new function:

   In the toolbar or in the context menu of the Functions node, select **New function**.
   The dialog to select a function is opened.

2. Navigate to the node **Favorites**.

3. Select the **Screen switch** function.

   The dialog for selecting a screen is opened.

4. Select the desired screen.
   Note: If you select a screen from another project, ensure that the project is running in Runtime.
5. Configure the filter.
6. Name the function in the **Name** property.

TREE AND LIST VIEW IN THE EDITOR

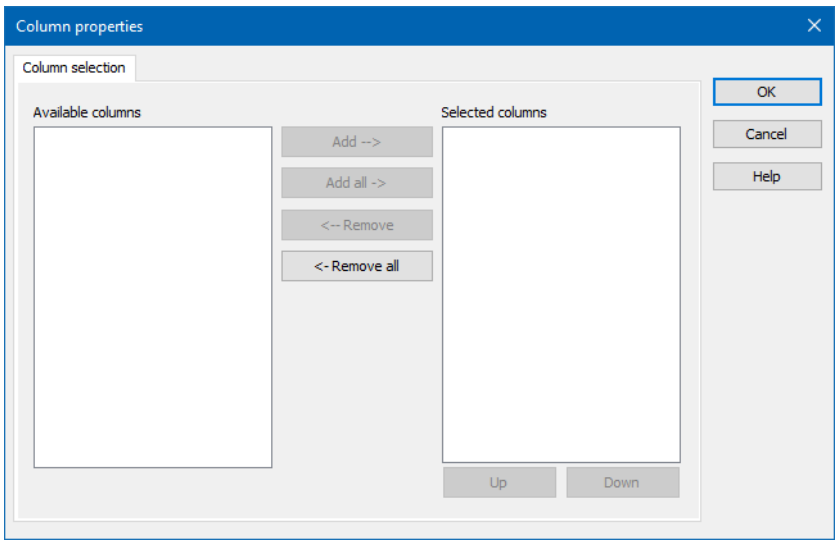
The **tree** and **list** elements, familiar from Runtime, can also be configured individually in the Editor:

1. Open the IMM screen in which you want to add control elements.
2. Click on **Control Elements** to open the selection dialog.
3. Select the desired control element.
4. Add the desired control element by dragging it into the screen with the left mouse button.

Note: If there is already a control element present, it is shown as grayed out in the selection dialog.

7.1.1 Column selection

Selection and sequence of the columns.



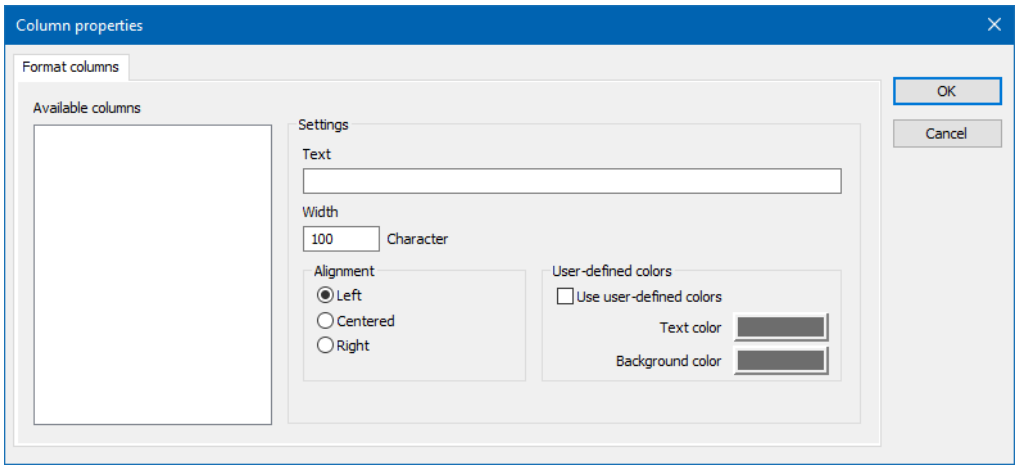
Option	Function
Available columns	List of columns that can be displayed in the table.
Selected columns	Columns that are displayed in the table.
Add ->	Moves the selected column from the available ones to the selected items. After you confirm the dialog with OK, they are shown in the detail view.
Add all ->	Moves all available columns to the selected columns.
<- Remove	Removes the marked columns from the selected items and shows them in the list of available columns. After you confirm the dialog with OK, they are removed from the detail view.
<- Remove all	All columns are removed from the list of the selected columns.
Up	Moves the selected entry upward. This function is only available for unique entries, multiple selection is not possible.
Down	Moves the selected entry downward. This function is only available for unique entries, multiple selection is not possible.

CLOSE DIALOG

Options	Description
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

7.1.2 Column Format

Configuration of the properties of the columns for configurable lists. The settings have an effect on the respective list in the Editor or - when configuring screen switching - in Runtime.



AVAILABLE COLUMNS

Option	Description
Available columns	List of the available columns via **Column selection**. The highlighted column is configured via the options in the **Settings** area.

SETTINGS

Option	Description
Settings	Settings for selected column.
Labeling	Name for column title. The column title is online language switchable. To do this, the @ character must be entered in front of the name.
Width	Width of the column in characters. Calculation: Number time average character width of the selected font.
Alignment	Alignment. Selection by means of radio buttons. Possible settings: ▸ **Left**: Text is justified on the left edge of the column. ▸ **Centered**: Text is displayed centered in the column. ▸ **Right**: Text is justified on the right edge of the column.
User-defined colors	Properties in order to define user-defined colors for text and background. The settings have an effect on the Editor and Runtime. **Note:** ▸ These settings are only available for configurable lists. ▸ In addition, the respective focus in the list can be signalized in Runtime by means of different text and background colors. These are configured using the project properties.
User defined colors	`Active`: User-defined colors are used.
Text color	Color for text display. Clicking on the color opens the color palette to select a color.
Background color	Color for the display of the cell background. Clicking on the color opens the color palette to select a color.

Lock column filter in the Runtime	▸ `Active`: The filter for this column cannot be changed in Runtime. **Note:** Only available for: ▸ Batch Control ▸ Extended Trend ▸ Filter screens ▸ Message Control ▸ Recipe Group Manager ▸ Shift Management ▸ Context List

CLOSE DIALOG

Option	Description
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

7.2 Determine open maintenances

Function **Determine open maintenances** fetches the list of all pending maintenances from the IMM for a certain period of time. These are used to determine the equipment-specific status values as configured.

When carrying out the function:

- numeric set values are written to the corresponding status variables; these set values match the total of the pending maintenances which are in the equipment and which match the allocation of equipment IDs to status variables
- The status variables configured on the device and at the maintenance are updated

To configure the function:

- Select **New function...**
- open branch **Application**
- select **Determine open maintenance**
- The dialog for configuring the function opens

Parameter	Description
Period	Period of time for which the pending maintenance was determined Note: Time is saved as local time. For details see chapter Handling of date and time in chapter Runtime.
Equipment label	Enter the equipment label which should be allocated to a status variable. Form: Equipment label are separated by comma and entered as lists. Equipment label may contain wildcards. (Wildcards are only allowed as prefix or suffix; e.g. *xxx or xxx*.)
Status variable	A numerical variable that contains the number of open maintenances of the equipment entered under **Equipment identifier** as a set value.
Allocations	List of allocations of equipment labels to status variables.
Add	Adds an allocation line.
Remove	Deletes the selected allocation.

Example

2 maintenances are active in Equipment1 and 1 maintenance is active in Equipment2.
Equipment1 and Equipment2 are the only equipments in this example.
The function is engineered similar to the displayed screenshot.

The status variables contain the following set values:

Maintenances_today_all = 3

Maintenances_today_all2 = 3

Maintenances_today_equipment1_2 = 3

Maintenances_today_equipment1 = 2

Maintenances_today_equipment2 = 1

Information

In network operation, the function is always executed on the server.

8. Maintenance task

The calculation of pending maintenance is the main task of IMM. Maintenance tasks can have three different maintenance intervals:

- a time span in days

- an hours counter or

- an operations counter.

The due date of the maintenances is calculated from these intervals.

If a maintenance comes into the warning zone, it shows up in the list for due maintenances, including a notice that it has reached the warning level . If it reaches the maintenance intervall, the maintenance is set to due, which also shows up in the list of maintenances.

THE FUNCTION 'DETERMINE MAINTENANCES'

With the function `Determine maintenances`, the list of all due maintenances in the selected time span is retrieved from the IMM. These due maintenances are then used to determine the equipment-specific status values as configured.

Numerical set values equalling the total number of due maintenances for equipment matching the selected filter criteria are sent to the according status variables.

If you create a new function `Determine maintenances` in the Editor, the following configuration dialog appears:

Period	Here you can select the period for which you want to determine due maintenances (see IMM).

8.1 Period

In the maintenance task data a time interval in days can be entered. In addition, an period of advance notice can be set, which means: the maintenance task should be evaluated as a 'current' maintenance task this many days before the end of the time interval. (message 'Maintenance due in xx days'.)

If the period of time or the counter value of the maintenance interval is reached, the maintenance is entered with the text 'Maintenance interval exceeded'.

The date of the last maintenance is updated for each execution. On creating the maintenance task this date is set to the current date.

8.2 Hours and operations counter

For the calculation of a 'current' maintenance the difference between the 'old' counter value at the last maintenance and the current one is divided by the number of the passed days since the last maintenance and added to the 'old' one. If this is higher than allowed, the maintenance is evaluated as 'current' and is displayed in the list.

If a variable has a lower value than at the last maintenance, a message is displayed.

9. Data input

The variable values are only entered in the maintenance data, if the maintenance task is newly created. Otherwise the old values stay.

If a device is created and no variables are linked, the initial value stays in the maintenance task. Also in this constellation the variable values in the maintenance task are not overwritten, if the variable is entered later. A message is displayed, if the variable needed for the maintenance calculation still has the initial value. The variable value only can be changed by executing a repair, a device exchange or a maintenance task.

10. Integration into the process

- Notification of the success of the maintenance work: The device can be assigned an integer variable. Furthermore, the response value of this variable must be defined in the maintenance work. If no distinction between the individual maintenance work is desired, the same value can always be entered here. If no value is given, no value is written to the variable.
- Response in the process: At each time of maintenance work, a variable that contains the status of the maintenance can be linked. (status OK 0 and Status Due 1)

11. Operation in Runtime

The following functions are available:

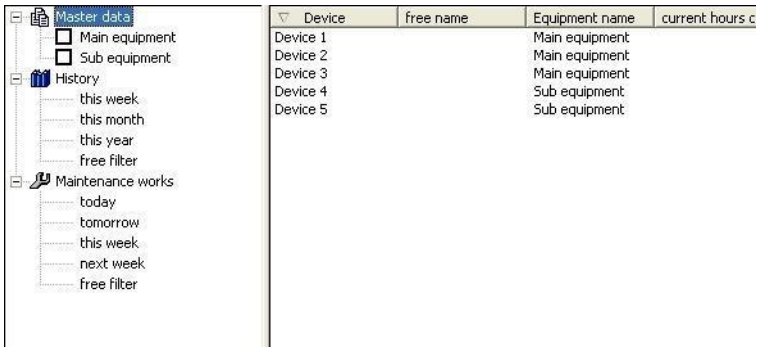
- **New device**: Create a new device. An equipment identifier has to be selected.
- **Edit device**: Edit a device. A device has to be selected.

- **Device inactive**: Switch a device to inactive, i.e. data is no longer displayed but remains in the database.
- **Execute maintenance**: A maintenance must be selected to perform this.
- **Refresh**: The data from the database and the variables are refreshed.
- **Filter**: Loads the screen filter dialog to modify columns.
- **Print**: Generates an HTML file with the desired list view. The current view is captured as it is. The history and the upcoming maintenances can be printed.
- **Print details**: View the details of a maintenance task in HTML. A maintenance task must be selected.

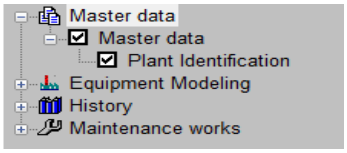
Note: In addition, devices with drag&drop can be moved (on page 26).

12. Display during Runtime

If you call up a screen of type IMM (on page 12) during Runtime, it is displayed divided in two areas.



12.1 Left side: tree

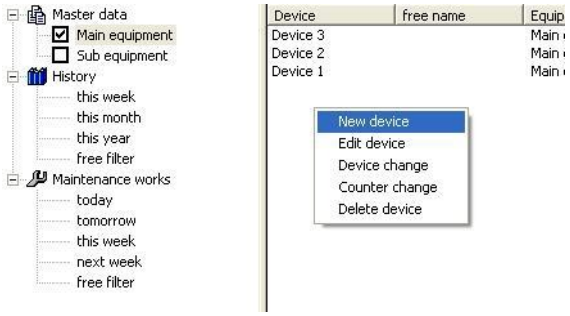


Parameter	Description
Master data	The equipment identifications are used as nodes. These nodes have a checkbox to limit the selection. This selection defines the output in the list. In the master data, the maintenance tasks and the history only data belonging to the selected equipments are displayed. Note: Devices from the list can be moved to equipment groups by means of drag&drop. Multiple selection is possible. The assignment is automatically amended after devices are moved.
Equipment Modeling	Equipment models and equipment groups are displayed here. Note: The equipment models must be configured in the Editor and cannot be changed in Runtime. New devices can only be created for equipment groups. You can create new devices via: ▶ The **New device** button ▶ The context menu ▶ The context menu of the list Note: Devices from the list can be moved by dragging&dropping between the equipment groups or in the **Master data** node. The complete hierarchical name of the equipment group is shown in the **Equipment identifier** list column. Filtering in Runtime using checkboxes (on page 36) also works for the equipment models.
History	Here the history data is filtered on periods of time. With **free filter** a dialog for the selection of any period of time is opened.
Maintenance tasks	Here the 'current' maintenance tasks are filtered on periods of time. With **free filter** a dialog for the selection of any period of time is opened.

12.2 Right side: List

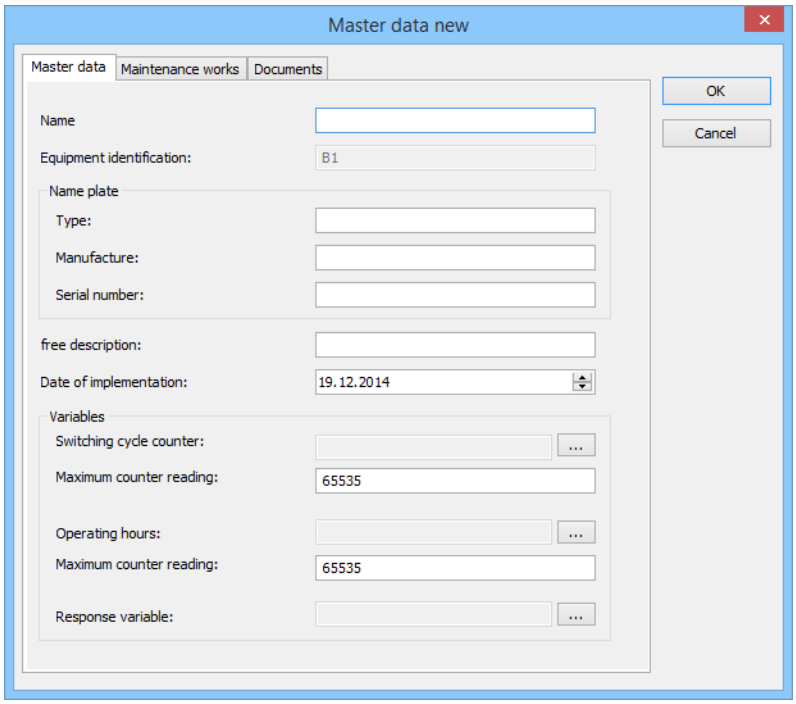
Here the selection from the tree view is displayed as a list. The list can be sorted ascending or descending on any column. In addition, there is a context menu in this view, which offers different functions depending on the selection in the tree view.

SELECTION MASTER DATA



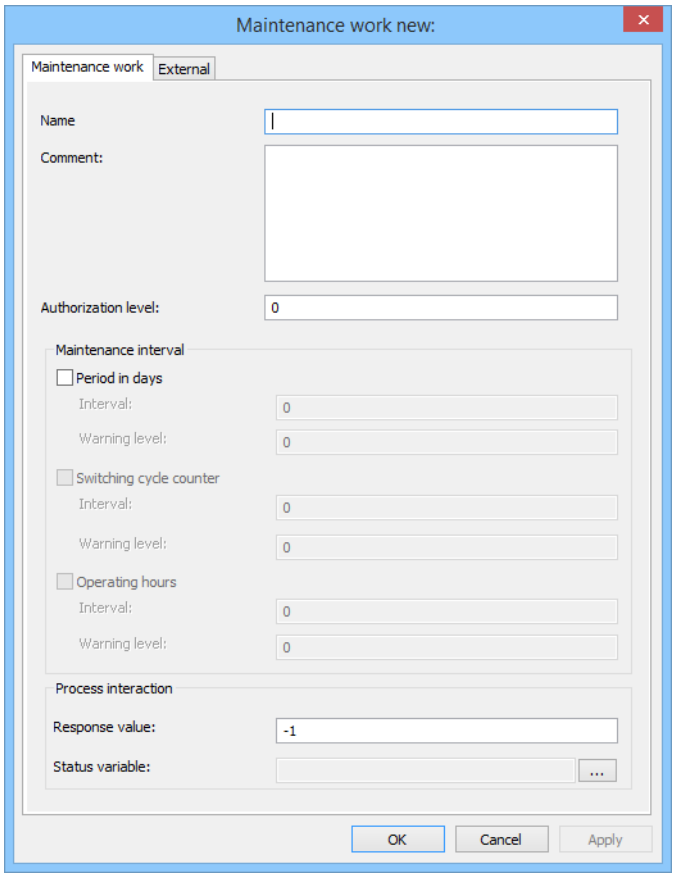
Command	Description
Device new	Under **New device** new master data can be created. The definition is done in a dialog with three tabs. On the first page the data for the device is entered. On the page '**Maintenance tasks**' any number of maintenance tasks for this device can be created. For an overview the titles of the maintenance tasks are displayed in a list on this page. On the last page any number of documents can be assigned to the device. For an overview these are displayed in a list similar to the maintenance tasks. When double-clicking on a document, the corresponding document is opened, if the attendant program is installed. Note: Devices can be moved to other equipment in the master data by means of Drag&Drop.
Edit device	Similar to 'New device' with the only difference, that the fields are filled with the existing data. A device has to be selected.
Device exchange	The variables for operations and hours counters are changed here! The calculation for scheduling maintenances is based on these variables. If a device exchange is performed, a history entry is made. Additionally, the maintenance interval is reset and the new variable values are used as the initial values for the calculation of maintenances. The device data stays the same, only the linked variables are exchanged. These have to be entered in a dialog. If the variable does not exist, a warning is displayed, that in the moment no valid variables are linked with the device.
Counter exchange	If a counter is exchanged, the variable stays the same, but the counter reading (variable value) is changed. If a counter is exchanged, a history entry is made. You can choose whether the maintenance interval should be reset or not. A new start value for the exchanged device can be entered.
Delete device	The selected device can be deleted. All associated data (maintenance tasks, history data and documents) are deleted. For security reasons the user is asked again, if the data should really be deleted.

ENTER MASTER DATA


Master data new
Master data
Maintenance works
Documents
OK
Cancel
Name
Equipment identification:
B1
Name plate
Type:
Manufacture:
Serial number:
free description:
Date of implementation:
19.12.2014
Variables
Switching cycle counter:
Maximum counter reading:
65535
Operating hours:
Maximum counter reading:
65535
Response variable:

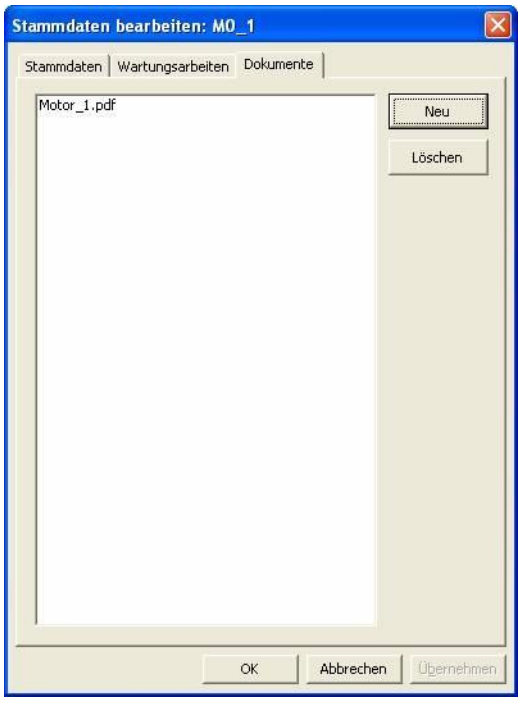
Parameters	Description
Name	Name of the device.
Equipment identification	Display of equipment identification.
Name plate	Name plate data: ▸ **Type** ▸ **Manufacture** ▸ **Serial number**
Free description:	Input field for free description.
Date of implementation	Entry of the date of putting into operation.
Variables	Configuration of the variables.
Switching cycle counter	Selection of the variables for the switching cycle counter. Click on button **...** in order to open the dialog for selecting a variable. Attention: The counting range must be selected as large enough so that in operation there is always less than half the counter end value that elapses between the current counter status and the counter status of the last maintenance.
Max. counter content	Maximum permitted counter status.
Operating hours	Assignment of the variables for the operating hours. Click on button **...** in order to open the dialog for selecting a variable. Attention: The counting range must be selected as large enough so that in operation there is always less than half the counter end value that elapses between the current counter status and the counter status of the last maintenance.
Max. counter content	Maximum permitted counter status.
Response variable	After maintenance work has been carried out, the value defined here is written to the linked variable. Click on button **...** in order to open the dialog for selecting a variable.

CONFIGURE MAINTENANCE WORK


Maintenance work new:
Maintenance work
External
Name
Comment:
Authorization level:
0
Maintenance interval
Period in days
Interval:
0
Warning level:
0
Switching cycle counter
Interval:
0
Warning level:
0
Operating hours
Interval:
0
Warning level:
0
Process interaction
Response value:
-1
Status variable:
...
OK
Cancel
Apply

Parameters	Description
Name	Name for job.
Comment	Comments about the job. Note: You can create a line break via shortcut `Ctrl+Return`.
Authorization level	Entry of the authorization levels that are required for execution.
Maintenance interval	Configuration of the maintenance interval for: ▸ **Period in days** ▸ **Switching cycle counter** ▸ **Operating hours**
Process interaction	Properties for interaction.
Return value	Value that is written after maintenance work has been carried out on the device linked to the response variable.
Status variable	Variable that displays the status of the maintenance work. ▸ `0`: Maintenance not due ▸ `1`: Maintenance due Click on button **...** in order to open the dialog for selecting a variable. The variable is written when updating the IMM screen as well as when executing the **Determine open maintenances** function.

EDIT DATA



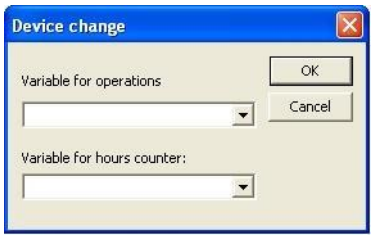
The following access to files is supported:

Local drives	Local harddisk
UNC path	e. g. `\\Server name\release name`
Connected drives	Released harddrive of a network computer

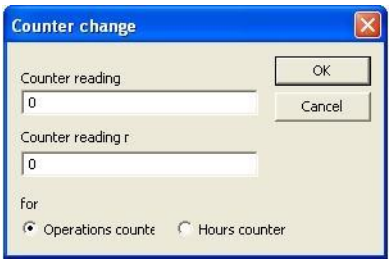
Attention

Requirement: To be able to display the documents, you must install an apropriated viewer. e.g. Adobe Acrobat Reader for .pdf files.

Device exchange



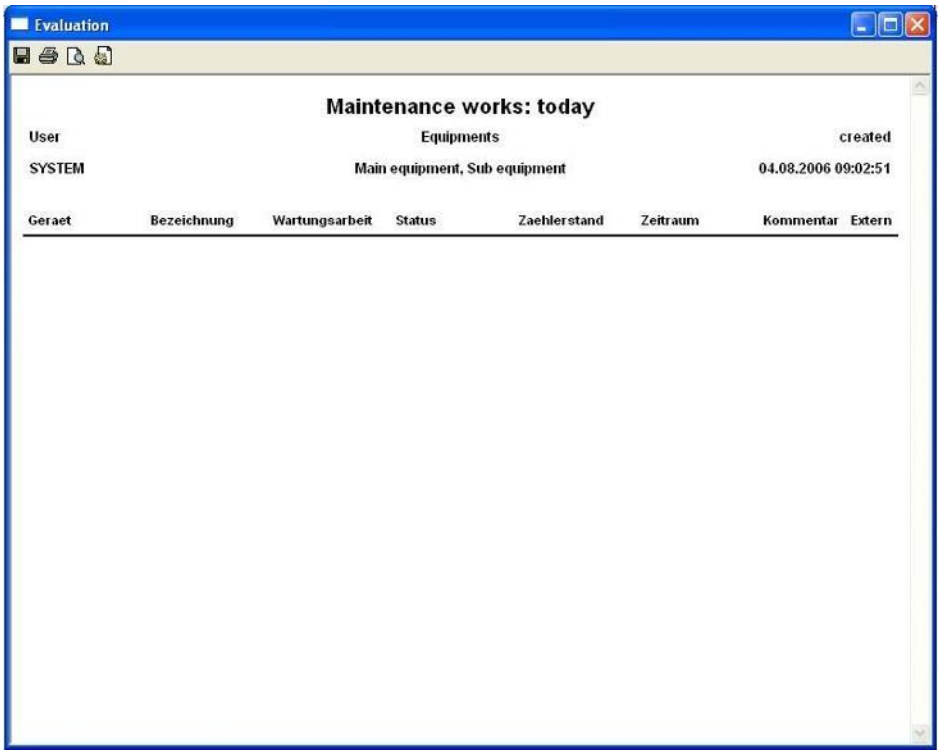
Counter exchange



Selection maintenance tasks

The data for a maintenance task is displayed by double-clicking on a maintenance task. But the data cannot be changed.

Execute repair	If a repair is performed, a history entry is made first and the maintenance task is seen as not(!) completed for this interval and remains in the queue. An entry in the history is created. Similar to 'Execute maintenance' with the only difference, that the counter can be updated.
Print list	



The displayed list is written to am XML file as it is and displayed in a HTML browser with a stylesheet. This HTML file then can be saved or directly printed.

Print details	The data for the selected maintenance task is output.
Edit maintenance	Here, the data of the selected maintenance task can be edited.
Execute maintenance	If a maintenance is executed, the counters are updated and a history entry is generated. Additionally, the maintenance task is considered as done for this interval, and so it is removed from the queue. Under 'Documents' the linked documents are displayed in a list. Double-clicking on a file opens it if a corresponding program is installed.

Selection history	Here there is only one menu entry **Print list**. Same procedure as under maintenance task - **Print list**.

13. Filtering using checkboxes

You can also carry out filtering for the equipment models in Runtime using the checkboxes in the tree view. Filtering is carried out regardless of the filtering carried out in the **Master data** node.

Note: If you highlight an equipment group, the device therein is shown in a list. This function is also present if the checkbox is not activated.

TO DISPLAY ALL DEVICES IN THE EQUIPMENT MODELING

Engineering:

1. Ensure that the checkboxes are deactivated for all equipment groups.
2. Click on the **Equipment modeling** node item.

All devices in the list are shown.

Note: If a checkbox is activated, the content of the respective equipment group is shown when clicking on the equipment model or the equipment modeling.

TO DISPLAY THE DEVICES IN EQUIPMENT MODELS OR IN AN EQUIPMENT GROUP

Engineering:

1. Activate the checkbox of the equipment group in the desired equipment model.

   Note: Multiple selection is possible. However, only the devices of the highlighted equipment group are currently shown in the list.

2. Click on the entry of the higher-level **equipment model**.

   The devices of the selected equipment groups are now displayed in the list.