SIEMENS

SIMATIC

SIMATIC Energy Manager PRO V7.4 - Operation

Operating Manual

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens AG
Digital Industries
Postfach 48 48
90026 NÜRNBERG
GERMANY

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1 Introduction

1.1 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit (http://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customers' exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed visit (http://support.automation.siemens.com).

1.2 Note on the EU General Data Protection Regulation (GDPR)

Siemens adheres to the principles of data protection, in particular the principle of data minimization (privacy by design). For this product, SIMATIC Energy Manager, this means: The product processes/stores the following personal data:

User name, first name and surname, e-mail address, department, address, country, phone number and user role. In addition, relevant changes to the configuration, such as data points, MEVAs/KPIs, reports or changes to measured values are logged together with time stamps and user information.

The above data is required for login, internal user administration (the authorized user can see the role and status of other users) and audit trail.

The storage of data is appropriate and limited to what is necessary to identify the authorized operators and to meet basic audit trail requirements.

The above data will not be stored anonymously or pseudonymized, as the purpose (identification of the operating personnel) cannot be achieved otherwise. The data will be used only within the product and will not be automatically passed on to third parties or unauthorized persons.

Our product does not provide for automatic deletion of the above data.

Regarding cookies, please refer to the Siemens cookie guidelines (http://www.siemens.com/cookie-policy-en).

1.3 Why we need energy management

Energy costs take a substantial slice in the cost balance of many companies. However, it is possible to significantly reduce this cost factor by optimizing energy consumption and taking advantage of the benefits offered by the liberalized energy market. Investments in this optimization process can be amortized on a short-term basis in many cases. Utilization of the entire spectrum of energy cost reduction demands integrated system solutions: the range covers the monitoring, analysis, and evaluation of the relevant energy and operational data, as well as energy forecasts and optimization functions. Under the aspect of a continuous adaptation process that is enforced based on requirements of the liberalized energy market, it must be possible to adapt the systems used without considerable investment. The following sections provide more arguments in favor of energy management.

- Rising energy costs.
- Only partial transparency across infrastructure processes, preventing an overall assessment of all processes and media.
- Cost centers or cost units change continuously.
- The existing heterogeneous system environment poses high demands on interface management.
- Equipment for automatic measurement data recording is not available in the relevant areas.
- Poor transparency prevents further optimization of energy supply contracts.
- In many cases, energy costs represent an extremely high portion of unmanaged production costs.

1.4 What is Energy Manager capable of doing in the field of energy management?

Energy Manager PRO provides exactly the functionalities that are indispensable for the comprehensive analysis of energy management. Thanks to its flexible **scalability**, B.Data can provide solutions for both medium-sized companies and large corporations with location-spanning requirements.

Firstly, the customizable **interface management** function supports current standards such as OPC, ODBC, ASCII, or XML. Secondly, the interface management provides direct interfaces to Siemens products such as WinCC and PCS 7. which support synchronization of the configuration of data points.

Energy Manager PRO offers a highly diversified Real-time **kernel** in its interface management. The calculation core supports numerous mathematical functions, as well as the mapping of non-linear cohesions.

B.Data provides functions for **data plausibility checks** and various substitute value strategies that enhance database quality.

Transparency of the energy flows in all types of media in a company is indispensable for energy management. Energy Manager PRO is the ideal tool for calculating **energy and material balances** as well as **key figures** that can be used to compare different processes, including different operations.

The diversity of the liberalized energy market demands a precise forecast of future energy consumption. Use Energy Manager PRO's **Schedule Management** to make forecasts that are derived from basic load profiles and current production plans at company or division level.

Only the allocation of energy costs based on the cost-by-cause principle generates **cost transparency** and sensitization with regard to energy costs. The **Cost Center Management** tool of Energy Manager PRO maps cost centers and allocates consumption accordingly based on distribution codes, area data, employees, or measured data.

It also enables the mapping of cost center changes during the year, as the calculation logic and all changes are recorded. **Reproducibility** of report results is of particular importance in this area. All changes made to the data are also recorded. This means that users can always rely on the old data for their evaluations.

An automatic reporting system that is easy to configure forms a key factor that has considerable influence on the reduction of personnel workload. At the same time, the quality of the reports is significantly improved. In addition to the fully-fledged client, you can also use **Energy Manager PRO Web** to view the reports and results.

Energy Manager PRO provides functions for the **batch-related** recording and evaluation of data to support more detailed analyses of the various processes.

Energy Manager PRO's **Document Management** enables users to generate links to their documents in the system, or to save these to the database in order to make them generally available to other users.

The Energy Manager PRO **Task Management** enables the time-controlled execution of reporting, interfaces, calculations, etc.

1.5 Areas of application

Energy Manager acts as a link between the process and office environments, focusing on energy management in industry.

1.6 Preface

Purpose of this documentation

This documentation contains information pertaining to the full functionality of Energy Manager. Energy Manager Basic is a functionally limited version of Energy Manager Web. The section "Energy Manager Web" applies to Energy Manager Basic and Energy Manager PRO. If a function described in the section "Energy Manager Web" is not available or only to a limited extent for the Energy Manager Basic user, the user will be made aware of this at the appropriate place with the help of notes for users. All other sections only apply to Energy Manager PRO. The user information a limited function of Energy Manager Basic does not apply to the Energy Manager PRO user.

This documentation is aimed at plant managers, planners, and plant operators as well as service and maintenance personnel.

Basic knowledge required

General knowledge in the fields of IT, automation engineering, as well as general electrical engineering is indispensable for comprehension of this manual.

⚠ WARNING

Working with electrical systems

Energy Manager does not exempt users from responsibilities with respect to the handling of electrical systems.

Moreover, it is presumed that users have appropriate knowledge related to the use of computers running on a Windows operating system.

Scope of this manual

This manual is valid for Energy Manager.

Guides in the manual

The manual contains the following guides that support rapid access to the information you require:

- A complete table of contents and a list of all tables are available in the opening section of the manual.
- An overview of the topical contents is provided at the beginning of each chapter.

Energy Manager PRO Client

2

2.1 Basics

2.1.1 Start Energy Manager

Login

Requirement

- Energy Manager Login information is known

Procedure

To start Energy Manager, follow these steps:

1. Double-click the "Energy Manager PRO Client" icon on the Windows Desktop or open the program by double-clicking it using [installation path]:\EnMPRO\GUI\BData2008\DocLiber.exe.

   Note

   When you start Energy Manager for the first time after installation, the "Energy Manager Configuration" dialog is opened.

   The login dialog of Energy Manager is opened.

2. Type in the user name and password.

   If "Single Sign On" is activated for your user account or for the user group to which you belong, the user name and password do not have to be entered. Additional information about "Single Sign On" is available in sections "Setting up users (Page 343)" and "Creating functional groups (Page 357)".

   For the user name, you can also enter the email address that is stored in your Energy Manager user account.

Select the language, if necessary. The following languages are available:

– German
– English

3. Click the "Login" button. If incorrect login data is entered and the defined number of login attempts is exceeded, the user will be blocked.
4. If your user account is blocked, contact the system administrator.

Note

The password requirements are set by the administrator in Energy Manager PRO Web under "Configuration > Settings > Account settings" in the "Password settings" tab, see section "Account settings (Page 694)". The number of login attempts is defined by the administrator in Energy Manager PRO Client under "File > Options" in the "Database" tab with an entry in the "MAX_ATTEMPTS_TO_LOGIN" field, see section "Options (Page 53)". The password can be unlocked by the administrator for the respective user and a new password can be set, see section "Creating users (Page 704)".

Result

Energy Manager is started and the Energy Manager PRO Client is displayed.

Change password

You can change your Energy Manager password in the login dialog. In order to change it, you need your existing password or a temporary password.

Requirement

- Energy Manager login information is known.

Note
Unsupported punctuation

Quotation marks are not supported for passwords.

Procedure

To change the password in Energy Manager, follow these steps:

1. Click the "Change Password" button at the bottom of the dialog window.

   The "Change Password" dialog opens.

2. Enter the required data for "User", "Password", "New Password" and "Confirm Password".

   Note

   If you have been notified by email about a password change without having changed your password, this can indicate a hacked user account. Always contact your administrator in this case.

3. Click the "Change Password" button below the "Confirm Password" entry field.

Result

The password is changed. You are notified about the password change by email.

Note

Subsequent changing of the Windows password

The services log on with the password of the Windows user that was specified during installation. If you change the Windows password subsequently, the new password is not automatically applied in the services. You have to re-enter the new password in each service. Right-click the relevant service and select the properties of the service from the shortcut menu.

Connect the Energy Manager acquisition component again with the Energy Manager Server (Pairing).

Forgot password

If you have forgotten your password, you can have a temporary password generated. The temporary password will be sent by email to the email address that is stored in your Energy Manager user account.

Requirement

The email address stored in your user account is known.

Procedure

1. Click the "Password Lost" button at the bottom of the dialog window.

   The "Password Lost" dialog appears.

2. Enter the required email address in the "User" entry field.

   Note

   In order for the user to receive a temporary password via email, an SMTP server must be entered and accessible. The entry is set by the administrator in "File > Options", "Appl" tab, "SOFTWARE\Siemens\EnMPRO\Mail" field.

3. Click the "Send E-Mail" button.

Result

When you have received the email with the temporary password, click the "Change Password" button in the Login dialog and change the password.

See also

Client as navigation tool (Page 20)

Configuration (Page 65)

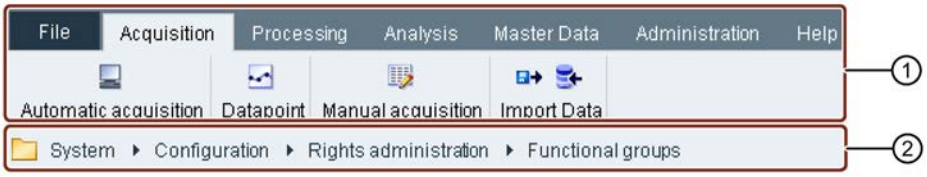
2.1.2 Client as navigation tool

The **Client** is the Windows-oriented user interface of Energy Manager. You configure all of the objects you need for energy management in your organization in the Client :

- You configure the objects that contain your operating data, such as datapoints or matrices.

  With the object-oriented approach of the Client, you use one object at multiple places, such as for the calculation of performance indicators or in reports. Modifications will automatically be applied to all points of application and are recorded simultaneously in change management to ensure reproducibility of older configurations.
- You evaluate your operating data or performance indicators with the help of reports or charts, or display these data clearly as a Dashboard.
- You use a wizard to configure the interfaces such as WinCC or OPC, which provide you with operating data.

The Energy Manager PRO Client has the following structure:

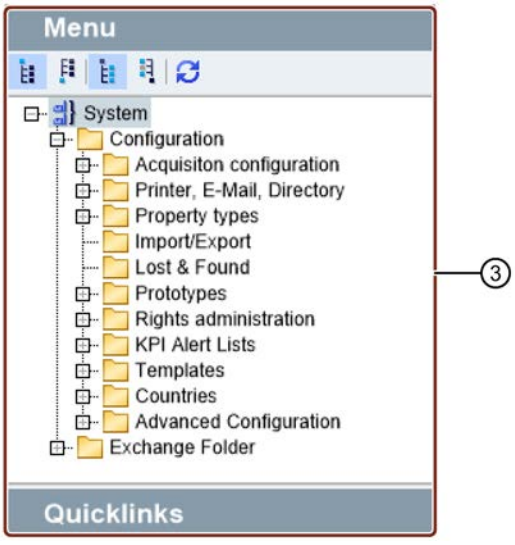


① **Menu bar**

All buttons for system operation are placed in the menu bar and organized in categories.

② **Navigation bar**

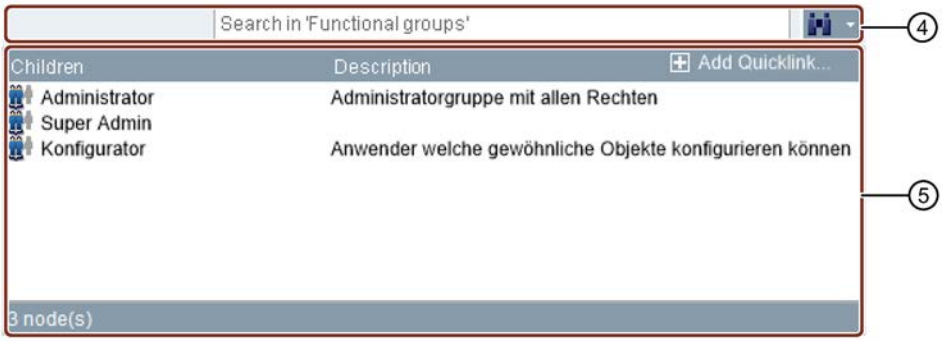
The navigation bar shows the current position in the project tree in text form.



③ **Project tree**

You create objects that you need for energy management in the predefined "System" root in the project tree.

You can organize the project tree, for example, according to locations or function. Create favorites to frequently required objects in the "Quicklinks" area.



④ **Quick search**
The quick search is a simple full-text search. The search result is displayed in the display area ④.

⑤ **Display area**
The display area shows details of the object that you selected in the project tree.

See also

Objects in the Client (Page 36)

Displaying object relations (Page 50)

Object naming conventions (Page 52)

Search for object (Page 27)

Quicklinks for client (Page 347)

"Processing" menu tab (Page 183)

"Analysis" menu tab (Page 274)

2.1.3 Basic configuration

Basic configuration of Energy Manager

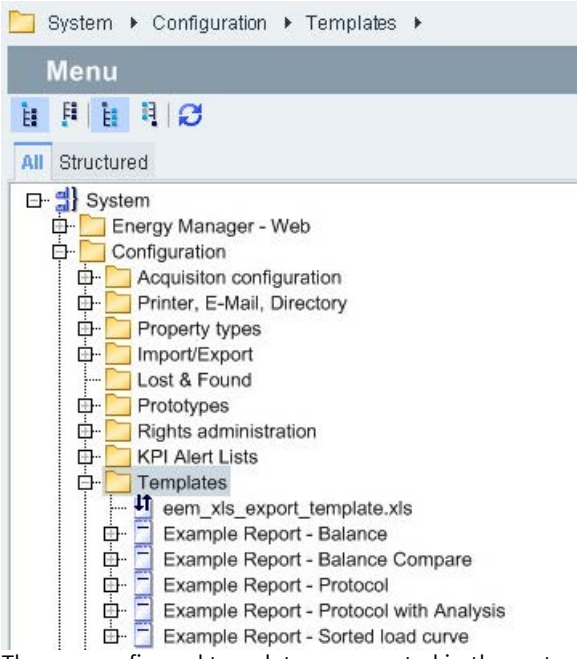
A basic configuration of the system is automatically installed with the installation of Energy Manager. The basic configuration contains the following objects and structures:

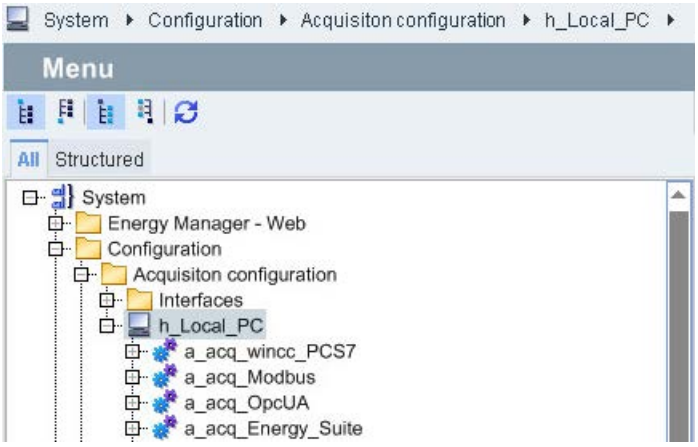
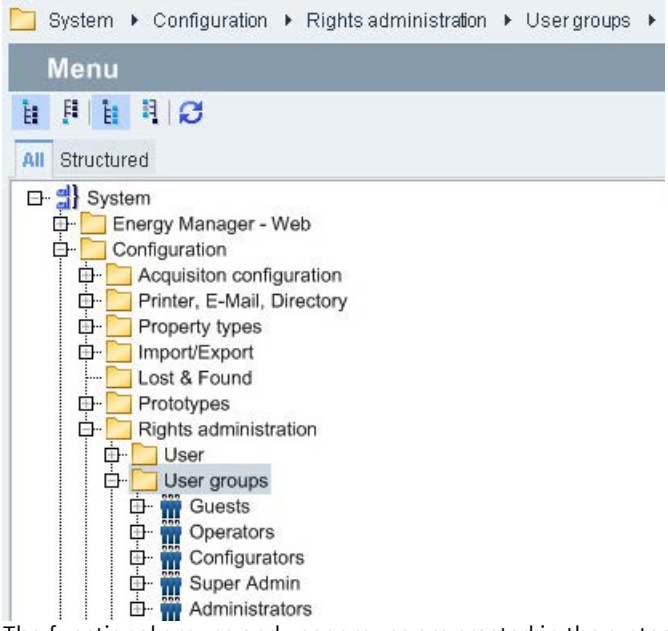
- 5 pre-configured templates for reports
- Acquisition object with four previously created interfaces for data acquisition
- 4 Functional and 4 user groups
- 5 KPI message lists
- Several preconfigured units
- Entry point "Energy Manager - Web" in Energy Manager PRO Web

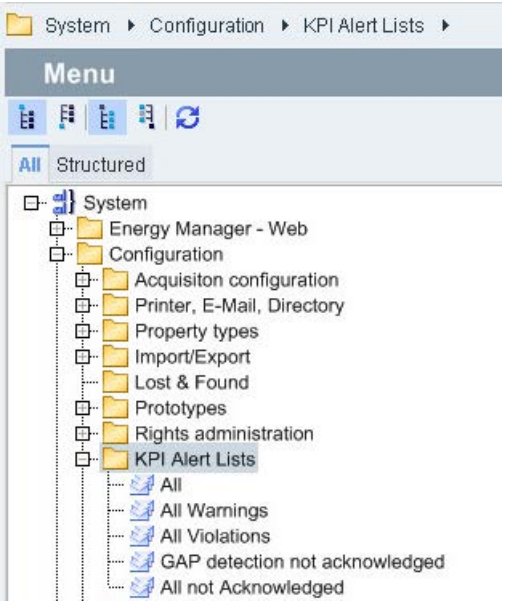
Note

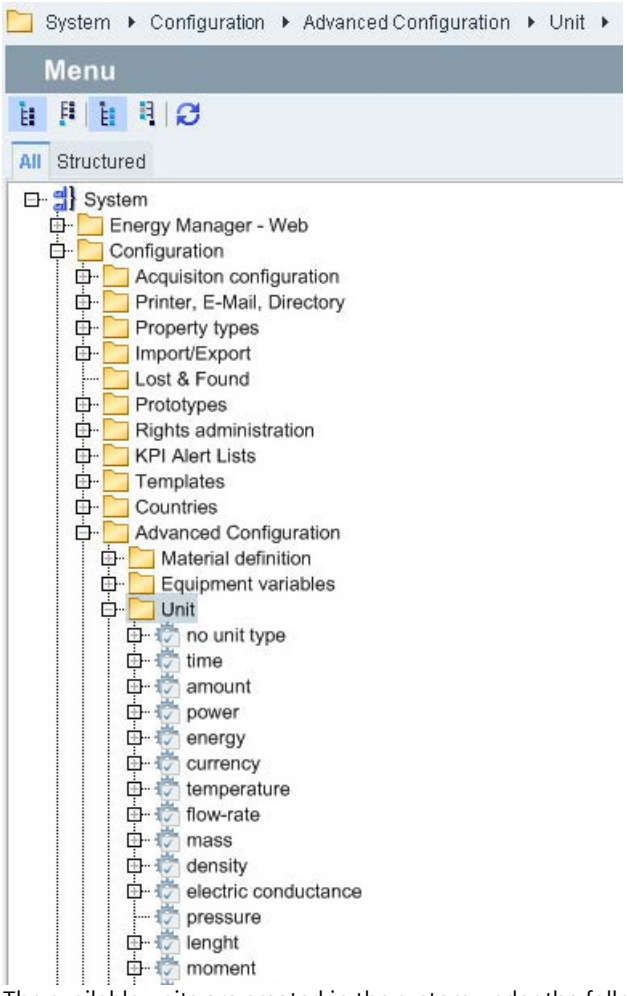
When you update your existing Energy Manager system to the latest version, the new acquisition object with the created interfaces is not installed. Instead, your acquisition configurations are applied during the update.

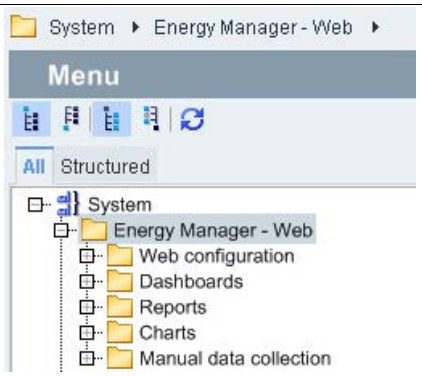
The following table shows the objects installed with the basic configuration:

Templates	• Balance • Balance comparing • Protocol • Protocol with from/to • Duration curve  The pre-configured templates are created in the system under the following path: "System > Configuration > Templates"

Acquisition object "h_Local_PC" with four created interfaces	• OPC UA • WinCC • Energy Suite • Modbus TCP  The acquisition object including interfaces is created in the system under the following path: "System > Configuration > Data collection"
Functional groups and user groups	• Administrators • Configurators • Operators • Guests  The functional groups and user groups are created in the system under the following path: "System > Configuration > User, Groups, Rights management > User groups or Functional groups"

KPI message lists	• All • All Warnings • All Violations • GAP detection not acknowleged • All not Acknowledged  The KPI message lists are created in the system under the following path: "System > Configuration > KPI message lists"

Units	 The available units are created in the system under the following path: "System > Configuration > Extended configuration > Unit"

Entry point "Energy Manager - Web"	 The entry point "Energy Manager - Web" contains the following automatically installed folders: • Web configuration • Dashboards • Reports • Charts • Manual acquisition of data You can redefine the entry point for the respective user groups in the Energy Manager PRO Client.

See also

Report templates (Page 375)

Configuring units (Page 369)

Report templates (Page 293)

Basic information on message lists (Page 389)

Defining an entry point (Page 355)

User group (Page 354)

Functional group (Page 357)

Message lists (Page 389)

2.1.4 Search for object

Overview

The Energy Manager search function evaluates the following information:

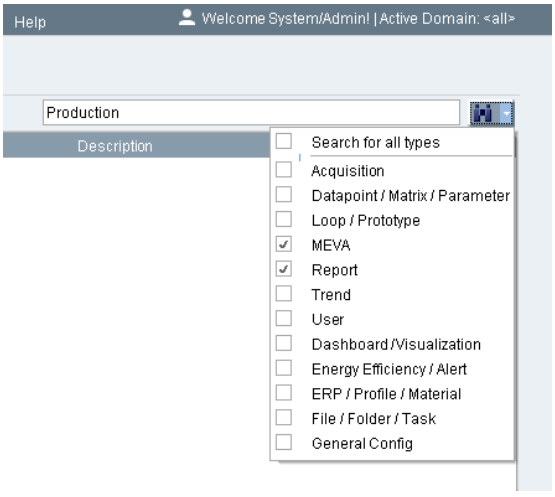
- Object name
- Description of the object
- Object properties
- Object ID

A separate tab with search results is created for each search in the display area of the Client. All tabs with search results are deleted when you close the BEnergy Manager PRO Client .

Procedure

1. In the project tree of the Client, select the folder in which you want to search.
2. To limit the search to specific objects, activate one or more object types in the selection menu of the search.

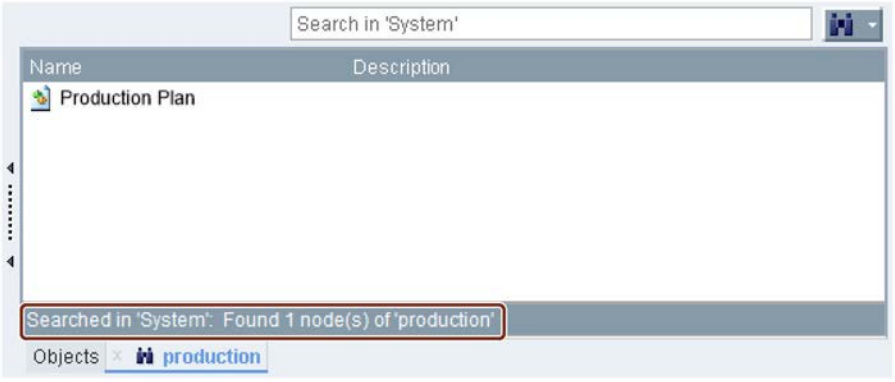
   In the following example, the search is limited to reports and measuring variables:



3. Enter your search term in the search field.

4. Click .

   A tab with the search result is created in the display area.



5. To refine the search result, enter another search term.

   The search results are filtered.

6. As soon as you use the <Return> key in the search field, another tab is created for the new search term.

2.1.5 Quicklinks

2.1.5.1 Create Quicklinks

Overview

You can create Quicklinks for objects that are required often as well in the Energy Manager PRO Client.

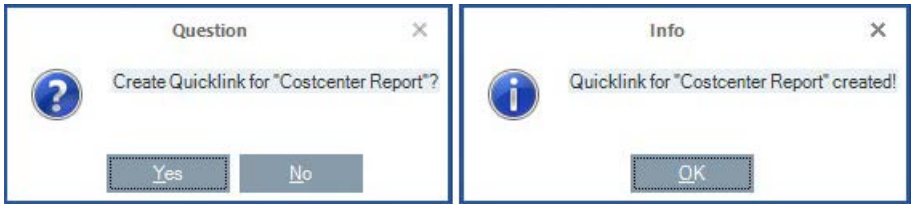
Requirement

- You have the functional authorizations "Create Quicklinks" and "Configure Quicklinks".

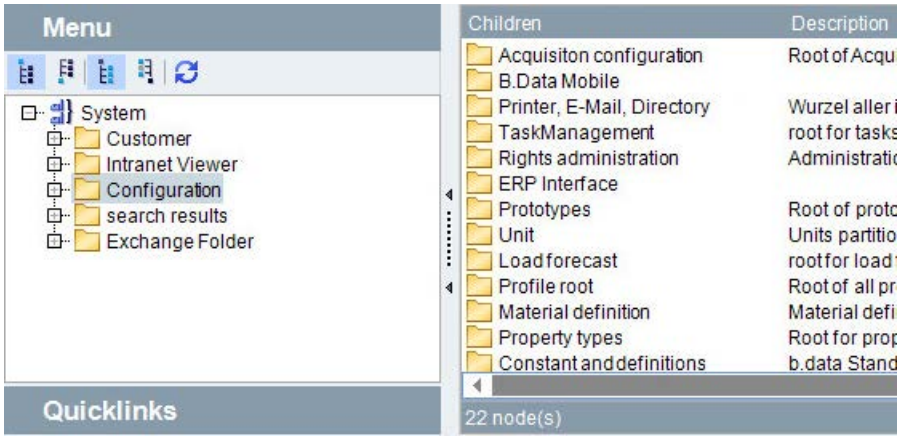
Procedure

1. Select the object for which you want to create a Quicklink in the "Menu" area , for example "Costcenter Report".
2. Click the "Add Quicklink" icon.

3. Click "Yes" and the Quicklink is created.



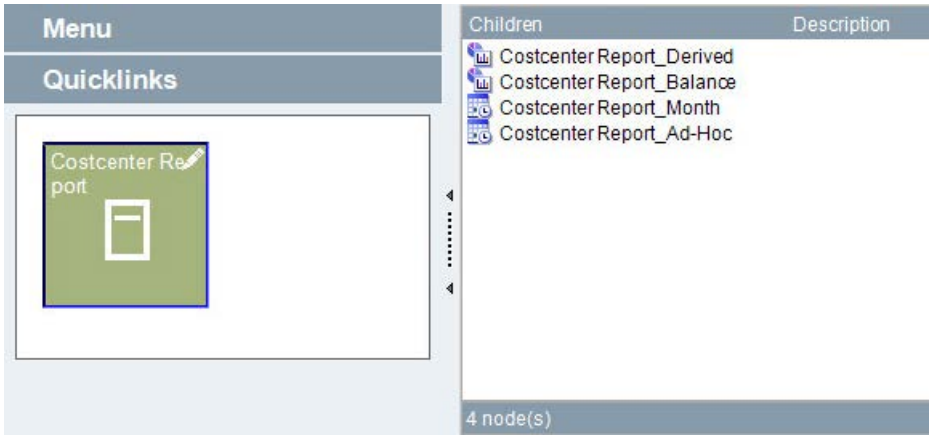
4. Change from the menu area to the Quicklink area.



Result

The Quicklink is created as follows:

- The object name is applied.
- The preset icon and background color are used.



See also

Creating Quicklinks in the Web (Page 494)
Quicklinks for client (Page 347)

2.1.5.2 Editing Quicklinks

Overview

You can change the order of the Quicklinks in the "Quicklinks" area or delete them if they are no longer needed. You can also customize the Quicklinks, for example, by changing the background color or the icon.

Requirement

- You have the functional authorizations "Configure Quicklinks" and "Delete Quicklinks".

Change the sequence of the Quicklinks

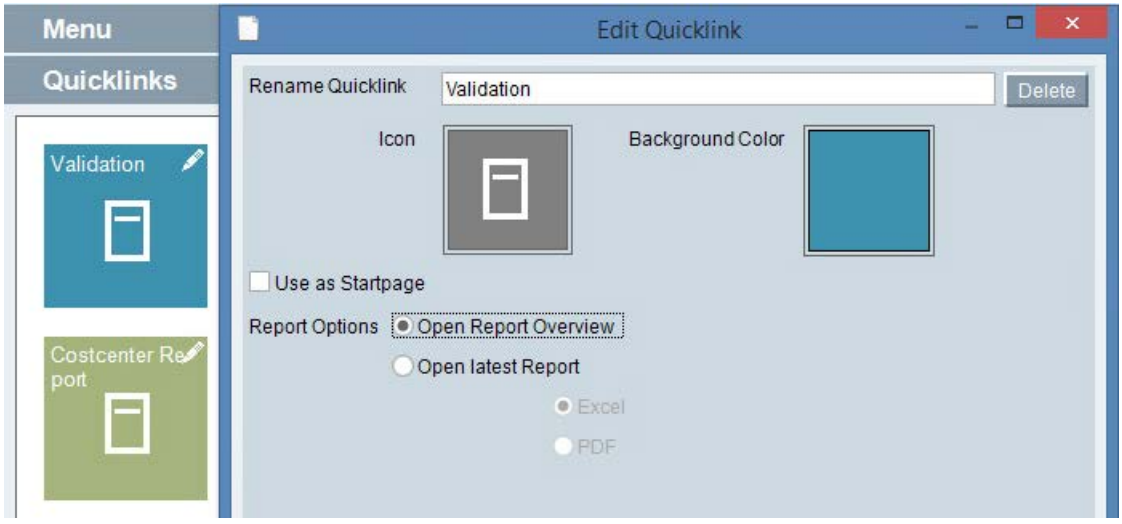
1. Open the "Quicklink" area and use drag-and-drop to place it at the required position.

   The Quicklink is placed at the respective location.

Customize Quicklink

1. Click the "PencilTool" icon in the "Quicklinks" area above the required Quicklink.

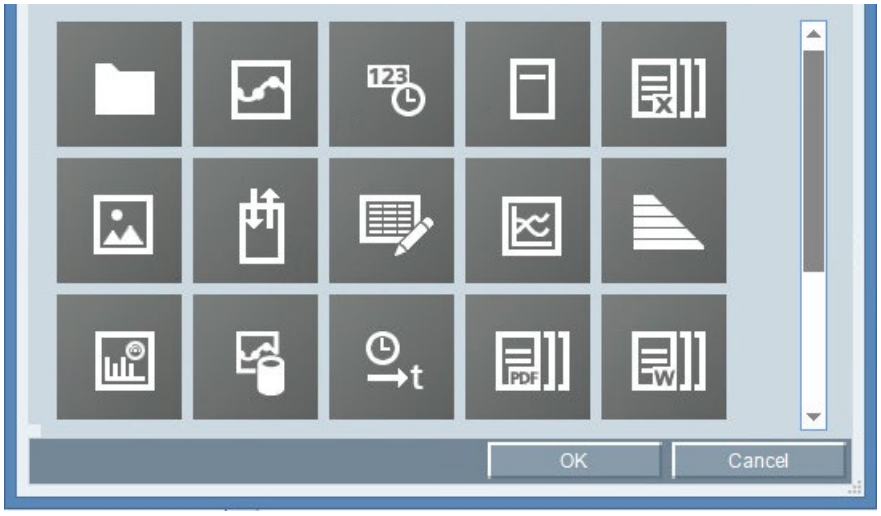
   The "Edit Quicklink" dialog box opens.



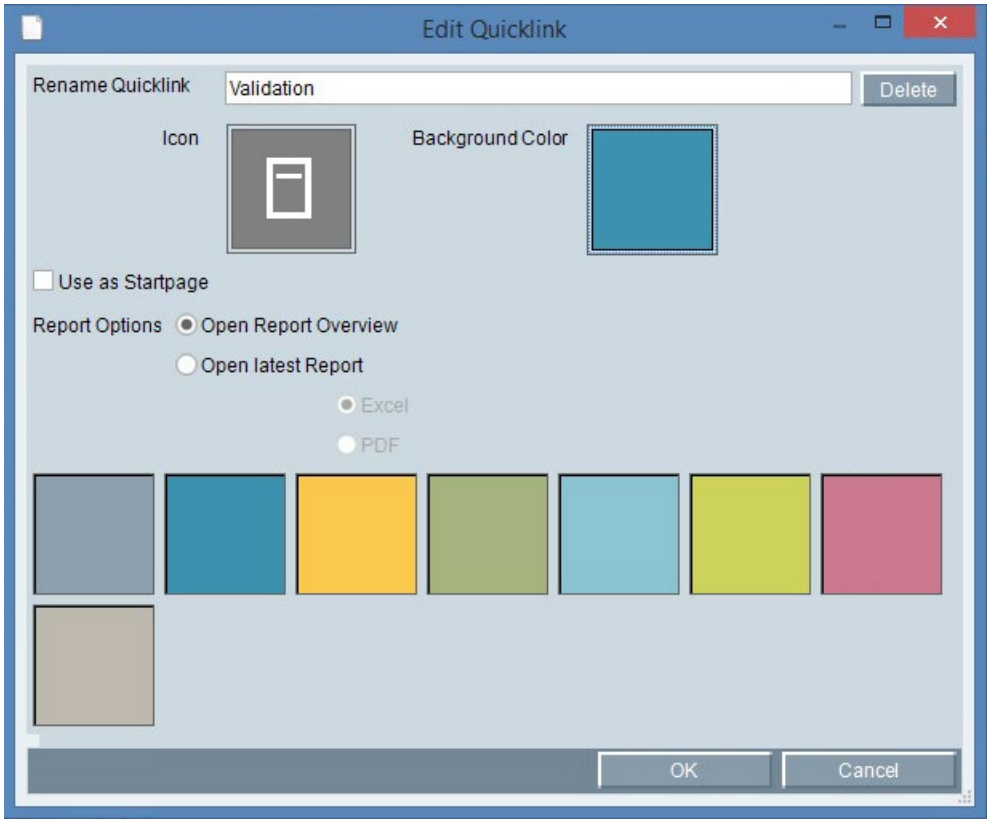
2. To rename the Quicklink, enter the desired name in the "Name" input box.

3. To change the Quicklink icon, click on "Icon" and select the desired icon.

   There are 18 predefined icons available to you.



4. To change the background color of the Quicklink, click on "Background Color" and select the required background color.



5. To specify the Quicklink as homepage, select the "Choose Quicklink as homepage" check box.

   Note

   If you do not specify any Quicklink as homepage, the first Quicklink in the "Quicklinks" area is used as homepage page.

6. If you want to create a Quicklink to the overview of the report, select the "Use report overview".
7. If you want to create a Quicklink to the last result of the report, select the option "Open last report" and select the required format, for example, "Excel "or" PDF ". If you select this Quicklink, the report opens in the selected format.
8. Save your changes by clicking "OK".

See also

Editing Quicklinks in the Web (Page 496)

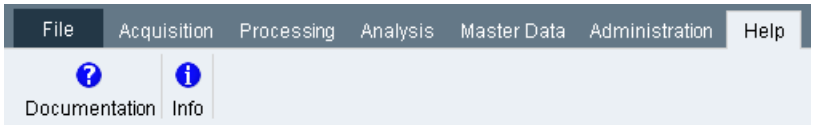
Quicklinks for client (Page 347)

2.1.6 Help

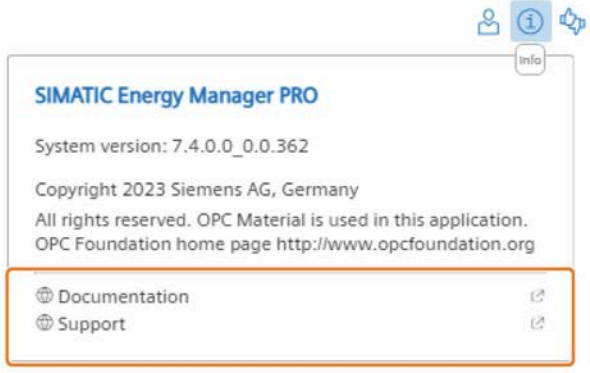
Help

The Energy Manager Help is displayed web-based in a browser or on a mobile device.

Open the Help in the Energy Manager PRO Client by clicking the question mark symbol on the "Help" tab.



Open the help via the Info icon in the Energy Manager Web.



The Operating Manual is opened in the browser and you can navigate through the table of contents.

Note

If you experience display problems in the browser, check the compatibility view settings in your browser. These should be deactivated.

2.2 Configuration

2.2.1 Configuration of the PRO client

2.2.1.1 Objects in the Client

Object basics

Object definition

Objects let you configure all of the components you need for energy management in your organization in Energy Manager .

The following objects are available, for example.

- Folder

  Object for structuring in the project tree of the Client
- Datapoint

  Object for saving the measured values of a measuring point
- Prototype, loop

  Objects for processing measured values during import
- Parameters, measuring variables

  Objects for time-independent processing of measured values
- ERP domain, cost center relation, cost center, service type

  Objects for Enterprise Resource Planning
- Report, Chart, Dashboard

  Objects for the display of measured values
- User, user group, functional group, domain

  Objects for configuring authorizations in Energy Manager
- Hardware, process, driver source, IO buffer

  Objects for configuring data acquisition in Energy Manager

Object properties

A property is a characteristic that is assigned to a specific object. In Energy Manager, an object can have the following properties:

- Automatically generated properties

  The system automatically generate these properties,, e.g. "Name" and "Description", when you create an object.

- Manually assigned properties

  You can assign these properties to an object, such as "Created on" or "Created by".

Manually assigned properties are then subdivided into the following categories:

- Default properties

  You can assign a property that is already defined in Energy Manager to an object, "Created on" for example.

- User-defined properties

  You can also create your own properties, which you can then assign to an object.

You can use object properties for the following purpose:

- To search for these properties
- For titles in reports

Access rights for objects

You can prevent unauthorized read access to specific objects by defining these in Energy Manager:

- Authority level

  You specify the authority level with a value between 0 and 1000:

  – "0"

    All users can view the object.

  – "1" to "1000"

    If you enter "50", for example, the object is visible to all users assigned authority level equal to or higher than 50.

  You can automatically assign the authority level of an object to all nested objects.

- Domain

  The domain represents a location of a business, for example. Users can be assigned to one or several domains.

  Only the objects of the domain you activated are displayed. Newly objects are assigned exclusively to this domain.

Using and copying objects

Once an object is created, you can use it elsewhere in the project tree, e.g. in a report or calculation. You can also create a clone of the object in order to create a similar object.

This is done using the following Energy Manager commands:

- Using "Copy and paste", you use the same object elsewhere.
- "Disconnect", to cancel the use of the object.
- "Delete", to remove the object from the project tree.

  "Delete" removes all instances of an object in the project.
- Using "Clone", you receive a copy of the object's contents.

See also

Object properties (Page 40)

Object management (Page 44)

Authorizations (Page 338)

Creating an object

Overview

If you are installing Energy Manager for the first time, the project tree contains only one default object: the "System" root.

Note

You cannot edit or delete the "System" root.

You may create and configure further objects in the project tree. Rule: Objects are always created as child object of the selected parent object.

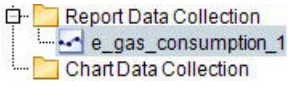
Procedure

1. Select the folder in which you want to create the object.
2. Click the object that you want to create in the menu bar, for example, "Data point".

   The object configuration dialog opens.
3. Select the respective object and click "OK".

Result

The object is created in the project tree in the selected folder.



You can view the object properties of the object, or create new properties for the object.

See also

Displaying object relations (Page 50)

Object naming conventions (Page 52)

Object properties (Page 40)

Object properties

Opening properties

Requirement

You have created the object.

Procedure

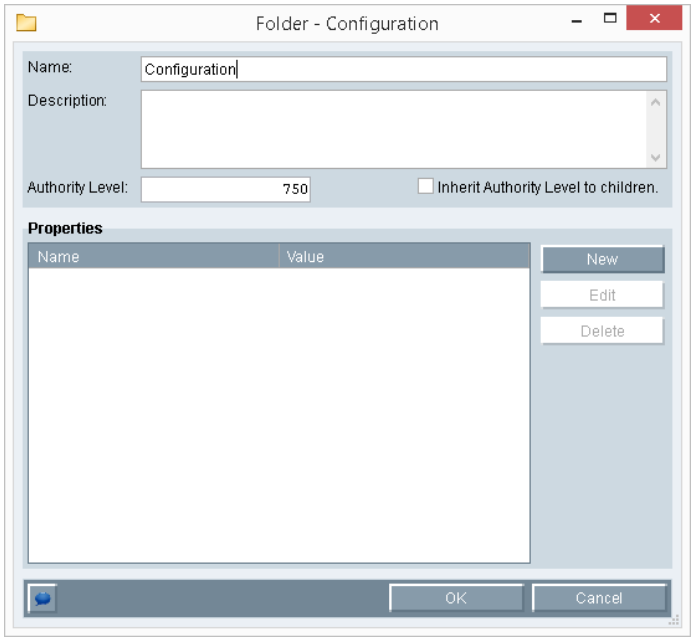
1. Select the object and click the "Properties" command in the shortcut menu.

   The object properties dialog opens.
2. Edit the name and description of the object as required.
3. Enter a value in "Authorization level" to specify the access rights for the object.

   The authority level is set to "0" by default.
4. You can transfer the authority level to all child objects by activating the "Children inherit authority level".

Result

The object properties are open.



You can assign new properties to the object.

See also

Assigning properties (Page 41)

Creating an object (Page 39)

Object basics (Page 36)

Assigning properties

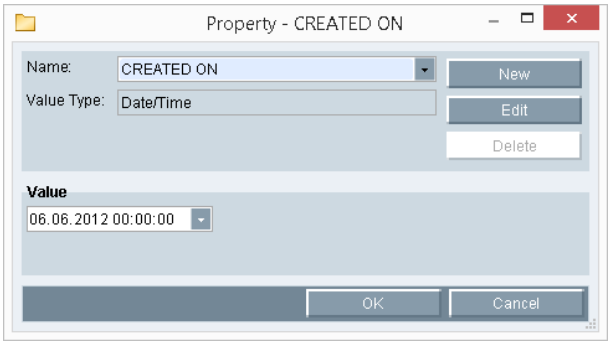
Requirement

- You have created the object.
- The object properties are open.

Procedure

1. Click "New" in the "Properties" area.

   The "Property" dialog opens.



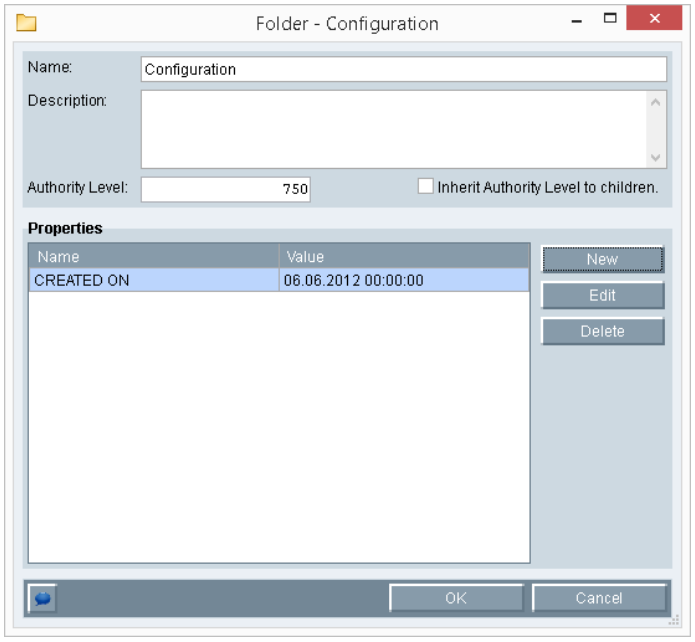
2. Select the property in the "Name" area.

   The data type of the selected property is automatically entered in "Value type".

3. Enter a value.
4. Click "OK".

Result

The selected property is assigned to the object.



You can assign a new property to the object. You can also define custom properties and assign these to the object.

See also

Creating an object (Page 39)

Opening properties (Page 40)

Object basics (Page 36)

Defining custom properties (Page 43)

Defining custom properties

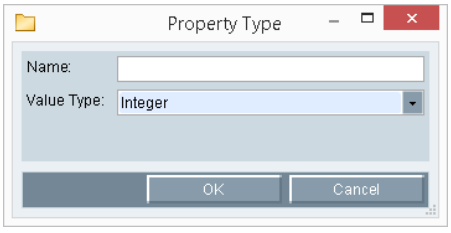
Requirement

- The object properties are open.
- The "Property" dialog is open.

Procedure

1. Click "New".

   The "Property type" dialog opens.



2. Type in a name for the property.
3. Select the data type for the property in "Value type".
4. Click "OK".

Result

You have defined a custom property. You can now assign this new property to the object.

See also

Assigning properties (Page 41)

Object management

Object management basics

Overview

The following Energy Manager commands are available for managing objects in the project tree:

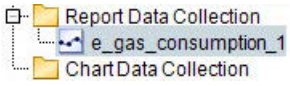
- Move
- Copy and disconnect
- Clone and delete

Moving objects

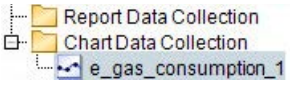
Use the "Move" command to move an object to a different location.

Example:

1. You have created the "e_gas_consumption_1" data point in the "Report Data Collection" folder:



2. However, you no longer need the "e_gas_consumption_1" datapoint for evaluation in a report; now you need it for visualization in a Chart. Move the datapoint to the "Chart Data Collection" folder:

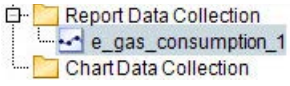


Reusing objects

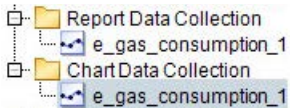
Use the "Copy" command to use an object in another location. Copied objects always have the same name. If you edit the object at one location, any changes will be applied to all other points of application.

Example:

1. You have created the "e_gas_consumption_1" data point for evaluation in a report in the "Report Data Collection" folder:



2. You also need the "e_gas_consumption_1" datapoint for visualization in a trend. Copy this datapoint to the "Chart Data Collection" folder:

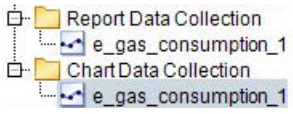


Revoke re-use of objects

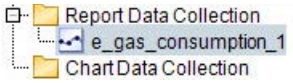
To revoke the re-use of an object in one location, use the "Disconnect" command.

Example:

1. You are using the "e_gas_consumption_1" datapoint in the "Report Data Collection" and "Chart Data Collection" folders:



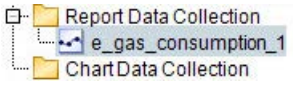
2. You no longer need the "e_gas_consumption_1" datapoint for visualization in a trend. Disconnect the datapoint in the "Chart Data Collection" folder. This datapoint is deleted in the Chart Data Collection folder. The data point is retained in the "Report Data Collection" folder:



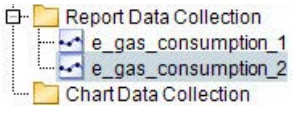
Copying objects

You copy an object by using the "Clone" command. Use this command if you want to create several objects with similar properties. Example:

1. You have created the "e_gas_consumption_1" data point for evaluation in a report in the "Report Data Collection" folder:



2. For evaluation in a report, you require a further data point for the gas consumption of a different plant. Clone the "e_gas_consumption_1" data point, rename this data point "e_gas_consumption_2" and customize the properties accordingly:

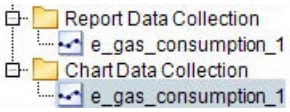


Deleting objects

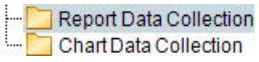
Use the "Delete" command to irrevocably delete an object from the project tree.

Example:

1. You are using the "e_gas_consumption_1" datapoint in both the "Report Data Collection" folder and the "Chart Data Collection" folder:



2. You no longer need the "e_gas_consumption_1" data point. Delete this data point. All instances of the data point in the project tree are deleted irrevocably. You can no longer restore the data point.



See also

Folder (Page 329)

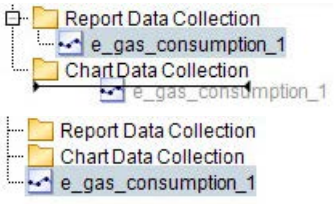
Managing objects

Requirement

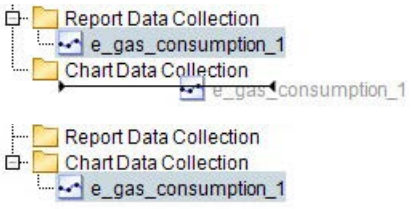
The objects have already been created.

Moving or re-using objects

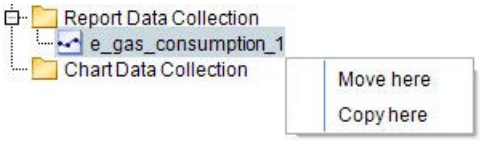
1. Right-click the object and drag-and-drop it to the selected position. Observe the position of the guide line:
   - If you place the guide line directly underneath the object, the selected object is copied to the same structure level in the project tree for re-use.



   - If you place the guide line to the right of the object, the selected object is copied to the next nested level in the project tree structure, or re-used.



   The shortcut menu for moving and re-using is displayed.



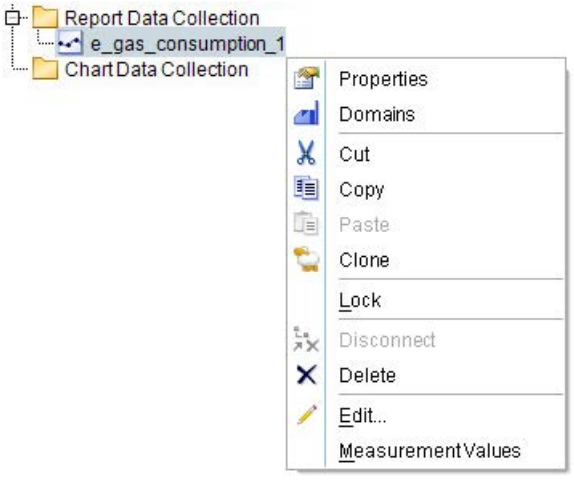
2. To move the object, click "Move here".

   The object is moved.

3. To re-use the object, click "Copy here".

   The object is re-used.

Deleting/copying/canceling the re-use of an object



1. Click "Delete" in the shortcut menu to delete a selected object.

   The object is deleted irrevocably from the project tree.

2. You cancel the re-use of a selected object by clicking "Disconnect" in the shortcut menu.

   The object is no longer used at that location, but remains available for use in other locations.

3. Proceed as follows to co copy the object:
   - Select the object and click "Clone" in the shortcut menu.

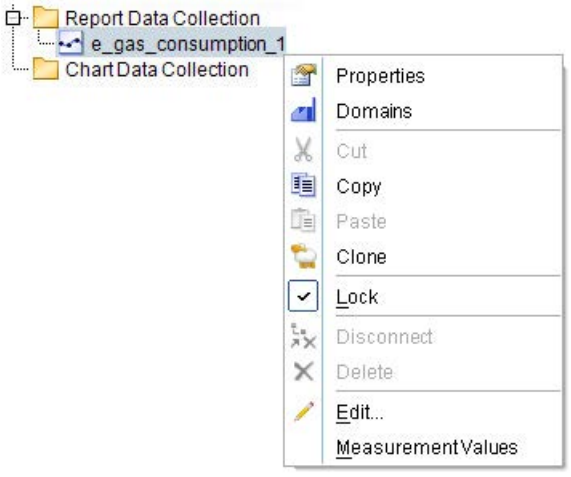
     The object configuration dialog opens.
   - Edit the object and then click "OK".

     The copied object is created in the project tree.

Locking objects

You can lock the created objects in the project tree of the Client. This prevents the objects from being moved unintentionally within the project tree.

1. Select the object and click "Lock" in the shortcut menu.



   You can no longer move the object and its nested objects in the project tree.

2. Deactivate the "Lock" command if you want to move a child object in the project tree.

   You can now move the child object. The parent object remains in locked state.

See also

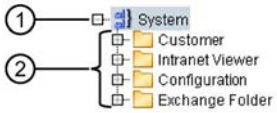
Creating an object (Page 39)

Object management basics (Page 44)

Displaying object relations

Overview

An object created in Energy Manager forms a relation to other Energy Manager objects. The relation between objects in Energy Manager is termed "parent-child relation":



① Parent object: This object can have more than one child object.

② Child objects: While each child object can only have one parent object, it can also be the parent object for other child objects.

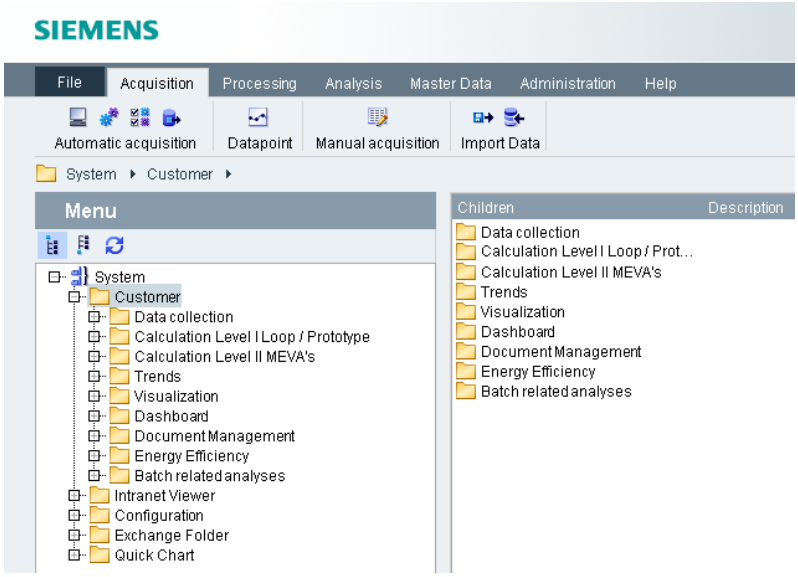
Requirement

You have created the object.

Procedure

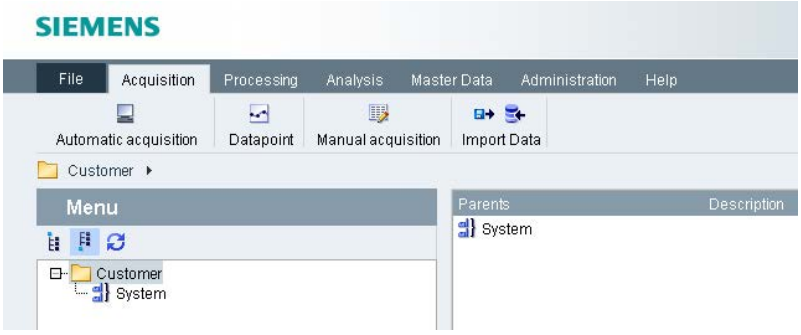
1. To display all child objects that you have created directly under a parent object, select the parent object from the project tree and click the "Father to Child" button.

   The child objects are displayed in the display area of the Client.



2. To display the object under which you have created other objects, select the child object from the project tree and click the "Child to Father" button.

   The parent object is displayed in the display area of the Client.



See also

Creating an object (Page 39)

Object naming conventions

Notes on the naming of objects

Observe the following when naming objects:

- Use an unambiguous name.
- Use a maximum of 255 characters.
- Use the following characters:
  - "A" to "Z"
  - "a" to "z"
  - "0" to "9"
  - "_"

Name prefixes

In order to enable the unambiguous identification of Energy Manager objects for acquisition and calculation of measured values, the following name prefixes were defined.

Prefix	Object
a_	Derived data point
d_	Data point
e_	Generic data point
k_	Constant
p_	Prototype
l_	Loop
t_	Parameters
m_	Measuring variable

Note

When you create an object, the prefix is automatically entered in the name field.

Recommendation for naming objects

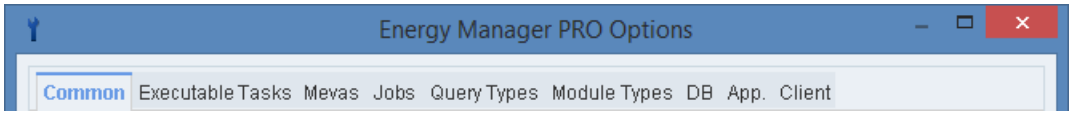
In order to ensure the uniqueness of the names, create a concept for naming the objects in Energy Manager before you start to configure your system. Use the following syntax. for example:

Prefix_FIS_physical measuring variable_[plant unit]_plant

2.2.2 "File" menu tab

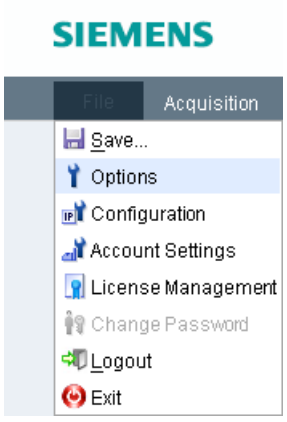
2.2.2.1 Options

"Energy Manager options" support configuration tasks in all system areas and user-specific customizations. The following table shows the available areas:



Access

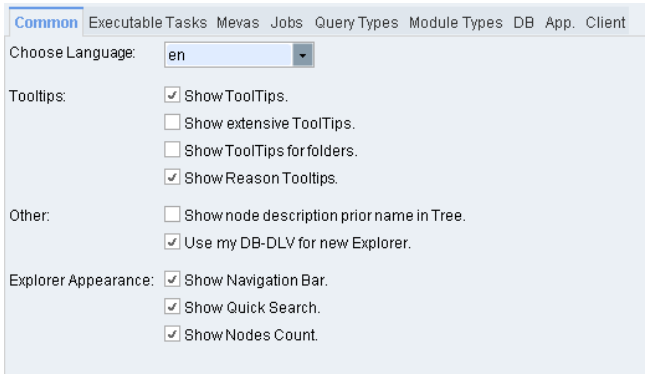
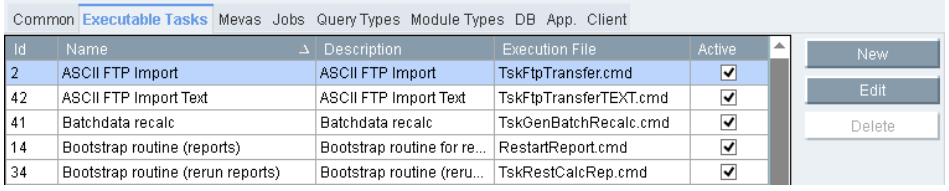
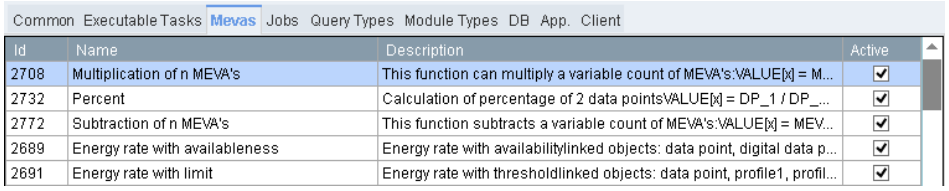
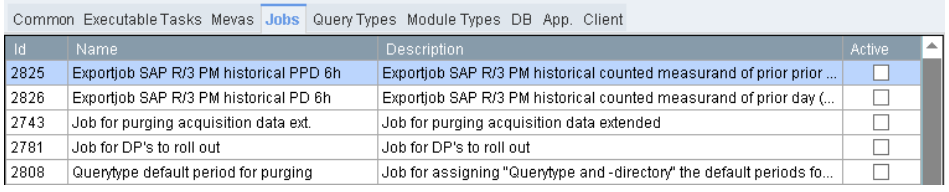
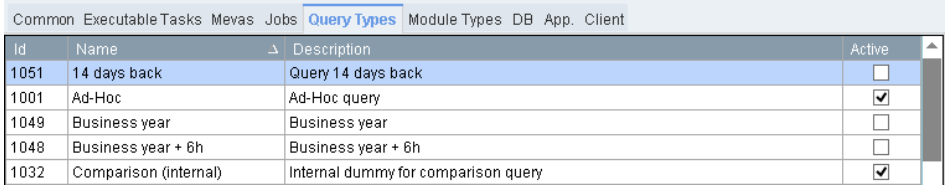
To open "Energy Manager options", click the "Options" button in the menu bar under "File".

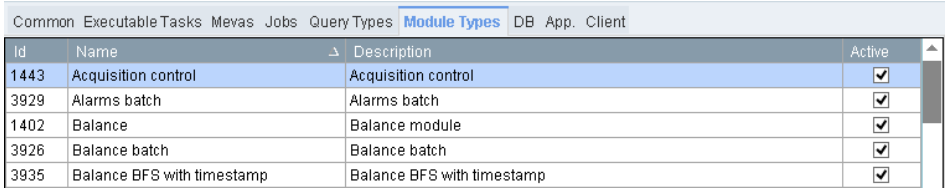


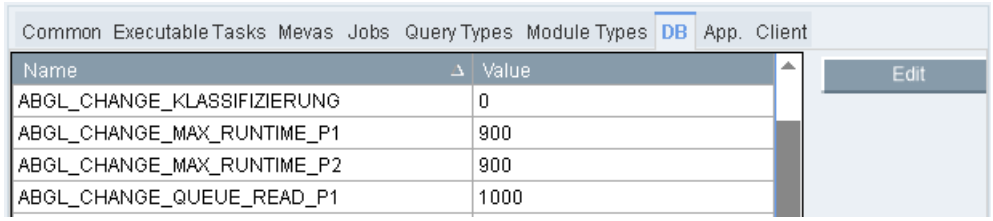
Note

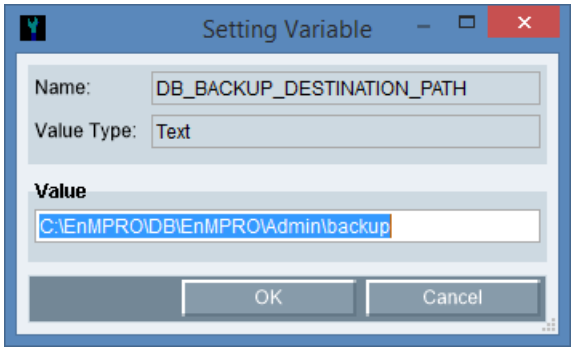
Changes in the extended parameters of the Energy Manager options can have undesired effects on the system behavior and should therefore only be carried out by trained users or administrators.

Energy Manager options in detail

Tab	Functions
General	 The "General" tab primarily contains user-specific settings. In this dialog, you can customize the client language, the tooltips, and the Explorer appearance.
Executable tasks	 See Jobs in Energy Manager PRO (Page 398)
Measuring variables	 You can activate or deactivate "Measuring variables" in this tab.
Jobs	 You can activate or deactivate "Energy Manager database" jobs in this tab.
Query types	 You can activate or deactivate "query types" in this tab.

<table>
<tr><th>Tab</th><th>Functions</th></tr>
<tr><td>Module types</td><td>


You can activate or deactivate "module types" in this tab.
</td></tr>
<tr><td>Database</td><td>


Tab for editing global database settings.


The tab provides corresponding number and text input fields.
Description of the various options:
<table>
<tr><th>Name</th><th>Description</th></tr>
<tr><td>ABGL_CHANGE</td><td>If this value equals 1, derived datapoints will be re-calculated during execution of the "Recalculate de-rived measurements" job.</td></tr>
<tr><td>ABGL_CHANGE_IMPORT</td><td>Import functions may set this value to indicate the number of values most recently imported. Recalcula-tion is stopped if the value overshoots the limit of 50,000 and resumed when the value has dropped below this limit again. Recalculation should be in wait state during the import of large data volumes. This parameter is only relevant if ABGL_CHANGE_WAIT = 1.</td></tr>
<tr><td>ABGL_CHANGE_KLASSIFIZIERUNG</td><td>Generally enables (value = 1) or disables (value = 0) differentiation between actual and forecast values for derived datapoints during execution of the "Re-calculate derived measurements" job for derived datapoints.</td></tr>
</table>
</td></tr>
</table>

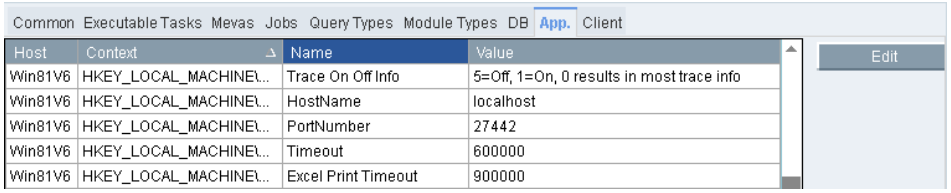
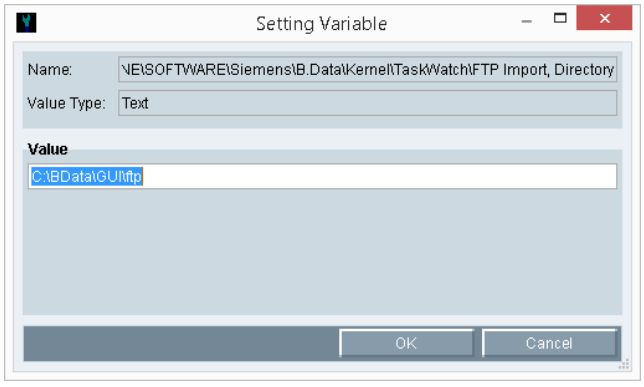
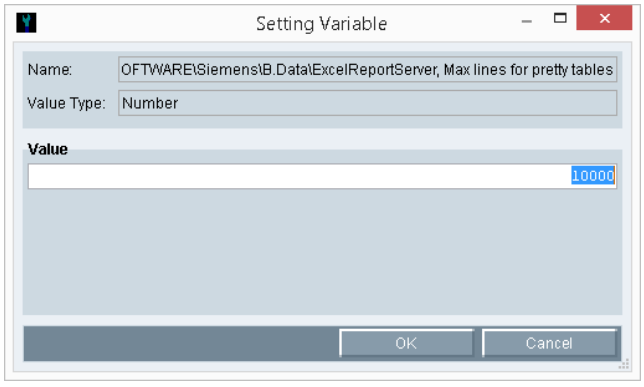
Tab	Functions	
Database (continued)	ABGL_CHANGE_WAIT	Specifies whether to delay the recalculation of derived datapoints during execution of the "Recalculate derived measurements" job for derived datapoints. Enabled if value = 1, disabled if value = 0.
	ABGL_DEBUG	If >= 2, all recalculations are logged to the error journal during execution of the "Recalculate derived measurements" job for derived datapoints. Logging is disabled if the value is < 2.
	AUSROLL_ANZAHL_MONATE	Number of month for "Job DP roll-out", starting with job initiation. The default value is 36, i.e. three years.
	AUSROLL_INIT_FLAG	"Job DP roll-out" issue: 1: The entire time frame that has been defined for the rollout will be processed. Existing gaps will be padded in this way. 0: Roll-out only up to the first value that exists. The default is 0.
	AUSROLL_ROOT_ORDNER	For "Job DP roll-out", this specifies the node ID of the folder that contains the derived measurements or datapoints to roll out. The job is canceled and a corresponding error message is generated if this entry is missing.
	AUSROLL_STATISTIK	Specifies the number of datapoints rolled out for the currently active "Job DP roll-out" job.
	EXPORT_FILENAME_MODUS	Concerns the "Job for ASCII export to Energy Manager PRO Standard": 0: File name with date and time. 1: File name without date and time
	EXPORT_PATH	Concerns the "Job for ASCII export to Energy Manager PRO Standard": Export directory. An error message is output and "C:\Data\Import" is returned as default directory if this entry is missing.
	BDATA_LASTPRF_QS	Specifies whether or not to include corrupted values in the calculation for the "Load profile analysis" module. 0: Corrupted values are ignored. 1: Corrupted values are included.
	BILA_HEADER	Concerns the "Balance" module: 0: Hide header. 1: Show header.
	COUNTRY_CODE	Saves the regional setting the user has selected in database setup. Currently, the following countries/regions are supported: 2511 for Austria, 2512 for Germany, 2513 for Spain (Catalonia).

Tab	Functions	
Database (continued)	DB_DATE_FORMAT	Date/time property format. Default: dd.mm.yyyy hh24:mm:ss
	DB_FEJO_THRESHOLD	Concerns the error journal: Suppression in [s] if many error messages with identical text content are being received. All new incoming error messages having a time stamp within the threshold and identical text entries in the error journal will not be entered in the error journal. All error messages are output when the value is 0.
	DB_ZAEHLER_CHECK	Specifies whether to enable or disable filtering for "MEVAs with count functionality". 0: Filtering is disabled. 1: Filtering is enabled.
	DB_ZAEHLER_DEBUG	Specifies whether or not to enter additional diagnostics messages in the error journal for "MEVAs with count functionality". 0: disabled. >= 1: enabled.
	DB_ZAEHLER_FILTER	Minimum value to be set for count filters in order to be taken into account for "MEVAs with count functionality".
	DEFAULT_CAHE_BEHALTEN	The "Delete analyses job" does not delete analyses (reports started manually or automatically) marked with selected "Keep" check box. This parameter defines the check box default for the creation of new analyses. 0: Do not keep 1: Keep
	DELETE_BY_COMPRESS_UNTIL	For the "Compress measurement journal job", if the "Delete measured values" has been parameterized at the datapoint: Age in seconds as of which deletion is permitted. Default is "14 days" (=1209600 sec).
	DELETE_MSJO_COMMIT	For the "Delete measurement journal job": Defines the number of data records to delete before a COMMIT is set. Default: 1000
	DELETE_MSJO_UNTIL	For the "Delete measurement journal job": Age in days as of which deletion is permitted. The job is canceled and a corresponding error message is generated if this entry is missing.
	FEJO_EXPORT_FLAG	For the "Delete error journal job": If the value 1 is set, the messages are exported to a file prior to deletion; the messages are only deleted if 0 is set.
	FEJO_EXPORT_MESS_FLAG	For the "Archive MV errors" job: If the value 1 is set, the messages are exported to a file prior to deletion; the messages are only deleted if 0 is set.
	FEJO_EXPORT_MESS_PATH	For the "Archive MV errors" job: Specifies the export directory for messages to be deleted. The file name "FEJO_EXPORT_MESS_PATH_" plus the date (DD-MM-YYYY) is set permanently.
	FEJO_EXPORT_MESS_UNTIL	For the "Archive MV errors", this parameter specifies the number of days the entries from the MV editor are retained in the database. The entries will be deleted on expiration of this time.

Tab	Functions	
Database (continued)	FEJO_EXPORT_PATH	For the "Delete error journal job": Specifies the export directory for messages to be deleted. The file name "FEJO_EXPORT_PATH_" plus the date (DD-MM-YYYY) is set permanently.
	FEJO_EXPORT_UNTIL	For the "Delete error journal job", this parameter specifies the number of days the error messages are retained in the database. The error messages will be deleted on expiration of this time.
	FILE_MAX_SIZE_KB	Specifies the maximum size in KB for files to be saved to the database. Default: 3000 KB
	IMPORT_DEBUG	Enables/disables detailed logging at the DB interfaces; enable (1)/disable (0)
	ITSEC_EXPORT_FLAG	For the "Delete old IT Security Data" job: If the value 1 is set, the error messages are exported to a file prior to deletion; the messages are only deleted if 0 is set.
	ITSEC_EXPORT_PATH	For the "Delete old IT Security Data" job: Specifies the export directory for messages to be deleted. The file name "FEJO_ITSEC_EXPORT_" plus the date (DD-MM-YYYY) is set permanently.
	ITSEC_EXPORT_UNTIL	For the "Delete old IT Security Data" job: All security entries that are no older than ITSEC_EXPORT_UNTIL (specified in days) at the time of execution are deleted from the error journal.
	LANGUAGE_CODE	Specifies the language for the Energy Manager database. Set by the Database Setup program. Currently supported languages are German and English. Possible values: DEU (German), ENG (English)
	Manual Insert Offset	Defines the handling of the first time stamp during manual input: 0: Values are entered with default Energy Manager end time stamp. The additional time stamp entered at the start is therefore listed as start time stamp. 1 (default): Values are entered with default Energy Manager end time stamp.
	MATRIX_MAX_WORK_LOAD_FOR_FULL_CLIENT	Limits the number of values in a matrix to the entered number.
	MATRIX_MAX_WORK_LOAD_FOR_WEB	Limits the number of values in a matrix in Energy Manager PRO Web to the entered number.
	MAX_ATTEMPS_TO_LOGIN	Specifies the maximum number of unsuccessful login attempts to tolerate before the account is locked (an administrator may release the account again)
	MEVA_CHECK_LUECKEN	1: Check for gaps in the "df_mess_plusx", "df_avg", "df_max", and "df_min" time sequences (15 min). 0: No check Can only be active if MEVA_STER_THRESHOLD is disabled (= 0).

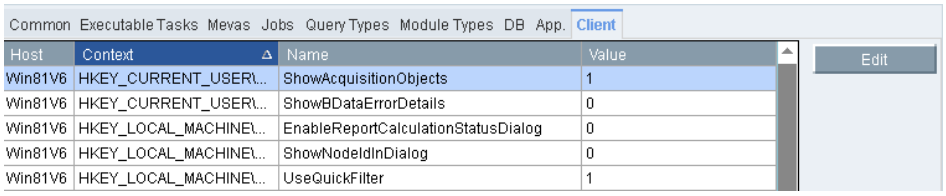
Tab	Functions	
Database (continued)	MEVA_STER_THRESHOLD	Specifies the threshold for the status returned for a specific Meva. 0 = disabled > 0; threshold percentage; numbers with decimal places are also permitted, e.g.: 60.8. Valid for the following Mevas: minimum, maximum, average, total, total real Can only be active if MEVA_CHECK_LUECKEN is disabled (= 0).
	MODULE_EINHEIT	Valid for the "Log with from/to" and "Continuous trend" modules. The units specified in the integrated Mevas are not output in the header unless MODULE_UNIT = 1. Also valid for the "Query with 2 time stamps (from/to)" module. The units of the integrated datapoint are output accordingly in the header.
	NO_DST	Global parameter; usually configured by means of Database Setup. Daylight saving time YES (value = 0) / NO (value = 1). Example: 0=Europe with daylight saving time, or 1=China without daylight saving time.
	NURSE_CYCLE	Cycle in ms during which "autonurse.exe" is launched
	NURSE_SEARCH_PATHS	Path(s) scanned by "autonurse.exe" for existing sink files. The paths are separated by the '|' character (without single quote)
	NURSE_STORAGE_DAYS	Specifies the number of days to expire before the imported sink files are deleted from the import folder.
	NURSE_TABLE	Specifies the table to use for entries (MSJO, or MSJO4)
	NURSE_TRANSFERID	1 for MSJO, 0 for MSJO4
	OLD_PASSWORDS_NUMBER	User: Specifies the number of recent passwords that the system remembers to prevent redundant assignments by users. Example: The last three passwords may not be used to assign a new PWD.
	PASSWORD_ADMIN_EXPIRED_DAYS	User: Specifies the number of days (z. B.: 90 days) after which administrators must change their password.
	PASSWORD_EXPIRED_DAYS	User: Specifies the number of days to expire until the password must be changed.
	PASSWORD_FORBIDDEN_CHARS	Password: Invalid characters in the password.
	PASSWORD_LANG_SPECIFIC_CHARS	Password: Definition of valid country-specific special characters
	PASSWORD_MIN_CHARS	Password: minimum character length of the password.
	PASSWORD_MIN_DIGITS	Password: Minimum number of digits the password must contain.
	PASSWORD_MIN_LANG_SPECIFIC_CHARS	Password: Minimum number of country-specific special characters the password must contain.
	PASSWORD_MIN_LENGTH	Password: minimum length of the password (>= MIN_CHARS+MIN_DIGITS+MIN_PUNCT_MARKS+MIN_LANG_SPECIFIC_CHARS)

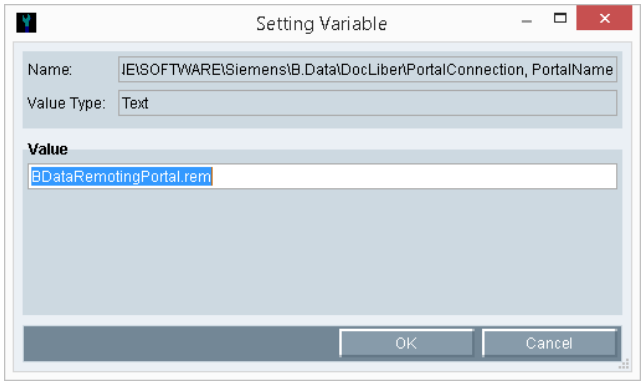
Tab	Functions	
Database (continued)	PASSWORD_MIN_PUNCT_MARKS	Password: minimum number of special characters the password must contain.
	PASSWORD_PUNCT_MARKS	Password: Definition of valid special characters
	PLAUS_GAP_KKS	Specifies whether or not to display the KKS text for the "Plausibility check gaps". 0: No 1: Yes
	PREPROCESSOR_DEBUG	Specifies whether or not additional debug information is entered in the error journal while online compression is activated. 0: No 1: Yes 2: Yes (extensive debug information)
	PREPROCESSOR_ENABLE	Activates the online compression of measured values during the import to Energy Manager. Online compression is only executed if one of the several compression functions have been configured at the corresponding datapoint. You can always run the compression functions by means of the "General recalculation" or "Compression of the measurement journal" jobs. 0: No 1: Yes
	PRINT_VOLLZUGS_MELDUNG	Compress, expand: Defines whether or not to display completion reports. 0: No 1: Yes
	Productplan_limit	Specifies the number of recent days for which users may still modify production plans.
	REPA_LOES_ADHOC_DEF	Specifies the period for deleting storage folders of the type "ad hoc" for the "Storage folder deletion period defaults" job. All specifications in days.
	REPA_LOES_JAHR_DEF	Specifies the period for deleting storage folders of the type "year" for the "Storage folder deletion period defaults" job. All specifications in days.
	REPA_LOES_MONAT_DEF	Specifies the period for deleting storage folders of the type "month" for the "Storage folder deletion period defaults" job. All specifications in days.
	REPA_LOES_MONATVAR_DEF	Specifies the period for deleting storage folders of the type "current month" for the "Storage folder deletion period defaults" job. All specifications in days.
	REPA_LOES_TAG_DEF	Specifies the period for deleting storage folders of the type "day" for the "Storage folder deletion period defaults" job. All specifications in days.

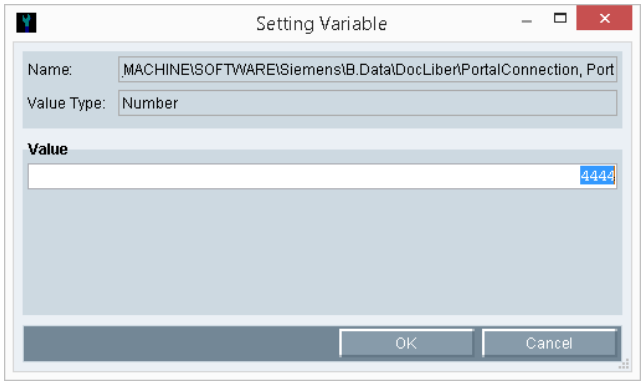
Tab	Functions	
Database (continued)	STP_HOTFIX	Hotfix number: Set by the Database Setup during the Energy Manager Packages updates.
	STP_LAST_UPDATE	Date of last update: Set by the Database Setup during the Energy Manager Packages updates.
	STP_SERVICE_PACK	Service pack number: Set by the Database Setup during the Energy Manager Packages updates.
	STP_VERSION	Version: Set by the Database Setup during the Energy Manager Packages updates.
	VERBOSE	If > 0, additional debug information is written to the error journal during calculation of modules and mevas. Possible values are 0, 1, and 2; no debug information is entered if the value = 0, the most debug info is entered when the value = 2.
Appl. "Application Server"	 Open this tab to edit registry values on the "Application Server".   The tab provides corresponding number and text input fields.	

Tab	Functions		
Appl. "Application Server" (continued)	**Description of the various options**:		
	Context	**Name**	**Description**
	SOFTWARE\Siemens\EnMPRO	Autoprint Cycle	Cycle in seconds for automatic reporting. In this cycle, the function checks whether to calculate or print the reports, or transfer these by email in automatic mode.
	SOFTWARE\Siemens\EnMPRO\Error Reporter	FileName	File name (including the path) for error reporting on the application server.
	SOFTWARE\Siemens\EnMPRO\Error Reporter	Trace level	Depth of detail for error reporting. Range of values from 0 to 5. 0: maximum detail depth.
	SOFTWARE\Siemens\EnMPRO\Error Reporter	Trace On Off Info	Description of the Trace Level value 0: error reporting is enabled. Maximum scope of error information. 1: error reporting is enabled. 5: error reporting is disabled
	SOFTWARE\Siemens\EnMPRO\ExcelReportClient	HostName	Host name of the PC running ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO\ExcelReportClient	PortNumber	Communication port of the ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO\ExcelReportClient	Timeout	Timeout in milliseconds for communication with the ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	Excel Print Timeout	Wait state interval between two print jobs, initiated upon print job problems.
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	Kill Excel	Activation of Excel killer: If = 0: disabled. If = 1: enabled.
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	Max. lines for pretty tables	Limits the number of lines for ExcelReportServer at which the color coding of values is disabled automatically (due to their value status).
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	PortNumber	Port used to communicate with the ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	Set Cell Colors	Specifies whether to enable or disable color coding of the report values based on their value status. 0: disabled. 1: enabled.
	SOFTWARE\Siemens\EnMPRO\ExcelReportServer	Show Model	Specifies whether to enable or disable the display of a selected report model in the report header data. 0: Inactive 1: Active
	SOFTWARE\Siemens\EnMPRO\Kernel	Startup Delay	Waiting time in milliseconds at the kernel start before the start of program execution of the kernel.
	SOFTWARE\Siemens\EnMPRO\Mail	Mail Text	Mail text template for automatic emailing

Tab	Functions		
Appl. "Application Server" (continued)	SOFTWARE\Siemens\EnMPRO\Mail	my email address	Sender address that Energy Manager enters for automatic transmission.
	SOFTWARE\Siemens\EnMPRO\Mail	SMTP server	SMTP Server for automatic transmission of emails.
	SOFTWARE\Siemens\EnMPRO\Matrix	TimestampsAlignLeft	Defines whether to display a valid range instead of time stamps for matrix value input. If = 0: disabled; "time stamp", e.g.: "01.10.2010 03:00:00" If = 1: enabled; "valid range", e.g.: "01.10.2010 02:00:00 – 01.10.2010 03:00:00"

<table>
<tr><th>Tab</th><th>Functions</th></tr>
<tr><td>Client</td><td>


Use this tab to edit registry values on the "Client PC".




The tab provides corresponding number and text input fields.</td></tr>
<tr><td>Client (continued)</td><td>Description of the various options:
<table>
<tr><th>Context</th><th>Name</th><th>Description</th></tr>
<tr><td>SOFTWARE\Siemens\EnMPRO\DocLiber\Logging</td><td>EnableOutputFlags</td><td>Concerns logging: Output flags that will be set.</td></tr>
<tr><td>SOFTWARE\Siemens\EnMPRO\DocLiber\Logging</td><td>LogFiles_DeleteLogsOlder-ThanDays</td><td>Concerns logging: Maximum time in days of log file availability.</td></tr>
<tr><td>SOFTWARE\Siemens\EnMPRO\DocLiber\Logging</td><td>LogFiles_RootPath</td><td>Concerns logging: root directory for log files.</td></tr>
<tr><td>SOFTWARE\Siemens\EnMPRO\DocLiber\Logging</td><td>LogFiles_Untouchable-FreeDiscSpaceInMb</td><td>Concerns logging: minimum available hard disk space that is not affected by logging actions in log files.</td></tr>
<tr><td>SOFTWARE\Siemens\EnMPRO\DocLiber\Logging</td><td>SendTraceOutput2Log-Files</td><td>Concerns logging: enable output to log files.
If = 0: disabled.
If = 1: enabled.</td></tr>
</table></td></tr>
</table>

Tab	Functions		
	SOFTWARE\Siemens\EnMPRO \DocLiber\Logging	SendTraceOut-put2TraceToolViewer	Concerns logging: enable output to TraceToolView. If = 0: disabled. If = 1: enabled. This option requires an installation of TraceToolViewer that is independent of Energy Manager.
	SOFTWARE\Siemens\EnMPRO \DocLiber\Logging	SuppressOutputFlags	Concerns logging: output flags that will be cleared.
	SOFTWARE\Siemens\EnMPRO \DocLiber\PortalConnection	Host	Host name of the Portal computer. **Caution**: Do not modify this value unless you know exactly what your are doing.
	SOFTWARE\Siemens\EnMPRO \DocLiber\PortalConnection	Port	Port for use by the Portal for client connections. default is 4444. **Caution**: Do not modify this value unless you know exactly what your are doing.
	SOFTWARE\Siemens\EnMPRO \DocLiber\PortalConnection	PortalName	Portal name.
	SOFTWARE\Siemens\EnMPRO \ExcelReportClient	HostName	Host name of the PC running ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO \ExcelReportClient	PortNumber	Communication port of the ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO \ExcelReportClient	Timeout	Timeout in milliseconds for communication with the ExcelReportServer.
	SOFTWARE\Siemens\EnMPRO \Matrix	TimestampsAlignLeft	Defines whether to display a valid range instead of time stamps for matrix value input. 0: disabled; "time stamp", e.g.: "01.10.2010 03:00:00" 1: enabled; "valid range", e.g.: "01.10.2010 02:00:00 - 01.10.2010 03:00:00"

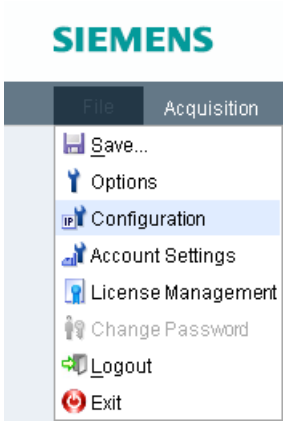
See also

Mail settings (Page 692)

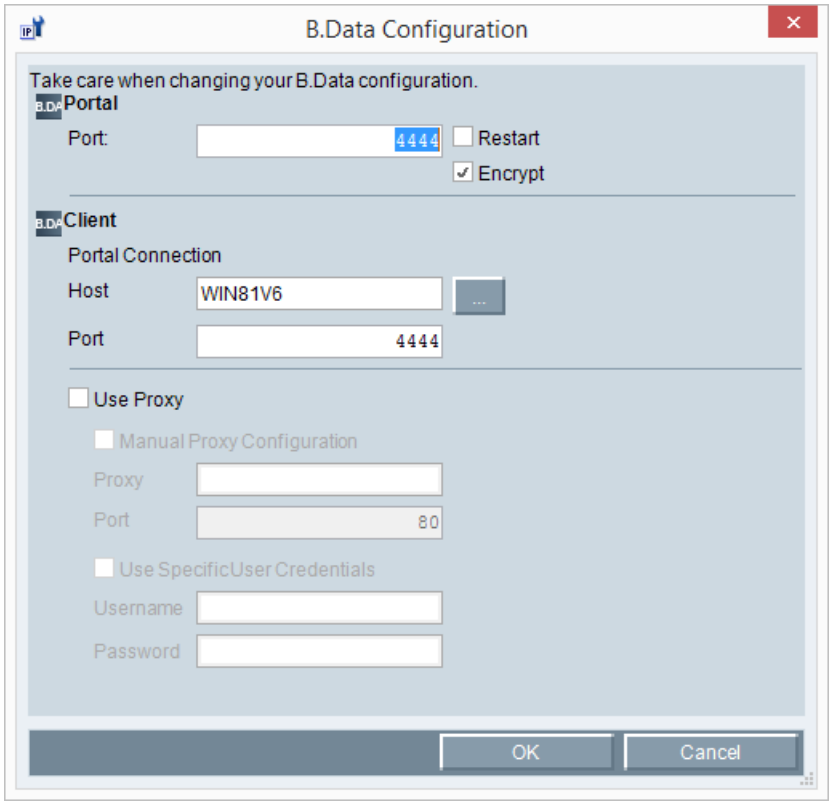
2.2.2.2 Configuration

The "Energy Manager Configuration" dialog can be used to edit the connection settings of the Energy Manager Portal.

On completion of the Energy Manager Setup, enter the connection settings once at the beginning of the startup process using the main menu: "File > Energy Manager Configuration".

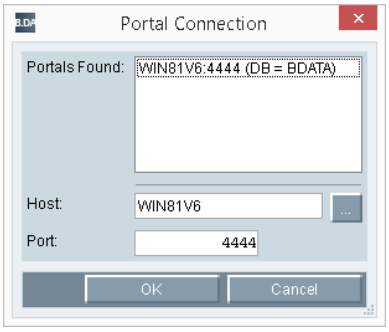
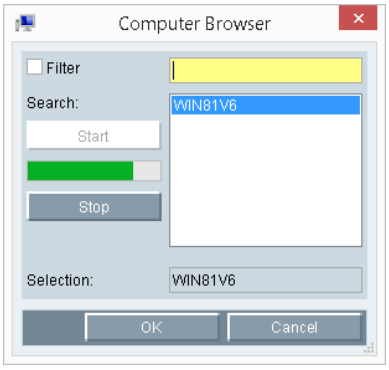


The "Energy Manager Configuration" dialog cautions you that modified connection settings may have a negative impact on the Energy Manager system functionality. Be careful when making changes!



You can edit the connection settings for the components that have been installed in the corresponding group settings.

Table 2- 1 Energy Manager Configuration

Option	Description
Portal	Port number at which the Energy Manager Portal listens. The currently set port is displayed. Default is "4444". Select the "Restart" option to restart the Portal service with "OK". Both options are active once only and are disabled again at the next startup.
Client	Portal connection: "Computer": Name of the PC/server on which the Portal is running. "Port": Number of the port of the PC/server port on which the Portal is listening.   "Use proxy": Activates use of a proxy server, through which communication with the portal is established. "Manual proxy configuration": Activates configuration of a proxy server. Enter its URL and the port. If you do not activate this option, the proxy server that is configured in the operating system will be used. "Use specific user login information": Activates entry of login data for the proxy server.

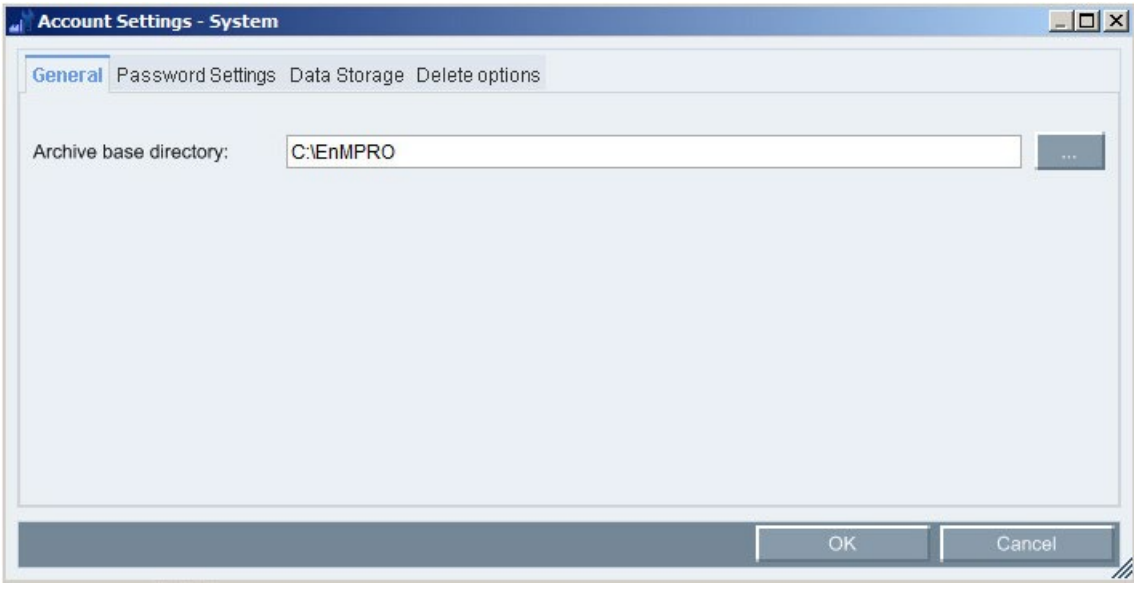
You are always prompted to confirm your changes to connection settings. Your changes will be discarded of you click "No".

2.2.2.3 Account settings

General

Overview

Enter the path in which the Account settings are stored in the "Archive basic directory" text box.



See also

Account settings (Page 694)

Password settings

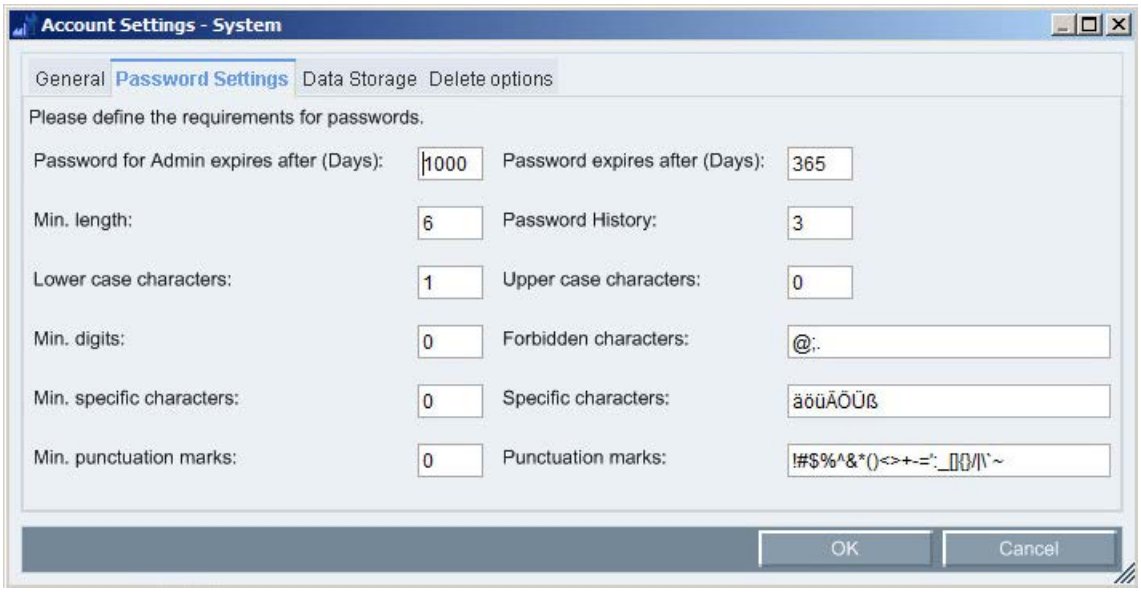
Overview

Manage the password requirements in the password settings. For the "Password for Admin expires after (days)" and "Password expires after (days)" text boxes, you can enter a one to five-digit number. For all other numeric text boxes you can enter a one to two-digit number.

Note

Unsupported punctuation

Quotation marks are not supported for passwords.



See also

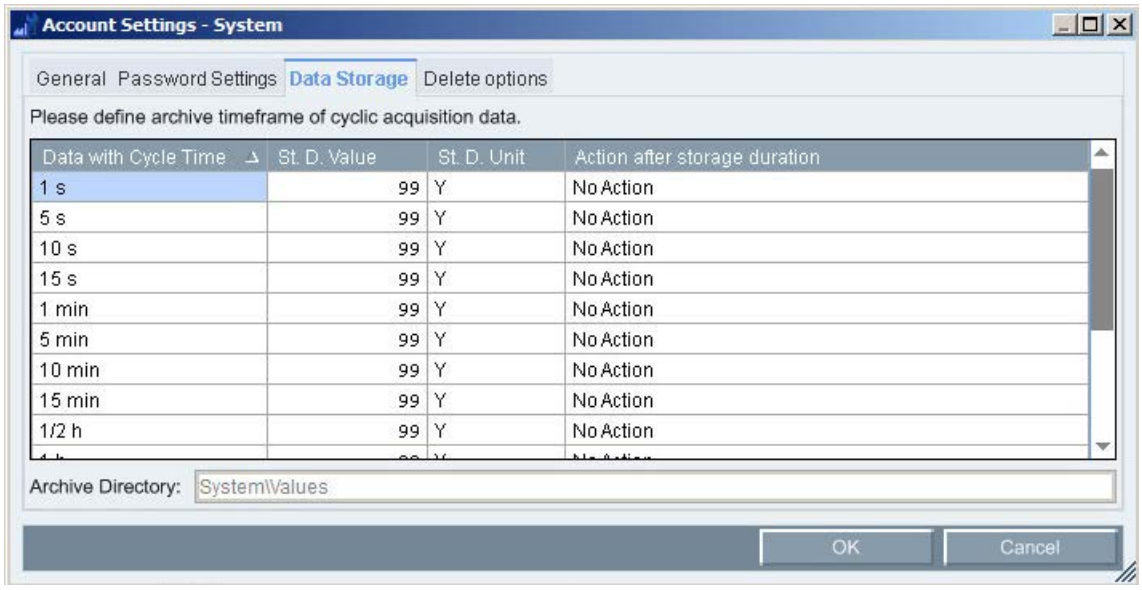
Options (Page 53)

Account settings (Page 694)

Data storage

Overview

In data storage you manage the duration in which you save the cyclically acquired data in the system. You also set the archiving behavior on expiry of the entered time. The archive directory displays the path under which the measured values of the cycle times are saved. You can only change the archive directory in the "General" tab.



Managing the storage duration

To manage the cyclically acquired data, follow these steps:

1. In the 2nd column enter a numerical value for the storage period of the corresponding cycle time.

   The first column shows the available cycle times.

2. Select the unit of the associated storage period in the 3rd column.
3. Select the archiving behavior in the last column. If you select the menu command "Delete and export to file", the data is first archived and then deleted. If you select the menu command "Delete", the data is deleted from the system after expiry of the selected storage period.

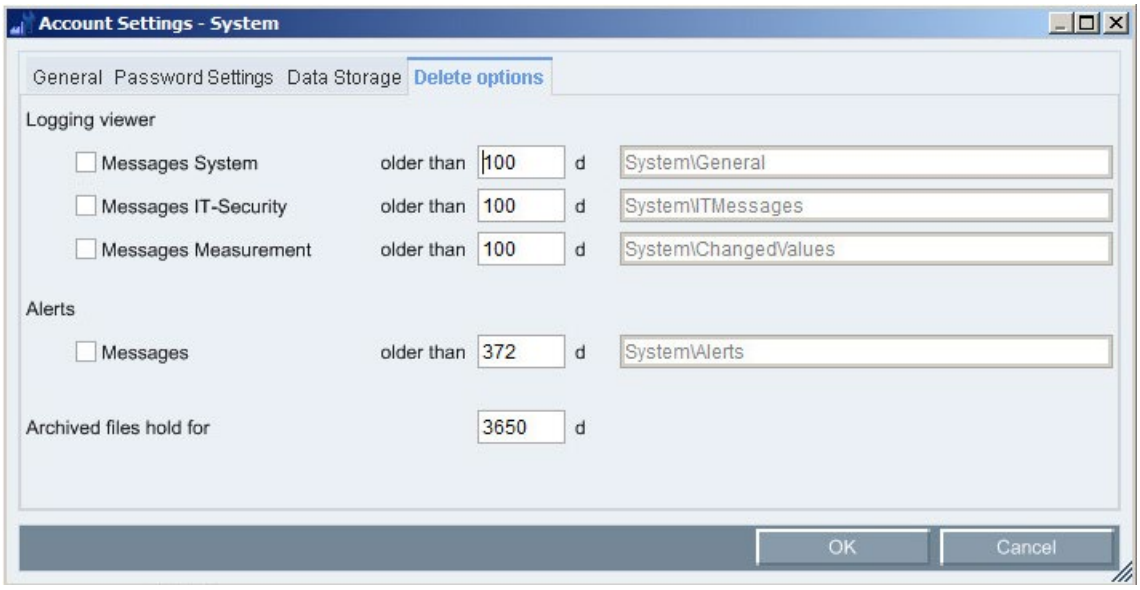
See also

Account settings (Page 694)

Delete options

Overview

In the deletion options you set the duration after the expiry of which messages and alarms are deleted from the Logging Viewer. To enable the deletion process, select the respective check boxes. You can enter a one to six-digit number in the text boxes. The adjacent archive paths show you where the corresponding messages are stored.



See also

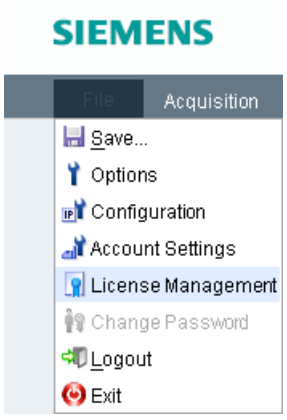
Account settings (Page 694)

2.2.2.4 Licensing

The Energy Manager "Licensing" provides an overview of the currently used licenses as well as the available or missing licenses.

Procedure

1. Click the "Licensing" button in the menu bar under "File".



The following information is displayed:

- Datapoints: Number of used datapoints as well as the total number of available datapoints (including used ones).
- Acquisitions: Number of used acquisitions and total available acquisitions.
- Client: Number of currently used Energy Manager systems as well as total number of available Energy Manager systems.
- Web clients: Number of currently used Energy Manager web clients as well as total number of available Energy Manager web clients.
- Consumer: The presence of the additionally available license for the consumer functionality and the number of consumers licensed are indicated here.
- Function packages: Additionally licensed function packages, such as Planning and Prognosis, are displayed here.

Missing licenses, such as at a test license, are displayed in red.

Note

Since you can use the licensed Energy Manager PROClient count as well as the licensed Web client count simultaneously on different computers (concurrent use), only the number of actively used licenses is displayed.

If the user is not working actively in the Energy Manager PRO Client or in the Energy Manager PRO Web, the license is released again after a few seconds so that it is available again for other users.

2.2.3 "Acquisition" menu tab

2.2.3.1 Architecture and interfaces

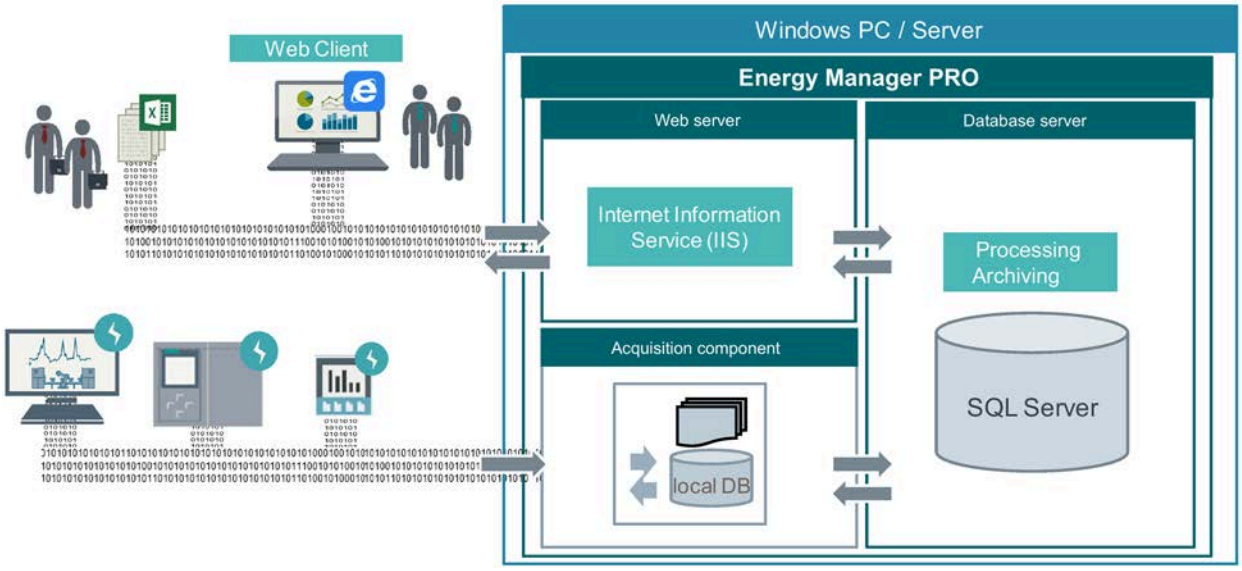
The data you need for energy management often exist in different formats and systems:

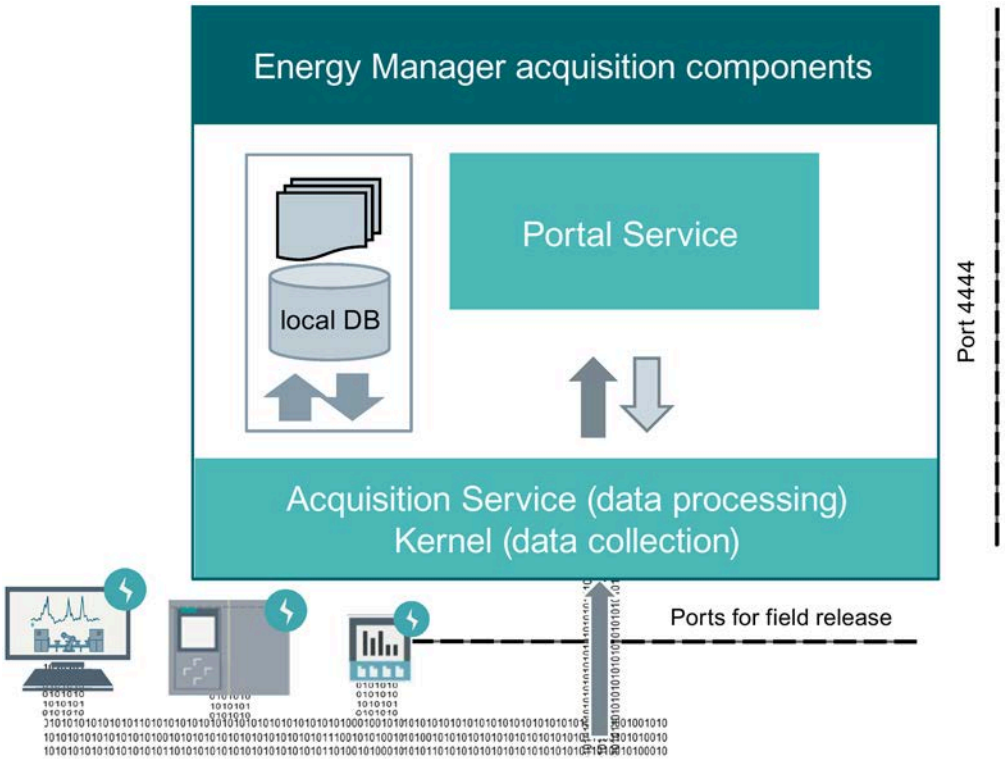
- Data from analog and digital measuring devices
- Data from other production sites
- Archived consumption data from the previous year

In addition to the standard interfaces to Siemens products such as WinCC or PCS 7, Energy Suite and EE-Monitor, Energy Manager supports conventional standards so that you can acquire data from different sources:

- Acquisition of energy and operational data from the field level via OPC or Modbus.
- Acquisition of data from S7 controllers via SIMATIC NET.
- Acquisition of data from measured value archives via OPC.
- Acquisition of data from maintenance, production planning and ERP system databases.
- Import of ASCII data from the company-wide file system, such as CSV or XML.
- Manual entry of the measured and count value readings.

Depending on the interface used, the data are either imported directly into the Energy Manager database or pre-processed in the acquisition component:





Acquisition components

You can install the acquisition component on a separate computer.

- The kernel acquires the values from the data sources and transfers them to the EnMPRO Acquisition Service.
- The EnMPRO Acquisition Service stores these acquired values in files. Every data point has its own file. The files are stored in a folder for the current day. When the next day starts, new files and a new folder are created.
- Files are created for totally 62 days. From the 63rd day, the oldest day is deleted. In this manner, the values of the data point are saved for 62 days.
- With a minimum scan cycle time of 1 second, a file is 2 MB in size, and with higher cycles, correspondingly lower.
- The acquired values are compressed in the EnMPRO Acquisition Service. The compressed values are temporarily stored in the local database of the acquisition component. Thereafter, the EnMPRO Acquisition Service synchronizes the local database with the MS SQL database.

Raw Files

Acquisition cycle smaller than the first compression stage

- The acquired measured values are written to the files, but not transferred to the SQL Server.
- But the acquired measured values can be visualized in a chart of a data point so as to quickly and easily monitor the data acquisition in the Energy Manager.
- Only the compressed values are present in the SQL Server.

Acquisition cycle same as the first compression stage

- The acquired measured values are stored on the SQL Server.
- The acquired measured values and the compressed values are present on the SQL Server itself.
- The acquired measured values are stored in the first compression stage and processed further there (for example, conversion to the consumption value).

2.2.3.2 Automatic acquisition

Creating hardware

Overview

If you want to acquire data automatically with Energy Manager, you must map at least one acquisition component as object of the type "Hardware". An acquisition component is, for example, a PC or a mobile device (smartphone). You configure the data acquisition for this hardware in an additional step by means of a wizard.

Note

The example project of the Energy Manager database already contains a "Hardware" object named "h_Siemens_PC" that is completely configured and enabled under "System > Customer > Data collection > Interfaces / Drivers".

If you do not want to use the preconfigured object, disable the "Active" option. This will release the license that is bound to it.

Procedure

1. Select the folder in which the hardware is going to be created.
2. Click "Add hardware" in the menu bar under "Acquisition > Automatic acquisition".

   The "Hardware" configuration dialog opens.
3. Enter a name and, if necessary, a description.

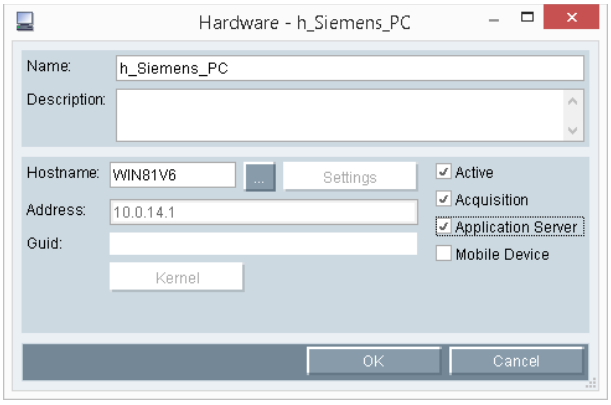
   Recommendation: Also use the prefix "h_" as unique identification.
4. Assign the PC or the mobile device to the "Hardware" object using the "..." button.

   Note

   The name "localhost" is not permitted as computer name.
5. Select the "Active" option to use the hardware for data acquisition.

6. Activate the type of acquisition component depending on the use:
   - Acquisition
   - Application server

     Only necessary if the application server is installed on the acquisition component.
   - Mobile device (is not required for the acquisition app)



Result

The "Hardware" object has been configured.

Note

The acquisition ID is entered automatically under "Guid" when you have configured the acquisition component in the Energy Manager acquisition configuration. The acquisition ID uniquely identifies the connection between the Energy Manager Server and the acquisition component.

See also

Configuring a mobile device in Energy Manager (Page 925)

Configuring acquisition components per wizard (Page 78)

Creating data sources (Page 625)

Connecting acquisition components to server (Page 78)

2.2.3.3 Connecting acquisition components to server

Configuring acquisition components per wizard

Overview

In the Energy Manager acquisition configuration you establish the logical connection between the acquisition component (Acquisition) and the Energy Manager Server (Pairing). The Energy Manager acquisition component is installed together with the "Energy Manager Acquisition" software component. The acquisition component supports communication via a proxy server.

You can configure the connection to the Energy Manager Server either by using the wizard or manually.

- Configuring the connection manually

  You can configure the connection to the Energy Manager Server with or without access to the Energy Manager Server. The connection is created when saving the configuration data. If the Energy Manager Server cannot be reached, the configuration is saved locally. Upon restarting the Energy Manager acquisition configuration, an attempt is made to establish the connection using the saved configuration.

- Setting up a connection using the wizard

  Configuration with the wizard requires a connection to the Energy Manager Server. The wizard performs a step by step check of the connection data that have been entered.

Configuring the connection using the wizard

You need the following data to log the acquisition component in to the Energy Manager Server:

- Address and port of the Energy Manager Server
- Energy Manager user name and password
- Name of the "Hardware" object in Energy Manager

Requirement

- The "Energy Manager Acquisition" software component is installed on the PC.
- Microsoft Internet Information Service (IIS) is installed on the PC.
- The PC is connected to the Energy Manager Server.
- The "Hardware" object is set up on the Energy Manager Server.
- A user with the "Configure acquisition" authorization is set up on the Energy Manager Server.
- For communication via proxy:
  - A proxy server must be available in the network.
  - The URL and login data must be known.

Procedure

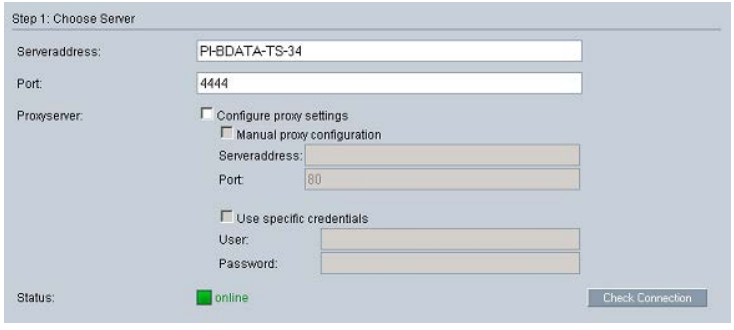
1. Start the web browser on the acquisition component and enter the following address:

   http://[COMPUTERNAME]/EnMPROAcquisition/Login.aspx

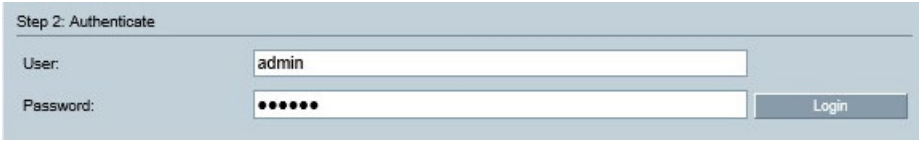
2. Log on with the operating system user under which Energy Manager was also installed.

   The "Status" page of the Energy Manager acquisition configuration is displayed. If the acquisition component is not yet logged in to a Energy Manager Server, the "Configure the acquisition" dialog is displayed.

3. Select the "Start connection wizard" option in the "Configure the acquisition" dialog.
4. Enter the following connection data:
   – Address and port of the Energy Manager Server



5. As needed, select "Configure proxy settings", and enter the following connection data depending on the configuration of the proxy server:
   - Address and port of the proxy server
   - User name and password
   - Click on "Test connection".
6. Enter your Energy Manager user name and password and click "Login".



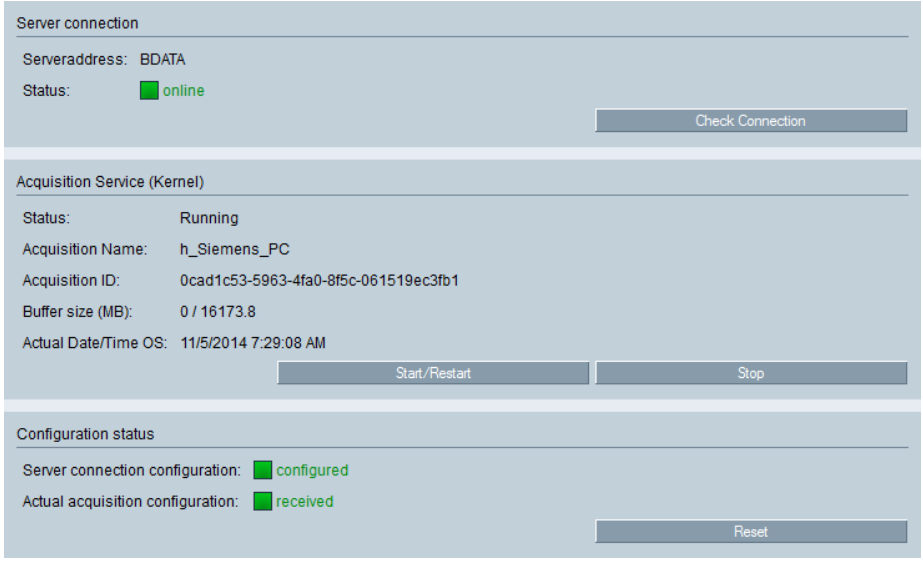
   An acquisition ID is allocated and the name of the acquisition computer is displayed.

7. Save your entries.

Result

The "Acquisition ID" is generated and entered for the connection between the acquisition component and the Energy Manager Server.

The figure below shows a correctly configured connection to the Energy Manager Server:



See also

Areas in the Energy Manager acquisition configuration (Page 85)
Creating hardware (Page 76)
Setting up users (Page 343)

Configuring the acquisition component manually

Overview

The connection to the Energy Manager Server can be configured both with and without access to the Energy Manager Server . The connection to the Energy Manager Server is established when the configuration data are saved. If the Energy Manager Server cannot be reached, the configuration is saved locally. Upon restarting the Energy Manager acquisition configuration, the connection is restarted using the saved configuration.

Requirement

- The "Energy Manager Acquisition" software component is installed on the PC.
- Microsoft Internet Information Service (IIS) is installed on the PC.
- The PC is connected to the Energy Manager Server (optional).
- The "Hardware" object is set up on the Energy Manager Server.
- A user with the "Configure acquisition" authorization is set up on the Energy Manager Server.
- For communication via proxy:
  - A proxy server must be available in the network.
  - The URL and login data must be known.

Procedure

1. Start the web browser on the acquisition component and enter the following address:

   http://[COMPUTERNAME]/EnMPROAcquisition/Login.aspx
2. Log on with the operating system user under which Energy Manager was also installed.

   The "Status" page of the Energy Manager acquisition configuration is displayed.

   If the acquisition component is not yet logged in to a Energy Manager Server, select the "Manually configure connection" option in the "Configure the acquisition" dialog that is displayed.
3. Enter the following connection data in the "Settings" area:
   - Address and port of the Energy Manager Server
   - Energy Manager user name and password
   - Name of the "Hardware" object in Energy Manager

4. As needed, select "Configure proxy settings", and enter the following connection data depending on the configuration of the proxy server:
   - Address and port of the proxy server
   - User name and password
5. Save your entries.

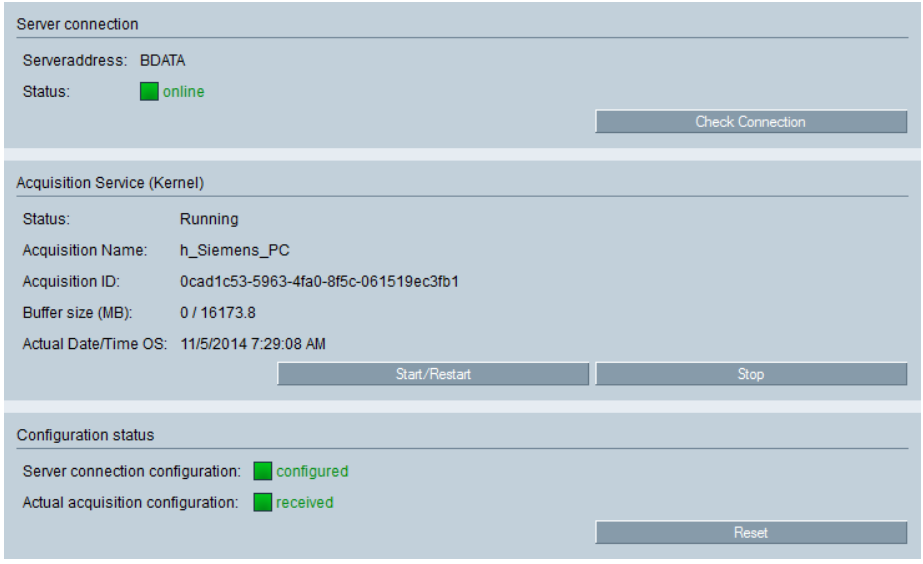
   Connection setup to the Energy Manager Server is started.

   If connection to the Energy Manager Server is not possible, your configuration is saved locally. Upon the next restart of the acquisition component, a connection will be attempted using the saved configuration. You can start the acquisition component once more by using "Start / Restart".

Result

The acquisition ID is generated and entered as soon as the Energy Manager Server can be reached. Connection setup is started again upon each restart of the acquisition component with the specified data. Provision of the acquisition configuration depends on the configured start delay time of the acquisition service.

The figure below shows a correctly configured connection to the Energy Manager Server:

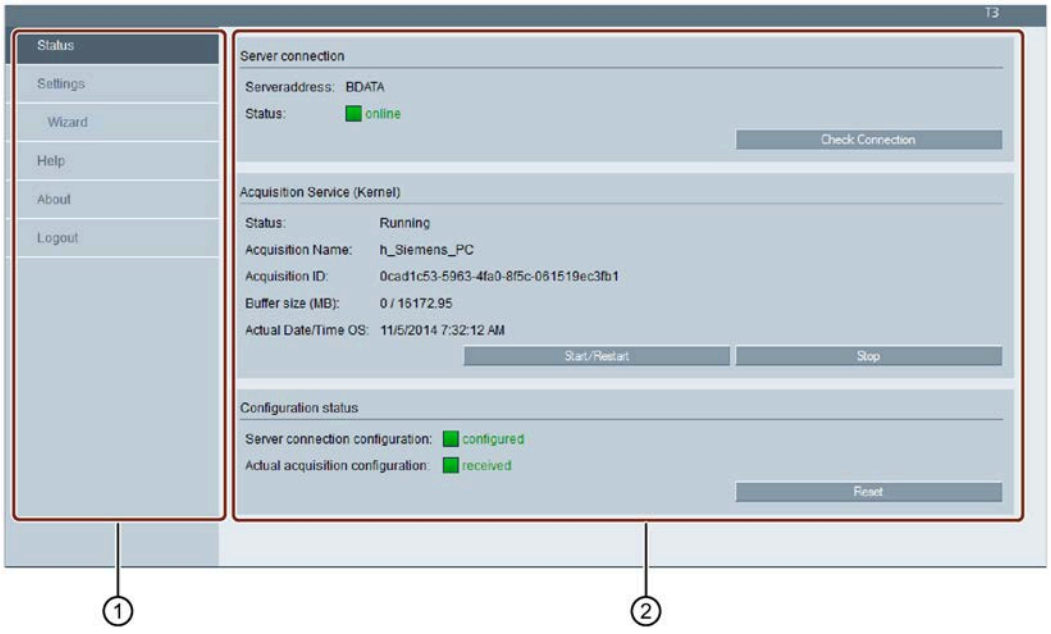


Managing the acquisition component

Overview

You use the web page of the acquisition component for the following tasks:

- Start or stop acquisition service
- Modify or reset the connection data
- Configuring a proxy server for the communication
- Execute the software update for the acquisition component



① Navigation area

② Display and configuration area. The content depends on the selection in the navigation area.

Requirement

- The Energy Manager configuration is displayed in the Web browser.
- The acquisition component is connected to the Energy Manager Server.

Start or stop acquisition service

1. Click "Status" in the navigation area.
2. Click the appropriate button.

If the acquisition service is stopped, data is not acquired.

Changing configuration settings

1. Click "Status" in the navigation area.
2. If you want to assign the acquisition component to another "Hardware" object, reset the acquisition service.
3. If you want to change the user data, stop the acquisition service.
4. Click on "Settings" or "Wizard" in the navigation area.
5. Enter the connection data.

Reset configuration settings

1. Click "Status" in the navigation area.
2. Click the appropriate button.

   The configuration settings of the acquisition component are deleted after confirmation. The acquisition component is not acquiring data any longer.
3. Log the acquisition component in to a Energy Manager Server again afterward.

Configuring a proxy server for the communication

1. Click "Status" in the navigation area.
2. Click "Configure proxy settings"
3. Depending on the configuration of the proxy server, enter the following connection data:
   - Address and port of the proxy server
   - User name and password

Updating acquisition software

1. Click "About" in the navigation area.
2. Enter the path and file name of the setup file under "Software update", for example, "C:\Installation\Setup.exe".
3. Click "Update".

The acquisition service is stopped and the acquisition software is updated. The acquisition service is started once again when the installation is complete.

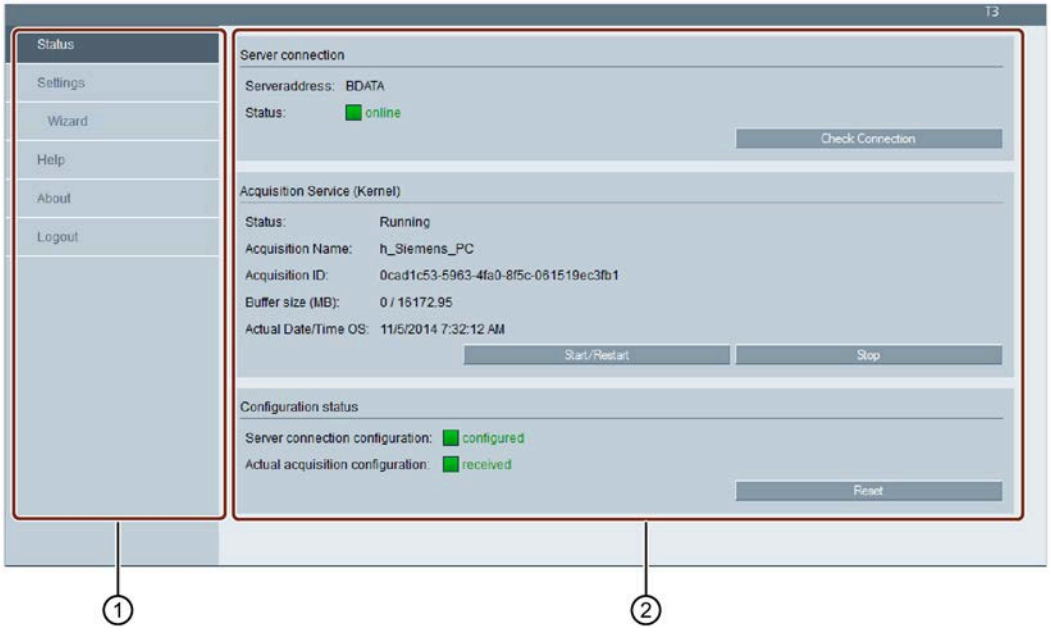
See also

Configuring acquisition components per wizard (Page 78)

Areas in the Energy Manager acquisition configuration

Layout of the Energy Manager acquisition configuration

The figure below shows the layout of the Energy Manager acquisition configuration after login:

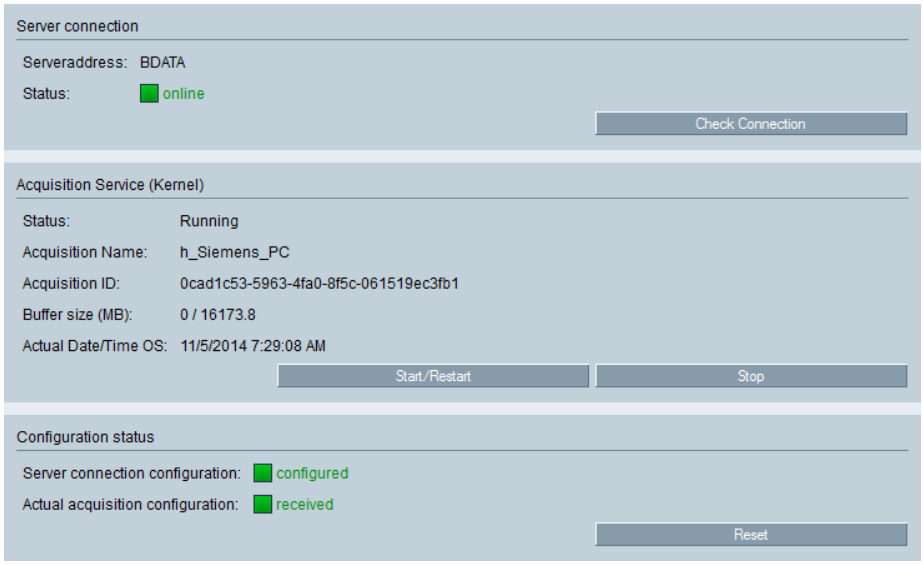


① Navigation area

- Status: Indicates the connection status of the acquisition component.
- Settings: Displays the current configuration settings.
- Wizard: Starts the wizard for input of the configuration settings.
- Help: Opens the documentation on the Energy Manager acquisition component in PDF format.
- About: Displays the installed software version. You can update the software version.
- Logout: Displays the login window of the Energy Manager acquisition configuration again.

② Display and configuration area. The content depends on the selection in the navigation area.

"Status" area

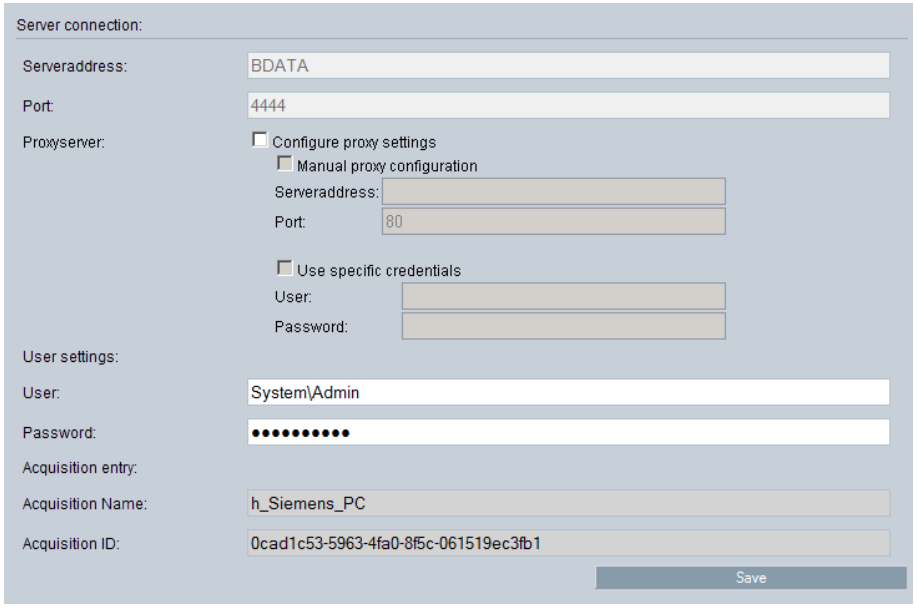


The "Status" area of the Energy Manager acquisition configuration consists of the following areas:

Area	Entry	Description
Server connection	-	-
	Server Address	Shows the name of the Energy Manager server.
	Status	Displays the status of the connection to the Energy Manager Server. The following statuses are possible: • Green/online: The acquisition component is connected to the Energy Manager Server. • Gray/offline: The acquisition component is not connected to the Energy Manager Server.
Acquisition Service (Kernel)	-	-
	Status	Indicates the acquisition state. The following statuses are possible: • Started: The acquisition has started and is running. • Stopped: The acquisition is stopped.
	Acquisition Name	Displays the name of the hardware object.
	Acquisition ID	Displays the acquisition ID which uniquely identifies the connection between the Energy Manager Server and the acquisition component.
	Current Date/Time OS	Shows the current date and time of the PC on which the acquisition is running.

Area	Entry	Description
Configuration Status	-	-
	Connection Configuration	Shows whether the connection to the Energy Manager Server has already been configured.
	Current Acquisition Configuration	Displays the status of the current acquisition configuration. The following statuses are possible: • Received: The acquisition configuration has been successfully synchronized with the Energy Manager Server. • Not Received: The acquisition configuration has not been successfully synchronized with the Energy Manager Server.

"Settings" area

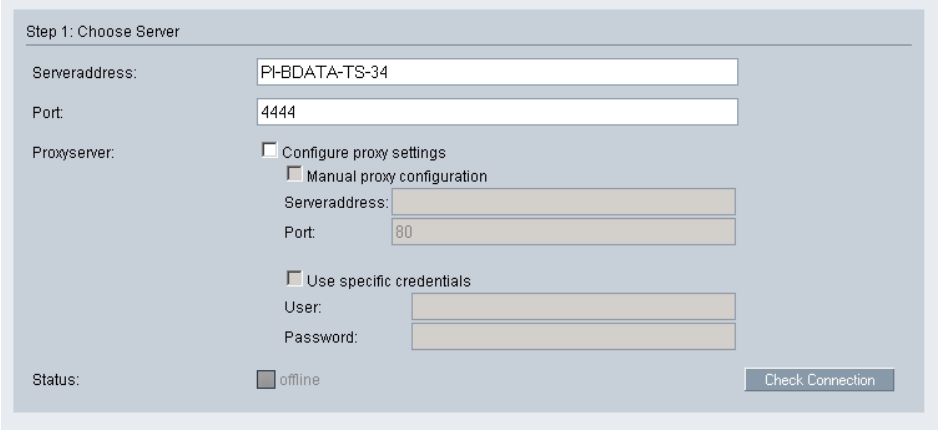


The "Settings" area of the Energy Manager acquisition configuration consists of the following areas:

Area	Entry	Description
Server	-	-
	Server Address	Shows the name of the Energy Manager server.
	Port	Shows the port of the Energy Manager server.
		Displays the status of the connection to the Energy Manager Server. The following statuses are possible: • Green/online: The acquisition component is connected to the Energy Manager Server. • Gray/offline: The acquisition component is not connected to the Energy Manager Server.
Proxy server	Configure proxy settings	Indicates whether a proxy server will be used for the communication. The following statuses are possible: • Use system proxy settings: The proxy server that is configured in the operating system will be used. • Manual proxy configuration: Proxy server is manually configured: The server address and port are required. The type of authorization depends on the proxy server that is used.
User settings	-	-
	Energy Manager PRO user name	Energy Manager user name
	Password	Password of the Energy Manager user (encrypted)
Acquisition entry	-	-
	Acquisition Name	Name of the "Hardware" object
	Acquisition ID	Uniquely identifies the connection between the Energy Manager Server and the acquisition component.

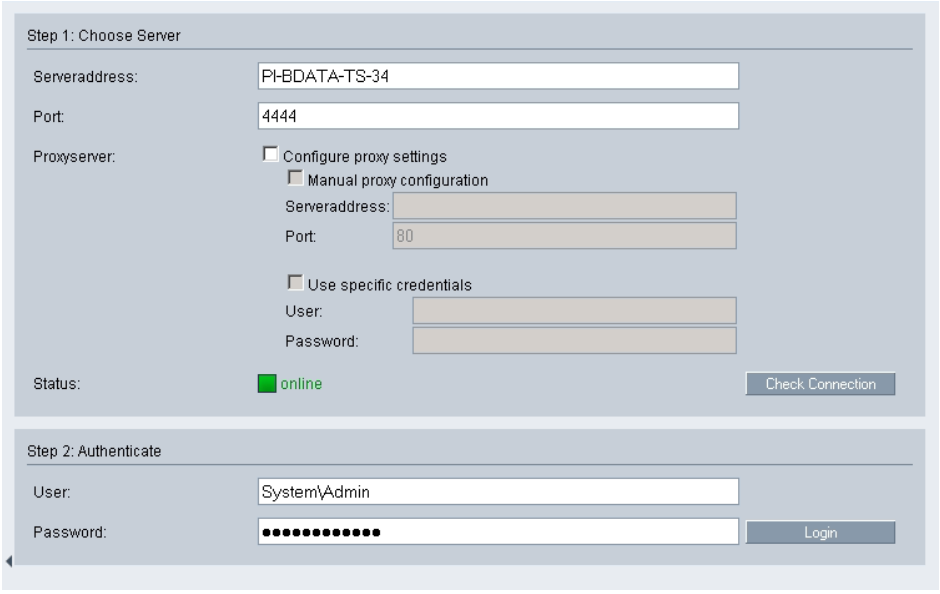
"Wizard" area

The "Wizard" guides you through three steps for logging the acquisition component in to the Energy Manager Server. To run the wizard, the acquisition component must be connected to the Energy Manager Server.



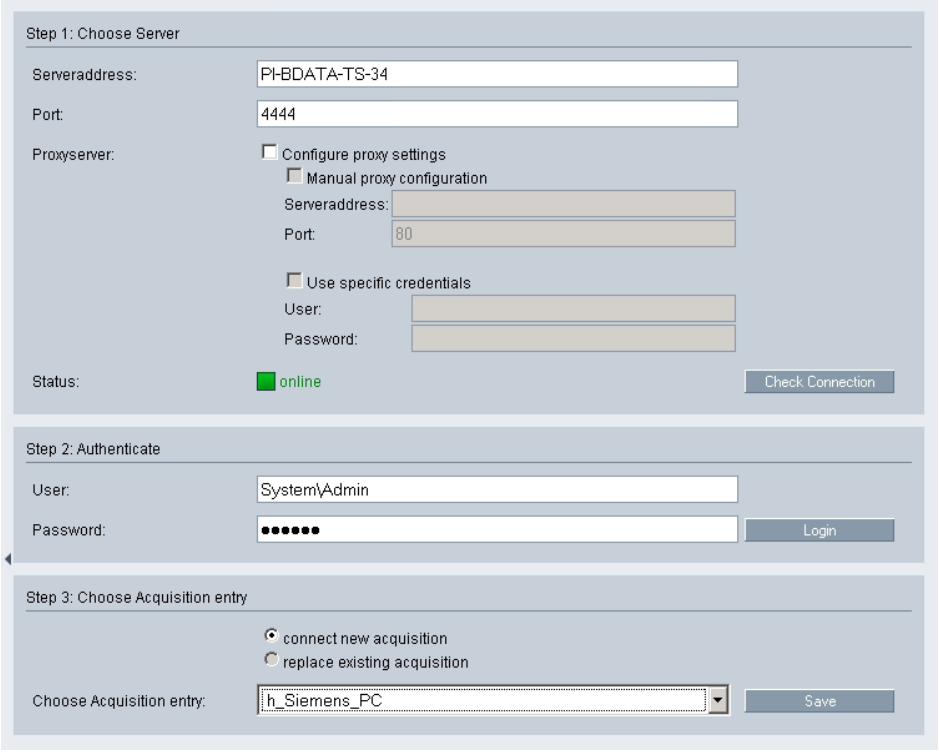
The area of the wizard in "Step 1" contains the following entries:

Entry	Description
Server Address	Energy Manager Server name
Port	Port number of the Energy Manager server
Proxy server	Activates configuration of a proxy server.
Status	Displays the status of the connection to the Energy Manager Server.
Test connection	Checks the connection between the Energy Manager Server and the acquisition component. The next step is only displayed when the check is successfully completed.



The area of the wizard in "Step 2" contains the following entries:

Entry	Description
User	Energy Manager user name
Password	Password of the Energy Manager user (encrypted)
Login	Registers the user in Energy Manager. The next step is only displayed when the login is successfully completed.



The area of the wizard in "Step 3" contains the following entries:

Entry	Description
Connecting new acquisition	Shows only the "Hardware" type objects configured in Energy Manager under "Select acquisition" that have not yet been connected to an acquisition component.
Replace existing acquisition	Shows all the "Hardware" type objects configured in Energy Manager under "Select acquisition".
Select acquisition	Assigns the acquisition component to the "Hardware" type object configured in Energy Manager. If you have enabled the "Replace existing acquisition" option, the existing assignment to this object is deleted.
Save	Generates the acquisition ID, which uniquely identifies the connection between the Energy Manager Server and the acquisition component.

"About" area

The "About" section of the Energy Manager acquisition configuration displays the software version installed on the acquisition component.

2.2.3.4 Configuring interfaces for data acquisition

Acquisition wizard for interface configuration

Overview

Use the "Acquisition wizard" to configure the interface for data acquisition from a selected data source. Energy Manager supports the data acquisition via the following interfaces:

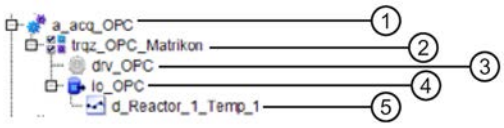
- OLE DB
- WinCC/PCS 7
- S7
- Modbus
- FTP, sFTP
- File Import
- OPC DA, OPC HDA, OPC UA
- Machines with SIMATIC EE monitor
- Energy Suite Import
- Simulation

Note
SAT interface

The SAT interface is only available upon request. Contact Siemens Customer Support.

Acquisition structure in the Client

The acquisition wizard creates the following acquisition structure under the "Hardware" object:



① Process:

The process is created by the acquisition wizard and provides the configuration of the interface for the Windows service "Energy Manager PRO Kernel". The process contains the driver source, which in turn contains the driver itself.

②, ③ Driver source and driver:

Define the data transfer from the data source via the driver.

④ IO buffer:

The IO buffer contains the setting for the cycle time of sampling. An ASCII file is read in or measured values are requested from the data source according to this cycle time. In the case of the FTP, sFTP and File Import interfaces, the directory of the ASCII files is defined here. These settings are defined in the acquisition wizard.

⑤ Datapoints that you created or selected during the configuration.

Action overview

The acquisition wizard guides you through the configuration of the interface. The following configuration steps are basically required for all interfaces after starting the acquisition wizard:

1. Define the channel name
2. Select the device configuration
3. Configure the connection
4. Define the datapoints
5. Define the data transmission

   After this step, you can create another link or create the acquisition structure.
6. Create the acquisition structure

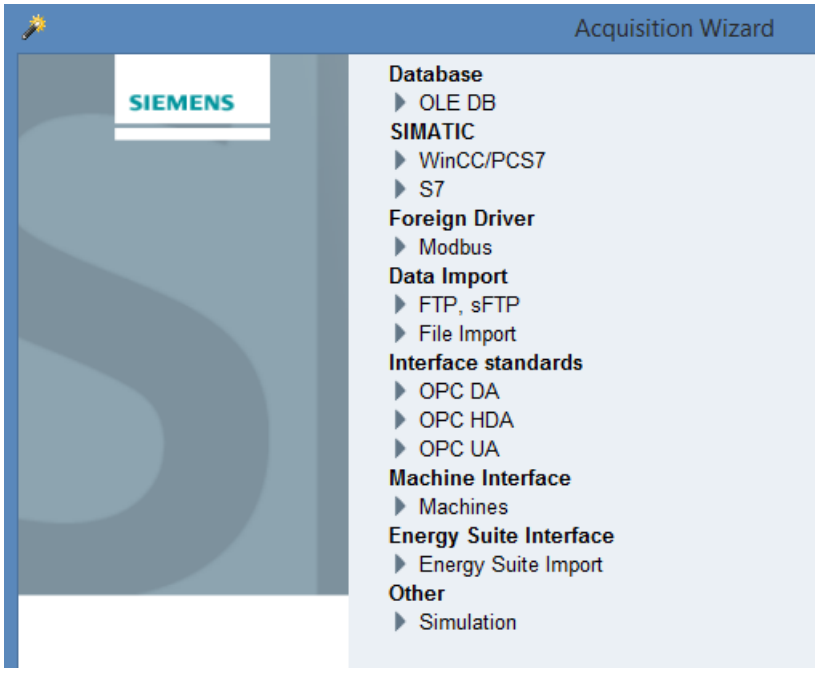
Example

The following example shows how to acquire data from a WinCC log via the "WinCC / PCS 7" interface using the acquisition wizard.

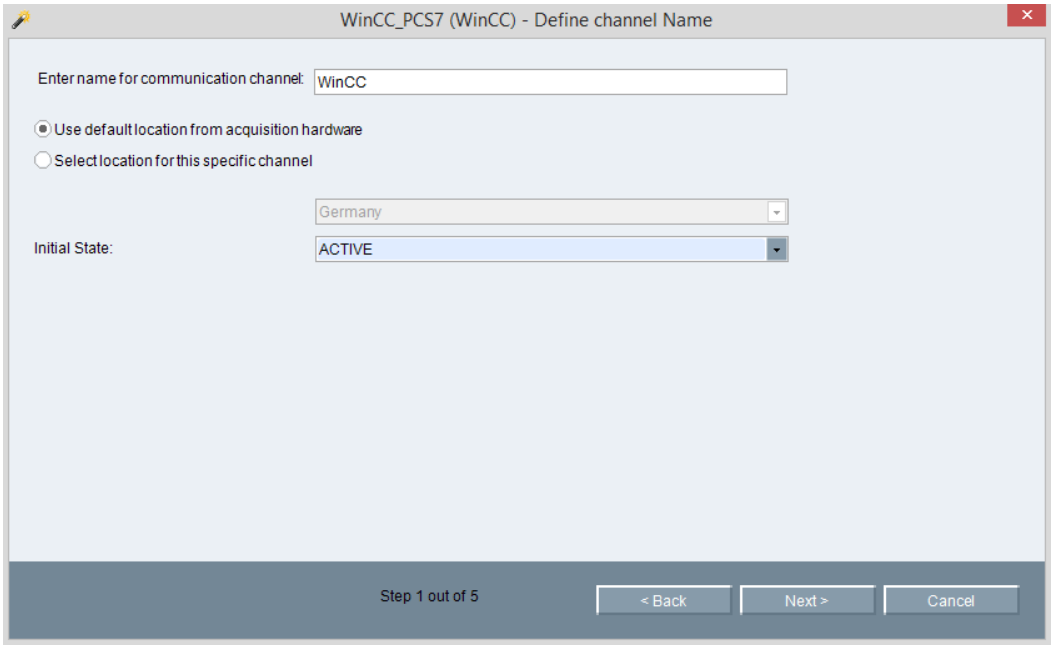
1. Select the "Wizard..." command from the shortcut menu of the "Hardware" object.

   The "Acquisition Wizard" dialog opens.

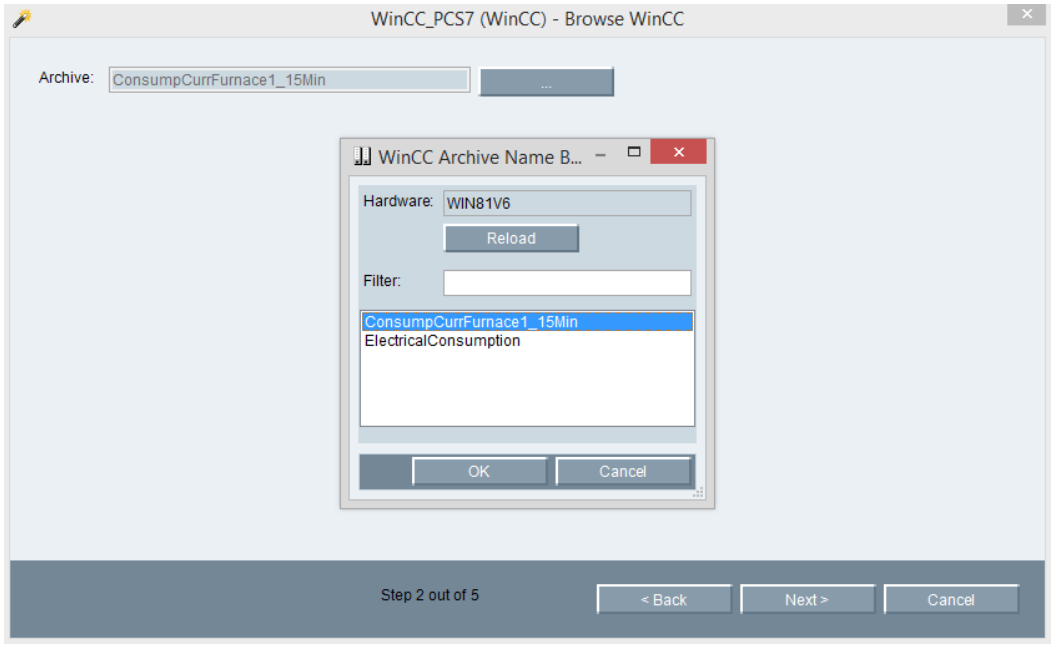
2. Select the interface.



3. Enter the channel name and select the initial state for the acquisition:

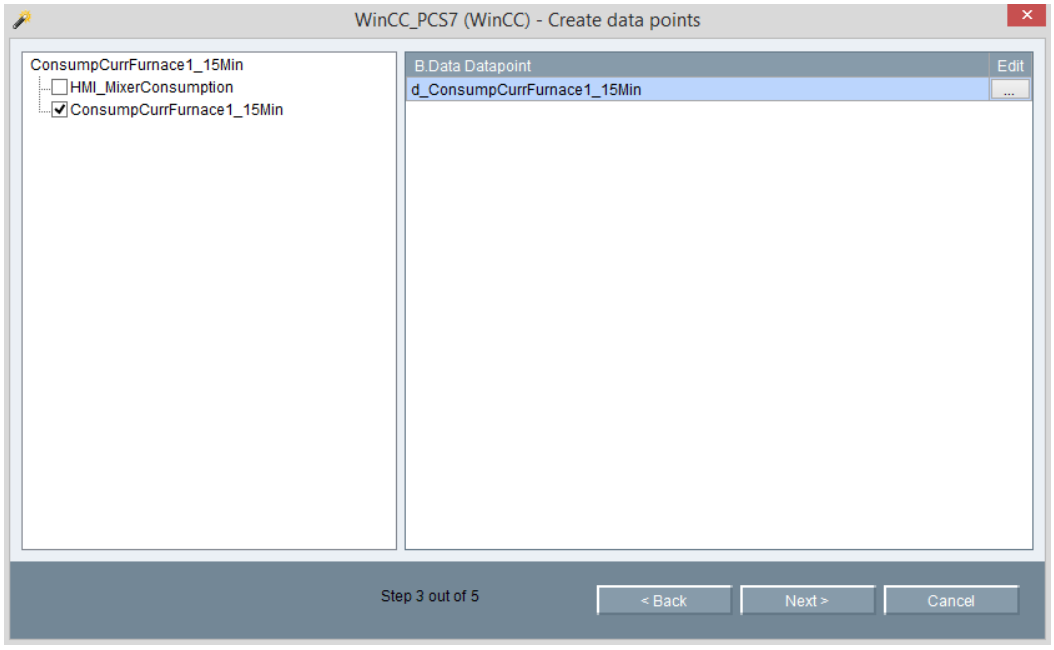


4. Select the WinCC log from where the data is to be acquired:

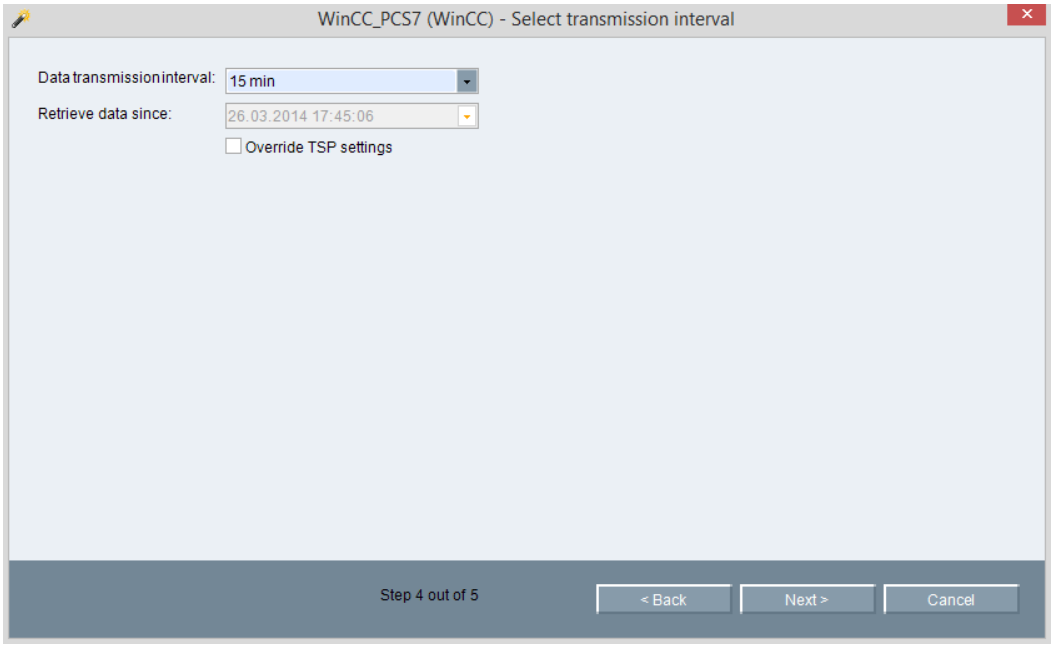


5. Select the logging tag with the values to be acquired.

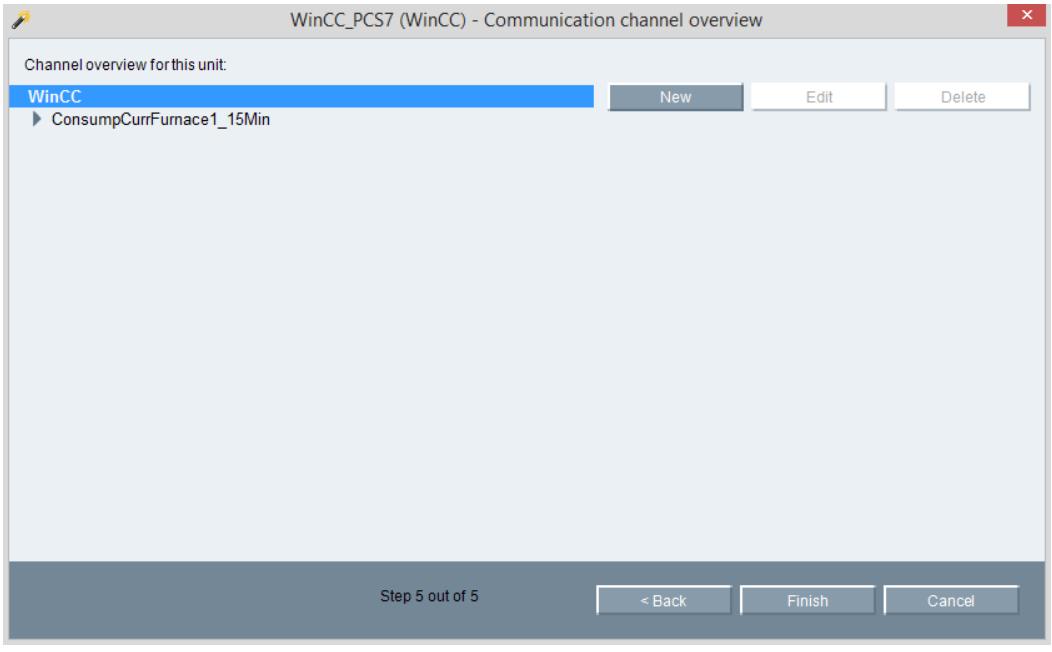
   The corresponding datapoint is created automatically.



6. Define the transfer interval:



Interim result: The connection is established to the WinCC log:

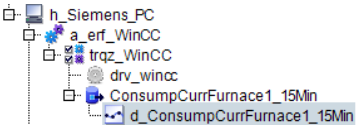


7. Define an additional connection to another WinCC log with "New".

   - or -

   Create the acquisition structure with "Finish".

The following figure shows the acquisition structure created with the acquisition wizard:



See also

Creating hardware (Page 76)

Location (Page 330)

Assign time zone for acquisition or calculation (Page 334)

Display of cycle times of IO buffer and datapoint

The cycle time in the datapoint is the update rate compared to the data source.

- For interfaces with historical values (WinCC, OPC UA HA, OPC HDA, OLE DB, Energy Suite), the cycle time in the datapoint corresponds to the logging cycle in the data source. For example, with a 1 min WinCC log, the cycle time of the datapoint is also maximum 1 min.
- For interfaces with online values (S7, Modbus TCP, OPC UA DA, OPC DA), the cycle time in the datapoint corresponds to the sampling of the process tag.
- For the FTP, sFTP and File Import interfaces, the cycle time in the datapoint corresponds to the interval between the time stamps in the ASCII file.

The cycle time of sampling in the IO buffer (transmission interval) defines the intervals at which the measured values are requested or ASCII files are retrieved.

Relationship between the times

- For interfaces with historical values:

  Cycle time in the IO buffer ≤ cycle time in the datapoint. A smaller cycle time in the IO buffer can be relevant for logs with large logging cycles if these logs do not receive new values punctually (e.g. 1 hour or 1 day).

- For interfaces with online values and the ASCII interfaces:

  Cycle time in the IO buffer = cycle time in the datapoint.

Time stamp of the measured values

Time stamps for interfaces with historical values and for the FTP, sFTP and File Import interfaces are taken from the data source.

Time stamps for interfaces with online values are formed via the local time of the acquisition component (Windows time of the PC on which the acquisition is installed).

The following table shows all interfaces with the respective value used and how the time stamp is formed:

Interface	Historical and online data	Only online data	Time stamp
OLE DB	✓		From the database
WinCC	✓		From WinCC
S7		✓	Local time of acquisition
Modbus TCP		✓	Local time of acquisition
FTP, sFTP and File Import	✓		From the ASCI file
OPC UA DA		✓	Local time of acquisition
OPC UA HA	✓		OPC UA server
OPC DA		✓	Local time of acquisition
OPC HDA	✓		OPC HDA server
EE monitor		✓	Local time of acquisition
Desigo CC	✓		From Desigo

Data acquisition via the "OLE-DB" interface

Overview

The "OLE DB" interface allows access to Excel tables as well as complex databases such as SQL Server or Oracle. You have to install the OLE-DB providers required for access separately, if it has not been installed with the Windows operating system.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via a unique identifier that is defined in the wizard.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.
- The OLE-DB data source can be accessed from the acquisition component.
- You have knowledge of OLE-DB.
- You have access rights in the SQL server.
- There is a database table or database view that consists of at least three columns:
  - Column with the time stamps
  - Column with the values
  - Column with the identifier of a datapoint

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click on the "OLE-DB" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_OLE-DB".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Select the device configuration

1. Activate "Create user-defined configuration".

Configure the connection

1. Select the "OLE-DB Provider".
2. Enter the "Connection String".

   Additional information on the Connection String is available on the Internet under "http://msdn.microsoft.com/de-de/library/ms254500(v=vs.110).aspx".
3. Click on "Test connection".

Server connection

1. Enter a meaningful channel name for the IO buffer under "Interface name", for example, "IO_OLEDB".
2. Select the table.
3. Then select the columns which contain the data acquisition information:
   - Address of the datapoint that is to be acquired.
   - Acquired measured value
   - Time stamp of the measurement acquisition
   - Measurement acquisition state (optional)
4. If necessary, enter those values under "Status mapping" which are to be recognized as valid in connection with the status selection.

   If you enter the value "0" under "Status mapping", for example, the values with status "0" are recognized as valid. Separate multiple entries with commas.

Define the datapoints

1. Click "New definition" under "New address".

   The "Datapoint" dialog opens.
2. Enter a meaningful name for the datapoint.
3. Enter the name of the datapoint from the table under "Datapoint ID".
4. Activate the datapoint under "New address".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.
2. To change the start of the acquisition period, activate "Overwrite TSP settings".

   Archive data from the defined start of the acquisition period until the interface was started are transmitted in their entirety. Current values since starting the interface will be cyclically transmitted depending on the selected interval.

Result

The acquisition structure for the "OLE-DB" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager Kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

Data acquisition via the "WinCC / PCS 7" interface

Overview

You use the "WinCC / PCS 7" interface to retrieve values from a process value log or compressed log. You need a separate channel for each log.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the logging tag in the WinCC log.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server.
- A WinCC client or WinCC single-user station is installed on the acquisition component.
- A WinCC project is activated.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click on the "WinCC / PCS 7" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_WinCC_ProcessValues".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   – ACTIVE: Data is being acquired.
   – NOT ACTIVE: Data is not being acquired.

Browse WinCC

1. Select the log whose data you want to retrieve.

Note

You acquire count values by using a process value archive.

Define the datapoints

1. Activate the logging tags whose values you want to retrieve.

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.
2. To change the start of the acquisition period, activate "Overwrite TSP settings".

   Archive data from the defined start of the acquisition period until the interface was started are transmitted in their entirety. Current values since starting the interface will be cyclically transmitted depending on the selected interval.

Note

To acquire data from a WinCC archive, the timestamps of the measured values must be rounded to the cycle. For 15-minute cycle values, for example, the timestamps must be rounded to 00:00:00, 00:15:00, 00:30:00 and 00:45:00 (hh:mm:ss).

Result

The acquisition structure for the "WinCC / PCS 7" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager Kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

See also

Creating a WinCC channel (Page 644)

Data acquisition via the "S7" interface

Overview

You use the "S7" interface to retrieve data from an S7 controller with the help of SIMATIC NET. You address the memory areas of the S7 controller absolutely.

Note

Supported controllers

The "S7" interface supports the following controllers:

- S7-300
- S7-400
- S7-1200

For an S7-1500, use the OPC UA DA server directly. You need an OPC UA license for the S7-1500 for this purpose.

The OPC DA server of SIMATIC NET is used for the "S7" interface. The settings for this OPC DA server are already contained in the acquisition component. This means that no further settings are necessary in the acquisition component. An S7 connection is configured in the acquisition wizard. The SIMATIC NET OPC DA server accesses the data blocks in the S7 controller via the S7 connection. Additional configurations in STEP 7 are not required.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the address of the data blocks (e.g. DB18,REAL10) that is defined in the wizard.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.
- SIMATIC NET is installed on the acquisition component and licensed.
- The access point "KERNEL" is configured in SIMATIC NET communication settings.
- The"OPC settings" are configured in SIMATIC NET communication settings.
- An understanding of addressing and communication with S7 controllers.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "S7" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_S7_ColorMixing_Consumption".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Select the device configuration

1. Activate "Create user-defined configuration".

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Connection name", for example, "IO_S7-CleaningStation".
2. Enter the following data under "Acquisition":
   - Number of the CPU slot.
   - Connection Resource
3. Enter the connection data to the S7 controller under "Partner":
   - Used interface
   - Address of the S7 controller depends on the selected interface
   - Numbers of the rack and the slot
   - Connection Resource

Define the datapoints

1. Click "New definition" under "New address".

   The "Datapoint" dialog opens.
2. Enter a meaningful name for the datapoint.
3. Under "Object" select the source from which you want to retrieve the values:
   - DB: Data block
   - I: Input
   - M: Bit memory
4. Enter the "Data type", "Address" and "Bit no." depending on the "Object".

   The "number" is only relevant for the "DB" and identifies the data block.
5. Activate the datapoint under "New address".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.

Result

The acquisition structure for the "S7" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager Kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

Data acquisition via the "Modbus" interface

Overview

You use the "Modbus" interface to retrieve data from measuring devices with Modbus support and Ethernet interface, for example, SENTRON PAC measuring devices. The "Modbus" interface supports the following modes:

- Modbus TCP

  Additional information on Modbus TCP templates can be found on the Internet (https://support.industry.siemens.com/cs/de/en/view/109771884).

- Modbus RTU over TCP

  Modbus RTU does not support Power Monitoring.

Datapoints acquired by the following measuring devices are pre-configured in Energy Manager.

- SENTRON PAC 2200 CLP
- SENTRON PAC 3200
- SENTRON PAC 4200
- ET 200SP MF HF

Note

Devices for separate listing of third-party consumption values

The SENTRON PAC 2200 CLP device is required for separate listing of third-party consumption values.

Note

Supported modules

The ET 200SP MF HF device currently only supports AI Energy Meter modules.

You define the addresses of the parameters for all other measuring devices using the associated operating instructions.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the Modbus register that is defined in the wizard.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.
- TCP/IP connection data of the measuring device are available.
- When Modbus RTU devices are connected, a Modbus TCP Gateway is connected in between.
- The Modbus device can be reached via the network.
- If a Modbus device template (Page 720) is present, the template is imported in Energy Manager.
- Operating instructions of the measuring device are available[1].
- An understanding of the Modbus protocol[1].

[1]: Only required for manual configuration of a measuring device.

Starting the wizard

1. In the project tree of the Client , select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "Modbus" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_Modbus".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Select the device configuration

1. If you want to acquire data from a configured device, activate "Select device type from database".
2. If you want to acquire data from any measuring device, activate "Create user-defined configuration".

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Device name", for example, "IO_CleaningStation".
2. Enter the TCP/IP connection data of the measuring device.
3. Select the Modbus mode.

   The default port is entered. You can adapt the port number for specific devices.
4. If the measuring device is connected with the acquisition component, check if it is available with "Test connection", if necessary.

   The Modbus protocol is used to establish the connection.
5. Enter the address of the device in the "Slave address" field with a Modbus RTU over TCP.
6. Define additional options for an ET 200SP MF HF or PAC 2200 CLP or PAC 4200.
   - ET 200SP MF HF

     Enter the offset in the "Register Offset" field.

     Note

     Register offset

     The pre-configured datapoints correspond to the EE@Industry E3 profile. The length of the profile for the AI Energy Meter is 53 Modbus registers.

     With an additional AI Energy Meter module, the register offset starts at 54.

     Via the register offset, you define the module from which data is acquired.

   - PAC 2200 CLP and PAC 4200

     To access historical data, enable the HDA option.

     Note

     HDA option for the devices PAC 2200 CLP and PAC 4200

     The HDA option is available when you select the template for the devices PAC 2200 and PAC 4200. When you select the HDA option, the measuring points for the historical data are displayed. This is relevant for third-party consumption values.

Define the datapoints

1. If you acquire data from a SENTRON PAC 3200 / 4200:
   - Activate the required parameters.

     The data point names are made up of the "Device name" and the "Parameter".
2. If you are creating a user-defined configuration:
   - Click "New definition" under "New address".

     The "Datapoint" dialog opens.
   - Enter a meaningful name for the datapoint.
   - Enter the parameter addresses using the operating instructions of the measuring device.

     Note

     The word sequence for 32-bit values and the byte sequence for 16-bit values are not clearly specified in the Modbus specification. Device manufacturers often use the "Big Endian" coding for 32-bit values. This coding is therefore the default in data point configuration.
   - Activate the datapoint under "New address".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.

Result

The acquisition structure for the "Modbus" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager Kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

See also

Creating a Modbus TCP channel (Page 646)

Data acquisition via the "FTP, sFTP" interface

Overview

You use the "FTP, sFTP" interface to read data from ASCII files of an FTP server. Correct configuration of the process, IO buffer and datapoint is important. After successful configuration, transfer of the ASCII files from the FTP directory to the Energy Manager acquisition component is carried out automatically after the cycle time of the IO buffer.

After successful importing of the files from the FTP directory, these are initially stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer% directory.

After successful insertion of the data into the database the files are stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer%\imported directory.

If insertion of the data into the database is not successful, the files are stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer%\failed directory.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via a unique identifier that is defined in the wizard.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server.
- An FTP server is set up and accessible.
- Connection data for the FTP server are available.
- The time stamps in the ASCII file are ascending.

  However, it is possible that the subsequent ASCII files have older ascending time stamps.
- The FTP server is started.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "FTP, sFTP" entry.

Define the channel name

1. Enter a meaningful name for the communication channel, for example "Acq_FTP".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.
4. If the FTP server supports "sFTP", activate "Secure connection".

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Group name", for example, "FTP_S7-CleaningStation".
2. Enter the connection data for the FTP server, for example "ftp:\\[Hostname[:Port]]\[FTP directory]".

   The port number does not have to be specified. If you do not specify a port number, "21" is used by default.

   The "FTP directory" is the directory in which the ASCII data are stored.

   Note

   Ensure that there are no blank spaces in the FTP directory. Data acquisition is only possible with an FTP directory without blank spaces.

3. For secure connections, you must enter the user name and password.
4. Select the format in which the data exist in the ASCII files.

Note

During the installation of Energy Manager an example file is stored in %Install-DIR%\EnMPRO\GUI\ftp for each supported ASCII format. Information about the example files is available in the Reference in the chapter ASCII FTP formats (Page 839).

Define the datapoints

1. Click "New definition" under "Access via address"

   The "Datapoint" dialog opens.
2. Enter a meaningful name for the datapoint.
3. The "Create datapoints" dialog opens. You can import data for several datapoints with one ASCII file. Create all the required datapoints and identify these under "Datapoint address" unambiguously with the designation of the datapoint in the ASCII file. The datapoint address is applied automatically in the datapoint.
4. Select all the datapoints by means of a check box or click "Select all".
5. Click "OK".

Define the data transmission

1. Select the data transmission interval for the IO buffer in which the acquisition component acquires the values.

Result

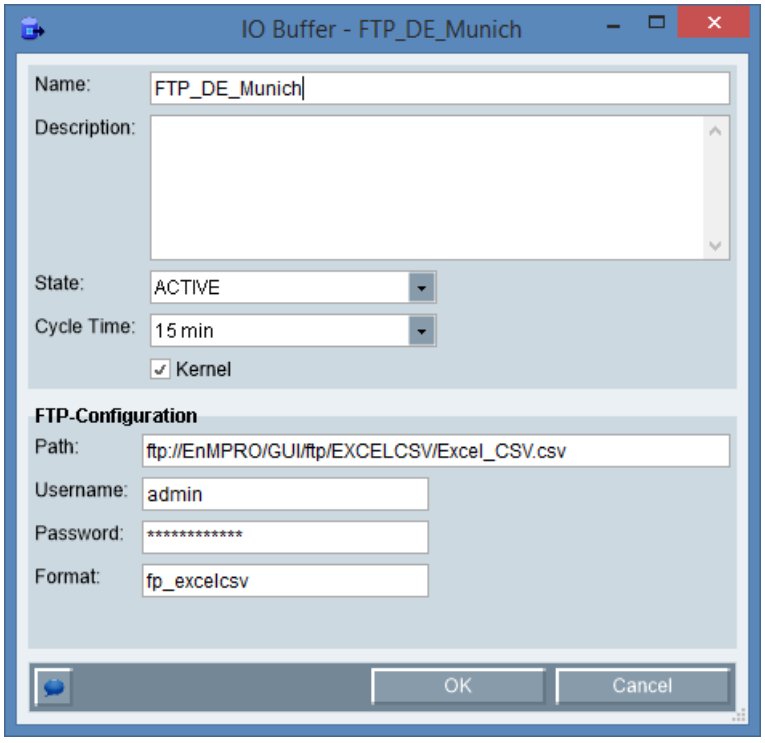
The acquisition structure for the "FTP, sFTP" interface is created below the "Hardware" object. The data acquisition starts automatically after the cycle time of the IO buffer.

You can change the acquisition structure at any time with the wizard or add additional connections.

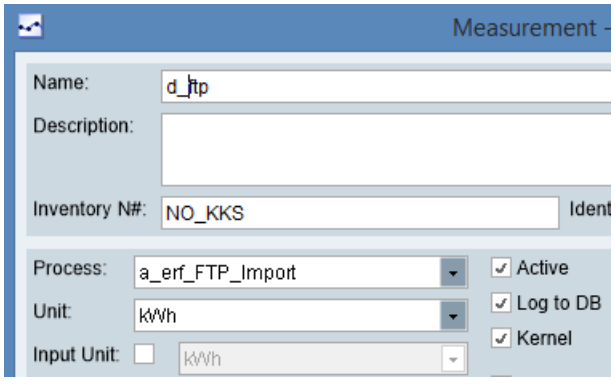
Configuration of process, IO buffer and datapoint

In order to ensure correct FTP or sFTP import the following configurations are set automatically and may not be changed:

- IO buffer: "Kernel" check box must be selected.

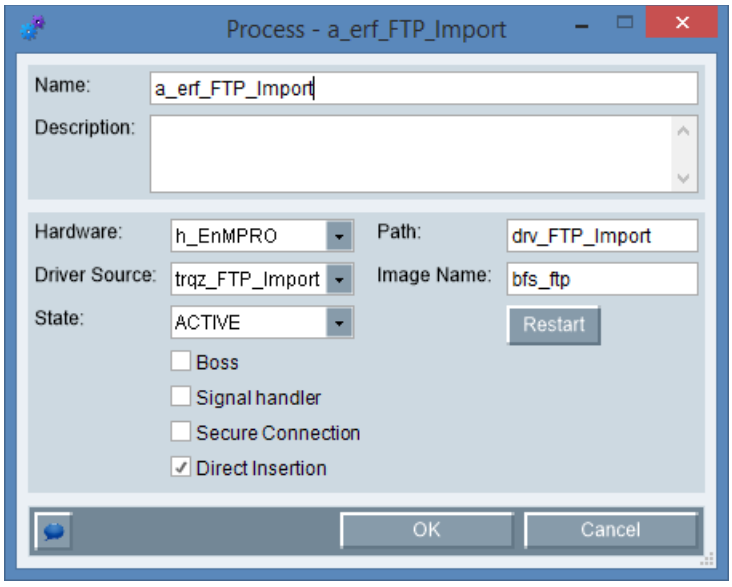


- Datapoint: "Kernel" check box must be selected.



Note

If the data of the ASCII file are not available in time-synchronous form, select the "Direct Insertion" check box at the Process. Otherwise no data are transferred.



The setting of the "Safe connection" check box at the Process is taken from the definition of the channel name and can be changed here, if required.

Configuring data acquisition via the "File Import" interface

Overview

With the "File Import" interface you read out data from ASCII files locally from your computer. Correct configuration of the process, IO buffer and datapoint is important. After successful configuration, transfer of the ASCII files from the local directory to the Energy Manager acquisition component is carried out automatically after the cycle time of the IO buffer.

After successful importing of the files from the local directory, these are initially stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer% directory.

After successful insertion of the data into the database the files are stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer%\imported directory.

If insertion of the data into the database is not successful, the files are stored in the %Install-DIR%\EnMPRO\GUI\mcl\ftp\upload\%Name_of_IO-Buffer%\failed directory.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via a unique identifier that is defined in the wizard.

Requirement

- The time stamps in the ASCII file are ascending.

  However, it is possible that the subsequent ASCII files have older ascending time stamps.
- The FTP server is started.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "File Import" entry.

Define the channel name

1. Enter a meaningful name for the communication channel, for example "Acq_FTP".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Group name", for example, "FTP_S7-CleaningStation".
2. Enter the directory in which the ASCII data are stored, for example"C:\EnMPRO\File_Import".

   Note

   Ensure that there are no blank spaces in the directory. Data acquisition is only possible with a directory without blank spaces.

3. Select the format in which the data exist in the ASCII files.

Note

During the installation of Energy Manager, an example file is stored in %Install-DIR%\EnMPRO\GUI\ftp for each supported ASCII format. Information about the example files is available in the Reference in the chapter ASCII FTP formats (Page 839).

Define the datapoints

1. Click "New definition" under "Access via address"

   The "Datapoint" dialog opens.
2. Enter a meaningful name for the datapoint.
3. The "Create datapoints" dialog opens. You can import data for several datapoints with one ASCII file. Create all the required datapoints and identify these under "Datapoint address" unambiguously with the designation of the datapoint in the ASCII file. The datapoint address is applied automatically in the datapoint.
4. Select all the datapoints by means of a check box or click "Select all".
5. Click "OK".

Define the data transmission

1. Select the data transmission interval for the IO buffer in which the acquisition component acquires the values.

Result

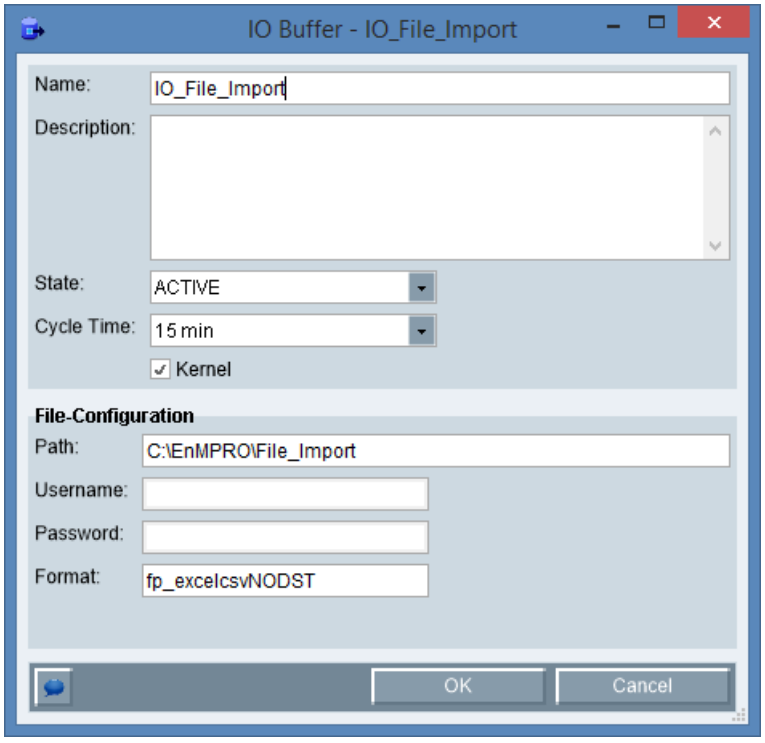
The acquisition structure for the "File Import" interface is created below the "Hardware" object. The data acquisition starts automatically after the cycle time of the IO buffer.

You can change the acquisition structure at any time with the wizard or add additional connections.

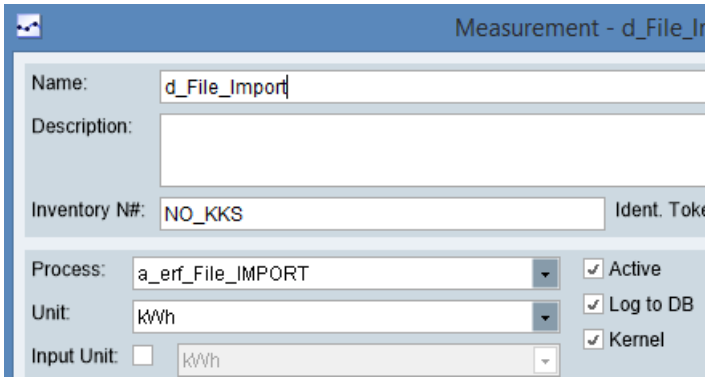
Introduction

In order to ensure correct File Import the following configurations are set automatically and may not be changed:

- IO buffer: "Kernel" check box must be selected.

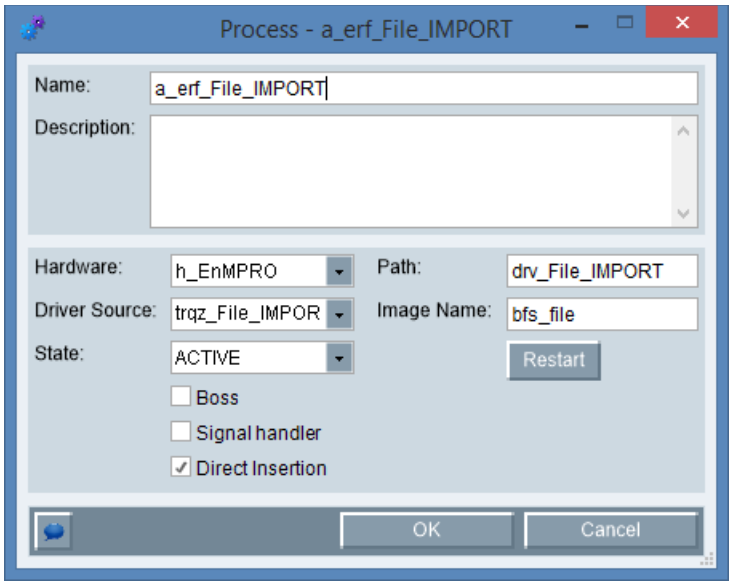


- Datapoint: "Kernel" check box must be selected.



Note

If the data of the ASCII file are not available in time-synchronous form, select the "Direct Insertion" check box at the Process. Otherwise no data are transferred.


Process - a_erf_File_IMPORT
Name:
a_erf_File_IMPORT
Description:
Hardware:
h_EnMPRO
Path:
drv_File_IMPORT
Driver Source:
trqz_File_IMPOR
Image Name:
bfs_file
State:
ACTIVE
Restart
Boss
Signal handler
Direct Insertion
OK
Cancel

Data acquisition via the "OPC-DA / OPC-HDA" interface

Overview

You use the "OPC" interface to retrieve the data provided by an OPC server. The "OPC" interface supports the OPC specifications "OPC-DA" and "OPC-HDA" as well as the following data types:

- Integer
- Float
- Boolean

  The "OPC" interface converts the Boolean values "True" and "False" to "1" and "0".

Note

You can select the values for the datapoints directly under the following prerequisites:

- OPC server is installed on the acquisition component.
- OPC server supports reading of OPC items.

Note

OPC server is not installed on the acquisition component

If possible, use "OPC TCP Tunnelling" software to establish the connection to the OPC server. Accessing an external OPC server via DCOM is not supported for security reasons.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the datapoint name in the OPC server.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.
- OPC server and / or OPC client are installed on the acquisition component.
- An understanding of addressing and communication with OPC.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.

2. Click the "OPC-DA" or "OPC-HDA" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_OPC-DA".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Group name", for example, "IO_OPC-DA".
2. Select the OPC server under "OPC-DA datapoints" or "OPC-HDA datapoints".
3. If you have selected "OPC-HDA", select the "OPC-HDA aggregate type", if necessary.

   The acquired values are compressed accordingly, for example, the mean of the reading interval is formed.

Define the datapoints

Activate the required datapoints.

The datapoint names are made up of the "Group name" and the "Datapoint".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.
2. Only for OPC-HDA: To change the start of the acquisition period, activate "Overwrite TSP settings".

   Archive data from the defined start of the acquisition period until the interface was started are transmitted in their entirety. Current values since starting the interface will be cyclically transmitted depending on the selected interval.

Result

The acquisition structure for the "OPC" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

See also

Create OPC DA, OPC HDA, OPC UA channel (Page 636)

Data acquisition via the "OPC UA" interface

Overview

"OPC Unified Architecture" is a specification for the transmission of process values and archive data. Using the OPC UA interface, you read data from a server that supports the "OPC UA" interface.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the datapoint name in the OPC server.

Security policy

The OPC UA server uses the TCP/IP protocol for data exchange. For authorization, certificates are exchanged between server and client. In addition, you can encrypt the data traffic.

Note

When configuring the OPC UA server, activate at least one "Security policy" and its associated "Security mode". Otherwise the OPC UA server and the clients will communicate insecurely.

During the first access to an encrypted OPC UA server instance a certificate for encrypting the data is created. This certificate has to be accepted individually in the respective server product.

- Siemens Simatic NET V15: By means of the "Siemens Communication Settings" software in the "OPC UA certificates" menu command.
- Siemens WinCC TIA V15: Moving of the new certificates from the path "C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\rejected\certs'" to "'C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\certs"

To use the OPC UA server from the S7-1500 controller, activate the function "Permit access with PUT/GET communication from remote partner (PLC, HMI, OPC, ...)" in the TIA Portal under "Properties > Protection > Connection mechanisms".

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.
- An OPC UA server is installed on the acquisition component.
- The Discovery server for OPC UA is enabled as a windows service, and the URL is known.
- Good knowledge of addressing and communication with OPC UA, and of authorization using security certificates.
- The certificate exchange is provided for at the time that the interface is configured.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click on the "OPC UA" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_OPC-UA".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Configure the connection

1. Enter a meaningful group name for the IO buffer, for example, "IO_OPC-UA".
2. Under the "Search address", enter the URL of the OPC UA Discovery Server.
3. Click "Discover".

   All available OPC UA servers will be listed under "Import datapoints".
4. Select the desired OPC UA server and click on "Connect".

   If the OPC UA server demands authorization, the "Server configuration" dialog will be opened.
   - Depending on the OPC UA server, either enter "User name / Password" or the "Token".
5. If you have selected "OPC UA HDA access", select the aggregation type if necessary.

   The acquired values are compressed accordingly, for example, the arithmetic mean of the reading interval is formed.

Define the datapoints

The "Browse access points" dialog indicates the datapoints that are available on the OPC UA server.

- Activate the required datapoints.

  The datapoint names are made up of the "Group name" and the "Datapoint".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.
2. If you have enabled "OPC UA HDA", you can change the start of the acquisition period. For this, select "Overwrite TSP settings".

   Archive data from the defined start of the acquisition period until the interface was started are transmitted in their entirety. Current values since starting the interface will be cyclically transmitted depending on the selected interval.

Result

The acquisition structure for the "OPC UA" interface is created below the "Hardware" object. Data acquisition starts once you have restarted the Energy Manager kernel on the acquisition component.

You can change the acquisition structure at any time with the wizard or add additional connections.

Note

If you change the server address for an existing OPC UA server connection and you want to continue to acquire the measurement data, you have to restart the kernel.

See also

Create OPC DA, OPC HDA, OPC UA channel (Page 636)

Data acquisition via the "Machines" interface

Requirement

- The Consumer functionality is licensed separately.

Overview

With the "Machines" interface, the option exists to establish communication with consumers (e.g. CNC machines) via TCP/IP. During configuration of the interface, a communication port must be entered (specified by the respective consumers) on which the driver listens and the interface receives data.

A previously created consumer template is used to automatically create a structure consisting of consumers, associated datapoints (defined as inputs in the consumer template), Mevas (defined as outputs in the consumer template) and optional Widget Dashboards and reports.

The consumers actively send data in a report that is specified by the Energy Manager. The consumers register in Energy Manager using a frame consisting of the name and type of the consumer. During import in the acquisition wizard, the consumers are displayed grouped by consumer type. If no type is sent, the consumer is assigned to the "undefined" group.

If the TCP/IP connection is disconnected or if no data is received for more than two minutes, a consumer must register again using a specified protocol so that data will be received in Energy Manager again.

If necessary, consumers can also be created manually without the Wizard. Additional information on this is available in the section "Consumers and structured view (Page 265)"

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via a unique identifier. The identifier is created in the communication block of EE monitor.

Procedure

The interface is created in two steps:

Creation of the interface:

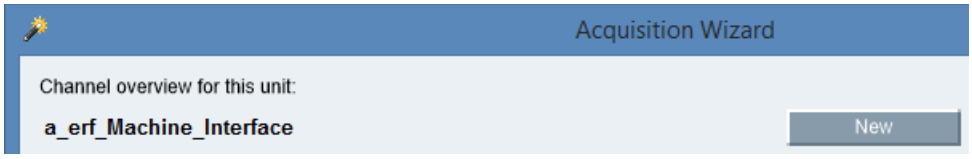
1. First, in the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "Machines" entry.
3. Enter a meaningful channel name, for example, "Machine_Interface".
4. Select the country whose time zone is used for the time stamp of the acquired values.

5. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.
6. Enter the Listener IP port on which the data will be received. The IP Port is specified by the consumers. Click "Finish". The structure of the interface with process, driver source and driver is created below the hardware.

Import and creation of consumers:

1. In the project tree, click on the newly created "Process" object and select the "Wizard..." command from the shortcut menu.
2. The "Acquisition Wizard" dialog opens again. Click on the channel name and then click "New".



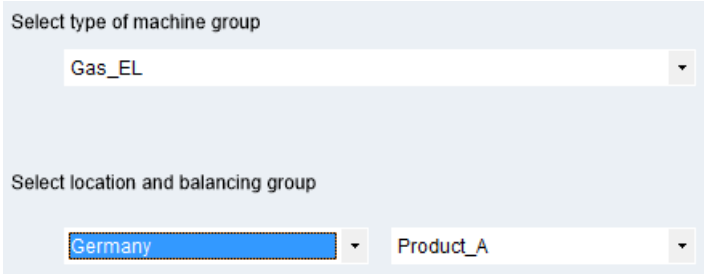
3. All registered consumers are listed by type. Click the type whose consumers you want to import or assign a template to.

4. Click "Template".

   Now, assign the following data to the consumers:
   - Template. Information on creation of consumer templates is available in the section "Load templates (Page 376)".
   - Location. Information on creation of a location is available in the section "Inserting the location or country (Page 331)".
   - Organization unit. Information on creation of an organization unit is available in the section "Inserting an organizational unit (Page 337)".

Consumers cannot be created with assignment to a consumer template.

If no location or no organization unit is assigned, these consumers cannot be created below the respective location or organization unit during automatic creation of the structure.

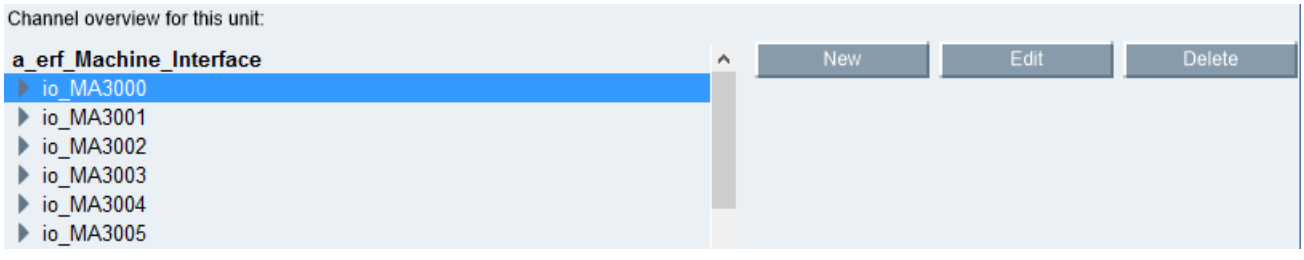


The template is assigned to all consumers of the selected type.

5. In the next step, select the "Data transmission interval". The interval specifies the cycle in which data is sent by the machine and received in Energy Manager. This also automatically sets the cycle time for the datapoint. Interval values below 15 minutes are automatically compressed to 15 minute values unless the "Compression" setting of the datapoint specifies that acquisition values are also to be archived as acquisition values. Additional information on automatic compression is available in the user manual.

6. A separate IO buffer is created for each consumer and can be customized here if necessary. Using "Edit" you can change the name of the IO buffer and the status (active, not active) and cycle time. Note, however, that the data transmission interval and the cycle time of the IO buffer should be consistent. The "Kernel" option in the IO buffer must be selected during creation of the consumer structure or consumer datapoints.

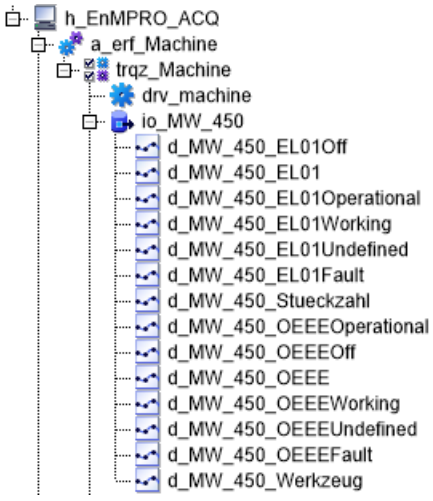
   Click "Finish".



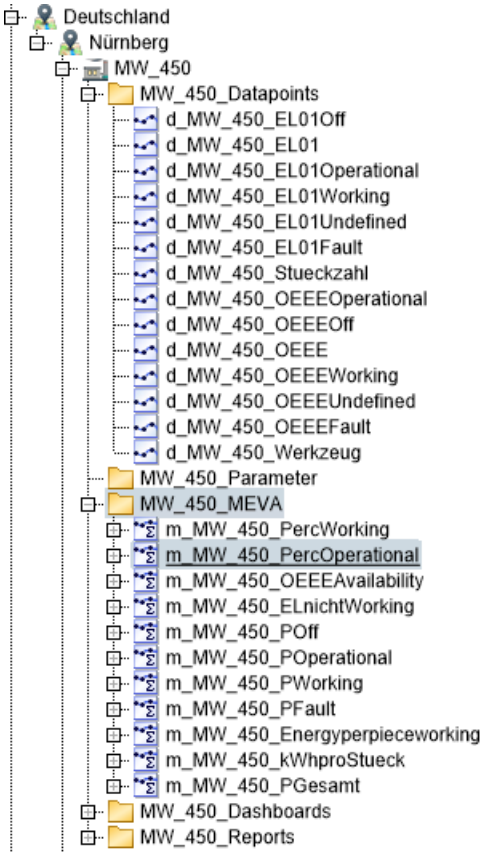
Result

The acquisition structure, together with the datapoints defined as inputs in the consumer template, is created automatically below the IO buffer.

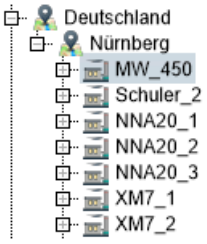
The name of datapoints consists of the datapoint prefix "d_", and the name of the consumer and name of the input (datapoint).



In addition, the consumers are created below the defined location, including the inputs (datapoints) and outputs (Mevas) specified by the consumer template. If Widget Dashboards or reports were configured in the consumer template, these are also created in the corresponding folders.



If an organization unit was selected during assignment of the consumer template, the corresponding structure is also created below this organization unit.



Data acquisition via the "Energy Suite Import" interface

Overview

Data acquisition via the interface "Energy Suite Import" corresponds to the interface "OPC-UA". Therefore, import the values in accordance with Data acquisition via the "OPC UA" interface (Page 118). The "Energy Suite Import" interface offers the advantage that additional information from the WinCC archive of the Energy Suite is transferred to Energy Manager , so that this information no longer has to be configured manually in the datapoints. The following information is automatically applied from the field "Runtime Comment":

- Type of the datapoint:
  - Counter Value
  - Energy value
  - Power value
- Unit:
  - GW, m^3, m^3/h, hl/h, l/h, Nm^3/h, kg, T, kg/h, t/h, Pcs, pcs/h, Wh, kWh, MWh, GWh, kW, MW.
- Cycle time in seconds
- End of counter range (overflow value)

If there are no entries in the "Runtime Comment" field, the datapoints are filled with the Energy Manager PRO Standard entries (Others, kWh, 15 min).

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the datapoint name in the OPC server.

Procedure

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "Energy Suite Import" entry.
3. Enter a meaningful "Group name" for the IO buffer, for example, "IO_Energy_Suite".
4. Enter the URL of the WinCC Professional OPC UA server under "Discover URL".
5. Click "Browse".

   All available OPC UA end points are listed under "Import Datapoints".
6. Select the desired OPC UA end point and click on "Connect".

   If the server demands authorization, the "Server configuration" dialog is opened.
   - Depending on the server, either enter "User name / Password" or the "Token".

7. The "Browse Address Space" dialog indicates the datapoints that are available on the WinCC server.
   - Activate the required datapoints.

     The additional information is included in the string of the "Datapoint identifier" in the details for the datapoint and subsequently taken from it during the creation of the datapoint.

     The string from the WinCC Runtime Comment field consists of a header "EnS:" as well as a sequence of four digits. The sequence of the four digits is separated by a semi-colon. This also applies to values that do not exist, for example: "EnS: 1;1179;900;;"

     The first digit specifies the type of the datapoint: 0 = Counter Value, 1 = Energy value, 2 = Power value.

     The second digit specifies the corresponding unit of the datapoint, for example "1179", which corresponds to kWh.

     The third digit specifies the cycle time in seconds, for example "900", which corresponds to 15 minutes.

     The fourth digit specifies the end of counter range for the counter value, for example "999999.9".
8. Select the interval in which the acquisition component acquires the values. The smallest cycle time occurring in the Energy Suite project is applied automatically as the cycle time. This can be changed if necessary.

The acquisition structure for the "Energy Suite Import" interface is created below the hardware.

Updating values

If values in the Energy Suite have changed, you can update the datapoints in Energy Manager.

1. Open the wizard by right-clicking the IO buffer.
2. There is a button in the top right-hand corner of the dialog with which information can be loaded again. Information about new datapoints or ones no longer existing as well as all the additional information (datapoint type, unit, cycle time, end of counter range) are loaded.
   - Datapoints that already exist in the Energy Suite and in Energy Manager are displayed with a gray background and the check box is activated. The datapoint cannot be deactivated at this point.
   - Datapoints that no longer exist in the Energy Suite have a gray background and the check box is not selected. These data points are set automatically to not active in Energy Manager but not deleted during updating.
   - Datapoints that are added in the Energy Suite do not have a gray background, can be selected and be imported to the Energy Manager as already described above.

See also

Creating an Energy Suite channel (Page 641)

Data acquisition via the "Simulation" interface

Overview

You use the "Simulation" interface to simulate data acquisition.

Requirement

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server and activated.

Starting the wizard

1. In the project tree of the Client, select the "Hardware" object and select the "Wizard..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "Simulation" entry.

Define the channel name

1. Enter a meaningful channel name, for example, "Acq_Simulation".
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data are acquired.
   - NOT ACTIVE: Data are not acquired.

Select the device configuration

1. Activate "Create user-defined configuration".

Configure the connection

1. Enter a meaningful channel name for the IO buffer under "Group name", for example, "IO_Simulation".

Define the data transmission

1. Select the interval in which the acquisition component acquires the values.

Result

The acquisition structure for the "Simulation" interface is created below the "Hardware" object.

You can edit the acquisition structure at any time with the wizard.

Data acquisition via the "Desigo CC" interface

Use the interface "Desigo CC" to read out the data saved on a Desigo CC system via the Desigo CC web service. Energy Manager supports Desigo CC V3.0.

The link between the measured values of a process tag and the associated datapoint in the Energy Manager is made via the datapoint name in Desigo CC.

Requirements

- The "Hardware" object has been created.
- The acquisition component is logged in to the Energy Manager Server.
- The Desigo web server is online and can be accessed from the acquisition component.

Start wizard

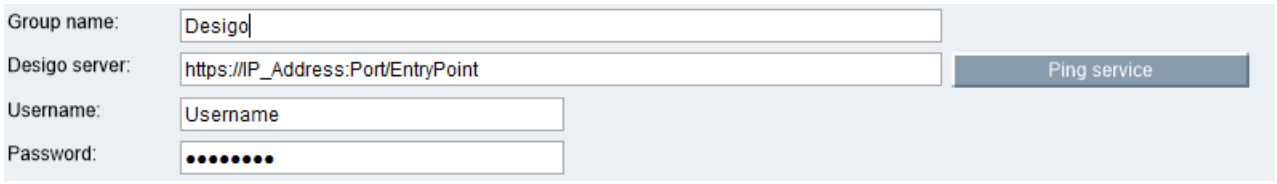
1. In the project tree of the client, select the "Hardware" object and select the "Wizard ..." command from the shortcut menu.

   The "Acquisition Wizard" dialog opens.
2. Click the "Desigo CC" entry.

Define the channel name

1. Enter a meaningful channel name
2. Select the country whose time zone is used for the time stamp of the acquired values.
3. Specify the status of the data acquisition on the acquisition component:
   - ACTIVE: Data is being acquired.
   - NOT ACTIVE: Data is not being acquired.

Defining the Desigo CC name



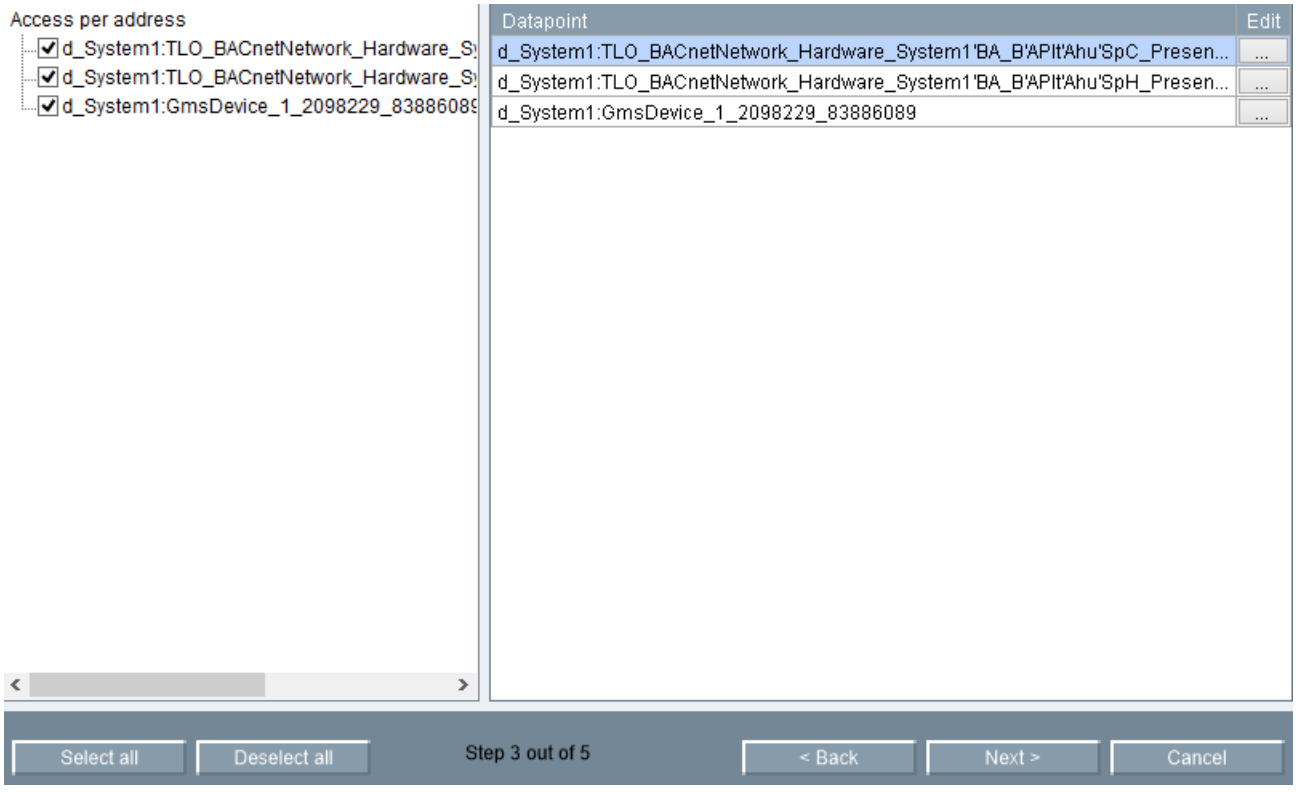
1. Enter an unassigned group name in the text box "Group name".
2. Enter the URL of the Desigo web server in the text box "Desigo Server".

   You can check the connection with the "Ping Service" button.
3. Enter your access data in the text boxes "User name" and "Password".
4. Click the "System IDs" button. Select the system ID with the required data points from the "System Id" drop-down list.
5. Click the "Browse Series" button.

Desigo CC Trend Series Browser

1. Select at least one data point with the mouse pointer. You can use the <CTRL> or <SHIFT> keys to select several data points. Click the "OK" button.

Creating data points



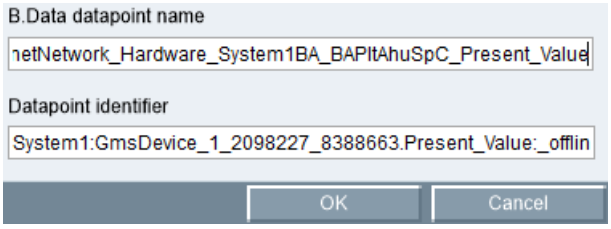
All selected data points are listed in the left-hand area.

1. Select all data points for data acquisition.

   The selected data points are displayed in the right-hand area together with an "Edit" button for each one.

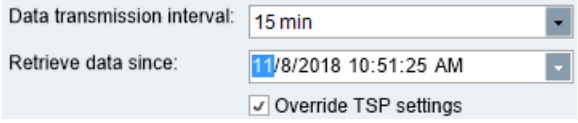
2. To edit a selected data point, click the "Edit" button of the corresponding data point.

   The "Data point" dialog box opens.



3. To edit the data point name, enter the desired name in the "Data point name" text box.
4. To edit the data point identifier, enter the desired identifier in the "Data point address" text box.
5. Click the "OK" button.

Select transmission interval



1. Click the "Continue" button.

   The dialog box "Select transfer interval" is opened.

2. Select the interval in which the acquisition component acquires the values from the "Define data transmission interval" drop-down list.
3. To import the data from a particular time, activate the check box "Overwrite TSP settings". Enter the required time in the "Retrieve data since" text box.

Overview of channels

1. To create a new group for the channel, click on the "New" button.

   For this group, repeat all steps from the section Define Desigo CC name.

2. To edit a group, select the corresponding group and click on the "Edit" button.
3. To delete a group, select the corresponding group and click on the "Delete" button.

Result

The Desigo CC channel is created with all configured groups and data points.

See also

Creating a Desigo CC channel (Page 650)

2.2.3.5 Starting the kernel service

Overview

The kernel service acquires measured values cyclically and transmits them to the application server. The kernel service is automatically installed with the acquisition component of Energy Manager.

Note

If you do not configure the kernel service properly, it prevents the automatic transfer of measured values to the application server.

You must only restart the kernel service if you modify the configuration of the interface. If you add more data points or archives (WinCC), restarting the kernel service is not necessary.

Requirement

- The "Hardware" object has been created.
- Interfaces are configured.

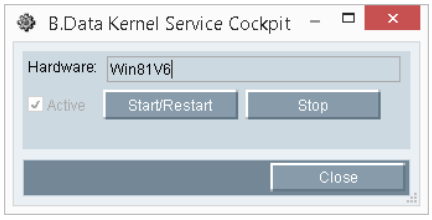
Procedure

1. Double-click the "Hardware" object in the project tree of the Client.

   The "Hardware" dialog opens.

2. Click "Kernel".

   The "Energy Manager Kernel Service Cockpit" is opened. The status of the kernel service is displayed:



☑	Active
☐	Stopped
▣	Undefined status

3. Click "Start/Restart".

Result

Data acquisition is started or continued via the interfaces configured on the acquisition component.

Alternative procedure

You can also restart the kernel service for an acquisition component from the Service Cockpit.

2.2.3.6 Datapoints

Creating data points

Overview

This section provides instructions related to the following actions:

Creation and configuration of data points

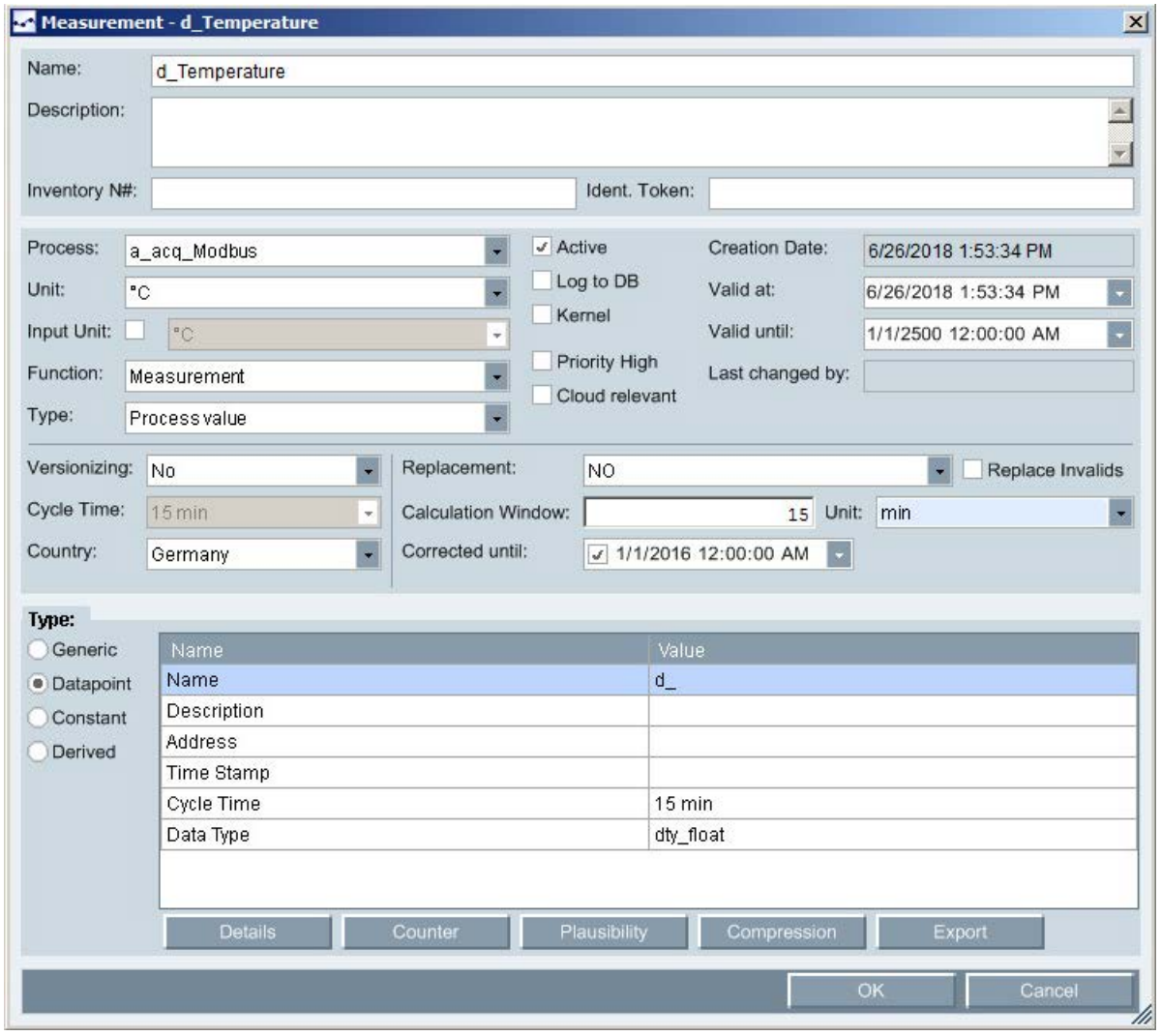
Data points are operating data points which receive their values directly from an interface (database interface, drivers, etc.).

Requirement

All necessary objects have been configured: hardware, driver source, process, drivers, IO area, etc.

Procedure

1. Select the folder in which the data point is going to be created.
2. Click the "Insert Measurement" button in the menu bar under "Acquisition > Datapoint".
   The "Datapoint" dialog opens.



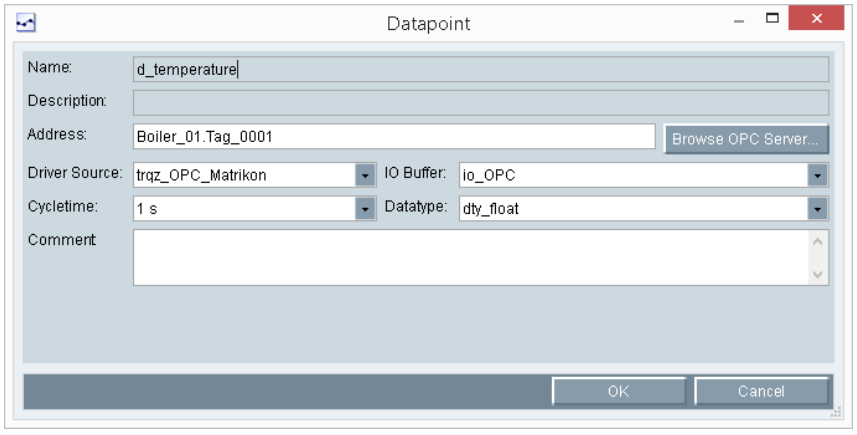
- Fill out or parameterize the fields as follows:
  - Enter the "Name" of the measurement (data point type). Observe the naming conventions.
  - You can describe the measurement in more detail in the "Description" field.
  - You can enter a KKS or FIS number, or a user-specific text in the "Inventory No." field. This text will be output, for example, if the "KKS Text" mode is selected for a report.
  - Under "Ident. Token" you may enter an additional identifier. However, this ID is used only by a special import/export interface.
  - Select the "Process" from which the data is acquired.
  - Select the desired "Unit".
  - Select the "Input Unit" check box to use a unit for the manual input of matrix data.

    You may define the "kW" unit and the "MW" input unit. The value 500,000 W is then stored in the database with the notation "500 kW". The value is displayed or entered in the format 0.5 MW for manual matrix input.
  - Select "Measurement" at the function.
  - The type of the measured values is to be defined at "Type" in order to ensure correct calculation of the statistical values Minimum, Maximum, Average or Work and Power.
  - "Active" must be if the measurement is to be used (acquired) in the system.
  - The "Log to DB" check box is only set if the acquired values are transferred directly to the database without having been calculated.
  - "Kernel" must be activated if the acquisition component of this measurement can or is to be used.
  - "Priority High": The value of a datapoint cannot be modified through a matrix.
  - "Cloud relevant": If you want to export the measured values of the data point to MindSphere, select the "Cloud relevant" check box. You configure further settings for MindSphere in Energy Manager PRO Web.
  - The date fields "Creation Date"and "Valid at" are filled with the current date when the datapoint is created. The "Valid until" field is set to the default date 01/01/2500. Further functionalities are currently not associated with these fields.
  - The user who most recently modified the measurement configuration is entered automatically in the "Last changed by" field.
  - Under "Versioning" you can select whether the data of this measurement are entered versioned or not versioned.
  - In the "Cycle Time" field, enter the period during which the values will be available cyclically. For data points, this period is copied automatically from the cycle time entry specified the detail settings.
  - Under "Country", select the country whose time zone you want to use for the acquisition.
  - The replacement value is set to "NO" by default. The entries in the field "Replacement" and "Corrected until" are required for replacement value strategies.

  - "Calculation Window and Unit": If "Historical value" is selected as the replacement value, you can define here how far back the calculation is to be effected.
  - The "Corrected until" date field is set automatically by a job after the measurement has been revised. The default is set to 01/01/2007.

- Data point types:
  - "Generic"
  - "Datapoint"
  - "Constant"
  - "Derived"

  After having selected the "Datapoint" type, click "Details" to open the dialog for detailed configuration of the datapoint:



  "Name" and "Description" (corresponds to the short and long texts) are copied from the main dialog and displayed but cannot be edited in this dialog.

  Depending on the respective driver, the exact designation with which the values and the associated datapoint are linked must be entered as the "Address".

  Select the driver that acquires the data from the "Driver Source" field.

  In the "Cycle time" field, specify the interval for polling the values of this data point.

  You may enter a user-specific text in the "Comment" field.

  In the "IO Buffer" field, you can select all of the IO buffers that have been configured for the driver source selected (e.g. a separate IO buffer for each scan cycle).

  In the "Data type" field, you can select one of the types dty_float, dty_integer, dty_boolean, or dty_string (available only for OPC).

  The "Browse OPC Server..." button is activated if an OPC driver has been selected in "Driver Source". You can browse all OPC servers and their tags that are locally available on the

acquisition computer running the acquisition kernel and enter these in the "Address" field with double-click.

Note

If you select a cycle time that does not match a compression level, only the values which were acquired while this cycle time was configured are displayed.

If a cycle time is then selected which matches a compression level, a gap in the values arises. The gap corresponds to the data which was acquired with the cycle time that did not correspond to a compression level.

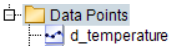
For this reason, configure a compression level before you select the corresponding cycle time.

You configure compression levels under "Compression".

Note

An IO buffer should always contain data points with the same cycle time. Otherwise, data points with a higher cycle time will always be included in the scan cycle.

1. Confirm your entries with "OK". The configuration dialog is closed. The object is now generated at the corresponding tree position.



See also

Creating data points (Page 659)

Location (Page 330)

Creating generic data point

Overview

A generic data point does not receive its value directly from a particular interface, but from a different source. Such different sources could be ODBC connectors, matrices, or loops.

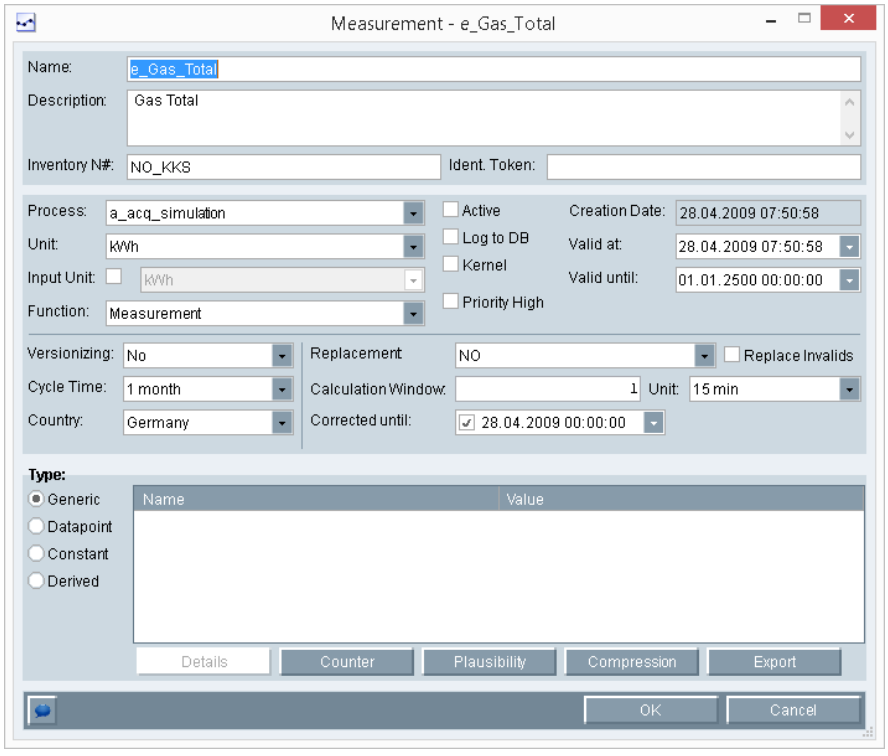
Requirement

- All software components are installed.
- All necessary objects have been configured, e.g. the hardware, driver source, process, drivers, or the IO area.

Procedure

1. Select the folder in which the data point is to be created.
2. Click the "Insert Measurement" button in the menu bar under "Acquisition > Data Point".

   The "Data Point" dialog opens.



3. Parameterize the fields.
   - Enter the "Name" for the measurement, taking naming conventions into account.
   - You may also enter a "description".
   - Enter the "Inventory N#".

     The inventory number is a KKS or FIS number. The inventory number is output if you select the "KKS Text" mode for a report.
   - Enter, if necessary, "Ident. Token" as additional identifier.

     The "Ident. Token" is used only by a special import/export interface.
   - You can select a "Process" that is not actively used for data acquisition, e.g. "a_erf_null", or "a_rech_PDS".
   - Select the physical unit.

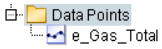
     The unit may depend on the processing routine (loop), or on the lower-level data type.
   - Select the "Input Unit" check box and select the unit.

     The "Input Unit" is used for the manual input of matrix data.

     Example: You selected the "kW" unit and defined the "MW" input unit. The value 500,000 W is stored in the database with the notation "500 kW". You can enter the value "0.5 MW" manually in the matrix.
   - Select "Measurement" from the "Function" field.
   - The type of the measured values is to be defined at "Type" in order to ensure correct calculation of the statistical values Minimum, Maximum, Average or Work and Power.
   - Enable or disable versioning of the data of this measurement using the "Versioning" drop-down list box.
   - Enter the "Cycle Time" for cyclic availability of the values.
   - Under "Country", select the country whose time zone you want to use for the acquisition.
   - Select the "Active" check box if the measurement is used in the system (e.g. loops).
   - Select the "Log to DB" check box to write the values returned from a loop to a database.
   - Select the "Kernel" check box to enable the use of the acquisition component of this measurement.
   - Select the "Priority High" check box to enable write protection for manual matrix input.
   - The substitute value" is set to "NO" by default. The entries in the field "Replacement" and "Corrected until" are required for replacement value strategies.
   - "Calculation Window and Unit": If "Historical value" is selected as the substitute value, you can define here how far back the calculation is to be effected.
   - Set the "Generic" radio button in the "Type" area.
4. Confirm your entries with "OK".

Result

The configuration dialog is closed. The server object is now generated at the corresponding tree position.



The current date is set in "Creation Date", "Valid from", and "Valid until" date fields when you create a new measurement. Further functionalities are currently not associated with these fields.

Once the measurement has been corrected, the date and time are set automatically in the "Corrected until" field.

The user name of a user who changes the configuration of the measurement is entered in the "Last changed by" field.

You successfully configured the generic point and it is now ready for use.

See also

Location (Page 330)

Creating constants

Overview

A constant represents a special type of data point that is used as default for data acquisition or for generation of a substitute value. For example, if the averaging period of loops is set by means of a constant, a change to this constant will instantaneously change the averaging period of all loops concerned. Otherwise, you would have to parameterize each loop individually. A replacement value can be generated for each data point and may be used to substitute missing values, provided the "Substitute value" strategy has been selected.

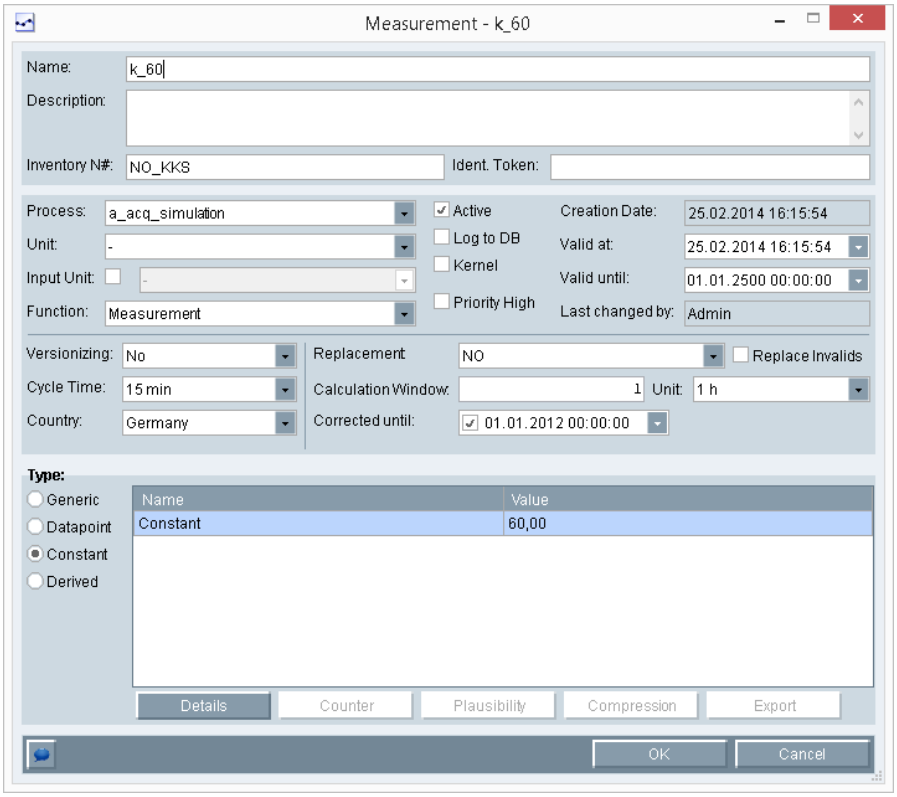
Requirement

All software components are installed.

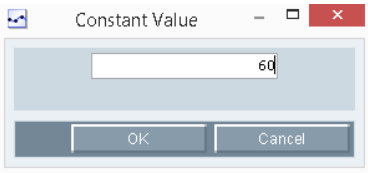
Procedure

1. Select the folder in which the constant is going to be created.
2. Click the "Insert Measurement" button in the menu bar under "Acquisition > Data Point".

   The "Data Point" dialog opens.



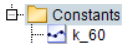
3. Fill out or parameterize the fields as follows:
   - Enter the "Name" for the measurement (data type constant). Observe the naming conventions.
   - You can enter additional information on the measurement in the Description field.
   - In the "Inventory no." field, you can enter a KKS or FIS number or a user-specific text that is not intended for further use in constants.
   - In the "Process" field, select the process that is parameterized on the PC that has to work with this constant.
   - Select the physical unit.
   - The user who most recently modified the measurement configuration is entered automatically in the "Last changed by" field.
   - The "Corrected until" date field is irrelevant for constants.
   - The "Type" field does not have any effect at the constants.
   - The "Versioning" field is irrelevant for constants. Therefore, select "NO".
   - The cycle time, too, is irrelevant and can be set to one second.
   - Under "Country", select the country whose time zone you want to use for the acquisition.
   - Select the "Active" check box to enable the constant for use in the system.
   - Do not select the "Log to DB" check box, as the value is only read from the database but not written.
   - Select the "Kernel" check box to enable the use of this constant by the acquisition component.
   - The current date is set in "Creation Date", "Valid from", and "Valid until" date fields when you recreate the measurement. Further functionalities are currently not associated with these fields.
   - Under "Ident. Token" you may enter an additional identifier.
   - Select "Measurement" from the "Function" drop-down list box.
   - Keep the "NO" entry in the "Substitute value" field, as this function cannot be used for constants. Similarly the function "Calculation Window" and "Unit".
   - Select the "Constant" radio button in the "Type:" area.
   - After having selected the "Constant" type, click "Details..." to open the dialog for detailed configuration of the constant:



– Enter the constant value.

  When using the constant as substitute value for the substitute value strategy, briefly change to the "Constant" type, enter the substitute value and then restore the previous type setting.

4. Confirm your entries with "OK". The configuration dialog is closed. The server object is now generated at the corresponding tree position.



Result

You successfully configured the constant and it is now ready for use.

See also

Location (Page 330)

Creating derived data points

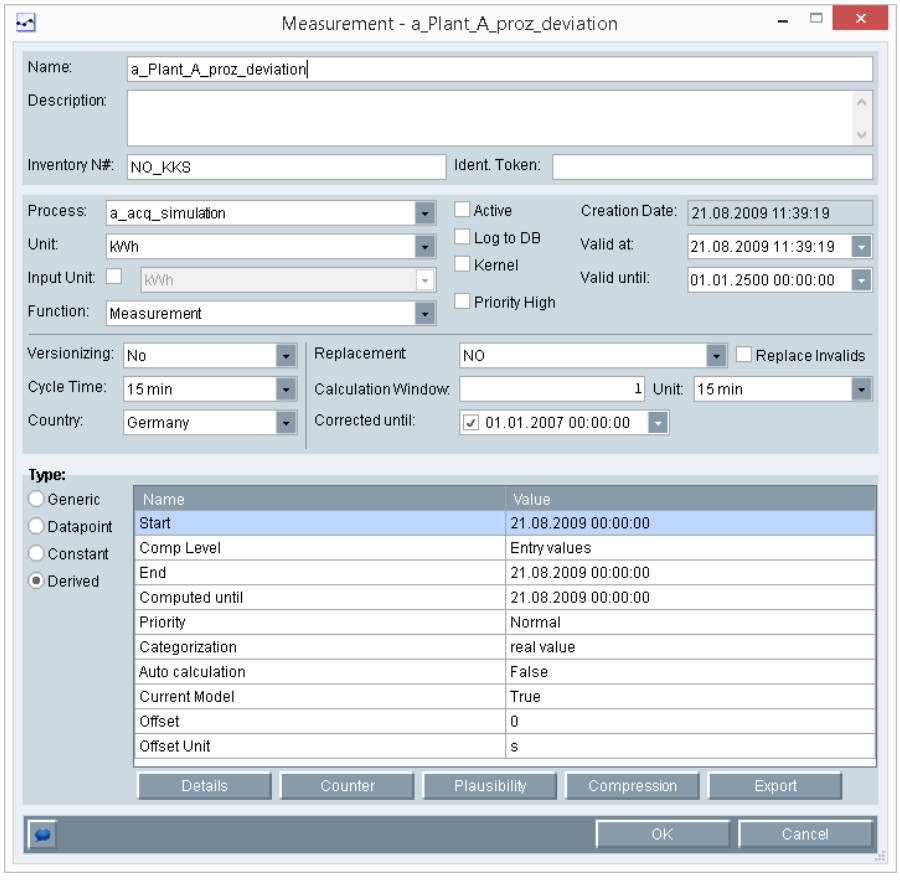
Overview

Derived data points represent operating data points that are used to write MEVA results to the database. This means instead of being provided by a sublevel control system, the values are calculated directly in Energy Manager. Once calculated, the values are written back to the database again as separate data stream.

Procedure

1. Select the folder in which the data point is to be created.
2. Click the "Insert Measurement" button in the menu bar under "Acquisition > Data Point".

   The "Data Point" dialog opens.

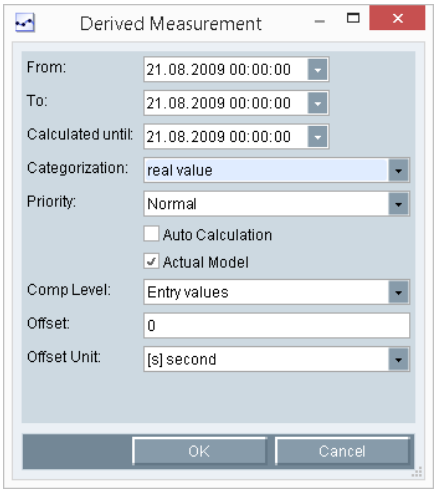


3. Enter the general information on the data point.

   Do not activate the "Kernel" option.

4. Activate the "Derived" datapoint type and click "Details".

   The "Derived Measurement" dialog opens.



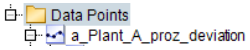
5. Configure the derived data point as follows:
   - Under "From" and "To", enter a calculation time range.

     The "To" time can be in the future.
   - The "Calculated until" field shows the time up to which the derived data point is already calculated.
   - If you select the option "Future values" under "Categorization", the current compression interval of the data point is recalculated for every value.
   - If you select "real value" under "Categorization", the current compression interval of the data point is calculated after all values are acquired.
   - Activate "Automatic recalculation" to recalculate the derived data point if new or update values are available.
   - Select a compression level.

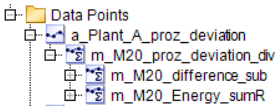
     The selected compression level is transferred to the configured measuring variable. This measuring variable calculates based on the values of the selected compression level.
   - In the "Offset" entry field, enter the value of the duration with which the start of the daily interval deviates from midnight.

     The daily values are calculated taking this deviation into consideration. If an Offset of 6 hours is configured, for example, the daily values from 6 am to 6 am are calculated.
   - Click "OK".
6. Click "OK" again.

   The derived data point is now generated at the corresponding project tree position.



7. Copy the required measuring variable, which includes the calculation rule for the derived data point, under the derived data point.



Note

Automatic recalculation is discarded in the following situation:

If a derived data point is recalculated manually using the "Recalculate" function, only the actual data point and its directly nested data points are calculated. Any data points at lower levels or data points above the actual data point are not recalculated. This rule is not valid for data points transferred via interfaces.

8. Specify how to calculate the derived measurement.

   The following options are available:

   – Calculation in a report using a module
   – Automatic calculation

     To automatically calculate the derived measurement, activate the "Recalculate automatically" option in the details of the data point.

     Note

     To reduce the system utilization, deactivate the "Recalculate automatically." option for derived data points whose automatic calculation is not required anymore.

Result

The derived data point is configured.

See also

Location (Page 330)

Configuring versioning

This section provides instructions related to the following actions:

- Configuration of data point versioning

All values are saved along with their date of creation if you are using versioning. By using this function, you limit the view to data on a specific date of creation.

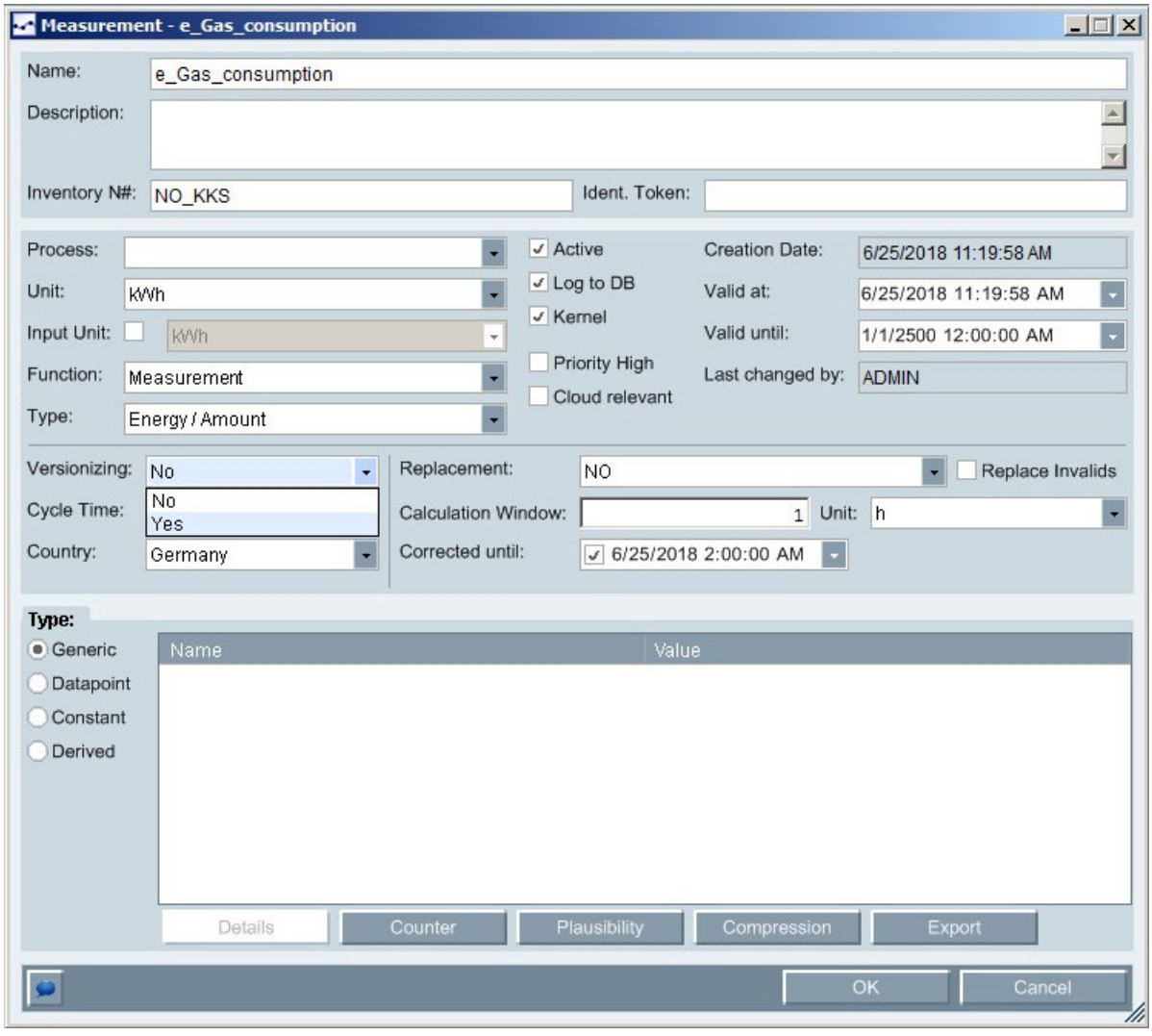
Requirement

The data point has been properly created and configured.

Procedure

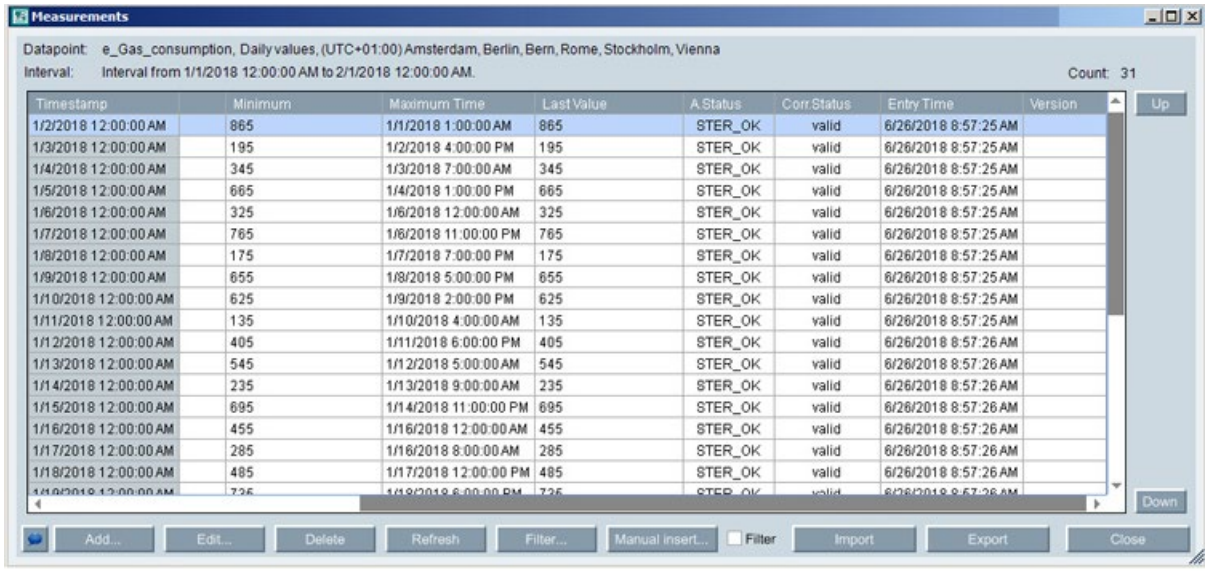
1. Select the datapoint to be versioned in the Client.
2. Select the "Edit" command from the shortcut menu of the data point.

   The "Data Point" dialog opens.



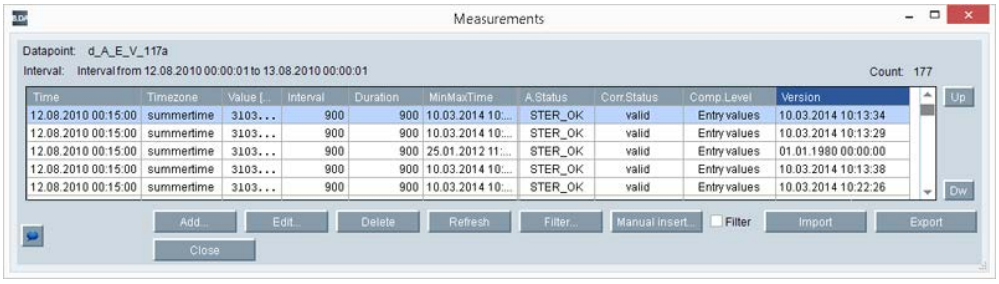
3. Select the required versioning type under "Versioning".
   - No

     No versioning. The time set entered last is saved in the system.



   - Yes

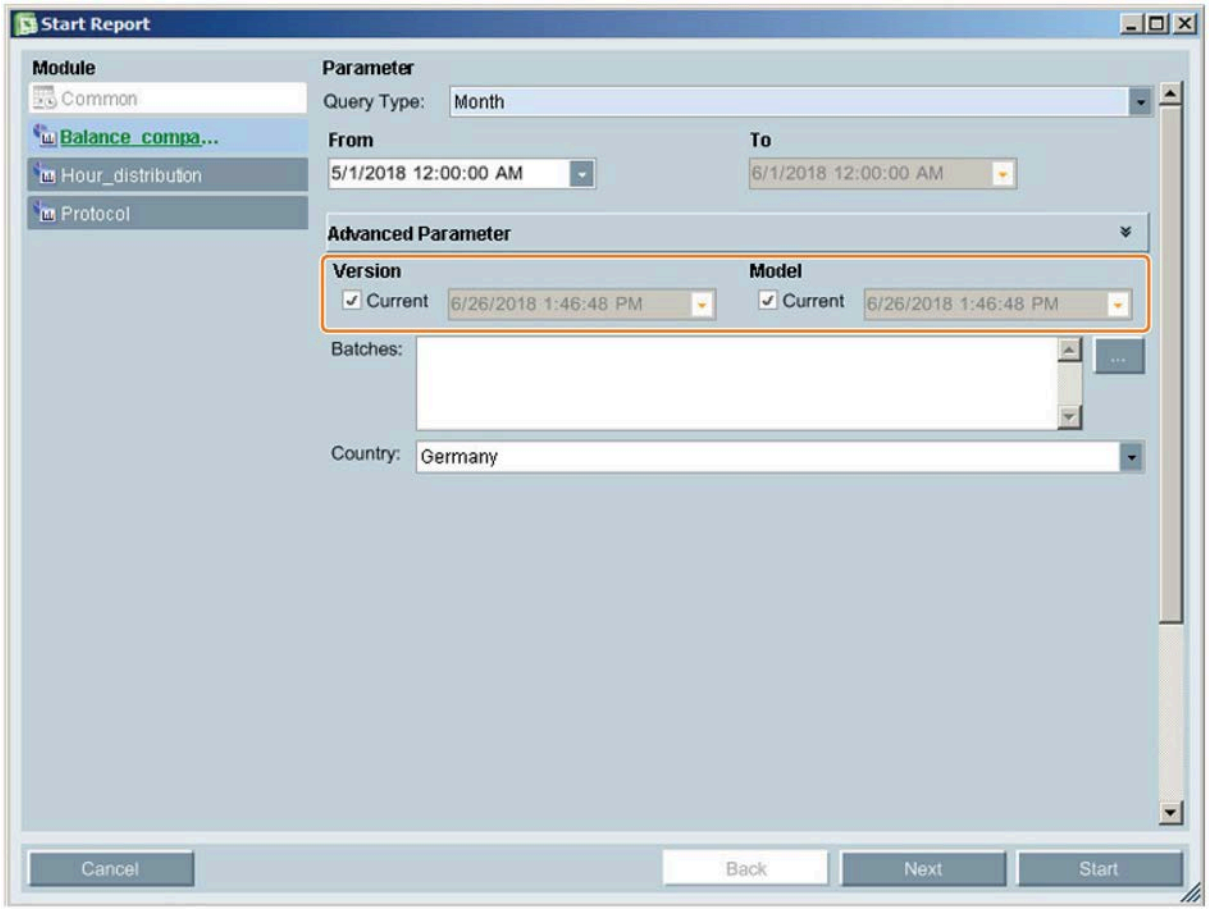
     All time sets are saved to the system, including the corresponding generation dates. The date and time of the system entry is displayed as version.

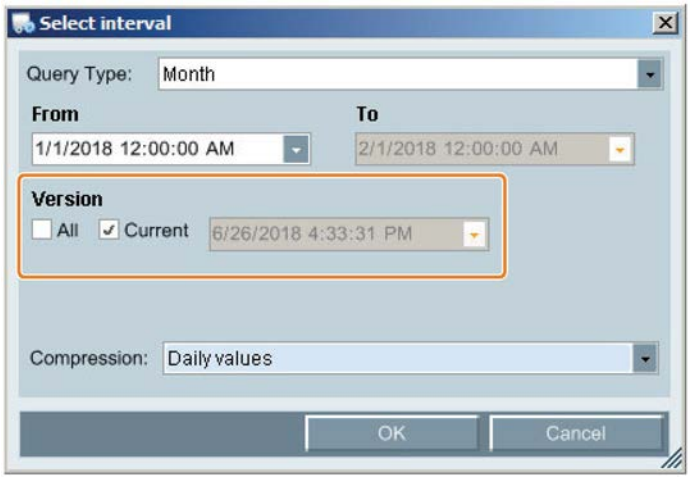


Result

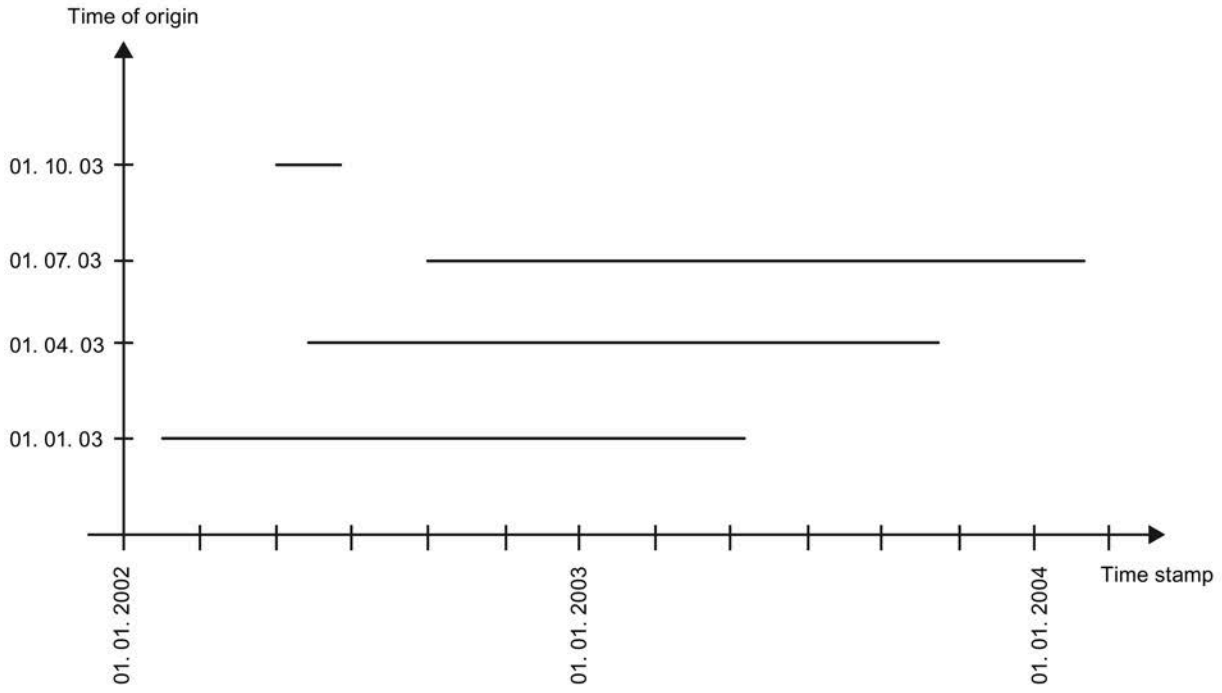
You successfully configured versioning for the data point and the function is now ready for use.

When starting a report you can use the actual version or a maximum creation date. It is also possible to display all versions in the measured value editor.

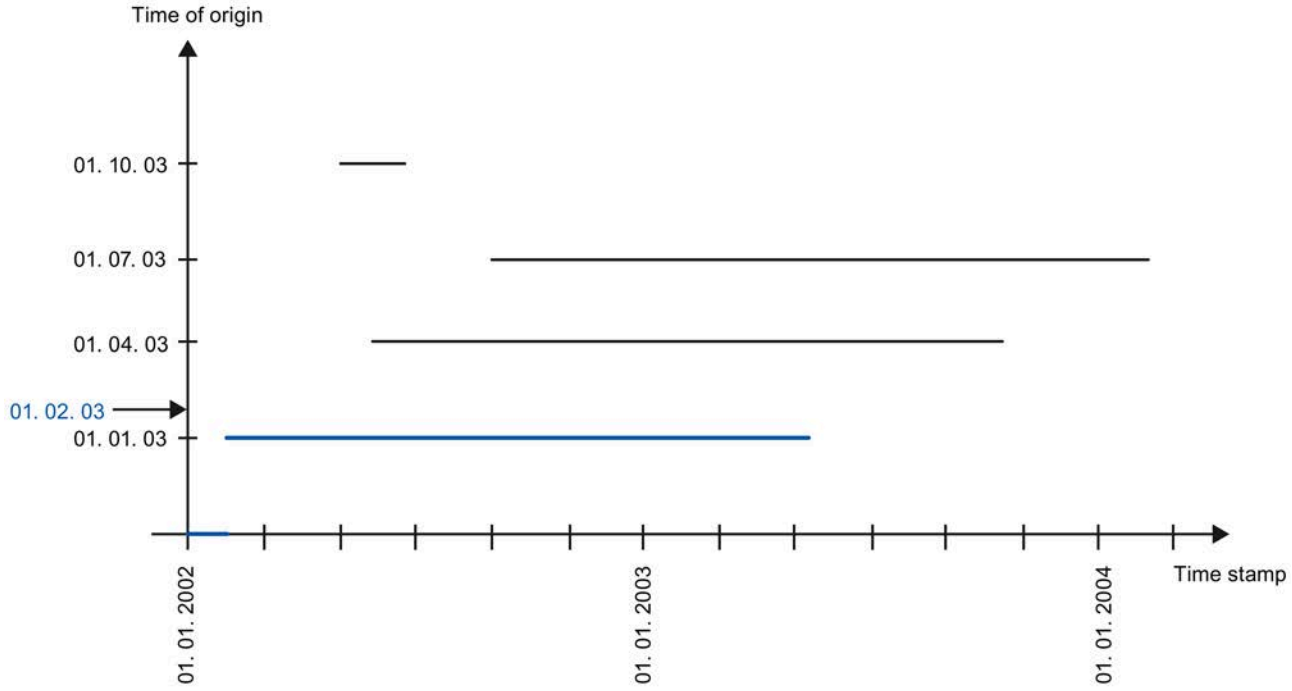




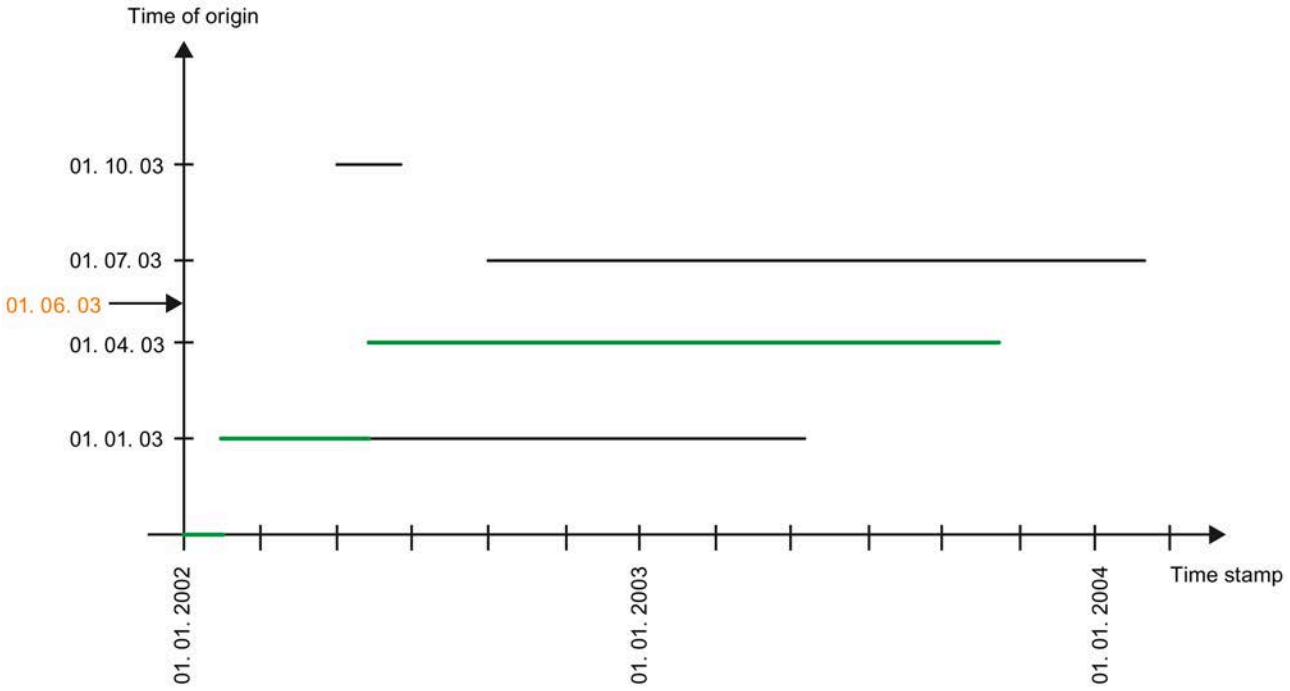
The following example shows up to four dates/times at which data sets have been entered in the system (01/01/2003, 04/01/2003, 07/01/2003, and 10/01/2003)



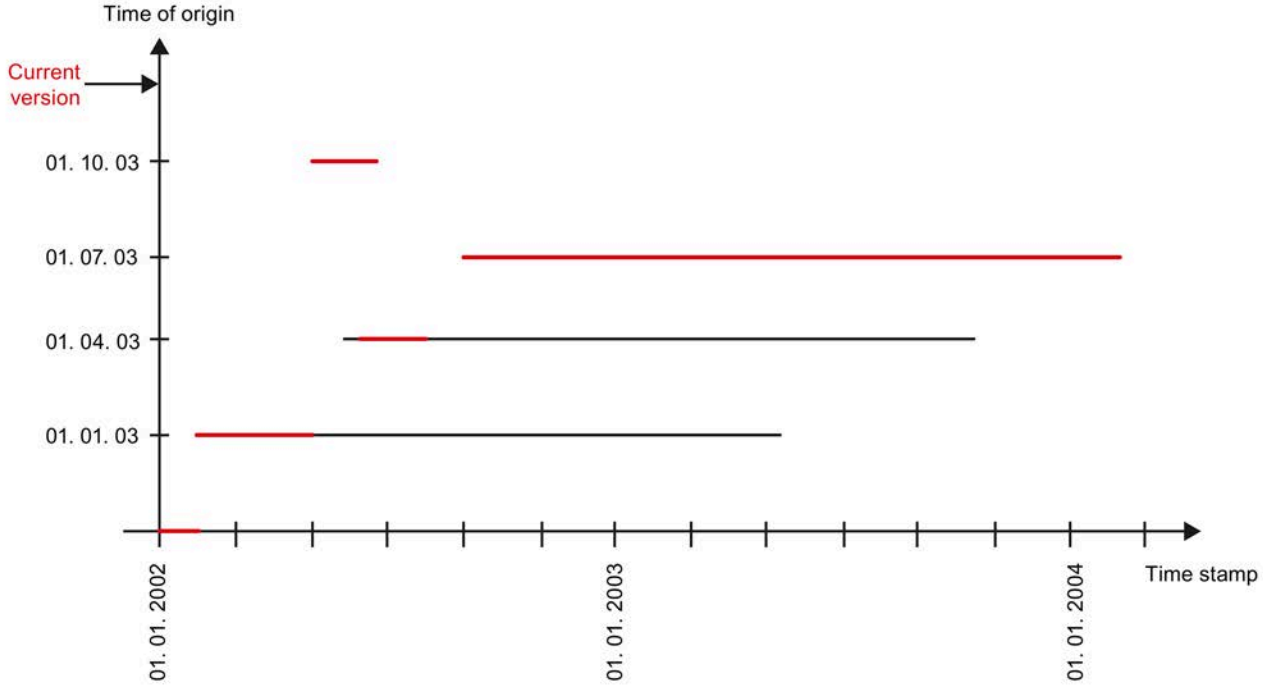
Values used for version date 02/01/2003:



Values used for version date 06/01/2003:



Values used for the "actual version":



Configuring replacement value strategies

Overview

The following substitute value strategies are available for closing gaps in measured values or compressed values of a data point:

- You can use the measured values of a different data point to eliminate gaps in the measured value series of a data point (AKS = Anlagen-Kennzeichnungs-System - Plant Identification System).
- You can use fixed values to eliminate gaps in the measured value series of a data point (replacement value).
- You can use past measured values of the same data point to eliminate gaps in the measured value series of a data point (historical value).
- You cannot eliminate gaps in the measured value series of a data point (NO).
- You can use the most recent valid measured value to eliminate a gap in the measured value series of a data point (LRU - last recently used).
- You can use interpolation of the last value to eliminate gaps in the measured value series of a data point (interpolate).

Requirements

- The data point is configured.
- The measuring journal contains at least one entry for the data point.

Procedure

1. Click "Edit" in the shortcut menu of the selected data point.

   The data point configuration dialog opens.
2. Proceed as follows to eliminate gaps in the measured value series of a data point using the measured values of a different data point:
   - Select "AKS" under "Replacement".
   - Insert the other data point underneath the data point that contains the gap.
3. Proceed as follows to eliminate a gap in the measured value series of a data point using a fixed value:
   - Select "Replacement value" under "Replacement".
   - Select "Constant" under "Type".
   - Enter the selected substitute value under "Details" and confirm the configuration with "OK".
   - Change back to the original type of the data point.

4. Proceed as follows to eliminate a gap in the measured value series of a data point using a past measurement value of the same data point:
   - Select "Historical value" under "Replacement".
   - Enter a count value under "Calculation window".
   - Select the time interval associated with the "calculation window" under "Unit".
5. Proceed as follows to eliminate a gap in the measured value series of a data point using the last valid value:
   - Select "LRU" under "Replacement".
6. Proceed as follows to eliminate a gap in the measured value series of a data point with the last valid value using linear interpolation:
   - Select "Interpolate" under "Replacement".
7. Select "NO" under "Replacement" if you do not want to eliminate the gap in the measurement series of the data point.
8. Activate "Replace invalid" to replace invalid measured values of the data point with the selected replacement value strategy.
9. Select the time as of which you want to replace the gap under "Corrected until".
10. Confirm the configuration with "OK".

Result

You have successfully configured the substitute value strategy for the data point.

See also

Job queue (Page 398)

User jobs of the job queue (Page 827)

Configuring replacement value strategies (Page 669)

Configuring counters

Overview

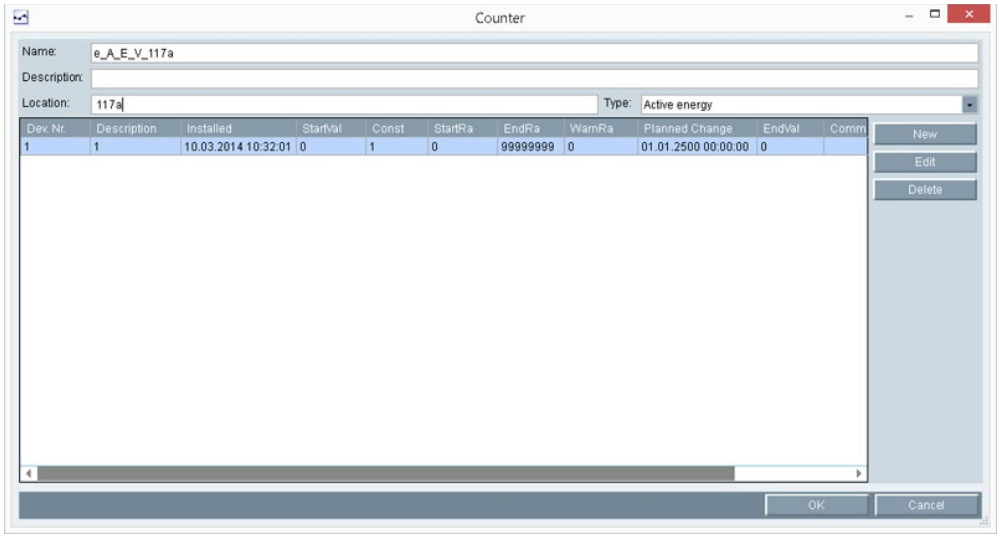
Counters represent operating data points that save count values instead of consumption values as measurement values to the database. Configuration information for the counter is required to ensure that differentiations in these counter states are correctly evaluated.

Requirement

The data point has been properly created and configured.

Procedure

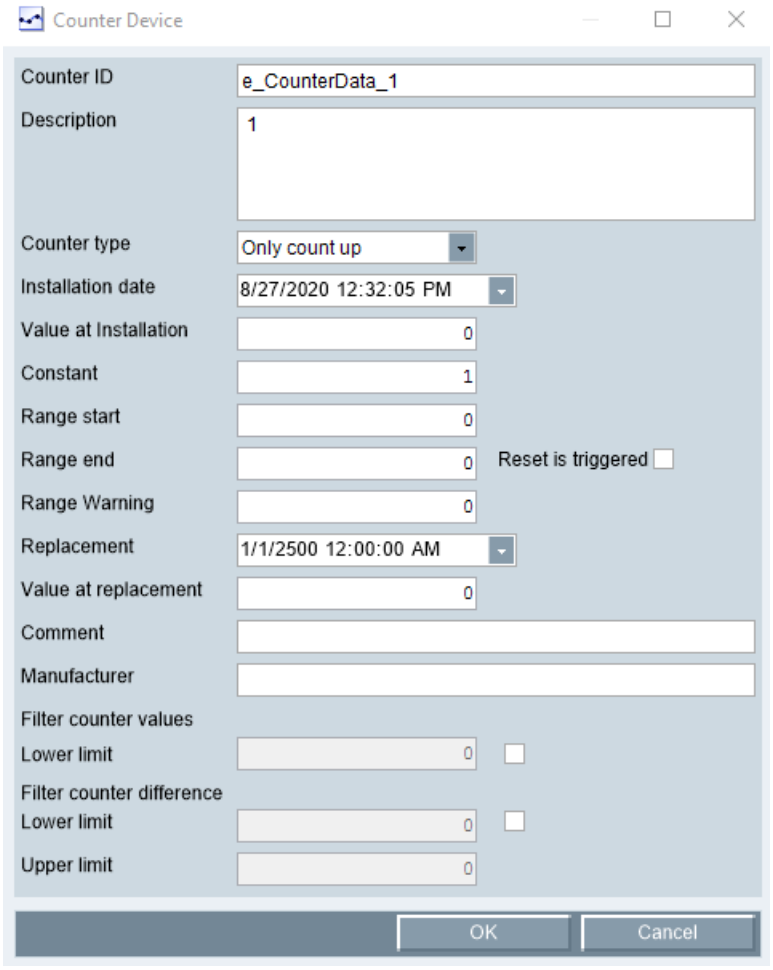
1. Select the data point for which a counter is to be created and then select the "Edit" command from the shortcut menu to open the data point configuration.
2. The "Measurement" configuration dialog opens. Select "Counter" to open the counter configuration.
3. Select the counter type (e.g. active energy) and a location (e.g. consumer 117a).



Note

The "Operating value" counter type may only be used for measured values which are acquired by the scanner functionality of the SIMATIC Energy Manager V1.0 app. The counter type is used for data points that record measured values instead of real count values to provide the device number that is necessary for identification.

4. Click New to create a new counting device for which the following information is required:



5. In the "Counter number" text box, enter a unique number for this meter. If the counters are read with the Energy Manager V1.0 app and the barcode scanner, enter the barcode of the counter as the counter number.
6. Enter a unique description for this counter in the "Description" text box. The suggested description is the description of the data point and the counter number.
7. If you select "Only count up" from the "Counter type" drop-down list, all valid counter values are in ascending order. If a negative counter difference is calculated, the situation is treated as a counter overflow.
8. If you select "Count up and down", valid counter values may be greater or less than the previous value. This option is suitable for level measurements, for example.
9. In the "Installation Date" box, use the calendar to enter the time at which the counter was installed. This date is used as a reference for when counter values are valid.
10. In the "Start Value" text box, enter the value of the counter at the time installation.

11. Enter the counter constant in the "Constant" text box.

    The default setting of the counter constant is "1". The counter difference is multiplied by this constant.

12. Enter the start of the counting range in the "Range start" text box.
13. Enter the end of the counting range in the "Range end" text box.
14. If you enable "Cyclic reset", the counter is reset to zero if a value is less than the previous value. In this case, the difference is calculated as follows: 0 + current counter state
15. In the "Value at replacement" text box, enter the value of the counter at the time of replication.
16. If you enable "Filtering", enter the value in the "Lower limit" text box. All count values from this value onwards are filtered. All count values less than or equal to this value are treated as invalid.

    The limiting value is applied to the first compression stage.

17. If you enable "Counter difference", enter the value in the "Lower limit" text box. If the most recently calculated difference is less than this value, the current counter value is treated as invalid.

    The limiting value is applied to the first compression stage.

18. If you activate "Counter difference", enter a value in the "Upper limit" text box. If the most recently calculated difference is greater than this value, the current counter value is treated as invalid.

    The limiting value is applied to the first compression stage.

19. The following fields have no function in Energy Manager and are for information purposes:
    - Range warning
    - Replacement
    - Comment
    - Manufacturer
20. To create the counter, click "OK".

Result

The counter configuration of the data point has been successfully configured.

See also

Configuring counters (Page 664)

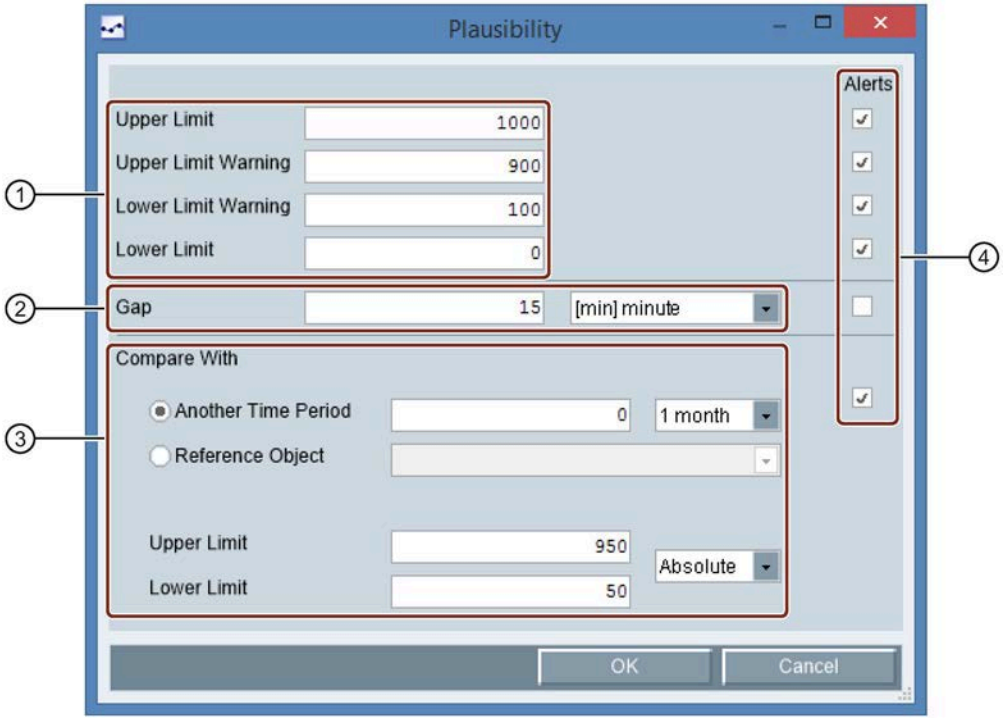
Counter value filtering (Page 921)

Configuring the plausibility

Overview

Configure the datapoint limits that you want to use to monitor the limits of a measured value.

You can configure different datapoint limits in the "Plausibility" dialog:



① Upper limit, upper limit warning, lower limit warning and lower limit of a measured value

② Time window after which it is checked whether the measured value series of a datapoint has gaps. [1]

③ Selection of criteria for datapoint comparison

④ Entry in a message list if configured limits are exceeded

[1] Example for datapoint with "15 min" cycle time: The values are tested by the system at the full minute, for example, at 02:30:00 p.m. and not at 02:30:05 p.m. The system checks whether at least one value exists in the measured value series of the datapoint for the last cycle time + the defined period in the "Gap" field (15 min + 15 min = 30 min), for example, from 02:00:00 p.m. to 02:30:00 p.m. If no value exists, a message is generated. In addition, the affected datapoint is listed under "GAP Detection" in the Service Cockpit.

If the cycle time of a datapoint is less than 1 minute, the number of values is also checked for completeness.

Example for datapoint with "10 s" cycle time: The values are tested by the system at the full minute, for example, at 02:30:00 p.m. and not at 02:30:05 p.m. The system checks whether at least one value exists in the measured value series of the datapoint for the last cycle time + the defined period in the "Gap" field (10 s + 1 min = 1:10 min), for example, from 02:28:50 p.m. to 02:30:00 p.m. In addition, the number of values is tested for completeness for the last minute, for example, from 02:27:50 p.m. to 02:28:50 p.m. / 6 values per minute at "10 s" cycle time.

Applications

The limits of the measured values are evaluated for the following applications:

- The measured values are marked in red following limit violations in the Energy Manager PRO Mobile app and in the matrix in the Energy Manager PRO Client and in the Energy Manager PRO Web.
- Message lists
- Module type for "Plaus. check deviation reference datapoint" report
- Module type for "Plausibility check of gaps" reports
- Module type for "Plausibility check of MIN/MAX" reports
- At activated messages the high and low limits as well as the warning levels can be displayed in the Chart.

Requirement

The datapoint is configured.

Procedure

Note

Subsequent modification of limits

Changes to the limit definitions only affect newly acquired data. Existing data is not updated.

1. Click "Edit" in the shortcut menu of the datapoint.

   The datapoint configuration dialog opens.
2. Click "Plausibility".

   The "Plausibility" dialog opens.
3. Enter the required limits (upper limit, upper limit warning, lower limit warning, lower limit) for the measured value.
4. In order to identify gaps in the measured value series of a datapoint, select the time delay after which a check is to made to determine whether a measured value has been acquired for the datapoint.
5. To compare the datapoint with a different period, (same datapoint but different period),
   – select the "Another Time Period" option in the "Compare With" area and
   – define the period with which the current period is to be compared. For example, enter "1" and "1 month" to compare the current month with the prior month.
6. To compare the datapoint with a different datapoint,
   – select the "Reference Object" option in the "Compare With" area and
   – select a datapoint.

7. Enter the lower limit and upper limit. Select the type of limits as "Absolute" or "%".
   - The entered upper limit defines the amount by which the value may be exceeded (value + upper limit) before a message is generated.
   - The entered lower limit defines the amount by which the value may be fallen below (value - upper limit) before a message is generated.
8. Select the "Alerts" check box to generate a message in a message list at a violation of the configured limits.
9. Click "OK".

Plausibility check and compression functionality

The following plausibility checks are available for entry values directly on the acquisition component:

- Upper limit
- Upper limit warning
- Lower limit warning
- Lower limit
- Gap

If a plausibility check is to take place and messages are to be generated, these must be activated in the datapoint with the "Plausibility" button.

The acquisition component then checks the entry values for plausibility and sends a message via email or generates an entry in the message list, provided that the message list is configured correctly.

The following plausibility checks in the "Compare With" area

- Another Time Period
- Reference Object
- Upper Limit
- Lower Limit

can only be checked if the entry values are available on the server. For this purpose, the "Entry values" option must be additionally selected for the datapoint in "Compression".

A detailed description of the additional functionality of the acquisition component is available in the SIMATIC Energy Manager - Acquisition system manual.

See also

Module overview (Page 758)

Configuring the plausibility settings (Page 666)

Message lists (Page 389)

Manual acquisition with Energy Manager PRO Mobile (Page 925)

Configuring compression

Overview

The acquisition component automatically compresses the acquisition values with an acquisition cycle that is smaller than or equal to one day. Acquisition values with a larger acquisition cycle are stored without compression directly at the Energy Manager Server into the database.

The compression levels 1 minute, 15 minutes, 1 hour and 1 day are selected automatically when a data point is created (cycle time below 1 day), but can be deselected again, if necessary, using the "Compression" button. Acquisition values are compressed to the selected compression levels and saved in the database. This means that incoming 1-minute values, for example, are compressed to 15-minute values, 1-hour values and 1-day values, and the compressed values are saved in the database. Other compression levels can be selected additionally.

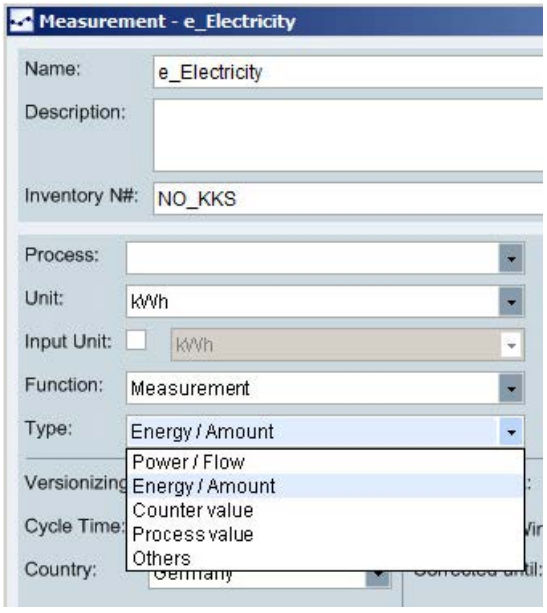
A detailed description of the additional functionality of the acquisition component is available in the SIMATIC Energy Manager - Acquisition system manual.

Procedure

1. If you want to create additional compression levels or delete existing compression levels, click "Edit" in the shortcut menu of the desired datapoint.
2. The data point configuration dialog opens.

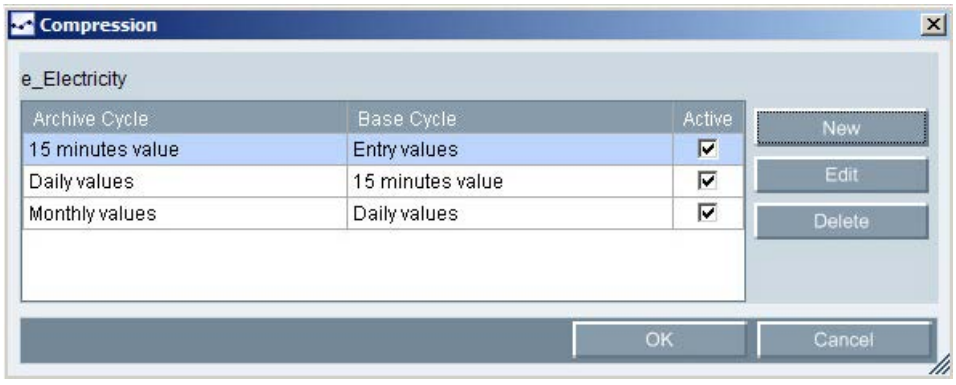
Note

Ensure that the correct "Type" is selected when creating the datapoint. This is necessary for correct calculation of the statistical values.



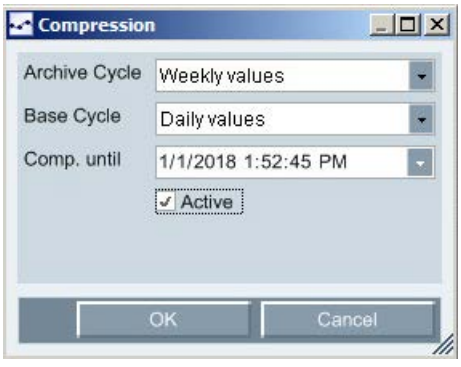
- Select "Power / Flow" if power values (e.g. kW) or flow rate values (e.g. m^3/h) will be acquired in the data point.
- Select "Energy / Amount" if energy values (e.g. kWh) or quantity values (e.g. m^3/h) will be acquired in the data point.
- Select "Count Value" if increasing count values will be acquired in the datapoint.
- Select "Process Value" if process values (e.g. temperature, pressure) will be acquired in the data point.
- Select "Others" for all other values.

3. Click "Compression". You will see all automatically created compression levels. In the example below, all entry values (= 15-minute value) for a datapoint with a cycle time of 15 minutes are automatically compressed to 1-hour and 1-day values.



4. If you want to delete a compression level, select it and click "Delete".
5. If you want to create an additional compression level, click "New".

   If you want to edit an existing compression level, click "Edit".



- Specify the cycle to which compression is to occur (= Archive Cycle).
- Specify the values you want to compress (=Base Cycle). In the above example, the daily values are to be additionally compressed.
- Specify the time in the past up to which the values are also to be compressed.

  If you edit an existing compression level, the time up to which the compression level is calculated is displayed in the "Compr. until" field. If you select an earlier time, the compression level is recalculated from this time.
- Select "Active" for the compression. As an alternative to deleting existing compression levels, you can also deactivate them here.

Confirm the configuration with "OK".

Result

You successfully configured compression of the measured values of the data point.

See also

Options (Page 53)

Job queue (Page 398)

User jobs of the job queue (Page 827)

Acquisition categories in Energy Manager (Page 173)

Configuring the export function

Overview

The export functionality is used to provide measured value sets in a specified format to other system. The result may be a file that contains the measured value sets, table entries, or viewing by means of View VW_EXPORT_VIEW.

Note

To use View VW_EXPORT_VIEW, you must be using your own Oracle version.

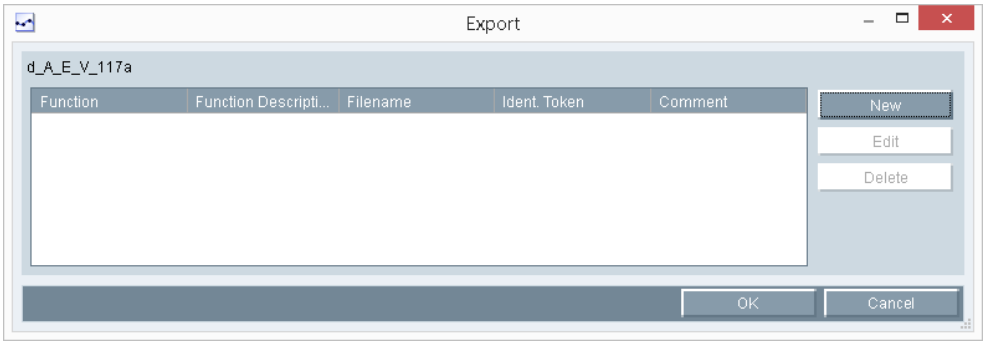
Along with the data point configuration, you also need a corresponding database job.

Requirement

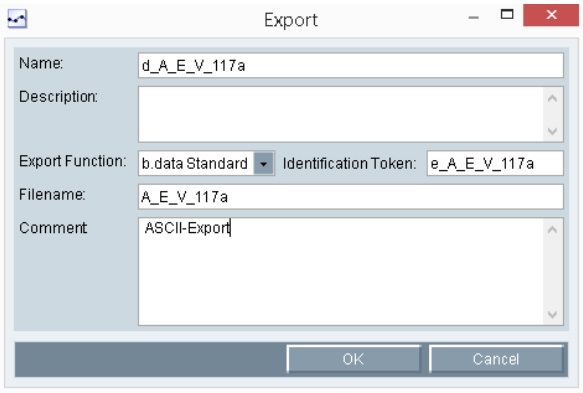
The data point has been properly created and configured.

Procedure

1. Select the data point for which the export function is to be created and then select the "Edit" command from the shortcut menu to open the data point configuration.
2. The "Measurement" configuration dialog opens. Select "Export" to open the export configuration dialog.



3. Click "New" to create a new export function for which the following information is required:



4. The name and description are transferred from the data point and cannot be edited

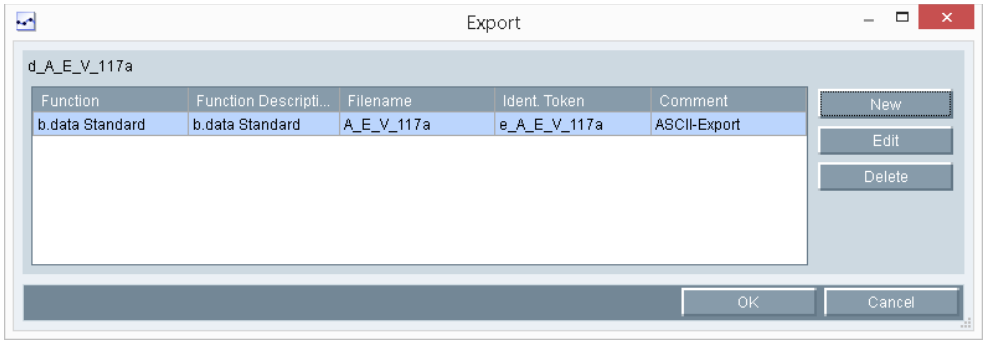
   Export function: Energy Manager PRO Standard, EDM Forecast, SAP PM VT historical 6h, SAP PM VVT historical 6h, VIEW

   Identification token: Used for identification in the partner system

   File name: Name of the output file

   Comment: Any descriptive text

5. Click "OK" to generate the export function.



6. Add the "Job for ASCII export Energy Manager PRO Standard" to the job queue to enable execution of the configured export function.

   It is not necessary to provide an active job for the VIEW export function, because as soon as a data point has been assigned to this export function, its data can be called by means of View vw_export_view.

Result

You successfully configured the export function(s) of the data point and these are now ready for use.

Measurements editor

Opening the measured value editor

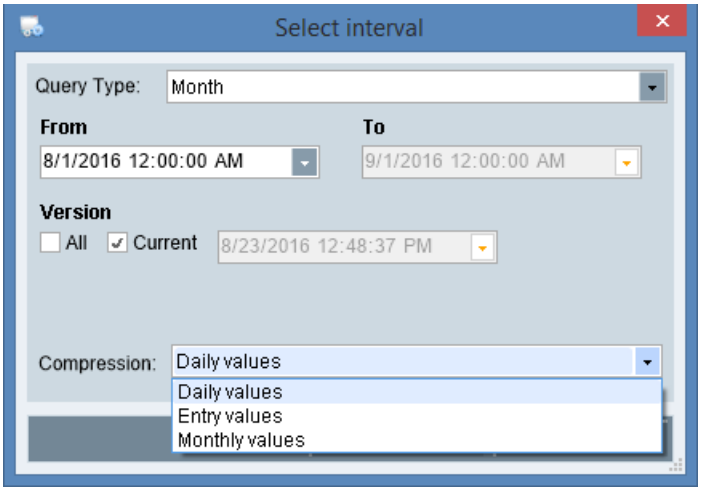
Overview

You view existing measurement values in the measurement value editor. You can also change existing measurement values or enter new measurement values. You can export data from the measurement value editor or import data from ASCII files.

Procedure

1. Select the data point for which you want to request the measured data.
2. Select the "Edit measured values" command from the shortcut menu of the data point.

   The dialog for defining the query period opens.



3. Enter a start time in the "FROM" field.
4. Do not change the default "AdHoc" setting in the "Polling type" field if you want to enter an individual end time. Enter the end time in the "TO" field. Otherwise, the end time is set automatically in the "TO" field, depending on the selected "query type". The time range is rounded at the same time, depending on the query type.
5. If recorded data has been versioned, you can enter corresponding settings in the "Version" field.
   - If you keep the "Current" setting, the values of the current version will be displayed.
   - If you select "All", the values of all versions of the datapoint are displayed.
   - If you do not make a selection, you can access the previous versions with the "date time picker" selection dialog.
6. For "Compression", select a compression level in order to display compressed values.
7. Save your entries with "OK".

Result

The measured value editor opens. The upper part shows the name of the datapoint and the time zone of the country of the datapoint and the selected query type.

Datapoint: e_Electricity, Daily values, (UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
Interval: Interval from 8/1/2016 12:00:00 AM to 9/1/2016 12:00:00 AM.

The measurement value editor shows the values of the compression level that you selected when defining the interval in the "Compression" field. For example, you can select the compression level "Daily values" for a datapoint with a cycle time of 15 minutes for the interval query and then see the compressed daily values in the "Sum" field in the measurement value editor. The order of the columns of the measurement value editor depends on the datapoint type. This type was previously set in the configuration of the datapoint. A distinction is made between the following data point types:

- Power / Flow
- Energy / Amount
- Count Value
- Process Value
- Others

A detailed description of the compression functionality of the acquisition component is available in the SIMATIC Energy Manager - Acquisition system manual.

Timestamp	Sum	Power/Flow	Average
6/2/2016 12:00:00 AM	21972800	915533.33333333337	228883.33333333334
6/3/2016 12:00:00 AM	21793600	908066.66666666663	227016.66666666666
6/4/2016 12:00:00 AM	21208200	883675	220918.75
6/5/2016 12:00:00 AM	21648400	902016.66666666663	225504.16666666666
6/6/2016 12:00:00 AM	21248400	885350	221337.5

Minimum	Minimum Time	Maximum	Maximum Time
120200	6/1/2016 5:30:00 AM	280200	6/1/2016 2:00:00 AM
120200	6/2/2016 4:45:00 AM	280200	6/2/2016 1:15:00 AM
120200	6/3/2016 2:00:00 AM	280200	6/3/2016 2:45:00 AM
5504.16666666666	6/4/2016 5:30:00 AM	280200	6/4/2016 2:00:00 AM

All values calculated automatically using the compression functionality of the acquisition are displayed:

- Actual value in the Sum field (= entry value, daily value, monthly value, depending on selection in "Compression" field).
- Average
- Power or flow value
- Minimum value in compressed time period and associated time stamp (in this example, 15-minute values were compressed to daily values)
- Maximum value and associated time stamp

Last Value	A.Status	Corr.Status	Entry Time	Version
0	STER_OK	valid	8/23/2016 1:57:31 PM	
0	STER_OK	valid	8/23/2016 2:01:28 PM	
0	STER_OK	valid	8/23/2016 2:05:09 PM	
0	STER_OK	valid	8/23/2016 2:09:02 PM	

The following fields are also displayed:

- Version shows one of the following values:
  - No date No date is displayed in the current version of the measurement value.
  - A date Until this date, the measurement value is valid for older versions.
- Last Value shows the last value of the counter if counts are acquired in the data point.
- Acquisition Status
- Correction Status
- Entry Time shows the time of the entry in the database.

Click "Up" or "Down" to page the monitoring interval up or down by one step.

Select "Refresh" to reload the selected time range from the database.

Select the "Insert", "Edit", "Remove", or "Manual Input" buttons to insert, edit, or delete values.

Click "Close" to exit the measured value editor.

Manipulating values

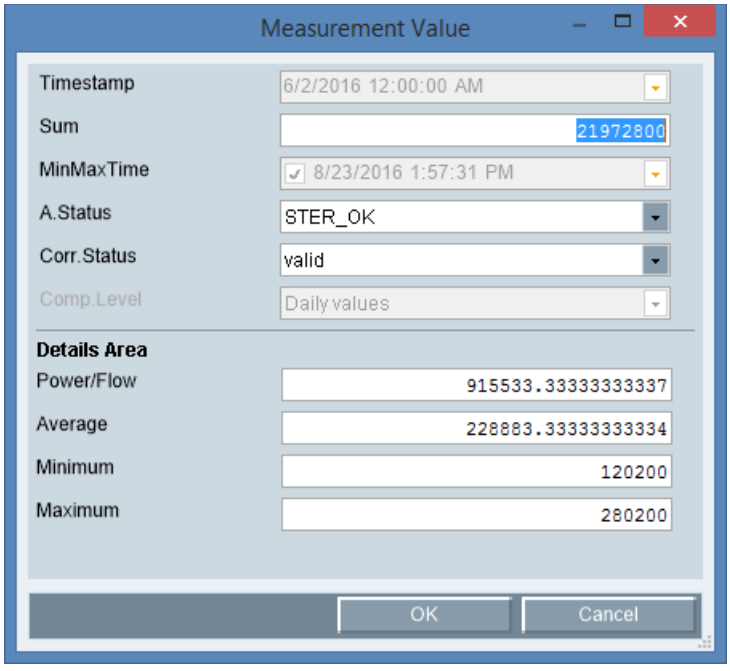
Overview

This section provides instructions related to the following actions:

- Inserting, editing, and deleting values
- Manual input
- Data structure for measured values
- Acquisition status
- Correction status

Procedure

1. To delete one or several measured values, select these accordingly and then click "Delete".
2. To edit a measured value, select it accordingly and then click "Edit".



3. The current entry is visible in the Details Area. Edit the selected values and click "OK".

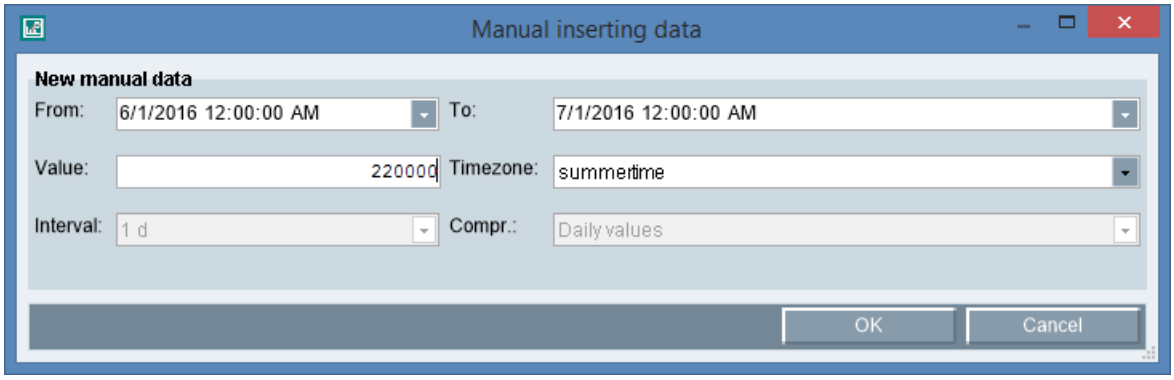
   The "Corr.Status" entry is toggled automatically to "valid with manual manipulation".

   This result is displayed in orange color in all evaluations using this corrected value for calculations. This functionality allows you to clearly determine whether the result was modified by means of system input or manual manipulation.

   You cannot change the value of the sum of the values of data points configured as counters.

4. Click "Manual input" if you want to supplement specific values.

   The "Manual data input" dialog box opens.



5. Supplement the data of the new value as follows:
   - Enter the selected period in the "FROM / TO" fields.
   - Enter the "Value".
   - Select the "Interval".
   - Enter the "Time Zone" and compression ("Compr.").
6. Click "OK".

Result

All values entered, edited, or deleted in this way will be logged in the Logging Editor.

Each value in Energy Manager is saved with the following data.

- Time stamp
- Time zone (daylight saving time)
- Value
- Interval (in seconds).
- Duration (in seconds).
- MinMaxTime (entered only by few functions)
- Text (a data point configured for text input is entered in this field)
- Acquisition status (entered by the data acquisition function)
- Correction status (manual manipulation, adjustment jobs,..)
- Compression level (acquisition values; other compression levels are not generated until a compression is carried out.)
- Version date

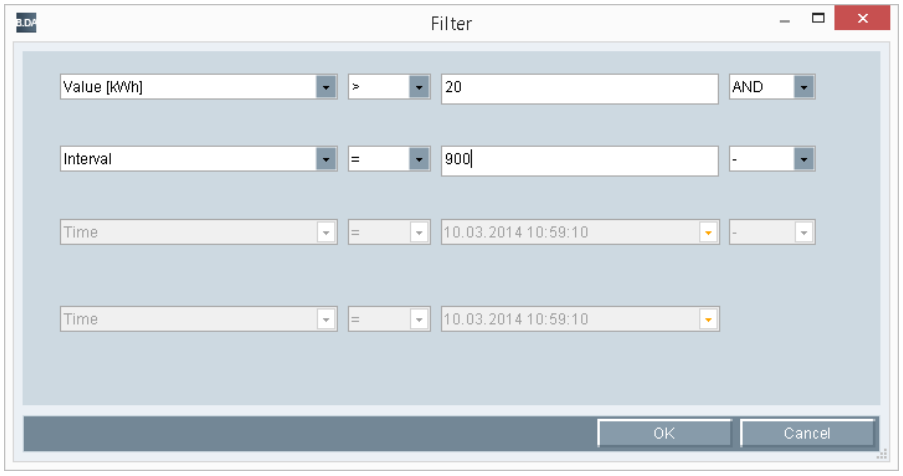
You can find the possible acquisition status with a brief description in the section "Acquisition status of a value (Page 745)".

You can find the possible correction status with a brief description in the section "Correction status of a value (Page 747)".

Filtering in the measurement value editor

Filter options

Use the filter function for fast access to information. Click "Filter" in the measurement value editor to open the "Filter" dialog.



Select the column from the first list. Select the operator from the second list. Additional entries are available in the third column, depending on the entry you selected in the first column. You may also logically link the filters by setting an "AND" or "OR" operation in the fourth column.

Click "OK" to activate the filters. The result is displayed in the measurement value editor. Uncheck the "Filter" check box to cancel filtering.

Exporting and importing process data

Overview

This section provides instructions related to the following actions:

1. Exporting data
2. Editing data
3. Importing data

Requirement

- The measurement value editor is open.

Exporting data

1. Select the desired data in the measured value editor.
2. Click "Export".

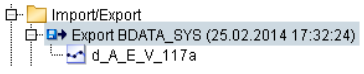
   The Save As... dialog opens.
3. Select a target folder and specify a file name. Click "Save".

The selected data is saved to a text file in Energy Manager standard format.

Note

When exporting data from Energy Manager, the export is marked with the version of Energy Manager. Export with the version is not taken into account in previous Energy Manager versions. An export or import of data is therefore only possible for identical Energy Manager versions.

Data export is logged in Energy Manager. A corresponding export object is generated in the "Import/Export" folder. The data point whose values were exported is inserted under the export object.



Note

The data of the entire display period is exported instead of only the selected data.

Editing data

1. Double-click on the export object to edit it.

   The export object will be opened in the corresponding application, e.g. Notepad or Microsoft Excel.

2. Change the desired data.
3. Save the file again in *.TXT or *.CSV format.

   Microsoft Excel replaces the separator ";" with a tab character.

Importing data

1. Click "Import" in the measurement value editor.

   The "Open" dialog opens.

2. Select the file in Energy Manager standard format.
3. Click "Open".

   The data is now imported.

   If the data point is configured for saving values with versioning: All values entered are assigned a new version. If you import the data of a different data point, the following message is output:

   "Caution: MeasID inconsistent. Do you want to continue?"

   Confirm this prompt with "Yes", or cancel the import with "No". This message prevents you from accidentally overwriting the data of an incorrect data point.

   A plausibility check of the data is discarded if you run the import using the "Edit > Import measured values" command from the Energy Manager menu bar.

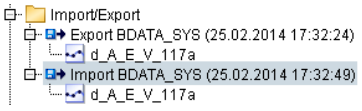
   The "Update type" dialog is opened if the data point is configured so that the data is saved without versioning.

4. Select the option:
   - "INSERT": Inserts only values that are not yet available in the database.
   - "INSERT only new values": Inserts only values that are not yet available in the database. Use this option whenever possible when importing large data volumes.
   - "INSERT and UPDATE": inserts new values and overwrites existing ones.

Result

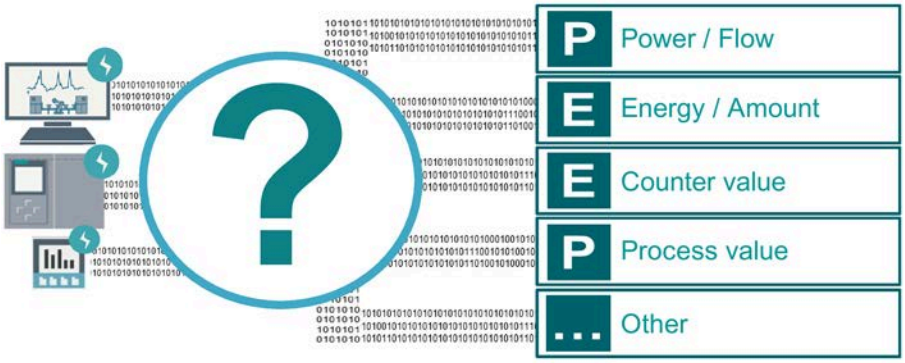
A message is displayed on successful completion of the import, for example, that 24 of 24 data records were imported. The exported and imported data are recorded in the Logging Viewer depending on the configured "Verbose" level.

Data import is logged in Energy Manager . A corresponding import object is generated in the "Import/Export" folder. The corresponding datapoint is inserted under the import object.



2.2.3.7 Acquisition categories in Energy Manager

Overview



In Energy Manager select a corresponding acquisition category for the acquired measured values of a measuring point.

The following table provides an overview of the available acquisition categories:

Acquisition category	Description
Power / Flow	• Use this category for acquired power values. • Energy Manager automatically calculates the consumption value from the power value. The consumption values are then compressed using the summation function.
Energy / Amount	• Use this category for acquired consumption values. • The consumption value may be the energy consumption directly, media consumption or the production quantity. • Energy Manager automatically calculates the power value from the consumption value. The consumption values are then compressed using the summation function.
Counter value	• Use this category for acquired count values. • Energy Manager automatically calculates the consumption value from the count value. The power value follows from the consumption value. The consumption values are then compressed using the summation function.
Process value	• Use this category for acquired process values, e.g. temperature. • The acquired measured values remain unchanged and are compressed with the average value function.

The acquired measurement values and the consumption values calculated from them are saved in the same data point. You therefore only need one data point.

Example: category Count value

Time stamp	Acquired count value	With category Count value	With category Energy
06-16-2020 14:00	1000 kWh		
06-16-2020 14:15	1020 kWh	1020 kWh – 1000 kWh = 20 kWh	1020 kWh
06-16-2020 14:30	1050 kWh	1050 kWh – 1020 kWh = 30 kWh	1050 kWh
06-16-2020 14:45	1060 kWh	1060 kWh – 1050 kWh = 10 kWh	1060 kWh
Total		60 kWh	3130 kWh

The category Count value is the correct category. An incorrect category results in wrong compressed values.

Example category Power value

Time stamp	Acquired power value	With category Power value	With category Process value
06-16-2020 14:00	988 kW	988 kWh / 4 = 247 kWh	988 kW
06-16-2020 14:15	920 kW	920 kWh / 4 = 230 kWh	920 kW
06-16-2020 14:30	940 kW	940 kWh / 4 = 235 kWh	940 kW
06-16-2020 14:45	980 kW	980 kWh / 4 = 245 kWh	980 kW
Total		935 kWh	3828 kW / 4 = 957 kW

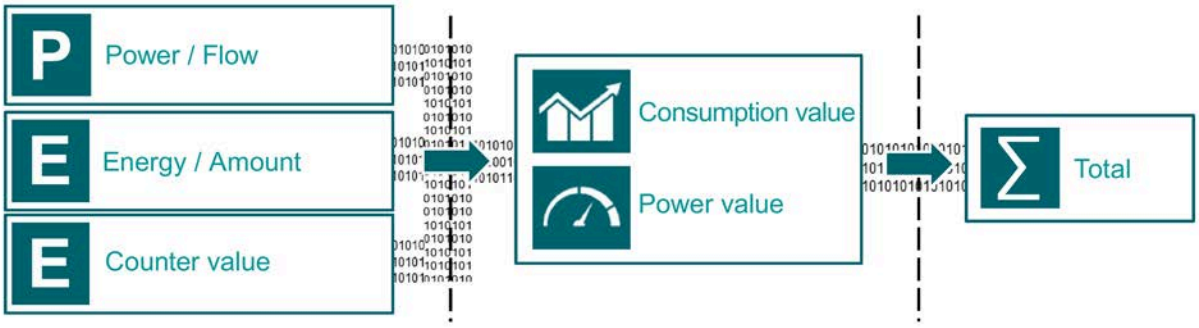
Both the categories are possible with the acquired power value. If the Energy Manager has to convert the power value into a consumption value, the category Power value should be used. If the Energy Manager has to calculate the average power, the category Process value should be used.

2.2.3.8 Compression of the acquired measured values

Compression of energy, power and count values

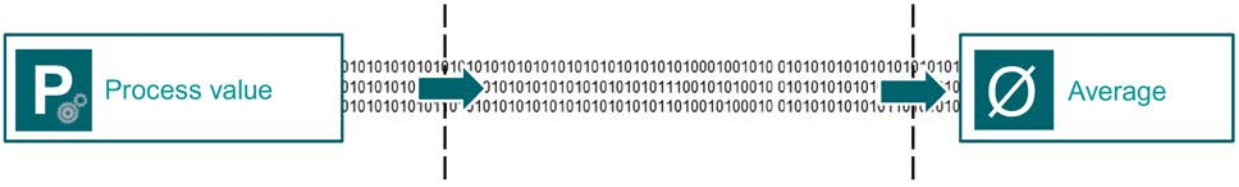
In Energy Manager acquired measured values of the categories energy, power and count value are compressed on the basis of the consumption value. The sum function is used for compression of the acquired measured values. By default, the 15-minute value, the daily and monthly value are calculated using the sum function.

In addition to the sum function, the maximum, minimum and average consumption of a compression level are also automatically calculated.



Compression of process values

In Energy Manager, acquired process values are compressed to the average of the process value. By default, the 15-minute value, the daily and monthly value are calculated using the average value function. In addition to the average, the maximum and minimum are automatically calculated for each compression level. If you want to calculate average power or the maximum and minimum power for each compression level, you can also use this category for power values.



2.2.3.9 Calculation of the compression levels

Compression basis

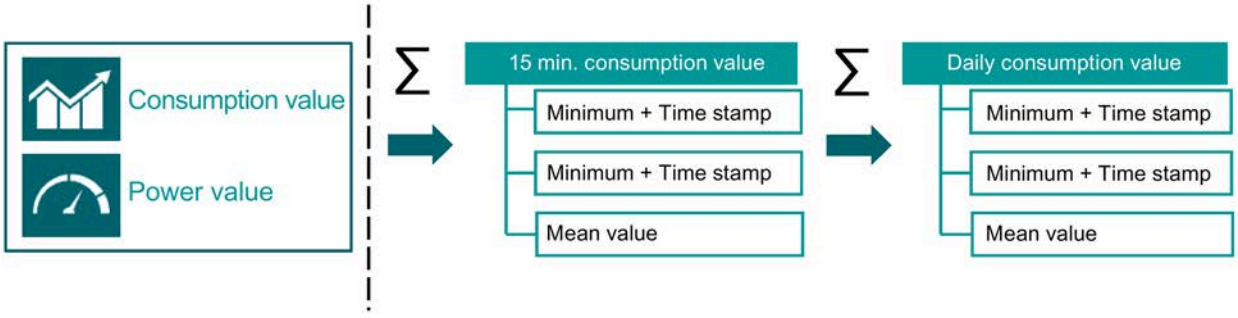
In Energy Manager there are two levels for the compression of acquired measured values. The first level comprises the selection of the correct compression function (sum or average value function). The second level comprises the database of the compression. With the second level, the following two database methods for compression are available:

- Previous compression level as database
- Acquired measured values of the data source as database

Previous compression level as database

Overview

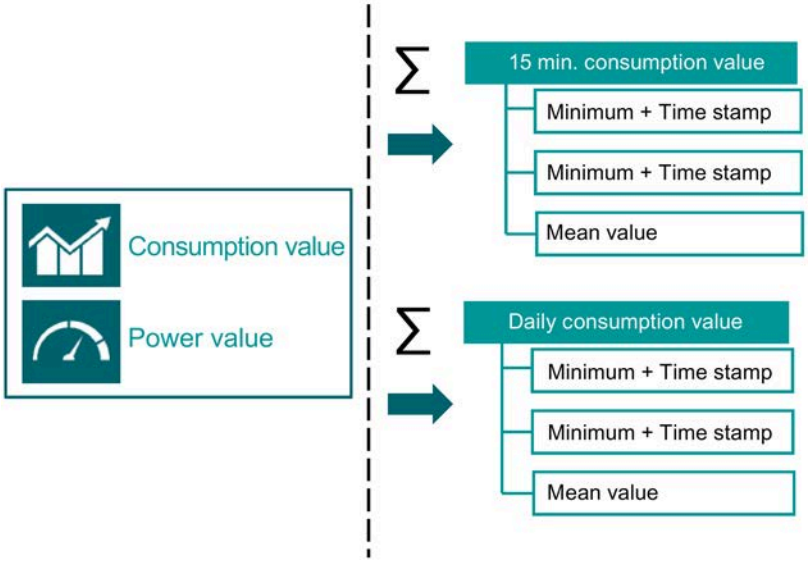
The values of the compression level are calculated using the values of the previous compression level. The values of the compression level "daily values" are calculated, for example, by the summation of the 15-minute consumption values within a day. Monthly values are calculated accordingly on the basis of the daily values. As fewer values are used for calculating the next compression, this method offers an efficient performance of your PC.



Acquired measured values as database

Overview

The values of each compression level are calculated on the basis of the acquired measured values of the data source. If the acquisition value is of the category power or count value, the associated consumption value is used for the compression level. Use this method if you want to determine the maximum power from the acquired measurement values, for example.



Selecting a database

You define the selection of the compression method in the configuration dialog of the data point of the measuring point.

Requirement

- The data point has been created.

Procedure

To specify the compression method, follow these steps:

1. Right-click on the data point of the measuring point in the navigation area.

   The shortcut menu opens.

2. Click on the menu command "Edit".

   The data point configuration dialog opens.

3. Click the "Compression" button at the bottom of the Configuration dialog.

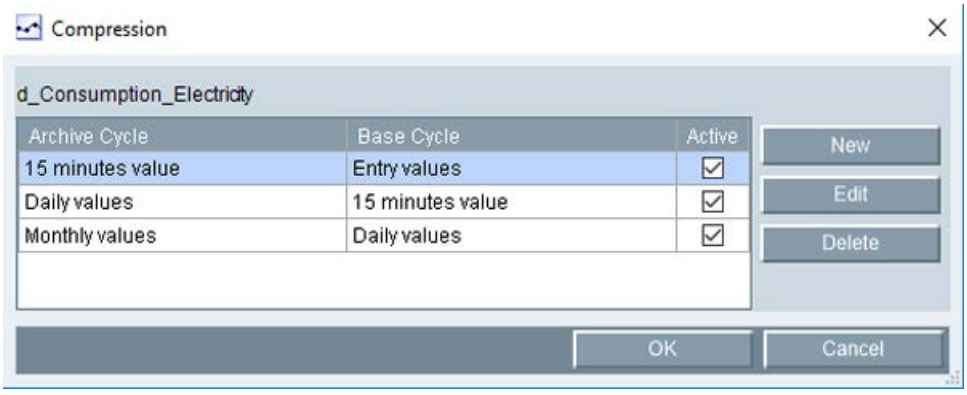
   The "Compression" configuration dialog opens.

4. To create a new compression level, click on the "New" button.
5. Select the required compression level from the "Archive cycle" drop-down list.
6. Select the required compression level as database from the "Base cycle" drop-down list. You can choose between the compression levels "15-minute values", "acquisition values", "daily values" and "monthly values".
7. To save the compression level, click the "OK" button.

Result

The desired compression level including the underlying database is selected and created. Select the database for each compression level from the "Basic cycle" drop-down list.

If you select the previous compression level as the basis, use the method of the previous compression level as the database.



If you select the entry "Acquisition values" as the basis for each compression level, you use the method of the acquired measured values of the data source as database.

2.2.3.10 Manual acquisition with the matrix

Overview

You use the "Matrix" object to manually enter data in the Energy Manager PRO Client and Energy Manager PRO Web.

This section provides instructions related to the following actions:

1. Configuring matrix objects
2. Assignment of datapoints
3. Possible datapoint configurations
4. Data input

Note

Only use manual acquisition for a peak load detection because it requires more computing power.

With this configuration, the maximum value in each compression is the peak value of the acquired measured values.

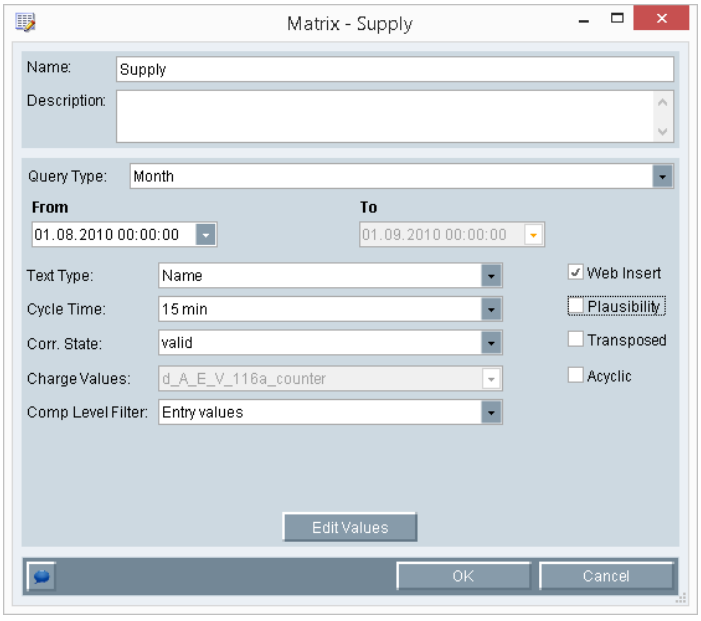
Requirement

Datapoints have been created.

Configuring matrix objects

1. Select the folder in which the matrix object is going to be created.
2. Click the "Insert Matrix" button in the menu bar under "Acquisition > Manual acquisition".

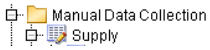
   The configuration dialog of the matrix object opens.



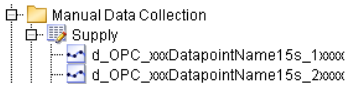
3. Enter a "Name", an optional "Description", and the "Query type".

   The query type determines the time horizon that is displayed in the matrix. Example: You have entered daily values in the course of a week. In this case, the query type used is "Week", and the "Cycle time" is 1 d for the days. The system automatically calculates the "FROM / TO" time period.
4. Select the datapoint entry to display in the matrix header from the "Text Type:" list box.
5. Select the "Cycle Time" as required. Ensure that this cycle time matches the cycle time of the datapoint.
6. Adjust the "Corr. Status:" entry if applicable.
7. Select the "Web Insert" check box to enable user input of values via the Web.
8. Select the "Plausibility" check box if you want to enable the plausibility check function.
9. Select the "Transposed" check box if you want to change the time axis from vertical to horizontal mode. The same procedure applies to the datapoint name.
10. Select the "Acyclic" check box to enable the input of batch-related data in the matrix. Select the datapoint that contains the batch information from the "Charge Values" list box.
11. Click "OK" to create the matrix object in Energy Manager.

12. OK input saves the settings to the database and creates an object in the Energy Manager.



13. Assign the datapoints to the matrix in the conclusive step. Ensure that this cycle time matches the cycle time of the datapoint.



Provided the "Plausibility" function has been enabled, the "high limit" and "low limit" are used to check the plausibility of the datapoint configuration in the matrix.

The following function types of the datapoint will affect the matrix:

- "Event Measurement T1 spontaneous", "Event Measurement T1 cyclic", and the definition of the datapoint that contains the batch information

  You can find more detailed information on this in the section"Configuring "Batch analysis" reports (Page 226)".
- "Text": The values entered are saved to a text field.
- "Priority high": Although you may enter values in this datapoint, it is not possible to edit these values using the matrix.

See also

Options (Page 53)

Matrix (Page 428)

2.2.3.11 Manual acquisition with the SIMATIC Energy Manager app

Information about mobile data acquisition using SIMATIC Energy Manager App can be found in the section "Setting up mobile data acquisition with the SIMATIC Energy Manager app for iOS and Android (Page 539)" and in the section "Manual acquisition with Energy Manager PRO Mobile (Page 925)".

2.2.3.12 Importing data

For more information on data import, refer to the following sections:

- via OLE DB: "Data acquisition via the "OLE-DB" interface (Page 98)"
- via Measurements editor: "Measurements editor (Page 165)"
- via matrix: "Manual acquisition with the matrix (Page 180)"
- via ODBC Connector: "ODBC connector (Page 928)"

2.2.4 "Processing" menu tab

2.2.4.1 Preprocessing

Basics for preprocessing

Overview

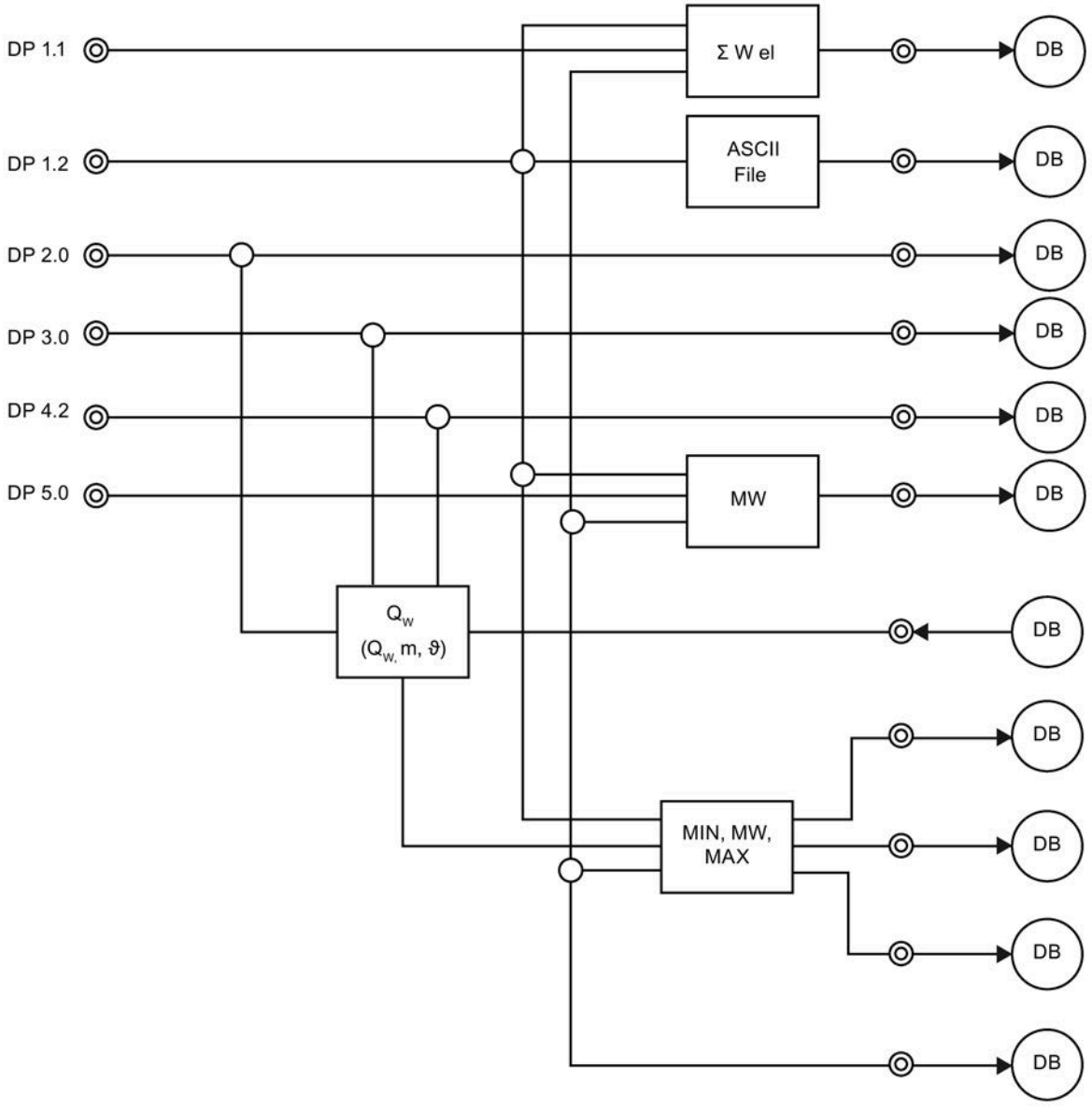
You can preprocess the measured values you import to Energy Manager before you save these to the database. For example, you can compress the acquisition values to daily values or calculate a conditional average value of different measurement series.

Energy Manager provides two options for real-time pre-processing of measured values:

- Compression of measured values (Page 175)during import
- Processing measured values with loops

The processing of values before entering them into the database is known as "Preprocessing".

The following diagram illustrates the preprocessing of measured values imported to Energy Manager. You can use the loop concept to individually process or link the measured values of different data points: This allows you to calculate average, minimum and maximum values, for example.



Data point

Calculation module (Loop)

Database entry

Compression of measured values during import

You can compress the acquisition values in the import phase. This "Online compression" is activated by default. You then configure the selected compression functions in the data point. It is also possible to configure a substitute value strategy.

As an alternative, you can compress acquisition values with jobs at any time, or recalculate compressed values.

Application example: You import counter values in Energy Manager. The consumption values and daily consumption values will be calculated by differentiation during the import.

See also: Compression of the acquired measured values (Page 175)

Processing measured values with loops

Loops are calculation functions that you apply to one or several data points. You can use loops, for example, to calculate or link measured value series of different recording periods. Energy Manager allows you to use preconfigured loops or to program your own calculation functions using the Measurement Compile Language (MCL) programming language. Energy Manager provides various calculation functions, for example, conditional recordings, extensive filter functions, trigonometric functions, logic operators, compare operations, or conversion operations. You can also map non-linear processes with unknown function rules or equations in the form of tables. Users with corresponding configuration authorization may always change data point assignments, calculation modules, and logic conditions by means of the user system.

Application example: Conditional calculation of minimum, maximum and average values. The interval duration for the grouping function (e.g. ½ h), the measured values with corresponding interval duration, and the trigger input are set at the loop input for conditional calculation. The calculation is only initiated if the trigger input is set to active high state (=1). Results of the calculation are output for the corresponding period on the right side based on the conditional minimum, maximum and average values.

This functionality is defined from the Client using MCL (Measurement Compile Language).

Additional information

The next chapters cover the "Preprocessing":

- Creating and configuring data points
- Creating and configuring loops
- Creating prototypes
- Functions for prototypes
- Description of the MCL language

Configuring loops

Overview

This section provides instructions related to the following actions:

- Creating loops
- Configuring loops

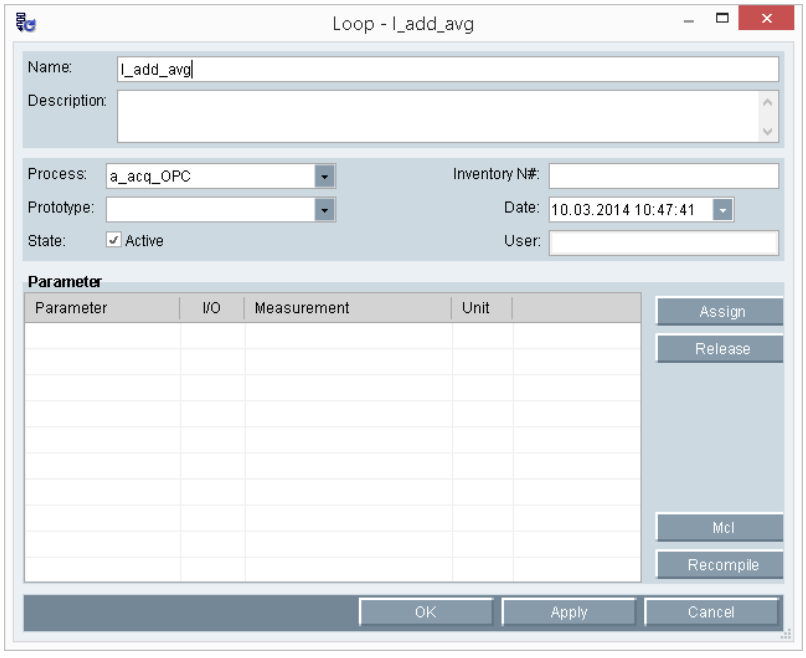
Requirement

The necessary data points and prototypes have been successfully created in the system.

Procedure

1. Select the folder in which the loop is going to be created.
2. Click the "Insert Loop" button in the menu bar under "Processing > Preprocessing".

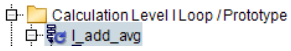
   The "Loop" dialog opens.



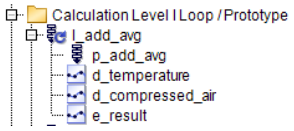
3. Enter the loop name in the "Name:" input field. The "l_" prefix must be added for loop identification. You may enter additional information in the "Description:" field. If available, you may also enter a KKS or FIS number as inventory ID. The current time is set by default for the date of initial creation of the loop. The logged on user is automatically entered in the "User:" field. Select the process that is to run the loop in the "Process:" field. This selection assigns the loop to a specific hardware. A separate process is usually created for loop calculations. Set the ACTIVE state in the "State:" field and select the "Active" check box.

4. Confirm your entries with "OK".

   The configuration dialog is closed. The server object is now generated at the corresponding tree position.



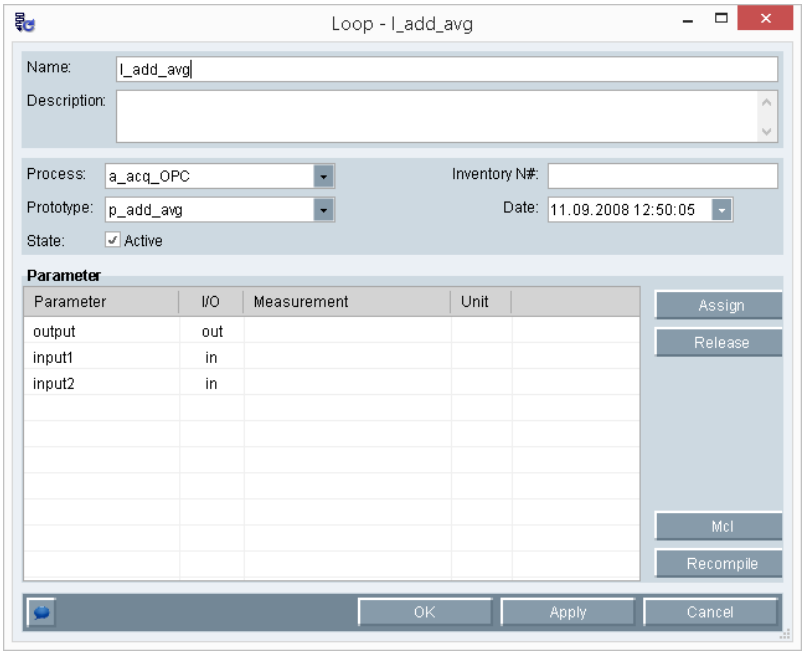
5. Copy the necessary prototype and the data points/constants to the new loop structure.



6. Select the new loop. Select "Edit..." from the shortcut menu.

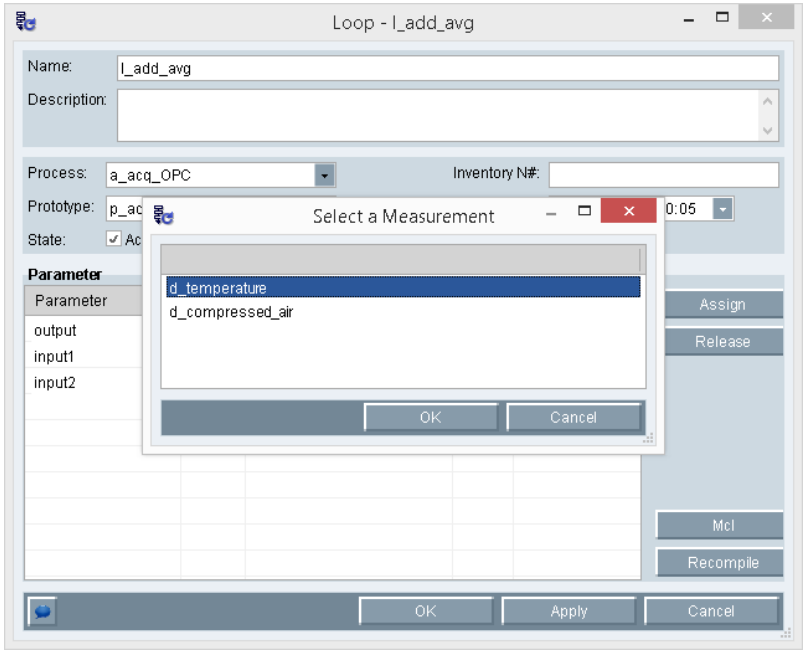
   The loop configuration dialog opens.

7. Select the prototype in the next step.

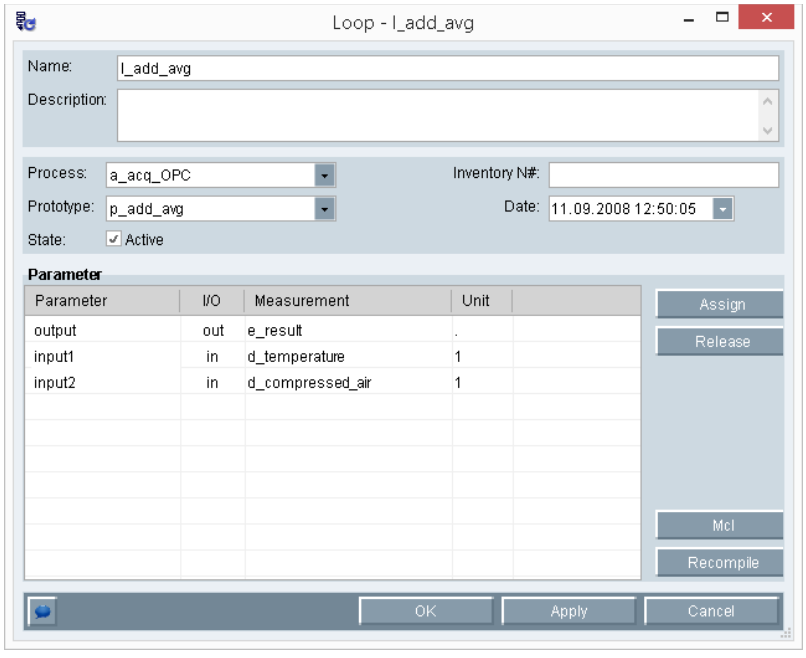


   The dialog displays the parameters and their type, depending on the respective prototype.

8. The real data points and constants are assigned to the parameters in the next step. Select the parameter to be assigned a measurement and click "Assign".

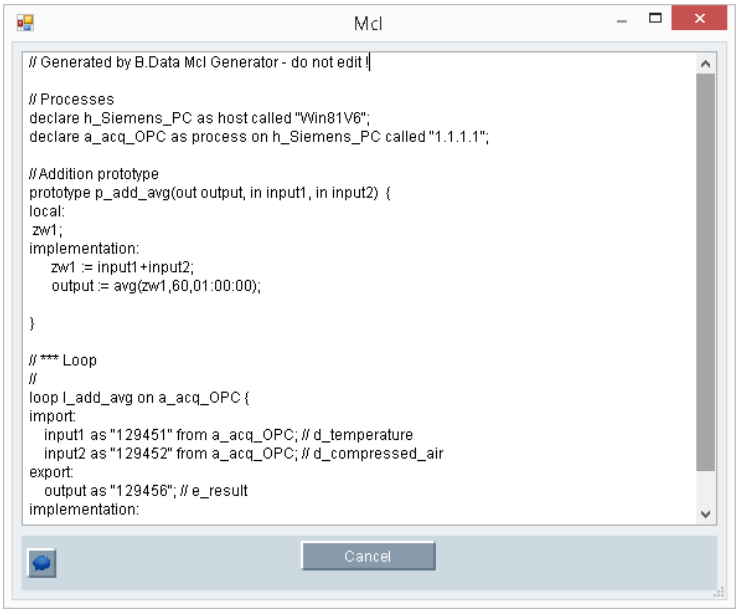


9. The next window displays all measurements that are available. Select a measurement and confirm this with OK.



The loop configuration is completed once you have assigned all data points or constants to the respective parameters. Exit the dialog with "OK".

10. You can click "MCL..." to check the appearance of the loop in the MCL language and how it is compiled by the Energy Manager kernel.



11. The "Recompile" function can be used at runtime to modify an existing or active loop. Example: A different scaling factor needs to be assigned because it has been changed in the PLC.

Result

You have now configured a loop that is compiled during restart by the responsible kernel, saved to an mcl file, and assigned values that are calculated online.

Configuring prototypes

Overview

Prototypes represent the basis for loops. The algorithms are predefined and available for further calculations.

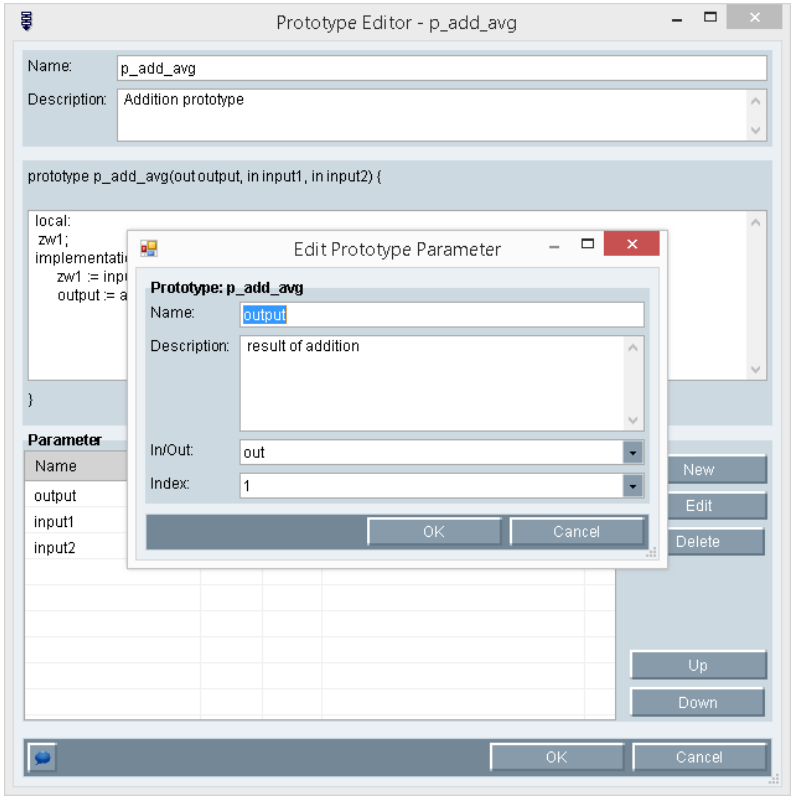
Requirement

Energy Manager was properly installed and the "p_test01" prototype is available.

Procedure

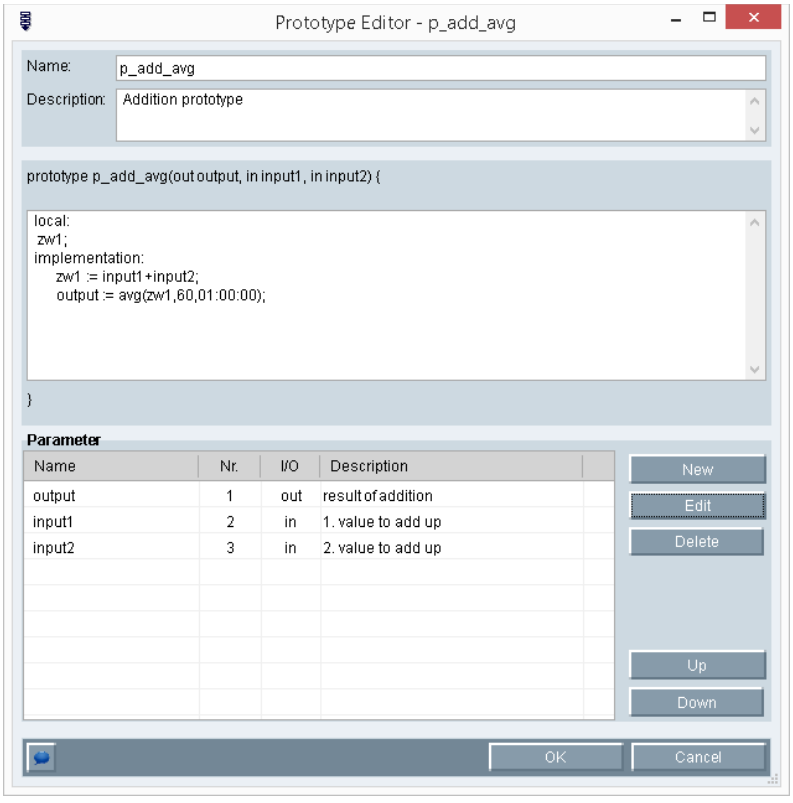
1. Select the folder in which the prototype is going to be created.
2. Click the "Insert Prototype" button in the menu bar under "Processing > Preprocessing".

   The "Prototype Editor" dialog opens.



3. Enter the prototype name in the "Name:" input field. The "p_" prefix must be added for prototype identification. You may enter additional information on the prototype in the "Description:" field. Specify the prototype's response by means of MCL declaration. Enter all necessary I/Os in the parameters. Click "New" and enter the "Name" and "Description". Select the output (out) or input (in) type and the order of transfer. Confirm your entries with "OK".

4. Once you have added all necessary I/O parameters, save the new prototype with "OK".



5. Select "Edit" to edit existing parameter names and declarations. You may select "Delete" to delete parameters, or change their order with "Up" or "Down" (use with caution for existing loops).

Result

A new prototype is available and can be used to configure new loops.

See also

Operations for generating calculation blocks (prototypes) (Page 784)

Description of MCL (Page 794)

2.2.4.2 Calculation

Basics on calculation

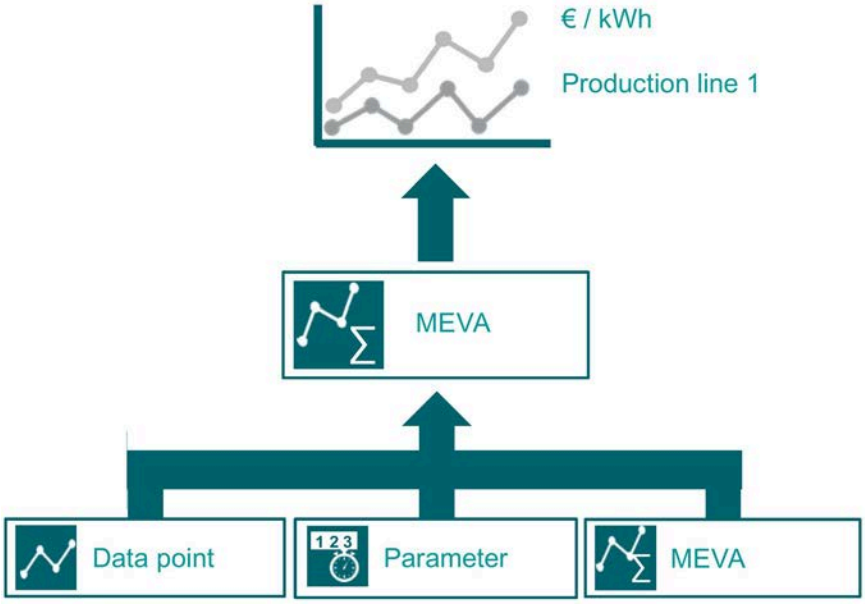
A measurement variable, also known as MEVA in the system, forms the basis for calculating the various parameters in the analyses and reports.

MEVA concept

- MEVAs are used to calculate KPIs / EnPIs
- The object name MEVA stands for measurement variable
- A MEVA consists of a function type that calculates a result based on the input values
- Data points, parameters und MEVAs can be combined with one another with this object

  Therefore, the input values of a MEVA can originate from these three objects
- The input data for the MEVA must be stored in the SQL Server (see "Architecture and interfaces (Page 73)")
- The result of the MEVA can be stored in a derived data point or used in a report

  In addition, the result can also be used in a chart and a dashboard



The outstanding advantage of this concept is that the MEVAs are only calculated for the data sets that are needed for analysis within a specific evaluation period. This approach leads to a drastic reduction of database memory and archiving requirements.

The results of the MEVAs can be written to derived data points or be visualized directly in MS Excel. The quality of the values is color coded.

Measuring variable

Overview

This section provides instructions related to the following actions:

- Creating a MEVA
- Configuring a MEVA

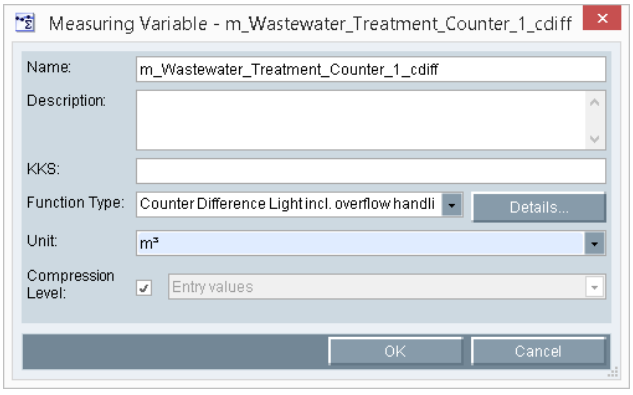
Requirement

The necessary data points and parameters have been successfully created in the system.

Procedure

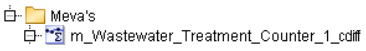
1. Select the folder in which the MEVA is going to be created.
2. Click the "Insert Measuring Variable" button in the menu bar under "Processing > Calculation".

   The "Measurement Variable" dialog opens.

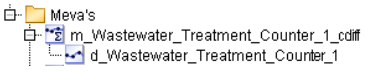


3. Enter the MEVA name in the "Name:" input field. The "m_" prefix must be added for MEVA identification. You may enter additional information on the MEVA in the "Description:" field. If available, you may also enter a KKS or FIS number as inventory ID. Select a processing routine as function type (click Details to view a short description of the function). Select the unit that is derived from the processing routine and sublevel data points or MEVAs.
4. Confirm your entries with "OK".

   The configuration dialog is closed. The server object is now generated at the corresponding tree position.



5. Copy the data points, parameters, or MEVAs to the new measurement variable.



Result

You have now configured a MEVA that you can use for further processing in reports or derived data points.

See also

Functions for measuring variables (Page 798)
Creating MEVAs / KPIs (Page 684)

Parameters

Overview

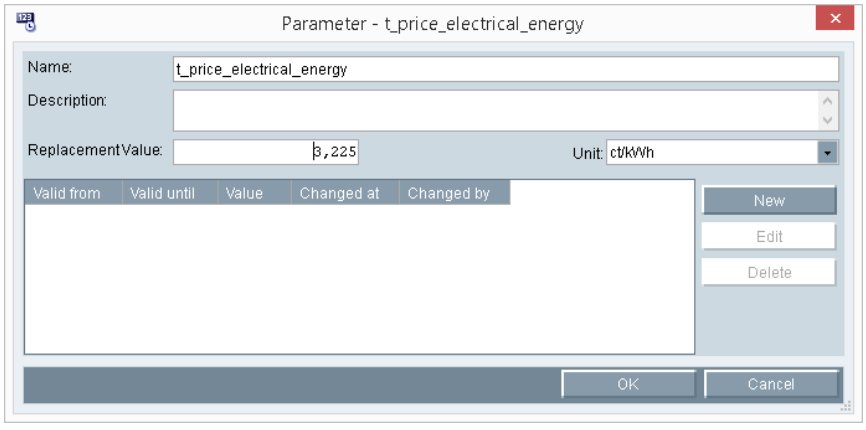
This section provides instructions related to the following actions:

- Creating parameters
- Configuring parameters
- Reading parameters by means of Meva

Procedure

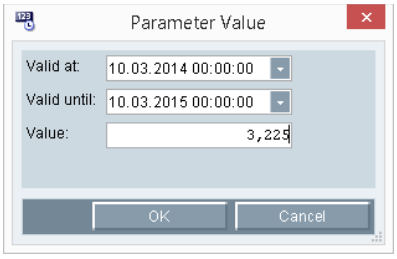
1. Select the folder in which the parameter is going to be created.
2. Click the "Insert Parameter" button in the menu bar under "Processing > Calculation".

   The "Parameters" dialog opens.

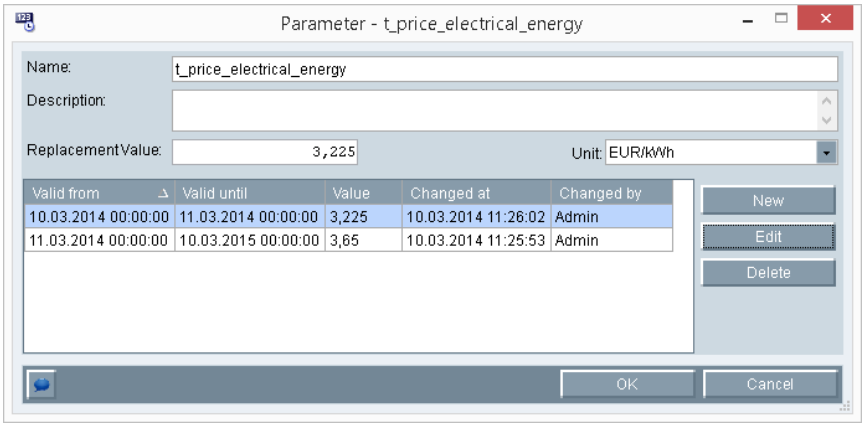


3. Enter a meaningful name (t_xxx) and a description (optional). If you enter the substitute value 3.225, i.e., as long as no valid values have been defined, the value 3.225 is always returned for this parameter.
4. Click "New" to open the dialog for editing the parameter values.

5. Define the "Value" and the duration of validity. Save and confirm your entries with "OK".



6. The value entered is now displayed, can be edited using the "Edit" function, and be deleted again with "Delete". Moreover, you can add new values for additional time ranges.



Note

For the following MEVA functions, you must also link the parameter with a parameter-MEVA:

- Minus (ID: 1735)
- Percentage (ID: 1739)
- If Then (ID: 2746)
- Difference from DP (ID: 2812)
- Inventory change (ID: 2904)

See also

Measuring variable (Page 193)

Parameter (Page 435)

Creating parameters (Page 678)

Parameter (Page 532)

2.2.4.3 Profiles

Basic information on profile

Based on the comparison day principle, you can generate media consumption forecasts at any time using a combination of master profiles, profiles, typical days, and special effects.

The next chapters cover the following components:

- Status
- Typical days
- Profiles
- Master profiles

Configuring states

Overview

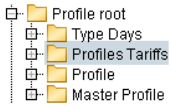
States are used to set the default values for a typical day, or, for example, to distinguish between the days in the high tariff period (HT, value=1) and in the low tariff period (LT, value=0). These values are evaluated using special measuring variable functions.

Note

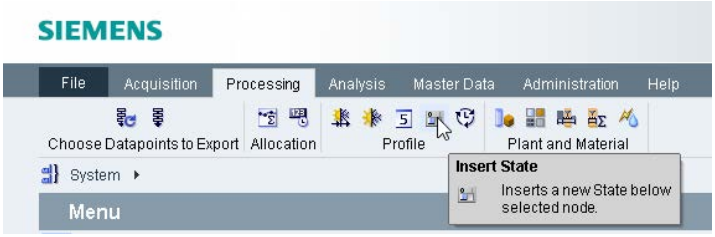
The HT (high tariff) and LT (low tariff) states have already been generated as domain data and cannot be deleted.

Procedure

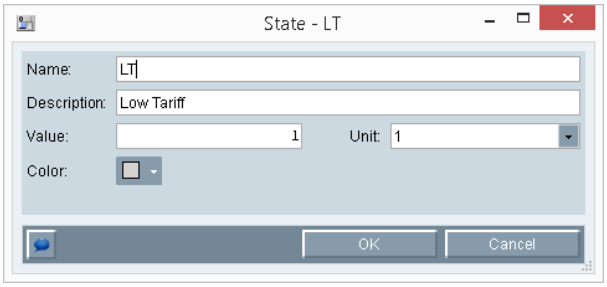
1. Select the folder in which the status is going to be created.



2. Click the "Insert Status" button in the menu bar under "Processing > Profile".



The "Status" dialog opens.



3. Enter a meaningful "Name" and optionally a "Description".
4. Enter the required "Value" and its "Unit".
5. Select a color, if necessary, and confirm with "OK".

Result

You have successfully configured the status and it is now ready for use.

See also

Configuring a shift (Page 198)

Configuring a shift

Introduction

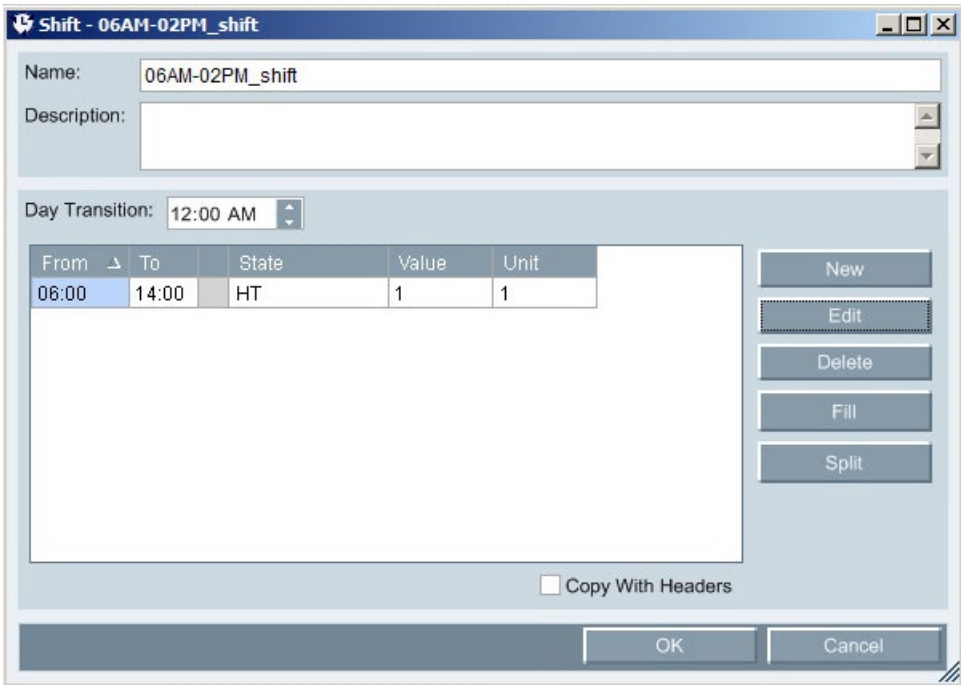
Use the "Shift" object to subdivide a day into several shifts. In addition you can use Status, for example, to assign different tariff information to each shift. If you use a "Shift" object beneath a query type, you can query time range by shift.

Requirement

Statuses have been created.

Procedure

1. Select the folder in which the shift will be created
2. Click the "Insert shift" button in the menu bar under "Processing > Profile".
   The "Shift" dialog opens.
3. Enter a meaningful "Name" and optionally a "Description".
4. Select the time that will be interpreted as the "Day transition".
5. To define a shift, click "New".
   The "Shift status" dialog opens.
6. Enter the "Duration", and select the desired "Status".



Result

The "Shift" object has been created.

See also

Configuring states (Page 196)
Configuring typical day (Page 199)
Configuring query types (Page 372)

Configuring typical day

Typical days describe the progression of consumption for a defined consumption unit in the course of a day. Typical days can be used to forecast a "typical" future consumption.

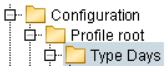
Alternatively, you can enter the different time periods of a day manually. Use this option to calculate a current or past actual energy consumption of a typical day.

Requirement

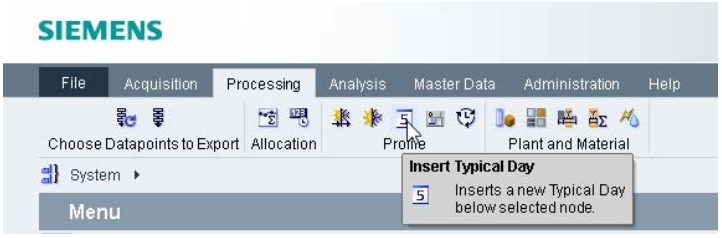
- The typical load distribution is known.
- The necessary status or shift data has been created in the system.

Procedure

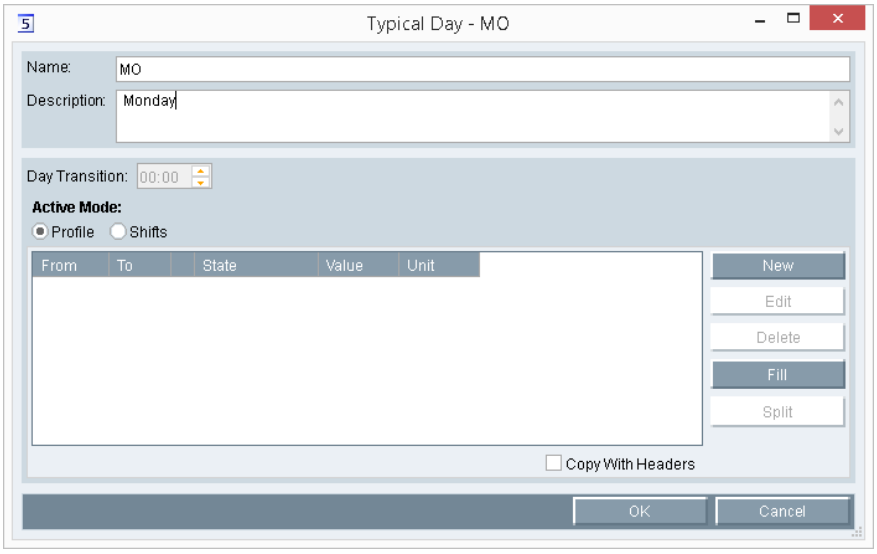
1. Select the folder under which the typical day is going to be created.



2. Click the "Insert Day" button in the menu bar under "Processing > Profile".



The "Typical Day" dialog opens.

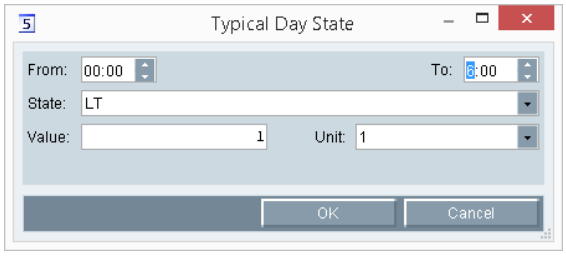


3. Enter a descriptive "Name" and an optional "Description" and confirm your entries with "OK".
4. Complete the same procedure for the remaining days of the week, including the necessary special days (holidays, special shifts, bridging days, production downtimes).

5. You can now enter the values manually for each typical day. Select "Insert..." to enter the status and the respective valid FROM-TO time range.

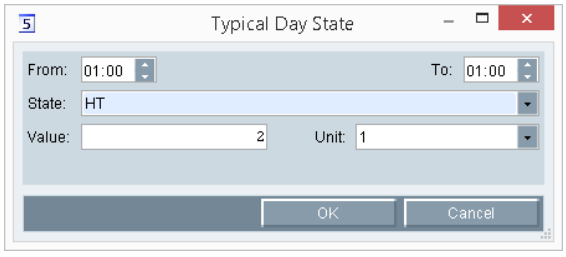
   Status corresponds with a default value that may be or has to be changed.

   This option is frequently used to handle slight periodic fluctuation of status values. Examples: "value 1" from 00:00 to 12:00 h and "value 2" from 12:00 to 24:00 h.



6. The "fill" option is used to handle a smaller pattern of values, e.g. 1 h pattern. You may also specify a cycle time.

   However, in order to form a basis for a realistic forecast, the 1 h values are determined automatically by means of analysis report and written to the database.



Result

You have successfully created the typical day and it is now ready for use.

See also

Configuring a shift (Page 198)

Configuring profiles

Overview

A profile is used to configure the consumption of a typical week with the help of type days.

You can employ two modes to configure a profile:

- "Weekly": Configuration of a fixed sequence of seven days. In the "Weekly" mode, assign type days to the weekdays. The type day "Default" is assigned to a weekday by default.
- "Day sequence": Configuration of a flexible day sequence. Select the type days for the "Day sequence" mode and specify their sorting order for the profile.

Note

You must activate the calendar to enable the use of the "Day sequence" mode.

Requirement

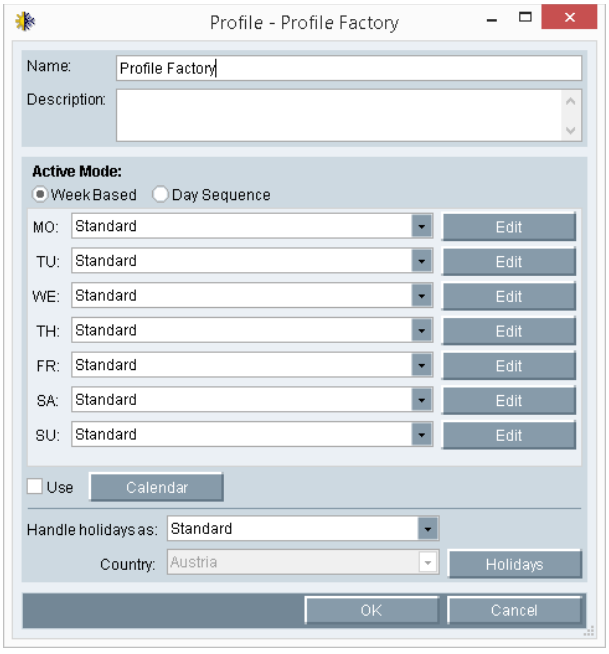
The type day is configured.

Procedure

1. Select the folder below which you want to configure a profile in the structure tree of the Client.
2. Click the "Insert Profile" button in the menu bar under "Processing > Profile".

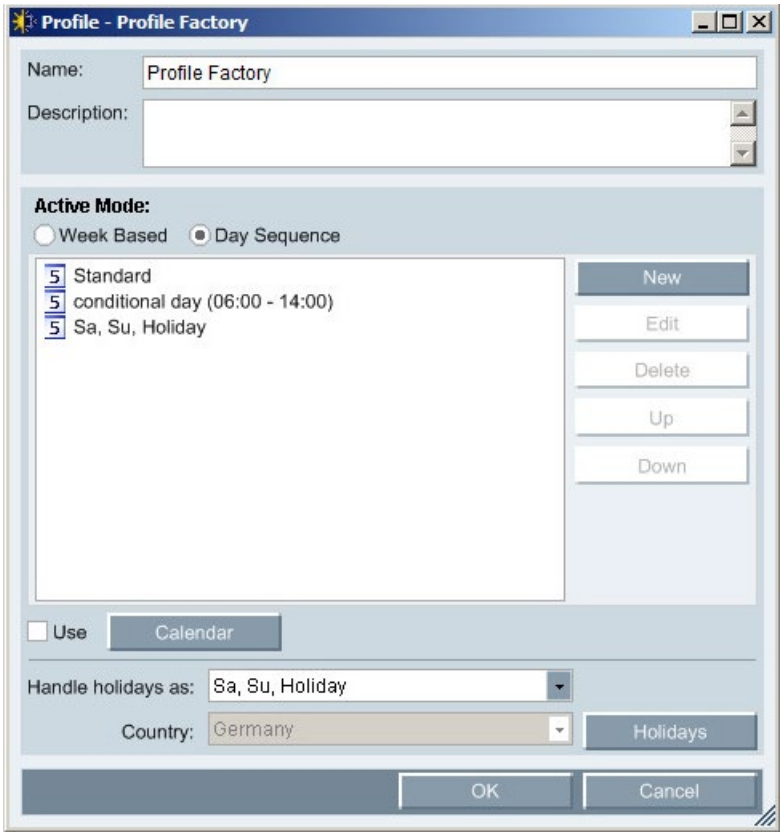
   The "Profile" dialog opens.
3. Enter a unique name and an optional description for the profile.

4. Proceed as follows to configure a profile on a weekly basis:
   - Select the "Weekly-based" mode.
   - Assign the weekday a configured type day of selecting the type day from the weekday selection list.
   - Click "Edit" click the type day.



   - Confirm the configuration with "OK".

5. Proceed as follows to configure a profile on a daily basis:
   - Select the "Daily sequence" mode and then click on "New".
   - Select one or several type days.



   - Confirm the configuration with "OK".
   - Select "Use" to activate the calendar.

Result

The profile is configured. Configure the holidays that you want to take into account for the profile. Open the calendar to edit the profile, or to display a graphic diagram of the profile.

See also

Configuring typical day (Page 199)

Selecting holidays for profile (Page 204)

Using a calendar for a profile (Page 206)

Holidays and calendar

Selecting holidays for profile

Overview

Select the holidays that you want to take into account for the profile.

Requirement

- The profile is configured.
- You have configured the country and its regional holidays.

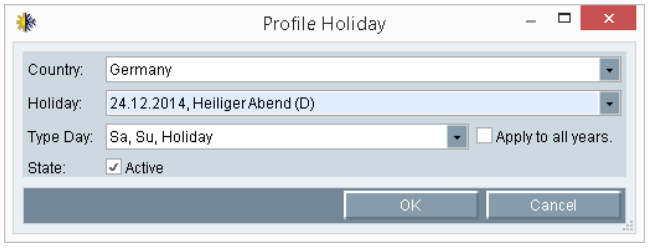
Procedure

1. Double-click the desired profile in the Client.

   The "Profile" dialog opens.
2. If the holidays are to be treated as a type day, select the relevant type day under "Treat holidays as".
3. Click on "Holidays".

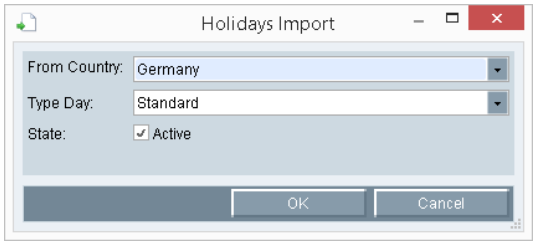
   The "Holidays" dialog opens.
4. To select a holiday of a specific country for the profile, click "New" and then select the corresponding country and its holiday.

   You can edit the selected holiday in the "Holiday profile" dialog.



5. To select all holidays of a specific country for the profile, click "import" and then select the country.

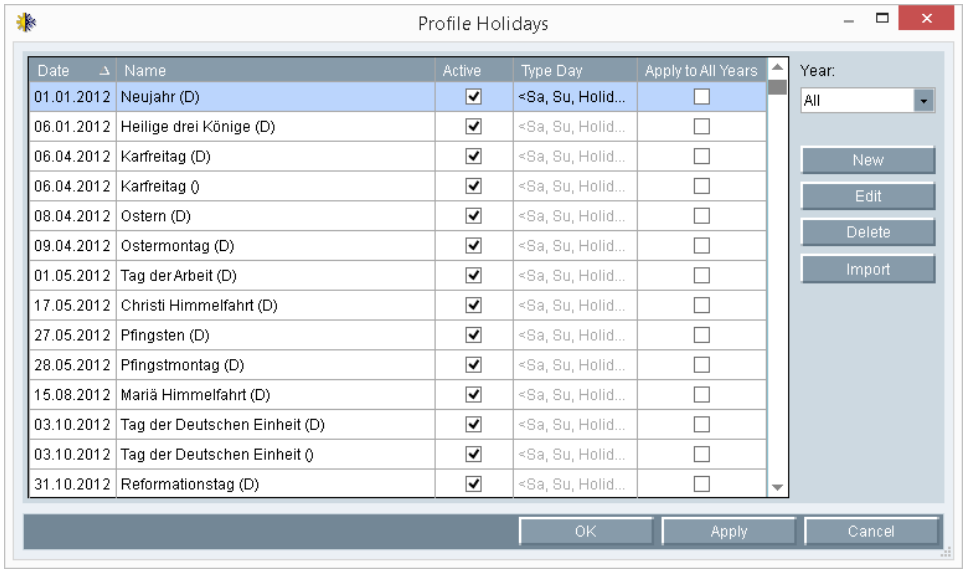
   You can edit the selected holidays in the "Holidays import" dialog.



6. Confirm the configuration with "OK".

Result

You have selected the holidays for the profile. You can edit or delete the configured holidays.



See also

Configuring profiles (Page 201)

Using a calendar for a profile

To graphically represent or change a configured sequence, use the calendar in which shifts are rolled out. The average consumption for the same shifts is calculated in accordance with the calendar.

Application example: You define a sequence with rollout for one quarter in the calendar. You can always respond to changes such as special shifts in the calendar. This functionality always keeps your consumption data and forecasts up to date.

The calendar consists of the following components:

- Detail view: Provides a graphic view of daily and shift information. The type days and shifts configured in the profile can be modified in the detail view.
- Monthly view: Allows you to select one of several days for visualization in the detail view. You can use the <CTRL> or <SHIFT> keys to select several days.
- Type day: Shows all shifts of typical days you have configured.

Requirement

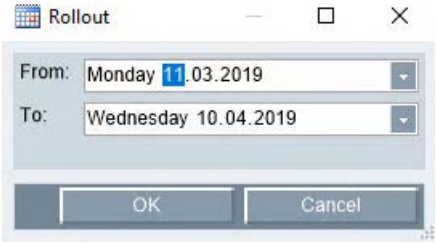
The profile is configured.

Procedure

1. Double-click the desired profile in the Client .

   The "Profile" dialog opens.
2. Activate "Use" and then click "Calendar".
3. To transfer the configured day sequence to the calendar, click "Rollout" and select the time range.

   The start date is set to Monday by default.

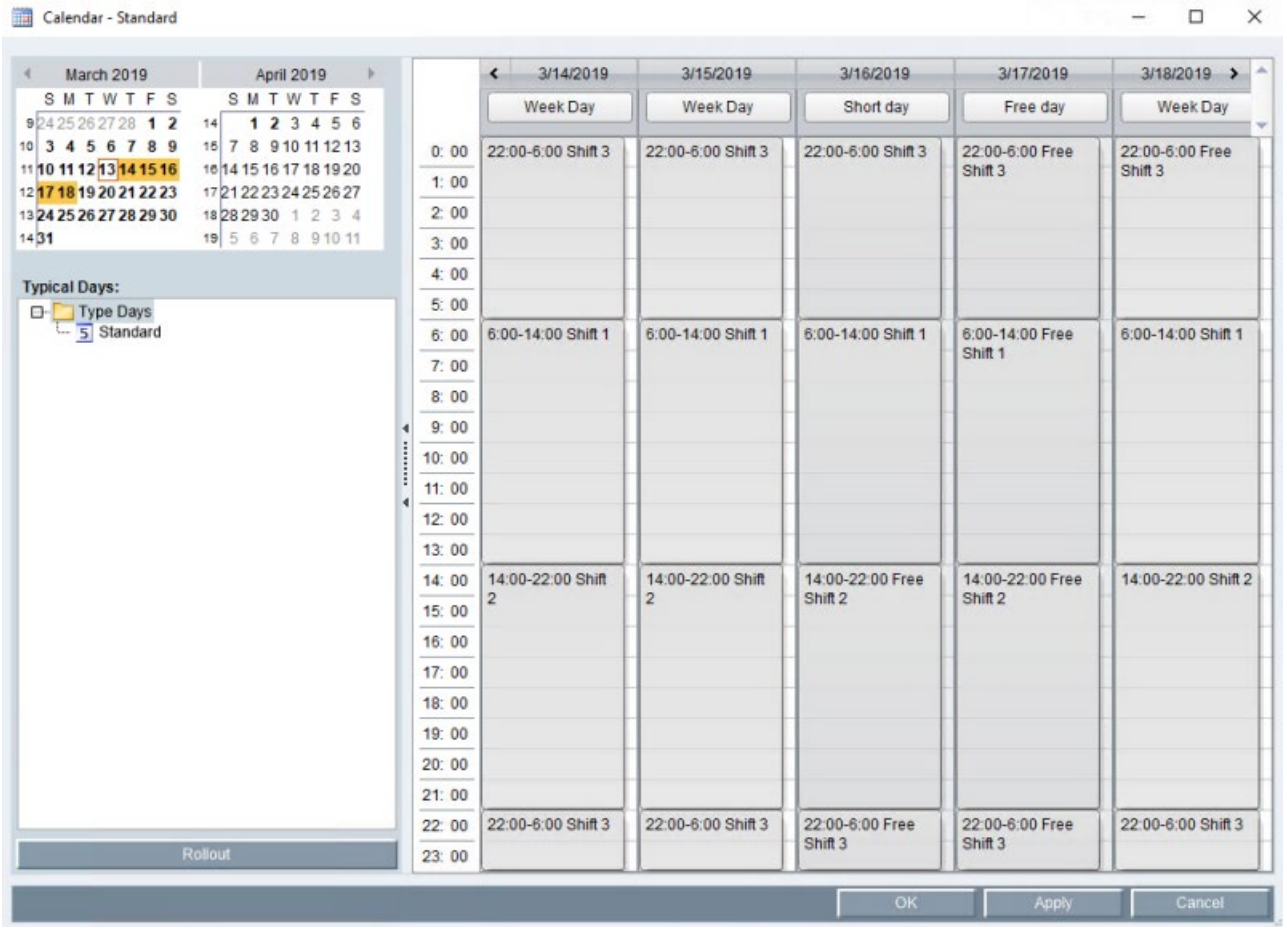


4. Confirm the configuration with "OK".

   The day sequence is entered in the calendar.
5. To select all shifts of a typical day, click "Select day elements" in the shortcut menu of the typical day.
6. To delete a type day, click on "Delete day(s)" in the shortcut menu of the type day.
7. To add a type day, select a type day under "type day", or drag-and-drop it to the calendar.

Result

You can use the calendar for the profile. Deactivate the "Use" option in the "Profile" dialog if you no longer need the calendar. The rolled-out day sequence is retained in the calendar. Existing type days will be overwritten if you enter a new rollout for the same time range in the calendar.



See also

Configuring profiles (Page 201)

Configuring root profiles

Overview

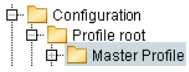
A master profile specifies how to forecast media consumption based on different profiles in the course of the year.

Requirement

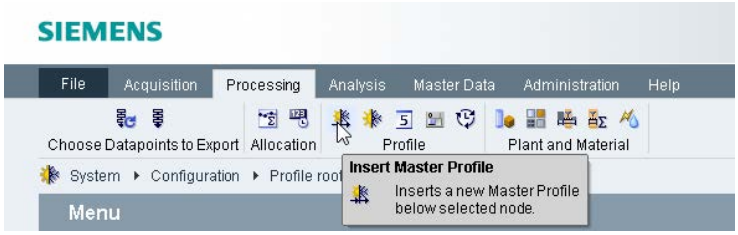
The necessary profiles have been successfully created in the system.

Procedure

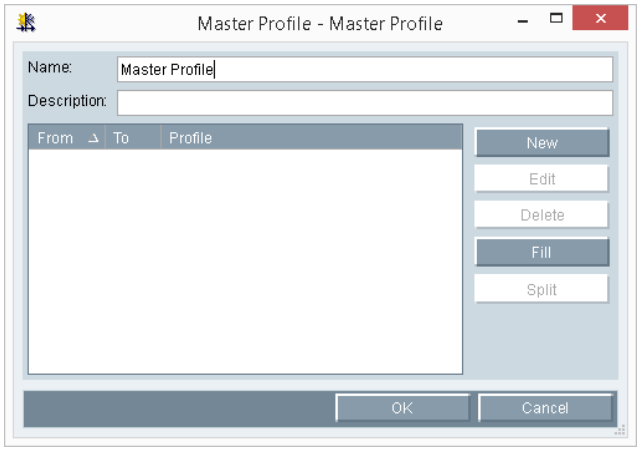
1. Select the folder in which the master profile is going to be created.



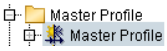
2. Click the "Insert Master Profile" button in the menu bar under "Processing > Profile".



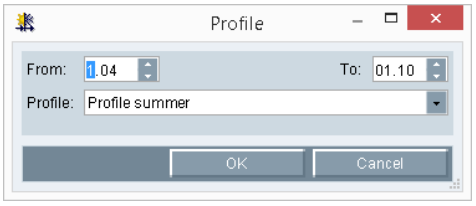
The "Master Profile" dialog opens.



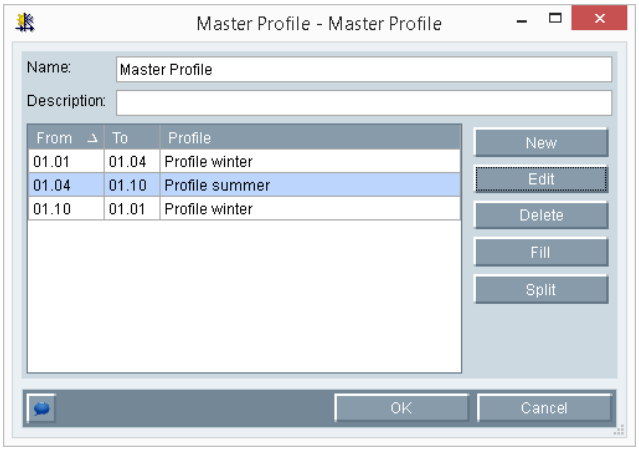
3. Enter a meaningful "Name" and an optional "Description". Confirm your entries and generate the master profile with "OK".



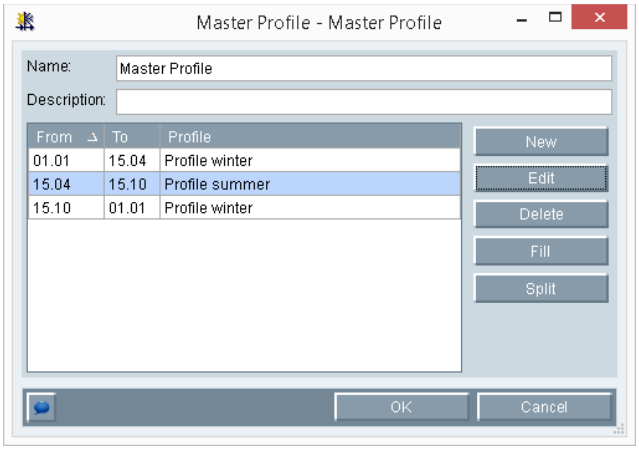
4. Double-click reopens the editing dialog. Click "New" to select a profile for the period starting on January 1 and a time as of which a different profile is to be applied. Confirm with "OK".



5. The selected profiles and FROM-TO ranges are now generated. You can edit and remove selected settings or add a new range.



6. If a different period has been configured, the profile is valid as of the new FROM time. The TO time is set automatically at the previous profile.



7. Confirm and complete the master profile configuration with "OK".

Result

You have successfully created the master profile and it is now ready for use.

Special effects

Overview

In preparation for the adjustment of the basic load profile, define corresponding parameters as a correction factor that takes long-term load changes (= special effects) into account.

The correction factor adjusts the consumption value over time accordingly by a fixed value, e.g. an absolute power value in MW or kW that is added to the basic load profile. However, it is also possible to multiply the profile value by a specific factor.

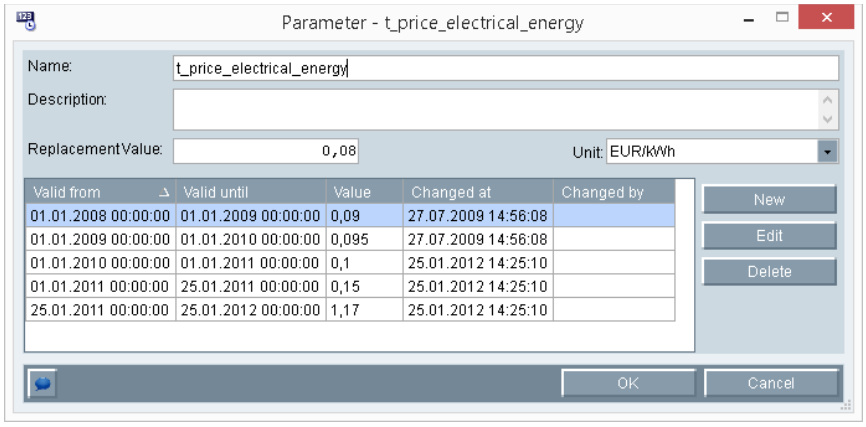
One of these parameters can be adjusted for calculation of a percentage increase , e.g. multiplication of the profile value by a specific factor.

Requirement

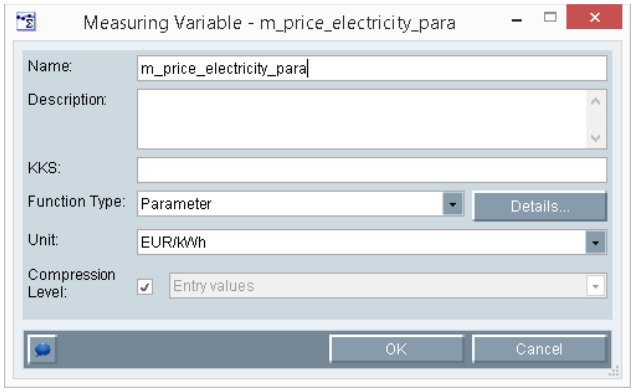
Successful installation of all software components.

Procedure

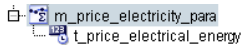
1. Create a parameter and specify its value, including the range of validity.



2. When changing values or their valid ranges, you must recalculate the reports accessing these valid ranges of values.
3. Create the MEVAs that fetch the parameter values and distribute these to the respective modules for calculations or output.



4. Select the "Parameter" function type and append the "_para" (for "Parameter") suffix to the MEVA name.



5. Complete the MEVA configuration by connecting the parameter to the corresponding MEVA node.

Result

You have successfully created the measuring variable and the parameter for use as adjustment factors.

2.2.4.4 Plants and product definition

Basic information on plants and product definitions

Overview

Energy consumption is often decisively determined by individual large consumers or production lines at which various products or batches are produced. Moreover, individual production areas are frequently inappropriately synchronized from an energy aspect, or not at all. As a result, performance peaks and off peak times that may develop are often disadvantageous with regard to cost-efficient energy supply.

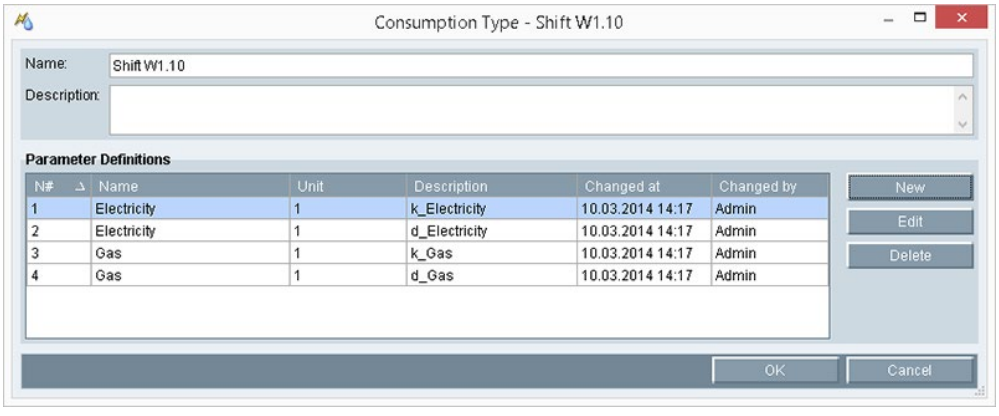
As a consequence and in order to provide a realistic forecast of energy demands, it is indispensable to create and maintain a production plan for the entire plant or specific production areas and to integrate this plan into the load forecast.

Energy Manager supports the creation and maintenance of a production and availability plan for entire plants (factory, production lines), or plant units (machinery, etc.).

The production plan logs all production phases that may have a significant impact on energy demands. With regard to large consumers, it is usually sufficient to determine whether or not the plant is going to be in operation. The logging of downtimes and restricted availabilities is usually of particular significance.

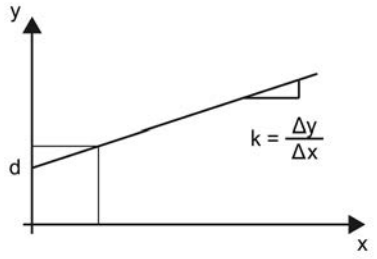
Moreover, it must be possible to plan production line throughput rates (items / time, quantity / time) that have an impact on energy demands.

In order to be able to determine the corresponding energy demand equivalent from the planned production sequence, it is necessary to create a model of the consumption parameters for the various production phases or types.



Energy Manager supports you in the maintenance or modification of the model parameters (consumption parameters) in every production phase (e.g. downtime, special shift, production x). You can take the values of the model parameters, e.g. of the batch analysis.

These media-specific (electrical power, gas, heat, etc.) parameters form the basis for calculating load requirements in the respective production phase in accordance with the equation y = k*x+d:



x Quantity
y Consumption, for example, electrical power (MW)
d Section to y
k Incline

Authorized end users may adjust the individual model parameters of the production phases with the aim of improving the quality of load forecasting.

The next chapters present the following contents related to production planning:

1. Consumer type
2. Material
3. Plant

Requirement

- The license for energy prognosis and planning exist.
- Successful installation of all software components.

See also

Forecasting based on production plan (Page 242)

Creating consumption types

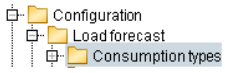
You need consumption types to create models of planned production sequences. These models are used to calculate the respective energy demands. The values for d and k are saved in the consumption type. If you do not know the values for d and k, you can determine the values via the report "Batch analysis" or the widget "Multi-variable regression analysis".

Requirements

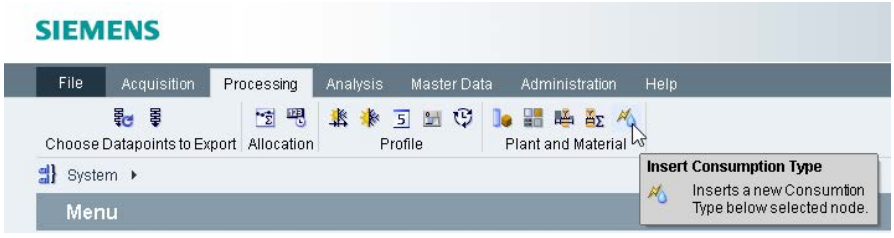
- Production planning is properly installed.
- The values for d and k are known.

Procedure

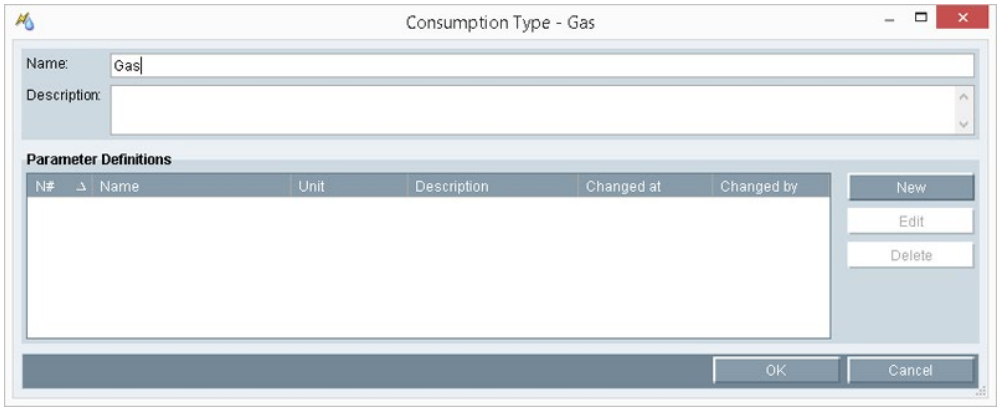
1. Select the folder in which the consumption type is going to be created.



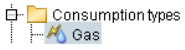
2. Click the "Insert Consumption Type" button in the menu bar under "Processing > Plant and Material".



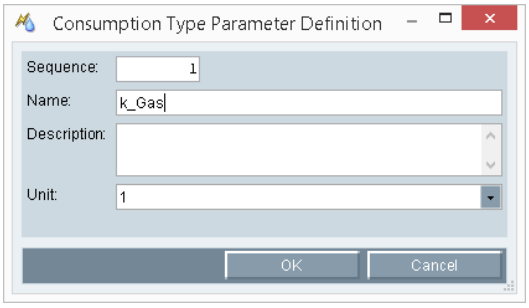
The "Consumption Type" dialog opens.



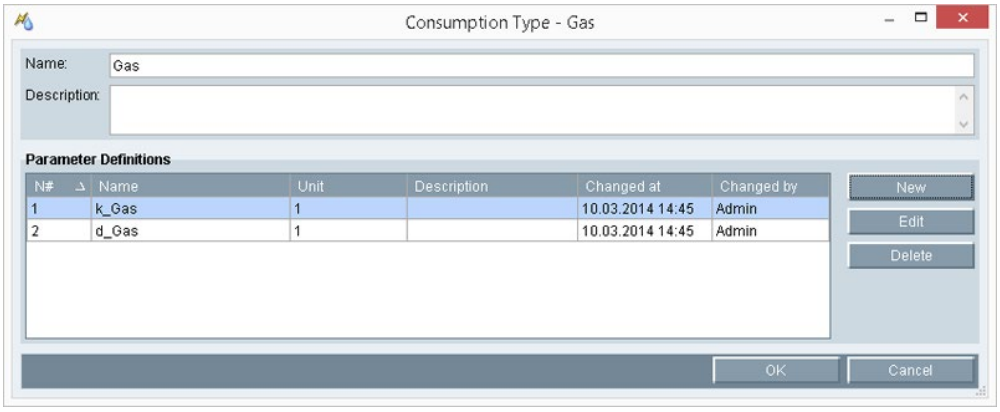
3. Enter a meaningful "Name" and an optional "Description". Confirm your entries and generate the consumption type with "OK".



4. Double-click reopens the editing dialog. Select "Insert..." to create the 1 (k) and 2 (d) parameters.



5. You only need to define parameters 1 and 2.



Note

Consumption types for electrical power, gas, steam_HD, steam_MD, and steam_ND have already been created as domain data.

Result

The consumption type has been successfully created and can now be used as consumption parameter in the product types.

See also

Forecasting based on production plan (Page 242)

Batch and material-related analysis (Page 223)

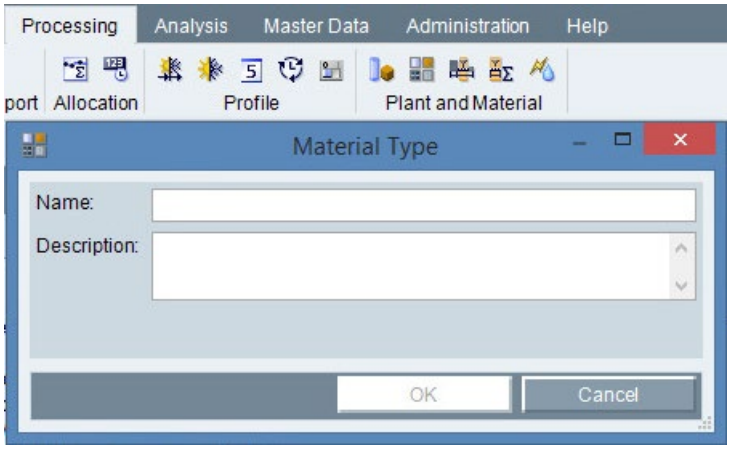
Creating a material class

Overview

When you create a new material in the course of the production planning you can assign it to a specific material class.

Procedure

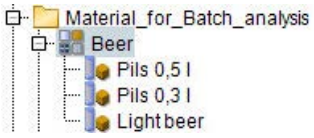
1. Click "Insert material class" in the menu bar under "Processing > Plant and Material definition".
2. The "Material class" dialog opens.



3. Enter a name and optionally a description.
4. Save with OK.

Result

The new material class has been created.



Configuring material

Overview

Material (product types) in combination with consumption parameters (=consumption types) are required to calculate respective energy demands.

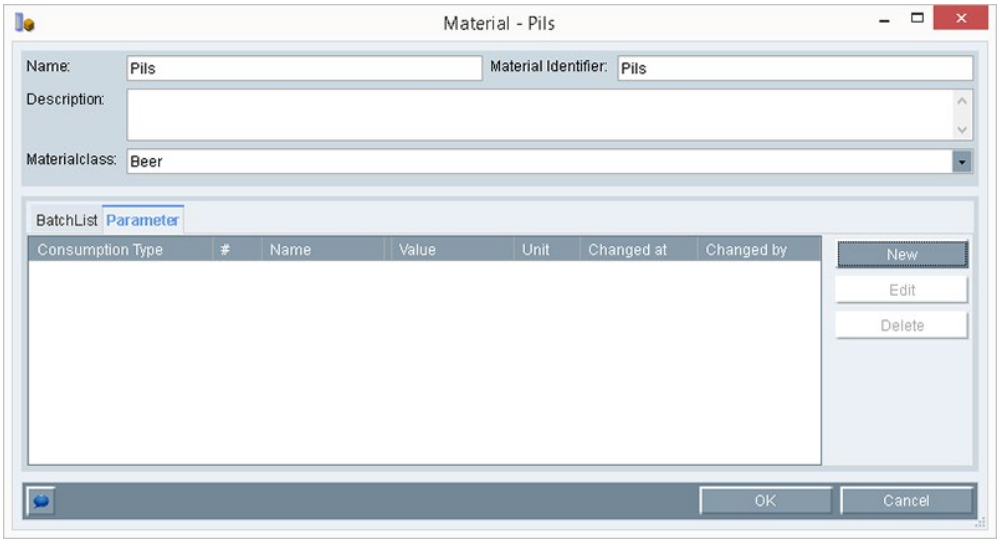
Requirement

The necessary consumption types have been successfully created in the system.

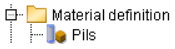
Procedure

1. Select the folder in which the material is going to be created.
2. Click the "Insert Material" button in the menu bar under "Processing > Plant and Material".

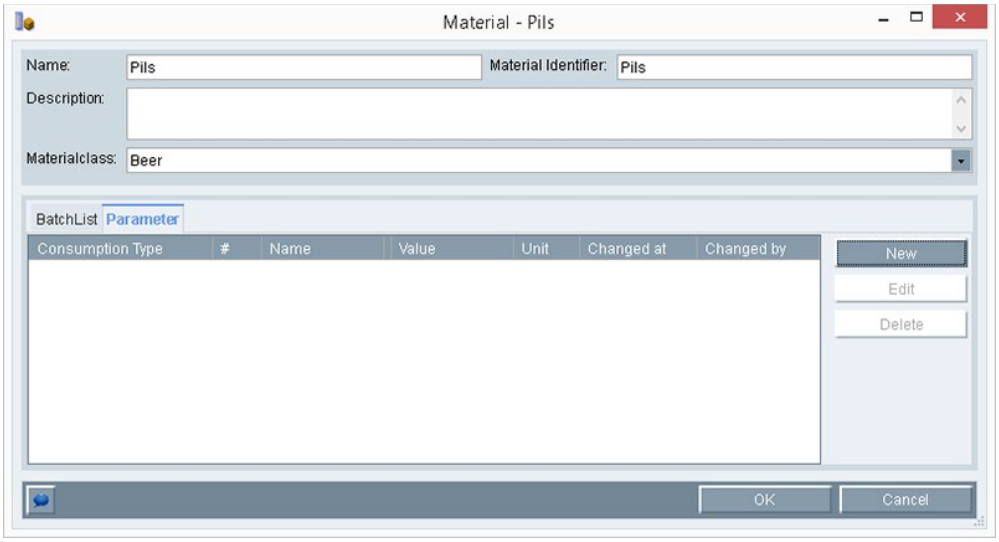
   The "Material" dialog opens.



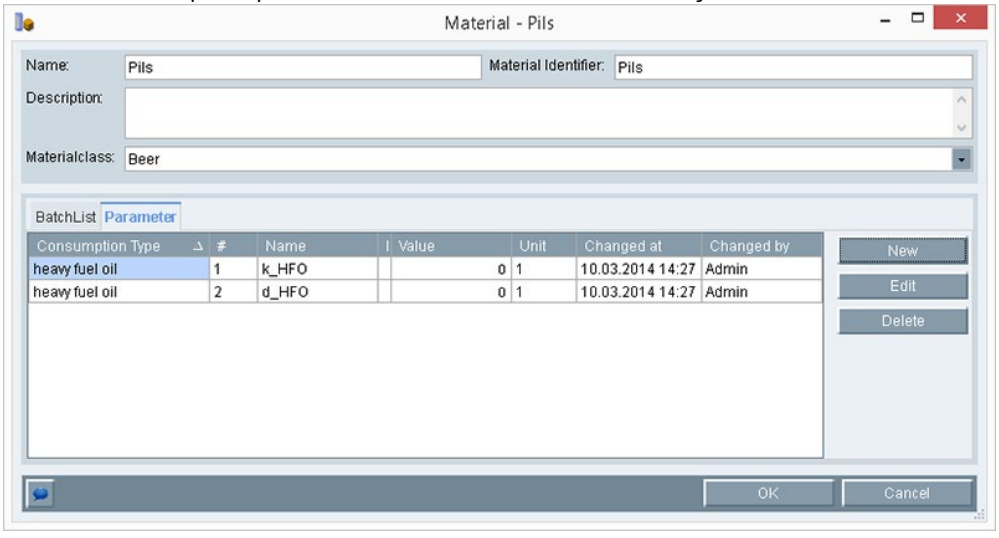
3. Enter a meaningful "Name" and an optional "Description". Confirm your entries and generate the material with "OK".



4. Double-click reopens the editing dialog.



5. Click "New" to open the dialog for editing the consumption parameters.
6. Select a consumption parameter, enter a value, and confirm your entries with "OK".



Note

Consumption types for electrical power, gas, steam_HD, steam_MD, and steam_ND have already been created as domain data and cannot be deleted. You may create additional parameters as required.

7. The value entered is now displayed, can be edited using the "Edit..." function, and be deleted again with "Delete".
8. After values have been changed, the reports accessing these values must be recalculated.

Result

You have successfully created the material that is now ready for use in plants (production plans).

Configuring the plant

Overview

In order to calculate production-dependent forecasts, Energy Manager employs integral production plans (plants) that specify the production or the status of a factory, building, machine, etc. (= material).

The forecast value of these materials is specified at the respective "Material" definition (in operation, standstill, revision, grade XXX, etc.).

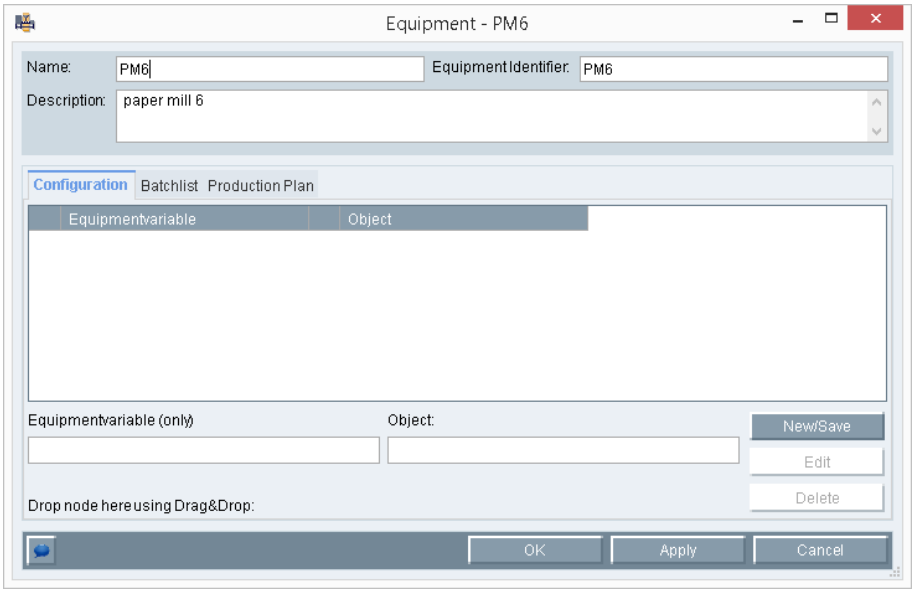
Requirement

- Cyclic (monthly) and timely allocation of the plants (production plans), as far as production has an impact on load requirements.
- The materials used (product types) have been successfully created in the system.
- The production plan is only available if the license for energy prognosis and planning is available.

Procedure

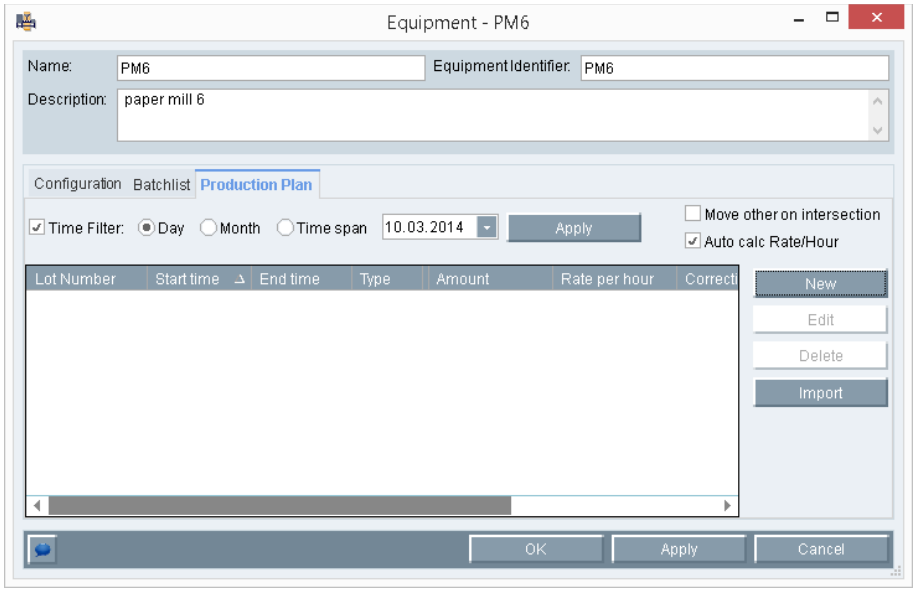
1. Select the folder in which the plant (production plan) is going to be created.
2. Click the "Insert Equipment" button in the menu bar under "Processing > Plant and Material".

   The "Production Plan" dialog opens.

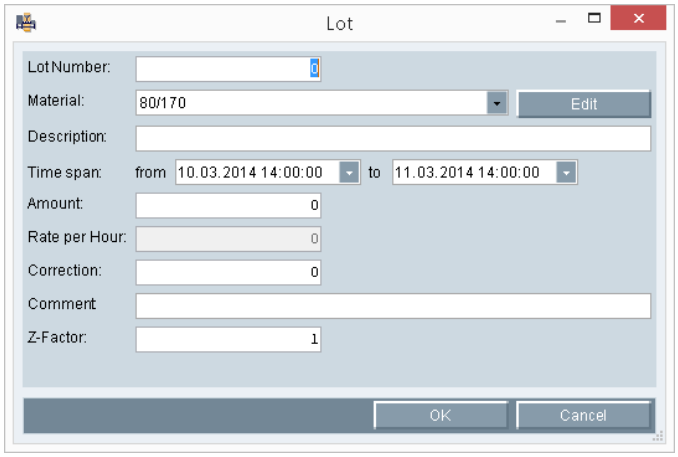


3. Enter a meaningful "Name" and an optional "Description". Click "OK" to confirm your entries and to generate the production plan.

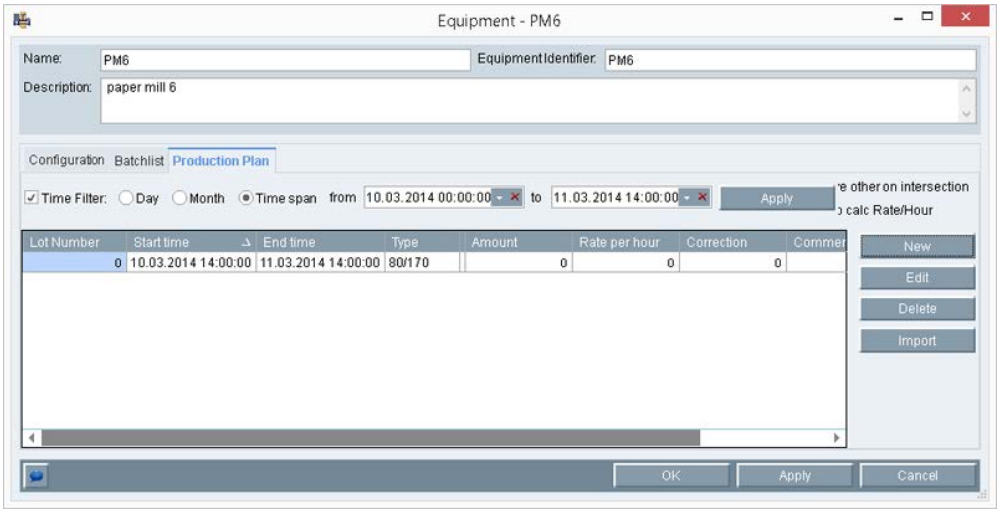
4. Double-click reopens the editing dialog.



5. Select "New..." in the "Production Plan" tab to open the editing dialog.
6. Specify the following entries for the production plan:
   - Select the required lot type, e.g., Production of XXX, Plant is in revision, etc.
   - Select the product under "Material" and enter a description of the product, if necessary.
   - Specify the time span in which the product will be produced.
   - Specify in which quantity the product will be produced.
   - Enter the correction factor and the Z factor.
   - You may enter a comment if required.
   - Click "OK" to confirm your entries.



7. The value entered is now displayed, can be edited using the "Edit..." function, and be deleted again with "Delete".

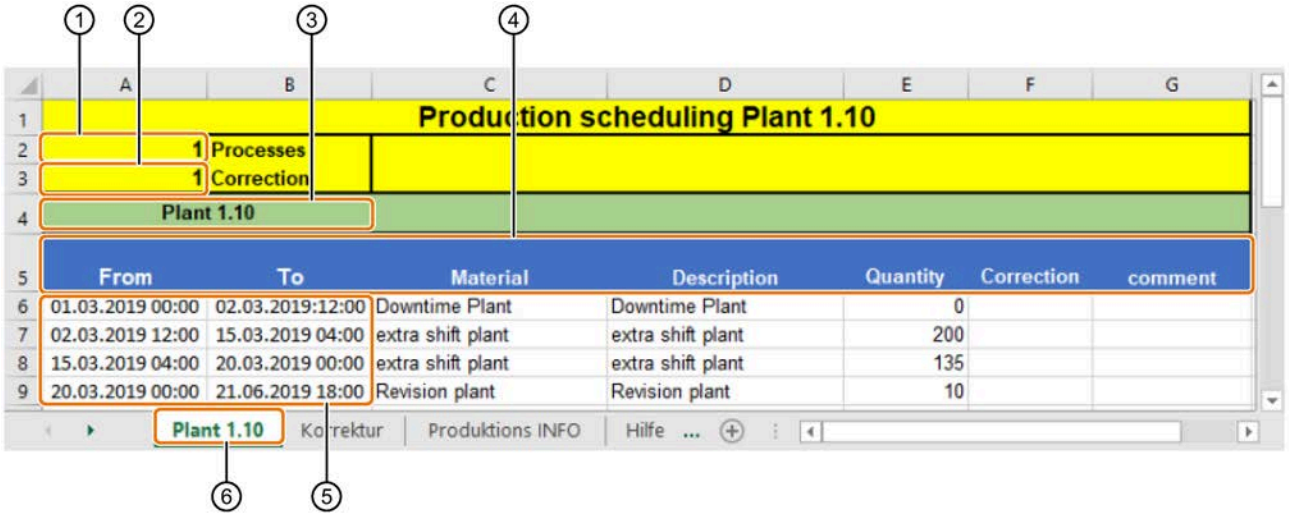


Importing production plans

1. To import production plans from an Excel file to Energy Manager, click "Import..." and select the required Excel file.

   During an import from the Excel file, the existing data in Energy Manager are deleted in the respective production plan and new data are entered in the respective columns.

   If you define the production plan using an Excel file, the Excel spreadsheet must have the following structure:



① The number of worksheets that are copied to the production plan are found in cell A2.

② To activate correction factors, enter the value 1 in the cell A3.

③ The name of the plant is found in cell A4.

④ The column headers are found in line 5.

⑤ The format of the time stamp is DD.MM.YYYY hh:mm.

⑥ The name of the worksheet is the name of the plant.

Note

Note that only the following entries are imported from the Excel file:

- Entries in which the "TO" time stamp is in the future.
- Entries in which the "FROM" time stamp is not older than five days.
  You can change the number of days under "Energy Manager Options > Database > Productplan_limit".

Before the data import, the table contents in question are deleted and reentered.

2. To automate the import process, use the predefined task "Production_Plan_Import" under "Configuration > TaskManagement".

   You can use this task, for example, to import the production plans from an Excel file each day at a specific time to Energy Manager.

Result

You have successfully created the plant and its production plan and these are now ready for use.

See also

Options (Page 53)

Task Management (Page 831)

Forecast (Page 239)

Jobs in Energy Manager PRO (Page 398)

2.2.4.5 Batch and material-related analysis

Configuring data points for batch and material ID

To carry out a batch analysis, you need a data point each for batch ID and material ID.

The start and end time of a batch is calculated via the change of the batch ID. A batch ID must be saved in the data point for each time.
For this reason there is a separate batch ID for the time periods between batches. The ID for this case is 0.

The material ID specifies which material is produced in the batch and in which plant the batch is produced.

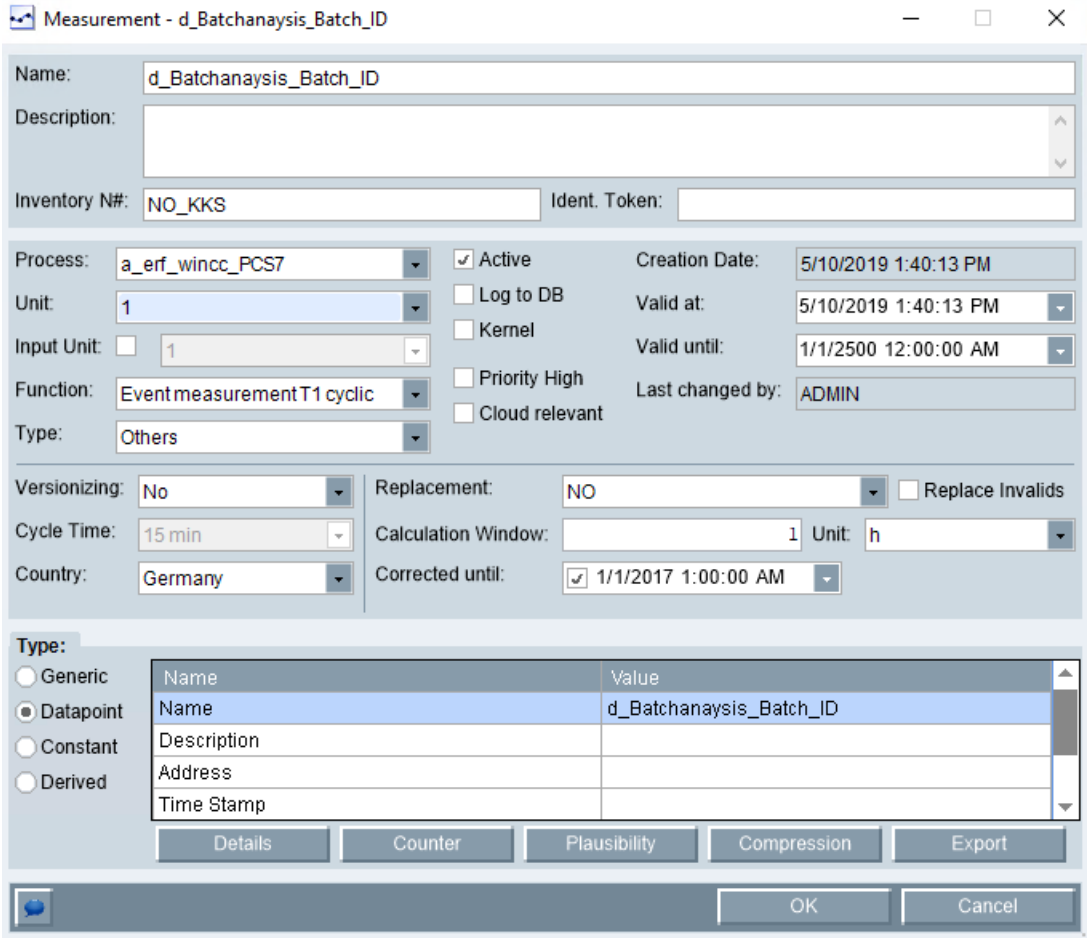
Requirement

- The data point has been created.

Procedure

To configure a data point for acquiring the batch ID or material ID, follow these steps:

1. Open the shortcut menu using the right mouse button.
2. Select the "Edit..." menu command.
   The "Data point" dialog box opens.



3. Configure the data point with the following settings:
   - Function: "Result measurement T1 spontaneous" or "Result measurement T1 cyclic"

     For further information on the functioning of the data point, read the section "Background: Batch-related data" in the section "Configuring "Batch analysis" reports (Page 226)".
   - Type: "Other"
4. If you have created the data point manually, you also configure the following settings:
   - Process: Select the channel to which you want to assign the values of the data point.
   - Unit: Select the unit "1".
   - Data point type: Data point
   - Address: Enter the address that the driver uses to identify the data point.

Result

The data point is configured.

See also

Creating data points (Page 133)

Creating a plant variable

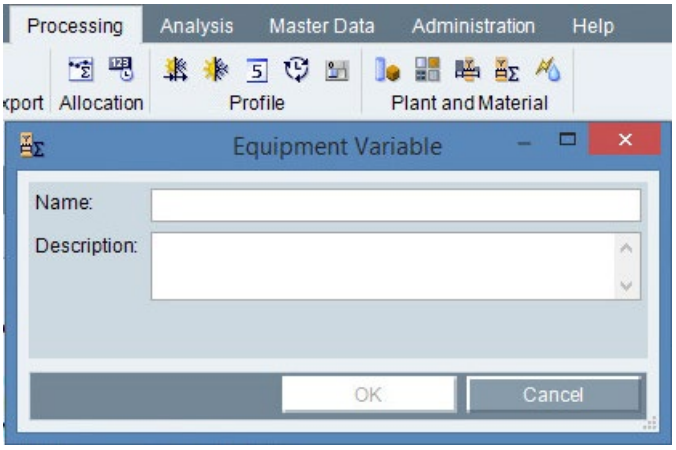
Overview

In the course of the plant definition or during the batch analysis you can also create a new plant variable.

Procedure

1. Click "Insert plant variable" in the menu bar under "Processing > Plant and Material definition".

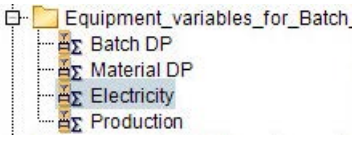
   The "Plant variable" dialog opens.



2. Enter a name and optionally a description.
3. Save with OK.

Result

The new plant variable has been created.

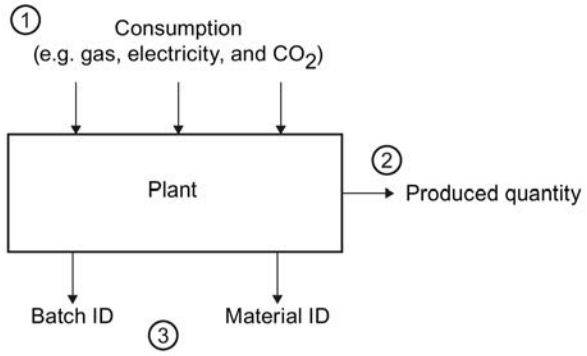


Configuring "Batch analysis" reports

The batch analysis helps you to evaluate the energy and media consumption for a specific batch or product per plant. The batch analysis also takes batches into account that are handled sequentially on several plants.

The "Batch analysis" report provides you with a reporting module in Energy Manager, which you can use to evaluate the energy consumption per batch or material.

The following figure shows the parameters that you need for this analysis.



① Consumption data

This example relates to the gas and electricity consumption. The CO_2 that develops during production, for example, is calculated based on the CO_2 equivalent of the consumers.

② Production data

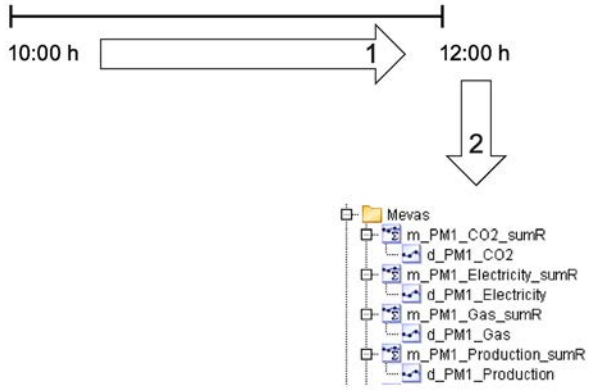
The quantity or number of products manufactured within the batch runtime.

③ Batch data

The "Batch ID" is used as unique identifier of the batch and defines the start and end of batch runtime.

The "Material ID", for example, denotes the product type manufactured in this batch.

The diagram in the following figure highlights the data acquisition process of a batch that is busy from 10:00 h to 12:00 h:



1 Consumption and production data is acquired during batch runtime at an acquisition cycle of five seconds. At a runtime of two hours, 1440 values are saved as raw data for each data point.

2 At the end of the batch, the batch data is generated and calculated in the mevas, e.g. the total, on the basis of the acquired raw data. Use the "Generate batch data" database job to generate the batch data.

You may delete the raw data on completion of your calculation, e.g. after one week.

The pre-calculation of batch data offers you two advantages:

- You acquire the consumption data of a batch in the seconds range and profit from very precise data.
- The time it takes to generate the batch analysis report is reduced, as the values of the pre-calculated MEVAs are used.

Requirement

The following data points have been created and configured:

- At least one data point for the consumption values of the batch
- A data point for the production figures of the batch
- A data point for the Material ID of the batch
- A data point for the batch ID of the batch

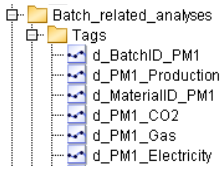
The section "Configure data points for batches and material ID (Page 223)" describes how to configure the data points for acquiring the batch ID and material ID.

In the following example a batch analysis is configured with these data points:

Name	Description	Cycle time
d_PM1_Electricity	Acquires the power consumption of a plant.	5 s
d_PM1_Gas	Acquires the gas consumption of a plant.	5 s
d_PM1_CO2	Acquires the CO_2 production of a plant.	5 s
d_PM1_Production	Acquires the quantity or number of products manufactured on a plant.	5 s
d_BatchID_PM1	Acquires the batch start and end times.	5 s
d_MaterialID_PM1	Acquires the material IDs of the product types produced per batch.	5 s

Copying data points

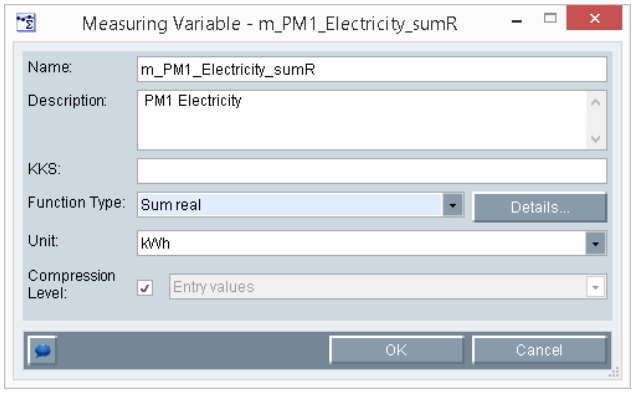
1. Copy the data points that you need for the batch analysis to the selected subfolder.



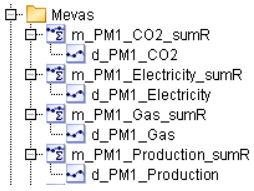
Creating MEVAs

1. Under the desired folder, create measuring variables with the "Sum real" database function for each data point used.

   Example of the creation of the "m_PM1_Electricity_sumR" measuring variables for the "d_PM1_Electricity" data point:



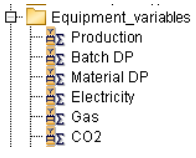
2. Copy the corresponding data points to the subfolder of the MEVA folder.



Creating plant variables

1. Create the necessary plant variables in the selected subfolder.

   The section "Creating a plant variable (Page 225)" describes how to create plant variables.

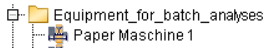


   The "Batch DP" and "Material DP" plant variables are predefined in Energy Manager. Copy these plant variables to the selected folder.

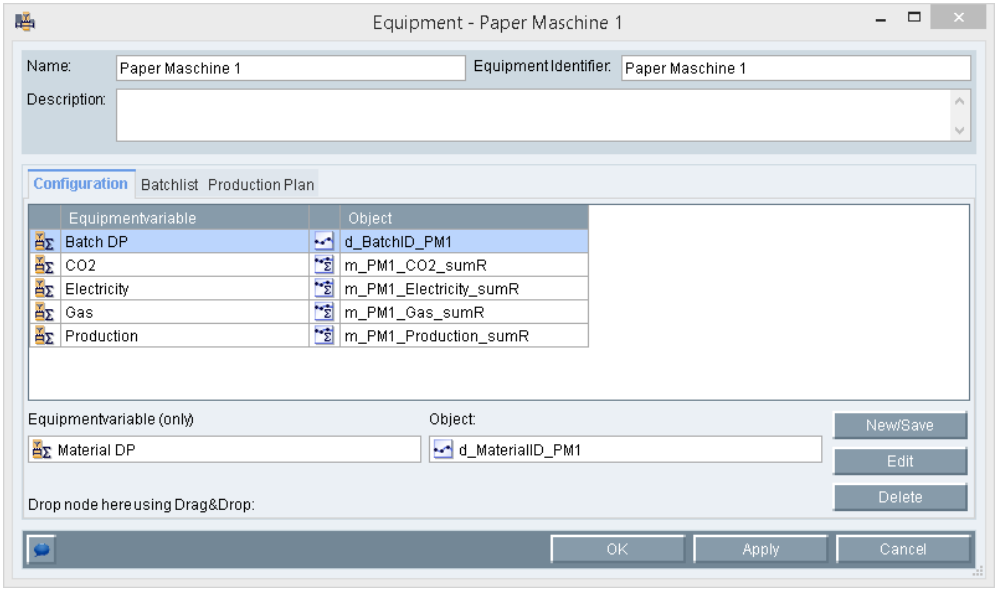
Creating a plant

1. Create the necessary plant variables in the selected subfolder.

   The section "Configuring the plant (Page 219)" describes how to create a plant.

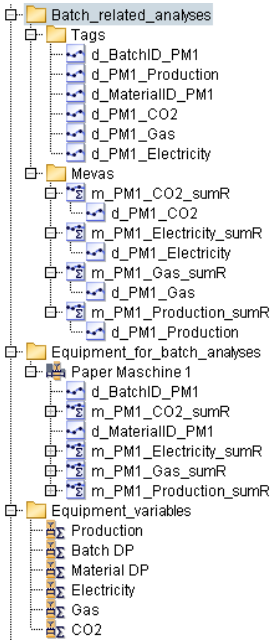


2. In the plant configuration dialog, drag-and-drop the plant variables, including the corresponding measuring variables / data points from the project tree to this folder.



Intermediate result

You have successfully created all objects that you need for the "Batch analysis" report.



Batch-related data

Take into consideration the following points with regard to the acquisition values of the batch and consumption information for batch data analysis:

- Acquisition values of the required numerical data points do not have to exist in the global database. Batch calculation recognizes when the acquisition values are not saved on the global database and automatically transfers the required data from the acquisition component.

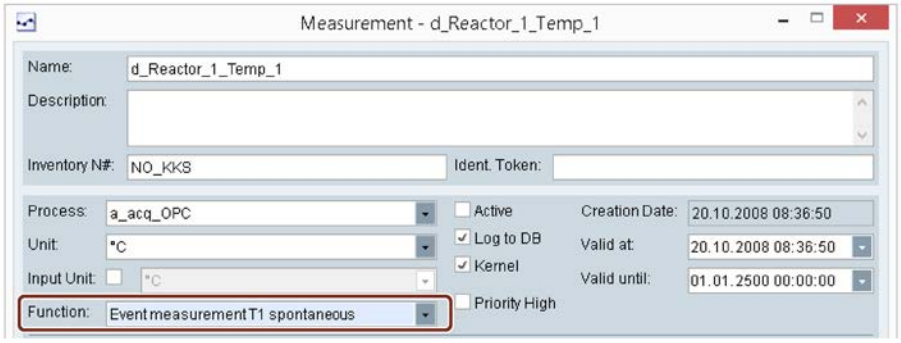
  Example:

  The input data point "d_BatchID_PM1" for recording the batch start and end time is recorded in a 5-second cycle. Due to the compression configuration of the data point, only the compression levels 15 minutes, 1 day and 1 month are saved in the global database. The 5-second values remain as acquisition values on the acquisition component.

  Note

  The acquisition data are saved on the acquisition component for 62 days. If saved acquisition values are used on the acquisition components, batch analysis is therefore only possible for the last 62 days.

- Acquisition values of the required STRING data points must exist in the global database.
- To enable the display of batch information in a data point, select one of the following entries in the "Function" list box:
  - "Event measurement T1 spontaneous"
  - "Event measurement T1 acyclic"



- You do not have to specifically mark data points for saving consumption information.

Note

If a large volume of acquisition data is used, e.g. 5-second values for several weeks, the data transmission may delay batch generation.

Background: Batch-related data

The data is stored in a data point with the configuration "Event measurement T1 spontaneous" as follows:

Time stamp	Value
01.02.2008 14:32	0
01.02.2008 15:12	1
01.02.2008 18:20	0
01.02.2008 21:10	1

Each changing value defines the end or start of a batch. In the above case it is possible to define values for the following time ranges in the matrix.

- 01.02.2008 14:32 - 01.02.2008 15:12
- 01.02.2008 15:12 - 01.02.2008 18:20
- 01.02.2008 18:20 - 01.02.2008 21:10

The data is stored in a data point with the configuration "Event measurement T1 cyclic" as follows:

Time stamp	Value
01.02.2008 14:32	0
1 February, 2008 14:33	0
1 February, 2008 14:34	1
1 February, 2008 14:35	1
1 February, 2008 14:36	0

In this case, it is possible to define values for the following time ranges in the matrix.

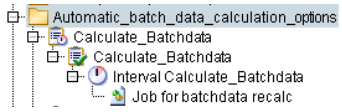
- 01.02.2008 14:32 - 01.02.2008 14:34
- 01.02.2008 14:34 - 01.02.2008 14:36

  The values entered are written to the database with "TO" time stamp and are therefore available for further evaluations.

Calculating batch data

1. Copy the "Calculate_Batchdata" task to the selected subfolder to calculate the batch data.

   The "Calculate_Batchdata" task is predefined in Energy Manager. It is not necessary to recreate this task.

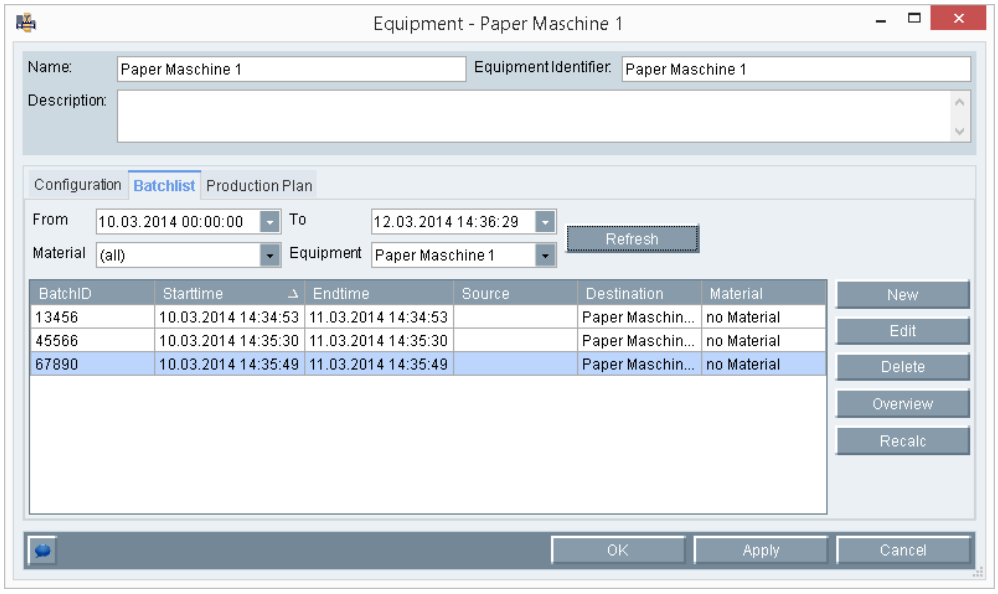


2. You can start the task manually by double-clicking the task and clicking "Start".

Intermediate result

The batch data is being generated. The total of the consumption values of the period contained in the meva that is assigned to the plant is calculated automatically.

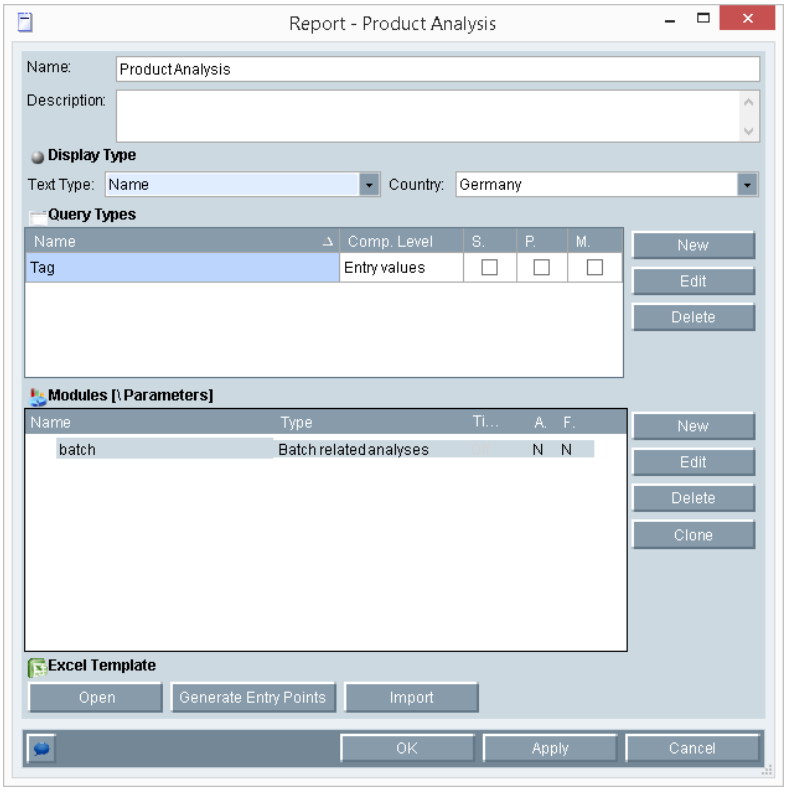
You can display the batch data in the "Batch list" tab of the "Plant" or "Material" dialog with the corresponding filter entries.



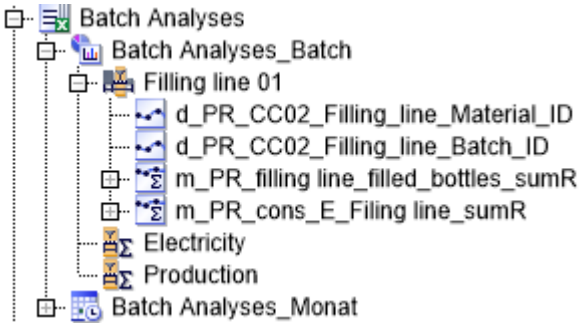
Creating a report

1. Create a report with the query type "Day" and "Batch-related analyses" module in the selected subfolder.

   The section "Creating a report (Page 276)" describes how to create a report.



2. Create a report template.
3. Copy the plant variables, the plant, as well as the associated measuring variables and data points to the subfolder of the report module.



4. Start the report with the query type "Day" and query period for the batch analysis.

Result

The calculated batches are visualized in the report.

Material specific analysis

From	26.04.2012
till	27.04.2012

						Consumption				
Equipment	Material	Batch ID	from	till	hh:mm:ss	CO2	Gas	Electricity	Material DP	Batch DP
Paper Machine 1	no Material	12458	26.04.2012 06:00:00	26.04.2012 10:00:00	04:00:00	0	0	0	0	0
Paper Machine 1	no Material	132500	26.04.2012 13:00:00	26.04.2012 16:30:00	03:30:00	0	0	0	0	0
Paper Machine 1	no Material	16125	26.04.2012 20:00:00	26.04.2012 23:30:00	03:30:00	0	0	0	0	0
Paper Machine 1	Heatset 40g/m²	132500	26.04.2012 13:00:00	26.04.2012 16:30:00	03:30:00	1.344	4.438	1.547	1.680	7.462
Paper Machine 1	Newsprint 42,5g/m²	12458	26.04.2012 06:00:00	26.04.2012 10:00:00	04:00:00	2.912	5.908	2.331	3.640	9.572
Paper Machine 1	Newsprint 42,5g/m²	12550	26.04.2012 10:30:00	26.04.2012 12:00:00	01:30:00	2.564	4.580	1.789	3.245	8.560
Paper Machine 1	Newsprint 42,5g/m²	15750	26.04.2012 14:00:00	26.04.2012 16:30:00	02:30:00	2.684	5.762	1.814	3.365	10.560
Paper Machine 1	Newsprint 42,5g/m²	16125	26.04.2012 20:00:00	26.04.2012 23:30:00	03:30:00	3.640	5.908	2.912	3.140	12.460

Using the batch analysis result for regression analysis

Use the diagram functionality of Microsoft Excel for the regression analysis. The analysis is based on the recorded production and consumption data depending on the produced product.

1. Create an autofilter. In the "Materials" column, filter by the required product type.
2. Because consumption and produced quantity are relevant for the regression analysis, hide the columns that are not required.

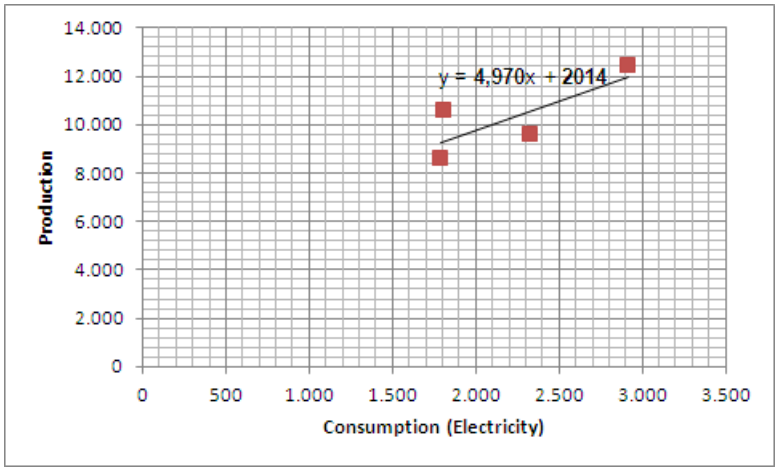
   In this example, use the data of columns I and K.

	A	B	C	D	E	F	G	H	I	K
12	Material specific analysis									
13										
14	From	26.04.2012								
15	till	27.04.2012								
16										
17							Consumption			
18	Equipment	Material	Batch I	from	till	hh:mm:	CO2	Gas	Electri	Batch I
23	Paper Machine 1	Newsprint 42,5g/m²	12458	26.04.2012 06:00:00	26.04.2012 10:00:00	04:00:00	2.912	5.908	2.331	9.572
24	Paper Machine 1	Newsprint 42,5g/m²	12550	26.04.2012 10:30:00	26.04.2012 12:00:00	01:30:00	2.564	4.580	1.789	8.560
25	Paper Machine 1	Newsprint 42,5g/m²	15750	26.04.2012 14:00:00	26.04.2012 16:30:00	02:30:00	2.684	5.762	1.814	10.560
26	Paper Machine 1	Newsprint 42,5g/m²	16125	26.04.2012 20:00:00	26.04.2012 23:30:00	03:30:00	3.640	5.908	2.912	12.460

3. Insert the diagram type "Point (X Y)", for example, on a new worksheet.
4. Select the required range as data range in the batch analysis.

5. To identify outliers more clearly, generate a trend line if necessary.

   Based on the formula, read the factors "k" and "d" which you can use as basis for a production-planning oriented forecast:



See also

Task Manager (Page 405)

Configuring reports (Page 279)

Using the batch list

Overview

The batch list shows you the batches that were produced on a plant.

The following filter options are available for displaying specific batches:

- Time frame

  The batch list shows only the batches that were produced in the selected time frame.

- Plant

  The batch list shows only the batches that were produced on the selected plant.

- Material

  The batch list shows only the batches that were produced on the selected production lot type.

You may also edit batches in the batch list and add new batches to the list. For example, you may view and edit the figures that were used for batch calculations. You can access the batch list either via a plant or via a material.

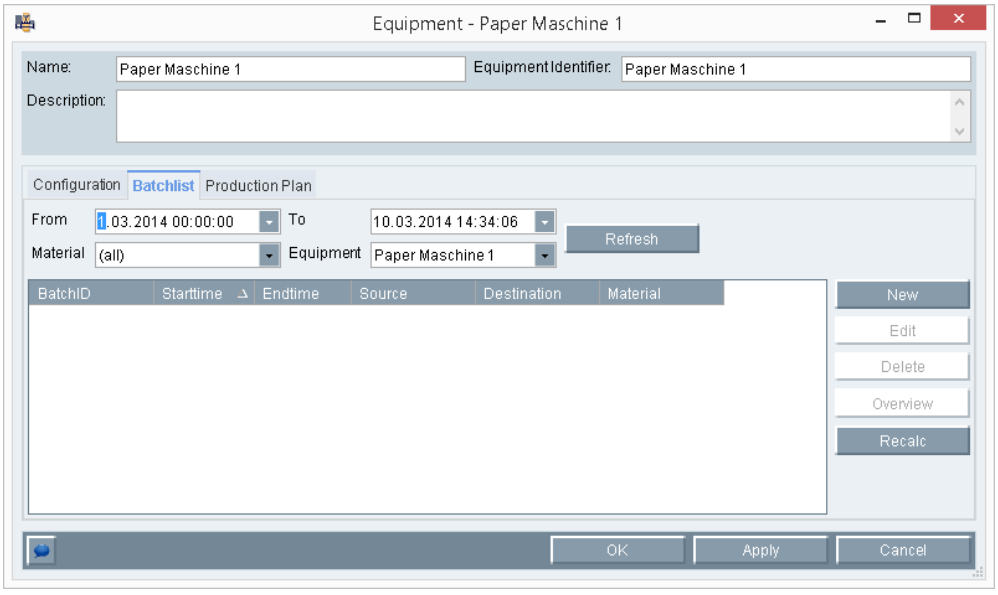
Note

The "Batch list" tab is not available until the plant completion and renewed opening of a Material or a Plant.

Procedure

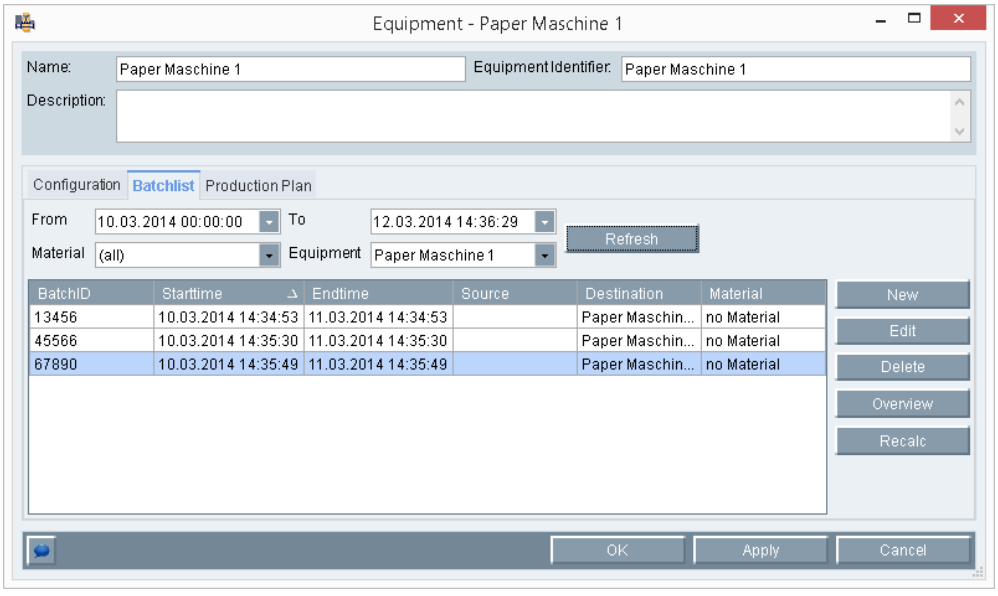
1. Double-click a plant or material and select the "Batch list" tab.

   The "Batch list" tab is displayed in the "Plant" or "Material" dialog.



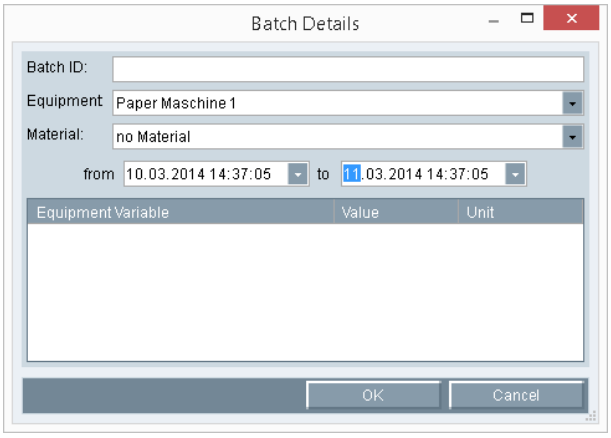
2. Specify the following data to display the selected batches in the batch list:
   - Specify the required time frame in "From ... to".
   - Select the production lot type from the "Material" dialog.
   - Select the plant from the "Equipment" dialog.
3. Click "Update".

   The batches are displayed in the batch list.



4. You may create a batch manually as follows:
   – Click "New".

     The "Batch Details" dialog opens.



   – Enter a Batch ID in the "Batch ID" field.
   – Select the plant from the "Equipment" dialog.
   – Select the production lot type from the "Material" dialog.
   – Specify the required time frame in "From ... to".
   – Click "OK".

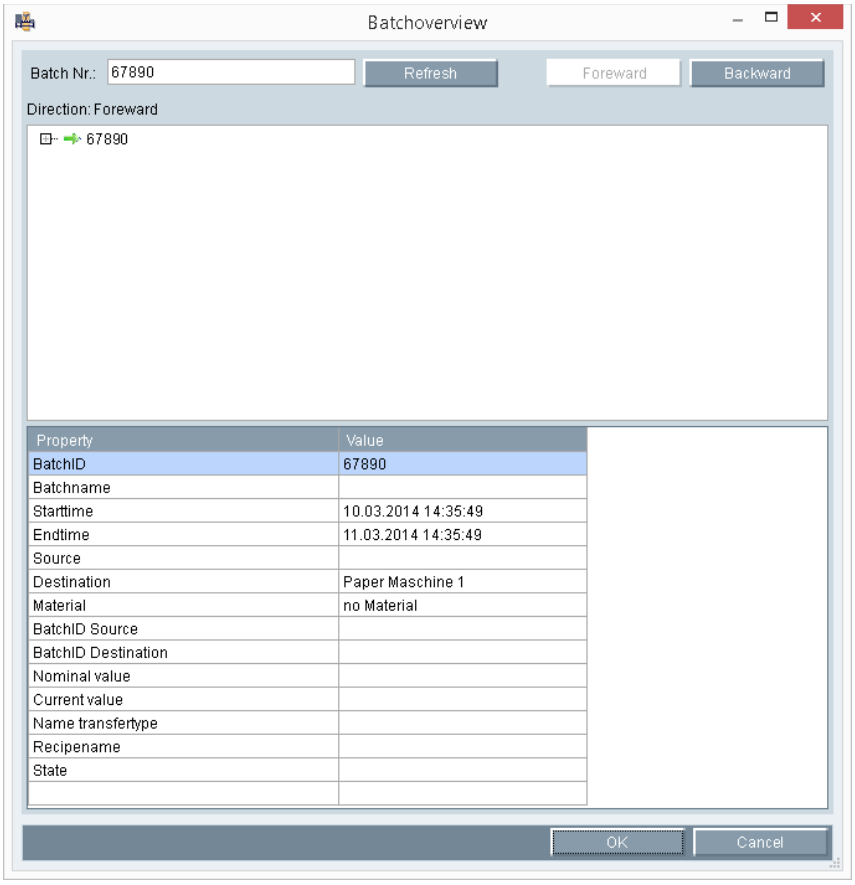
     The batch will be created. You can display the batch in the batch list by entering the corresponding filter criteria.
5. The batch figures can be viewed and edited by clicking on "Edit".

   The "Equipment Variable" area lists the plant variables that were assigned to the respective plant.

   The "Value" and "Unit" fields list the corresponding figures that were calculated based on the respective mevas.

   – You can edit figures by clicking the respective entry in the "Value" field.
6. A batch is removed from the batch list by clicking "Delete".

7. Click "Overview" to display the overview for a batch.



8. Click "Update" to recalculate the batches.

2.2.4.6 Forecast

Definition

Energy Manager is used to plan and forecast the energy requirements of your company for a time period which can be freely selected.

Usage

Planning and forecasting are preconditions for sustainable energy management. This is facilitated by generating forecasts of the energy requirements and load profiles for one or several locations, individual consumers, production areas, or buildings.

Energy requirements planning for a specific time period returns procurement benefits due to the tiered tariff systems of the energy providers. Maximum financial benefits are achieved at the following conditions:

- The difference between the expected and actual consumption is kept to a minimum.
- Load peaks are shifted to tariff times during which energy generation is at a lower cost.

Demands on an energy management system

Load peaks in industrial plants are primarily determined by production processes, as well as shift or product cycles. The forecasting methods may differ even among different plant units:

- Forecasting in pulp mills, for example, is usually based on production quantities. The shredder and waste paper units are only in operation as required, which is why forecasting is based on production plans.
- By contrast, forecasting in the automobile industry is based on shift schedules.

Implementation in Energy Manager

Energy Manager supports the following methods for planning and forecasting:

- Multi-Variable Regression Analysis based on daily consumption values

  As the forecast may depend on up to five variables with the help of the multi-variable regression analysis, this method is recommended. The other methods for planning and forecasting do not offer the possibility of making the result dependent on further variables.
- Forecast based on the comparison day principle
- Forecasting based on production plan

The forecasts can be compared with the ACTUAL data in future analyses.

See also

Configuring the plant (Page 219)

Jobs in Energy Manager PRO (Page 398)

Multi-Variable Regression Analysis

Forecasting based on daily values is based on previously acquired actual values. In this case, the energy consumption is allocated to each daily production. In the forecast, you then calculate the expected energy requirements as a function of the expected production quantity.

You can analyze the daily production quantities and corresponding consumption data with the help of a regression analysis. With the result of the analysis, Energy Manager calculates future consumption data depending on up to five variables. You define these variables when configuring the regression analysis.

Forecasting based on the regression analysis is implemented in Energy Manager with the "MultiRegression" widget in the Energy Manager Web Client.

Procedure

To create a forecast with the help of multi-variable regression analysis, follow the configuration description of the MultiRegression widget.

Forecast based on the comparison day principle

The comparison day principle is based on shifts or day types which are observed over a reference period, such as a quarter. The energy demand is calculated depending on the scheduled days and associated plant operating times.

- Examples of type days: Workday (8 hours), workday (6 hours), workday (10 hours), holiday
- Examples of shifts: Morning shift, evening shift, night shift, special shift

Usually, you plan type days on a weekly basis, while flexible planning without committing to an entire week is also possible. Holidays and other non-working days are taken into account automatically.

Use the calendar to react to changes: You can change type days or shift these to other weekdays. Therefore, your forecasts are always up-to-date.

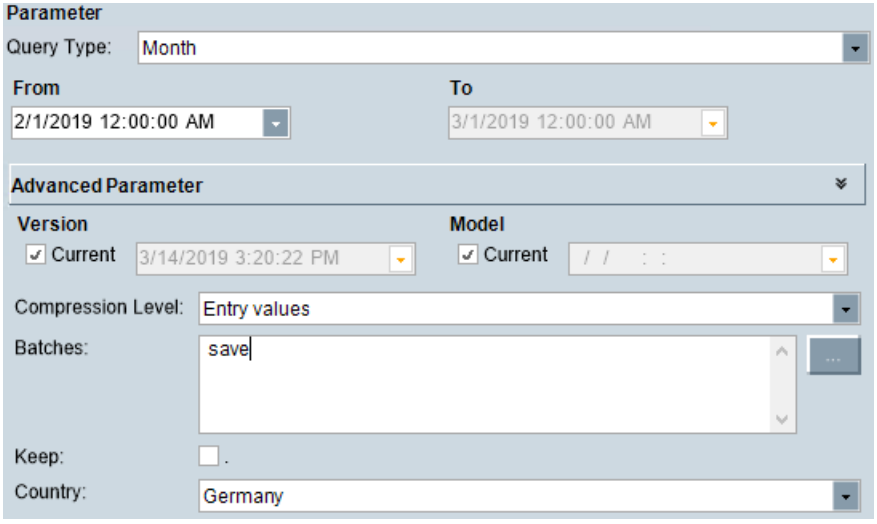
Evaluation of the forecast quality, i.e. the comparison with actual data, concludes the forecast. The result may affect the next forecast.

Procedure

Proceed as follows to create a forecast based on the comparison day principle:

1. Configure a profile or master profile with shifts as described in thesection "Profile" (Page 196).
2. Configure the report "Load profile analysis module type", as described in the section "Report" (Page 274).
3. Select the "Start..." menu command from the shortcut menu of the report.
4. Select the time period from the past on the basis of which you create the forecast from the drop-down list "From" and "To".

   Make sure that the configured day sequence of the profile is rolled out for this period.
5. Under "Extended parameter", enter the term "save" in the "Batches" entry field.



6. Click the "Start" button.

   The respective average consumption for the corresponding shifts is determined and saved.

7. To obtain a forecast, use the report module "Protocol" for a future time period.

   Make sure that the configured day sequence of the profile is rolled out for this period.

Forecasting based on production plan

With forecasting based on production planning, energy consumption is calculated based on the production quantities or batches to be produced. A stable relation between power consumption and batches/quantities is a prerequisite for this. The following linear equation $y = k \bullet x + d$ is used for this.

The variables have the following meaning in the linear equation:

Tag	Meaning
y	Predicted consumption
k	Consumption per produced quantity
x	Quantity/number of pieces produced
d	Consumption that is independent of the produced quantity

To be able to carry out a production plan-related forecast, you need the values for k, d and x. If you do not know these values, determine the values using one of the following methods.

- "Batch analysis" report

  The section "Batch and material-related analysis (Page 223)" describes how to configure the "Batch analysis" report.

- "Multi-Variable Regression Analysis" widget.

Provide the Energy Manager with the value for x via a production plan.

Provide Energy Manager with the values for k and d via a consumption type.

You can define the production plan directly in Energy Manager or by means of a predefined Microsoft Excel file.

Requirements

- The corresponding plant with production plan is created and configured.
- The corresponding consumption type is created and configured.

Procedure

To create a production plan-related forecast, proceed as follows:

1. Create an MEVA of the type "Load forecast generally relatively".
2. Connect the consumption type and the plant with the MEVA.
3. Create a report with a protocol module.

   Define the time period for the forecast in the report.

4. Connect the MEVA to the report.

   The MEVA thus receives the time period for the forecast.

5. Start the report.

Examples of forecasting

Configuring long-term forecast reports

Overview

An overall forecast is calculated for the following year at the end of each annual period (e.g. end of December). The basic load profiles that have been calculated and adjusted by the customer, including the future holidays calendar in Energy Manager, form the basis for an overall forecast. This long-term demand forecast is calculated once in Energy Manager (initiated manually). and forms the basis for calculating demands of the following year or of the next years (2-year forecast). The results of this forecast are retained without changes in the Energy Manager system for the entire year. The long-term forecast has a resolution of one hour.

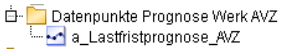
Requirement

- A profile that contains the typical and special days has been created in the system.
- A measuring variable for forecast calculation and the derived data point has been created in the system.

Creating derived data points

1. Create a derived data point that you can use to create the long-term forecast.
2. Set the cycle time to 1 hour.

   The data point is then ready for use.

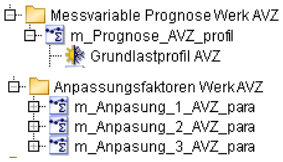


Creating measuring variables

1. To create the long-term forecast, create a measuring variable that adds up the profile values and special effects.

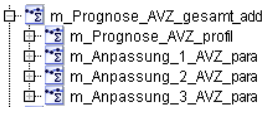
   Profile values: Function type "Profile value

   Special effects: Function type "Parameter"



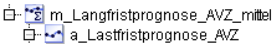
2. Create the "m_Forecast_AVZ_total_add" measuring variable (function type "Addition of n MEVAs") in the same way. Copy the measuring variables in the order displayed to the "m_Forecast_AVZ_total_add" measuring variable node.

   This measuring variables adds up the profile value and the adjustment values.



3. Configure this measuring variable as input of the derived data point (author's remark: that was created above).

4. Create the "m_Long-term forecast_AVZ_average" measuring variable with function type "Average". Copy the derived data point "a_longtermforecast_AVZ" to this measuring variable node.

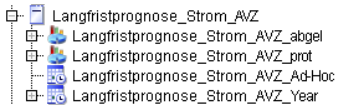


Configuring "long-term forecast" reports

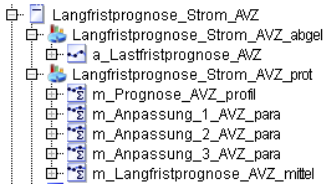
1. Create the report "Long-term forecast_electrical power_analysis_AVZ" with the module types "Module derived measurement" and "Log with from/to" as well as the "Ad-Hoc" and "Year" query types.

   Import a configured template so that the necessary macros are available.

   The Client then contains the following structure:

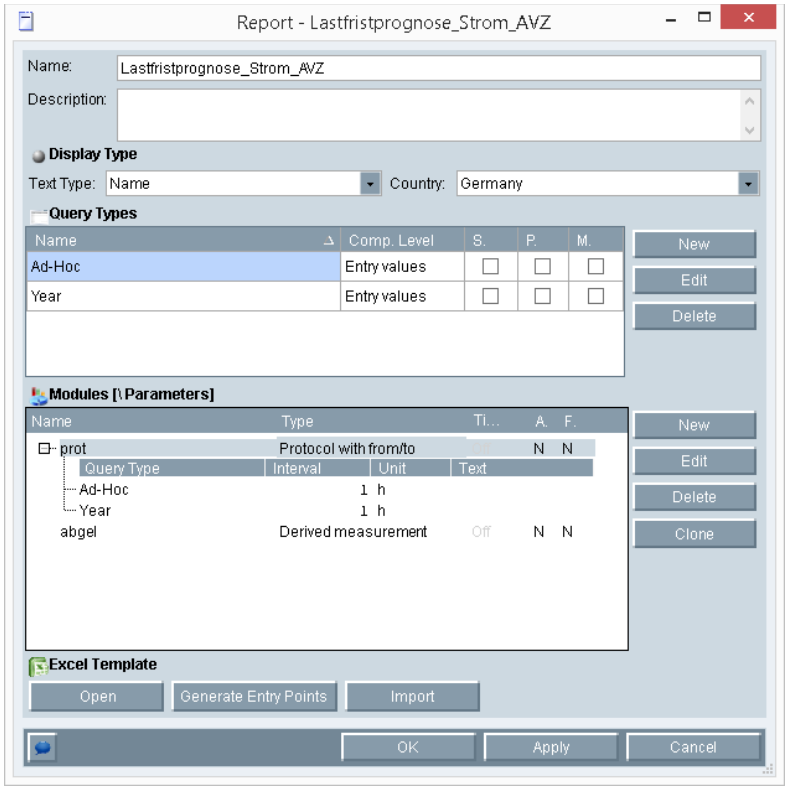
   

2. Assign the objects to be evaluated to the modules.

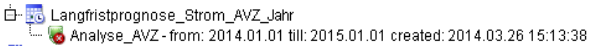
3. Copy the derived data point for the total consumption forecast (profile + adjustments) to the "Derived measurement" module structure.
4. Copy the measuring variable for profile calculation, the three measuring variables for the adjustment factors, as well as the measuring variable for the calculated total consumption to the "Report module" structure.
5. You must specify the cycle for calculation of the values. Preset this value to avoid incorrect entries.

6. Select the "Edit" command from the shortcut menu of the report.
7. Select the "AdHoc" and "Year" query types. Select interval "1" and unit "h" accordingly.

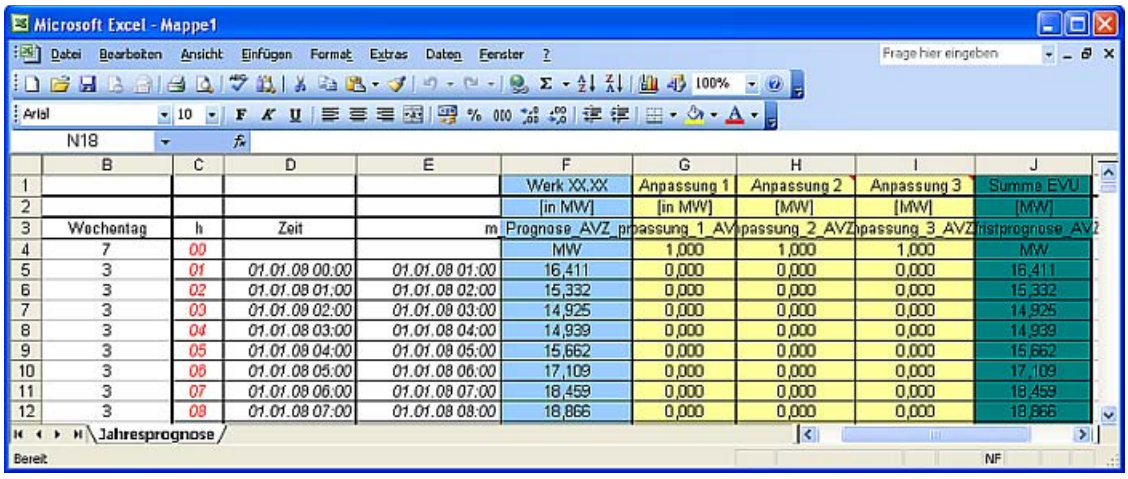


Starting report calculation

1. Start the report, e.g. for a year.
2. Select the "1 h" interval in the "Module Start/Stop Info" dialog if the interval is not set by default.
3. Click "OK to close the dialog and to start report calculation. The report is created in the "Year" query type structure.



The report result is available in the following form:

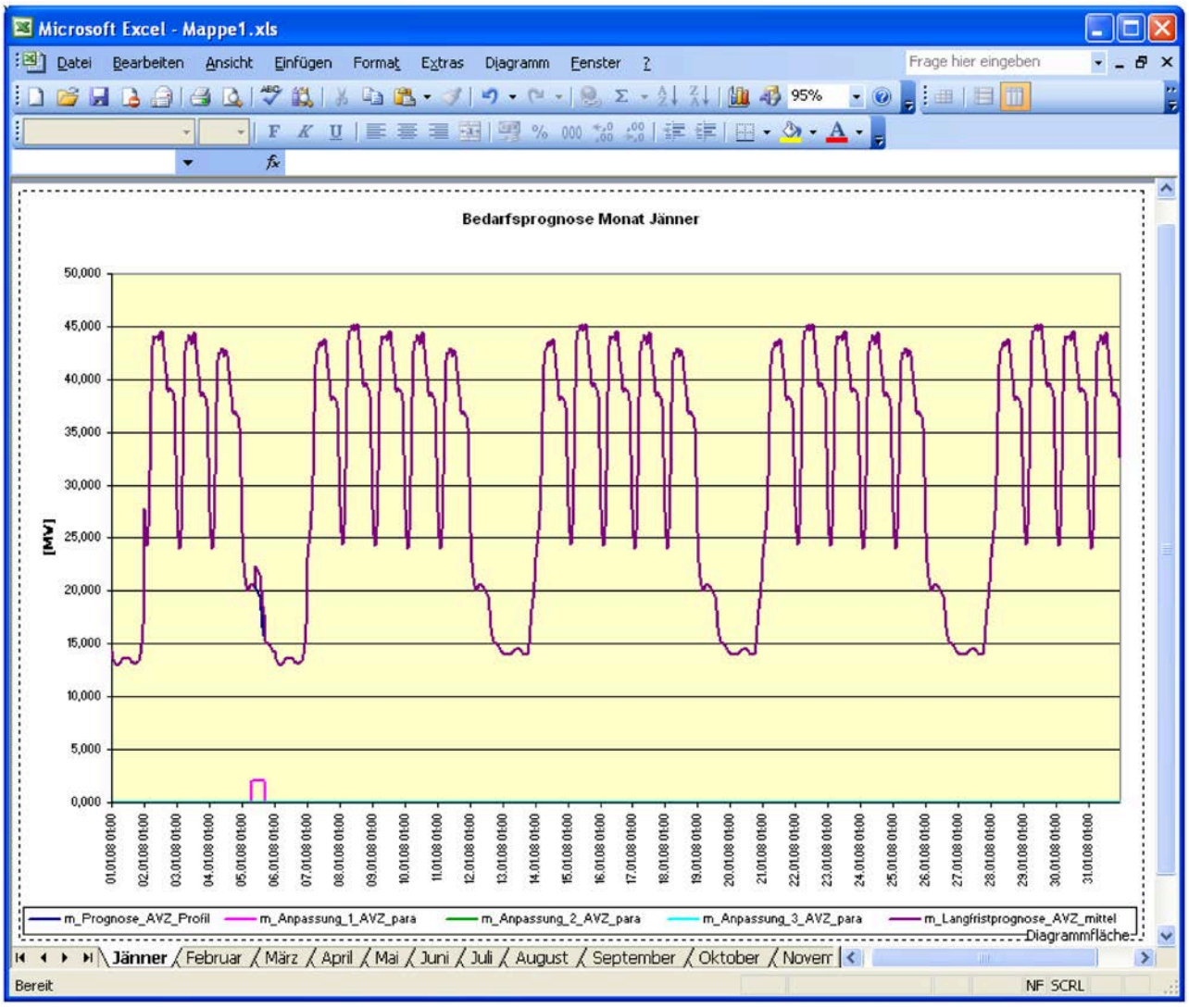


	B	C	D	E	F	G	H	I	J
1					Werk XX.XX	Anpassung 1	Anpassung 2	Anpassung 3	Summe EVU
2					[in MW]	[in MW]	[MW]	[MW]	[MW]
3	Wochentag	h	Zeit	m	Prognose_AVZ_p	passung_1_AV	passung_2_AVZ	passung_3_AVZ	ristprognose_AVZ
4	7	00			MW	1,000	1,000	1,000	MW
5	3	01	01.01.08 00:00	01.01.08 01:00	16,411	0,000	0,000	0,000	16,411
6	3	02	01.01.08 01:00	01.01.08 02:00	15,332	0,000	0,000	0,000	15,332
7	3	03	01.01.08 02:00	01.01.08 03:00	14,925	0,000	0,000	0,000	14,925
8	3	04	01.01.08 03:00	01.01.08 04:00	14,939	0,000	0,000	0,000	14,939
9	3	05	01.01.08 04:00	01.01.08 05:00	15,662	0,000	0,000	0,000	15,662
10	3	06	01.01.08 05:00	01.01.08 06:00	17,109	0,000	0,000	0,000	17,109
11	3	07	01.01.08 06:00	01.01.08 07:00	18,459	0,000	0,000	0,000	18,459
12	3	08	01.01.08 07:00	01.01.08 08:00	18,866	0,000	0,000	0,000	18,866

Column F displays the forecast values, while columns G, H, and I display the adjustments. Column J displays the sum of the profile value + adjustments. Columns D and E display the time range of the values.

Enter the <CTRL+D> keystroke to start generation of the diagrams for all 12 months of the calculated year.

The profile value and sum trends are identical if no adjustments were made. The data in the following screenshot was manipulated to visualize an adjustment.



Result

You have successfully configured the long-term forecast and it is now ready for use.

Configuring schedule reports

Overview

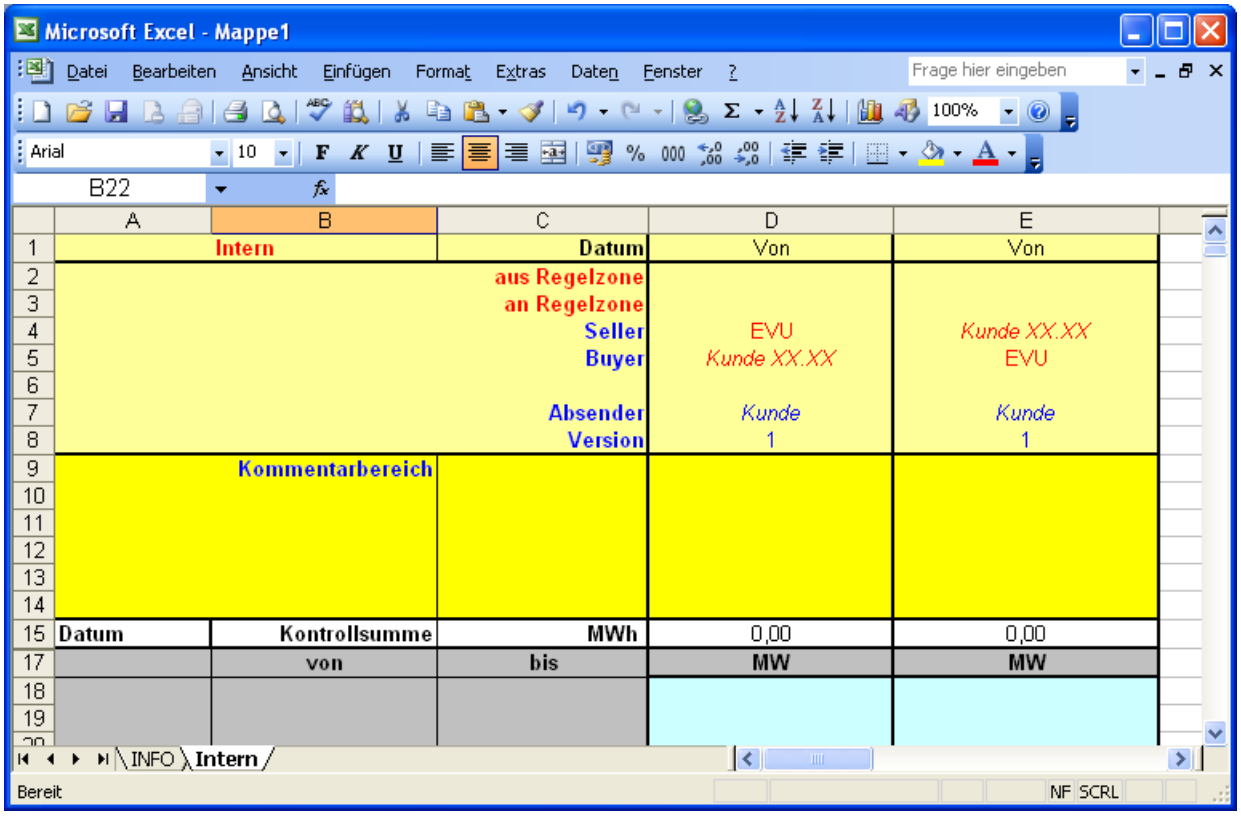
Every month a schedule is calculated for the next month and the result is reported to the energy supplier. The schedule is created in Energy Manager in the last working week of the month. The Excel file is communicated manually to the energy supplier by a team member of the customer. A resolution of 1 h is specified for the load data of the schedule registration.

Layout of the report template

This report template consists of two worksheets:

- "INFO" worksheet: General information on the reporting instance.
- "Internal" worksheet: Actual values.

With the exception of dates, the contents of INFO are constants and defined in the template.

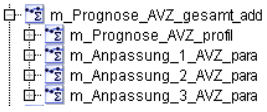


The "Internal" sheet in schedule format consists of the following columns and rows:

- Columns A, B, and C contain the schedule structure and may not be modified.
- Date row 1 and header rows 2 to 17 can be applied without changes. Exception: Name of the balancing group member; to be supplemented accordingly.
- Columns D and E contain hourly performance values, with column D containing the figures of ENERGIE_LF consumption and column E containing the figures of possible energy returns to the ENERGY supplier. Only one of the figures, i.e. supply or return, may be unequal to zero in any hour. Performance figures are always entered as positive numbers.

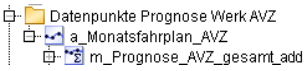
Requirement

- A profile that contains the typical and special days has been created in the system.
- A measuring variable for forecast calculation and the derived data point has been created in the system.
- The "m_Forecast_AVZ_total_add" measuring variable for calculating the forecast value has been created in the system.

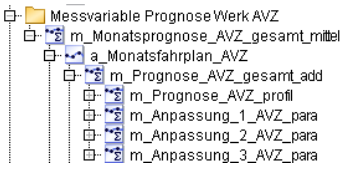


Configuring "Schedule" reports

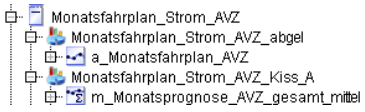
1. Create a derived data point "a_Monthly schedule_AVZ" for monthly forecasting (= schedule). Copy the "m_Forecast_AVZ_total_add" measuring variable to this data point structure.



2. Create the "m_Monthly forecast_AVZ_total_average" measuring variable for reading the monthly forecast data. Copy the "a_Monthly schedule_AVZ" to this measuring variable structure.



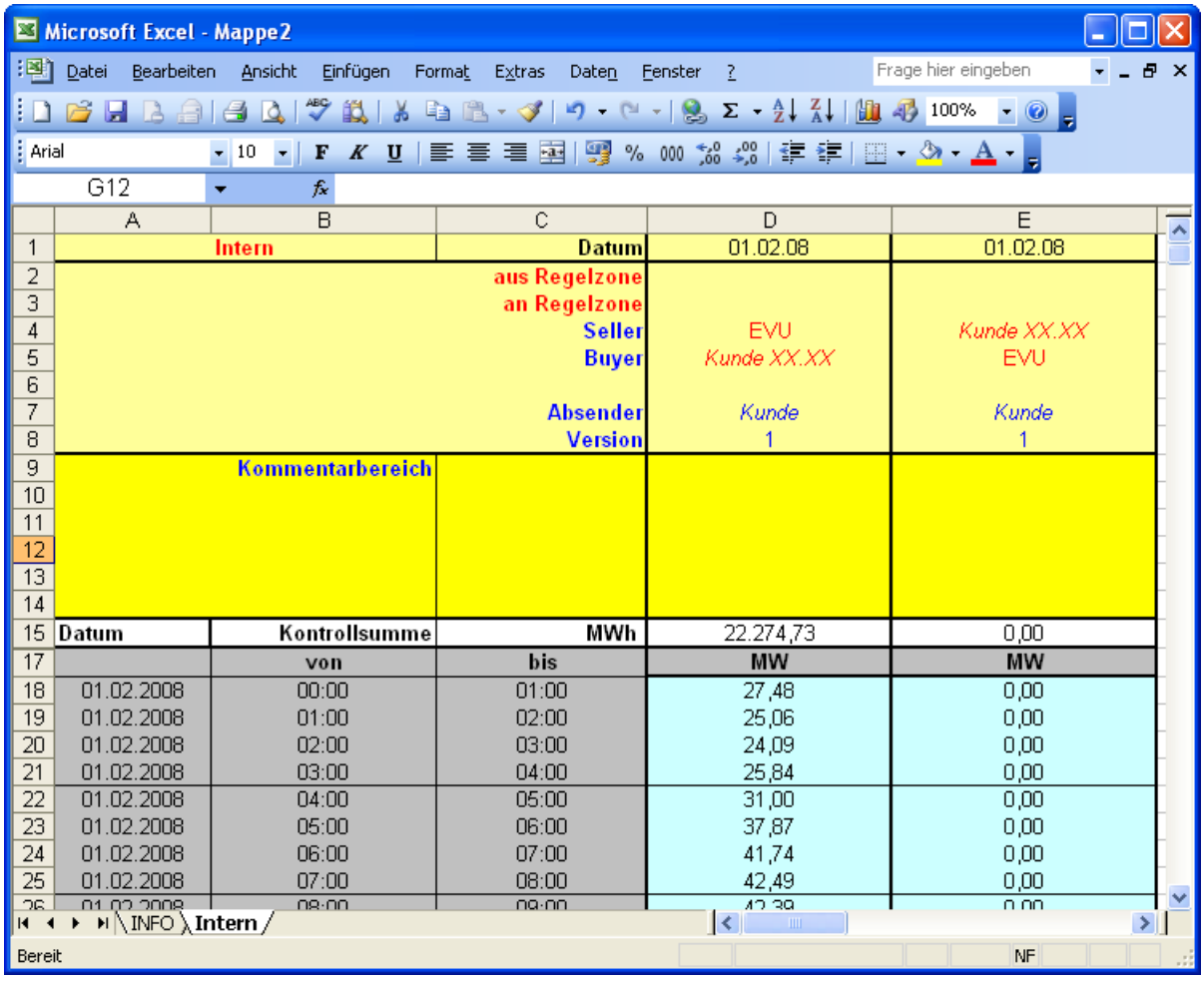
3. Create the "Monthly schedule_electricity_AVZ" report. Instead of the "Report with FROM/TO" module, select the "Schedule B/L KISS-A month" module. Assign the corresponding data points and measuring variables to the modules.



Report result

1. Start the report.

   As a result, the schedule is displayed in Excel. After having checked the values, forward the schedule by e-mail.



Microsoft Excel - Mappe2

Datei Bearbeiten Ansicht Einfügen Format Extras Daten Fenster ?

Frage hier eingeben

Arial 10 F K U

G12

	A	B	C	D	E
1	Intern		Datum	01.02.08	01.02.08
2			aus Regelzone		
3			an Regelzone		
4			Seller	EVU	*Kunde XX.XX*
5			Buyer	*Kunde XX.XX*	EVU
6					
7			Absender	*Kunde*	*Kunde*
8			Version	1	1
9	Kommentarbereich				
10					
11					
12					
13					
14					
15	Datum	Kontrollsumme	MWh	22.274,73	0,00
17		von	bis	MW	MW
18	01.02.2008	00:00	01:00	27,48	0,00
19	01.02.2008	01:00	02:00	25,06	0,00
20	01.02.2008	02:00	03:00	24,09	0,00
21	01.02.2008	03:00	04:00	25,84	0,00
22	01.02.2008	04:00	05:00	31,00	0,00
23	01.02.2008	05:00	06:00	37,87	0,00
24	01.02.2008	06:00	07:00	41,74	0,00
25	01.02.2008	07:00	08:00	42,49	0,00

INFO Intern

Bereit NF

Once calculation has been completed in Energy Manager, the responsible instances of the controlling department must validate the tabular analyses that were generated and specify the corresponding version number in line 8 "Version".

The principal is under the obligation to maintain the version number for the various analyses that were generated to identify late registrations of the schedules.

Result

You have successfully created the schedule report for further use.

Configuring daily load course reports

Overview

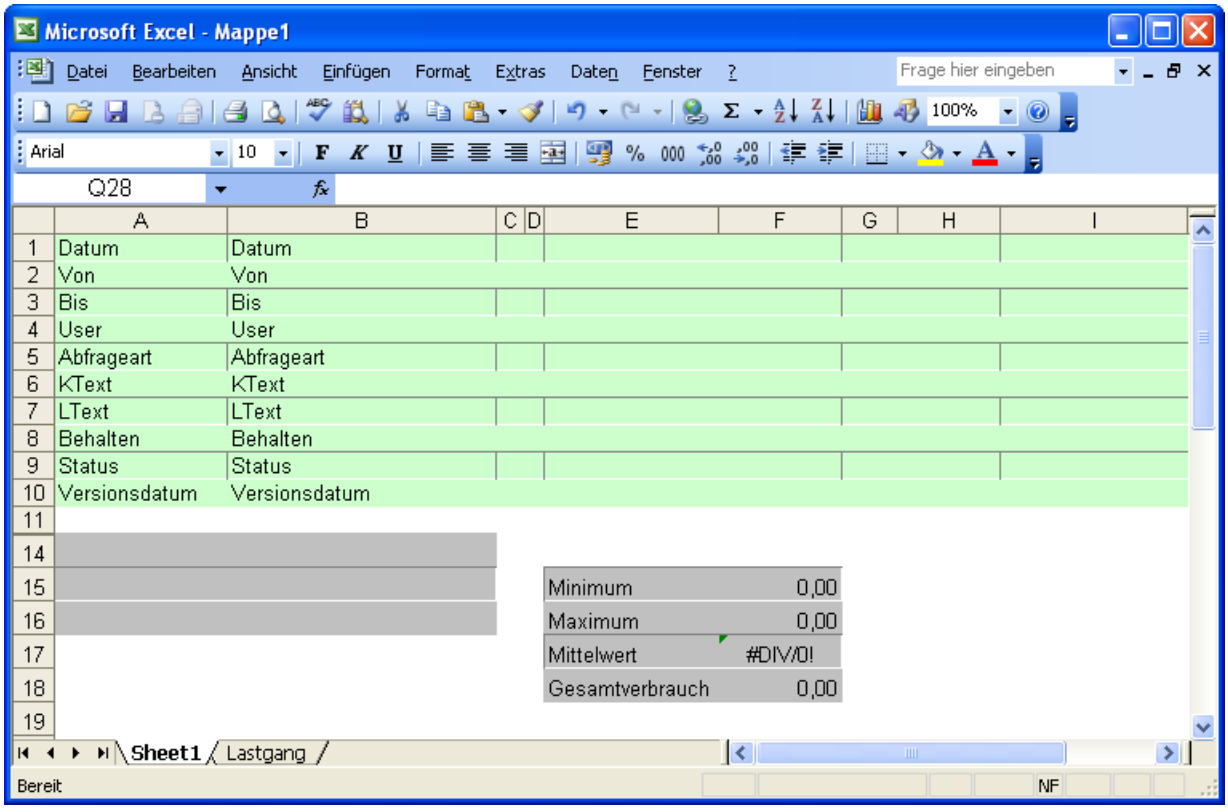
Every day, a report that contains the actual consumption figures is calculated for the previous day. The result is written to a derived data point with hourly resolution for comparison purposes (controlling report).

The values for this report are calculated on a "rolling" basis using the figures of the last 14 days to avoid non-contiguous data. Such data gaps may develop, for example, in the course of necessary maintenance on the acquisition PC.

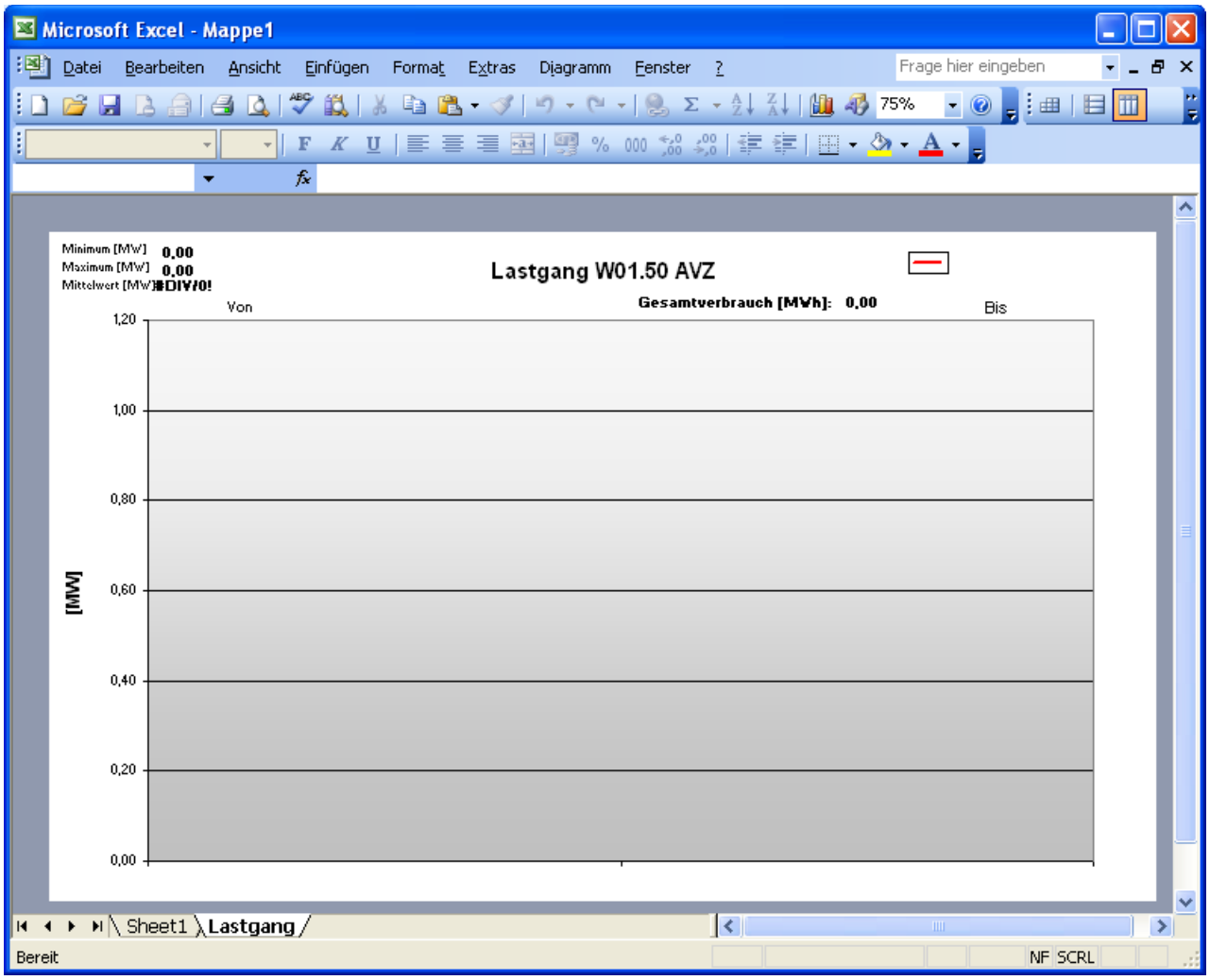
Layout of the report template

This report template consists of two worksheets:

- "Sheet1" contains the calculated progression of the load profile.



- "Load profile" represents the corresponding diagram that is filled automatically.



Note

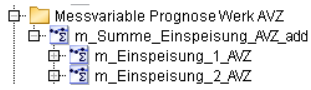
When using templates with a user-specific graphic worksheet, the templates always have to be saved and closed in the data worksheet (entry point of the modules). Closing the template in graphic worksheet prevents you from loading reports using this template.

Requirement

All data points and mevas needed to calculate the daily load profile have been created in the system.

Configuring "Daily load profile" reports

1. Create the ""m_Sum_supply_AVZ_add"" meva (function type "Addition of n MEVAs") for calculating the actual value of consumption. Copy the "m_Supply_1_AVZ" and "m_Supply_2_AVZ" mevas to the structure of this measuring variable.



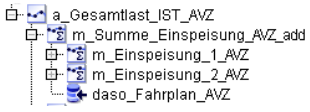
Note

Calculations depend on the respective plant concerned. The number of feed cables, necessary scaling, count value differences, etc.

2. Create a derived data point "a_Total load_ACTUAL_AVZ" for calculating daily consumption.

   You may use the ODBC connector, for example, for the initial import of the chronological load profile.

3. Copy the "m_Sum__supply_AVZ_add" meva to the structure of this data point.



Note

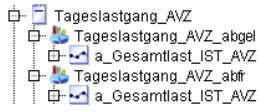
If load profile history data has already been written to this data point, the ODBC data source is also connected below this data point. However, this has no influence on the calculation of values.

4. Create the "Daily load profile_electricity_AVZ" report, similar to the "Long-term forecast" report. Instead of the "Report with FROM/TO" module, select the "Query with 1 time stamp" module. Activate the "start automatically" option for the "Day" query type and set the deletion period to one week.

Note

Strictly observe the order of the modules: The module first needs to calculate (fill) the derived data point to prepare it for reading by the query module.

5. Assign the data point to the modules.



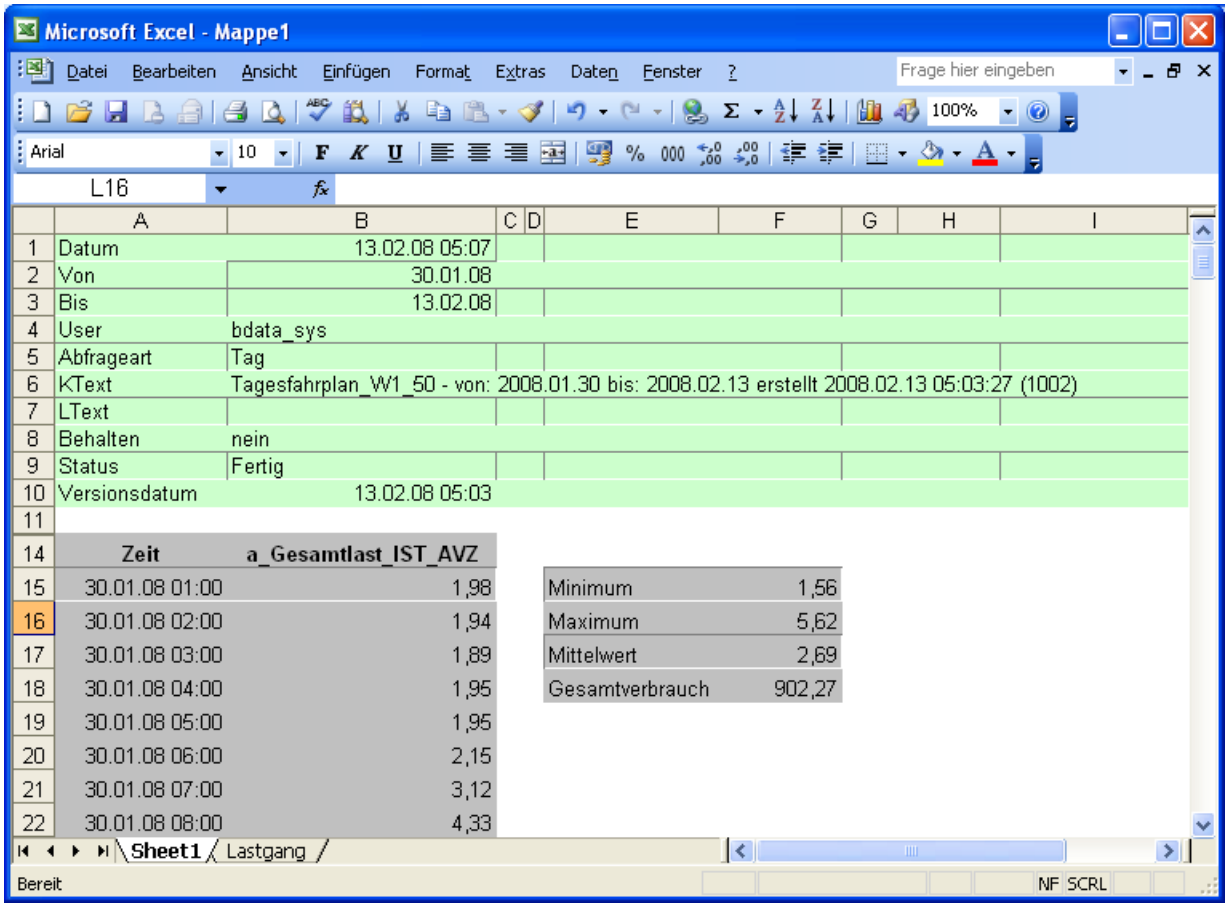
6. Create a parameter with value "14". Implement the parameter in the structure of the "Day" query type.

   This factor extends the daily queries accordingly to the last 14 days instead of the last day.

Report result

The report is started automatically in accordance with the configuration.

The result shows the supply figures of the last 14 days in Excel, including minimum, maximum, average, and total consumption figures.



	A	B
1	Datum	13.02.08 05:07
2	Von	30.01.08
3	Bis	13.02.08
4	User	bdata_sys
5	Abfrageart	Tag
6	KText	Tagesfahrplan_W1_50 - von: 2008.01.30 bis: 2008.02.13 erstellt 2008.02.13 05:03:27 (1002)
7	LText	
8	Behalten	nein
9	Status	Fertig
10	Versionsdatum	13.02.08 05:03

14	Zeit	a_Gesamtlast_IST_AVZ
15	30.01.08 01:00	1,98
16	30.01.08 02:00	1,94
17	30.01.08 03:00	1,89
18	30.01.08 04:00	1,95
19	30.01.08 05:00	1,95
20	30.01.08 06:00	2,15
21	30.01.08 07:00	3,12
22	30.01.08 08:00	4,33

Minimum	1,56
Maximum	5,62
Mittelwert	2,69
Gesamtverbrauch	902,27

Result

You have successfully created the daily load profile report that can now be put into use or be calculated automatically on a daily basis.

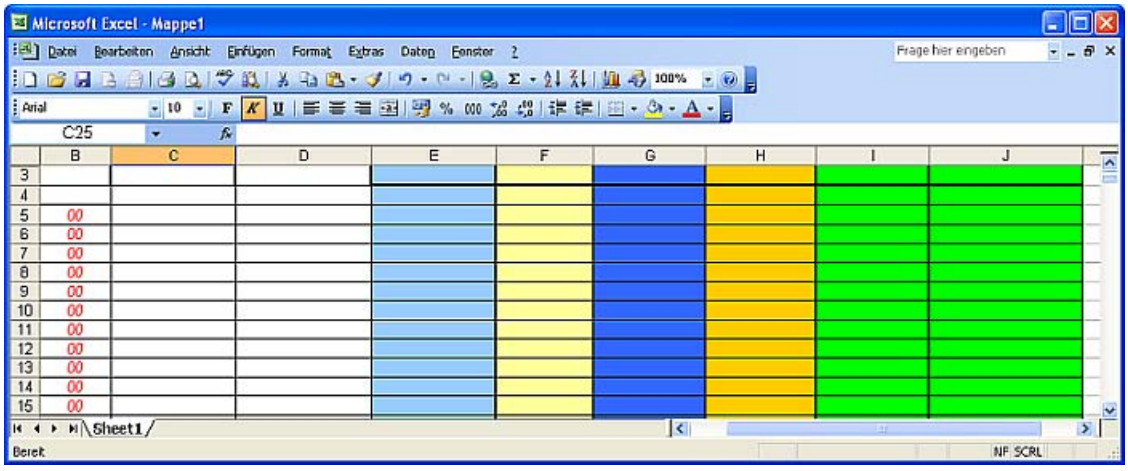
Configuring controlling reports

Overview

On expiration of the period (year), a retrospective report is generated; it contains the comparison of the measured load profile with forecast data (long-term forecast values) and the schedule with schedule adjustments. The offset derived from the TARGET/ACTUAL comparison is visualized in absolute (MW) and relative (%) figures. The result is provided as annual analysis (starting at the beginning of the year) in a defined format. A resolution of one hour (1h) is specified for the load data derived from the TARGET/ACTUAL comparison.

Layout of the report template

This report template consists of an "empty" worksheet, as the module has not yet calculated and generated all values and headings.



Requirement

The following data points must be created and continuously calculated:

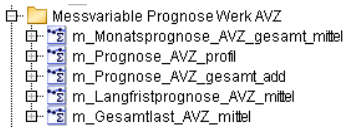
Total energy input (total performance/unit charge figures) of the factory, the derived DP for long-term forecasting, derived DP for the schedules.

Configuring "Controlling" reports

The analysis consists of general header data of the report and of the tabular view of performance figures. These performance figures are derived from the long-term forecast, the registered schedule, and total energy consumption of the respective plant.

In addition to performance figures, the list shows the deviations between the schedule and actual values measured. Deviations are calculated and listed both as absolute [MW] and relative [%] values.

These deviations are to be visualized in a separate diagram for every month of the year. You have already set up the "m_Long-term forecast_AVZ_average", "m_Monthly forecast_AVZ_total_average", and "m_Total load_AVZ_average" mevas in the system:



1. Set up the "m_Deviation_year_month_AVZ" meva (function type "MEVA minus MEVA") for calculating the difference between the monthly and long-term forecasts.
2. Copy the "m_Monthly forecast_AVZ_total_average" and "m_Long-term forecast_AVZ_average" mevas to the structure of this meva in the correct order.

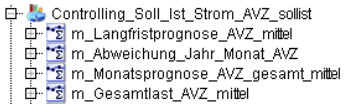
VorlageSOLL IST-Vergleich.xls

	B	C	D	E	F	G	H	I	J
1				Werk 01.50	Anpassun	Fahrplan	IST-Werte	SOLL / IST	SOLL / IST
2		Datum		Bedarfsprognose langfristig	Anpassung	Fahrplan EVU	IST-Werte	Abweichung abs	Abweichung rel
3									
4	h	VON	BIS	[in MW]	[in MW]	[MW]	[MW]	[MW]	[%]
5	1	01.01.2005 00:00	01.01.2005 01:00	9,068		9,068	8,263	0,806	8,883
6	2	01.01.2005 01:00	01.01.2005 02:00	9,050		9,050	8,225	0,825	9,116
7	3	01.01.2005 02:00	01.01.2005 03:00	9,050		9,050	8,213	0,838	9,254
8	4	01.01.2005 03:00	01.01.2005 04:00	9,035		9,035	8,238	0,797	8,827
9	5	01.01.2005 04:00	01.01.2005 05:00	9,050		9,050	8,213	0,838	9,254
10	6	01.01.2005 05:00	01.01.2005 06:00	9,071		9,071	8,250	0,821	9,051
11	7	01.01.2005 06:00	01.01.2005 07:00	9,230		9,230	8,450	0,780	8,451
12	8	01.01.2005 07:00	01.01.2005 08:00	9,104		9,104	8,450	0,654	7,184
13	9	01.01.2005 08:00	01.01.2005 09:00	9,128		9,128	8,388	0,741	8,112
14	10	01.01.2005 09:00	01.01.2005 10:00	9,035		9,035	8,288	0,748	8,273
15	11	01.01.2005 10:00	01.01.2005 11:00	9,077		9,077	8,325	0,752	8,285
16	12	01.01.2005 11:00	01.01.2005 12:00	9,128		9,128	8,350	0,778	8,523
17	13	01.01.2005 12:00	01.01.2005 13:00	9,125		9,125	8,350	0,775	8,493
18	14	01.01.2005 13:00	01.01.2005 14:00	9,155		9,155	8,363	0,792	8,656
19	15	01.01.2005 14:00	01.01.2005 15:00	9,155		9,155	8,375	0,780	8,520
20	16	01.01.2005 15:00	01.01.2005 16:00	9,143		9,143	8,400	0,743	8,126
21	17	01.01.2005 16:00	01.01.2005 17:00	9,104		9,104	8,488	0,617	6,772
22	18	01.01.2005 17:00	01.01.2005 18:00	9,071		9,071	8,338	0,733	8,086
23	19	01.01.2005 18:00	01.01.2005 19:00	9,077		9,077	8,325	0,752	8,285
24	20	01.01.2005 19:00	01.01.2005 20:00	9,062		9,062	8,338	0,725	7,995
25	21	01.01.2005 20:00	01.01.2005 21:00	9,110	0,234	9,344	8,313	1,032	11,039
26	22	01.01.2005 21:00	01.01.2005 22:00	9,065	0,2		8,288	1,012	10,878
27	23	01.01.2005 22:00	01.01.2005 23:00	9,065	0,2		8,313	0,986	10,609
28	24	01.01.2005 23:00	02.01.2005 00:00	8,966			8,463	0,504	5,616
29	1	02.01.2005 00:00	02.01.2005 01:00	9,068			8,088	0,980	10,813
30	2	02.01.2005 01:00	02.01.2005 02:00	9,050			8,088	0,963	10,635

Anpassung Fahrplan
Eingabe der Leistungsanpassung je Stunde in MW !

SOLL-IST Vergleich | Diagramm

3. Create the "Controlling_target_actual_electricity_AVZ", similar to the "Long-term forecast" report. This report only needs a module of the type "ACTUAL/TARGET schedule".
4. Assign the measuring variables to the module, observing the correct order.

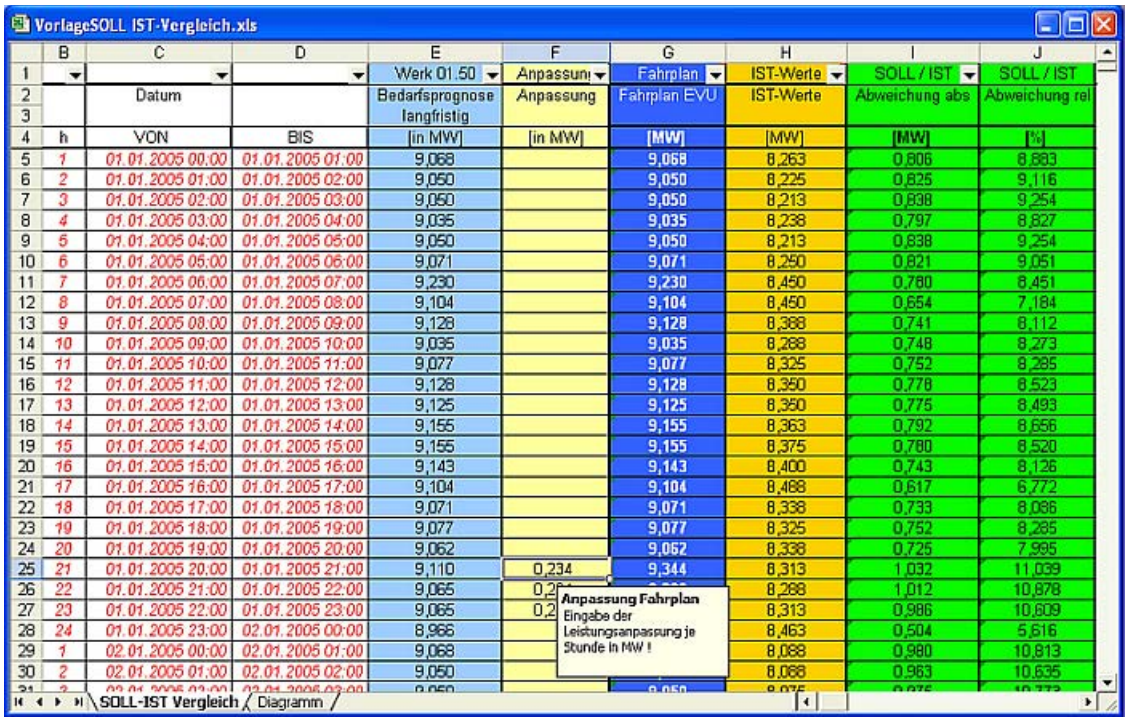


Report result

1. Start the report, e.g. for a year.

In addition to the FROM and TO times, the configured report outputs the values for long-term forecasting, possible adjustments, the schedule value, as well as the actual value.

These values are used to calculate absolute and relative deviation figures.



VorlageSOLL IST-Vergleich.xls

	B	C	D	E	F	G	H	I	J
1				Werk 01.50	Anpassung	Fahrplan	IST-Werte	SOLL / IST	SOLL / IST
2		Datum		Bedarfsprognose langfristig	Anpassung	Fahrplan EVU	IST-Werte	Abweichung abs	Abweichung rel
3									
4	h	VON	BIS	[in MW]	[in MW]	[MW]	[MW]	[MW]	[%]
5	1	01.01.2005 00:00	01.01.2005 01:00	9,068		9,068	8,263	0,806	8,883
6	2	01.01.2005 01:00	01.01.2005 02:00	9,050		9,050	8,225	0,825	9,116
7	3	01.01.2005 02:00	01.01.2005 03:00	9,050		9,050	8,213	0,838	9,254
8	4	01.01.2005 03:00	01.01.2005 04:00	9,035		9,035	8,238	0,797	8,827
9	5	01.01.2005 04:00	01.01.2005 05:00	9,050		9,050	8,213	0,838	9,254
10	6	01.01.2005 05:00	01.01.2005 06:00	9,071		9,071	8,250	0,821	9,051
11	7	01.01.2005 06:00	01.01.2005 07:00	9,230		9,230	8,450	0,780	8,451
12	8	01.01.2005 07:00	01.01.2005 08:00	9,104		9,104	8,450	0,654	7,184
13	9	01.01.2005 08:00	01.01.2005 09:00	9,128		9,128	8,388	0,741	8,112
14	10	01.01.2005 09:00	01.01.2005 10:00	9,035		9,035	8,288	0,748	8,273
15	11	01.01.2005 10:00	01.01.2005 11:00	9,077		9,077	8,325	0,752	8,285
16	12	01.01.2005 11:00	01.01.2005 12:00	9,128		9,128	8,350	0,778	8,523
17	13	01.01.2005 12:00	01.01.2005 13:00	9,125		9,125	8,350	0,775	8,493
18	14	01.01.2005 13:00	01.01.2005 14:00	9,155		9,155	8,363	0,792	8,656
19	15	01.01.2005 14:00	01.01.2005 15:00	9,155		9,155	8,375	0,780	8,520
20	16	01.01.2005 15:00	01.01.2005 16:00	9,143		9,143	8,400	0,743	8,126
21	17	01.01.2005 16:00	01.01.2005 17:00	9,104		9,104	8,488	0,617	6,772
22	18	01.01.2005 17:00	01.01.2005 18:00	9,071		9,071	8,338	0,733	8,086
23	19	01.01.2005 18:00	01.01.2005 19:00	9,077		9,077	8,325	0,752	8,285
24	20	01.01.2005 19:00	01.01.2005 20:00	9,062		9,062	8,338	0,725	7,995
25	21	01.01.2005 20:00	01.01.2005 21:00	9,110	0,234	9,344	8,313	1,032	11,039
26	22	01.01.2005 21:00	01.01.2005 22:00	9,065	0,2		8,288	1,012	10,878
27	23	01.01.2005 22:00	01.01.2005 23:00	9,065	0,2		8,313	0,986	10,609
28	24	01.01.2005 23:00	02.01.2005 00:00	8,966			8,463	0,504	5,616
29	1	02.01.2005 00:00	02.01.2005 01:00	9,068			8,088	0,980	10,813
30	2	02.01.2005 01:00	02.01.2005 02:00	9,050			8,088	0,963	10,635

Anpassung Fahrplan
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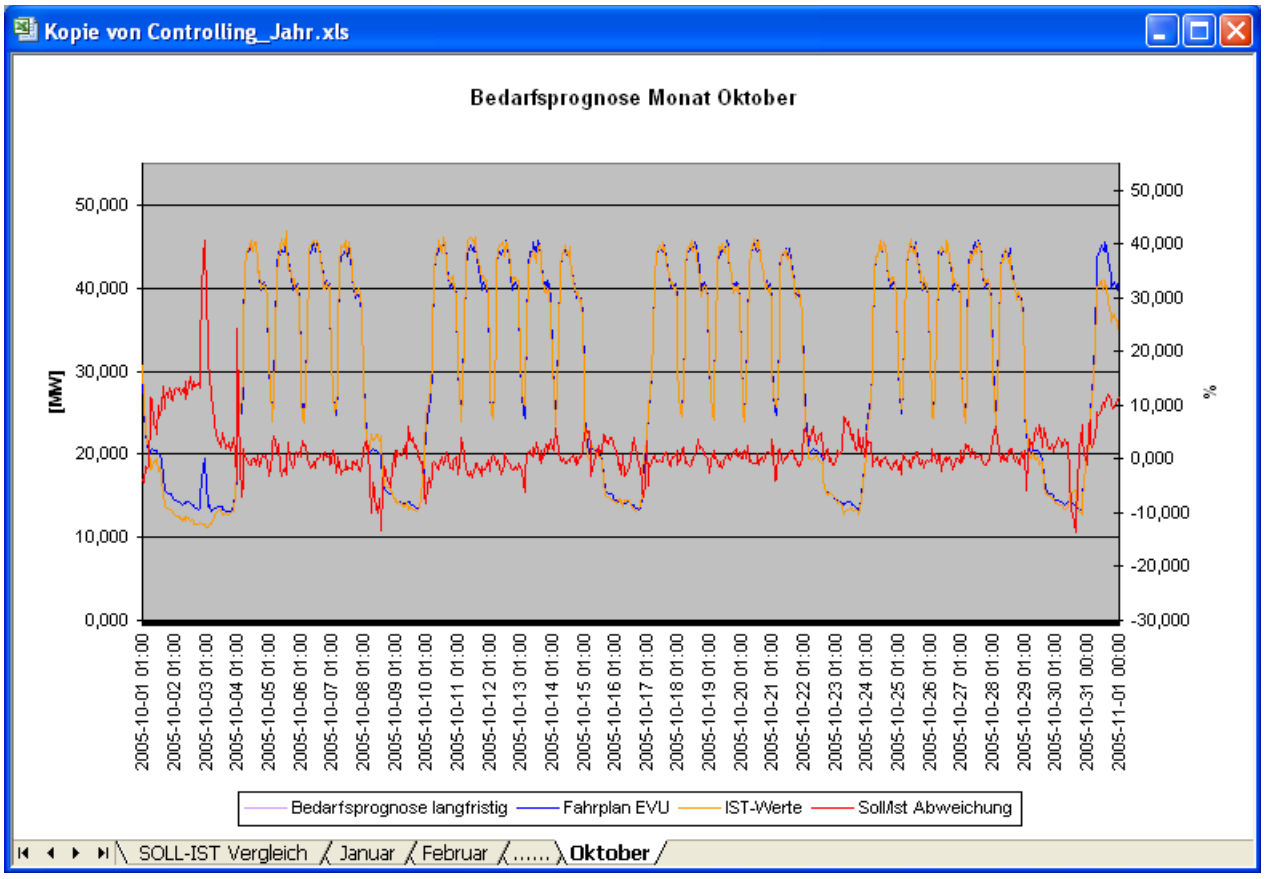
SOLL-IST Vergleich | Diagramm

Enter the <CTRL+D> keystroke to start generation of the diagrams for all 12 months of the calculated year.



Result

You have successfully created the controlling report that can now be used to determine forecasting quality.

Configuring analysis reports

Overview

Analysis reports are used to examine the load progression with regard to a profile. Load distribution is determined for all existing typical days and special days across the evaluation period. The result returns the load profile, for example, of a typical Monday or Tuesday.

If an analysis is performed, for example, for each typical "Monday" in the year, all Mondays will be used for the calculation, except for any holidays or special days that coincide with a Monday. In a year with 48 Mondays, for example, the mean value is calculated for the time

window from 00:00 to 01:00 for all Mondays and output as result. The same rule is applied to all other intervals.

Note

Special days that are not created and output as such will corrupt the result, as these would be treated as standard days.

Corrupted values are ignored in the analysis. However, you can force the inclusion of corrupted values with an entry in Energy Manager options (BDATA_LASTPRF_QS = 0).

After the results have been reviewed and a plausibility check has been completed, the calculated values are written directly to the typical days and special days by starting the report and activating the "save" parameter.

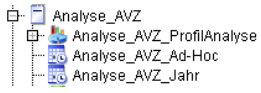
Requirement

- The module with the type "Load profile analysis module type" and a profile with the typical days and special days to be analyzed have been created.
- The measuring variable for calculating the total load average has been created.

Creating and configuring analysis reports

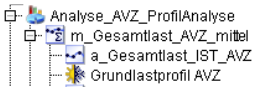
1. Create the "Analysis_AVZ" report with the "Load profile analysis module type" as well as the "AdHoc" and "Year" query types.

   The Client then contains the following structure:

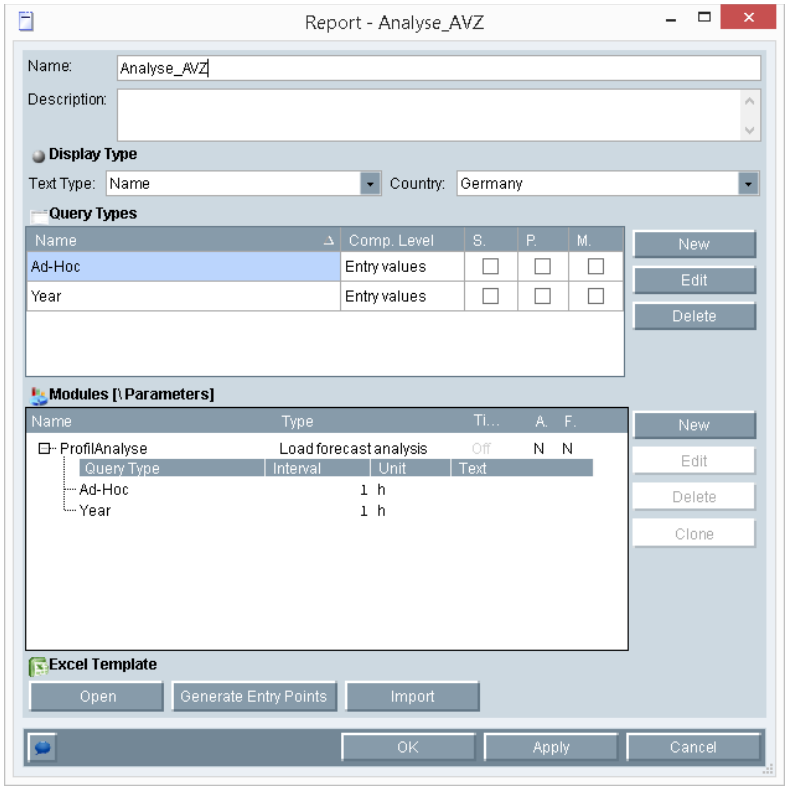


2. Assign the objects to be analyzed to the module: In this case, this is a measuring variable that calculates a total load average and a profile that is to be filled with the typical days and special days.

   You must specify the cycle for calculation of the values. Preset the value in order to simplify the procedure and to avoid incorrect entries.

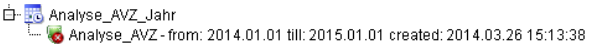


3. Select the "Edit" command from the shortcut menu of the report.
4. Select the "AdHoc" and "Year" query types. Enter interval "1" and unit "h" accordingly.



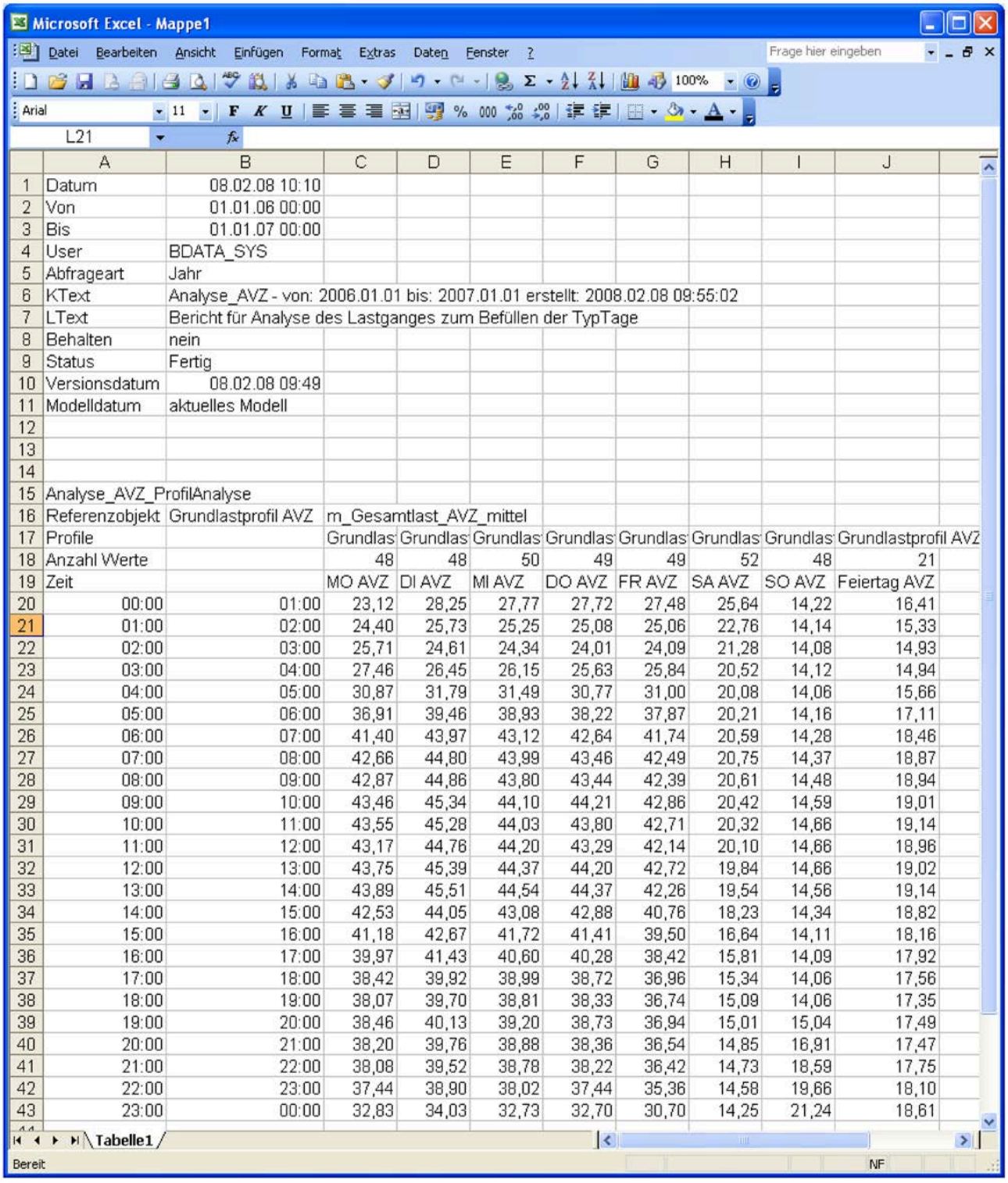
Starting analysis reports

1. Start the report, e.g. for a year.
2. Select the "1 h" interval in the "Module Start/Stop Info" dialog if the interval is not set by default.
3. Click "OK to close the dialog and to start report calculation. The report is created in the "Year" query type structure.



Filling typical days

1. The report result is available in the following form:



Microsoft Excel - Mappe1

	A	B	C	D	E	F	G	H	I	J
1	Datum	08.02.08 10:10								
2	Von	01.01.06 00:00								
3	Bis	01.01.07 00:00								
4	User	BDATA_SYS								
5	Abfrageart	Jahr								
6	KText	Analyse_AVZ - von: 2006.01.01 bis: 2007.01.01 erstellt: 2008.02.08 09:55:02								
7	LText	Bericht für Analyse des Lastganges zum Befüllen der TypTage								
8	Behalten	nein								
9	Status	Fertig								
10	Versionsdatum	08.02.08 09:49								
11	Modelldatum	aktuelles Modell								
12										
13										
14										
15	Analyse_AVZ_ProfilAnalyse									
16	Referenzobjekt	Grundlastprofil AVZ	m_Gesamtlast_AVZ_mittel							
17	Profile		Grundlas	Grundlas	Grundlas	Grundlas	Grundlas	Grundlas	Grundlas	Grundlastprofil AVZ
18	Anzahl Werte		48	48	50	49	49	52	48	21
19	Zeit		MO AVZ	DI AVZ	MI AVZ	DO AVZ	FR AVZ	SA AVZ	SO AVZ	Feiertag AVZ
20	00:00	01:00	23,12	28,25	27,77	27,72	27,48	25,64	14,22	16,41
21	01:00	02:00	24,40	25,73	25,25	25,08	25,06	22,76	14,14	15,33
22	02:00	03:00	25,71	24,61	24,34	24,01	24,09	21,28	14,08	14,93
23	03:00	04:00	27,46	26,45	26,15	25,63	25,84	20,52	14,12	14,94
24	04:00	05:00	30,87	31,79	31,49	30,77	31,00	20,08	14,06	15,66
25	05:00	06:00	36,91	39,46	38,93	38,22	37,87	20,21	14,16	17,11
26	06:00	07:00	41,40	43,97	43,12	42,64	41,74	20,59	14,28	18,46
27	07:00	08:00	42,66	44,80	43,99	43,46	42,49	20,75	14,37	18,87
28	08:00	09:00	42,87	44,86	43,80	43,44	42,39	20,61	14,48	18,94
29	09:00	10:00	43,46	45,34	44,10	44,21	42,86	20,42	14,59	19,01
30	10:00	11:00	43,55	45,28	44,03	43,80	42,71	20,32	14,66	19,14
31	11:00	12:00	43,17	44,76	44,20	43,29	42,14	20,10	14,66	18,96
32	12:00	13:00	43,75	45,39	44,37	44,20	42,72	19,84	14,66	19,02
33	13:00	14:00	43,89	45,51	44,54	44,37	42,26	19,54	14,56	19,14
34	14:00	15:00	42,53	44,05	43,08	42,88	40,76	18,23	14,34	18,82
35	15:00	16:00	41,18	42,67	41,72	41,41	39,50	16,64	14,11	18,16
36	16:00	17:00	39,97	41,43	40,60	40,28	38,42	15,81	14,09	17,92
37	17:00	18:00	38,42	39,92	38,99	38,72	36,96	15,34	14,06	17,56
38	18:00	19:00	38,07	39,70	38,81	38,33	36,74	15,09	14,06	17,35
39	19:00	20:00	38,46	40,13	39,20	38,73	36,94	15,01	15,04	17,49
40	20:00	21:00	38,20	39,76	38,88	38,36	36,54	14,85	16,91	17,47
41	21:00	22:00	38,08	39,52	38,78	38,22	36,42	14,73	18,59	17,75
42	22:00	23:00	37,44	38,90	38,02	37,44	35,36	14,58	19,66	18,10
43	23:00	00:00	32,83	34,03	32,73	32,70	30,70	14,25	21,24	18,61

The typical day is output in line 19. The "Number of values" above that specifies the number of days used to calculate the typical day. The result is marked in blue color if this value is less than three.

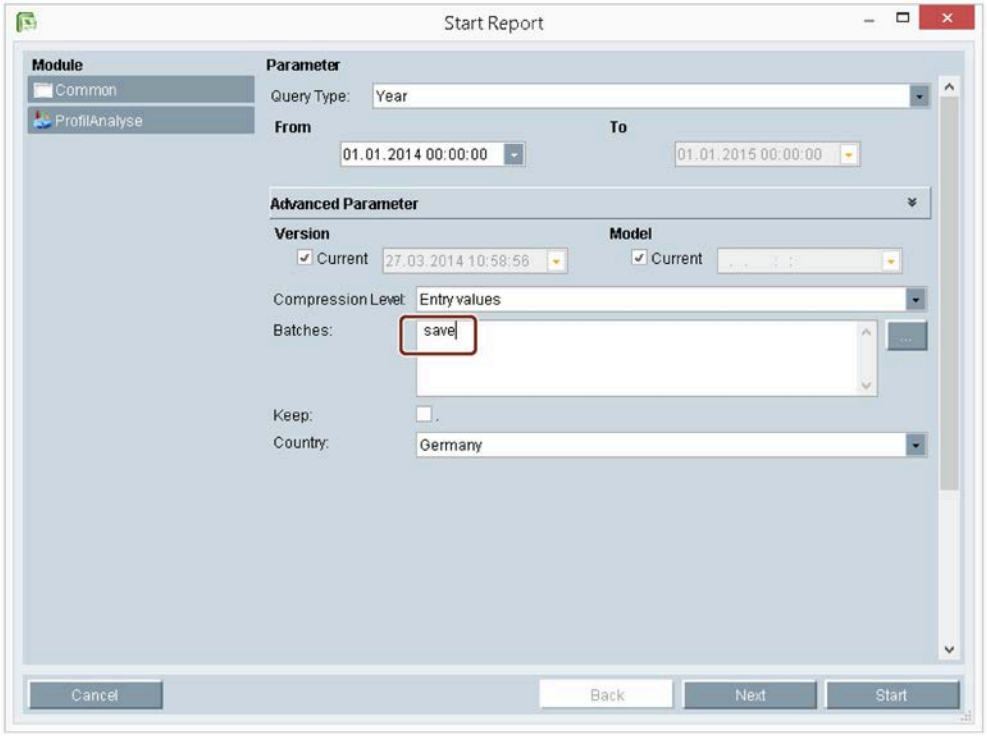
Line 16 displays the measuring variable and the profiles used as the basis for calculation of the typical days.

2. If the current load profile has caused implausible calculation results, find and eliminate these "outliers" until your calculation seems plausible.

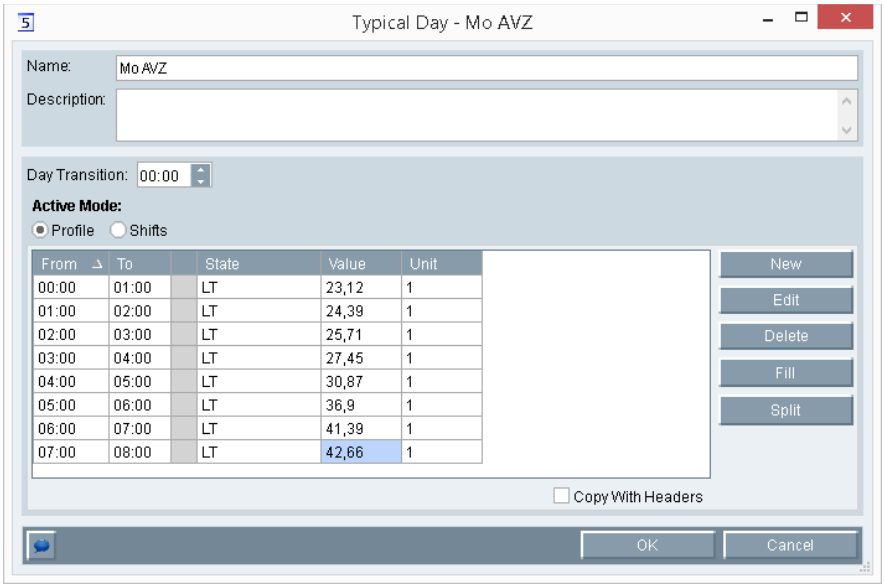
Note

As an alternative, you can fill in the typical days and manually correct the outliers in the typical days.

Initiate the filling of typical days by entering the "save" command in the text batches field when starting the report.



The calculated values were written to the typical days or special days. This status can be checked by editing the typical days.



Result

You have completed the configuration of the profile, including its assigned typical and special days, so that the profile can now be used in forecasting.

Note

Adjust the typical day setting annually, i.e. recalculate the values on the basis of the load profile of the previous year.

2.2.4.7 Consumers

Consumers and structured view

Requirement

- The Consumer functionality is licensed separately.

Overview

In Energy Manger you can map consumers such as CNC machines or establish communication using TCP/IP and map its data in Energy Manager.

A previously created consumer template is used to automatically create a structure consisting of consumers, associated datapoints (defined as inputs in the consumer template), Mevas (defined as outputs in the consumer template) and optional Widget Dashboards and reports.

Information about the consumer template is available in the section "Load templates (Page 376)".

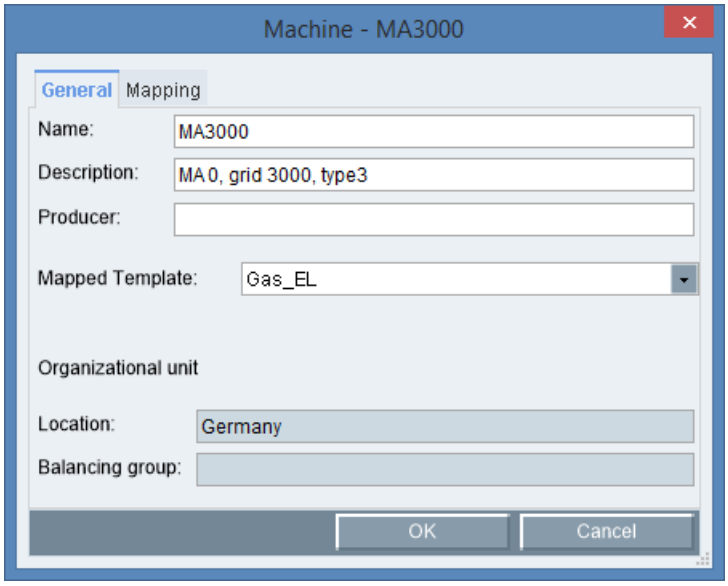
The consumers actively send data in a report that is specified by the Energy Manager. The consumers register in Energy Manager using a frame consisting of the name and type of the consumer. During import in the acquisition wizard, the consumers are displayed grouped by consumer type. If no type is sent, the consumer is assigned to the "undefined" group.

If the TCP/IP connection is disconnected or if no data is received for more than two minutes, a consumer must register again using a specified protocol so that data will be received in Energy Manager again.

If necessary, consumers can also be created automatically using the wizard of the "Machines" interface. More detailed information about this is available in the section "Data acquisition via the "Machines" interface (Page 121)".

Procedure

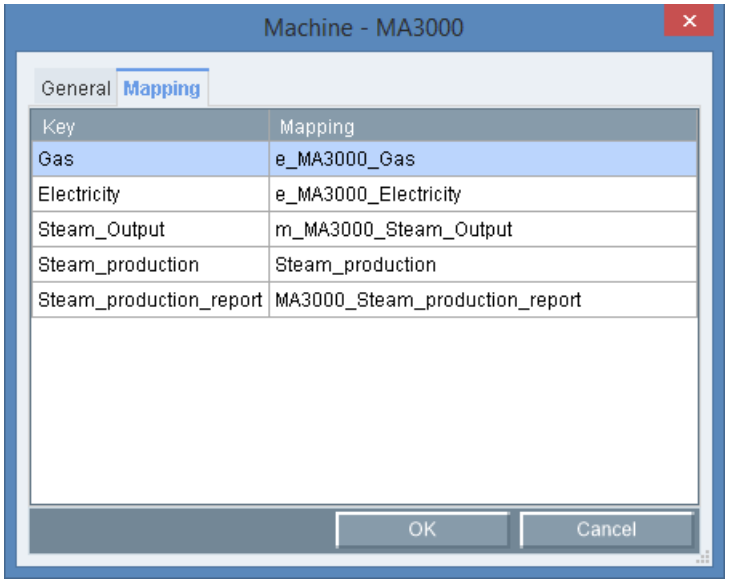
1. In the project tree, click on the location or organizational unit below which you want to create the new consumer.
2. On the "Master Data > Configuration" tab, click "Consumer".
3. Enter a name and optionally a description, as well as a producer of the consumer.



Select the previously defined consumer template that is used for automatic creation of datapoints, Mevas, Widget Dashboards, and reports.

The "Location" and "Organizational Unit" fields are filled automatically. If you create the consumer below a location, the "Location" field is automatically filled with this location. If the consumer is also to be assigned to an organizational unit, you must copy the consumer below the desired organizational unit. The field for the organizational unit is then automatically filled in the consumer.

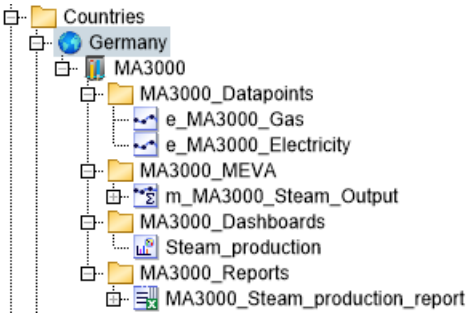
4. The "Mapping" tab shows the inputs, outputs, Widget Dashboards, and reports defined according to the consumer template as they will then be created automatically.



5. Click "OK".

Result

The structure made up of consumer, associated datapoints (inputs), Mevas (outputs) as well as Widget Dashboards and reports is created. You can copy the entire structure below an organization structure.



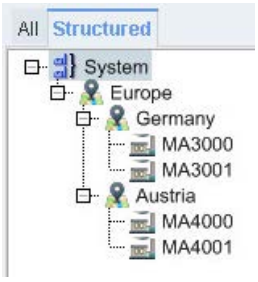
Structured view

Structured view in Energy Manager PRO Client

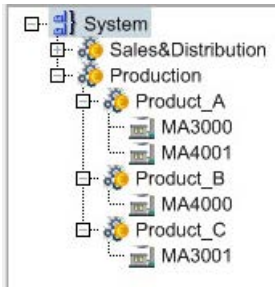
You can display the consumers now by location or organizational unit by clicking on the "Structured" tab in the project tree.

The tree is structured by location and organizational unit, thus geographically and organizationally. Only consumer objects are structured, i.e. all other objects are not displayed.

The view structured by location is shown at the top.

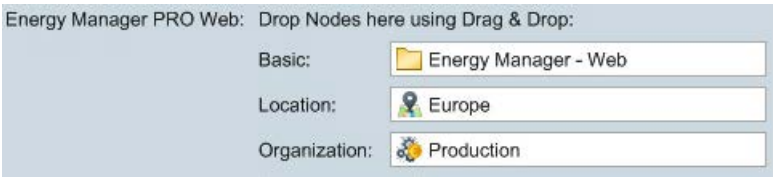


The view structured by organizational unit is shown at the bottom.



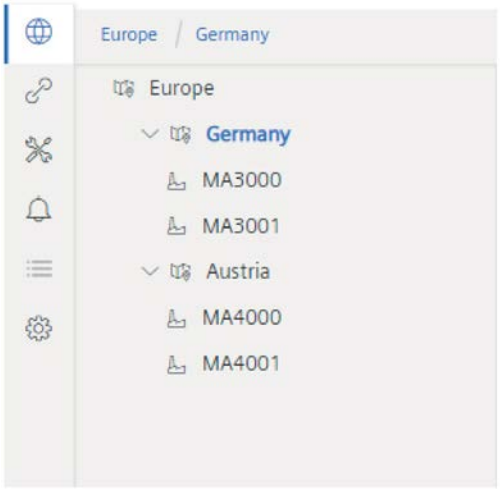
Structured view in Energy Manager PRO Web

The structured view is also available in Energy Manager PRO Web. For this, it is necessary to correctly define the entry points for the user group. There is a dedicated entry point for the location and another for the organizational unit. Define these entry points for the user group in the "Location" and "Organization" fields by moving the respective location and organizational unit into the fields using drag-and-drop.

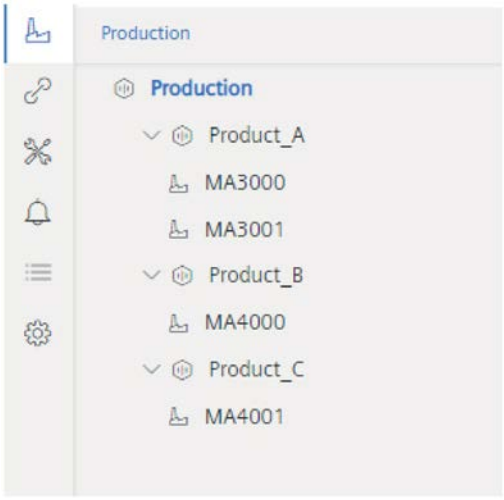


The definition of these entry points "Location" and "Organization" is optional. For use of Energy Manager PRO Web, the "Basis" entry point must always be defined. Details on the definition are available in the section "Defining an entry point (Page 355)".

All locations and organizational units below the object defined as the entry point are shown including their associated consumers. The view corresponds to a view of the Energy Manager PRO Client, i.e. only consumers are displayed. A click on "Geographical" displays all consumers structured by location.



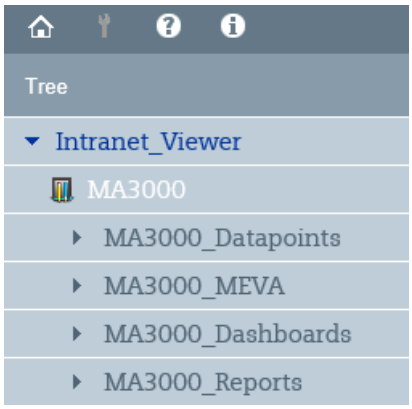
A click on "Organization" displays all consumers structured by organizational unit.



A click on a consumer displays the standard Widget Dashboard defined in the consumer template in the right area, which can then be edited.

Note

Only consumers are displayed in the structured view under "Geographical" or "Organization", the same as in the Energy Manager PRO Client. The structured view serves as an overview of consumers according to location or organizational unit. For this reason, all other objects such as datapoints and Mevas that are configured during creation of a consumer are hidden. Only the standard Widget Dashboard is displayed. If you would also like to see the entire consumer structure in the Energy Manager PRO Web as it is created in the Energy Manager PRO Client, proceed as for all other objects that you want to make available on the web. Copy the consumer to the folder defined for Energy Manager PRO Web (e.g. Intranet_Viewer). You can then, for example, create other Widget Dashboards for a consumer from there. You also have the option of creating a Widget Dashboard in addition to a location or organizational unit.



Creating a filter object

Overview

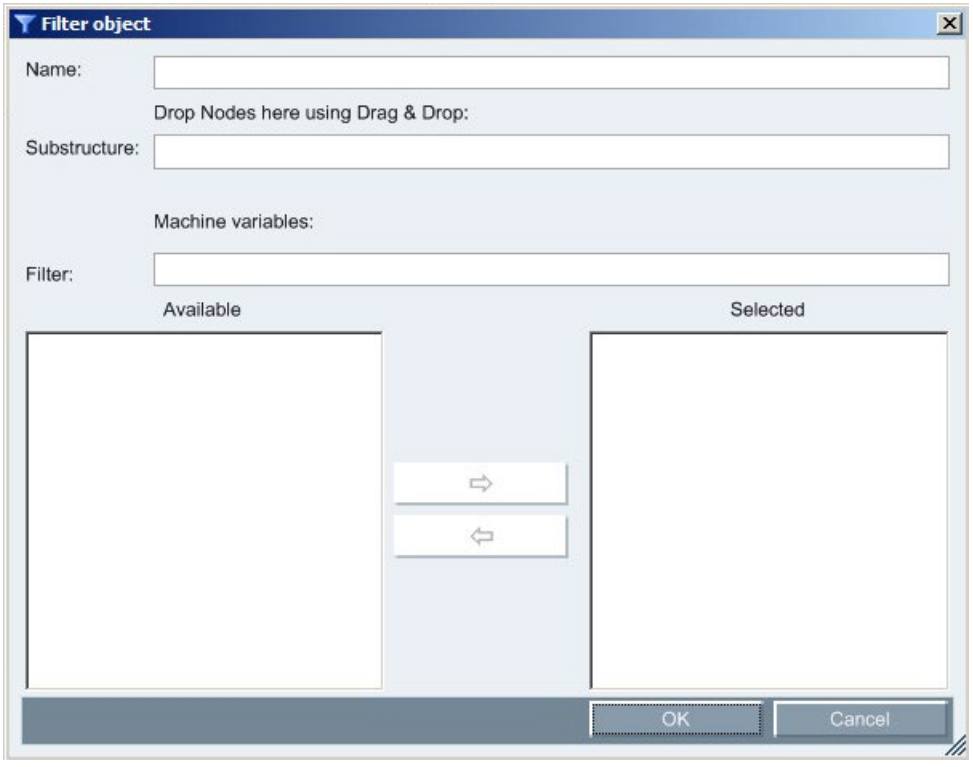
In Energy Manager you can configure consumer templates with aggregated KPIs. These KPIs are already used in some widgets in Energy Manager PRO Web, in which charts display the calculated KPI values. The "filter object" is available if you want to also use the aggregated KPIs in reports. You use the filter object to narrow specific KPIs of consumers, which you then calculate and display in a report with the module type "Protocol - KPI aggregation".

Procedure

To create a filter object for a created consumer, follow these steps:

1. From the navigation area select a consumer under which you want to create the filter object.
2. Click the "Insert filter object" object in the menu bar under "Processing > Consumer".

   The "Filter object" configuration dialog opens.



3. Enter a meaningful name for the filter object in the "Name" text box.

   The input of a name is required.
4. Move a cost center or a plant to the "Substructure" text field with drag and drop.

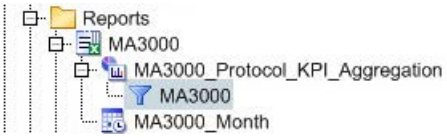
   The KPIs contained in the inserted object are displayed in the "Available" list.
5. To filter a list, enter the corresponding text in the "Free text" text box.

   The listing in the "Available" list is filtered accordingly.
6. Select the KPIs you want to use in the report and click on the upper arrow.

   The selected KPIs are moved to the "Selected" list. You can remove no longer required KPIs from the list using the lower arrow.
7. To save the configurations, click the "Save" button.

Result

The filter object has been created. To calculate the KPIs in the report, you must insert the filter object below the module type "Protocol - KPI aggregation" of a report.



Consumer report

Overview

To ensure an overview of the use and number of consumers the "Machine Protocol" report module is available. Unlike other modules, objects do not have to be attached as input below the module for the machine protocol. All configured consumers are automatically included in the report.

For each time instance of the queried interval at which the number of utilized machines changes, the report contains the following:

- Date
- Number of consumers
- Consumer name
- Vendor
- Creation Date

Procedure

1. Create a new report including desired query type and select the "Machine Protocol" type for the module.
2. Define the Interval and the Unit for the module.
3. Click "Generate Entry Points" to generate the master data of the report.
4. Place the Entry point of the module below the master data, e.g. in line 15, using "Cut" and "Paste".
5. Design the layout for the report and save it. After closing, you can start the report.
6. Start the report by right-clicking it The report result opens.

Details on creating reports are available in the section "Report (Page 274)".

Result

The master data of the report is output at the top of the report:

Datum	22.08.2016 09:23:06
Von	01.08.2016 00:00:00
Bis	01.09.2016 00:00:00
Benutzer	ADMIN
Abfrageart	Monat
Name	Consumer_report - von: 2016.08.01 bis: 2016.09.01 erstellt: 2016.08.22 09:23:02
Beschreibung	
Behalten	Nein
Status	Fertig
Versionsdatum	22.08.2016 09:23:02
Modelldatum	Aktuelles Modell
Land	Germany

The actual report content is output below the entry point for the "Machine Protocol":

Consumer_Prot				
Zeit	Max	Machinename	Vendor	Creation Date
02.08.2016 00:00:00	0			
03.08.2016 00:00:00	0			
04.08.2016 00:00:00	0			
05.08.2016 00:00:00	5	MA3000	0	04.08.2016 13:26:46
		MA3000	0	04.08.2016 14:10:52
		MA3001	0	04.08.2016 14:37:05
		MA4000	0	04.08.2016 14:36:37
		MA4001	0	04.08.2016 14:37:17
06.08.2016 00:00:00	4	MA3000	0	04.08.2016 14:10:52
		MA3001	0	04.08.2016 14:37:05
		MA4000	0	04.08.2016 14:36:37
		MA4001	0	04.08.2016 14:37:17
07.08.2016 00:00:00	4	MA3000	0	04.08.2016 14:10:52
		MA3001	0	04.08.2016 14:37:05
		MA4000	0	04.08.2016 14:36:37
		MA4001	0	04.08.2016 14:37:17

2.2.5 "Analysis" menu tab

2.2.5.1 Reporting

Report

Basics on reports

Overview

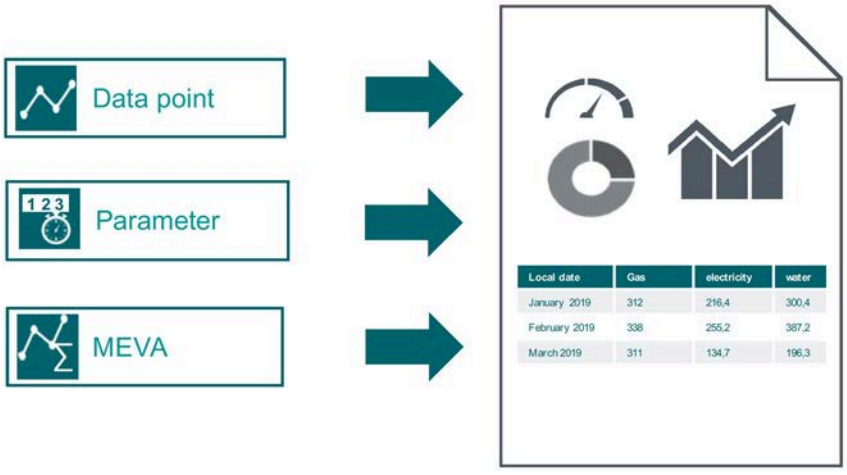
You can visualize or process the measured values that have been acquired in Energy Manager. Energy Manager generates the reports in files in the Microsoft Excel or Microsoft Word format. The visualization of the values as a table of diagram is always based on the functionality of Microsoft Excel. Reports in Microsoft Word use embedded Excel object to visualize the values.

In both applications, all formatting and elements can be used to design the reports.

Reports can be generated manually or automatically, dispatched by email, printed, saved to a file server, and viewed in Energy Manager PRO Web.

Report results are stored in the structure tree of the Client. The name of report results consists of the name, calculation period and the creation date.

You can use the predefined reports provided in Energy Manager as the basis for your project. The default reports are available in "Customer > Reports".



You can use data points, MEVAs and parameters in the report. In the case of the data points, the acquired values in the files cannot be used, only those stored on the SQL Server.

See also: "Architecture and interfaces (Page 73)"

Components for creating reports

You need a query type and a module to create a report.

Use a query type specify the time range of report and to configure automatic reporting.

Use a module to specify how the acquired measured values will be calculated and visualized. The following module types are available:

- Query module: Returns values without calculation, e.g. the measured values of a month on a daily basis.
- Balancing module: Returns a value for a time period, e.g. the monthly energy costs.
- Protocol module: Returns values for all intervals of a time period, e.g. the monthly energy costs on a daily basis.

Certain modules need additional parameters when you start a report. A protocol module, for example, needs interval as start parameter.

Note

Maximum number of modules

The maximum number of modules is 100.

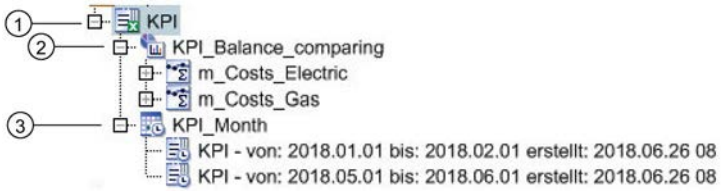
Procedure for creating reports

Proceed as follows to create a report:

1. Create a report.
2. Configure a query type and a module for the report.
3. Configure a template for the report.
4. Enter the reported values.
5. Generate the report.

Result

Each module is provided with values from its assigned measuring variables. Once the template has been generated, the final report result is stored in the project tree under the selected query type, and can be called with a double-click.



① The report employs the module "Comparative accounting" ② and query type "Month" ③ for the analysis.

② The module is supplied with data from two measuring variables that calculate the measured values using the "Multiplication" database function.

③ Results of the report that was generated twice are stored at the query type.

See also

Creating a report (Page 276)

Configuring query types (Page 279)

Configuring modules (Page 284)

Configuring the layout for an Excel report (Page 289)

Entering values in reports (Page 300)

Opening report results (Page 443)

Display modes (Page 774)

Creating a report

Procedure

1. Select the folder in which the report is going to be created.
2. In the menu bar under "Analysis > Reporting", click the "Insert Excel report" button or the "Insert Word report" button.

   The "Report" dialog opens.
3. Enter a unique name and an optional description for the report.

   Note

   Do not use Excel-specific expressions such as A1 or =FG14 during the report creation.

   The report name cannot contain any special characters. The following characters are permitted:
   - A to Z
   - a to z
   - 0 to 9
   - _
   - Space
4. Select a display type.

   The display type specifies the heading for the datapoint'S value column.
5. Under "Country", select the country whose time zone you want to use for the calculation.
6. Configure one or more query types (Page 279).

7. Configure one or more modules (Page 284).

Note

The report module names are used as Excel "cell names".

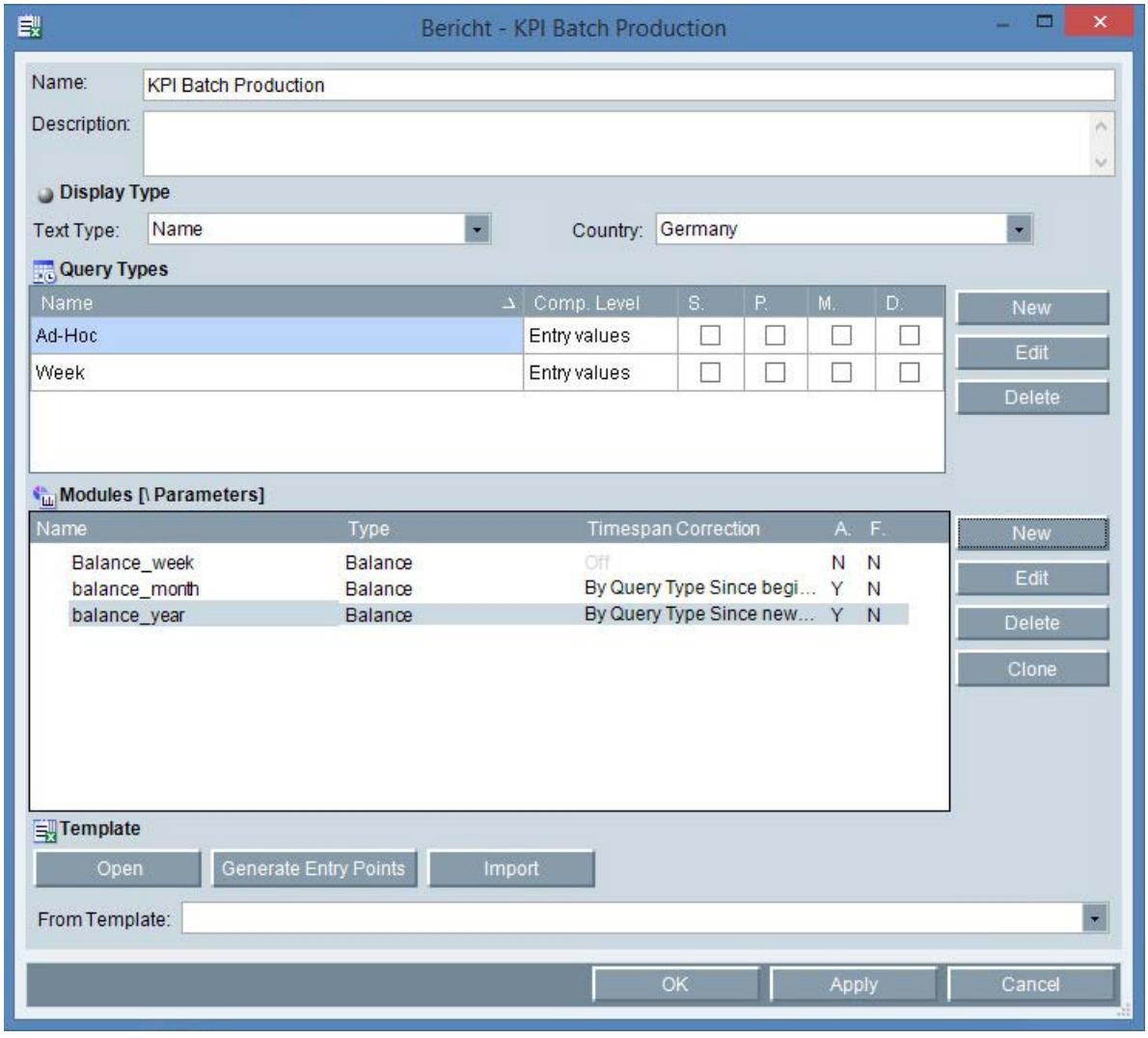
To ensure conformant module configuration, observe the standard designations for the country-specific Microsoft EXCEL documentation.

Do not use Excel-specific expressions, e.g. C1 or R1, or Z1 or S1 in German systems, at the beginning of the report module name.

8. Confirm the configuration with "OK".

Result

The report has been created.



See also

Configuring the layout for an Excel report (Page 289)
Entering values in reports (Page 300)
Query types (Page 749)
Module overview (Page 758)
Display modes (Page 774)
Assign time zone for acquisition or calculation (Page 334)
Creating reports (Page 598)

Configuring reports

Configuring query types

Overview

Use a query type to configure the time frame that is queried in a report. You may configure several query types in the report. An object is created in the project tree of the Client for each query type of a report.

Requirement

You have generated a report (Page 276).

Procedure

1. Double-click the desired report in the project tree of the Client.
2. Click "New" in the "Query types" field.

   The "Query type" dialog opens.
3. Select a query type and enter a description if necessary.
4. Select a compression level.

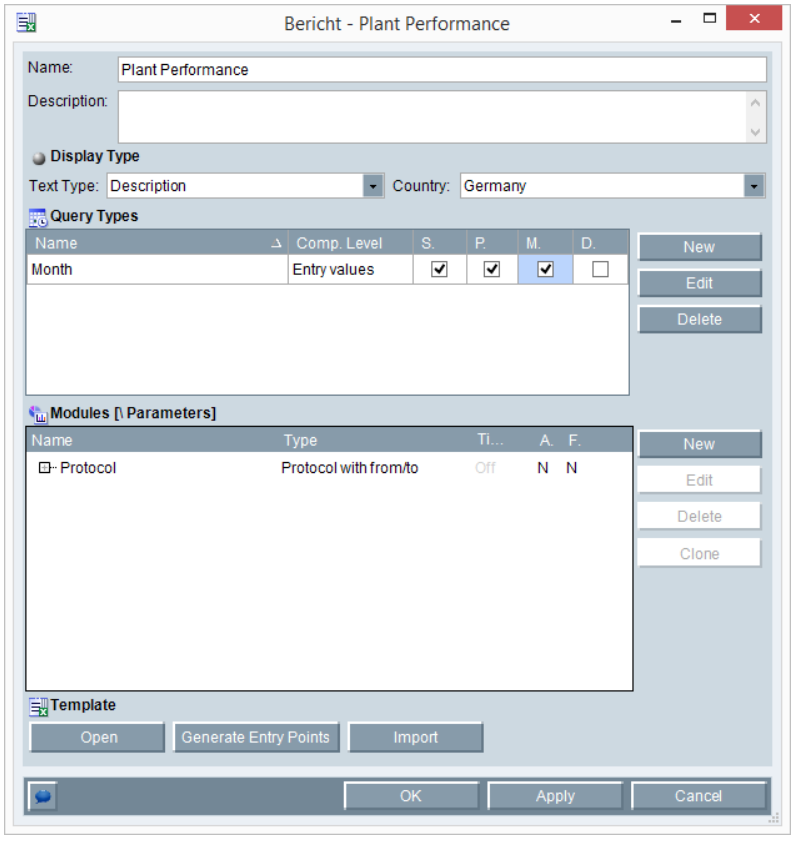
   Usually, you select "Entry values".
5. Under "Holding time", define the interval after which the results of a report are to be automatically deleted from the project tree of the Client.

   If you want to automatically delete the report results, you also need to start the "Job for deleting analyses".
6. Enable the respective options.
7. Click "OK".

Result

The query type is configured for the report.

You can edit or delete the query type, or add a new one for the report.



See also

Configuring modules (Page 284)

Query types (Page 749)

Time unit abbreviations (Page 756)

Creating a printer (Page 361)

Creating a folder (Page 364)

User jobs of the job queue (Page 827)

Setting up users (Page 343)

Automating a report (Page 281)

Jobs in Energy Manager PRO (Page 398)

Automating a report

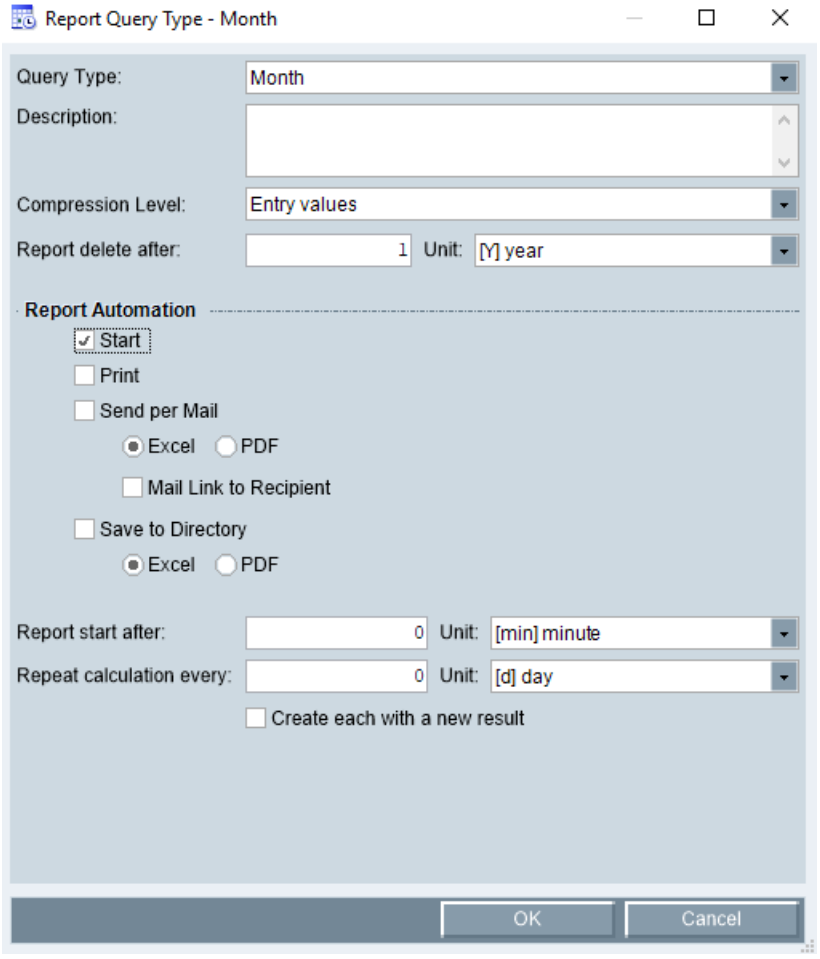
Requirement

- The report is configured.
- For the "Print" and "Save in directory" options:
  - The printer has been created.
  - The directory has been created.
- For the "Send by Mail" option:
  - The connection to an SMTP server is configured in the Energy Manager options.
  - User has been created with an email address.
- For the "Send Link to Recipient by Mail" option:

  The URL for Energy Manager PRO Web has been entered under "Energy Manager Options" in the "Appl." tab in the "WEBSERVER" field, for example, "http://localhost/EnMPROWeb".

Procedure

In order to automate a report open the query type and activate the respective options.



1. In order to start a report automatically, activate the "Start" option. The following options are displayed at the bottom of the dialog:
   - Start report after

     Specify the starting point of the automatic generation. The default value is 0:00.
   - Repeat calculation every

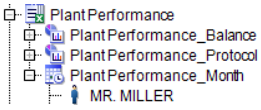
     Specifies the interval at which all existing report results are being recalculated. You can use this feature, for example, to update a generated report result daily and overwrite the old report result.

     To keep the old report result, and create a copy with the current values, enable the option "Create each with a new result".
2. To automatically print a report, follow these steps:
   - Activate the option "Print".
   - After finishing the configuration, create a "Printer" folder below the hardware object.
   - After finishing the configuration, copy the "Printer" object under the "Printer" folder.

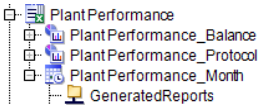
3. Proceed as follows to automatically email the report:
   - Activate the "Send by Mail" option.
   - Activate the report format for mailing, e.g. "PDF".
   - Activate the "Send Link to Recipient by Mail" check box if you only want to email the link to the stored report.

     The recipient will receive an email with the link instead of the file.

     The recipient accesses this report by clicking this link, logging in to Energy Manager PRO Web , and opening the report.
   - After finishing the configuration, create an "E-mail" folder under the hardware object.
   - After finishing the configuration, copy the "User" object under the "E-mail" folder.
   - After finishing the configuration, copy the "User" object under the query type.



4. Proceed as follows to automatically save the report to a directory:
   - Activate the "Save in directory" option.
   - Activate the report format for saving.
   - After finishing the configuration, create a "Directory" folder under the hardware object.
   - After finishing the configuration, copy the "Directory" object under the "Directory" folder.
   - After finishing the configuration, copy the "Directory" object under the query type.



5. Click "OK".

Result

The selected options are executed after the start of a report, irrespective of whether a report is started automatically or manually.

See also

Configuring query types (Page 279)

User jobs of the job queue (Page 827)

Job queue (Page 398)

Configuring modules

Overview

Use a module to configure the visualization of a report in Microsoft Excel or Microsoft Word. You can configure several modules for a report.

Requirement

The report is configured.

Procedure

1. Double-click the desired report in the structure tree of the Client.

   The "Report" dialog opens.

2. Click "New" in the "Module" area.

   The module configuration dialog opens.

3. Enter a unique name and an optional description for the module.

   Note

   The report module names are used as Excel "cell names".

   To ensure conformant module configuration, observe the standard designations for the country-specific Microsoft EXCEL documentation.

   Do not use Excel-specific expressions, e.g. C1 or R1, or Z1 or S1 in German systems, at the beginning of the report module name.

   Note

   Do not use Excel-specific expressions such as A1 or =FG14 during the creation and configuration of modules.

   The module name cannot contain any special characters. The following characters are permitted:

   - A to Z
   - a to z
   - 0 to 9
   - _

4. Select a module type.

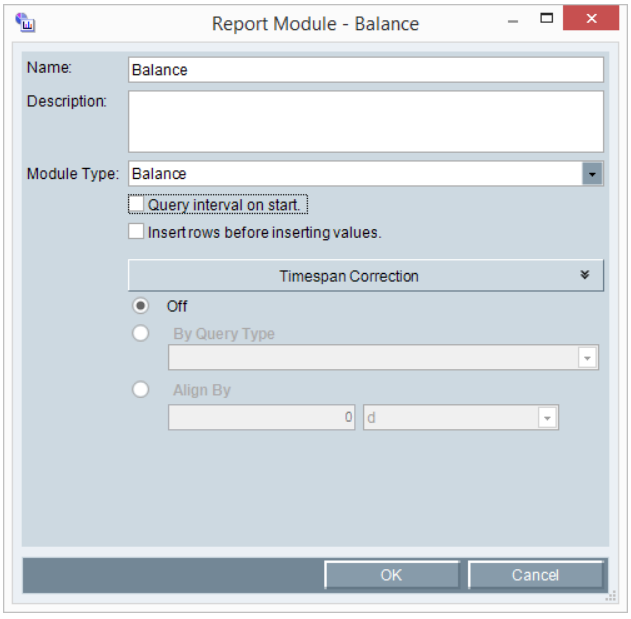
   – You need a datapoint to configure a query module.

   – You need a data point, a parameter or a measuring variable to configure a balancing module or a protocol module.

   More information on the module types is available in the chapter "Module overview (Page 758)".

5. Activate "Query interval at start" to enter the interval at the start of the report.
6. Activate "Insert rows before the values" in order to insert rows for the new values. Corresponding rows will be inserted prior to the wiring of values. Activate this option, for example, when using graphic objects in the template.

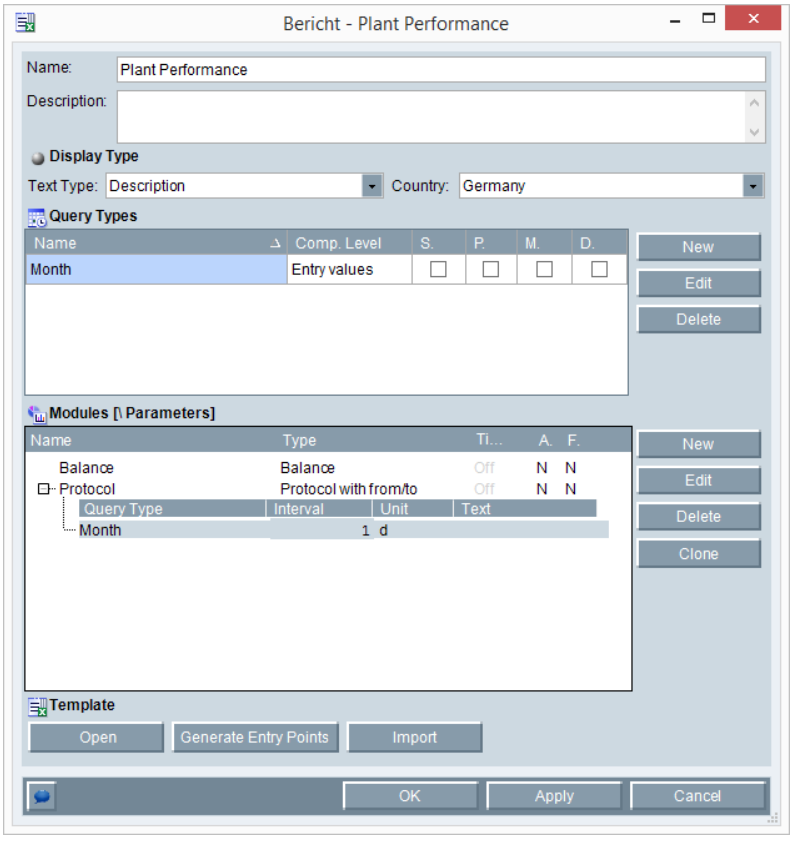
   Existing rows will be overwritten by default. Activate this option, for example, when using row operations in Microsoft Excel .
7. Click "time window correction" and select a time under "With query type" for starting report evaluation .
8. In order to shift the time range for the evaluation of a report, click "Time period correction" and select a value and a time unit under "Align by".



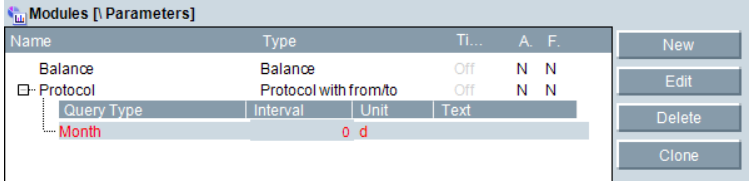
9. Confirm the configuration with "OK".

Result

The module is configured for the report. You can edit, delete, or clone the module, or insert a new one for the report.



If the module needs start parameters for the report, enter the start parameters in the "Module" area of the "Report" dialog, for example, 1 h for the "Protocol" module. Missing start parameters for a module are marked in red color.



See also

Basics for designing the report layout (Page 287)

Creating a report (Page 276)

Time unit abbreviations (Page 756)

Design of the report layout

Basics for designing the report layout

Overview

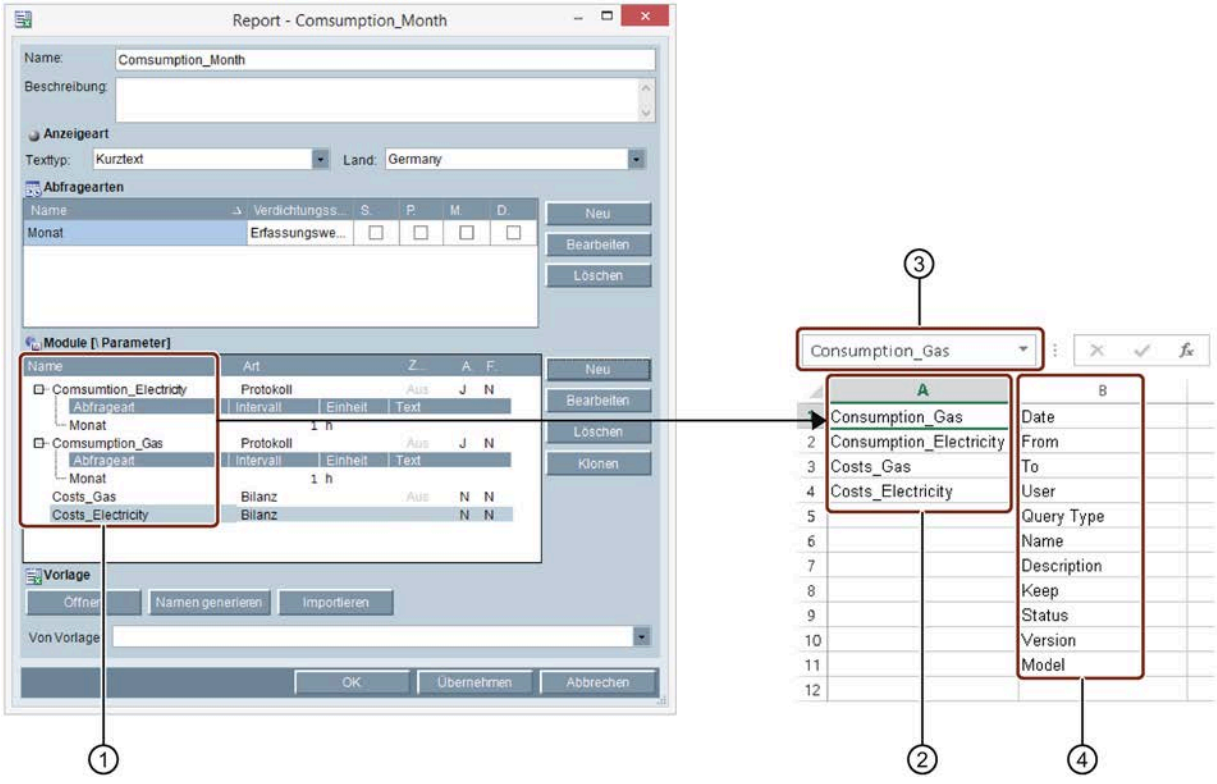
Energy Manager uses Microsoft Excel or Microsoft Word to visualize reports. Specify the layout and representation individually in the relevant program. In this way, for example, you can visualize consumption values in a diagram.

Principle of name generation

Note

Report templates based on Microsoft Word

In Microsoft Word, you use embedded Excel objects, into which Energy Manager imports values as in the figure shown below.



When you click "Generate name" in the report configuration, a new report template is created or an existing one is updated. The module names ① are entered in column "A" ②. A name with the relevant module name is created for each cell ③. In addition, the master data of the report is entered in column "B". A name with the relevant master data is created for each cell ④.

For report templates in Microsoft Word , the data are imported into the embedded Excel objects that contain the module names.

Note

If you define the module name as a valid cell address or a sheet name on which the module is placed, you will not be able to load the report.

If you define the module name with "A51", for example, an error will occur. The module name "A51" is a valid jump label for MS Excel.

If you define the module name with "AVZ", for example, and the sheet name is also "AVZ", an error will occur. The module name "AVZ" is a valid sheet name for MS Excel.

Entering values

Values are entered as follows when you generate a report:

- Modules: The values are entered as of the cell **below** the corresponding name. For this reason, you need to shift each cell with a module name from column "A" to a position where contents will not be overwritten (cut & paste).

  Example: The daily listing of consumption values of a month usually needs between 29 and 32 rows: One row for the header and, depending on the months, between 28 and 31 rows for the days.

  You can use the naming manager in Microsoft Excel to view and edit the names and their cell ranges.

  You may also distribute the cells to several sheets.

  Note

  If you distribute cells that contain module names to several sheets, activate the sheet that contains the original definition of names before closing.

- Master data: The values are entered as of the cell with the corresponding name.

Modifying or adding module names

If you change a module name in Energy Manager, or if you add an additional module to a report in Energy Manager, carry out the "Generate name" function again. Move the name fields of the newly inserted module to the desired position.

Alternatively, you can also use the name manager.

See also

Configuring the layout for an Excel report (Page 289)

Configuring modules (Page 284)

Configuring the layout for an Excel report

Overview

You can configure a template for an Excel report. In this template, you specify how the measured values are displayed.

Requirement

- The report is configured.
- The query type is configured for the report.
- The module is configured for the report.

Procedure

1. Double-click the desired Excel report in the structure tree of the Client.

   The "Report" dialog opens.
2. To create a report template in Microsoft Excel, click "Generate name".

   Microsoft Excel opens and the module name is entered in column "A".
3. Move the cell containing the module name to a position at which the module has sufficient space for its measured values.
4. Structure the template. You can find additional information in the Microsoft Excel online help.

   Note

   Special characters and spaces are not allowed in the table name.

5. Configure the print area of the report. It is used for printing and PDF generation of the report result.

   Note

   Print areas that are not customized may result in excessive report results and have the following effects:
   - Multi-page print results and high paper consumption
   - Very large PDF documents and high memory usage in the Energy Manager database

6. If you want to run a macro in Microsoft Excel after you have generated the report, follow these steps:
   - Open the macro editor in Microsoft Excel.
   - Insert the Sub OnBDataLoadDone procedure in the spreadsheet that contains the original name definitions. Note that this entry is case-sensitive.
   - Write the program code and close the macro editor.
   - Set the security level to "low" in the Microsoft Excel security settings. Activate the "Trust access to Visual Basic projects" option under "Trusted Publishers".

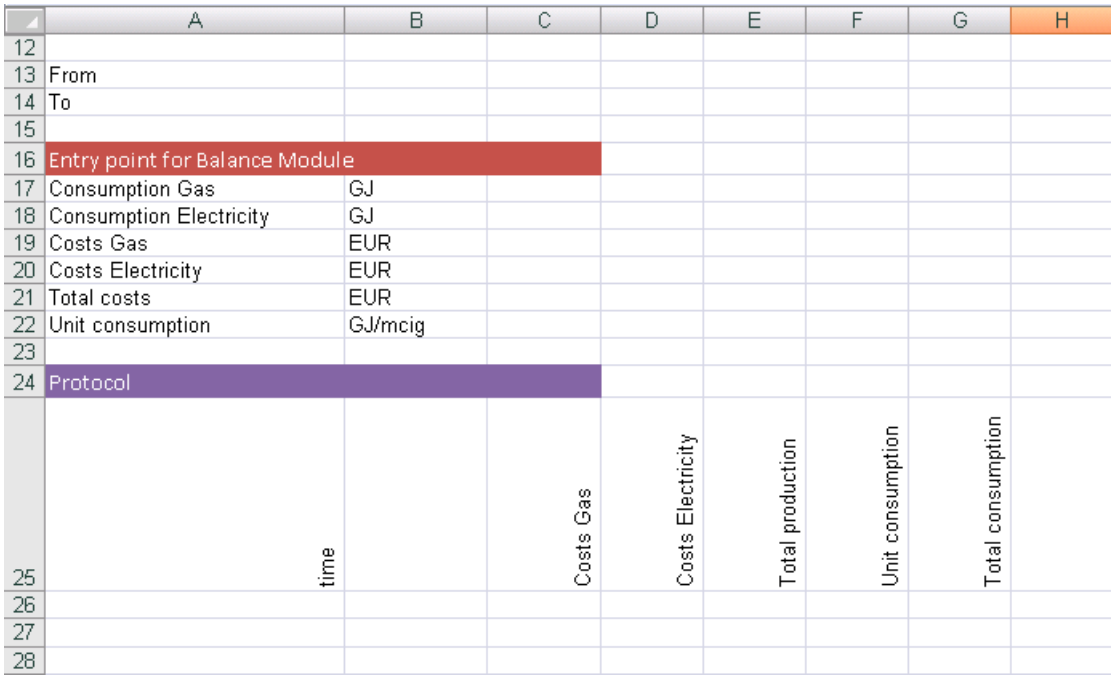
   Note

   You cannot run a macro without having made the aforementioned security settings.

7. Save the template to an Microsoft Excel file.

Result

The template is configured for the report.



	A	B	C	D	E	F	G	H
12								
13	From							
14	To							
15								
16	Entry point for Balance Module							
17	Consumption Gas	GJ						
18	Consumption Electricity	GJ						
19	Costs Gas	EUR						
20	Costs Electricity	EUR						
21	Total costs	EUR						
22	Unit consumption	GJ/mcig						
23								
24	Protocol							
25	time		Costs Gas	Costs Electricity	Total production	Unit consumption	Total consumption	
26								
27								
28								

Alternative procedure

Alternatively, you can import an existing template for the report. To do this, click "Import" in the "Report" dialog and select the required file. If required, you can adapt the module names in the report template using the name manager.

See also

Basics for designing the report layout (Page 287)
Creating a report (Page 276)
Configuring query types (Page 279)
Configuring modules (Page 284)

Configuring the layout for an Word report

Overview

You can configure a template for a Word report. In this template, you specify how the measured values are displayed.

Use the following objects to visualize the measured values:

- Tabular representation: Embedded Excel table
- Graphical representation: Trend chart

Requirement

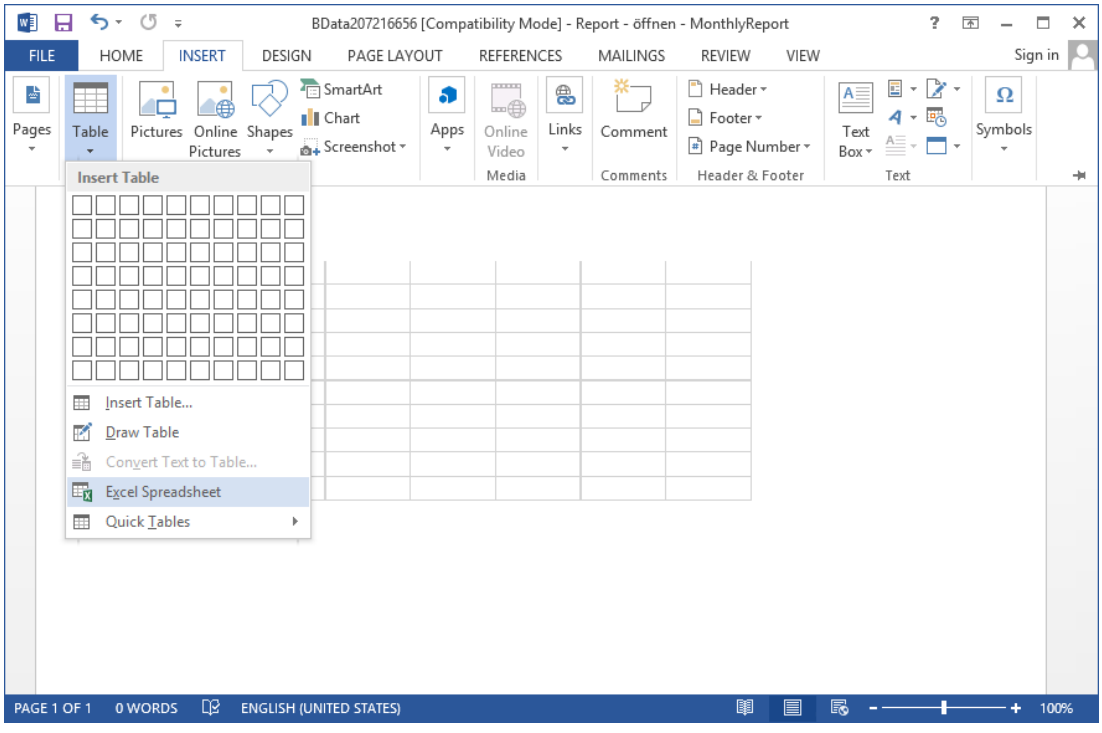
- The report is configured.
- The query type is configured for the report.
- The module is configured for the report.

Procedure

1. Double-click the desired Word report in the structure tree of the Client.

   The "Report" dialog opens.
2. In order to prepare a template for the report in Microsoft Word, click "Open".

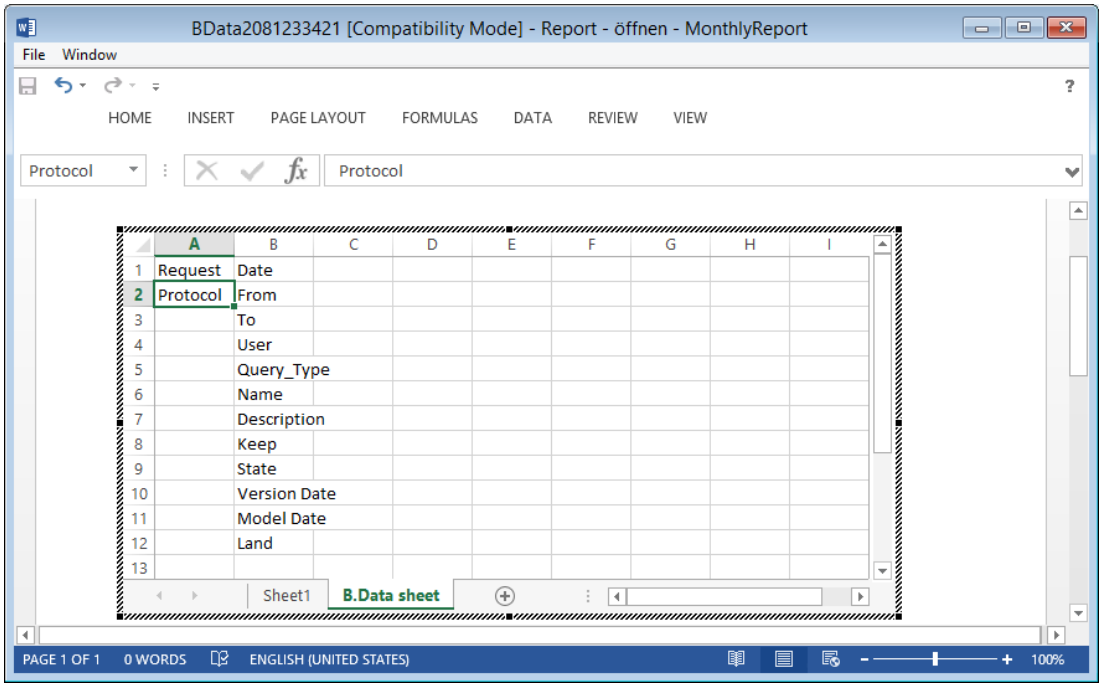
   Microsoft Word opens.
3. Insert the desired objects, for example an embedded Excel table.



4. Save and close the template.

5. Click "Generate name".

   Microsoft Word opens. A "Energy Manager PRO" worksheet is inserted into each chart or each embedded table. The module name is entered in column "A" on this worksheet.



6. Move the cell containing the module name to a different worksheet, to a position where the module has sufficient space for its measured values.

   Note

   During generation of the report, only those module names will be populated, which are contained on a different "Energy Manager PRO sheet" worksheet.

7. To design the template, use Microsoft Word.
8. Save the template to a Microsoft Word file.

Result

The template is configured for the report.

Working with report templates

Report templates

Overview

In Energy Manager you can use an existing report to create a template that is the basis for new reports. If you create a new report and assign a template to it, the following configurations from the template are applied:

- Display modes
- Query types
- Modules
- Report layout

Using templates for reports makes sense for similarly structured plants or sites, for example when separate reports are required for nearly identical production lines. Changes to the template affect all reports that are generated in the future, which are based on this template.

Requirement

- In order to create, configure and delete a report template, you need corresponding rights, which are defined in the functional group under "Template Manager".

Creating a report template

You can create a new template using the "Report as Template" option in the shortcut menu of the report (right-click).

Overview of existing report templates

Click the "Templates" button in the menu bar under "Master Data > Configuration". The existing report templates are displayed on the "Reports" tab.

More details on creating and using report templates are available in sections "Creating a template (Page 294)" and "Using a template (Page 295)".

See also

Edit template (Page 297)

Disconnecting a report from a template (Page 299)

Create a template

Requirement

A report has been created.

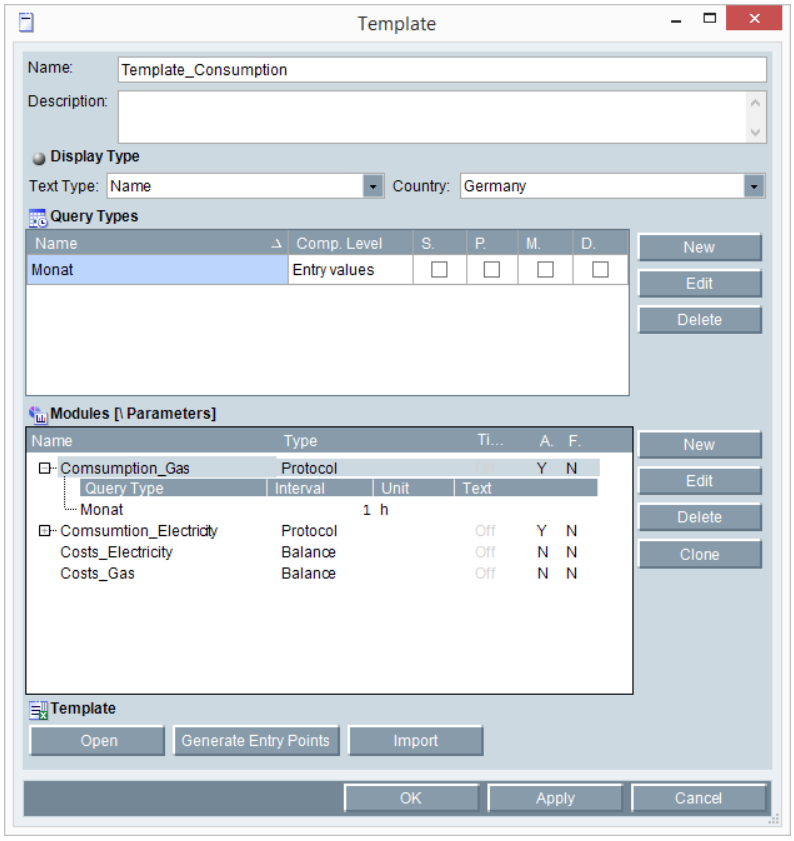
Procedure

1. Select the "Report as template" command from the shortcut menu of the report.
   The "Report" dialog opens.

   Note

   A report can only serve as a template if a template has not yet been assigned to the report itself.

2. Enter a new name for the template.
3. As needed, change query types, modules or the report layout.



4. Save the template.

Result

The template is created and is shown in the menu under "Master Data > Configuration > Templates". All templates are also visible in the Templates folder in the shortcut menu.

See also

Edit template (Page 297)

Using a template

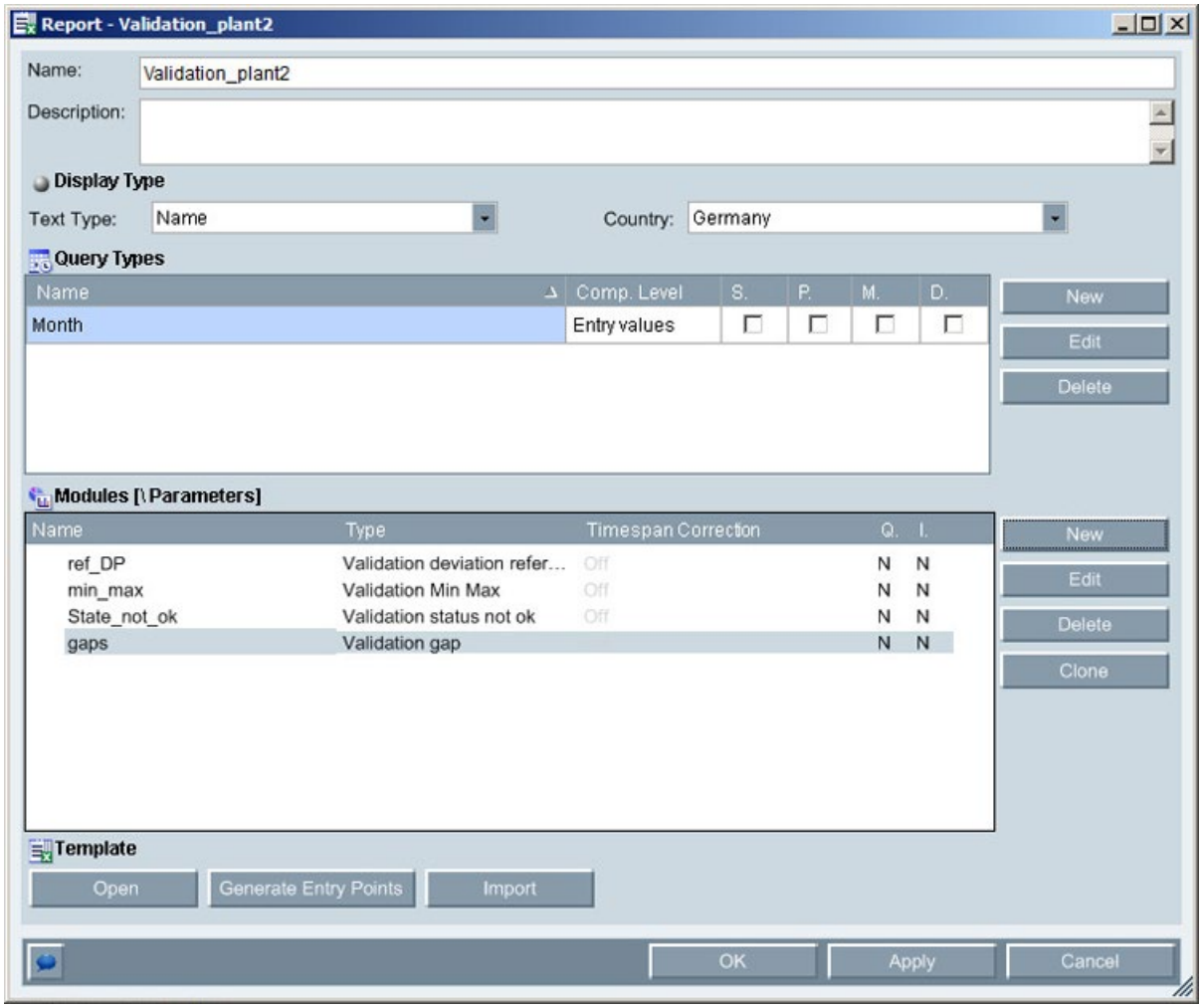
Requirement

A template has been created.

Procedure

1. Select the folder in which the report is going to be created.
2. In the menu bar under "Analysis > Reporting", click the "Insert Excel report" button or the "Insert Word report" button.

   The "Report" dialog opens.



3. Enter a meaningful name and an optional description for the report.
4. Select a template from the list under "From template", and click "Apply".

   The "Report" dialog is filled out with the template's specifications.
5. Save the report.

Result

A new report based on a template has been created.

See also

Entering values in reports (Page 300)

Edit template

Introduction

Templates for reports are centrally managed under "Master data > Configuration > Templates". You can create, edit or delete templates:

- "Edit": The changes affect all reports that are generated in the future, which are based on the edited template.
- "Delete": The template is disconnected from all templates that are based on the template that is to be deleted. Then the template including the configured query types and modules is deleted.

Note

If a template has been disconnected from a report, you can never again assign a template to this report.

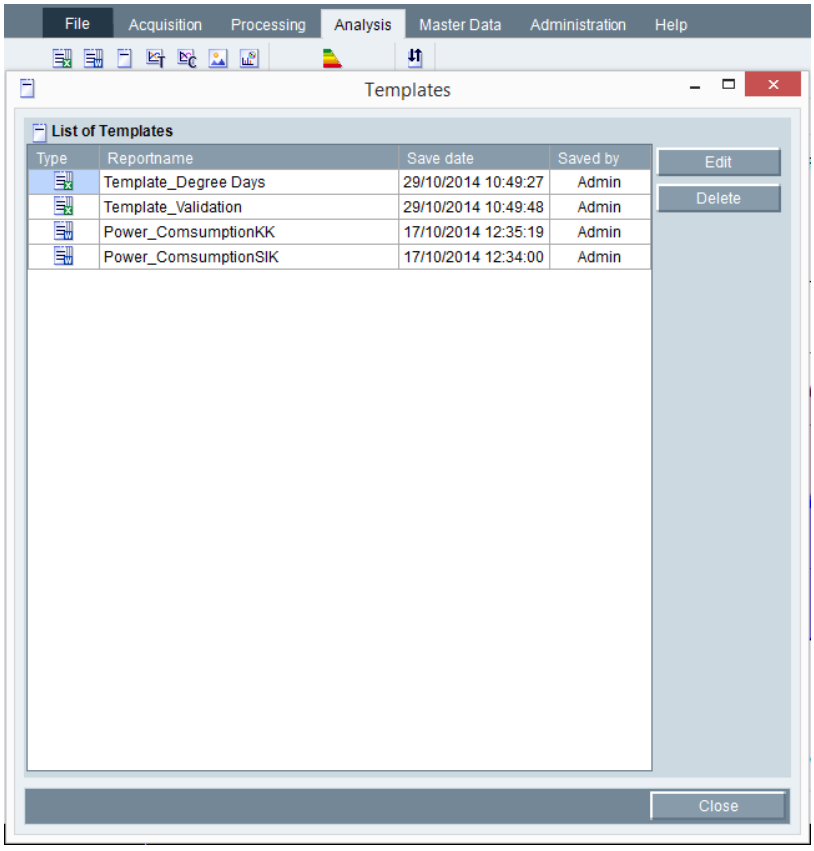
Requirement

A template has been created.

Procedure

1. Click the "Templates" button in the menu bar under "Master Data > Configuration".

   The "Templates dialog" opens, and displays the list of templates.



2. In order to edit a template:
   - Select a template, and click "Edit".

     The "Template" dialog opens.
   - Perform the changes.
   - Save the template.
3. In order to delete a template:
   - Select a template, and click "Delete".

Result

The changes are applied automatically to all the reports that are based on this template.

See also

Create a template (Page 294)

Disconnecting a report from a template (Page 299)

Disconnecting a report from a template

Requirement

A report was created using a template.

Procedure

1. Click "Edit..." in the shortcut menu of the report.

   The "Report" dialog opens.
2. Click "Disconnect".

   Note

   If you disconnect a template from a report, you can never again assign a template to this report. However, you can create a template for other reports from this report.
3. As needed, change the configured query types, modules or the report layout.
4. Save the report.

Result

The template is disconnected from the report.

See also

Edit template (Page 297)

Entering values in reports

Requirement

- The report is configured.
- The data point, parameter and measuring variable have been created.
- You have created the printer, the directory, and the user.
- The module and request type are configured for the report.

Procedure

1. Assign the module the corresponding data points, parameters or measuring variables to visualize the selected values in the report.

   Note

   Object descriptions of Data points, Measuring variables and Parameters must not contain Excel-specific expressions such as A1 or =FG14.

   If you output the properties of objects in reports, do not use Excel-specific expressions in the output properties.

   – Assign the module a data point if you have configured a query module.

   – If you have configured a balancing module or a protocol module, assign a data point, a parameter or a measuring variable to the module.

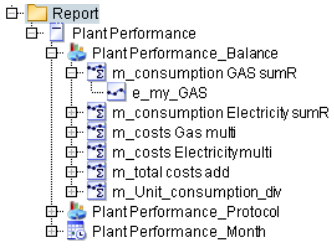
   Note

   If you have assigned a parameter to a protocol module, configure the replacement value and, if required, the associated validity period in the input dialog.

2. To print, save, or e-mail the report automatically, assign the corresponding printer, e-mail address and/or directory to the query type.

Result

The values are entered in the report.



See also

Configuring query types (Page 279)
Configuring modules (Page 284)
Fundamentals of creating printer and directory (Page 361)
Setting up users (Page 343)

Charts

Creating a Chart

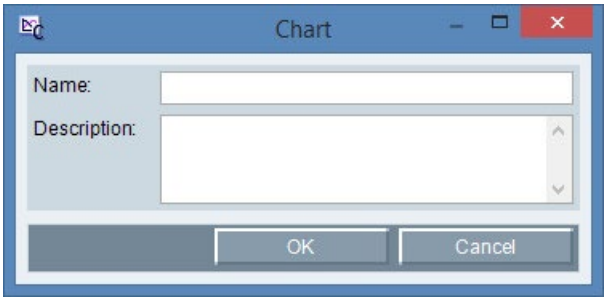
Overview

With the Chart object it is possible to make a predefined Chart available to several users. This means that the configuration via the Chart object is not user-specific in contrast to the configuration of a Chart directly at the datapoint, at the matrix or at a measuring variable. Configurations such as colors or the number of the displayed datapoints thus apply for all the users and not only for the current user.

Procedure

1. Click the object or the folder under which you want to create the Chart object.
2. Click the Chart icon in the area "Analyze > Reporting".

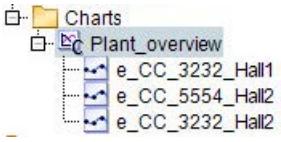
   The "Chart" dialog opens.



3. Enter a name and optionally a description.
4. Save with OK.
5. The Chart object is created under the desired object.
6. Assign the datapoints to be displayed to the Chart object.

Result

The Chart object has been created and the desired datapoints assigned.



You can configure the Chart object with a double-click.

See also

Displaying the Standard Chart (Page 450)
Show details (Page 451)
Comparing values of different time ranges (Page 452)
Exporting the Chart (Page 453)
Creating charts (Page 607)

Dashboards

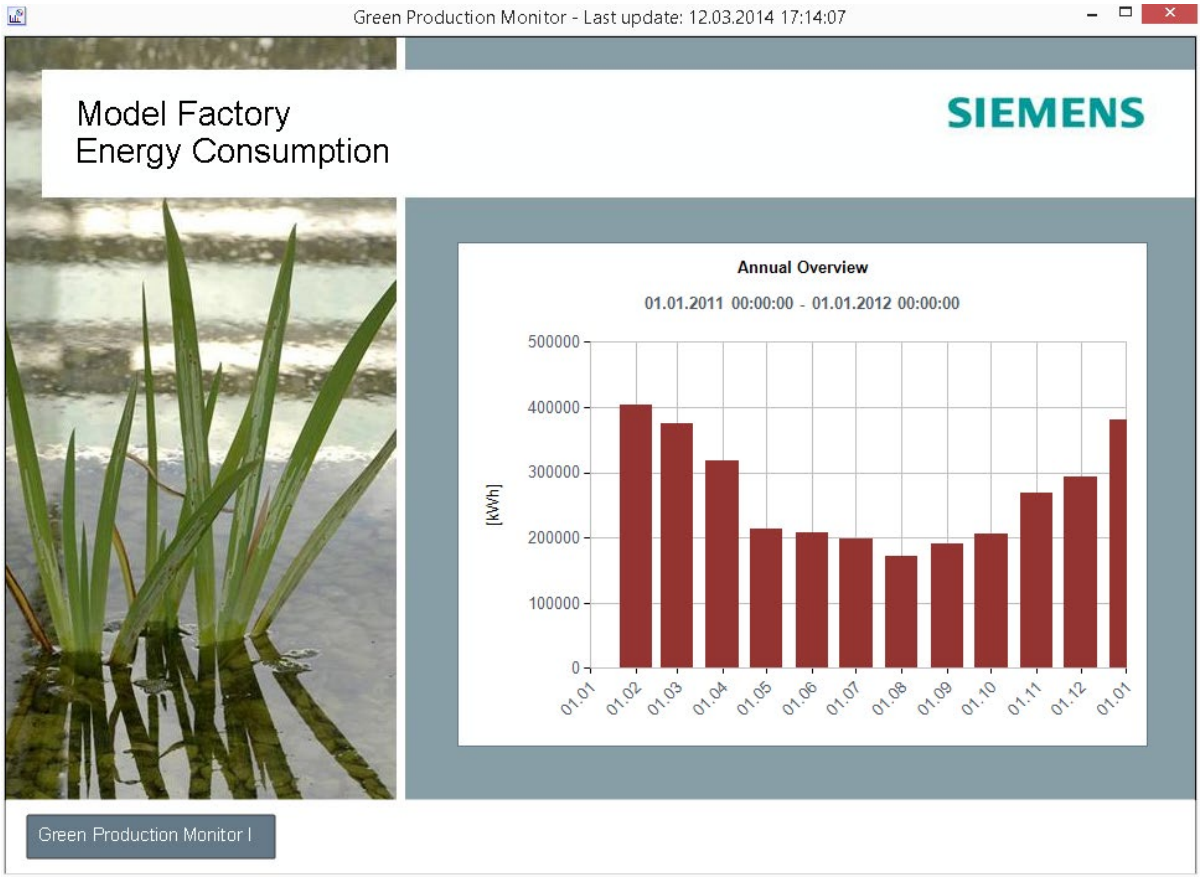
Dashboard basics

Definition of "Dashboard"

Note

In addition to the freely configurable dashboard in the Energy Manager PRO Client, there is also the Widget Dashboard. Configure the Widget Dashboard in Energy Manager PRO Web. In the Widget Dashboard you can insert multiple widgets which provide a clear overview of the various measurement and plant data.

You can use the Dashboard and default objects to obtain a clear overview of historical data from the Energy Manager database.



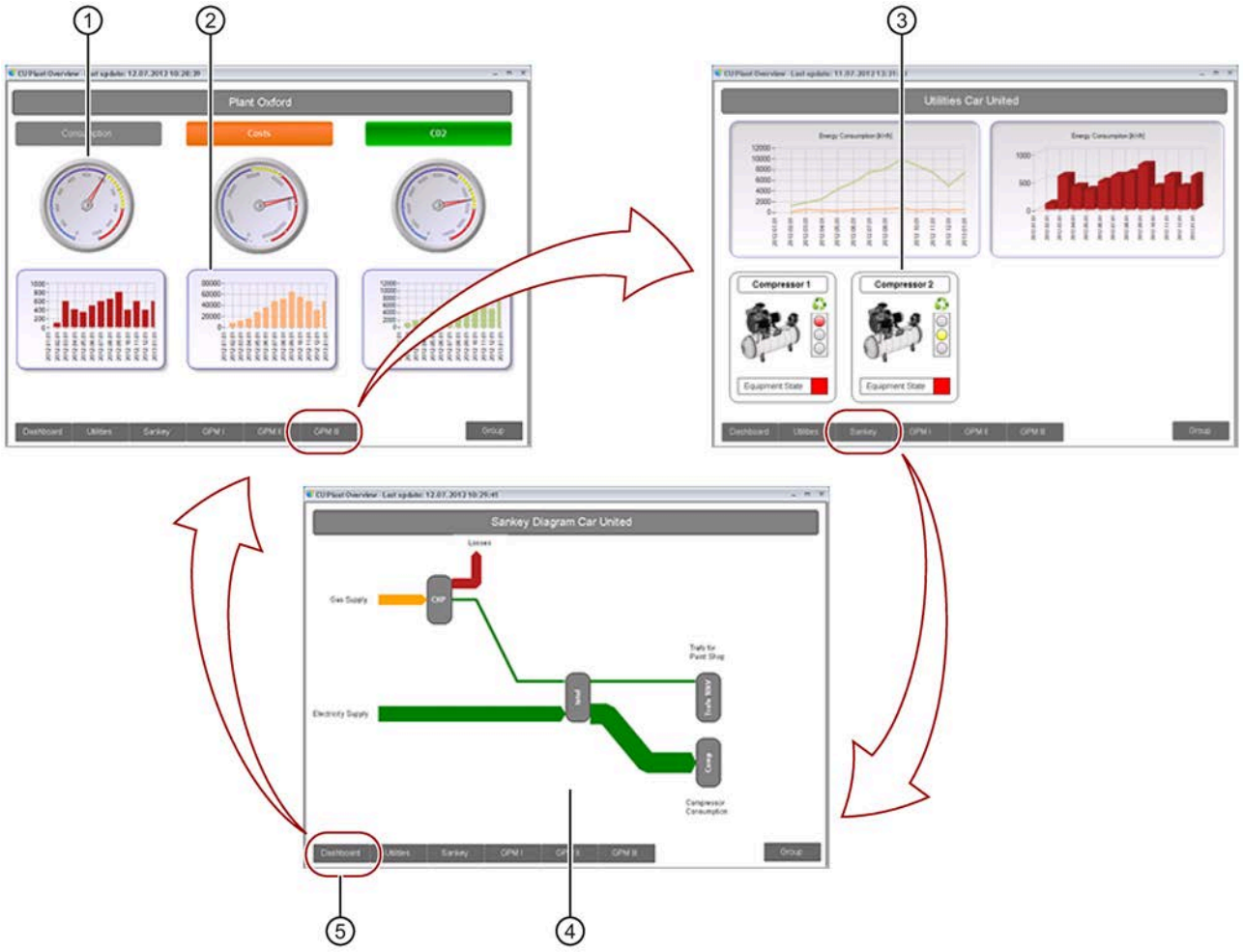
Using the Dashboard

The Dashboard provides you with an overview of your production and consumption data. You may distribute the data to be visualized to several dashboards for a clearer overview. Add a navigation button to each Dashboard to facilitate navigation between the dashboards.

Use the Energy Manager "Dashboard" object in the following situations, for example:

- To visualize consumption or cost parameters
- To visualize consumption or cost states
- To obtain a detailed overview of a production site, or of the combination of several production sites

You may also use Energy Manager PRO Web to call the stored Dashboards.



①, ②, ③ Large selection of display object templates, for example, pointer instruments, diagrams, or status displays.

④ Process visualization using dynamic Sankey objects

⑤ Buttons for navigation between multiple dashboards

Dashboard notes

Observe the following information:

- Value input

  A Dashboard visualizes only values of the following data points:

  – "Generic" data point type

  – "Derived" data point type

  – "Datapoint" data point type

  You can visualize values that are calculated based on measurement functions by assigning each measurement function a derived data point.

- Time range

  Make sure that you set the time range to be visualized to a sufficient length. Moreover, the data points must contain measurement data for the specified time range.

Rules for creating dashboards

Observe the following rules before you start to create a Dashboard:

- Plan the data quantity to be visualized and the corresponding distribution of this data.
- You can distribute large data quantities to several dashboards to improve the overview and performance.

  Use a navigation button to switch between the dashboards; create this button in each Dashboard by means of dashboard object "Panel Switch".
- Recommendation: When configuring the refresh cycle for Dashboard, enter the time in seconds e.g. 900 seconds for a refresh cycle of 15 minutes.

Configuring dashboards

Create a graphic overview as follow:

1. Create one or several dashboards in the project tree of the Client.
2. Copy the data points to be visualized as nested entry to the Dashboard you created.
3. Create the Dashboard layout by compiling the selected dashboard objects in the "Dashboard" editor.
4. Assign the selected data points to the dashboard objects used and customize the layout of the dashboard objects.
5. If you have created several dashboards for a graphic overview, add one or several buttons to the Dashboard using dashboard object "Panel Switch" and assign the respective Dashboard to each button.

   Use these buttons to switch between the dashboards.
6. Open the selected Dashboard in full-screen mode.

   The Dashboard displays the values of the data points used for a defined period.

See also

Create dashboard (Page 306)
Configuring the time range (Page 860)
Dashboard objects (Page 859)
Example of configuring a dashboard (Page 317)

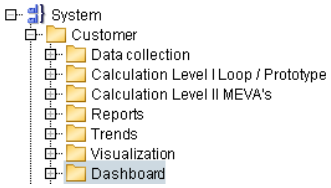
Create dashboard

Overview

To create a Dashboard in Energy Manager , create a Dashboard in the project tree of the Client.

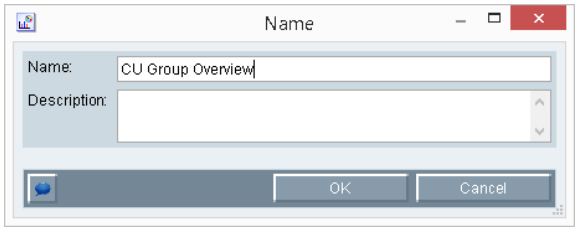
Procedure

1. In the project tree of the client, select the folder below which you want to create a Dashboard.



2. Click the "Dashboard " button in the menu bar under "Analysis > Reporting".

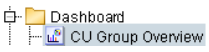
   The dialog for creating the Dashboard opens.



3. Enter a name such as "CU Group Overview" and an optional description for the Dashboard.
4. Click "OK".

Result

The Dashboard is created in the project tree of the Client.



You can edit the name and description of the Dashboard by clicking "Edit" in the shortcut menu of the Dashboard.

Create the layout for the new Dashboard.

See also

Dashboard basics (Page 302)

Creating the dashboard layout (Page 310)

Setting up dashboards (Page 550)

Example of configuring a dashboard (Page 317)

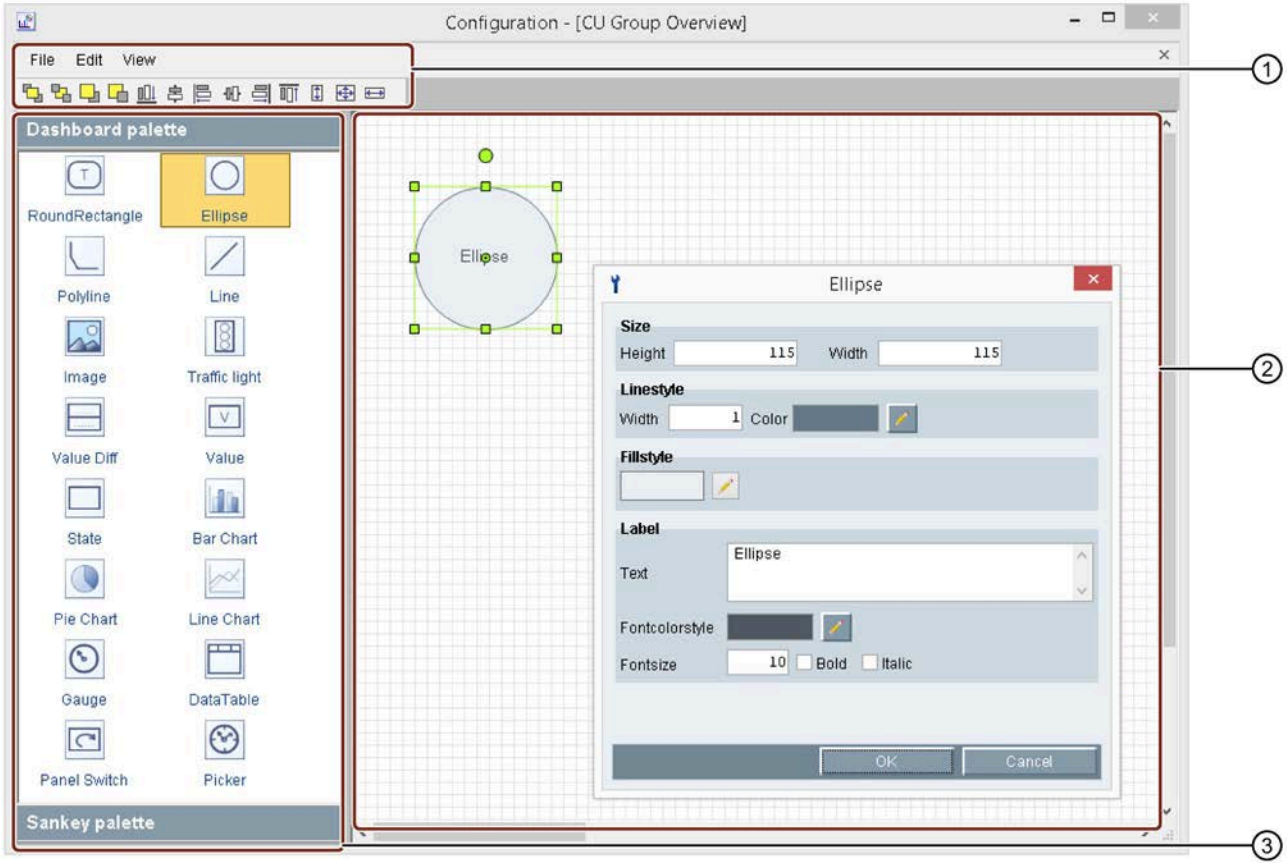
Structure of the Dashboard editor

Function

Use the "Dashboard" editor to create the layout for your Dashboard.

Structure of the editor

The "Dashboard" editor has the following structure:



① Menu bar and toolbar

The menu bar and toolbar provide default commands and icons, for example, for saving files or aligning objects.

② Workspace

You visualize, compile and configure the dashboard objects for your Dashboard on the workspace.

③ Symbol palette

The symbol palette provides all dashboard objects that you can use. You can change between the Dashboard and Sankey palettes.

Menu bar of the editor

The menu bar of the "Dashboard" editor has the following structure:

- File

  The "File" menu is used to save, close or export/import the current Dashboard.

  Use the "Export"/"Import" function to make the Dashboard available to other Energy Manager users.

  Note
  Exporting a Dashboard

  The exported Dashboard can only be opened in an Energy Manager System.

- Edit

  The "Edit" menu commands are used to perform standard document editor actions such as copying or deleting objects.

- View

  The "View" menu lets you hide or unhide the pallets.

Editor toolbar

The toolbar of the "Dashboard" editor has the following structure:

- Position

  These icons are used to position dashboard objects on the workspace. These can be used, for example, to place a dashboard object into the background of a different dashboard.

- Align

  These icons are used to align dashboard objects on the workspace. You can use them, for example, to align objects to the center.

- Size

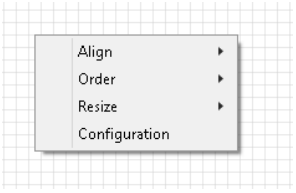
  These icons are used to resize dashboard objects on the workspace. You can use them, for example, to resize the width of a dashboard object to fit the width of a different dashboard object.

Note
Using the toolbar

The toolbar icons are only available if you select several dashboard objects on the workspace.

Press the <CTRL> key for multiple selection of dashboard objects.

Instead of the toolbar icons, you may use the shortcut menu commands of the dashboard objects:



See also

Exporting/importing dashboards (Page 316)

Creating the dashboard layout (Page 310)

Creating the dashboard layout

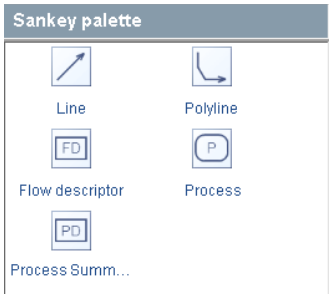
Overview

Create a layout for the Dashboard you created. This layout defines the appearance of the Dashboard.

You are provided two pallets, each containing different dashboard objects for creating the layout:

- Dashboard palette: Contains objects such as "Gauge" or "Pie Chart" for creating graphic overviews.

- Sankey palette: Contains objects such as "Process" for creating Sankey charts.

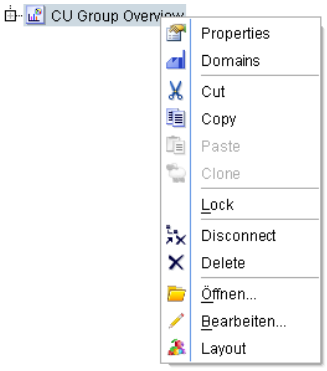


Requirement

The Dashboard is created.

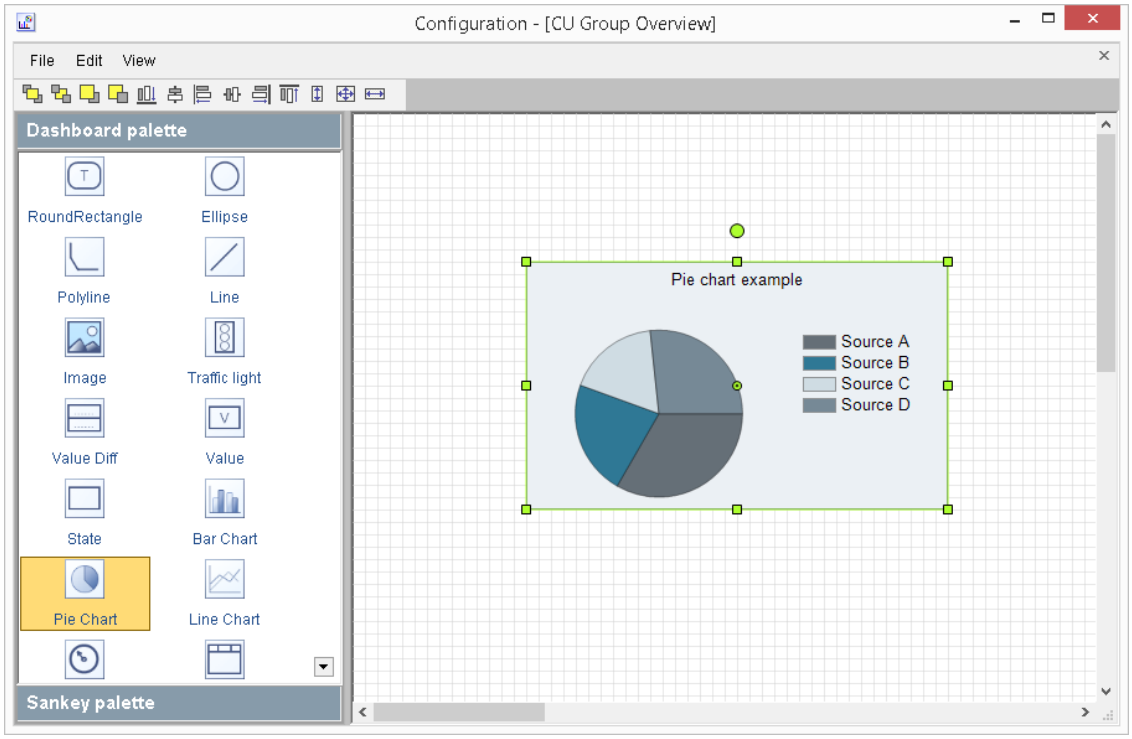
Procedure

1. Click "Layout" in the shortcut menu of the Dashboard.



   The "Dashboard" editor opens.

2. Click "Configuration" in the shortcut menu of the workspace to configure the Dashboard.
3. In the editor, select the symbol palette that contains the dashboard objects to be used in the layout: Dashboard Palette or Sankey Palette.
4. Drag-and-drop the selected dashboard objects from the symbol pallet to the workspace.



The objects are placed into the workspace.

The "Dashboard" editor lets you set up different alignments for multiple dashboard objects. You need a reference object to which you can align other objects. Start by selecting an object in the "Dashboard" editor and define it as reference object.

- On the workspace, select the reference object to which you are going to align other dashboard objects.
- Select the dashboard objects by means of multiple selection.
- Select the command from the toolbar, or from the shortcut menu of the dashboard objects.

The selected objects are aligned.

5. Save the layout.

Result

You have created the Dashboard layout.

Configure the dashboard objects used in order to customize them, or to link them with the selected data points.

See also

Create dashboard (Page 306)

Structure of the Dashboard editor (Page 307)

Configuring dashboard objects (Page 313)

Configuring the dashboard (Page 859)

Dashboard objects (Page 859)

Example of configuring a dashboard (Page 317)

Configuring dashboard objects

Overview

After having created the Dashboard layout, configure the dashboard objects to be used as follows:

- Link the dashboard objects with the data points containing the values to be visualized on the Dashboard.
- Customize the appearance of the dashboard objects, for example, the background color or text layout.

Note

Configuration of the dashboard objects

The following figures show the configuration of the "Pie Chart" dashboard object.

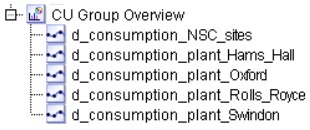
For information about the configuration of other dashboard objects, refer to chapter "Dashboard objects".

Requirement

- You have created the Dashboard layout and opened it in the "Dashboard" editor.
- The desired datapoints are created in the project tree of the Client.

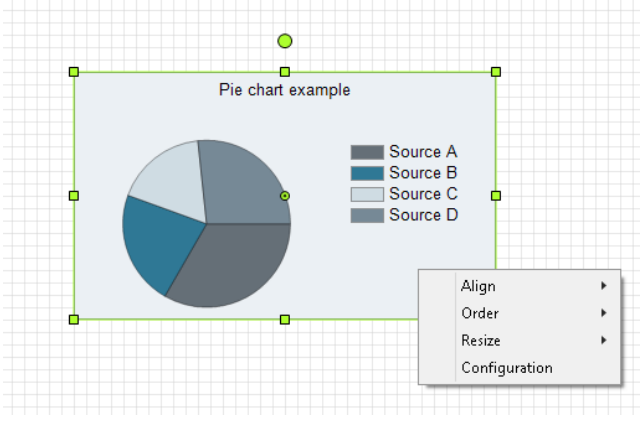
Procedure

1. Copy the data points that contain the measured values to be visualized to the nested folder of the Dashboard.



2. You configure a selected dashboard object by double-clicking it on the workspace.

   Alternatively, you can select the "Configuration" command from the shortcut menu of the dashboard object.

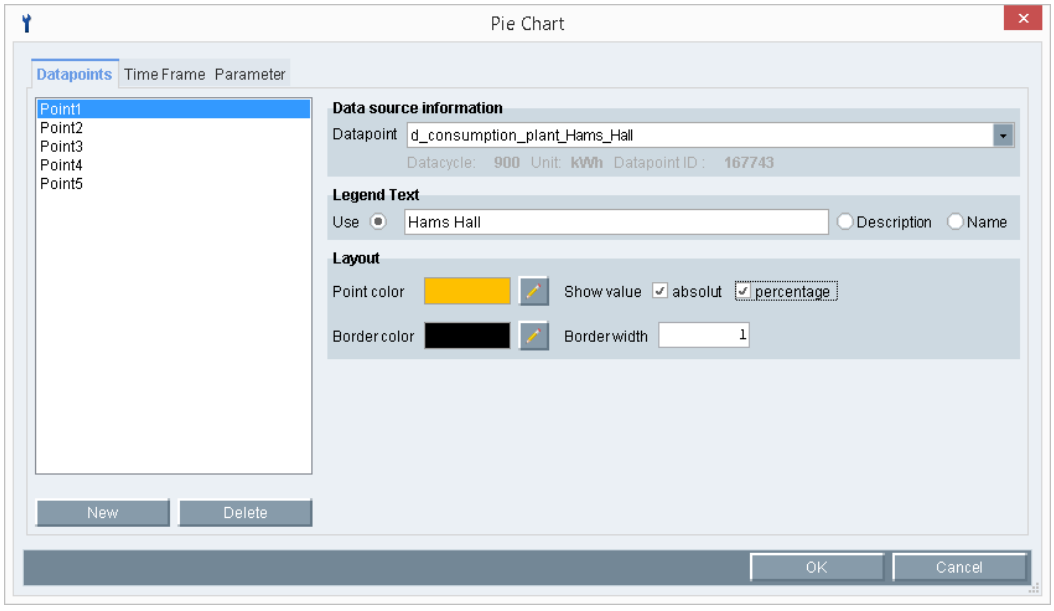


   The dashboard configuration dialog opens.

3. Configure the dashboard object to suit your requirements.

   You can customize the "Pie Chart" dashboard object as follows, for example:

   – Select "New" to set the number of bars to display in the pie chart.
   – Select "Data point" to assign each bar the data point containing the values to be displayed in the pie chart.
   – Select "Caption" to specify the text that describes the respective bar in the pie chart.
   – Select "Layout" to define the bar colors for the pie chart and activate the selected option for displaying the measured values in the pie chart.

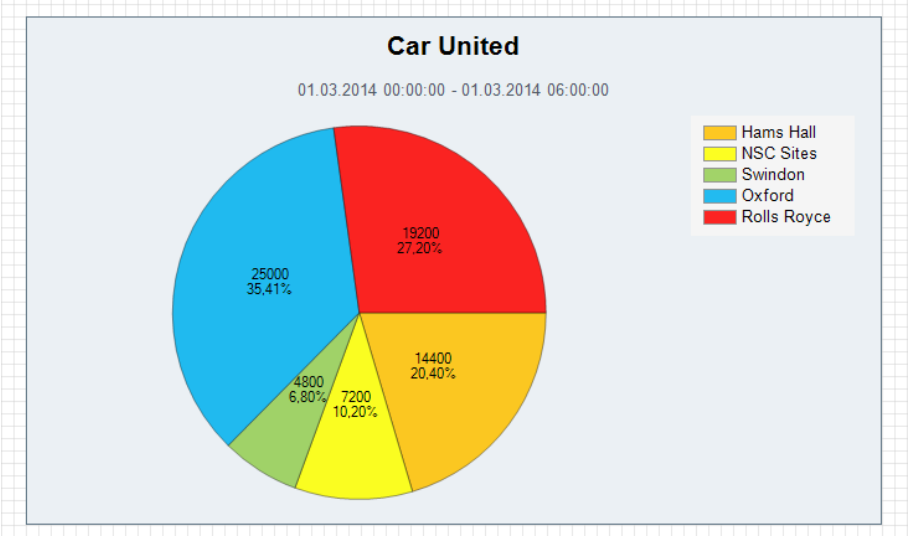


   – Select "Time range" to define the period from which the measured values are to be displayed in the pie chart.
   – Select "Parameters" to define additional settings for the pie chart, for example, the background color or title.

4. Click "OK".

Result

You have configured the selected dashboard object.



You may also configure the background on which the dashboard objects are positioned. Right-click in an empty area of the workspace and select the "Configuration" command from the shortcut menu.

Configure all other objects that are used in your Dashboard, save the layout, and open the Dashboard in full-screen mode.

See also

Creating the dashboard layout (Page 310)

Dashboards (Page 461)

Configuring the time range (Page 860)

Dashboard objects (Page 859)

Example of configuring a dashboard (Page 317)

Exporting/importing dashboards

Overview

You can make a Dashboard available to external Energy Managerusers by exporting the Dashboard to a file. Distribute this file, for example, by E-Mail.

The Energy Manager users can now import and use the exported Dashboard file on their Energy Manager System.

Requirement

You have created the Dashboard and opened it in the "Dashboard" editor.

Exporting dashboards

1. Select "File" > "Export" from the menu bar.

   The dialog for saving the file opens.
2. Select the directory and enter the file name.
3. Save the file in EDD format, for example, "CU_Group_Overview.edd".
4. You can send the stored file by E-Mail.

Importing dashboards

1. Select "File" > "Import" from the menu bar.

   The dialog for opening the file opens.
2. Select the file in EDD format and click "Open".

   The Dashboard is displayed in the "Dashboard" editor on the workspace.

See also

Structure of the Dashboard editor (Page 307)

Example of configuring a dashboard

Creating datapoints for the Dashboard

Overview

This example shows how you can visualize daily consumption in a week as bar chart in a dashboard. High limit overshoot is also to be visualized graphically.

Preparations

You need the following objects for this example:

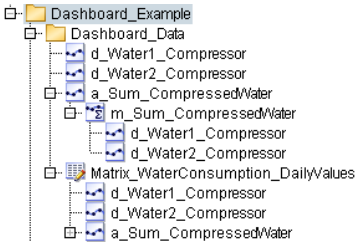
- 2 data points
- 1 derived data point
- 1 matrix
- 1 measuring variable

Name	Type	Cycle	Valid from	Query type
d_Water1_Compressor	Data point	1 d	05.11.2012	-
d_Water2_Compressor	Data point	1 d	05.11.2012	-
a_Sum_CompressedWater[1)]	Derived	1 d	05.11.2012	-
Matrix_WaterConsumption_DailyValues	-	1 d	-	Month (starting on 01.11.2012)
m_Sum_CompressedWater	Addition with check-sum	-	-	-

1) When configuring the data point, select "Plausibility" to set the "High limit" to "200".

Creating objects

1. Create a "Dashboard Example" folder and set up the aforementioned objects as follows:



2. Enter the following values in a matrix:

Time stamp	e_Water1_Compressor	e_Water2_Compressor
05.11.2012	50	60
06.11.2012	40	100
07.11.2012	20	60
08.11.2012	30	70
09.11.2012	60	100

3. Conclude your setup by calculating the derived data point for the time period "November 2012".

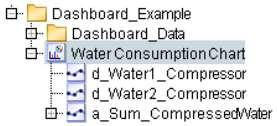
See also

Creating a Dashboard (Page 319)

Creating a Dashboard

Setting up the dashboard

1. Set up a new "Dashboard" object and enter the object name "Water Consumption Chart".
2. Copy the data points to the structure below the dashboard:



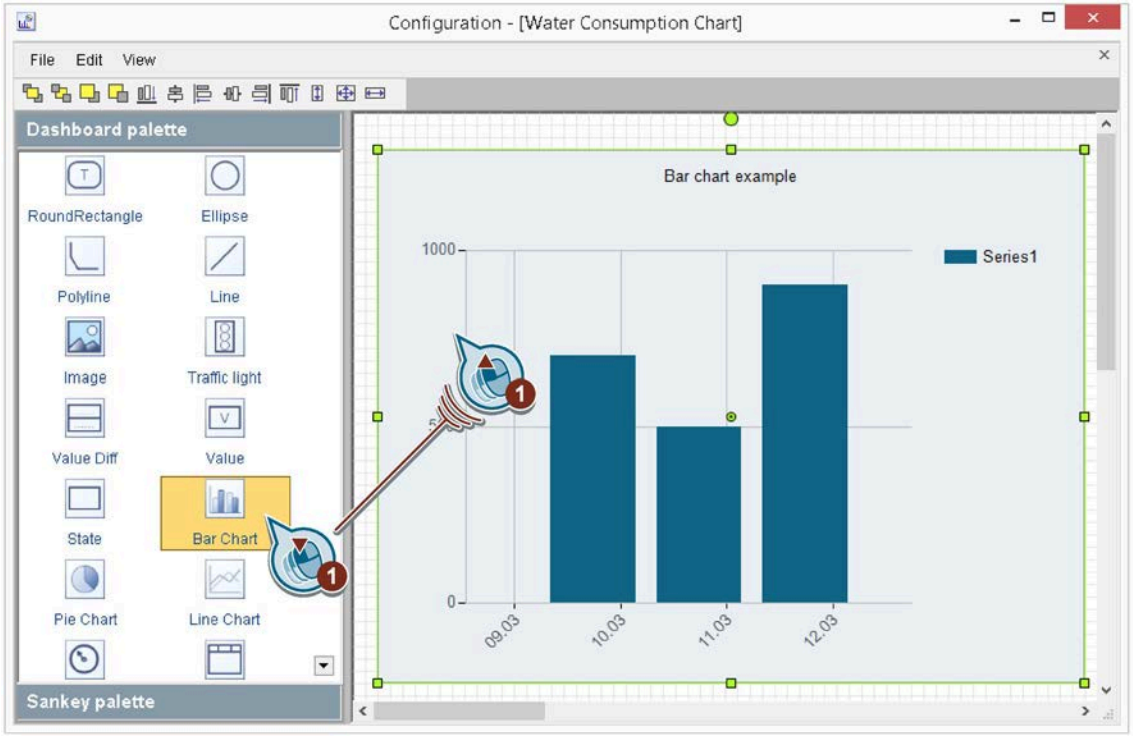
3. Select the "Layout" command from the shortcut menu of the dashboard to configure the dashboard.

   The dashboard configuration dialog opens. The left pane displays the "Dashboard palette" by default. Drag-and-drop the dashboard objects from this palette to the workspace.

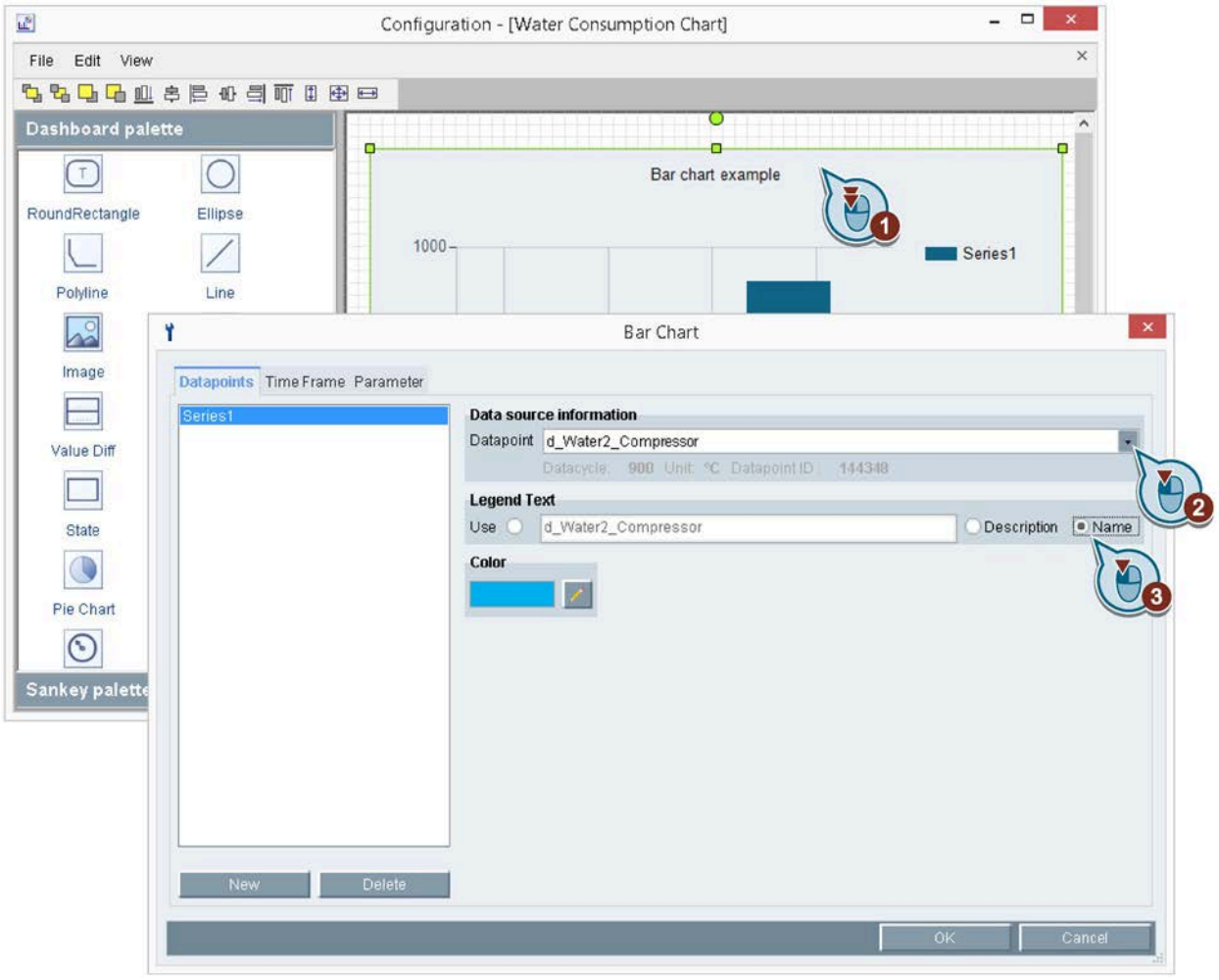
Creating bar charts with three bars

Use a bar chart to provide a clear overview of data point values.

1. Insert the "Bar chart" dashboard object to visualize consumption values:

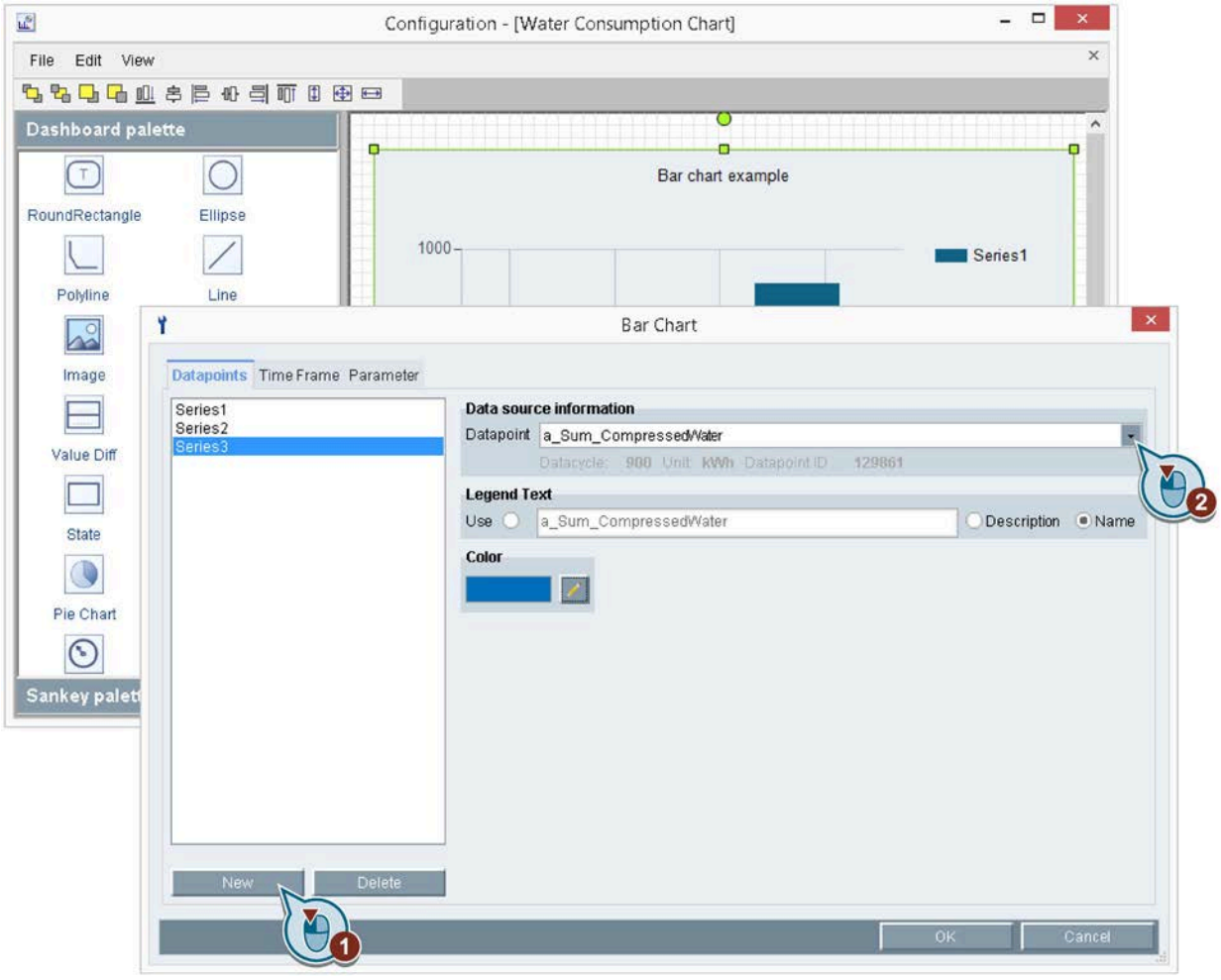


2. Select the data point to use for the input of bar values and set the caption text:



The default bar chart consists of one bar. You need three bars to visualize the three data points. Set different bar colors to highlight the difference.

3. Add two bars and assign these to the other two data points:



Interim result

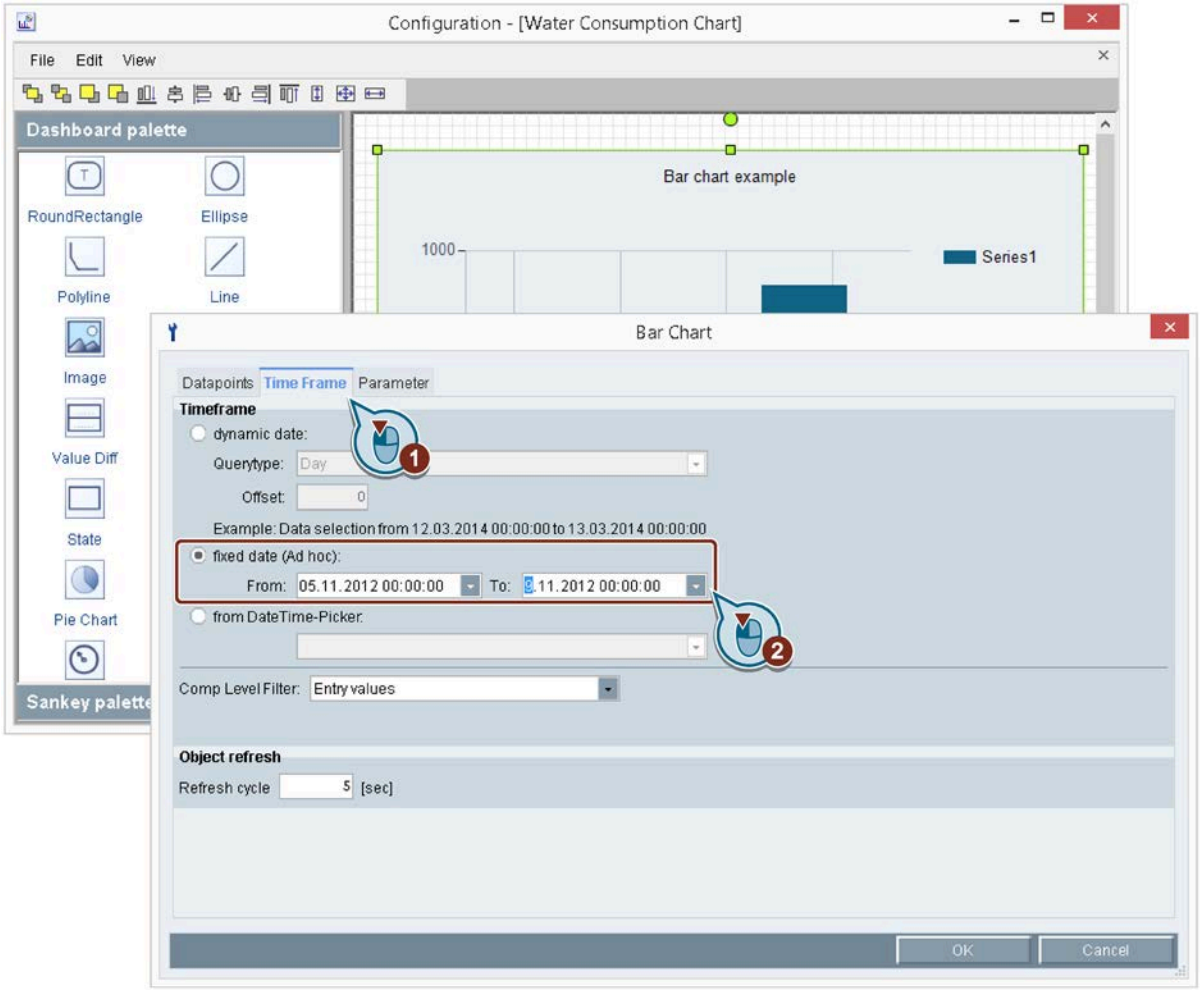
You have set up three bars with the following data point assignments:

- Series 1: e_Water1_Compressor
- Series 2: e_Water2_Compressor
- Series 3: a_Sum_CompressedWater

Set time range

Use the time range to define the data point values to be displayed. In this example you display the consumption volumes of the week in November from 05.11.2012 to 09.11.2012.

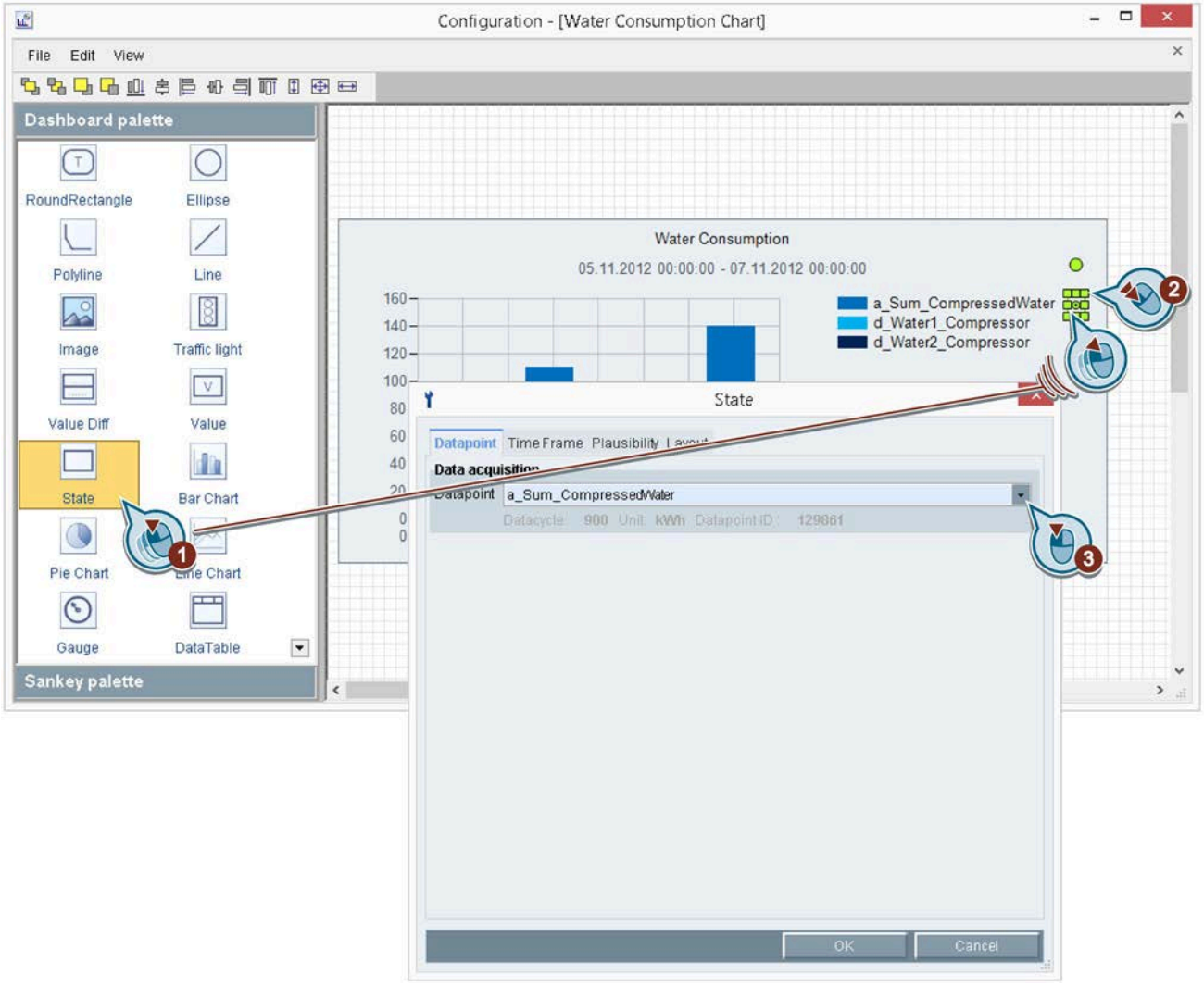
1. Enter the time range to visualize in this bar chart:



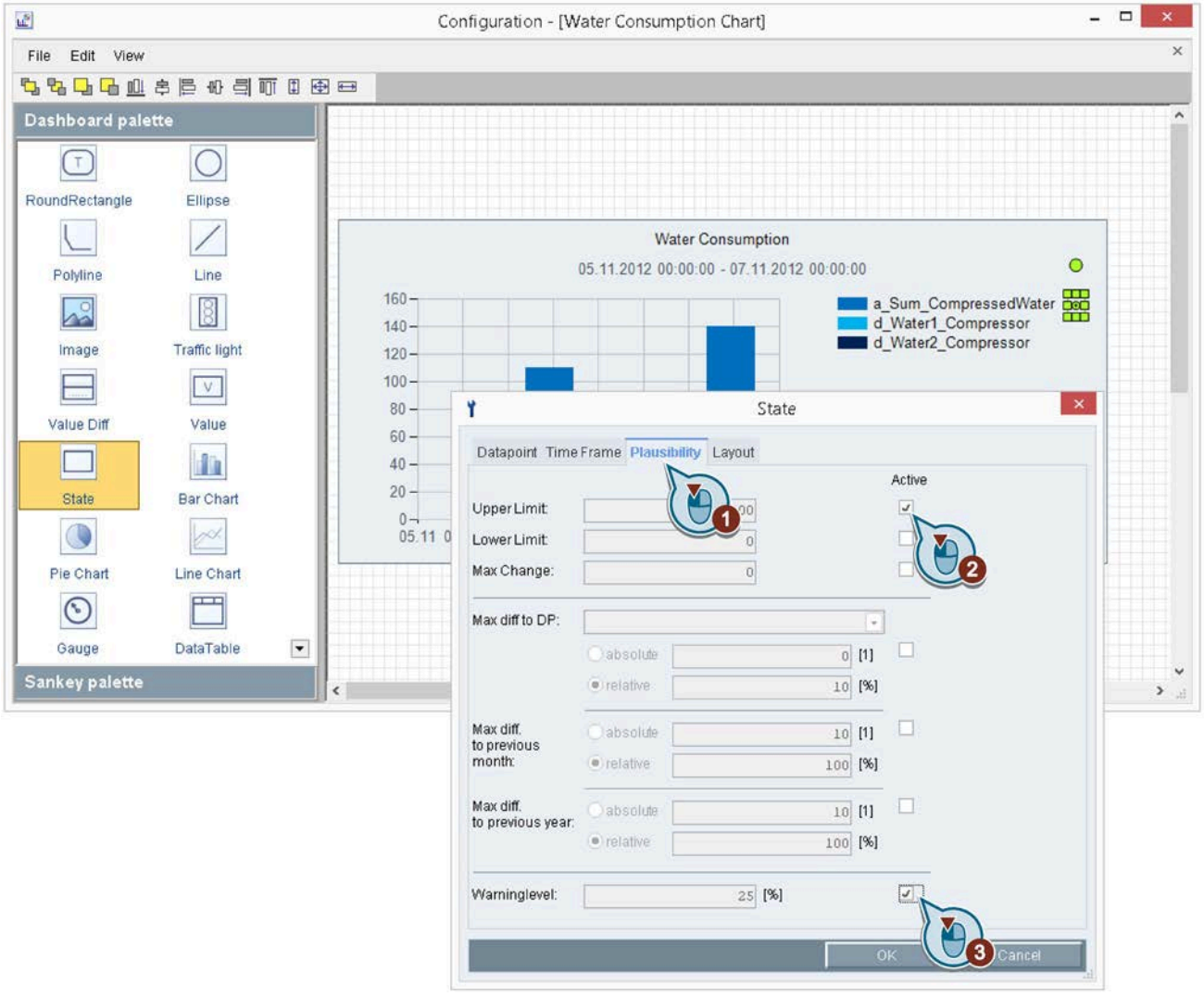
Insert warning when values are exceeded

For example, any limits that you defined for a data point in the "Plausibility" settings can be visualized with color coding in the dashboard. Rule of thumb: Always evaluate only one limit violation in a dashboard object. Use multiple dashboard objects if you have defined multiple limits.

1. Insert the "Status" dashboard object and select the data point:



2. Define the limit to be evaluated.



3. Exit the configuration dialog and save the dashboard.

Result

The dashboard is configured.

See also

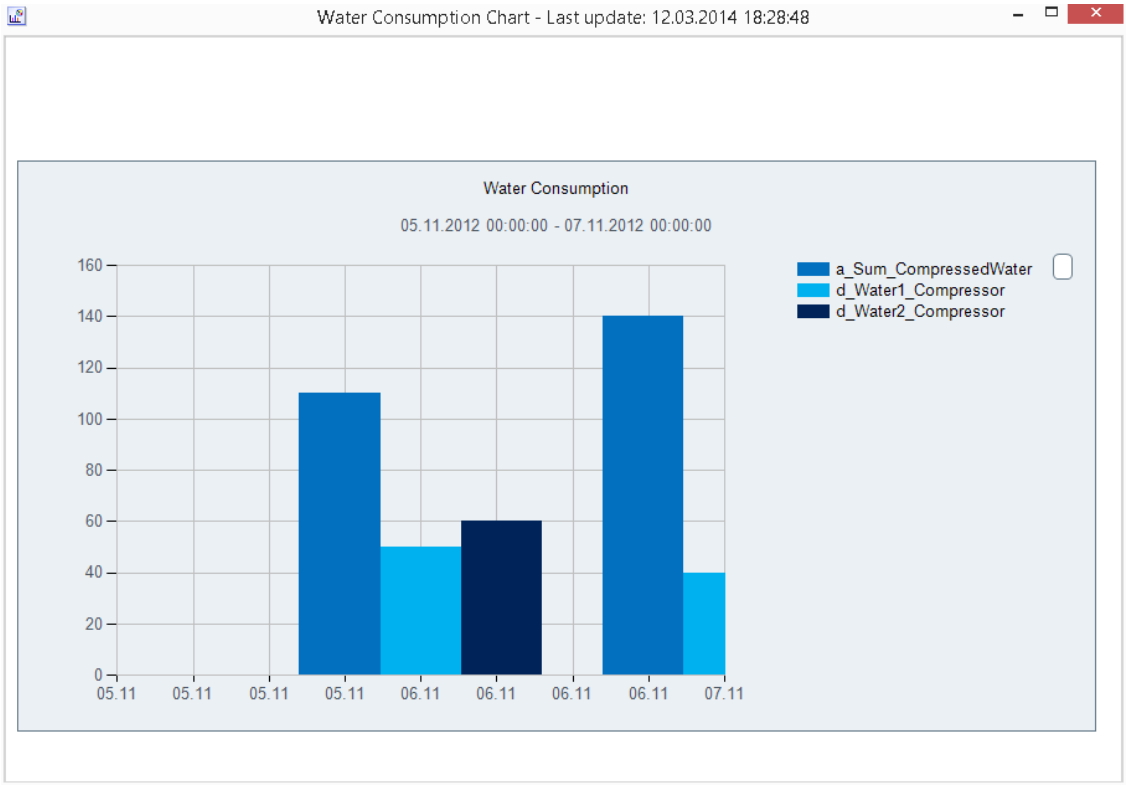
Displaying a Dashboard (Page 325)

Displaying a Dashboard

Procedure

1. Double-click the dashboard in the Client.

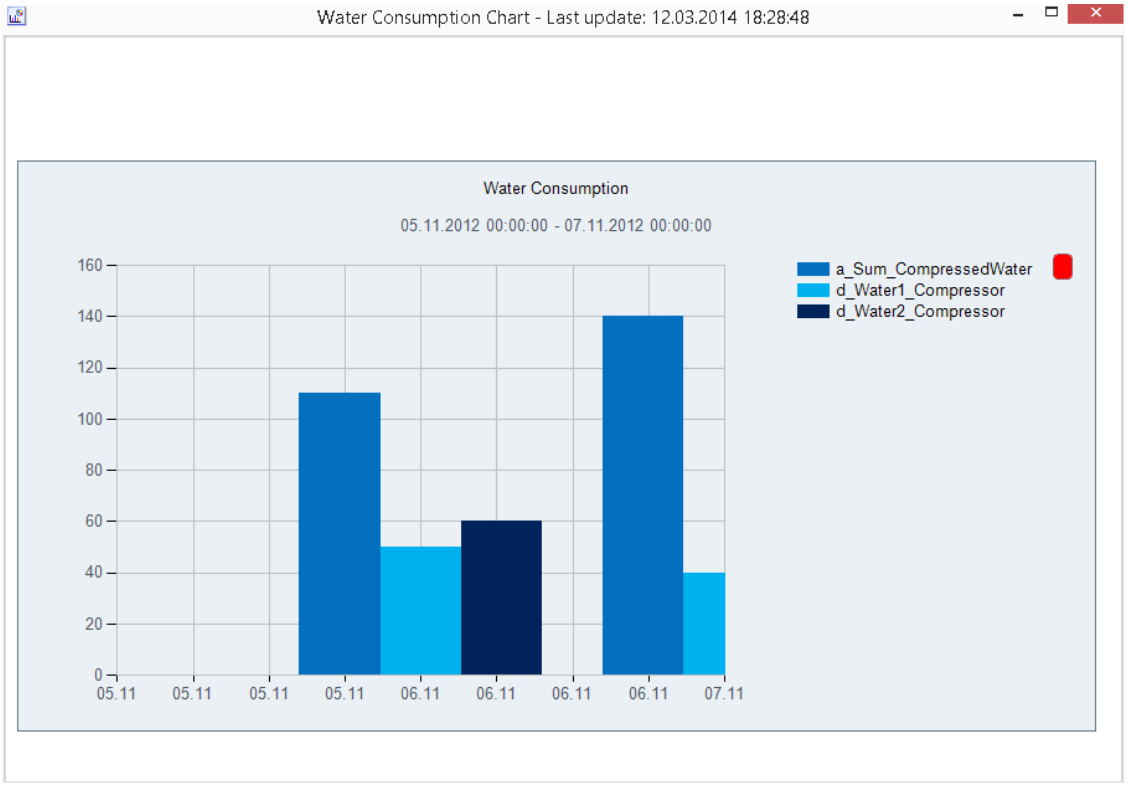
   The dashboard opens. The consumption values of the specified period are visualized graphically:



2. Change one of the values of time stamp "08.11.2012" in the matrix to "200".
3. Recalculate the derived data point.

Result

The high limit of the consumption total is exceeded. The status indicator changes to "red":



2.2.5.2 Energy efficiency

Generating a filtered overview object

Overview

A filtered overview object provides you with an overview of all energy efficiency measures that are important to you.

If you want to generate a report that contains all data of an energy efficiency measure in Microsoft Excel , insert the filtered overview object under the module of the report.

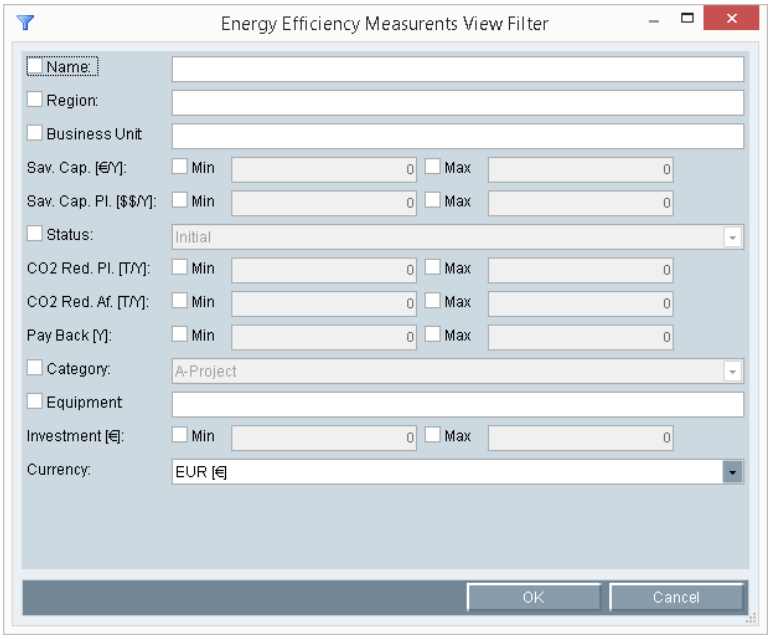
Requirement

You created the energy efficiency measure.

Procedure

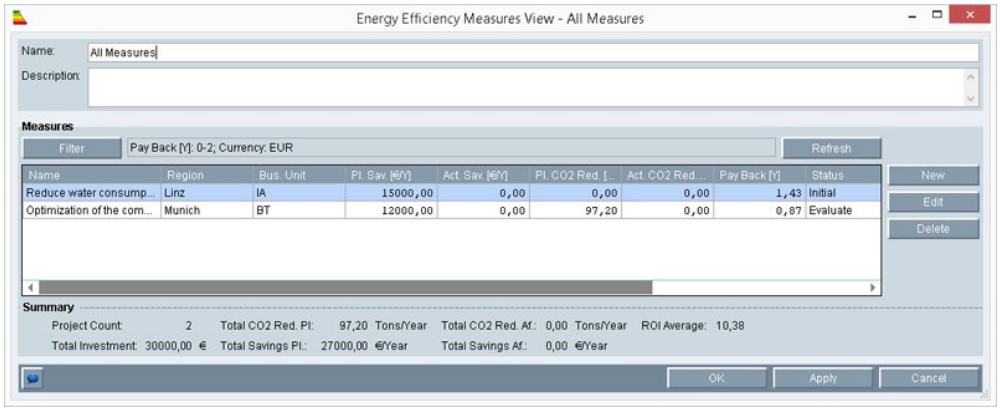
1. Select the folder under which you wish to create the filtered overview object.
2. Click "EE Overview" under "Master Data" in the Client .
   The "Energy Efficiency Measures View" dialog opens.
3. Click "Create Node".
4. Enter a unique name and an optional description for the filtered overview object.
5. Click "Filter" to filter the relevant energy efficiency measures.

   The "Energy Efficiency Measurements View Filter" dialog opens.
6. Enter the filter data.



7. Confirm your entries with "OK".

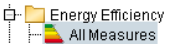
   The relevant energy efficiency measure is displayed in the "Measures" area.



8. Confirm the configuration with "OK".

Result

You have created the filtered overview object.



Double-click the filtered overview object to view the filtered energy efficiency measure.

To generate a report for the filtered energy efficiency measure, insert the filtered overview object under the report. Use the "Energy Efficiency Measure" module for this report. You can find more information on this topic in the "Module Overview" chapter, keyword "Energy Efficiency Measure".

See also

Module overview (Page 758)

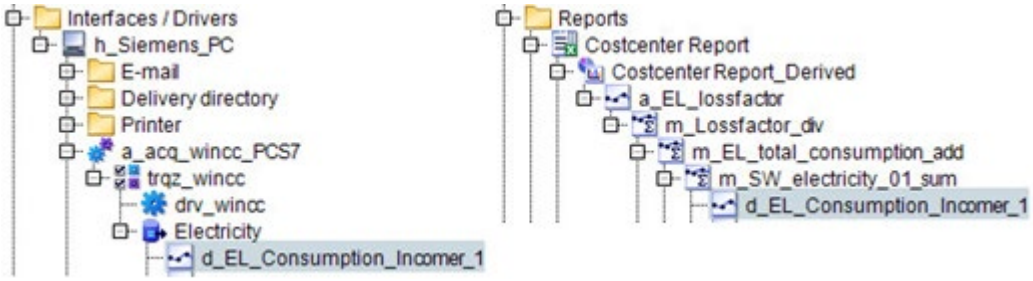
Configuring reports (Page 279)

2.2.6 "Master Data" menu tab

2.2.6.1 Folder

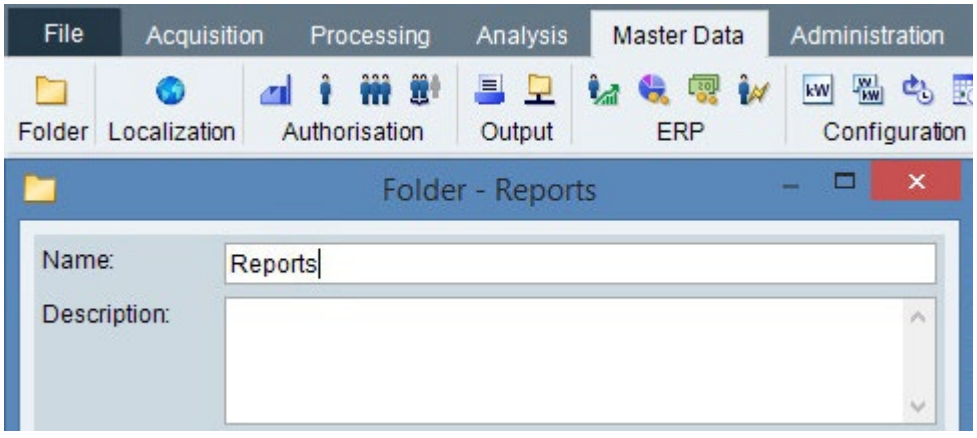
Overview

Folders in Energy Manager serve to structure the project tree. You have the possibility of building up the pressure in accordance with the requirements of a user. Through the copying functionality you can make desired objects such as datapoints available in several folders for different users. In the process, for example, a structure based on the layout of the technical plants and equipment and additionally a structure based on the accounting can be created. The following figure shows an example of this:



Procedure

1. Click the Master data tab.
2. Click Folder and enter a name for it



See also

Object management basics (Page 44)

2.2.6.2 Localization

Location

Basics on location and country

With the "Country" object, you can map a country, a region a federal state or a location, for example. You can structure objects of the type "Country" hierarchically and in this way also map the geographical structure of the company for example:

This option is required if, for example, the individual federal states of a country have different public holidays or different time zones. Accordingly, you can store the following country-specific information in the "Country" object:

- Holiday settings
- Country code
- Time zone
- Report language

"Holidays" application

The information about holidays is required when working with objects of the "Profile" type. Here you can define the use of a typical holiday.

You can enter the holidays manually in the "Country" object or import them from a "*.HOL" type file, e.g. from Microsoft Outlook. More details about this file type and the storage location of the file are available in the corresponding Microsoft documentation.

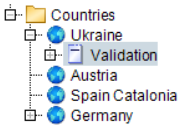
"Time zone" application

The information about time zones is required if, for example, a company has its locations in various countries with different time zones.

The data is acquired in the local time of the time zone. The information of the acquisition time zone is not used until evaluation for correct calculation of the data.

Recommendation for the structure in the Client

You can also use the "Country" object to create a meaningful structure in the project tree of the Client. If, for example, you have created a report for a specific country, attach the report below the country. This provides you with an overview of the existing reports and the corresponding countries.



See also

Inserting the location or country (Page 331)

Assign time zone for acquisition or calculation (Page 334)

Inserting the location or country

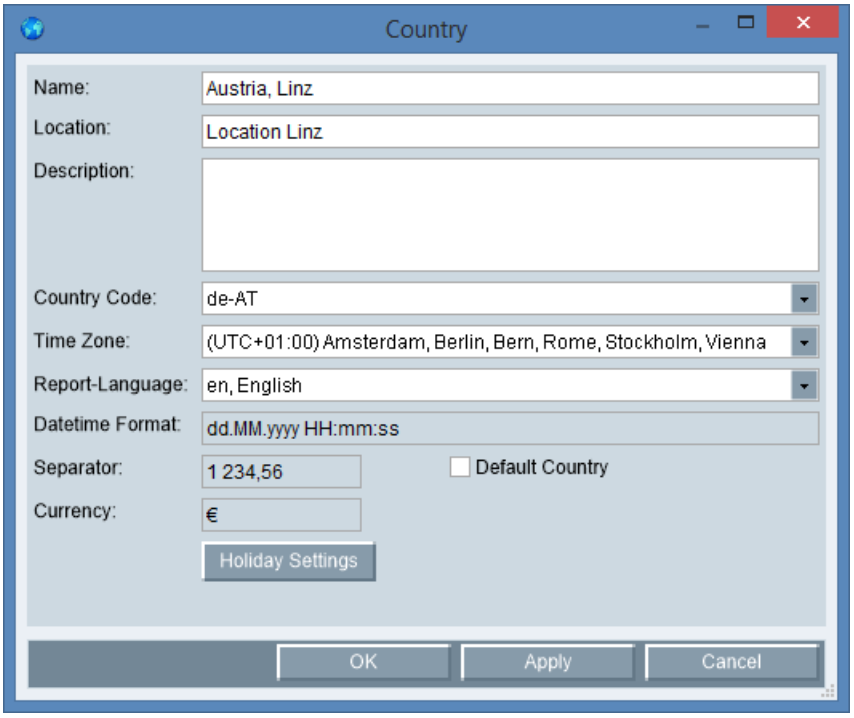
The following countries are already predefined in Energy Manager:

- Germany

Creating a country or location

1. Click the "Insert location" button in the menu bar under "Master Data > Localize".

   The "Countries" dialog opens.



2. Enter a name and an optional description for the country or the location.
3. Select the corresponding country code. The country code determines the date format, the separator as well as the currency identifier, that are taken automatically from the Windows settings underControl Panel > Region.
4. Select the corresponding time zone.
5. Select the desired report language. This defines the language of the automatically inserted master data of the report (date, from to, user, etc.).

   English and German are supported.
6. To edit holidays for the country created, click the "Holiday settings" button.

   The dialog for editing holidays opens.

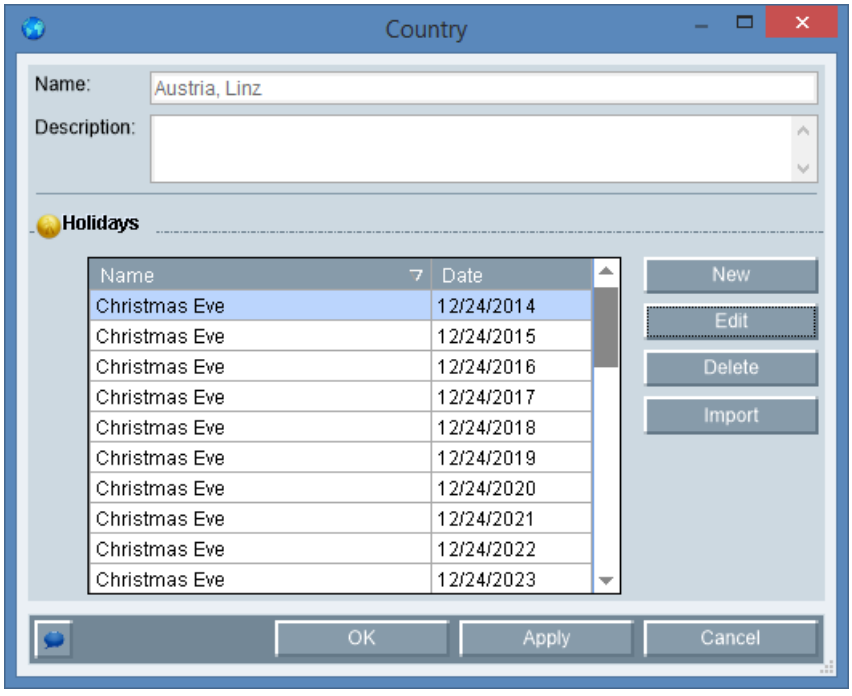
Editing holidays

1. Click "New" to create a new holiday.

   The "Holiday" dialog opens.
2. Enter a name and an optional description for the holiday.
3. Select the corresponding date.

   Click "Every year" if the holiday is at the same date every year.
4. Confirm your entries.

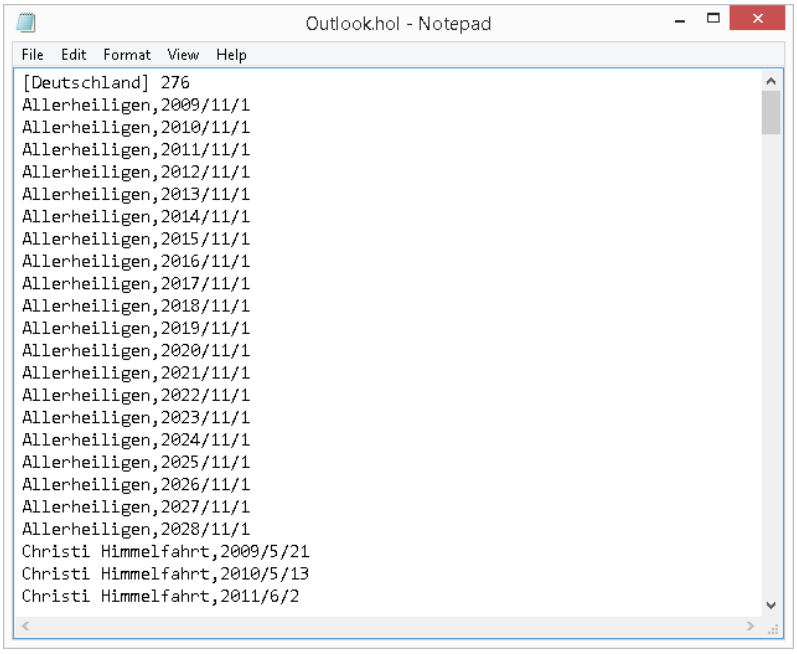
   The holiday is created.



5. To import holidays from a HOL file, click "Import" and select the desired file, e.g. "Outlook.hol".

Note

More details about the "Outlook.hol" file and the storage location of the file are available in the corresponding Microsoft documentation. Alternatively, you can use the search function in your Explorer to find the file. The storage location depends on the operating system and language, e.g. "C:\Program Files (x86)\Microsoft Office\Office12\1031". Open the file with a text editor, delete all entries from the file that are not relevant for the country to be created, and save this in a different location. Then import this file from this storage location using the Energy Manager import functionality for holidays.



See also

Assign time zone for acquisition or calculation (Page 334)

Regional settings (Page 718)

Assign time zone for acquisition or calculation

Overview

You can specify the time zone of a country for the following objects:

- Report
- Hardware
- Data point

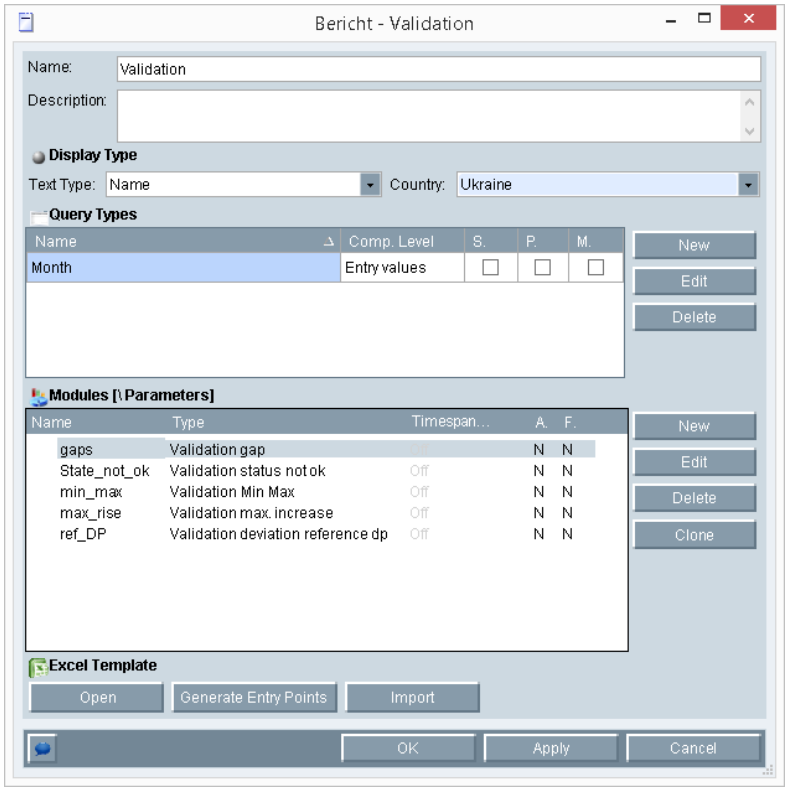
Requirement

A country is configured with its time zone.

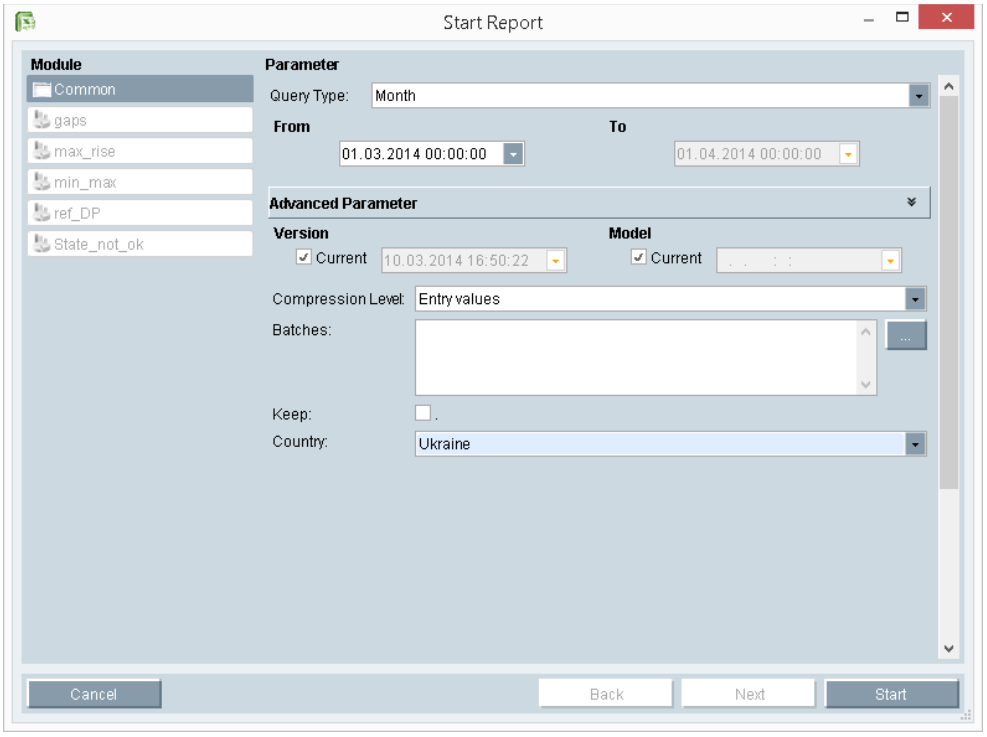
Assigning time zones for reports

1. To assign the configured time zone of a country for a report, select the required country in the "Report" dialog.

   The local time of the country is used in the calculation of a report.

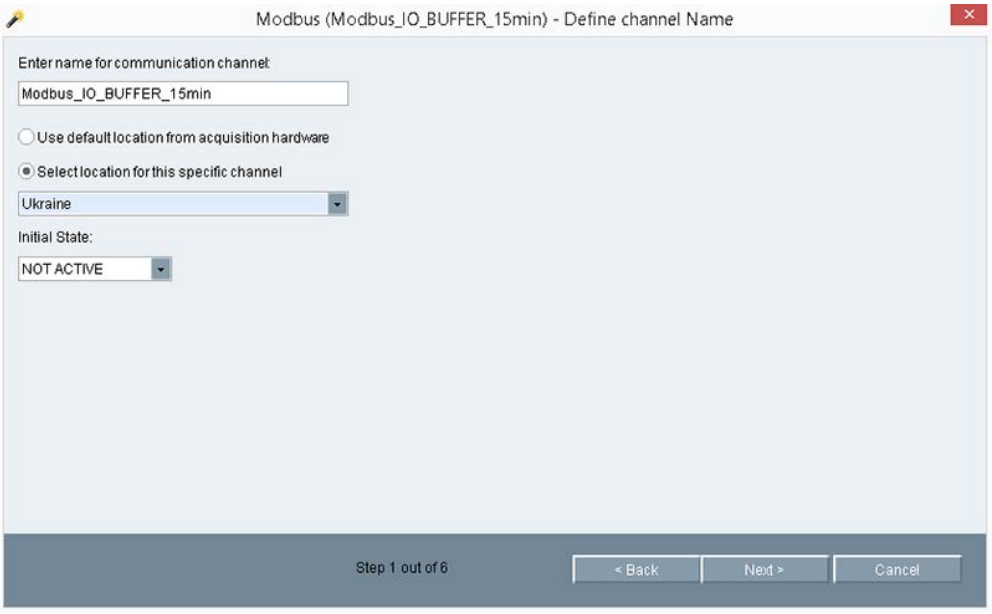


2. Alternatively, you can change the set time zone in the "Start Report" dialog.



Assigning time zones for hardware configuration

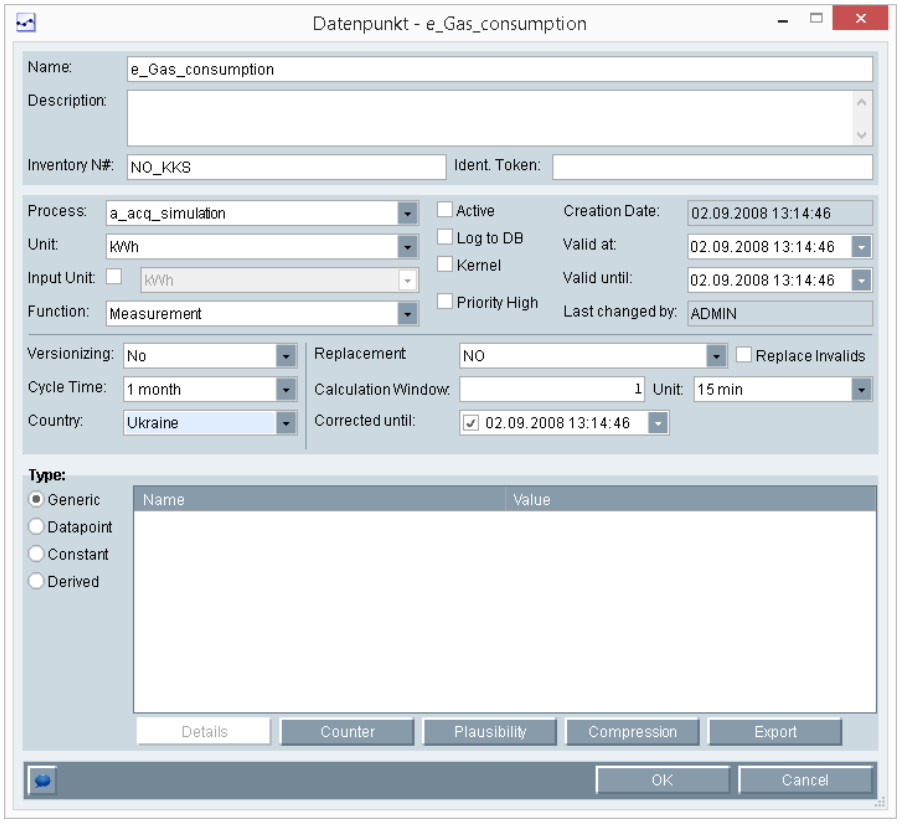
1. To assign the configured time zone for an acquisition, activate the "Select location for this specific channel" option in the wizard in the "Define Channel Name" dialog, and select the required country.



The time stamp is corrected to the specified time zone.

Assigning time zones for data points

1. To assign the configured time zone for data points, select the required country in the "Data Point" dialog.



See also

Creating a report (Page 276)

Generating a report result manually (Page 437)

Creating generic data point (Page 138)

Creating data points (Page 133)

Creating constants (Page 141)

Creating derived data points (Page 144)

Acquisition wizard for interface configuration (Page 91)

Inserting an organizational unit

Requirement

- The Consumer functionality is licensed separately.

Overview

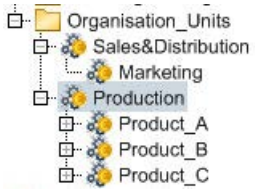
It is possible to set up a structure made up of organizational units in which each organizational unit can be assigned to exactly one higher-level organizational unit. Each organization unit can have multiple lower-level organizational units. Multiple consumers can be assigned to each organizational unit.

Creating an organizational unit

1. Click the "Insert organizational unit" button in the menu bar under "Master Data > Localization".

   The "Organizational Units" dialog opens. Enter a name and optionally a description for the new organizational unit.

2. Create the necessary structure of organizational units.



2.2.6.3 Authorizations

Basic information on authorizations

Overview

The Energy Manager authorization concept is basically split into two parts.

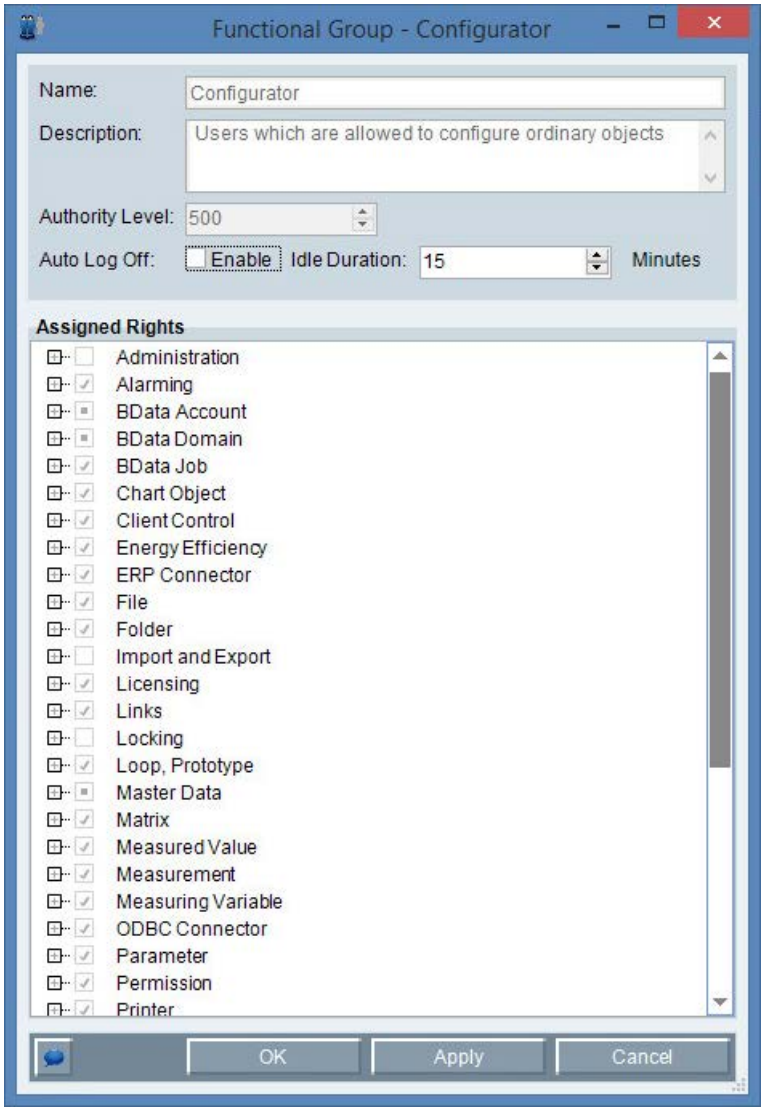
First you can restrict the viewing of objects based on the authority level and domain membership settings.

Second you can restrict functions such as the calculation of reports.

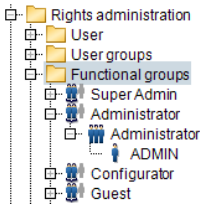
Each user is assigned to one or several user groups, which are assigned to one or several user groups.

Functional rights

Through the functional group determine the user receives their authority level and also their functional rights, e.g. for starting reports or editing measured values.



The most important functional groups are stored in the system. The following example demonstrates this setup for the functional group of administrators.

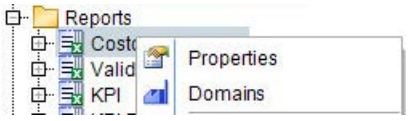


Visibility of objects

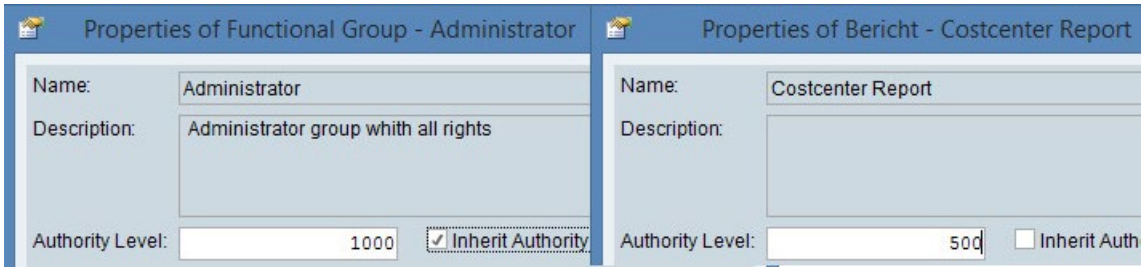
Authority level

The user also receives an authority level by means of the functional group. All the objects in Energy Manager, for example also folders, have an authority level.

The authority level, for example of a report, can be entered directly when creating the object, or by right-clicking on the object in the project tree under "Properties".



In order for an object to be visible for a user the authority level of the user must be at least equal to or higher than the authority level of the object.



Example: An object has the authority level 750. Through his functional rights the user has the authority level 500. Since the user's authority level is lower than that of the object, the object and its nested objects are hidden to this user.

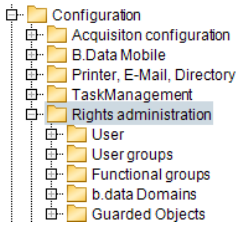
Domains

Each user group may be assigned to one or several domains. A domain in this context represents an organization unit. Likewise, all objects are assigned to one or several domains. If the assigned domains of the user group corresponds to the assigned object domain, the object is visible to the user.

The configuration is again possible by right-clicking the object or after opening the user group under "Domains".

Exchange folders are provided that can be used to exchange objects such as reports or datapoints between the domains.

You configure the authorization concept in the project tree. The corresponding objects are available in the project tree structure under "Configuration > Rights administration":



See also

Setting up users (Page 343)

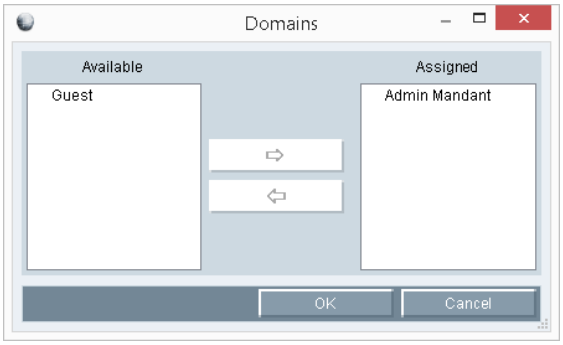
Creating user groups (Page 354)

Navigation (Page 488)

Domains

Assigning domains to a user group

1. To assign domains to the user group, double-click the corresponding user group in the plant tree.
2. Click "Domains" in the user group configuration dialog.
   The available domains are displayed under "Available" in the domain selection dialog.



3. Using the arrow key, assign the selected domain to the user group.

Note
The view may be restricted for the administrator as well. Another administrator who, for example, is assigned only two of four domains may pass only these two domains to user groups.

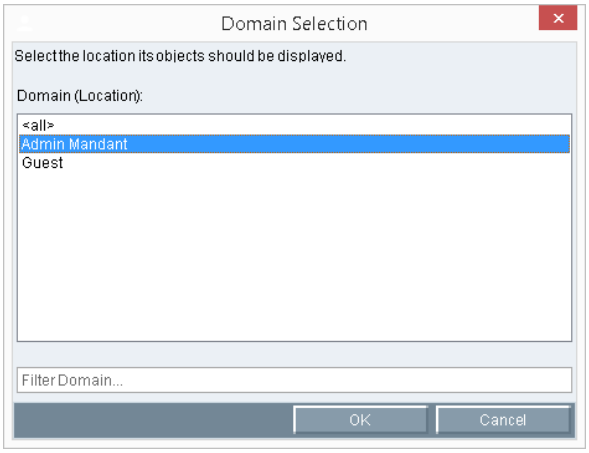
4. Save the configuration with "OK".

Specifying the view of different domains

1. To specify the view of different domains, click the icon in the menu bar

2. Select the required domain and click "OK".

   Use the filter function to speed up the search for the required domain.

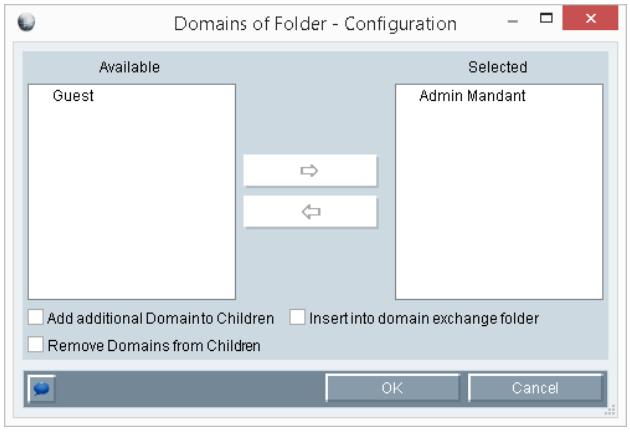


   The entry "<all>" makes all objects in the domains that are assigned to the user visible. If the user selects only one domain from this list, only the objects that are assigned to this domain will be visible.

Configuring the domain membership of objects

1. Select the object and then select the "Domains" command from the shortcut menu.

   The available domains are displayed under "Available" in the domain selection dialog.



2. Using the arrow key, assign the selected domain to the object.
3. If the authority level that has been assigned prevents the object from being visible to all users, activate the "Insert into a domain exchange folder" function.

   In this case, a link to the object concerned is created in the exchange folder.
4. Select the "Assign domains to children" check box if you want to assign the nested objects of an object to the new domain.
5. Select the "Remove domains from children" check box if you want to remove the nested objects of an object from the domain.
6. Save the configuration with "OK".

Users

Setting up users

Introduction

A user is required in Energy Manager for a user to be able to login to Energy Manager, Energy Manager Web or Energy Manager PRO Mobile. Even if a user only receives emails from Energy Manager, he/she requires user access.

Energy Manager supports automatic logout of users after a lengthy period of inactivity. The duration of inactivity is configurable via the functional group.

If a user has entered the wrong password several times during login to Energy Manager, this user is locked out by the system. Only an administrator can remove this lock.

Requirement

- Authorization to create users exists.
- Access to an email server is set up in Energy Manager.

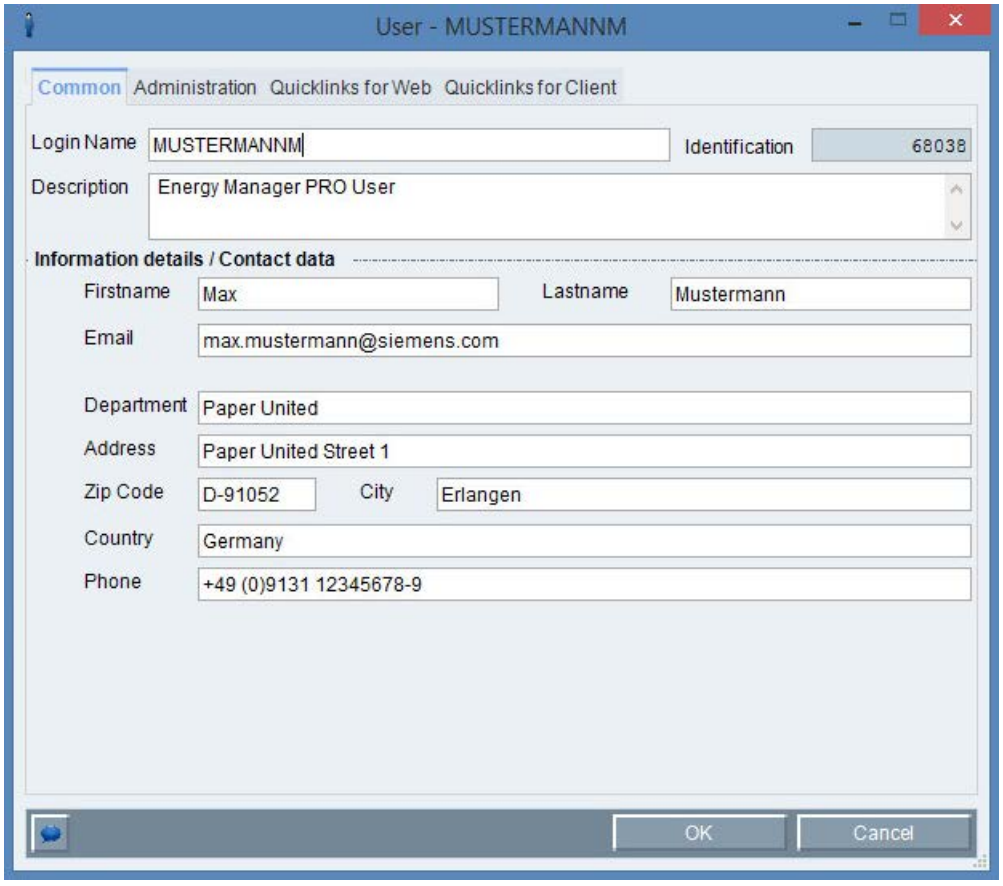
Setting up users

1. Select the folder in which you want you create the user.
2. Click the "Insert User" button in the Client in the menu bar under "Master data > Authorization".

   The "Users" dialog opens. The "General" tab is displayed.
3. Enter the selected Energy Manager user name for the user, for example, the last name of the user and the first letter of the first name. Alternatively you can specify an account ID as the user name.
4. Enter the email address of the user.

   Notifications about password changes and temporary passwords will be sent to this email address. This email address can also be used to log in to Energy Manager.

5. You can also enter a user description.
6. As needed, enter additional contact information for the user.



Locking and unlocking a user

A locked user can no longer log into Energy Manager :

- Energy Manager PRO Client
- Energy Manager Acquisition configuration
- Energy Manager Web
- Energy Manager PRO Mobile

A locked user continues to receive email notifications that are configured for him/her, for example, emails with Energy Manager reports.

1. To deactivate the user, activate the "User disabled" option.
2. You can unlock user access again by clicking "Unlock".

User access has now been deactivated or reactivated.

Set password

1. Select the "Administration" tab in the "User" dialog.
2. Click "Set password".

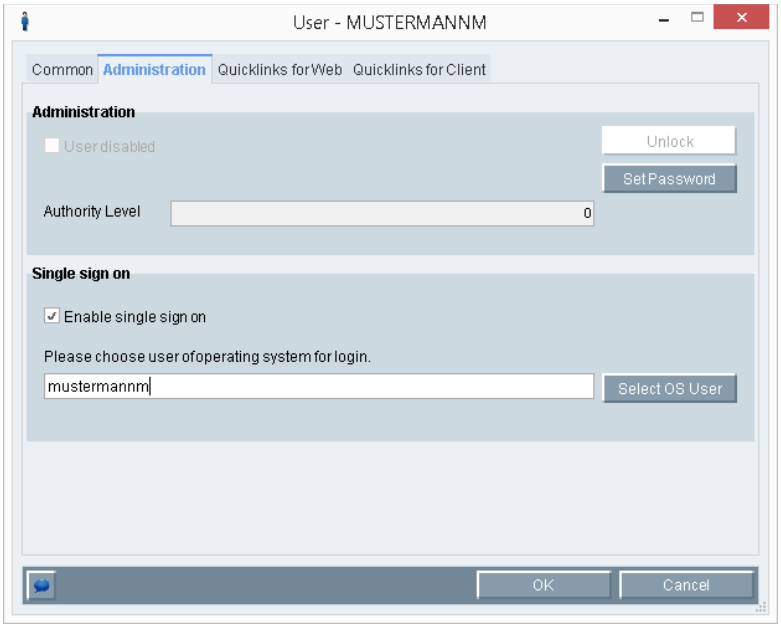
   The "Change Password" dialog opens.
3. Enter the selected password and confirm the password.
4. The authority level of the user is displayed for information purposes. The authority level of the user is taken from the functional group.

Enabling Single Sign On

When a user starts the Energy Manager PRO Client, the system checks whether his/her Windows user name is entered in Energy Manager . If Energy Manager can identify the name, the user does not have to reenter his/her access data.

1. Double-click the user's entry in the project tree in the Client.

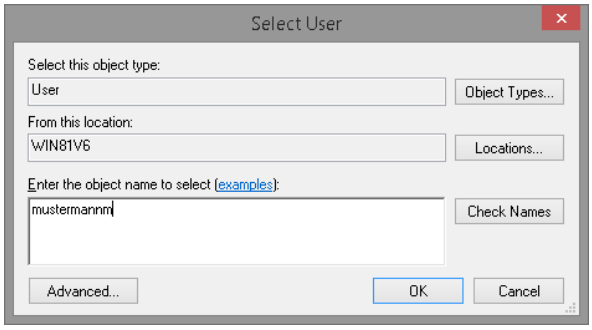
   The "Users" dialog opens.
2. Select the "Administration" tab.



3. Activate the "Enable single sign on" option.

4. Click "Select System User".

   The "Select User" dialog opens.



   Alternatively, you can enter the Windows user name directly in the "Select System User" field.

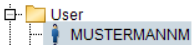
5. Select the user's Windows user name and click "OK".
6. The Windows user name of the user is applied in the "Select System User" field.

Creating Quicklinks for Web and Client

You can create Quicklinks for the user, for Energy Manager PRO Web and Energy Manager PRO Client . To do so, select the corresponding tab and create the required Quicklinks. You can find additional information on this topic in the "Quicklinks" section.

Result

The Energy Manager user is created in the project tree of the Client.



See also

Basic information on authorizations (Page 338)

Configuring query types (Page 279)

Fundamentals of creating printer and directory (Page 361)

Object naming conventions (Page 52)

Creating user groups (Page 354)

Options (Page 53)

Creating users (Page 704)

Editing users (Page 706)

Quicklinks

Quicklinks for client

Overview

Quicklinks are references to objects in Energy Manager that are used frequently, for example, reports. Quicklinks are available to the user for which you have created the Quicklinks.

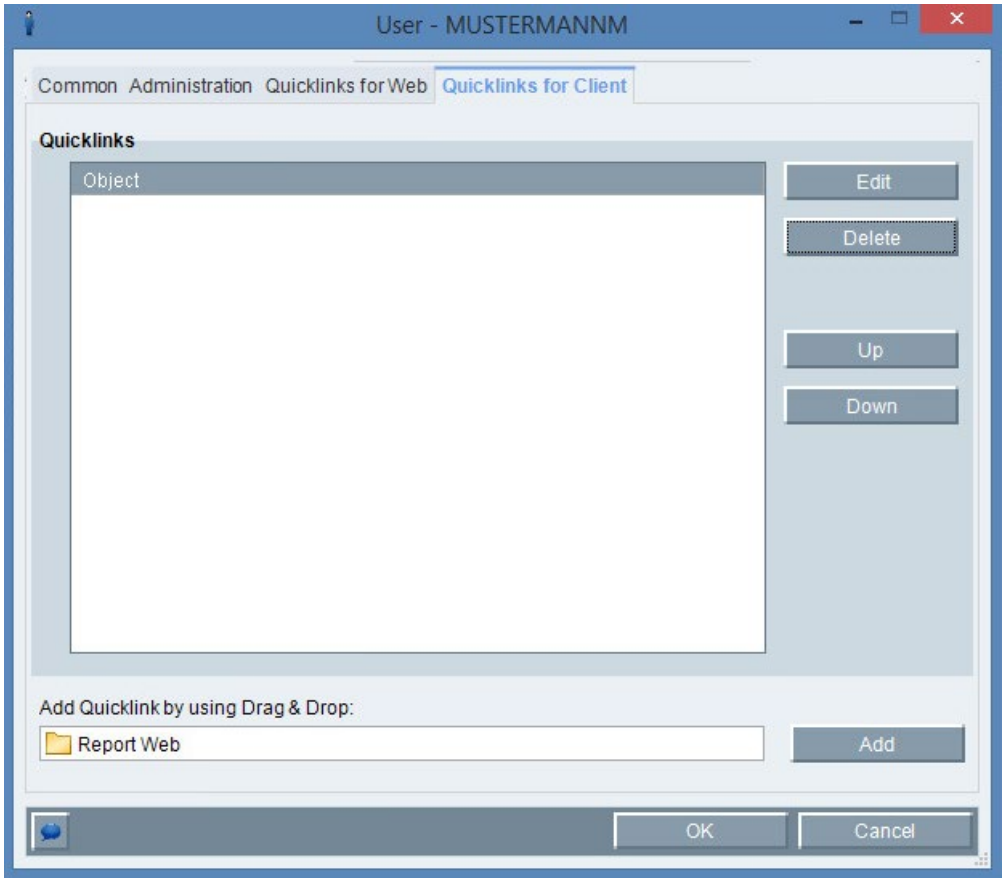
You can create Quicklinks for the Energy Manager PRO Client as well as the Energy Manager PRO Web.

Requirement

You have the "Create Quicklinks" authorization.

Procedure

1. Open the configuration dialog for the required user.
2. Select either the "Quicklinks for Web" or the "Quicklinks for Client" tab.
3. Use drag-and-drop to move the object from the project tree of the Client to the "Add Quicklink by using Drag & Drop" field.



4. Then click "Add".

   The Quicklink is displayed in the "Quicklinks" area.

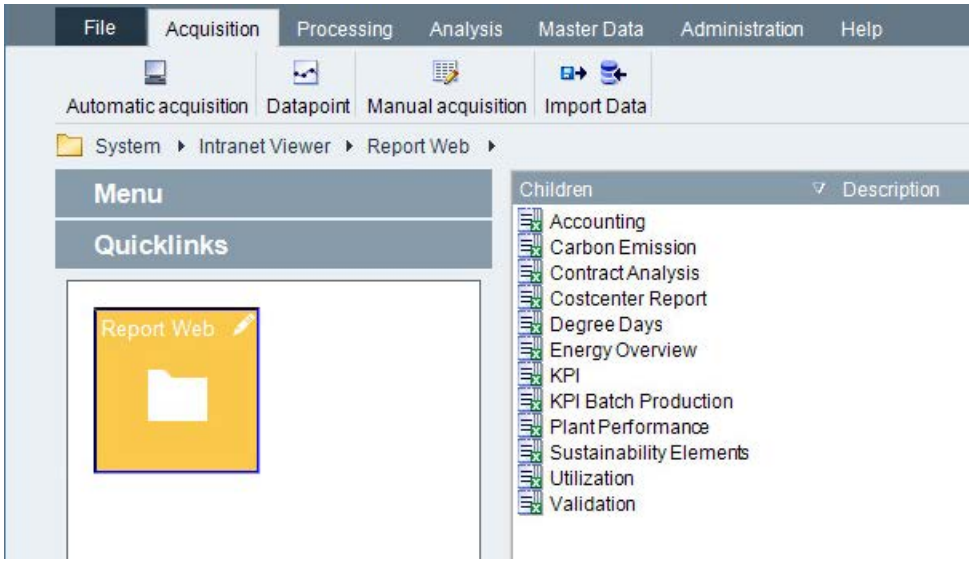
5. If you have created several Quicklinks, specify the sequence with the "Up" and "Down" buttons.

Result

The Quicklink is displayed in the "Quicklinks" area:

- The object name to which the Quicklink points becomes the title.
- The default icon and background color for this object type is used.

Depending on the used tab, the Quicklink is displayed in Energy Manager PRO Web or in the Client.



Note

You can change the order of the Quicklinks in the "Quicklinks" area with drag&drop.

Editing Quicklinks

You can change the following properties of a Quicklink with the "Edit Quicklinks" function:

- Name
- Symbol
- Color

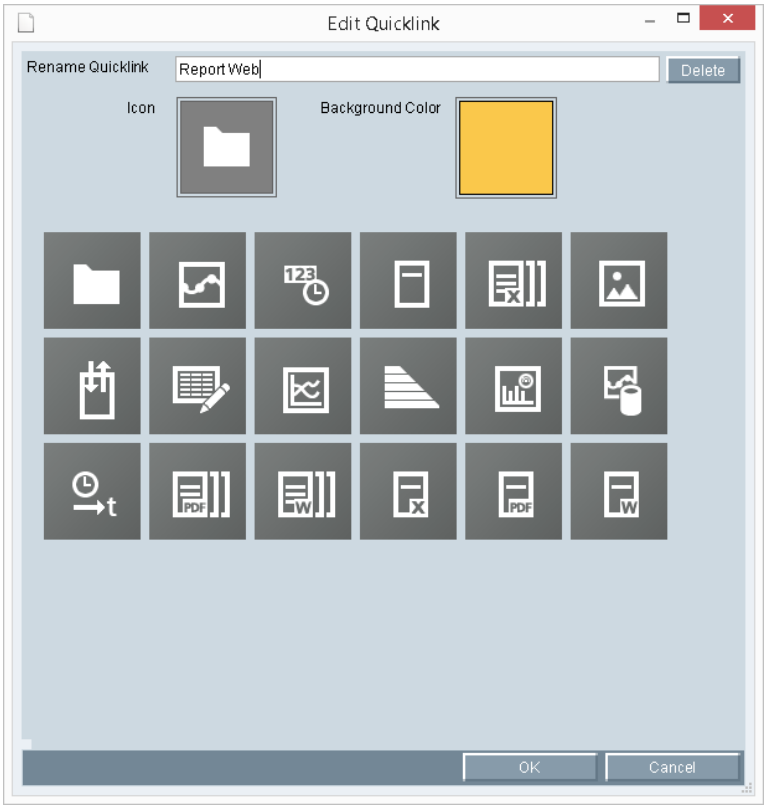
Requirement

- You have the "Edit Quicklinks" authorization.
- The Quicklink is created.

Procedure

1. Right-click the Quicklink in the "Quicklinks" area in the Client.

   The "Edit Quicklink" dialog box opens.



2. Edit the Quicklink as required.

Alternative procedure

You can also edit the Quicklinks in the configuration dialog of the respective user.

See also

Client as navigation tool (Page 20)
Quicklinks for Web (Page 351)
Create Quicklinks (Page 29)
Editing Quicklinks (Page 31)

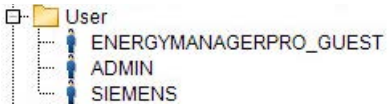
Quicklinks for Web

Overview

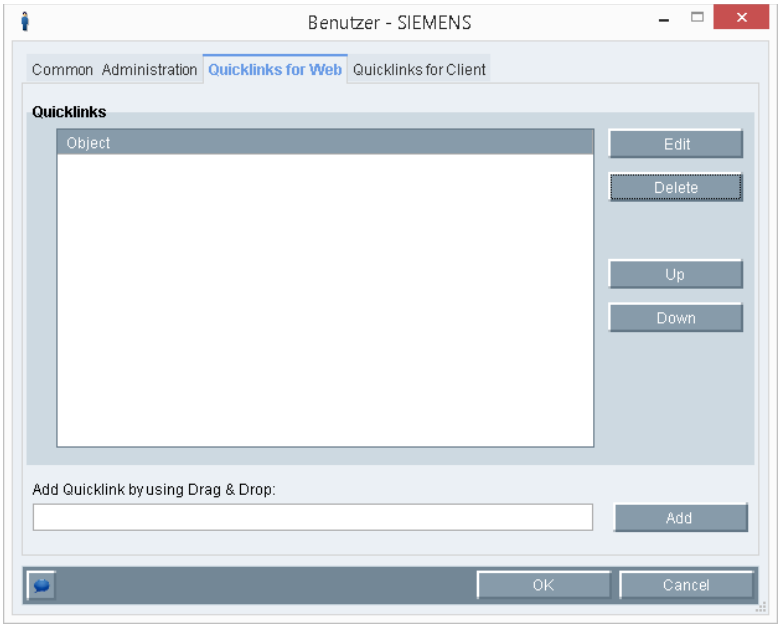
You have the option of creating and editing the required Quicklinks in Energy Manager PRO Client. You can create up to 50 Quicklinks for each user.

Procedure

1. In the Client, double-click the desired user, for example "SIEMENS".



2. Select the "Quicklinks for Web" tab.

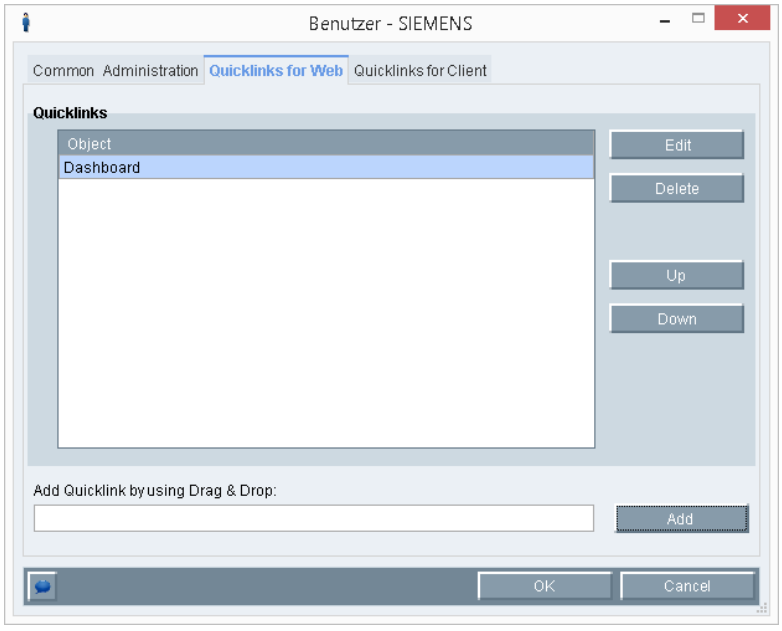


3. To create a new Quicklink for the user, drag the required object ("Dashboard" in the example) from the project tree and drop it onto the "Add Quicklink by using Drag & Drop" field. Then click "Add".

   Note

   The only objects you can create as Quicklinks are those listed under the entry point for Energy Manager PRO Web, for example under "System > Intranet Viewer".

   The Quicklink is displayed in the overview.



4. Click "Edit" to edit the Quicklink.

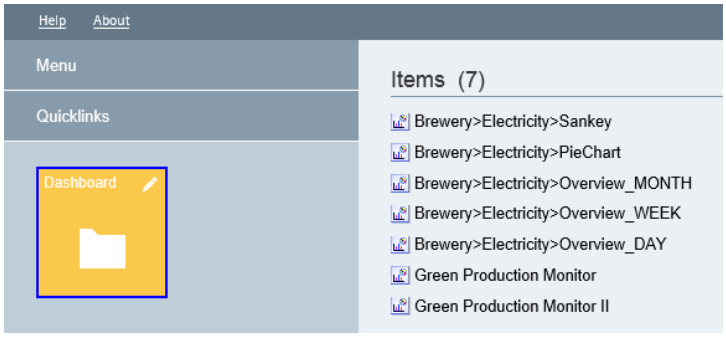
   The following editing options are available:

   – Change the name of the Quicklink
   – Specify Quicklink as homepage
   – Set the icon for the Quicklink
   – Set the background color for the Quicklink

5. To delete the Quicklink, click "Delete".
6. To change the order of the Quicklinks in the overview, click "Up" or "Down".

Result

When you log on with your user access information in Energy Manager PRO Web , the created Quicklink is displayed as the homepage.



See also

Quicklinks for client (Page 347)

Editing Quicklinks in the Web (Page 496)

Creating Quicklinks in the Web (Page 494)

Authorizations (Page 338)

User group

Creating user groups

Creating user groups

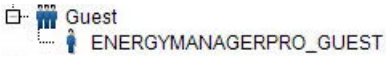
1. To create a user group, click the "Insert User Group" button in the Energy Manager PRO Client in the menu bar under "Master Data > Authorization".

   The "User Group" dialog opens.

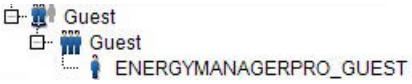
2. Enter the "Name" for the user and an optional "Description".

Assigning user authorizations

1. To actually assign authorizations to the user:
2. Assign the user to a user group in the plant tree.



3. Assign the user group to one of several functional groups in the plant tree.



See also

Basic information on authorizations (Page 338)

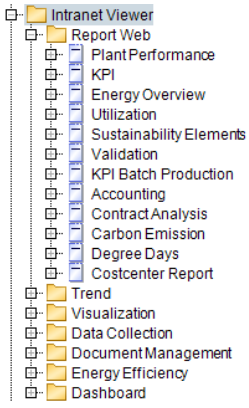
Setting up users (Page 343)

Defining an entry point

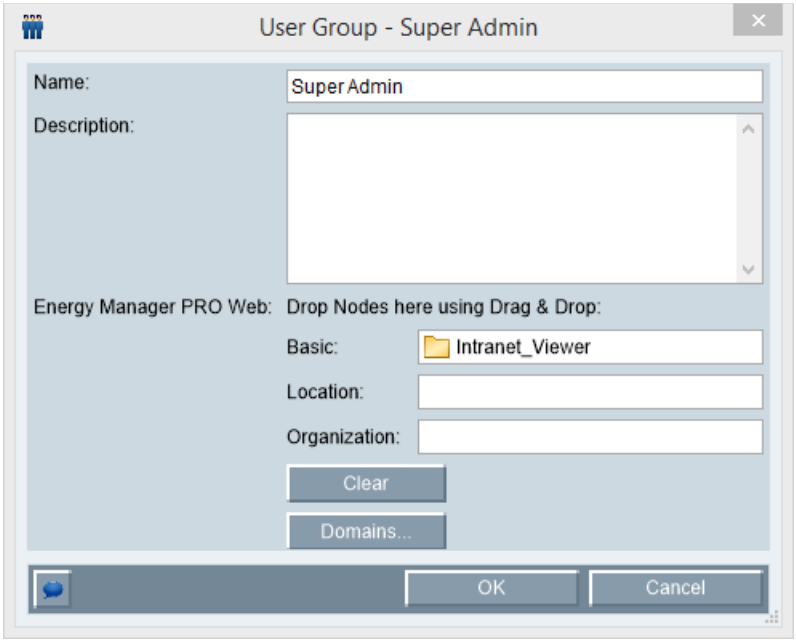
You configure Energy Manager PRO Web using the Energy Manager PRO Client. This is where you define an entry point for Energy Manager PRO Web..

Procedure

1. Create a folder in the client, for example, "Intranet Viewer".
2. Copy the objects that are to be seen and edited in Energy Manager PRO Web below this folder.



3. Assign the user group the defined entry point by moving the target folder from the plant structure to the "Basic" field using drag-and-drop.



The "Location" and "Organization" fields serve the display of the structured view in Energy Manager PRO Web. If a location or organization is moved to the respective field using drag-and-drop, all consumers are displayed in Energy Manger PRO Web structured by location or organizational unit. More details about the structure view are available in the section "Consumers and structured view (Page 265)".

Authorizations in Energy Manager PRO Web

Provided the authority level of the functional group and the domain membership of the user group of the respective Energy Manager PRO Web user were configured correctly, the object and all lower-level objects are visible in Energy Manager PRO Web . Same as on the fully-fledged client, Energy Manager PRO Web checks if the necessary authorizations, corresponding to the functional group to which the user belongs, exist for the actions to be executed.

Note

Before you can assign the domain, you first have to create the user group.

See also

Creating user groups (Page 354)

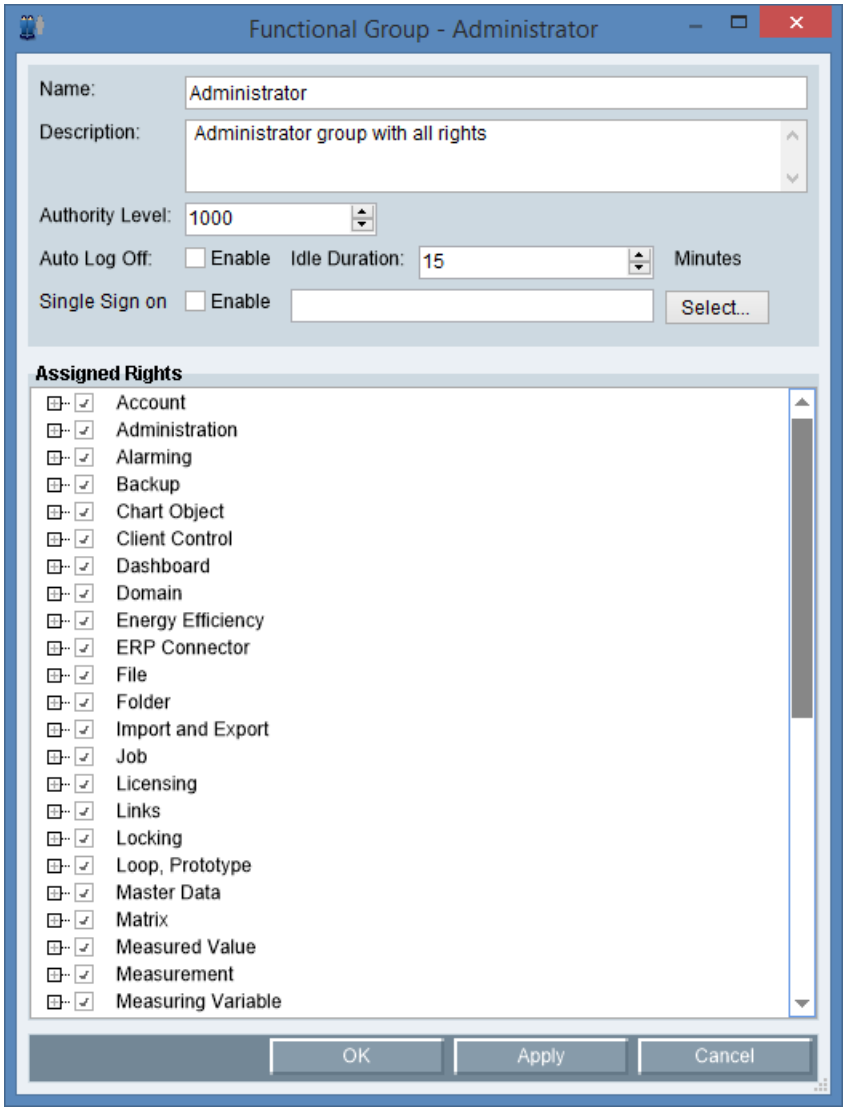
Functional group

Creating functional groups

Creating functional groups

1. To create a functional group, select the "Functional Groups" folder in the project tree and click the "Insert functional group" button in the menu bar under "Master data > Authorization".

   The "Functional Group" dialog opens.



2. Enter the "Name" for the user and an optional "Description".
3. Select the "Authority level".

   If the user group is assigned several functional groups, the respective highest value is transferred to the user.

4. If required, activate "Auto Log Off" and enter the number of minutes until the automatic logout.

   30 seconds before the automatic log-off, a dialog is opened, in which the seconds until the automatic log-off are counted down.

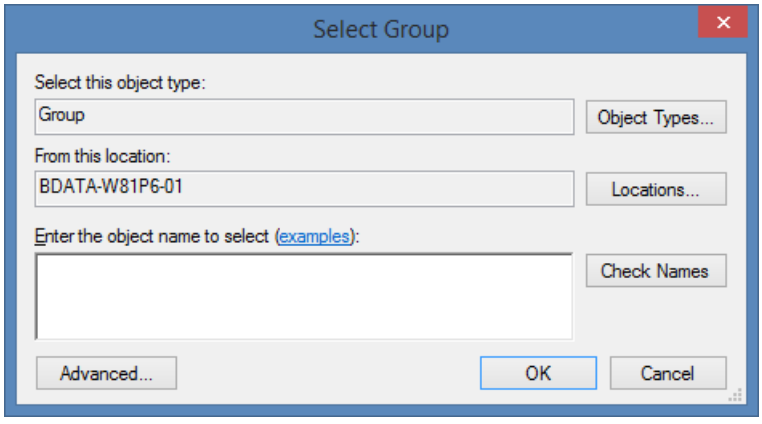
5. Save the configuration with "OK".

Enabling Single Sign On

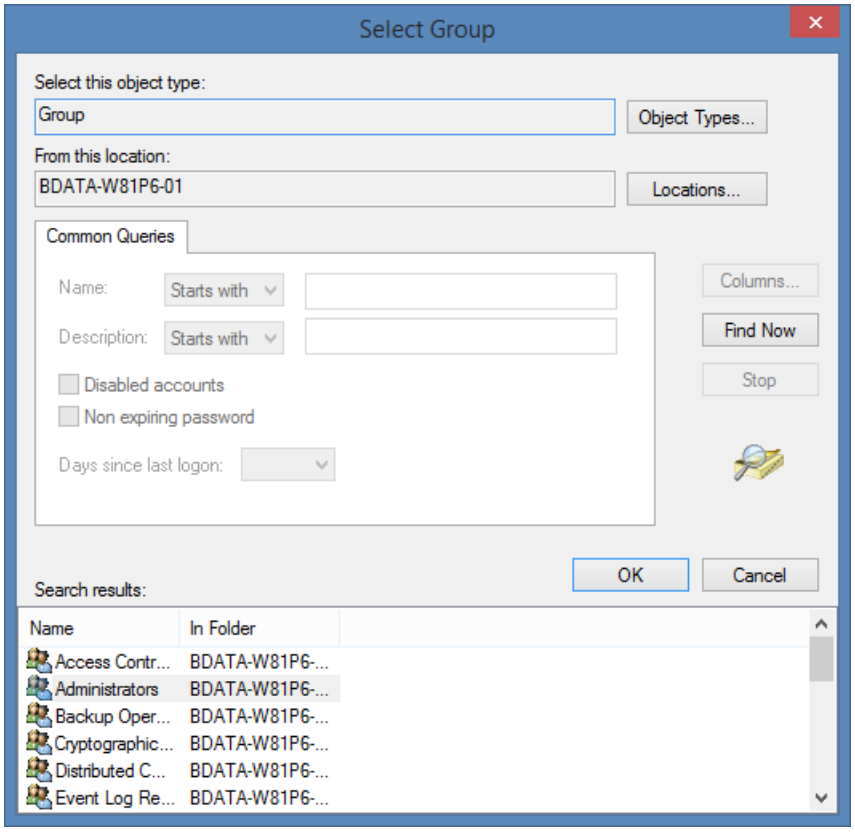
With the Single Sign On in the functional group you allow a group from the Windows Active Directory to log into the Energy Manager PRO Client as well as Energy Manager PRO Web without having to enter the login data again. As soon as a user of this group has logged into the Windows operating system, he also has access to Energy Manager.

1. Click "Select" in order to open the Windows dialog for selecting the group.

   The "Select Group" dialog opens.



2. Create a new group in the Windows Active Directory or select an existing user group directly from the Active Directory. With "Advanced..." you have the possibility of displaying all the existing user groups and of selecting one.



The Windows users from this group can now log in by double-clicking the Energy Manager icon on the desktop without having to enter a user name or a password. In the Energy Manager PRO Web, the user clicks the "Windows Login" button and the Windows user name as well as the associated password are applied.

If a user of the Active Directory group opens the Energy Manager and if an Energy Manager user does not yet exist with this login name, a new user with the same name automatically is created. Since this Energy Manager user was activated using the Single Sign On option, no password is assigned in this case. If this user is no longer a member of the group of the Active Directory, this user can no longer log into Energy Manager.

If a user with the same name already exists in Energy Manager, this user retains their Energy Manager password and can then still log into the Energy Manager, even if they are no longer a member of the Active Directory.

If the name of a user changes in the Active Directory, the user name is also updated in the Energy Manager.

Note

If a group of a domain is enabled for the Single Sign On, the "Energy Manager Portal" service must also run as a domain user.

Specifying authority levels

Each object in Energy Manager has an authority level. In the functional group define authority levels for all the users who belong to this functional group. The authority level of the user is taken from the functional group. An object is only visible for the users of a functional group if the authority level of the functional group or of the user respectively is higher or at least equal to the authority level of the object.

Specifying the authority level of the functional group:

1. Enter the authority level for the functional group.

Specifying the authority level for an object:

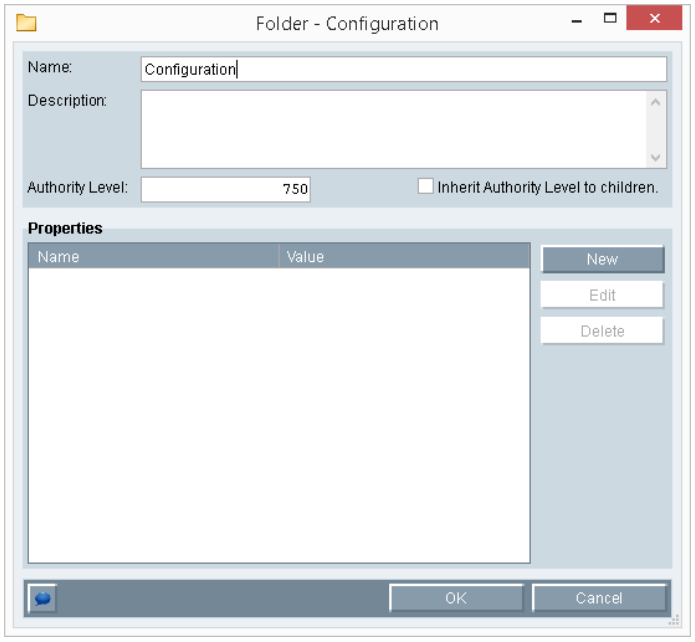
1. To specify the authority level of an object, select the "Properties" command from the shortcut menu of the object in the properties dialog.
2. Specify the "Authority level".

Note

Always assign authority level values that are greater than or equal to your authority level.

Select the "Inherit Authority Level to children" check box to enable the transfer of the authority level to all child objects.

Usually, an inheritance is not required: If the parent object is not visible, the nested objects are also not visible. However, this inheritance is necessary if you make the child objects available to other domains by means of the exchange folder.



2.2.6.4 Output

Fundamentals of creating printer and directory

Basics

The setting up of a printer and a directory is the prerequisite for the automatic printing and storing of reports in Energy Manager.

Create a printer or a directory in the respective hardware.

If you wish to use the automatic sending of reports via email, create a user including email address.

See also

Creating a printer (Page 361)

Creating a folder (Page 364)

Configuring query types (Page 279)

Setting up users (Page 343)

Creating a printer

Overview

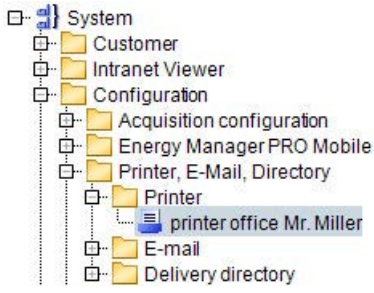
The creation of a printer in Energy Manager is the requirement for the automatic printing of reports.

Requirement

- The printer is connected to the application server.
- The hardware is configured in Energy Manager .

Procedure

1. In the Configuration mark the Printer folder.

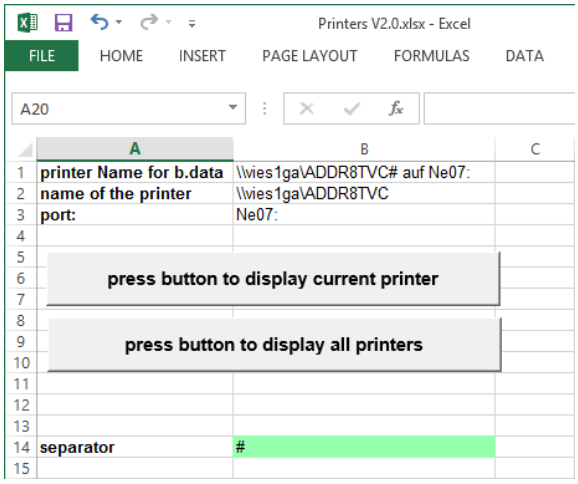


2. Click the "Insert Printer" button in the menu bar under "Master Data > Output".

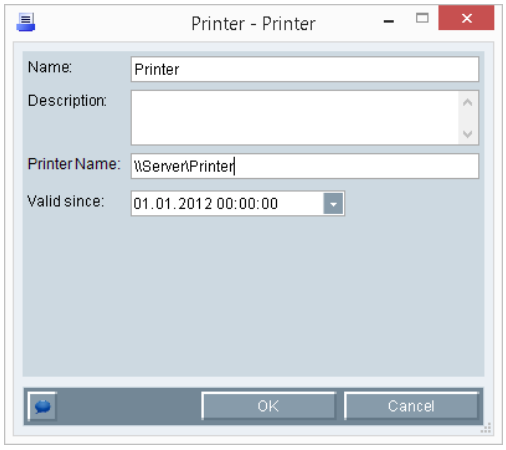
   The "Printer" dialog opens.

3. Enter a unique name and an optional description for the printer.
4. Enter the printer name in the "Printer name" field, including the port.
5. To determine the printer port, open the Excel file "Printers V2.0.xls" under "Options\Features\Tools" on the Energy Manager product DVD.

   Separate the printer name with the "#" separator to enable automatic printing of reports. The separator is inserted automatically.



6. Enter the date and time as of which the printer will be valid.



7. Confirm the configuration with "OK".

Result

You have successfully created the printer. To automatically print a report on this printer, create a "Printer" folder below the hardware object. Copy and paste the printer under the query type of the report, and below the "Printer" folder. Then automate the report.

See also

Creating hardware (Page 76)

Fundamentals of creating printer and directory (Page 361)

Configuring query types (Page 279)

Object naming conventions (Page 52)

Creating a folder

Overview

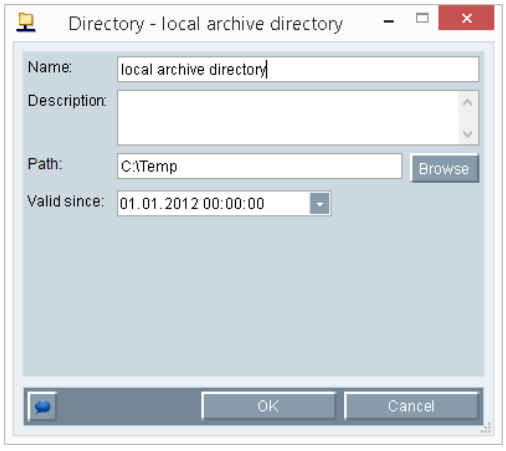
The creation of a directory in Energy Manager is the requirement for the automatic saving and creating of reports.

Requirement

- The folder is available on the PC.
- The "Hardware" object has been created in Energy Manager .

Procedure

1. In the Configuration mark the Directory folder.
2. Click the "Insert Directory" button in the menu bar under "Master Data > Output".
   The "Directory" dialog opens.
3. Enter a unique name and an optional description for the directory.
4. Enter the selected directory in the "Path" field.
   Use the UNL notation to specify the directory to prevent the network drives from being mapped on the application server.
5. Enter the date and time as of which the directory will be valid.



6. Confirm the configuration with "OK".

Result

You have successfully created the directory. To save the results of the report in this directory, create a "Directory" folder below the hardware object. Copy and paste the directory to the query type of the report and below the "Directory" folder.

See also

Fundamentals of creating printer and directory (Page 361)
Creating hardware (Page 76)
Configuring query types (Page 279)
Object naming conventions (Page 52)

2.2.6.5 Enterprise Resource Planning (ERP)

Basics on objects for Enterprise Resource Planning

Additional information is needed when booking services in ERP. In Energy Manager , this information is mapped in the form of the following objects:

1. ERP domain
2. Service type
3. Cost center
4. Cost center relation

Creating ERP domains

Overview

ERP domains are necessary for accounting by means of cost center relations and serve as criterion for selection of the respective cost centers.

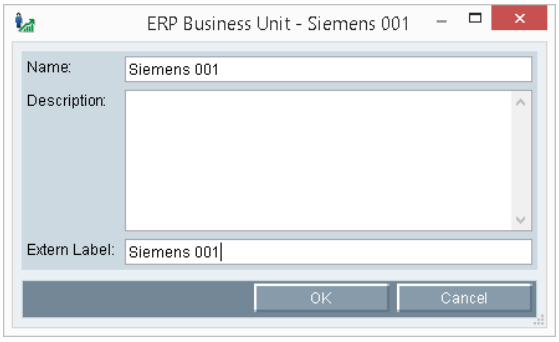
Requirement

The ERP objects have been properly installed.

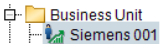
Procedure

1. Select the folder in which the ERP domain is going to be created.
2. Click the "Insert ERP Business Unit" button in the menu bar under "Master Data > ERP".

   The "ERP Domain" dialog opens.



3. Enter a meaningful "Name" and an optional "Description" as well as the "external label". Click "OK" to confirm your entries and to generate the ERP domain.



Result

You have successfully created the ERP domain and it is now ready for use by the cost centers.

Creating service types

Overview

Service types are required for settlement details in the cost center relations.

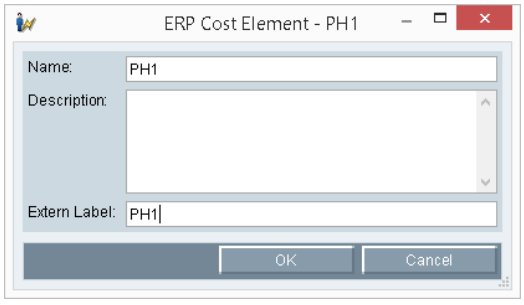
Requirement

The ERP objects have been properly installed.

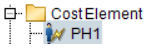
Procedure

1. Select the folder in which the service type is going to be created.
2. Click the "Insert ERP Cost Element" button in the menu bar under "Master Data > ERP".

   The "ERP Service Type" dialog opens.



3. Enter a meaningful "Name" and an optional "Description" as well as the "external label". Click "OK" to confirm your entries and to generate the service type.



Result

You have successfully created the service type and it is now ready for use in the settlement details for cost center relations.

Creating cost centers

Overview

Cost centers are necessary for accounting by means of cost center relations and are assigned to exactly one domain.

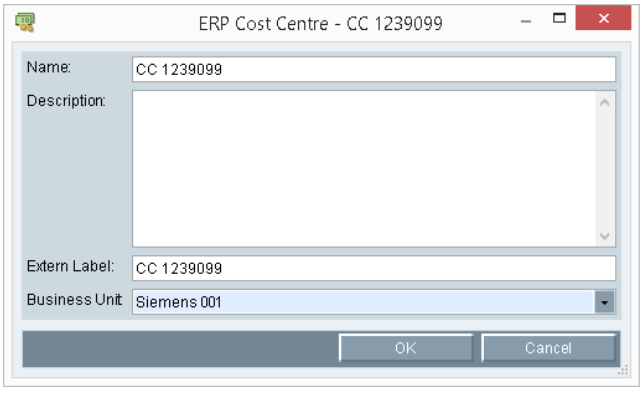
Requirement

The ERP objects have been properly installed.

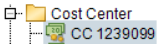
Procedure

1. Select the folder in which the cost center is to be created.
2. Click the "Insert ERP Cost Center" button in the menu bar under "Master Data > ERP".

   The "ERP Cost Center" dialog opens.



3. Enter a meaningful "Name" and an optional "Description" as well as the "external label". After having assigned the cost center to a domain, click "OK" to confirm your entries and to generate the cost center.



Result

You have successfully created the cost center and it is now ready for use with the cost center relations.

Creating cost center relations

Overview

Cost center relations are necessary for the settlement of values computed in Energy Manager in an external ERP system.

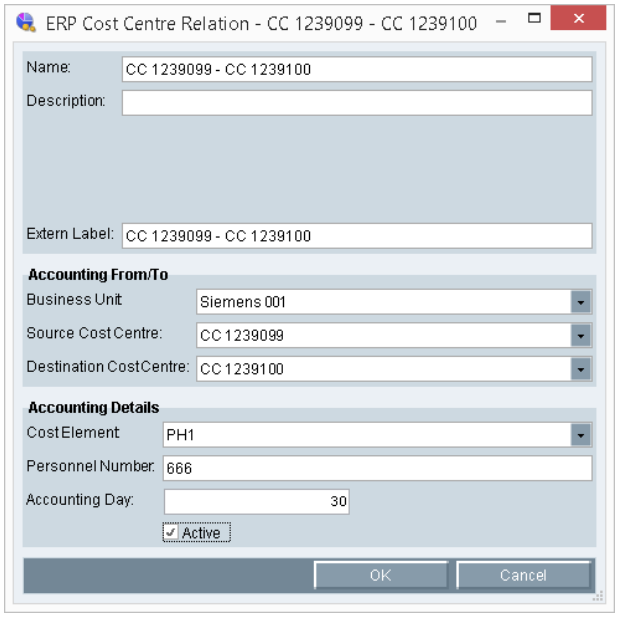
Requirement

The ERP objects have been properly installed.

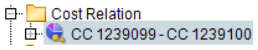
Procedure

1. Select the folder in which the cost center relation is going to be created.
2. Click the "Insert ERP Cost Center Relation" button in the menu bar under "Master Data > ERP".

   The "ERP Cost Center Relation" dialog opens.



3. Enter a meaningful "Name" and an optional "Description" as well as the "external label". Select the domain and set the source and destination cost centers in the "Settlement From/To" area. Set up the service type in the settlement details. The specified personnel number is used to launch the transaction on the ERP system on the specified accounting day, provided the "Active" state has been set.



Result

You have successfully configured the cost center relation and it is now ready for use in accounting.

2.2.6.6 Configuration

Configuring units

Overview

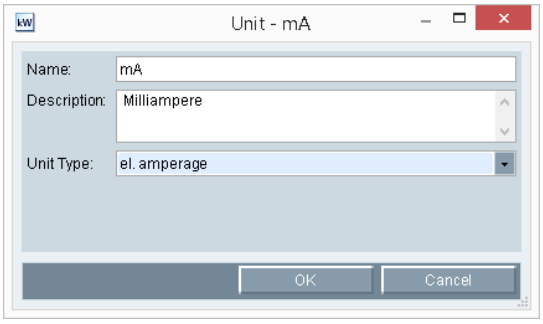
A unit may be assigned to any physical variable such as power or work, as well as to non-physical variables such as costs. You may define and generate new units if the ones that are available are inappropriate.

All available units are located in the "Constant and definitions > Unit" section of the configuration folder.

Inserting the unit

1. Select the folder in which the unit is going to be created.
2. Click the "Insert Unit" button in the menu bar under "Master Data > Configuration".

   The "Unit" dialog opens.



3. Enter the unit name in the "Name" field.
4. You may also enter a "description".
5. Then select the suitable "Unit type" for the unit.

   The unit type is used to group similar units.
6. Click "OK" to save the configuration.

See also

Creating units (Page 710)

Editing units (Page 711)

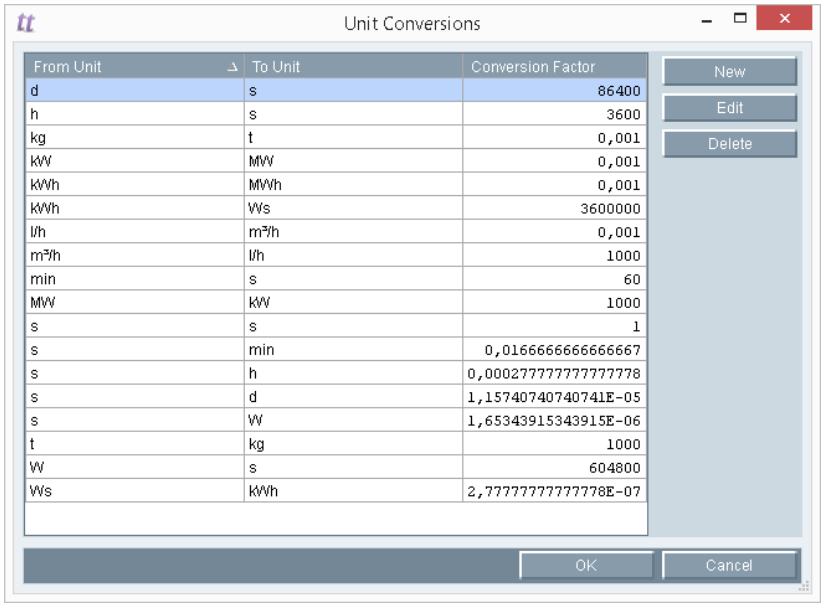
Unit conversions

Opening the unit conversion

1. Click the "Open Unit Conversion" button in the menu bar under "Master Data > Configuration" to open the unit conversion.

2. Edit the factors for conversion between the source and target units or generate new conversion factors.

   These conversion factors are used only in a few MEVA functions for unit conversion for output, as well as in the matrix for input to storage unit conversion.



From Unit	To Unit	Conversion Factor
d	s	86400
h	s	3600
kg	t	0,001
kW	MW	0,001
kWh	MWh	0,001
kWh	Ws	3600000
l/h	m³/h	0,001
m³/h	l/h	1000
min	s	60
MW	kW	1000
s	s	1
s	min	0,0166666666666667
s	h	0,000277777777777778
s	d	1,15740740740741E-05
s	W	1,65343915343915E-06
t	kg	1000
W	s	604800
Ws	kWh	2,77777777777778E-07

Configuring cycle times

Overview

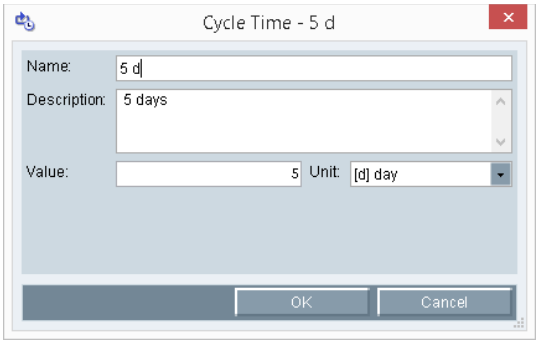
You define data acquisition intervals in Energy Manager by setting the cycle time, for example, 1 day. Data is acquired at daily intervals in this case. The value is generated at 00:00:00 h.

Energy Manager provides predefined cycle times, e.g. "1 hour", or "1 second". You may set up a custom cycle time if the list of predefined cycle times does not contain a suitable entry.

Procedure

1. Select the folder in which you want to set up the cycle time.
2. Click the "Insert Cycle Time" button in the menu bar under "Master Data > Configuration".

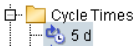
   The "Cycle time" dialog opens.
3. Type in a name for the cycle time.
4. You may also enter a description for the cycle time.
5. Enter a value in "Value" and select the unit, e.g. "5" and "[d] days".



6. Click "OK".

Result

The cycle time is configured and created in the project tree of the Client.



You can edit, clone, or delete the configured cycle time.

Configuring query types

Overview

You use a query type in Energy Manager to specify a time range, which is queried for example in a report.

Energy Manager provides predefined query types, e.g. "week", or "year". If the list of predefined query types does not contain a suitable entry, first check under "File > Options" on the "Query types" tab to determine whether the desired query types exists and is also active. If the desired query type does not exist yet, create an own one.

Procedure

1. Select the folder in which you want to create the query type.
2. Click the "Insert Query Type" button in the menu bar under "Master Data > Configuration".

   The "Query type" dialog opens.
3. Type in a name for the query type.
4. You may also enter a description for the query type.
5. If you would like to define a query type based on a time range:
   - First enter a value in "Duration" and select the desired unit.

     With the duration you define the time range that you then use in reports for queries, for example 1 month.

     The time range defined by you under "Duration" always begins depending in the settings in the "Interval back".
   - Enter a value under "Interval back" and select the desired unit.

     With "Interval back" you have the possibility to define the beginning of the time range defined under "Duration". The beginning of a query type can therefore also lie in the past.

     Staying with our example from above with a "Duration" of 1 month, a setting of, for example 0 months at the "Interval back" means that the query begins on the first day of the current month.

     A setting of 1 month at the "Interval back" would mean that the time range begins on the 1st day of the previous month.

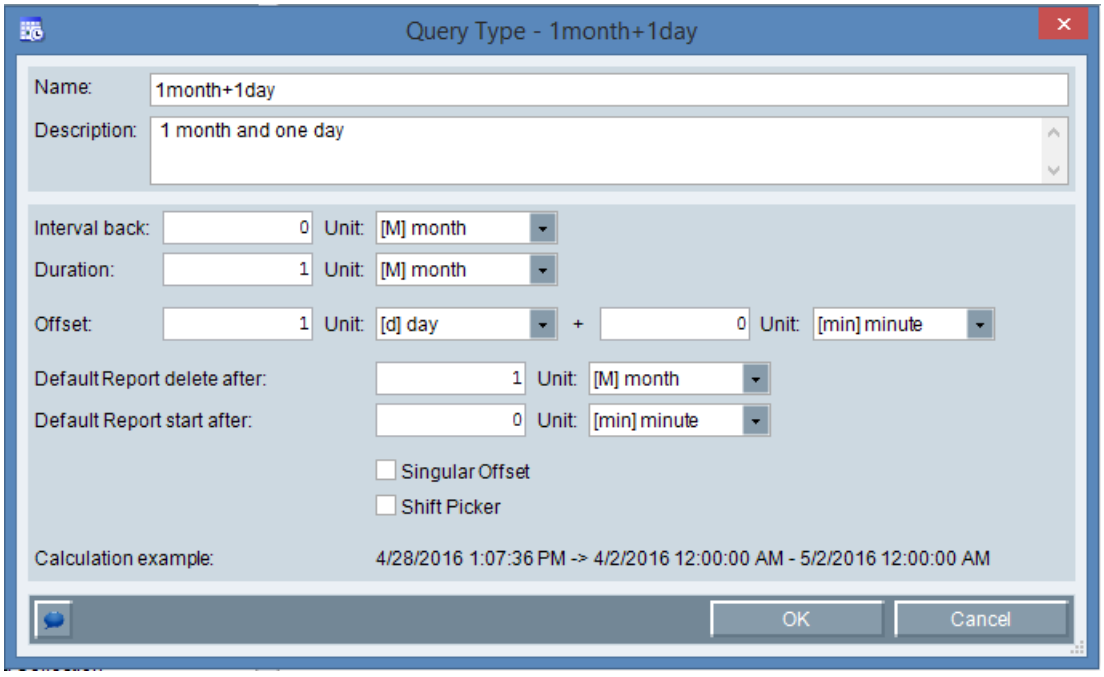
     A setting of 0 days at the "Interval back" would mean that the time range begins at the beginning of the current day.
   - Enter a value in "Offset" and select the desired unit.

     With the offset you define a time offset that begins with the start time of the query type. You can, for example, shift the beginning of the query by 1 hour. If, for example, you have defined a "Duration" of 1 month, and an "Interval back" of 0 months, this means that the query begins on the first day of the current month at 00:00:00. With an "Offset" of, for example, 3 hours you can shift the beginning of the query to 03:00:00.

     It is also possible to enter a negative offset.

– If needed, active a "One-time offset".

  You require the one-time offset, for example, if you have defined a "Duration" of 8 hours (one shift) and an offset of 04:00:00 hours. The query thus begins at 04:00:00. In order to ensure that an offset of 04:00:00 hours is not added at each new query you can activate the "One-time offset". This ensures that you realize a periodic continuation of the query from 04:00:00 to 12:00:00 and from 12:00:00 to 20:00:00. Otherwise the next period would start at 12:00:00 plus offset, meaning at 16:00:00.

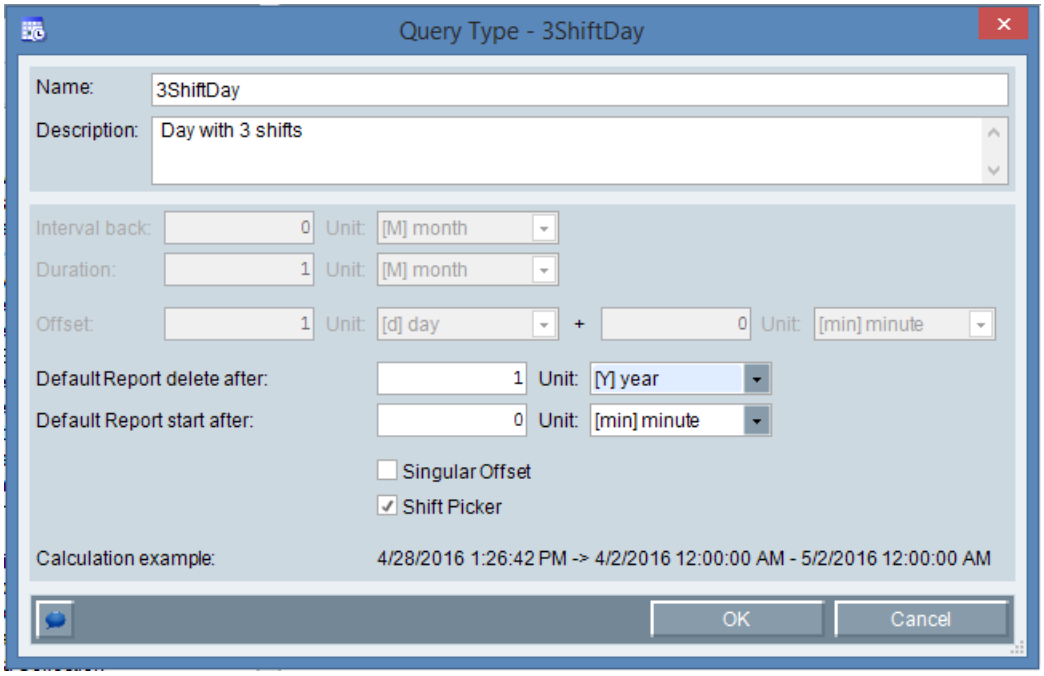


6. Under "Default Report delete after", you define the interval after which the results of a report are to be automatically deleted from the project tree of the Client .

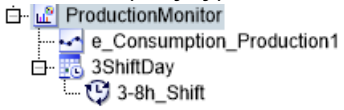
   These specifications are applied in the query type in the report in the "Delete report after" field. You can overwrite the applied specifications.

7. Under "Default start report after" specify the interval after which a report is to be started with this query type. These specifications are applied in the query type in the report in the "Start report after" field. You can overwrite this activated data. The automatic mode itself has to be defined at the query type of the report.

8. If you would like to define a query type based on a shift:
   – Select "Shift selection".
     The settings under "Duration" and "Offset" will be ignored.



   – You require a "Shift" or a "Typical day" from which the definition of the time range to be queried can be taken. Copy the "shift" or "typical day" object in the project tree under the query type.



     The sequence of the "shift" or "typical day" objects under query type has no effect. In the query, the shifts or typical days will be sorted according to the times that are actually configured.

Note

The new query type is made up of all the configurations made in "Interval back", "Duration" and "Offset". You have the possibility to cover all the query types. To ensure that the new query type is correct, you should check all the settings. Even if you do not require an "Interval back", you must nevertheless check the existing setting there. The lower section of the configuration window shows a calculation example that corresponds to the respective current settings.

Result

The query type is configured and created in the project tree of the Client. The query type is available in each object, in which time periods are queried, for example in dashboards or reports.

See also

Configuring a shift (Page 198)

Templates

Report templates

Overview

In Energy Manager you can use an existing report to create a template that is the basis for new reports. If you create a new report and assign a template to it, the following configurations from the template are applied:

- Display modes
- Query types
- Modules
- Report layout

Using templates for reports makes sense for similarly structured plants or sites, for example when separate reports are required for nearly identical production lines. Changes to the template affect all reports that are generated in the future, which are based on this template.

Requirement

- In order to create, configure and delete a report template, you need corresponding rights, which are defined in the functional group under "Template Manager".

Creating a report template

You can create a new template using the "Report as Template" option in the shortcut menu of the report (right-click).

Overview of existing report templates

Click the "Templates" button in the menu bar under "Master Data > Configuration". The existing report templates are displayed on the "Reports" tab.

More details on creating and using report templates are available in sections "Creating a template" and "Using a template".

See also

Create a template (Page 294)

Using a template (Page 295)

Edit template (Page 297)

Disconnecting a report from a template (Page 299)

Working with report templates (Page 293)

Load templates

Requirement

- The Consumer functionality is licensed separately.
- In order to create, configure and delete a consumer template, you need corresponding rights, which are defined in the functional group under "Template Manager".

Overview

Consumer templates allow you to define several categories of consumers (such as machines). In this way, a large number of consumers can be managed and configurations can be reused for new consumers without having to create them again.

In the template, you define which Input and which Output the associated consumers have.

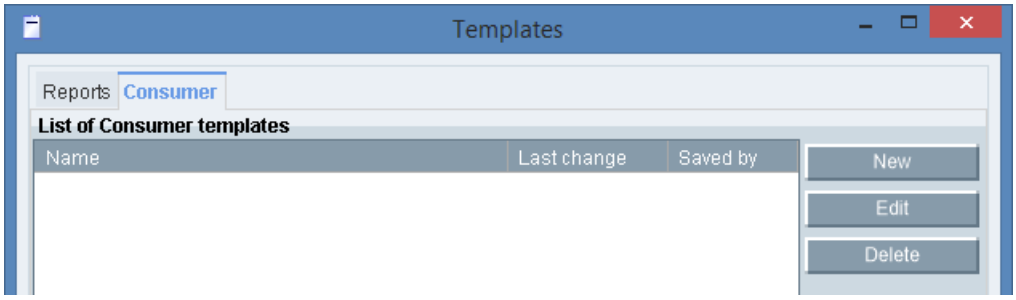
If you use a predefined consumer template when creating a specific consumer, the consumer and its associated structure is created as a result. In so doing, each input is created as a datapoint and output as a Meva below the consumer. Datapoints are also created below the IO buffer. For the input of a consumer template you define the input datapoint, and for the output you define the calculation procedure based on a Meva.

In addition you can have a predefined Dashboard and a report template created automatically, which are also created below a consumer as a result.

In the Widget Dashboard in Energy Manager PRO Web you then have the option of having the outputs (Mevas) and inputs (datapoints) of all machines of a template displayed by location or organizational unit.

Procedure

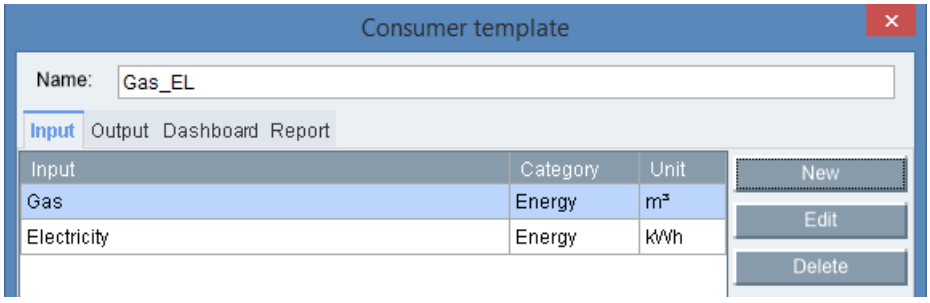
1. On the "Master Data > Configuration" tab, click "Templates" and then the "Consumer" tab. Create a new consumer with "New".



As result under each machine

Input tab

1. First, define the inputs of the consumer template. Assign a Name and define the Category as either Power / Flow, Energy / Amount, Count Value, Process Value Others or Text. At least one input must be defined. Define the Unit and save. The created inputs correspond to the input datapoints of a consumer.



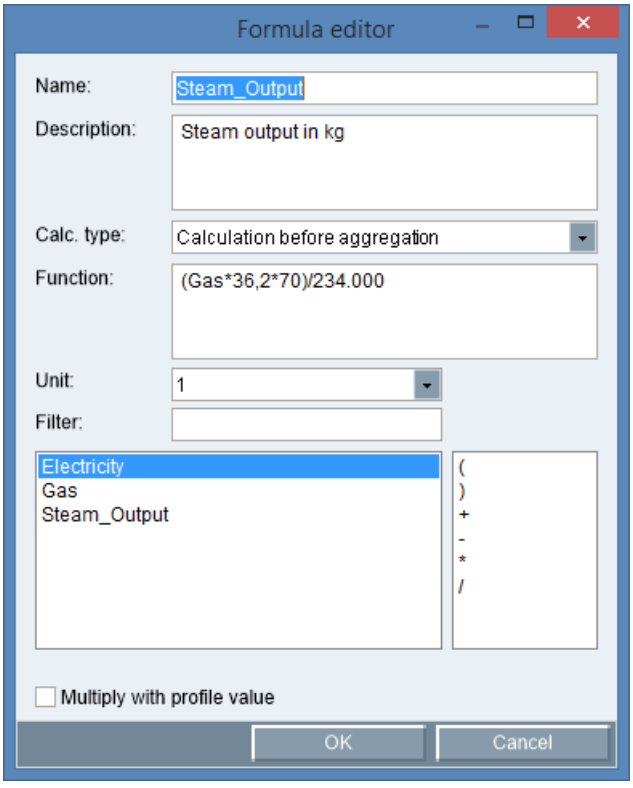
Output tab

Define the output of the consumer template on the Output tab. You can assemble the formula for the output from the predefined inputs and mathematical operands. At least one input must be defined.

1. Enter a name and optionally a description for the output.
2. Select the calculation type if required. Two calculation types are available:
   - Calculation before aggregation
   - Calculation after aggregation

   The calculation types define when results of an individual consumer are aggregated.

   With this functionality, it is possible to correctly calculate all inputs and all outputs of consumers of a location or all inputs and all outputs of consumers of an organizational unit and to display them in the Widget Dashboard (in Energy Manager PRO Web).



An example should illustrate the two functions: You define a consumer template with Inputs and outputs.

In the "Function" (Output tab) of the consumer template, you define the calculation procedure (formula) for the Meva, which will be created as the result under each of the eight machines. Then, you create eight consumers (e.g. machines) that use this template. This means that the datapoints (inputs) and Mevas (outputs) defined according to the template are created for each of the eight consumers. Four of the eight consumers are assigned to Location A and the other four to Location B. Three of the eight consumers are assigned to Organizational Unit A. The other five consumers are assigned to Organizational Unit C.

As the result you want the Widget Dashboard to display all inputs (e.g. corresponding to the energy consumption of the machines) and all outputs (e.g. corresponding to the produced quantity of the machines) of Location A and Organizational Unit C.

– "Calculation before aggregation":

  The "Calculation before aggregation" function specifies that each consumer must be calculated individually using the formula before all results are aggregated into an overall result.

– "Calculation after aggregation":

  The "Calculation after aggregation" function specifies that all consumers must first be aggregated and then the overall result is calculated using the formula.

For example, it the formula includes a division by a variable, the overall result would be false if all individual results of the consumers were summed, since according to mathematical calculation rule, the adding of individual fractions with different denominators is not permitted. On the other hand, if the denominator contains a constant, it is permissible to add all individual results.

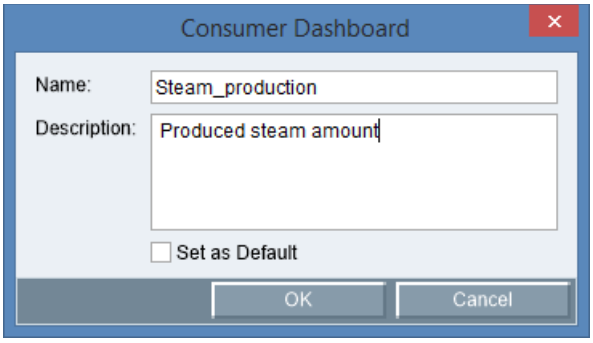
The "Calculation after aggregation" function is thus only relevant when you are using a division for a formula in which the denominator contains a variable (e.g. an input). If, on the other hand, the denominator contains a constant number (as in the figure above), you can also select "Calculation before aggregation". The same overall result would be returned in both cases.

3. In the "Function" field, you assemble the formula that specifies the calculation rule for the result of the output. The formula is calculated by the Meva that is created below the consumer. Assemble the formula by double-clicking inputs and mathematical operands to select them, or type the formula directly in the field.
4. Define the unit of the output in the "Field" unit.
5. You can filter existing inputs in the "Filter" field. Enter the designation of the searched-for input.
6. The output can be assigned to a profile that is then multiplied by the profile value. In this way, for example, different energy tariffs can be correctly accounted. Details on creating a profile are available in section "Configuring profiles (Page 201)".

Dashboard tab

You can define a "Widget Dashboard " on the "Dashboard" tab.

1. Enter a "Name" and optionally a "Description" for the Widget Dashboard .
2. Specify whether you want to use the Widget Dashboard by default ("Set as default"). This results in this Widget Dashboard being displayed first as soon as you click on the associated machine in Energy Manager PRO Web. As a result, only one Widget Dashboard can be set as default per machine.



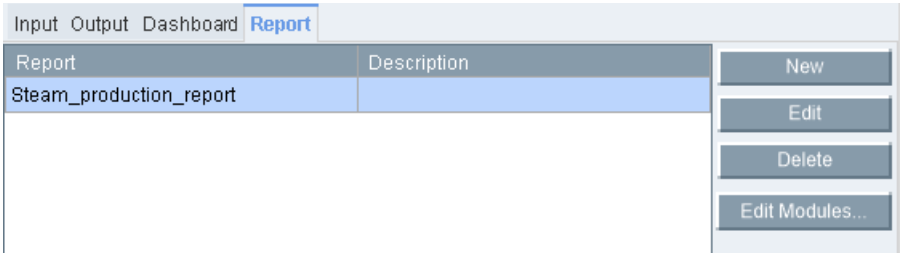
In the Energy Manager PRO Client, the Widget Dashboard is created under a consumer that uses this template.

In Energy Manager PRO Web , the Widget Dashboard can also be displayed and edited for the respective consumer.

Report tab

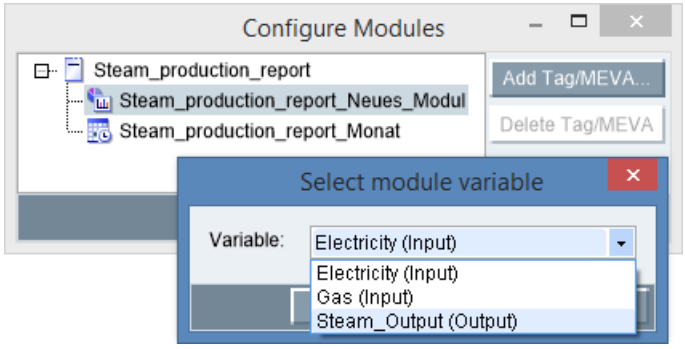
You can create a report in the "Report" tab.

1. You can create a new report with "New". The details for creating a report are available in the section "Creating a report (Page 276)".
2. You can edit the report with "Edit".
3. You can delete the report with "Delete".



4. With "Edit Modules", you can assign the datapoints and Mevas defined as inputs and outputs to this report. The "Configure Modules" dialog opens.

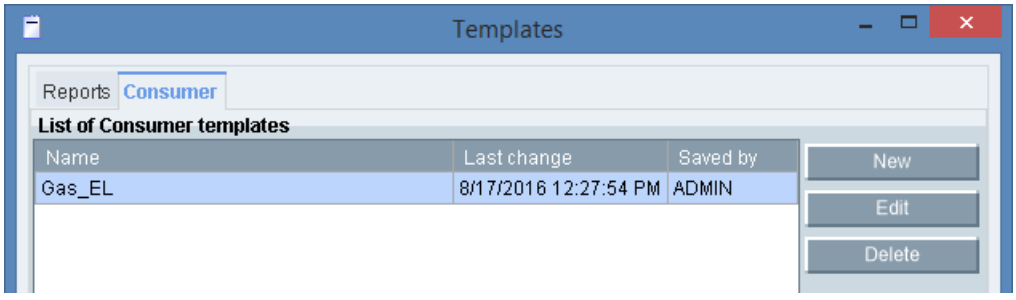
   Click on the module and then on "Add Tag/MEVA". Choose the inputs and outputs you want to output in the report and save the inputs.



After saving, a report template is created for this report under "Templates > Report templates". This report template will be used when a consumer is created to create a specific report that is created below the consumer. If the report template is deleted, it is no longer possible to create a report when a consumer is created. For this reason, do not delete the report templates as long as you have created consumer templates including reports.

Result

The consumer template is created and is shown in the menu under "Master Data > Configuration > Templates".



Details on the creation of a template or on the automatically created structure can be found in section "Consumers and structured view (Page 265)".

If you modify a template that is in use for a specific consumer, you will be notified that all changes will affect the relevant consumers and you will be prompted to indicate whether you want to save the changes.

Templates that are being used by consumers cannot be deleted.

All templates are also visible in the Templates folder in the shortcut menu. If a dashboard is defined in the consumer template, this is also shown in the Templates folder in the shortcut menu.

2.2.7 "Administration" menu tab

2.2.7.1 Management and monitoring

Logging Viewer

Overview

The Logging Editor displays the most important system messages and error messages.

This section provides instructions related to the following actions:

1. Opening the Logging Editor
2. Fields in the Logging Editor
3. Filter options
4. Archiving messages

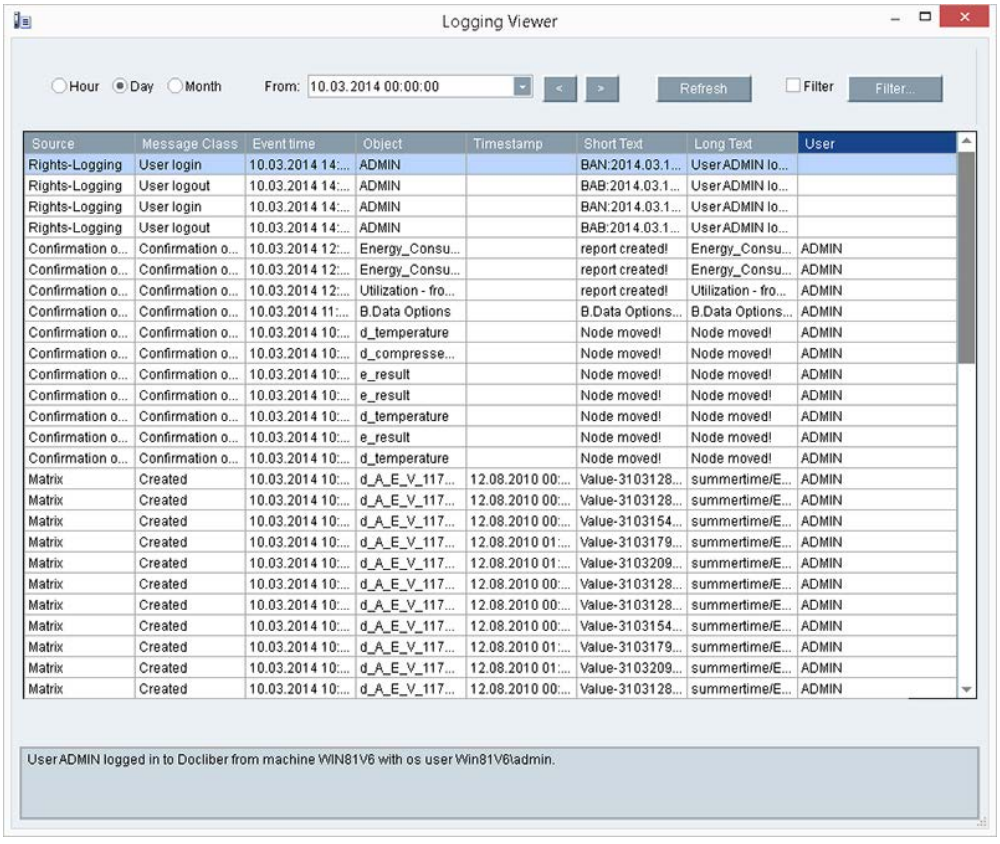
Requirement

Successful installation of all software components.

Opening the Logging Editor

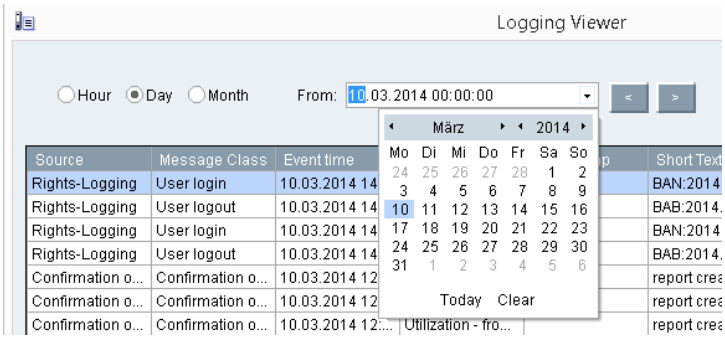
1. Click the "Open Logging Viewer " button in the menu bar under "Administration > Management and Monitoring".

   The Logging Viewer is opened.



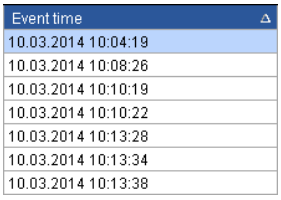
The LoggingViewer always displays the messages of the current day; the most recent message is displayed on top. In the case of a message surge, the time filter automatically sets the "hour" mode to reduce the waiting time.

You may select the monitoring period. Select "Refresh" to view the messages of the selected monitoring period, e.g. of the selected day:



Use the "<" and ">" buttons to page the scroll the selected time interval towards the past or future.

All columns can be sorted in ascending or descending order. Click in the header of the respective column to sort it.



Fields of the LoggingViewer

The following columns functions are available in the LoggingViewer:

- Source

  The error source is the first sorting criterion. Three error sources are currently implemented in the system: Kernel, database, and measurements editor.

- Error class

  The error class can be used to refine message filtering, e.g. evaluation error, job management error, deleted, or modified.

- Event time

  The event time is used to record the time of error or event occurrence.

- Object

  Certain messages include details on the object in this area. For example, the measurements editor logs the data point with name and the MESS_ID that has been processed.

- Time stamp

  The specific time stamp affected by changes, deletion of creation of new measured values is logged in this area.

- Stext

  The short text, for example, logs the way in which a value has been changed: Value 12.88 -> 13.54

- Ltext

  The measurements editor logs the daylight saving and winter time as well as the compression level in this column. The remaining sources log the error message in plain text in this column.

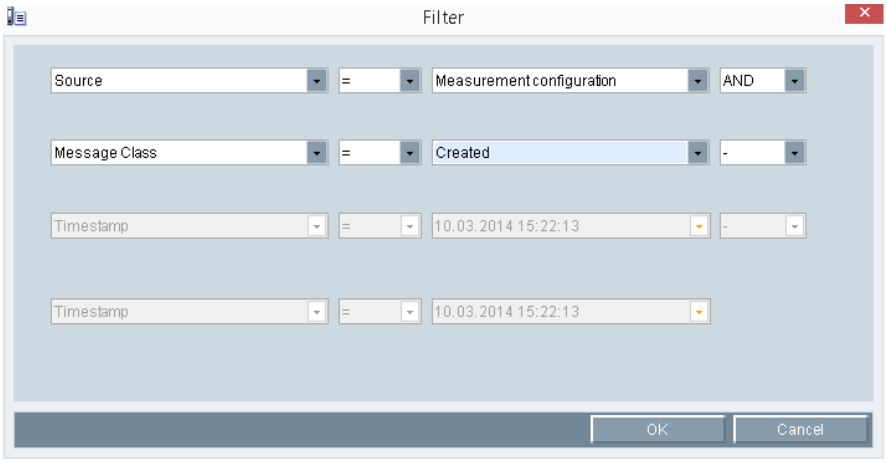
The LoggingViewer stores all the information pertaining to security settings.

The following example shows some actions that are logged in the system:

- Each successful login or log-off, e.g. "User Admin logged in to DocLiber from atw11565@ATPC0BAD".
- Each failed login attempt, e.g. "Unknown user TEST attempted to login to DocLiber from atw11565@ATPC0BAD" or "User Admin failed to log in to DocLiber from atw11565@ATPC0BAD".
- An unauthorized user carrying out an action.
- Authorization changes, e.g. "User FLORIAN was added to group Administrators".

Filter functions of the LoggingViewer

Use the filter function for fast access to the correct information. Click "Filter" in the Logging Viewer to open the "Filter" dialog.



Select the column from the first list. Select the operator from the second list. Additional entries are available in the third column, depending on the entry you selected in the first column. You may also logically link the filters by setting an "AND" or "OR" operation in the fourth column.

Click "OK" to activate the filters. The result is displayed in the Logging Viewer. Uncheck the "Filter" check box to cancel filtering.

The system provides several database jobs for archiving messages. The jobs and the settings are listed in the Job queue (Page 398).

2.2.7.2 Service Cockpit

Overview

The Service Cockpit provides you with an overview of the status of the acquisition components that are configured in the system.

You use the Service Cockpit to manage the available acquisition components and the drivers installed on them.

Use

You can also use the Service Cockpit for the following purposes:

- To obtain an overview of all configured acquisition components.
- To view the log files that log all actions of an acquisition component.
- To determine the status of an acquisition component. To show whether the acquisition component is acquiring data, or whether an error has occurred.
- To control an acquisition component: You can restart the acquisition component if its fails to run.

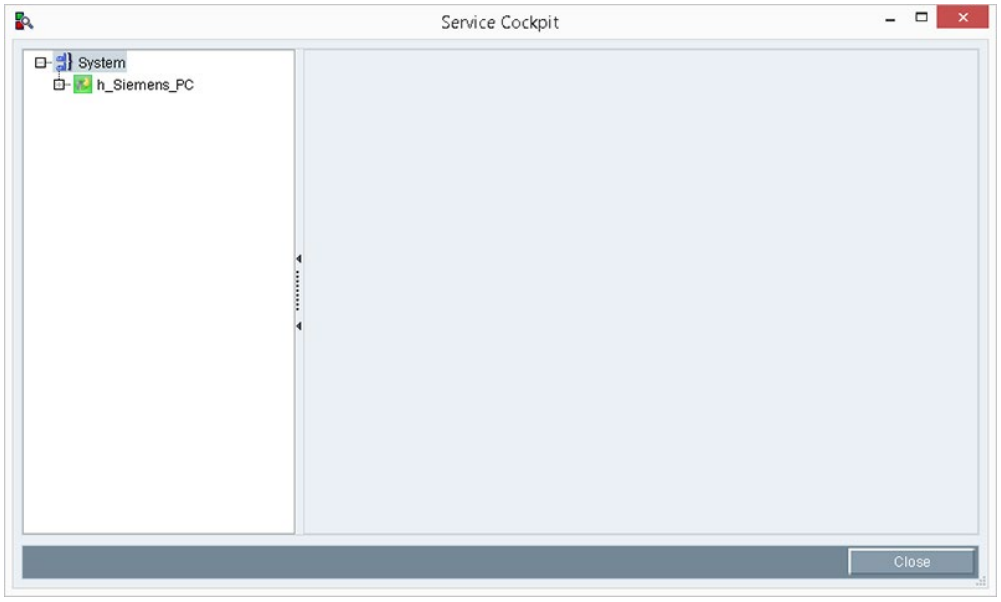
Requirement

For the software update of the acquisition component:

- The acquisition component is installed on the PC.
- The PC is connected to the Energy Manager Server.
- You have the functional right "Service Cockpit > view".
- You have the functional right "Master Data > view".

Layout

The Service Cockpit has the following layout:



① The left window pane lists the acquisition components that are configured in the system.

② The right window pane displays information about the acquisition component or interface selected in ①:

- Name and version of the acquisition component
- Time of last communication between the acquisition component and the Energy Manager PRO Client
- Configuration files
- Log files
- Gap detection during data acquisition

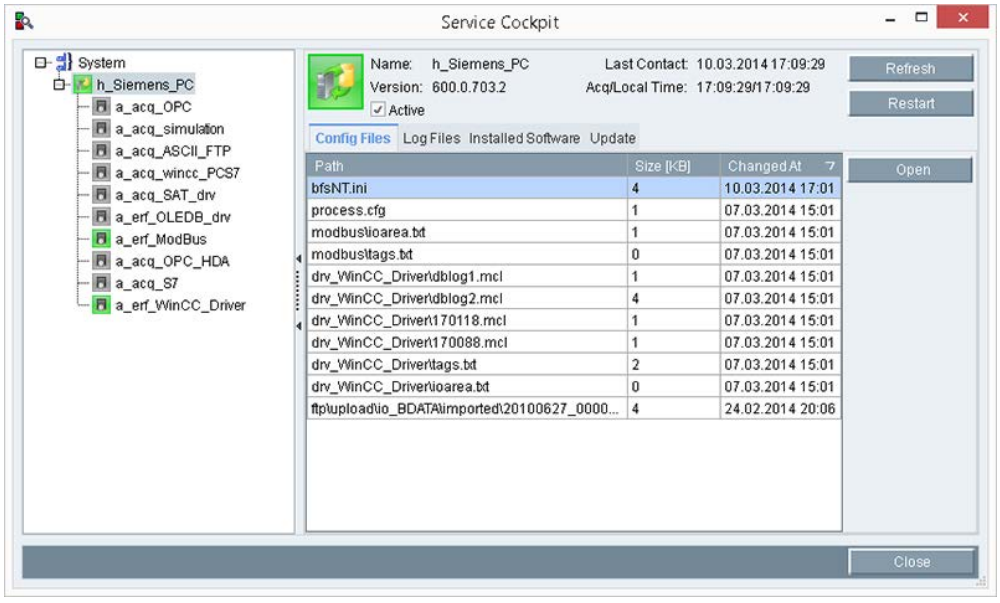
You can also perform a software update of the acquisition component here.

1. Click the "Open Service Cockpit" button in the menu bar under "Administration > Management and Monitoring" to open the Service Cockpit .

   The "Service Cockpit" dialog opens.

2. Select the acquisition component.

   All information about the acquisition component is displayed. If the time information of "Acq/Local Time" deviates by more than five seconds from each other, the time is shown in red.



3. Click the "Update" button to manually update the information about the acquisition component.

   The information in the Service Cockpit is refreshed automatically at intervals of ten seconds.

4. To restart the acquisition component, click the "Restart" button.
5. To deactivate the acquisition component, activate the "Disabled" option.

Status color code

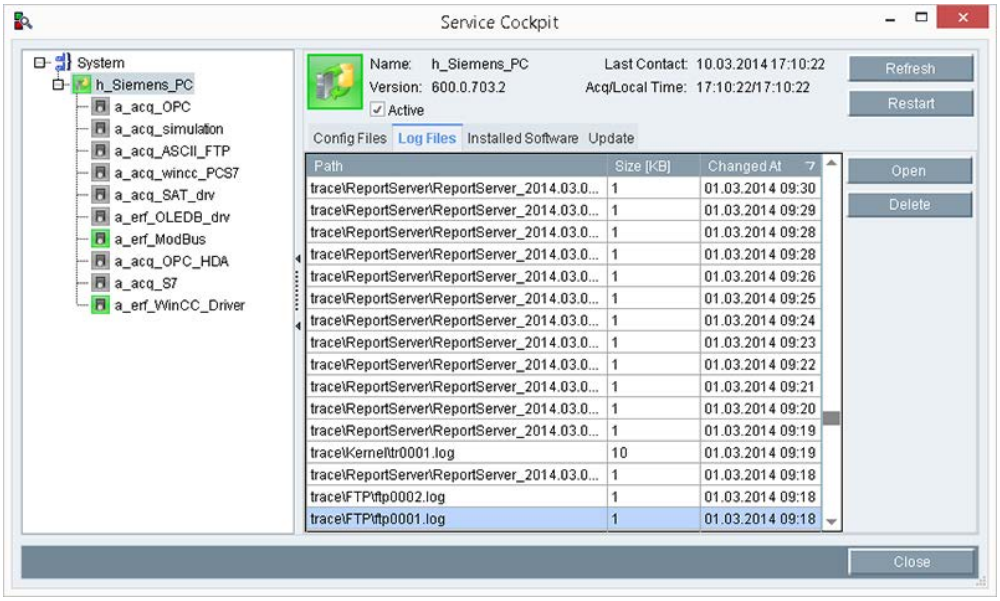
The following status color code is valid in the Service Cockpit:

- Green: The acquisition component is acquiring data.
- Red: The acquisition component is interconnected with the system, but is not acquiring data.
- Gray: The acquisition component is not interconnected with the system.

Managing log files

1. Select the "Log Files" tab to view the log files.

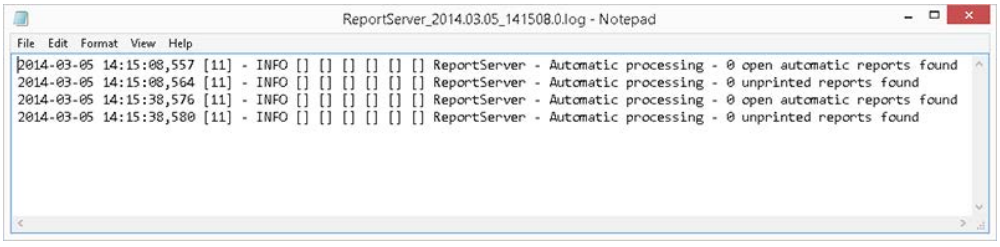
   All log files of the selected acquisition component are displayed.



2. You can open a log file with double-click.

   Alternatively, you can click the "Open" button to open a log file.

   The log file is opened in an editor.



3. You can select a log file and then delete it by clicking the "Delete" button.

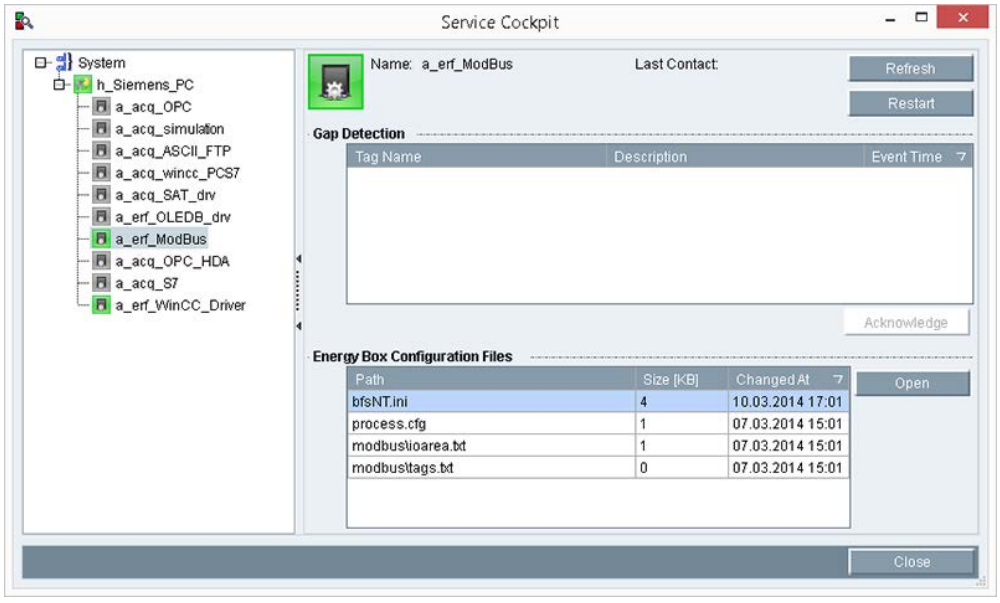
Display installed software

1. Click the "Software" tab to display the software installed on the acquisition component.

Managing interfaces

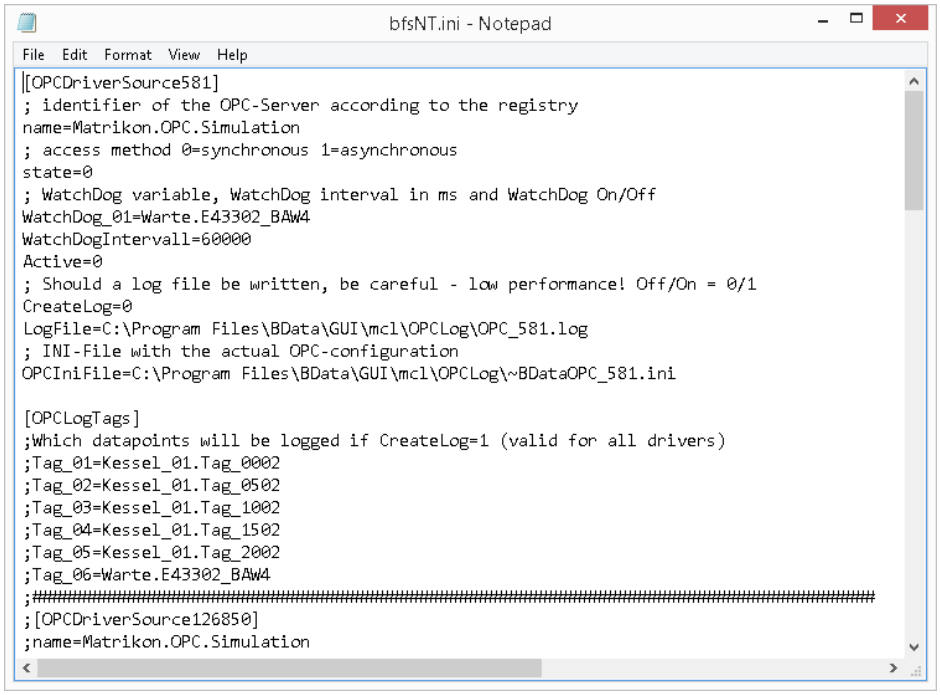
1. Select the required interface in the right-hand window area.

   The information about the interface is displayed, for example, gaps in the data acquisition or configuration files of the acquisition component.



2. If there are gaps in the data acquisition, you can acknowledge these if required.
3. To open a configuration file of the acquisition component, select the required file and click the "Open" button.

   The file is displayed in an editor.



2.2.7.3 Message lists

Basic information on message lists

Overview

A message list informs you of defined deviations of the measured values of a data point. You can view this information as follows:

- by means of a message list view
- by means of e-mail

Configure the deviation criteria for the measured values of a datapoint for a datapoint, see section "Configuring the plausibility (Page 157)".

Message lists contain three categories:

- "Predefined": contains predefined message lists. The following predefined message lists are available:
  - All: contains all messages and warnings.
  - All Warnings: Contains all warnings generated when a measured value approaches a configured limit.
  - All Violations: contains all messages generated when a measured value violates a limit.
  - GAP detection not acknowledged: Contains unacknowledged messages which relate to gaps in the data acquisition.
  - All not Acknowledged: Contains all unacknowledged messages.

  The predefined message lists cannot be edited or deleted.
- "Public": contains published message lists that can be used by all users.
- "My": contains message lists that you have configured.

Notes on message lists

NOTICE
Messages in Energy Manager do not replace the message configuration in the process control system The message is not linked to the process control system. If you want to react to the message, you have to configure limit monitoring in the process control system.

To view the messages in a message list, you need to configure the limits for the required data point and activate their message.

Messages are disabled in the project by default. Contact your administrator if you want to enable the message for the project.

Procedure for configuring a message list

To configure a message list, follow these steps:

1. Configure a message list.
2. Define the message list contents by means of a filter.
3. You can also configure a message notification, if necessary.

See also

Overview (Page 713)
Editing alarm lists (Page 715)

Configuring custom message list

Overview

You may configure a custom alarm list. In this alarm list you use filters to define which messages are displayed.

Requirement

- The data point is configured.
- The data point limit is configured.
- The message is activated for the limit.

Procedure

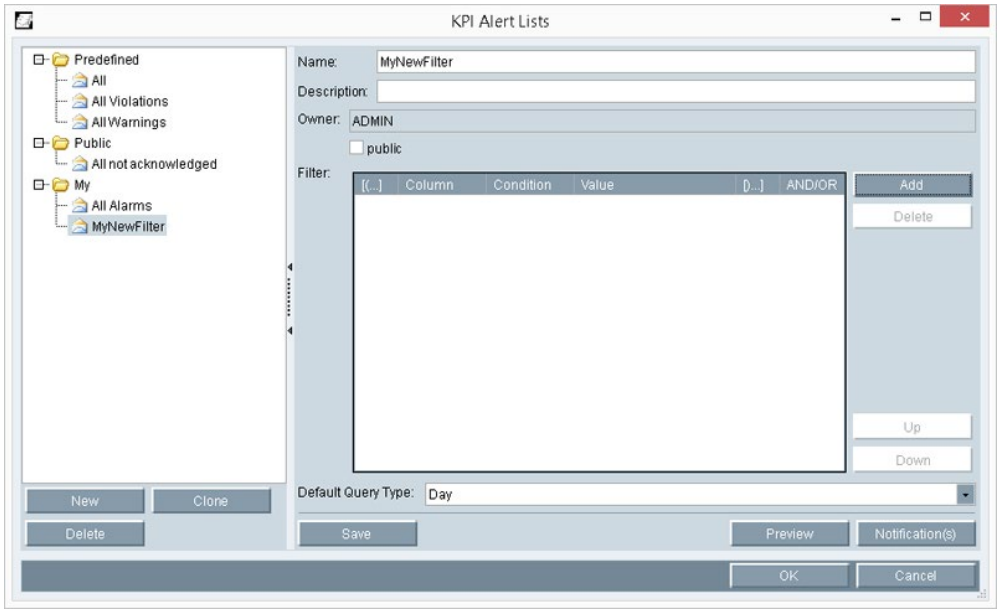
1. Click the "Open KPI Message Lists" button in the menu bar under "Administration > Management and Monitoring".
2. Then click "New".

   The alarm list configuration dialog opens.
3. Enter a unique name and an optional description for the alarm list.

   The "Owner" field displays the name of the user who configures the alarm list.
4. Activate "Publish" to make the alarm list available to all users.
5. Confirm the configuration with "Save".

Result

The custom alarm list is configured.



Configure one or more filters to specify the contents of the alarm list. You can use the "Clone" function to copy the custom alarm list for configuring a different alarm list. You may delete the custom alarm list.

You can open a alarm list that you have made available to all users by selecting "Configuration > KPI Alert Lists" in the project tree of the Client.

See also

Configuring filter for a message list (Page 393)

Configuring message notification (Page 395)

Configuring the view for a message list (Page 397)

Overview (Page 713)

Configuring filter for a message list

Overview

A alarm list filter allows you to exclude messages that you do not need.

The following rules are valid for filters:

- For a alarm list configuration containing multiple filters, you need to logically link the filters by means of "AND" or "OR" operator.
- In a configuration with multiple filters, the filters in the list are evaluated from the top down.

Requirement

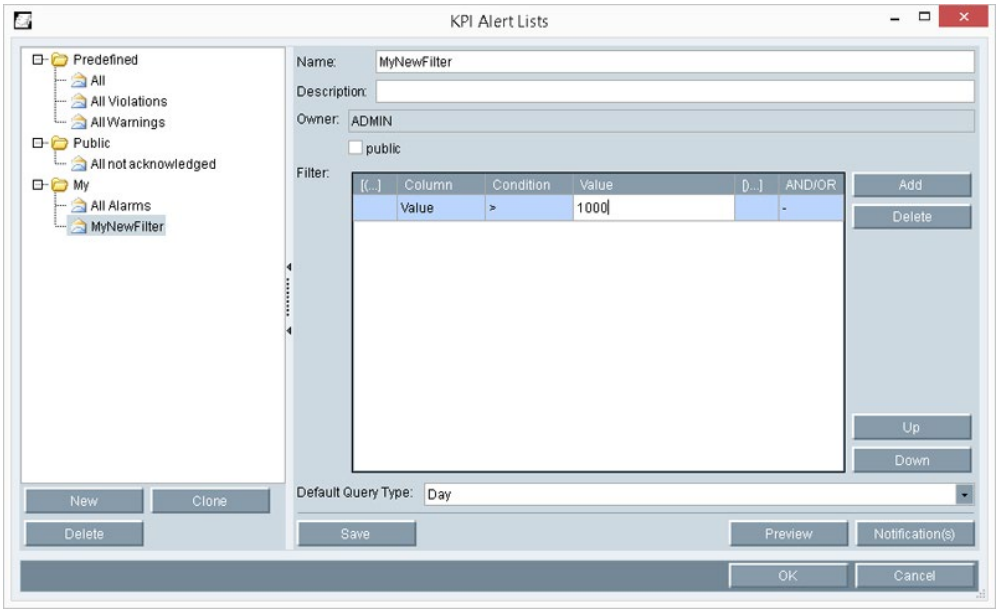
The alarm list is configured.

Procedure

1. Select the desired alarm list under "Administration > Alarm lists" in the Client .
2. Click "Add" in the "Configuration" tab.
3. You may enter filter expressions in a parenthesis.
4. Select a filter criterion and a condition, e.g. "Value" and ">".
5. Enter a value, e.g. 1000.
6. Select an operator / additional operators to interconnect multiple filters.
7. Click "Up" or "Down" to specify the sorting order by which multiple filters are to be evaluated.
8. Confirm the configuration with "Save".

Result

The filter for the alarm list is configured. With this filter, messages are included in the alarm list if their data point value is greater than 1000. You can check the result of the filter configuration in the "View" tab. You can delete the filter, or add a new one.



See also

Configuring custom message list (Page 391)

Filter criteria for a message list (Page 756)

Configuring message notification

Overview

A message notification informs you by e-mail of unacknowledged messages from a alarm list.

Requirement

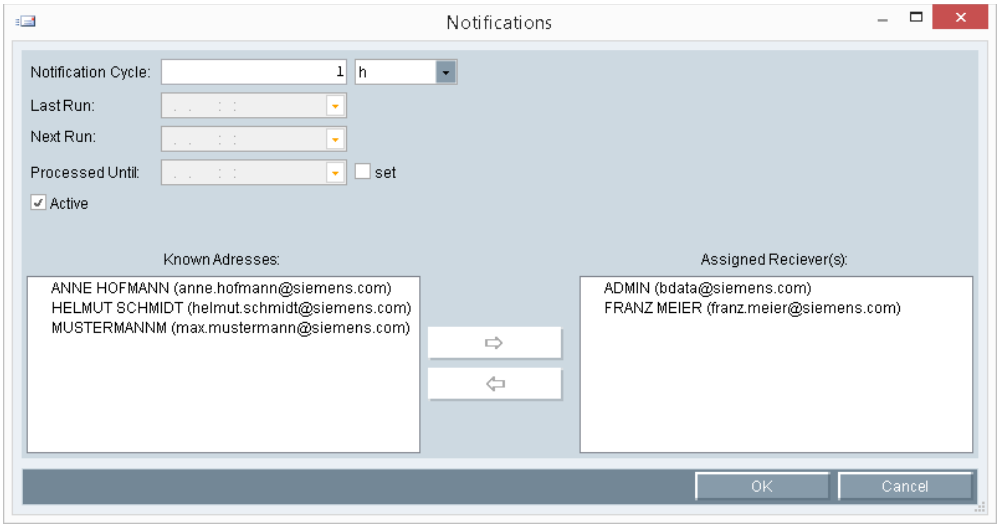
- The alarm list is configured.
- The user with the e-mail address is created.

Procedure

1. Select the desired alarm list under "Administration > Alarm lists" in the Client .
2. Click "Notification(s)" in the "Configuration" tab.

   The "Message notifications" dialog opens.
3. Select a time interval and a time unit for the notification cycle.

   The "Last run" and "Next scheduled run" fields show the time stamp for the last and next verification.
4. To ignore old messages, activate "Set". Select a time for the activation of the notifications.
5. To activate the notifications, select the "Active" option.
6. Use the arrow keys to assign the e-mail address.



7. Click "OK".

Note

A maximum of 10 alarm messages are sent in one e-mail. If more than 10 alarm messages are present, Energy Manager send 10 alarm messages in one e-mail. The number of pending alarms is specified in this e-mail. Energy Manager does not send any further e-mail for the other alarm messages.

Result

Message notification is configured. Open the view of the corresponding alarm list to acknowledge a message.

See also

Configuring custom message list (Page 391)

Time unit abbreviations (Page 756)

Setting up users (Page 343)

Editing alarm lists (Page 715)

Overview (Page 713)

Configuring the view for a message list

Overview

Using the view for a alarm list you specify the period of evaluation.

Requirement

The alarm list is configured.

Procedure

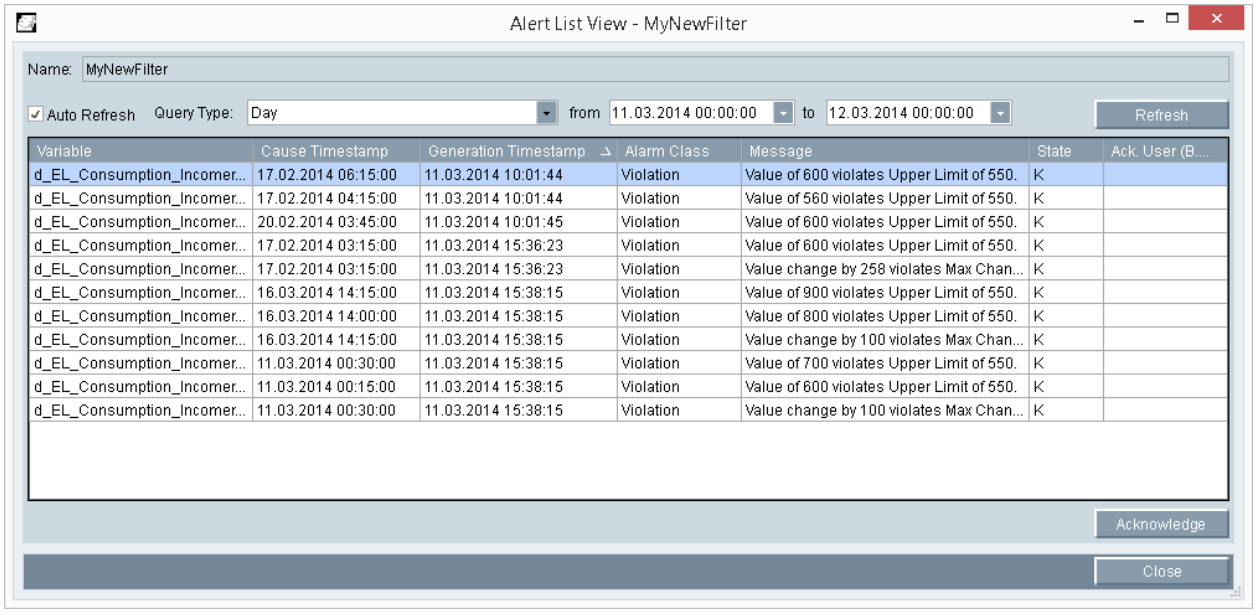
1. Double-click the desired alarm list under "Configuration > KPI Alert Lists" in the project tree of the Client.

   The "Alarm List View" dialog opens.
2. Select a query type.
3. Select a start and end time.
4. To refresh the alarm list view in manual mode, disable "Automatic update" and then click "Refresh".

   "Automatic update" is activated by default for a alarm list view.
5. Confirm the configuration with "OK".

Result

The alarm list view is configured. Click "Acknowledge" to prevent a message from being sent by e-mail.



See also

Configuring custom message list (Page 391)
Configuring message notification (Page 395)
Query types (Page 749)

2.2.7.4 Jobs in Energy Manager PRO

Job queue

Overview

Energy Manager Job Queue can be used to run database jobs once or at cyclic intervals.

In general, three types of jobs are available in Energy Manager.

1. User jobs of the job queue:

   These jobs are created in the job queue solely by the user. The repetition interval is specified by the user.

2. System jobs of the job queue:

   System jobs are created in the course of the configuration of objects in Energy Manager. These jobs run automatically once a day. If necessary, system jobs can be started manually in the job queue if a cycle time of less than one day is required. System jobs are not visible in the job queue.

3. Background jobs (outside the job queue):

   Background jobs are internal jobs necessary for optimal system functionality (e.g. synchronization jobs). Background jobs are not visible in the job queue.

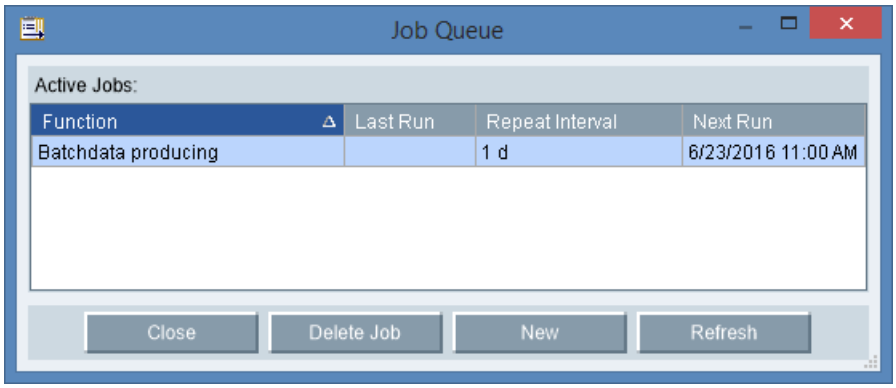
Note

All the jobs currently running become visible in the detailed view of the Logging Viewer. The detailed view of the Logging Viewer can be set in the Energy Manager options on the "Database" tab using the entry "3" in the "VERBOSE" line.

User jobs of the job queue

- Job "Generate batch data"
- Job "Export prognosis EDM"
- Job "Export SAP R/3 PM historical PD 6h"
- Job "Export SAP R/3 PM historical PPD 6h"
- Job "Export PD as ASCII"
- Job "Export all configured formats"

Detailed information about the respective user jobs of the job queue is available in the Reference in Chapter User jobs of the job queue (Page 827).



Procedure

1. Click the "Open job queue" button in the menu bar under "Administration > Task Management".

   The Energy Manager Job Queue is opened.

   TheJob Queue contains jobs to be executed at cyclic intervals or in the future. You can always "refresh" the view.

2. Create a new job as follows:
   - Click "New".
   - Select the "Type" (of job).
   - Select the "Start time".
   - Select the "Cycle time". Select "None" if the job is executed only once.
   - Save the configuration with "OK".
3. Delete a new job as follows:
   - Select the job in the Job Queue.
   - Click "Delete job".

Note

All exported files correspond to the format of the current Energy Manager version. If you require the files to be exported in the format of the preceding version V6.X, this can be realized in the Energy Manager options in the "Database" tab by using the entry "1" in the row "EXPORT_OLDV&STYLE".

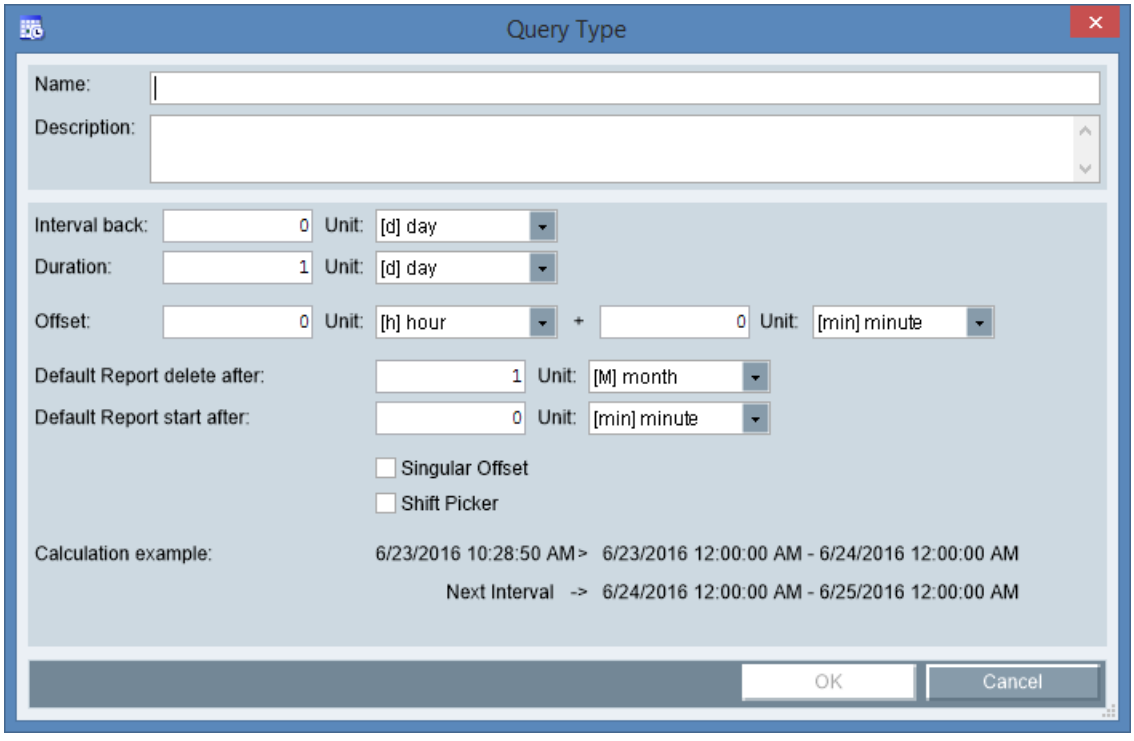
System jobs

The following job is configured during configuration of a new query type. System jobs are already preconfigured and run automatically once per day. Only the duration of the job still has to be defined in the query type.

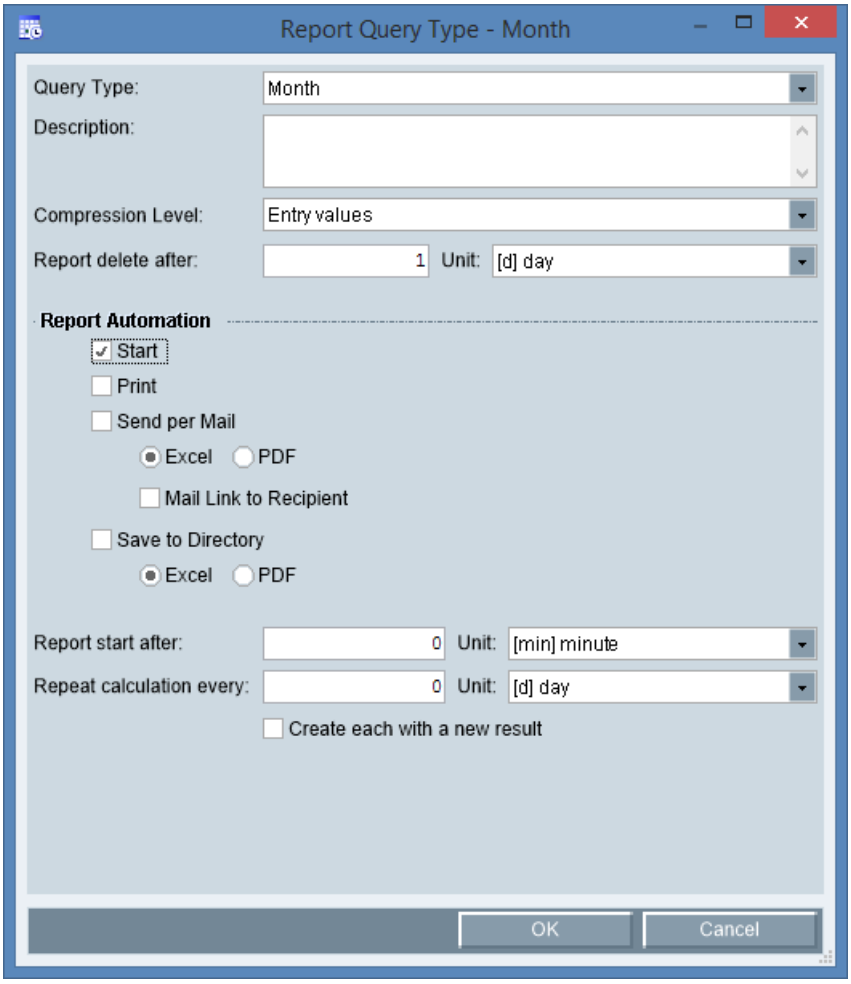
- Job "Delete old analyses":

  If a new query type is configured using "Master Data > Configuration", "Insert Query Type" button, this can then be used in any report. This means that the settings for the above job are valid in all reports in which this query type is used.

  Specify the time after which a report with this query type is to be deleted in Energy Manager.



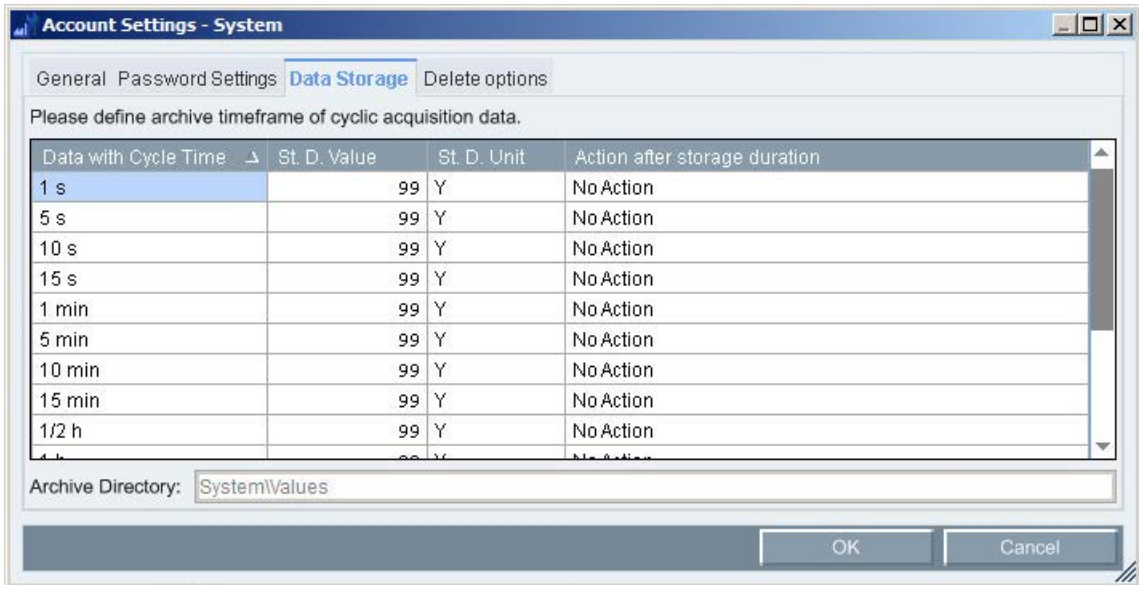
However, this configuration can be overwritten if necessary during creation of a new report without having to create a new query type in the master data. The figure below shows the use of the "Month" query type during creation of a report. In this case, it is possible to overwrite the setting for deleting the report. The change is then only valid for this report. The configuration of the query type created in the master data remains unchanged.



The following job is configured in "File > Account Settings > Data Storage".

- Job "Delete old measured values": Specify:
  - After which period data are to be deleted from the database.
  - After which period data are to be deleted from the database and archived.
  - Whether no action is to be set.

  In the Energy Manager options ("File" tab), you can use an entry in "DELETE_MSJO_COMMIT" to change the value after how many records a COMMIT is to be set.



Configuration or activation of the following system job is effected in "File > Account settings > Delete options".

- Job "Delete old log entries":

  Activate the check box and specify the period after which general messages are to be deleted from the Logging Viewer. In the Energy Manager options in the "Database" tab you can use the entry "1" in "FEJO_EXPORT_FLAG" to specify that the entries to be deleted are to be exported to a file (*.csv) beforehand.

- Job "Delete old log entries of the IT security":

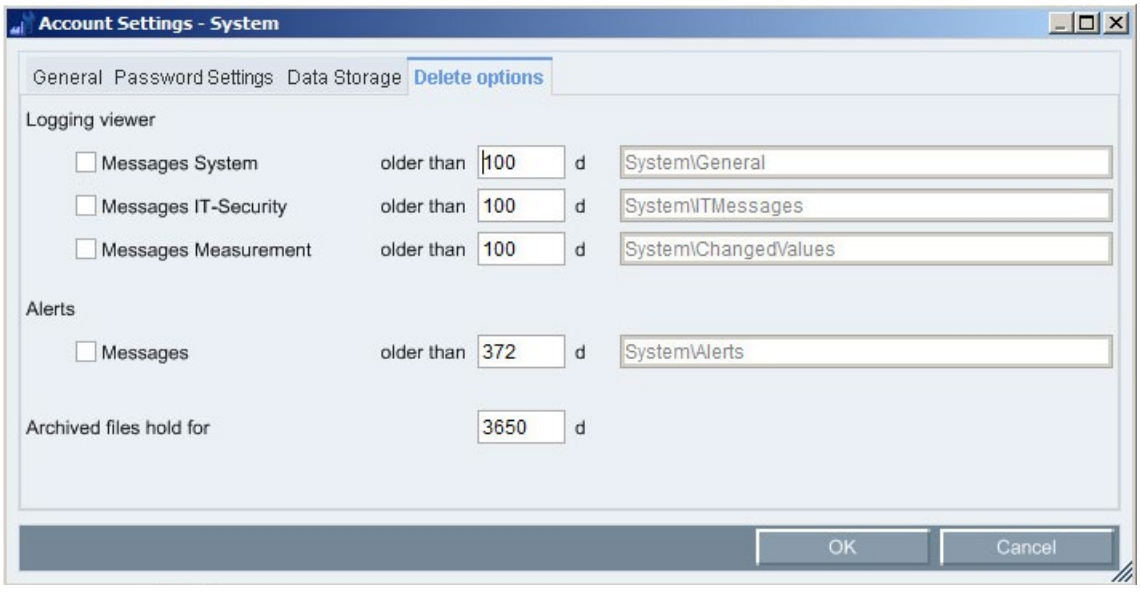
  Activate the check box and specify the period after which specific messages of the IT security are to be deleted from the Logging Viewer. In the Energy Manager options in the "Database" tab you can use the entry "1" in "ITSEC_EXPORT_FLAG" to specify that the entries to be deleted are to be exported to a file (*.csv) beforehand.

- Job "Delete old log entries of measured values":

  Activate the check box and specify the period after which messages about measured values are to be deleted from the Logging Viewer. In the Energy Manager options in the "Database" tab you can use the entry "1" in "FEJO_EXPORT_MESS_FLAG" to specify that the entries to be deleted are to be exported to a file (*.csv) beforehand.

- Job "Delete old alarms":

  Activate the check box and specify the period after which alarms are to be deleted from the alarm lists. Messages of the alarm list are automatically exported to a file (csv.) before being deleted.



Note

If archiving is activated for files to be deleted, these are archived to corresponding subdirectories of the archive basic directory before being deleted. The Archive basic directory can be viewed in the "Account settings > General" and be modified if required. The default retention time for archived data amounts to 10 years.

The following job automatically calculates derived data points.

- Job "Recalculation of derived data points":

  By enabling the respective options in the derived data point, the derived data point is automatically recalculated according to the cycle time.

The following job is executed automatically by the system.

- Job "Optimize database":

  The job served to optimize tables of the database. Since the optimization of large tables can take a longtime, so that the system efficiency may be impaired as a result, the user has the option to exclude large tables from the optimization. The entry "OPTIMIZE_BIG_TABLES" in the Energy Manager options under "Database" is available to this purpose. The entry "0" means that the optimization of large tables is excluded.

Background jobs

Other background jobs that the user cannot change are:

- Job "Remove abandoned measured values and alarms": Deletes values that cannot be deleted immediately.
- Job "Synchronization": Synchronizes SQL server database with acquisition components.

You must make additional settings for the following jobs:

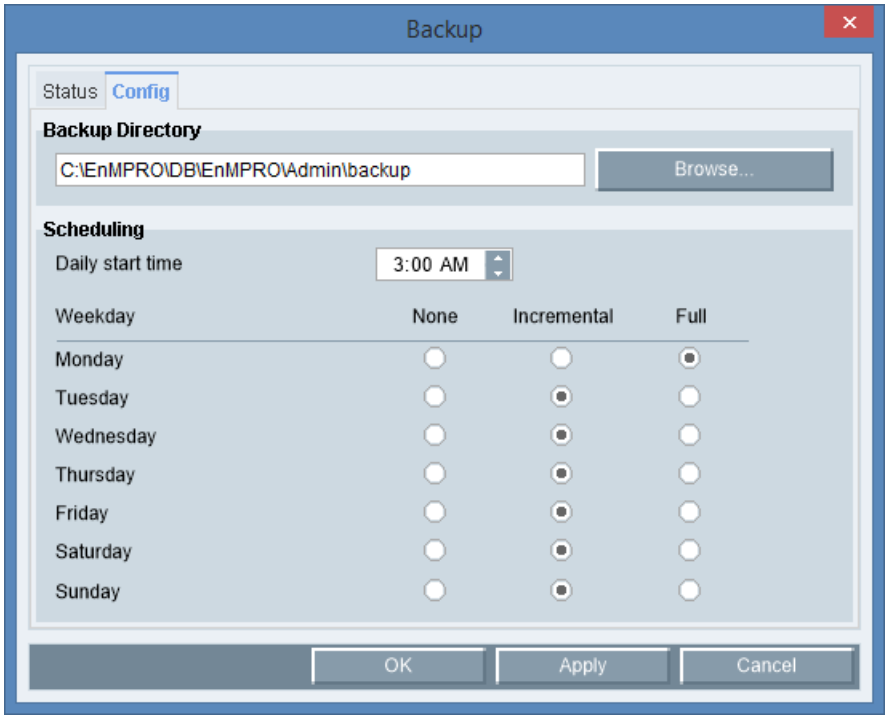
- Job "Automatic analysis":

  Specify after which period a report with this query type is to be started in Energy Manager.

  If necessary, the configuration can be overwritten during the creation of a report of the query time.

- Job "Database backup":

  Specify at which times a database backup is to be carried out.



See also

Logging Viewer (Page 381)

Configuring query types (Page 372)

Automating a report (Page 281)

Account settings (Page 694)

2.2.7.5 Task Management

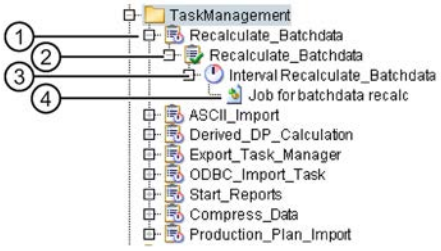
Task Manager

Overview

Energy Manager Task Management Is used to perform different actions, e.g. starting reports, importing / exporting data, or initiating calculations.

You configure the Task Management in the Client. The task also has to be set up on the application server, as tasks are executed by means of the Microsoft Scheduler. You may start a configured task manually from any client.

The system provides a number of predefined tasks. The following section describes the general structure of Task Management.



① Task Manager serves as grouping object and to define the hardware that is to run a task.

② The task object contains information on the function to be executed and the schedule.

③ The interval definition becomes necessary as soon as a time frame that is relative to the current time has to be defined.

A Task Manager is created automatically during the installation. In addition, a new Task Manager is created for each new acquisition component.

Note

The task is used to execute a *.cmd file that is stored in the "CMD" section of the Energy Manager installation folder on the application server. For this reason, the task schedule needs to be created on the application server. The user running the task must have corresponding Administrator privileges.

Note

An XML file is generated by default for tasks involving logging and export. You can view the structure of this XML file in the section "SAP interface (Page 854)". The generated XML file can be converted into a CSV file using the XML style sheets. For available XML style sheets, see section "XML stylesheets (Page 848)".

By installing the Energy Manager application server, you are automatically generating the tasks as well as the associated interval definitions.

These automatically generated tasks include a separate task each for logging of values, alarms or system alarms (see section "Account settings (Page 68)") as well as for export as an XML file. For the logging task, you can export these values and delete them as well.

See also

Task Management (Page 831)

Task (Page 835)

Interval definition (Page 837)

2.2.7.6 Import and export

Basic principles of export and import

Overview

You can export your configuration data in XML format in Energy Manager and import them again. Use the "Import / Export" option, for example, to back up your configuration data.

When exporting data from Energy Manager, the export is marked with the version of Energy Manager. Export with the version is not taken into account in previous Energy Manager versions. An export or import of data is therefore only possible for identical Energy Manager versions.

Conflict test during import

The objects to be imported are compared with the objects in Energy Manager based on name and type during import. If an object already exists, the same object is created additionally with a sequential number .

Note

You cannot undo the data import!

Therefore prepare the import process carefully. Check if there are conflicts with existing data prior to the import. Note the following recommendations:

- If you want to import exported data again, divide the preceding export of the data into several steps.
- If possible, export only data you have created yourself.
- It is not advisable to carry out an import of the entire Energy Manager structure.

Export configuration

Export options

You can export the following structures from Energy Manager:

- Complete folder structure

  The selected object is exported with all child objects.

- Single object

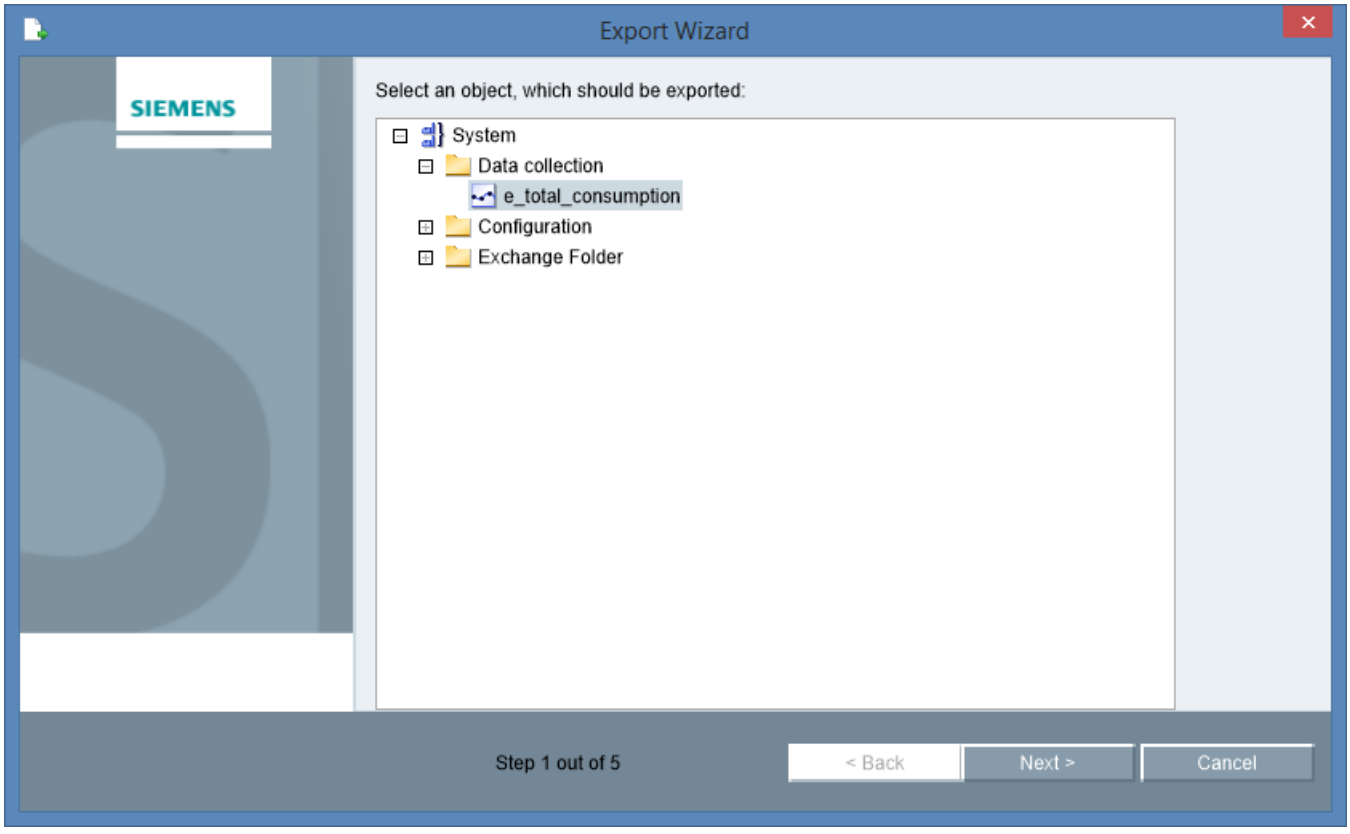
  Only the selected object is exported. Child objects are not exported.

Note

Objects with an ID of less than 5000 are master data of Energy Manager. If these data is included in the export, the existing master data are updated during the import.

Procedure

1. Click the "Export" button in the menu bar under "Administration > Import and Export".
   The "Export Wizard" dialog opens.
2. Select the object you want to export.



3. Select the required export option.
4. Select the directory in which the export files are to be stored.
   The data are exported from Energy Manager. Two files are created during the export:
   - "Nodes.xml" with the exported data
   - logdoc.txt" with detailed information on the export
5. Click "Finish".

Result

The data export is complete.

Importing data

Import options

You can import the following structures from Energy Manager:

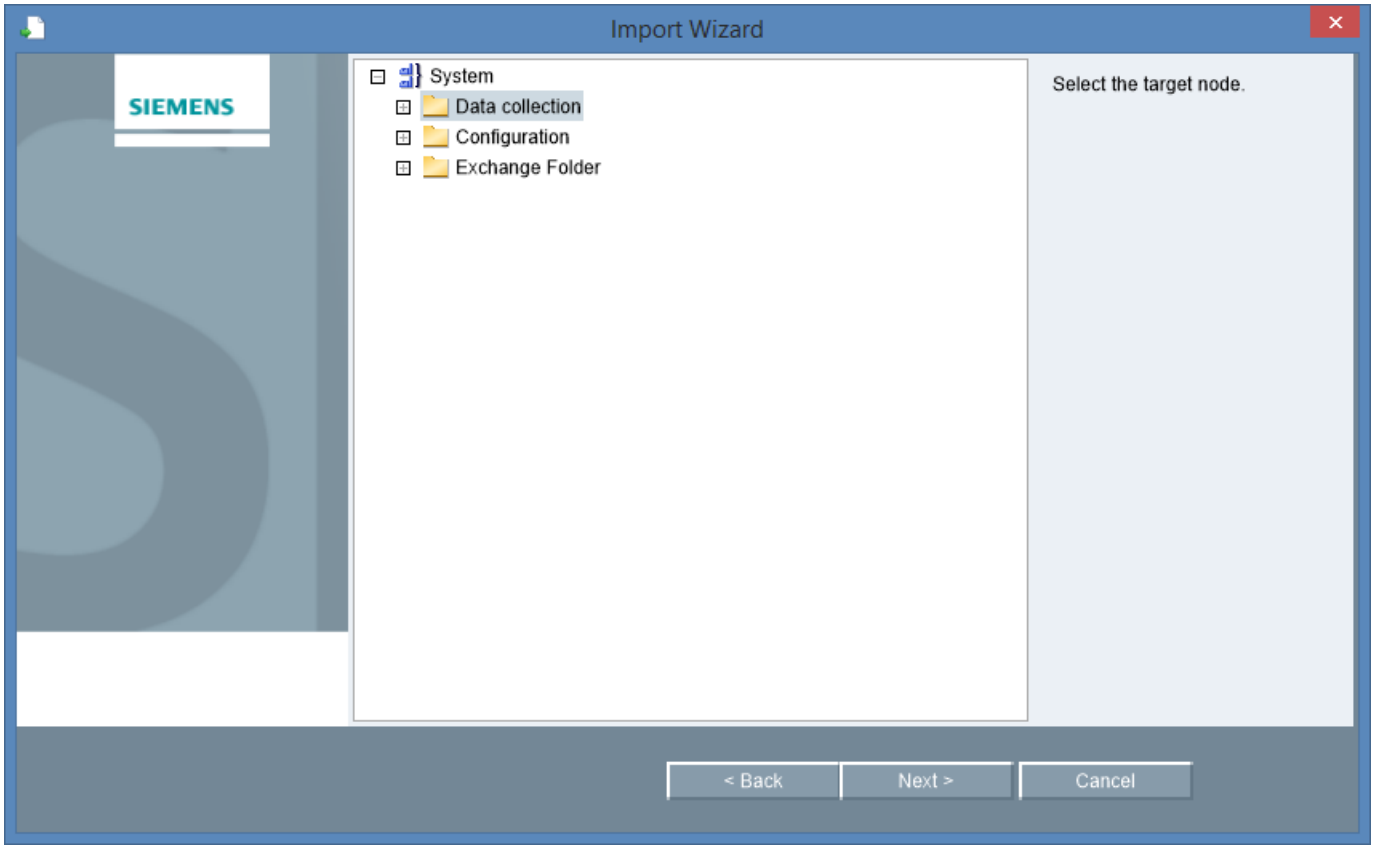
- Complete folder structure that is saved in the XML file.
- Complete folder structure of the selected object
- Single object

Requirement

The export data is stored in the file system.

Procedure

1. Click the "Import" button in the menu bar under "Administration > Import and Export".
   The "Import Wizard" dialog opens.
2. Enter the folder in which the XML file you wish to import is located.
3. Select the required import option.
4. Select the folder in which the import data is to be stored.



The import process is started. The objects to be imported are compared with the existing objects in Energy Manager. If objects with identical names and types already exist in Energy Manager, you are prompted to make a selection for each object:

– Select for each object if the existing object is to be overwritten or kept.

The import is executed once this conflict check is complete.

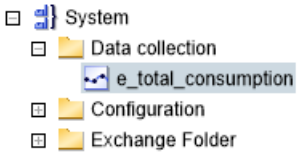
5. To close the wizard, click "Exit".

Note

Reimporting of data is only possible in the same version from which the data were also exported.

Result

The import data is stored in the specified folder in the Client.



2.2.7.7 Backup and Restore

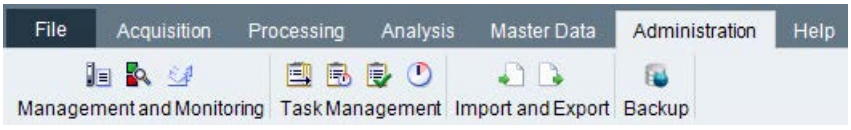
Backup

Overview

The backup functionality offers you the possibility to restore the system in the case of a hardware failure. A backup can be started manually or be automated. For each day of the week it is possible to select an incremental backup, a full backup or no backup. The storage location of the backup can be defined.

Procedure

1. Click the "Adminstration" tab and then the "Backup" icon.



2. Click the "Status" tab. Three functions are available here:

   Status of the active backup:

   – It is possible to carry out a backup immediately manually. If the database is not in archive mode yet, first switch to this mode by clicking the button.

   – Otherwise a full backup is started by clicking the "Backup" button and is stored under the preset path. The status of a running backup is indicated by the bar.

   Status of the last backup:

   – The date and time when the last backup was carried out are displayed. You can check here when the last correct backup was carried out.

   – If a backup was aborted due to an error, this is indicated by an error message. More detailed information on this topic is available on the "Administration > Management and Monitoring" tab in the Log Viewer.

   Status of drive:

   – Here you see how much storage space is still available for carrying out the backup. You see the designation of the database host as well as the associated backup path. The storage capacity can only be displayed if the application and database are installed on the same computer.

3. Click the "Configuration" tab. Here you can select the storage site of the backup as well as configure the execution of the backup.

   Browse backup directory:

   – With the "Browse" button you can search for the directory in which the backup is to be stored. The browse functionality is only available if you are at the database server. A directory on the database server or a directory linked to the database server via UNC Notation has to be selected as the backup directory. A directory mapped with the database server is not recognized in the system. Additional information on the required user permissions can be found in the database documentation.

Configure automatic backup:

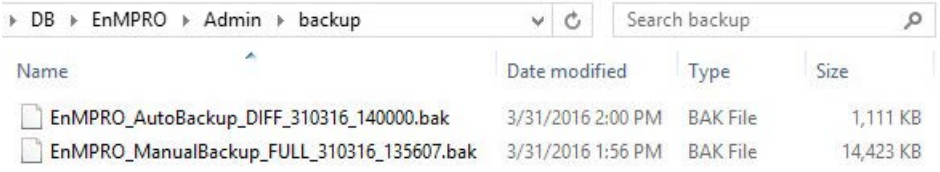
- Specify for each weekday when an incremental or a full backup is to be carried out. In as far as you carry out backups you must carry out at least one full backup per week. It is not possible to carry out solely incremental backups. The very first backup to be performed must be a full backup.
- With a full backup, the entire database is backed up, which is why it requires more memory space and more time than an incremental backup. With an incremental backup, the portions that are not yet backed up since the last back up are backed up.
- If you have selected "None" for the backup for each weekday, the archiving mode is deactivated. In case of a defect it is then not possible to restore the database.

Note

Never save backups on the same physical hard disk that also contains the database. In the case of a defective disk, the database as well as the backup would be lost.

Result

Correctly executed backups are stored in the selected or preset directory:



To learn how to restore the database, refer to the section "Restore (Page 413)".

See also

Backup (Page 716)

Restore

Overview

The Restore function is a separate application which helps you to restore the complete database should the necessity arise.

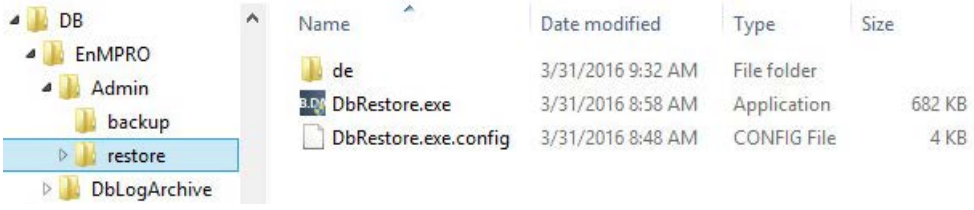
Note

Restoring older versions

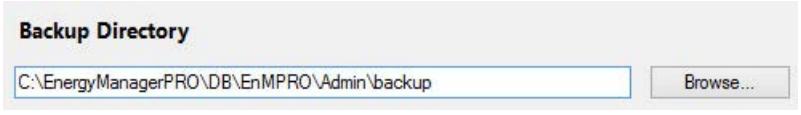
Version V7.2 does not support restoring a backup that was created with Version 7.1.

Procedure

1. Contact Support in the event of a restore.
2. Restoration can only be carried out on a database that already exists. Re-install the failed components, but at least the database. Carry out the installation from the DVD and using the installation manual included on it. To connect the newly installed components to the system again, use the same passwords.
3. The "DbRestore.exe" application is located in the installation directory of the Energy Manager in the folder "DB" > "EnMPRO" > "Admin" > "restore". The file can only be executed at the database server. Run the file.



   The operating system user who carries out the restoration must have corresponding local rights, for example, belong to a database administrator user group.
4. Select a language and click "Next".
5. Browse the directory in which the backups are located and click "Next".



6. In this context the name of the database, the selected backup directory and the date of the backup file are displayed once more.
7. Select the time at which the database is to be restored. You can select either the last available backup or a backup from a specific moment. In as far as no backup file is available on this date, a corresponding information is displayed.
8. Click "Start" to start the restoration. Restoration is carried out automatically with the full backup and the incremental backup belonging the selected moment of restoration.

9. After restoration has been completed successfully, you can terminate the wizard with "Finish".

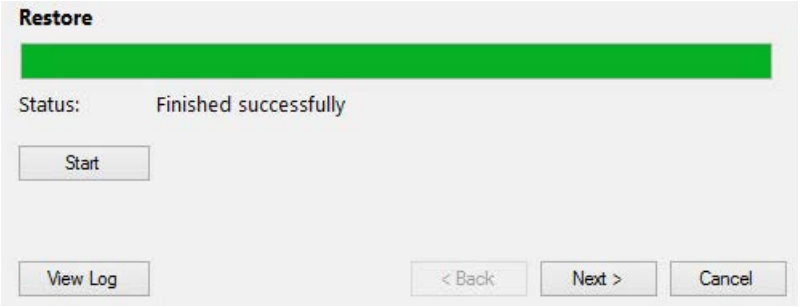
10. Restart the computer.

Note

You can only use the Restore and Backup function if you used the same Admin passwords when installing the systems in question.

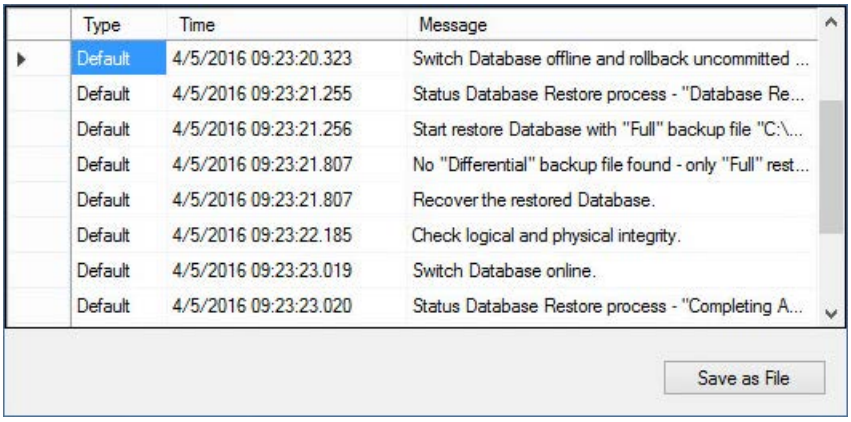
Result

The progress of the restoration process is indicated by a bar.



By clicking the "View Log" button you obtain detailed information about the restoration process.

If you want to save the log, click "Save to File". The log is then stored as a text file in the Restore directory.



See also

Backup (Page 716)

2.2.8 Historizing calculation logic

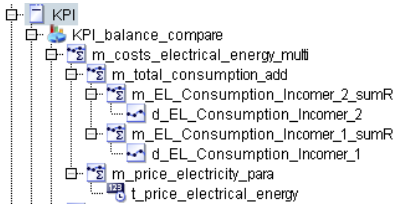
2.2.8.1 History management basics

Definition

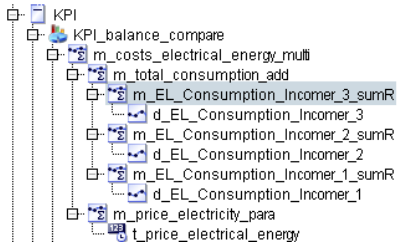
The history management in Energy Manager saves every change to the configuration of a calculation. This enables the tracing and reconstruction of the configuration of a calculation at any given instant.

Example

One year ago, you configured a report for the calculation of the power costs of two loads.



In the course of the year, you have added the calculation of a third load.



Now you are required to reconstruct the report for the calculation of the power costs of two loads at a specific time. To do this you use the history management of the report:

1. In the history management with monitoring time stamp, look for the configuration that you want to reconstruct.
2. When generating the report under "Model", enter the required monitoring time stamp.

   The report is generated using the configuration data saved under the specified monitoring time stamp.

Note

Versioning measured values

In order to correctly reconstruct the report, when generating the report, enter the version of the measured values valid at the time of the specified monitoring time stamp.

Objects for history management

You can display configuration changes for the following Energy Manager objects:

- Data point of type "Derived"
- Measuring variable
- Report

The following configuration data are displayed during the history management of objects:

Configuration	Meaning
Calculation tree	Shows objects of the calculation and their order in the calculation tree.
Type	Shows the type of the object, e.g. "Module". "Type" is only used in the history management of the reports.
Name	Displays the name of the object.
Function	Displays the function of a data point or of a measuring variable, e.g. "Measurement" or "Addition of MEVAs".
Operation	Displays the type of change to the object, e.g. "Delete".
Unit	Displays the unit of a data point or measuring variable, e.g. "kWh".
Changed on	Displays the date when the change was made to the object.
Changed by	Displays the user who made the change to the object.
Description	Displays the description of the changed object.

The following restrictions apply to the history management of reports:

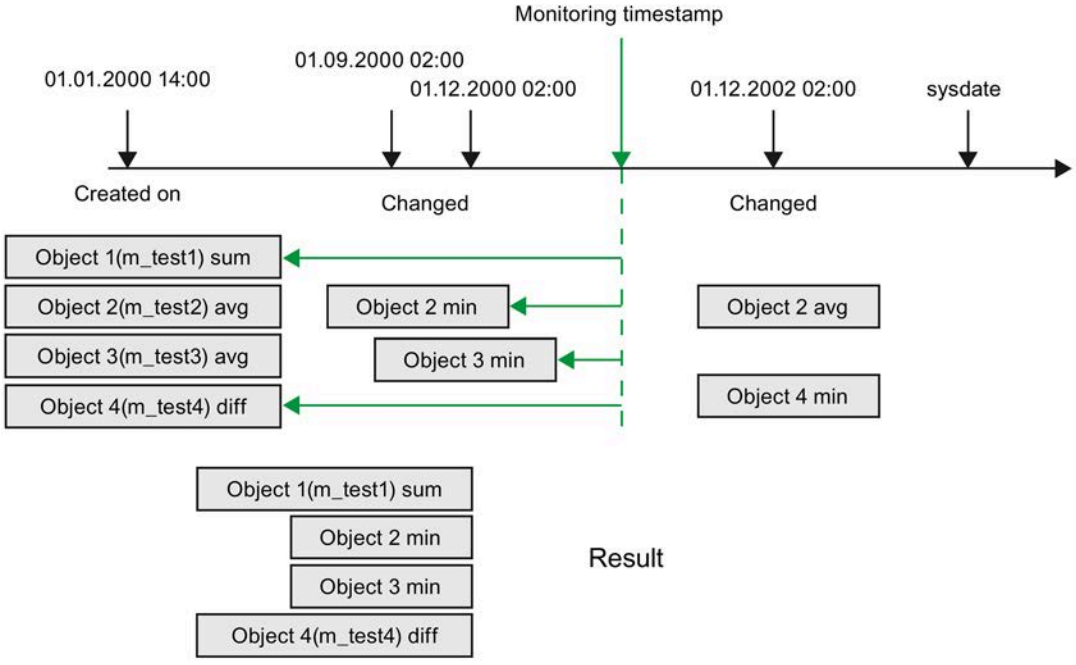
- No history is kept of report templates.
- No history is kept of start values.
- Automatically generated reports are only calculated with the current configuration data.
- Reports that are generated in Energy Manager PRO Web are only calculated with the current configuration data.
- Specific modules, e.g. plausibility modules, are only calculated with the current configuration data.

Display types for history management

During object history management you can select the following display type:

- Only state

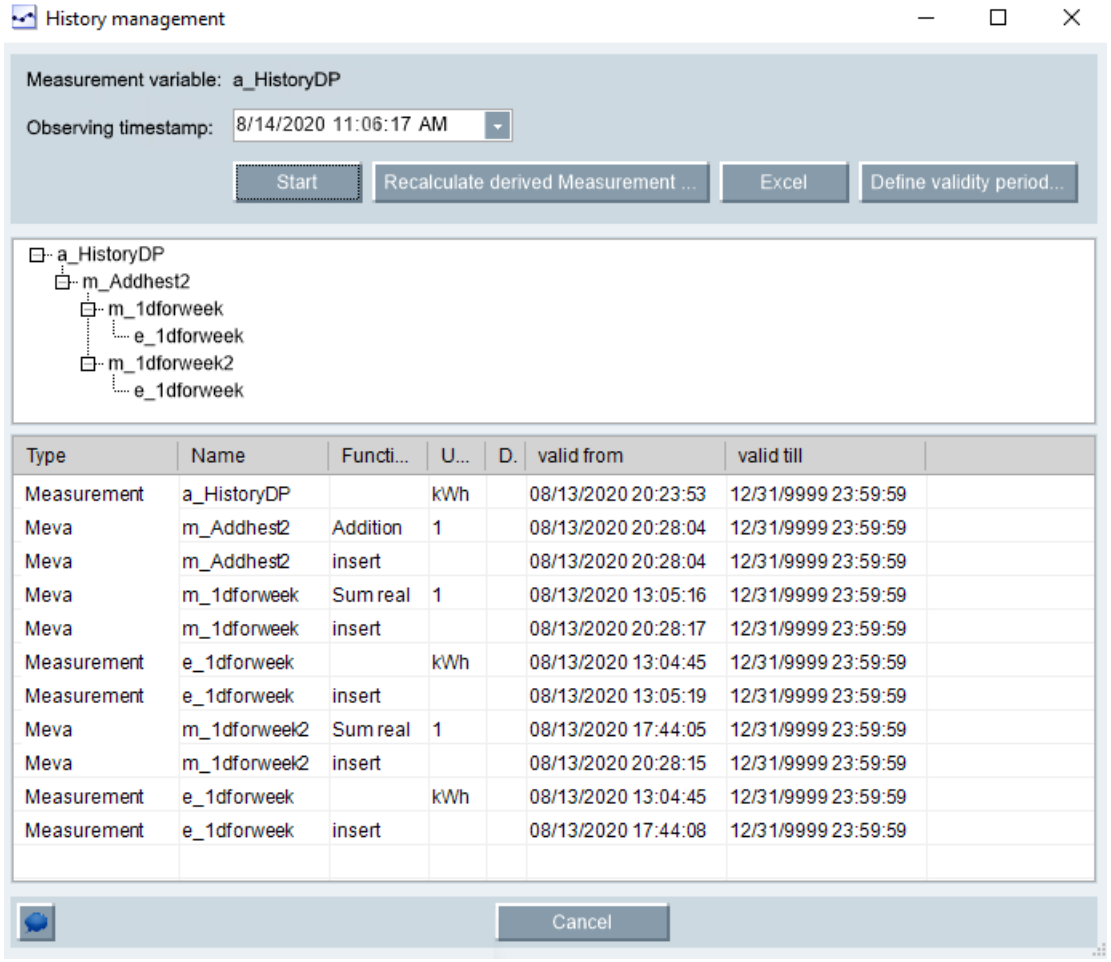
  With this display type, the current calculation tree and the configuration data are displayed for the required monitoring time stamp.



2.2.8.2 Historization of data points

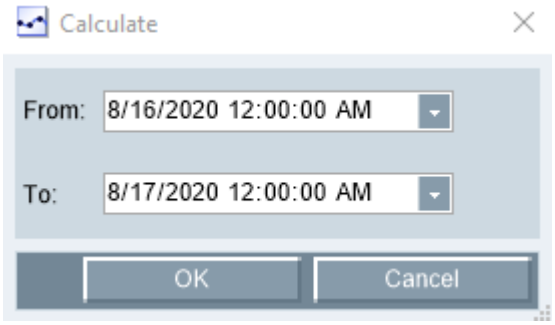
Procedure

1. Select the data point for which you want to view the historization.
2. Select the "History management" command from the shortcut menu.
3. You first have to select a date to call the corresponding configuration.
4. Clicking "Calculate" displays the tree that is currently available for the selected time. The configuration status that is valid at the selected time is displayed in the list. The log for data points includes changes to units and functions. The log for derived data points also includes changes to the assigned measuring variable.



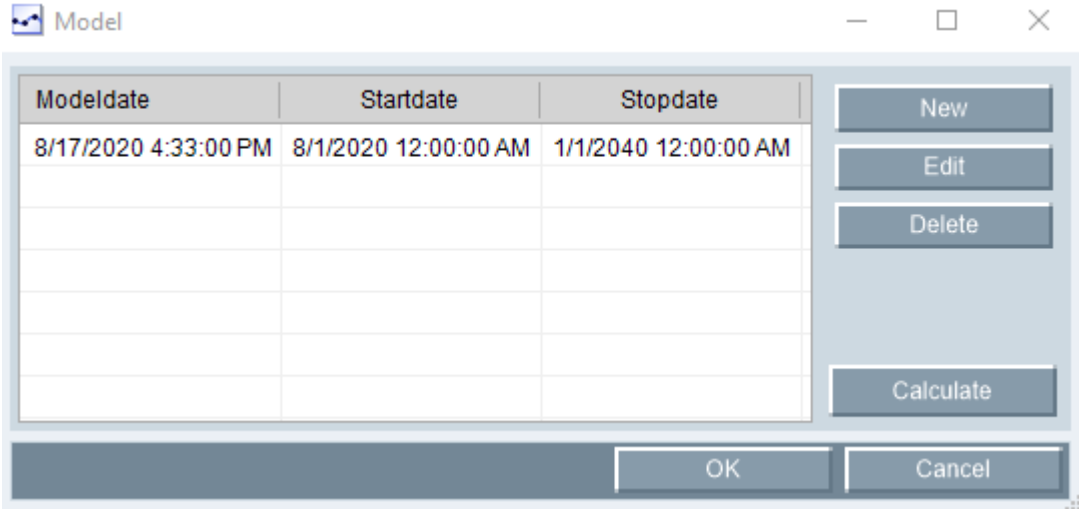
Type	Name	Functi...	U...	D.	valid from	valid till
Measurement	a_HistoryDP		kWh		08/13/2020 20:23:53	12/31/9999 23:59:59
Meva	m_Addhest2	Addition	1		08/13/2020 20:28:04	12/31/9999 23:59:59
Meva	m_Addhest2	insert			08/13/2020 20:28:04	12/31/9999 23:59:59
Meva	m_1dforweek	Sum real	1		08/13/2020 13:05:16	12/31/9999 23:59:59
Meva	m_1dforweek	insert			08/13/2020 20:28:17	12/31/9999 23:59:59
Measurement	e_1dforweek		kWh		08/13/2020 13:04:45	12/31/9999 23:59:59
Measurement	e_1dforweek	insert			08/13/2020 13:05:19	12/31/9999 23:59:59
Meva	m_1dforweek2	Sum real	1		08/13/2020 17:44:05	12/31/9999 23:59:59
Meva	m_1dforweek2	insert			08/13/2020 20:28:15	12/31/9999 23:59:59
Measurement	e_1dforweek		kWh		08/13/2020 13:04:45	12/31/9999 23:59:59
Measurement	e_1dforweek	insert			08/13/2020 17:44:08	12/31/9999 23:59:59

5. Click the "Recalculate derived Measurement ..." button to enter a time period. If the calculation rule of the derived data point has changed, enter the time period for which the derived data point is recalculated.



   However, this requires that the check box "Actual model" was not selected in the definition of the derived data point. If the check box is selected, the defined models are not activated and the calculation is always based on the current model.

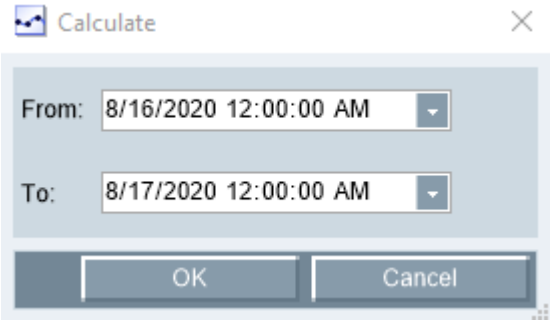
6. Clicking "Excel" opens an Excel spreadsheet and the displayed data is inserted for further use.
7. To get to the definition of the models for derived data points, click on the "Define validity period" button.
8. Click "Add", "Edit", or "Delete" buttons to specify or edit the various validities of the models.



Note

A model may not end within an interval of the derived data point. If a derived data point has been assigned the "Month" interval, the model may only change on the first day of each month (01.xx. 00:00).

A recalculation of the derived data point is not automatically initiated when models are changed. To recalculate the derived data point according to a changed calculation rule, click "Calculate".



In the dialog, enter the time period for which the derived data point is recalculated. The last model is always assigned the stop date of 01.01.2040.

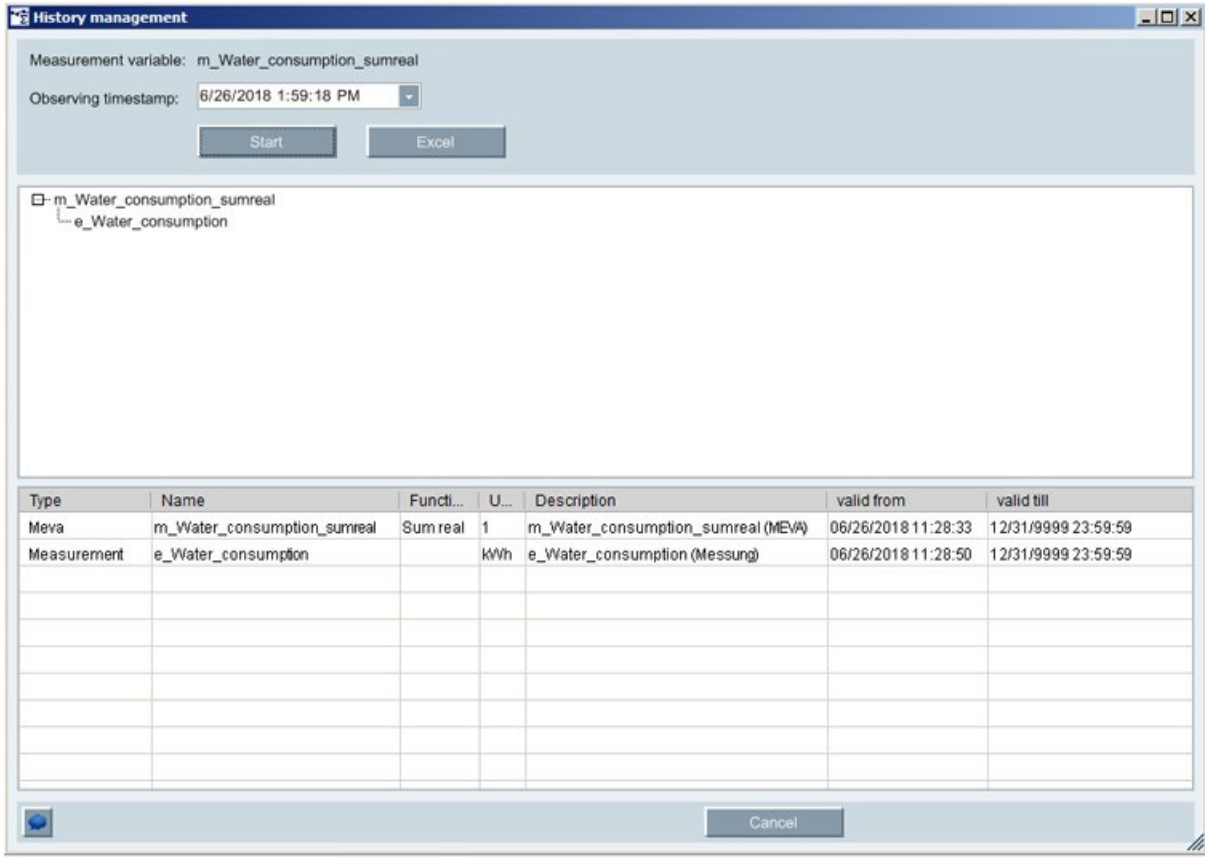
However, this requires that the check box "Actual model" was not selected in the definition of the derived data point. If the check box is selected, the defined models are not activated and the calculation is always based on the current model.

2.2.8.3 Historization of measurement variables

Procedure

1. Select the measuring variable for which you want to view the historization.
2. Select the "History management" command from the shortcut menu.
3. You first have to select a date to call the corresponding configuration.
4. Click "Calculate" to display the tree that is currently available for the selected time.

   The entry always contains the currently valid function. The description field contains entries for both the old and new functions. The old unit or the new unit is listed in the description field "Unit".



5. Click "Excel" to open an Excel spreadsheet in order to insert the data that is displayed for further use. Click "Close" to exit the dialog.

The history of objects is retained for their entire life time in the system.

2.2.8.4 Historization of reports.

Overview

The following report attributes are included in the log:

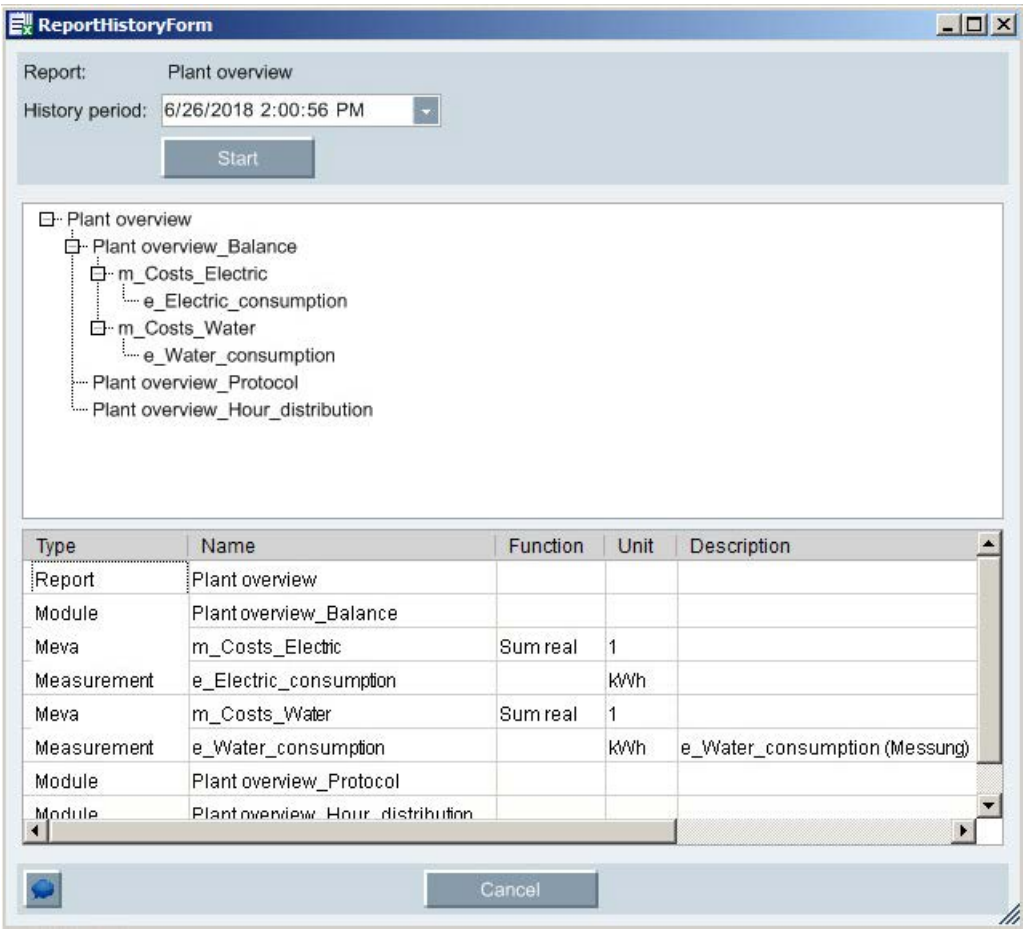
- Objects in the calculation tree and their order. Example: Which data points or parameters were connected at a specific time to a module or Meva node and their order.
- MEVA: function and unit
- Measurement: Unit
- Parameter: Substitute value
- Module: Module type

Procedure

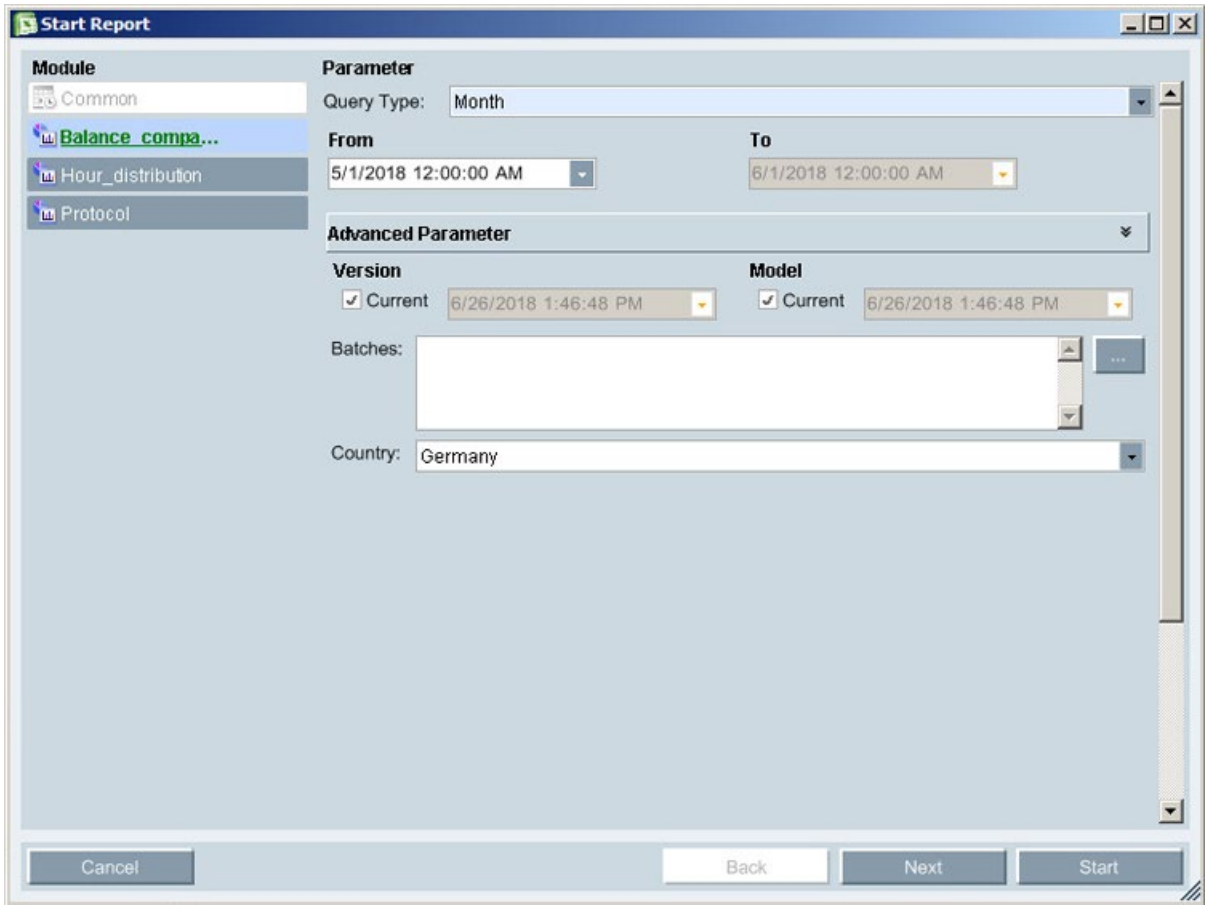
1. Select the report for which you want to view the historization.
2. Select the "History management" command from the shortcut menu.
3. You first have to select a date to call the corresponding configuration.

4. Click "Calculate" to display the tree that is currently available for the selected time.

   All changes with regard to "Insert", "Update" and "Delete" operations of modules, connected data points and Mevas are included in the log.



5. At the start of reporting, you can select the model (date) that is to be used to calculate the report. The measured values that are valid at this point in time (version) should be used accordingly for calculations.



6. To disable the display of the model date in the header data of the report, assign the value 0 to the name "Show Model" in "Administration > Energy Manager Options > Appl.".

   The model date is displayed in the header data of the report by default: Show Model = 1.

	A	B
1	Date	03.05.2009 12:07
2	From	01.04.2009
3	To	01.05.2009
4	User	
5	Query Type	Ad-Hoc
6	Name	Seabird_Report - f
7	Description	
8	Keep	no
9	State	Finished
10	Version Date	26.04.2009 12:07
11	Model Date	26.04.2009 12:07

See also

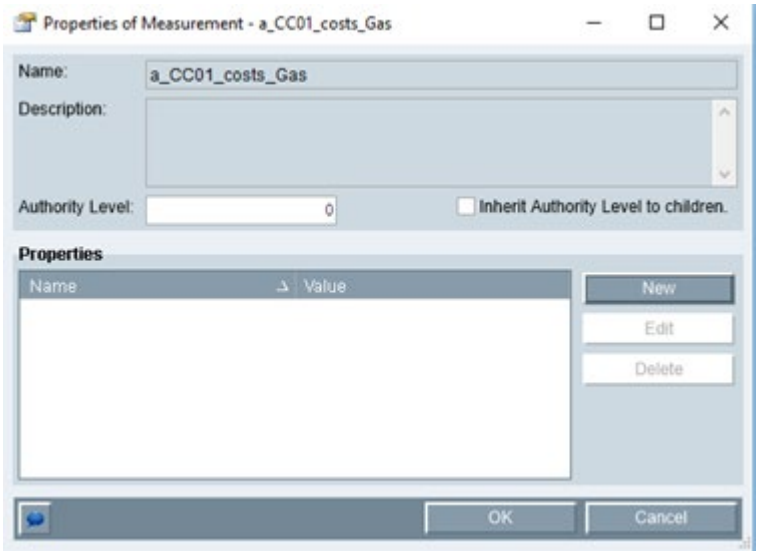
Options (Page 53)

2.2.9 Defining the properties of an object

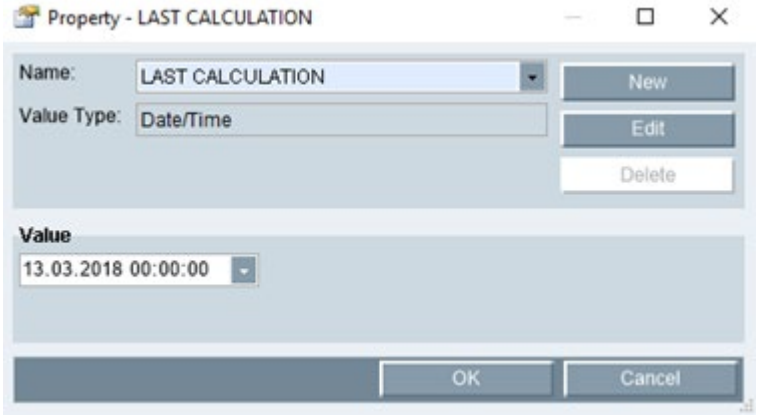
When exporting cost centers, in addition to the values, you can also export the properties of the data point as an XML or CSV file. The corresponding cost centers, service type and Business Unit are defined directly as properties of the derived data point and assigned. These properties are exported along with the values of the derived data point.

Creating a property

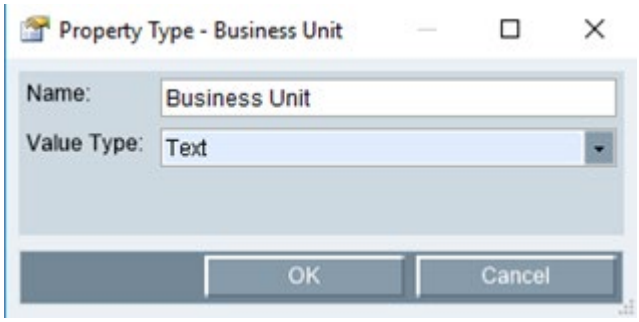
1. Open the property dialog of the derived data point with a right click on the derived data point.
2. Select the properties with the "New" button.



3. If the required property is not available, create it using the second "New" button.

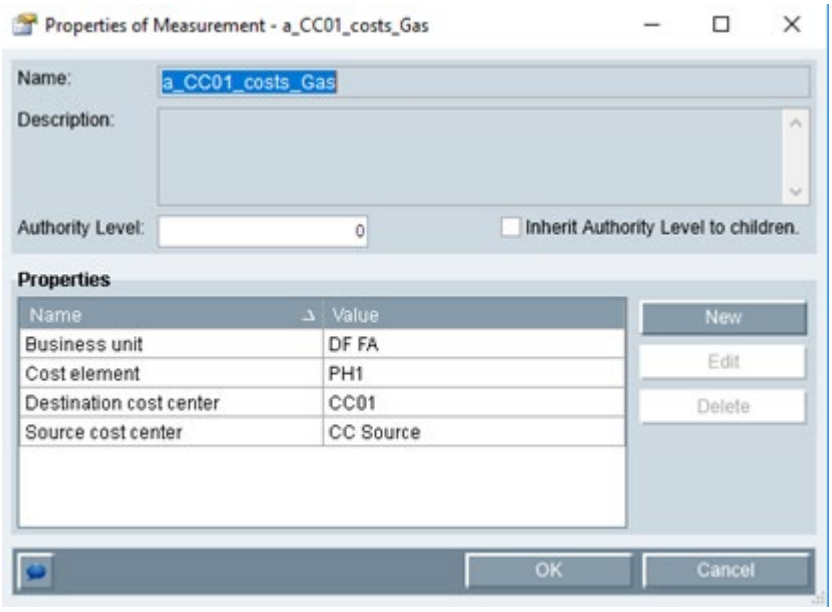


4. Create the following properties:
   - Business Unit
   - One property each for the source cost center and the target cost center
   - Service type



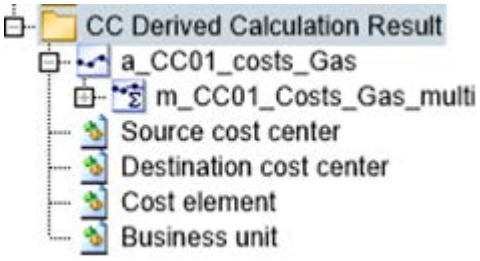
Value of a property

Each property has a value. This value depends on the selected data type. The cost center properties require the "Text" data type. A text can be entered directly for this data type. This way you can apply the name of the cost centers, Business Unit and service type.



Property type

A property object is created in the tree topology of the Energy Manager PRO for each property. This property object can be used in a report to show the cost center information in an Excel report in addition to the XML export.



2.3 Manual acquisition of data

2.3.1 Matrix

Overview

With the matrix you can enter values manually in Energy Manager.

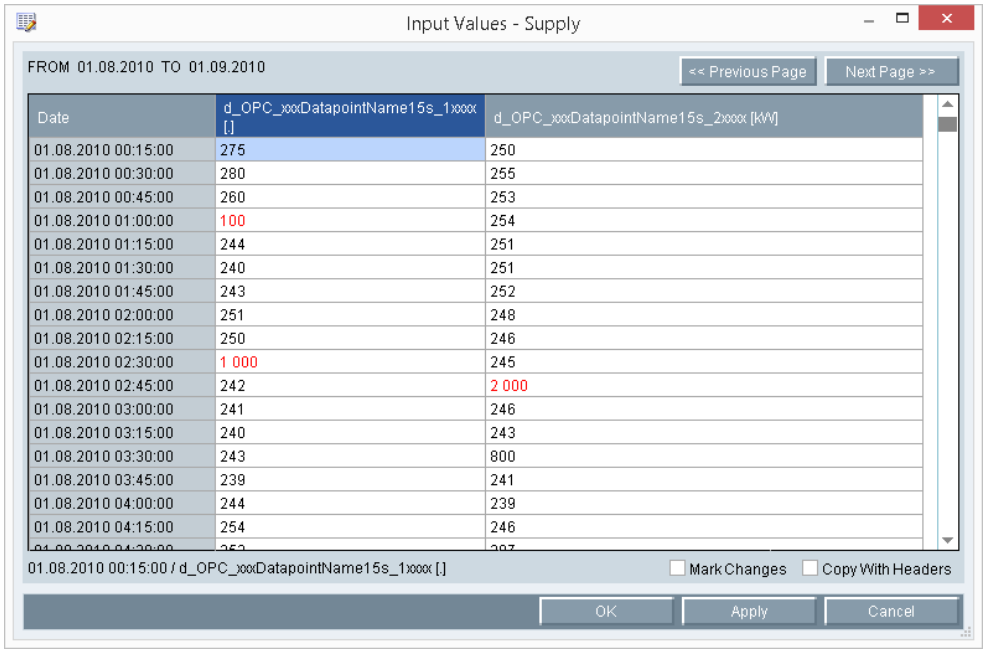
Data input via matrix

1. Double-click the matrix object to enter the data in the matrix.

   The configuration dialog of the matrix object opens.

2. Click "Input Values" to create the matrix based on the time stamps and connected datapoints.

   A separate column is generated for each datapoint connected to the matrix node.



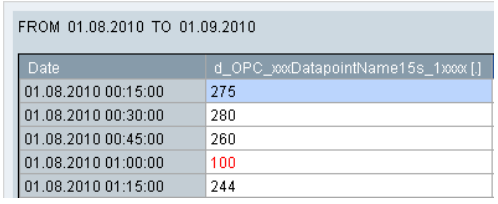
3. Enter the values in the fields provided for this purpose.

   Provided the "Plausibility" option has been set in the matrix configuration dialog, the bottom area of the input dialog for the active field displays the valid scope along with the datapoint name. Value entries outside the valid range are marked in red color (see above). A corresponding message notifies you of this situation: "Value 8 must be >= 20!"

4. Click "Apply" to save your changes to the database.

   The result is displayed below the "Apply" button. Example: "5 values inserted, 0 values updated, 0 values removed."

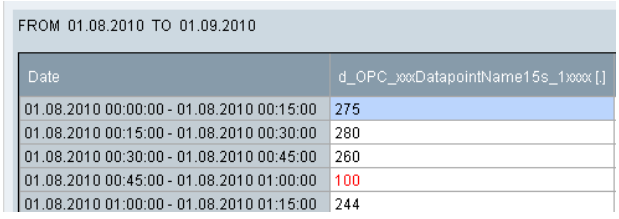
5. Use the "Page up" and "Page down" keys to modify the monitoring period. The corresponding values are loaded from the database.
6. Assign the value 1 to the name "TimestampsAlignLeft " in "Energy Manager Options > Appl." in order to switch the representation in the matrix to the valid range "from-to".



FROM 01.08.2010 TO 01.09.2010

Date	d_OPC_xxxDatapointName15s_1xxxx [ ]
01.08.2010 00:15:00	275
01.08.2010 00:30:00	280
01.08.2010 00:45:00	260
01.08.2010 01:00:00	100
01.08.2010 01:15:00	244

The time stamp representation is setup by default: TimestampsAlignLeft = 0.



FROM 01.08.2010 TO 01.09.2010

Date	d_OPC_xxxDatapointName15s_1xxxx [ ]
01.08.2010 00:00:00 - 01.08.2010 00:15:00	275
01.08.2010 00:15:00 - 01.08.2010 00:30:00	280
01.08.2010 00:30:00 - 01.08.2010 00:45:00	260
01.08.2010 00:45:00 - 01.08.2010 01:00:00	100
01.08.2010 01:00:00 - 01.08.2010 01:15:00	244

These settings are valid for Energy Manager and Energy Manager PRO Web.

See also

Manual acquisition with the matrix (Page 180)

2.3.2 Energy Manager PRO Mobile

2.3.2.1 Basics of Energy Manager PRO Mobile

Definition

Energy Manager supports in situ manual acquisition of operational or counter values by means of a mobile device such as a PDA.

Energy Manager PRO Mobile is a software interface that enables the acquisition of values on a mobile device and their automatic import to Energy Manager.

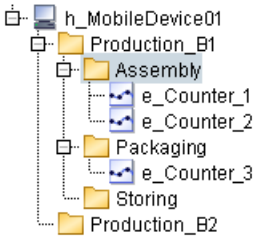
Usage

Use Energy Manager PRO Mobile in the following cases:

- If automatic measured value acquisition is not possible, e.g. using a counter.
- If a link or a sensor fails during automatic measured value acquisition.

Data acquisition on mobile devices

Set up each mobile device as a separate hardware object in Energy Manager. Copy the data points to be acquired by means of the hardware object to the tree below the hardware object. Once the mobile device is interconnected with a Energy Manager PRO Client, the data point values are synchronized automatically with the Energy Manager PRO Database.



You have the following options of acquiring values on the mobile device:

- Separate identification of the counters

  Identify a counter from which you only take a manual reading in exceptional situations or on rare occasions on the mobile device. You can use a mobile device that features a scanner to take an unambiguous reading of the counter's barcode ID. You can access the values stored in the data point after you have identified the counter.

- Defining routes

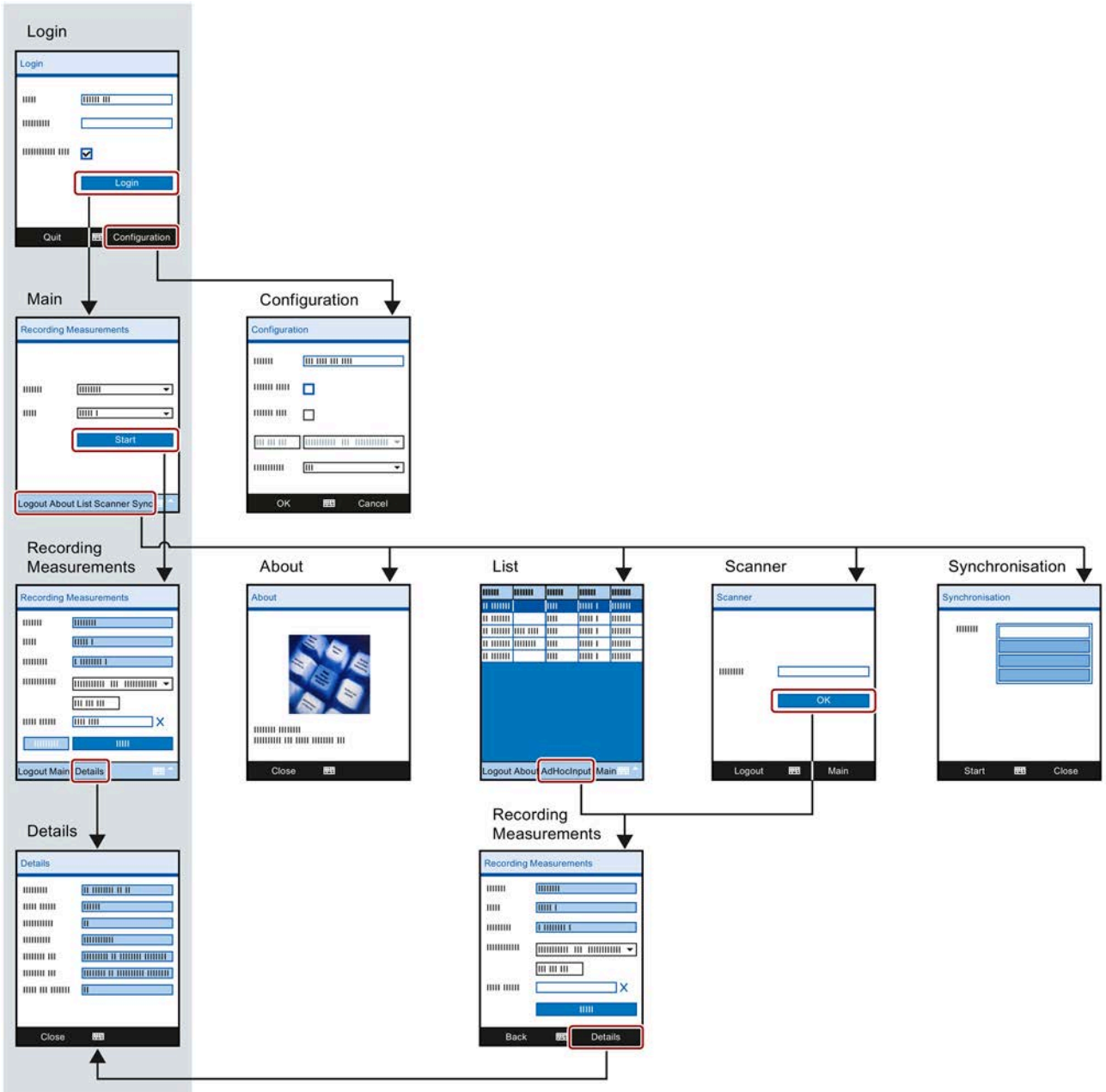
  If you read off multiple counters at regular intervals, define a route in Energy Manager. A route lets you define the order in which the devices are read locally. The mobile device guides you through the route and provides you with additional information such as the last value, as well as high and low limits.

See also

Synchronizing data (Page 434)

2.3.2.2 Navigation structure of Energy Manager PRO Mobile

The following diagram highlights the navigation structure of the "Energy Manager PRO Mobile" application on the mobile device:



See also

Synchronizing data (Page 434)

2.3.2.3 Entering measured values

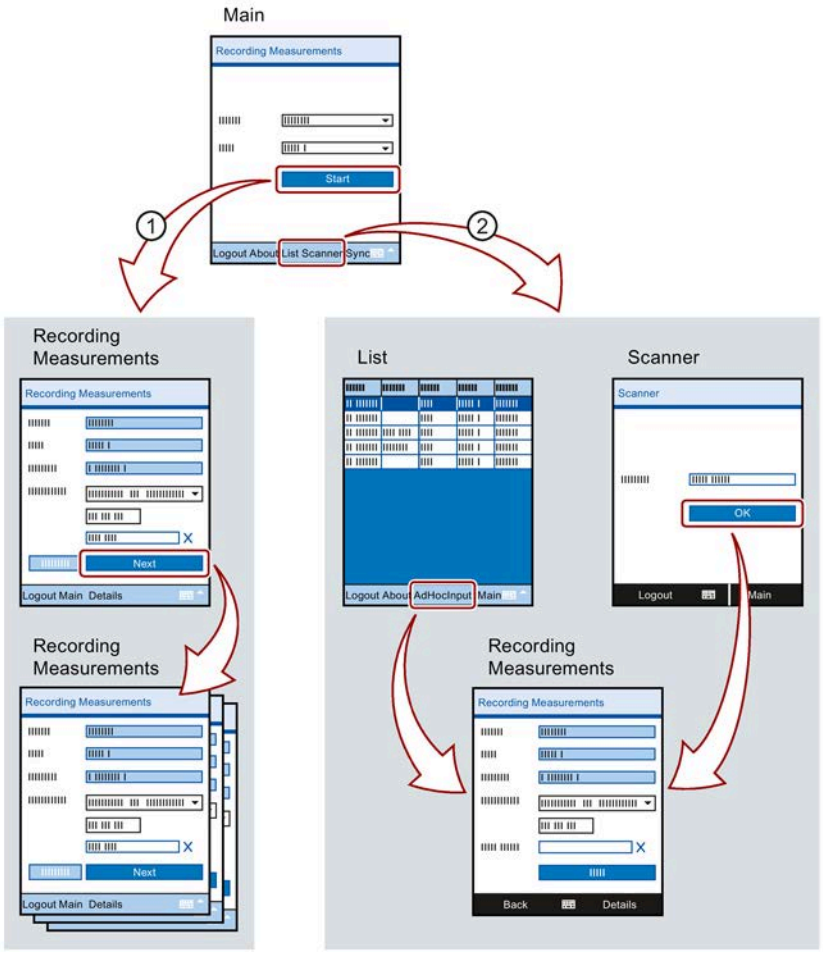
Requirement

- You are logged on to the "Energy Manager PRO Mobile" application on the mobile device.
- The "Main" picture is displayed on the mobile device.
- The synchronization process is concluded.

Procedure

1. Identify the meter.
2. Enter the measured value reading on the mobile device.
3. Enter the time stamp, if necessary.

The following figure shows how to enter measured values on the mobile device, based on the "Main" picture:



① Only available if one or several routes were defined in Energy Manager.

Acquiring measured values based on the selected route:

1. Select the route and range and launch routing with "Start".
2. Enter the measured value reading and confirm your entry with "Next".

② Separate acquisition of measured values:

1. Identify the meter using the "List" or the "Scanner" of the mobile device.

   The meter must be equipped with a barcode for identification by the scanner.
2. Enter the measured value reading and confirm your entry with "OK".

Result

The measured value readings are stored on the mobile device.

If you now connect the mobile device with the Energy Manager PRO Client, the measured values are transferred automatically to the Energy Manager PRO Database and stored in the data points.

See also

Generating barcode (Page 927)

2.3.2.4 Synchronizing data

Overview

The following occurs when you synchronize data on the mobile device:

- The routes and data points that you have configured in Energy Manager are mapped to the mobile device.
- The values you have entered on the mobile device are saved to the corresponding data points in Energy Manager.

You can synchronize data on the mobile device as follows:

- Manually

  Synchronize the data manually when you use Energy Manager PRO Mobile for the first time.

- Automatically

  When you connect the mobile device after the first synchronization to the Energy Manager PRO Client, the measurement values are synchronized automatically.

Requirements

- Energy Manager PRO Mobile is installed and configured in Energy Manager and on the mobile device.

  You will find more detailed information on this topic in the manual "SIMATIC Energy Manager - Installation", keyword "Installing Energy Manager PRO Mobile".

- You are logged on to the mobile device with the Energy Manager access data.
- The mobile device displays the "Main" screen.

Synchronizing data manually

1. Select the "Synchronization" command.

   The data is synchronized. The synchronization status is indicated in the "Synchronization" screen.

Result

The data on the mobile device and in Energy Manager are synchronized.

Note

Ignoring the values

The current value will be ignored if the Energy Manager database already contains a data point value with the same time stamp.

See also

Navigation structure of Energy Manager PRO Mobile (Page 431)

Configuring a mobile device in Energy Manager (Page 925)

2.3.3 Parameter

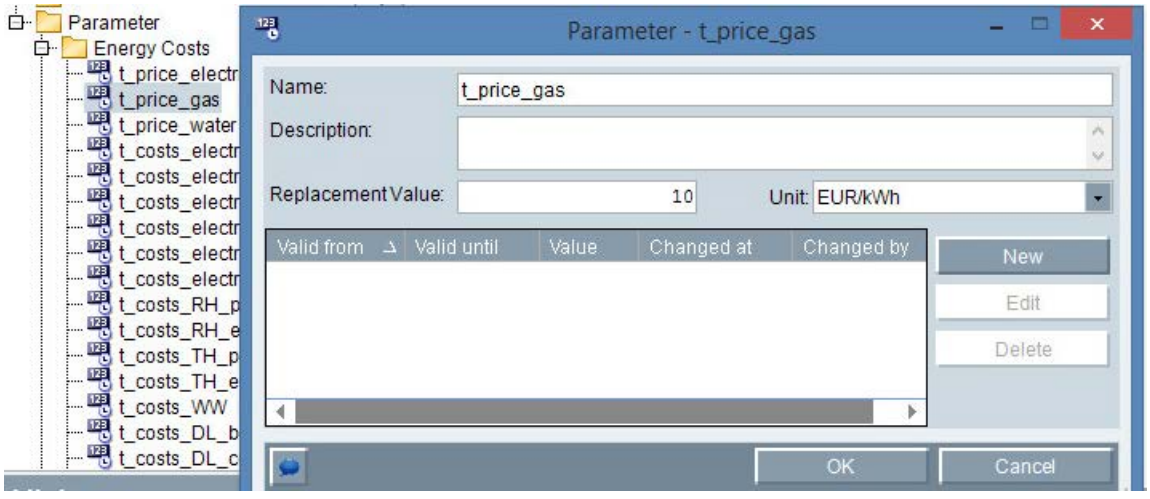
Overview

With a Parameter you can acquire a fixed value that is either generally valid, or is limited by the entry of a time range in its validity duration. You can, for example, define electricity or gas prices for specific periods or specify conversion factors such as a CO_2 conversion factor.

The entry of a parameter value in the Energy Manager PRO Client corresponds to that in the Energy Manager PRO Web.

Procedure

1. Click the Parameter at which you wish to enter a value. The input dialog is opened.
2. Enter a value and, if necessary, a period of validity.



3. Confirm with OK.

See also

Parameters (Page 194)

Parameter (Page 532)

2.4 Analysis

2.4.1 Basic information on analysis

Definition

"Analysis" denotes the time-independent processing and visualization of measured values in reports, charts and dashboards. You can use Microsoft Excel or Microsoft Word to visualize the report results.

You can process the data exported from Energy Manager using the entire functionality of Microsoft Excel or Microsoft Word , for example, statistical functions such as correlation or regression analysis from Microsoft Excel. You can also process the result data using graphics or diagrams.

Application

"Analysis" supports you in the following activities:

- Creation of company-specific report results for all departments and information demands.
- IT-related, system-wide analysis of different business units for holistic assessments of your company.
- The workflow system of Energy Manager reduces your staff's workload:
  - Automatic and cyclical calculation of performance indicators and accounting results (task management).
  - Automatic generation of standard analyses for predefined periods, e.g. day, month, shift, year.
  - Automatic sending of evaluations to printers in the company-wide printer network.
  - Automatic dispatch of analyses and accounting bases by means of email attachment to internal and external recipients of the business unit.

When generating reports, you can always access previous configurations (historicization), or different measured value versions (versioning).

2.4.2 Report results

2.4.2.1 Generating a report result manually

Overview

You can generate a report result at any time.

Requirement

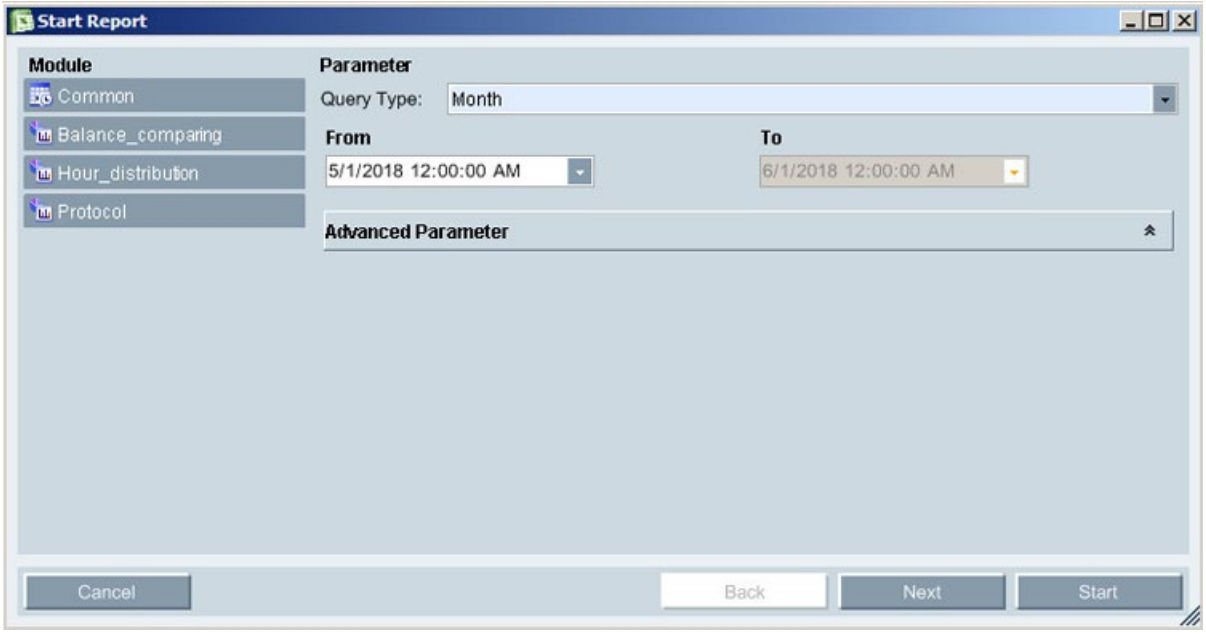
- The report is configured.
- The module and request type are configured for the report.
- The template is configured for the report.
- The values for the report have been set.

Generating a report result

1. Click "Start" in the shortcut menu of the selected report.

   The "Start report" dialog opens.

   The "General" tab is activated in the "Module" area.



2. Select the query type for the report result.
3. Specify the time range for the report result.
4. Click "Advanced parameters" to specify additional parameters for generation of the report result.

5. You can edit module start parameters by selecting and editing the selected module in the "Module" area.

   You may also click "Next" to select the module.

6. Click "Start".

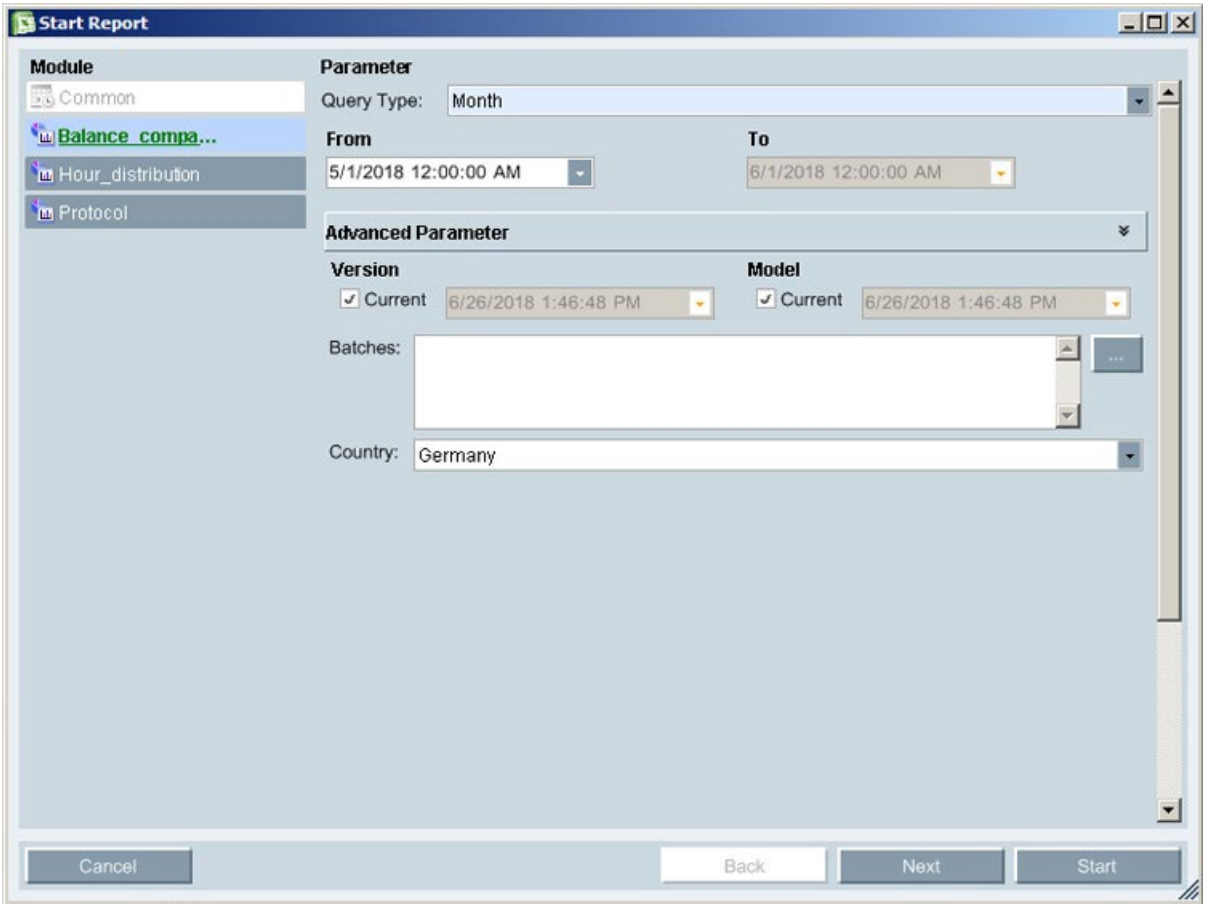
Note

If you start a report result via a Remote Desktop connection and the process is not executed, set the "Energy Manager PRO Report Server" service to the "Local System" user and restart the service.

Specifying additional parameters for the report result (optional)

1. Click "Advanced parameters".

   The advanced parameters are displayed.



2. Disable "Current" and select a date to define the measured value version for evaluation. All measured values generated prior to this data are evaluated.

   The current date is activated by default.

3. Deactivate "Current" and enter a model date to define a calculation model for evaluation of the report result.
   The report result is evaluated by default based on the current calculation model.

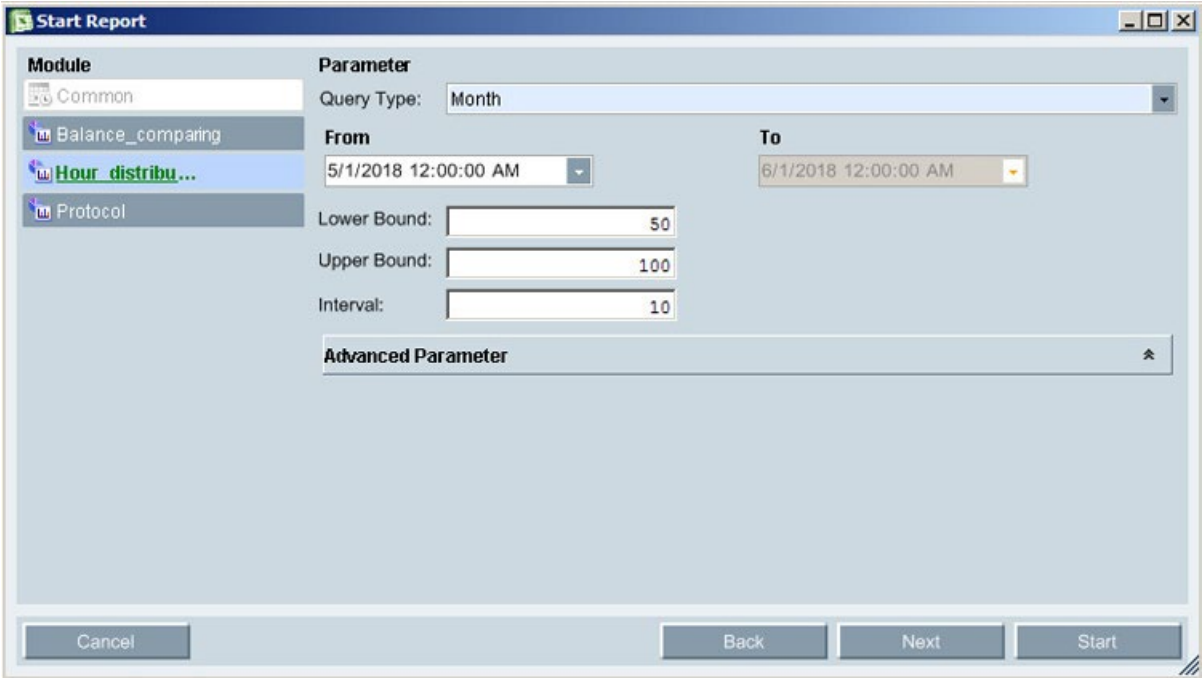
4. To select a batch, click "..." and select the batch ID from the batch list.

5. Under "Country", select the country whose time zone you want to use for the calculation.

Editing module start parameters (optional)

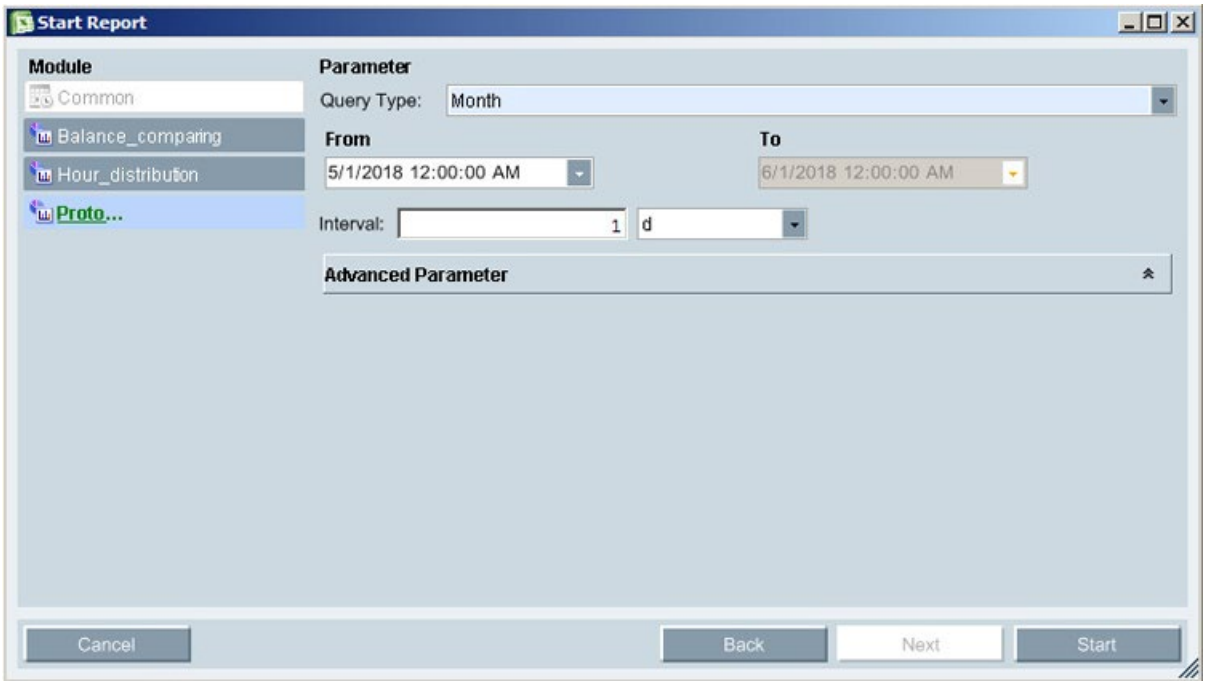
1. Select the module from the "Module" area.
2. Specify the query type and time range if you have activated the "Query interval at start" option in the module configuration.
3. You can always edit the interval, as well as the high and low limit of configured module start parameters.

   The start parameters are derived from the module configuration.



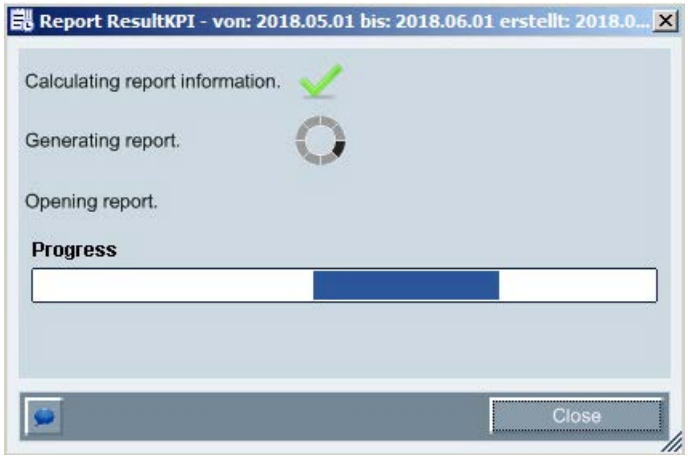
4. Edit the corresponding parameters if you have configured modules that need an interval and unit as start parameters.

   The start parameters are derived from the module configuration.



Result

The report result is generated and opened automatically.



Click "Close" to prevent the report result from being opened automatically.

Alternative procedure

You can also start the report result from the shortcut menu of the respective query type.

See also

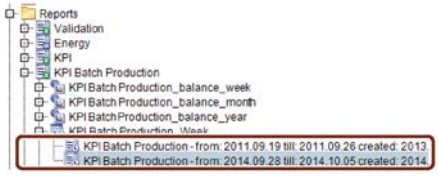
Assign time zone for acquisition or calculation (Page 334)

Reports (Page 511)

2.4.2.2 Opening report results

Overview

Report results are stored in the folder for the configured query type in the structure tree of the client.



You can open the report results as follows:

- In Microsoft Excel or Microsoft Word
- As PDF

Requirement

- The report results are being generated.
- Microsoft Excel or Microsoft Word is installed.
- PDF-Reader is installed.

Procedure

1. To open the report result, click "Open" in the shortcut menu of the selected report result.
2. Open the report in PDF format by clicking "Open as PDF" in the shortcut menu of the report result.

Result

The report result is displayed.

	A	B	C	D	E	F	G	H
12								
13	From	01.03.2012						
14	To	01.04.2012						
15								
16	Entry point for Balance Module							
17	Consumption Gas	GJ	4.936,00					
18	Consumption Electricity	GJ	6.856,00					
19	Costs Gas	EUR	20.731,20					
20	Costs Electricity	EUR	21.253,60					
21	Total costs	EUR	41.984,80					
22	Unit consumption	GJ/mcig	38,71269					
23								
24	Protocol							
25	time		Costs Gas	Costs Electricity	Total production	Unit consumption	Total consumption	
26	01.03.2012	02.03.2012	504,00	564,2	12000	39,7351	302,00	
27	02.03.2012	03.03.2012	588,00	626,2	14000	40,9357	342,00	
28	03.03.2012	04.03.2012	672,00	688,2	15000	39,267	382,00	
29	04.03.2012	05.03.2012	630,00	657,2	14000	38,674	362,00	
30	05.03.2012	06.03.2012	609,00	641,7	12500	35,5114	352,00	
31	06.03.2012	07.03.2012	596,40	632,4	13000	37,5723	346,00	
32	07.03.2012	08.03.2012	625,80	654,1	14500	40,2778	360,00	
33	08.03.2012	09.03.2012	693,00	703,7	15000	38,2653	392,00	
34	09.03.2012	10.03.2012	756,00	750,2	16000	37,9147	422,00	
35	10.03.2012	11.03.2012	924,00	874,2	19500	38,8446	502,00	
36	11.03.2012	12.03.2012	840,00	812,2	18000	38,961	462,00	

Color code of the measured values in the report

The measured values are color-coded as follows for the following status:

Status	Color code
Result OK	Black
No data available for measuring variable	Magenta
Result of manual correction	Orange
Result from substitute value	Light blue
Result not OK	Red
Missing measured values	Light green

2.4.3 Charts

2.4.3.1 Fundamentals

Overview

You use the Chart to display historical as well as current values. Use the chart for the visualization of measurement series.

The Diagram or Chart functionality is available as a separate tab at the bottom in the display area at the following objects:

- Data point
- Matrix
- Measuring variable (MEVA)
- Chart object

The following visualization types are available for the visualization of values:

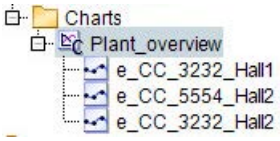
- Standard chart with line graphs
- Histogram
- Bell-shaped curve
- Box Plot
- Correlation and regression

Chart with Chart tab

In this case the Chart option is available immediately by means of the Chart tab after a click on the respective object. Configurations set in the chart, such as the number of displayed data points and the query type, are stored automatically for the active user. The configuration is saved with the object in the database. The selected time range is not stored. On a renewed display of the chart the current time range is always displayed.

Own chart object

In addition, an own chart object is available with which you can visualize up to ten data points simultaneously. The configuration via the chart object is not referenced to a user. Thus it is possible to make a preconfigured chart available to several users. Open an already predefined chart object by double clicking on it.

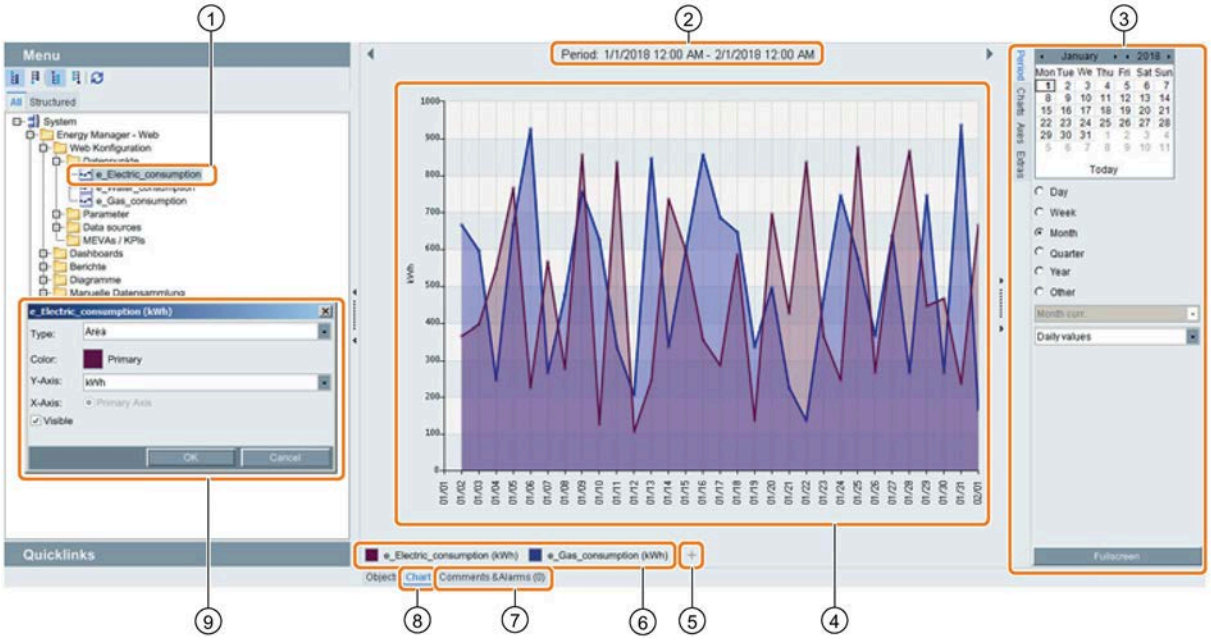


You can also export the displayed chart in the following form:

- Chart values as a file in "*.csv" format
- Chart as a graphic in "*.bmp", "*.jpg" or "*.png" format

Structure of the chart

The following figure shows the display of the chart in Energy Manager PRO Client:



① Object that is visualized in the chart.

② Display of the time range
Use the arrow keys to scroll back or forth by one period.

③ Configuration area

④ Visualization of the data points as line graph
Current values are read gradually and displayed. The following update cycles apply to the displayed values:

- 10 seconds in the Energy Manager PRO Client

⑤ Inserting an additional data point.

⑥ Legend with the data points represented in the chart. If you click a data point, the configuration dialog ⑨ opens.

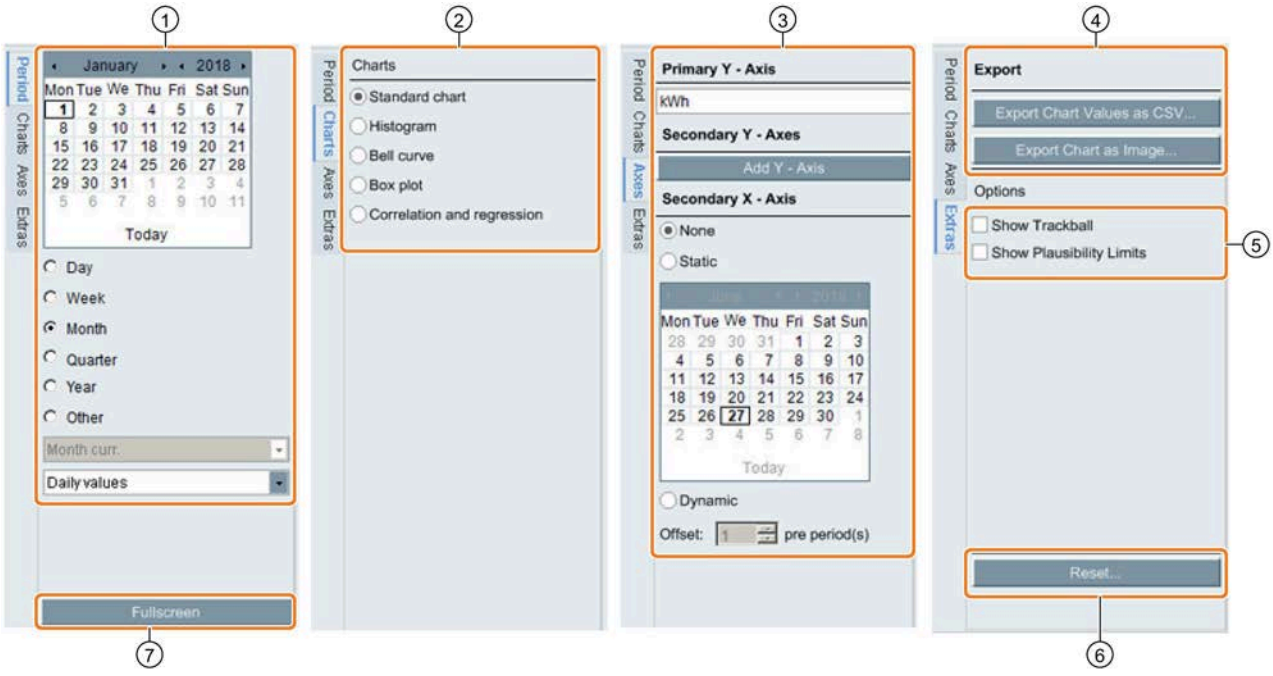
⑦ "Alarms and comments" tab with the alarms and comments that are contained in the selected time range.

⑧ "Chart" tab with the visualization of data points in the display area.

⑨ Configuration dialog for the visualization of a data point in ④.

Structure of configuration area

The following figure shows the display of the configuration area in the Energy Manager PRO Client:



① Selection of time range, query type, and compression level
② Selection of the visualization type
③ Configuration of the x and y axes
④ Exporting the content that is displayed in the chart
⑤ Display of the track ball and warning and alarm limits
⑥ Reset chart settings
⑦ Full-screen display of the chart in a separate window

Display of details in the chart

The figure below shows which details are displayed for the measured values of a measurement series in the chart:

① Measured value with violated high or low limit of plausibility criterion
Click the measured value to open the "Details" dialog.

② Measured value with user-defined comment
Click the measured value to open the "Details" dialog.

③ Measured value with display of time stamp and value
Move the mouse pointer across the line graph to display a measured value.

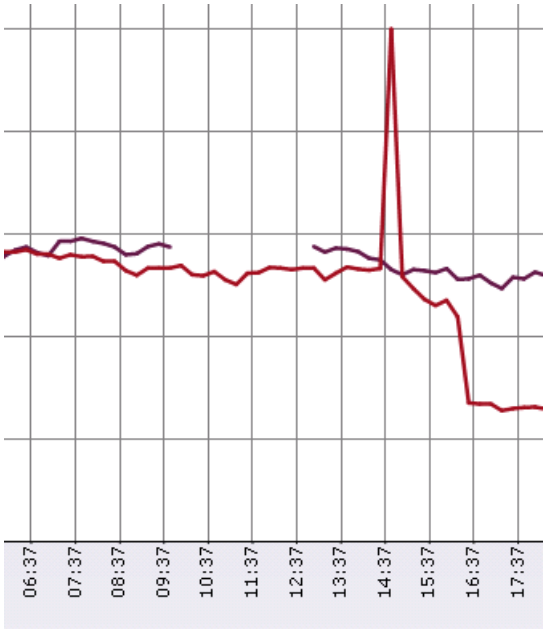
Note

The view is compressed when the chart includes more than 6,000 measured values in the displayed time range. Not all details are displayed in the compressed view.

In this case, either select a smaller time range or zoom in on the display area in the chart.

Missing values

The line of the corresponding data point is interrupted when the values are missing in the measured value series of a data point.



2.4.3.2 Standard Chart

Displaying the Standard Chart

Requirement

Datapoint, matrix or report has been created.

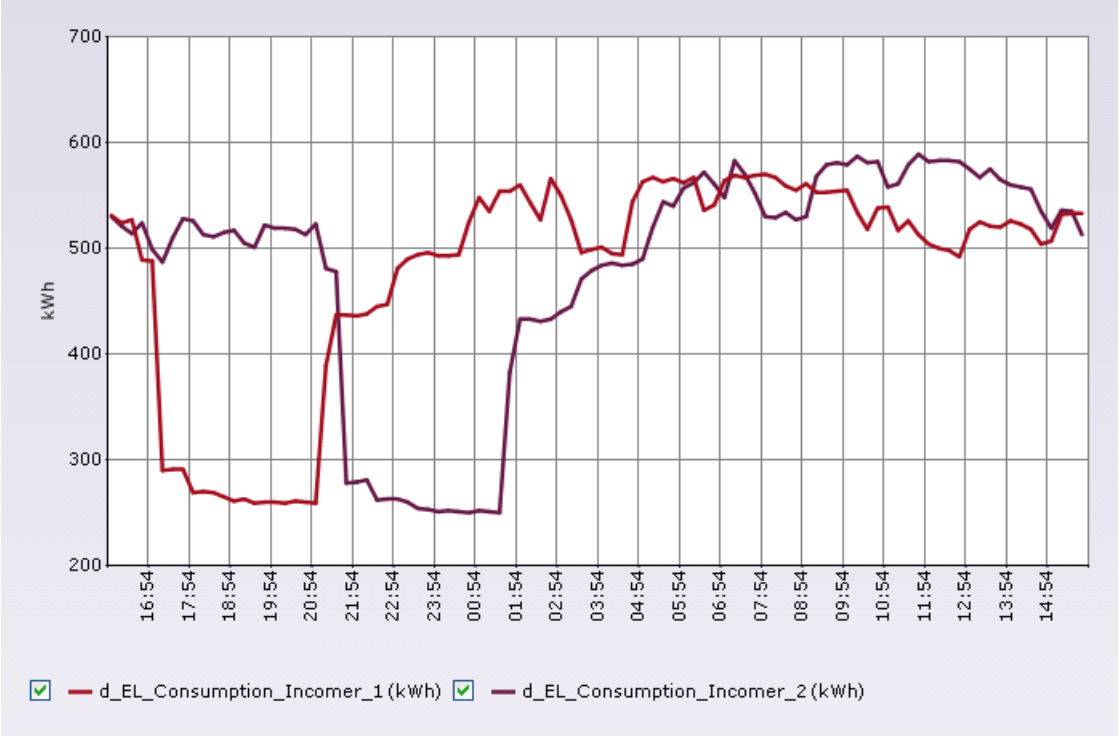
Procedure

1. Select the required Energy Manager object whose values you want to analyze in the Chart.
2. Click on the "Diagrams" tab in the display area.

   The Chart is displayed as the Standard Chart.
3. The settings of the selected object are generally applied as query type and compression level. You can change the query type and the compression level in the configuration area under "Period".
4. Define the axis assignment and the display for each data point under "Axis" in the configuration area. The options for the axis assignment apply solely to the Standard Chart.

Result

The values of the object are displayed in the Standard Chart in the form of a line graph.



See also

Configuring query types (Page 372)

Show details

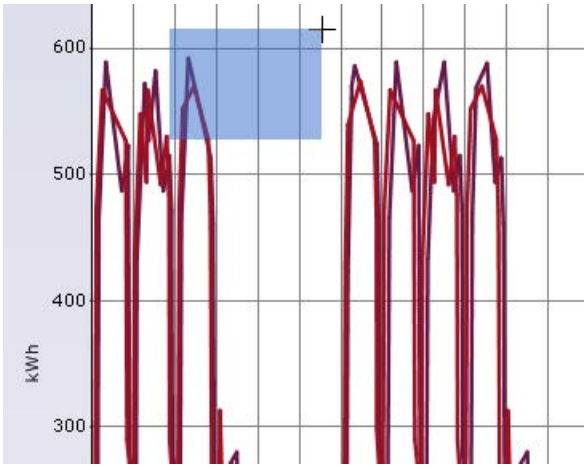
Requirement

Measured values are displayed in the Chart.

Procedure

1. To enter a comment for a measured value:
   - Click on the measured value.

     The "Details" dialog opens.
   - Go to the "Comments" tab and click "Add".
   - Enter the comment text.
2. To enlarge the display area:
   - Holding down the mouse button, enlarge the required area in the display area.

     The selected area is enlarged.
   - To return to the original view, click "Original size".

Comparing values of different time ranges

Introduction

You can compare the values of one or more datapoints that are displayed in the Chart with the values from a different time range. The other time range is displayed as a secondary X axis on the upper border of the Chart. Query type and compression were taken from the primary X axis.

The time range of the secondary X axis is either static or dynamic:

- Static: Fixed starting time in the past or future. Use the calendar to select the time range.
- Dynamic: Offset in periods relative to the time range of the primary X axis. A negative value means an offset in the direction of the past.

Requirement

Datapoint is displayed in the Chart.

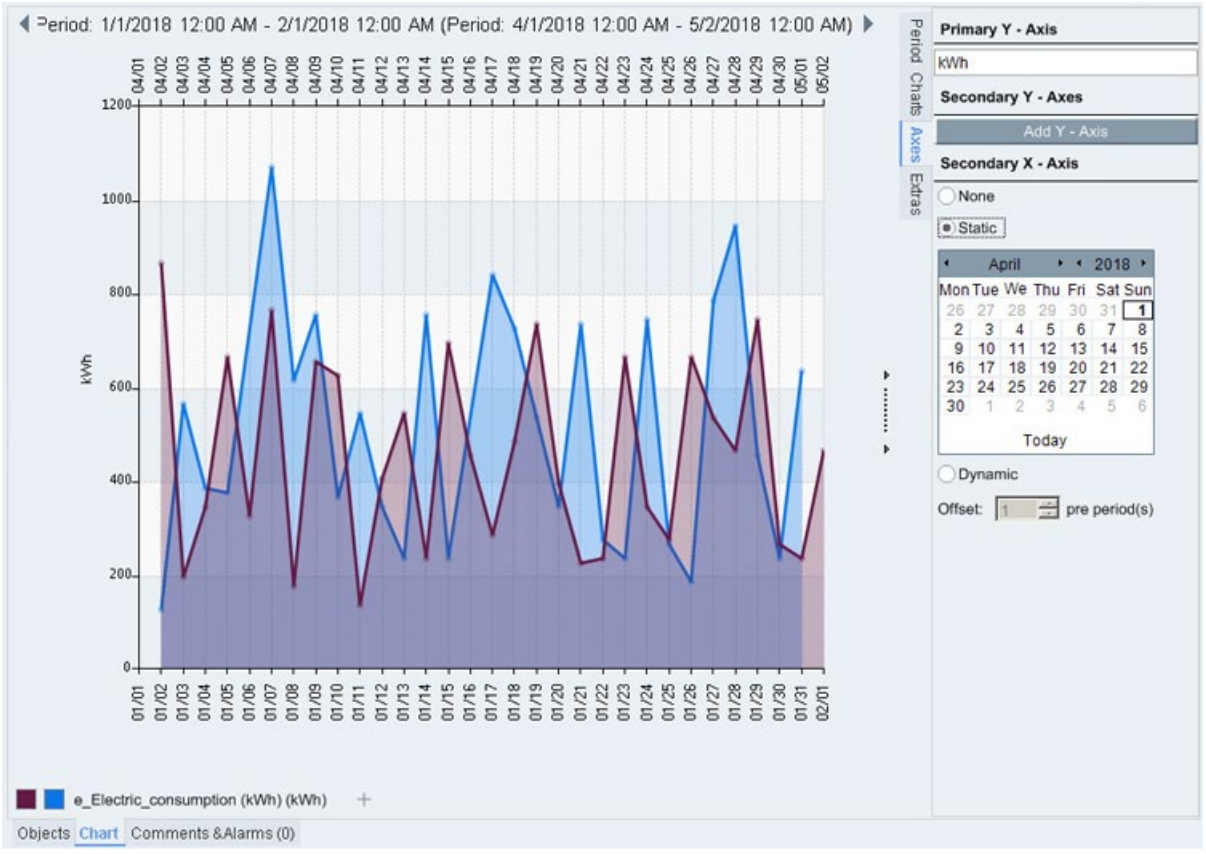
Procedure

1. In the configuration area, under "Axes", select either "Static" or "Dynamic":
2. If you have selected "Static", select the desired starting time in the calendar.
3. If you have selected "Dynamic", enter the desired value for the period offset under "Offset".
4. In the legend, click the datapoint, whose values should additionally be displayed in the secondary X axis.

   The configuration dialog is opened.
5. If you only want to display the comparison values, select "Secondary axis".
6. If you want to display the initial and comparison values, select "Both".

Result

The datapoint's values are displayed in addition to the time range of the secondary axis.



Exporting the Chart

Introduction

You can export the values from a Chart that is displayed on the screen:

- as a file: Values are exported in the "*.csv" format as a comma-separated file, which you can edit for example in MS Excel.
- as an image: The graphics formats "*.bmp", "*.jpg" and "*.png" are supported.

If you enlarge a section of the Chart, only the measured values that are contained in that section are exported.

Requirements

- The Chart is displayed.
- The configuration area is displayed.

Exporting the Chart's values to a file

To export a Chart's measured values to a file, follow these steps:

1. In the configuration area, under "Extras", click "Export values as CSV...".

   The "Save as" Windows dialog is displayed.

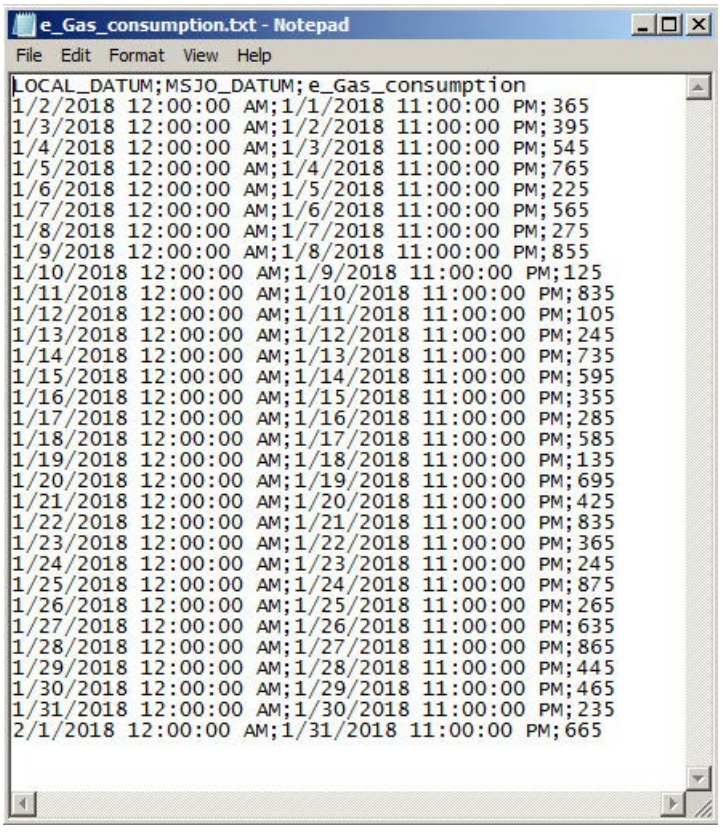
2. Enter a name for the file.

Result

The Chart's measured values are saved in a file in "*csv" format. You can open the file, for example in MS Excel. Each datapoint contained in the Chart is displayed as a separate column. The first column contains the timestamp.

Note

The values are exported in UTC time format including a local time stamp.



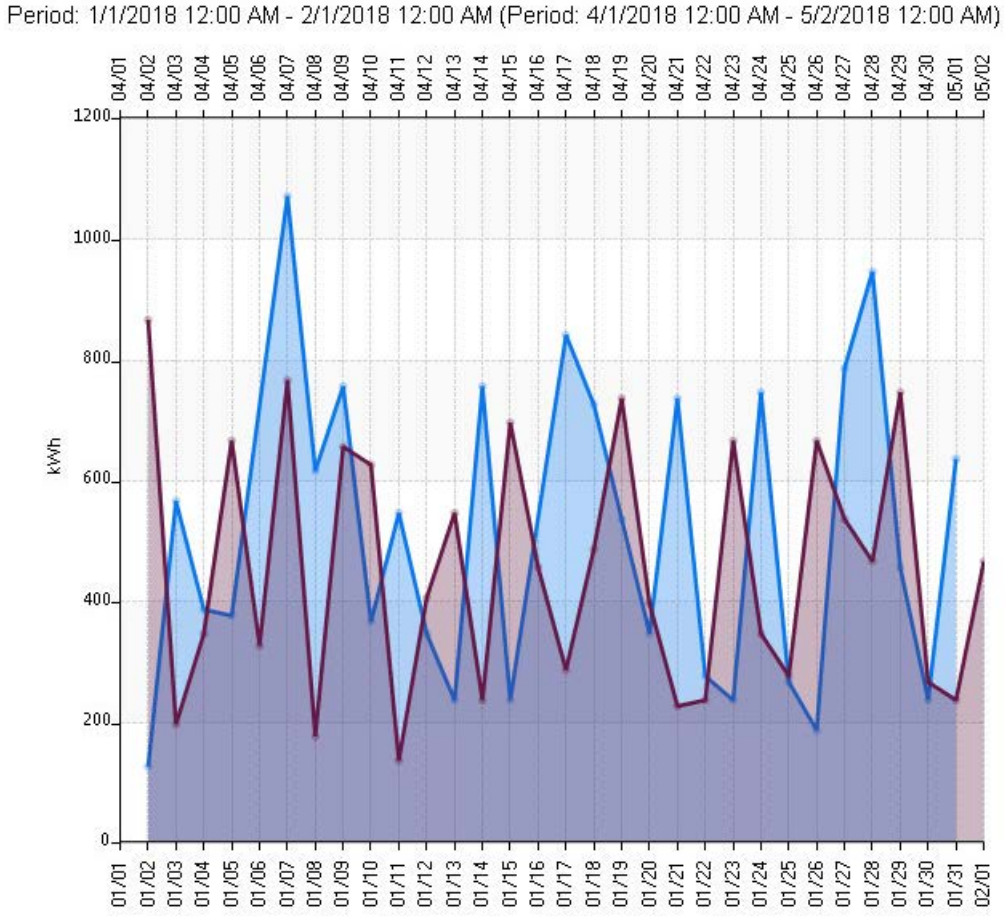
Exporting a Chart as an image

To export a Chart as an image, follow these steps:

1. In the configuration area, under "Extras", click "Export chart as image...".
   The "Save as" Windows dialog is displayed.
2. Enter a name for the image, and select the desired graphics format.

Result

The displayed Chart is saved as a graphic.



2.4.3.3 Histogram

Overview

The histogram offers you the possibility of visualizing the occurrence of values. In the process all the values of the selected time range is divided into 20 intervals and the number of values in each interval is displayed.

Procedure

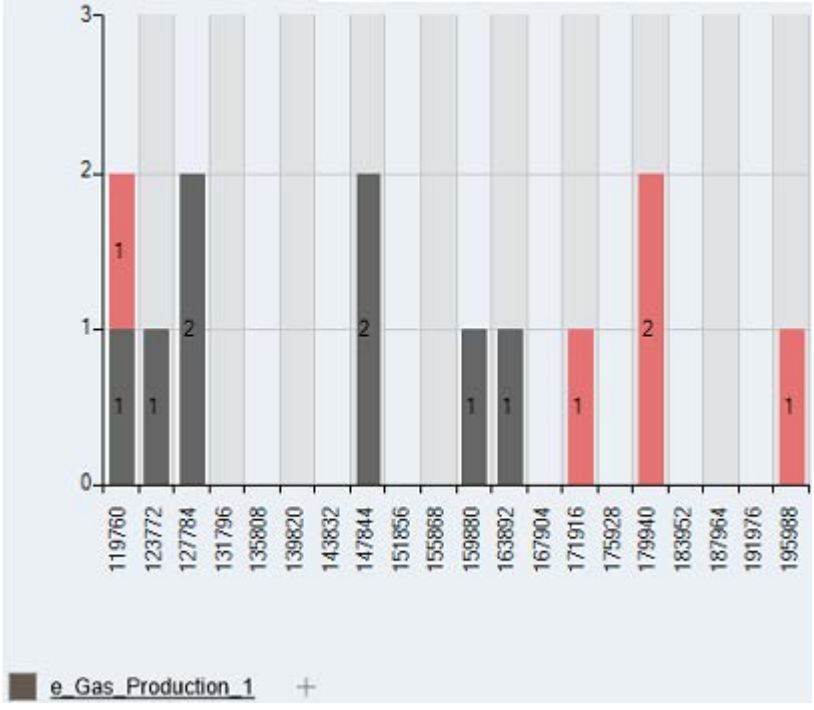
1. Select the required Energy Manager object whose values you want to evaluate in the Chart.
2. Click the "Chart" tab at the bottom in the display area. The Standard Chart is always displayed initially.

   Click the "Charts" tab on the right in the configuration area. Click "Histogram" to display the values as a histogram.
3. The settings of the selected object are generally applied as query type and compression level. You can change the query type and the compression level in the configuration area under "Period".

Result

The values of the selected object are distributed to 20 intervals. An interval corresponds to a bar. In the bar itself the number of values occurring in this interval is displayed. The interval limits are applied on the X axis. The first interval in the figure below includes, for example, the values from 119760 to 123772, in which one value violates the plausibility limits. The last interval contains all the values that exceed 195,988.

In as far as values exist that violate the plausibility limits, these are displayed as red stacked bars.



2.4.3.4 Bell-shaped curve

Overview

The bell-shaped curve offers you the possibility of displaying values in a normal distribution. So, for instance, you can display the distribution of measuring errors.

The mean value and the standard deviation are specified for the values of the selected time range.

Procedure

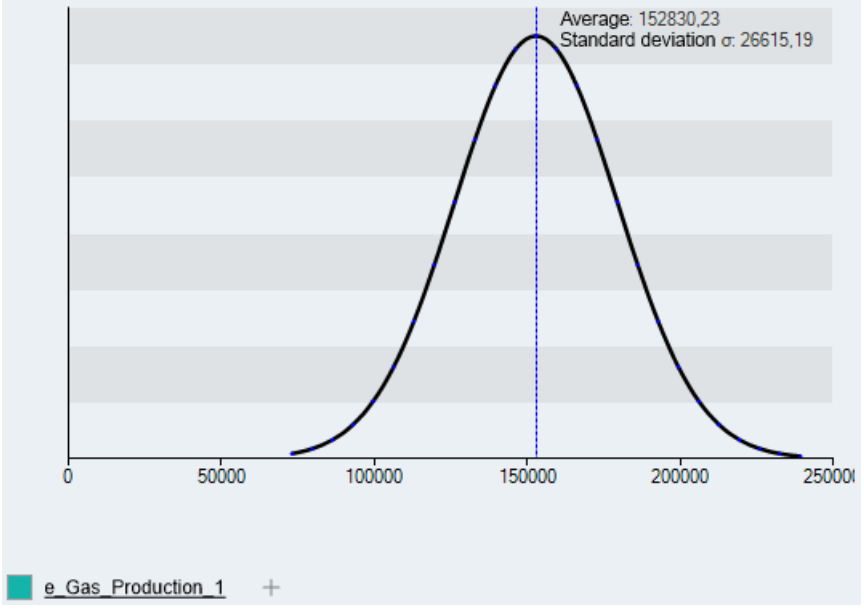
1. Select the required Energy Manager object whose values you want to evaluate in the Chart.
2. Click the "Chart" tab at the bottom in the display area. The Standard Chart is always displayed initially.

   Click the "Charts" tab on the right in the configuration area. Click "Bell-shaped curve" to display the values as a normal distribution.
3. The settings of the selected object are generally applied as query type and compression level. You can change the query type and the compression level in the configuration area under "Period".

Result

The deviation from the mean value is displayed graphically as a result.

The mean value as well as the standard deviation σ are displayed at the top on the bell-shaped curve. The interval of the standard deviation ±σ around the mean value acquires 68.27% of all measured values.



2.4.3.5 Boxplot

Overview

The boxplot offers you the option to rapidly display the area in which values lie and how these values are distributed. In addition to the graphical display the maximum, the minimum, the median and the mean value are displayed for the values of the selected time range.

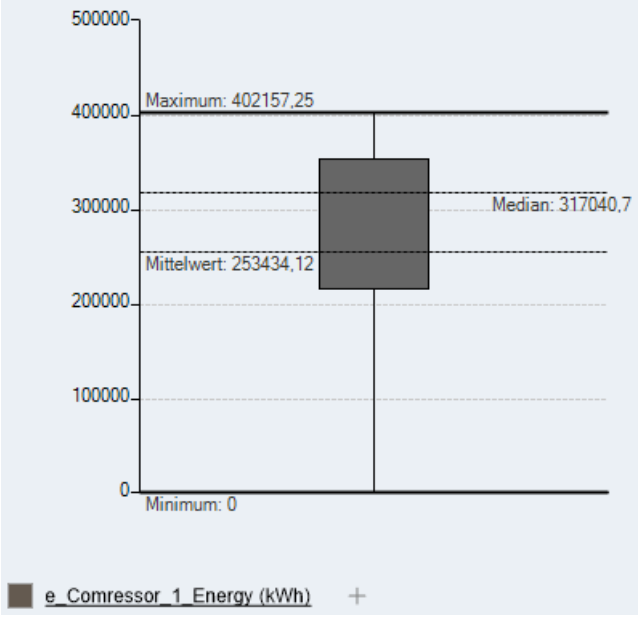
Procedure

1. Select the required Energy Manager object whose values you want to evaluate in the Chart.
2. Click the "Chart" tab at the bottom in the display area. The Standard Chart is always displayed initially.

   Click the "Charts" tab on the right in the configuration area. Click the "Boxplot".
3. The settings of the selected object are generally applied as query type and compression level. You can change the query type and the compression level in the configuration area under "Period".

Result

The values are displayed as a boxplot.



2.4.3.6 Correlation and regression

Overview

The correlation chart or the scatter chart shows a correlation between two datapoints graphically on the basis of value pairs A correlation occurring often between two variables is the linear regression.

The regression analysis offers you the possibility of displaying the relation between a dependent and an independent variable. This means that at least two datapoints are required for this analysis. The regression analysis can support you, for example, in the prognosis of values.

Procedure

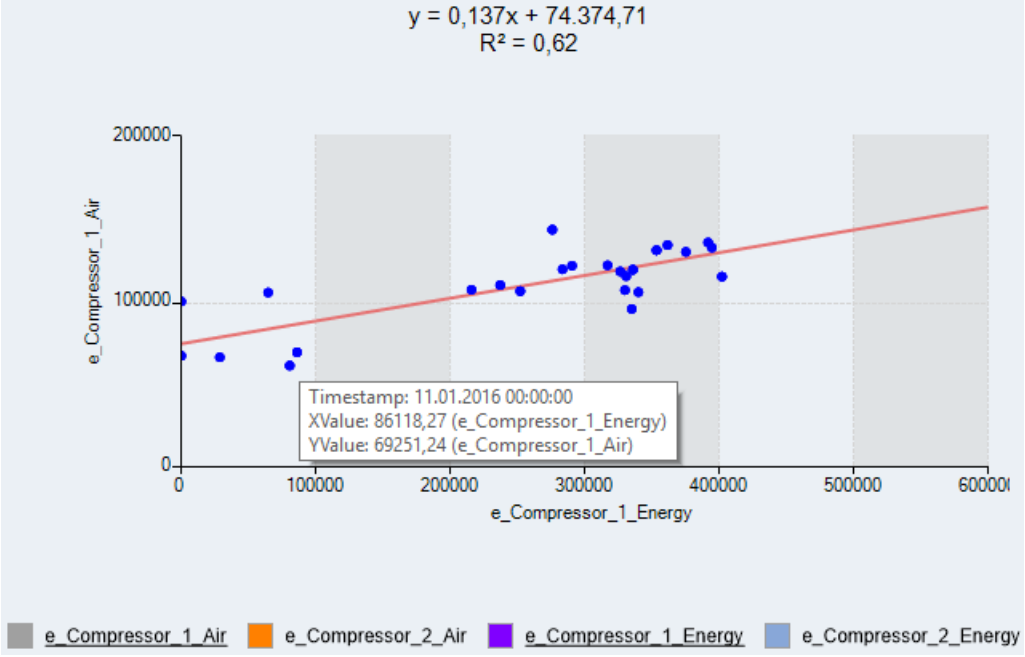
1. The correlation chart and the regression analysis require at least two datapoints. You can create an own chart object under which you can then copy the datapoints. However a matrix can also be used. Then click the object under which the data points are located.
2. Click the "Chart" tab at the bottom in the display area. The Standard Chart is always displayed initially.

   Click the "Charts" tab on the right in the configuration area. Click "Correlation and regression".
3. The settings of the selected object are generally applied as query type and compression level. You can change the query type and the compression level in the configuration area under "Period".
4. By default the first two datapoints are used and are displayed underlined in the legend. If several datapoints are located under the Chart object, a desired datapoint can be selected or deselected with a simple click.

Result

The correlation chart shows the relation between the values graphically on the basis of a points cloud from value pairs. You can display a value pair when you move the cursor over it.

The regression analysis shows the linear correlation between the dependent variable x and the independent variable y using a red line. The linear relation is displayed as a formula at the top in the graphic, just like the coefficient of determination R^2 that shows whether and to what an extent a linear relationship exists. R^2 lies at 0, if a linear relation does not exist. R^2 lies at 1, if a linear relation does not exist.



2.4.4 Dashboards

Overview

Once you have created the Dashboard layout and configured the dashboard objects used, you can display the Dashboard in full-screen mode. In full-screen mode, the dashboard is updated with corresponding data at cyclic intervals.

Note

Specifying the Dashboard update cycle

Specify the update cycle when configuring the Dashboard background.

The update cycle is set to 5 seconds by default.

Requirement

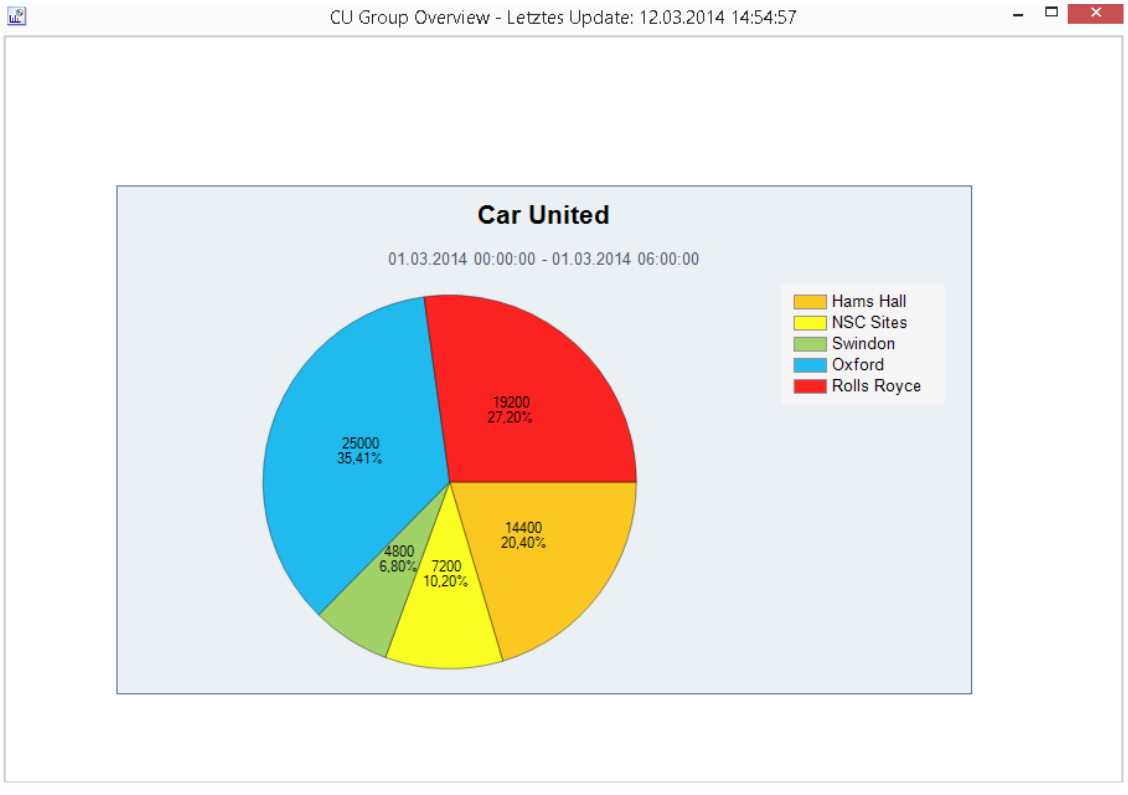
- You have created the Dashboard layout.
- You have configured the dashboard objects used.

Procedure

1. Select the desired Dashboard in the project tree of the Client and click "Open" in the shortcut menu.

Result

The Dashboard is displayed in full-screen mode.



Alternative procedure

You can also display the Dashboard in full-screen mode by means of double-click.

See also

Creating the dashboard layout (Page 310)
Configuring dashboard objects (Page 313)
Example of configuring a dashboard (Page 317)

2.4.5 Widget Dashboards in the client

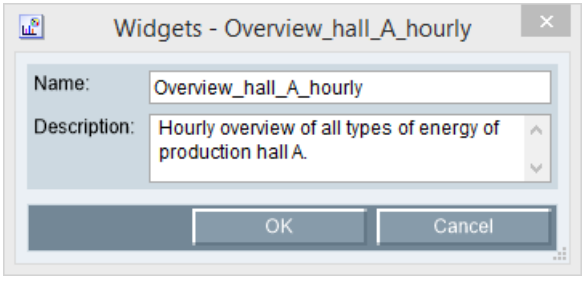
Overview

Widget Dashboards are conceived for the display in the web or on mobile devices. For this reason, only configure Widget Dashboards in Energy Manager Web. Further details on the configuration of Widget Dashboards can be found in the section Configuring a Widget Dashboard. Deleting and creating Widget Dashboards is also possible in the Energy Manager PRO Client.

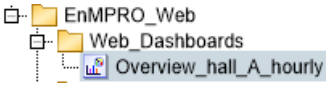
Procedure

1. Click the "Insert Widget Dashboard" icon in the menu bar under "Analysis > Reporting ".

2. Enter a name and an optional description for the new Widget Dashboard.



3. Save your entries. The Widget Dashboard is created.



4. In order to delete a Widget Dashboard right-click the Widget Dashboard in the project tree and select "Delete".

See also

Creating Widgets (Page 554)

Creating Quicklinks in the Web (Page 494)

2.5 Energy efficiency measures

2.5.1 Basics on energy efficiency

The Energy Manager "Energy Efficiency" module provides company-wide transparency in the management of energy efficiency measures. The Energy Manager "Energy Efficiency" module was developed in accordance with DIN EN ISO 50001.

The Energy Manager "Energy Efficiency" module provides the following options for management of the energy efficiency measures:

- You can enter all energy efficiency measures for all locations of your company.
- You can enter the saving potential and cost of the energy efficiency measure and calculate its cost efficiency.
- You can assign a status that indicates the degree to which the energy efficiency measure has been implemented.

Procedure for managing energy efficiency measures

1. Create an energy efficiency measure.
2. Enter the plant and location for which you defined the energy efficiency measure.
3. Enter the financial saving potential for the plant.
4. Enter the running costs for the plant and calculate the cost effectiveness of your energy efficiency measure.
5. Define a user responsible for the energy efficiency measure.
6. Create one or several domains that are permitted to view and edit an energy efficiency measure.
7. Select a status for the energy efficiency measure.

See also

Creating energy efficiency measures (Page 465)

Specifying the financial savings potential (Page 467)

Calculating cost effectiveness (Page 469)

Specifying responsibilities (Page 471)

Specifying domains (Page 472)

Displaying information (Page 474)

2.5.2 Creating energy efficiency measures

Procedure

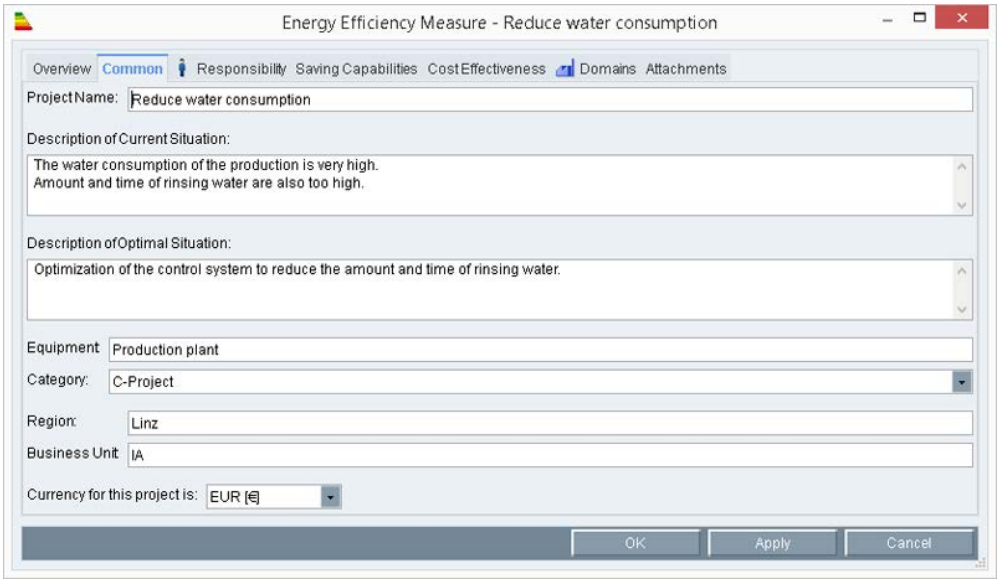
1. Click the "Insert Energy Efficiency Measures View" button in the menu bar under "Analysis > Energy Efficiency".

   The "Energy Efficiency Measures View" dialog opens.

2. Click "New".

   The "Energy Efficiency Measure" dialog opens.

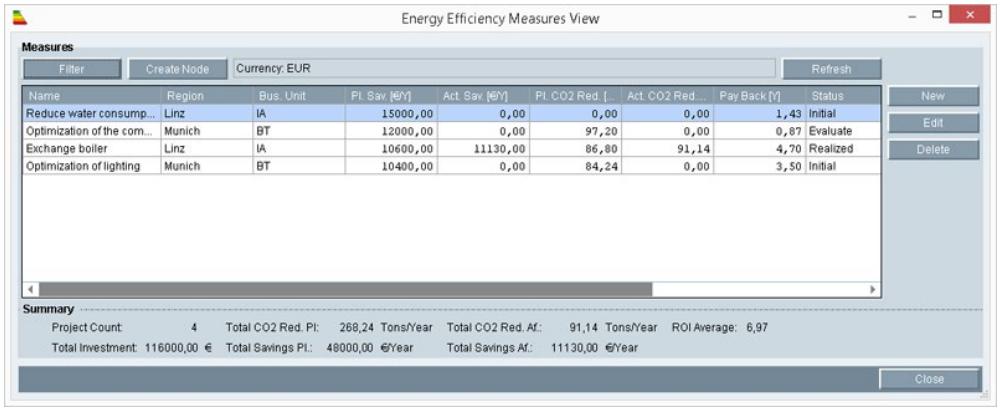
3. Select a name for the energy efficiency measure under "Project Name" on the "General" tab.
4. If required, also enter a description of the actual state and target state of the consumption situation.
5. Select the priority of the energy efficiency measure under "Category", for example, "A-Project" for the top priority.
6. Enter a region, a plant and a business unit for efficient filtering of the energy efficiency measure.



7. Confirm the configuration with "OK".

Result

You created the energy efficiency measure.



You can edit or delete the energy efficiency measure, or create a new one.

See also

Configuring the plant (Page 219)

2.5.3 Specifying the financial savings potential

Overview

Enter the financial saving potential of an energy efficiency measure in the "Saving Capabilities" tab separately for each consumption medium. The saving potentials comprise:

- Costs incurred prior to the introduction of the energy efficiency measure
- Scheduled costs following the introduction of the energy efficiency measure
- Costs incurred after introduction of the energy efficiency measure

Requirement

You created the energy efficiency measure.

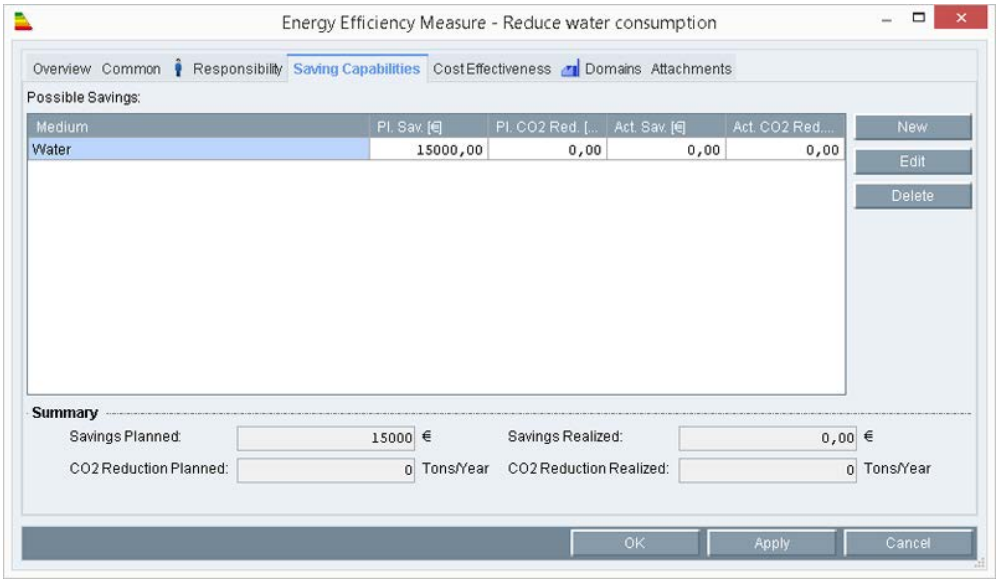
Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.

   The "Energy Efficiency Measure" dialog opens.
2. Select the "Saving Capabilities" tab.
3. Enter a consumption medium.
4. Select a unit for the consumption medium.
5. Select a parameter, or enter a constant value for the costs and the CO_2 production per unit.
6. Enter your values for the post measure state and the planned state of consumption.
7. Confirm the configuration with "OK".

Result

You have successfully entered the financial saving potentials for the energy efficiency measure. The total of all savings and the CO_2 reduction is calculated in the "Summary" area. The difference between the planned and the actual state of consumption is calculated under "Diff. Pl." and "Act. Diff.".



You can edit, delete, or enter new financial energy-saving potentials.

See also

Creating energy efficiency measures (Page 465)

2.5.4 Calculating cost effectiveness

Overview

Implementation of an energy efficiency measure is initially subject to costs, e.g. purchase of a generator with lower consumption figures. On the "Cost Effectiveness" tab, enter the investment costs, the running costs, and the time period for the costs of the energy efficiency measure. Continue by calculating the cost efficiency of the energy efficiency measure.

Requirement

You created the energy efficiency measure.

Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.

   The "Energy Efficiency Measure" dialog opens.
2. Select the "Cost Effectiveness" tab.
3. Select a period for which you want to calculate the cost efficiency of an energy efficiency measure.
4. Enter a name and a value for the annual active costs.
5. Enter the values for the investment costs and for the internal interest rate.
6. Click "Calculate" to calculate the cost effectiveness of the energy efficiency measure.

   The result is displayed in the "Calculations" area of the following fields.

   – ROI (return on investment): Displays the ID for returns on investments.

     The ROI indicator is calculated using the following formula:

     $$ROI = \frac{years \cdot (savings - costs)}{investment}$$

   – NPV (net present value): Displays the net present value of capital.

     If the interest rate has a constant value, the capital value is calculated using the following formula:

     $$NPV = -investment + savings \cdot \frac{(1 + interest\ rate)^{years} - 1}{(1 - interest\ rate)^{years} \cdot interest\ rate}$$

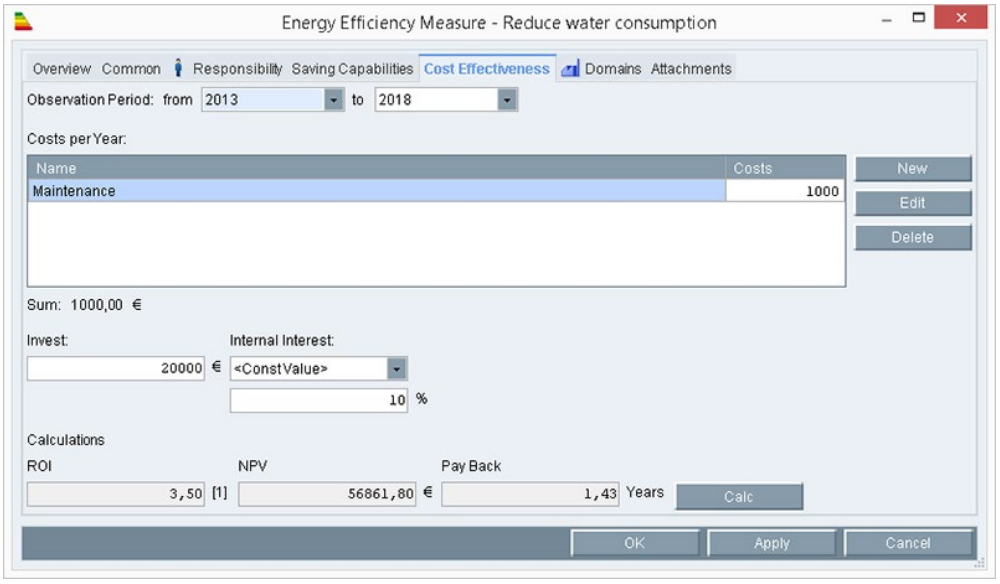
     If the interest rate is a parameter, the capital value is calculated using the following formula:

     $$NPV = -investment + \sum_{d=1}^{days} \frac{savings - \frac{costs}{365}}{(1 + interest\ rate)^{d}}$$

– Amortization time: Displays the amortization period.

  The payback time (amortization) is calculated using the following formula:

$$PayBack = \frac{investment}{savings - cost}$$



7. Confirm the configuration with "OK".

Result

You have successfully calculated the cost efficiency of the energy efficiency measure. You can edit the entries and recalculate the cost efficiency of the energy efficiency measure.

See also

Creating energy efficiency measures (Page 465)

2.5.5 Specifying responsibilities

Overview

On the "Responsibility" tab, you define the responsible person for an energy efficiency measure for information purposes.

Requirement

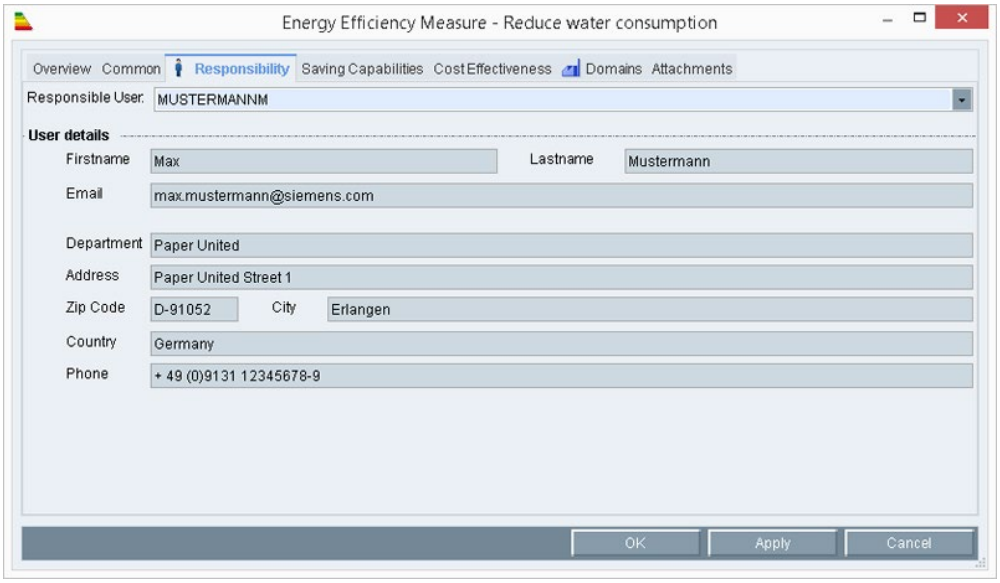
- You created the energy efficiency measure.
- The user has been created.

Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.

   The "Energy Efficiency Measure" dialog opens.
2. Select the "Responsibility" tab.
3. Select the responsible person.

   The user details are displayed.



4. Confirm the configuration with "OK".

Result

You have successfully specified responsibilities for the energy efficiency measure.

See also

Creating energy efficiency measures (Page 465)

Setting up users (Page 343)

2.5.6 Specifying domains

Overview

Use the "Domains" tab to specify domains that are permitted to view and edit an energy efficiency measure.

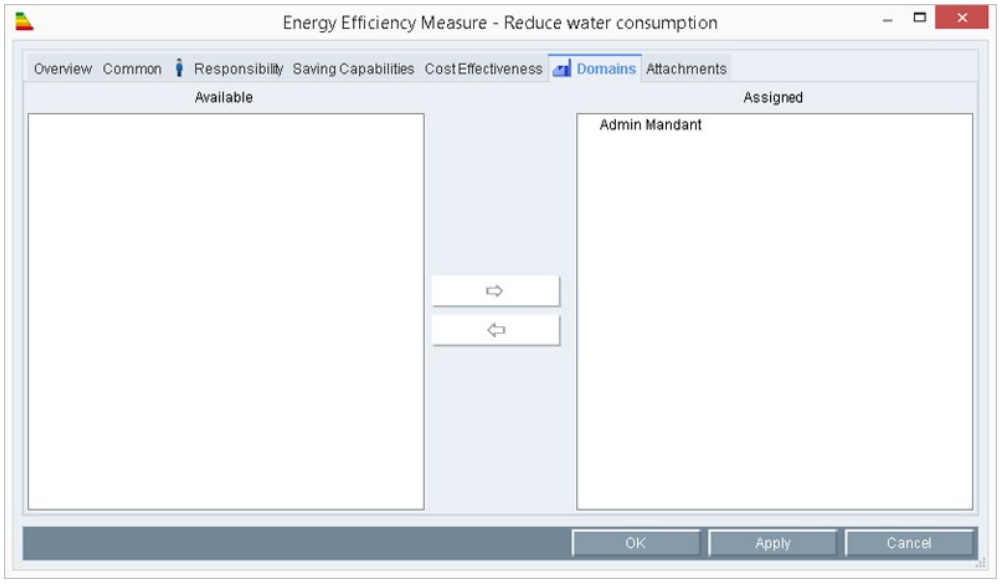
By assigning a domain to an energy efficiency measure, you ensure that company employees will only be able to view and edit the energy efficiency measures that are implemented at their location.

Requirement

- You created the energy efficiency measure.
- The client has been created.

Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.
   The "Energy Efficiency Measure" dialog opens.
2. Select the "Domains" tab.
3. Select the required client under"Available" and assign this client to the "Assigned" group.



4. Confirm the configuration with "OK".

Result

You have specified the client for use of the energy efficiency measure. You can remove the client from the "Assigned" group, or assign a new client to this group.

See also

Creating energy efficiency measures (Page 465)
Authorizations (Page 338)

2.5.7 Adding documents

Overview

On the "Attachments" tab, insert documents that contain additional information for an energy efficiency measure, e.g. charts or sketches. These documents are not managed in the Energy Manager document management.

Requirement

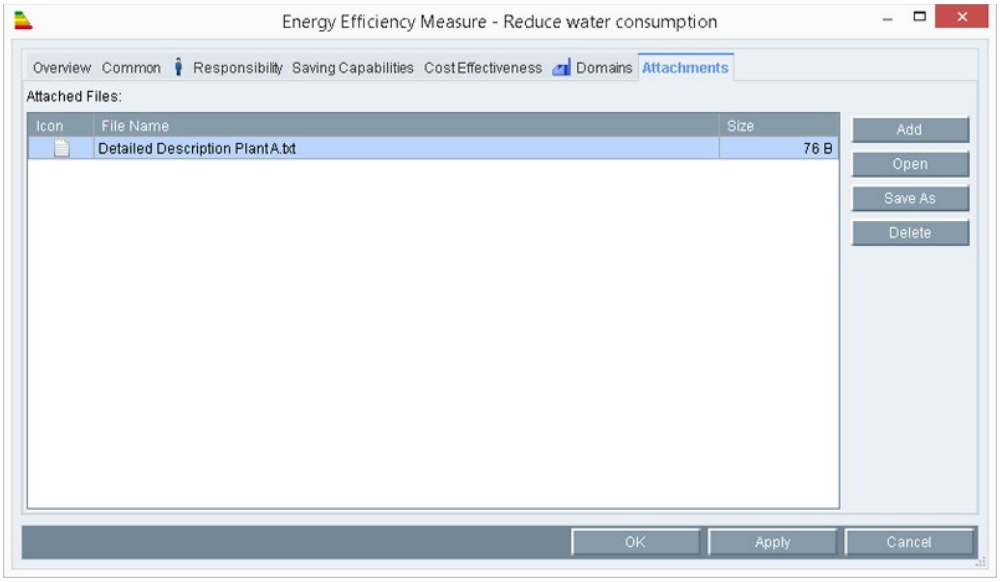
You created the energy efficiency measure.

Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.

   The "Energy Efficiency Measure" dialog opens.

2. Select the "Attachments" tab.



3. Click "Add" and select the document that you want to insert for the energy efficiency measure.
4. Confirm the configuration with "OK".

Result

You have successfully inserted the document for the energy efficiency measure. You can edit or delete the document, or add a new one.

See also

Creating energy efficiency measures (Page 465)

2.5.8 Displaying information

Overview

The "Overview" tab shows you information on an energy efficiency measure, including:

- Name
- Investment costs
- Saving potentials
- Responsible person
- Location

You can also assign a status for the energy efficiency measure in the "Overview" tab and export the information on the energy efficiency measure to Microsoft Excel.

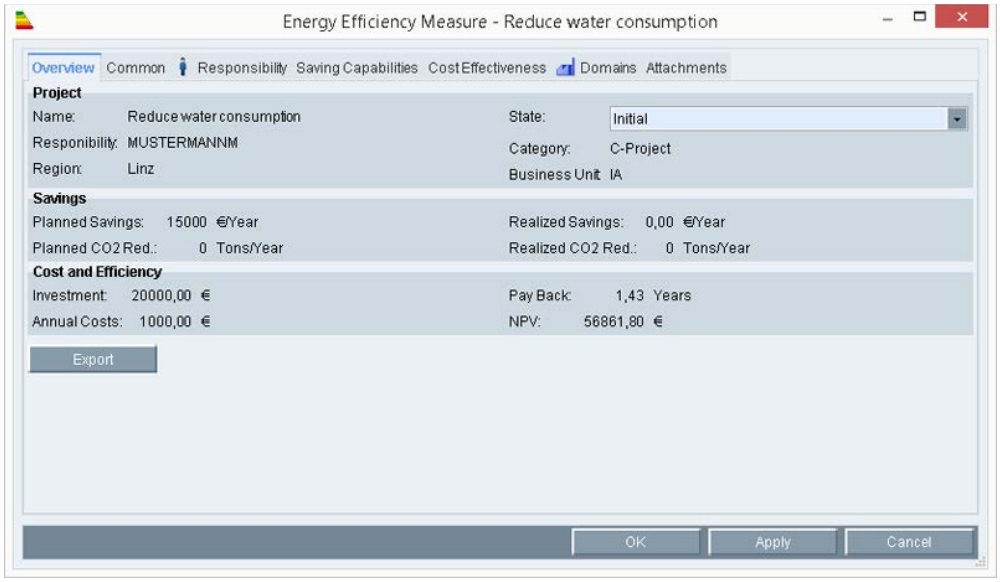
Requirement

You created the energy efficiency measure.

Procedure

1. Double-click the relevant energy efficiency measure in the overview of energy efficiency measures.

   The "Overview" tab opens in the "Energy Efficiency Measure" dialog.
2. Under "Status", select the required status to assign it to the energy efficiency measure.
3. Click "Export" to visualize the information provided on the "Overview" tab in Microsoft Excel.



4. Confirm the configuration with "OK".

See also

Creating energy efficiency measures (Page 465)

2.6 File management

2.6.1 Document management basics

Definition

With the document management you manage external documents in Energy Manager, for example documents in the format PDF, Excel or Word.

Note

Applications for external documents

If you want to open and edit an external document in Energy Manager, the correct application must be installed on your PC.

Usage

You use document management if you require additional application for energy management in Energy Manager .

Using document management, you can manage external documents in Energy Manager as follows:

- Link documents

  This option lets you insert a link for the document that is saved on your PC. Once inserted, you can use this link to call up the document in Energy Manager with the respective application. Please note that the document is only available to you. Other users do not have access to the document.

  Note

  General access to linked documents

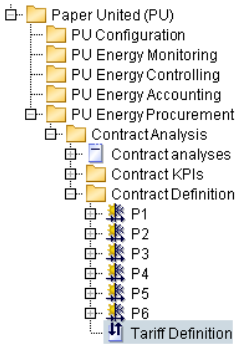
  To allow other users access to the linked document, save the document in a folder with general access.

- Loading a document into the Energy Manager database

  This option lets you save the document to the Energy Manager database. This means that you and all authorized users can access the document.

Example

You want to use Energy Manager to provide an energy requirement forecast for your organization for the coming year. To do this, you require the energy tariffs of the current year. In order to access the relevant information during configuration, you need to create a link in Energy Manager to the document containing the energy tariffs or to save the document in the Energy Manager database:

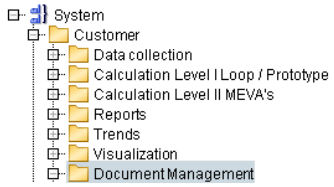


You can open the document from the project tree of the PRO Client with the respective application and edit it if required.

2.6.2 Inserting documents

Procedure

1. Change to Windows Explorer and select the corresponding document.
2. Copy the document to the clipboard.
3. Return to Energy Manager and select the object at which you want to save the link.

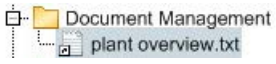


4. Paste the object from the clipboard.

Note

Documents to be shared with other clients must be stored in a public directory.

Result



2.6.3 Saving documents

Overview

You can save files in all standard formats, e.g. image or document files, to the database. In this way you enable access of other users to these files.

Requirement

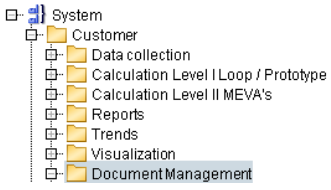
- Successful installation of all software components.
- The user has been assigned the following rights:
  - "viewing existing files" to open files.
  - "editing existing files": to save files to the database.

The following error messages are output if these rights are missing:

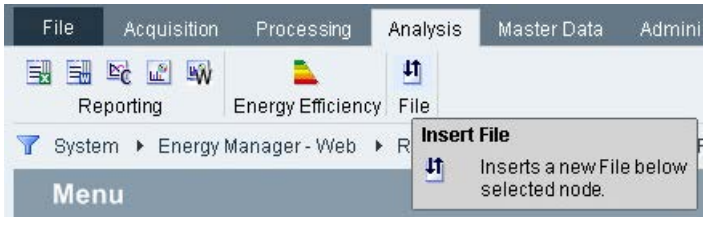
No permissions	Error message	Remedy
"viewing existing files"	<date><time> You are not authorized to open this file.	Assign the corresponding authorization.
"editing existing files" ("File \ Data \ fetch")	<date><time> You are not authorized to add this file.	Assign the corresponding authorization.
File size limit exceeded	The file may not exceed the size of <value>.	Ask your system administrator to adjust the "FILE_MAX_SIZE_KB" in Energy Manager options.

Procedure

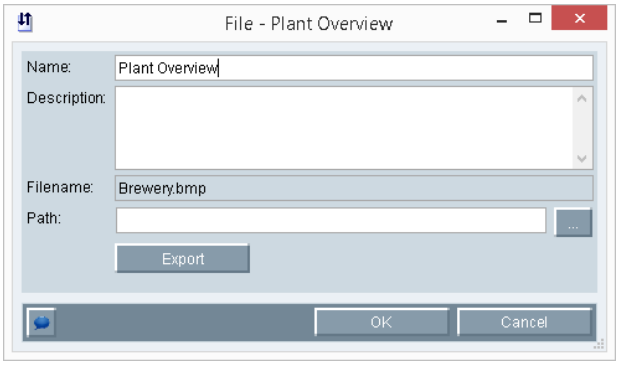
1. Select the folder in which the object is going to be created.



2. Click the "Insert File" button in the menu bar under "Analysis > File".



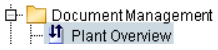
The file object configuration dialog opens.



3. Enter a "Name" and an optional "Description".
4. Enter the path and file name in the "Path" field.
5. Save the configuration with "OK".

Result

You have successfully created a data object and saved a file to the database.



2.6.4 Editing documents

Requirement

- At least one link and one file have been saved to the database.
- The user is authenticated accordingly.

Procedure

1. Double-click the link or the file object.

Result

The file opens in the corresponding application on the client.

Energy Manager Web 3

3.1 Basics

3.1.1 Introduction

Overview

Energy Manager Web is a browser-based user interface for the Energy Manager energy management system. Energy Manager PRO Web is used to access Energy Manager PRO via the Internet/Intranet.

The administrator configures the data you may access in Energy Manager.

Note

Installation of Energy Manager Web

You can find information on the installation of Energy Manager Web in the installation manual "Energy Manager - Installation", section "Setting up Energy Manager Web".

NOTICE
Secure connection between web client and web server If you configure the connection between web client and web server, use only secure Cipher Suites. A list of secure Cipher Suites can be found in the reference under "Cipher Suites (Page 919)".

Login and logout

In order to work with Energy Manager Web, you need a user name, a password associated with it, and rights to the data that you want to view.

For security reasons, a user is automatically logged out after a period of inactivity. The duration of inactivity is configurable globally in the Web.config file or in Microsoft Internet Information Services (IIS).

User interface of Energy Manager Web

The following figure shows the user interface of Energy Manager Web:

① Navigation area
In the navigation area, select the objects you want to view or edit. Use the structure tree or the Quicklinks of the toolbar for navigation. The navigation options available depend on your user rights.

② Detail area
Widget Dashboards and objects such as reports or charts are displayed in the detail area. The selection in the navigation area and the selected query type and observation period determine which objects are displayed.

Tasks in Energy Manager Web

Use Energy Manager Web to handle the following tasks:

- Viewing, configuring and creating:
  - Reports
  - Charts
  - Matrices
  - Widget Dashboards
  - Folder
- Opening documents and uploading new documents in Energy Manager
- Viewing and editing energy efficiency measures
- Manual measurement data value acquisition
- Creation and configuration of data sources, data points, parameters and key performance indicators
- Configuring the system settings

Note

Functionality of Energy Manager Basic

The configuration of energy efficiency measures and file management is not available in Energy Manager Basic.

See also

Login (Page 483)
Navigation (Page 488)
Definition of home page (Page 486)
Configuration of the analysis objects (Page 545)
Project configuration (Page 618)
Settings (Page 689)
Manual acquisition of data in the Web (Page 530)
File management in the Web (Page 527)
Energy efficiency measures in the Web (Page 528)

3.1.2 Login

Overview

You can open the Energy Manager Web home page at the following URL:

- http://<Energy Manager Webserver>/EnMPROWeb

Contact your administrator to obtain the address or name of the Energy Manager Web Server.

Energy Manager Web supports secure communication with the Energy Manager Web Server via https. Your administrator can provide you with all information needed to use https communication.

If you log into Energy Manager Web with Active Directory, check the following settings of the web browser, if necessary:

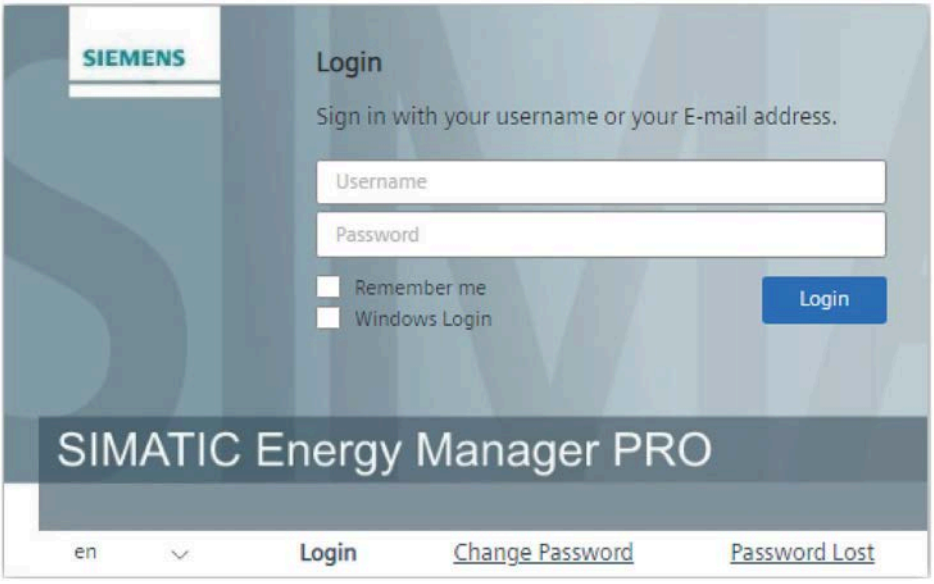
- Microsoft Internet Explorer:
  - "Internet options > Advanced > Security > Enable Integrated Windows Authentication".
- Mozilla Firefox:
  - Enable the URL of Energy Manager Web in "about:config" of the web browser.
  - Open Energy Manager Web via "Fully-Qualified Host Name".

You can find additional information in the section "Setting up Energy Manager Web" in the installation manual "Energy Manager - Installation".

Procedure

1. Start an Internet browser and enter the appropriate URL .

   The login page of Energy Manager Web opens.



2. If the "Single Sign On" option is activated for your user account or your user group, the user name and password do not have to be entered. Click the "Windows logon" button instead.

You are then logged into Energy Manager PRO Web with your Windows user name and your Windows password.

Note

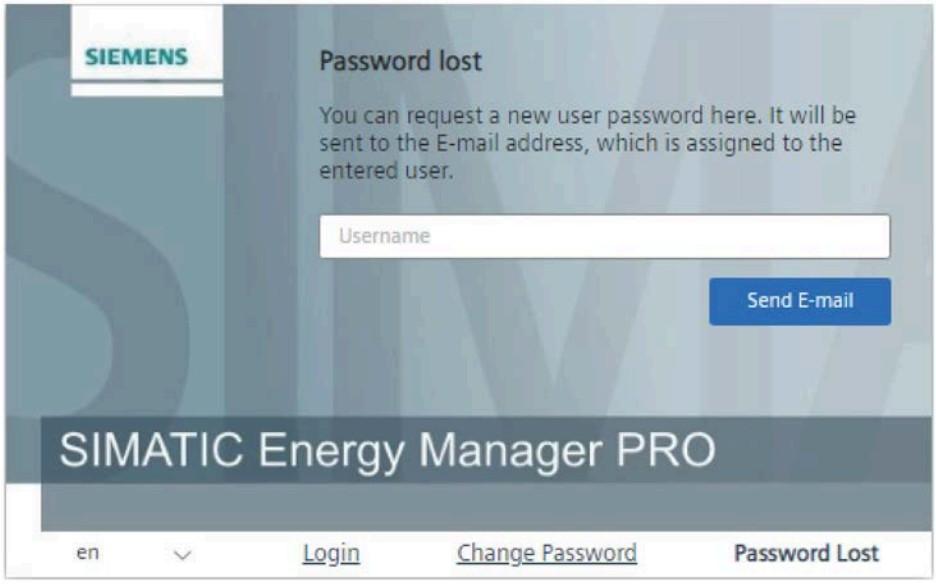
Functionality of Energy Manager Basic

The ""Single Sign On" option is not available in Energy Manager Basic.

3. If the option "Single Sign On" is not activated for your user account, enter the user name and password.

   To do this, use your login information for Energy Manager.
4. Activate the "Remember user name" check box to save the login data for the next authentication.
5. Select the language in the "Languages" drop-down list, if necessary. The following languages are available:
   - German
   - English
   - Spanish
   - French
   - Italian
   - Chinese
6. If you want to change your password, click "Change Password".
7. If you want to generate a temporary password, click "Password Lost".

   The "Password Lost" page is opened.



8. Click "Login".

Result

You are now logged in to Energy Manager Web .

Change password

You can change your Energy Manager password in the login dialog. To change it, you need your current password or a temporary password.

Note

You will be separately notified via email regarding a password change. If you have received such an email, without having changed your password, your user account may have been hacked. Always contact your administrator in this case.

Note

Unsupported punctuation

Quotation marks are not supported for passwords.

Forgot password

If you have forgotten your password, you can have a temporary password generated. The temporary password will be sent by email to the email address that is stored in your Energy Manager user account.

If you have received the email with the temporary password, click "Change password" in the login dialog.

See also

Introduction (Page 480)

Creating functional groups (Page 357)

Setting up users (Page 343)

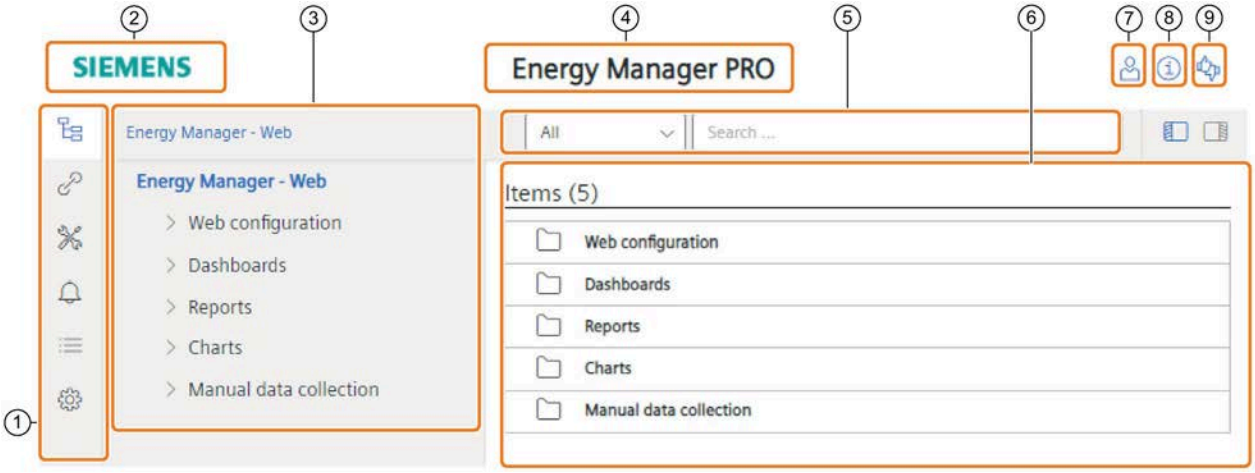
Definition of home page (Page 486)

3.1.3 Definition of home page

Home page of Energy Manager Web

After logging into Energy Manager Web you automatically go to the home page of Energy Manager Web. Use the Quicklinks or tree topology for navigation. Quicklinks are links to frequently used objects. An overview of existing Quicklinks is available under the "Quicklinks" toolbar option. With the help of the tree topology you can navigate through the object and folder structures within your system. Open the tree topology by clicking on the "Tree" in the navigation area.

The following figure shows the home page of Energy Manager Web:



① Menu bar

The menu bar consists of the following three menus:

- Tree Select the tree variant to be displayed. You can choose between the following views:
  - Standard view
  - Organization view
  - Location view
- Quicklinks: An overview of all saved Quicklinks is displayed. You can navigate directly to the corresponding object via these Quicklinks.
- Service-Cockpit: An overview of the status of the different services as well as log files is displayed. You can start or stop the services directly in the Service Cockpit.
  For more information on the Service Cockpit, refer to the section "Service Cockpit (Page 732)".
- Notification Center: You obtain an overview of the generated alarms and can configure the alarm lists.
  For more information on the Service Cockpit, refer to the section "Notification Center (Page 726)".
- Batch analysis: With the batch analysis, you determine the energy consumption of a product per batch.
  The batch analysis is not available in the "SIMATIC Energy Manager Basic" version.
- Configuration: You can choose between 2 area options:
  - Configure data sources, data points, parameters and MEVAs / KPIs as well as the system settings. You can find more information on the configuration in the section "Project configuration (Page 618)".
  - Data import: Import measured values of data points from a csv file. For more information on importing measured values, refer to the section "Importing measured values (Page 541)".

② Logo
The Siemens logo is set by default. You can select your own company-specific logo in the "Web Client settings (Page 700)".

③ Navigation area
In the navigation area, select the objects you want to view or edit. Use the menu items or Quicklinks for navigation. The folder contents and objects that are available to you in the navigation area depend on your user rights and the entry point of the respective user group in the Energy Manager Web.
You can find more information on navigation in the section "Navigation (Page 488)".

④ Product name
The product name "Energy Manager Basic" or "Energy Manager PRO" is set by default. You can enter your individual product name in the "Web Client settings".

⑤ Object search
You can search for objects using an object type filter and an entry field.
You can find more information on the search in the section "Search for object (Page 490)".

⑥ Detail area
Folder contents and objects are displayed in the detail area. The selection in the navigation area determines which objects are displayed.

⑦ User information
The following information and functions are available:
- Display of the logged-in user name
- Option for switching the Web Client view
- Option for the Energy Manager Web log off

⑧ Product Information
- Displays the installed system version.
- Documentation: Forwards you to the Energy Manager online help.
- Support Forwards you to the Siemens AG Support site.

⑨ Feedback
You can offer comments on SIMATIC Energy Manager here.

See also

Defining an entry point (Page 355)

Login (Page 483)

Introduction (Page 480)

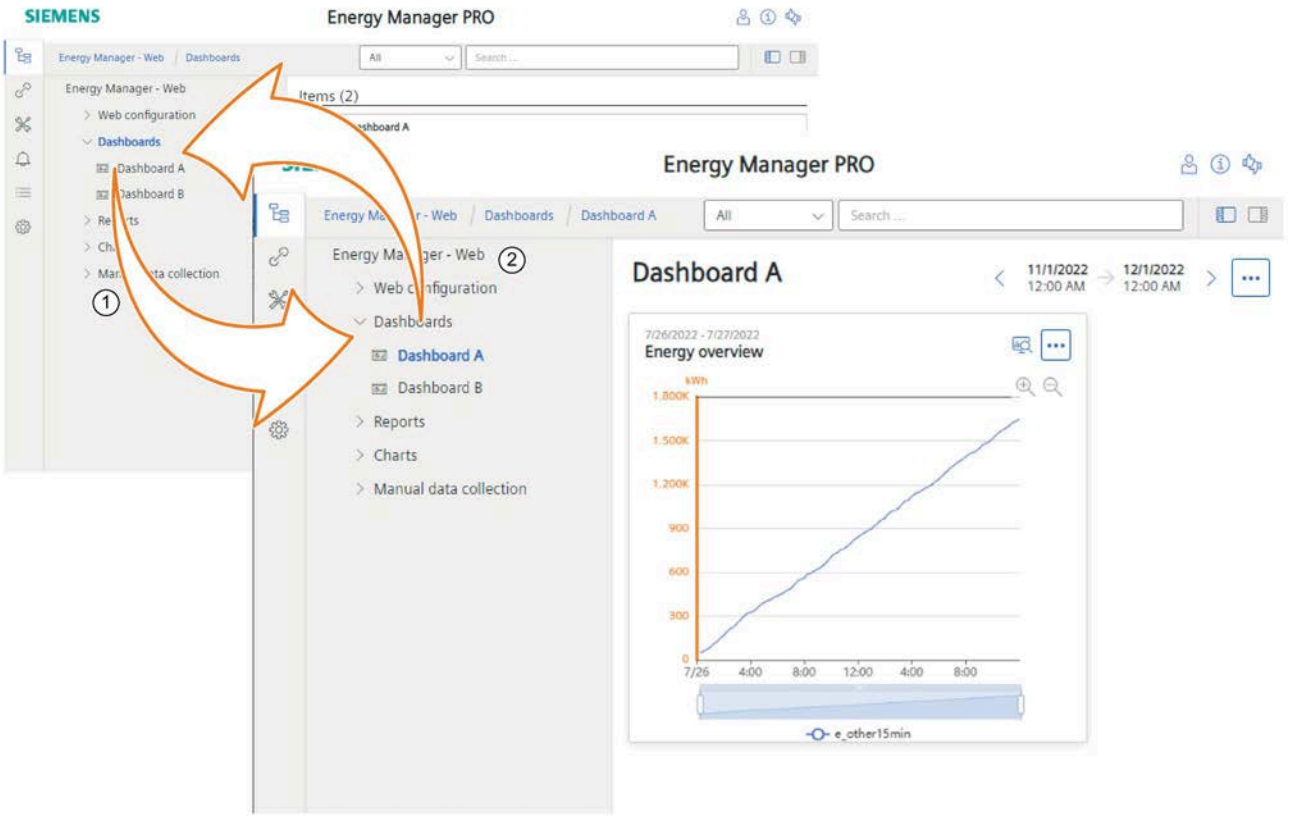
Quicklinks (Page 494)

3.1.4 Navigation

Navigation via the menu

All objects enabled for Energy Manager Web are arranged according to the breadcrumb trail method in the navigation area.

The following figure shows the navigation principle in the navigation area:



① Clicking on the menu item itself displays its structure in the navigation area, as well as its content in the detail area ("Dashboard A" in the example). All remaining menu commands on the same level are hidden.
Clicking on the arrow of a menu item opens and closes its structure again in the navigation area, without updating or reloading the content of the detail area. When you click on the icon of an object in the navigation area, its structure (e.g. data points used) is also opened and closed again in the navigation area, without updating the detail area.

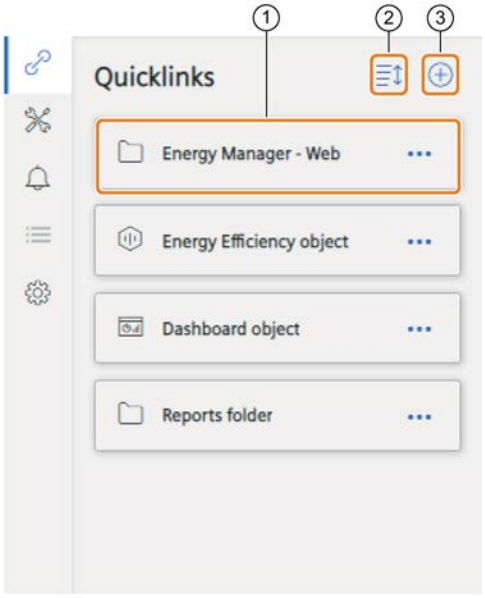
② You go back to the previous display by clicking on the parent menu command (in the example "Reports").

Navigation via Quicklinks

Quicklinks work like bookmarks in Internet browsers. Quicklinks gives you access to frequently used objects. They are stored as tiles in the "Quicklinks" menu bar item.

You can specify a Quicklink as a home page in Energy Manager Web. The content of the object to which the Quicklink refers is then displayed upon the next login.

Your personal Quicklink settings are stored and linked to your user account. This means that your Quicklink settings are available on other PCs.



① Icons and name are copied by default from the object to which the Quicklink refers. You can edit the Quicklink via the shortcut menu.

② Change Quicklink order

You can drag-and-drop the Quicklinks after activating the Move mode.

③ Add Quicklink

Create a new Quicklink for the object displayed in the detail area.

For longer Quicklink lists, use the scroll bar to view all entries.

See also

Creating Quicklinks in the Web (Page 494)

Editing Quicklinks in the Web (Page 496)

Introduction (Page 480)

3.1.5 Search for object

Overview

The Energy Manager search function evaluates the following information:

- Object name
- Description of the object
- Object ID

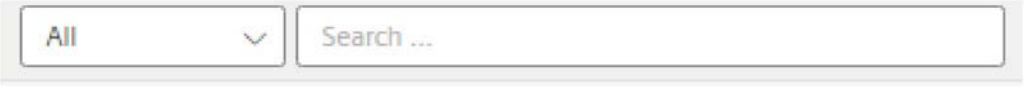
  For measuring points
- Inventory number (KKS number)

  For data points

Requirement

You have opened the home page and no object is selected in the navigation tree.

Procedure



1. To limit the search to specific objects, activate one or more object types in the drop-down menu "▼" of the search.

   You can choose the following objects:

   – Report
   – Dashboard
   – Data point
   – Chart
   – EEM
   – MEVA/KPI
   – Matrix
   – Folder
   – Parameter

2. Enter your search term in the search field and press Enter.

   A preview shows the search results.

   If you have selected the "Dashboard" object type and you click in the search field, all dashboards are displayed even if you input nothing.

3. To open an object, click on the search result in the preview.

Note

If an object is available multiple times in the tree, the first occurrence is opened.

3.1.6 Consumers and structured view on the web

Requirement

- The Consumer functionality is licensed separately.

Overview

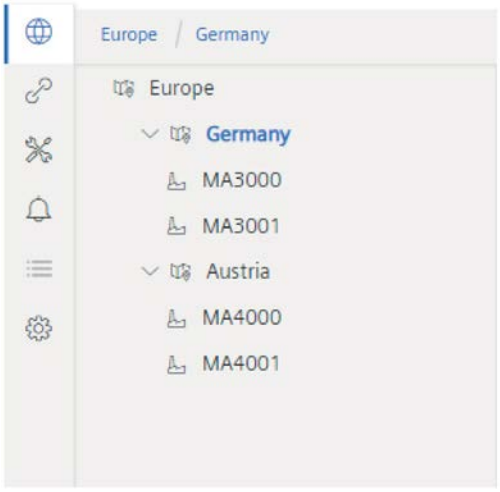
In Energy Manager Web, you have the option of having all consumers defined in the Energy Manager PRO Client displayed by their location or their organization unit.

Procedure

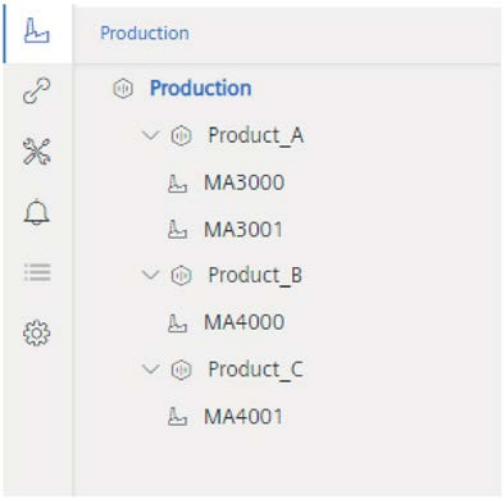
1. If you want to display all consumers of a location, click the "Geographical" tree option in the menu bar.
2. If you want to display all consumers of an organizational unit, click the "Organisation" tree option in the menu bar.

Result

1. All consumers of a location are displayed.



2. All consumers of an organization unit are displayed.



When you click on the icon of a location or organizational unit, the structure of the object opens and closes in the navigation area. When you click on the writing of the object, the related Widget Dashboard is displayed in the detail area. The administrator sets the definition and configuration of this Widget Dashboard in the consumer templates.

See also

Widget Dashboards for consumers (Page 505)

Consumers and structured view (Page 265)

Load templates (Page 376)

Navigation (Page 488)

3.1.7 Quicklinks

3.1.7.1 Creating Quicklinks in the Web

Overview

In Energy Manager Web you create Quicklinks to frequently used objects.

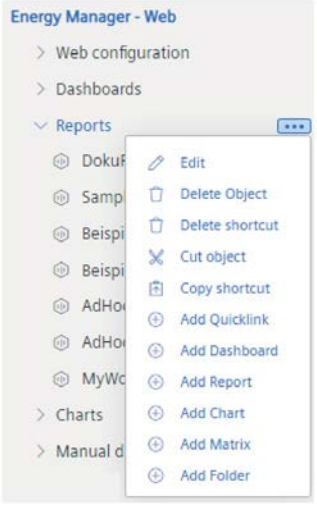
Requirement

- You have the functional authorizations "Quicklinks create" and "Quicklinks configure".

Procedure

1. Place the cursor over the object in the tree topology of the navigation area for which you want to create a Quicklink.
2. Click on the shortcut menu icon.

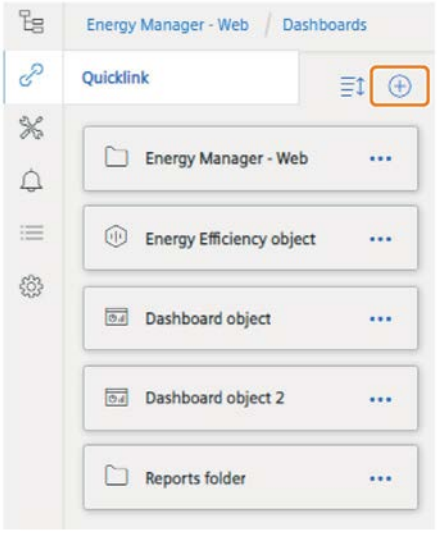
   The shortcut menu opens.
3. Click on the menu command "Add Quicklink".



The "Edit Quicklink" configuration dialog opens.

4. The name of the object for which the Quicklink is created is applied by default.
   Alternatively, you can rename the Quicklink.
5. To specify the Quicklink as the start page, select the "Use as Startpage" check box.
6. To create the Quicklink, click on the "Save" button.

Alternatively, you can add a Quicklink using the Add option ⊕ of the Quicklink dialog.



A Quicklink is then created for the object opened in the detail area.

Result

The Quicklink is created as follows:

- The object name is adopted.
- The corresponding object icon is applied.

See also

Navigation (Page 488)
Editing Quicklinks in the Web (Page 496)
Create Quicklinks (Page 29)
Quicklinks for Web (Page 351)
Definition of home page (Page 486)
Widget Dashboards in the client (Page 463)
Authorizations (Page 338)
Reports (Page 598)
Quicklinks (Page 29)

3.1.7.2 Editing Quicklinks in the Web

Overview

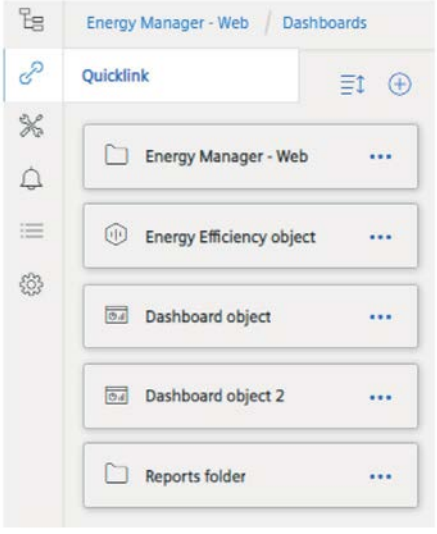
You can change the order of the Quicklinks in the "Quicklinks" area. If you no longer require Quicklinks, you can delete the Quicklinks again. You can also customize the Quicklinks, for example, by changing the name.

Requirement

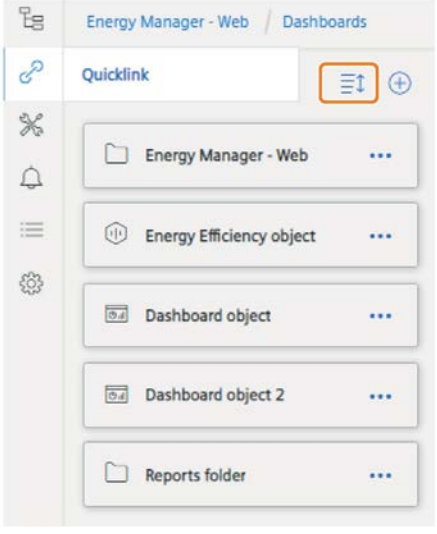
- You have the functional authorizations "Quicklinks configure" and "Quicklinks delete".

Changing the order of the Quicklinks

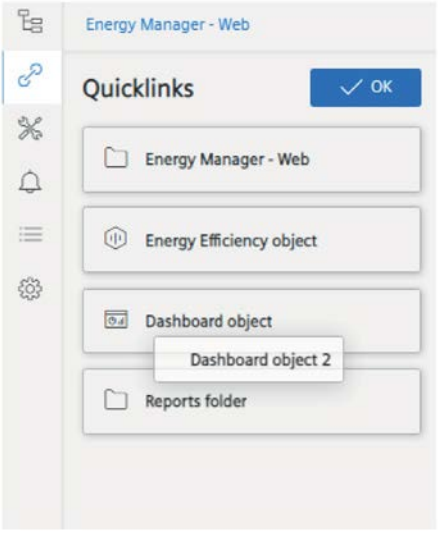
1. Click on the menu item "Quicklinks".



2. Enable Move mode " " of the Quicklink dialog option, located at the top right.



3. To move a Quicklink, use drag-and-drop to place it at the required position.

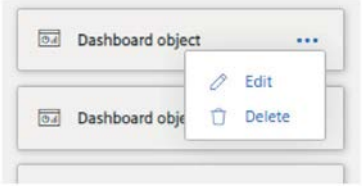


The Quicklink is placed at the respective location.

4. Click on "OK".

Customize Quicklink

1. Place the cursor over the Quicklink that you want to edit.
The shortcut menu icon is displayed on the right side of the Quicklink.
2. Click on the shortcut menu icon.
The context menu opens.



3. Click on the menu command "Edit".

The "Edit Quicklink" dialog box opens.

4. To rename the Quicklink, enter the desired name in the "Name" entry field.

5. To specify the Quicklink as the start page, select the "Use as Startpage" check box.

   Note

   If you do not specify any Quicklink as homepage, the first Quicklink in the "Quicklinks" area is used as homepage page.

6. Click on the "Save" button.

Delete Quicklink

1. Place the cursor over the Quicklink that you want to edit.
   The shortcut menu icon is displayed on the right side of the Quicklink.
2. Click on the shortcut menu icon.
   The context menu opens.
3. Click on the menu command "Delete".

   The Quicklink is deleted.

See also

Navigation (Page 488)

Creating Quicklinks in the Web (Page 494)

Editing Quicklinks (Page 31)

Quicklinks for Web (Page 351)

Authorizations (Page 338)

3.2 Data analysis in the Web

3.2.1 Folder

Overview

In Energy Manager Web you can see all folders and their contents which were defined by the administrator as an entry point for you. The available options depend on the user rights of the respective user group to which you are assigned. The administrator configures the user rights of the user groups in the Energy Manager PRO Client.

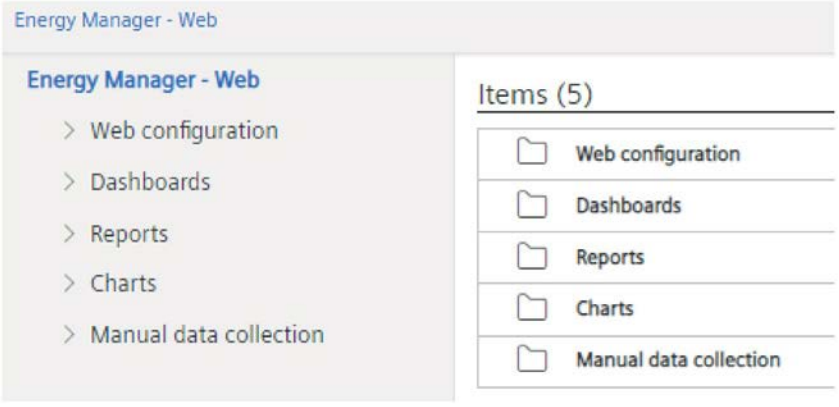
Note

Functionality of Energy Manager Basic

In Energy Manager Basic the following entry point is always used for the user: "Energy Manager - Web".

View folder contents

1. Click on the entry point ("Energy Manager - Web") in the navigation area.
2. Click the folder whose contents you want to see.



Result

The content of the desired folder is displayed in the detail area. You can learn how to create, edit and delete new folders in the section "Configuration of analysis objects" in the section "Folder".

See also

Defining an entry point (Page 355)

Creating folders (Page 614)

Editing folders (Page 616)

Creating users (Page 704)

3.2.2 Widget Dashboards

3.2.2.1 Overview of Widget Dashboards

Widget Dashboards allow rapid visualization of a wide variety of plant data on a single page. Widget Dashboards are designed for display in the Web or on mobile devices. For this reason, only configure Widget Dashboards in Energy Manager Web. In the Energy Manager PRO Client you can only create and delete Widget Dashboards.

Note

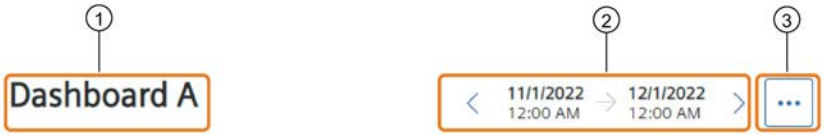
The functional authorization "Widgets/Dashboards - create, remove, configure" is required to create, delete and configure a Widget Dashboard. In addition, the "view" authorization is available for displaying and "configure" solely for the configuration.

Requirements

- The Widget Dashboard is created in Energy Manager.
- The Widget Dashboard is enabled for the user.

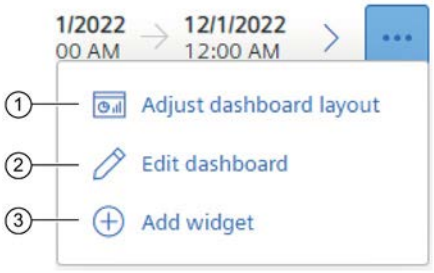
Display of Widget Dashboards

To open a Widget Dashboard in Energy Manager Web, click in the navigation area on the corresponding Widget Dashboard. The Widget Dashboard is displayed in the detail area.



① Name of the dashboard
② Changing the observation period
③ Shortcut menu of the dashboard

When you click on ③, the shortcut menu of the dashboard is displayed.



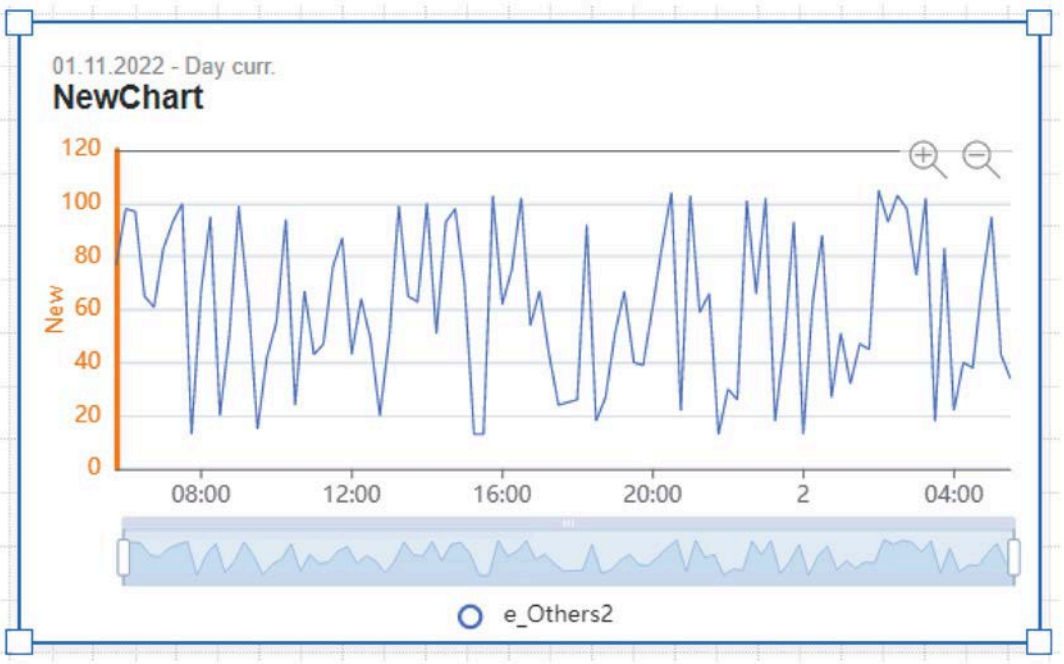
① Adjust dashboard layout
② Edit dashboard
③ Add widget

Click on the "Edit dashboard" button ② to configure generally applicable settings of the Widget Dashboard. You can find more information on configuring widgets in the section "Editing Dashboards".

To create new widgets in the Widget Dashboard, click on the "Add Widget" button ③ in the shortcut menu of the dashboard. For more information on creating widgets, refer to the section "Creating widgets".

Displaying widgets in the Widget Dashboard

The following figure shows a created and already configured Chart widget in the layout Adjust mode of the Widget Dashboard ①:



- You move the widget using drag and drop.
- You resize the widget with the blue frame.

When you close Adjust mode of the Widget Dashboard by pressing the "Finish" button, the widget is displayed in the selected size and position in the Widget Dashboard. The following figure shows the same Widget Dashboard after closing the Adjust mode:

① Detail view of the widget
② Shortcut menu of the widget
③ Zoom buttons

In the detail view ①, you can alternatively define the display information about the widgets, depending on the widget.

The following additional display information is available:

- Widget:

  Displays the main information of the widget.

- History:

  Displays the values of the data points as a chart in the defined observation period.

- Histogram:

  Displays the values as a histogram with equal intervals. The display corresponds to the histogram in the Energy Manager PRO Client. In addition, the statistical values minimum, maximum, median, average and standard deviation are displayed. Values outside the plausibility limits are not marked in the histogram.

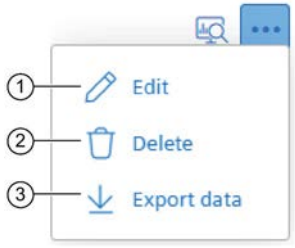
- Regression:

  Shows the correlation and regression analysis as well as the linear correlation as a formula.

For information on how to configure the individual widgets using the respective sections, refer to section "Widget configuration".

The left Zoom button ③ activates Zoom-in mode. In this mode, you zoom in on the area you select in the widget history. The right Zoom button ③ resets the widget history to the preceding view.

When you click on the button ② of the widget, the shortcut menu of the dashboard is displayed.



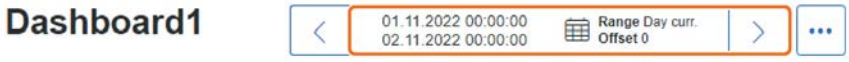
① Edit widget settings
② Delete widget
③ Export data

With the CSV Export icon ③, you can export the measured values for a widget as a CSV file to the download directory of your Internet browser. The export file is saved with the name "EnMPRO_dashboardname_widgetname.csv".

Changing the observation period

To change the observation period of the dashboard and the widgets contained therein, follow these steps:

1. Click on the field of the date or query type of the dashboard at the top of the dashboard.



2. Select the (start) date and time.
3. Select the query type associated with the start time.
4. Click on the "OK" button.

The observation period of the Dashboard adapts to your settings. If you have selected the check box "Use dashboard settings" in the configuration settings of the widgets as the query type, the observation period of the widgets changes accordingly.

Note

If you have selected a particular date including query type in the configuration settings of a widget, the observation period of the widget in question does not change.

See also

Creating Widgets (Page 554)
Editing dashboards (Page 551)
Widget Dashboards for consumers (Page 505)
Editing widgets (Page 556)
Setting up dashboards (Page 550)
Widget Configuration (Page 574)
Dashboards (Page 550)
Available Widgets (Page 557)

3.2.2.2 Widget Dashboards for consumers

Requirement

- The license for the Consumer functionality is available.

Overview

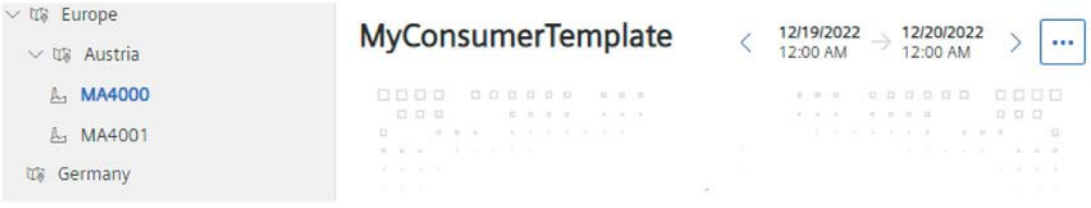
You have the option of creating Widget Dashboards for individual consumers as well as for entire locations or organization units. The functionality of selecting associated datapoints and MEVAs for consumers is available. When you assign a consumer to a consumer template in the Energy Manager PRO Client and define a default Widget Dashboard, this Widget Dashboard is displayed when you click on the consumer. You can then configure this Widget Dashboard. More information about creating a consumer and a consumer template can be found in the sections "Consumers and structured view "and "Consumer templates" in the complete operating manual of Energy Manager PRO.

If you want to view the entire consumer structure in Energy Manager Web, copy the consumer to the entry point defined for the user group.

Opening the Widget Dashboard for consumers

To open the Widget Dashboard for consumers, follow these steps:

1. In the navigation area, click under the menu item "Geographical" or "Organisation" on the consumer whose Widget Dashboard you wish to display.



   The default Widget Dashboard in the Energy Manager PRO Client is opened.

2. To open the configuration mode, click on the gear icon.
3. In the "Data source" tab, select the check box "Consumer variable".

   Only data points and MEVAs of the consumer are listed.

   Note

   If you create the Widget Dashboard at the geographical or organization unit level, the data points and MEVAS of all consumers located below are available for selection. You thus have the option of designing a Widget Dashboard as an overview of all consumers of a location or an organization unit.

4. Select the data points and MEVAS you want to display in the widget.
5. Complete the configuration of the widget in accordance with section "Widget configuration (Page 574)".

If you have created multiple Widget Dashboards for a consumer, they are displayed in the tree topology of the navigation area below the consumer.

Use of placeholders for designations

When configuring the Widget Dashboard you have the option of using placeholders. These placeholders are replaced with specific names or descriptions. You can use the placeholders in the title of the dashboard, in the title of a widget and in the widget "text" as well as in the text itself.

You can use the following placeholders:

- {MACHINE_NAME} corresponds to the name of the consumer
- {MACHINE_DESCRIPTION} corresponds to the description of the consumer
- {MACHINE_PRODUCER} corresponds to the producer of the consumer
- {MACHINE_TEMPLATE} corresponds to the name of the consumer template
- {MACHINE_LOCATION} corresponds to the location of the consumer
- {MACHINE_BALANCING_GROUP} corresponds to the organization unit of the consumer
- {ORG_NAME} corresponds to the name of the organization unit
- {ORG_DESCRIPTION} corresponds to the description of the organization unit
- {LOCATION_NAME} corresponds to the name of the location
- {LOCATION_DESCRIPTION} corresponds to the description of the location
- {LOCATION_LOCATION} corresponds to the "Location" entry field in Location

Use the expressions including the curly brackets.

See also

Consumers and structured view (Page 265)

Load templates (Page 376)

Consumers and structured view on the web (Page 492)

Overview of Widget Dashboards (Page 500)

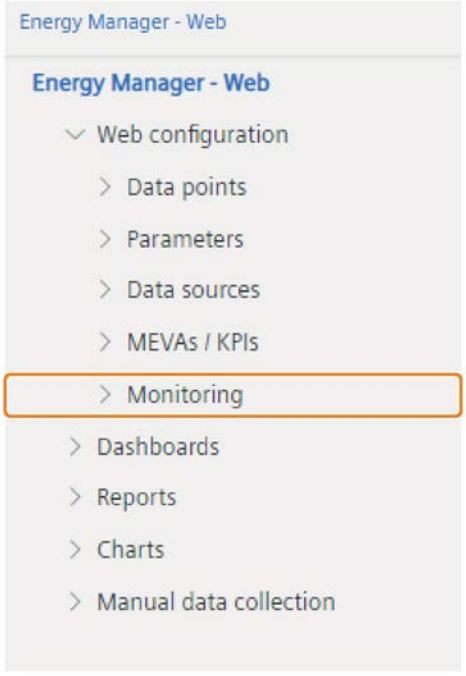
Setting up dashboards (Page 550)

Configuring the Parameter section (Page 578)

3.2.3 Online Monitoring

Online Monitoring enables you to display data points of Modbus devices and OPC channels in real time. The sections Creating a Modbus TCP channel (Page 646) and Creating OPC DA, OPC HDA, OPCUA channels (Page 636) describe how to configure the Online Monitoring for Modbus devices and OPC channels.

You can find all data points with Online Monitoring in the navigation field under the structure "Web Konfiguration > Monitoring".



This folder structure is also adopted in the Energy Manager PRO Client. However, in Energy Manager PRO Client you cannot make any changes to the objects in the folder "Monitoring".

To open Online Monitoring, click on the corresponding entry.

Configuration

Under "Configuration", configure the Online Monitoring. You can activate the following functions for each data point:

- Display in chart: The corresponding data point is displayed in the Online Monitoring chart.

  You can activate this function for a maximum of 10 data points at the same time.
- Archive data: The values of the data point are saved for Online Monitoring for 62 days. Historical values are displayed in the chart only for these data points. When you deactivate this function, already archived data are not deleted.

Note

A maximum of 1000 data points per acquisition component and a maximum of 25 data points per device can be simultaneously archived.

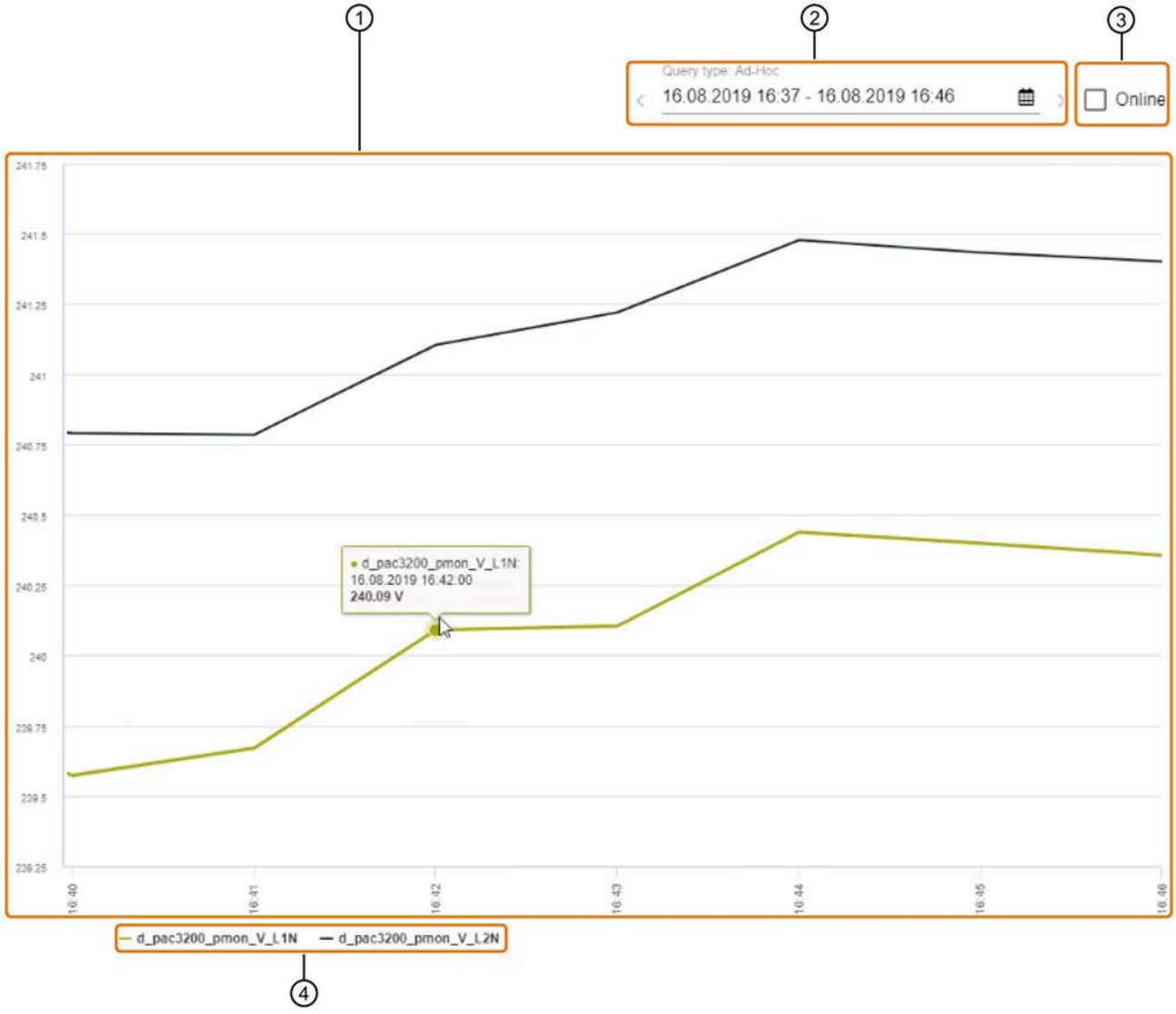
The data points are displayed in tabular form:

The table contains the following six columns:

Column	Function
Name	Name of the data point
Unit	Unit of the value of the data point
Value	Current value of the data point This value is updated in the acquisition cycle of Online Monitoring.
Show in chart:	If this option is selected, the corresponding data point is shown in the Online Monitoring chart:
Archive data	If this option is activated, the values of the corresponding data point is saved for 62 days.

Chart

The data points selected under "Configuration"are graphically displayed under "Chart".



① Visualizing the data points

To observe a specific area, keeping the mouse pointer pressed draw a frame around the desired area.
To reset the display, click on the "Reset zoom" button at the top right-hand corner of the chart.

② Selection of the displayed time period

If you select a time period while the online mode is activated, the online mode is deactivated.

③ Online mode
While the online mode is activated, the current minute and the past 14 minutes are always displayed in the chart.

④ Legend
To hide a data point, click on the corresponding data point in the legend.
Click on the data point again to display it again.

Note

If you select a time period with a large number of measured values, loading the chart make take a considerable amount of time.

3.2.4 Reports

Overview

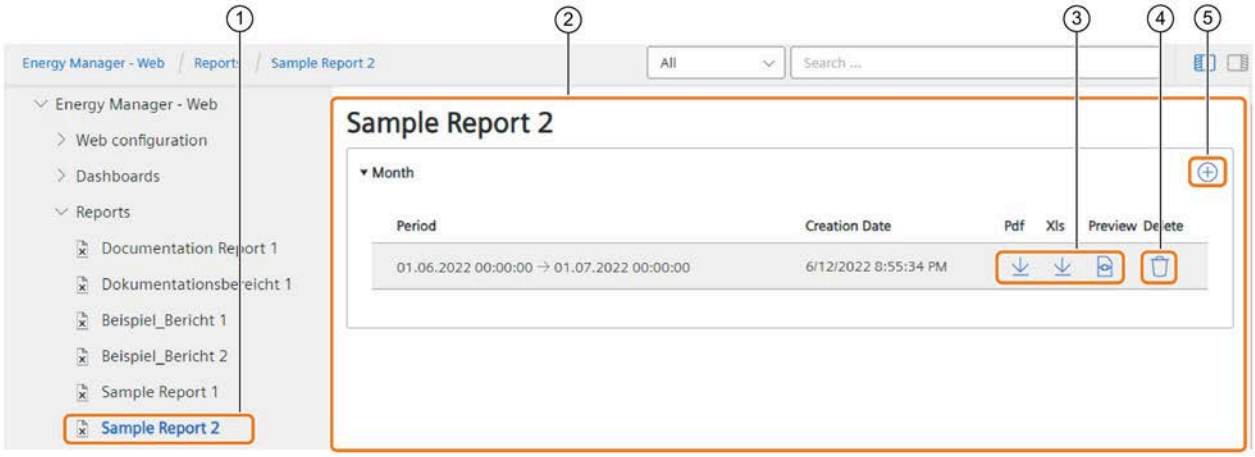
Energy Manager PRO Web shows you the reports you configured in Energy Manager PRO Client. You can also generate new reports in Energy Manager Web .

Note

Functionality of Energy Manager Basic

In Energy Manager Basic you can create reports only with the help of five predefined templates. All the settings are predefined in these report templates.

The structure of a report result in Energy Manager Web consists of the following objects:



① Report
When you select the report object, the following lower-level object types are displayed in a drop-down menu:
- Data point
- MEVA / KPI
- Parameter

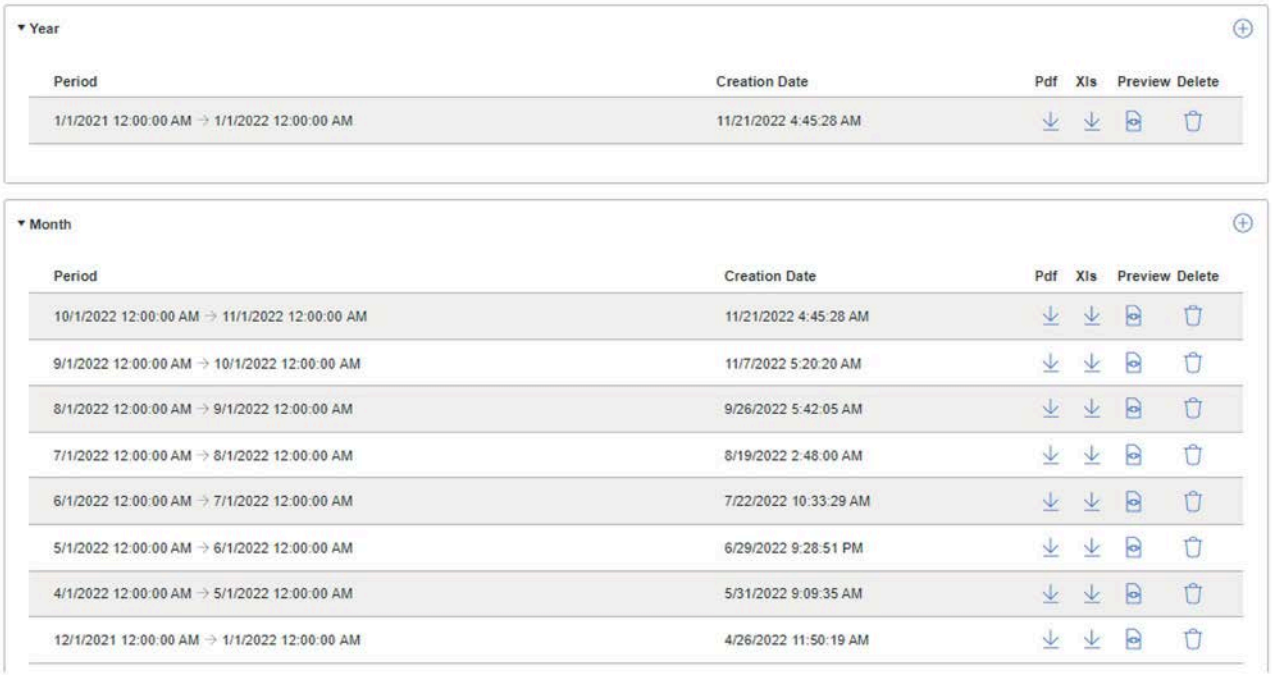
② Report results

③ Output format of the report result with preview

④ Delete option for the report result

⑤ Create new report for this period

The figure below shows an example of the periodically categorized report results in the detail view.



▾ Year

Period	Creation Date	Pdf	Xls	Preview	Delete
1/1/2021 12:00:00 AM → 1/1/2022 12:00:00 AM	11/21/2022 4:45:28 AM				

▾ Month

Period	Creation Date	Pdf	Xls	Preview	Delete
10/1/2022 12:00:00 AM → 11/1/2022 12:00:00 AM	11/21/2022 4:45:28 AM				
9/1/2022 12:00:00 AM → 10/1/2022 12:00:00 AM	11/7/2022 5:20:20 AM				
8/1/2022 12:00:00 AM → 9/1/2022 12:00:00 AM	9/26/2022 5:42:05 AM				
7/1/2022 12:00:00 AM → 8/1/2022 12:00:00 AM	8/19/2022 2:48:00 AM				
6/1/2022 12:00:00 AM → 7/1/2022 12:00:00 AM	7/22/2022 10:33:29 AM				
5/1/2022 12:00:00 AM → 6/1/2022 12:00:00 AM	6/29/2022 9:28:51 PM				
4/1/2022 12:00:00 AM → 5/1/2022 12:00:00 AM	5/31/2022 9:09:35 AM				
12/1/2021 12:00:00 AM → 1/1/2022 12:00:00 AM	4/26/2022 11:50:19 AM				

Report creation is based on the configuration for automatic reporting.

Requirement

- The report has been created in Energy Manager .
- The report has been released for the current Web application.
- Microsoft Excel and PDF-Reader are installed on the PC.
- You have the necessary rights.
  - "start" to generate report results.
  - "open *" to display / open report results in the respective format.
  - "delete" to delete report results.

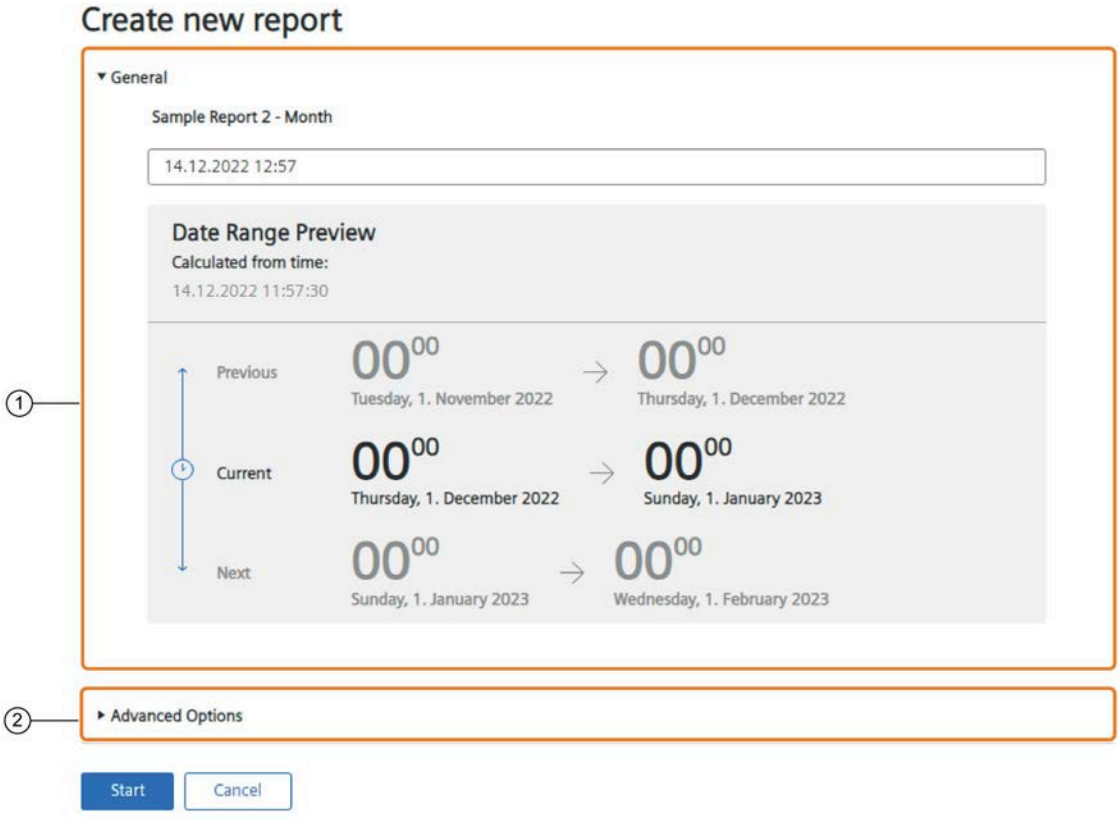
Generating a report in the Energy Manager Web

1. To generate the report in Energy Manager Web , select the desired report and then click the "Options" tab in the right window pane.

   The "Create new report" dialog opens.
2. Under "General", specify the time range for the report.
3. Click on "Advanced Options" to define the additional parameters for report generation.

   Define the desired parameters.
4. Click "Start".

   The report is generated.



① Configure the time range of the report in this area.
② Configure the advanced options of the report in this area.

Specifying additional parameters for the report (optional)

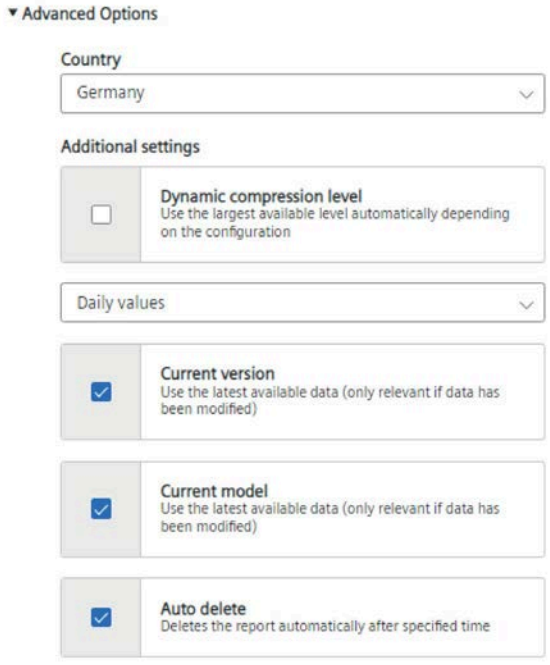
1. Click "Advanced Options" in the " Create new report" dialog.

   The advanced options are displayed.

2. Under "Country", select the desired country.
3. To define the compression level of the report, disable "Dynamic compression level" and select the desired compression level.
4. To define the version of the measured values for evaluation, disable "Current version" and select a date.
   All measured values generated prior to the selected date are evaluated.

   The current date is activated by default.

5. To define a calculation model for evaluation of the report, disable "Current model" and select a model date.
   The report is evaluated with the current calculation model by default.
6. To exclude the report from a cyclic deletion action, disable "Auto delete".



Downloading or displaying the report result in Energy Manager Web

1. To download the report result in PDF format, click on the "PDF-Download" icon in the row of the report result.

   The report result is downloaded.

2. To download the report result in Excel format, click on the "EXCEL-Download" icon in the row of the report result.

   The report result is downloaded.

   Note

   If you change the result of the downloaded report, these changes are **not** saved in Energy Manager.

3. To display the report result as a preview in PDF format in Energy Manager Web , click on the "Preview" icon.

   The report result is displayed.

Deleting a report result

1. To delete a report result, click on the "" button in the "Delete" column in the table with the report results.
   A confirmation prompt appears.

2. Confirm the deletion.

   The report result is deleted.

See also

Creating user groups (Page 354)

Creating reports (Page 598)

Configuring reports (Page 279)

Report results (Page 437)

Report (Page 274)

3.2.5 Charts

3.2.5.1 Overview

You use the Chart to display historical as well as current values. Use the chart for the visualization of measurement series.

The Diagram or Chart functionality is available as a separate tab for the following objects:

- Data point
- Matrix
- Chart object

Chart tab for matrices and data points

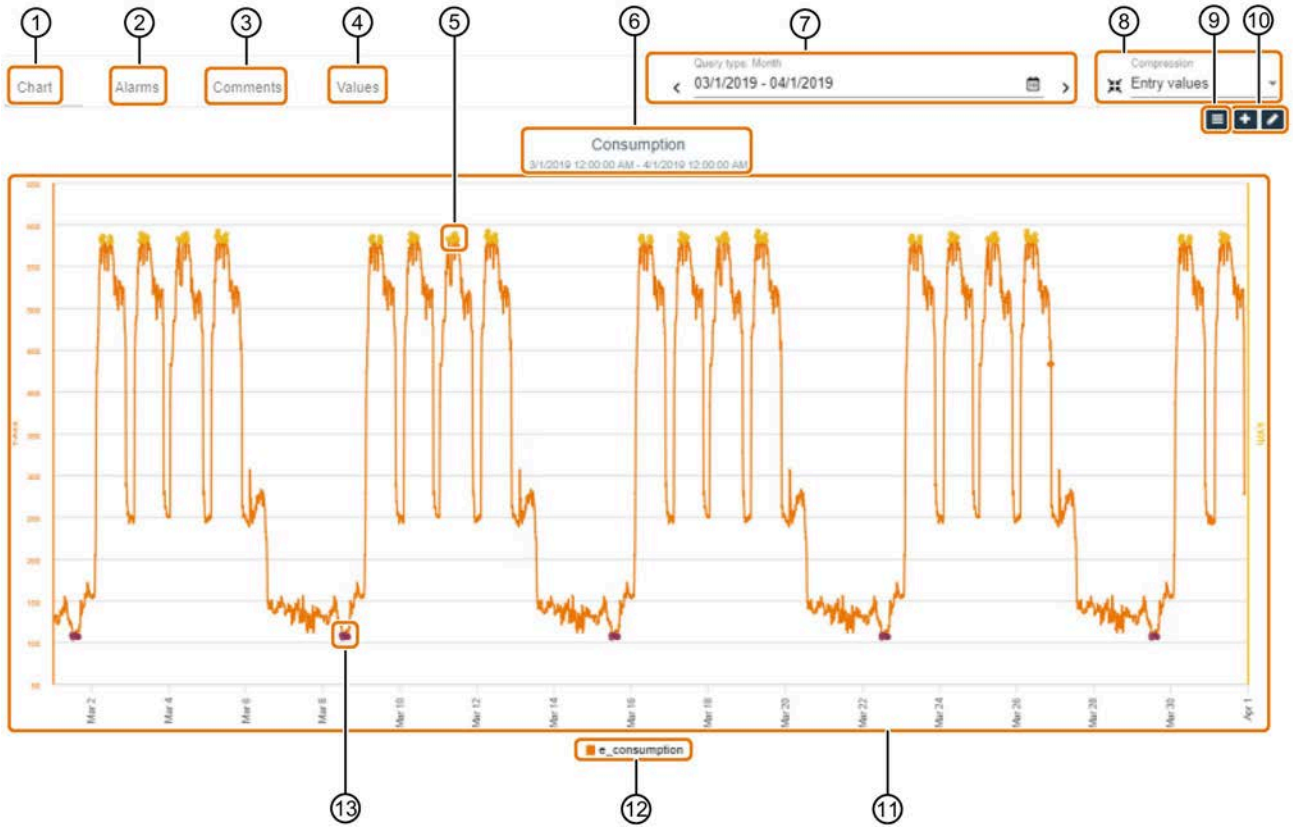
With matrices and data points, the Chart tab is available immediately after a click on the respective object. Configurations set in the chart, such as the number of displayed data points and the query type, are stored automatically for the active user. The configuration is saved with the object in the database. The selected time range is not stored. On a renewed display of the chart the current time range is always displayed.

Own chart object

There is also a separate chart object that you can use to visualize up to ten data points simultaneously. The configuration via the chart object is not referenced to a user. Thus it is possible to make a preconfigured chart available to several users. Open the chart by clicking on the corresponding chart in the navigation area.

Structure of the Chart tab

The following figure shows the display of the chart in Energy Manager Web:



① Selection of the "Chart" tab
② Selection of the "Alarms" tab
③ Selection of the "Comments" tab
④ Selection of the "Values" tab
⑤ Data point with a warning
⑥ Name of the chart and displayed time period
⑦ Selection of the displayed time period

To change the time period, click on the arrow keys or . When you click , you open the time and date selection.

You can find more information about time and date selection below.

When the page is reloaded, the chart once again displays the time period specified by the configuration.

⑧ Selection of the displayed compression level
⑨ Exporting the chart

You can export the displayed chart in the following form:

- The values of the chart that are displayed at this time are saved as a file in "*.csv" format

⑩ Configuration of the chart
To open the "Data sources" tab of the configuration, click on .
To open the "General" tab of the configuration, click on .

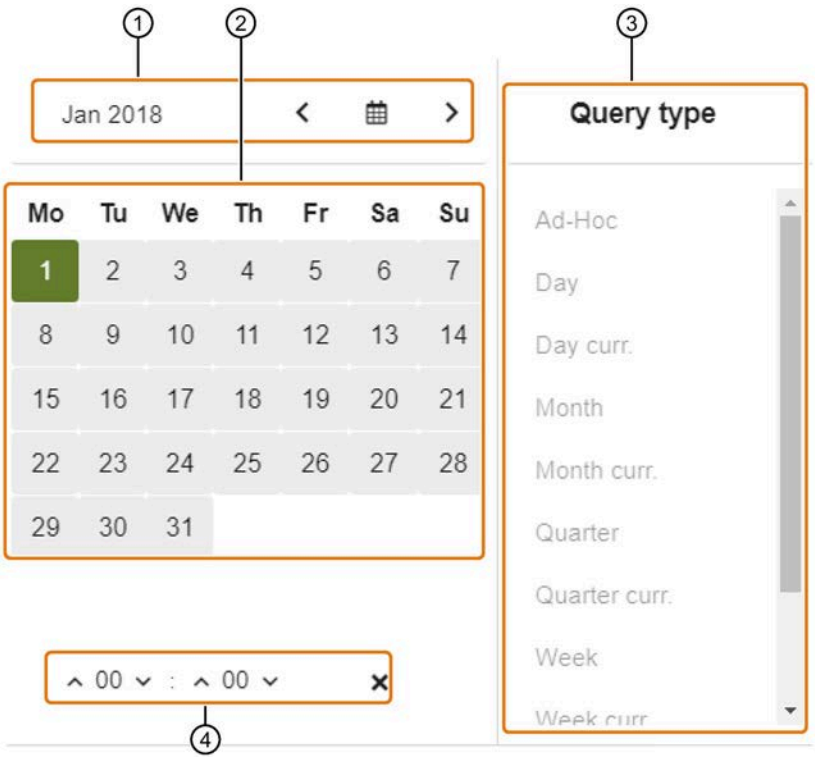
⑪ Visualizing the data points
To observe a specific area, keeping the mouse pointer pressed draw a frame around the desired area.
To reset the display, click on the "Reset zoom" button at the top right-hand corner of the chart.

⑫ Data points with legend

⑬ Data points outside of limits

Date and time selection

The following figure shows the date and time selection.



① Selection of the displayed month

To display another month in the calendar, proceed as follows:

1. Click on the text with the month and year displayed.
2. Select a year.
3. Select a month.

To display the previous or next month, click the arrow buttons.

To select the current time period, click on .

② Selection of the displayed time period.

To display a time period on the chart, click a day in the calendar. The corresponding time period is selected automatically.

If you selected the Ad-Hoc query type, select the start and end of the custom time period.

③ Selection of the query type

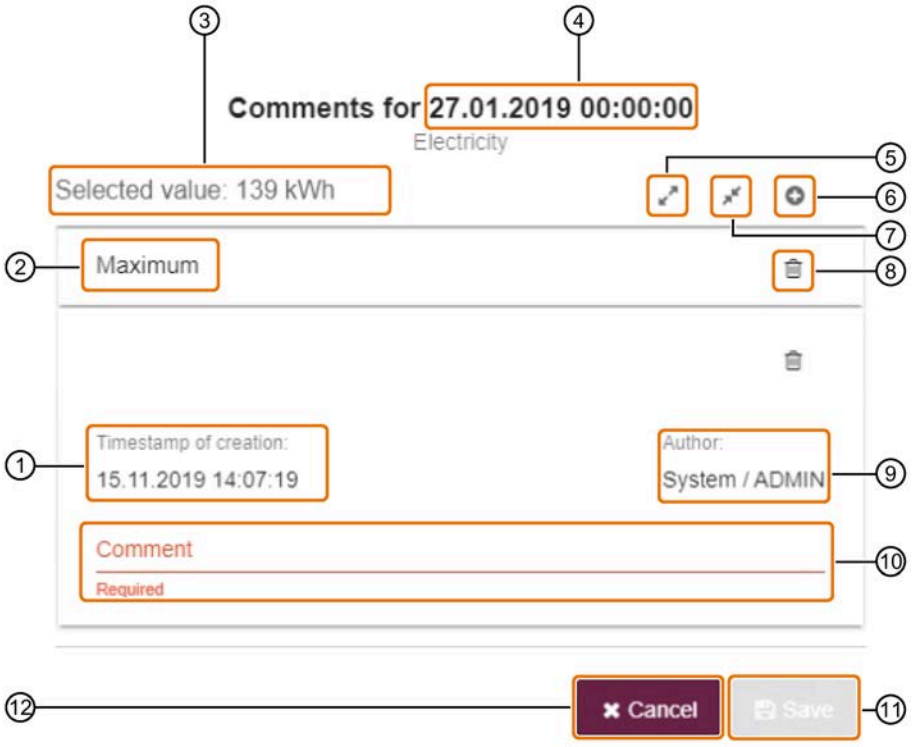
To display a time period with a user-defined start and end on the chart, select the "Ad-Hoc" option.

④ Selection of the time

This function is only supported with the "Ad-Hoc" query type.

Adding comments

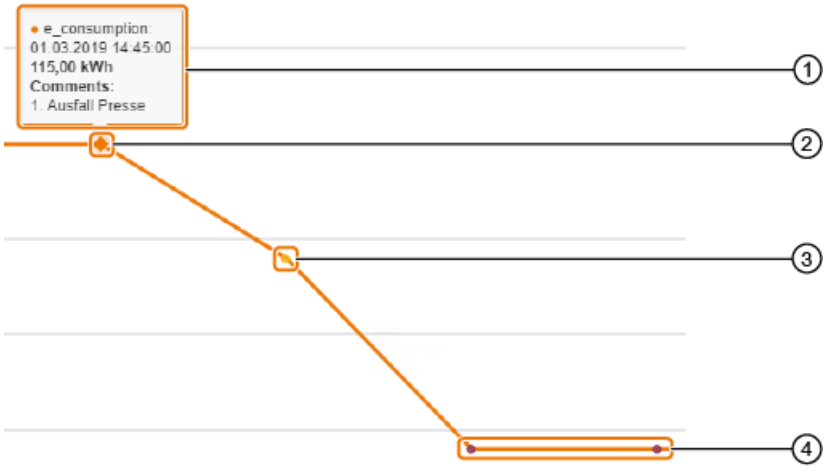
If you double-click a value in the diagram, the following dialog box opens:



① Time stamp of creation of the comment
② Comment (details hidden)
To display the details of the comment, click the comment.
③ Selected value
Count value of the selected value.
④ Time stamp of the selected value
⑤ "Show all" button
Click this button to show the details of all comments.
⑥ "New comment" button
Click this button to add a new comment to the selected value.
⑦ "Hide all" button
Click this button to hide the details of all comments.
⑧ "Delete" button
Click this button to delete the comment.
⑨ Author
Author of comment
⑩ Comment
Edit or write the comment in this input field.
⑪ "Save" button
Click this button to leave the dialog box and save the changes.
⑫ "Cancel" button
Click this button to leave the dialog box and not save the changes.

Display of details in the chart

The figure below shows which details are displayed for the measured values of a measurement series in the chart:



① Details

Move the mouse pointer over the corresponding measured value to display the details of a measured value. The following information is included:

- Data point name
- Time stamp
- Value
- Comments

② Measured value with comment

Measured value with comments are marked with a hash character.

③ Measured value outside warning levels

Measured values which have exceeded the warning levels defined in the chart configuration are marked with a yellow dot.

④ Data point outside limits

Measured values which have exceeded the limits defined in the chart configuration are marked with a purple dot.

Note

If a value displayed as a column exceeds or falls below a limit or warning value, the entire column is colored accordingly.

Note

If a series is displayed as a bar chart, the diamonds that show comments are not visible for that series.

Structure of the Alarms tab

A list with all the alarms for the shown period is displayed using the "Alarm" tab.

The display table consists of the following five columns:

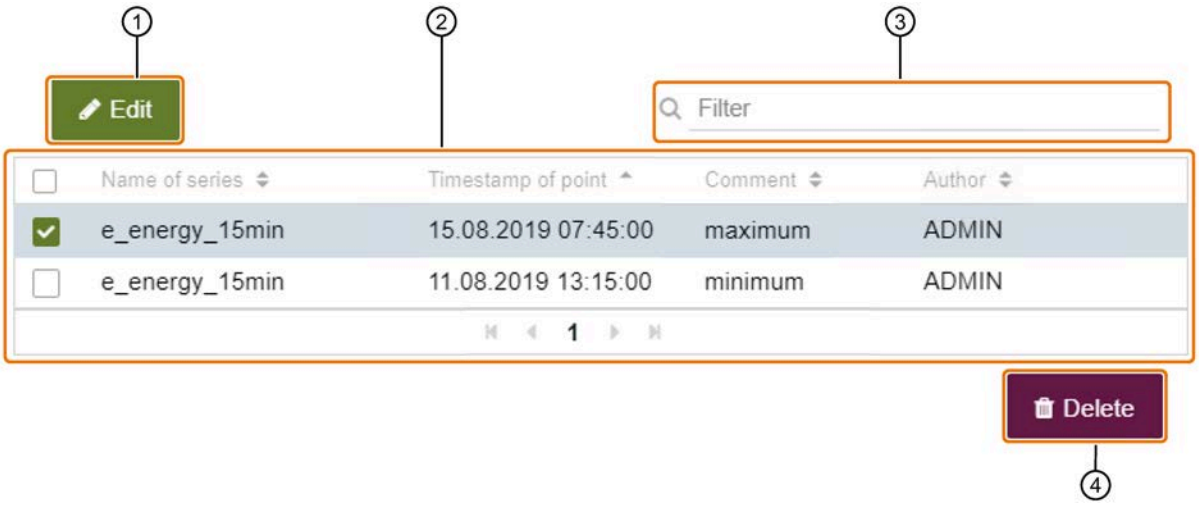
Column	Function
Name of the series	Name of the data point relating to the message
Time stamp of measuring point	The time of measurement
Time stamp of creation	The time of creation of the message
Level	Message type
Comment	Comment on the message This comment is created automatically

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

When you enter a text in the "Filter" text box, all columns are searched and the corresponding entries are displayed in the display table. Delimitation of messages is recommended when there is a large number of messages.

Structure of the Comments tab

A list with all the comments for the displayed period is displayed using the "Comments" tab.



① Edit
To edit the selected comment, click on this button.
If you selected several comments, this button is disabled.

② Table with comments of the selected time period.

③ Filter function
When you enter a text in the "Filter" text box, all columns are searched and the corresponding entries are displayed in the display table. Delimitation of comments is recommended when there is a large number of comments.

④ Delete
To delete a comment, select the comment and double-click this button.
Multiple selection is possible.

The table contains the following four columns:

Column	Function
Name of the series	Name of the data point relating to the comment
Time stamp of measuring point	Time stamp of the measurement
Comment	Content of comment
Author	Author of comment

Values tab

You can find more information on the Values tab in the Matrices (Page 535) section.

3.2.5.2 Configuring charts

Follow these steps to configure a chart:

1. Click on the chart in the navigation field.
2. To open the configuration dialog, click on  .
3. Configure the tabs of the configuration dialog as described below.
4. Click the "Save" button.

Configuring the "General" tab

To configure the "General" tab, follow these steps:

1. Enter the name of the chart in the "Name" text box.
2. Enter the number of decimal places to be displayed in the detail field of a measuring point in the "Decimal format" text box.
3. If you enable "Current date", the current time is always used as the basis for the query type.

   If you disable "Current date", a defined time is used as the basis for the query type.

   In this case, select the time in the text box "From".
4. From the "Query type" drop-down list, select the type of the displayed time period.
5. From the "Compression" drop-down list, select the compression level to be displayed in the chart.
6. If you enter a number other than zero in the "Offset" text box, the chart will not display the selected time period. The displayed time period is shifted by offset times the cycle of the query type. For example, if you have selected Month as the query type and an offset of -2, the chart will display March instead of May.
7. If you enable "Use initial time stamp", the values at the beginning of your cycle are displayed in the chart.

   Background: The end time stamp is always used in the Energy Manager. End time stamping means that all values get the time stamp at the end time of their cycle. This means, for example, that the first daily value of a month is stamped at midnight on the second day of the month. Accordingly, the last daily value of a month has a time stamp of midnight of the first day of the following month. These values are also displayed in the chart if you have not activated "Use initial time stamp".
8. To compare the time period displayed in the chart with another time period, enable "Comparison", "Static" or "Dynamic".

   If you have enabled "Static", select the start of the period to be compared from the calendar under "From". This time period does not change.

   If you have enabled "Dynamic", enter a number in the "Offset" text box. The period to be compared is offset from the displayed period by a multiple of the cycle of the query type. The function is the same as in step 6.

Configuring the "Data sources" tab

To configure the "Data sources" tab, follow these steps:

1. To add a data point or MEVA/KPI, select the object from the "Select" drop-down list. When you enter a term in the drop-down list, the displayed objects are filtered by that term.

   The only objects displayed in the drop-down list are of a type enabled under "Filter".

   Alternatively, you can use the structure browser. To open the Structure Browser, click on 🗁.

   Note

   You can display values in the chart that are stored locally on the acquisition component. This data is deleted from the acquisition component 62 days after it is created and can then no longer be displayed in the chart.

2. To configure a selected object for the chart, click on the object in the "Currently selected" list.

   You can enter an alternative name. If you enabled the option button in the corresponding row, the alternative name or description of the object is displayed as the name of the data series in the chart.

   Under "Category", select the category of values to be displayed in the chart. The conversion between energy/consumption and power/flow is made automatically.

   From the"Function" drop-down list, select the type of values of the object are to be displayed in the chart

3. To delete an object from the chart, click on 🗑.

Configuring the "Display" tab

To configure the "Display" tab, proceed as follows:

1. To configure the display of an object in the chart, click on the corresponding object.
2. From the "Color" drop-down list, select the color with which the values of the object are to be displayed in the chart.
3. From the "Type" drop-down list, select the way in which the values of the object are to be displayed in the chart.
4. From the "Y-axis" drop-down list, select the y-axis to which the object is assigned in the chart.
5. If you disable "Visible", the object is not displayed in the chart.
6. If you enable "Stacked", all objects where this option is enabled and assigned to the same axis are displayed stacked on top of each other.

Configuring the "Limits" tab

To configure the "Limits" tab, follow these steps:

1. To configure the limits of an object's values on the chart, click on the object.
2. In the "Upper warning" text box, enter the numeric value of the upper limit.
3. In the "Upper warning" text box, enter the numeric value of the upper warning limit.
4. In the "Lower warning" text box, enter the numerical value of the lower warning limit.
5. In the "Lower limit" text box, enter the numerical value of the lower limit.

To successfully configure the limits, adhere to the following nonequivalence: Upper limit ≥ Upper limit warning ≥ Lower limit warning ≥ Lower limit

Configuring the "Axes" tab

To configure the "Axes" tab, proceed as follows:

1. To add a new y-axis, click on .
2. To configure an axis, click on the corresponding axis.

   In the "Name" text box, enter the name of the axis. The name of the axis is displayed in the chart.

   In the "Lower limit" text box, enter the lowest numerical value on the axis that is displayed in the chart. If you leave this box empty, the axis is automatically scaled.

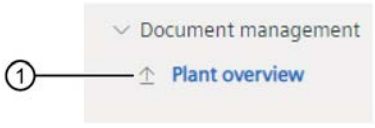
   With the "Area" display type, the chart is always displayed in the zero-point display.

   In the "Upper limit" text box, enter the highest numerical value on the axis that is displayed in the chart. This numerical value must be greater than the lowest numerical value on the axis. If you leave this box empty, the axis is automatically scaled.
3. To delete an axis, click on .

3.2.6 File management in the Web

Overview

In Energy Manager PRO Web , call the documents stored in Energy Manager PRO or upload new documents to the Energy Manager PRO Database.



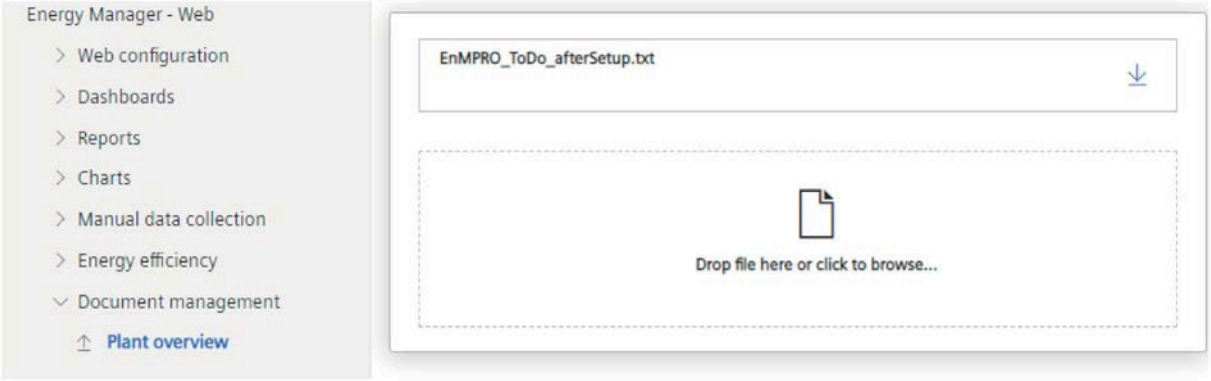
① Document

Requirement

- The document is available in Energy Manager PRO .
- The document has been released for the current Web application.

Downloading a document

1. To load the document from the Energy Manager PRO Database to the Energy Manager PRO Web , select the required document in the structure tree.



2. Click the download icon to download the document.

   The document is opened in Energy Manager PRO Web .

3. To upload a document to the Energy Manager PRO database, drag-and-drop the desired file into the field provided or click on the field to upload the desired file via a file browser.

The document was uploaded to the Energy Manager PRO Web from the Energy Manager PRO Database or downloaded into the Energy Manager PRO Database.

See also

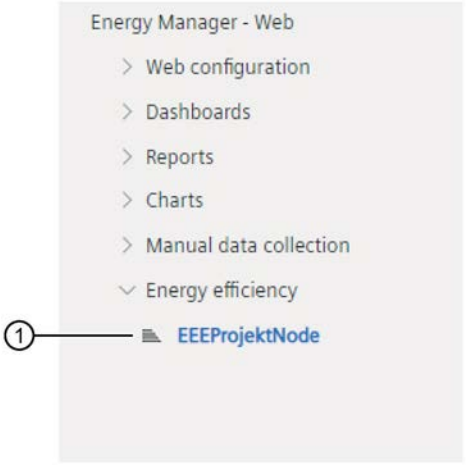
Creating user groups (Page 354)

File management (Page 475)

3.3 Energy efficiency measures in the Web

Overview

Energy Manager PRO Web shows you the energy efficiency measures configured in Energy Manager PRO Client . You can edit the configured energy efficiency measures in Energy Manager PRO Web or create new energy efficiency measures.



① Energy efficiency measure

Note

Functionality of Energy Manager Basic

Energy efficiency measures are not included in Energy Manager Basic.

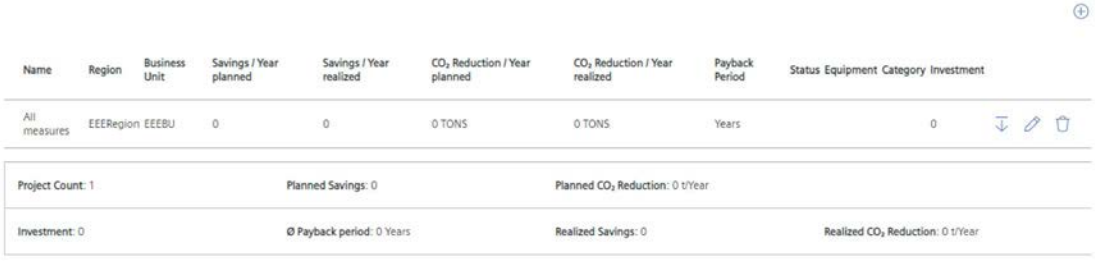
Requirement

- The filtered overview object for the energy efficiency measures is generated in Energy Manager .
- The filtered overview object for the energy efficiency measure is enabled for the current web application.

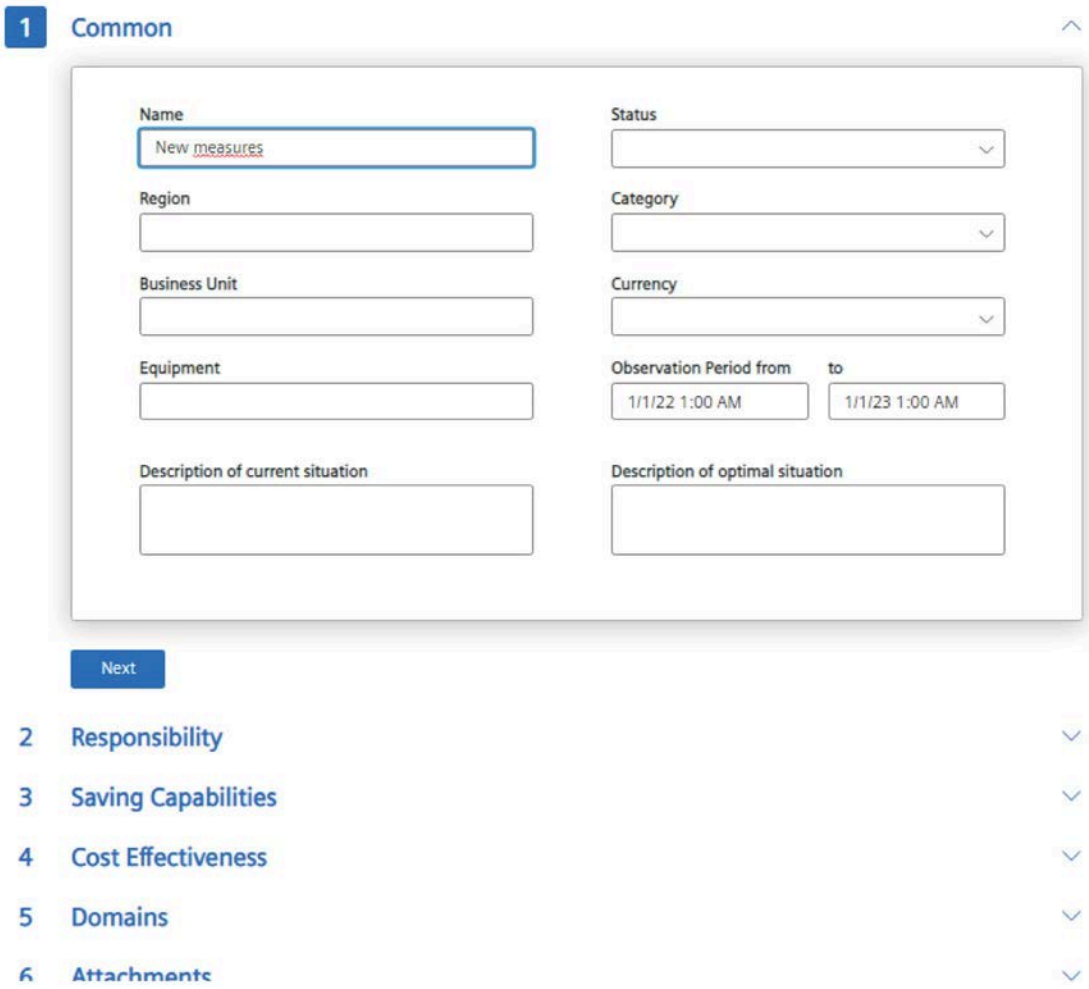
Editing energy efficiency measures

1. To display the energy efficiency measure in the Energy Manager Web, select the required energy efficiency measure in the structure tree.

   The energy efficiency measure is displayed in the right pane .



2. To create a new energy efficiency measure, click "⊕" and enter the required data.



3. To change the existing energy efficiency measure or delete it, click "Edit" or "Delete".

You can find more information energy saving measures in the "Energy efficiency measure" section of the description for Pro clients.

See also

Creating user groups (Page 354)

Generating a filtered overview object (Page 327)

Energy efficiency measures (Page 464)

3.4 Manual acquisition of data in the Web

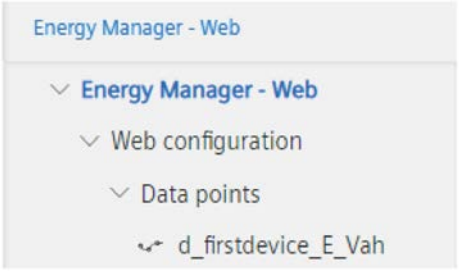
3.4.1 Datapoints

Overview

A datapoint serves to store measured values. In Energy Manager PRO Web you can see all the data points that were defined in the client under the entry point. Restrictions can exist with regard to the user rights.

Procedure

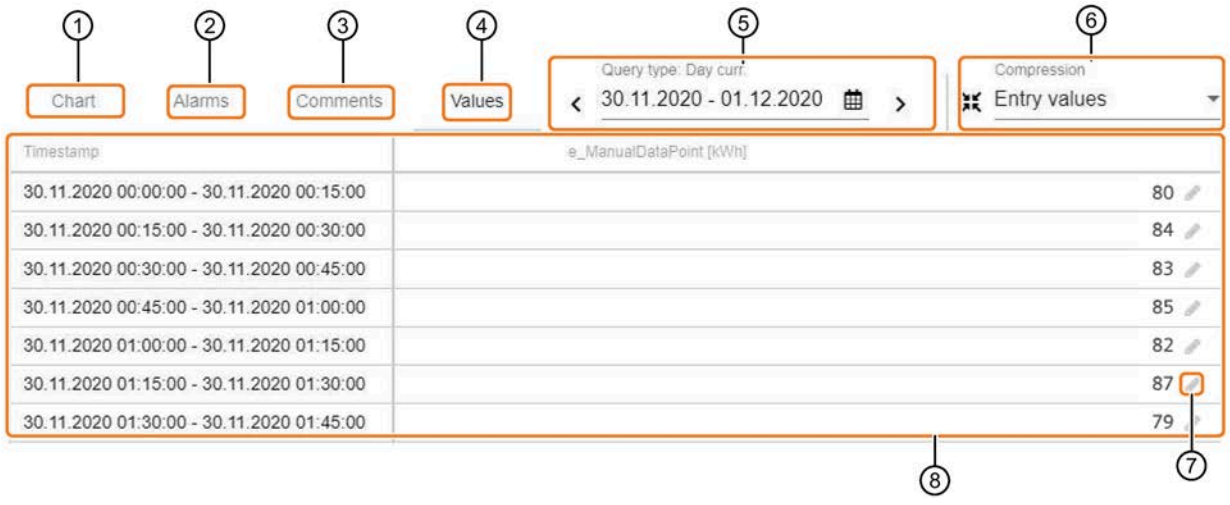
1. Click on the data point whose value you want to display.



   The detail area opens.

2. You can adapt the settings in the detail area. The datapoint values for the selected settings are shown in the detail area.

   With datapoints, the Chart tab is available immediately after a click on the respective object.



① Selection of the "Chart" tab
② Selection of the "Alarms" tab
③ Selection of the "Comments" tab
④ Selection of the "Values" tab

⑤ Selection of the displayed time period

To change the time period, click on the arrow keys or . By clicking on , you open the time and date selection.

You can find more information on the time and date selection in the Charts (Page 516) section.

⑥ Selection of the displayed compression level

⑦ Table with the values of the datapoint and the time stamps of the values.

⑧ Edit a value.

Click this button to open the dialog in which you can change the value. You cannot change the entry of the "Sum" field in the dialog of a counter value.

Values tab

Value changes made in the table are automatically saved in the datapoint. The selected time range is not saved.

On a renewed display of the dialog, the current time range is always displayed.

Chart, Alarms and Comments tabs

You can find more information on the Chart, Alarms and Comments tabs in the Charts (Page 516) section.

3.4.2 Parameter

Overview

With a parameter you can acquire a fixed value that is generally valid or whose validity period is limited by the entry of a time range. You can, for example, define electricity or gas prices for specific periods or specify conversion factors such as a CO_2 conversion factor.

The entry of a parameter value in the Energy Manager PRO Client corresponds to the entry in Energy Manager Web.

Parameter value overview

Click on the parameter in the navigation area, for which you want to view, enter or edit a value.

In the detail area you can see an overview of the configured validity periods, including the parameter and default values.

① Name of the parameter
② Default value of the parameter
③ Validity periods and parameter values
④ Add new value

Editing the default value

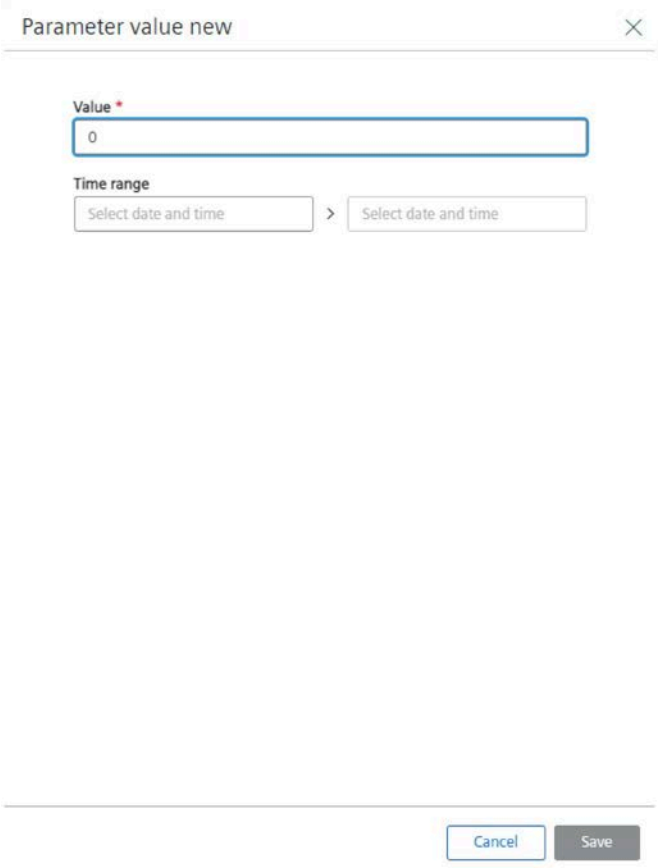
1. To change the default value of the parameter, click the " " button in the parameter detail area.
   The "Edit default" dialog opens.
2. Enter the default value.
3. Select the desired unit.
4. Click the "Save" button.

Adding a validity period and parameter value

1. To define a new validity period including a parameter value, click on the "Add new value" button.

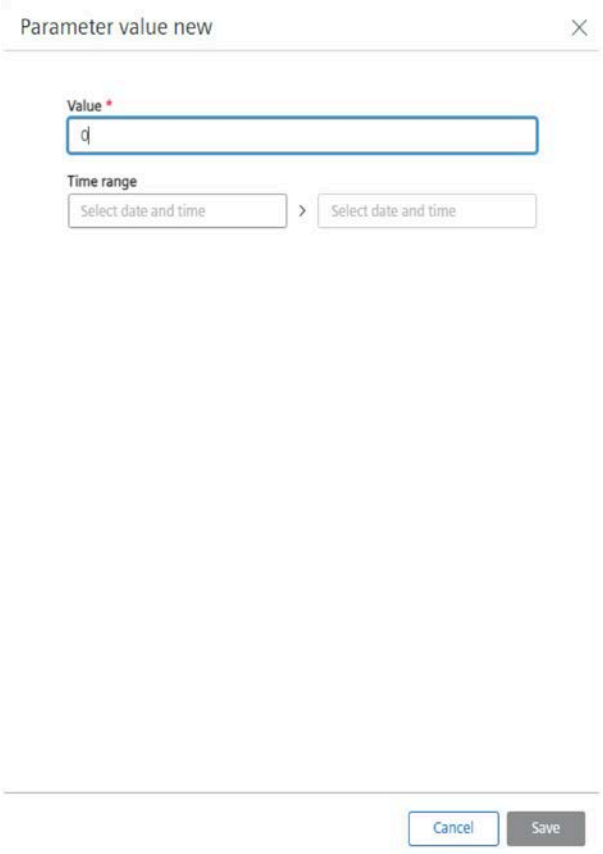
   The "New parameter value" dialog opens.

2. Enter a value.
3. Select the desired validity period.
4. Click on the "Save" button.



Editing the validity period and parameter value

1. To change an existing validity period including a parameter value, click on the " " button.
   The "Edit parameter value" dialog box opens.
2. Enter a value.
3. Select the desired validity period.
4. Click on the "Save" button.



Deleting the validity period and parameter value

To delete an existing validity period including a parameter value, click on the " " button.
The entry is deleted.

See also

Parameters (Page 194)
Creating parameters (Page 678)
Parameter (Page 676)

3.4.3 Matrices

3.4.3.1 Overview

The matrix allows you to display both historical and current values as numbers in a table. Besides that,

you change the values via the Matrix.

The matrix or value functionality is available as a separate tab for the following objects:

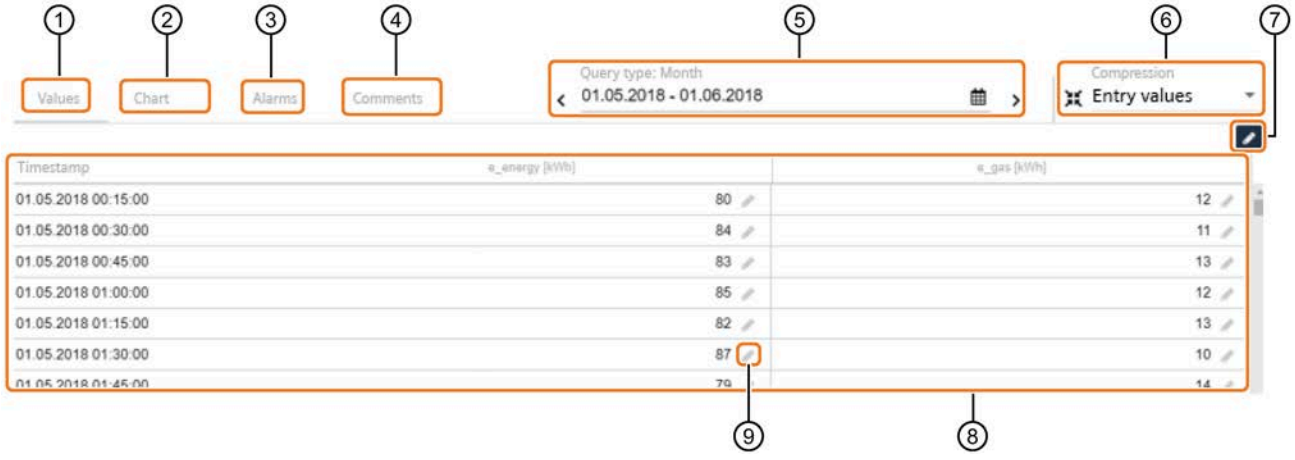
- Data point
- Matrix
- Chart object

Configuring the Values tab for data points and chart objects

In contrast to datapoints and chart objects, the Values tab page in the matrix is available immediately after you click on the relevant object. Value changes made in the matrix are automatically saved in the data point. The selected time range is not saved. When the matrix is displayed again, the current time range is always displayed. You cannot configure the matrix of these objects.

Layout of the Values tab

The following figure shows a representation of the matrix in the Energy Manager Web:



① Selection of the "Values" tab
② Selection of the "Chart" tab
③ Selection of the "Alarms" tab
④ Selection of the "Comments" tab
⑤ Selection of the displayed time period

To change the time period, click on the arrow keys or . By clicking on , you open the time and date selection.

You can find more information on time and date selection in the Charts (Page 516) section.

⑥ Selection of the displayed compression level

⑦ Configuration of the matrix

To open the matrix configuration, click on  .

⑧ Table with the values of the data points and the time stamps of the values.

⑨ Edit a value.

If you click on this button, the dialog opens where you can change the value.

You cannot change the entry of the "Sum" field in the dialog of a counter value.

You cannot change values of MEVAs/KPIs.

Chart, Alarms and Comments tabs

You can find more information on the Chart, Alarms and Comments tabs in the Charts (Page 516) section.

3.4.3.2 Configuring matrices

To configure a matrix, proceed as follows:

1. Click on the matrix in the navigation field.
2. To open the configuration dialog, click on .
3. Configure the tabs of the configuration dialog as described below.
4. Click on the "Save" button.

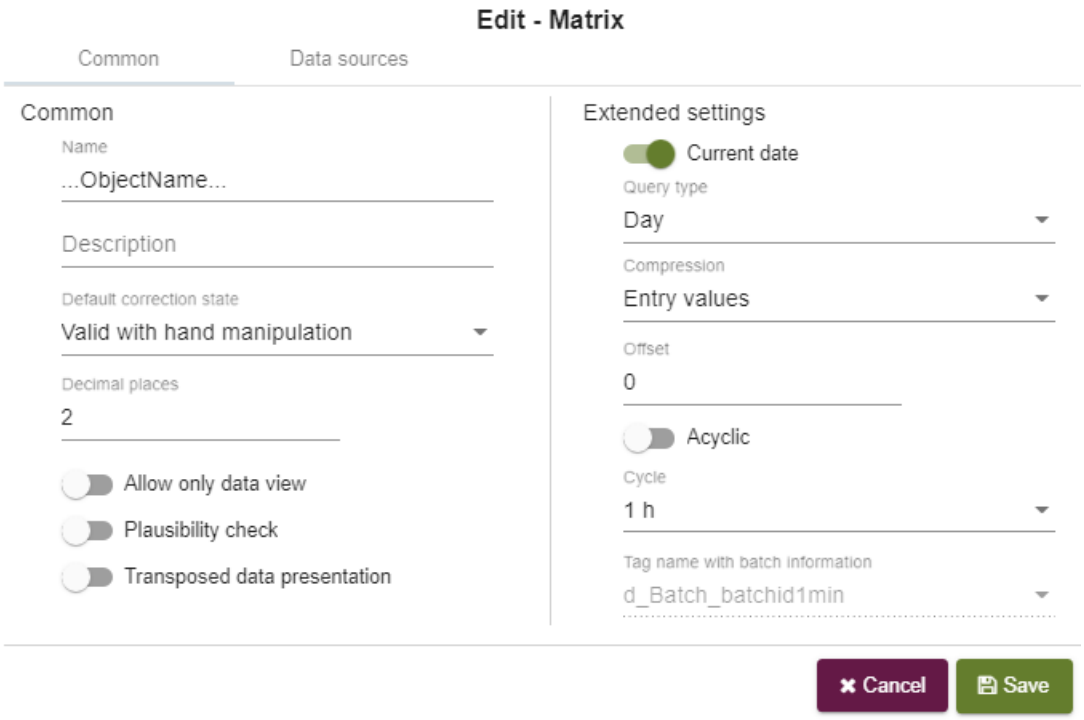


Figure 3-1 Configuration dialog

Configuring the "General" tab

To configure the "General" tab, follow these steps:

1. In the "Name" text box, enter the name of the matrix.
2. Enter the description of the matrix in the "Description" text box.
3. Adjust the "Correction Status" if necessary.

   Possible correction status with the respective explanation can be found in the section "Correction status of a value (Page 747)".
4. In the "Decimal places" text box, enter the number of decimal places displayed in the matrix.
5. If you enable "Allow only data view", you cannot change any values in the matrix.
6. If you enable "Plausibility check", the values in the matrix that violate the plausibility limits configured in the data point are highlighted accordingly.

7. If you enable "Transposed data presentation", the time stamps are displayed above the columns and the data points above the rows.
8. If you enable "Current date", the current values are always displayed in the matrix.
9. If the "Current date" is not enabled, enter the time from which values are displayed in the matrix in the "From" box.
10. From the "Query type" drop-down list, select the period to be displayed.
11. From the "Compression" drop-down list, select the compression level to be displayed.
12. If you enter a number other than zero in the "Offset" text box, the matrix will not display the selected time period. The displayed time period is shifted by offset times the cycle of the query type. For example, if you have selected the Month query type and an offset of -2, the matrix displays March instead of May.
13. If you enable "Acyclic", the values are not assigned to a cycle. This option is useful for matrices with data points without an acquisition cycle.
14. If "Acyclic" is disabled, select the cycle in which the values of the data points are displayed from the "Cycle" drop-down list.

Configuring the "Data Source" tab

To configure the "Data source" tab, follow these steps:

1. To add a data point, select the object from the "Select" drop-down list. When you enter a term in the drop-down list, the displayed objects are filtered by that term.

   The only objects displayed in the drop-down list are of a type enabled under "Filter".

   Alternatively, you can use the structure browser. To open the Structure Browser, click on  .

   Note

   You can display values in the matrix that are stored locally on the acquisition component. This data is deleted by the acquisition component 62 days after its creation and can then no longer be displayed in the matrix.

2. To configure a selected object for the matrix, click on the object in the "Currently selected" list.

   You can enter an alternative name. If you enable the option button in the corresponding row, the alternative name or description of the object is displayed as the name of the data series in the matrix.

3. To delete an object from the chart, click on  .

3.4.4 Setting up mobile data acquisition with the SIMATIC Energy Manager app for iOS and Android

Overview

In addition to manual data acquisition in Energy Manager and Energy Manager Web, you can acquire data manually using the SIMATIC Energy Manager App. With the Energy Manager App you manually acquire measured values (e g. energy data),which are then transferred to Energy Manager for further analyses. The measured values are synchronized via encrypted communication (https) with Energy Manager. To acquire count values in the Energy Manager App, you need a configured reading route. You configure this reading route in Energy Manager. After logging into the Energy Manager App, the app downloads the approved reading routes from Energy Manager and displays these reading routes. In addition to the reading route, the app also applies the appropriately configured data points as well as their main plausibility settings.

Requirements

- The user has the functional right "Matrix".
- The user has the functional right "Measurement".

Procedure

To configure a reading route for manual acquisition with the Energy Manager App, follow these steps:

1. Create a Matrix object with a meaningful name.

   You can find more information in the section "Manual acquisition with the matrix".

2. Create a data point of the "Counter" category below the matrix object:

   You can find more information in the section "Creating a data point".

3. Create a valid counter for the data point.

   You can find more information in the section "Configuring counters".

4. Define your limits below the plausibility settings of the data point.
   You can find more information in the section "Configuring the plausibility".

5. Add the matrix object as a Quicklink.
   You can find more information in the section "Quicklinks".

Result

The reading route for manually entering the counter values in the Energy Manager App is configured. Quick links of the "Route" data type are available in the "Mobile acquisition" interface of the app. If no Quicklinks have been created in Energy Manager yet, a message appears in the app.

The following figure shows four Quicklinks from the Energy Manager App:

You can find more information on the Energy Manager App including data acquisition using the app in the "SIMATIC Energy Manager" manual.

See also

Manual acquisition with the matrix (Page 180)

Creating data points (Page 133)

Configuring counters (Page 154)

Configuring the plausibility (Page 157)

Creating Quicklinks in the Web (Page 494)

Creating data points (Page 659)

Configuring counters (Page 664)

Configuring the plausibility settings (Page 666)

Creating matrices (Page 611)

Quicklinks (Page 494)

3.4.5 Importing measured values

Overview

In Energy Manager Web you have the option of importing measured values for one or more data points in CSV format. A wizard guides you through the import procedure.

Note

If a timestamp is already present in a datapoint, the time stamp and its value are overwritten during the import.

Note

- The decimal delimiter between the individual numbers in the import file depends on the language with which you logged in to Energy Manager Web:
  - German: The decimal places are separated from the integer with ","; "." is ignored.
  - English: The decimal places are separated from the integer with "."; "," is ignored.

  Login to Energy Manager Web in the language in which the import file was generated.
- The time stamp in the import file depends on the language with which you logged in to Energy Manager Web:
  - German: dd.MM.yyyy hh:mm:ss - 24-hour format
  - English: MM/dd/yyyy hh:mm:ss - 12-hour format

The columns in the import file are separated by ";" in German and in English.

Requirements

- The data points are set up in Energy Manager .
- The measured values are available in a CSV file.
- The measured values are available in UTC time format.
- The interval between timestamps corresponds to the configured acquisition cycle of the data point.

Procedure

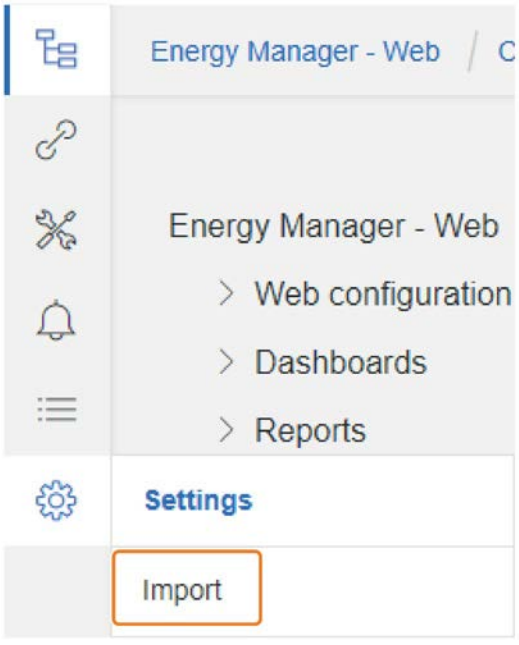
To import measured values for one or more data point(s) in Energy Manager Web, follow these steps:

1. Click on the settings icon in the menu bar.

Note

The icon for data import is only available in the home area.

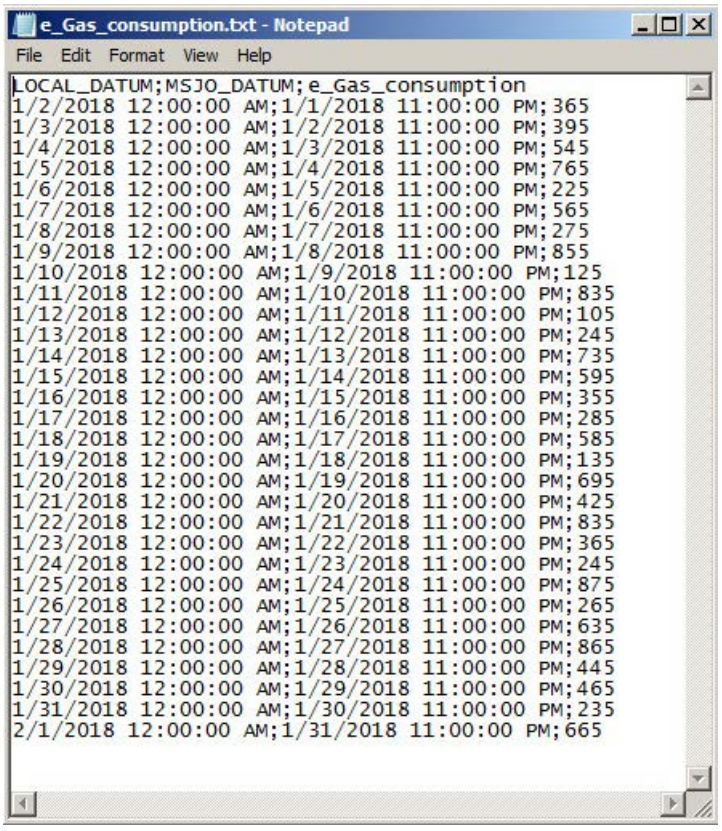
2. Click on the "Import" button in the opened settings menu bar.



3. Click the "Select file to upload" button in the detail area.

4. Select the required file.

   The following figure shows the content of a valid import file.



Note

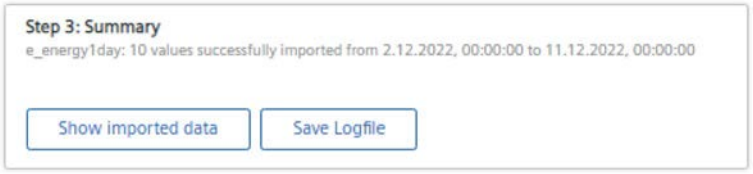
Make sure that the name of the data point in the CSV file and the name of the data point in Energy Manager match.

The content of the selected file is automatically checked. The result of the check is displayed.

5. To start the data import, click on the "Import data" button.

The result of the data import is summarized.

6. If you want to view the imported data, click on the "Show imported data" button.
   The values are displayed graphically on a separate web page.
7. If you want to save the summary as a file, click the "Save Logfile" button.



Result

The measured values for the corresponding data point are imported.

See also

Login (Page 483)
Creating data points (Page 659)

3.5 Configuration of the analysis objects

3.5.1 Shortcut menu

Overview

You use the shortcut menu of Edit mode to manage the system structure in Energy Manager Web by creating new objects and configuring existing objects.

Note

Newly created objects and object configurations in Energy Manager PRO Web are also applied in the Energy Manager PRO Client and vice versa.

The shortcut menu of the editing mode consists of the following menu commands:

- Edit
- Delete
- Cut
- Copy
- Add dashboard
- Add report
- Add chart
- Add matrix
- Add folder
- Add Quicklink

Note

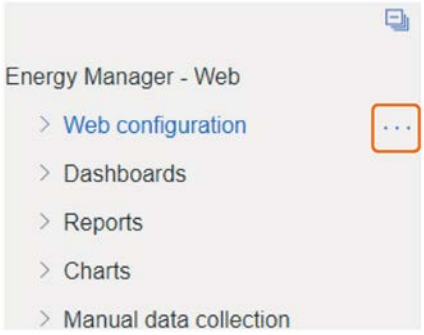
When you place the cursor over a dashboard, report, chart or matrix in edit mode, an edit icon is displayed on the right side of the menu item instead of the shortcut menu icon. When you click on the edit icon, the corresponding configuration dialog opens where you configure the selected object.

Shortcut menu of folders

To open the shortcut menu of edit mode, follow these steps:

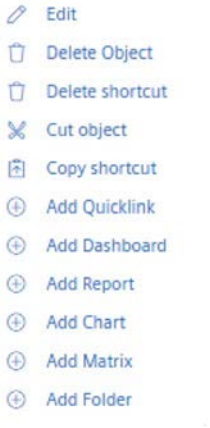
1. Place the cursor over an object in the navigation area.

   The shortcut menu icon is displayed on the right side of the menu item.



2. Click on the shortcut menu icon.

   The shortcut menu of edit mode opens.



Note

Objects that are not folders have only the following options in the shortcut menu of the navigation area: Edit, Delete, Cut, Copy, Add Quicklink.

See also

Setting up dashboards (Page 550)
Creating reports (Page 598)
Creating charts (Page 607)
Creating matrices (Page 611)
Creating folders (Page 614)
Editing folders (Page 616)
Tree configuration (Page 548)

3.5.2 Tree configuration

Overview

You manage the system structure in Energy Manager Web using the structure tree in the navigation area.

You can use the shortcut menu functions "Copy", "Cut" and "Delete" to restructure objects in the tree within a folder or move objects to other folders.

Note

Structure changes in Energy Manager PRO Web are also applied in the Energy Manager PRO Client and vice versa.

Opening configuration options

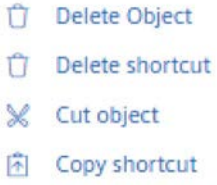
To use the configuration options of the navigation area, follow these steps:

1. Place the cursor over the object in the navigation area that you want to rearrange or delete.

   The shortcut menu icon is displayed on the right side of the menu item.

2. Click on the shortcut menu icon.

   The shortcut menu of the object is displayed.



3. Click on the relevant configuration option.

   Edit mode of the tree is enabled.

The following table shows an overview of the existing configuration tools of objects and their function:

Configuration tool	Function
Delete object	Deletes the selected object from the system. **Caution:** Deletion cannot be undone.
Delete shortcut	Deletes the selected object shortcut from the system.
Cut	Cuts the selected object from the current folder. You then paste the cut object at a different position in the navigation area.
Copy	Copies the selected object to the clipboard. You then paste the selected object at a different position in the navigation area.

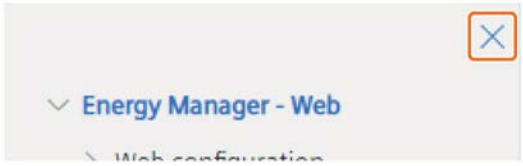
Positioning options for the Copy and Cut functions

When you use the "Copy" and "Cut" configuration options, the following position functionalities are enabled in the tree.

Configuration tool	Function
	Positioning of the selected object on the same level below this object.
	Positioning of the selected object as a child object below this object.

Disabling positioning mode

Click on "X" to disable positioning mode.



3.5.3 Dashboards

3.5.3.1 Overview

To visualize various measurement and plant data in a clear manner in Energy Manager Web, you can create Widget Dashboards with the help of the shortcut menu. The data is visualized in the dashboards via widgets. Widget Dashboards are designed for display in Energy Manager Web or on mobile devices. For this reason, only configure Widget Dashboards in Energy Manager Web.

3.5.3.2 Setting up dashboards

Requirements

- The folder has been created.
- The user has the functional right "Widgets/Dashboards - create, remove, configure".

Procedure

To create a new Widget Dashboard, follow these steps:

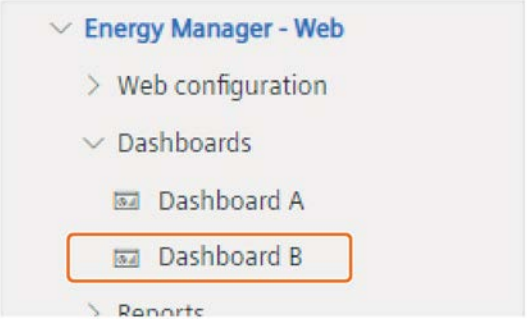
1. Place the mouse pointer over the folder in the navigation area in which you would like to set up the Widget Dashboard.

   The shortcut menu icon is displayed on the right of the menu item.
2. Click on the shortcut menu icon.

   The shortcut menu opens.
3. Click on the menu command "Add dashboard".

Result

The new Widget Dashboard is set up in the selected folder of the navigation area.



See also

Creating Widgets (Page 554)
Widget Dashboards in the client (Page 463)
Shortcut menu (Page 545)
Editing dashboards (Page 551)
Overview of Widget Dashboards (Page 500)
Create dashboard (Page 306)

3.5.3.3 Editing dashboards

Requirements

- The Widget Dashboard has been set up.
- The user has the functional right "Widgets/Dashboards - create, remove, configure" or the functional right "Widgets/Dashboards - configure".

Procedure

To edit Widget Dashboards, follow these steps:

1. Place the mouse pointer over the Widget Dashboard in the navigation area that you would like to edit.

   The shortcut menu icon is displayed on the right of the menu item.

2. Click on the shortcut menu icon.

   The shortcut menu opens.

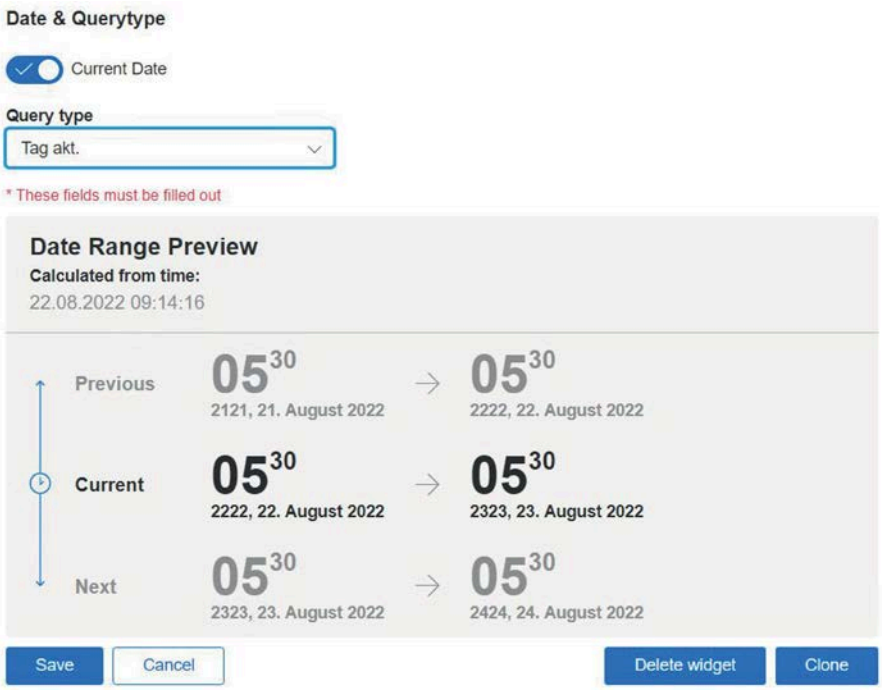
3. Click on the menu command "Edit".

   The configuration dialog for editing the dashboard opens.

4. Enter the name of the Widget Dashboard in the "Name" entry field.
5. If required, enter an additional title of the Widget Dashboard in the "Description" entry field.
6. In order to use a custom background image, if required, click on the "Select file" button and select the corresponding image.

   The background image is positioned centrally and displayed unscaled. The maximum size of the image is 2 MB.

7. To display the current date of the widgets in the dashboard, turn on the "Current Date" toggle switch.



8. If you want to display a specific time range of the widgets in the dashboard, turn off the "Current Date" toggle switch. Select the required date and time from the selection boxes.
9. Select the observation period of the data in the Widget Dashboard from the drop-down list "Query type".
10. To save the configuration, click on the "Save" button.

Result

The configured settings generally apply for the entire dashboard. You can subsequently add different widgets to the dashboard. More information on adding widgets to a dashboard can be found in the section "Creating widgets". Settings which you configure in the configuration dialog of the individual widgets are only valid for the widget in question.

See also

Overview of Widget Dashboards (Page 500)

Setting up dashboards (Page 550)

Creating Widgets (Page 554)

Deleting dashboards (Page 553)

3.5.3.4 Deleting dashboards

Requirements

- The Widget Dashboard has been set up.
- The user has the functional right "Widgets/Dashboards - create, remove, configure".

Procedure

To delete Widget Dashboards, follow these steps:

1. Place the mouse pointer over the Widget Dashboard in the navigation area that you would like to delete.
2. Click on the shortcut menu icon.

   The shortcut menu opens.
3. Click the "Delete object" button.

Result

The Widget Dashboard is deleted from the system.

See also

Editing dashboards (Page 551)

3.5.3.5 Widgets

Creating Widgets

Overview

With the help of widgets you display your plant and measurement data in a different way depending on the widget. You can freely position the widgets within the Widget Dashboard and adjust their size. The displayed values are updated in accordance with their cycle time and the query type of the Widget Dashboard.

Requirement

- The user has the functional right "Widgets/Dashboards - configure" or "Widgets/Dashboards - create, remove, configure".

Basic procedure

To create a widget in the Widget Dashboard, follow these steps:

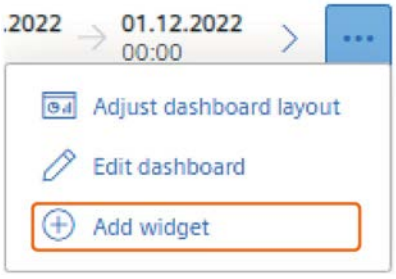
1. Click in the navigation area on the Widget Dashboard in which you want to add a new widget.

   The Widget Dashboard is displayed in the detail area.

2. Click in the detail area of the Widget Dashboard on the shortcut menu icon to the right of the observation period.

   The shortcut menu opens.

3. Click on the menu command "Add widget".



   The "Available Widgets" dialog window opens.

4. Click on the widget you wish to create.

   The widget is added on a free area on the Widget Dashboard.

Result

The corresponding widget is created in the selected Dashboard.

See also

Overview (Page 557)
Setting up dashboards (Page 550)
Editing dashboards (Page 551)
Editing widgets (Page 556)
Overview of Widget Dashboards (Page 500)
Configuring the General section (Page 575)
Configuring the Parameter section (Page 578)
Widget Configuration (Page 574)
Available Widgets (Page 557)

Editing widgets

Requirements

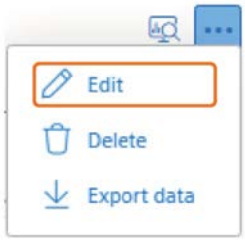
- The Widget Dashboard including widget has been set up.
- The user has the functional right "Widgets/Dashboards - create, remove, configure" or the functional right "Widgets/Dashboards - configure".

Procedure

To edit widgets in a Widget Dashboard, follow these steps:

1. Click in the navigation area on the Widget Dashboard which contains the widget to be edited.
2. Then click on the shortcut menu icon in the upper right corner of the widget to be edited.

   The shortcut menu of the widget opens.
3. Click on the menu command "Edit".



   The configuration dialog for editing the widget opens in the detail area.
4. Configure the widget using the individual listed sections.

   You can find out how to configure the individual sections in section "Widget Configuration (Page 574)".
5. Click on the "Save" button.

Result

The widget is saved after the corresponding configurations.

See also

Overview of Widget Dashboards (Page 500)

Creating Widgets (Page 554)

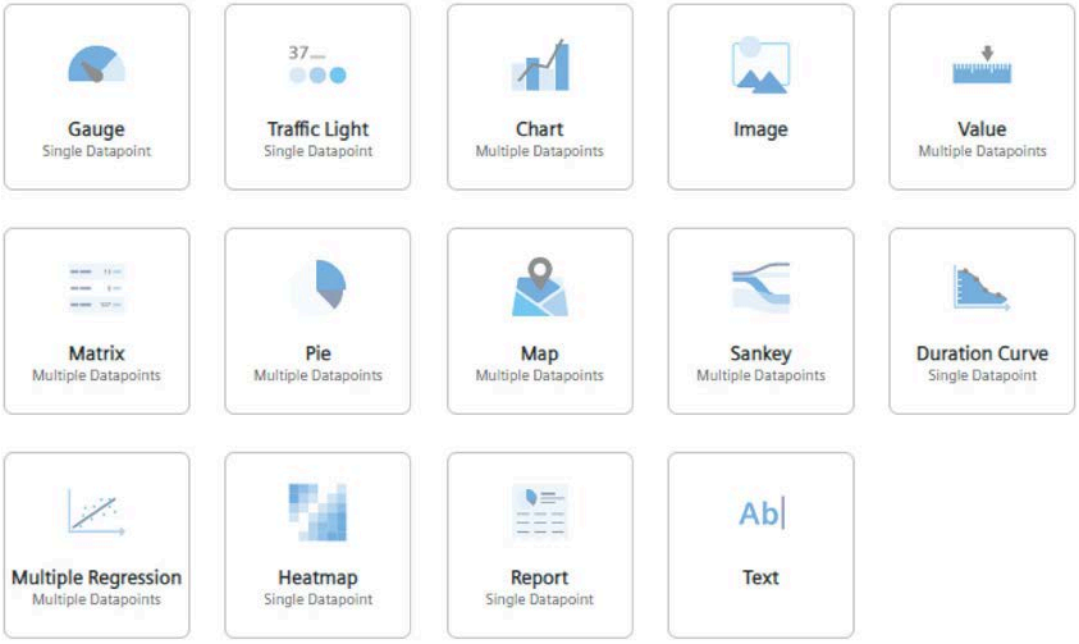
Widget Configuration (Page 574)

Available Widgets

Overview

In the dialog window "Available widgets" you can create 15 different widgets. You can find out how to open the dialog window "Available widgets" and add individual widgets to a Widget Dashboard in the section "Creating Widgets".

The following image shows you the available widgets:



Depending on the widget, you can use one or more data points. The following table provides an overview of the available widgets and the number of data points that you can use in the respective widget.

Widget	Individual data point	Multiple data points
Gauge	x	-
Chart	-	x
Traffic Light	x	-
Value	-	x
Pie	-	x
Matrix	-	x
Image	-	-
Report	x	-
Text	-	-
Heat Map	x	-
Map	-	x
Sankey	-	x
MultiRegression	-	x
Duration curve	x	-

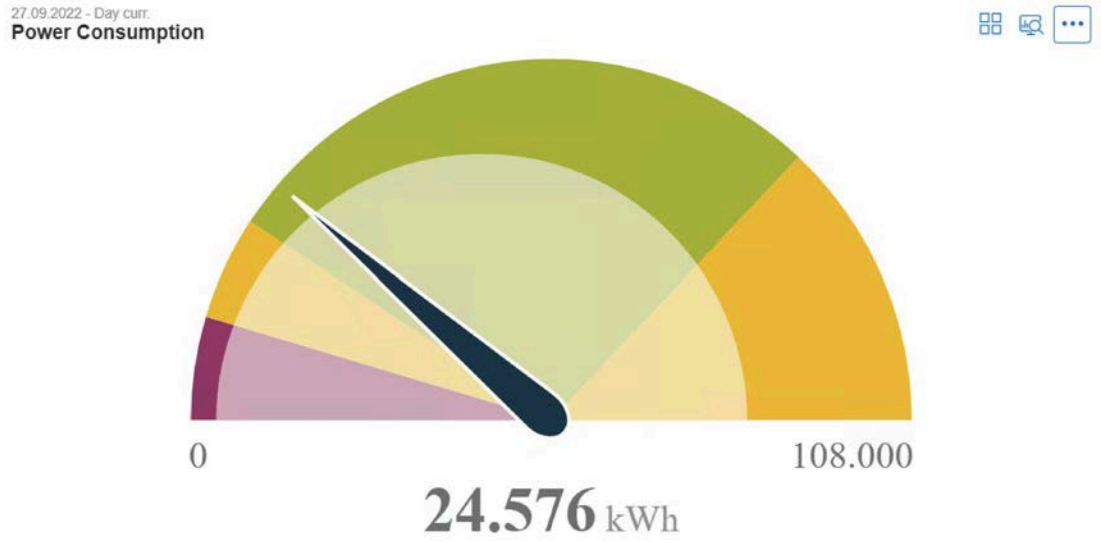
The "Image" and "Text" widgets are special cases and do not require any data points.

See also

Creating Widgets (Page 554)
Available sections (Page 574)
Widget Configuration (Page 574)

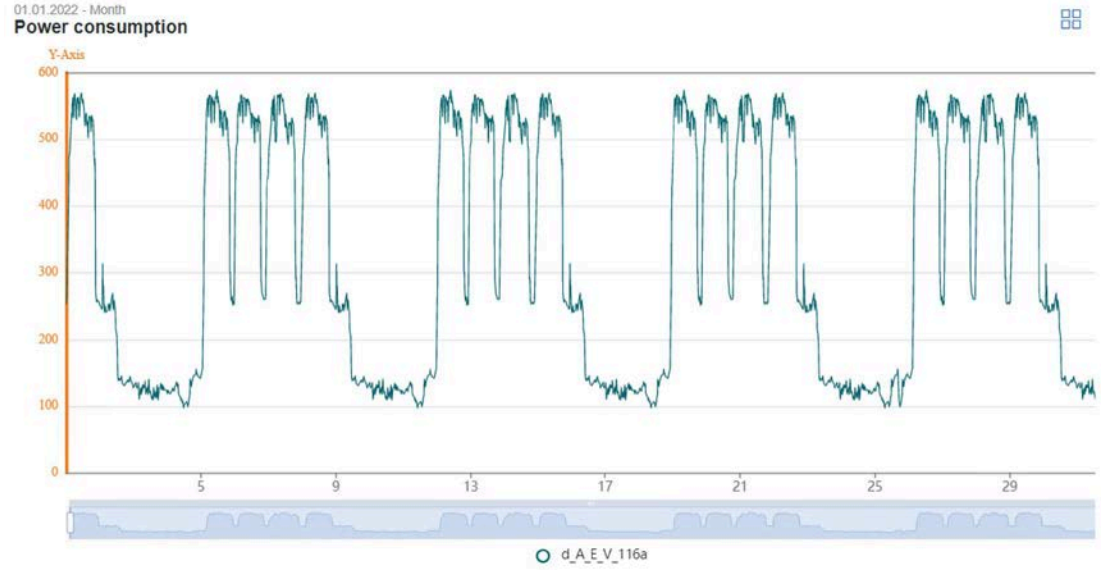
Gauge

The "Gauge" widget shows the value of the data point in a speedometer and displays the configured warning limits and upper and lower limits in color.

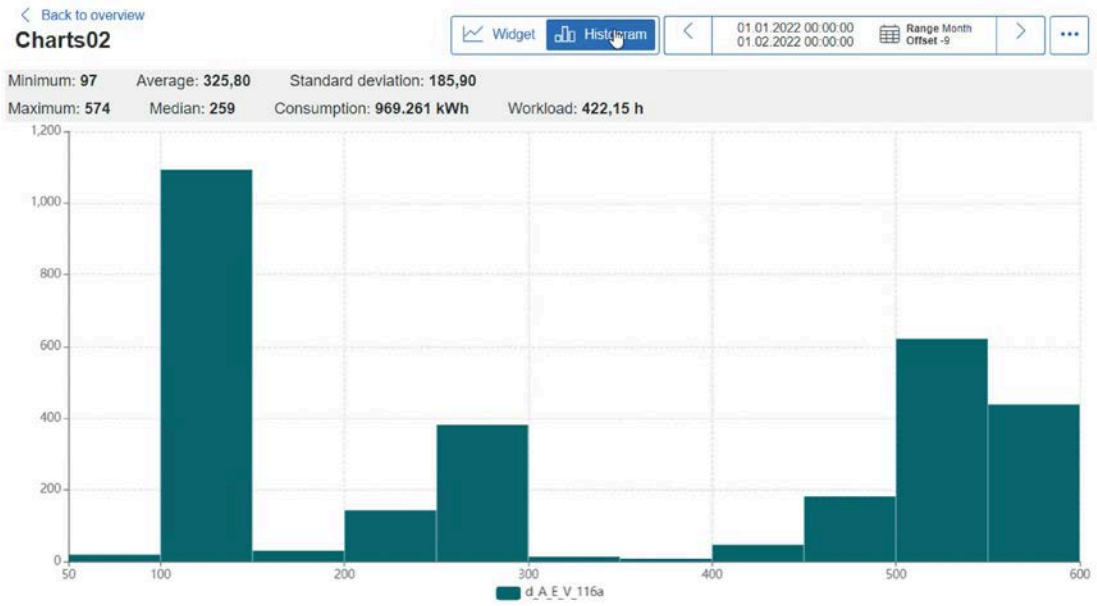


Chart

The "Chart" widget displays the data points in different graphs during the observation period. If you are in the configuration mode of the dashboard, you can change the display (bar, line, etc.) by clicking on a data point in the legend. You can change the color of the graph to be displayed if a second X-axis exists. When you have configured the y-axes, you can adapt the axis assignment of the y-axes.



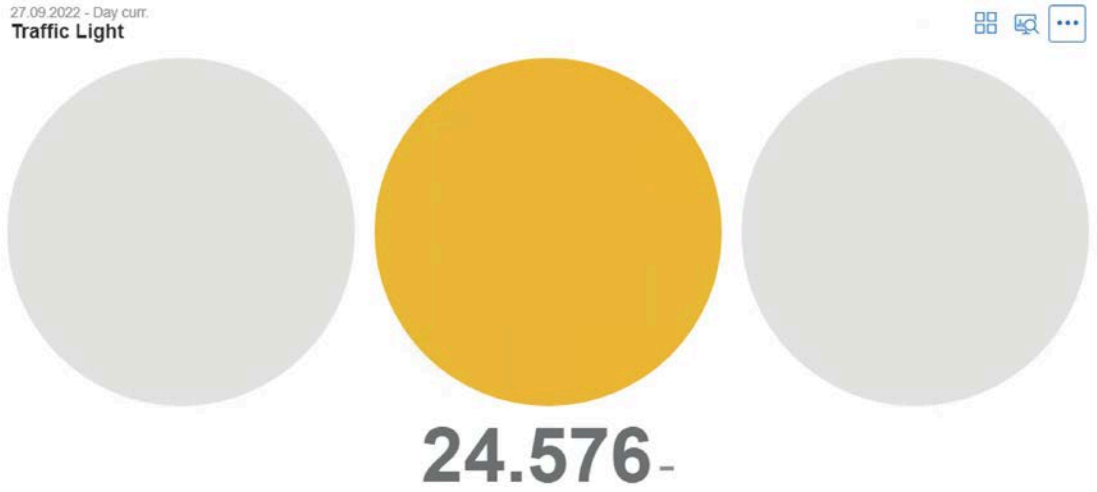
The second field shows different performance indicators and a histogram with the distribution of values.



If you are not in configuration mode, you can highlight the data point by clicking on a data point in the legend. If you have configured plausibility limits in the widget, these limits are displayed in the graph. Warning levels are displayed as yellow lines, high and low limits are displayed as red lines. Plausibility limits are not displayed in the histogram.

Traffic Light

The "Traffic Light" widget shows the values of the data points in one of the three traffic light colors, depending on the defined limits. If you do not define any limits in the widget, the traffic light always displays green or red.

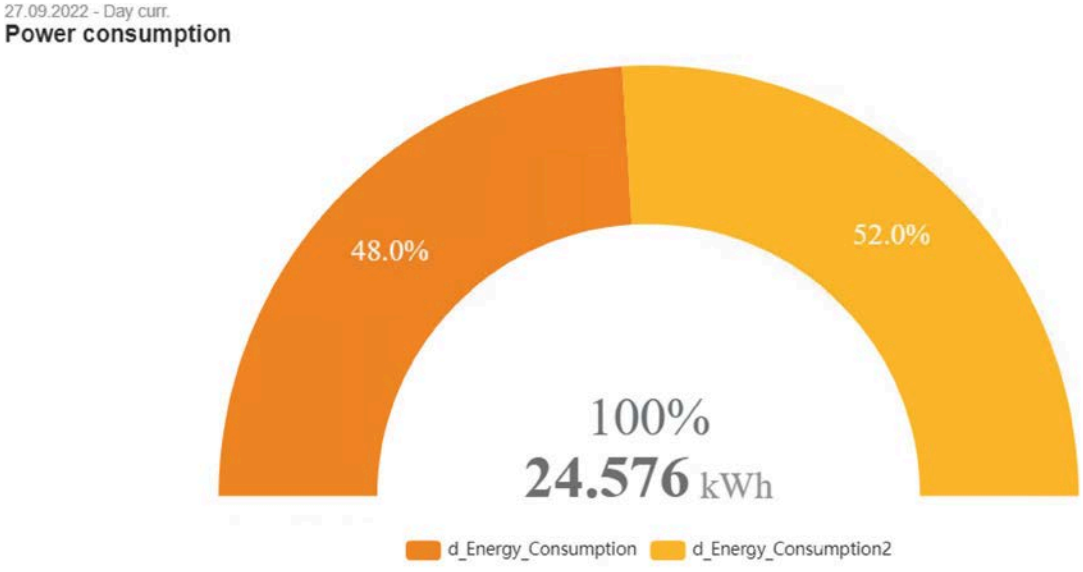


Value

The "Value" widget shows the name of the data points, their total value and the associated unit over the selected observation period.

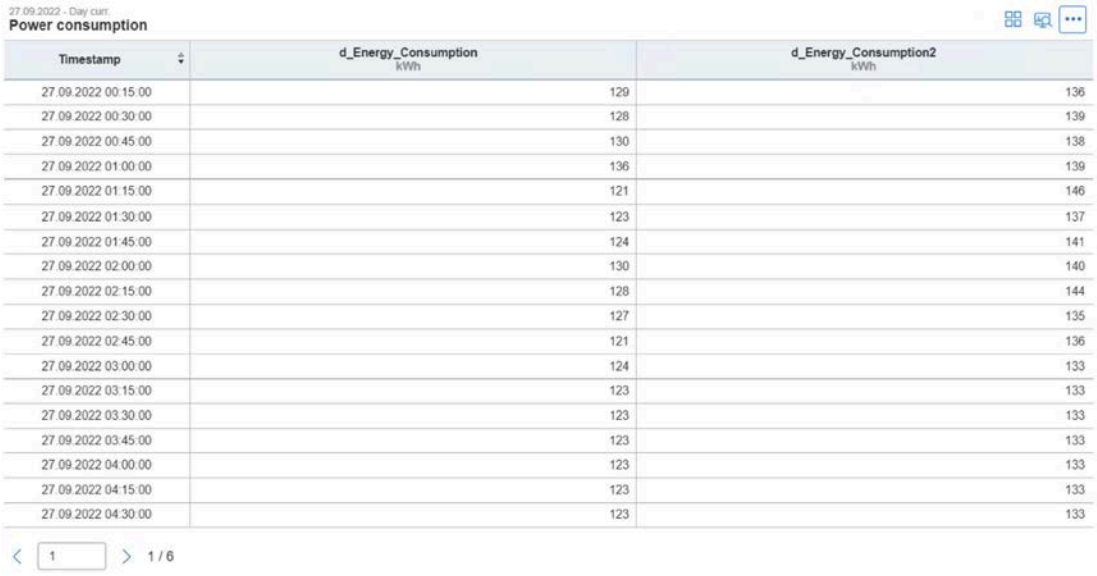
Pie

The "Pie" widget shows the total value of all data points in the observation period inside the semicircle. The individual sections of the pie chart show the percentage of the respective data points. Clicking an individual section of the pie chart shows the value of the individual data point within the semicircle. When you click on a data point in the legend, you can change the display color of the corresponding data point.



Matrix

The "Matrix" widget shows the values of the data points as a matrix with the corresponding cycle time or timestamp. If you configure plausibility limits in the data point, violations of warning levels are displayed in yellow, while violations of high and low limits are displayed in red.



27.09.2022 - Day curr.
Power consumption

Timestamp	d_Energy_Consumption kWh	d_Energy_Consumption2 kWh
27.09.2022 00:15:00	129	136
27.09.2022 00:30:00	128	139
27.09.2022 00:45:00	130	138
27.09.2022 01:00:00	136	139
27.09.2022 01:15:00	121	146
27.09.2022 01:30:00	123	137
27.09.2022 01:45:00	124	141
27.09.2022 02:00:00	130	140
27.09.2022 02:15:00	128	144
27.09.2022 02:30:00	127	135
27.09.2022 02:45:00	121	136
27.09.2022 03:00:00	124	133
27.09.2022 03:15:00	123	133
27.09.2022 03:30:00	123	133
27.09.2022 03:45:00	123	133
27.09.2022 04:00:00	123	133
27.09.2022 04:15:00	123	133
27.09.2022 04:30:00	123	133

1 / 6

Image

Depending on the configuration, the "Image" widget shows the selected image either centered in the original size or stretched across the entire length of the widget.

Report

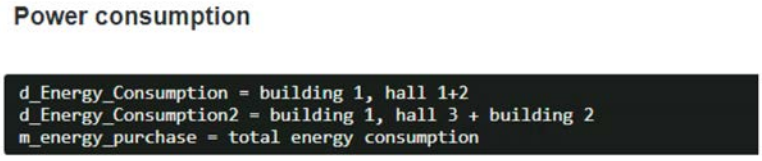
The "Report" widget shows the selected report. You can scroll forwards or backwards in defined intervals in order to also have past periods or future periods displayed.

If there is no report available for the displayed period, the displayed image is grayed out. Click on the image to create the report.

Two icons are available for downloading the report as an EXEL or PDF file.

Text

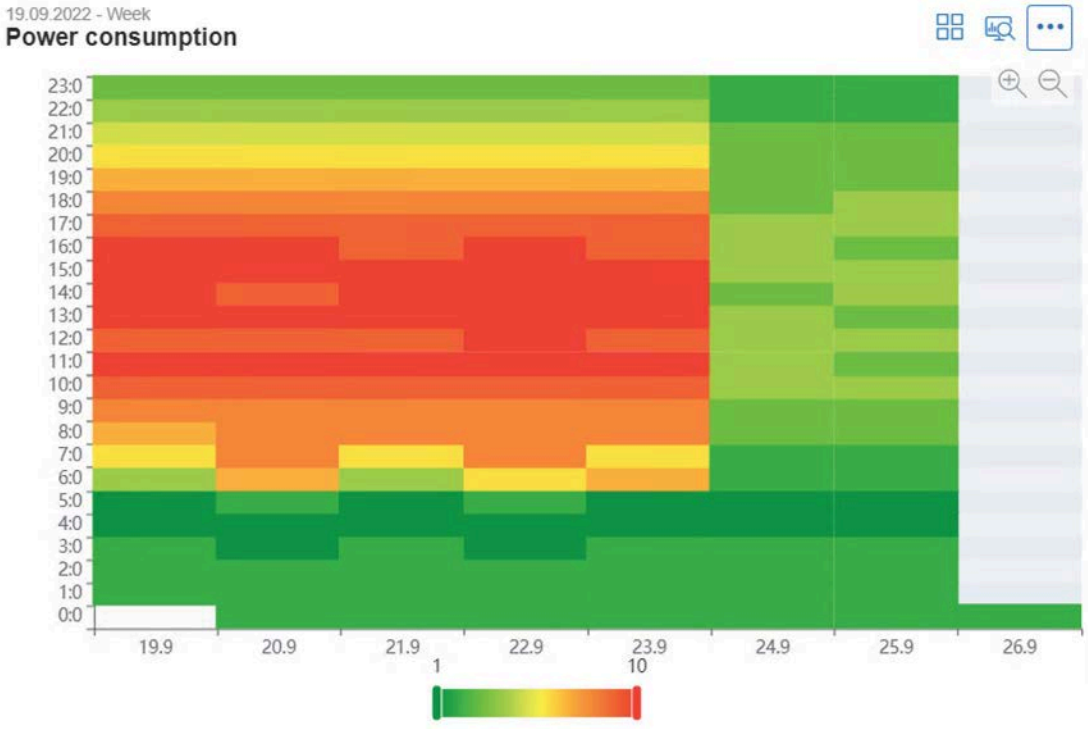
The "Text" widget shows the entered text in the widget. When you click on a link in the widget, either the URL opens in the Internet browser or the e-mail program opens depending on the link.



Heat Map

The "Heat Map" widget shows a graphical overview of the acquired measured values at specific times of the day. You can individually configure the lower and upper limits. In this way, you can track the time at which your defined limits were exceeded or undershot. When displaying data, you can choose between display over 24 hours or over a week.

The figure below shows an example of a "Heat Map" widget. The measurement data between noon and 6 p.m. lie for the most part in the lower value range.



See also

Configuring the Heatmap section (Page 589)

Map

Note

Functionality of Energy Manager Basic

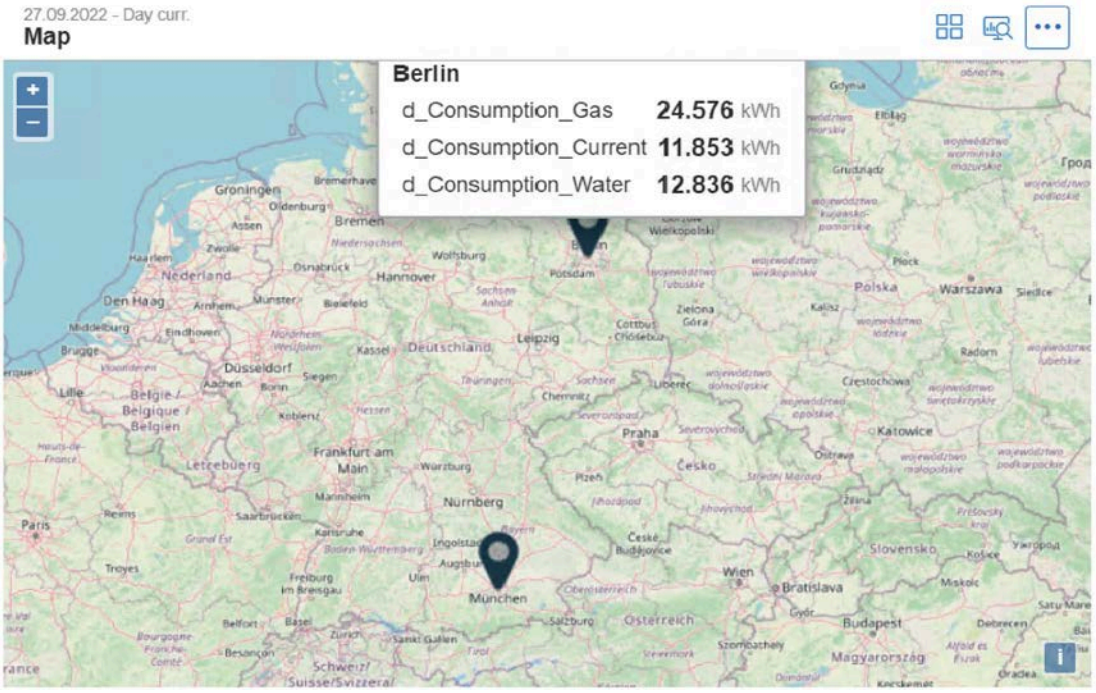
The "Map" widget is not available in Energy Manager Basic.

The "Map" widget is useful if you are managing several locations in one system. With the "Map" widget you can see the geographical position of the locations on a map and view the main, location-specific KPIs. You can also open two created, location-specific Widget Dashboards. The focus of the map is always selected in such a way that all locations are available. When you click on the Plus or Minus icon, you zoom into or out of the map.

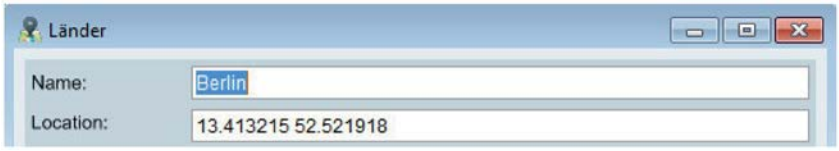
Note

Open Street Map is used as the map. You therefore require an appropriate Internet connection.

The figure below shows a "Map" widget of a Energy Manager system with several locations in Germany:

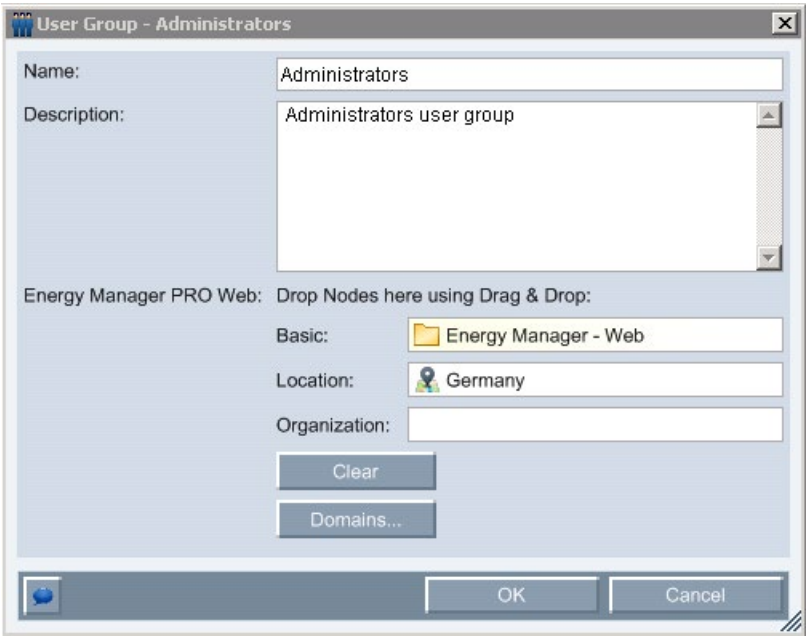


To display your created locations in the widget, you have to enter the geographical coordinates of the location in the location object in the Energy Manager PRO Client. Only locations with valid coordinates are available for selection in the widget. You can determine the coordinates using Google Maps, for example, and copy them to the location object. Enter the coordinates in the "Location" entry field. You must separate the two coordinates with a blank space.



Move your location objects (e.g. Berlin and Munich) under a higher-level location object which represents your country.

You then have to assign the location object to the corresponding user group in the "Location" text field using drag and drop.



See also

Configuring the Locations section (Page 590)

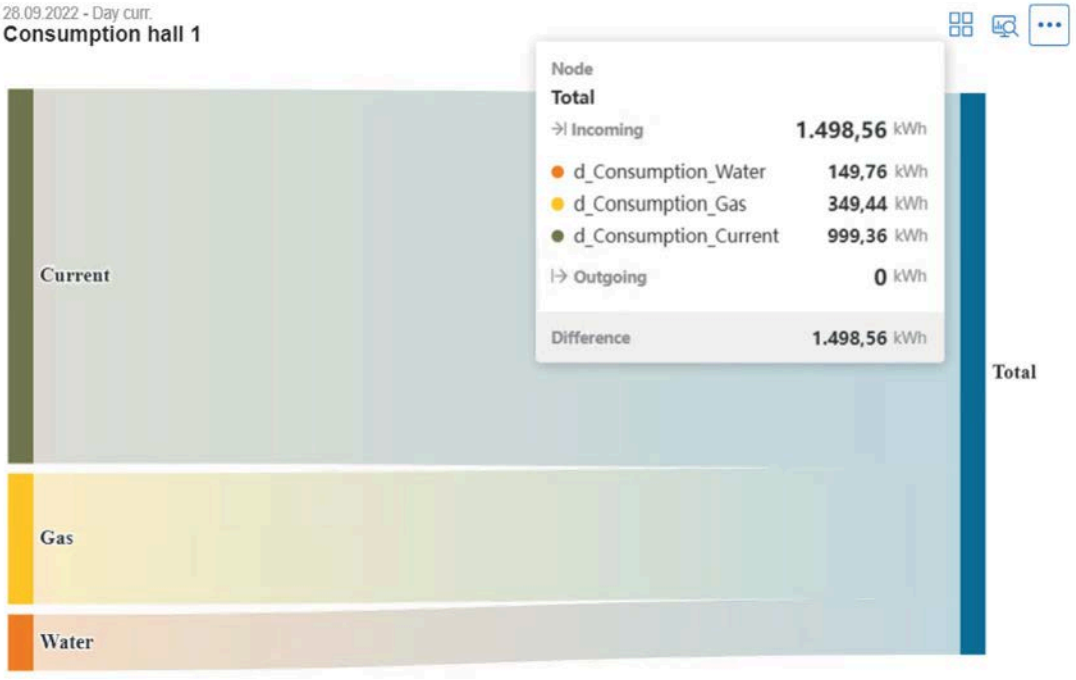
Inserting the location or country (Page 331)

Defining an entry point (Page 355)

Sankey

The Sankey diagram can be used to show an energy flow diagram for a quick overview of the overall energy situation. You define nodes in the Sankey diagram. You connect these nodes with links (data points). You configure the color of the nodes in the settings. When you click on a link, a tooltip shows you the consumption value of the corresponding link. If you display different types of energy (media) in an energy flow diagram, you have to recalculate the energy consumption of the medium to the primary energy which is needed for generation of the medium. If a plant consumes, for example, electrical energy and compressed air, you have to calculate the consumption of compressed air to the electrical energy required for generating consumption. This correlation is defined via the scaling factor.

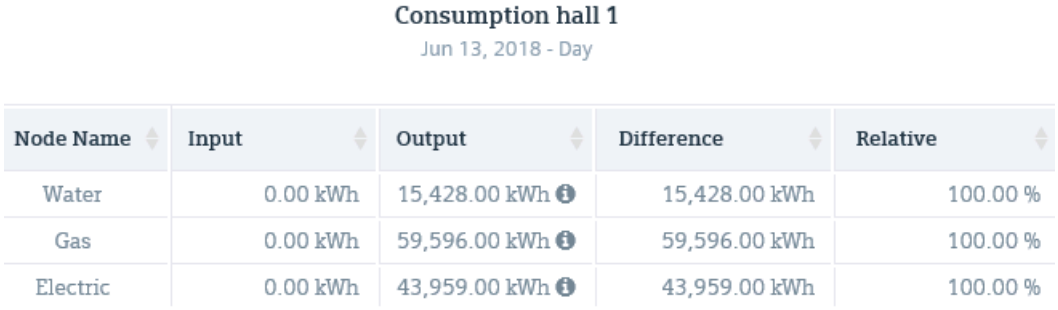
The figure below shows a Sankey diagram in which the total consumption of an example hall is shown:



In addition to the graphical overall display, you see an overview of all the links in the 2nd tab (Links). The values and the primary energy and the interconnection of the links are shown in this view.

Link Name	From Node	To Node	Value	Primary Energy
e_Electric_consumption	Electric	Total	14,653.00 kWh	43,959.00 kWh
e_Gas_consumption	Gas	Total	14,899.00 kWh	59,596.00 kWh
e_Water_consumption	Water	Total	15,428.00 kWh	15,428.00 kWh

You see an overview of all the nodes in the 3rd tab (Nodes). The corresponding balance sums of input, output, difference and the relative deviation are displayed in this view.



Consumption hall 1

Jun 13, 2018 - Day

Node Name	Input	Output	Difference	Relative
Water	0.00 kWh	15,428.00 kWh	15,428.00 kWh	100.00 %
Gas	0.00 kWh	59,596.00 kWh	59,596.00 kWh	100.00 %
Electric	0.00 kWh	43,959.00 kWh	43,959.00 kWh	100.00 %

When you click on the Info icon next to the numerical value, details of the scaling factor, for example, are displayed. If several links go into or out of a node, the calculation of the value is displayed.

See also

Configuring the Sankey section (Page 592)

MultiRegression

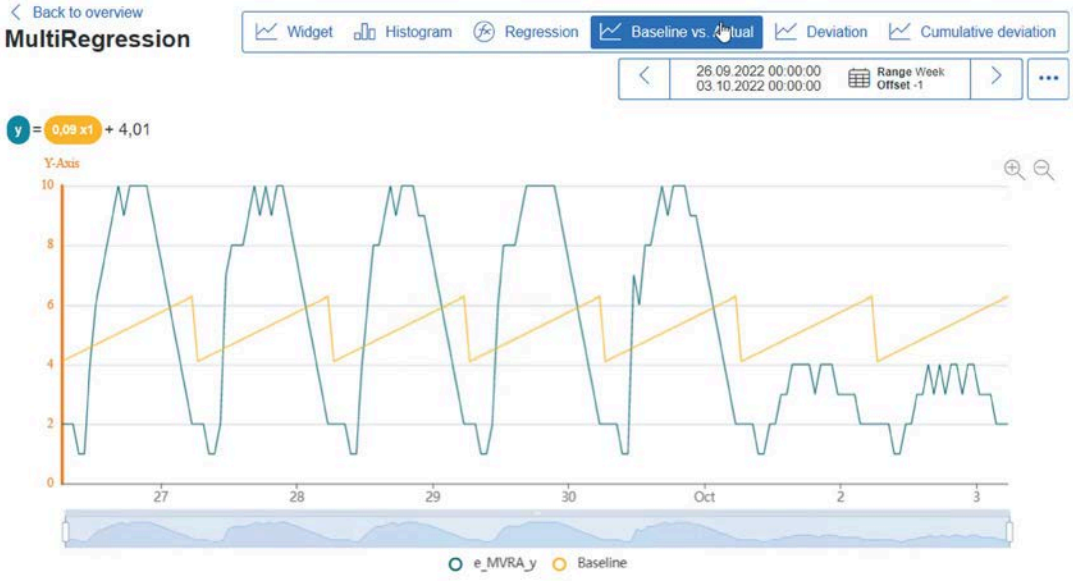
Note

Functionality of Energy Manager Basic

The "MultiRegression" widget is not available in Energy Manager Basic.

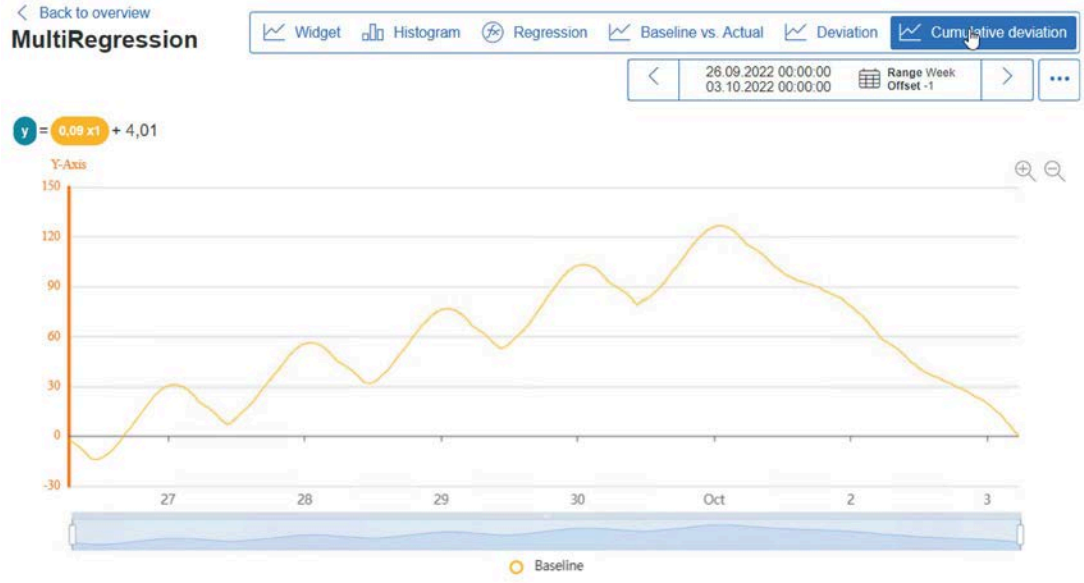
With the "MultiRegression" widget, you determine the Baseline (theoretically calculated value) of a specific value, for example, the theoretical energy consumption of a plant. If the energy consumption is dependent on known variables, you can determine the theoretical energy consumption. The correlation is determined via a linear regression analysis . In addition to the pure calculation of the theoretical energy consumption, you can also display the deviation of the actual energy consumption from the theoretical energy consumption. This means you can evaluate the current energy situation taking into account the ambient conditions and take appropriate measures in case of deviations. You can also forecast future energy consumption with the model by integrating the influencing factors into the system in the future. If the energy consumption strongly depends on the outdoor temperature, for example, you have to integrate the outdoor temperature into the system in the future.

The "MultiRegression" widget is basically an extension of the Chart widget. The first three tabs correspond to the Chart widget. The actual and theoretical consumption is shown in the 4th tab (Baseline vs. Actual). When you enable the Forecast function, the Forecast is also displayed based on the forecasted data of the influencing factors.



The deviation between the theoretical and the actual energy consumption is shown in the 5th tab (Deviation). When you enable the Forecast function, the deviation of the Forecast from the actual consumption is displayed.

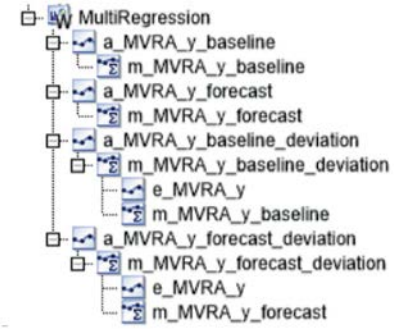
In the 6th tab (Cumulative deviation), the deviation of the Baseline and the Forecast is shown cumulatively.



If the Forecast function is enabled and the data points are assigned, the calculated model is saved twice. Once for the Baseline Management and again for the Forecast. When the first model is saved, data points derived in the Energy Manager PRO Client are created with a measuring variable below the dashboard. The derived data points contain the following data:

- Measurement data for the Baseline
- Deviation from actual consumption
- Forecast and deviation of the Forecast from the actual consumption

In the following example, the Y data point is called "e_MVRA_y". The MEVAs used and derived data points are automatically derived from the name.



For Baseline and Forecast, a separate derived data point is created with the ending "baseline_deviation" and "forecast_deviation". This data point represents the deviation of the actual values from the Baseline or the Forecast. When you subsequently change the name of the Y data point, the names of the derived data points or measuring variables do not change. You can also use the derived data points in other widgets, for example, in the "Traffic Light" widget. If the deviation from the Baseline exceeds a particular value, the traffic light changes to red.

See also

Configuring the Model parameters section (Page 594)

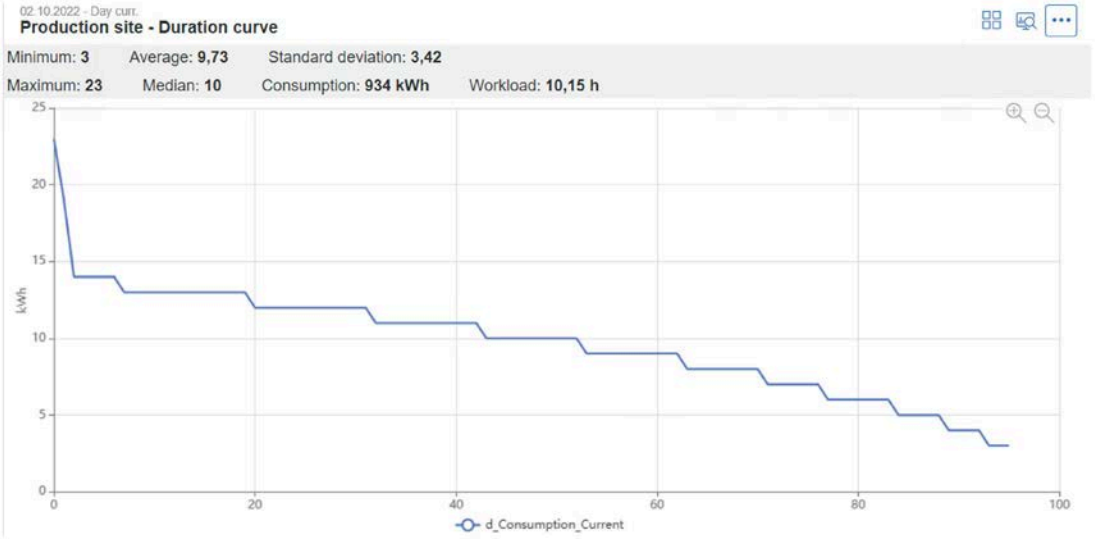
Model overview section (Page 597)

Duration curve

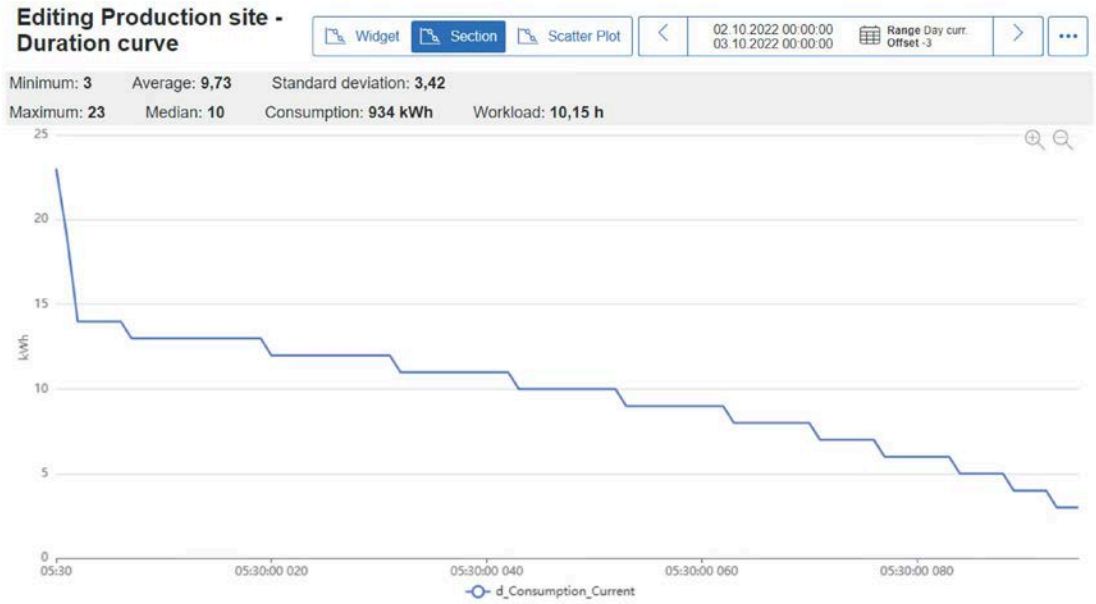
The "Duration Curve" widget shows measurements for a particular time period in a duration curve. The widget shows three types:

- Value-sorted duration curve
- Value-sorted duration curve of the n-highest values
- Hour-based representation of the n-highest values

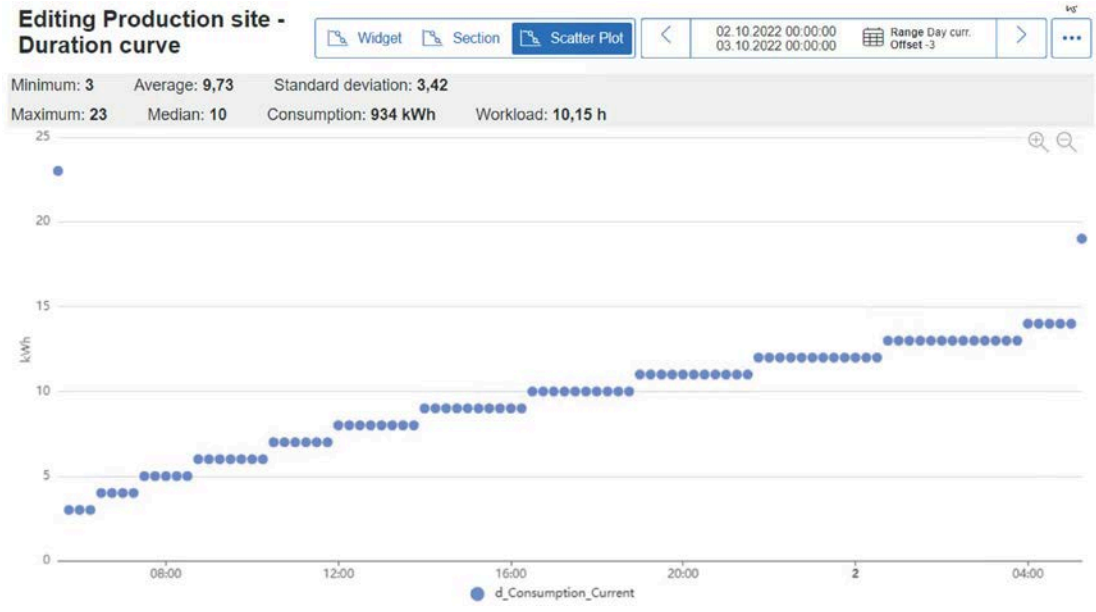
The 1st tab (Widget) displays the duration curve from the highest to the lowest values in the observation period. The values are shown via the Usage hours. The statistics are displayed at the top of the tab. In addition to the standardized statistics, Consumption and Usage hours are also calculated. The Consumption includes the entire consumption in the observation period. The Usage hours describe the relationship of the total consumption to the maximum measured value.



The 2nd tab (Section) displays the duration curve of the n highest values in the observation period. The number of measured values which you set in the "Display options" tab determines the number n. The measured values are displayed via the number of measured values n.



The 3rd tab (Scatter Plot) displays the n highest values based on hours on a day cycle. The time stamp of the measured values correlates with the hour-based x-axis. The measured values are shown over 24 hours. The number of measured values which you set in the "Display options" tab determines the number n.



See also

Configuring the Display options section (Page 597)

Widget Configuration

Available sections

You configure your created widgets using the available sections.

Note

To configure the sections, you need either the functional right "Widgets/Dashboards - Configure" or the functional right "Widgets/Dashboards - Create, remove, configure".

Overview

The following table provides an overview of the configurable sections for each widget:

Widget	General	Data source	Limits	Y-Axis	Image	Text	Heat map	Locations	Sankey	Alarms	Model Definition	Model Overview	Display options
Gauge	x	x	x	-	-	-	-	-	-	-	-	-	-
Chart	x	x	x	x	-	-	-	-	-	-	-	-	-
Traffic Light	x	x	x	-	-	-	-	-	-	-	-	-	-
Value	x	x	-	-	-	-	-	-	-	-	-	-	-
Pie	x	x	-	-	-	-	-	-	-	-	-	-	-
Matrix	x	x	x	-	-	-	-	-	-	-	-	-	-
Image	x	-	-	-	x	-	-	-	-	-	-	-	-
Report	x	x	-	-	-	-	-	-	-	-	-	-	-
Text	x	-	-	-	-	x	-	-	-	-	-	-	-
Heat Map	x	x	-	-	-	-	x	-	-	-	-	-	-
Map	x	x	-	-	-	-	-	x	-	-	-	-	-
Sankey	x	x	-	-	-	-	-	-	x	-	-	-	-
MultiRegression	x	x	x	x	-	-	-	-	-	-	x	x	-
Duration	x	x	-	-	-	-	-	-	-	-	-	-	x

See also

Overview (Page 557)

Configuring the General section

The "General" section is available to a similar extent for all widgets. In this section you configure the basic information of the widget as well as the date and query type of the display range. The "Date & Query type" area is not needed for the "Text", "Image" and "Report" widgets. Instead, these widgets have corresponding sections for entering a text or for selecting an image or a report.

Procedure

To configure the "General" section, proceed as follows:

1. Enter the name of the widget in the "Title" entry field.

   The input of a name is required.

2. If you have created several Widget Dashboards, you can select a dashboard from the drop-down list "Dashboard Link".

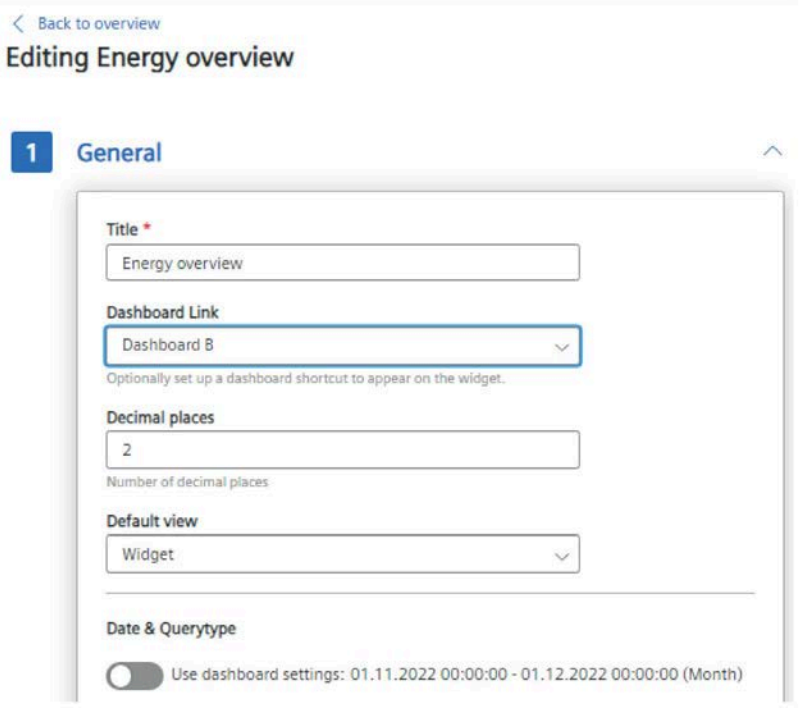
3. When you close the configuration mode of the dashboard, the following icon is displayed in the top right-hand corner:

   When you click on the icon, you change to the selected Widget Dashboard.

4. Enter the number of decimal places for the display of data point values in the "Decimal places" entry field.

   Entry of the number of decimal places is required.



5. To apply the date and the query type of the configured Widget Dashboard, turn on the "Use dashboard settings" toggle switch.

   The selection of a particular timespan and the selection of a query type are deactivated.

6. To use a specific date and a specific query type, turn off the "Use dashboard settings" toggle switch.
7. If you want to use the current date, turn on the "Current Date" toggle switch.
8. If you want to display a specific time, select the desired start date with the associated time.
9. Select the required observation period linked to the date from the drop-down list "Query type".

10. If required, shift the start time of the measured value series, e.g. from 00:00 to 08:00, using the "Offset" entry field.

11. Select the compression level of the measured values from the drop-down list "Compression". By selecting the compression level you can compress, for example, the cyclically recorded 15-minute values to hourly values.
12. If you enter a numerical value in the "Offset [s]" entry field, the measured values are only updated after the duration entered has expired.
13. If you turn on the "Timestamps left aligned" toggle switch, the start time (timestamp) of the measured values is displayed.

14. The "Comparison" area is only available for the "Chart" widget; you use it to display a time comparison of the selected data point graphically. If you select the "Static" option, you set a fixed time range using the entry field. If you select the "Dynamic" option, you enter the time offset relative to the query type that is used for the comparison in the "Offset" entry field. A negative value jumps back to the past by one time offset, a positive value jumps to the future.

Configuring the Parameter section

You configure the "Parameter" section for almost all the available widgets. In this section, you select the data sources you want to visualize in the corresponding widget.

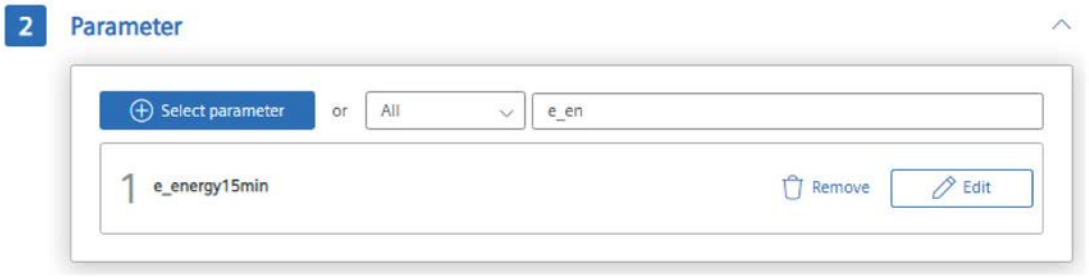
Requirement

- The data sources have been created.

Procedure

To configure the "Parameter" section, proceed as follows:

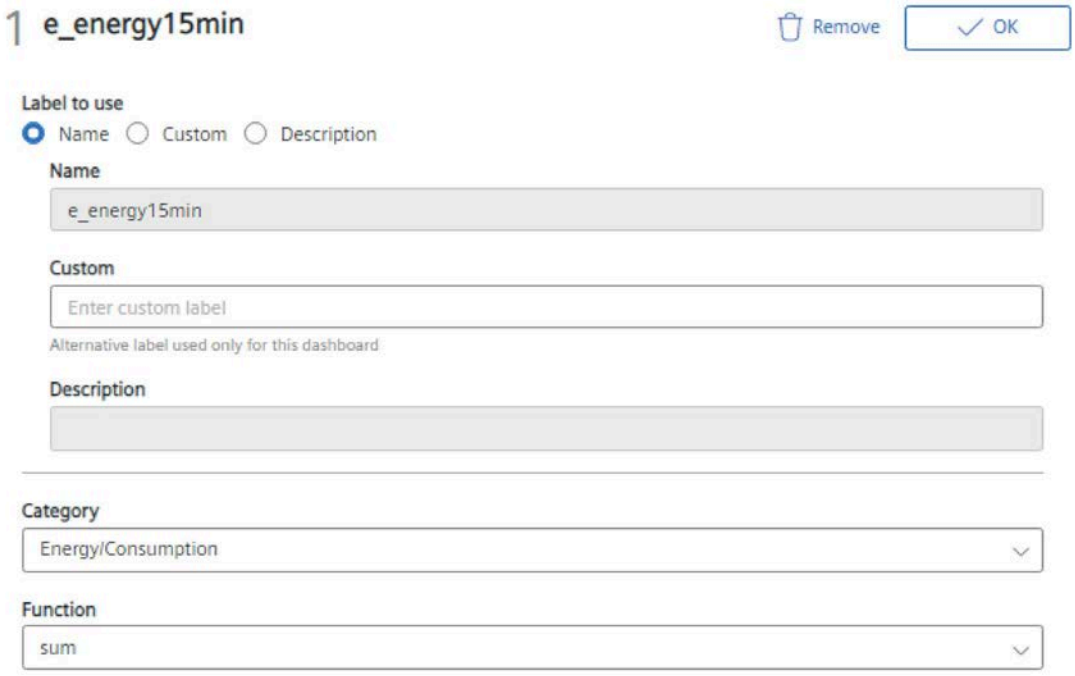
1. Select the data sources that you want to use in the widget in the "Parameter" section. You can enter the data sources in the entry field. The drop-down list to the left of the search field allows the search to be limited to the object types "All","Data point","Measuring variable","Parameter".



Selected data sources are displayed below the search field in numerical order.

2. To configure further information of the selected data source, click on the "Edit" button of the corresponding data source.

   This opens the additional setting options of the data source.



3. To use the name of the data point in the display, select the "Name" option.

   A change to the name in the entry field underneath is not possible.

4. To use an alternative name of the data point in the display, select the "Custom" option. Enter the name in the "Custom" entry field underneath.

5. Select the "Description" check box if you want to use the description of a data point in the display.

   It is not possible to enter a description. You enter the description text when creating the data source.

6. Select the display type of the values in the widget from the drop-down list "Category". The drop-down list is only available for data point types of the category "Energy", "Power" or "Count value".

   You can choose between the following display types:

   – Energy / consumption
   – Power / Flow
   – Counter (only available for acquisition category "Count value")

   If you use a data point of the acquisition category "Energy / Consumption", for example, and set the display type in the widget to "Power / Flow" the original energy values change to the corresponding power values. The unit in the display of the widget also changes accordingly, for example, from kWh to kW.

   Note

   If you change the display type, the unit of the y-axis does not change. The unit of the y-axis is initialized with the first data point added. You set the unit of the y-axis under "Y-Axis" in the "Axes" section.

   The conversion of the unit is always hour-related, for example, from J to J/h or from W to Wh.

7. Select the information type which you would like to display from the drop-down list "Function". You can choose from the following information types:

   – sum: Shows the values from the "Sum" column of the measured value editor in the defined observation period.
   – min: Shows the values from the "Minimum" column of the measured value editor in the defined observation period.
   – max: Shows the values from the "Maximum" column of the measured value editor in the defined observation period.
   – avg: Shows the values from the "Average" column of the measured value editor in the defined observation period.
   – last value: Shows the values from the "Last value" column of the measured value editor in the defined observation period.

   The information type "avg" is automatically and unalterably enabled for the category "Power / Flow" selected in step 6. The default setting for the "Energy/Consumption" category is the information type "sum"; the default setting for the "Counter" category is the information type "last value". You can change both information types later.

See also

Creating data points (Page 659)

Configuring the Limits section

The "Limits" section is available for the following widgets:

- Gauge
- Chart
- Traffic Light
- Matrix
- MultiRegression

In this section, you define a validity range for the measured data by setting limits.

Procedure

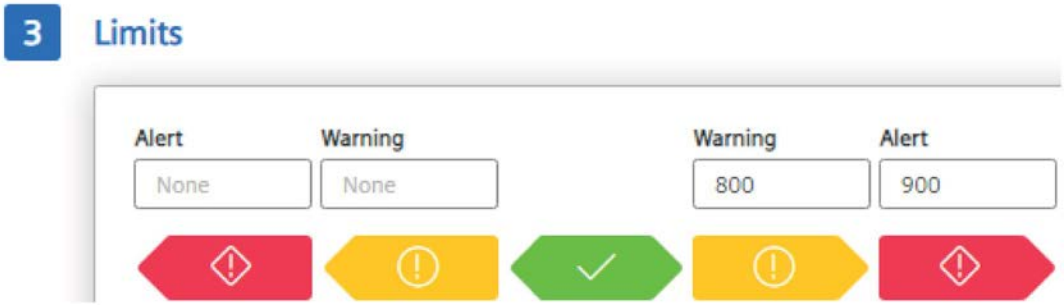
To configure the "Limits" section, proceed as follows:

1. Click on the data source that you want to configure.
   The possible limit settings are opened.
2. Enter the lower and upper limits for the alarm range in the left and right entry fields below "Alarm".
3. Enter the lower and upper limits for the warning range in the left and right entry fields below "Warning".

Note
If you have already configured a plausibility for a data point and have defined the limits for the alarm and warning range, these entries are automatically applied in the section.

Note
For a Gauge or Traffic Light widget, you can also define the color display of the ranges.

4. In the case of a Gauge widget, enter the start of display or end of display in the "Min-Range" and "Max-Range" entry field, respectively.



Note
The entries configured in the widget only apply to this widget and are not updated in the data source. A change to the limits in the widget does not change the plausibility settings in the data source.

See also

Configuring the plausibility (Page 157)

Configuring the Axes section

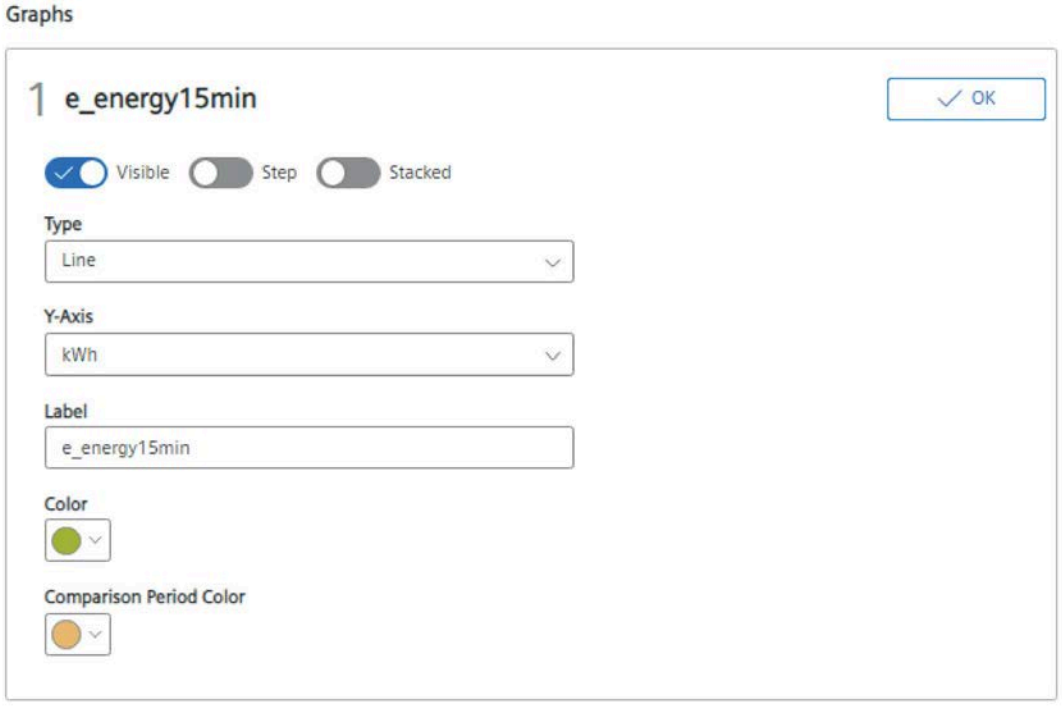
The "Axes" section is available for the "Chart" and "MultiRegression" widgets. In this section, you configure the graphs and Y-axes of the chart. You can add up to five additional Y-axes. If you have added more than one y-axis, you can delete y-axes that are no longer required by clicking on the "Delete" button.

Procedure for configuring graphs

To configure the graphs, proceed as follows:

1. To configure the curve display of the desired graph, click on the "Edit" button of the respective data point.

   The possible settings for the graph are opened.



2. Select the desired display options of the graph using the check boxes.

   You can choose from the following display options:

   – Visible: The curve is display visibly.
   – Step: The curve is displayed in the shape of steps.
   – Stacked: The curve is displayed in stacked bars.

3. Select the display type of the curve from the "Type" drop-down list.

   You can choose between the following types:

   – Area
   – Bar
   – Line
   – Points
   – Spline

4. Select the y-axis to be displayed for the graph in the "Y-Axis" drop-down list.
5. Enter the label of the graph in "Label" entry field.
6. Under "Color", select the display color of the graph.
7. Under "Comparison Period Color", select the color of the comparison graph.

   The option of the displayed comparison graph is enabled in the "General (Page 575)" section.

8. Click the "OK" button to confirm the configuration.

Procedure for configuring the y-axis

To configure the y-axis, follow these steps:

1. To configure the desired y-axis, click on the "Edit" button.

   The possible settings for the y-axis are opened.

2. Enter the name for the y-axis in the "Title" entry field. The unit of the data point measured values is usually entered.
3. Under "Color", select the display color of the y-axis.

4. If you want to display the y-axis on the right side of the graph, select the "Axis on right side" check box.

   The y-axis is displayed on the left by default.
5. Enter the limits of the y-axis in the "Lower Limit" and "Upper Limit" entry fields.
6. Click the "OK" button to confirm the configuration.
7. If you want to add another y-axis, click on the "Add new Y-Axis" button.

   A new Y-axis is created in the list.
8. Repeat steps 1-6 for the new y-axis.

Note

In the widget, the title or the unit of the y-axis is initialized with the first added data point.

Note

When you do not enter any limits in the "Lower Limit" and "Upper Limit" entry fields, the y axis is automatically adapted.

See also

MultiRegression (Page 569)

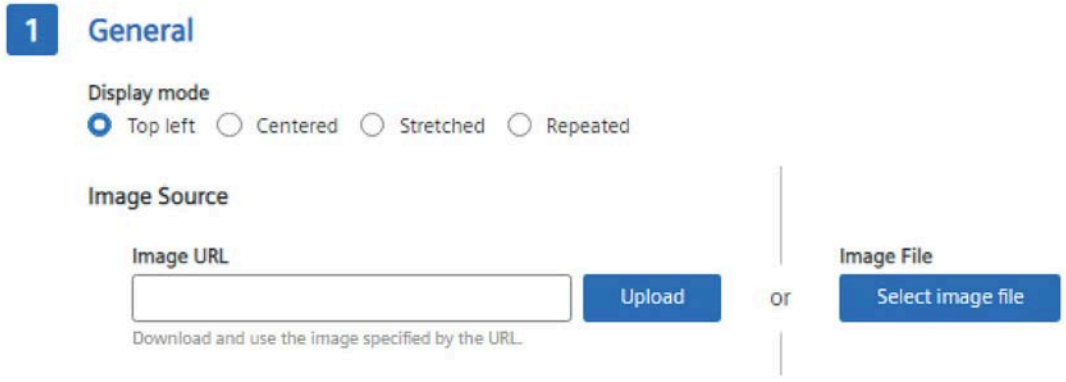
Configuring the Image section

The "Image" section is available for the "Image" widget. With this section, you display a custom image in the Widget Dashboard.

Procedure

To configure the "Image" section, proceed as follows:

1. Under "Dashboard Link", select the Dashboard in the drop-drop list to which the image is to be added.
2. Under "Display mode", select whether you want to display the image "Top left" in the same size, "Centered" in the same size or "Stretched".
3. If you want to add an image from the Internet, insert the link of the image under "Image URL".
4. If you want to add a locally saved image, click on the "Select file" button to upload your desired image.



Configuring the Text section

The "Text" section is available for the "Text" widget. With this section, you compose a custom text that is displayed in the widget. You can also insert a URL link or an e-mail address with a particular message text as text. When you click on the URL link after configuration, the page is opened in your Internet browser. When you click on the e-mail link, your default e-mail program opens to which the entered texts are copied.

Procedure

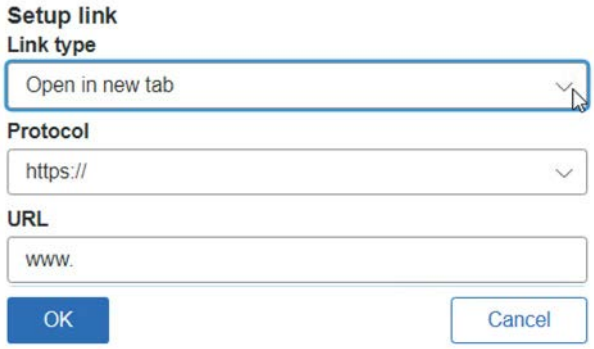
To configure the "Text" section, proceed as follows:

1. Enter the required text in the text field. When entering the text you can choose from the following functions for editing the text:
   - Bold
   - Italic
   - Underline
   - Strikethrough
   - Numbered list
   - List
   - Subscript
   - Superscript
   - Decrease indent
   - Increase indent
   - Show formatting symbols
   - Font size
   - Text color
   - Background color
   - Font type
   - Text alignment
   - Insert/edit link
   - Insert image

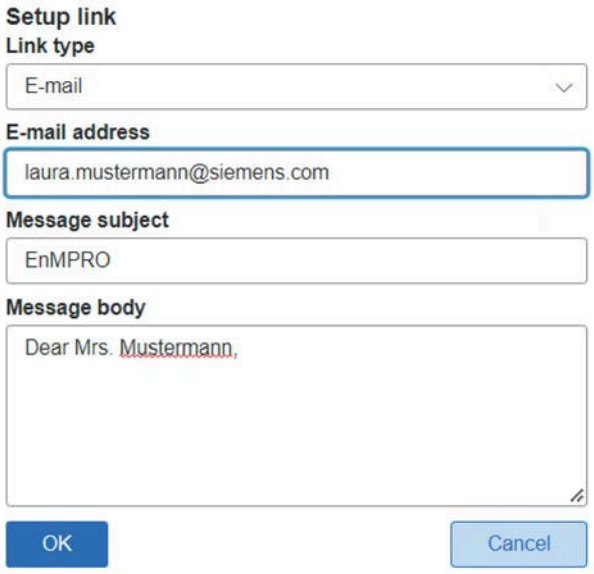
2. When you click on the "Insert link" icon, the dialog window "Link" opens.
3. Select the type of link from the "Link type" drop-down list.

   You can choose between the following types:
   - Open in new tab
   - E-mail
4. Select one of the available transfer protocols from the drop-down list "Protocol".

5. Enter a valid URL in the "URL" entry field.



6. To send a text via e-mail, select the menu command "E-mail" from the drop-down list "Link type".
7. Enter the recipient's-mail address in the "E-mail address" entry field.
8. Enter the subject in the "Subject line" entry field.
9. Enter the text message in the "Message text" entry field.



Configuring the Data source report section

A special view of the "Data source" section with the "Reports" area is available for the "Report" widget. In this section, you select the report that is generated in the widget.

Requirement

- The report has been created.

Procedure

To configure the "Data source" section of the "Report" widget, proceed as follows:

1. Select the desired report you want to use in the widget.

Configuring the Heatmap section

The "Heatmap" section is available for the "Heat Map" widget. With this section, you set the limits and the display of the measured values.

Procedure

To configure the "Heatmap" section, proceed as follows:

1. Enter your individual limits for the measurement data in the "Lower limit" and "Upper limit" entry fields. In this way you define a valid range for your measurement data. If you do not enter any values in the entry fields, the maximum and minimum measured value is used as the limit.
2. Select the display color of the measured values for the settings "Normal", "Warning" and "Violation".
3. If you want to display the measurement data for a day, select the "Day view" option. If you want to display the measured data for a week, select the "Week view" option.

See also

Heat Map (Page 564)

Configuring the Locations section

The "Locations" section is available for the "Map" widget. With this section, you configure the location-specific KPIs and dashboards that you view from your system.

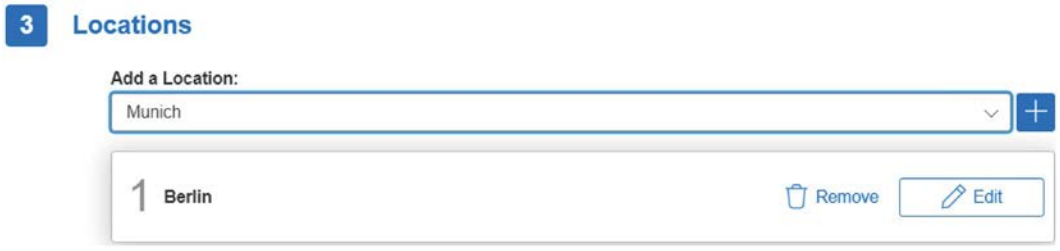
Requirements

- The location object with valid GPS coordinates has been created.
- The location object is assigned to the corresponding user group.
- The dashboards have been created.
- The KPIs have been created.

Procedure

To configure the "Locations" section, proceed as follows:

1. Select the locations for which you want to display the location-specific dashboards and KPIs from the drop-down list "Select location".



Note

To display your created locations in the widget, you have to enter the geographical coordinates of the location in the location object in the Energy Manager PRO Client. Only locations with valid coordinates are available for selection in the widget. You can determine the coordinates using Google Maps, for example, and copy them to the location object. You must separate the two coordinates with a blank space.

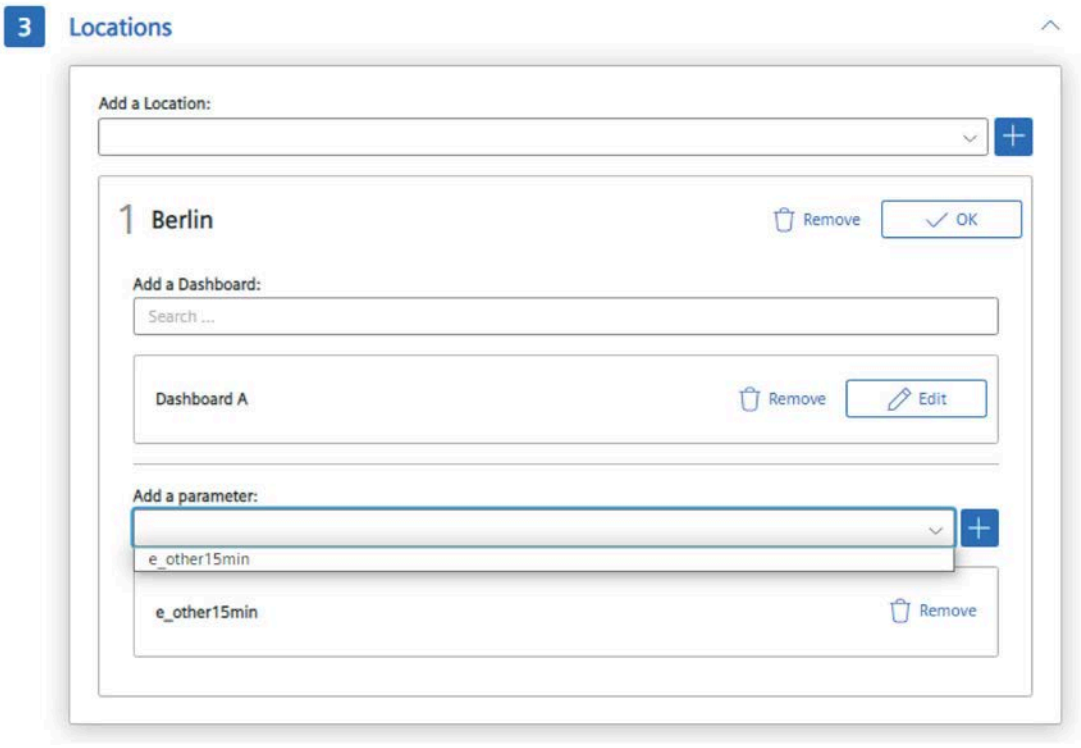
In addition, you have to assign the location object to the corresponding user group.

You can find more detailed information on location selection in the "Map" paragraph of the "Extended widgets" section.

The selected locations are displayed in the "Currently selected" list.

2. To select the location-specific dashboards and KPIs, click the corresponding location.
3. Select up to two dashboards to which you want to jump directly from the location tooltip for each location in the drop-down list "Add dashboard".
4. Enter the name of the dashboard in the adjacent entry field.

5. Select up to five KPIs you want to display for each location from the "Add a parameter" drop-down list.



Note

You can configure up to 50 data points or KPIs in the "Map" widget.

6. When you click on the Delete icon, you remove KPIs which are no longer required.

See also

Map (Page 565)

Configuring the Sankey section

The "Sankey" section is available for the "Sankey" widget. With this section, you configure the nodes and data points that you use in the Sankey diagram.

Requirement

- The data points have been created.

Procedure

To configure the "Sankey" section, proceed as follows:

1. Enter the name of the node (media) you want to show in the Sankey diagram in the "Add a node" entry field.

   Use meaningful names for the corresponding nodes.

2. Click on the "Add node" button.

   The node is added to the list "Current nodes".

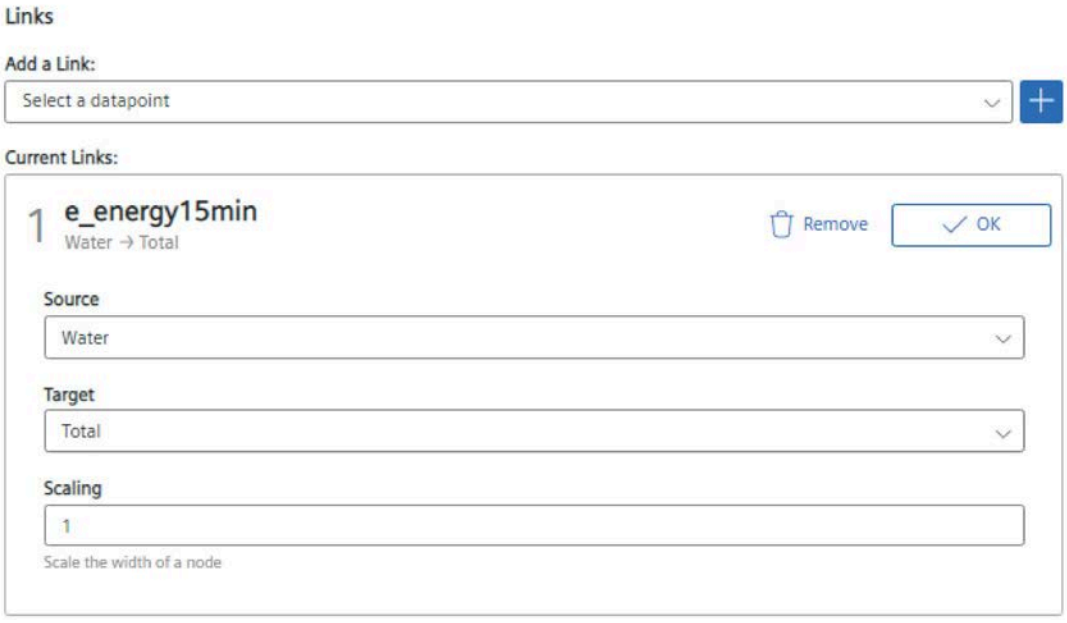
3. Click on the name of a node and select a color.
4. From the drop-down list "Add a link" select the data points that you want to use in the Sankey diagram.
5. To incorporate the data points in the Sankey diagram, click on the "Add link" button.

   Note

   You can configure up to 50 nodes and data points in the Sankey diagram.

   The data points are displayed in the list "Current links".

6. To link the data points with the corresponding nodes, click on the data points.



7. Select the incoming quantity flow of the respective data points from the drop-down list "Source", and the outgoing quantity flow of the respective data points from the drop-down list "Target".

   Note

   When linking the data points with the nodes you have to assign the "source" and "target" of a data point to different nodes.

8. Enter a scaling factor in the "Scaling" entry field. The scaling factor is required for recalculation to the primary energy in an energy flow diagram with different media.
9. You can remove nodes or data points which are no longer required from the Sankey diagram with the help of the delete icon.

See also

Sankey (Page 567)

Configuring the Model parameters section

The "Model parameters" section is available for the "MultiRegression" widget. With the "Model parameters" section, you configure the data points for determining the Baseline and Forecast.

Requirement

- The data points have been created.

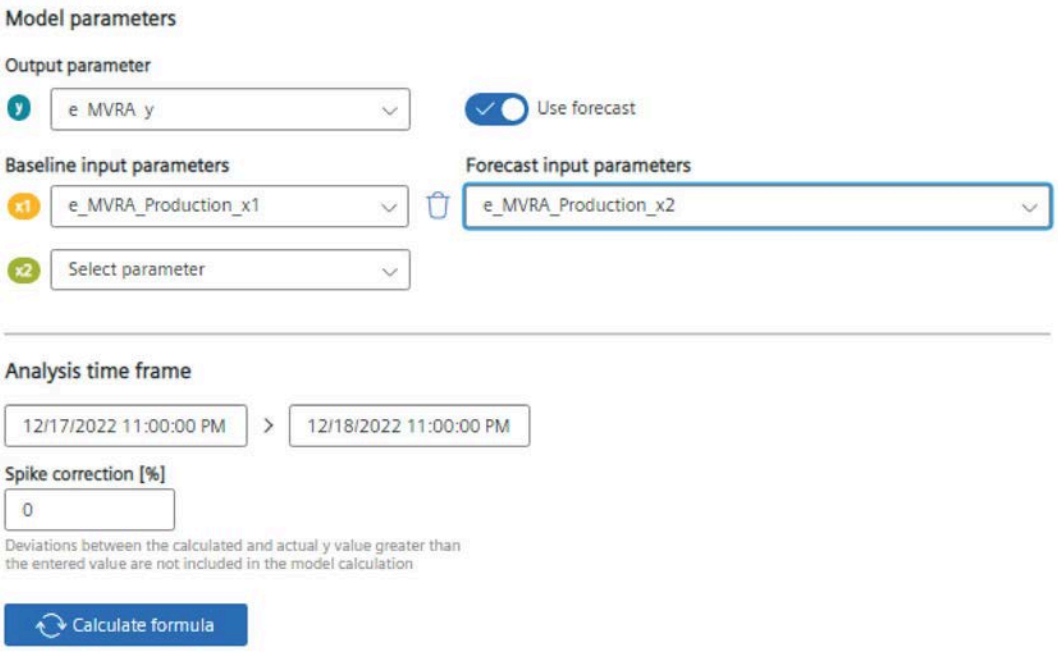
Procedure

To configure the "Model parameters" section, proceed as follows:

1. Select the data point whose Baseline you want to determine, for example, energy consumption of a plant, from the drop-down list "Output parameter/Y-values".
2. Select the data points that influence the Y-data point from the drop-down lists "Baseline input parameters". You can select up to five data points.
3. If you want to use the Forecast function, enable the "Use forecast" option.
4. Then select the corresponding x-values from the drop-down lists under "Forecast input parameters".

   The same number of parameters is required for the Baseline and the Forecast.

5. With the help of the corresponding selection boxes, select the analysis time window in which you want to analyze the selected data.



Note

No one-time special effects should exist in this time window, because they would influence the result.

6. To exclude spikes in the values from the calculation, enter a spike correction value greater than 0%.

   A value of 100% means that a deviation greater than 100% between the calculated and actual y value is not included in the calculation.

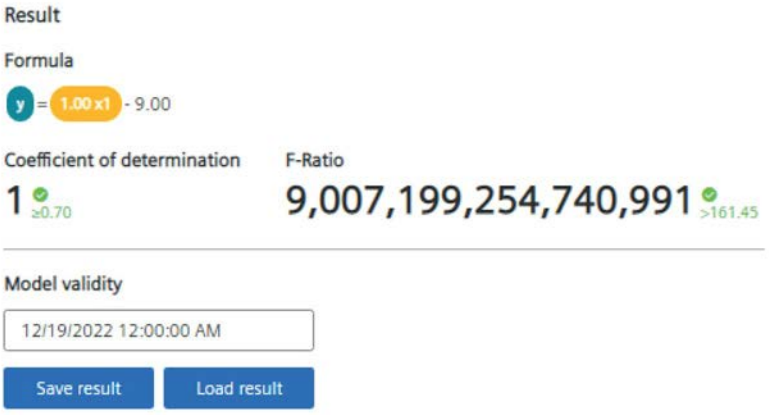
7. Click on the "Calculate formula" to start the analysis.

   The result is output with the "coefficient of determination" and the "F-Ratio". The coefficient of determination specifies the correlation between the values. The coefficient of determination lies between the value 0 and the value 1. In addition, the color adjusts to the coefficient of determination:

   – 0 - 0.3 No or little correlation (red)
   – 0.3 - 0.6 Medium correlation (yellow)
   – 0.6 - 1: Good or full correlation (green)

8. If the result shows a corresponding correlation, you can set the validity time of this model.

9. Click on the "Save event" button.
10. If the result shows a corresponding correlation, you can load a previously calculated analysis by clicking on the "Load result" button.



See also

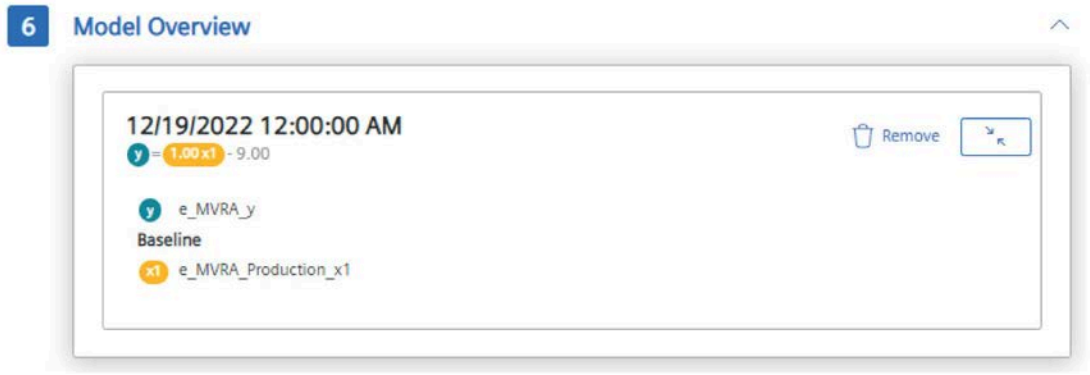
MultiRegression (Page 569)

Model overview section

The "Model Overview" section is available for the "MultiRegression" widget. With this section, you see an overview of the models defined in the "Model parameters" section.

Procedure

In the "Model Overview" section, you cannot configure any parameters, but only delete models. You delete models by clicking on the delete icon. Only the defined models are displayed in the model overview. The date specifies the validity time of the model.



See also

MultiRegression (Page 569)

Configuring the Display options section

The "Display options" section is available for the "Duration Curve" widget. With this section, you enter the number of measured values that you use for display of the duration curves.

Procedure

To configure the "Display options" section, proceed as follows:

1. Enter the number of measured values you want to use for displaying the duration curves in the "Amount of data for detail view" entry field.

   The number of measured values is used for the display of the 2nd and 3rd tab in the "Duration Curve" widget.

See also

Duration curve (Page 572)

3.5.4 Reports

3.5.4.1 Overview

To evaluate measurement data in Energy Manager Web, you can create and configure reports with the help of the shortcut menu. The creation of reports in Energy Manager Web is based on report templates. You cannot configure these report templates in Energy Manager Web, but only in the Energy Manager PRO Client. Newly created reports and configurations on already existing reports in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

3.5.4.2 Creating reports

Requirements

- The folder has been created.
- The data points, measuring variables and parameters have been created.
- Users have been created.
- The user has the functional right "Report - create, remove, configure".

Procedure

To create reports, follow these steps:

1. Place the mouse pointer over the folder in the navigation area in which you would like to create the report.

   The shortcut menu icon is displayed on the right of the menu item.

2. Click on the shortcut menu icon.

   The shortcut menu opens.

3. Click on the "Add report" menu command.

   The configuration dialog "New - Report" is opened.

Configuring the "General" section

1. Enter a meaningful name for the report in the "Name" text box.

   The input of a name is required.

   Note

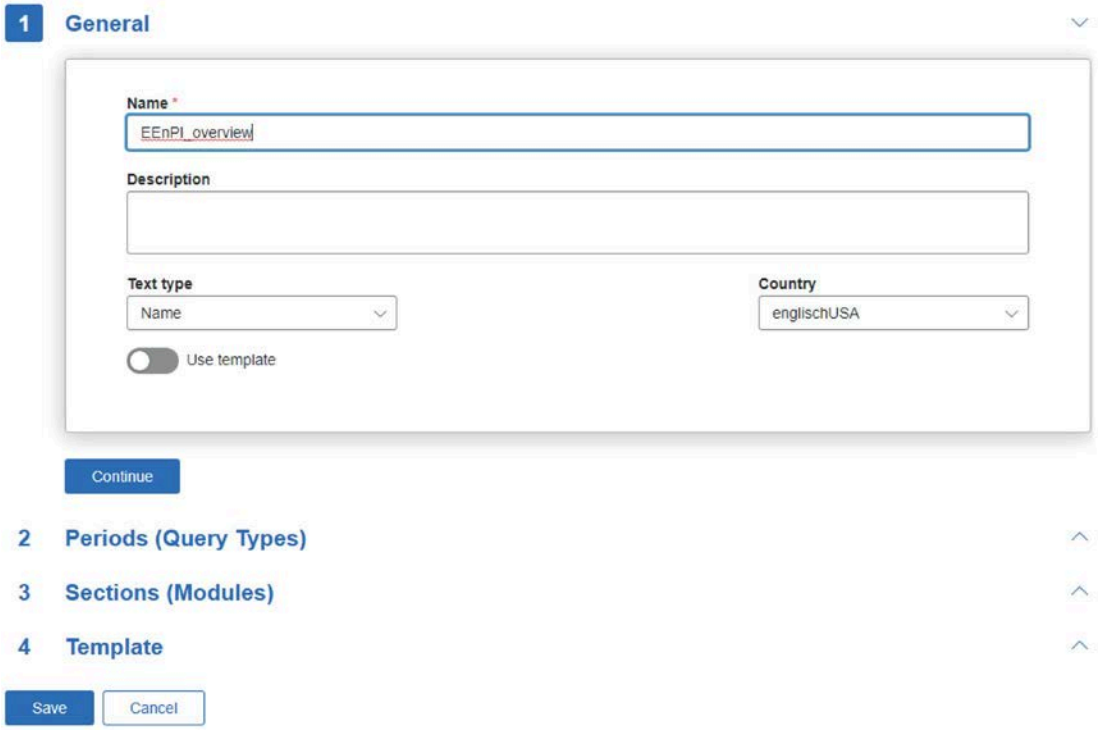
   Do not use Excel-specific expressions such as A1 or =FG14 during the report creation.

   The report name cannot contain any special characters. The following characters are permitted:

   - A to Z
   - a to z
   - 0 to 9
   - _
   - Space

2. If required, enter a description of the report in the "Description" text box.
3. Select the display type of the name in the report from the drop-down list "Text type".
4. Select the appropriate country from the drop-down list "Country".
5. To use a desired report template, enable the "Use template" option. The following report templates are available:
   - Balance Calculates the total value of the selected data points, measuring variables and parameters over the entire observation period of the report.
   - Balance comparing In addition to the "Balance" template, it calculates the total value of the previous observation period and that of the previous year.
   - Protocol Returns the values of the selected objects in the selected interval within the observation period.
   - Protocol with from/to In addition to the "Protocol" template, it specifies the timestamp with the start and end of the interval.
   - Duration curve Sorts the values (from the largest to the smallest) of the selected objects in the selected interval within the observation period.

The query types which you configured in the report template are automatically adopted as query types.



Configuring the "Periods (Query types)" section

1. You have the option of selecting further query types from the drop-down list "Select query type". The selected query types are displayed in the overview list.
2. You can select a compression level for each query type.

   Note

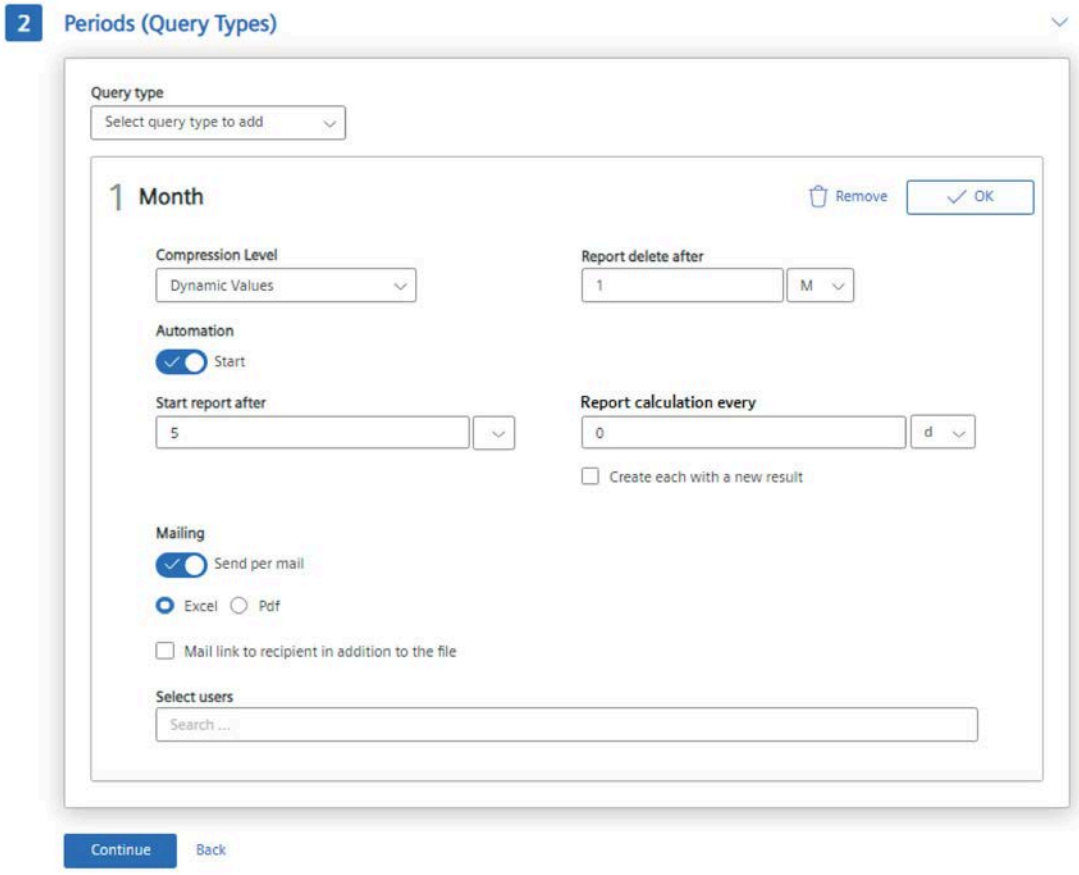
   If you set the compression level "Dynamic values" in this area, the calculation logic uses the best possible compression level for the calculation automatically.

3. To delete existing report results, enter an interval in the "Report delete after" entry field Select the associated unit from the drop-down list.
4. To enable automatic report creation, enable the "Start" option.
5. To delay the report creation, enter the desired delay in the "Start report after" entry field. Select the associated unit from the drop-down list.
6. To calculate existing report results again, enter an interval in the "Repeat calculation every" entry field. Select the associated unit from the drop-down list.

   You can use this option, for example, to update a created report result daily and overwrite the existing report result.

   To create a new report result with the current values each time, select the "Create each with a new result" check box.

7. To send the generated report to selected users via e-mail automatically, enable the "Send per mail" option.
8. Select the format of the report. You can choose between PDF and Excel format.
9. To additionally receive a link to the report, select the "Mail link to recipient in addition to the file" check box.
10. Select the users who will receive the report under "Select users". Only users with assigned e-mail address are displayed. The recipients of the report are displayed in an overview list.
11. Click on the "OK" button.
12. Repeat steps 1 to 11 for each selected query type.
13. To remove query types that are no longer required, click on the Delete icon.



Configuring the "Sections (Modules)" section

1. To add a module, click on "Add new module".
2. You can change the order of the modules via Drag and Drop.
3. To remove modules that are no longer required, click on the Remove icon to the right of the module name.
4. To edit a module, press the Edit button.
5. Enter a name for the module in the "Module name" text box.

   Note

   The report module names are used as Excel "cell names".

   To ensure conformant module configuration, observe the standard designations for the country-specific Microsoft EXCEL documentation.

   Do not use Excel-specific expressions, e.g. C1 or R1, or Z1 or S1 in German systems, at the beginning of the report module name.

6. Under "Type", select the module type.
   - You need a data point to configure a query module.
   - You need a data point, a parameter or a measuring variable to configure a balancing module or a protocol module.

   More information on the module types is available in the section "Module overview (Page 758)".
7. Select the "Insert rows before inserting values" check box if required.
8. In the event of an interval configuration, select the corresponding time interval for each existing query type. Using the time interval you divide the observation period into equally sized intervals.
9. Select the data points, parameters and MEVAs that you want to use in the module. You can enter the data points in the text box. You can use the drop-down list to limit the search to the object types "All", "Data point", "Measuring variable" and "Parameter".

   Selected data points are displayed below the search bar.

   Note

   Object descriptions of Data points, Measuring variables and Parameters must not contain Excel-specific expressions such as A1 or =FG14.

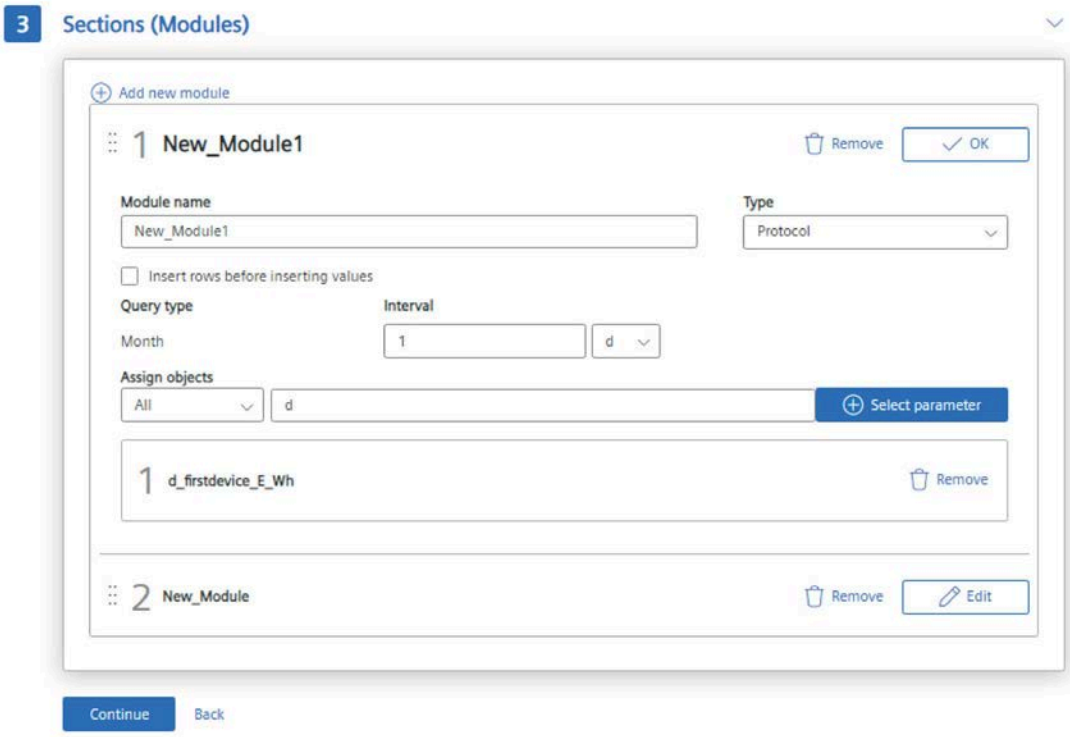
   If you output the properties of objects in reports, do not use Excel-specific expressions in the output properties.

   Note

   Pay attention to the order of the data points in the module types.

10. Click on "OK".
11. Repeat steps 1 to 10 for each module.

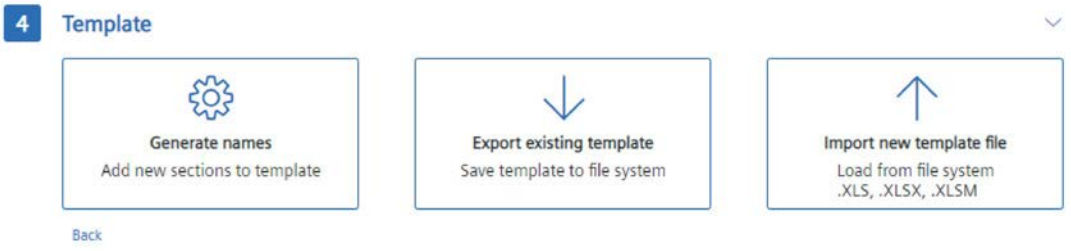
12. You can change the order of the data points via Drag and Drop.
13. To remove data points that are no longer required, click on the Remove icon to the right of the desired data point name.



Configuring the "Template" section

1. To apply newly created modules to the report template, click on "Generate names". A new report template is created, or an existing report template is updated.
2. To edit report templates, click on the "Export existing template" button.

   The report templates are exported to the default download directory of your browser as an .xlsm file.
3. To import edited report templates, click the "Import new template file" button. Select the edited report template.



Result

The report has been created.

See also

Shortcut menu (Page 545)
Creating users (Page 704)
Editing reports (Page 605)
Deleting reports (Page 606)
Reports (Page 511)
Creating MEVAs / KPIs (Page 684)
Creating parameters (Page 678)
Creating data points (Page 659)
Creating a report (Page 276)

3.5.4.3 Editing reports

Instead of selecting a report template when editing a report, you can export and import report templates. You can edit and then reimport report templates which you export. You can also import other saved report templates. The imported report template is used for the next report generation.

Requirements

- The report has been created.
- The data points, measuring variables and parameters have been created.
- The report templates have been configured.
- Users have been created.
- The user has the functional right "Report - configure" or the functional right "Report - create, remove, configure".

Procedure

To edit reports, follow these steps:

1. Place the mouse pointer over the report in the navigation area which you want to edit.
   The shortcut menu icon is displayed on the right of the menu item.
2. Click on the shortcut menu icon.
   The shortcut menu opens.
3. Click on the menu command "Edit".
   The configuration dialog for editing the settings of the report opens.
4. You can configure all the settings again which you defined on creation of a report.
   The input of a name is required.
5. To export report templates, click the "Export" button. You can open the report templates directly or save the report templates. Saved report templates are exported to the standard download directory of your browser as an .xlsm file.
6. To import report templates, click the "Import" button.
7. Select the report template you want to import.
   The settings in the report template are adopted for the selected report.

   Note

   When you import a new report template for an existing report, you must enable the current report configurations in the report template again with "Generate names" under "Template".

8. Click on the "Save" button.

See also

Creating reports (Page 598)
Deleting reports (Page 606)
Configuring reports (Page 279)

3.5.4.4 Deleting reports

Requirements

- The report has been created.
- The user has the functional right "Report - create, remove, configure".

Deleting a report

To delete reports, follow these steps:

1. Place the mouse pointer over the report in the navigation area which you want to delete.
   The shortcut menu icon is displayed on the right of the menu item.
2. Click on the shortcut menu icon.
3. Click on the "Delete object" button.
4. Confirm the deletion in the confirmation window to delete the object.
   You have the option of canceling the deletion in the confirmation window.

Result

The report is deleted from the system.

See also

Editing reports (Page 605)

3.5.5 Charts

To graphically display measurement data in Energy Manager Web, you can create new charts and configure existing charts with the help of the shortcut menu. Newly created charts and configurations on already existing charts in EnergyManagerPROWeb are also adopted in the Energy Manager PRO Client and vice versa.

3.5.5.1 Creating charts

Requirements

- The folder has been created.
- The data points have been created.
- The user has the functional right "Chart Object - create".

Procedure

To create charts, follow these steps:

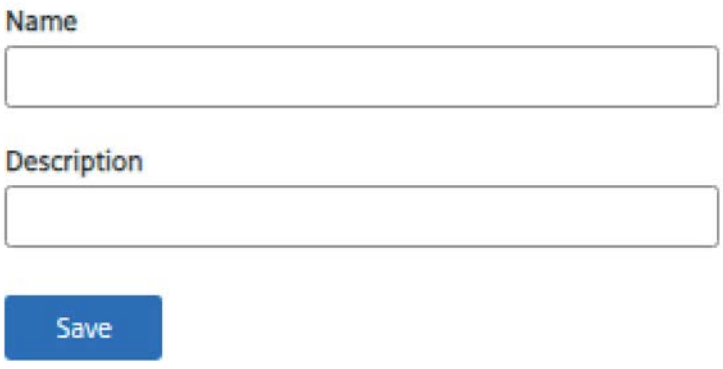
1. Enable the editing mode.
2. Place the mouse pointer over the folder in the navigation area in which you want to create the chart.

   The shortcut menu icon is displayed in the right-hand area of the menu item.
3. Click on the shortcut menu icon.

   The shortcut menu opens.
4. Click on the menu command "Add chart".

   The configuration dialog "New - Chart" opens.
5. Enter a meaningful name for the chart in the "Name" entry field.

   The input of a name is required.
6. If required, enter a description of the chart in the "Description" entry field.



7. Click the "Save" button.

Result

The chart has been created.

See also

Shortcut menu (Page 545)
Creating data points (Page 659)
Editing charts (Page 609)
Deleting charts (Page 610)
Creating a Chart (Page 301)

3.5.5.2 Editing charts

Requirements

- The chart has been created.
- The data points have been created.
- The user has the functional right "Chart Object - configure".

Procedure

To edit charts, follow these steps:

1. Enable the editing mode.
2. Place the mouse pointer over the chart in the navigation area which you want to edit.
   The Edit icon is displayed in the right-hand area of the menu item.
3. Click on the editing icon.
   The configuration dialog "Edit - Chart" opens.
4. As with creating a chart, you can configure the name and description again.
   The input of a name is required.
5. Click on the "Save" button.

See also

Creating charts (Page 607)

3.5.5.3 Deleting charts

Requirements

- The chart has been created.
- The user has the functional right "Chart Object - delete".

Procedure

To delete charts, follow these steps:

1. In the navigation area, place the mouse pointer over the chart you would like to delete.
   The shortcut menu icon is displayed on the right of the menu item.
2. Click the shortcut menu icon.
3. Click the "Delete object" button.
4. Confirm the deletion in the confirmation window to delete the object.
   You have the option of canceling the deletion in the confirmation window.

Result

The chart is deleted from the system.

See also

Editing charts (Page 609)

3.5.6 Matrices

3.5.6.1 Overview

To manually acquire measurement data in Energy Manager Web or define a reading route for mobile data acquisition using the Energy Manager App, you need matrices. You create matrices and configure them in Energy Manager Web. Newly created matrices and configurations on already existing matrices in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

3.5.6.2 Creating matrices

Requirements

- The folder has been created.
- The data points have been created.
- The user has the functional right "Matrix - create, remove, modify".

Procedure

To create matrices, follow these steps:

1. Enable the editing mode.
2. Place the mouse pointer over the folder in the navigation area in which you would like to create the matrix.

   The shortcut menu icon is displayed in the right-hand area of the menu item.
3. Click on the shortcut menu icon.

   The shortcut menu opens.
4. Click on the menu command "Add matrix".

   The configuration dialog "New - Matrix" opens.
5. In the "Name" text box, enter the name of the matrix.
6. Enter a description of the matrix in the "Description" text box. This entry is optional.
7. Click on the "Save" button.

Result

The matrix has been created.

See also

Shortcut menu (Page 545)

Editing matrices (Page 612)

Deleting matrices (Page 613)

Creating data points (Page 659)

Setting up mobile data acquisition with the SIMATIC Energy Manager app for iOS and Android (Page 539)

3.5.6.3 Editing matrices

Requirements

- The matrix has been created.
- The data points have been created.
- The user has either the functional right "Matrix - create, remove, modify" or the functional right "Matrix - modify".

Procedure

To edit matrices, follow these steps:

1. Enable the editing mode.
2. Place the mouse pointer over the matrix in the navigation area which you want to edit.

   The Edit icon is displayed in the right-hand area of the menu item.
3. Click on the editing icon.

   The configuration dialog "Edit - Matrix" opens.
4. You can configure all the settings again which you defined on creation of a matrix.

   The input of a name is required.
5. Click on the "Save" button.

See also

Creating matrices (Page 611)

3.5.6.4 Deleting matrices

Requirements

- The matrix has been created.
- The user has the functional right "Matrix - create, remove, modify".

Procedure

To delete matrices, follow these steps:

1. In the navigation area, place the mouse pointer over the matrix which you want to delete.
   The shortcut menu icon is displayed on the right of the menu item.
2. Click the shortcut menu icon.
3. Click the "Delete object" button.
4. Confirm the deletion in the confirmation window to delete the object.
   You have the option of canceling the deletion in the confirmation window.

Result

The matrix is deleted from the system.

See also

Editing matrices (Page 612)

3.5.7 Folder

3.5.7.1 Overview

To create a custom navigation structure in Energy Manager Web, create new folders and configure existing folders with the help of the shortcut menu. Newly created folders and configurations on already existing folders in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

3.5.7.2 Creating folders

Requirement

- The user has the functional right "Folder - create, delete"

Procedure

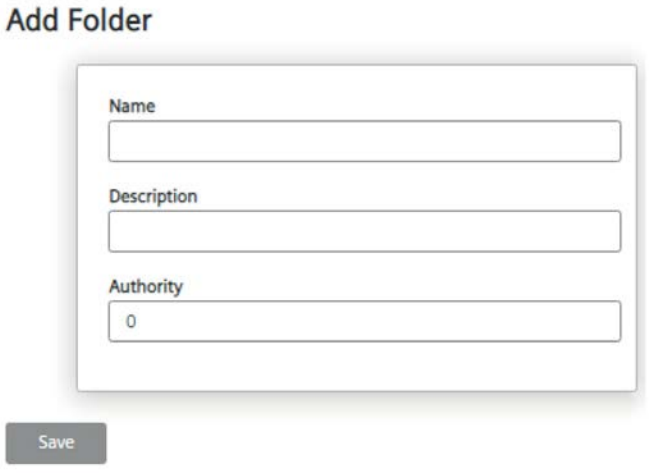
To create folders, follow these steps:

1. Enable the editing mode.
2. Place the mouse pointer over the folder in the navigation area in which you want to create a new folder.

   The shortcut menu icon is displayed in the right-hand area of the menu item.
3. Click on the shortcut menu icon.

   The shortcut menu opens.
4. Click on the "Add folder" menu command.

   The configuration dialog "New - Folder" opens.
5. Enter a meaningful name for the folder in the "Name" entry field.



The input of a name is required.

6. If required, enter a description of the folder in the "Description" entry field.
7. Enter the authority level for the folder in the "Authority level" entry field.
8. Click on the "Save" button.

Result

The folder has been created.

See also

Shortcut menu (Page 545)
Folder (Page 499)
Editing folders (Page 616)
Deleting folders (Page 617)

3.5.7.3 Editing folders

Requirements

- The folder has been created.
- The user has the functional right "Folder - configure".

Procedure

To edit folders, follow these steps:

1. Enable the editing mode.
2. Place the mouse pointer over the folder in the navigation area which you want to edit.
   The shortcut menu icon is displayed in the right-hand area of the menu item.
3. Click on the shortcut menu icon.
   The shortcut menu opens.
4. Click on the menu command "Edit".
   The configuration dialog "Edit - Folder" opens.
5. Configure the name, the description, if required, and the authorization level of the folder.
   The input of a name is required.
6. Click on the "Save" button.

See also

Shortcut menu (Page 545)
Folder (Page 499)
Creating folders (Page 614)

3.5.7.4 Deleting folders

Requirements

- The folder has been created.
- The user has the functional right "Folder - create, delete".

Procedure

To delete folders, follow these steps:

1. In the navigation area, place the mouse pointer over the folder which you want to delete.
   The shortcut menu icon is displayed in the right-hand area of the menu item.
2. Click on the shortcut menu icon.
3. Click the "Delete object" button.
4. Confirm the deletion in the confirmation window to delete the object.
   You have the option of canceling the deletion in the confirmation window.

Result

The folder is deleted from the system.

See also

Editing folders (Page 616)

3.6 Project configuration

3.6.1 Overview

In the "Project configuration" folder you create new data sources and data channels as well as their processing calculations in Energy Manager Web. You can also configure already existing objects.

You can configure the following acquisition and processing objects:

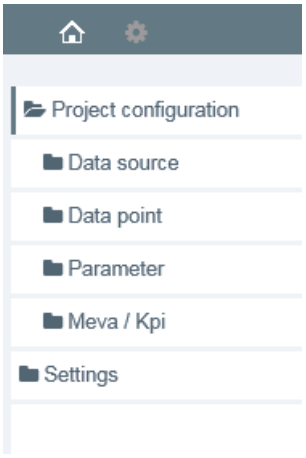
- Data sources
- Data points
- Parameter
- MEVAs / KPIs

Opening the project configuration

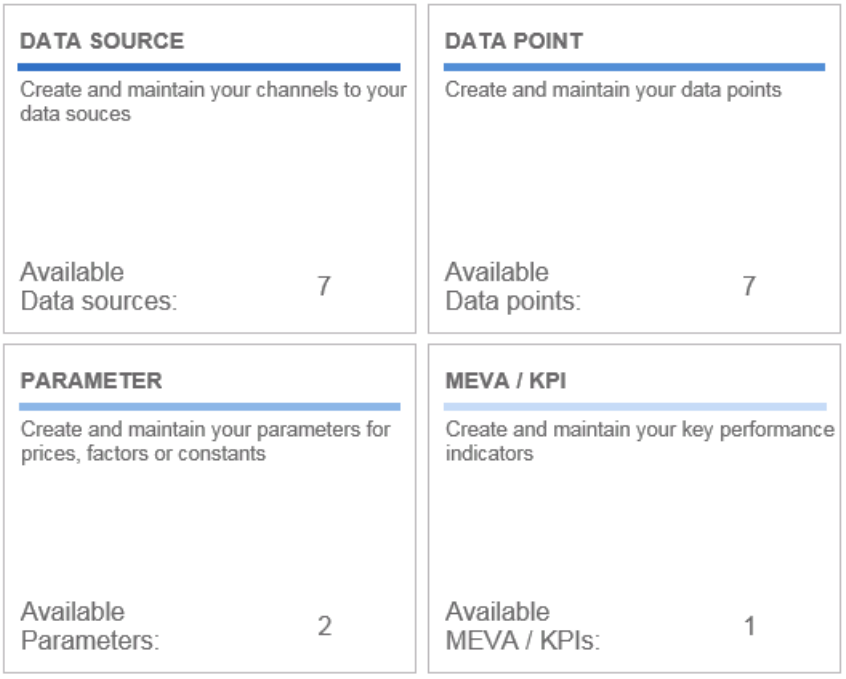
To open the "Project configuration" folder, follow these steps:

1. Click in the menu bar on "Configuration".

2. Click the menu item "Project configuration" in the navigation area.



In the detail area you see an overview of the configurable objects in tile form.



The number of available objects is displayed in the bottom part of the tiles.

Note

Data points, Parameter and MEVAs / KPIs are only available in the configuration area in Energy Manager Web if the following criteria are met:

- The object is linked at least once in the entry point of the user in the Web.
- The authority level of the object is lower than or the same as the authority level of the user.
- The object and the user are assigned to the same domain.

3. To configure the respective object, click on the corresponding tile in the detail area. As an alternative, you can click on the corresponding menu item in the navigation area.

Note

The folder structures are automatically created after the installation of Energy Manager and cannot be deleted by the user. The structure of the configuration area is created in the Energy Manager PRO Client under the path "System > Configuration > Web Configuration".

See also

Data source (Page 623)

Data point (Page 657)

Parameter (Page 676)

MEVA / KPI (Page 682)

3.6.2 Creating subfolders

In Energy Manager Web you can create new subfolders in the "Data point", "Parameter" and "MEVA / KPI" folders. When you create a new data point, parameter or KPI, you can select the folder in which you want to create the object from the "Structure" drop-down list.

Requirement

- The user has the functional right "Folder - create, delete"

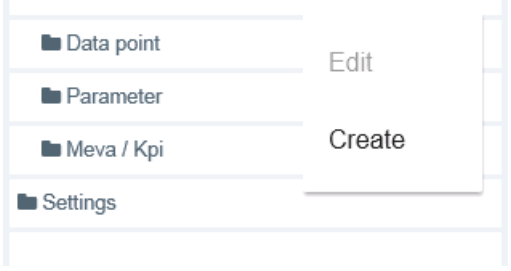
Procedure

To create a new subfolder, follow these steps:

1. Click on the "Configuration" icon in the menu bar.
2. Click the menu item "Project configuration" in the navigation area.
3. Place the mouse pointer in the navigation area either over the menu item "Data point", "Parameter" or "MEVA / KPI".

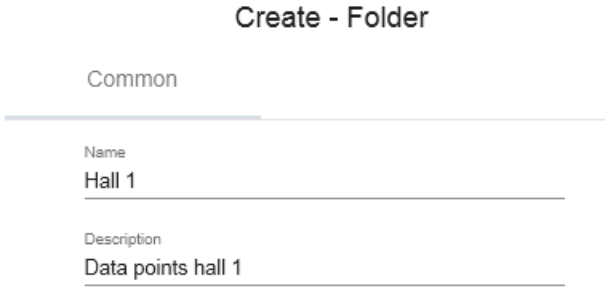
   The shortcut menu icon is displayed on the right-hand side of the corresponding menu item.
4. Click on the shortcut menu icon.

   The shortcut menu is opened with the menu commands "Edit" and "New".



5. Click on the menu command "New".

   The configuration dialog "New - Folder" opens.



6. Enter a meaningful name for the folder in the "Name" entry field.

   The input of a name is required.

7. If required, enter a description of the folder in the "Description" entry field.
8. Click on the "Save" button.

Result

The new folder is created under the selected folder. You can create an additional folder in the new folder using the same procedure. You can therefore create a structure of up to five levels. Click on the menu command "Edit" in the shortcut menu to edit already created folders.

Note

You cannot edit the automatically created "Data points", "Parameter" and "MEVAs / KPIs" folders in this way.

See also

Creating MEVAs / KPIs (Page 684)

Creating parameters (Page 678)

Creating data points (Page 659)

3.6.3 Data source

3.6.3.1 Overview

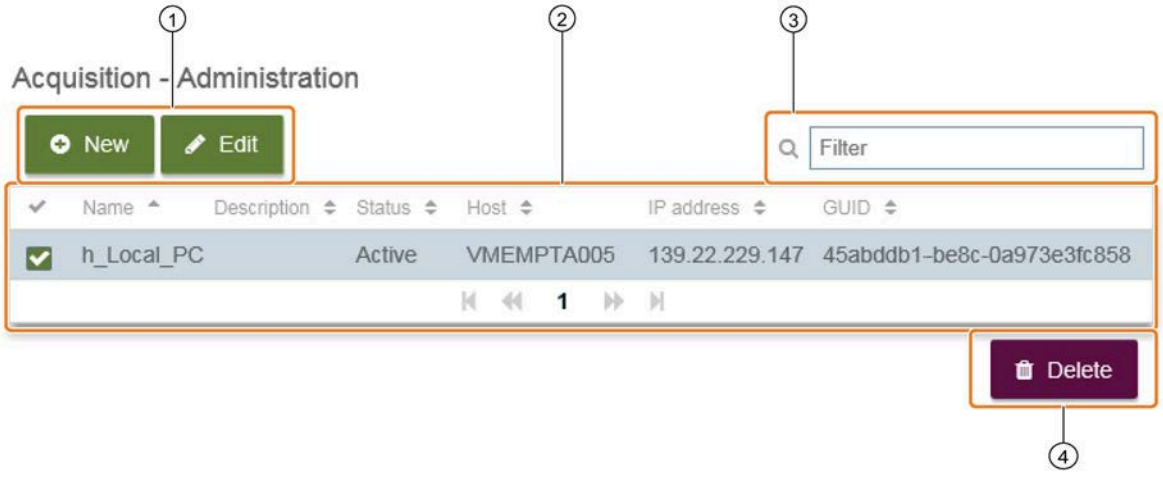
When configuring data sources you create new acquisition objects and data channels in Energy Manager PRO Web. From these data channels you can create new data points per data channel. Newly created data sources and changes to already existing objects in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

Note

Functionality of Energy Manager Basic

The creation of new data sources is not available in Energy Manager Basic. Only the automatically installed data source is available.

When you click on the menu item "Data source" in the navigation area in the "Project configuration" folder, the detail area "Acquisition - Administration" opens. The following figure shows the detail area "Acquisition - Administration":



① "New" and "Edit" buttons: Creating and editing new data sources.

② Display table of existing data sources.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of the data sources is recommended when a large number of data sources exist in the system.

④ "Delete" button: Deleting created data sources from the system.

Newly created data sources and already existing data sources in the system are displayed in tabular form in Energy Manager Web. The display table consists of the following seven columns:

Column	Function
Selection	You can select individual data sources and any number of data sources with the help of the check boxes. Clicking on the check box in the column header selects all data sources. Clicking on the check box again in the column header deselects all data sources again.
Name	Shows the name of the data source.
Description	Shows the description of the data source.
Status	Shows the status of the data source. If the status of the data source shows "Active", data acquisition is enabled. If the status of the data source shows "Inactive", data acquisition is not enabled.
Host name	Shows the host name of the data source.
IP address	Shows the IP address of the data source. Is assigned by the system itself.
GUID	Shows the acquisition ID of the data source. Is assigned by the system itself.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating data sources (Page 625)

Editing data sources (Page 627)

Deleting data sources (Page 628)

Overview (Page 618)

Overview (Page 630)

Data channels (Page 630)

3.6.3.2 Creating data sources

Note

Functionality of Energy Manager Basic

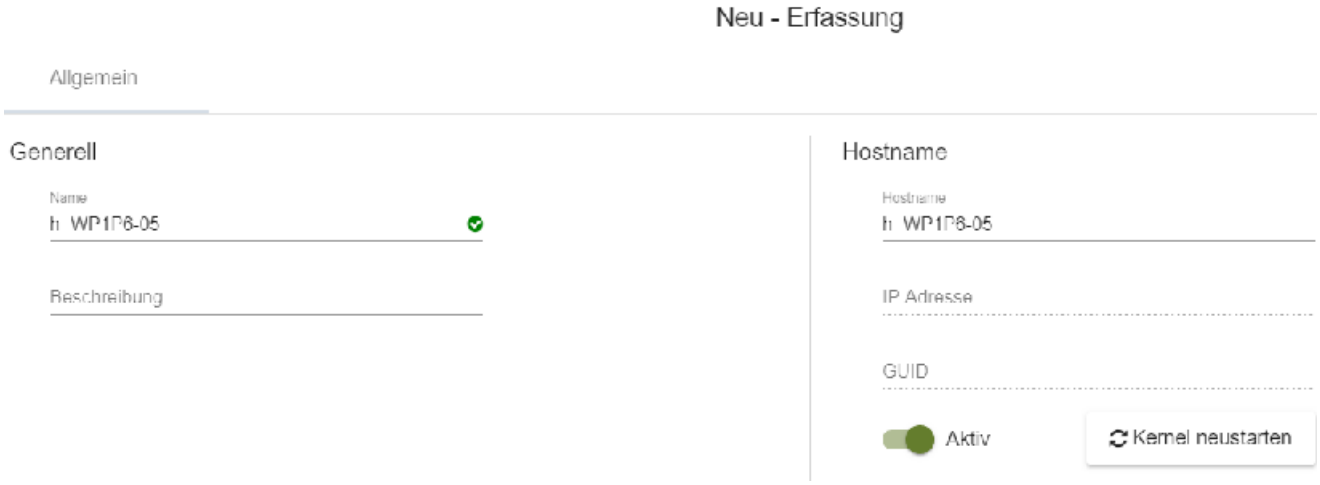
The creation of new data sources is not available in Energy Manager Basic.

Procedure

To create a new data source, follow these steps:

1. Click on the "New" button in the detail area "Acquisition - Administration" .

   The configuration dialog "New - Acquisition" opens.



2. Enter a meaningful name for the data source in the "Name" entry field.

   The input of a name with the prefix "h_" is required.

3. If required, enter a description of the new data source in the "Description" entry field.
4. Enter a meaningful host name in the "Hostname" entry field.

   The input of a host name is required.

5. To acquire measurement data from the data source, enable the option "Active". The status of the data source is therefore set to "Active" in the display table.
6. Click on the "Restart Kernel" button to restart the kernel.
7. Click on the "Save" button.

Result

The data source is created under the "Data source" folder in the navigation area. The corresponding object can be found in the Energy Manager PRO Client under the following path: "System > Configuration > Web Configuration > Data sources". However, to acquire measurement data from this data source and create data points, you must create data channels for every data source afterwards. How to create data channels is described in the section "Creating data channels".

Note

As soon as you create an additional data source or the data source runs on a different computer than the Energy Manager Server, you have to connect the data source with the server. You set up the connection via the 'Acquisition' user interface.

See also

Editing data sources (Page 627)

Creating hardware (Page 76)

3.6.3.3 Editing data sources

Requirement

- The data source has been created.

Procedure

To edit an already created data source, follow these steps:

1. Click on the data source to be edited in the display table.
2. Click the "Edit" button. As an alternative, place the mouse pointer in the navigation area over the data source to be edited and click on the Edit icon.

   The configuration dialog "Edit - Acquisition" opens.
3. Edit names, description and host names.

   The input of a name with the prefix "h_" and the input of a host name is required.
4. Data acquisition is enabled when you enable the option "Active".
5. Click on the "Save" button.

Note

You can only edit single selected data sources.

See also

Creating data sources (Page 625)
Deleting data sources (Page 628)
Overview (Page 623)

3.6.3.4 Deleting data sources

Requirement

- The data source has been created.

Procedure

To delete one or more data sources from the system, follow these steps:

1. Click on the data source to be deleted in the display table. You can also select one or more data sources to be deleted with the help of the check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete individual data sources from the system in the configuration dialog "Edit - Acquisition" by clicking the "Delete" button twice.

Result

The data source is deleted from the system.

Note

When you delete a data source, all the lower-level object links are deleted from the system.

See also

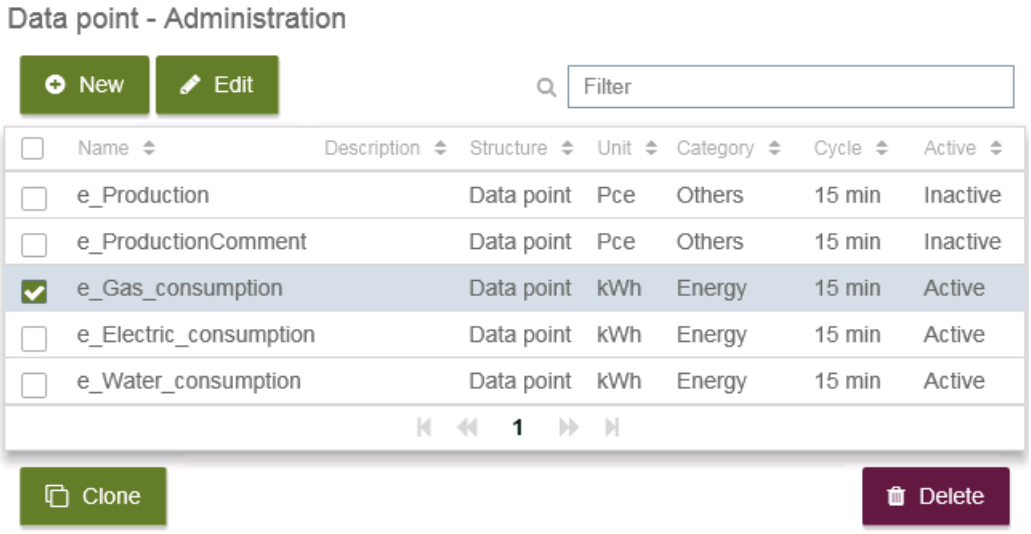
Editing data sources (Page 627)

Overview (Page 623)

3.6.3.5 Manual acquisition

When installing Energy Manager, the "Manual acquisition" folder is automatically created in the project folder "Data source", in which you can create, edit and delete manual data points. The folder is not an acquisition object as such, but rather contains only an overview of all manual data points. In the Energy Manager PRO Client you can find the folder under the following path: "System > Configuration > Web Configuration> Data sources".

To open the "Manual acquisition" folder, click on the menu item "Manual acquisition" in the navigation area under the "Data source" project folder. The following figure shows the detail area "Data point - Administration" with an overview of all manual data points in the "Manual acquisition" folder:



The display table with the columns contained there corresponds to the display table of the other data sources.

3.6.3.6 Derived data points

When installing Energy Manager, the "Derived data points" folder is automatically created in the project folder "Data source". You can create, edit and delete derived data points in this folder. The folder is not an acquisition object as such, but rather contains only an overview of all derived data points. In the Energy Manager PRO Client you can find the folder under the following path: "System > Configuration >Web Configuration > Data sources".

To open the "Derived data points" folder, click on the menu item "Derived data points" in the navigation area under the "Data source" project folder.

The display table with the columns contained there corresponds to the display table of the other data sources.

3.6.3.7 Data channels

Overview

To create data points in Energy Manager Web, and hence acquire measurement data, you need data channels. You can create different data channels for each data source created. Newly created data channels and changes to already existing channels in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa. You can only create the following channel types for data acquisition in Energy Manager PRO Web:

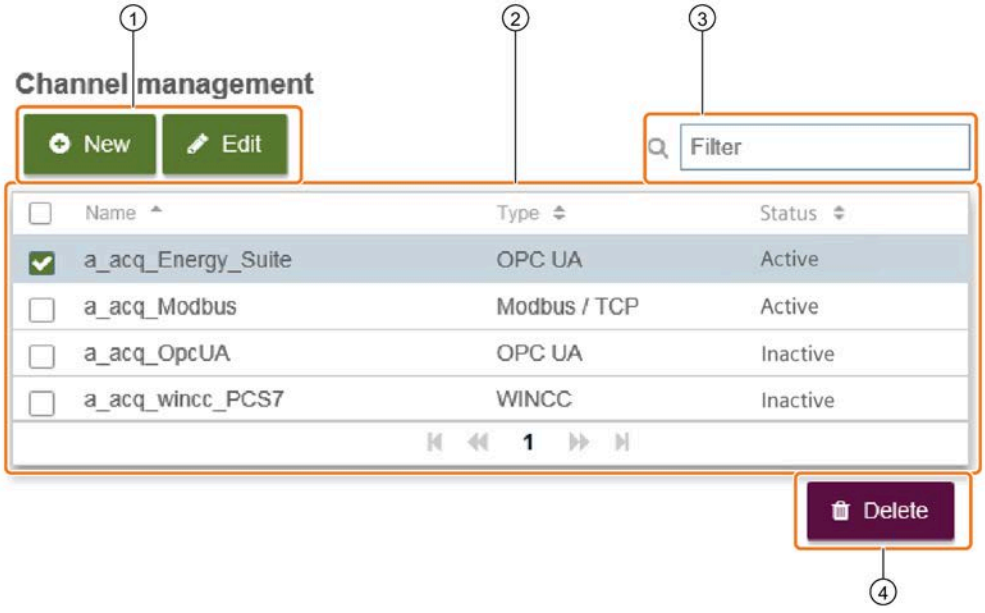
- OPC UA, DA, HDA
- WinCC
- Energy Suite
- Modbus / TCP

Note

Functionality of Energy Manager Basic

Only the automatically installed data channels are available in Energy Manager Basic.

When you click on a data source in the navigation area, the associated data channels are displayed in the detail area in tabular form and in the navigation area under the data source. The following figure shows the detail area "Channel management" with an overview of the existing data channels of a data source:



① "New" and "Edit" buttons: Creating and editing new data channels.
② Display table of existing data channels per data source.
③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of the data channels is recommended when a large number of data channels exist per data source.
④ "Delete" button: Deleting created data channels from the system.

Newly created channels and channels available per data source are displayed in tabular form in Energy Manager Web. The display table consists of the following three columns:

Column	Function
Selection	You can select individual data channels and any number of data channels with the help of the check boxes. By clicking on the check box in the column header you select all data channels. Clicking on the check box again in the column header deselects all data channels again.
Name	Shows the name of the data channel
Type	Shows the channel type.
Status	Shows the status of the data acquisition.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Overview (Page 623)

Creating data channels (Page 632)

Editing data channels (Page 652)

Deleting data channels (Page 653)

Data point - Administration (Page 654)

Creating data channels

Requirement

- The data source has been created.

Procedure

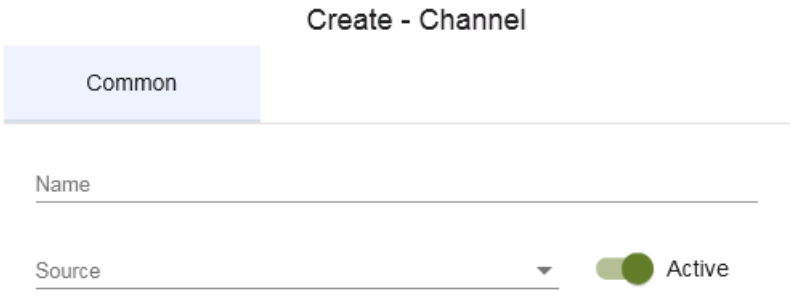
To create a new data channel, follow these steps:

1. Click on the data source in which you want to create a new data channel in the navigation area under the "Data source" folder.

   The detail area "Channel management" is displayed.

2. Click the "New" button.

   The configuration dialog "New - Channel" opens.



3. Select the channel type from the "Source" drop-down list. You can choose from the following channel types:
   - Energy Suite
   - Modbus / TCP
   - OPC DA
   - OPC HDA
   - OPC UA
   - WINCC
   - ASCII
   - Desigo CC
4. Specify the status of the data acquisition:
   - Active: Data is being acquired.
   - Inactive: Data is not being acquired.

Depending on the channel type, you have to configure different settings.

See also

Overview (Page 630)

Configuring interfaces (Page 661)

Editing data channels (Page 652)

Data point - Administration (Page 654)

Create OPC DA, OPC HDA, OPC UA channel (Page 636)

Creating an Energy Suite channel (Page 641)

Creating a WinCC channel (Page 644)

Creating a Modbus TCP channel (Page 646)

Creating an ASCII channel

With an ASCII channel you read data from ASCII file of a local system or an FTP server. After successful configuration, transfer of the ASCII files from the directory to the Energy Manager acquisition component is carried out automatically.

Requirements

If you obtain ASCII data from an FTP server, the following requirements apply:

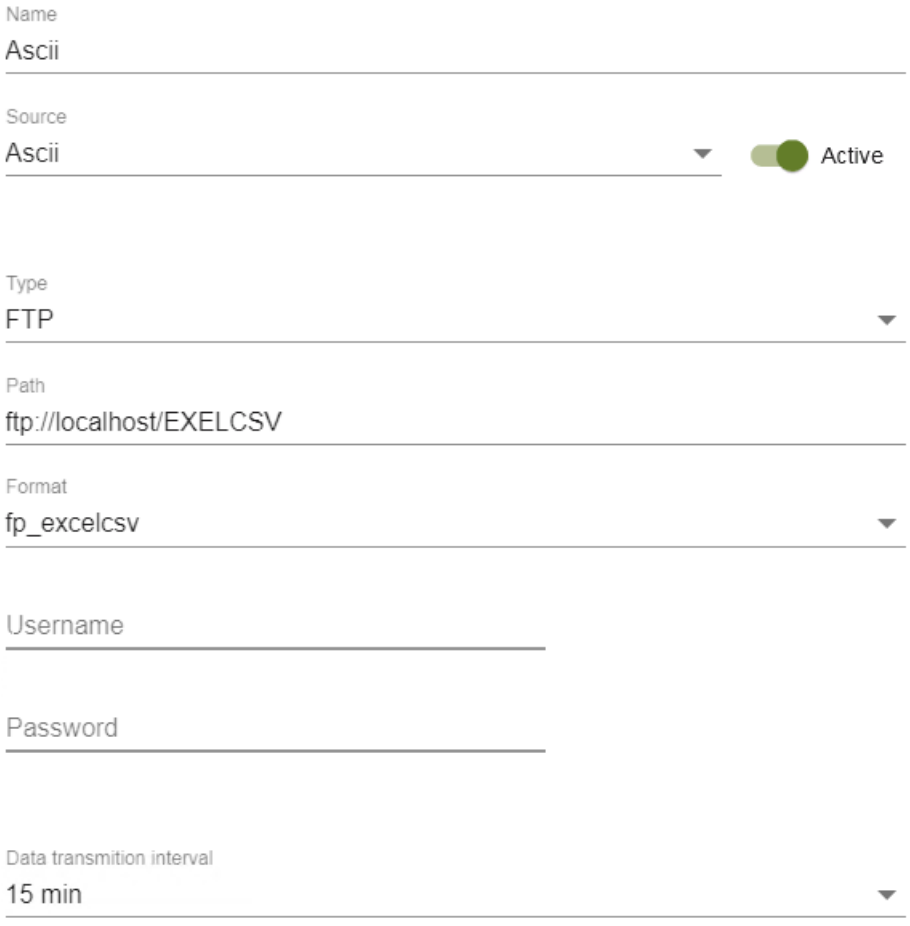
- The acquisition component is logged in to the Energy Manager.
- The FTP server can be accessed.
- You have the access data for the FTP server.

Procedure

To create an ASCII channel, proceed as follows:

1. Enter a meaningful name for the new channel in the "Name" entry field.
   The input of a name is required.
2. Select the entry "Ascii" from the "Source" drop-down list.
3. Specify the status of the data acquisition:
   - Active: Data is being acquired.
   - Inactive: Data is not being acquired.

4. Select one of the following entries from the "Type“ drop-down list:
   - FTP
   - SFTP (secure FTP)
   - File (direct entry)



5. Enter the directory of the file in the "Path" entry field.

   The source directory has to be specified.

   Note

   Ensure that there are no blank spaces in the source directory. Data acquisition is only possible with a source directory without blank spaces.

6. Select the format of the file from the "Format" drop-down list.
7. If you have selected the type "FTP" or "SFTP", enter your access data in the entry fields "User name" and "Password".
   The access data is required.
8. Select the time interval in which the data is transmitted from the "Data transmission interval" drop-down list. This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.

9. Select the required data points in the navigation field.
10. Click on the "Save" button.

To add a data point to the navigation field, proceed as follows:

1. Enter the name of the data point in the "Data point" entry field.
2. Enter the address of the data point in the ASCII file in the "Address" entry field.

   You can find additional information on this in the entry on the corresponding file format in the section ASCII FTP formats.
3. In the "Data type" drop-down list, select the data type.
4. Click the "Add" button.

Result

The ASCII channel with the selected data points is created under the data source.

See also

ASCII FTP formats (Page 839)

Create OPC DA, OPC HDA, OPC UA channel

You use the channel type "OPC" to retrieve the data provided by an OPC server. The data channel "OPC UA" ("OPC Unified Architecture") is a specification for the transmission of process values and archive data.

Security concept

The OPC UA server uses the TCP/IP protocol for data exchange. For authorization, certificates are exchanged between server and client. In addition, you can encrypt the data traffic.

Requirements

- The data source is logged in to the Energy Manager Server and activated.
- An OPC Server and/or an OPC Client is installed on the data source.
- An understanding of addressing and communication with OPC.
- The certificate exchange is provided for at the time that the interface is configured.

Procedure

To create an OPC channel, follow these steps:

1. Enter a meaningful name for the new channel in the "Name" text box.

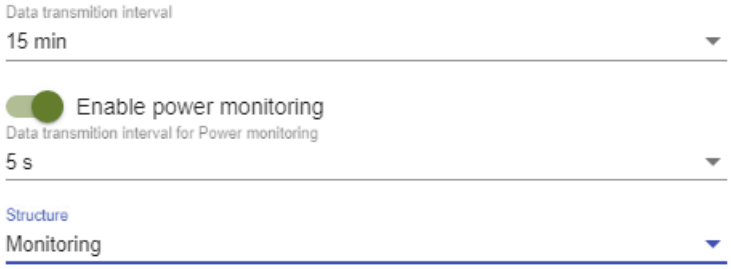
   The input of a name is required.
2. Select one of the following entries from the "Source“ drop-down list:
   – OPC DA
   – OPC HDA
   – OPC UA
3. Specify the status of the data acquisition:
   – Active: Data is being acquired.
   – Inactive: Data is not being acquired.

4. Enter the address of the OPC Server in the "OPC server name" text box.

5. Click the "Connect" button.
   The system checks whether there is a server connection. If a server connection exists, the available servers are loaded to the "Data source" drop-down list. If there is no connection, check your entries.
6. Depending on the selected OPC type, a distinction is made between the following three cases for the option "Acquire historical data (HDA)":
   - OPC DA: The option is not available.
   - OPC HDA: The option is automatically enabled.
   - OPC UA: You can enable the option. When you enable the option, you use the functionality of an HDA channel. When you disable the option, you use the functionality of a DA channel.
7. Select the aggregation function for an HDA channel or a UA channel with HDA functionality from the "Aggregation" drop-down list.

   The acquired values are aggregated depending on the selection. For example, if "Average" is selected, the arithmetic mean of the reading interval is formed.
8. Select the time interval with which the data is cyclically transmitted from the "Data transmission interval" drop-down list. This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.

9. If you want to use Online Monitoring, activate the option "Enable power monitoring". The Online Monitoring is only available for OPC UA servers.



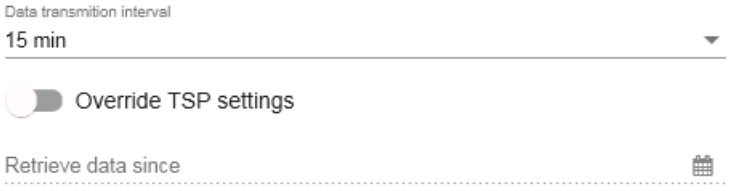
   If you use Online Monitoring, you can create data points of the OPC server in a separate folder structure for real-time monitoring.

   Select the time interval in which the data is cyclically transmitted from the "Data transmission interval" drop-down list.

   Select the folder structure in which the data points are saved from the "Structure" drop-down list. The folders must already exist and be part of the "Monitoring" structure.

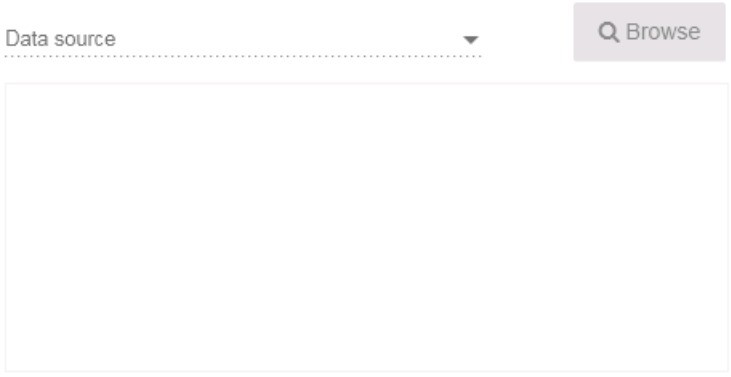
   For more information, refer to Online Monitoring in section "Online Monitoring (Page 507)".

10. If the "Acquire historical data (HDA)" option is enabled, you can reload measurement data as of a specific date. Enable the option "Override TSP settings" and select the date in the "Retrieve data since" text field.



11. Select the server with the required data points from the "Data source" drop-down list You have to select a "Siemens OPC UA" server.

12. Click the "Browse" button.



Note

When configuring the OPC UA server, activate at least one "Security policy" and its associated "Security mode". Otherwise, the OPC UA server and the clients will communicate insecurely.

During the first access to an encrypted OPC UA server instance a certificate for encrypting the data is created. You have to accept this certificate individually in the respective server product. You may have to perform this operation twice.

- Siemens SIMATIC NET V15: With the help of the "Siemens Communication Settings" software in the "OPC UA certificates" menu command.
- Siemens WinCC TIA V15: Moving of the new certificates from the path "C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\rejected\certs'" to "'C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\certs"

The available data points are loaded to the overview list.

13. Select the required data points from the available data points.
14. If you have activated Online Monitoring, click the "Online Monitoring" tab. Select the data points for Online Monitoring.

    You can use these data points only for Online Monitoring. To be able to use the other functions of Energy Manager with the data points of this server, create separate data points in the usual folder structure.
15. Click on the "Save" button.

Result

The OPC channel with the selected data points is created under the data source.

Note

If you change the server address for an existing OPC UA server connection, restart the KERNEL service via the Service Cockpit.

See also

Creating data channels (Page 632)

Data acquisition via the "OPC-DA / OPC-HDA" interface (Page 116)

Data acquisition via the "OPC UA" interface (Page 118)

Creating an Energy Suite channel

Data acquisition over the "Energy Suite" interface corresponds to the "OPC UA" interface. The channel type "Energy Suite" also offers the advantage that information from the WinCC archive of the Energy Suite is copied to Energy Manager. You therefore no longer have to configure this information in the data points.

Security concept

The OPC UA server uses the TCP/IP protocol for data exchange. For authorization, certificates are exchanged between server and client. In addition, you can encrypt the data traffic.

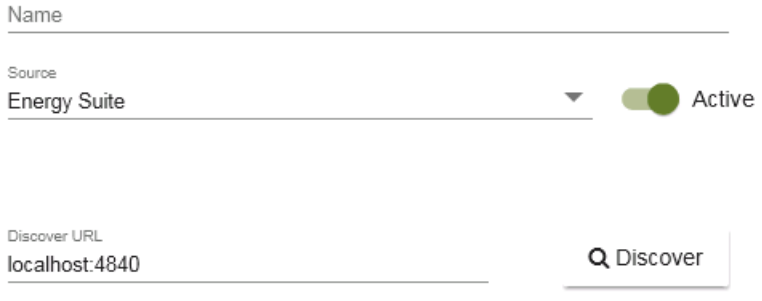
Requirements

- The data source is logged in to the Energy Manager Server and activated.
- An OPC Server and/or an OPC Client is installed on the data source.

Procedure

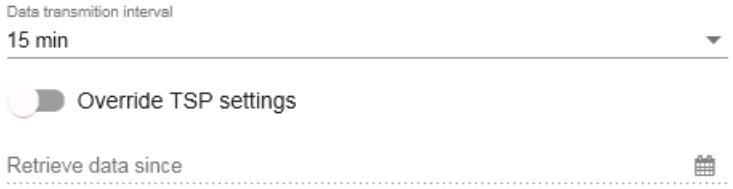
Follow these steps to create an Energy Suite channel:

1. Enter a meaningful name for the new channel in the "Name" entry field.
   The input of a name is required.
2. Select the entry "Energy Suite" from the "Source" drop-down list.
3. Specify the status of the data acquisition:
   – Active: Data is being acquired.
   – Inactive: Data is not being acquired.
4. Enter the URL of the WinCC Professional OPC UA Server in the "Discover URL" entry field.

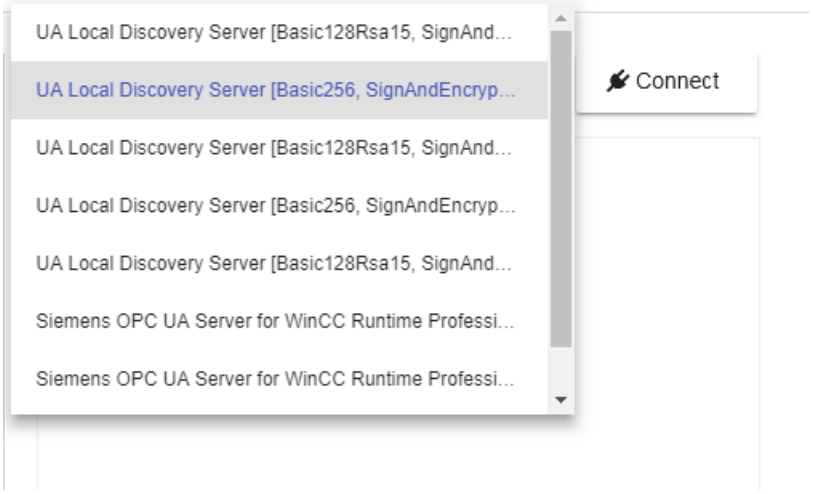


5. Click the "Browse" button.
   The system checks whether there is a server connection. If a connection to the server exists, the existing archives are loaded to the "Data points" drop-down list. If there is no connection, check your entries.
6. Select the time interval with which the data is cyclically transmitted from the "Data transmission interval" drop-down list. This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.

7. When you select the option "Override TSP settings", you can transmit the measurement data again as of a specific date. Select the date in the "Retrieve data since" text field.



8. Select the required archive from the "Data points" drop-down list. You have to select a "Siemens OPC UA" server.



9. Click "Connect".

Note

When configuring the OPC UA server, activate at least one "Security policy" and its associated "Security mode". Otherwise, the OPC UA server and the clients will communicate insecurely.

During the first access to an encrypted OPC UA server instance a certificate for encrypting the data is created. You have to accept this certificate individually in the respective server product. You may have to perform this operation twice.

- Siemens SIMATIC NET V15: With the help of the "Siemens Communication Settings" software in the "OPC UA certificates" menu command.
- Siemens WinCC TIA V15: Moving of the new certificates from the path "C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\rejected\certs"' to "'C:\Program Files (x86)\SIEMENS\Automation\SCADA-RT_V11\WinCC\opc\UAServer\PKI\CA\certs"

All available data points are loaded from the archive to the overview list.

10. Select the required data points.
11. Click on the "Save" button.

Result

The Energy Suite channel with the selected data points is created under the data source.

See also

Creating data channels (Page 632)

Data acquisition via the "Energy Suite Import" interface (Page 126)

Creating a WinCC channel

You use the "WinCC" interface to retrieve values from a process value log or compressed log. You need a separate data channel for each log.

Note

Functionality of Energy Manager Basic

In Energy Manager Basic you can click the automatically installed WinCC channel directly in the navigation area under the data source that was also automatically installed. To add a new WinCC archive including the data points contained therein, click on the "Add archive" button in the detail area. The configuration dialog "New - Channel" opens in which you define the archive settings. For more information on creating a WinCC archive, refer to the sections "Creating a WinCC channel" and "Data point - Administration".

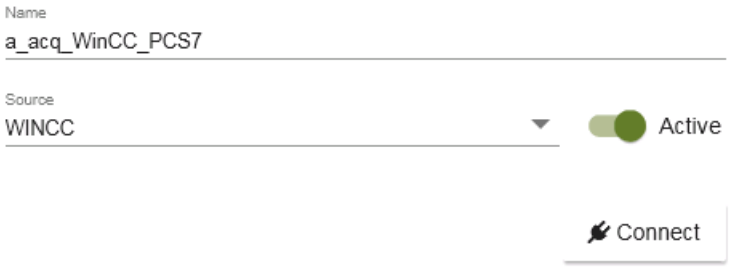
Requirements

- The data source is logged in to the Energy Manager Server and activated.
- An WinCC Server and/or a WinCC Client is installed on the data source.
- WinCC projects are activated.

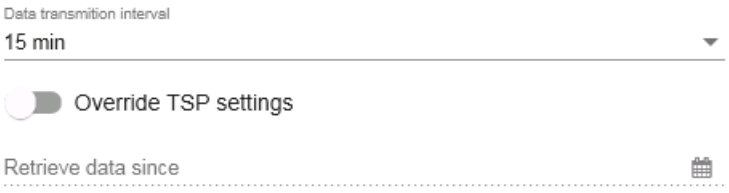
Procedure

To create a WinCC channel, follow these steps:

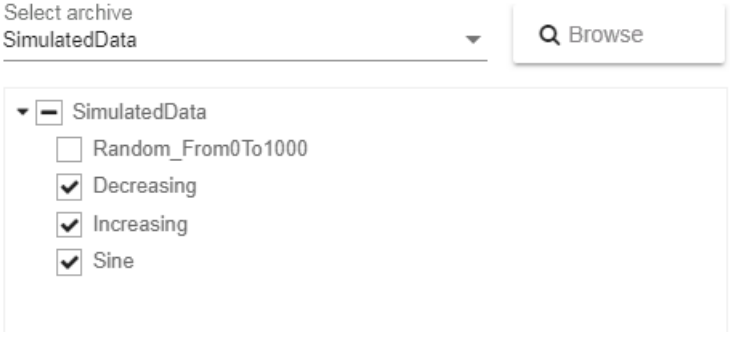
1. Enter a meaningful name for the new channel in the "Name" text box.
   The input of a name is required.
2. Select the entry "WINCC" from the "Source" drop-down list.
3. Specify the status of the data acquisition:
   – Active: Data is being acquired.
   – Inactive: Data is not being acquired.
4. Click the "Connect" button.
   The system checks whether there is a server connection. If a connection to the WinCC server exists, the WinCC archives are loaded to the "Select archive" drop-down list.



5. Select the time interval with which the data is cyclically transmitted from the "Data transmission interval" drop-down list. This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.
6. When you select the option "Override TSP settings", you can transmit the measurement data again as of a specific date. Select the date in the "Retrieve data since" text field.



7. Select the WinCC archive from which you want to create the data points from the "Select archive" drop-down list.
8. Click the "Browse" button.



   All available data points are loaded from the archive to the overview list.
9. Select the required data points.
10. Click on the "Save" button.

Result

The WinCC channel with the selected data points is created under the data source.

See also

Creating data channels (Page 632)

Data point - Administration (Page 654)

Data acquisition via the "WinCC / PCS 7" interface (Page 100)

Creating a Modbus TCP channel

You use the "Modbus" interface to retrieve data from measuring devices with Modbus support and Ethernet interface, for example, SENTRON PAC measuring devices. The "Modbus" interface supports the following two types:

- Modbus TCP
- Modbus RTU

Datapoints acquired by the following measuring devices are pre-configured in Energy Manager.

- SENTRON PAC 2200 CLP
- SENTRON PAC 3200
- SENTRON PAC 4200
- ET 200SP MF HF

Note

Devices for separate listing of third-party consumption values

The SENTRON PAC 2200 CLP and Janitza UMG64 devices are required for separate listing of third-party consumption values.

Note

Supported modules

Only the AI Energy Meter on the ET 200SP MF HF device are supported.

Note

Functionality of Energy Manager Basic

In Energy Manager Basic you can click the automatically installed Modbus TCP channel directly in the navigation area under the also automatically installed data source. To add a new device including the data points contained therein, click on the "Add device" button in the detail area. The configuration dialog "New - Channel" opens in which you define the device settings. For more information on creating a device, refer to the sections "Creating a Modbus TCP channel" and "Data point - Administration".

Requirements

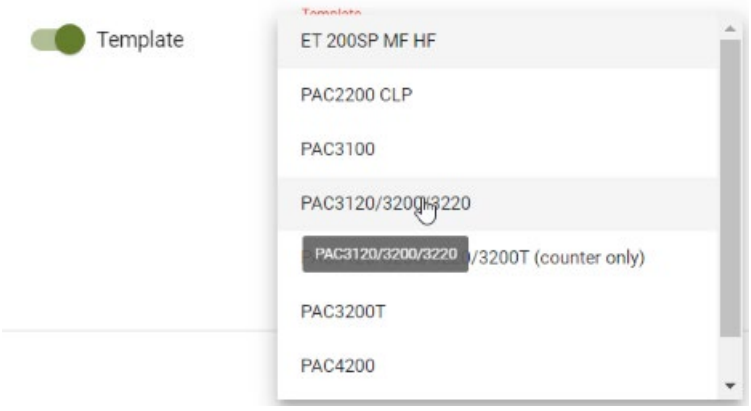
- The data source is logged in to the Energy Manager Server and activated.
- The TCP/IP connection data of the measuring device is known.
- The operating instructions of the measuring device are available.

Procedure

Follow these steps to create a Modbus TCP channel:

1. Enter a meaningful name for the new channel in the "Name" entry field.
   The input of a name is required.
2. Select the entry "Modbus/TCP" from the "Source" drop-down list.
3. Specify the status of the data acquisition:
   - Active: Data is being acquired.
   - Inactive: Data is not being acquired.
4. Enter a meaningful device name in the "Device name" entry field.
   The input of a device name is required. The device name is used on creation of the channel for the IO buffer.
5. Enter the IP address and the associated port of the device in the in "IP address" and "Port" entry fields.
6. Click the "Test connection" button.
   The system checks whether there is a connection to the IP address entered. If there is no connection, check your entries.
7. If this is a device with Modbus TCP interface, select the "TCP" check box. If the device is of the Modbus RTU type, select the "RTU device" check box.
8. In the case of an RTU device, you have to enter the address of the RTU device in the "Slave address" entry field.

9. If you want to use data points from a device template, select the "Template" check box. If the template does not contain your measuring device, select the "User defined" check box.



10. Define additional options for an ET 200SP MF HF or PAC 2200 CLP or PAC 4200.

   – ET 200SP MF HF

     Enter the offset in the "Register Offset" field.

     Note
     Register offset

     The pre-configured datapoints correspond to the EE@Industry E3 profile. The length of the profile for the AI Energy Meter is 53 Modbus registers.

     With an additional AI Energy Meter module, the register offset starts at 54.

     Via the register offset, you define the module from which data is acquired.

   – PAC 2200 CLP and PAC 4200

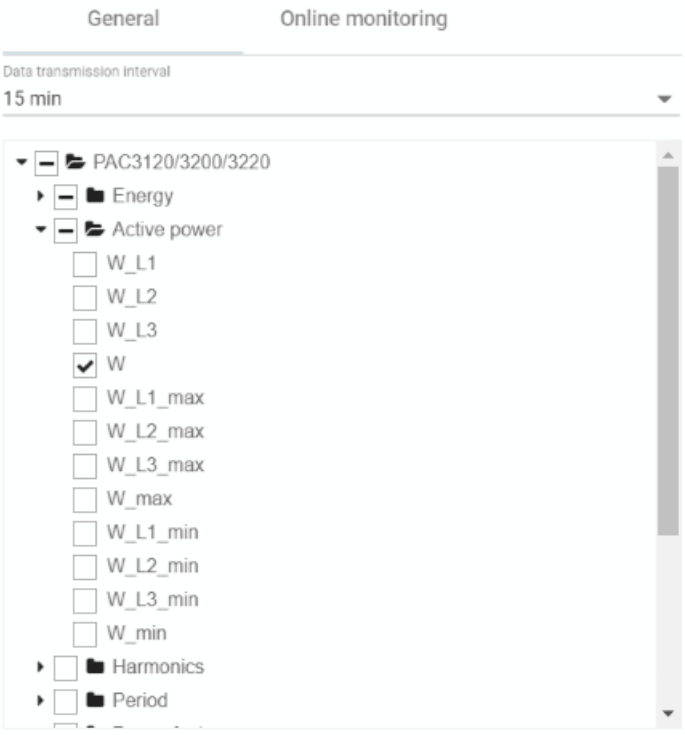
     To access historical data, enable the HDA option.

     Note
     HDA option for the devices PAC 2200 CLP and PAC 4200

     The HDA option is available when you select the template for the devices PAC 2200 and PAC 4200. When you select the HDA option, the measuring points for the historical data are displayed. This is relevant for third-party consumption values.

11. Select the time interval with which the data is cyclically transmitted from the "Data transmission interval" drop-down list. This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.

12. Select the data points you want to create.



13. You have to configure the following settings for the user-defined case ("Template" check box not selected):
   - Select the type of data point from the "Data type" drop-down list.
   - Enter the address of the data point using the operating instructions of the measuring device in the "Register", "Count" and "Subregister" entry fields.
   - If you want to acquire only positive measured values, enable the option "unsigned ".
   - If the device uses big endian encoding, enable the option "Big Endian".
   - To create the data points, click the "Add" button.
     The data points are displayed in the overview list.
14. To enable Online Monitoring, click the "Online Monitoring" tab. Select the data points and the data transmission interval for Online Monitoring.

    You can use these data points only for Online Monitoring. To be able to use the other functions of Energy Manager with the data points of this server, create separate data points in the usual folder structure.

    For more information on Online Monitoring, refer to the section "Online Monitoring (Page 507)".
15. Click on the "Save" button.

Result

The Modbus TCP channel with the selected data points is created under the data source.

See also

Creating data channels (Page 632)
Data point - Administration (Page 654)
Data acquisition via the "Modbus" interface (Page 104)

Creating a Desigo CC channel

Use the interface "Desigo CC" to read out the data saved on a Desigo CC system via the Desigo CC web service. Energy Manager supports Desigo CC V3.0.

Requirement

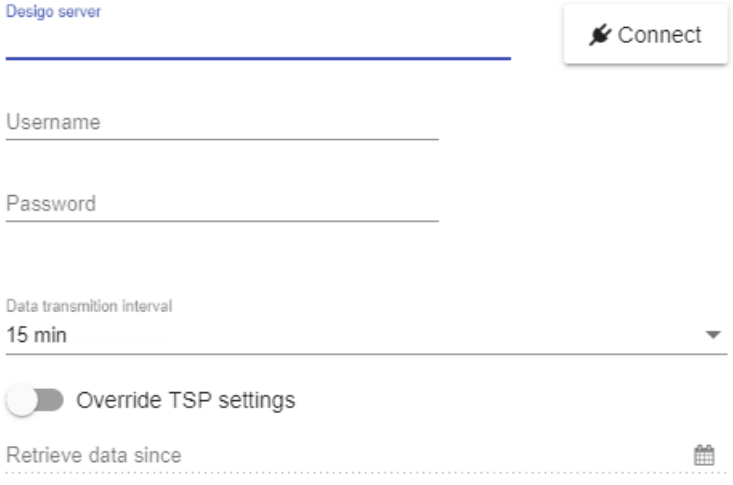
- The data source is logged in to the Energy Manager Server and activated.
- The Desigo CC web server is online and can be accessed.

Procedure

To create a Desigo CC channel, follow these steps:

1. Enter a meaningful name for the new channel in the "Name" text box.
2. Select the entry "Desigo CC" from the "Source" drop-down list.

3. Specify the status of the data acquisition:
   – Active: Data is being acquired.
   – Inactive: Data is not being acquired.
4. Enter the URL of the Desigo system in the "Desigo Server" entry field.

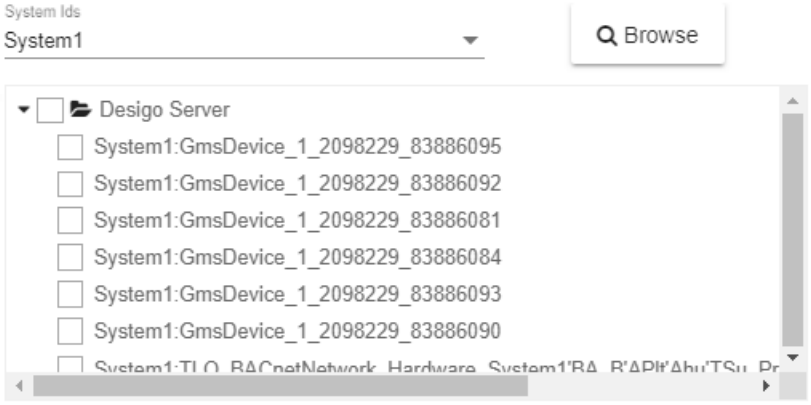


5. Enter your access data in the entry fields "User name" and "Password".

6. Select the interval in which the acquisition component acquires the values from the drop-down list "Data transmission interval". This selection corresponds to the cycle time of the IO buffer in the Energy Manager PRO Client.
7. In the entry field "Retrieve data since" you can define the time from which historical data is retrieved.
8. Click "Connect".

   The system attempts to establish a connection. If a connection to the Desigo server exists, the possible data sources of the server are loaded to the "System IDs" drop-down list.

   If a connection exists, the color of the plug on the "Connect" button is green.
9. Select the desired system ID from the "System IDs" drop-down list.
10. Click the "Browse" button.
    All available data points from the data source are loaded to the navigation field.



11. Select the desired data points for the data acquisition.
12. Click on the "Save" button.

Result

The Desigo CC channel with the selected data points is created under the data source.

See also

Data acquisition via the "Desigo CC" interface (Page 129)

Editing data channels

Requirements

- The data source has been created.
- The data channel has been created.

Procedure

To edit an already created data channel, follow these steps:

1. In the navigation area under the "Data source" folder, click on the data source in which you want to edit the created data channel.

   The detail area "Channel management" is displayed.
2. Click on the data channel to be edited.
3. Click the "Edit" button.

   The configuration dialog "Edit - Channel" opens.
4. Edit all configurations which you selected on creation of a data channel.

   Note

   When editing a data channel you can no longer change the channel type.

   Note

   When adding new data points of already existing data channels, the data points which are already used in Energy Manager are grayed out. You can only create data points which do not yet exist in the system.
5. Click on the "Save" button.

See also

Creating data channels (Page 632)

Overview (Page 630)

Deleting data channels

Requirements

- The data source has been created.
- The data channel has been created.

Procedure

To delete a data channel of a data source, follow these steps:

1. Click on the acquisition component from which you want to delete the created data channel in the navigation area under the "Data source" folder.

   The detail area "Channel management" is displayed.
2. Click on the data channel to be deleted. You can select several data channels with the help of the check boxes.
3. Click the "Delete" button.
4. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete individual data channels from the system in the configuration dialog "Edit - Channel" by clicking the "Delete button twice".

Result

The data channel including the substructures (process, driver source, driver, IO buffer, data points) is deleted from the system.

Note

If the data points are linked to other objects in the system. you cannot delete the data channel. To delete the data channel, you must first disconnect all data point links with other objects in the system.

See also

Overview (Page 630)

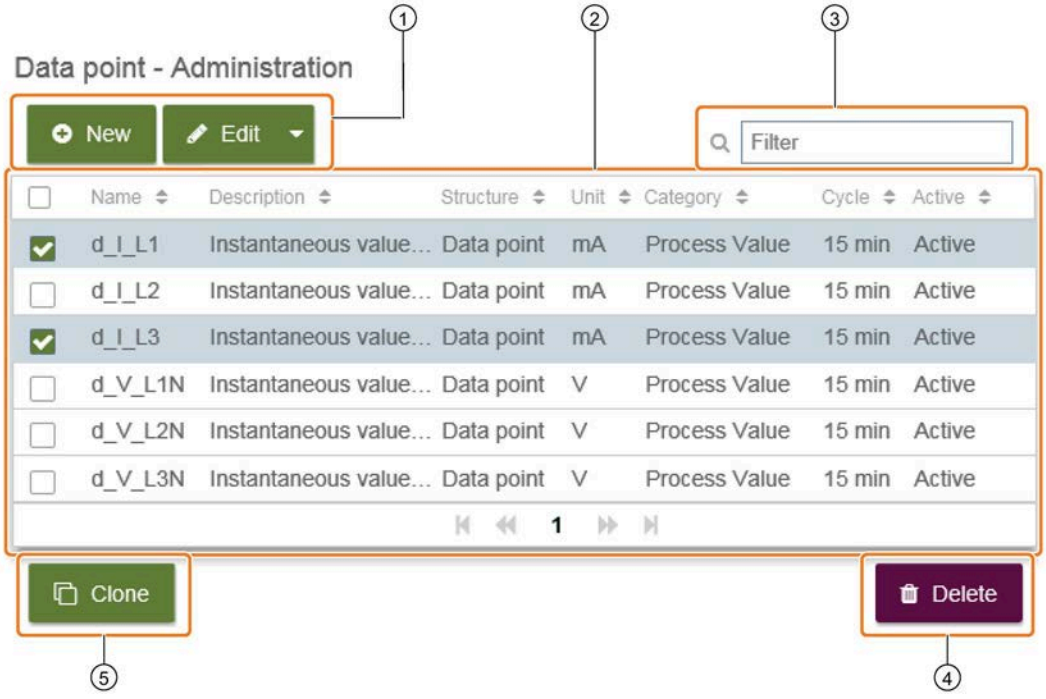
Data point - Administration

Introduction

Channel-specific data points are displayed in tabular form in Energy Manager Web. You can create channel-specific data points from this overview table and configure existing data points. Newly created data points and configurations on already existing data points in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

Overview of data point - Administration

To display the data points of a data channel, click on the corresponding data channel in the navigation area under the data source. The following figure shows the detail area "Data point - Administration" over the data points created in an OPC channel:



① "New" and "Edit" buttons: Creating and editing new data points.

② Display table of existing data points per data channel.

③ Filter function: When you enter a text in the "Filter" entry field, all the columns are searched and displayed accordingly in the display table. Delimitation of the data points is recommended when a large number of data points exist per channel.

④ "Delete" button: Deleting created data points from the system.

⑤ "Clone" button: When you clone a data point, an exact copy of the data point with the name ending in "Copy_0" is created. If you create several copies of a data point, the number at the end of the name is incremented by one, for example, from "Copy_0" to "Copy_1". You can also clone several data points at the same time with the help of the check boxes.

The display table consists of the following eight columns:

Column	Function
Selection	You can select individual data points and any number of data points with the help of the check boxes. Clicking on the check box in the column header selects all data points. Clicking on the check box again in the column header deselects all data points again.
Name	Shows the name of the data point.
Description	Shows the description of the data point.
Structure	Shows the folder in which the data point is created.
Unit	Shows the unit of the data point.
Category	Shows the acquisition category of the data point.
Cycle	Shows the cycle time of the data point.
Status	Shows the status of the data point. If the status is set to "Active", the measurement data of the data point is acquired. If the status is set to "Inactive", no measurement data is acquired.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

To create a new channel-specific data point, click on the "New" button. You can find out how to create a new data point in the section "Creating data points".
To edit a data point, click on the corresponding data point and then click the "Edit" button. You can find out how to edit a data point in the section "Editing data points".
To delete one or more data points, select the data points and then click the "Delete" button. Confirm the deletion process by clicking on the "Delete" button again.

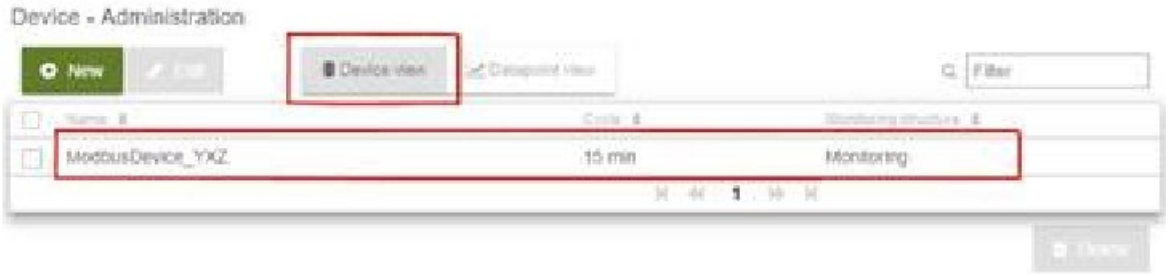
Special feature of Modbus TCP

There are two display tables for Modbus TCP channels. The display table "Device view" shows a list of all Modbus devices of the channel.

The table "Device view" consists of the following columns:

Column	Function
Selection	You can select individual devices and any number of devices with the help of the check boxes. Clicking on the check box in the column header selects all devices. Clicking on the check box again in the column header deselects all devices again.
Name	Shows the name of the device.
Cycle	Displays the cycle time of the device.
Monitoring structure	Displays the folder structure of the device in the Monitoring area of the navigation area.

You can also add a new device. A separate IO buffer is used for each device. Click the "New" button to create a new device.



You can find out how to create a new device with the corresponding data points in the section "Creating a Modbus TCP channel".

If you want to edit an existing device in the display table, select the appropriate device and click the "Edit" button.

The display table "Data point view" has the same functionality as the view table of the other channels. The table "Datapoint view" is only extended by the column "Device". The "Device" column shows the device name in which the data point is saved.

Special feature of WinCC

In a similar way to the Modbus data channel, there are two display tables in the display table of WinCC channels. The table "Archive view" shows a list of the WinCC archives.

You can also add a new archive including data points. To add a new archive, click on the "New" button. You can find out how to select a new archive with the corresponding data points in the section "Creating a WinCC channel".

If you want to edit an existing archive in the display table, select the appropriate archive and click the "Edit archive" button.

The display table "Data point view" has the same functionality as the view table of the other channels. The display table "Data point view" is only extended by the column "Archive". The "Archive" column shows the name of the WinCC archive in which the data point is archived.

See also

Overview (Page 630)

Creating data channels (Page 632)

Creating a WinCC channel (Page 644)

Creating a Modbus TCP channel (Page 646)

Creating data points (Page 659)

Manual acquisition (Page 629)

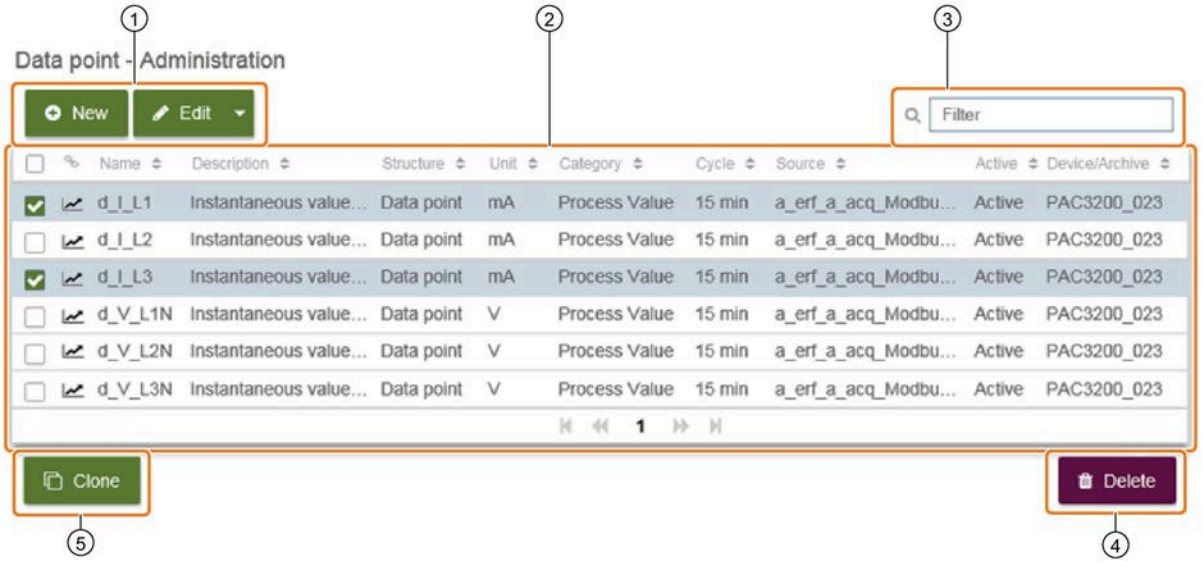
Configuration of the data points (Page 660)

3.6.4 Data point

3.6.4.1 Overview

In the configuration of data points, create new data points in the Energy Manager Web client and configure existing data points. The creation of new data points in the Energy Manager Web client is only possible for manual and external data points. Newly created data points and changes to already existing data points in the Energy Manager PRO Web client are also adopted in the Energy Manager PRO Client and vice versa.

When you click on the menu item "Data point" in the navigation area under the "Project configuration" folder, the detail area "Data point - Administration" opens. The following figure shows the detail area "Data point - Administration":



① "New" and "Edit" buttons: Creating and editing new data points.

② Display table of existing data points.

③ Filter function: When you enter a text in the "Filter" entry field, all the columns are searched and displayed accordingly in the display table. Delimitation of the data points is recommended when a large number of data points exist in the system.

④ "Delete" button: Deleting created data points from the system.

⑤ "Clone" button: When you clone a data point, an exact copy of the data point with the name ending in "Copy_0" is created. If you create several copies of a data point, the number at the end of the name is incremented by one, for example, from "Copy_0" to "Copy_1". You can also clone several data points at the same time with the help of the check boxes.

Note

In the "Data point" folder not all the data points in the system are displayed, but only the data points contained in the folder.

The data points are displayed in tabular form in Energy Manager Web: The display table consists of the following ten columns:

Column	Function
Selection	You can select individual data points and any number of data points with the help of the check boxes. Clicking on the check box in the column header selects all data points. Clicking on the check box again in the column header deselects all data points again.
Chart	Opens the diagram of the data point in a new window.
Name	Shows the name of the data point.
Description	Shows the description of the data point.
Structure	Shows the folder in which the data point is created.
Unit	Shows the unit of the data point.
Category	Shows the acquisition category of the data point.
Cycle	Shows the cycle time of the data point.
Source	Shows the data channel of the data point. Data points of the type "Generic", "Constant" and "Derived" are marked with the entry "-".
Active	Shows the status of the data point. If the status is set to "Active", the measurement data of the data point is acquired. If the status is set to "Inactive", no measurement data is acquired.
Device/Archive	Shows the device name or the archive from which the data point originates.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating data points (Page 659)

Editing data points (Page 672)

Deleting data points (Page 675)

3.6.4.2 Creating data points

Requirements

- The data source has been created.
- The data channel has been created.
- The user has the functional right "Measurement - create, remove, configure".

Procedure

To create a new data point, follow these steps:

1. Click on the "New" button in the detail area "Data point - Administration".

   The configuration dialog "New - Data point" opens.
2. Configure the data point using the following tabs:
   - General
   - Interface
   - Counter
   - Plausibility
   - Compression
   - Replacement
   - MindSphere

   You can find out how to configure the individual tabs in the section "Configuration of data points".
3. When you have configured the tabs, click the "Save" button.

Result

The data point has been created in the selected folder. In the Energy Manager PRO Client the data point is created under the IO buffer of the corresponding data channel.

See also

Creating subfolders (Page 621)

Overview (Page 657)

Editing data points (Page 672)

Data point - Administration (Page 654)

Creating data points (Page 133)

Configuration of the data points (Page 660)

3.6.4.3 Configuration of the data points

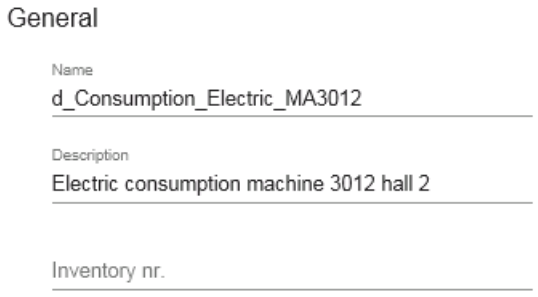
Configuring general settings

Enter the basic information of the data point under "General".

Procedure

To configure the basic information, follow these steps:

1. Enter a meaningful data point name in the "Name" entry field.
2. If required, enter a description of the data point in the "Description" entry field.
3. If required, enter a KKS/AKS number or free text in the "Inventory number" check box.



   If you select "KKSText" as a text type in a report, for example, the text from the entry field is output in the report result.
4. Select the unit of the data point from the "Unit" drop-down list.
5. Select the cycle time with which the measured values are acquired from the "Cycle" drop-down list.

   Note

   If you select a cycle time that does not match a compression level, only the values which were acquired while this cycle time was configured are displayed.

   If a cycle time is then selected which matches a compression level, a gap in the values arises. The gap corresponds to the data which was acquired with the cycle time that did not correspond to a compression level.

   Configure a compression level before you select the corresponding cycle time.

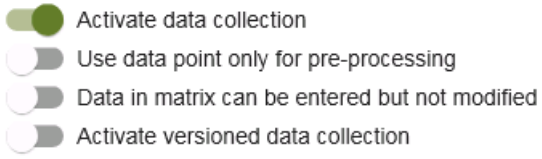
   Configure compression levels in the "Compression" tab.

   Select the category of the data point from the "Acquisition category" drop-down list.

   The input of an acquisition category is required.

6. Select the folder in which you want to create the data point from the "Structure" drop-down list.

7. Select the country in which the data point is valid from the "Country" drop-down list.
8. When you select the option "Activate data collection", the measurement data of the data source is acquired.
9. When you select the option "Use data point only for pre-processing", the measurement data is only taken into account during pre-processing of the data.
10. When you enable the option "Priority high", you cannot change the values of the data point in a matrix.
11. When you enable the option "Activate versioned data collection" the measurement data is entered versioned in the data point.



Configuring interfaces

Under "Interface" select the data channel from which the measured values of the data point are acquired. Also create manual data points via the tab. More information on the data channels is available in the section "Creating data channels".

Procedure

To configure a data channel, proceed as follows:

1. Select the data channel from which you want to create the data point from the "Channel" drop-down list.

   Only the data channels created in the system are available for selection for creating external data points. The entry "manual" is available for creating manual data points. The settings of the tab are adapted accordingly to the selected data channel.

2. Configure the remaining settings in accordance with the selected channel type.

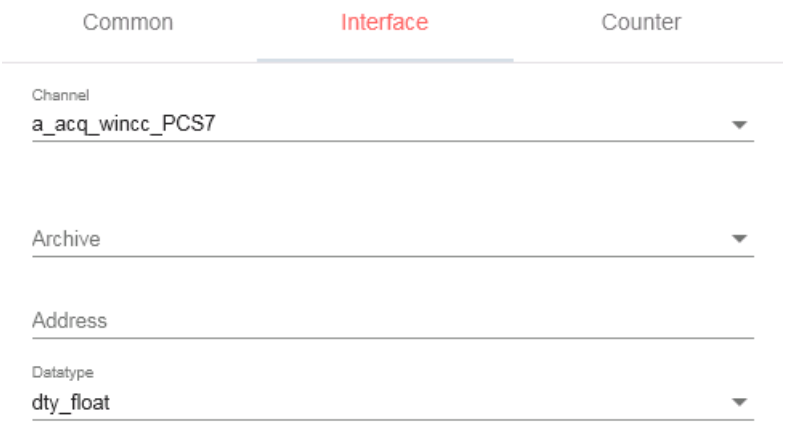
Configuring a Modbus or WinCC channel

To create a Modbus or WinCC channel, configure the settings as follows:

1. Select the device/archive in which the data point is archived from the "Device" or "Archive" drop-down list.

   Only already created devices/archives are available for selection in the drop-down list.
2. Browse the corresponding device/archive.
3. Select the desired data point from the overview list.

   The address of the data point in the device/archive is automatically copied to the text field "Address".
4. Select the type of data point from the "Data type" drop-down list.



Configuring an OPC, Energy Suite, or Desigo CC channel

To create an OPC, Energy Suite or Desigo CC channel, configure the settings as follows:

1. Click the "Browse" button.
2. Select the desired data point from the overview list.

   The address of the data point on the server is copied to the entry field "Address".
3. Select the type of data point from the "Data type" drop-down list.

Configuring an ASCII channel

To create an ASCII channel, configure the settings as follows:

1. In the "address" entry field, enter the address of the data point.
2. Select the type of data point from the "Data type" drop-down list.

Creating a manual data point

To create a manual data point, configure the settings as follows:

1. Select the entry "Manual" from the "Channel" drop-down list.
2. Select the type of data point from the "Data type" drop-down list.

   Only the data types "Number" and "String" are available in the drop-down list. These data types correspond to the data types "Measurement" and "Text" from the Energy Manager PRO Client.

Note

If a different data type is selected in the Energy Manager PRO Client, no entry is shown in the "Data type" drop-down list.

Creating derived data point

To create a derived data point, proceed as follows:

1. Select the entry "Derived" from the "Channel" drop-down list.
2. Select the time from which the data point is automatically recalculated from the calendar "Calculated until".

   If you have not edited this field, the time up to which the data point is calculated is displayed here.

   This field is automatically updated whenever the data point is calculated.
3. Select the category of the data point from the "Category" drop-down list.

   If you select "Future values", the current compression interval of the data point is recalculated for every value.

   If you select "real value", the current compression interval of the data point is calculated after all values are available.
4. Select the compression level of the MEVA/KIP used from the drop-down list "Compression".
5. In the entry field "Offset", enter the numerical value of the duration with which the start of the daily interval deviates from midnight.

   The daily values are calculated taking this deviation into consideration. If an Offset of 6 hours is configured, for example, the daily values from 6 am to 6 am are calculated.
6. Select the time unit of the offset from the "Offset unit" drop-down list.
7. To automatically recalculate the data point for new or updated values, activate the option "Calculate automatically".
8. Select the value MEVA/KPI whose values are saved in the data point from the "KPI element" drop-down list.

   Alternatively, you can use the structure browser.

See also

Creating data channels (Page 632)

Configuring counters

If you select "Count value" as the acquisition category, you must additionally create a counter. The created counters are displayed in the list with their validity.

Click on the "Expand all" to display the detailed information of all counters, select the "Hide all" icon to hide the detail information again. To create a new counter, click on the "Add new" icon. To delete a counter, click the "Delete" icon and confirm the deletion process by clicking on the icon again.

Procedure

To configure a counter, follow these steps:

1. Click on the "Add new" icon.

   A new counter with the current date or with current validity is created.
2. Enter a counter number for the counter in the text box under validity.
3. From the "Installation date" drop-down list select the date of the commissioning of the counter.

   The validity range of the counter changes accordingly. If the installation date of a newly created counter is reached, the current counter is replaced by the new counter. The installation date of the new counter must be prior to the acquisition of the last measured value of the current counter. Otherwise, the result could be an overflow error.
4. Enter the counter constant in the "Constant" text box.

   The default setting of the counter constant is "1". The counter difference is multiplied by this constant.
5. Enter the start of the counting range in the "Range start" text box.
6. Enter the end of the counting range in the "Range end" text box.
7. If you enable "Cyclic reset", the counter is reset to zero if a value is less than the previous value. In this case, the difference is calculated as follows: 0 + current counter state
8. Enter the start value of the counter on installation in the "Value at installation" text box.

   The start value and end value are of importance for the proper calculation of differences upon overflow.
9. Enter the end value of the counter on replacement in the "Value at replacement" text box.
10. If you select "Only count up" from the "Counter type" drop-down list, all valid counter values are in ascending order. If a negative counter difference is calculated, the situation is treated as a counter overflow.
11. If you select "Count up and down", valid counter values may be greater or less than the previous value. This option is suitable for level measurements, for example.

12. If you enable "Filtering criteria", enter the value in the "Lower limit" text box. Any counter values below this value are treated as invalid.
13. If you enable "Counter difference", enter the value in the "Lower limit" text box. If the most recently calculated difference is less than this value, the current counter value is treated as invalid.
14. If you activate "Counter difference", enter a value in the "Upper limit" text box. If the most recently calculated difference is greater than this value, the current counter value is treated as invalid.

See also

Configuring counters (Page 154)

Configuring the plausibility settings

Under "Plausibility" you configure, for example, the setting of limits, the monitoring of the data point.

Procedure

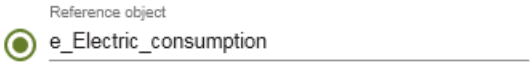
To configure plausibility settings, proceed as follows:

1. Enter the limits for the alarm range in the "Upper limit" and "Lower limit" text boxes.
2. Enter the limits for the warning range in the "Upper limit warning" and "Lower limit warning" text boxes.
3. If you select the respective option "Notification", you will be informed of any violations of limits.

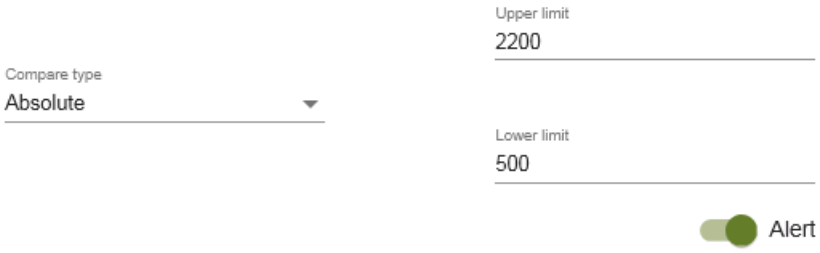
4. To determine gaps in measured value series of the data point, enter a numerical value in the "Gap" text box. Select the associated time from the "Unit" drop-down list. The system checks whether there are gaps in the measured value series after the entered time has elapsed. If you select the adjacent option "Notification", you will be informed of any existing gaps.

5. To compare the data point with itself in a different time period, select the "Another time period" check box in the "Compare with" area. Enter the numerical value in the text box and select the associated time period from the "Unit" drop-down list. If you select the value "1" and the unit "1 month", for example, the current month is compared with the previous month.

6. To compare the data point with a different data point, select the "Reference object" check box. Select the data point to be compared from the text box.



7. Enter the upper or lower limits for the comparison in the "Upper limit" and "Lower limit" text boxes. The limits can be exceeded or undershot by the values entered (acquisition value + limit) before a message is generated.
8. Select the type of limit comparison from the "Compare type" drop-down list. You can choose between "Absolute" and "Relative". "Absolute" means a numerical comparison, "Relative" means a percentage comparison of the limits.
9. Select the "Notification" option to receive a violation message on comparison of the limits.



See also

Configuring the plausibility (Page 157)

Mail settings (Page 692)

Configuring the compression settings

Configure the compression levels of the measured values under "Compression". The defined compression levels are displayed in an overview list.

Click on the "Expand all" to display the detailed information of all compression levels, select the "Hide all" icon to hide the detail information again. To create a new compression level, click the "Add new" icon. To delete a compression level, click on the "Delete" icon and confirm the delete process by clicking on the icon again.

Procedure

To configure compression levels, proceed as follows:

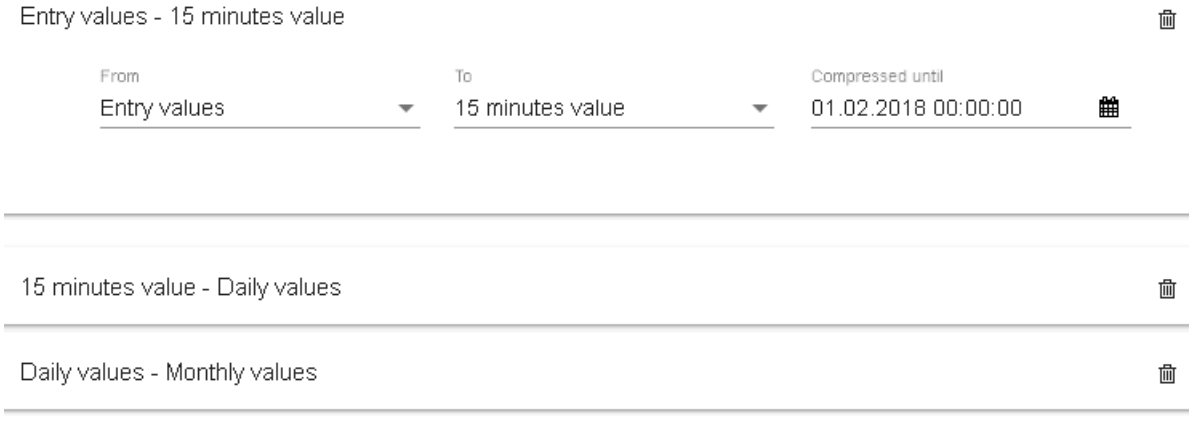
1. To create a new compression level, click the "Add new" icon.

   A new compression level is created.
2. From the "From" drop-down list select the cycle whose values you want to compress.
3. From the "To" drop-down list select the cycle to which the values are compressed.
4. From the "Compressed until" drop-down list select the time in the past from when the values are compressed.

   The "Compressed until" field shows the time up to which the compression level is calculated. To update this field, reload the page.

   To recalculate the compression level, from the "Compressed until" drop-down list select the time in the past from when the compression value is recalculated.



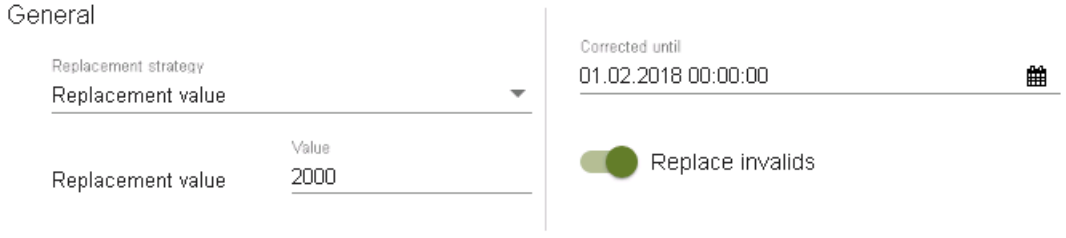
Configuring replacement value strategies

Define the substitute value strategies for measured value gaps under "Replacement".

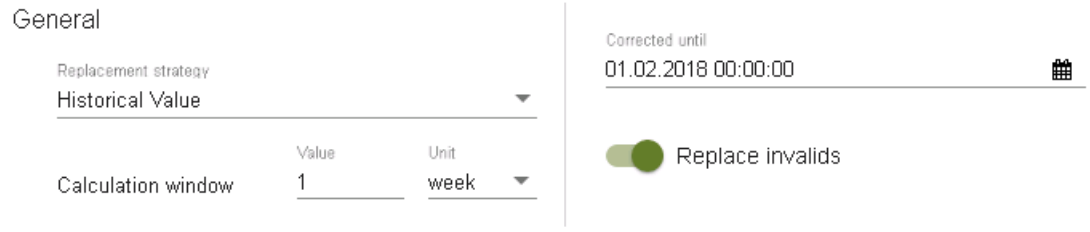
Procedure

To configure substitute value strategies, proceed as follows:

1. Select the replacement value strategy from the "Replacement" drop-down list. You can choose between the following replacement value strategies:
   - NONE
   - LRU (last recently used)
   - FIS
   - Replacement value
   - Historical value
   - Interpolation
2. If you select the replacement value strategy "NONE", gaps in the measured value series of the data point are not replaced.
3. If you select the replacement value strategy "LRU", gaps are replaced in the measured values series of the data point by the last valid value.
4. If you select the replacement value strategy "AKS", gaps in the measured values series of the data point are replaced by the measured values of a different data point. In the "Source datapoint" text box enter the data point whose values replace the gaps.
5. If you select the replacement value strategy "Replacement value", gaps in the measured values series of the data point are replaced by a constant value. Enter the replacement value used to close the gap in the "Value" text box.



6. If you select the replacement value strategy "Historical value", gaps in the measured values series of the data point are replaced by a comparison value in the past. Enter the numerical value in the "Value" text box and select the associated time period from the "Unit" drop-down list. The system jumps back to the past by the period entered and adopts the value from the past. This strategy can be used if the data point has a recurring pattern.



7. The "Interpolation" replacement value strategy is also available for counter data points. If you select the "Interpolation" replacement value strategy, gaps in the counter data series are filled by interpolation.
8. From the "Corrected until" list you select the time in the past up to which the gaps are replaced by the selected replacement value strategy.
9. To enable the selected replacement value strategy, select the option "Replace invalids".

See also

Configuring replacement value strategies (Page 152)

Configuring MindSphere settings

Under "MindSphere" you manage the transfer of the data point to MindSphere.

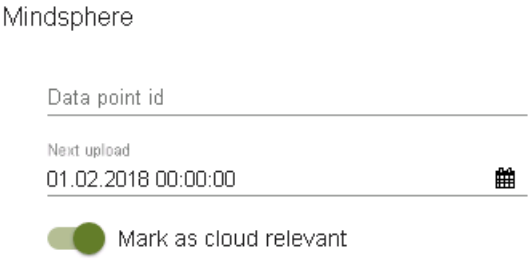
Procedure

To configure MindSphere settings, proceed as follows:

1. As soon as the data point is created in MindSphere, the "Data point ID" text box is automatically filled with the associated ID of the data point in MindSphere.
2. To select the synchronization time of the data point measured values with MindSphere, click on the upload icon. Confirm the process by clicking on the upload icon again.

3. In the "Next upload" text box select the start time of the export to MindSphere. You can also place the start time in the past. The synchronization date only applies to the selected data point.

   From the selected date, the values of the data point are exported with the corresponding timestamps to MindSphere. You can thus also start export of historical values again. During a new export, the data overwrites already existing data.
4. To enable the export of the data points measured values to MindSphere, select the option "Mark as cloud relevant".



See also

Account settings (Page 694)

3.6.4.4 Editing data points

Requirements

- The data point has been created.
- The user has the functional right "Measurement - create, remove, configure" or the functional right "Measurement - configure".

Procedure

To edit an already existing data point, follow these steps:

1. Click on the data point to be edited in the display table.
2. Click the "Edit" button. As an alternative, you can double-click the data point to be edited.

   The configuration dialog "Edit - Data point" opens.
3. You can configure all the settings again in the tabs which you defined on creation of a data point.
4. Click on the "Save" button.

Note

Open the configuration dialog via the tree view "Tree"

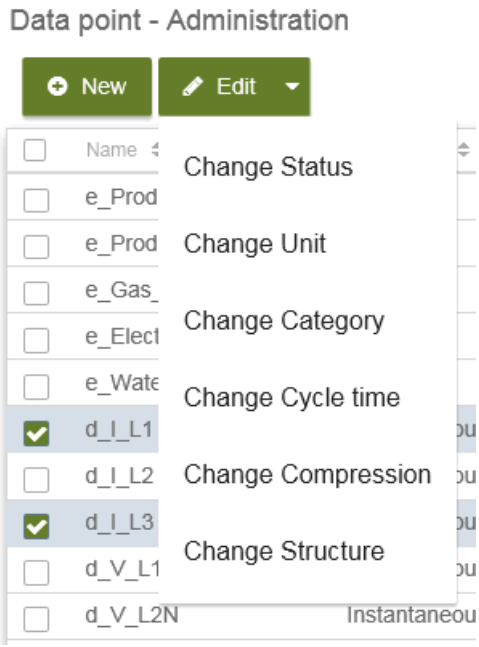
If you have activated the edit mode, you can open the configuration dialog "Edit - Data Point" directly from the tree view using the "✎" button for the data point.

Editing multiple data points

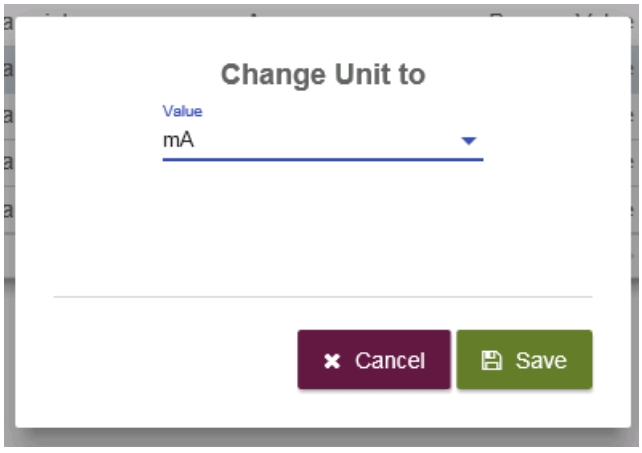
You can edit multiple data points at one time. If you select multiple data points from the display table with the help of the check box, the "Edit" button is extended. If you then click on the "Edit" button, a drop-down list opens from which you can edit the following properties:

- Status
- Unit
- Category
- Cycle time
- Compression
- Structure

The following figure shows the drop-down list with the configurable properties.



If you click on one of the entries, a new dialog window opens. In this dialog window you can change the corresponding property for the selected data points. The following figure shows the window in which the unit is changed for multiple data points.



When you click on the "Save" button, the changes are applied.

Changing the data source

You can change the data source of existing data points. To change the data source, select the new data source under "Interface" from the "Channel" drop-down list. When you select a new data source, the settings are adapted to the new data source. In the event of a change to the data source, the following settings are automatically adopted:

- The data point is deleted from the list of the last data source and created in the list of the new data source.
- The prefix of the data point name is adapted to the new data channel ("e_" to "d_") and vice versa when changing from a manual to an external data point.
- The historical data point values are retained in the new data source.

When you change the data source, check the settings in the other tabs and adapt the settings to the new data source.

Note

Change to the data source

Changing a data source to a different data source is only possible from the "Data point" project folder.

See also

Creating data points (Page 659)

Overview (Page 657)

Deleting data points (Page 675)

3.6.4.5 Deleting data points

Requirements

- The data point has been created.
- The user has the functional right "Measurement - create, remove, configure".

Procedure

To delete one or more data points from the system, follow these steps:

1. Click on the data point to be deleted in the display table. You can also select one or more data points to be deleted with the help of the check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete a data point from the system in the "Edit - Data point" configuration dialog by clicking the "Delete" button twice.

Result

The data point is deleted from the system.

See also

Overview (Page 657)

3.6.4.6 Recalculating derived data point

To recalculate the values of a derived data point, follow these steps:

1. Open the "Interface" tab of the configuration dialog of the derived data point.
2. Select the beginning of the time period to be calculated from the calendar "From".
3. Select the beginning of the time period to be calculated from the calendar "From".
4. To recalculate the values of the selected period, click on the "Start" button and confirm your entry.

Note

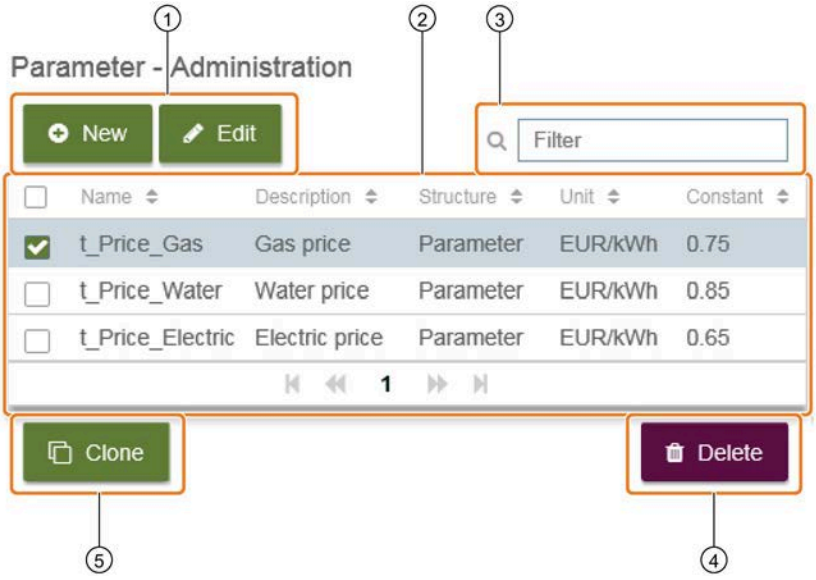
When you have confirmed the entry, the values are recalculated in the background without delay. The existing values are thus lost. The "Save" button has no effect on the recalculation of the derived data point.

3.6.5 Parameter

3.6.5.1 Overview

In the configuration of parameters you create new parameters and configure already existing parameters in Energy Manager Web. Newly created parameters and changes to already existing parameters in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

When you click on the menu item "Parameters" in the navigation area under the "Project configuration" folder, the detail area "Parameter - Administration" opens. The following figure shows the detail area "Parameter - Administration":



① "New" and "Edit" buttons: Creating and editing new parameters.

② Display table of existing parameters.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of parameters is recommended when a large number of parameters exist in the system.

④ "Delete" button: Delete created parameters from the system.

⑤ "Clone" button: When you clone a parameter, an exact copy of the parameter with the name ending in "Copy_0" is created. If you create several copies of a parameter, the number at the end of the name is incremented by one, for example, from "Copy_0" to "Copy_1". You can clone several parameters at the same time with the help of the check boxes.

Note

In the "Parameters" folder not all the parameters in the system are displayed, but only the parameters contained in the folder.

The parameters are displayed in tabular form in Energy Manager Web. The display table consists of the following six columns:

Column	Function
Selection	You can select individual parameters and any number of parameters with the help of the check boxes. Clicking on the check box in the column header selects all parameters. Clicking on the check box again in the column header deselects all parameters again.
Name	Shows the name of the parameter.
Description	Shows the description of the parameter.
Structure	Shows the folder in which the parameter is created.
Unit	Shows the unit of the parameter.
Constant	Shows the replacement value of the parameter.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating parameters (Page 678)

Editing parameters (Page 680)

Deleting parameters (Page 681)

3.6.5.2 Creating parameters

Requirement

- The user has the functional right "Parameter - Common - create, remove, configure".
- The user has the functional right "Parameter - Values - create, remove, configure".

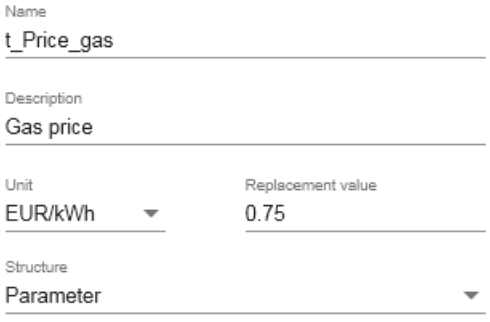
Procedure

To create a new parameter, follow these steps:

1. Click on the "New" button in the detail area "Parameter - Administration".

   The configuration dialog "New - Parameter" opens.
2. Enter a meaningful name for the chart in the "Name" text box.

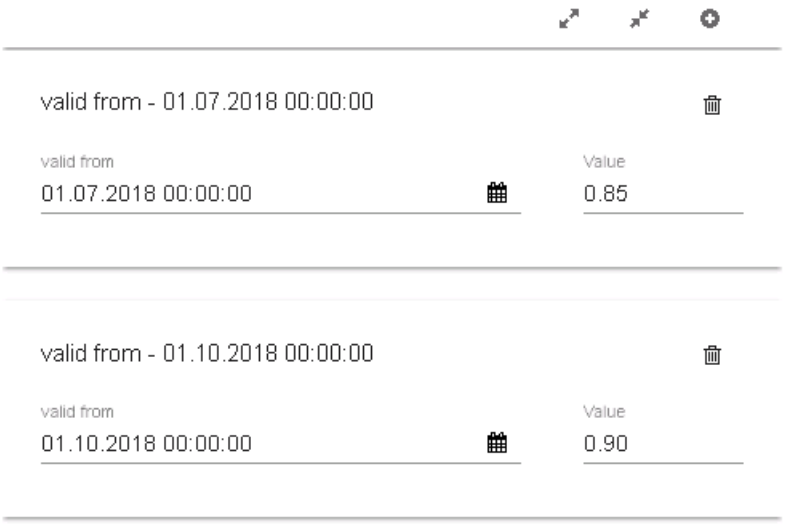
   The input of a name with the prefix "t_" is required.
3. If required, enter a description of the parameter in the "Description" text box.
4. Select the unit of the parameter from the "Unit" drop-down list.
5. Enter the constant replacement value in the "Replacement value" text box.
6. From the "Structure" drop-down list select the folder in which you want to create the parameter.



7. If you want to define a constant value for the parameter from a specific time period, click the "Add new" icon.

   A new validity is created.
8. Select the validity date.

9. Enter the constant parameter value in the "Value" text box.



   The value entered is valid from the selected validity time. When you define a further validity, the parameter value applies from the current validity until the start of the new validity. If the date of the new validity is reached, the parameter value applies from this validity. If you do not define a validity period, the parameter adopts the value at any time from the "Replacement value" text box.

10. Click on the "Save" button.

Result

The parameter is created in the selected folder. If you have defined a validity period including the value, the validity period is activated. You can only deactivate the validity period by deleting the corresponding validity period. You can delete validity periods that are no longer required by clicking the "Delete" icon twice. If you click on the "Expand all" icon, the information of all validity periods is displayed. If you click on the "Collapse all" icon, the information is hidden again.

See also

Creating subfolders (Page 621)

Overview (Page 676)

Editing parameters (Page 680)

Parameters (Page 194)

Parameter (Page 532)

3.6.5.3 Editing parameters

Requirements

- The parameter has been created.
- The user has the functional right "Parameter - Common - create, remove, configure" or the functional right "Parameter - Common - configure".
- The user has the functional right "Parameter - Values - create, remove, configure".

Procedure

To edit an already existing parameter, follow these steps:

1. Click on the parameter to be edited in the display table.
2. Click the "Edit" button. As an alternative, you can double-click the parameter to be edited.

   The configuration dialog "Edit - Parameter" opens.
3. You can configure all the settings again which you defined on creation of a parameter.

   The input of a name with the prefix "t_" is required.
4. Click on the "Save" button.

Editing multiple parameters

You can select multiple parameters at one time. If you select multiple parameters from the display table with the help of the check box, the "Edit" button is extended. If you then click on the "Edit" button, a drop-down list opens from which you can edit the following properties:

- Unit
- Structure

If you click on one of the entries, a new dialog window opens. In this dialog window you can change the corresponding property of the selected parameters. When you click on the "Save" button, the changes are applied.

See also

Overview (Page 676)

Creating parameters (Page 678)

Deleting parameters (Page 681)

3.6.5.4 Deleting parameters

Requirements

- The parameter has been created.
- The user has the functional right "Parameter - Common - create, remove, configure".

Procedure

To delete one or more parameters from the system, follow these steps:

1. Click on the parameter to be deleted in the display table. You can also select one or more parameters to be deleted with the help of the check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete a parameter from the system in the "Edit - Parameter" configuration dialog by clicking the "Delete" button twice.

Result

The parameter is deleted from the system.

See also

Overview (Page 676)

Creating parameters (Page 678)

Editing parameters (Page 680)

3.6.6 MEVA / KPI

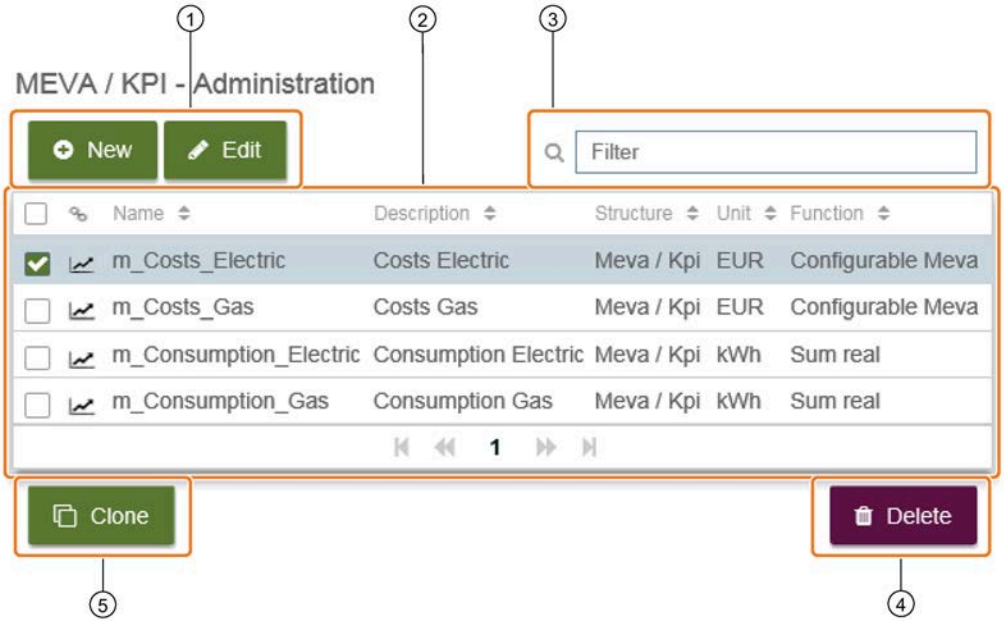
3.6.6.1 Overview

In the configuration of KPIs (MEVAs / KPIs) you create new KPIs and configure already existing KPIs in Energy Manager Web. Newly created KPIs and changes to already existing KPIs in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

Note

A KPI object in Energy Manager Web corresponds to a MEVA from the Energy Manager PRO Client. In the following the term "KPI" is used for the expression "MEVA / KPI".

When you click on the menu item "MEVA / KPI" in the navigation area under the "Project configuration" folder, the detail area "MEVA / KPI - Administration" opens. The following figure shows the detail area "MEVA / KPI - Administration":



① "New" and "Edit" buttons: Creating and editing new KPIs.

② Display table of existing KPIs.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of KPIs is recommended when a large number of KPIs exist in the system.

④ "Delete" button: Deleting created KPIs from the system.

⑤ "Clone" button: When you clone a KPI, an exact copy of the KPI with the name ending in "Copy_0" is created. If you create several copies of a KPI, the number at the end of the name is incremented by one, for example, from "Copy_0" to "Copy_1". You can clone several KPIs at the same time with the help of the check boxes.

Note

In the "MEVA / KPI" folder not all the KPIs in the system are displayed, but only the KPIs contained in the folder.

The KPIs are displayed in tabular form in Energy Manager Web. The display table consists of the following six columns:

Column	Function
Selection	You can select individual KPIs and any number of KPIs with the help of the check boxes. Clicking on the check box in the column header selects all KPIs. Clicking on the check box again in the column header deselects all KPIs again.
Chart	Opens the chart of the KPI in a new window.
Name	Shows the name of the KPI.
Description	Shows the description of the KPI.
Structure	Shows the folder in which the KPI is created.
Unit	Shows the unit of the KPI.
Function	Shows the function type of the KPI.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating MEVAs / KPIs (Page 684)

Editing MEVAs / KPIs (Page 687)

Deleting MEVAs / KPIs (Page 688)

3.6.6.2 Creating MEVAs / KPIs

Requirement

- The user has the functional right "Measuring Variable - create, remove, configure".

Procedure

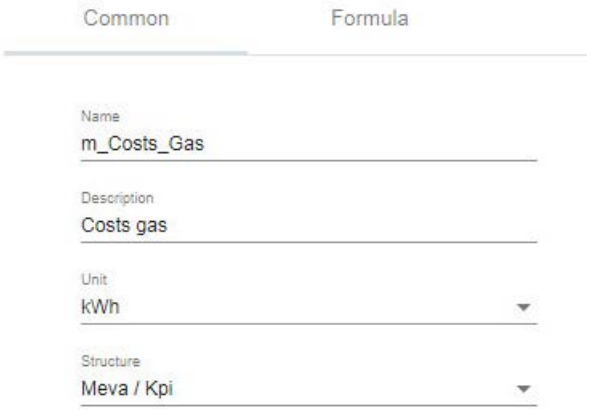
To create a new KPI, follow these steps:

1. Click on the "New" button in the detail area "MEVA / KPI - Administration".
   The configuration dialog "New - MEVA / KPI" opens.

Configuring the "General" tab

To configure the "General" tab, follow these steps:

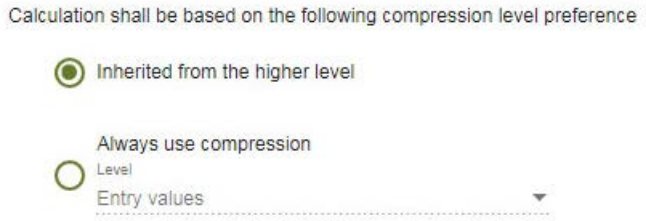
1. Enter a meaningful name for the KPI in the "Name" text box.
   The input of a name with the prefix "m_" is required.
2. If required, enter a description of the KPI in the "Description" text box.
3. Select the unit of the KPI from the "Unit" drop-down list.
4. From the "Structure" drop-down list select the folder in which you want to create the KPI.



5. Select the compression level for the calculation of the KPI. You can choose between two calculation types:
   - Inherit from the higher level
   - Always use a particular type of compression

   If you select the "Inherited from the higher level" check box, the compression level is taken from the higher level.

   If you select the "Always use compression" check box, you can select the desired compression level from the drop-down list. The selected compression level is used for all further calculations.



Configuring the "Formula" tab

To configure the "Formula" tab, follow these steps:

1. Select the function type of the KPI from the "Function" drop-down list.
2. Selecting the "Configurable Meva" function activates the formula editor. In the formula editor you can enter a custom formula for calculating the KPI with the help of the adjacent buttons. The syntax of the formula is automatically checked. In the formula editor, placeholders are used for the selected objects. If you select the option "Show name", the names of the selected objects are displayed in the formula editor instead of the placeholders.
3. From the drop-down list "Select object" select the objects that you want to use for calculating the KPI. You can use data points, parameters and other KPIs when creating a new KPI. By selecting or clearing the "Datapoint", "MEVA / KPI" and "Parameter" check boxes you can refine the search accordingly.

   Alternatively, you can use the structure browser. To open the Structure Browser, click on 🗁.

   Selected objects are displayed with the corresponding position number in the "Currently selected" list.
4. You can change the sequence of the objects in the list using drag and drop. You can also delete objects that are no longer required by clicking the Delete icon.

Note

Observe the sequence of the objects. The correct sequence of the objects is required when calculating the KPIs.

5. If you have selected the function "Configurable Meva", you can insert the corresponding object in the formula editor by double-clicking an object. The position number of the object is copied to the formula editor with the corresponding placeholder.

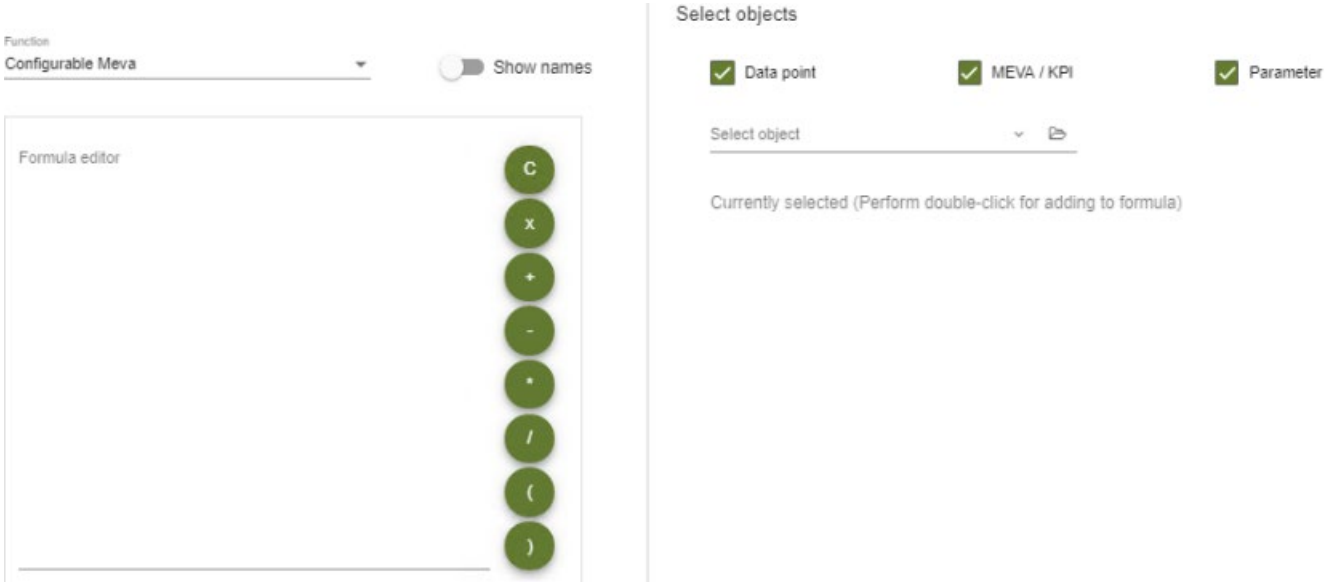


Figure 3-2 KPI formula editor

6. Click on the "Save" button.

Result

The KPI is created in the selected folder.

See also

Creating subfolders (Page 621)

Overview (Page 682)

Editing MEVAs / KPIs (Page 687)

Measuring variable (Page 193)

3.6.6.3 Editing MEVAs / KPIs

Requirements

- The KPI is created.
- The user has the functional right "Measuring Variable - create, remove, configure" or the functional right "Measuring Variable - configure".

Procedure

To edit an already existing KPI, follow these steps:

1. Click on the KPI to be edited in the display table.
2. Click the "Edit" button. As an alternative, you can double-click the KPI to be edited.

   The configuration dialog "Edit - MEVA / KPI" opens.
3. You can configure all the settings again which you defined on creation of a KPI.

   The input of a name with the prefix "m_" is required.
4. Click on the "Save" button.

Editing multiple KPIs

You can select multiple KPIs at one time. If you select multiple KPIs from the display table with the help of the check box, the "Edit" button is extended. If you then click on the "Edit" button, a drop-down list opens from which you can edit the following properties:

- Unit
- Structure

If you click on one of the entries, a new dialog window opens. In this dialog window you can change the corresponding property of the selected KPIs. When you click on the "Save" button, the changes are applied.

See also

Overview (Page 682)

Creating MEVAs / KPIs (Page 684)

Deleting MEVAs / KPIs (Page 688)

3.6.6.4 Deleting MEVAs / KPIs

Requirements

- The KPI is created.
- The user has the functional right "Measuring Variable - create, remove, configure".

Procedure

To delete one or more KPIs from the system, follow these steps:

1. Click on the KPI to be deleted in the display table. You can also select one or more KPIs to be deleted with the help of check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete a KPI from the system in the "Edit - MEVA / KPI" configuration dialog by clicking the "Delete" button twice.

See also

Overview (Page 682)

Editing MEVAs / KPIs (Page 687)

3.7 Settings

3.7.1 Overview of settings

In the "Settings" folder you configure the key settings of your Energy Manager system in Energy Manager Web. Only the administrator can define the settings. Configurations of the settings in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

You can configure the following settings:

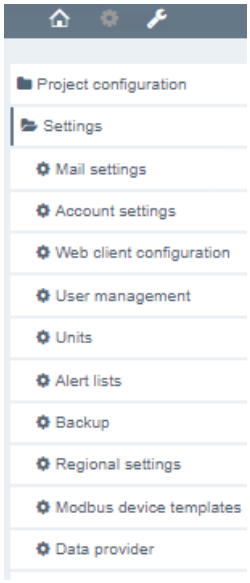
- Mail settings
- Account settings
- Web Client settings
- User management
- Units
- Alarm lists
- Backup
- Regional settings
- Modbus device templates
- Data provider

Opening settings

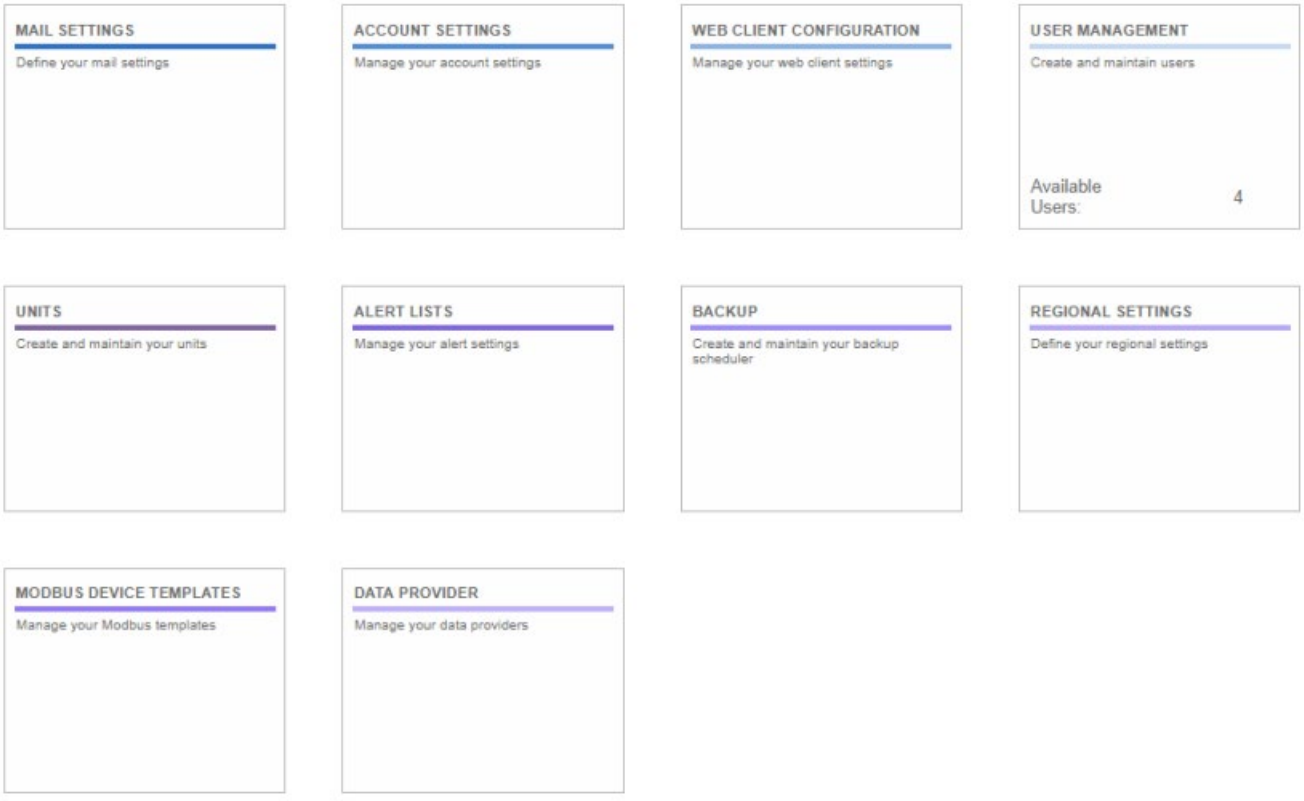
To open the "Settings" folder, follow these steps:

1. Click in the menu bar on "Settings".

2. Click the menu item "Settings" in the navigation area. As an alternative, you can click the "Settings" tile in the detail area.



In the detail area you see an overview of the configurable settings in tile form.



3. To configure the respective settings, click on the corresponding tile in the detail area. As an alternative, you can click on the corresponding menu item in the navigation area.

Note

The folder structures are automatically created after the installation of Energy Manager and cannot be deleted by the user.

See also

Mail settings (Page 692)

Account settings (Page 694)

Web Client settings (Page 700)

Backup (Page 716)

Regional settings (Page 718)

User Management (Page 702)

Units (Page 708)

Alarm lists (Page 713)

3.7.2 Mail settings

Overview

In the "Mail settings" you manage the notifications in Energy Manager Web which inform the user by e-mail about different situations. You can find the corresponding settings in the Energy Manager PRO Client under the path "File > Options > Appl.". Changes to the settings in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

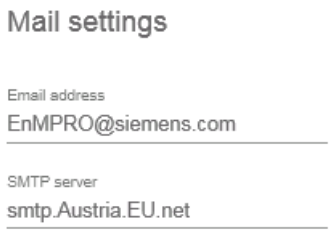
Configuring mail settings

To configure the setting "Mail settings", follow these steps:

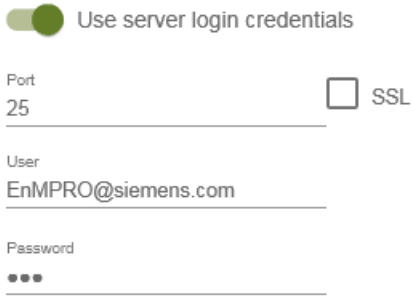
1. In the "Sender e-mail address" text box, enter the sender address which is used by Energy Manager for sending e-mails automatically.

   The specified sender e-mail address is checked for correctness.

2. In the "STMP server" text box enter the address of the STMP server that is used for sending e-mails automatically.

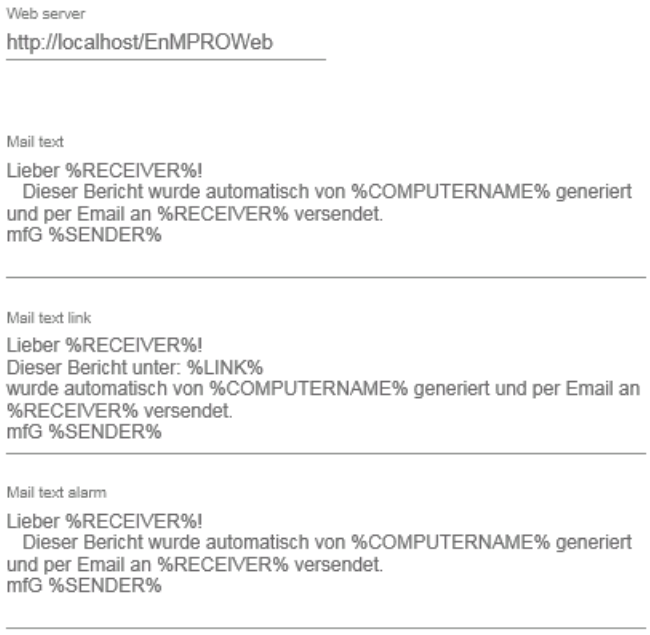


3. If you select the option "Use server login credentials", you have to enter the user name, password and the port number of the SMTP server in the corresponding text boxes. If you select the "SSL" check box, the data is transmitted in encrypted form.



4. Enter the URL of the Energy Manager Web Server in the "Web server" text box.
5. In the "Mail text" text box enter the sample text for automatic sending of e-mails.
6. In the "Mail text link" text box enter the sample text for automatic sending of e-mails with URL link.

7. In the "Mail text alarm" text box enter the sample text of alarm messages for automatic sending of e-mails.



8. Click on a different entry in the navigation area to save the settings.

Note

A maximum of 10 alarm messages are sent in one e-mail. If more than 10 alarm messages are present, Energy Manager send 10 alarm messages in one e-mail. The number of pending alarms is specified in this e-mail. Energy Manager does not send any further e-mail for the other alarm messages.

See also

Overview of settings (Page 689)

Options (Page 53)

3.7.3 Account settings

Overview

In the "Account settings" you configure account settings in Energy Manager Web. You can find the corresponding settings in the Energy Manager PRO Client under the path "File > Account settings". Configurations of the settings in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

Configure the account settings using the following tabs:

- General
- Password settings
- Data storage
- Delete options
- MindSphere

Note

If you change the text boxes of the respective tab and change the tab, for example, from "General" to "Delete options", the changed text boxes are automatically saved. If you change to a different object in the navigation area, the changed text boxes are also saved.

"General" tab

Enter the path in which the Account settings are stored in the "Archive base directory" text box.

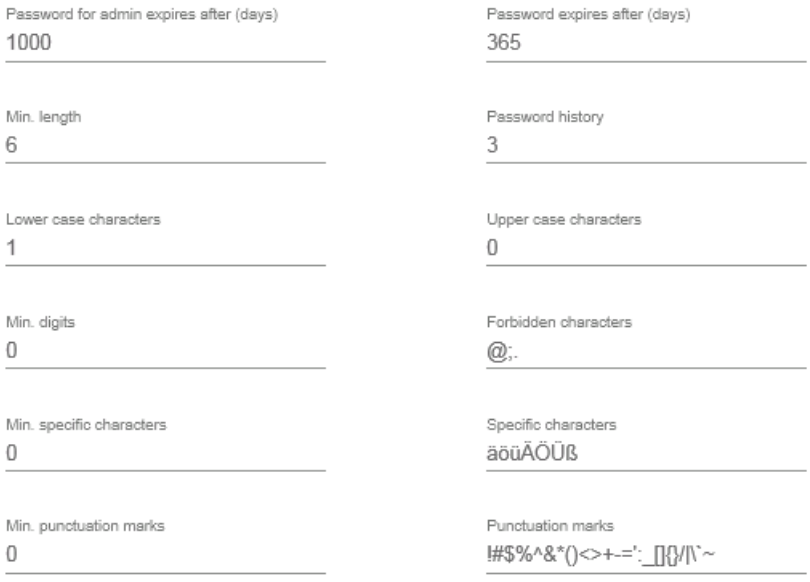
"Password settings" tab

Manage your password requirements in the "Password settings" tab. For the text boxes "Admin password expires after (days)"" andPassword expires after (days)", you can enter a one to five-digit number. For all other numeric text boxes you can enter a one to two-digit number.

Note

Unsupported punctuation

Quotation marks are not supported for passwords.



"Data storage" tab

In the "Data storage" tab you manage the duration with which you save the measured values of the corresponding cycle times in the system. You also set the archiving behavior on expiry of the entered time. The archive directory displays the path under which the measured values of the cycle times are saved. You can only change the archive directory in the "General" tab. To remove the cycle times from the list, click the "Delete" icon. Click on the icon again to confirm the deletion process. If you click on the "Expand all" icon, the details of all cycle times are displayed. If you click on the "Collapse all" icon, the details are hidden again.

To save measured values of a new cycle time, follow these steps:

1. Click on the "Add new" button.

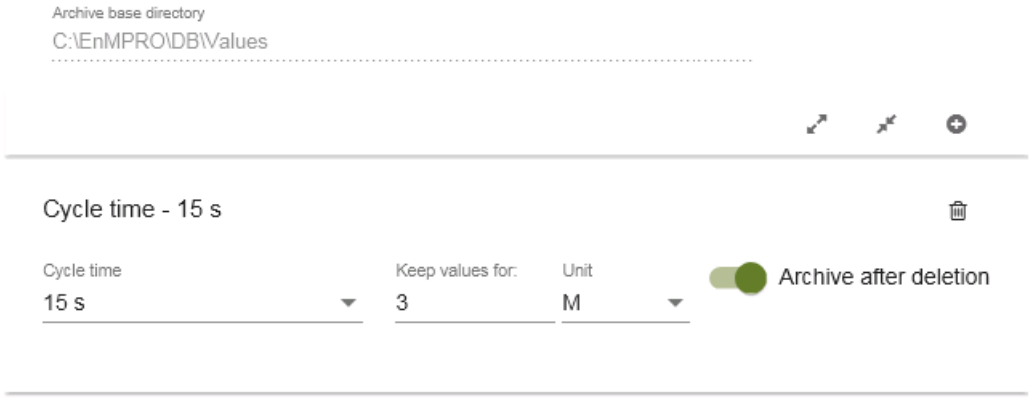
   A new cycle time is added to the list.

2. From the "Cycle time" drop-down list select the cycle time you want to save.

3. Enter a one to six-digit number in the "Keep values" text box.

   The input of a value is required.

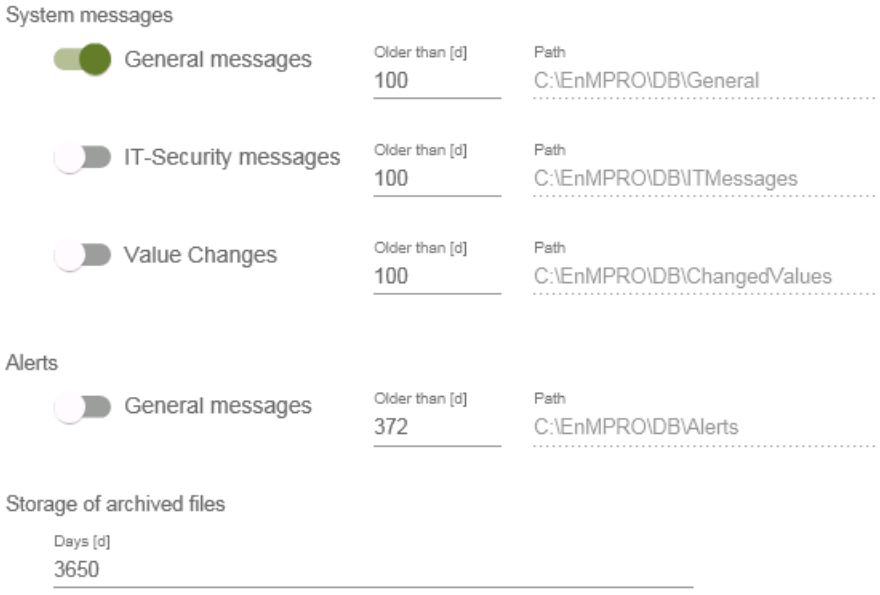
4. Select the associated desired duration from the "Unit" drop-down list.
5. In order to archive the measured values of the cycle time after expiry of the entered duration and then delete them, select the option "Archive after deletion".



6. In order to not archive the measured values of the cycle time after expiry of the entered duration, but only to delete them, deselect the option.
7. Click on a different entry in the navigation area or a different tab to save the settings.

"Delete options" tab

In the "Deletion options" tab you manage the duration after the expiry of which messages and alarms are deleted from the system. To enable the deletion process, select the respective option. In the "Older than [days]" text box enter the time in days for the respective message type after the expiry of which the messages are deleted. You can enter a one to six-digit number in the respective text box. The adjacent archive paths show you where the corresponding messages are stored before the messages are deleted.



"MindSphere" tab

You manage your MindSphere connection in the "MindSphere" tab. You can configure the following settings:

- Uuid

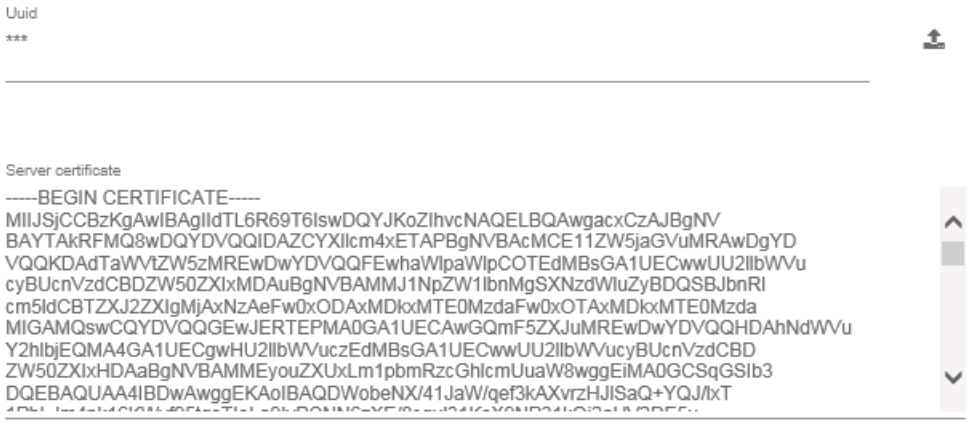
  In the "Uuid" text box enter your personal MindSphere login data which you receive on activation of your MindSphere access. To receive your MindSphere login data you have to create a "Mindconnect Lib Asset" with your MindSphere access data on the MindSphere website. You then manually generate a connection key on the Internet for the "Mindconnect Lib Asset". The connection key is used as a replacement for your user name and your password. Enter the generated connection key in the "Uuid" text box.

- Upload configuration

  Use the "Upload configuration" icon to export your MindSphere configuration to MindSphere. Click on the icon to start the export. Confirm the process by clicking the icon again. Existing configurations are overwritten by a new export.

- Server certificate

  In the "Server certificate" text field only the certificate for MindSphere is displayed.



- Proxy settings

  If you select the option "Use proxy", you can configure certain proxy server settings. You have the choice between a manual proxy configuration and a configuration with specific user login information.

  To use a manual proxy configuration, select the option "Manual proxy configuration". Enter the host name and the port of your proxy server in the corresponding text boxes.

  To use specific user login information, select the option "Use specific user credentials". In the "User name" text box enter the user name you want to use. Enter the password of the user name in the adjacent text box "Password".

- Activate export

  To enable the export of the data points to MindSphere, select the option "Export active". The data points marked for MindSphere are only exported to MindSphere if this option is set to active.

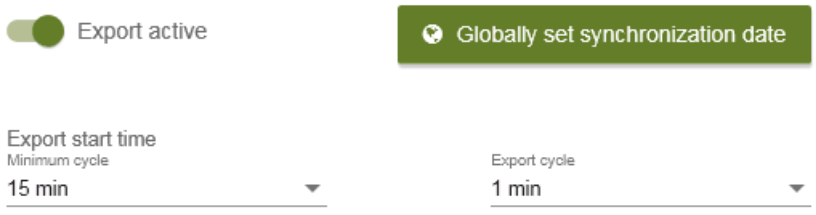
- Set synchronization date

  Select the "Globally set synchronization date" button to set the date for the synchronization of all data points with MindSphere. If you select your own synchronization data when configuring a data point in the "MindSphere" tab, the synchronization data only applies for the corresponding data point. If you click on the "Globally set synchronization date" button, a dialog opens in which you set the synchronization date. If the option "Mark as cloud relevant" is selected, the measured values including timestamps of all data points are exported to MindSphere from this time onwards. If you start a new export of historical data, already existing values are overwritten by new values with the same timestamps.

- Export start time

  From the "Minimum cycle" drop-down list select the measured values of the cycle time you want to export. Only measured values with the selected cycle time are exported. If there are no measured values with appropriately selected cycle time, the values of the next higher cycle time are exported. If you want to export 15-minute values, for example, but the data point is a daily cycle, the daily values are exported.

  Select the cycle time with which the measured values are exported to MindSphere from the "Export cycle" drop-down list.



See also

Overview of settings (Page 689)

Data storage (Page 70)

General (Page 68)

Delete options (Page 71)

Password settings (Page 69)

Job queue (Page 398)

Configuring MindSphere settings (Page 671)

Account settings (Page 68)

3.7.4 Web Client settings

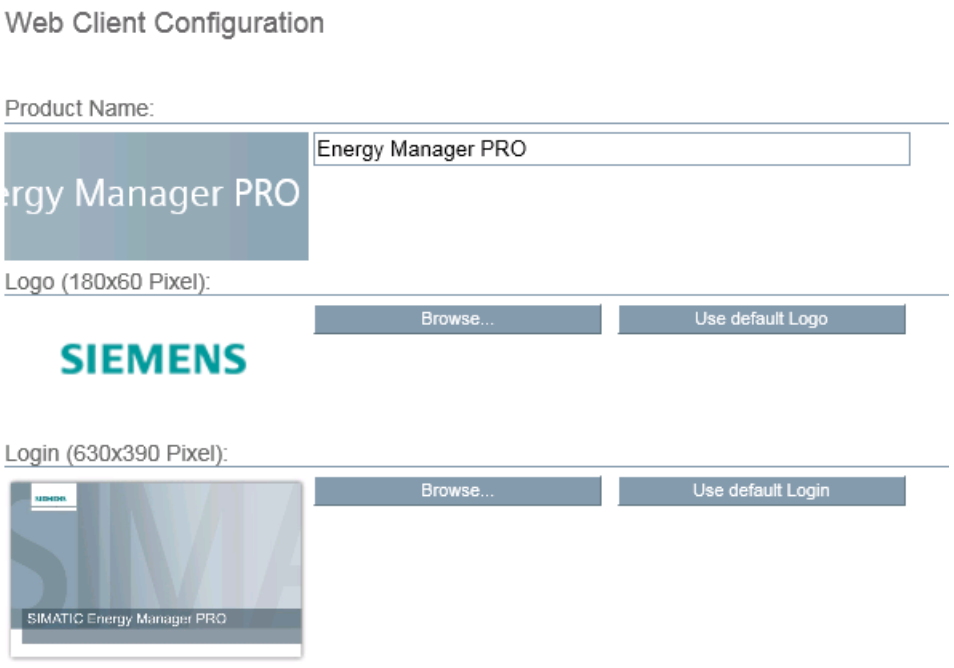
Overview

In the "Web Client settings" you set the display of the Energy Manager Web user interface for specific companies and products. You can configure the following objects:

- Product name: Title of product
- Logo: Custom logo
- Login: Custom background image of the login page of Energy Manager Web

The image for "Logo" and "Login" is adjusted automatically to the size of the user interface during upload.

The following figure shows the detail area "Web client settings":



Configuring Web Client settings

To configure the setting "Web client settings", follow these steps:

1. To use an alternative name for the product, enter the desired title of the product in the "Product Name" text box. The name "Energy Manager PRO" or "Energy Manager Basic" is defined by default.

   The changed product name is adopted throughout the entire Web area and is displayed in the title bar.

2. To use a company-specific logo, click the "Browse..." button under the "Logo" text field.

   A dialog for selection of an image opens.

3. Select a suitable image as the logo.

   The changed logo is adopted throughout the entire Web area and is displayed in the title bar. The SIEMENS logo is set by default and by clicking the "Use default logo" button.

4. To use an alternative background image, click on the "Browse..." button under the "Login" text field.

   A dialog for selection of an image opens.

5. Select a suitable image as the background image on the login page.

   The changed image is adopted as the background image on login. The SIEMENS login screen is set by default and by clicking the "Use default login" button.

6. Click on a different entry in the navigation area to save the settings.

See also

Overview of settings (Page 689)

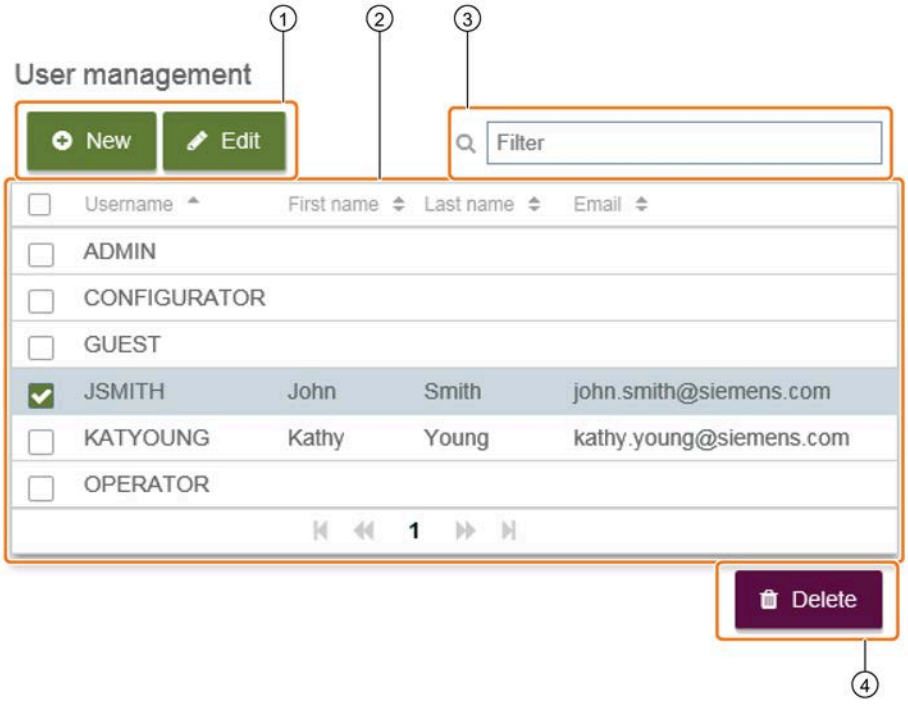
Definition of home page (Page 486)

3.7.5 User Management

3.7.5.1 Overview

In the setting "User Management" you create new users in Energy Manager Web and configure already existing users. An overview of the existing users in Energy Manager PRO Client can be found under the path "System > Configuration > User, group, rights management > User". The creation of new users can be found in the Energy Manager PRO Client under the path "Master data > Authorization > Insert user". Newly created users and user configurations in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

The following figure shows the detail area "User management":



① "New" and "Edit" buttons: Creating and editing new users.

② Display table of existing users.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of users is recommended when a large number of users exist in the system.

④ "Delete" button: Delete user from the system.

Newly created and already existing users in the system are displayed in tabular form in Energy Manager Web. The display table consists of the following five columns:

Column	Function
Selection	You can select individual users and any number of users with the help of the check boxes. Clicking on the check box in the column header selects all users. Clicking on the check box again in the column header de-selects all users again.
User name	Displays the user name in Energy Manager.
First name	Shows the first name of the user.
Last name	Shows the last name of the user.
Email	Shows the e-mail address of the user.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating users (Page 704)

Editing users (Page 706)

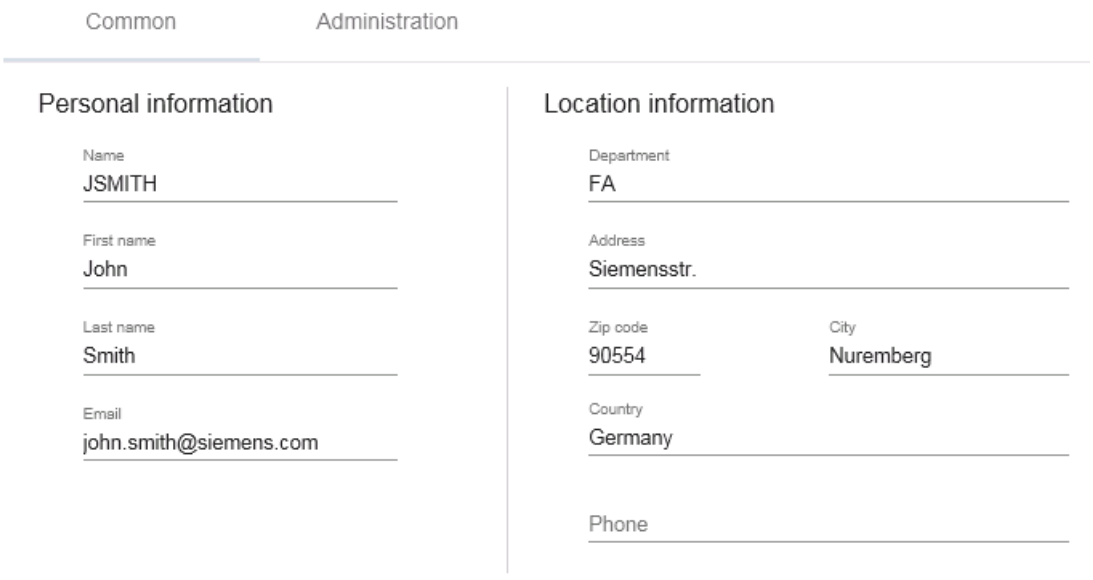
Deleting users (Page 707)

3.7.5.2 Creating users

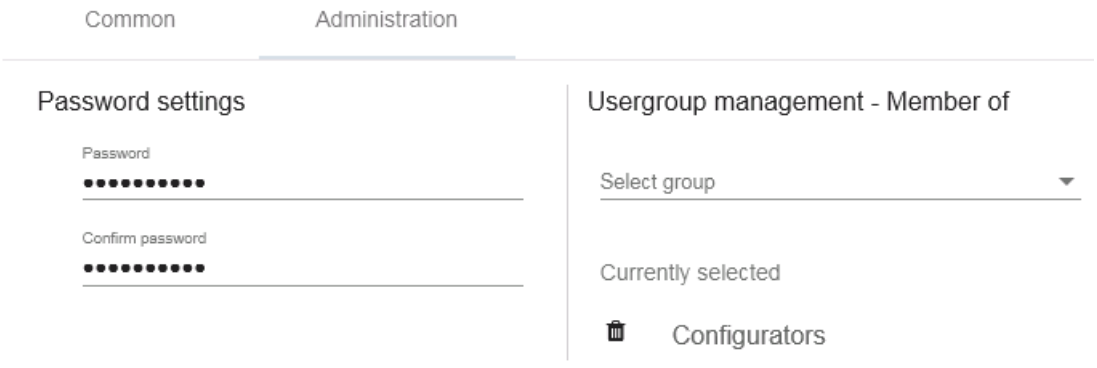
Procedure

To create a new user, follow these steps:

1. Click on the "New" button in the detail area "User management".
   The configuration dialog "New - User" opens.



2. Enter the personal information and location information in the "General" tab.
   The input of a user name is required.
3. Click on the "Administration" tab.



4. Enter the password of the new user in the "Password" text box.
5. Confirm the password in the "Confirm Password" text box.

6. From the "Select group" drop-down list select the user groups to which the user is added.

   The following user groups are available:

   – Administrator: This user group includes comprehensive functional rights for Energy Manager. The user group has the right to delete, add or configure all objects.
   – Configurator: This user group has the right to configure Energy Manager objects but not to delete these objects.
   – Operator: This user group has the right to open and view Energy Manager objects but not to configure or delete these objects.
   – Guest: This user group does not have the right to delete, add or configure objects. The user group also does not have the right to create new reports and to calculate analyses. This grouping is intended to apply simple, temporary restrictions on significant operator actions in the system.

7. The selected user groups are displayed in the "Currently selected" list.
8. To remove the user from a user group again, click the Delete icon.
9. Click on the "Save" button.

Result

The user has been created.

See also

Overview (Page 702)
Editing users (Page 706)
Deleting users (Page 707)
Setting up users (Page 343)
Creating user groups (Page 354)

3.7.5.3 Editing users

Requirement

- The user has been created.

Procedure

To edit a user, follow these steps:

1. Click on the user to be edited in the detail area "User management".
2. Click the "Edit" button. As an alternative, you can double-click the user to be edited.

   The configuration dialog "Edit - User" opens.
3. Configure the personal information and location information.

   The input of a user name is required.
4. You can assign a new password in the password settings.
5. Under user group management you can assign the user to a new user group or remove the user from a user group again.
6. Click on the "Save" button.

Note

You can only edit individually selected users.

See also

Overview (Page 702)
Creating users (Page 704)
Deleting users (Page 707)
Creating user groups (Page 354)
Setting up users (Page 343)

3.7.5.4 Deleting users

Requirement

- The user has been created.

Procedure

To delete one or more users from the system, follow these steps:

1. Click on the user to be deleted in the detail area "User management". As an alternative, you can also select one or more users to be deleted with the help of the check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete a user from the system in the "Edit - User" configuration dialog by clicking the "Delete" button twice.

Result

The user is deleted from the system.

See also

Overview (Page 702)

Creating users (Page 704)

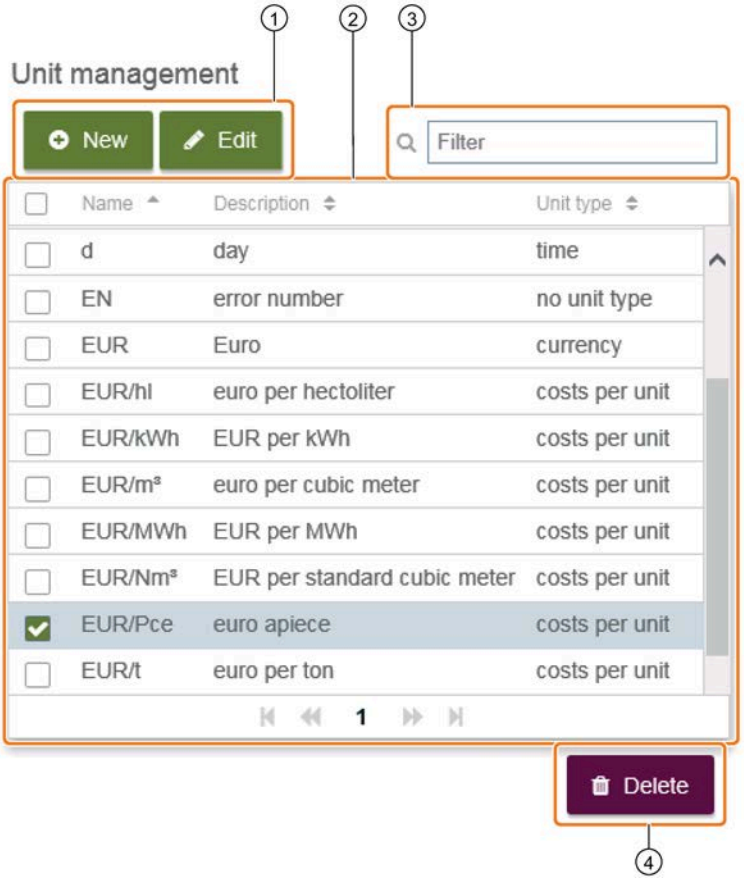
Editing users (Page 706)

3.7.6 Units

3.7.6.1 Overview

In the setting "Units" you create new units in Energy Manager Web and configure already existing units. An overview of the existing units can be found in the Energy Manager PRO Client under the path "System > Configuration > Extended configuration > Unit". The creation of new units can be found in the Energy Manager PRO Client under the path "Master data > Configuration > Insert unit". New units and configurations of existing units in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

The following figure shows the detail area "Unit - Management":



① "New" and "Edit" buttons: Creating and editing new units.

② Display table of existing units.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of units is recommended when a large number of units exist in the system.

④ "Delete" button: Delete units from the system.

Newly created and already existing units in the system are displayed in tabular form in Energy Manager Web. The display table consists of the following four columns:

Column	Function
Selection	You can select individual units and any number of units with the help of the check boxes. Clicking on the check box in the column header selects all units. Clicking on the check box again in the column header deselects all units again.
Name	Shows the name of the unit.
Description	Shows the description of the unit.
Unit type	Shows the type of unit.

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Creating units (Page 710)

Editing units (Page 711)

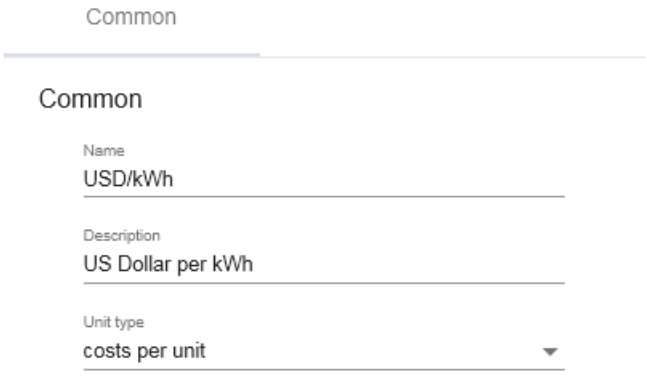
Deleting units (Page 712)

3.7.6.2 Creating units

Procedure

To create a new unit, follow these steps:

1. Click on the "New" button in the detail area "Unit - Management".
   The configuration dialog "New - Unit" opens.



2. Enter a meaningful name in the "Name" text box.
   The input of a name is required.
3. If required, enter a description of the unit in the "Description" text box.
4. Select the type of unit from the "Unit group" drop-down list.
   The selection of a unit type is required.
5. Click on the "Save" button.

Result

The unit is created. The created unit can be found in the Energy Manager PRO Client under the respective unit group.

See also

Overview (Page 708)
Editing units (Page 711)
Deleting units (Page 712)
Configuring units (Page 369)

3.7.6.3 Editing units

Requirement

- The unit is created.

Procedure

To edit a unit, follow these steps:

1. Click on the unit to be edited.
2. Click the "Edit" button. As an alternative, you can double-click the unit to be edited.
   The configuration dialog "Edit - Unit" opens.
3. Edit the name, the description, if required, and the unit type.
   The input of a name and selection of a unit type are required.
4. Click on the "Save" button.

Note

You can only edit individually selected units.

See also

Overview (Page 708)
Creating units (Page 710)
Deleting units (Page 712)
Configuring units (Page 369)

3.7.6.4 Deleting units

Requirement

- The unit is created.

Procedure

To delete one or more units from the system, follow these steps:

1. Click on the unit to be deleted. As an alternative, you can also select one or more units to be deleted with the help of the check boxes.
2. Click the "Delete" button.
3. Click the "Delete" button again to confirm the deletion process. As an alternative, you can delete a unit from the system in the "Edit - Unit" configuration dialog by clicking the "Delete" button twice.

Result

The unit is deleted from the system.

See also

Overview (Page 708)

Creating units (Page 710)

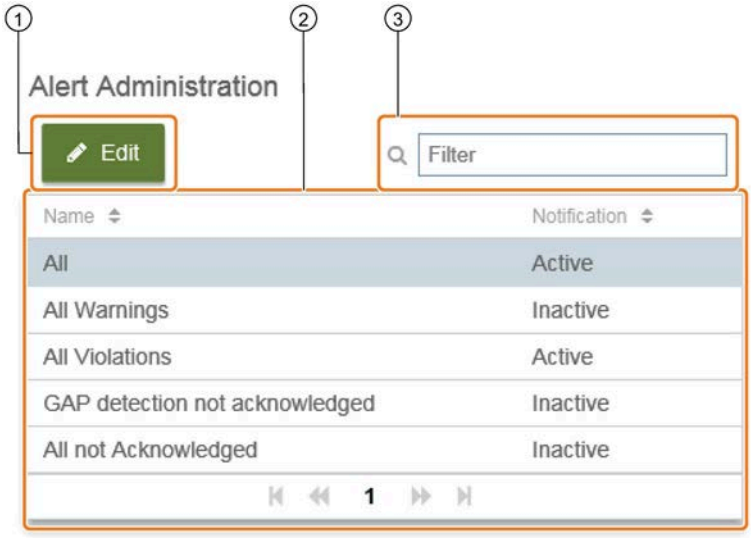
Editing units (Page 711)

3.7.7 Alarm lists

3.7.7.1 Overview

In the setting "Alarm lists" you configure existing alarm and message lists in Energy Manager Web. The creation of new alarm lists is only possible in the Energy Manager PRO Client. You also add one or more users to the corresponding alarm lists. The assigned users receive alarm messages of the corresponding alarm lists. An overview of the existing alarm lists in Energy Manager PRO Client can be found under the path "System > Configuration > KPI alert lists". Configurations of alarm lists in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

The following figure shows the detail area "Alarm - Management":



① "Edit" button Editing alarm lists.

② Display table of existing alarm lists.

③ Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation of alarm lists is recommended when a large number of alarm lists exist in the system.

Existing alarm lists in the system are displayed in tabular form in Energy Manager Web. The display table consists of the following two columns:

Column	Function
Name	Shows the name of the alarm list.
Notification	Shows the status of the alarm list. If no user is assigned to the corresponding alarm list, the status "Inactive" is shown. If the user is assigned to the alarm list and the option "Activate alert" is selected, alarm notification is activated. The status changes to "Active".

When you click on the column header of one of the columns, the corresponding column is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Editing alarm lists (Page 715)

Basic information on message lists (Page 389)

Configuring custom message list (Page 391)

Configuring message notification (Page 395)

3.7.7.2 Editing alarm lists

Requirement

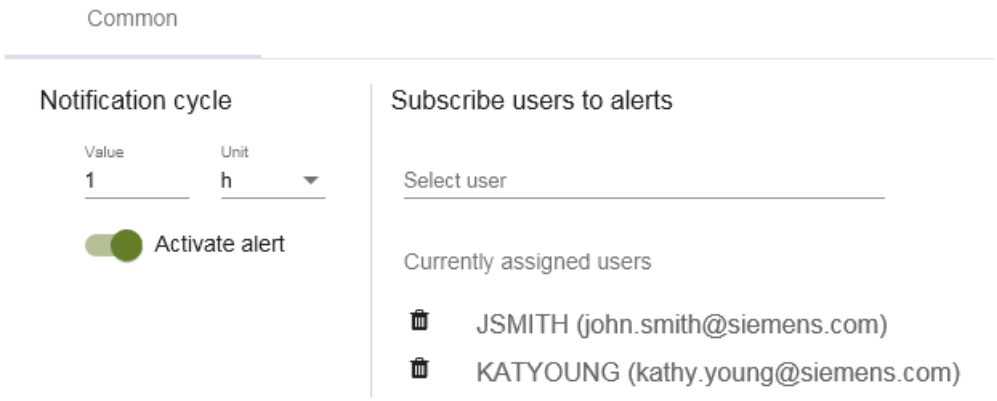
- The alarm list is created.

Procedure

To edit an alarm list, follow these steps:

1. Click on the message list to be edited.
2. Click the "Edit" button. As an alternative, you can double-click the alarm list to be edited.

   The configuration dialog "Alert list" opens.



3. Enter a numerical value in the "Value" text box.
4. Select the associated time from the adjacent "Unit" drop-down list.

   The user will be informed about any existing messages in the time period entered.
5. If you select the option "Activate alert", the assigned user is informed about alarms of the corresponding alarm list.

   The status changes to "Active".
6. From the "Select user" drop-down list select the users who will receive the messages of the corresponding alarm list. Only users with an assigned e-mail address are displayed.

   The selected users are displayed in the "Currently selected users" list.
7. You can remove the assigned users again by clicking the "Delete" icon.
8. Click on the "Save" button.

Note

You can only edit individually selected alarm lists.

See also

Overview (Page 713)
Configuring message notification (Page 395)
Basic information on message lists (Page 389)

3.7.8 Backup

Overview

In the setting "Backup" you configure the automatic creation of database backups in Energy Manager Web. You can find the corresponding settings in the Energy Manager PRO Client under the path "Administration > Backup". Configurations of backups in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

With the help of the individual setting of the weekdays you can create a weekly backup plan. The "Last backup status" text field shows when the last full and incremental backup was created. In addition, a message is displayed as soon as no backup is found. The "Drive status" text field shows the host name and the storage space of the archive drive.

Note

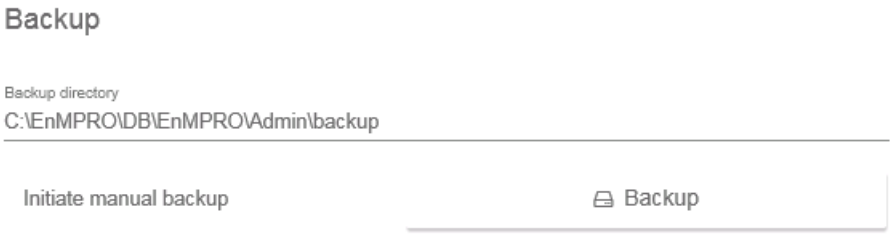
Restoring older versions

Version V7.4 does not support restoring a backup that was created with a previous version (e.g. V7.3 or V7.2).

Configuring a backup

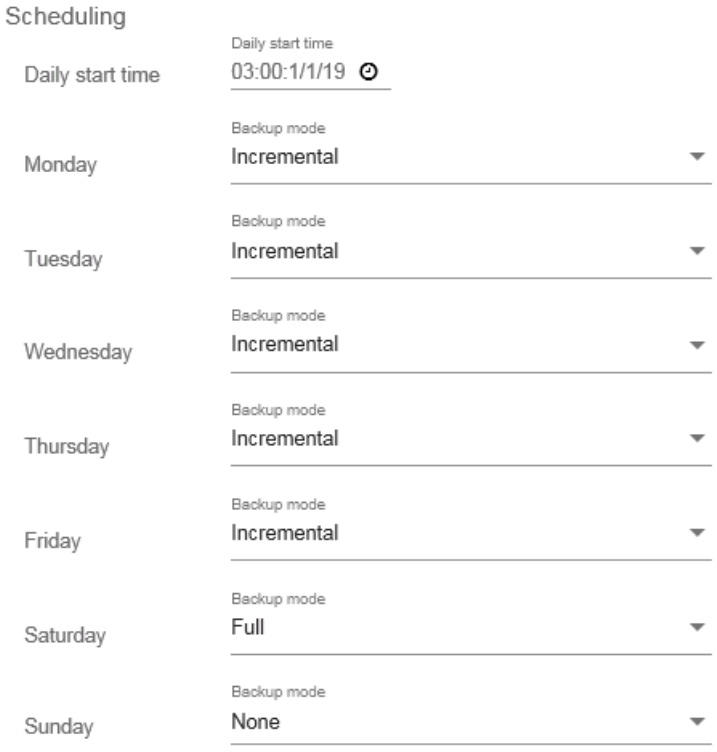
To configure the setting "Backup", follow these steps:

1. Enter the storage location of the backup on your PC in the "Backup directory" text box.
2. If you want to manually create a backup, click on the "Change recovery model" button. To start the manual backup process, click on the "Backup" button.



3. Select the daily start time of the backup from the "Daily start time" text field.

4. Select a backup type for each weekday from the "Backup mode" drop-down list. You can choose an incremental, full or no backup for each weekday.



5. Click on a different entry in the navigation area to save the settings.

See also

Overview of settings (Page 689)

Backup (Page 411)

Restore (Page 413)

3.7.9 Regional settings

Overview

In the setting "Regional settings" you manage location-specific settings in Energy Manager Web. You can create new countries or delete already created countries from the system. Already created countries with the corresponding configurations can be found in the Energy Manager PRO Client under the path "System > Configuration > Countries". The creation of new locations can be found in the Energy Manager PRO Client under the path "Master data > Localization > Insert location". Changes to the regional settings in Energy Manager PRO Web are also adopted in the Energy Manager PRO Client and vice versa.

The formats for date, decimal separation and currency are automatically taken from your PC Windows settings.

Configuring regional settings

To configure the setting "Regional settings", follow these steps:

1. Select a location from the "Country" drop-down list.

   The corresponding entries of the selected location are displayed in the "Name" and "Location" text fields.

2. If you want to create a new country, click the "Add new country" icon.

3. Enter the name of the country in the "Name" text box and the associated location in the "Location" text box. You can also edit the name and location of already created locations.

4. To create the new country, click the "Confirm" icon. To cancel the action, click on the "Cancel" icon.

5. Select the corresponding country code from the "Country code" drop-down list.
6. Select the corresponding time zone from the "Time zone" drop-down list.
7. Select the language for the report evaluation from the "Report language" drop-down list.
8. To define the selected location as the default country, select the option "Default country".
9. If you want to delete a country from the system, click the "Delete country" icon. Click on the icon again to confirm the process.
10. Click on a different entry in the navigation area to save the settings.

See also

Overview of settings (Page 689)

Inserting the location or country (Page 331)

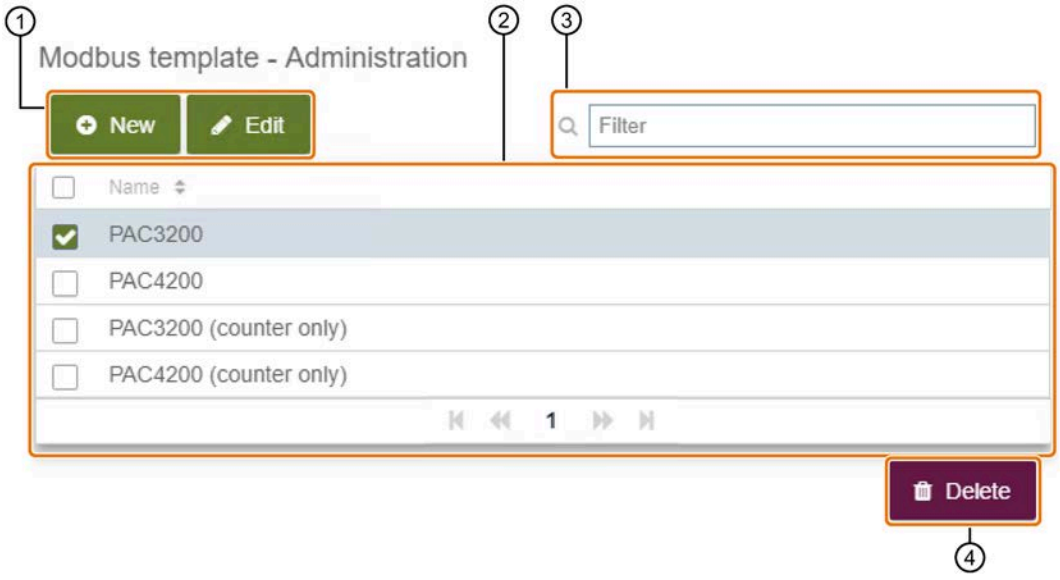
3.7.10 Modbus device templates

3.7.10.1 Overview

In the setting "Modbus device templates" you create new Modbus templates in Energy Manager Web and configure already existing Modbus templates. You can create, edit, delete and export Modbus templates only in Energy Manager Web Client. New Modbus templates and configurations of existing Modbus templates in the Energy Manager Web Client are adopted in the Energy Manager PRO Client.

When you create or configure a Modbus channel, you can use the Modbus templates.

The Modbus templates are displayed in tabular form:



① "New" and "Edit" buttons: Creating and editing new Modbus templates.

② Display table of existing Modbus templates.

③ Filter function: When you enter a text in the "Filter" entry field, the column Name" is searched and corresponding templates are displayed in the display table. Delimitation of Modbus templates is recommended when a large number of Modbus templates exist in the system.

④ "Delete" button: Delete selected Modbus templates from the system.

The display table consists of the following two columns:

Column	Function
Selection	You can select individual Modbus templates and any number of Modbus templates with the help of the check boxes. Clicking on the check box in the column header selects all Modbus templates. Clicking on the check box in the column header again deselects all Modbus templates again.
Name	Shows the name of the Modbus template. When you click on the column header of the "Name" column, it is sorted in alphabetical order. When you click on the same column header again, the column is sorted in the reverse order.

See also

Modbus TCP templates (https://support.industry.siemens.com/cs/de/en/view/109771884)

3.7.10.2 Exporting Modbus device templates

Requirement

- The Modbus device template has been created.

Procedure

Follow these steps to export a Modbus device template:

1. Select the desired Modbus device template from the table of the detail area "Modbus templates - Administration".
2. Click the "Edit" button.
3. Click the "Download" button.

Result

The selected Modbus device template has been saved in the storage location for your browser downloads. The saved template has the name in Energy Manager Web as the file name and the data type ".ini".

3.7.10.3 Creating a Modbus device template

Requirements

- Do you have the functional right "Master Data > create, remove, configure"?
- An exported Modbus device template is saved in its local system.

Procedure

To create a new Modbus device template, follow these steps:

1. Edit the exported template according to your needs.

   At the beginning of the automatically created templates you can find a short description of all configurable contents for editing.

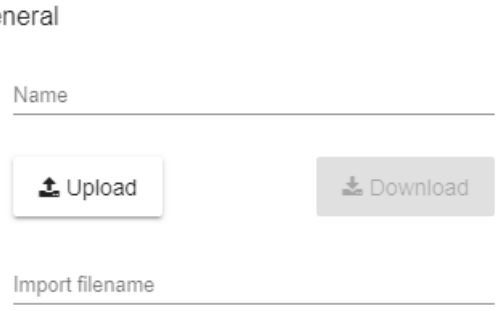
   Note

   The description of the contents of a template is only available in English.

2. Save the edited template in the "*.ini" file format in its local system.
3. Click on the "New" button in the detail area "Modbus device templates - Administration".

   The configuration dialog "New - Modbus template" opens.

4. Enter a meaningful name in the "Name" entry field. If you create a Modbus channel with a template, the name is displayed in the "Template" drop-down list.



5. Click the "Upload" button.

   A dialog window in which you can search the local data system is displayed.

6. Select the desired template from the local data system and click on the "Open" button.

   The folders saved in the template with all data points are displayed in the "Template" field.

7. Click the "Save" button.

Result

The Modbus device template has been created.

3.7.10.4 Editing a Modbus device template

Requirements

- You have the functional right "Master Data > Configure".
- The Modbus template has been created.

Procedure

To edit a Modbus template, follow these steps:

1. Select the desired Modbus template from the table of the detail area "Modbus device templates - Administration".
2. Click the "Edit" button.

   The dialog window "Edit - Modbus template" opens.
3. Configure the Modbus template as for creating a Modbus template.
4. Click the "Save" button.

3.7.10.5 Deleting a Modbus device template

Requirements

- You have the functional right "Master Data > create, remove, configure"
- The Modbus template has been created.

Procedure

To delete a Modbus template, follow these steps:

1. Select one or more Modbus templates from the table of the detail area "Modbus device templates - Administration".
2. Click the "Delete" button.

Result

The selected Modbus templates are deleted.

3.7.11 Data provider

You can make the data in your Energy Manager system accessible to programs and systems via an OPC UA HDA Server. You configure the access in the "Data provider" setting.

OPC UA Server

To configure "OPC UA Server" access, proceed as follows:

1. Under "Start folder", use the structure browser to select the folders whose data is transferred with the OPC server.

   If you select a folder, the data of all nested folders will also be made accessible.

2. Specify the address of the server on which the Energy Manager is installed. Enter the address in the following form:

   `opc.tcp://[IP address]:[Port]`

3. Enable the security profiles used by the OPC UA HDA server.

   If you have activated a security profile, a certificate exchange is performed. To access the data via the OPC server, move the created certificate from the /Siemens/EnMPro/OpcUaServr/pkiserver/rejected/certs folder to the [...]/pkiserver/trusted/certs folder.

4. If you enable "Anonymous user identity", you do not need login data to access the data via the OPC server.

   If you enable "Use name identity", you can specify a user name with password to access the data via the OPC server. The user name and the password must correspond to a user name and the corresponding password of a user of your Energy Manager system.

   If you specify the login data of an Energy Manager user, you can only access the data points that the user can also access in the Energy Manager.

   If you only enable "User name identity", you need to enter a user name with password to access the data via the OPC server.

Note

If you configure the data provider while the server is running, the System service must be restarted via the Service Cockpit. Changes at the OPC server are only applied after the restart of the System service.

Additional information

The following entries are available for each data point that is made accessible by the OPC UA server:

- Unit
- Acquisition category
- Measured values
  If several compression levels are configured for the data point, the lowest compression level is made available.

  The entry on the measured values has the following label: **[Data point name]_[Compression level]**

If a data point is configured as a counter, additional measured values are provided that are compiled as counters. This entry has the following label: **[Data point name]_CNT_[Compression level]**

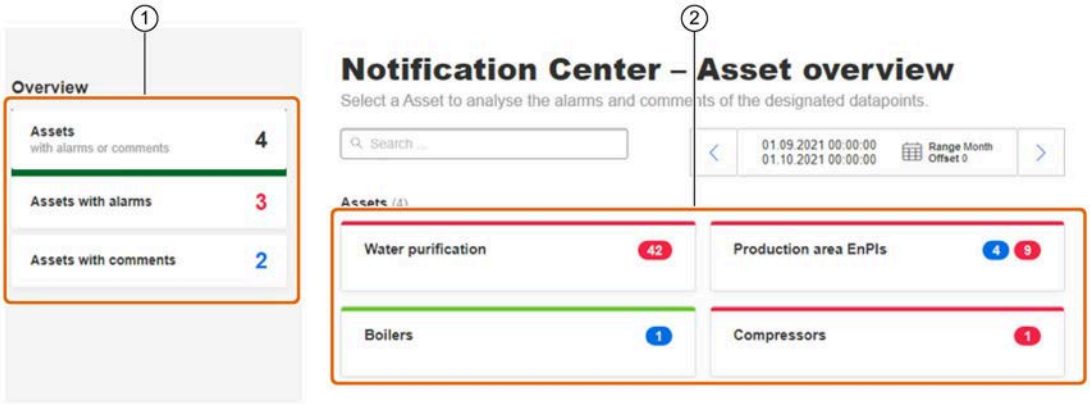
3.8 Notification Center

The "Notification Center" provides an overview of all generated alarms, warnings and comments for each asset.

To open the "Notification Center", click on the "Notification Center" icon in the menu bar.

Structure

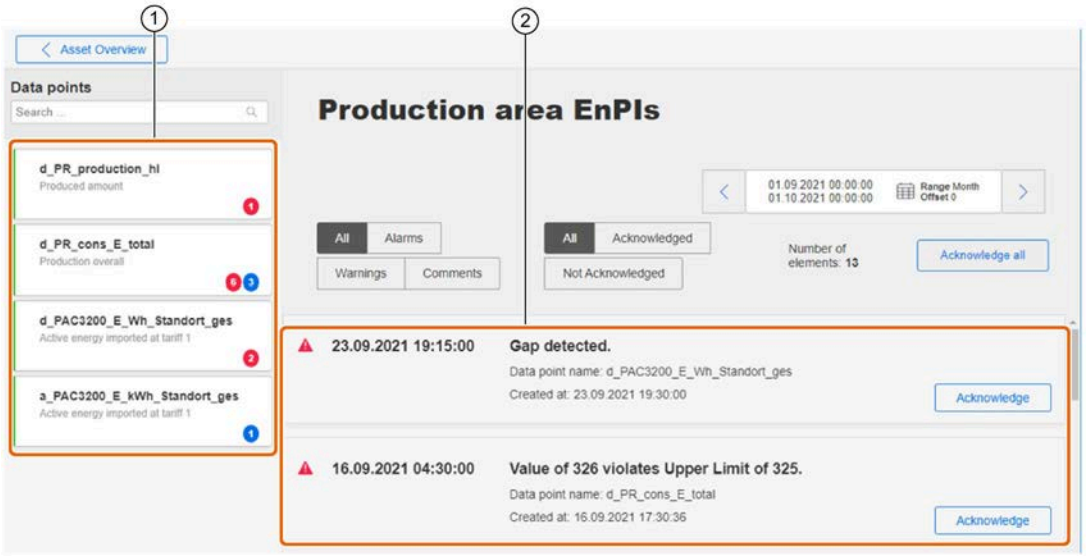
When you open the Notification Center, you will see an overview of all alarms for each asset.



① The overview shows you how many assets have data points with alarms, warning or comments.

② The asset overview shows you how many alarms, warnings or comments are occurring in an asset.

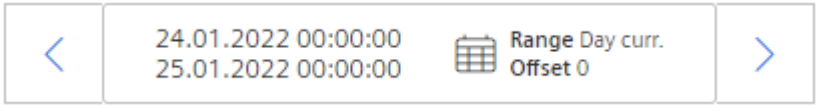
To open the detail view of an asset, click on it.



① This area shows all data points with alarms, warning or comments.
② The detail view of the asset shows all alarms.

You have the following options to filter for specific alarms:

- Filter for alarms during a specific period in the detail view of the asset.



- Filter for type of alarm
  - All

    Shows all types of alarms.
  - Alarms

    Shows only alarms.
  - Warnings

    Shows only warnings.
  - Comments

    Shows only comments.

- Filter for alarm status
  - All

    Shows all alarms.
  - Confirmed

    Shows all confirmed alarms.
  - Not confirmed

    Shows all not confirmed alarms.
- Filter for alarms at specific data points in the "Data points" area.

When you select a data point, you will see the chart icon in the detail view. To open the chart of the data point in a new window, click on the icon.

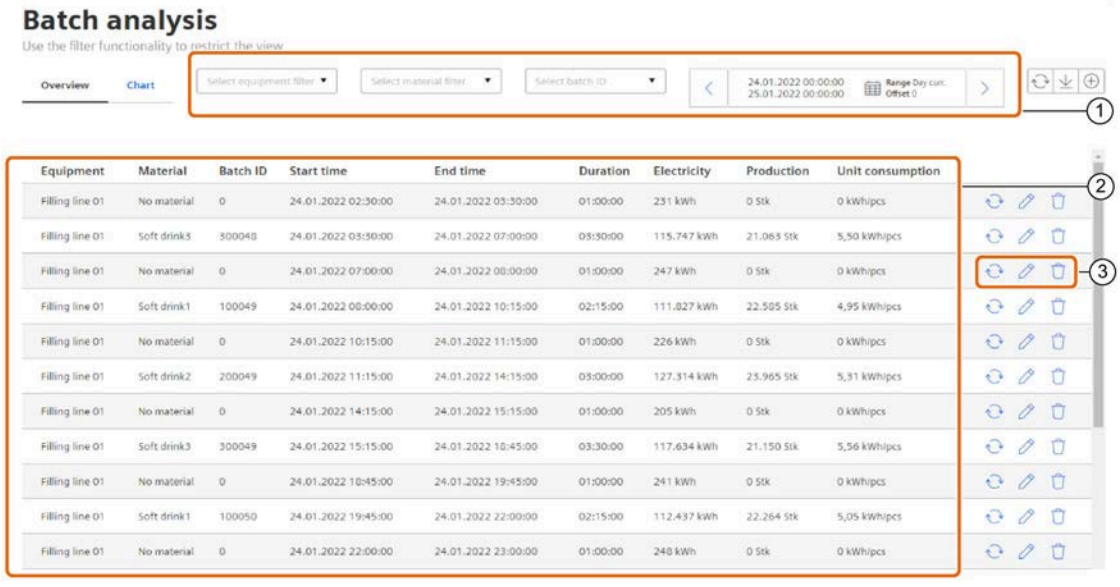
3.9 Batch analysis

With the batch analysis, you determine the resource consumption of a product per batch.

To open the batch analysis, click on the "Batch analysis" icon.

Overview structure

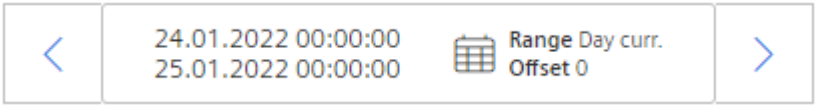
When you open the batch analysis, you will see an overview with the batches as well as their KPIs.



① Filter options
② Table of batches and KPI values assigned to the asset
You can display up to five KPI values.
③ You can recalculate, edit or delete each batch.

You have the following options to filter the table for displayed batches:

- Filter for batches within a specific period.

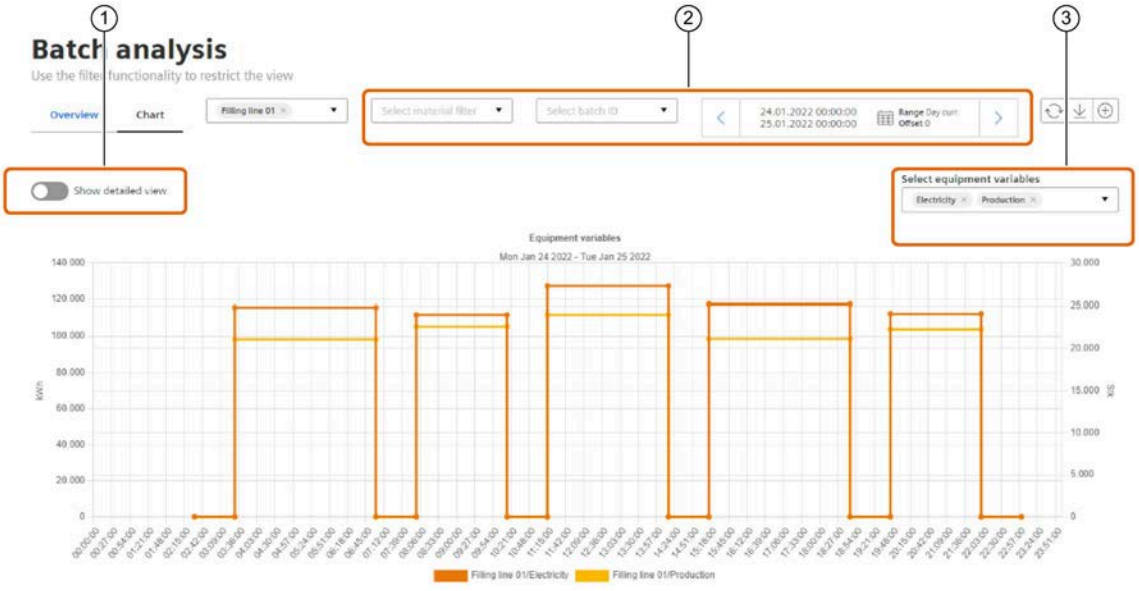


- Filter for asset
- Filter for material
- Filter for batch ID

Chart structure

Click on "Chart" to open the chart view.

The chart shows the KPIs of all batches in the selected period. Each calculated KPI value is shown as a line between the start time and end time of the batch. The chart can show up to 10 KPI trends.



① Disable the option to show the charts with the KPI values calculated for the specific batch period.
Enable the option to show the charts with the shortest possible KPI calculation cycle.
② Filter options
③ Select which KPI charts are displayed.

UC	Filter settings	Description
1	All assets, materials and batches	You obtain an overview of all batches and can export them as a CSV file. You can analyze the CSV file further in other tools.
2	All assets, materials and batches	You gain an overview of the energetic irregularities in selected batches. Sort the table by unit consumption, select the respective batches in the filter and switch to chart.
3	One asset, all materials and batches	You obtain an overview whether energy consumption depends on the produced material. To hide individual effects, view all batches during the interval. Use unit consumption as KPI.
4	One asset, one material and all batches	You obtain an overview as to whether the different batches of a material are produced with equal efficiency in an asset. Use unit consumption as KPI.
5	Individual assets, one material and all batches	You obtain an overview of the unit consumption of a product that was produced in multiple assets at the same time.

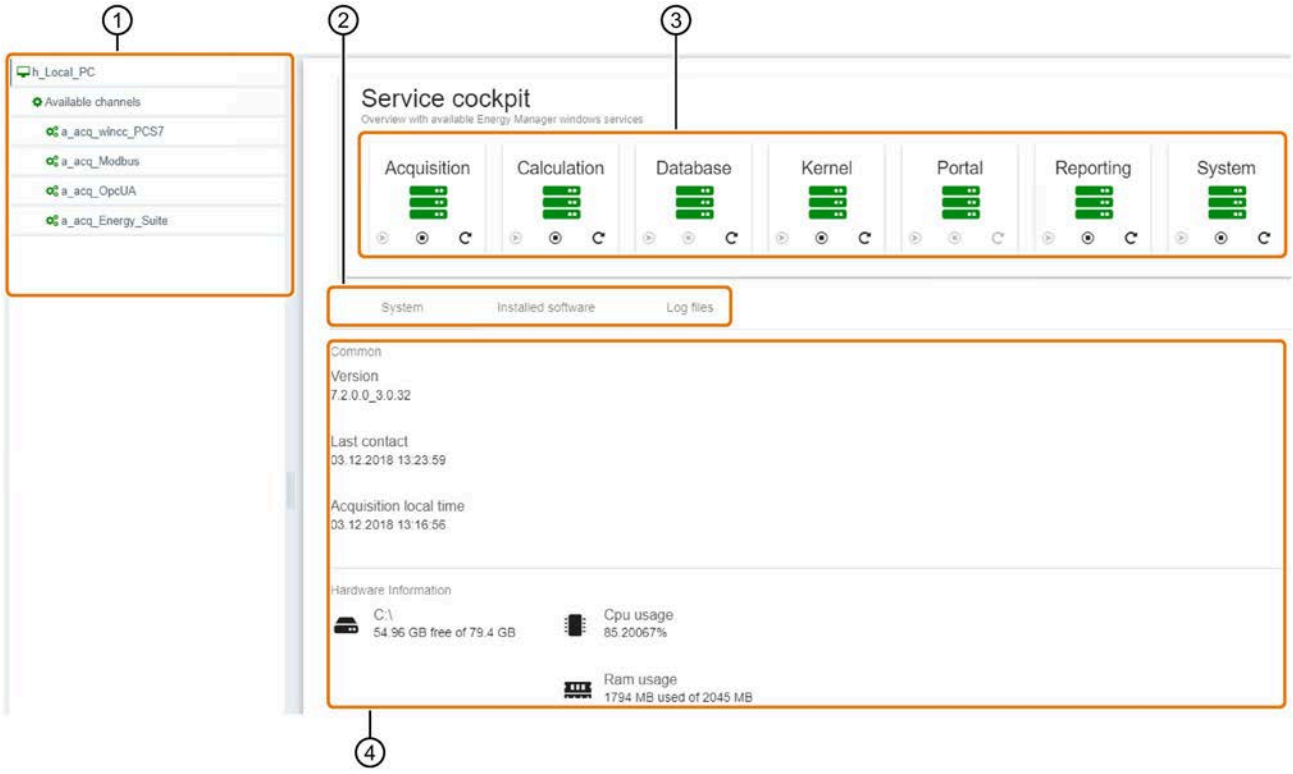
3.10 Service Cockpit

To open the Service Cockpit, click on the icon .

To open the Service Cockpit in Energy Manager Web, you require the functional rights "Service Cockpit > view" and "Master Data > view".

Setup

The following figure shows the Service Cockpit:

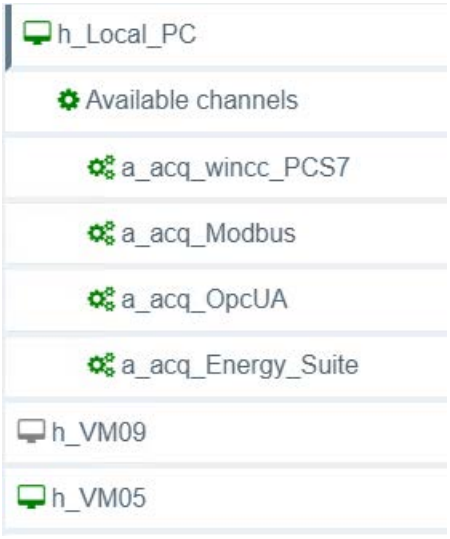


① Navigation area
② Selection of detailed information
③ Display of services
④ Detailed information

3.10.1 Navigation area

The navigation area displays all available acquisition components and the application server.

The following figure shows the navigation area:



To display the function dialog of the acquisition component in the detail area, click on the entry of the acquisition component in the navigation area.

To display all acquisition channels of an acquisition component in the navigation area, click on the item of the acquisition component and then on the "Available channels" item.

The status of the acquisition components and channels is displayed via the color of the corresponding icon:

Color	Acquisition component status	Channel status
Green	At least one acquisition component is active. There is no gap in any channel of the acquisition component.	Data acquisition of the channel is active. There is no gap.
Red	At least one acquisition component is active. There is no gap in at least one channel of the acquisition component.	The channel is connected to the system. There is a gap.
Gray	All channels of the acquisition components are not connected or are inactive.	The channel is not connected to the system or is inactive.

The entry "Available channels" has the same status display as the corresponding acquisition component.

If you hold the mouse pointer over the entry of a channel, the ID of the process is displayed via a tooltip.

3.10.2 Services

Depending on the use of the selected system component, the corresponding services are displayed:

System component	Energy Manager Service
Application server	• Database service (Database) • Report service (Reporting) • Portal service (Portal) • Calculation service (Calculation) • System service (System)
Acquisition component	• Portal service (Portal) • Acquisition service (Acquisition) • Kernel service (Kernel)

If a server is used as the acquisition server and application server, all listed services are displayed.

Status display

The status of the services is indicated by the color of the icon:

Color	Status
	Service is running
	Service is stopped
	Service is stopped

Start, restart and stop of services

To control services, click on the icons in the following table:

Symbol	Function
	Start service
	Restart service
	Stop service

3.10.3 System

To call up this field, click on system component in the navigation area and the "System" tab in the selection of the detailed information.

Information

This field shows the following general information for the corresponding servers:

Application server	Acquisition component
• The Energy Manager version used by the system	• The Energy Manager version used by the system • The time of the last contact with the acquisition system • The system time

The system field shows the following hardware information for all servers:

- A list of the hard disks and their usage
- The CPU load
- The currently used work memory

3.10.4 Installed software

To call up this field, click on system component in the navigation area and the "Installed software" tab in the selection of the detailed information.

Setup

This field shows a table with the following information:

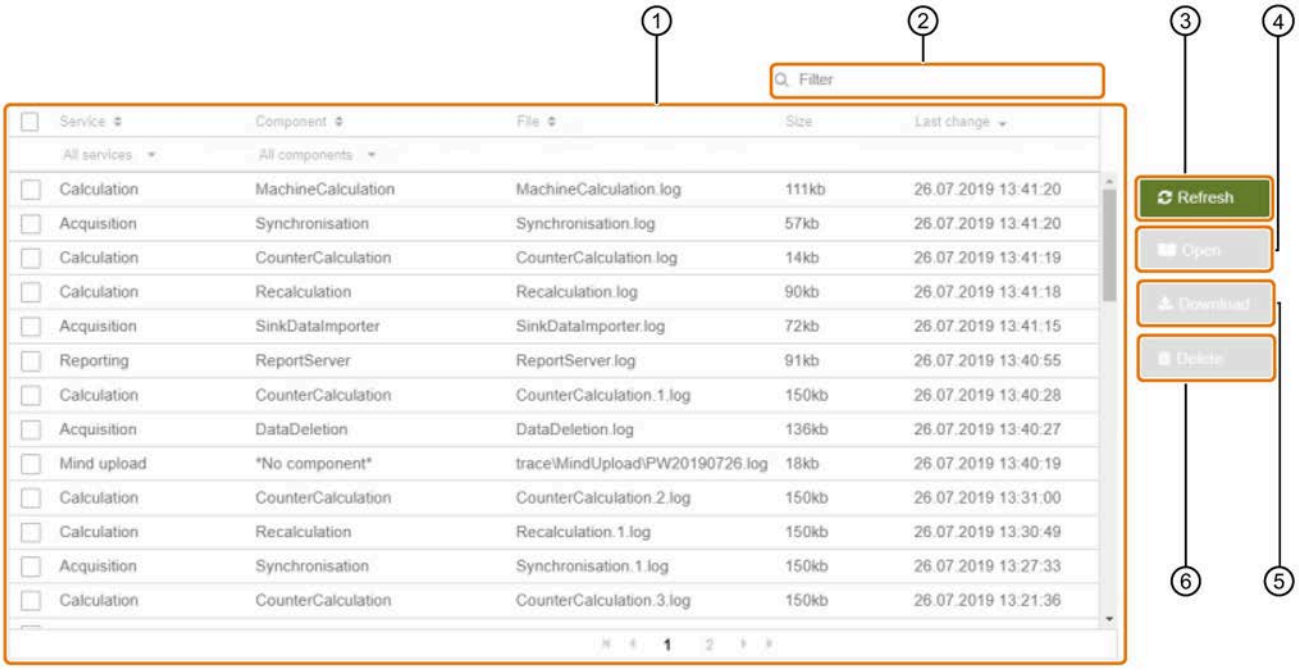
- The programs installed on the server
- The version of these installed programs

Sort the list via the column headers.

3.10.5 Log files

To call up this field, click on system component in the navigation area and the "Logs" tab in the detailed information selection.

The following figure shows an overview of the "Logs" field:



① Table with log files

② Filter

When you enter a text in the "Filter" text box, all columns are searched and displayed accordingly in the table. Delimitation is recommended when a large number of log files exist in the system. Click on a column header to sort the corresponding column alphabetically.

③ Update

Updates the table with the log files.

④ Open

Opens the log file in the Energy Manager Web Client.

⑤ Download

Downloads the selected log file to your local system via your browser download. If several log files are selected, this button is disabled.

⑥ Delete

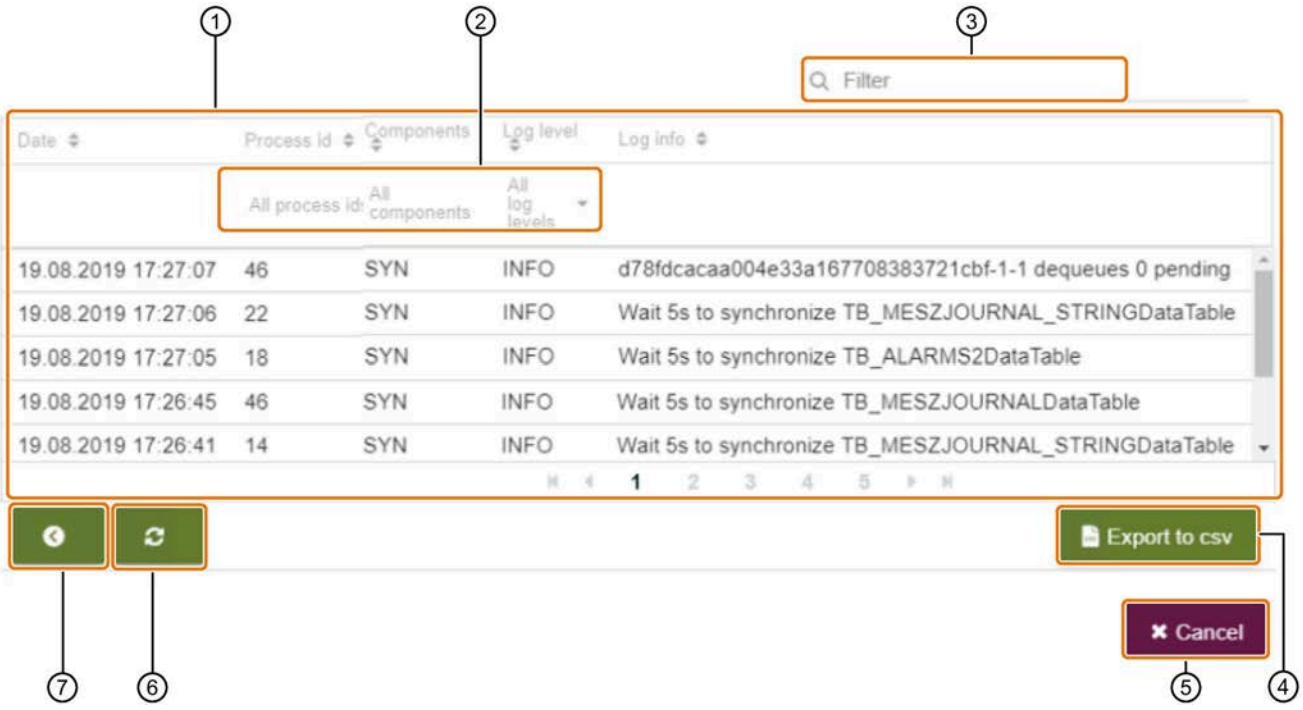
Deletes all selected log files.

The table with the log files contains the following information:

Name of the column	Content of the column
Service	Name of the corresponding Energy Manager service
Component	Name of the associated subcomponent of the service
File	Name of the log file
Size	Size of the log file in kilobytes
Date changed	Time of last change

View of the log file

The following figure shows a log file in the Energy Manager Web Client:



① Table with the messages

② Column filter

To filter a column, click on the corresponding filter. Then select the entries by which the column is to be filtered.

③ Filter

When you enter a text in the "Filter" text box, all columns are searched and displayed accordingly in the table. Delimitation is recommended when a large number of log files exist in the system. Click on a column header to sort the corresponding column alphabetically.

④ Export as CSV

Downloads the selected log file in CSV format to your local system via your browser download.

⑤ Cancel

Closes the view of the log file.

⑥ Update

Updates the log file

Next log file

If the latest log file with this name is not open, this button shows an arrow.

To open the next log file, click on this button.

⑦ Previous log file

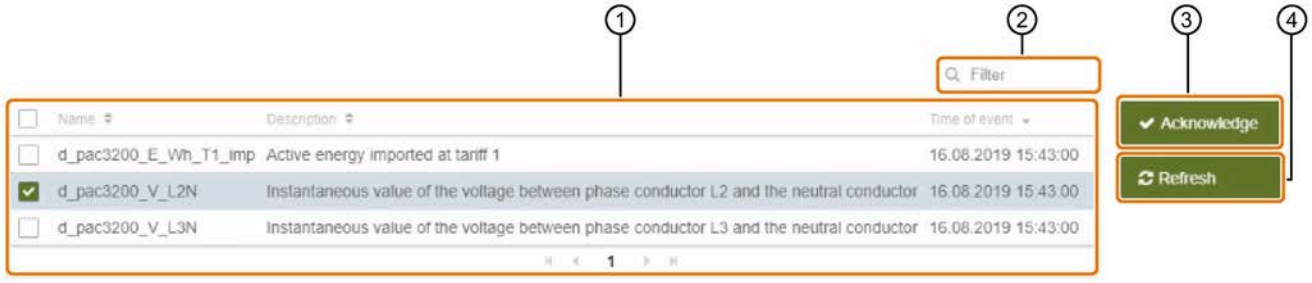
Opens the log file with the same name that was created before this log file.

The log file messages table contains the following information:

Name of the column	Content of the column
Date	Time stamp of the message
Process ID	ID of the channel to which the message provides information
Components	Component from which the message originates
Log level	Message type: • INFO = Information • WARNING = Warning • ERROR = error
Log information	Contents of the message

3.10.6 Gap recognition

To open a list of acquisition gaps of a channel, click on the channel in the navigation area of the service cockpit. When you click on "Available channels" in the navigation area, the list for the top channel is displayed in the navigation area. You can check the functionality of data acquisition with the help of gap recognition.



①	Table with all gaps of the channel
②	Filter function: When you enter a text in the "Filter" entry field, all columns are searched and displayed accordingly in the display table. Delimitation is recommended when there is a large number of gaps.
③	"Acknowledge": To acknowledge a gap, select the corresponding gap from the table and click twice on this button. The gap is deleted from the list. When all gaps are acknowledged, the status of the channel is set to green.
④	"Refresh" Click on this button to update the table with the gaps.

The display table contains three columns:

Column	Function
Data point	Data point of the gap
Description	Description of the data point
Time stamp	Time stamp of the gap

3.10.7 Troubleshooting with log files

3.10.7.1 Kernel fault

You can find more information on the log file in the reference under "Kernel (Page 903)".

Requirements

- You have the functional right "Administration > Logging Viewer > View"
- You have the functional right "Administration > Service Cockpit > View"
- The Service Cockpit in the web client is open.

Raw values are missing in the chart with compression level acquisition values

If the acquired measured values of the data source are not visible in the chart, proceed as follows to locate the problem:

1. Check whether the following services are running:
   - Kernel service (Kernel)
   - Acquisition service (Acquisition)
   - Portal service (Portal)

   If the icon of the service is green, the service is running.
2. Open the latest log file of the Kernel Service via the detail information "Log files".

   To facilitate the search, use the "Filter" function and sort the column "Last change"
3. Search the log file for errors.

   Messages of category 3000 are error messages.

   Identify the interface at which the error is present using the process ID.
4. With the help of the log file check whether values arrive in the kernel and are passed on.
5. Check whether the acquired measured values are written to the raw files.

   The raw files can be found in the directory "Installation directory\GUI\mcl\RawFiles".

   You can find additional information on raw files in the following section.

Raw files

Values acquired from the data sources are stored in raw files by default. A folder is created at midnight local time for each day. As soon as the first value is acquired, a raw file is created in this folder for each data point.

The name of the raw file consists of the ID of the data point. You can read the ID of the data point in the configuration dialog of the data point.

3.10.7.2 Acquisition service error

You can find more information on the "Compression" log file in the reference under "Compression (Page 908)".

Requirements

- You have the functional right "Administration > Logging Viewer > View"
- You have the functional right "Administration > Service Cockpit > View"
- The Service Cockpit in the web client is open.

The acquired measured values are visible, the 15-minute values are not.

If the acquired measured values are visible and values of the "15 minutes" compression level are not visible, proceed as follows to locate the problem:

1. Open the latest log file "Compression".
2. Check whether values were compressed for the corresponding time stamp. Filter the log file by the identifier "CMPR".
3. Filter in the log file by the identifier "RCAL" to display the compressed interval and the number of compressed values.
4. To check whether the compressed values were uploaded to the SQL server, open the log file "Synchronisation" of the acquisition service.

The local database of the acquisition component does not work.

If the local database of the acquisition component does not work, error messages are displayed in the log files "Compression", "Kernel" and "Synchronisation".

Open the log file "SQL Provider". This log file should be empty. If there are error messages in this log file, the local database is corrupt.

Alarms for acquisition values are not generated

If no alarms are generated in the event of limit violations in the values with the compression level "Acquisition values", proceed as follows:

1. Open the latest log file "Compression".
2. Filter the log file by the identifier "PLSI".
3. Check whether limit violations have been detected.

Gaps are not detected

If no gaps are detected in the acquired values, carry out troubleshooting as follows:

1. Open the latest log file "Compression".
2. Filter the log file by the identifier "Gap".
3. Check whether gaps have been detected.

3.10.7.3 Reporting service error

For more information on the "Recalculation" log file, see the reference under "Recalculation (Page 913)".

For more information on the "MEVA calculation" log file, see the reference under "MEVA calculation (Page 916)".

Requirements

- You have the functional right "Administration > Logging Viewer > View"
- You have the functional right "Administration > Service Cockpit > View"
- The Service Cockpit in the web client is open.

Daily values in matrix but no monthly values calculated

If you entered the daily values in a matrix, yet no monthly values were calculated, carry out troubleshooting as follows:

1. Open the latest log file "Recalculation".
2. Filter the log file by the identifier "ACOP".
3. Check to see whether compression is still pending.
4. Filter the log file by the identifier "RCAL".

Derived data points are not calculated automatically

If derived data points are not calculated automatically even though the data point is configured accordingly, carry out troubleshooting as follows:

1. Open the latest log file "Recalculation".
2. Filter the log file by the identifier "DCAL".
3. Check to see whether recalculation is still pending.
4. Filter the log file by the identifier "RCAL".

MEVA/KPI is not calculated

If a MEVA/KPI is not calculated, carry out troubleshooting as follows:

1. Open the Logging Viewer in the Energy Manager Pro Client.

   For more information on the Logging Viewer, refer to the section "Logging Viewer"
2. Search for error messages of the MEVA/KPI in Logging Viewer.
3. Open the log file "MEVA calculation".

Substitute values are not calculated for manually acquired daily values

If the substitute values are not calculated for gaps of manually acquired daily values, carry out troubleshooting as follows:

1. Open the latest log file "Recalculation".
2. Filter the log file by the identifier "REPV".
3. Check whether gaps have been detected.
4. Filter the log file by the identifier "RCAL".
5. Check whether substitute values were generated.

Interpolation of monthly values does not work

If the interpolation of monthly values does not work, carry out troubleshooting as follows:

1. Open the latest log file "Recalculation".
2. Filter the log file by the identifier "EXPA".
3. Check whether interpolation or extrapolation was performed.
4. Filter the log file by the identifier "RCAL".
5. Check whether an interpolated or extrapolated value was created.

3.10.7.4 Reporting service error

You can find more information on the "Report Server" log file in the reference under "Report Server (Page 917)".

Requirements

- You have the functional right "Administration > Logging Viewer > View"
- You have the functional right "Administration > Service Cockpit > View"
- The Service Cockpit in the web client is open.

Reports are not generated

If only the first green check mark is displayed after starting a report, or an automatically calculated report is not displayed, carry out troubleshooting as follows:

1. Open the log file "Report Server".
2. Filter the log file by the ID of the report.
3. Search for error messages.

   If macros and Visual Basic were not activated in the EXCEL settings, this error occurs.
4. Check whether a default printer is defined in the operating system.

Reference

4

4.1 Acquisition status of a value

The acquisition status of a value shows whether this value was acquired properly. Values are displayed independently of the acquisition status in the chart and reused in MEVAs.

The following list contains all relevant acquisition statuses with a short explanation:

- **STER_OK**

  A value with this acquisition status was acquired properly.

  Effect: In the report, this value is displayed in black.

- **STER_GAP**

  A value with this acquisition status is requested more often than defined in the data point.

  Example: A data point has a cycle duration of 15 minutes. This means that the value of the data point is requested every 15 minutes at the interface. If - because of a misconfiguration - the value in Energy Manager is requested every 5 minutes, 3 values are passed to the acquisition component after each 15 minute cycle. Since only one value is saved in the 15 minute interval, the first two values are discarded and the third value with the STER_GAP acquisition status is saved.

  Effect: In the report, this value is displayed in light green.

- **STER_INVALID**

  This acquisition status is only relevant for values of an OPC or OLE DB interface. In addition to the measured value, a status can be acquired as well with these interfaces. If the acquired status of a value is "Invalid", this value receives the acquisition status STER_INVALID in the Energy Manager.

  Effect: In the report, this value is displayed in red.

- **STER_FIRST**

  The first captured measured value after the restart of the kernel of the acquisition component receives the STER_FIRST status.

  Effect: In the report, this value is displayed in black.

- **STER_FIRST_INVALID**

  This status is a combination of the acquisition statuses STER_INVALID and STER_FIRST.

  If the first captured measured value after the restart of the kernel of the acquisition component is invalid, the value receives this status.

  Effect: In the report, this value is displayed in red.

- **STER_LAST**

  If the kernel of the acquisition component is stopped or restarted, the last captured measured value before the stop of the acquisition component receives the STER_LAST status.

  Effect: In the report, this value is displayed in black.

- **STER_LAST_INVALID**

  This status is a combination of the acquisition statuses STER_INVALID and STER_LAST.

  If the last captured measured value after the restart of the kernel of the acquisition component is invalid, the value receives this status.

  Effect: In the report, this value is displayed in red.

4.2 Correction status of a value

Each acquired value in Energy Manager has a correction status. The correction status indicates whether and how a measured value was corrected. You can see and change the correction status of a value in the matrix or the measured value editor.

Values with a different correction status than "Valid" are displayed in orange in the report. Values are displayed independently of the capture status in the chart and reused in MEVAs.

The following value correction states are possible:

- **Valid**

  If a value was not corrected, the value has this correction status.

- **Valid with manual manipulation**

  If a value in the matrix or the measured value editor is overwritten, the value receives this correction status.

- **Corrected**

  If a value is automatically corrected by the system, the value receives this correction status.

  Example: If the counter value difference (consumption) does not correspond to the filter criteria, this value is automatically corrected.

- **Corrected with LRU**

  If a missing value is inserted via the substitute value strategy "LRU", the value receives this correction status.

- **Corrected with substitute measurement**

  If a missing value is inserted via the substitute value strategy "AKS", the value receives this correction status.

- **Corrected with substitute value**

  If a missing value is inserted via the substitute value strategy "Substitute value", the value receives this correction status.

- **Invalid**

  You can give values this correction status. Values with this correction status are not processed further in the MEVAs.

- **Valid corr. with LRU and manual manipulation**

  This correction status is not assigned automatically.

  If a value with the "Corrected with LRU" status is overwritten in the matrix or measured value editor, the value keeps this status. To mark such values accordingly, you can give these values the correction status "Valid corr. with LRU and manual manipulation".

- **Valid corr. with substitute value measurement and manual manipulation**

  This correction status is not assigned automatically.

  If a value with the "Corrected with substitute measurement" status is overwritten in the matrix or measured value editor, the value keeps this status. To mark such values accordingly, you can give these values the correction status "Valid corr. with substitute value measurement and manual manipulation".

- **Valid corr. with substitute value and manual manipulation**

  This correction status is not assigned automatically.

  If a value with the "Corrected with substitute value" status is overwritten in the matrix or measured value editor, the value keeps this status. To mark such values accordingly, you can give these values the correction status "Valid corr. with LRU and manual manipulation".

4.3 Query types

The following query periods are available:

Query type	Description
Derived-E2 Discontinued, no longer available in the new version.	Derived measurement E2 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 09.01.2008 00:00 - 26.05.2035 00:00 Interval for automatic start of reporting: 09.01.2008 00:00 - 26.05.2035 00:00
Ad-Hoc	This query type represents a user-specific query period. You must enter both the start and end time. Interval for automatic start of reporting: Query type cannot be used in automatic reporting.
Current quarter	Current quarter Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 01.04.2008 00:00 Interval for automatic start of reporting: 01.01.2008 00:00 - 01.04.2008 00:00
Analysis shift 1 or shift 1	Shift 1 queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 05:30 - 08.01.2008 13:30 Interval for automatic start of reporting: 07.01.2008 05:30 - 08.01.2008 13:30
Analysis shift 2 or shift 2	Shift 2 queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 13:30 - 08.01.2008 21:30 Interval for automatic start of reporting: 07.01.2008 13:30 - 08.01.2008 21:30
Analysis shift 3 or shift 3	Shift 3 queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 21:30 - 09.01.2008 05:30 Interval for automatic start of reporting: 07.01.2008 21:30 - 09.01.2008 05:30
Energy supplier - Year	Energy supplier queries - Years Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 31.08.2006 22:00 - 31.08.2007 22:00 Interval for automatic start of reporting: 31.08.2006 22:00 - 31.08.2007 22:00

Query type	Description
Energy supplier - Month	Energy supplier queries - Months Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 30.11.2007 22:00 - 31.12.2007 22:00 Interval for automatic start of reporting: 30.11.2007 22:00 - 31.12.2007 22:00
Energy supplier - Day	Energy supplier queries - Days Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 06.01.2008 22:00 - 07.01.2008 22:00 Interval for automatic start of reporting: 06.01.2008 22:00 - 07.01.2008 22:00
Energy supplier - Week	Energy supplier queries - Weeks Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: Sun. 30.12.2007 22:00 - Sun. 06.01.2008 22:00 Interval for automatic start of reporting: Sun. 30.12.2007 22:00 - Sun. 06.01.2008 22:00
Next year	Forecast next year Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2009 00:00 - 01.01.2010 00:00 Interval for automatic start of reporting: 01.01.2009 00:00 - 01.01.2010 00:00
Next month	Forecast next month Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 09.01.2008 00:00 - 09.02.2008 00:00 Interval for automatic start of reporting: 09.01.2008 00:00 - 09.02.2008 00:00
Next day	Forecast next day Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 09.01.2008 00:00 - 10.01.2008 00:00 Interval for automatic start of reporting: 09.01.2008 00:00 - 10.01.2008 00:00
Next week	Forecast next week Interval for manual start of reporting: 09.01.2008 00:00 - 09.02.2008 00:00 Interval for automatic start of reporting: 09.01.2008 00:00 - 09.02.2008 00:00

Query type	Description
Financial year + 6h	Financial year + 6h queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.10.2007 06:00 - 01.10.2008 06:00 Interval for automatic start of reporting: 01.10.2006 06:00 - 01.10.2007 06:00
GAS - Month	GAS month queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.12.2007 06:00 - 01.01.2008 06:00 Interval for automatic start of reporting: 01.12.2007 06:00 - 01.01.2008 06:00
GAS day	Query GAS days Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 06.01.2008 06:00 - 07.01.2008 06:00 Interval for automatic start of reporting: 06.01.2008 06:00 - 07.01.2008 06:00
Financial year	Financial year queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.10.2007 00:00 - 01.10.2008 00:00 Interval for automatic start of reporting: 01.10.2006 00:00 - 01.10.2007 00:00
Year	Query year Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 01.01.2009 00:00 Interval for automatic start of reporting: 01.01.2007 00:00 - 01.01.2008 00:00
KR-14-year	Query KR-14 year Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.12.2007 00:00 - 01.12.2008 00:00 Interval for automatic start of reporting: 01.12.2006 00:00 - 01.12.2007 00:00
Month	Query month Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 01.02.2008 00:00 Interval for automatic start of reporting: 01.12.2007 00:00 - 01.01.2008 00:00

Query type	Description
Month + 6h	Monthly queries + 6h Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 06:00 - 01.02.2008 06:00 Interval for automatic start of reporting: 01.12.2007 06:00 - 01.01.2008 06:00
Cur. month	Current month Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 01.02.2008 00:00 Interval for automatic start of reporting: 01.01.2008 00:00 - 01.02.2008 00:00
Current month + 6h	Queries current month + 6h Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 06:00 - 01.02.2008 06:00 Interval for automatic start of reporting: 01.01.2008 06:00 - 01.02.2008 06:00
Month (current + M)	Month super (2 months) queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 01.03.2008 00:00 Interval for automatic start of reporting: 01.01.2008 00:00 - 01.03.2008 00:00
Production day Discontinued, no longer available in the new version.	Query production days Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 05:30 - 09.01.2008 05:30 Interval for automatic start of reporting: 07.01.2008 05:30 - 08.01.2008 05:30
Production day T7 Discontinued, no longer available in the new version.	Query production day Converter 7 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 05:30 - 09.01.2008 05:30 Interval for automatic start of reporting: 07.01.2008 05:30 - 08.01.2008 05:30
Production day T8 Discontinued, no longer available in the new version.	Query production day Converter 8 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 05:30 - 09.01.2008 05:30 Interval for automatic start of reporting: 07.01.2008 05:30 - 08.01.2008 05:30

Query type	Description
Production day T9 Discontinued, no longer available in the new version.	Query production day Converter 9 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 05:30 - 09.01.2008 05:30 Interval for automatic start of reporting: 07.01.2008 05:30 - 08.01.2008 05:30
Shift Discontinued, no longer available in the new version. Query type corresponds to day +6h	Shift queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 07.01.2008 06:00 - 08.01.2008 06:00 Interval for automatic start of reporting: 07.01.2008 06:00 - 08.01.2008 06:00
Shift 06:00-14:00	Shift 06:00-14:00 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 06:00 - 08.01.2008 14:00 Interval for automatic start of reporting: 07.01.2008 06:00 - 07.01.2008 14:00
Shift 06:00 - 14:30	Shift 06:00-14:30 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 06:00 - 08.01.2008 14:30 Interval for automatic start of reporting: 07.01.2008 06:00 - 07.01.2008 14:30
Shift 14:00-23:00	Shift 14:00-23:00 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 14:00 - 08.01.2008 23:00 Interval for automatic start of reporting: 07.01.2008 14:00 - 07.01.2008 23:00
Shift 14:30-23:00	Shift 14:30-23:00 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 14:30 - 08.01.2008 23:00 Interval for automatic start of reporting: 07.01.2008 14:30 - 07.01.2008 23:00
Shift 23:00-06:00	Shift 23:00-06:00 Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 23:00 - 08.01.2008 06:00 Interval for automatic start of reporting: 07.01.2008 23:00 - 07.01.2008 06:00

Query type	Description
Since new year	Queries since beginning of the year Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 08.01.2008 00:00 Interval for automatic start of reporting: Query type cannot be used in automatic reporting.
Since the beginning of the previous year	Queries since the beginning of the previous year Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2007 00:00 - 08.01.2008 00:00 Interval for automatic start of reporting: Query type cannot be used in automatic reporting.
Since beginning of month	Queries since the beginning of the month Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 01.01.2008 00:00 - 08.01.2008 00:00 Interval for automatic start of reporting: Query type cannot be used in automatic reporting.
Hour Discontinued, no longer available in the new version.	Hourly queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 09:00 - 08.01.2008 10:00 Interval for automatic start of reporting: 08.01.2008 08:00 - 08.01.2008 09:00
Hour with half-hour offset Discontinued, no longer available in the new version.	Queries of hours with half-hour offset Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 09:30 - 08.01.2008 10:30 Interval for automatic start of reporting: 08.01.2008 08:30 - 08.01.2008 09:30
Day	Daily queries Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 00:00 - 09.01.2008 00:00 Interval for automatic start of reporting: 07.01.2008 00:00 - 08.01.2008 00:00
Day + 6h	Daily queries + 6h Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 06:00 - 09.01.2008 06:00 Interval for automatic start of reporting: 07.01.2008 06:00 - 08.01.2008 06:00

Query type	Description
Day curr.	Current day Time of observation: 08.01.2008 09:15:12 Interval for manual start of reporting: 08.01.2008 00:00 - 09.01.2008 00:00 Interval for automatic start of reporting: 08.01.2008 00:00 - 09.01.2008 00:00
Day/shift	Daily query - 1h 45min Interval for manual start of reporting: 06.01.2008 22:15 - 07.01.2008 22:15 Interval for automatic start of reporting: 06.01.2008 22:15 - 07.01.2008 22:15
Comparison (internal)	Internal function for comparison queries
Week	Weekly queries Interval for manual start of reporting: 07.01.2008 00:00 - 14.01.2008 00:00 Interval for automatic start of reporting: 31.12.2007 00:00 - 07.01.2008 00:00
Week/shift	Weekly queries - 1h 45min Interval for manual start of reporting: 30.12.2007 22:15 - 06.01.2008 22:15 Interval for automatic start of reporting: 30.12.2007 22:15 - 06.01.2008 22:15

4.4 Filter criteria for a message list

Column	Description
Value	Value of the message
Batch	Batch ID of the message
Message	Number of the message
Class	Type of the message: Warning or violation
Status key	Status key of the message
Status description	Status description of the message
Ackn. User name (Energy Manager)	Name of the user on Energy Manager level who acknowledged the message.
Ackn. user name (field)	Name of the user on field level who acknowledged the message.
Writing user (field)	Name of the user on field level who configured the message.
Tag name	Tag name of the message
Tag ID	Tag ID of the message
Time stamp	Time as of which activated messages are displayed.

4.5 Time unit abbreviations

Abbreviation	Time unit
d	Day
h	Hour
Y	Year
M	Month
min	Minute
s	Second
W	Week

4.6 Unit conversion Energy/Power

Energy	Power
J	J/h
kJ	kJ/h
MJ	MJ/h
GJ	GJ/h
Ws	Ws/h
Wh	W
kWh	kW
	GWs/h
GWh	GW
TWh	TW
VArh	VAr
kVArh	KVAr
MVArh	MVAr
GArh	GVAr
VAh	VA
kVAh	kVA
MVAh	MVA
GVAh	GVA
Nm^3	Nm^3/h
m^3	m^3/h
l	l/h
hl	hl/h
kg	kg/h
t	t/h
tCO_2	tCO_2/h
pce	pce/h
pce	pce/h

4.7 Module overview

Specific modules must be assigned different objects. The following table lists all available modules, highlights all objects to be connected, or provides examples of the layout of result presentations.

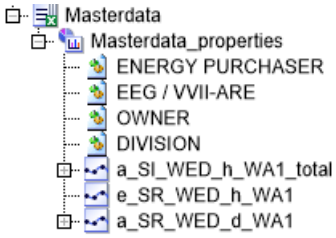
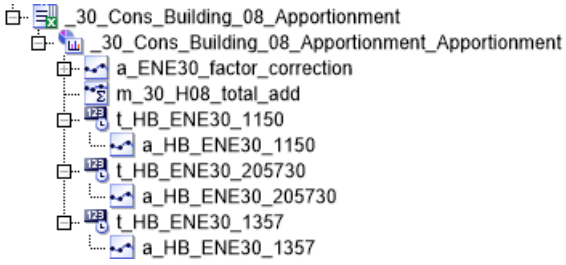
<table>
<tr><td>Query</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The connected operating data points transfer all measured values of the query period from the database to Excel.</td></tr>
<tr><td>Batch query</td><td>Inputs:
1 ... n equipment variables or data points
Equipment variables link equipment with a data point that contains the measured values.
Start parameters:
If required, batch selection</td></tr>
<tr><td>Query with 1 timestamp</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The connected operating data points transfer all measured values of the query period from the database to Excel. The time stamp is displayed only once. A gap will develop if a value is missing for a time stamp.
<table><tr><th>time</th><th>d_A_E_V_117a</th><th>d_A_E_V_116a</th></tr><tr><td>18.04.2005 00:15</td><td>170</td><td>159</td></tr><tr><td>18.04.2005 00:30</td><td>167</td><td>158</td></tr><tr><td>18.04.2005 00:45</td><td>168</td><td>158</td></tr><tr><td>18.04.2005 01:00</td><td>167</td><td>158</td></tr></table></td></tr>
<tr><td>Query with 1 timestamp transposed</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The connected operating data points transfer all measured values of the query period from the database to Excel. The time stamp is displayed only once. A gap will develop if a value is missing for a time stamp.
<table><tr><td>time</td><td>18.04.2005 00:15</td><td>18.04.2005 00:30</td><td>18.04.2005 00:45</td></tr><tr><td>d A E V 117a</td><td>170</td><td>167</td><td>168</td></tr><tr><td>d A E V 116a</td><td>159</td><td>158</td><td>158</td></tr></table></td></tr>
</table>

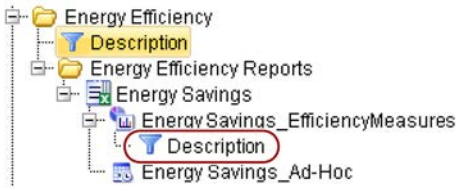
<table>
<tr><td>Query with 2 timestamps (from/till)</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The connected operating data points transfer all measured values of the query period from the database to Excel. The time stamp is displayed only once. A gap will develop if a value is missing for a time stamp.
<table><tr><th>from</th><th>to</th><th>d_A_E_V_117a</th><th>d_A_E_V_116a</th></tr><tr><td>18.04.2005 00:00</td><td>18.04.2005 00:15</td><td>170</td><td>159</td></tr><tr><td>18.04.2005 00:15</td><td>18.04.2005 00:30</td><td>167</td><td>158</td></tr><tr><td>18.04.2005 00:30</td><td>18.04.2005 00:45</td><td>168</td><td>158</td></tr><tr><td>18.04.2005 00:45</td><td>18.04.2005 01:00</td><td>167</td><td>158</td></tr></table>
In the Energy Manager options you can use the MODULE_EINHEIT parameter to define whether you want to also output the unit (0 = unit output disabled, 1 = unit output enabled).</td></tr>
<tr><td>Conditional calculation of derived measurements</td><td>Inputs:
1 measuring variable of function type "Gap check" (m_)
1 ...n derived data points (a_)
Start parameters:
None
Result:
The module evaluates the result of the measuring variable of function type "gap check". If the result = 1, the module deletes the measured value series for the specified query period. If the result = 0, the module calculates the derived data point for the specified query period.</td></tr>
<tr><td>Derived measurement only level 1</td><td>Inputs:
1 ...n derived data points (a_)
Start parameters:
None
Result:
The derived data points are only calculated in one level in the evaluation period. No data is returned to MS Excel. In contrast to the module "derived measurement", only the directly connected derived measurements are calculated, without taking into account any possible cascading of derived measurements. This module is therefore faster.</td></tr>
</table>

Batch related analyses	**Inputs:** Plant variable batch ID Plant variable material ID These two plant variables are created during the installation of Energy Manager. 1 ... n plant variables Plant variables link an item of equipment with a MEVA that contains the measured values. **Start parameters:** If required, batch selection **Result:** In addition to the information about the selected batches, the function outputs the corresponding measured values of the connected data points, or of the MEVAs that are linked by means of an equipment variable. The batches can be selected explicitly in a dialog at the start of evaluation. If this specification is missing, the batches are selected based on the evaluation query period. More information on the batch- and material-related analysis can be found in the section Batch- and material-related analysis (Page 226).
Batch related analyses +	**Inputs:** Plant variable batch ID Plant variable material ID These two plant variables are created during the installation of Energy Manager. 1 ... n plant variables Plant variables link an item of equipment with a MEVA that contains the measured values. **Start parameters:** If required, batch selection **Result:** In addition to the information about the selected batches, the function outputs the corresponding measured values of the connected data points, or of the MEVAs that are linked by means of an equipment variable. The batches can be selected explicitly in a dialog at the start of evaluation. If this specification is missing, the batches are selected based on the evaluation query period. The calculation of the data is not based on the previously calculated measurement values but the data is calculated separately by the module. More information on the batch- and material-related analysis can be found in the section Batch- and material-related analysis (Page 226).
Balance	**Inputs**: 1 ... n measuring variables (m_) 1..n data points (d_, e_, a_) **Start parameters**: None **Result**: The measuring variable or the data point is calculated across the entire observation period of the report. m_Supply_1_sumR kWh 42715 m_Supply_2_sumR kWh 42102 In the Energy Manager options you can use the BILA_HEADER parameter to define whether you want to insert a header (1 = header is displayed, 0 = header is not displayed).

<table>
<tr><td>Balance with time stamp</td><td>Inputs:
1 ... n measuring variables (m_)
Note: Only the minimum or maximum function type
Start parameters:
None
Result:
The measuring variable is calculated across the entire observation period of the report. The minimum or maximum values are returned with time stamp.
In the Energy Manager options you can use the BILA_TS_HEADER parameter to define whether you want to also insert a header (1 = header is displayed, 0 = header is not displayed).</td></tr>
<tr><td>Balance since new year</td><td>Inputs:
1 ... n measuring variables (m_)
Start parameters:
None
Result:
The measuring variable is calculated starting at the "Since new year" and ends with the end of the query period.
For example for the monthly report April 2008; calculates the period from Jan. 01, 2008 to May 01, 2008.</td></tr>
<tr><td>Balance comparing</td><td>Inputs:
1 ... n measuring variables (m_)
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The measuring variable or the data point is calculated across the entire observation period of the report. Moreover, the last period or the same period of the previous year is calculated and reported.
For example for the monthly report April 2008; March 2008 and April 2007 are shown.
<table><tr><th>MEVA</th><th>Unit</th><th>act. Period</th><th>last period</th><th>comp. last year</th></tr><tr><td>m_Supply_1_sumR</td><td>kWh</td><td>42.715</td><td>13.123</td><td>25.255</td></tr><tr><td>m_Supply_2_sumR</td><td>kWh</td><td>42.102</td><td>12.143</td><td>23.545</td></tr></table>
Only the query types month, month+6h, day and day+6h are supported.</td></tr>
<tr><td>Balance comparing SNY</td><td>Inputs:
1 ... n measuring variables (m_)
Start parameters:
None
Result:
The measuring variable is calculated starting at "Since new year" and ends with the end of the query period as well as the same time period of the previous year.
For example for the monthly report April 2008; calculates the period from Jan. 01, 2008 to May 01, 2008 as well as the time period from January 1, 2007 to May 1, 2007.</td></tr>
<tr><td>Recalculate batch data</td><td>Inputs:
1 plant
Start parameters:
None
Result:
The batch data of the plant is recalculated when the report is started.</td></tr>
</table>

<table>
<tr><td>Duration curve</td><td>Inputs:
1 ... n measuring variables (m_)
Start parameters:
Interval, e.g. 3
Unit, e.g. h
Result:
With a query period of one day and three hour interval, the duration curve module returns eight values (in a 3 hour pattern) (sorted protocol). The MEVA is calculated during the interval and sorted accordingly.
<table><tr><th>duration</th><th>m_Supply_1_sumR</th><th>m_Supply_2_sumR</th></tr><tr><td>3 h</td><td>6,867</td><td>6,681</td></tr><tr><td>6 h</td><td>6,761</td><td>6,519</td></tr><tr><td>9 h</td><td>6,442</td><td>6,256</td></tr><tr><td>12 h</td><td>6,244</td><td>6,253</td></tr><tr><td>15 h</td><td>6,084</td><td>6,199</td></tr><tr><td>18 h</td><td>4,623</td><td>4,704</td></tr><tr><td>21 h</td><td>3,671</td><td>3,586</td></tr><tr><td>24 h</td><td>2,023</td><td>1,904</td></tr></table>
In the Energy Manager options you can use the MODULE_EINHEIT parameter to define whether you want to also output the unit (0 = unit output disabled, 1 = unit output enabled).</td></tr>
<tr><td>Duration curve sorted</td><td>Inputs:
2 ... n measuring variables (m_)
Start parameters:
Interval, e.g. 3
Unit, e.g. h
Result:
With a query period of one day and three hour interval, the duration curve module returns eight values (in a 3 hour pattern). The values of the first MEVA are output sorted in descending order and the remaining MEVAs are sorted following the first MEVA.</td></tr>
<tr><td>Documentation of all operating data points</td><td>Inputs:
1 ... n hardware objects
1 ... n measurements (including derived measurements)
1 ... n measuring variables
If you do not connect anything, you only receive an empty report with headers.
Start parameters:
None
Result:
All operating data points and MEVAs created in the system are listed, including their attributes.</td></tr>
</table>

Properties	**Inputs**: 1 ... n property types 1 ... n objects to be evaluated  **Start parameters**: None **Result**: A matrix consisting of the property types and objects is set up. The objects are listed vertically from top to bottom, the property types from left to right. | | ENERGY PURCHASER | EEG / VVII-ARE | OWNER | | a_SI_WED_h_WA1_total | EST | Edersee 7 | EWK | | d_SR_WED_h_WA1 | E.ON | Landshut | RWE | | a_SR_WED_d_WA1 | EST | Edersee 7 | EWK |
Energy apportionment V2	**Inputs:** Data point that represents the loss factor. MEVA, which represents the total infeed of the hall. Parameters with sublevel data point that represent the cost centers.  **Start parameters:** None **Result:** The consumption calculated based on the MEVA is multiplied by the data point value (loss factor). The product of this calculation is allocated in accordance with cost center factors (parameters). The result is written directly to the data point that is connected to the parameter node. | correction factor | 1.2 | | | | Counter sum | 2,497,128.0 | | | | Counter sum corrected | 2,996,553.6 | | | | | | | | | 30 | 898,966.1 | t_H8_ENE30_1150 | Costcenter 03 | | 60 | 1,797,932.2 | t_H8_ENE30_205730 | Costcenter 11 | | 10 | 299,655.4 | t_H8_ENE30_1357 | CostCenter 14 |

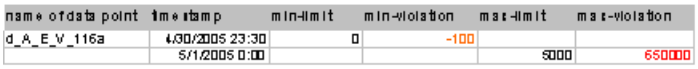
Energy Efficiency Measures	**Inputs**: 1 ... n filtered overview objects  **Start parameters**: None **Result**: The module outputs all data of the energy efficiency measures that is filtered in an overview object.
Schedule B/L KISS-A Month	**Inputs**: 1 measuring variable (m_) **Start parameters**: Interval, e.g. 15 Unit, e.g. min **Result**: Works like a protocol module. You can, however, only connect one measuring variable. The output is assigned a special format - Day, from, to - as shown in the Excel table.
Schedule Target/Actual	**Inputs**: 1 measuring variable (m_) **Start parameters**: Interval, e.g. 15 Unit, e.g. min **Result**: The measuring variable is calculated in a 15-minute pattern. As hourly values are output in MS-Excel, the 15-minute values are added up to form hourly values. If the value is positive, the result is entered in the 3rd column. If the value is negative, the result is entered in the 4th column.
Daily temperature figure	**Inputs**: 1 data point (d_, e_, a_) that represents the outdoor temperature. **Start parameters**: None **Result**: The connected data point is used to calculate the daily average. The daily temperature figure is calculated as follows. Daily average of the outdoor temperature TA: DTf = (20° - TA) if TA < 15° DTf = 0 if TA ≥ 15° Monthly value: Total of all daily values Query period: 1 month Interval: 1 day Query period: 1 year Interval: 1 month

<table>
<tr><td>Comments</td><td>Inputs:
1 ... n data points
Start parameters:
None
Result:
All comments are listed whose time stamp is within the query period.
<table><tr><td>From</td><td>01.05.2021</td><td></td><td></td><td></td></tr><tr><td>To</td><td>01.06.2021</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>ry Point "Comments"</td><td></td><td></td><td></td><td></td></tr><tr><td>Name of series</td><td>Timestamp</td><td>Comment</td><td>created at</td><td>created by</td></tr><tr><td>d_DP1</td><td>14.05.2021 14:30</td><td>This is my comment</td><td>01.06.2021 14:32</td><td>Markus Bachl</td></tr><tr><td>d_DP1</td><td>14.05.2021 14:45</td><td>This is my comment</td><td>01.06.2021 14:47</td><td>Christoph Aglas</td></tr><tr><td>d_DP1</td><td>14.05.2021 15:00</td><td>This is my comment</td><td>01.06.2021 15:02</td><td>Markus Bachl</td></tr><tr><td>d_DP2333</td><td>14.05.2021 14:30</td><td>This is my comment</td><td>01.06.2021 15:17</td><td>Christoph Aglas</td></tr><tr><td>d_DP2333</td><td>14.05.2021 14:45</td><td>This is my comment</td><td>01.06.2021 15:32</td><td>Markus Bachl</td></tr><tr><td>d_DP2333</td><td>14.05.2021 15:00</td><td>This is my comment</td><td>01.06.2021 15:48</td><td>Christoph Aglas</td></tr></table></td></tr>
<tr><td>Load forecast analysis</td><td>Inputs:
1 measuring variable (m_)
1 profile or master profile
Start parameters:
Interval, e.g. 15
Unit, e.g. min
Result:
The forecast load profile is considerably dependent on the typical days. This module is provided to enable calculation of the time set of a past period. You can use the load profile analysis module to analyze any time frame. As a result, the power value per period (15-minute or hour) is output for all typical days in the evaluation period. If the analysis covers a yearly range (for example, for the typical day Monday), all Mondays will be used for calculations, provided these are not holidays or special days. In a year with 48 Mondays, for example, the mean value is calculated for the time window from 00:00 h to 01:00 h for all Mondays and output as result. The same rule is applied to all other intervals.
A corresponding measuring variable must be connected directly below the module node. The measuring variable prepares the data point that you want to analyze.
You must also connect the profile that defines the typical days. You can also use a master profile.
Corrupted values are ignored in the analysis. If you also want to make use of corrupted values, you have to define the parameter BDATA_LASTPRF_QS = 0 in the Energy Manager PRO options. BDATA_LASTPRF_QS = 1 means corrupted values are not taken into account.</td></tr>
</table>

<table>
<tr><td>Load forecast analysis</td><td colspan="5">The module provides the corresponding result in the following form:</td></tr>
<tr><td></td><td>Calculation</td><td>Profile</td><td>From</td><td>To</td><td></td></tr>
<tr><td></td><td></td><td>ProfWinter</td><td>01.04.2006</td><td>01.10.2006</td><td></td></tr>
<tr><td></td><td></td><td>ProfSummer</td><td>01.10.2006</td><td>01.04.2007</td><td></td></tr>
<tr><td></td><td>Reference object</td><td>MasterProfile</td><td>m_OverallProfile</td><td></td><td></td></tr>
<tr><td></td><td>Profiles</td><td></td><td>ProfSummer</td><td>ProfWinter</td><td>ProfSummer, ProfWinter</td></tr>
<tr><td></td><td>No. of values</td><td></td><td>169</td><td>173</td><td>23</td></tr>
<tr><td></td><td>Time</td><td></td><td>TDSummer</td><td>TDWinter</td><td>TDHoliday</td></tr>
<tr><td></td><td>00:00</td><td>01:00</td><td>8.36</td><td>8.80875</td><td>9.36</td></tr>
<tr><td></td><td>01:00</td><td>02:00</td><td>8.425</td><td>8.7625</td><td>9.425</td></tr>
<tr><td></td><td>02:00</td><td>03:00</td><td>8.25875</td><td>8.72</td><td>9.25875</td></tr>
<tr><td></td><td>03:00</td><td>04:00</td><td>8.225</td><td>8.94125</td><td>9.225</td></tr>
<tr><td></td><td>04:00</td><td>05:00</td><td>8.1975</td><td>9.041875</td><td>9.1975</td></tr>
<tr><td></td><td>05:00</td><td>06:00</td><td>8.21625</td><td>9.34625</td><td>8.21625</td></tr>
<tr><td></td><td>06:00</td><td>07:00</td><td>8.31625</td><td>11.44188</td><td>8.31625</td></tr>
<tr><td></td><td>07:00</td><td>08:00</td><td>8.38375</td><td>13.48125</td><td>8.38375</td></tr>
<tr><td></td><td>08:00</td><td>09:00</td><td>8.4525</td><td>14.445</td><td>8.4525</td></tr>
<tr><td></td><td>09:00</td><td>10:00</td><td>8.45375</td><td>14.6775</td><td>8.45375</td></tr>
<tr><td></td><td>10:00</td><td>11:00</td><td>8.45</td><td>14.78813</td><td>8.45</td></tr>
<tr><td></td><td>11:00</td><td>12:00</td><td>8.49</td><td>14.87188</td><td>8.49</td></tr>
<tr><td></td><td>12:00</td><td>13:00</td><td>8.4975</td><td>14.84125</td><td>8.4975</td></tr>
<tr><td></td><td>13:00</td><td>14:00</td><td>8.5525</td><td>14.78938</td><td>8.5525</td></tr>
<tr><td></td><td>14:00</td><td>15:00</td><td>8.53625</td><td>14.59313</td><td>8.53625</td></tr>
<tr><td></td><td>15:00</td><td>16:00</td><td>8.57875</td><td>14.09438</td><td>8.57875</td></tr>
<tr><td></td><td>16:00</td><td>17:00</td><td>8.58125</td><td>13.23375</td><td>8.58125</td></tr>
<tr><td></td><td>17:00</td><td>18:00</td><td>8.51875</td><td>12.5325</td><td>8.51875</td></tr>
<tr><td></td><td>18:00</td><td>19:00</td><td>8.50125</td><td>11.57625</td><td>8.50125</td></tr>
<tr><td></td><td>19:00</td><td>20:00</td><td>8.445</td><td>10.60125</td><td>8.445</td></tr>
<tr><td></td><td>20:00</td><td>21:00</td><td>8.40125</td><td>9.760625</td><td>8.40125</td></tr>
<tr><td></td><td>21:00</td><td>22:00</td><td>8.34875</td><td>9.286875</td><td>8.34875</td></tr>
<tr><td></td><td>22:00</td><td>23:00</td><td>8.32375</td><td>8.953125</td><td>8.32375</td></tr>
<tr><td></td><td>23:00</td><td>00:00</td><td>8.31375</td><td>8.77125</td><td>8.31375</td></tr>
<tr><td></td><td colspan="5">The time period in which the profile was calculated is displayed for master profiles (lines 1 to 3). The names of the connected master profile or profile and of the measuring variable are displayed in line 4 next to the reference object.
The typical day is output in line 7. The number of days used to calculate the typical day is shown next to the "Number of values" entry. The result is marked in blue if this value is less than three.
Line 4 displays the profiles used as the basis for calculation of the typical days. This line should never contain more than one profile. If it contains several profiles, the text is output in red font.
The typical days can be written back to the database. For this purpose, the user must enter the text "save" in the text field below (header Text:) in the second dialog "Module Start/Stop" when starting the report.</td></tr>
</table>

<table>
<tr><td>LTEXT for current version</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
All text objects of the current version are read for the connected data points and displayed with time stamp.
<table><tr><td>time</td><td>d_StringDatapoint</td></tr><tr><td>1/16/2008 9:00</td><td>Machine 4 fallen out</td></tr><tr><td>1/16/2008 16:00</td><td>Turbinerevision</td></tr></table></td></tr>
<tr><td>LTEXT for all versions</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
All text objects of all versions are read for the connected data points and are displayed with time stamp. The latest version is always listed on top. The version date represents the value creation date.
<table><tr><td>time</td><td>d_StringDatapoint</td><td>Value</td><td>version-date</td></tr><tr><td>1/16/2008 9:00</td><td>Machine 4 fallen out</td><td>0</td><td>1/16/2008 9:13</td></tr><tr><td>1/16/2008 9:00</td><td>Machine 2 fallen out</td><td>0</td><td>1/16/2008 9:11</td></tr><tr><td>1/16/2008 16:00</td><td>Turbinerevision</td><td>0</td><td>1/16/2008 9:13</td></tr></table></td></tr>
<tr><td>Machine Protocol</td><td>Inputs:
None
Start parameters:
None
Result:
All configured consumers are automatically output in the report, including the date (on which the number of consumers changed), number of consumers, consumer name, vendor and creation date. The machines and machine protocols can only be selected if the license for the consumer functionality exists.
<table><tr><td>Consumer Prot</td><td></td><td></td><td></td><td></td></tr><tr><td>Zeit</td><td>Max</td><td>Machinename</td><td>Vendor</td><td>Creation Date</td></tr><tr><td>02.08.2016 00:00:00</td><td>0</td><td></td><td></td><td></td></tr><tr><td>03.08.2016 00:00:00</td><td>0</td><td></td><td></td><td></td></tr><tr><td>04.08.2016 00:00:00</td><td>0</td><td></td><td></td><td></td></tr><tr><td>05.08.2016 00:00:00</td><td>5</td><td>MA3000</td><td>0</td><td>04.08.2016 13:26:46</td></tr><tr><td></td><td></td><td>MA3000</td><td>0</td><td>04.08.2016 14:10:52</td></tr><tr><td></td><td></td><td>MA3001</td><td>0</td><td>04.08.2016 14:37:05</td></tr><tr><td></td><td></td><td>MA4000</td><td>0</td><td>04.08.2016 14:36:37</td></tr><tr><td></td><td></td><td>MA4001</td><td>0</td><td>04.08.2016 14:37:17</td></tr><tr><td>06.08.2016 00:00:00</td><td>4</td><td>MA3000</td><td>0</td><td>04.08.2016 14:10:52</td></tr><tr><td></td><td></td><td>MA3001</td><td>0</td><td>04.08.2016 14:37:05</td></tr><tr><td></td><td></td><td>MA4000</td><td>0</td><td>04.08.2016 14:36:37</td></tr><tr><td></td><td></td><td>MA4001</td><td>0</td><td>04.08.2016 14:37:17</td></tr><tr><td>07.08.2016 00:00:00</td><td>4</td><td>MA3000</td><td>0</td><td>04.08.2016 14:10:52</td></tr><tr><td></td><td></td><td>MA3001</td><td>0</td><td>04.08.2016 14:37:05</td></tr><tr><td></td><td></td><td>MA4000</td><td>0</td><td>04.08.2016 14:36:37</td></tr><tr><td></td><td></td><td>MA4001</td><td>0</td><td>04.08.2016 14:37:17</td></tr></table></td></tr>
</table>

<table>
<tr><td>Derived measurement</td><td>Inputs:
1 ...n derived data points (a_)
Start parameters:
None
Result:
The derived data points that are used in this report are calculated in the evaluation period. No data is returned to Excel.</td></tr>
<tr><td>n Maxima</td><td>Inputs:
1 parameter (t_). This parameter is optional. Use this parameter to specify the number of maximum values of a data point that are calculated. If you do not specify this parameter, the five maximum values of a data point are calculated.
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
The module calculates the required number of maximum values of a data point for the specified query period. The module also outputs the following measured values:
• 12 measured values that are available before a maximum measured value
• 11 measured values that are available after a maximum measured value
If the additional measured values lie within the query period, the module outputs the additional values. The module will not output any additional measured values if the last value in the query period is a maximum measured value.</td></tr>
<tr><td>Validation deviation reference DP</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
None
Result:
<table><tr><th>name of data point</th><th>reference data point</th><th>timestamp</th><th>allowed</th><th>actual-aberration</th></tr><tr><td>d_A_E_V_116a</td><td>d_A_E_V_117a</td><td>4/30/2005 23:30</td><td>100</td><td>-219</td></tr><tr><td></td><td></td><td>4/30/2005 23:45</td><td>100</td><td>Lücke</td></tr><tr><td></td><td></td><td>5/1/2005 0:00</td><td>100</td><td>649879</td></tr></table></td></tr>
<tr><td>Validation gap</td><td>Inputs:
0 ... n data points (d_, e_, a_)
When you connect data points, the data points must be active.
If you do not connect any data points, all data points in the system are checked.
Start parameters:
None
Result:
<table><tr><th>number of reference</th><th>number of actual</th><th></th></tr><tr><td>672</td><td>0</td><td></td></tr><tr><td>672</td><td>0</td><td></td></tr><tr><td>672</td><td>0</td><td></td></tr></table></td></tr>
</table>

Validation Min Max	**Inputs**: 0 ... n data points (d_, e_, a_) When you connect data points, the data points must be active. If you do not connect any data points, all data points in the system are checked. **Start parameters**: None **Result**:  name of data point | timestamp | min-limit | min-violation | max-limit | max-violation d_A_E_V_116a | 4/30/2005 23:30 | 0 | -100 | | | 5/1/2005 0:00 | | | 5000 | 650000
Validation status not ok	**Inputs**: 0 ... n data points (d_, e_, a_) When you connect data points, the data points must be active. If you do not connect any data points, all data points in the system are checked. **Start parameters**: None **Result**: **name of data point** | **timestamp** | **wi/su** | **status not OK** d_A_E_V_116a | 4/30/2005 23:30 | Wi | invalid
Protocol	**Inputs**: 1 ... n measuring variables (m_) 1..n data points (d_, e_, a_) 1 ... n parameters (t_) **Start parameters**: Interval, e.g. 1 Unit, e.g. h **Result**: At a query period of one day and three hour interval, the protocol module returns eight values (in a 3-h pattern). The connected measuring variables, data points and parameters are calculated at the specified intervals. time | m_Supply_1_sumR | m_Supply_2_sumR 4/18/2005 3:00 | 2,023 | 1,904 4/18/2005 6:00 | 3,671 | 3,586 4/18/2005 9:00 | 6,442 | 6,253 4/18/2005 12:00 | 6,761 | 6,519 4/18/2005 15:00 | 6,867 | 6,681 4/18/2005 18:00 | 6,244 | 6,256 4/18/2005 21:00 | 6,084 | 6,199 4/19/2005 0:00 | 4,623 | 4,704

Protocol - KPI aggregation	**Inputs:** 1 ... n measuring variables (m_) **Start parameter:** Interval, e.g. 1 Unit, e.g. h **Result:** The "Protocol - KPI aggregation" module is based on the Protocol module. With a query period of one day and a one hour interval, the module returns 24 values (in a 1 hour pattern). The module aggregates the output of all machines.
Protocol 10 min 10 max	**Inputs**: 1 ... n measuring variables (m_) **Start parameters**: Interval, e.g. 1 Unit, e.g. h **Result**: The query period of the report is divided into predefined intervals which are set by the user. The connected measuring variables are used within the intervals. The 10 lowest and 10 highest results are output for each interval, together with the time stamp and status (color).
Protocol cumulated	**Inputs**: 1 ... n measuring variables (m_) **Start parameters**: Interval, e.g. 1 Unit, e.g. h **Result**: Similar to a protocol module, the difference being the results of a measuring variable will be cumulated (added to the previous).

<table>
<tr><td>Protocol with from/to</td><td>
Inputs:
1 ... n measuring variables (m_)
1..n data points (d_, e_, a_)
1 ... n parameters (t_)
Start parameters:
Interval, e.g. 1
Unit, e.g. h
Result:
At a query period of one day and three hour interval, the protocol module returns eight values (in a 3-h pattern). The connected measuring variables, data points and parameters are calculated at the specified intervals. The time stamp is displayed along with the start and end of the period.
<table>
<tr><th>from</th><th>to</th><th>m_Supply_1_sumR</th><th>m_Supply_2_sumR</th></tr>
<tr><td>4/18/2005 0:00</td><td>4/18/2005 3:00</td><td>2,023</td><td>1,904</td></tr>
<tr><td>4/18/2005 3:00</td><td>4/18/2005 6:00</td><td>3,671</td><td>3,586</td></tr>
<tr><td>4/18/2005 6:00</td><td>4/18/2005 9:00</td><td>6,442</td><td>6,253</td></tr>
<tr><td>4/18/2005 9:00</td><td>4/18/2005 12:00</td><td>6,761</td><td>6,519</td></tr>
<tr><td>4/18/2005 12:00</td><td>4/18/2005 15:00</td><td>6,867</td><td>6,681</td></tr>
<tr><td>4/18/2005 15:00</td><td>4/18/2005 18:00</td><td>6,244</td><td>6,256</td></tr>
<tr><td>4/18/2005 18:00</td><td>4/18/2005 21:00</td><td>6,084</td><td>6,199</td></tr>
<tr><td>4/18/2005 21:00</td><td>4/19/2005 0:00</td><td>4,623</td><td>4,704</td></tr>
</table>
In the Energy Manager options you can use the MODULE_EINHEIT parameter to define whether you want to also output the unit (0 = unit output disabled, 1 = unit output enabled).
</td></tr>
<tr><td>Protocol transposed</td><td>
Inputs:
1 ... n measuring variables (m_)
1..n data points (d_, e_, a_)
1 ... n parameters (t_)
Start parameters:
Interval, e.g. 1
Unit, e.g. h
Result:
At a query period of one day and three hour interval, the protocol module returns eight values (in a 3-h pattern). The connected measuring variables, data points and parameters are calculated at the specified intervals.
<table>
<tr><td>time</td><td>4/18/2005 3:00</td><td>4/18/2005 6:00</td><td>4/18/2005 9:00</td></tr>
<tr><td>m_Supply_1_sumR</td><td>2,023</td><td>3,671</td><td>6,442</td></tr>
<tr><td>m_Supply_2_sumR</td><td>1,904</td><td>3,586</td><td>6,253</td></tr>
</table>
</td></tr>
</table>

Reference	**Inputs**: Data point A (d_, e_, a_) Data point B (d_, e_, a_) **Start parameters**: Interval, e.g. 15 Unit, e.g. min **Result**: The module outputs the measured values including timestamps of data point A and of data point B for the specified query period.
Repair module	**Inputs**: 1 ... n parameters (t_) **Start parameters**: None **Result**: The parameter entries for the query period are output in list form. The system calculates and displays the duration along with the start, end, and value data.
Snapshot module	**Inputs**: 1..n data points (d_, e_, a_) **Start parameters**: Interval, e.g. 5 **Result**: The module returns the value of an exact time that was defined as start parameter. It also outputs the value of the same time from the previous day. Value 462 has the time stamp 04/19/2005 05:00. (05:00 because 5 was selected as start parameter). The value 383 has the time stamp 04/18/2005 05:00 (05:00 because 5 was selected as start parameter)
Statistics	**Inputs**: 1 ... n measuring variables (m_) **Start parameters**: Interval, e.g. 15 Unit, e.g. min **Result**: Returns the maximum, minimum, and average of the connected measuring variables. The time frame is defined by the "From" and "To" entries. The results of the connected measuring variables are calculated for every interval in this time frame. Based on these values, the maximum, minimum, and average values are calculated and output for each measuring variable. The maximum and minimum values are also output with time stamp.
Statistics for operating data points	**Inputs**: 1..n data points (d_, e_, a_) **Start parameters**: None **Result**: The unit, sum value, minimum time stamp, minimum value, average, maximum time stamp, and maximum value data is calculated and output across the query period, based on the connected operating data points.

<table>
<tr><td>Hour distribution</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
Interval, e.g. 10
Lower limit, e.g. 50
Upper limit, e.g. 100
Result:
The hour distribution module returns seven values for a query period of one day, with a lower limit of 50, a upper limit of 100, and an interval of 10 between the upper and lower limit.
<table><tr><td>Range</td><td>d_NULL01</td></tr><tr><td><= 50</td><td>12</td></tr><tr><td>60</td><td>3</td></tr><tr><td>70</td><td>2</td></tr><tr><td>80</td><td>3</td></tr><tr><td>90</td><td>3</td></tr><tr><td>100</td><td>1</td></tr><tr><td>> 100</td><td>0</td></tr></table></td></tr>
<tr><td>Text protocol</td><td>Inputs:
1..n data points (d_, e_, a_)
Start parameters:
Interval, e.g. 1
Time unit, e.g. h
Result:
The module outputs all texts of a data point for the query period.</td></tr>
<tr><td>User rights</td><td>Inputs:
None
Start parameters:
None
Result:
All users created in the system are listed. The user groups and functional groups assigned to this user are also displayed.</td></tr>
</table>

4.8 Display modes

Display mode	Description
KKS text	KKS ID
Short text	Name of the data point
Short text + long text	Name and description of the data point
Long text	Description of the data point

4.9 Existing functional groups

Overview of functional groups

The following table shows the functional groups available after the installation of Energy Manager. In Energy Manager Basic no functional groups can be created or modified. Which group has which functional rights is described in the following chapter Available functional rights (Page 775).

Functional group	Function
ADMINISTRATOR	This group includes comprehensive functional rights for Energy Manager. This group has the right to delete, add or configure all objects.
CONFIGURATOR	This group has the right to configure Energy Manager objects.
GUEST	This group is permitted to view all objects in the tree. This group does not have the right to delete, add or configure objects. The group also does not have the right to create new reports and to calculate analyses. This grouping is intended to apply simple, temporary restrictions on significant operator actions in the system. To set up explicit, long-term restrictions on functional rights, you should use a combination of the following functional groups.
OPERATOR	This group has the right to operate Energy Manager objects.

See also

Navigation (Page 488)

4.10 Available functional rights

In Energy Manager you can restrict functions for unauthorized users. For example, you can assign a user the right to start a report and view the result. You can, however, disallow the user from configuring the report. You can also merge several users to form several user groups. The user Admin or Superadmin sets the user rights for the corresponding users and user groups as well as the functional restrictions in the functional user group. Most functional restrictions in Energy Manager are based on the following basic principle:

1. Configuration
2. Creation, deletion and configuration
3. View

Configuration

The user is authorized to configure objects using the configuration dialog. The user is not authorized to delete objects or create new objects.

Creation, deletion and configuration

The user is authorized to configure and delete objects and create new objects.

View

The user is authorized to open objects and view the contents. The user is not authorized to configure or delete objects or create new objects. Some objects such as a MEVA can only be viewed by the user in the navigation area without opening a dialog. In the corresponding object properties you can find out whether you can open the object and view the contents or only see the object in the navigation area.
The user is also not authorized for the following functions:

- Copy
- Clone
- Delete
- Cut
- Disconnect

Overview

The following table provides an overview of the available functional rights:

The letters in brackets indicate which functional groups have this right after installation of the Energy Manager .

The letters stand for the following functional groups:

- A: Administrator
- C: Configurator
- O: Operator
- G: Guest

Rights area	Assigned rights
Account	Configuration: • Create, remove, configure: The user has the right to create, delete and configure accounts. • View (A, C, G, O): The user has the right to open and view accounts.
Administration	Logging Viewer: • View (A, C, O): The user has the right to open and view the Logging Viewer. Service Cockpit: • View (A, C, O): The user has the right to open and view the Service Cockpit.
Alarming	Configuration: • Configure (A, C): The user has the right to open and configure KPI message lists. • Create, remove, configure (A, C): The user has the right to create, delete and configure KPI message lists. • View (A, C, O): The user has the right to open and view KPI message lists. Values: • Acknowledge (A, C, G, O): The user has the right to open and confirm messages. • View (A, C, G, O): The user has the right to open and view messages.
Backup	Configuration: • Configure (A): The user has the right to open and configure the storage location of the backup and the schedule for automatic creation of a backup. • View (A, C, O): The user has the right to open and view the storage location of the backup and the schedule for the automatic creation of a backup. Usage (A): • Start: The user has the right to create a backup.
Chart Object	Configuration: • Configure (A, C, G, O): The user has the right to open and configure charts. • Create (A, C, G): The user has the right to open and create charts. • Delete (A, C, G): The user has the right to open and delete charts.

Rights area	Assigned rights
Client Control	To log onto a component, the "Client Control" right is the minimum right for the user. Acquisition: • Configure(A): The user has the right to configure acquisition components. Client: • Configure (A, C ,G, O): The user has the right to configure the Energy Manager PRO Client. Web: • Configure (A, C, G, O): The user has the right to configure Energy Manager PRO Web.
Domain	Configuration: • Create, remove, configure: The user has the right to create, delete and configure domains. • View (A, C, G, O): The user has the right to open and view domains. Object Assignment: • Modify (A): The user has the right to configure assignments of domains. • Share (A): The user has the right to assign domains. • View (A, C, G, O): The user has the right to open and view assignments of domains.
Energy Efficiency	Configuration: • Configure (A, C, G): The user has the right to open and configure energy efficiency measures. • Create, remove, configure (A, C, G): The user has the right to create, delete and configure energy efficiency measures. • View (A, C, G, O): The user has the right to open and view energy efficiency measures.

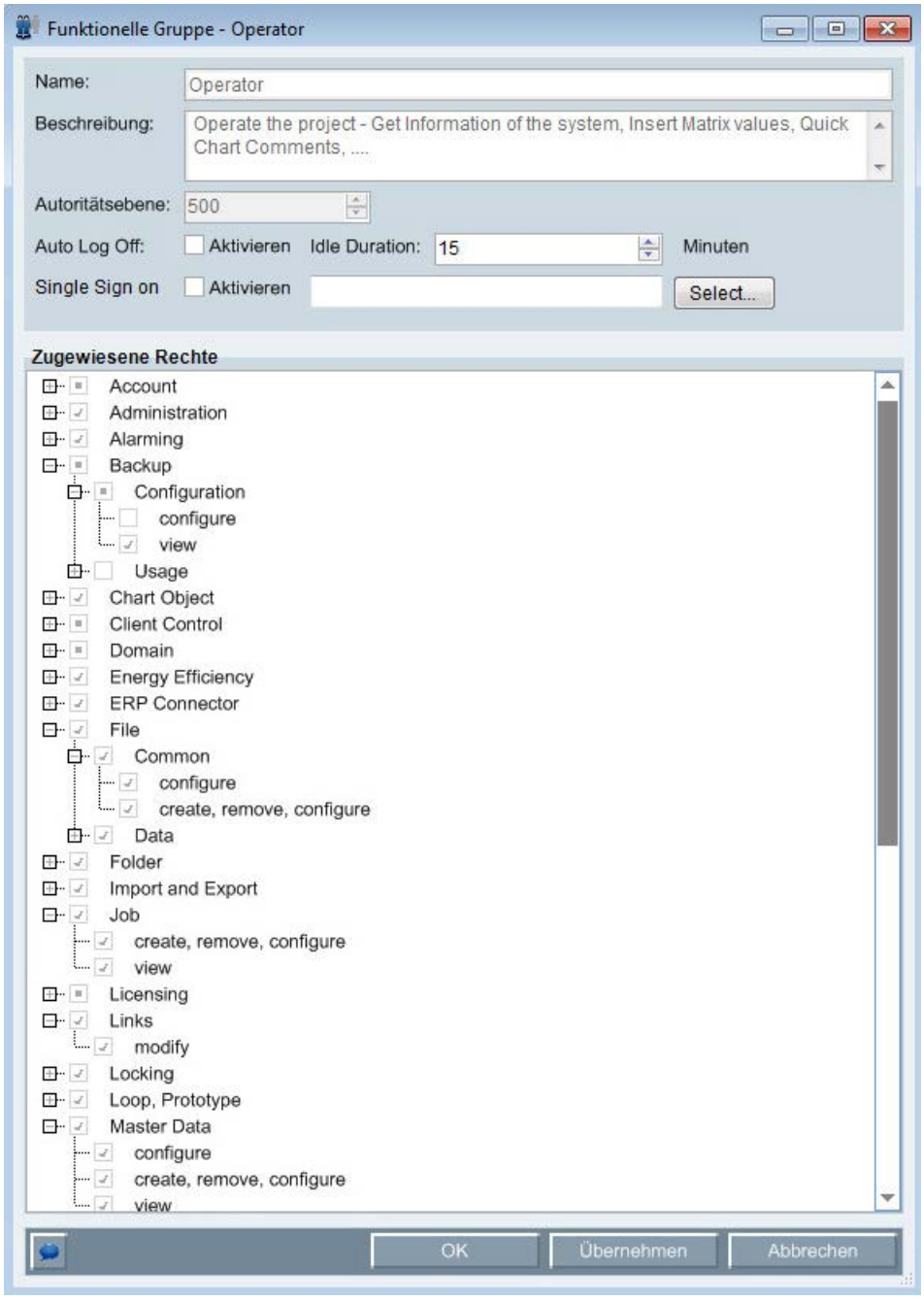
Rights area	Assigned rights
ERP Connector	Business Unit: • Configure (A, C): The user has the right to open and configure Business Units. • Create, remove, configure (A, C): The user has the right to create, delete and configure Business Units. • View (A, O): The user has the right to open and view Business Units. Cost Center: • Configure (A, C): The user has the right to open and configure cost centers. • Create, remove, configure (A, C): The user has the right to create, delete and configure cost centers. • View (A, C, O): The user has the right to open and view cost centers. Cost center relation: • Configure (A, C): The user has the right to open and configure the cost center relation. • Create, remove, configure (A, C): The user has the right to create, delete and configure the cost center relation. • View (A, C, O): The user has the right to open and view the cost center relation. Cost element: • Configure (A, C): The user has the right to open and configure cost elements. • Create, remove, configure (A, C): The user has the right to create, delete and configure cost elements. • View (A, C, O): The user has the right to open and view cost elements.
File	Common: • Configure (A, C, G): The user has the right to open and configure files. • Create, remove, configure (A, C, G, O): The user has the right to create, delete and configure files. Data: • Fetch (A, C, G, O): The user has the right to open documents from a file. • Modify (A, C, G): The user has the right to upload documents or overwrite existing documents.
Folder	• Configure (A, C): The user has the right to open and configure folders. • Create, delete (A, C): The user has the right to create and delete folders. • View (A, C, G, O): The user has the right to open and view folders.
Import and export	Export: • Configure (A, C): The user has the right to export subprojects to an XML file. Import: • Configure (A, C): The user has the right to import subprojects.
Job	• Create, remove, configure (A, C): The user has the right to create, delete and configure job queues. • View (A, C, O): The user has the right to open and view job queues.

Rights area	Assigned rights
Licensing	Config: • Configure (A): Not relevant for Energy Manager PRO V7.4. • Create, remove, configure (A): Not relevant for Energy Manager PRO V7.4. • View (A, C, G, O): The user has the right to open and view the license dialog.
Left	• Modify (A, C, G, O): The user has the right to delete links from data points and documents.
Locking	Configuration: • Configure (A, C): The user has the right to lock objects.
Loop, Prototype	• Configure (A, C): The user has the right to open and configure loops and prototypes. • Create, remove, configure (A, C): The user has the right to create, delete and configure loops and prototypes. • View (A, C, O): The user has the right to open and view loops and prototypes.
Master Data	• Configure (A, C): The user has the right to open and configure cycle times and query types. • Create, remove, configure (A, C): The user has the right to create, delete and configure cycle times and query types. • View (A, C, G, O): The user has the right to open and view cycle times and query types.
Matrix	• Create, remove, modify (A, C): The user has the right to create, delete and configure matrices. • Modify (A, C, O): The user has the right to configure matrices. • View (A, C, G, O): The user has the right to open and view matrices.
Measured Value	• Insert, remove, modify (A, C): The user has the right to enter measured values of a data source in the matrix or measured value editor and delete and configure them. • Modify (A, C): The user has the right to open measured values of a data source and enter them in the matrix or measured value editor. • View (A, C, G, O): The user has the right to open and view measured values of a data source.
Measurement	• Configure (A, C): The user has the right to open and configure data points. • Create, remove, configure (A, C): The user has the right to create, delete and configure data points. • View (A, C, G, O): The user has the right to open and view data points.
Measuring Variable	• Configure (A, C): The user has the right to open and configure MEVAs. • Create, remove, configure (A, C): The user has the right to create, delete and configure MEVAs . • View (A, C, G, O): The user has the right to open and view MEVAs.

Rights area	Assigned rights
ODBC Connector	Configuration: • Configure (A, C): The user has the right to open and configure ODBC data sources. • Create, remove, configure (A, C): The user has the right to create, delete and configure ODBC data sources. • View (A, C, O): The user has the right to open and view ODBC data sources. Import values (A, C): The user has the right to import values from an ODBC data source.
Parameter	Common: • Configure (A, C): The user has the right to open and configure parameters. • Create, remove, configure (A, C): The user has the right to create, delete and configure parameters. • View (A, C, G, O): The user has the right to open and view parameters. Values: • Create, remove, configure (A, C, G): The user has the right to create, delete and configure parameter values.
Permission	• Create, remove, configure (A, C): The user has the right to create, delete and configure functional groups. • View (A, C, O): The user has the right to open and view functional groups.
Printer	• Configure (A, C): The user has the right to open and configure printers. • Create, remove, configure (A, C): The user has the right to create, delete and configure printers. • View (A, C, O): The user has the right to open and view printers.
Production Plan	This rights group is only relevant if the license "Forecast and planning" exists in the ALM. • Configure (A, C): The user has the right to open and configure production plans. • Create, remove, configure (A, C): The user has the right to create, delete and import production plans. • View (A, C, G, O): The user has the right to open and view production plans.
Profiles	• Configure (A, C): The user has the right to open and configure profiles. • Create, remove, configure (A, C): The user has the right to create, delete and configure profiles. • View (A, C, G, O): The user has the right to open and view profiles.
Quick Chart Comments	Configuration: • Configure (A, C, G, O): The user has the right to open and configure comments in charts. • Create (A, C, G, O): The user has the right to open and create comments in charts. • Delete (A, C, G, O): The user has the right to open and delete comments in charts.

Rights area	Assigned rights
Report	Configuration: • Configure (A, C): The user has the right to open and configure reports. • Create, remove, configure (A, C): The user has the right to create, delete and configure reports. • View (A, C, G, O): The user has the right to open and view reports. Report: • Open pdf only (A, C, G, O): The user has the right to open and view created reports only in PDF format. • Open xls/doc/pdf (A, C, G, O): The user has the right to open and view created reports in Excel, Word and PDF format. • Restart, start (A, C, G, O): The user has the right to manually start reports and restart already created reports via task management. • Start, delete (A, C, G, O): The user has the right to manually start reports and delete already created reports.
Task management	Configuration: • Configure (A, C): The user has the right to open and configure tasks. • Create, remove, configure (A, C): The user has the right to create, delete and configure tasks. • View (A, C, O): The user has the right to open and view tasks. Task management: • Start (A, C): The user has the right to start tasks.
Template Manager	You configure reports and machine specifications in the Template Manager. Configuration (A, C): • Configure (A, C): The user has the right to open and configure templates. • Create (A, C): The user has the right to create new templates. • Delete (A, C): The user has the right to delete templates.
Trend	Not relevant for Energy Manager PRO V7.4.
Unique Objects	Not relevant for Energy Manager PRO V7.4.
Unit	• Configure (A, C): The user has the right to open and configure units. • Create, remove, configure (A, C): The user has the right to create, delete and configure units. • View (A, C, O): The user has the right to open and view units.
User	• Configure (A, C): The user has the right to open and configure other users. • Create, remove, configure (A, C): The user has the right to create, delete and configure other users. • View (A, C, O): The user has the right to open and view other users.

Rights area	Assigned rights
Visualization	Not relevant for Energy Manager PRO V7.4.
Web interface	Administration: • Configure (A, C): The user has the right to configure the Siemens logo and start screen in the Energy Manager PRO Web administration area. Menu: • View (A, C, O): The user has the right to view the Energy Manager PRO Web menu and toggle between the tree structure and the administration area. Quicklinks: • Configure (A, C, O): The user has the right to open and configure Quicklinks in Energy Manager PRO Web. • Create (A, C, O): The user has the right to open and create Quicklinks in Energy Manager PRO Web . • Delete (A, C, O): The user has the right to open and delete Quicklinks in Energy Manager PRO Web. • View (A, C, O): The user has the right to open and view Quicklinks in Energy Manager PRO Web.
Widgets/Dashboards	• Configure (A, C): The user has the right to configure dashboards and create, delete and configure widgets in Energy Manager PRO Web. • Create, remove, configure (A, C): The user has the right to create, delete and configure dashboards and widgets in Energy Manager PRO Web . • View (A, C, O): The user has the right to open and view dashboards and widgets in Energy Manager PRO Web.


Funktionelle Gruppe - Operator
Name:
Operator
Beschreibung:
Operate the project - Get Information of the system, Insert Matrix values, Quick Chart Comments, ...
Autoritätsebene:
500
Auto Log Off:
Aktivieren
Idle Duration:
15
Minuten
Single Sign on
Aktivieren
Select...
Zugewiesene Rechte
Account
Administration
Alarming
Backup
Configuration
configure
view
Usage
Chart Object
Client Control
Domain
Energy Efficiency
ERP Connector
File
Common
configure
create, remove, configure
Data
Folder
Import and Export
Job
create, remove, configure
view
Licensing
Links
modify
Locking
Loop, Prototype
Master Data
configure
create, remove, configure
view
OK
Übernehmen
Abbrechen

4.11 Operations for generating calculation blocks (prototypes)

Overview

This section lists all functions that are available for creating prototypes.

Requirement

none

Mathematical operations

Table 4- 1 Mathematical functions

Function	Description
Addition (add)	Inputs: input1 input2 The function returns: output:= input1+input2;
Subtraction (sub)	Inputs: input1 input2 The function returns: output:= input1-input2;
Multiplication (mul)	Inputs: input1 input2 The function returns: output:= input1*input2;
Division (div)	Inputs: input1 input2 The function returns: output:= input1/input2;
Power (pow)	Inputs: input1 (base) input2 (power) The function returns: output:= pow (input1,input2);
Square root (sqrt)	Inputs: input The function returns: output := sqrt(input);

Function	Description
Minus (minus)	Inputs: input The function returns: output:= minus(input);
Exponential function (exp)	Inputs: input The function returns: output:= exp(input);
Natural logarithm (ln)	Inputs: input The function returns: output:= ln(input);
Base 10 logarithm (log10)	Inputs: Input The function returns: output:= log10(input);
Sine (sin)	Inputs: input The function returns: output:= sin(input);
Cosine (cos)	Inputs: input The function returns: output:= cos(input);
Tangent (tan)	Inputs: input The function returns: output:= tan(input);
Arc sine (arcsin)	Inputs: input The function returns: output:= arcsin(input);
Arc cosine (arccos)	Inputs: input The function returns: output:= arccos(input);
Arc tangent (arctan)	Inputs: input The function returns: output:= arctan(input);

Logical operations

Table 4- 2 Logical functions

Function	Description
Logical AND (and)	Inputs: input1 input2 The function returns: output:= and(input1,input2);
Logical OR (or)	Inputs: input1 input2 The function returns: output:= or(input1,input2);
Logical Exclusive OR (xor)	Inputs: input1 input2 The function returns: output:= xor(input1,input2);
Logical inversion (not)	Inputs: input The function returns: output:= not(input);

Compare operations

Table 4- 3 Compare functions

Function	Description
Greater than comparison (gt)	Inputs: input1 input2 The function returns: output:= gt(input1,input2); output:= 1 as long as input1 > input2;
Less than comparison (lt)	Inputs: input1 input2 The function returns: output:= lt(input1,input2); output:= 1 as long as input1 < input2;
Equal comparison (eq)	Inputs: input1 input2 The function returns: output:= eq(input1,input2); output = 1 as long as input1 = input2
Greater than or equal to comparison (gteq)	Inputs: input1 input2 The function returns: output:= gteq(input1,input2); output = 1 as long as input1 ≥ input2
Less than or equal to comparison (lteq)	Inputs: input1 input2 The function returns: output = lteq(input1,input2); output = 1 as long as input1 ≤ input2
Not equal comparison (noteq)	Inputs: input1 input2 The function returns: output:= noteq(input1,input2); output = 1 as long as input1 <> input2;

Switch operations

Table 4- 4 Switch functions

Function	Description
Switch (switch)	Inputs: input1 input2 switch The function returns: output:= switch(input1,input2,switch); output = input1 if switch = 0 output = input2 if switch = 1
Switch (interrupter)	Inputs: input switch The function returns: output = interrupter(input, switch); output = input if switch = 1

Switching delay (sdelay, sdelay_up, sdelay_down)	Inputs:
	input
	delay time in [s]
	The function returns:
	output:= sdelay(input,delaytime);
	output:= sdelay_up(input,delaytime);
	(rising edge)
	output:= sdelay_down(input,delaytime);
	(falling edge)
	output = input on expiration of the delay time

Value change filter (f_valchng)	Inputs: input The function returns: output:= f_valchng(input); output = input as soon as the measured input no longer matches the last input measured

Status memory (fliflo)	Inputs: input res The function returns: output:= fliflo(input,res); input == 0 and res == 0 ð no new result input == 1 and res == 0 ð if result is not 1, result is set to 1 input == 0 and res == 1 ð if result is not 0, result is set to 0 input == 1 and res == 1 ð Result is assigned the last result value ('invalid' status)

Edge memory (fliflo_chng, fliflo_up, fliflo_down)	Inputs:
	input
	res
	The function returns:
	output:= fliflo_chng(input, res);
	output:= fliflo_up(input,res);
	output:= fliflo_down(input, res);
	On change to the value at input, it is determined whether or not to trigger a set operation.
	SET and RES == 0 > if result is not 1, result is set to 1.
	RES == 1 > if result is not 0, result is reset to 0.

Table operations

Table 4- 5 Table functions

Function	Description
2 dimensions (spline2)	Inputs: table (table with definition of the full path, i.e. Subdirectory of the mcl directory) input (first column value in the table) The function returns: output:= spline2(c:\mcl\tables\watercontent.tab,input); The table must be available as ASCII file with the following format: 10.00 2519.98 20.00 2538.58 30.00 2557.21 40.00 2575.88 50.00 2594.57 60.00 2613.31 **Note:** An empty row (=CR+LF) may not exist after the last row containing numbers. Explanations: ò 1. column input ò 2. column input, associated value **Note:** The cubic spline interpolation is a mathematical method that is used to construct points within the boundaries of a set of known points. The known points show a minimal overall curvature and are the result of a polynomial calculation of the third degree.
3 dimensions (spline3)	Inputs: table (table with definition of the full path, i.e. Subdirectory of the mcl directory) input1 (first column value in the table) input2 (second column value in the table) The function returns: output:= spline3(c:\mcl\tables\energy.tab,input1,input2); The table must be available as ASCII file with the following format: 3/6 0.01 0.03 0.05 10.00 2519.98 42.00 42.00 20.00 2538.58 83.86 83.86 30.00 2557.21 2556.68 125.66 40.00 2575.88 2575.40 2574.93 50.00 2594.57 2594.15 2593.73 60.00 2613.31 2612.93 2612.55 **Note:** An empty row (=CR+LF) may not exist after the last row containing numbers. Explanations: ð input1 ò input2 3 ... number of result columns 6 ... number of result rows **Note:** The bicubic spline interpolation is a generalization of the simple, cubic spline on two dimensions.

Interval operations

Table 4- 6 Interval functions

Function	Description
Difference (diff)	Inputs: measured value averaging time in [s] offset The function returns: output:= diff(measured value, averaging time, offset); (difference or value at the end and start of the mean value calculation time) Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute
Mean value (avg)	Inputs: measured value averaging time in [s] offset The function returns: output:= avg(measured value, averaging time, offset); Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute
Mean value with status rating (avgST)	Inputs: measured value status percentage averaging time in [s] offset The function returns: output:= avgST(measuredvalue,status,percentage,averaging-time,offset); (output is only valid on the condition that at least n% {percent} of the corresponding status values {status} are also valid) Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute

Minimum (min)	Inputs: measured value averaging time in [s] offset The function returns: output:= min(measured value, averaging time, offset); Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute
Maximum (max)	Inputs: measured value averaging time in [s] offset The function returns: output:= max(measured value, averaging time, offset); Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute
Total (sum)	Inputs: measured value averaging time in [s] offset The function returns: output:= sum(measured value, averaging time, offset); Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute
Sum with status rating (sumST)	Inputs: measured value status percentage averaging time in [s] offset The function returns: output:= sumST(measuredvalue,status,percentage,averaging-time,offset); (output is only valid on the condition that at least n% {percent} of the corresponding status values {status} are also valid) Note: offset 01:00:00 ... the value is generated at the start of the full hour offset 00:00:00 ... the value is generated at the start of the full minute

Quantity operations

Table 4- 7 Quantity functions

Function	Description
Collector (collector)	Inputs: measured value averaging time in [s] offset The function returns: measured value array:= collector(measured value, averaging time, offset); Note: offset 01:00:00 ... the values are in the array at the start of the full hour offset 00:00:00 ... the values are in the array at the start of the full minute
Quantity sorting (c_sort)	Inputs: measured value array The function returns values in ascending order: output array:= collector(measured value array);

Quantity percentage filter (c_perc_filt_first, c_perc_filt_last)	Inputs:
	measured value array
	x
	The function returns the first x percent of the measured value array:
	output array:= c_perc_filt_first(measured value array, x);
	The function returns the last x percent of the measured value array:
	output array:= c_perc_filt_last(measured value array, x);

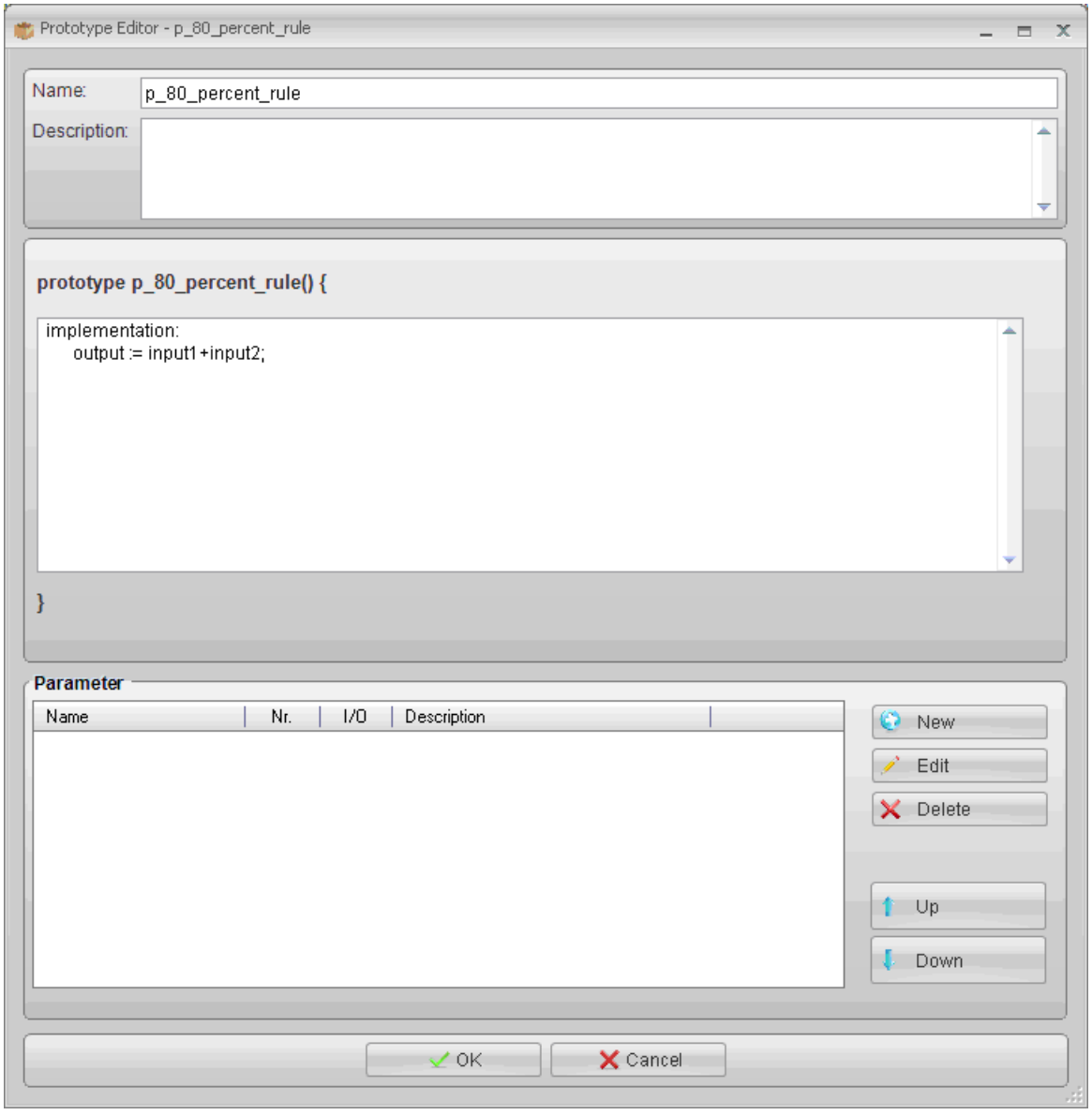
Quantity mean value (c_avg)	Inputs: measured value array The function returns the mean value of the measured value array: output:= c_avg(measured value array);
Quantity minimum (c_min)	Inputs: measured value array The function returns the minimum value of the measured value array: output:= c_min(measured value array);
Quantity maximum (c_max)	Inputs: measured value array The function returns the maximum value of the measured value array: output:= c_max(measured value array);

4.12 Description of MCL

New prototypes for processing data sets are defined using the special programming language MCL (Measurement Configuration Language).

Note
As the MCL compiler is case-sensitive, it is necessary to enter all prototype data in lowercase letters.

For logical and comparison operations, the value "1" corresponds to logical "TRUE" state and the value "0" to logical "FALSE" state.
The prototype is entered and declared between parentheses "{" and "}"; a simple addition is defined as example:



Local variable may be defined in the header of the input window. This section is defined by entering the "local:" identifier.

It is necessary to define this "local:" section to declare local variables for interim results; note that it is not permitted to include calculations in the declaration line.

PERMITTED:

```
local:

a;

Implementation:

a:=b+c;
```

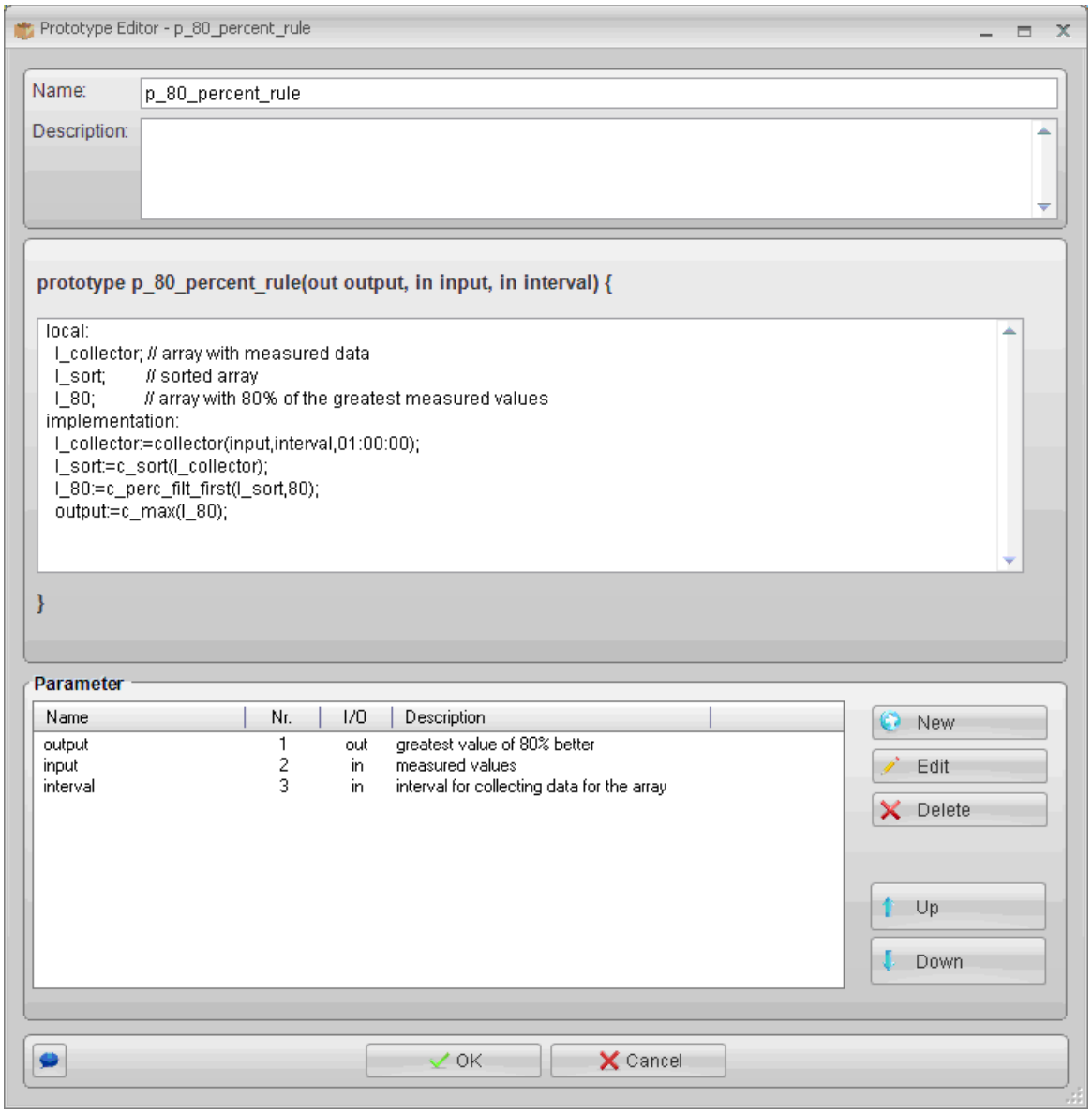
PROHIBITED:

```
local:

a:=b+c;
```

The actual mathematical rule is then entered in the "implementation" section. It is permitted to use all I/O variables, as well as local variables and implemented functions.

The "local" and "implementation" sections must be concluded with a colon ":". All other lines are concluded with a semicolon (';'). Variables are declared by means of ':='. Start all comments with '//'.

Use "Enter" to insert line breaks.


Prototype Editor - p_80_percent_rule
Name:
p_80_percent_rule
Description:
prototype p_80_percent_rule(out output, in input, in interval) {
local:
l_collector; // array with measured data
l_sort; // sorted array
l_80; // array with 80% of the greatest measured values
implementation:
l_collector:=collector(input,interval,01:00:00);
l_sort:=c_sort(l_collector);
l_80:=c_perc_filt_first(l_sort,80);
output:=c_max(l_80);
}
Parameter
Name
Nr.
I/O
Description
output
1
out
greatest value of 80% better
input
2
in
measured values
interval
3
in
interval for collecting data for the array
New
Edit
Delete
Up
Down
OK
Cancel

For more complex calculations, it is possible to use the "call" command in a prototype to call other prototypes.

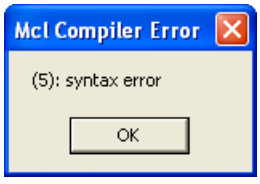
Always observe the order of arguments for calling the prototype.

Example of a `p_bsp` prototype in which the `p_add` prototype is used:

```
p_add(out output, in input1, in input2)

p_bsp(out out1, out out2, out out_bsp, in mw1, in mw2, in mw3, in
mw4, in condition)

{

Implementation:

   call p_add(out1,mv1,mv2);

   call p_add(out2,mv3,mv4);

   out_bsp:=switch(out1,out2,condition);

}
```

Syntax check:

After having entered the mathematical rule and defined the various I/Os (parameters) in the lower area of the dialog, you can generate the prototype by pressing the "OK" button. The syntax is checked during this generation. Syntax errors that were found are reported with specification of the relevant line.



Caution: Line 3 is the first line of the text body. Lines not concluded with semicolon are not counted.

A warning is also output if the I/O variables used in the text body were not defined in the "Parameters" area.

4.13 Functions for measuring variables

General information

Energy Manager has implemented a set of standard functions for MEVA processing. Siemens AG reserves the right to create any new evaluation algorithms that may be needed, including their implementation in the system. As a general rule:

- The query type determines the observation period.
- The calculation results relate to the respective observation period that is transferred at the start of an evaluation (From, To).
- The cycle time and the compression level determine the initial interval.
- The calculation interval determines the interval of the result.
- Multiple results can be displayed within the observation period for protocol MEVAs.
- The observation period and the calculation interval are identical for balance MEVAs and derived data points.
- For derived data points, the observation period or the calculation interval is determined by the cycle time of the derived data point.

The following must be observed for the units of the results:

- If the result of a MEVA function is returned in a specific unit, the result is displayed with [unit].
- If the result of a MEVA function always returns the value 1, the result is displayed with [1].
- If there is no further monitoring regarding the unit of a MEVA function result, the result is displayed with [x].

Note

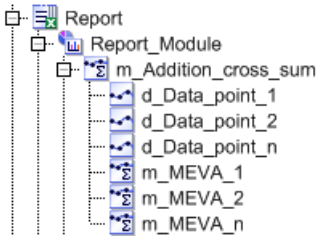
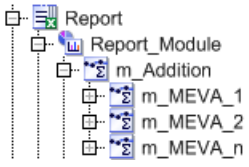
The order of the data points, MEVAs and parameters in the listing under "*Inputs:*" and in the Client (see figures) is mandatory because the functions expect the input values in this order.

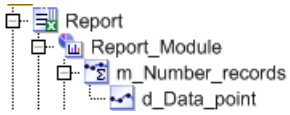
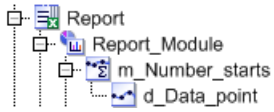
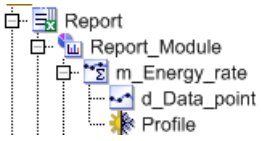
Requirement

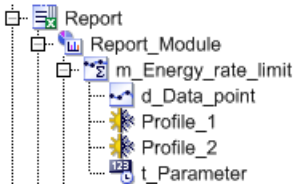
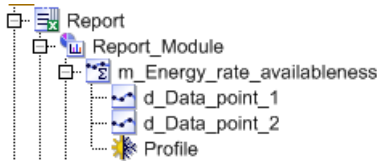
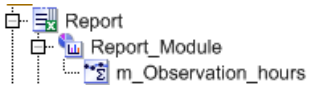
Successful installation of all software components.

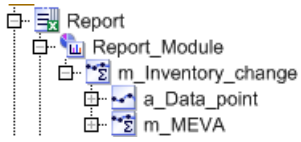
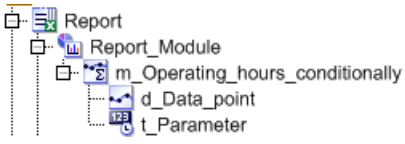
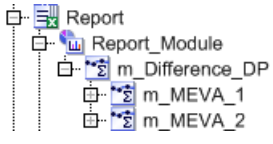
MEVA functions

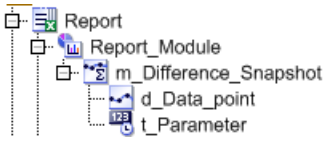
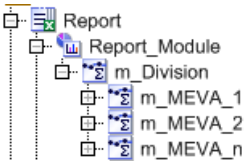
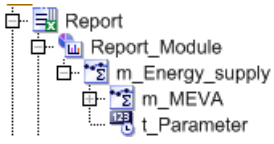
The following table shows all the available MEVA functions:

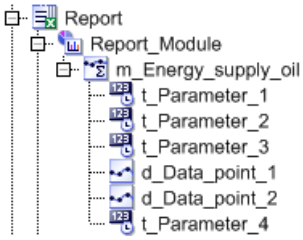
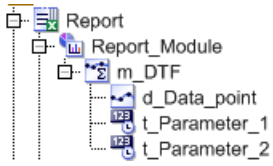
Function	Description
Addition with cross sum	Addition with cross sum (ID: 2694) Forms the sum of the n data point values for each time stamp. Returns the sum of the sums contained therein for each calculation interval. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n The function returns: RESULT[x] = SUM (d_Data_point_1 + d_Data_point_2 + ... + d_Data_point_n) Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). 
Addition	Addition (ID: 1795) Adds the results of the n MEVA/datapoint/parameter inputs. Inputs: m_MEVA_1 m_MEVA_2 m_MEVA_n The function returns: RESULT[x] =m_MEVA_1 + m_MEVA_2 + ... + m_MEVA_n 

Number of records	Number of data records (ID: 1740) Calculates the number of measured values within the calculation interval. Inputs: d_Data_point The function returns: RESULT[1] = Number of measured values within the calculation interval. 
Number of starts	Number of starts (ID: 1771) Calculates the number of changes from 0 to 1 within the calculation interval. Inputs: d_Data_point (contains only 0 and 1) The function returns: RESULT[1] = Number of changes from 0 to 1 within the calculation interval. 
Energy rate	Energy rate (ID:1775) Every value within the calculation interval is multiplied by the profile value. All value profile pairs within the calculation interval are added together. Inputs: d_Data_point Profile OR MasterProfile The function returns: RESULT[x] = SUM (value * profile) 

Energy rate with limit	Energy rate with limit (ID: 2691) Every value within the calculation interval is multiplied by the value from Profile 1 or Profile 2 depending on the limit. All value profile pairs within the calculation interval are added together. Inputs: d_Data_point Profile_1 OR MasterProfile_1 Profile_2 OR MasterProfile_2 t_Parameter The function returns: RESULT[x] ={IF value>limit SUM(value * profile_2)} +{IF value≤limit SUM(value * profile_1)} The replacement value configured in t_Parameter determines the limit. 
Energy rate with availableness	Energy rate with availableness (ID: 2689) Every value within the calculation interval is multiplied by the profile value, depending on the value of d_Data_point_2. All value profile pairs within the calculation interval are added together. Inputs: d_Data_point_1 d_Data_point_2 (contains only 0 and 1) Profile OR MasterProfile The function returns: RESULT[x] = IF d_Data_point_2 = 1 = SUM(value* profile) 
Observation period in hours	Observation period in hours (ID: 1741) Calculates the duration of the calculation interval. Inputs: not necessary. The function returns: RESULT[h] = Duration of the calculation interval. 

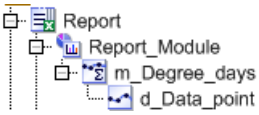
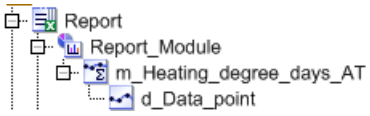
Inventory change	Inventory change (ID: 2904) Adds the result of the Meva to the value of the previous period of the derived data point and writes the result in the current period of the derived data point. The result is also returned as a Meva result and can thus be output to a protocol module, for example. Inputs: a_Data_point m_MEVA 
Operating hours conditionally	Operating hours conditionally (ID: 2688) Conditional operating hours Inputs: d_Data_point t_Parameter The function returns: RESULT[s] = Sum of valid periods of the specified data point within the observation period minus the valid periods with data point value not exceeding 0 ± parameter value. 
Difference from DP	Difference from DP (ID: 2812) If the value in m_MEVA_1 is not m_MEVA_2, the value in m_MEVA_1 is returned. Zero is returned if both MEVAs do not provide a value. Inputs: m_MEVA_1 m_MEVA_2 The function returns: If the value in m_MEVA_1 is not m_MEVA_2, the value in m_MEVA_1 is returned. Zero is returned if both MEVAs do not provide a value. 

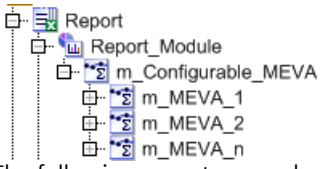
Difference snapshot	Difference snapshot (ID: 2875) Difference from two measured values of the connected data point. The first time is specified by the parameter in decimal notation (e.g.: 1.5 = 01:30 h). The second measured value is derived from the same time of the previous day. An interval shorter than one day returns the same result as an interval duration of one day. Inputs: d_Data_point t_Parameter 
Division	Division (ID: 2853) Divides the results of the n MEVA/datapoint/parameter inputs. Inputs: m_MEVA_1 m_MEVA_2 m_MEVA_n The function returns: RESULT[x] = m_MEVA_1 / m_MEVA_2 / ... / m_MEVA_n 
Energy input	Energy input (ID: 1731) Energy input without inclusion of parameter changes Inputs: m_MEVA (quantity, e.g. coal supplied [t]) t_Parameter (calorific value, for example, calorific value of coal [MWh/t]) The function returns: RESULT[MWh] = Energy input[MWh] = m_MEVA[t] * t_Parameter[MWh/t] 

Energy input oil	Energy input oil (ID: 1773) Calculation of energy input from oil, temperature compensated with inclusion of parameter changes Inputs: t_Parameter_1 (reference density [t/m³]) t_Parameter_2 (reference temperature [°C]) t_Parameter_3 (correction factor [1/°C]) d_Data_point_1 (operating temperature [°C]) d_Data_point_2 (flow [m³/h]) t_Parameter_4 (calorific value [MWh/t]) The function returns: RESULT[t] = Energy input[t] = SUM(d_Data_point_2 * validity period *(t_Parameter_1 + ((t_Parameter_2 - d_Data_point_1) * t_Parameter_3)) * t_Parameter_4) / 3600 
First value	First value (ID: 2764) Calculates the first measured value in the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = First value in the calculation interval. 
GTZ	DTF (daily temperature figures ID: 2912) Calculates the DTF. Inputs: d_Data_point (temperature) t_Parameter_1 (room temperature) t_Parameter_2 (heating limit) The function returns: RESULT[x] = SUM(t_Parameter_1 - daily averages) If daily average > t_Parameter_2, then difference = 0. 

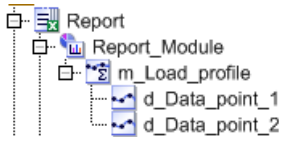
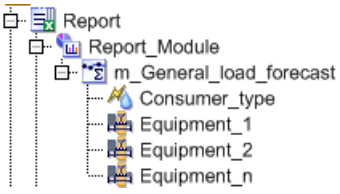
<table>
<tr>
<td>GTZ 20/15</td>
<td>
GTZ 20/15 (ID: 2862)
Calculates the GTZ 20/15 (heating limit 20°C).
Inputs:
d_Data_point (outdoor temperature)
The function returns:
RESULT[x] = SUM (difference of the daily averages to 20 degrees)
If daily mean value > 15 degrees, then difference = 0.

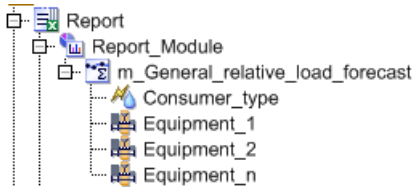
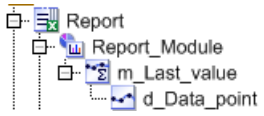
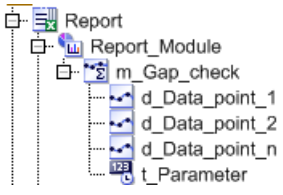

Additional info:
The daily average of the outdoor temperature (TA) is calculated. The daily temperature figure is calculated as follows:
Daily average of the outdoor temperature TA
DTf = (20° - TA) if TA < 15°
DTf = 0 if TA ≥ 15°
Monthly value: Total of daily values
Query period 1 month
Interval: 1 day
<table>
<tr><td>Day</td><td>d_temp</td></tr>
<tr><td>1/1/1998</td><td>13.1</td></tr>
<tr><td>1/2/1998</td><td>12</td></tr>
<tr><td>1/3/1998</td><td>11.9</td></tr>
<tr><td>1/4/1998</td><td>13.7</td></tr>
<tr><td>1/5/1998</td><td>13.1</td></tr>
<tr><td>1/6/1998</td><td>12.7</td></tr>
<tr><td>.....</td><td>...</td></tr>
</table>
Query period 1 year
Interval: 1 month
<table>
<tr><td>month</td><td>d_temp</td></tr>
<tr><td>January</td><td>503</td></tr>
<tr><td>February</td><td>390</td></tr>
<tr><td>March</td><td>401</td></tr>
<tr><td>April</td><td>298</td></tr>
<tr><td>May</td><td>115</td></tr>
<tr><td>June</td><td>36</td></tr>
<tr><td>....</td><td>...</td></tr>
</table>
</td>
</tr>
</table>

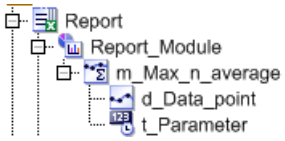
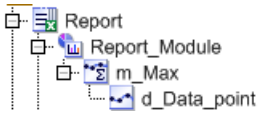
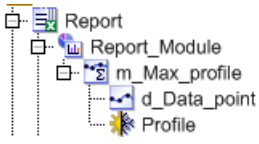
Degree days	Degree days (ID: 2797) Calculation of the heating degree days (GTZ 15/15) (heating limit 15°C). Inputs: d_Data_point (outdoor temperature) The function returns: RESULT[x] = SUM (difference of the daily averages to 15 degrees) If daily mean value > 15 degrees, then difference = 0. The daily mean is calculated as standard arithmetic mean value. 
Heating degree days AT (t9+t14+2x t21)/4	Heating degree days AT (t9+t14+2x t21)/4 (ID: 2819) Calculation of degree days AT. Inputs: d_Data_point (temperature [°C]) The function returns: RESULT[x] = SUM(difference of daily averages to 15 degrees) If daily mean value > 15 degrees, then difference = 0. If daily average < 15 degrees, then: RESULT[x] = (temperature(9:00) + temperature(14:00) + 2 x temperature(21:00)) / 4 

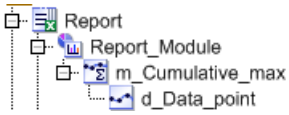
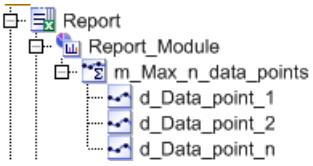
Configurable Meva	Configurable Meva (ID: 2883)
	Carries out a user-defined operation of the n MEVA/datapoint/parameter inputs.
	Inputs:
	m_MEVA_1
	m_MEVA_2
	m_MEVA_n
	 
	
	The following operators can be used: +, -, *, /, (,), IF THEN ELSE function
	Placeholders for the n MEVA inputs based on their position are defined as follows: 1, 2, n
	Example: (:1 + :2 - :n) * :n / :1
	The IF THEN ELSE function is executed according to the following syntax:
	IF Condition THEN
	Instruction
	ELSE
	Instruction
	END
	If the condition is satisfied (1), the instruction after THEN is executed.
	If the condition is not satisfied (0), the instruction after ELSE is executed.
	The syntax of the IF-THEN-ELSE function ends with END.
	The following comparison operators are permissible for the IF-THEN-ELSE condition definition:
	< less than
	> greater than
	<= less than or equal to
	>= greater than or equal to
	= equal to
	!= not equal
	If the syntax is not adhered to, an error message is displayed and the MEVA operation cannot be saved.
	Only (other) MEVAs, data points and parameter objects are permitted as input object type.
	A MEVA returns a numeric variable as the value.
	The return value is supplemented by a status (OK, INVALID, ...).

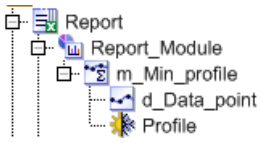
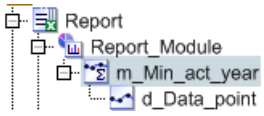
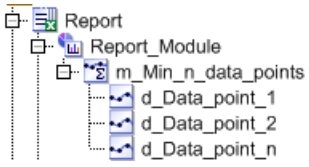
Configurable Meva	Examples:
	IF :1< :2 THEN
	:3 - :4
	ELSE
	:5 + :6
	END
	The IF-THEN-ELSE construct can also be nested inside one another multiple times.
	IF :1 >= :2 THEN
	IF :1 = :2 THEN
	:3 + :4
	ELSE
	:5 + :6
	END
	ELSE
	:5 - :6
	END

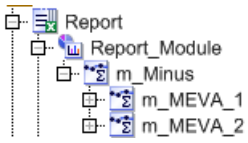
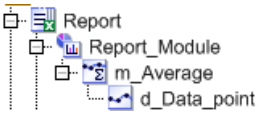
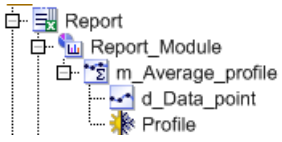
Load profile	Load profile (ID: 2873) Corrects a load profile using a correction value. A load profile is re-calculated based on a monthly correction value. Inputs: d_Data_point_1 (load profile) d_Data_point_2 (load profile correction) The function returns: The function first calculates the Real value of the sum (SumRealTotal) as a function of the load profile (d_Data_point_1). It also calculates the last value for the entire analysis period and applies this as correction value (LastCorrValue). The following calculation is then performed for each interval: Value = SUM REAL as a function of the current query period / SumRealTotal * LastCorrValue 
Load forecast generally	Load forecast generally (ID: 2709) General calculation of the load forecast. Inputs: Consumer type Anlage_1 Anlage_2 Anlage_n The function returns: RESULT[x] = Sum (y[E,t1] = k[E] * Quantity[t1] + d[E]) 

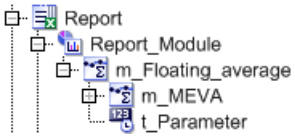
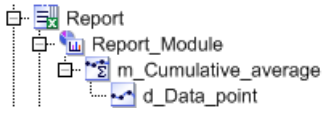
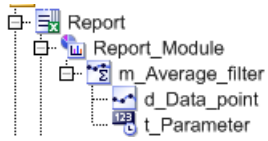
Load forecast general relatively	Load forecast general relatively (ID: 2800) General calculation of the relative load forecast. Inputs: Consumer type Anlage_1 Anlage_2 Anlage_n The function returns: RESULT[x] = Sum (y[E,t1] = k[E] * Quantity per time[t1] + d[E]) 
Last value	Last value (ID: 2765) Calculates the last measured value in the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Last value in the calculation interval. 
Gap check	Gap check (ID: 2868) Returns 1 if one of the connected data points contains gaps or values <= filter value; otherwise 0 is returned. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n [t_Parameter (filter value)] If t_Parameter is not used, then filter value = 0. 

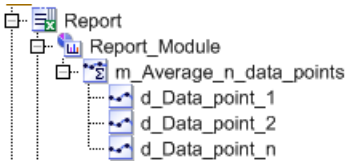
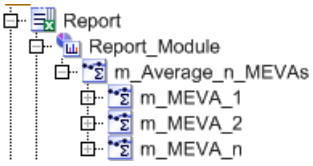
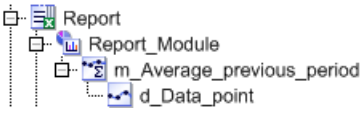
Max n Average	Max n Average (ID: 2804) Calculates the average of the n highest values since the beginning of the year. Inputs: d_Data_point t_Parameter The function returns: RESULT[x] = Average of the n highest values since the beginning of the year. The replacement value configured in t_Parameter determines n. 
Maximum	Maximum (ID: 1720) Calculates the largest value within the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Largest value within the calculation interval. Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). MEVA_STER_THRESHOLD can be used to set a percentage limit of corrupted values as of which the corrupted result is also rejected. It is also permitted to use decimal point values (e.g. 50.5); the function is disabled with "0". Only active if MEVA_CHECK_LUECKEN is disabled (= 0). 
Maximum (profile)	Maximum (profile) (ID: 2860) Calculates the greatest value within the calculation interval depending on the profile value. Inputs: d_Data_point Profile OR MasterProfile The function returns: RESULT[x] = Greatest value within the calculation interval if the profile value is not 0. Otherwise 0. 

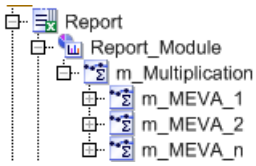
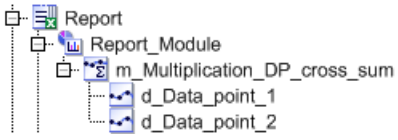
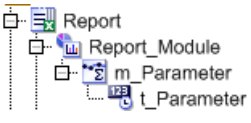
Maximum cumulated	Maximum cumulated (ID: 2865) Returns the cumulative maximum of all measured values within the 'From' time of the observation period until the 'T'o time of the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Cumulative maximum of all measured values. 
Maximum of n data points	Maximum of n data points (ID: 2835) Calculates the greatest measured value of n data points that lie within the calculation interval. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n The function returns: RESULT[x] = Greatest measured value of n data points that lie within the calculation interval. 
Minimum	Minimum (ID: 1718) Calculates the smallest value within the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Smallest value within the calculation interval. Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). MEVA_STER_THRESHOLD can be used to set a percentage limit of corrupted values as of which the corrupted result is also rejected. It is also permitted to use decimal point values (e.g. 50.5); the function is disabled with "0" value. Only active if MEVA_CHECK_LUECKEN is disabled (= 0). 

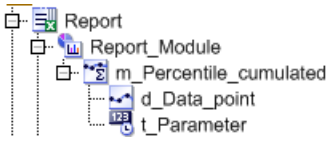
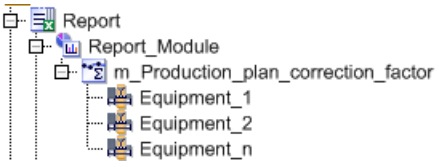
Minimum (profile)	Minimum (profile) (ID: 2787) Calculates the smallest value within the calculation interval depending on the profile value. Inputs: d_Data_point Profile OR MasterProfile The function returns: RESULT[x] = Smallest value within the calculation interval if the profile value is not 0. Otherwise 0. 
Minimum over actual year	Minimum over actual year (ID: 2786) Calculates the smallest value of all measured values within the following interval. [Start of current year, To timestamp of the calculation interval] Inputs: d_Data_point The function returns: RESULT[x] = Smallest value of all measured values within the interval above. 
Minimum of n data points	Minimum of n data points (ID: 2834) Calculates the smallest measured value of n data points that lie within the calculation interval. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n The function returns: RESULT[x] = Smallest measured value of n data points that lie within the calculation interval. 

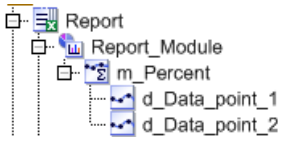
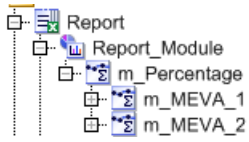
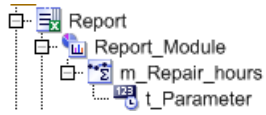
Minus	Minus (ID: 1735) Calculates the difference of two MEVAs. Inputs: m_MEVA_1 m_MEVA_2 The function returns: RESULT[x] = m_MEVA_1 - m_MEVA_2 
Average	Average (ID: 1719) Calculates the average of all measured values within the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Average of all measured values within the calculation interval. Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). MEVA_STER_THRESHOLD can be used to set a percentage limit of corrupted values as of which the corrupted result is also rejected. It is also permitted to use decimal point values (e.g. 50.5); the function is disabled with "0". Only active if MEVA_CHECK_LUECKEN is disabled (= 0). 
Average (profile)	Average (profile) (ID: 2762) Calculates the average of all measured values within the calculation interval depending on the profile value. Inputs: d_Data_point Profile OR MasterProfile The function returns: RESULT[x] = Average of all measured values within the calculation interval if the profile value is not 0. Otherwise 0. 

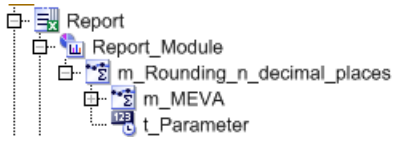
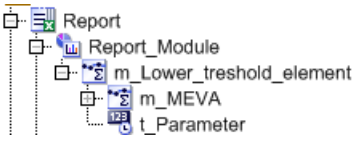
Floating average x days for Meva	Floating average x days for Meva (ID: 2838) Calculation of the floating average of a MEVA. Inputs: m_MEVA t_Parameter (number of days) The function returns: RESULT[x] = Average of the MEVA over the last n days. The replacement value configured in t_Parameter determines the number of days. 
Average cumulated	Average cumulated (ID: 2864) Returns the cumulative average of all measured values within the 'From' time of the observation period until the 'To' time of the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Cumulative average of all measured values. 
Average with filter	Average with filter (ID: 2861) Returns the average of all measured values greater than the filter value. Inputs: d_Data_point [t_Parameter (filter value)] If t_Parameter is not used, the filter value = 0. The function returns: RESULT[x] = Average of all measured values greater than the filter value. 

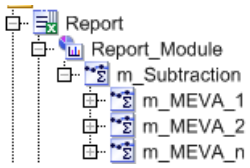
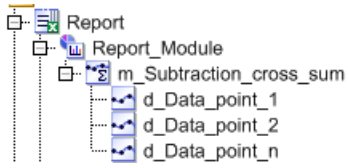
Average of n data points	Average of n data points (ID: 2836) Calculates the average of n data points that lie within the calculation interval. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n The function returns: RESULT[x] = Average of n data points that lie within the calculation interval. 
Average of n MEVAs	Average of n MEVAs (ID: 2839) Calculates the average of n MEVAs that lie within the calculation interval. Inputs: m_MEVA_1 m_MEVA_2 m_MEVA_n The function returns: RESULT[x] = Average of n MEVAs that lie within the calculation interval. 
Average previous period	Average previous period (ID: 2798) Calculation of average of previous period. Inputs: d_Data_point The function returns: RESULT[x] = AVG(measured values), whereby the query period is set back by one period (from/to). 

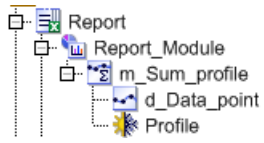
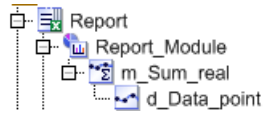
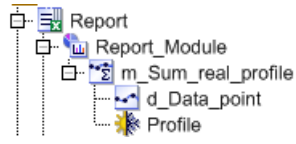
Multiplication	Multiplication (ID: 2708) Multiplies the results of the n MEVA/datapoint/parameter inputs. Inputs: m_MEVA_1 m_MEVA_2 m_MEVA_n The function returns: RESULT[x] = m_MEVA_1 * m_MEVA_2 * ... * m_MEVA_n) 
Multiplication of 2 DPs with cross sum	Multiplication of 2 DPs with cross sum (ID: 2690) Forms the product of the data point values for each time stamp. Returns the sum of the products contained therein for each calculation interval. Inputs: d_Data_point_1 d_Data_point_2 The function returns: RESULT[x] = SUM (d_Data_point_1 * d_Data_point_2) Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). 
Parameter	Parameter (ID: 1728) Calculates the valid parameter value since the start of the calculation interval. Inputs: t_Parameter The function returns: RESULT[x] = The valid parameter value since the start of the calculation interval. 

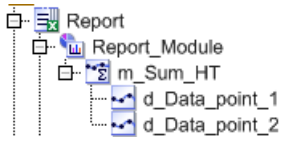
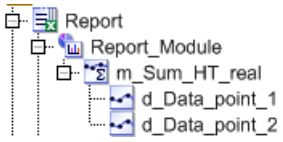
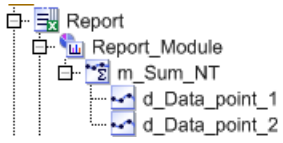
Percentile cumulated	Percentile cumulated (ID: 2867) Returns the cumulative percentile of all measured values within the 'From' time of the observation period until the 'To' time of the calculation interval. Inputs: d_Data_point t_Parameter (percentile) The function returns: RESULT[x] = Cumulative percentile of all measured values. The replacement value configured in t_Parameter determines the percentile. The percentile must be in the range from 1 to 99. 
Production plan correction factor	Production plan correction factor (ID: 2660) Calculates the sum of the correction values of all connected production plans. Inputs: Plant_1 Plant_2 Plant_n The function returns: RESULT[x] = SUM (correction value of the connected production plans within the calculation interval) 
Profile sum NLP	Profile sum NLP (ID: 2760) Calculates the sum of the profile values in the calculation interval. Inputs: Profile OR MasterProfile The function returns: RESULT[x] = SUM(profile values) 

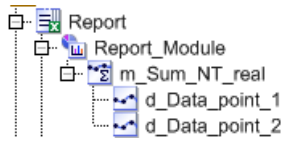
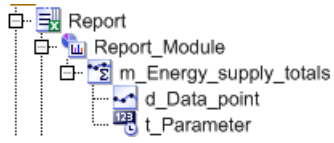
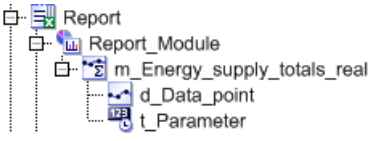
Profile value	Profile value (ID: 2730) Calculates the valid profile value since the start of the calculation interval. Inputs: Profile OR MasterProfile The function returns: RESULT[x] = The valid profile value since the start of the calculation interval. 
Percent	Percent (ID: 2732) Calculates the quotient of two data points, multiplied by 100. Inputs: d_Data_point_1 d_Data_point_2 The function returns: RESULT[x] = (d_Data_point_1 / d_Data_point_2) * 100 
Percentage	Percentage (ID: 1739) Calculates the quotient of two MEVAs, multiplied by 100. Inputs: m_MEVA_1 m_MEVA_2 The function returns: RESULT[x] = (m_MEVA_1 / m_MEVA_2) * 100 
Repair hours	Repair hours (ID: 2770) Calculates the total of all values in the validity period of the parameter. Inputs: t_Parameter (repair hours) The function returns: RESULT[x] = Sum of all values in the validity period of the parameter. 

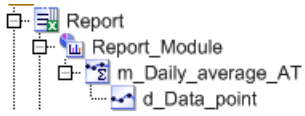
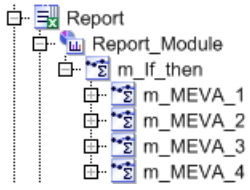
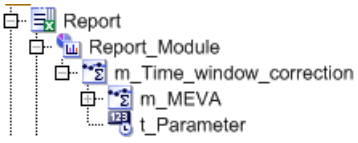
Rounding to n decimal places	Rounding to n decimal places (ID: 2785) Calculates rounded MEVA results Inputs: m_MEVA t_Parameter The function returns: RESULT[x] = MEVA results rounded to the nth decimal place. The replacement value configured in t_Parameter determines n. n must be in the range from 0 ... 15. 
Upper threshold element	Upper threshold element (ID: 1769) Calculates all MEVA values which are below the threshold. Otherwise, the threshold is returned. Inputs: m_MEVA t_Parameter (threshold) The function returns: RESULT[x] = IF(m_MEVA < t_Parameter, m_MEVA, t_Parameter) 
Lower threshold element	Lower threshold element (ID: 2681) Calculates all MEVA values which are above the threshold. Otherwise, the threshold is returned. Inputs: m_MEVA t_Parameter (threshold) The function returns: RESULT[x] = IF(m_MEVA > t_Parameter, m_MEVA, t_Parameter) 

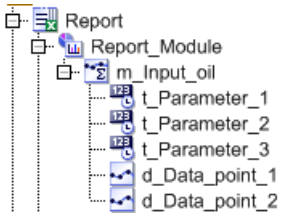
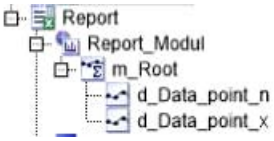
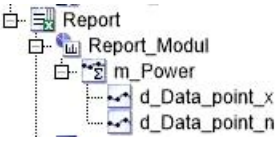
Subtraction	Subtraction (ID: 2772) Subtracts the results of the n MEVA/datapoint/parameter inputs: m_MEVA_1 m_MEVA_2 m_MEVA_n The function returns: RESULT[x] = m_MEVA_1 - m_MEVA_2 - ... - m_MEVA_n 
Subtraction with cross sum	Subtraction with cross sum (ID: 2784) Forms the difference of the n data point values for each time stamp. Returns the sum of the differences contained therein for each calculation interval. Inputs: d_Data_point_1 d_Data_point_2 d_Data_point_n The function returns: RESULT[x] = SUM (d_Data_point_1- d_Data_point_2 - ... - d_Data_point_n) Additional info: If MEVA_CHECK_LUECKEN in Energy Manager Options is set to 0, no check for gaps in the time series (15 min) is performed. 1 means that the check is performed. Only active if MEVA_STER_THRESHOLD is disabled (= 0). 
Sum	Sum (ID: 1721) Sum of all measured values scaled to the hour. Inputs: d_Data_point The function returns: RESULT[x] = Sum (measured value * validity period) / 3600 Additional info: MEVA_STER_THRESHOLD can be used to set a percentage limit of corrupted values as of which the corrupted result is also rejected. It is also permitted to use decimal point values (e.g. 50.5); the function is disabled with "0". Only active if MEVA_CHECK_LUECKEN is disabled (= 0). 

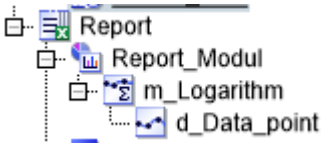
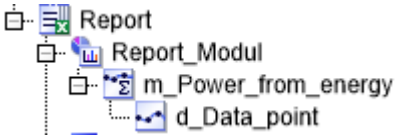
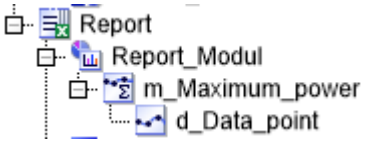
Sum (profile)	Sum (profile) (ID: 2761) Standardized sum calculation depending on the profile value. Inputs: d_Data_point Profile OR MasterProfile The function returns: RESULT[x] = Sum(value[t] * validity[t] / 3600) if profile[t] <> 0 
Sum real	Sum real (ID: 1779) Calculates the sum of all measured values within the calculation interval. Inputs: d_Data_point The function returns: RESULT[x] = Sum (measured value) Additional info: MEVA_STER_THRESHOLD can be used to set a percentage limit of corrupted values as of which the corrupted result is also rejected. It is also permitted to use decimal point values (e.g. 50.5); the function is disabled with "0". Only active if MEVA_CHECK_LUECKEN is disabled (= 0). 
Sum real (profile)	Sum real (profile) (ID: 2763) Calculates the sum of all measured values within the calculation interval depending on the profile value. Inputs: d_Datenpunkt Profile OR MasterProfile The function returns: RESULT[x] = sum(value[t] if profile[t] <> 0) 

Sum_HT	Sum_HT (ID: 1763) Sum of all measured values scaled to the hour as long as rate = 1. Inputs: d_Data_point_1 d_Data_point_2 (H/L rate, represented by 0 and 1) The function returns: RESULT[x] = SUM(measured value * validity period) / 3600 IF d_Data_point_2 = 1 
Sum_HT_Real	Sum_HT_Real (ID: 2733) Sum of all measured values as long as rate = 1. Inputs: d_Data_point_1 d_Data_point_2 (H/L rate, represented by 0 and 1) The function returns: RESULT[x] = SUM(measured value) IF d_Data_point_2 = 1 
Summe_NT	Summe_NT (ID: 1764) Sum of all measured values scaled to the hour as long as rate = 0 Inputs: d_Data_point_1 d_Data_point_2 (H/L rate, represented by 0 and 1) The function returns: RESULT[x] = SUM(measured value * validity period) / 3600 IF d_Data_point_2 = 0 

Sum_NT_Real	Sum_NT_Real (ID: 2734) Sum of all measured values as long as rate = 0. Inputs: d_Data_point_1 d_Data_point_2 (H/L rate, represented by 0 and 1) The function returns: RESULT[x] = SUM(measured value) IF d_Data_point_2 = 0 
Sum energy input	Sum energy input (ID: 1772) Calculates the sum of the energy input scaled to hour with inclusion of parameter changes. Inputs: d_Data_point (flow in [m^3/h], [Nm^3/h]) t_Parameter (calorific value in [MWh/t] ,[MWh/Nm^3]) The function returns: RESULT[MWh] =Sum energy input[MWh] = SUM(d_Data_point * validity period * t_Parameter)/ 3600 
Sum energy input real	Sum energy input real (ID: 1778) Calculates the sum of the energy input with inclusion of parameter changes. Inputs: d_Data_point (flow in [m^3/h], [Nm^3/h]) t_Parameter (calorific value in [MWh/t] ,[MWh/Nm^3]) The function returns: RESULT[MWh] =Sum energy input real [MWh] = SUM(d_Data_point * t_Parameter) 

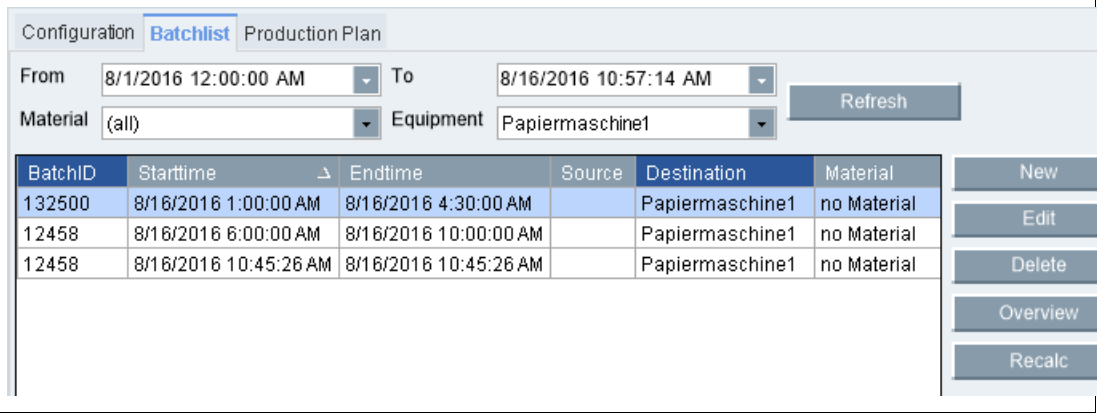
Daily average AT(t9+t14+2x t21)/4	Daily average AT (t9+t14+2x t21)/4 (ID: 2820) Calculates the daily average outdoor temperature. Inputs: d_Data_point The function returns: RESULT[x] = (temperature(09:00) + temperature(14:00) + 2 x temperature(21:00)) / 4 
If-Then	If-Then ID: 2746 Calculates the MEVA result of the threshold depending on the logical expression. Inputs: m_MEVA_1 m_MEVA_2 OR t_Parameter m_MEVA_3 m_MEVA_4 The function returns: RESULT[x]=IF (m_MEVA_1 > m_MEVA_2; m_MEVA_1; 0) RESULT[x]=IF (m_MEVA_1 > m_MEVA_2; m_MEVA_3; 0) RESULT[x]=IF(m_MEVA_1 > m_MEVA_2; m_MEVA_3; m_MEVA_4) Argument 2 may be a MEVA or parameter Arguments 3 and 4 are optional. 
Time window correction	Time window correction (ID: 2902) Moves the MEVA calculation results to the future or to the past. Inputs: m_MEVA t_Parameter OR query type. t_Parameter: with direction ("-": future; "+": past) and number of periods, for example, "-1" to shift the data by one period into the past. Query type: Correction From-time on the basis of duration and offset of the query type, To-time remains unchanged. 

Input oil (incl. corr.)	Input oil (incl. corr.) (ID: 1738) Temperature compensated calculation of the oil supply. Inputs: t_Parameter_1 (reference density [t/m³]) t_Parameter_2 (reference temperature [°C]) t_Parameter_3 (correction factor [1/°C]) d_Data_point_1 (operating temperature [°C]) d_Data_point_2 (flow [m³/h]) The function returns: RESULT[t] = oil supply[t] = SUM(d_Data_point_2 * validity period *(t_Parameter_1 + ((t_Parameter_2 - d_Data_point_1) * t_Parameter_3))) / 3600 
Root (n-th of x)	Root (n-th of x) (ID: 2930) The MEVA needs two input objects: The first input "n" represents the index of the formula and the second input "x" the radicand of the formula. Only (other) MEVAs, data points and parameter objects are permitted as input object types. If the transferred value is negative, the MEVA aborts with an error. 
Power (n to the x-th)	Power (n to the x-th) (ID: 2931) The MEVA needs two input objects: The first input "x" represents the base of the formula and the second input "n" the exponent of the formula. Only (other) MEVAs, data points and parameter objects are permitted as input object types. 

Logarithm	Logarithm (ID: 2932) Calculates the natural logarithm of a number. The MEVA requires one input object. Only (other) MEVAs, data points and parameter objects are permitted as input object types. If the transferred value is 0 or negative, the MEVA aborts with an error. 
Power from energy	Power from energy (ID: 2934) Calculation of the electrical power for a specific measured value and period. The MEVA requires one input object. Only data points are permitted as input object type.  Calculation formula when using the "Entry values" compression: Power value (kW) = Consumption value (kWh) / Entry interval (in hours) Calculation formula when using other compression levels: Power value (kW) = Consumption value (kWh) / Compression interval (in hr.)
Maximum power	Maximum power (ID: 2935) Calculates the maximum electrical power for a specific period. The MEVA requires one input object. Only data points are permitted as input object type.  Calculation formula when using the "Entry values" compression: Max. power value (kW) = Max. consumption value (kWh) / Entry interval (in hours) Calculation formula when using other compression levels: Max. power value (kW) = Max. consumption value (kWh) / Compression interval (in hr.)

4.14 User jobs of the job queue

The following section specifies the database jobs of the job queue that are available.

Database job	Description
Generate batch data	Generates batch data in the following form: 

Database job	Description	
Export forecast EDM	Exports all measured values of a datapoint in CSV format to an ASCII file, starting on the current day (00:15:00 h), including available forecast values. The datapoints concerned must be assigned to the "EDM forecast" export function. Assign these to the export function in the datapoint configuration of the Export dialog. The file name is also specified in this dialog. An optional time stamp with "yyyymmddhh24mi" format can be added to the file name. The file name has the extension ".TXT". The data are exported to the file successively for each datapoint.	
	Format	**Meaning**
	yyyy	Year
	mm	Month
	dd	Day
	hh24	24 hours mode
	mi	Minutes
	Entries in Energy Manager options	
	EXPORT_PATH	Export directory. If this entry is missing, an error message is entered in the Logging Viewer.
	EXPORT_FILENAME_MODUS	If = **0**: File name **with** date and time. If = **1**: File name **without** date and time. If exporting is carried out without date and time, a file already existing with the same name is overwritten.
	The following example shows an extract from an exported file that contains the following data: Date, time, measured value, and status. Date and time are in UTC time format. 08.04.2008;23:15:00;100;0 08.04.2008;23:30:00;99;0 08.04.2008;23:45:00;98;0 09.04.2008;00:00:00;97;0 09.04.2008;00:15:00;96;0 **Note**: The user running the Oracle application needs write permissions for the specified directory.	

Database job	Description	
Export SAP R/3 PM historical PD 6h	Exports the counter value history of the **PREVIOUS DAY** to a file at intervals of 6 hours and in "SAP R/3 PM" format. The data points concerned must be assigned to the "SAP PM VT historical 6h" export function. Assign these to the export function in the data point configuration of the Export dialog. The file name is also specified in this dialog. A time stamp with "yyyymmddhh24mi" format is added to the file name.	
	Format	**Meaning**
	yyyy	Year
	mm	Month
	dd	Day
	hh24	24 hours mode
	mi	Minutes
	The directory for the export is specified via the entry in the "EXPORT_PATH" in the Energy Manager options. If this entry is missing, an error message is entered in the Logging Viewer.	

Database job	Description	
Export SAP R/3 PM historical PPD 6h	Exports the counter value history of the **DAY BEFORE YESTERDAY** to a file at intervals of 6 hours and in "SAP R/3 PM" format. The data points concerned must be assigned to the "SAP PM PPD historical 6h" export function. Assign these to the export function in the data point configuration of the Export dialog. The file name is also specified in this dialog. A time stamp with "yyyymmddhh24mi" format is added to the file name.	
	Format	**Meaning**
	yyyy	Year
	mm	Month
	dd	Day
	hh24	24 hours mode
	mi	Minutes
	The directory for the export is specified via the entry in the "EXPORT_PATH" in the Energy Manager options. If this entry is missing, an error message is entered in the Logging Viewer.	

<table>
<tr><th>Database job</th><th colspan="3">Description</th></tr>
<tr><td>"Export PD as ASCII"</td><td colspan="3">Exports all data point values measured on the PREVIOUS DAY in CSV format to an ASCII file. The data points concerned must be assigned to the "Energy Manager Standard" export function. Assign these to the export function in the data point configuration of the Export dialog. The file name is also specified in this dialog. A optional time stamp with "yyyymmddhh24mi" format can be added to the file name. The file name has the extension ".TXT". The data are exported to the file successively for each data-point.</td></tr>
<tr><td></td><td>Format</td><td colspan="2">Meaning</td></tr>
<tr><td></td><td>yyyy</td><td colspan="2">Year</td></tr>
<tr><td></td><td>mm</td><td colspan="2">Month</td></tr>
<tr><td></td><td>dd</td><td colspan="2">Day</td></tr>
<tr><td></td><td>hh24</td><td colspan="2">24 hours mode</td></tr>
<tr><td></td><td>mi</td><td colspan="2">Minutes</td></tr>
<tr><td></td><td colspan="3">Entries in Energy Manager options</td></tr>
<tr><td></td><td colspan="2">EXPORT_PATH</td><td>Export directory. If this entry is missing, an error message is entered in the Logging Viewer.</td></tr>
<tr><td></td><td colspan="2">EXPORT_FILENAME_MODUS</td><td>If = 0: File name with date and time.
If = 1: File name without date and time.
If exporting is carried out without date and time, a file already existing with the same name is overwritten.</td></tr>
<tr><td></td><td colspan="3">The following example shows an extract from an exported file:
"COMP_LEVEL";"MSJO_DATE";"TIME_ID";"MEAS_ID";"MSJO_VALUE";"MSJO_INTERVAL";"MSJO_DVALID";"STER_FLAG";"STKO_FLAG"
"2100";"07.04.2008 00:15:00";"1002";"127795";"100";"900";"900";"0";"0"
"2100";"07.04.2008 00:30:00";"1002";"127795";"99";"900";"900";"0";"0"
"2100";"07.04.2008 00:45:00";"1002";"127795";"98";"900";"900";"0";"0"
"2100";"07.04.2008 01:00:00";"1002";"127795";"97";"900";"900";"0";"0"
"2100";"07.04.2008 01:15:00";"1002";"127795";"96";"900";"900";"0";"0"
Note: The user running the Oracle application needs write permissions for the specified directory.</td></tr>
</table>

<table>
<tr><th>Database job</th><th colspan="3">Description</th></tr>
<tr><td>Export all configured formats</td><td colspan="3">Exports all the measured values of all the datapoint values at which export functions are configured of the PREVIOUS DAY in CSV format to an ASCII file. The values of all the configured export functions are exported. The assignment of the export functions is effected in the datapoint configuration of the Export dialog. The file name is also specified in this dialog. A optional time stamp with "yyyymmddhh24mi" format can be added to the file name. The file name has the extension ".TXT". The data are exported to the file successively for each datapoint.</td></tr>
<tr><td></td><td>Format</td><td colspan="2">Meaning</td></tr>
<tr><td></td><td>yyyy</td><td colspan="2">Year</td></tr>
<tr><td></td><td>mm</td><td colspan="2">Month</td></tr>
<tr><td></td><td>dd</td><td colspan="2">Day</td></tr>
<tr><td></td><td>hh24</td><td colspan="2">24 hours mode</td></tr>
<tr><td></td><td>mi</td><td colspan="2">Minutes</td></tr>
<tr><td></td><td colspan="3">Entries in Energy Manager options</td></tr>
<tr><td></td><td colspan="2">EXPORT_PATH</td><td>Export directory. If this entry is missing, an error message is entered in the Logging Viewer.</td></tr>
<tr><td></td><td colspan="2">EXPORT_FILENAME_MODUS</td><td>If = 0: File name with date and time.
If = 1: File name without date and time.
If exporting is carried out without date and time, a file already existing with the same name is overwritten.</td></tr>
<tr><td></td><td colspan="3">The following example shows an extract from an exported file:
"COMP_LEVEL";"MSJO_DATE";"TIME_ID";"MEAS_ID";"MSJO_VALUE";"MSJO_INTERVAL";"MSJO_DVALID";"STER_FLAG";"STKO_FLAG"
"2100";"07.04.2008 00:15:00";"1002";"127795";"100";"900";"900";"0";"0"
"2100";"07.04.2008 00:30:00";"1002";"127795";"99";"900";"900";"0";"0"
"2100";"07.04.2008 00:45:00";"1002";"127795";"98";"900";"900";"0";"0"
"2100";"07.04.2008 01:00:00";"1002";"127795";"97";"900";"900";"0";"0"
"2100";"07.04.2008 01:15:00";"1002";"127795";"96";"900";"900";"0";"0"
Note: The user running the Oracle application needs write permissions for the specified directory.</td></tr>
</table>

See also

Job queue (Page 398)

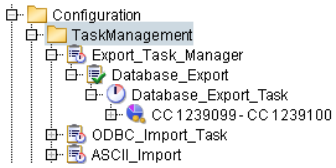
4.15 Task Management

4.15.1 Task Management

Creating the Task Manager

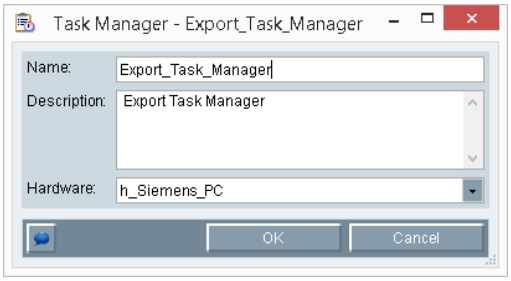
A Task Manager is created automatically during the installation. In addition, a new Task Manager is created for each new acquisition component. If you need additional Task Managers, follow these steps:

1. Select the folder under which the Task Manager is going to be created. Save all tasks centrally in a folder. To avoid the creation of different tasks with the same content.



2. Click the "Insert Task Manager" button in the menu bar under "Administration > Task Management".

   The "Task Manager" dialog opens.

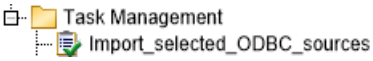
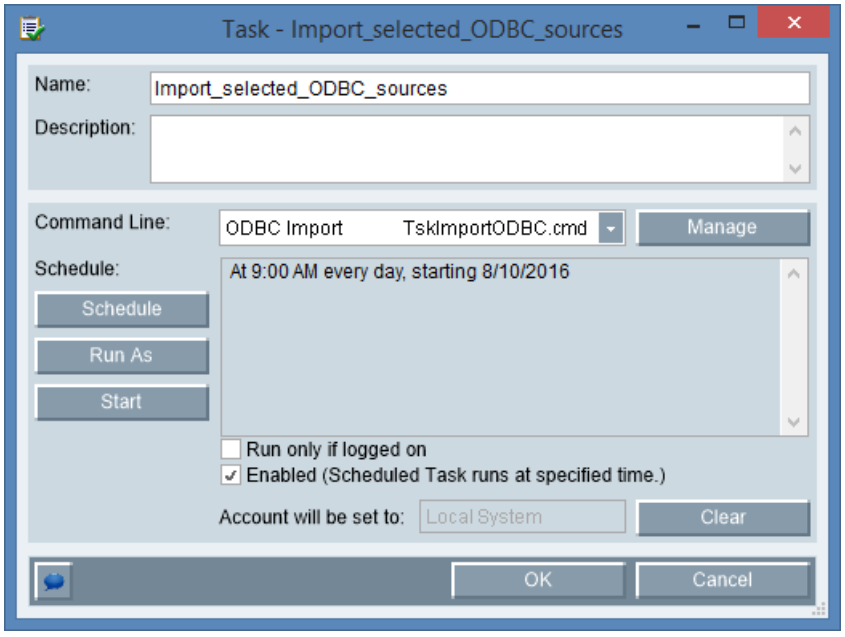


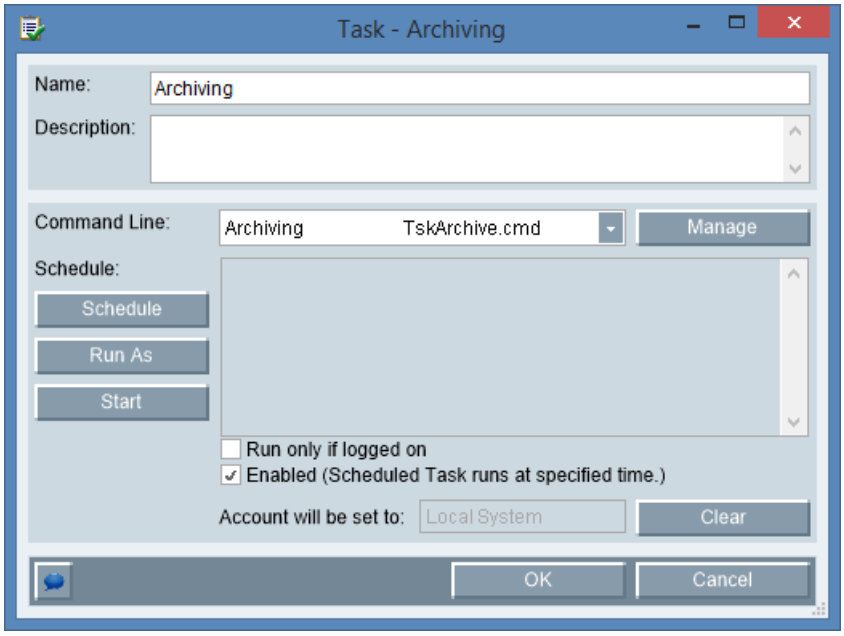
3. Enter a user "name" and an optional "description".
4. Select the PC on which the Task Manager is to be set up from the "Hardware" list box.
5. Save the configuration with "OK".

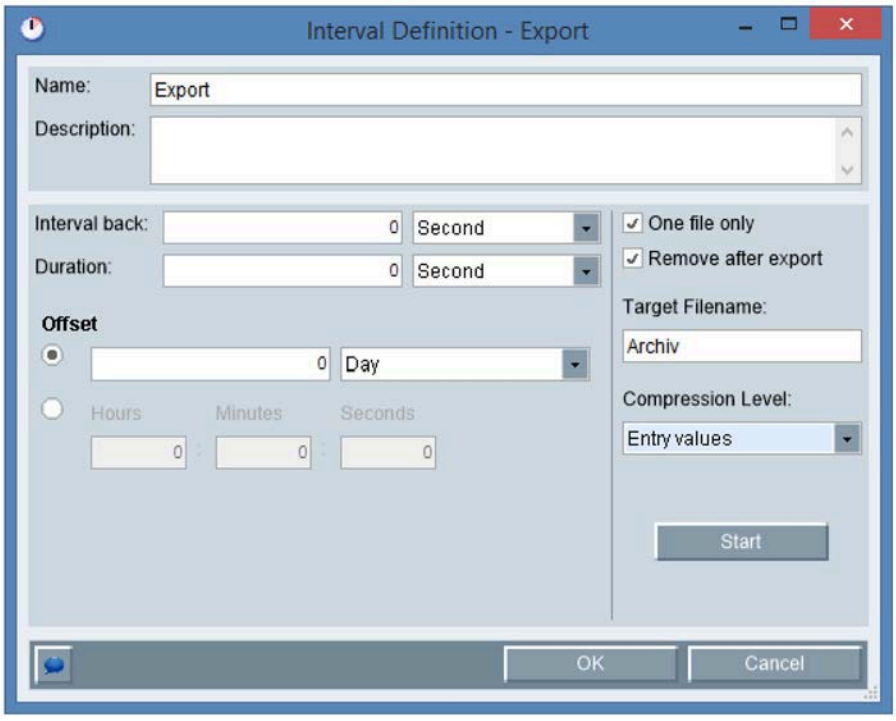
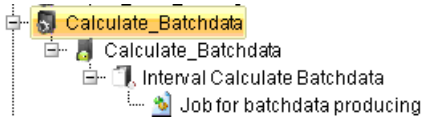
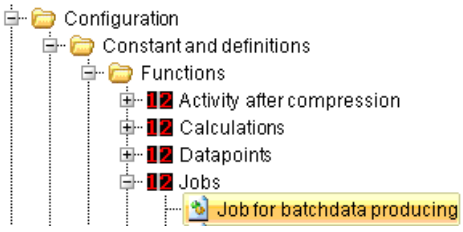
   Create a task in the next step.

Overview

The following section specifies the tasks that are available.

Task	Function
ODBD Import TskImport-tODBC.cmd TskImportOD-BCall.cmd	Configuration  TskImportODBC.cmd: Imports all active data channels that are assigned to the task. TskImportODBCall.cmd: Imports all active data channels.  Select the file to be executed in the command line. Define a "Schedule", if applicable. Click "Start" to launch a single run of the task.

Task	Function
Archiving TskArchive.cmd	Configuration  Select the "TskArchive.cmd" entry from the command line list box when you define the task.  Create an interval definition to configure the time window to export.

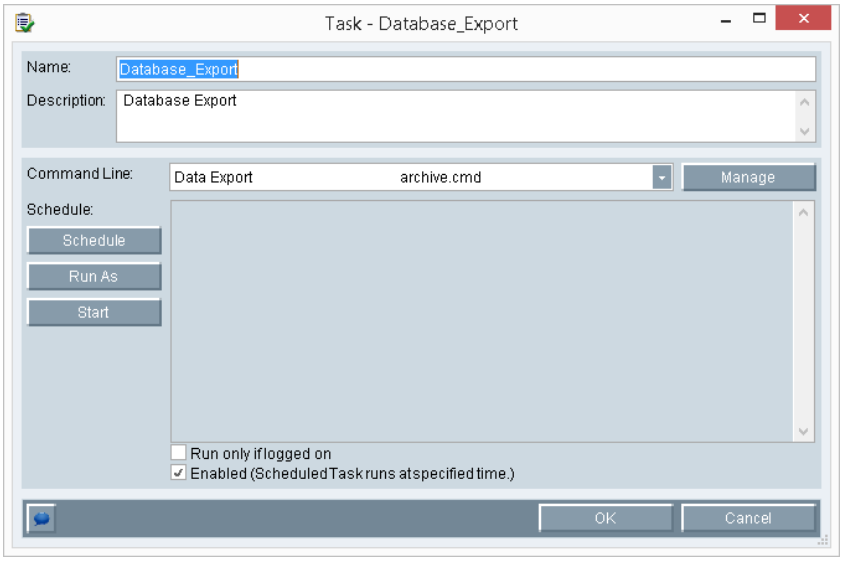
Task	Function
Archiving (continued)	The following example shows the export of data that is older than three years. "Remove after export" deletes the data from the database within the specified time range. The exported data is written to a file.  You may also export all data points manually or export only selected data points.
Job starting TskStartJob .cmd	This task can be used to initiate the database jobs that are available in Energy Manager PRO and which are also used in the job queue. Configuration  Connect the object of the database job that is to be executed to the task node. The jobs available in the system are listed in the plant tree at "Configuration > Constants and definitions" / Functions / Jobs. 

4.15.2 Task

Creating the task

1. Click "Insert Task" in the menu bar under "Administration > Task Management".

   The "Task" dialog opens.



2. Enter the task "name" and an optional "description". The name may not contain special characters.
3. Select the function that the task has to execute from the "Command Line:" list box.

   Note

   After having changed or updated the command line contents (*.CMD file), you must enter your login information once again.

4. If you want to store a schedule that determines the start of the task, proceed as follows:
   - Click "Schedule".
   - Configure the schedule and then close the input dialog with "OK". For more information on Microsoft Scheduler, refer to the Microsoft Windows online help.

   The Microsoft Scheduler opens.
5. Authorize yourself with "Run as" and enter the user name and password. This is only required if the task is not to be executed with the local Windows user.

   Click "OK".

6. To start a task manually, click "Start".
7. Save the configuration with "OK".

   If necessary, specify an interval definition.

Note
Subsequent changing of the password

If you are not using the local Windows user, you must log on with the new password via "Run as".

See also

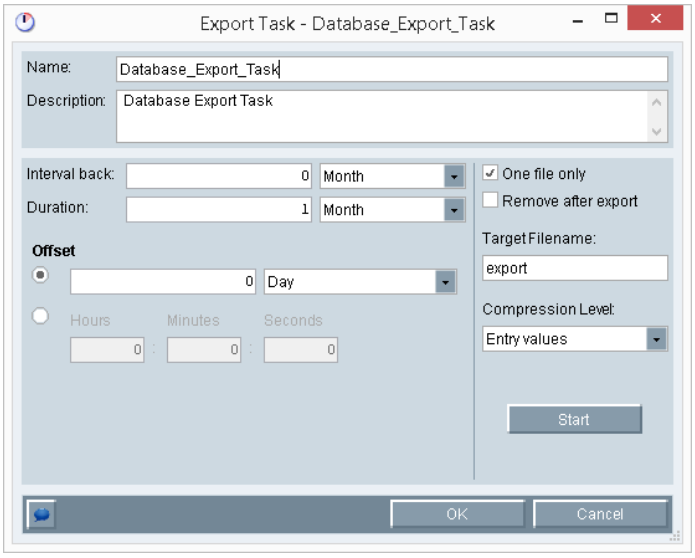
Task Manager (Page 405)
Interval definition (Page 837)

4.15.3 Interval definition

Creating the interval definition

1. Click the "Insert Interval Definition" button in the menu bar under "Administration > Task Management".

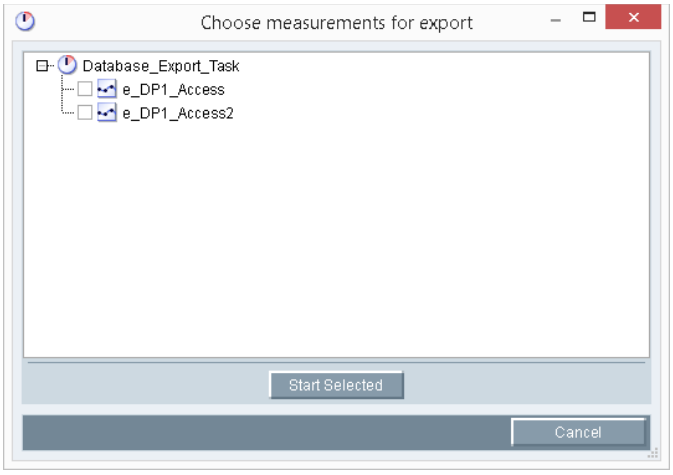
   The "Export Task" dialog opens.



2. Enter a "Name" and an optional "Description" for the interval definition.
3. Define the time window in the "Interval back:", "Duration:", and "Offset:" fields. The time window contents are always relative to the current time.
4. To export all data points to a single file, select the "One file only" check box and enter the "Target Filename". However, be aware of the fact that the size of the import file is limited to 5000 lines.

   A separate file is generated for each data point if this option is not activated.
5. Select the "Remove after export" check box to delete the files from the database on completion of the export.

6. Click "Start" to export only selected data points.
   – Select the data points to export and then click "Start selected".



7. Save the configuration with "OK".

Example

Example: Configuration of the example above

Let us assume that the task is going to be launched on January 17, 2008 at 13:57

Truncate with "Month" 01/01/2008 00:00

Interval back (6) 07/01/2007 00:00

Offset (no offset) 07/01/2007 00:00

Duration (1 day) 07/01/2007 00:00 - 07/02/2007 00:00

The interval from 07/01/07 00:00 to 07/02/07 00:00 is now defined in the example.

See also

Task (Page 835)

Task Manager (Page 405)

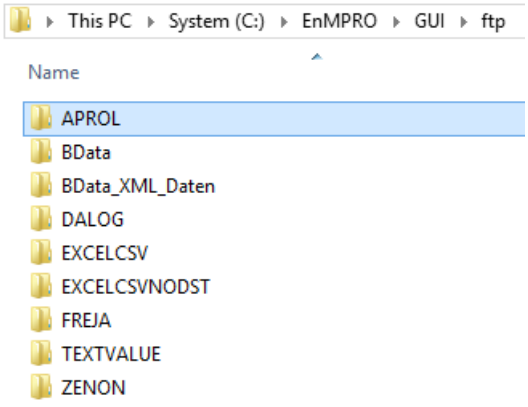
4.16 ASCII FTP formats

4.16.1 ASCII FTP import interface

Using the ASCII FTP import interface, you can import the content of ASCII files of diverse formats to Energy Manager.

The specification for the supported formats is the same in all cases.

During the installation of Energy Manager, a sample file for each supported format in the %Install-DIR%\EnMPRO\GUI\ftp directory is stored on the acquisition system.



File format	**Sample file**
fp_Aprol	ChronoLogDataExport_pfil_H_15_03_2010.txt
fp_bdata	20100627_000000_FribaDP01.txt
fp_xmlparser	d_EL_E_7D_outside_temperature_20100101000000_20100102000000.xml
fp_dalog	Dalog_File.txt
fp_excelcsv	Excel_CSV.csv
fp_excelcsvNODST	Excel_CSV_NODST.csv
fp_freja	AVV_000112200_20100328000000_20100329000000.txt
TextValue	TextValues.txt
fp_Zenon.dll	zenOn.txt

The following chapters contain more information on the various parsers and supplied sample files.

See also

Data acquisition via the "FTP, sFTP" interface (Page 108)

Configuring data acquisition via the "File Import" interface (Page 112)

Creating an ASCII channel (Page 633)

4.16.2 APROL

APROL is a process control system. This system also exports the values as a "*.txt" file with a specific HTML format. The structure will look as follows:

<record date="YYYY-MM-DD" time="hh:mm:ss" id="Addressidentifier">

<field name="val">Value</field>

<field name="mode">0</field>

</record>

To assign values to a data point, enter the address identifier of the values in the entry field "Address" during configuration.

Example

The following figure shows a file with the required structure:

```
1
2   <record date="2018-03-15" time="00:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
3       <field name="val">0.478000015020370 5</field>
4       <field name="mode">0</field>
5   </record>
6
7   <record date="2018-03-15" time="01:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
8       <field name="val">0.578000015020370 5</field>
9       <field name="mode">0</field>
10  </record>
11
12  <record date="2018-03-15" time="02:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
13      <field name="val">0.380000025033950 8</field>
14      <field name="mode">0</field>
15  </record>
16
17  <record date="2018-03-15" time="03:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
18      <field name="val">0.778000015020370 5</field>
19      <field name="mode">0</field>
20  </record>
21
22  <record date="2018-03-15" time="04:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
23          <field name="val">0.478000015020370 5</field>
24      <field name="mode">0</field>
25  </record>
26
27  <record date="2018-03-15" time="05:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
28      <field name="val">0.568000015020370 5</field>
29      <field name="mode">0</field>
30  </record>
31
32  <record date="2018-03-15" time="06:00:00" id="W15:Z1t/ABBMSU8_1O_J1Ab">
33      <field name="val">0.478000015020370 5</field>
34      <field name="mode">0</field>
35  </record>
```

4.16.3 BDATA

You can import "*.txt" files from B.Data with the format BDATA. Do not modify the files of B.Data or else the import will no longer work. The separator is the semicolon sign. Each entry also features quotation marks at the beginning and the end.

To assign values to a data point, enter the ID number of the values in the "Address" entry field when configuring the data point. You can find the ID number under the entry "MESS_ID". The ID number for the first entry in the example below is "00059".

Example

The following figure shows a file with the required structure:

```
"COMP_LEVEL";"M3JO_DATUM";"ZEIT_ID";"MESS_ID";"M3JO_WERT";"M3JO_INTERVALL";"M3JO_DGUELTIG";"STER_FLAG";"STKO_FLAG"
"2100";"26.06.2018 01:00:00";"1002";"00059";"244.89";"3600";"3600";"0";"0"
"2100";"26.06.2018 02:00:00";"1002";"00059";"243.39";"3600";"3600";"0";"0"
"2100";"26.06.2018 03:00:00";"1002";"00059";"244.61";"3600";"3600";"0";"0"
"2100";"26.06.2018 04:00:00";"1002";"00059";"243.53";"3600";"3600";"0";"0"
"2100";"26.06.2018 05:00:00";"1002";"00059";"244.48";"3600";"3600";"0";"0"
"2100";"26.06.2018 06:00:00";"1002";"00059";"243.48";"3600";"3600";"0";"0"
"2100";"26.06.2018 07:00:00";"1002";"00059";"244.24";"3600";"3600";"0";"0"
"2100";"26.06.2018 08:00:00";"1002";"00059";"243.59";"3600";"3600";"0";"0"
"2100";"26.06.2018 09:00:00";"1002";"00059";"244.43";"3600";"3600";"0";"0"
"2100";"26.06.2018 10:00:00";"1002";"00059";"243.52";"3600";"3600";"0";"0"
"2100";"26.06.2018 11:00:00";"1002";"00059";"244.45";"3600";"3600";"0";"0"
"2100";"26.06.2018 12:00:00";"1002";"00059";"243.64";"3600";"3600";"0";"0"
"2100";"26.06.2018 13:00:00";"1002";"00059";"244.65";"3600";"3600";"0";"0"
"2100";"26.06.2018 14:00:00";"1002";"00059";"243.58";"3600";"3600";"0";"0"
"2100";"26.06.2018 15:00:00";"1002";"00059";"245.16";"3600";"3600";"0";"0"
"2100";"26.06.2018 16:00:00";"1002";"00059";"243.44";"3600";"3600";"0";"0"
"2100";"26.06.2018 17:00:00";"1002";"00059";"245.26";"3600";"3600";"0";"0"
"2100";"26.06.2018 18:00:00";"1002";"00059";"243.95";"3600";"3600";"0";"0"
"2100";"26.06.2018 19:00:00";"1002";"00059";"245.08";"3600";"3600";"0";"0"
"2100";"26.06.2018 20:00:00";"1002";"00059";"243.14";"3600";"3600";"0";"0"
"2100";"26.06.2018 21:00:00";"1002";"00059";"243.49";"3600";"3600";"0";"0"
"2100";"26.06.2018 22:00:00";"1002";"00059";"244.48";"3600";"3600";"0";"0"
```

Note

Where applicable, as in Germany, use a comma as the decimal separator for the operating system.

Otherwise use a period as the decimal separator.

The figure above uses a period as the decimal separator. This file is therefore correct for non German-speaking operating systems.

4.16.4 BDATA_XML_Format

In Energy Manager you can export values in an "*.xml" file. You can import these values with the BDATA_XML format. Do not modify the "*.xml" files of Energy Manager Pro or the import will no longer work.

To assign values to a data point, enter the ID number of the values in the "Address" entry field when configuring the data point. The ID number for the first entry in the example below is "110357".

Note

Importing XML files with or without line breaks

If you wish to import an XML file with more than 65533 bytes, the XML file must be formatted with line breaks.

If the XML file does not contain any line breaks, a maximum of 65533 bytes of data is imported.

Example

The following figure shows a file with the required structure:

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<!DOCTYPE bdata-export [
<!ELEMENT bdata-export (measurements, measurevalues)* >
<!ATTLIST bdata-export
    id CDATA #REQUIRED
    from CDATA #REQUIRED
    to CDATA #REQUIRED
>
<!ELEMENT measurements (measurement)+ >
<!ELEMENT measurement (description, measurevalues) >
<!ELEMENT description (#PCDATA) >
<!ATTLIST measurement
    id CDATA #REQUIRED
    name CDATA #REQUIRED
    loggen CDATA #IMPLIED
    dapu-adr CDATA #IMPLIED
    ident CDATA #IMPLIED
>
<!ELEMENT measurevalues (val)+>
<!ELEMENT val (#PCDATA)>
<!ATTLIST val
    id CDATA #REQUIRED
    time CDATA #REQUIRED
    normtime CDATA #REQUIRED
    isdst CDATA #REQUIRED
    comp CDATA #IMPLIED
    value CDATA #REQUIRED
    inc CDATA #IMPLIED
    dur CDATA #IMPLIED
    flag CDATA #IMPLIED
    korr CDATA #IMPLIED
    maxdata CDATA #IMPLIED
>
]>
<bdata-export id="110357" from="2018-01-01 00:00:00" to="2018-01-02 00:00:00">
<measurements>
<measurement id="110357" name="&#95;ELK&#95;E&#95;7D&#95;Wetterstn&#95;Aussentemperatur" loggen="1"  dapu-adr="110357" ident="" >
<description>
ELK_E-7D Wetterstation Istwert Aussentemperatur
</description>
<measurevalues>
<val id="110357" time="2018-01-01 00:15:00" normtime="2018-01-01 00:15:00" isdst="false" comp="0" value="11.029" int="900" dur="900" flag="0" korr="0"/>
<val id="110357" time="2018-01-01 00:30:00" normtime="2018-01-01 00:30:00" isdst="false" comp="0" value="11.034" int="900" dur="900" flag="0" korr="0"/>
<val id="110357" time="2018-01-01 00:45:00" normtime="2018-01-01 00:45:00" isdst="false" comp="0" value="10.986" int="900" dur="900" flag="0" korr="0"/>
<val id="110357" time="2018-01-01 01:00:00" normtime="2018-01-01 01:00:00" isdst="false" comp="0" value="10.986" int="900" dur="900" flag="0" korr="0"/>
```

4.16.5 DALOG

The DALOG system is a data storage system which imports values as a "*.txt" file. The structure will look as follows:

The address identifiers of the individual data points are found in the first line:

Address label 1@ Address label 2@ Address label 3@ Address label 4

A "1" stands for each data point in the second line:

1@1@1@1

From the third line, the time stamps are listed with the respective values:

timestamp@Value1@Value2@Value3@Value4

To assign values to a data point, enter the address identifier of the values in the "Address" entry field when configuring the data point.

The separator in this case is "@". The following structure is required for the time stamp: YYYY.MM.DD hh:mm:ss

Example

The following figure shows a file with the required structure:

```
1  DE0072253162BHSAOOOOOOOWKLAF01000_1-81:1.9.1@datapoint_address_2@datapoint_address_3@datapoint_address_4
2  1@1@1@1
3  2018.02.01 00:00:00@654@@54.2@
4  2018.03.01 00:00:00@123.456@523.6@42@62.5
5  2018.03.31 23:00:00@863@@52.3@41
6  2018.04.30 23:00:00@52@46.8@@84.7
7  2018.05.31 23:00:00@87@17.1@198.78@
8  2018.06.30 23:00:00@25.1@422@56@21.3
9  2018.07.31 23:00:00@89.6@422@56@21.3
10 2018.08.31 23:00:00@32.4@523.6@42@62.5
11 2018.09.30 23:00:00@213@@52.3@41
12 2018.11.01 00:00:00@52@152@@84.7
13 2018.12.01 00:00:00@87@3@198.78@
14 2019.01.01 00:00:00@211@51@56@2
```

4.16.6 EXCELCSV

You can import CSV files from Excel with the EXCELCSV format.

In the EXCEL file, the time stamps of the values are listed in the first column (column A). The format of the time stamp is the German time and date format: DD.MM.YYYY hh:mm

You can choose any header of the column with the time stamps.

From the second column, the values for a time stamp are entered. Every column represents a data point. The address label for the values is the column header in the first line.

To assign values of a column to a data point, enter the address label of the values in the "Address" entry field when configuring the data point.

The separator is the semicolon. However, the separator is only visible outside of Excel.

Example

The following figure shows a file with the required structure:

	A	B
1	Zeitstempel	EXCELCSV_01
2	28.03.2018 00:15	25
3	28.03.2018 00:30	26
4	28.03.2018 00:45	27
5	28.03.2018 01:00	28
6	28.03.2018 01:15	29
7	28.03.2018 01:30	30
8	28.03.2018 01:45	31
9	28.03.2018 03:00	32
10	28.03.2018 03:15	33
11	28.03.2018 03:30	34
12	28.03.2018 03:45	35

4.16.7 EXCELCSVNODST

The difference between the formats EXELCSV and EXCELCSVNODST is the time basis. The time stamps in this format are consistently requested in UTC+1 (standard time).

Energy Manager adds an hour with this format for representation in daylight saving time.

The structure of the file is identical to that of a file in the EXCELCSV format.

Example

The following figure shows a file with the required structure:

	A	B
1	Zeitstempel	EXCELCSV_01
2	28.03.2018 00:15	25
3	28.03.2018 00:30	26
4	28.03.2018 00:45	27
5	28.03.2018 01:00	28
6	28.03.2018 01:15	29
7	28.03.2018 01:30	30
8	28.03.2018 01:45	31
9	28.03.2018 03:00	32
10	28.03.2018 03:15	33
11	28.03.2018 03:30	34
12	28.03.2018 03:45	35

4.16.8 FREJA

The FREJA system is an energy accounting system. The system uses the data format "*.txt". The required structure of the file is described in the following table:

Column	Column header	Contents	Example
1	Year	Year value of the timestamp	2018
2	Month	Month value of the timestamp	03
3	Day	Daily value of the timestamp	28
4	Hour	Hour value of the time stamp	09
5	Minute	Minute value of the timestamp	45
6	TAGname	Address label	HQK_FJV_ATOF_LEV_EGI_1M
7	Unit	Unit of the value	MWh
8	Value	Value of the entry	200

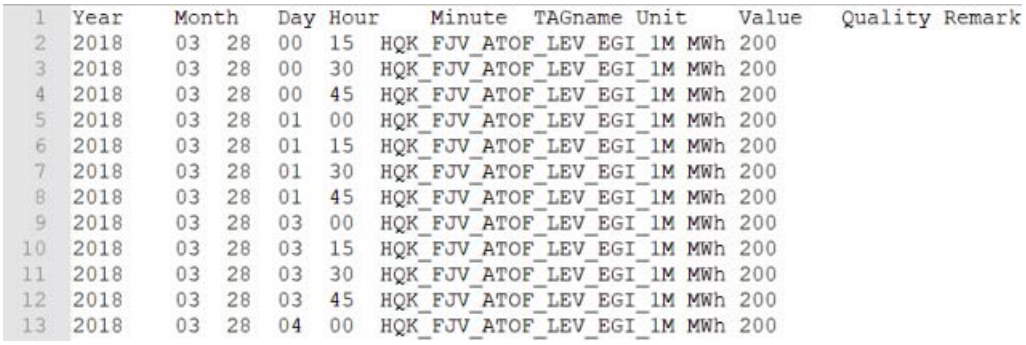
Columns 9 and 10 with the column headers "Quality" and "Remark" are not used by Energy Manager.

The separator field between the columns is a tabulator. Import is only possible with correct column headers.

To assign values to a data point, enter the address label of the values in the "Address" entry field when configuring the data point.

Example

The following figure shows a file with the required structure:



	Year	Month	Day	Hour	Minute	TAGname	Unit	Value	Quality	Remark
2	2018	03	28	00	15	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
3	2018	03	28	00	30	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
4	2018	03	28	00	45	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
5	2018	03	28	01	00	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
6	2018	03	28	01	15	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
7	2018	03	28	01	30	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
8	2018	03	28	01	45	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
9	2018	03	28	03	00	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
10	2018	03	28	03	15	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
11	2018	03	28	03	30	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
12	2018	03	28	03	45	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		
13	2018	03	28	04	00	HQK_FJV_ATOF_LEV_EGI_1M	MWh	200		

4.16.9 TextValue

You can import texts with this format.

The TextValue format has the following structure:

Time stamp;address label;text

The German time and date format is requested for the time stamp: DD.MM.YYYY hh:mm

The semicolon sign is the separator.

Example

The following figure shows a file with the required structure:

```
01.02.2018 00:15;ENG2;engine 2 failure
03.02.2018 00:00;ENG2;hotwater failure
05.03.2018 01:00;engine_1;plant 2 OK again
```

4.16.10 ZenOn

The ZenOn system is a system which saves values in a "*txt" file in CSV format. The required structure of the "*.txt" file is described in the following table:

Column	Contents	Example
1	Address label	H2_UYC01_CT001
2	Value of the entry	8.6
3	Standard or daylight saving time	SPONT WINTER
4	Date of the timestamp	27 January 2018
5	Time of the timestamp	01:00:00

Example

The following figure shows a file with the required structure:

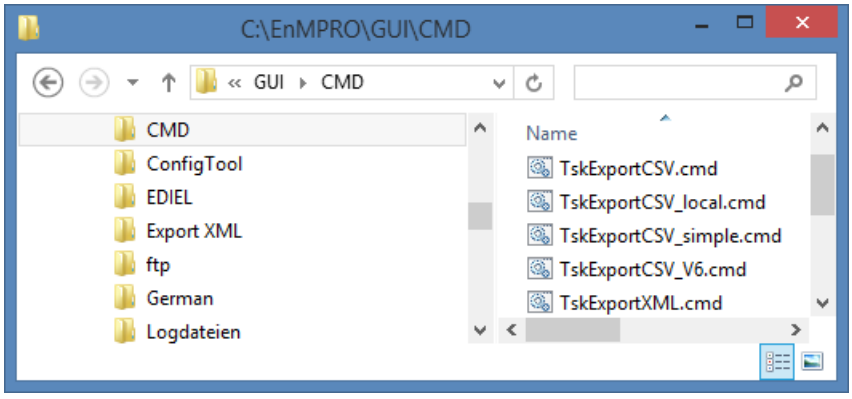
```
H2_UYC01_CT001_YQ01;8.6;SPONT WINTER ;27.01.18;01:00:00
H2_UYC01_CT001_YQ01;8.6;SPONT WINTER ;27.01.18;02:00:00
H2_UYC01_CT001_YQ01;8.5;SPONT WINTER ;27.01.18;03:00:00
H2_UYC01_CT001_YQ01;8.7;SPONT WINTER ;27.01.18;04:00:00
H2_UYC01_CT001_YQ01;8.5;SPONT WINTER ;27.01.18;05:00:00
H2_UYC01_CT001_YQ01;8.6;SPONT WINTER ;27.01.18;06:00:00
H2_UYC01_CT001_YQ01;8.5;SPONT WINTER ;27.01.18;07:00:00
```

4.17 XML stylesheets

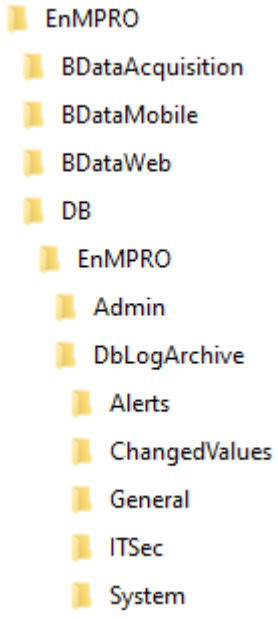
4.17.1 XML export interface

The XML export interface is used for the export of data point information and measured values from Energy Manager to XML format files. The XML data is converted into the selected ASCII format by means of a style sheet.

The entire process is controlled by means of Task Management. For this, the setup installs five CMD files in the "%Installations-DIR%\CMD" folder on an acquisition computer.



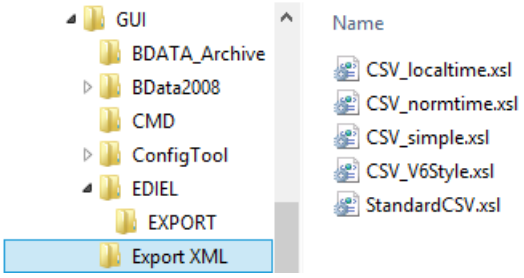
"TskArchive.cmd" uses "%Installations-DIR%\DB\EnMPRO\DbLogArchive" as the output folder.



The remaining CMDs employ the "%Installations-DIR%\EDIEL" output folder. The other output folders are generated by the respective CMD.

It is possible to adapt the CMD files or style sheets to enable generation of all necessary ASCII formats.

Setup installs six style sheets in the "%Installations-DIR%\EnMPRO\GUI\Export XML" folder on an acquisition computer.



The next chapters provide a short overview of the various style sheets.

4.17.2 CSV_localtime.xsl

XML file

Execution file: TskExportCSV.cmd
Output folder: C:\EnMRPO\GUI\EDIEL\EXPORT

This style sheet exports all columns of the data model via the task as CSV file except for the columns "ENTRYDATE", "MINDATE" and "MAXDATE". The time stamps of the measured values are entered by the application server in local time of the operating system.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	COMP_LEVEL	VALUEDATE	MESS_ID	VALUE	EINH_KTEXT	STATE_VAL	STATE_ACQ	STATE_COR	MIN	MAX	AVG	SUM	PVALUE	OFFSET	TEXT
2	2100	19.09.2017 00:15:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
3	2100	19.09.2017 00:30:00	5225	109.038	hl	30	0	0	109.038	109.038	109.038	109.038	436.152	1	
4	2100	19.09.2017 00:45:00	5225	54.366	hl	30	0	0	54.366	54.366	54.366	54.366	217.464	1	
5	2100	19.09.2017 01:00:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
6	2100	19.09.2017 01:15:00	5225	54.876	hl	30	0	0	54.876	54.876	54.876	54.876	219.504	1	
7	2100	19.09.2017 01:30:00	5225	108.528	hl	30	0	0	108.528	108.528	108.528	108.528	434.112	1	
8	2100	19.09.2017 01:45:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
9	2100	19.09.2017 02:00:00	5225	109.038	hl	30	0	0	109.038	109.038	109.038	109.038	436.152	1	

Example for time stamp: 19.09.2017 00:15:00 54,468

4.17.3 CSV_normtime.xsl

XML file

Execution file: TskExportCSV_local.cmd
Output folder: C:\EnMRPO\GUI\EDIEL\EXPORT

This style sheet, too, exports all columns of the data model via the task as CSV file except for the columns "ENTRYDATE", "MINDATE" and "MAXDATE". The time stamps of the measured values are entered in local time without taking daylight saving time into account.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	COMP_LEVEL	VALUEDATE	MESS_ID	VALUE	EINH_KTEXT	STATE_VAL	STATE_ACQ	STATE_COR	MIN	MAX	AVG	SUM	PVALUE	OFFSET	TEXT
2	2100	18.09.2017 23:15:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
3	2100	18.09.2017 23:30:00	5225	109.038	hl	30	0	0	109.038	109.038	109.038	109.038	436.152	1	
4	2100	18.09.2017 23:45:00	5225	54.366	hl	30	0	0	54.366	54.366	54.366	54.366	217.464	1	
5	2100	19.09.2017 00:00:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
6	2100	19.09.2017 00:15:00	5225	54.876	hl	30	0	0	54.876	54.876	54.876	54.876	219.504	1	
7	2100	19.09.2017 00:30:00	5225	108.528	hl	30	0	0	108.528	108.528	108.528	108.528	434.112	1	
8	2100	19.09.2017 00:45:00	5225	54.468	hl	30	0	0	54.468	54.468	54.468	54.468	217.872	1	
9	2100	19.09.2017 01:00:00	5225	109.038	hl	30	0	0	109.038	109.038	109.038	109.038	436.152	1	

Example for time stamp: 18.09.2017 23:15:00 54,468

4.17.4 CSV_simple.xsl

XML file

Execution file: TskExportCSV_simple.cmd
Output folder: C:\EnMRPO\GUI\EDIEL\EXPORT

In a simplified style sheet, only the measured values (VALUE) including time stamp (VALUEDATE), ID number (MESS_ID) and acquisition state (STATE_ACQ) are exported to a CSV file. The time stamps of the measured values are entered in UTC time.

	A	B	C	D
1	VALUEDATE	MESS_ID	VALUE	STATE_ACQ
2	18.09.2017 22:15:00	5225	54.468	0
3	18.09.2017 22:30:00	5225	109.038	0
4	18.09.2017 22:45:00	5225	54.366	0
5	18.09.2017 23:00:00	5225	54.468	0
6	18.09.2017 23:15:00	5225	54.876	0
7	18.09.2017 23:30:00	5225	108.528	0
8	18.09.2017 23:45:00	5225	54.468	0
9	19.09.2017 00:00:00	5225	109.038	0

Example for time stamp: 18.09.2017 22:15:00 54,468

4.17.5 CSV_V6Style.xsl

XML file

Execution file: TskExportCSV_V6.cmd
Output folder: C:\EnMRPO\GUI\EDIEL\EXPORT

This style sheet was created to export the information in the SIMATIC B.Data V6 format. A CSV file is created once again, whereby the time stamps of the values are entered in local time.

	A	B	C	D	E	F	G	H	I
1	COMP_LEVEL	MSJO_DATUM	ZEIT_ID	MESS_ID	MSJO_WERT	MSJO_INTERVALL	MSJO_DGUELTIG	STER_FLAG	STKO_FLAG
2	2100	19.09.2017 00:15:00	1002	5225	54.468	900	900	0	0
3	2100	19.09.2017 00:30:00	1002	5225	109.038	900	900	0	0
4	2100	19.09.2017 00:45:00	1002	5225	54.366	900	900	0	0
5	2100	19.09.2017 01:00:00	1002	5225	54.468	900	900	0	0
6	2100	19.09.2017 01:15:00	1002	5225	54.876	900	900	0	0
7	2100	19.09.2017 01:30:00	1002	5225	108.528	900	900	0	0
8	2100	19.09.2017 01:45:00	1002	5225	54.468	900	900	0	0
9	2100	19.09.2017 02:00:00	1002	5225	109.038	900	900	0	0

Example for time stamp: 19.09.2017 00:15:00 54,468

4.17.6 StandardCSV.xsl

XML file

Execution file: TskExportXML.cmd
Output folder: C:\EnMRPO\GUI\EDIEL\EXPORT

This style sheet exports all columns of the data model as a CSV file. All time stamps are in UTC time in this case.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	COMP_LEVEL	VALUEDATE	MESS_ID	VALUE	EINH_KTEXT	STATE_VAL	STATE_ACQ	STATE_COR	ENTRYDATE	MIN	MINDATE	MAX	MAXDATE	AVG	SUM	PVALUE	OFFSET	VERSION	TEXT
2	2100	18.09.2017 22:15:00	5225	54.468	hl	30	0	0	24.11.2016 13:26:10	54.468	18.09.2017 22:15:00	54.468	18.09.2017 22:15:00	54.468	54.468	217.872	1	01.01.0001 00:00:00	
3	2100	18.09.2017 22:30:00	5225	109.038	hl	30	0	0	24.11.2016 13:26:10	109.038	18.09.2017 22:30:00	109.038	18.09.2017 22:30:00	109.038	109.038	436.152	1	01.01.0001 00:00:00	
4	2100	18.09.2017 22:45:00	5225	54.366	hl	30	0	0	24.11.2016 13:26:10	54.366	18.09.2017 22:45:00	54.366	18.09.2017 22:45:00	54.366	54.366	217.464	1	01.01.0001 00:00:00	
5	2100	18.09.2017 23:00:00	5225	54.468	hl	30	0	0	24.11.2016 13:26:10	54.468	18.09.2017 23:00:00	54.468	18.09.2017 23:00:00	54.468	54.468	217.872	1	01.01.0001 00:00:00	
6	2100	18.09.2017 23:15:00	5225	54.876	hl	30	0	0	24.11.2016 13:26:10	54.876	18.09.2017 23:15:00	54.876	18.09.2017 23:15:00	54.876	54.876	219.504	1	01.01.0001 00:00:00	
7	2100	18.09.2017 23:30:00	5225	108.528	hl	30	0	0	24.11.2016 13:26:10	108.528	18.09.2017 23:30:00	108.528	18.09.2017 23:30:00	108.528	108.528	434.112	1	01.01.0001 00:00:00	
8	2100	18.09.2017 23:45:00	5225	54.468	hl	30	0	0	24.11.2016 13:26:10	54.468	18.09.2017 23:45:00	54.468	18.09.2017 23:45:00	54.468	54.468	217.872	1	01.01.0001 00:00:00	
9	2100	19.09.2017 00:00:00	5225	109.038	hl	30	0	0	24.11.2016 13:26:10	109.038	19.09.2017 00:00:00	109.038	19.09.2017 00:00:00	109.038	109.038	436.152	1	01.01.0001 00:00:00	

Example for time stamp: 18.09.2017 22:15:00 54,468

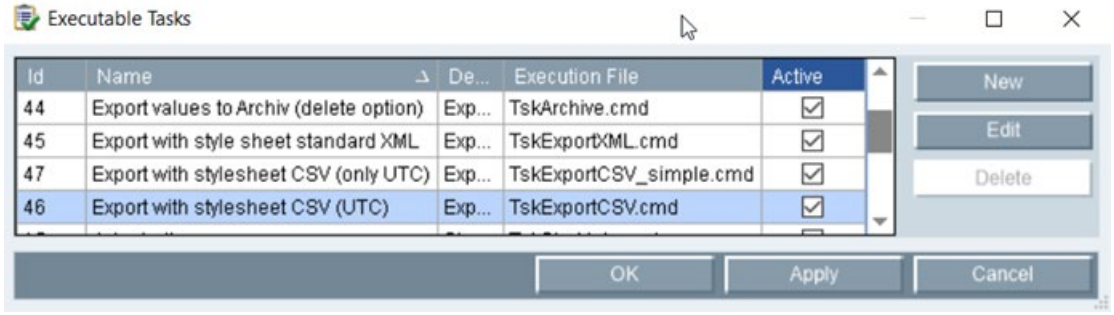
4.17.7 Selecting a personal XML style sheet

Requirements

- You have created a personal XML style sheet.
- The XML style sheet is available in the XML Stylesheet directory of the Energy Manager.

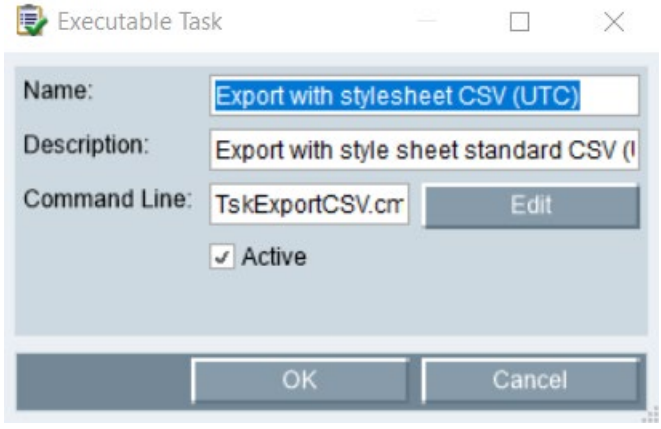
File storage and file names

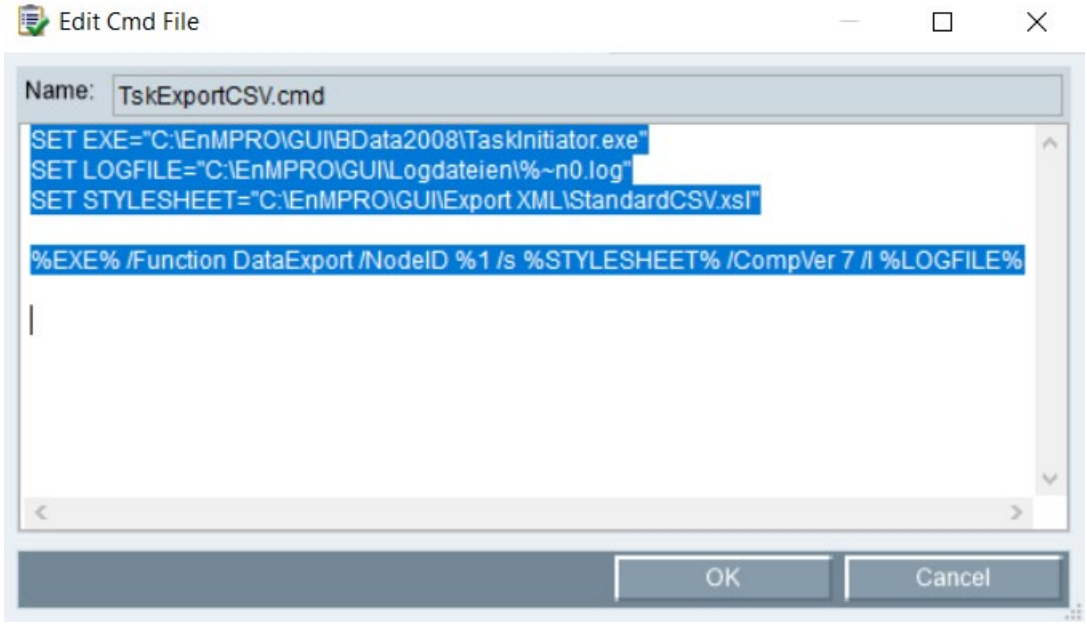
The task executes a CMD file. This CMD file contains information that are necessary for export as well as information on where the XML file is to be stored. You can locate the individual CMD files in the Task object using the "Manage" button.



Use the following "Edit" buttons to define in the CMD file which of the CSV style sheets you want to use. For example, when you want to use your own style sheets.

The XML file that is generated by default is converted into a CSV file using the style sheets.





The file name is made up of the following components:

- "Consecutive number"_"Object name"_"From"_"To".csv

  Example: 000000963_d_Active energy_Reference_Cell10_20211115000000_20211120000000.csv
- Export_"Task ID"_From"_"To".xml

  Example: Export_000018624_20211101000000_20211201000000.xml

By default, the exported file is stored in the directory "EnMPRO\GUI\EDIEL":

To use a different directory, change the directory in the Full Client options. Proceed as follows:

1. Click the "File" tab.
2. Click "Options".
3. Open the "DB" tab and look for the entry "EXPORT_PATH".

4.18 SAP interface

4.18.1 DTD for the ERP interface

DTD structure (data type definition)

The following tables show the DTD structure from which the XML file is created. Using this DTD you can map the attributes in the ERP system.

Table 4- 8 DTD for ERP objects

DTD	Comment
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?> <!DOCTYPE bdata-export [<!ELEMENT bdata-export (measurements, measurevalues) > <!ATTLIST bdata-export	Definition of time range to be exported.
export-version CDATA #REQUIRED export-id CDATA #REQUIRED from CDATA #REQUIRED to CDATA #REQUIRED id CDATA #REQUIRED >	Export version of time range Unique export ID Export start time (local time) Export end time (local time) ID of interval definition
<!ELEMENT costcentre-relations (costcentre-relation)+ > <!ELEMENT costcentre-relation (description,properties) > <!ELEMENT description (#PCDATA) >	Definition of cost center relation
<!ATTLIST costcentre-relation id CDATA #REQUIRED name CDATA #REQUIRED source-costcentre CDATA #REQUIRED dest-costcentre CDATA #REQUIRED business-unit CDATA #REQUIRED costcentre-relation-extern-label CDATA #REQUIRED source-costcentre-extern-label CDATA #REQUIRED dest-costcentre-extern-label CDATA #REQUIRED business-unit-extern-label CDATA #REQUIRED cost-element-extern-label CDATA #REQUIRED personnel-number CDATA #REQUIRED accounting-day CDATA #IMPLIED >	ID of the Energy Manager cost center relation Name of the Energy Manager cost center relation Name of the Energy Manager source cost center Name of the Energy Manager target cost center Name of business unit in ERP system Name of cost center relation in ERP system Name of source cost center in ERP system Name of destination cost center in ERP system Name of business unit in ERP system Name of service type in ERP system Personnel number Entry date, e.g. "14" (optional)
<!ELEMENT properties (property)+> <!ELEMENT property (#PCDATA)> <!ATTLIST property	Properties of the data point

DTD	Comment
id CDATA #REQUIRED name CDATA #REQUIRED value-type CDATA #REQUIRED value CDATA #REQUIRED >	ID of the Energy Manager property Name of the Energy Manager property Data type of the Energy Manager property; Value range from 1 to 5: • 1: String; • 2: Float; • 3: Date/time; • 4: Integer; • 5: String Value of the Energy Manager property
<!ELEMENT measurements (measurement)+ > <!ELEMENT measurement (description, measurevalues) > <!ELEMENT description (#PCDATA) > <!ATTLIST measurement	 Definition of data point
id CDATA #REQUIRED name CDATA #REQUIRED unit CDATA #REQUIRED loggen CDATA #IMPLIED dapu-adr CDATA #IMPLIED ident CDATA #IMPLIED >	ID of data point Name of the data point Unit of data point Logging in database (optional) Name of data point in the Energy Manager database (optional) Additional ID of data point (optional)
<!ELEMENT measurevalues (val)+> <!ELEMENT val (#PCDATA)> <!ATTLIST val	

DTD	Comment
id CDATA #REQUIRED	ID of data point
time CDATA #REQUIRED	Time stamp in local time
normtime CDATA #REQUIRED	Time stamp in normal time
isdst CDATA #REQUIRED	Summer/Winter time (TRUE = daylight saving time)
comp CDATA #IMPLIED	Compression level
value CDATA #REQUIRED	Value
valuedate CDATA #REQUIRED	Interval between the values in seconds
state-val CDATA #REQUIRED	Validity between the intervals
state-acq CDATA #REQUIRED	Acquisition quality in Energy Manager
state-corr CDATA #REQUIRED	Correction quality in Energy Manager
entrytime CDATA #REQUIRED	Date/Time of value generation; only partially available
mintime CDATA #REQUIRED	Time stamp of the minimum value in the interval
minvalue CDATA #REQUIRED	Minimum value in the interval
maxtime CDATA #REQUIRED	Time stamp of the maximum value in the interval
maxvalue CDATA #REQUIRED	Maximum value in the interval
avg CDATA #REQUIRED	Mean value in the interval
sum CDATA #REQUIRED	Power value in the interval
pvalue CDATA #REQUIRED	
offset CDATA #REQUIRED	
version CDATA #REQUIRED	
textvalue CDATA #REQUIRED	
>	
]>	

Table 4- 9 DTD for derived data points

DTD	Comment
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?> <!DOCTYPE bdata-export [<!ELEMENT bdata-export (measurements, measurevalues) > <!ATTLIST bdata-export	Definition of time range to be exported.
export-version CDATA #REQUIRED export-id CDATA #REQUIRED from CDATA #REQUIRED to CDATA #REQUIRED id CDATA #REQUIRED >	Export version of time range Unique export ID Export start time (local time) Export end time (local time) ID of interval definition
<!ELEMENT measurements (measurement)+ > <!ELEMENT measurement (description, measurevalues) > <!ELEMENT description (#PCDATA) > <!ATTLIST measurement	Definition of data point
id CDATA #REQUIRED name CDATA #REQUIRED unit CDATA #REQUIRED loggen CDATA #IMPLIED dapu-adr CDATA #IMPLIED ident CDATA #IMPLIED >	ID of data point Name of the data point Unit of data point Logging in database (optional) Name of data point in the Energy Manager database (optional) Additional ID of data point (optional)
<!ELEMENT properties (property)+> <!ELEMENT property (#PCDATA)> <!ATTLIST property	Properties of the data point
id CDATA #REQUIRED name CDATA #REQUIRED value-type CDATA #REQUIRED value CDATA #REQUIRED >	ID of the Energy Manager property Name of the Energy Manager property Data type of the Energy Manager property; Value range from 1 to 5: • 1: String; • 2: Float; • 3: Date/time; • 4: Integer; • 5: String Value of the Energy Manager property
<!ELEMENT measurevalues (val)+> <!ELEMENT val (#PCDATA)> <!ATTLIST val	

DTD	Comment
id CDATA #REQUIRED	ID of data point
time CDATA #REQUIRED	Time stamp in local time
normtime CDATA #REQUIRED	Time stamp in normal time
isdst CDATA #REQUIRED	Summer/Winter time (TRUE = daylight saving time)
comp CDATA #IMPLIED	Compression level
value CDATA #REQUIRED	Value
valuedate CDATA #REQUIRED	Interval between the values in seconds
state-val CDATA #REQUIRED	Validity between the intervals
state-acq CDATA #REQUIRED	Acquisition quality in Energy Manager
state-corr CDATA #REQUIRED	Correction quality in Energy Manager
entrytime CDATA #REQUIRED	Date/Time of value generation; only partially available
mintime CDATA #REQUIRED	Time stamp of the minimum value in the interval
minvalue CDATA #REQUIRED	Minimum value in the interval
maxtime CDATA #REQUIRED	Time stamp of the maximum value in the interval
maxvalue CDATA #REQUIRED	Maximum value in the interval
avg CDATA #REQUIRED	Mean value in the interval
sum CDATA #REQUIRED	Power value in the interval
pvalue CDATA #REQUIRED	
offset CDATA #REQUIRED	
version CDATA #REQUIRED	
textvalue CDATA #REQUIRED	
>	
]>	

Example of an exported XML file

The following figure shows an XML file exported from Energy Manager via the SAP interface. The file name is made up of the following components as standard:

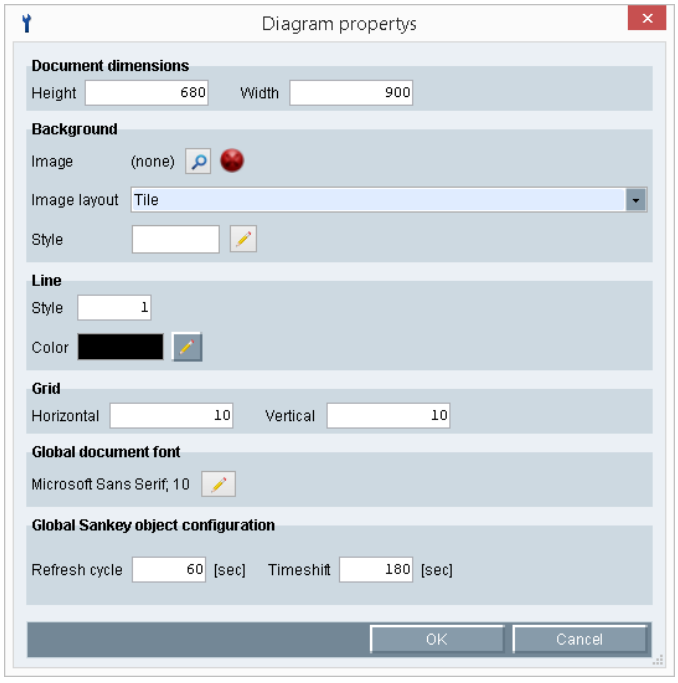
<Definition in the interval definition>_<ID of interval definition>_<FROM>_<TO>.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE bdata-export>
- <bdata-export export-version="1" export-id="71" to="2021.11.30T23:00:00Z" from="2021.10.31T23:00:00Z" id="18624">
  - <measurements>
    - <measurement id="5504" zoneoffset="PT1H" timezoneid="W. Europe Standard Time" ident="" loggen="0" unit="EUR" name="a_FA_cst_total_1d">
      - <properties>
          <property id="25000" name="Business Unit" value="DI FA HMI ISW" value-type="1"/>
          <property id="25001" name="Cost Element" value="PH1" value-type="1"/>
          <property id="25002" name="Destination Cost Center" value="CC01" value-type="1"/>
          <property id="25003" name="Source Cost Center" value="CC Source" value-type="1"/>
        </properties>
      - <measurevalues>
          <val id="5504" value="25981.6942831463" textvalue="" version="0001.01.01T00:00:00Z" offset="1" pvalue="1082.5705951311"
            sum="25981.6942831463" avg="25981.6942831463" maxvalue="25981.6942831463" maxtime="2021.11.01T23:00:00Z"
            minvalue="25981.6942831463" mintime="2021.11.01T23:00:00Z" entrytime="2021.11.16T12:50:26Z" state-corr="0" state-acq="0" state-val="50"
            comp="2100" valuedate="2021.11.01T23:00:00Z" isdst="false" normtime="2021.11.02T00:00:00" time="2021.11.02T00:00:00"/>
          <val id="5504" value="34508.8387559622" textvalue="" version="0001.01.01T00:00:00Z" offset="1" pvalue="1437.86828149843"
            sum="34508.8387559622" avg="34508.8387559622" maxvalue="34508.8387559622" maxtime="2021.11.02T23:00:00Z"
            minvalue="34508.8387559622" mintime="2021.11.02T23:00:00Z" entrytime="2021.11.16T12:50:26Z" state-corr="0" state-acq="0" state-val="50"
            comp="2100" valuedate="2021.11.02T23:00:00Z" isdst="false" normtime="2021.11.03T00:00:00" time="2021.11.03T00:00:00"/>
          <val id="5504" value="27557.8332631162" textvalue="" version="0001.01.01T00:00:00Z" offset="1" pvalue="1148.24305262984"
            sum="27557.8332631162" avg="27557.8332631162" maxvalue="27557.8332631162" maxtime="2021.11.03T23:00:00Z"
            minvalue="27557.8332631162" mintime="2021.11.03T23:00:00Z" entrytime="2021.11.16T12:50:26Z" state-corr="0" state-acq="0" state-val="50"
            comp="2100" valuedate="2021.11.03T23:00:00Z" isdst="false" normtime="2021.11.04T00:00:00" time="2021.11.04T00:00:00"/>
          <val id="5504" value="31157.5355268661" textvalue="" version="0001.01.01T00:00:00Z" offset="1" pvalue="1298.23064695275"
            sum="31157.5355268661" avg="31157.5355268661" maxvalue="31157.5355268661" maxtime="2021.11.04T23:00:00Z"
            minvalue="31157.5355268661" mintime="2021.11.04T23:00:00Z" entrytime="2021.11.16T12:50:26Z" state-corr="0" state-acq="0" state-val="50"
            comp="2100" valuedate="2021.11.04T23:00:00Z" isdst="false" normtime="2021.11.05T00:00:00" time="2021.11.05T00:00:00"/>
          <val id="5504" value="29827.1068347272" textvalue="" version="0001.01.01T00:00:00Z" offset="1" pvalue="1242.79611811363"
            sum="29827.1068347272" avg="29827.1068347272" maxvalue="29827.1068347272" maxtime="2021.11.05T23:00:00Z"
            minvalue="29827.1068347272" mintime="2021.11.05T23:00:00Z" entrytime="2021.11.16T12:50:26Z" state-corr="0" state-acq="0" state-val="50"
            comp="2100" valuedate="2021.11.05T23:00:00Z" isdst="false" normtime="2021.11.06T00:00:00" time="2021.11.06T00:00:00"/>
```

4.19 Dashboard objects

4.19.1 Configuring the dashboard

You can configure the Dashboard as follows:



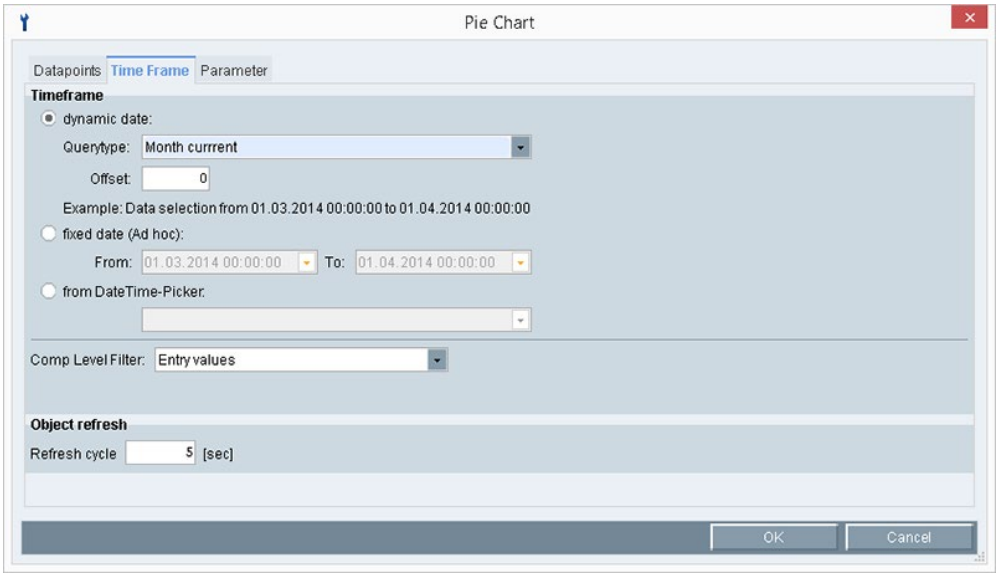
Settings	Description
Document size	Sets the Dashboard size in pixels.
Background	Sets the Dashboard background. You may use a background image of the "*.bmp", "*.jpg", "*.gif", or "*.png" format from your file system for the Dashboard.
Line	Sets the border style for the Dashboard.
Grid	Sets the Dashboard grid that is used to align the dashboard objects.
Global document font	Sets the font and font size for the Dashboard.
Global Sankey object configuration	Sets the update cycle for Sankey objects.

See also

Creating the dashboard layout (Page 310)

4.19.2 Configuring the time range

You can configure the time range for dashboard objects as follows:



Settings	Description
Dynamic time range	Sets a default query type, for example, "Curr. month". In this case, the dashboard object evaluates the values of the current month.
Fixed time range (ad hoc)	Sets a customizable time range. In this case, the dashboard object evaluates the values of the defined period.
From time selection object	Uses the period from the "Time selection" object with the specified number.
Display value for last cycle (only for "Gauge" dashboard object)	Displays the value of the last cycle.
Compression level filter	Sets the type of values to display in the dashboard object, for example, "Daily values". In this case, the dashboard object displays the daily values of a measured value series. Requirement: The daily values must be available in the system.
Object update	Defines the update interval for the dashboard object.

See also

Configuring dashboard objects (Page 313)

4.19.3 Rounded rectangle

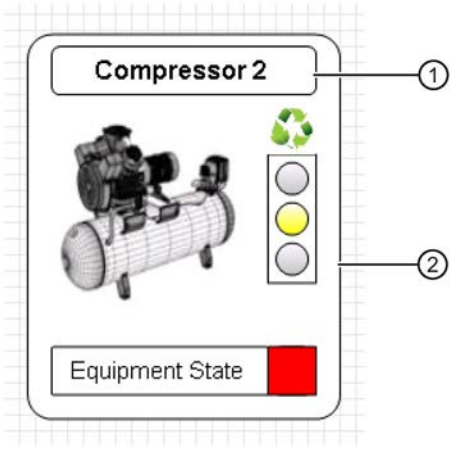
Function

Inserts a rounded rectangle into the Dashboard.

Usage

Use the "Rounded rectangle" dashboard object for your Dashboard style.

Example

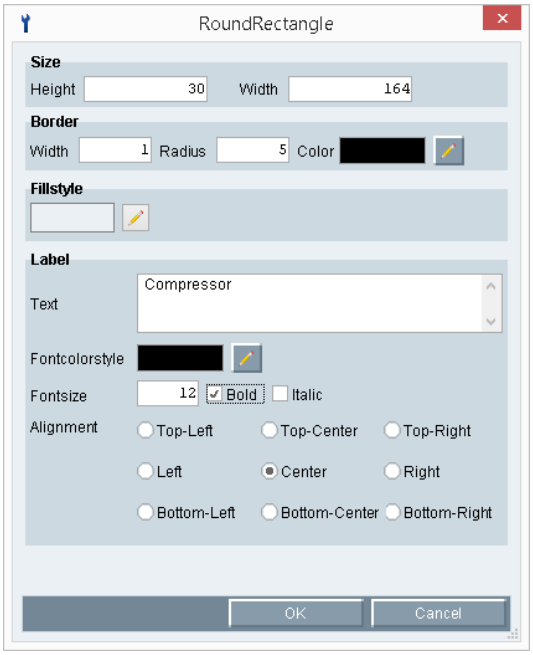


① Rounded rectangle with text caption for a group of dashboard objects
② Rounded rectangle as group of dashboard objects to form a picture

Necessary settings

None

Optional settings



- Set the size of the dashboard object.
- Set the border style.
- Set the fill color.
- Set the caption, the text style and the text alignment for the dashboard object.

4.19.4 Ellipsis

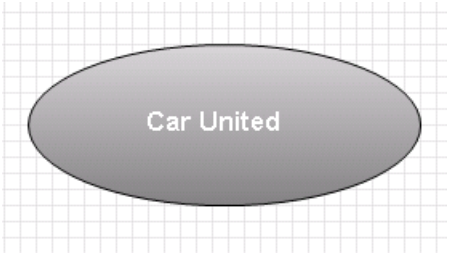
Function

Inserts an ellipsis into the Dashboard.

Usage

Use the "Ellipsis" dashboard object for your Dashboard style.

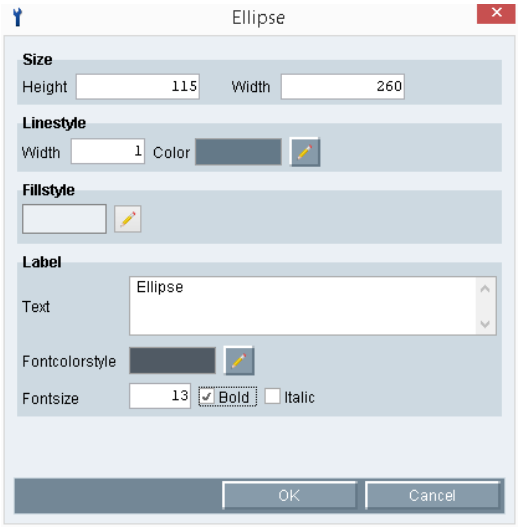
Example



Necessary settings

None

Optional settings



- Set the size of the dashboard object.
- Set the border style.
- Set the fill color.
- Set the caption and text style for the dashboard object.

4.19.5 Line

Function

Inserts a line into the Dashboard.

Usage

Use the "Line" dashboard object for your Dashboard style.

Example

Necessary settings

None

Optional settings

- Set the line style.
- Set a separate arrow style for the start and end of the line.

4.19.6 Polyline

Function

Inserts a polyline into the Dashboard.

Usage

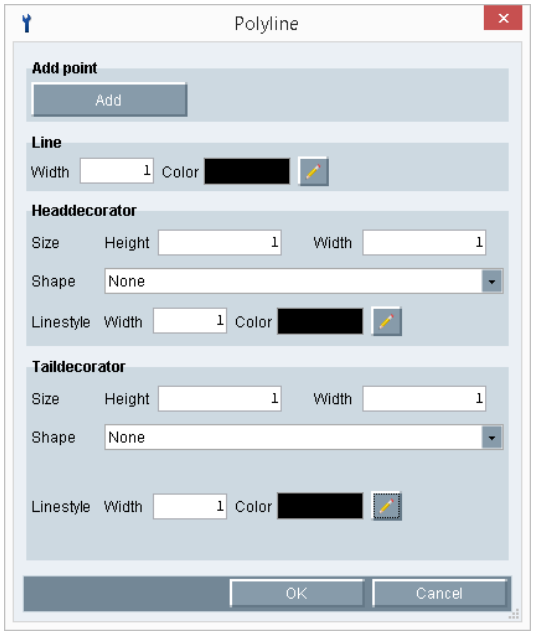
Use the "Polyline" dashboard object for your Dashboard style.

Example

Necessary settings

none

Optional settings



- Add a new point if you want to add an extra line to the polyline.
- Set the line style.
- Set a separate arrow style for the start and end of the polyline.

4.19.7 Image

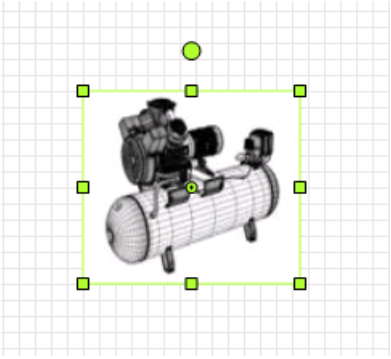
Function

Inserts a graphic image into the Dashboard.

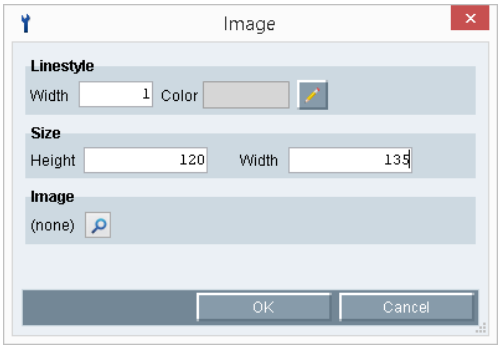
Application

Use the "Image" dashboard object to insert a graphic image from your file system into the Dashboard.

Example



Necessary settings



- Go to "Image" to select a graphic object in "*.bmp", "*.jpg", "*.gif", or "*.png" format from your file system.

  The selected graphic image is saved to the Energy Manager database.

Optional settings

- Set the border style.
- Set the size of the graphic image.

4.19.8 Traffic light

Function

Inserts a traffic light object into the Dashboard to visualize the status of data point values.

This dashboard object evaluates the limit configured in the data point and displays the status of the values with color code. The following states are possible:

- Green: The data point values do not exceed the range of the configured limit.
- Red: The configured data point limit is exceeded.

In the dashboard object configuration, you may define an additional warning limit that is indicated by the following state:

- Yellow: The data point values are still in the valid range but are approaching the configured limit.

Note

Configuring data points

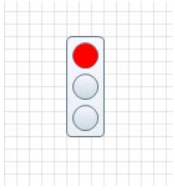
Configure the plausibility settings of the data point to use this dashboard object in the Dashboard.

These plausibility settings are activated in the dashboard object configuration.

Usage

Use the "Traffic light" dashboard object, for example, to visualize the status of the values of a measured value series in the form of a traffic light.

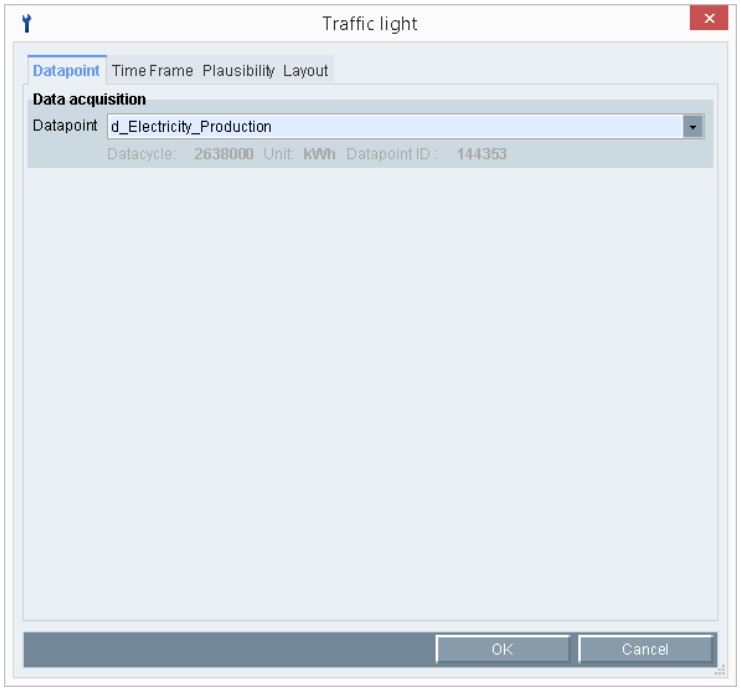
Example



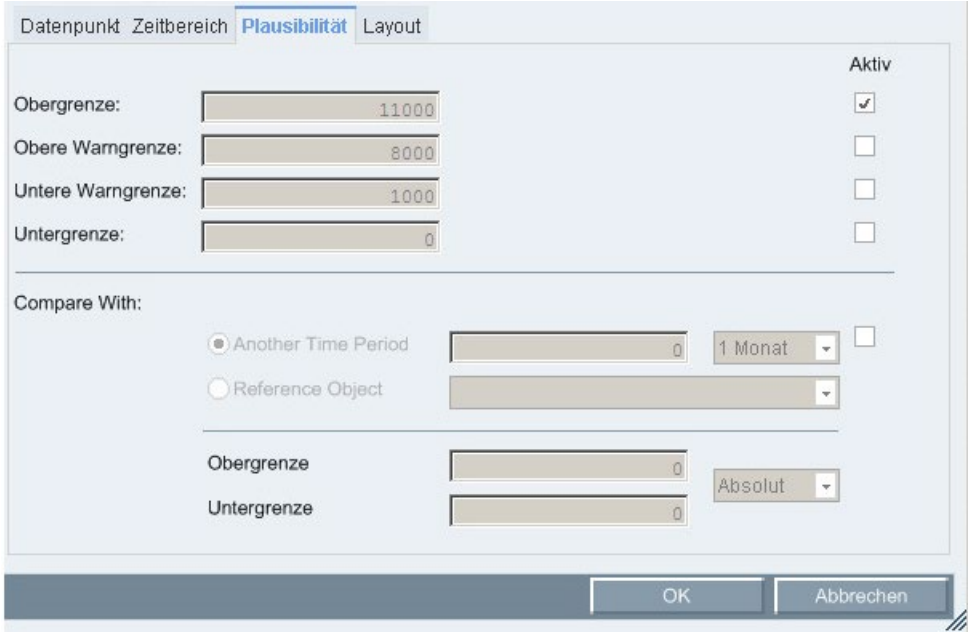
① The traffic light is red: The specified limit of a measured value series was exceeded.

Necessary settings

- Go to the "Data acquisition" field to select the data point that contains the values to be evaluated using the traffic light.



- Go to "Plausibility" to activate the limit to which the dashboard object has to respond.



Note

The dashboard object returns the "Red" status if only one of the limits you activated in the "Plausibility" setting is exceeded. The evaluation is not particularly helpful in this situation.

For this reason, evaluate only one limit per dashboard object. Create additional dashboard objects for further evaluations.

Optional settings

- Go to "Plausibility" to activate the comparison set in the data point with the same data point in a different time period or with a different data point.
- Select the "Alignment" tab to set the size, border and background color for the dashboard object.

See also

Configuring the time range (Page 860)

4.19.9 Value

Function

Displays the current data point value in the Dashboard.

This dashboard object is also capable of evaluating the limit configured in the data point and of visualizing the values with color code. The following states are possible:

- Configured background color: The data point values do not exceed the range of the configured limit.
- Red: The configured data point limit is exceeded.

In the dashboard object configuration, you may define an additional warning limit that is indicated by the following state:

- Yellow: The data point values are still in the valid range but are approaching the configured limit.

Note

Configuring data points

Configure the plausibility settings of the data point to use this dashboard object in the Dashboard.

These plausibility settings are applied during configuration of the dashboard object.

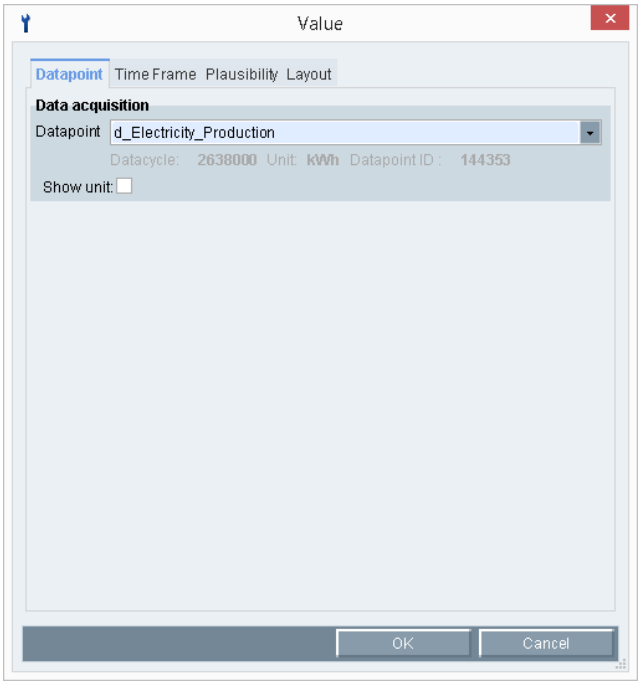
Usage

Use the "Value" dashboard object to display the actual value of the most recent period of a measured value series.

Example

Necessary settings

- Go to the "Data acquisition" field to select the data point that contains the value to be displayed.



Optional settings

- Display the unit of the data point by selecting the "Show unit" check box.
- Set the update cycle for the dashboard object.

  The update cycle is set to five seconds by default.

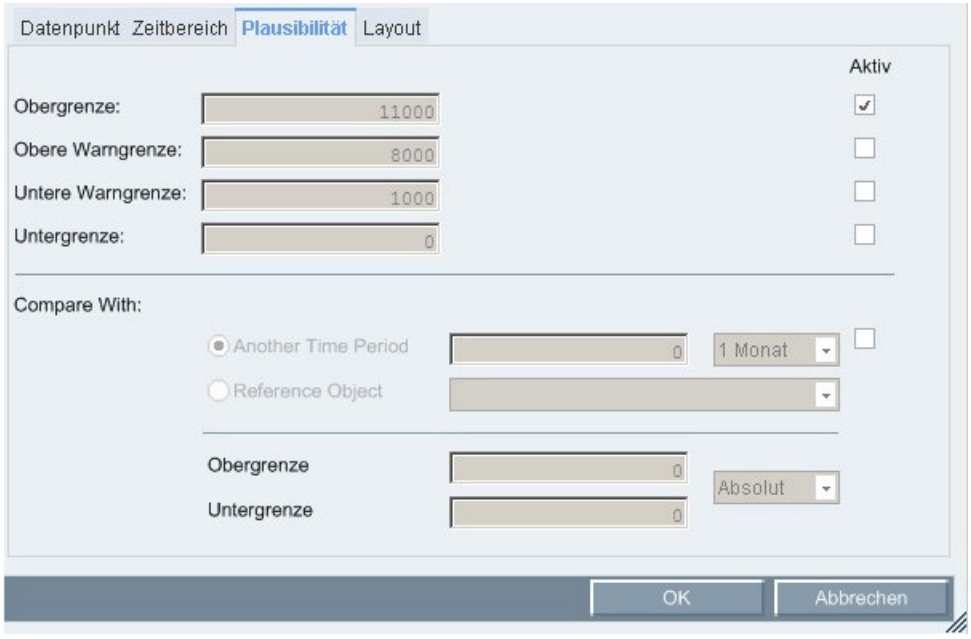
Note

Specifying the update cycle

You cannot set an update cycle that is shorter than five seconds.

These plausibility settings are activated in the dashboard object configuration.

- Go to "Plausibility" to activate the limit to which the dashboard object has to respond and to visualize the values with color code.



Note

The dashboard object returns the "Red" status if only one of the limits you activated in the "Plausibility" setting is exceeded. The evaluation is not particularly helpful in this situation.

For this reason, evaluate only one limit per dashboard object. Create additional dashboard objects for further evaluations.

- Go to "Plausibility" to activate the comparison set in the data point with the same data point in a different time period or with a different data point.
- Select the "Layout" tab to set the size, fill color, border style and text style for the dashboard object.

4.19.10 Value difference

Function

This dashboard object displays the status of the values with color code and evaluates the plausibility setting "Comparison with" configured in the data point. The following states and comparison types are possible:

- Status:
  - Configured background color: The data point values do not exceed the range of the configured limit.
  - Yellow: The data point values are still in the valid range but are approaching the configured limit.
  - Red: The configured data point limit is exceeded.
- Comparison type:
  - "Another Time Period": Compares the current value of a data point with a time-shifted value of the same data point.
  - "Reference Object": Compares the current value of a data point with the value of a reference data point.

Note

Configuring data points

Configure the plausibility settings of the data point to use this dashboard object in the Dashboard.

These plausibility settings are activated in the dashboard object configuration.

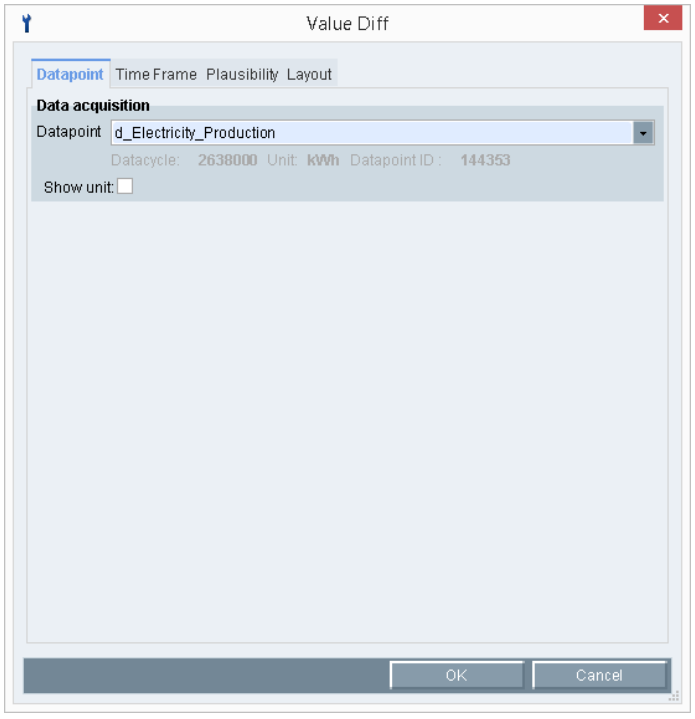
Usage

Use the "Value difference" dashboard object to display the comparison of the values of two measured value series.

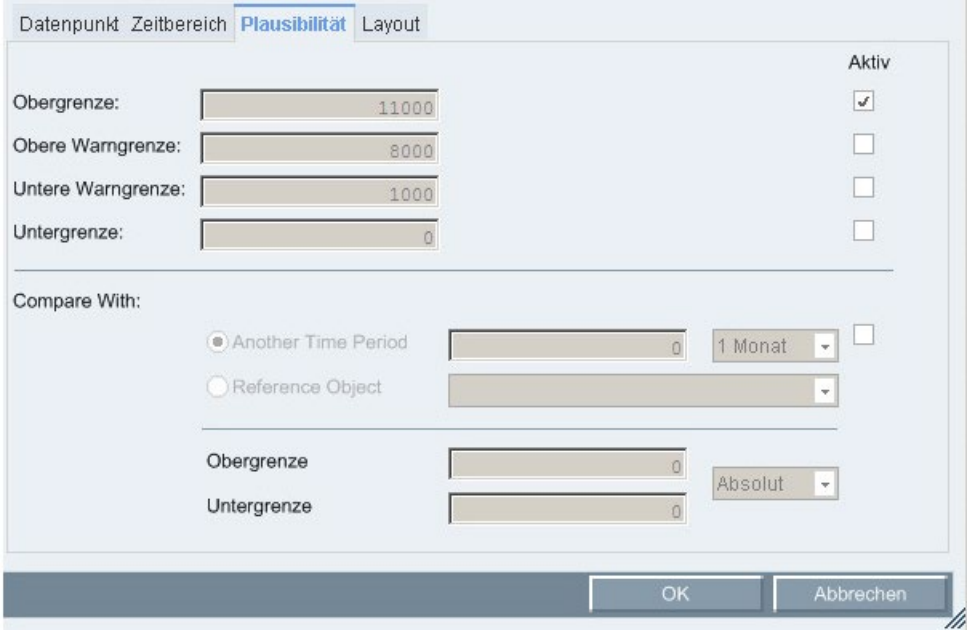
Example

Necessary settings

- Go to the "Data acquisition" field to select the data point that contains the values to be visualized.



- Under "Plausibility" activate the limits to which the dashboard object has to respond.
- Under "Compare With", activate the comparison type set in the configuration of the data point.



Optional settings

- Display the unit of the data point by activating the "Show unit" check box.
- Select the "Alignment" tab to set the size, fill color, border style and text style for the dashboard object.

See also

Configuring the time range (Page 860)

4.19.11 Time selection

Function

Changes the time range for dashboard object assigned to the "Time selection" object.

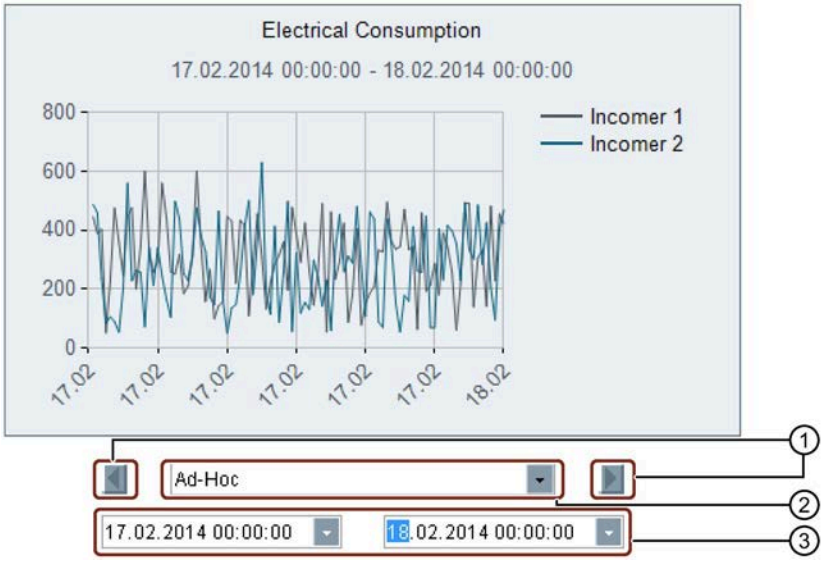
You can assign the "Time selection" dashboard object to several dashboard objects. But you can only assign a dashboard object to exactly one "Time selection" dashboard object.

Usage

Use the "Time selection" dashboard object if you want to adapt the time range for one or more dashboard objects during runtime of the dashboard.

Example

The figure below shows the "Line chart" dashboard object with the "Time selection" dashboard object positioned underneath.



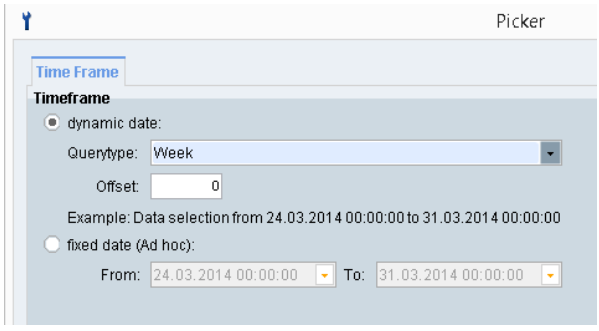
① Scrolls back or forth one period.

② Specifies the query type, e.g., "Ad hoc"

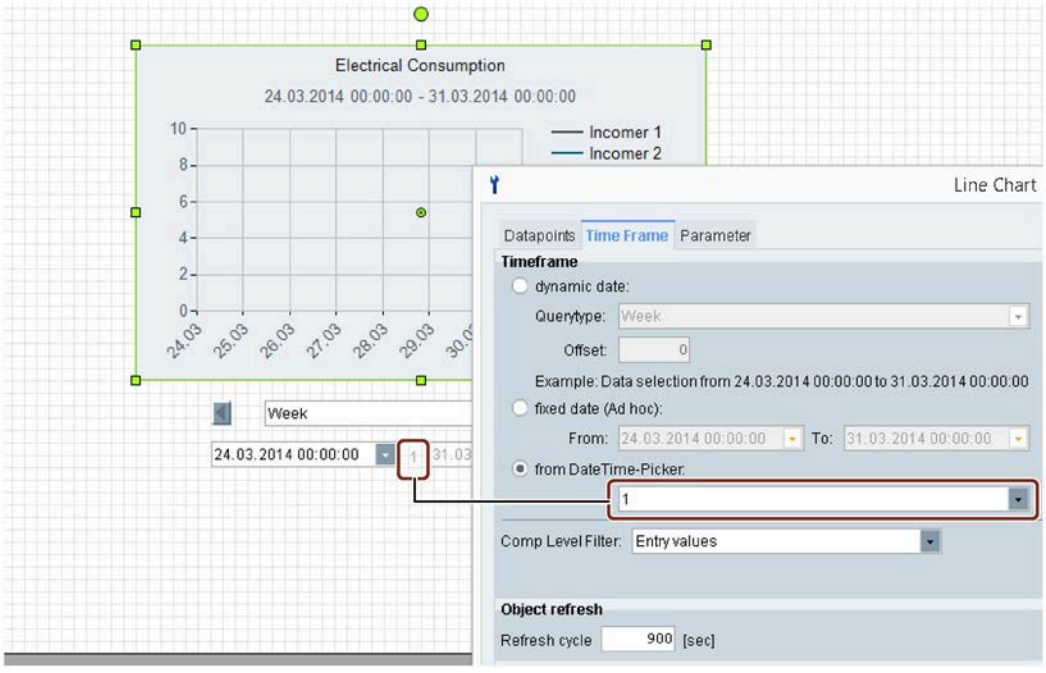
③ Defines the time range depending on the selected query type.

Necessary settings

Define the query type and time range in the "Time selection" dashboard object that are displayed in the assigned dashboard object when the dashboard is started:



Assign the "Time selection" dashboard object to the dashboard object using its ID:



4.19.12 Status

Function

Displays the state of values of a data point in the Dashboard.

This dashboard object evaluates the limit configured in the data point and displays the status of the values with color code. The following states are possible:

- Green: The data point values do not exceed the range of the configured limit.
- Red: The configured data point limit is exceeded.

In the dashboard object configuration, you may define an additional warning limit that is indicated by the following state:

- Yellow: The data point values are still in the valid range but are approaching the configured limit.

Note

Configuring data points

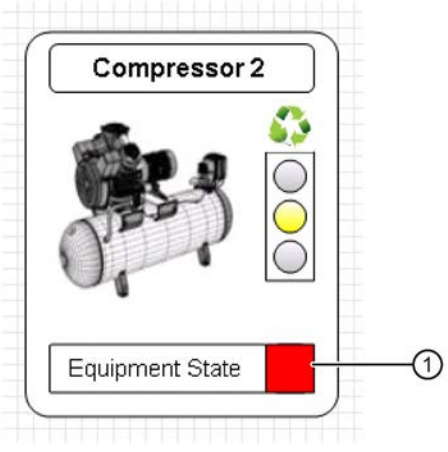
Configure the plausibility settings of the data point to use this dashboard object in the Dashboard.

These plausibility settings are activated in the dashboard object configuration.

Usage

You can use the "Status" dashboard object to visualize the value states of a measured value series in the Dashboard.

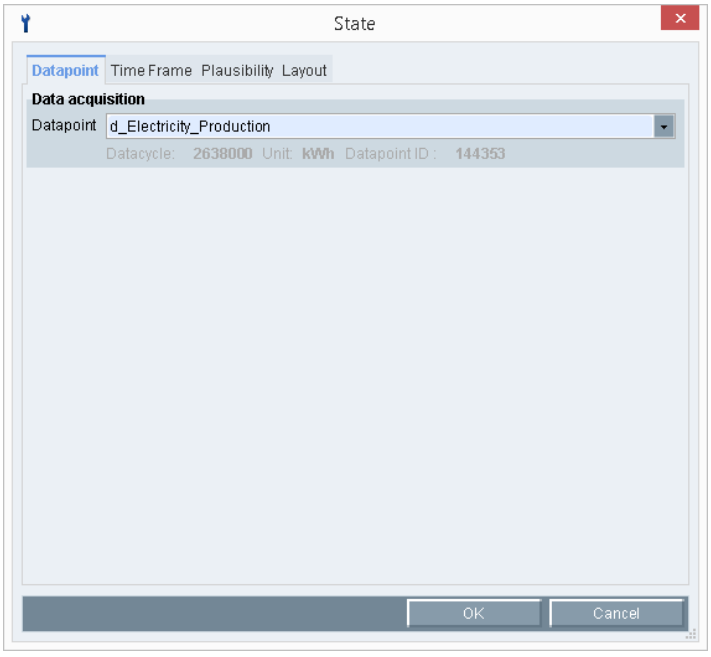
Example



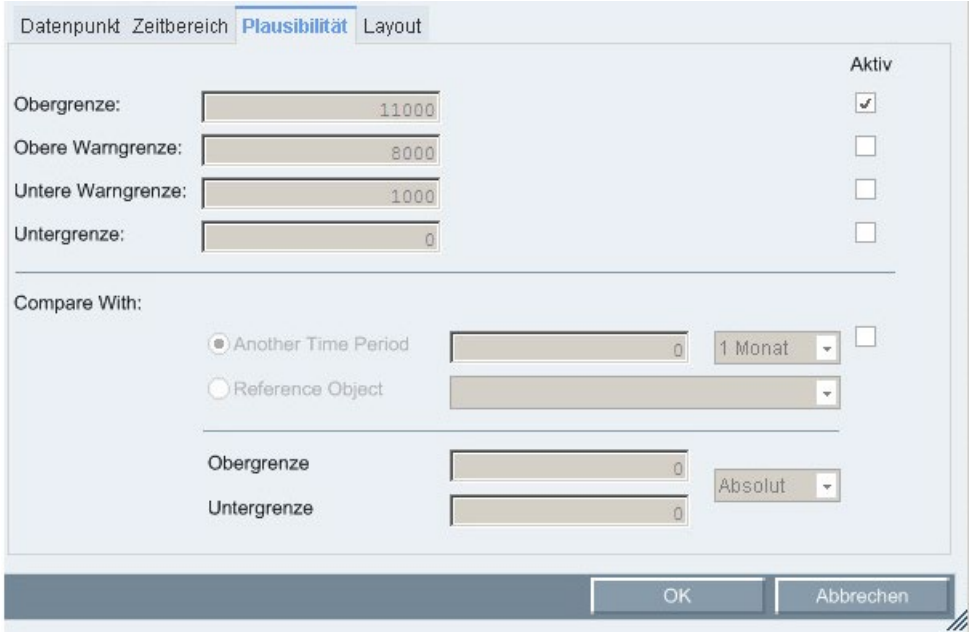
① Status of a plant

Necessary settings

- Go to the "Data acquisition" field to select the data point with the status to be visualized.



- Go to "Plausibility" to activate the limit to which the dashboard object has to respond.



Note

The dashboard object returns the "Red" status if only one of the limits you activated in the "Plausibility" setting is exceeded. The evaluation is not particularly helpful in this situation. For this reason, evaluate only one limit per dashboard object. Create additional dashboard objects for further evaluations.

Optional settings

- Go to "Plausibility" to activate the comparison set in the data point with the same data point in a different time period or with a different data point.
- Select the "Alignment" tab to set the size and border style for the dashboard object.

See also

Configuring the time range (Page 860)

4.19.13 Bar chart

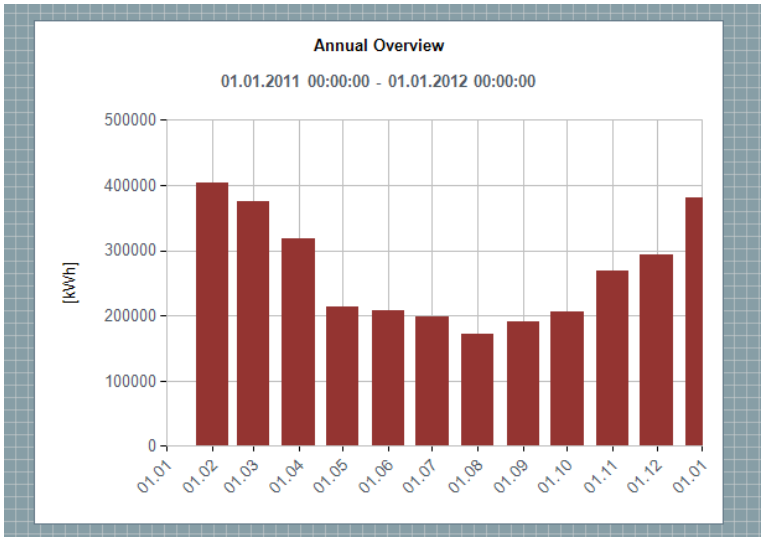
Function

Inserts a bar chart into the Dashboard.

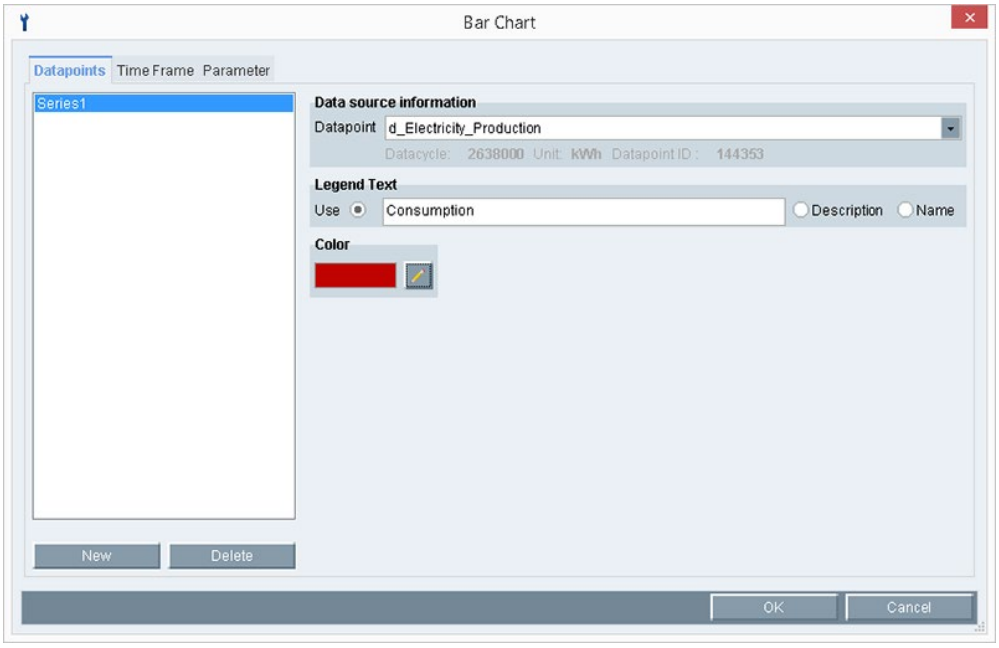
Usage

Use the "Bar chart" dashboard object to visualize the values of one or several measured value series in the form of a bar chart.

Example



Necessary settings



- Select "New" to set the number of measured value series to display in the bar chart.
- Assign a data point to each measured value series in the "Data source information" field.
- Set the time range to display in the bar chart.

Optional settings

- Activate the bar chart caption in the "Parameters" tab.
- Set the caption text for the bar chart in the "Datapoints" tab.
  - Activate "Use" and enter your caption text.
  - Activate "Description" if you want to use the description of the data point for the caption text.
  - Activate "Name" if you want to use the name of the data point for the caption text.
- Set the bar colors in the "Datapoints" tab.
- Set the diagram and text styles in the "Parameters" tab.

See also

Configuring the time range (Page 860)

4.19.14 Pie chart

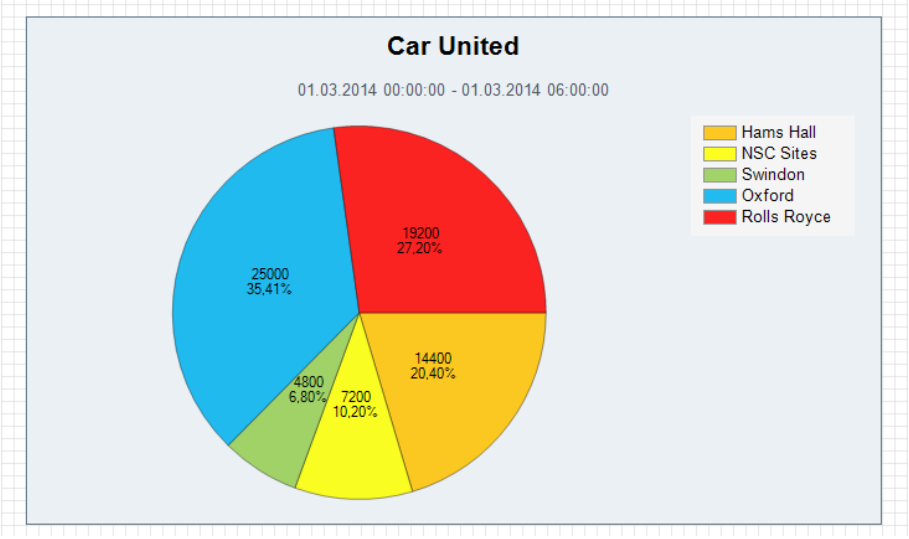
Function

Inserts a pie chart into the Dashboard.

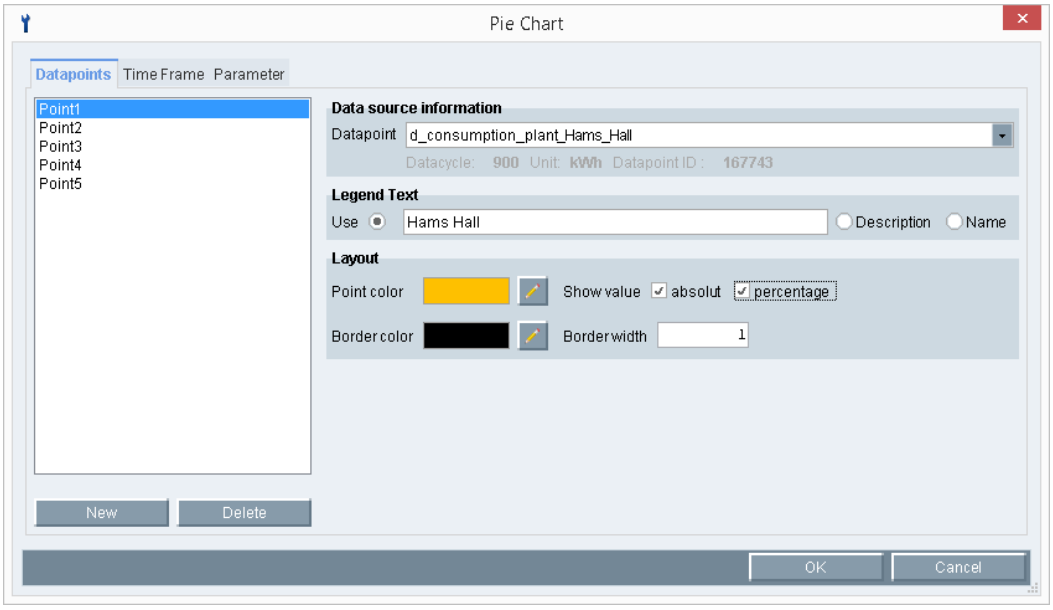
Usage

Use the "Pie Chart" dashboard object to visualize the values of one or several measured value series in the form of a pie chart.

Example



Necessary settings



- Select "New" to set the number of measured value series to display in the pie chart.
- Assign a data point to each measured value series in the "Data source information" field.
- Set the unit for displaying data point values in the pie chart, for example, "percent".
- Specify the period that you want to evaluate in the pie chart.

Optional settings

- Activate the pie chart caption in the "Parameters" tab.
- Set the caption text for the pie chart in the "Datapoints" tab.
  - Activate "Use" and enter your caption text.
  - Activate "Description" if you want to use the description of the data point for the caption text.
  - Activate "Name" if you want to use the name of the data point for the caption text.
- Set the bar colors in the "Datapoints" tab.
- Set the diagram and text styles in the "Parameters" tab.

See also

Configuring the time range (Page 860)

4.19.15 Line chart

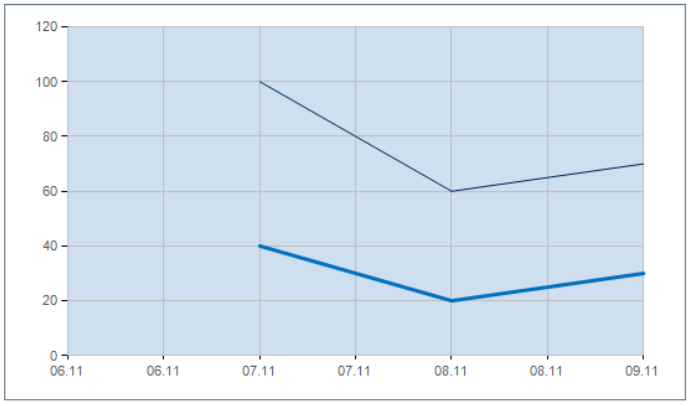
Function

Inserts a line chart into the Dashboard.

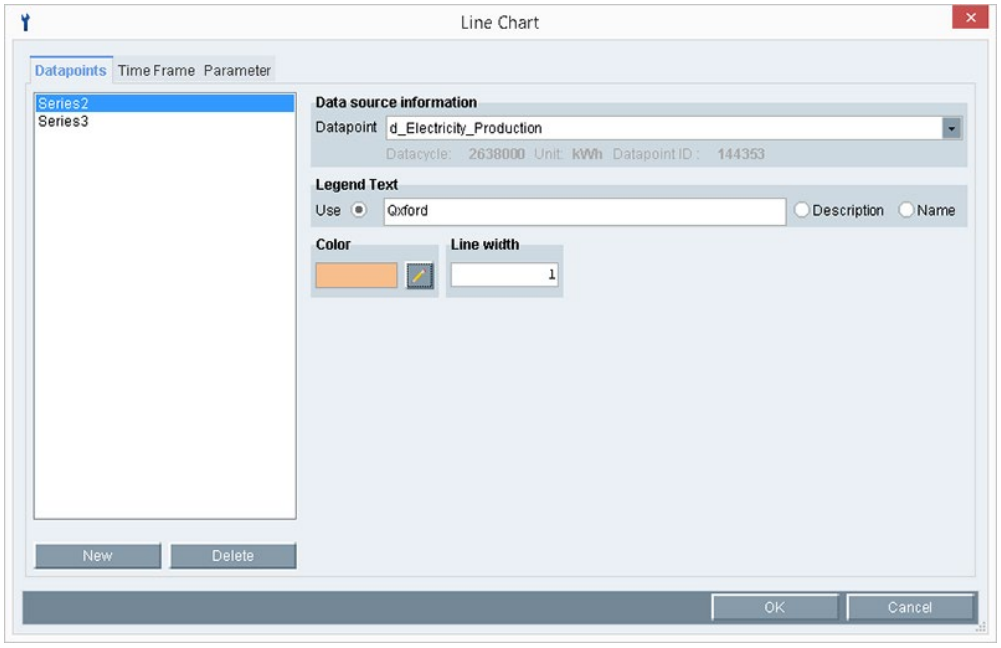
Usage

Use the "Line Chart" dashboard object to visualize the values of one or several measured value series in the form of a line chart.

Example



Necessary settings



- Select "New" to set the number of measured value series to display in the line chart.
- Assign a data point to each measured value series in the "Data source information" field.
- Set the time range to display in the bar chart.

Optional settings

- Activate the line chart caption in the "Parameters" tab.
- Set the caption text for the line chart in the "Datapoints" tab.
  - Activate "Use" and enter your caption text.
  - Activate "Description" if you want to use the description of the data point for the caption text.
  - Activate "Name" if you want to use the name of the data point for the caption text.
- Set the line colors and display width in the "Datapoints" tab.
- Set the diagram and text styles in the "Parameters" tab.

See also

Configuring the time range (Page 860)

4.19.16 Gauge

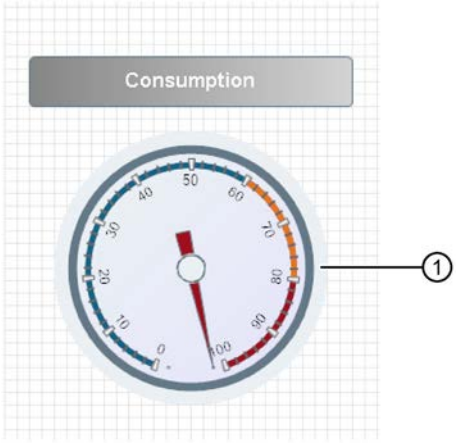
Function

Inserts a display instrument into the Dashboard to visualize the status of data point values.

Usage

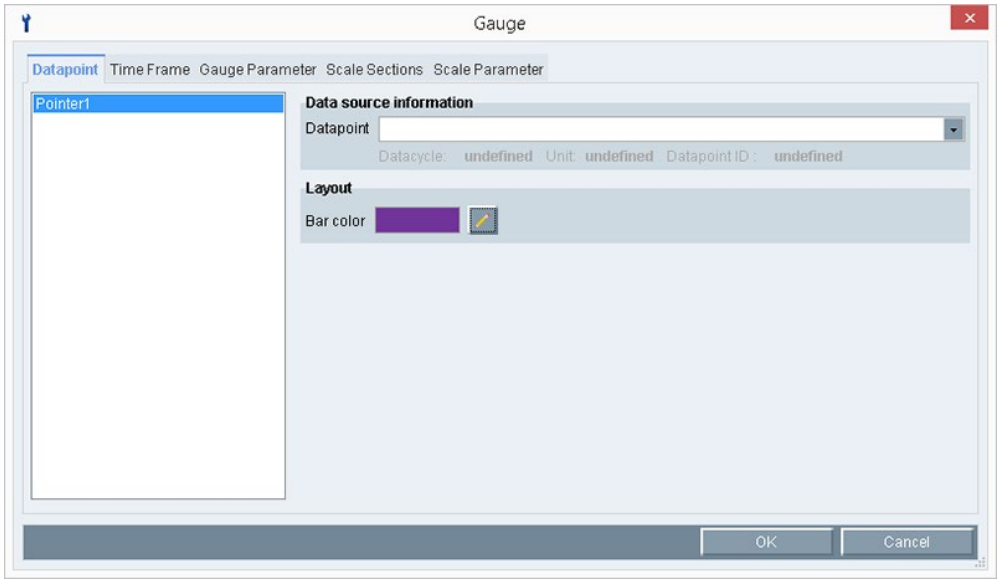
Use the "Gauge" dashboard object to visualize the sum of the measured value series for the defined time period. Alternatively, you can also visualize the value of the last cycle.

Example



① Consumption status

Necessary settings



- Go to the "Data source information" field to select the data point that contains the values to be evaluated.
- Specify the period that you want to evaluate.

Optional settings

- Set the pointer color.
- Set the fill color and border style in the "Parameters" tab.
- Set the scale for the display instrument in the "Scale Parameter" section.
- Set the scale range in the "Scale Sections" section.

See also

Configuring the time range (Page 860)

4.19.17 Panel switch

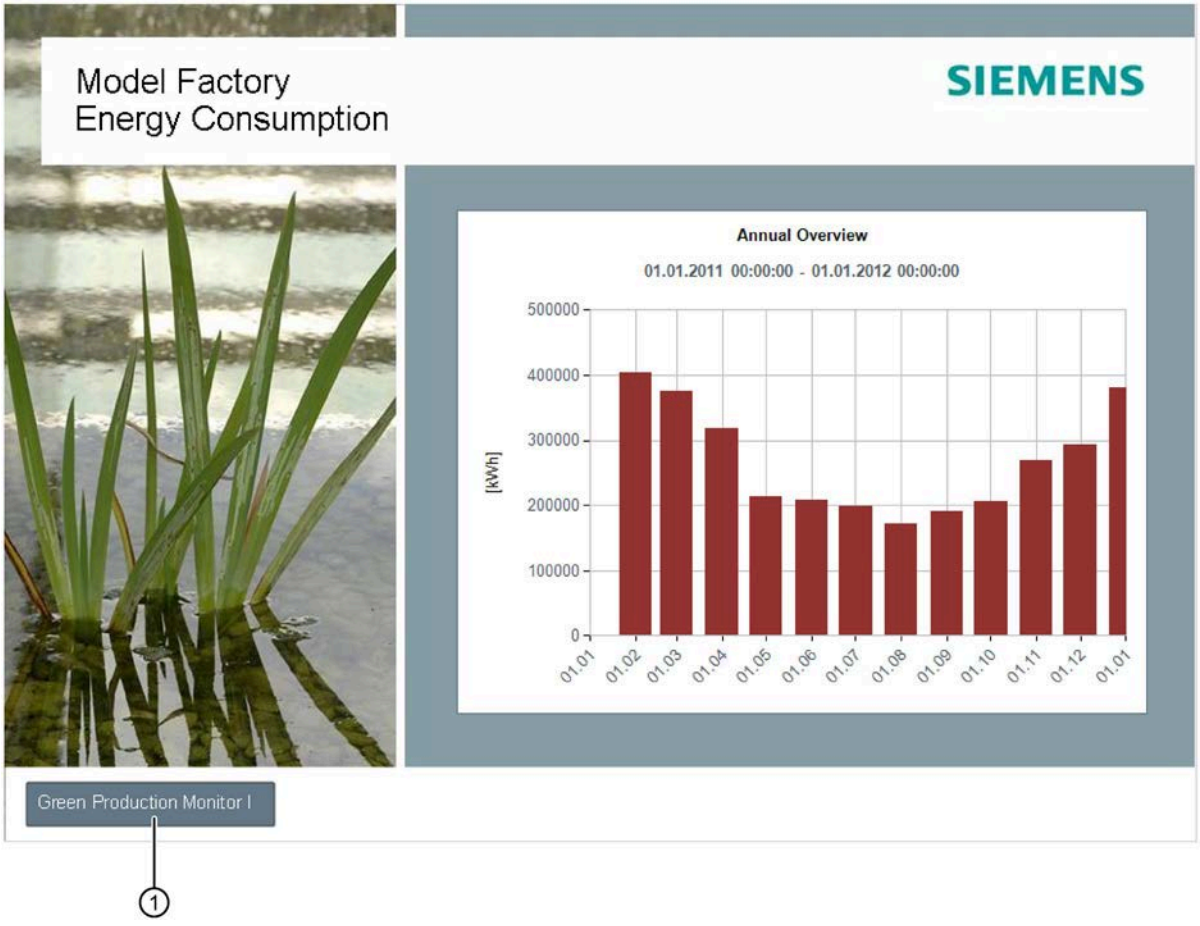
Function

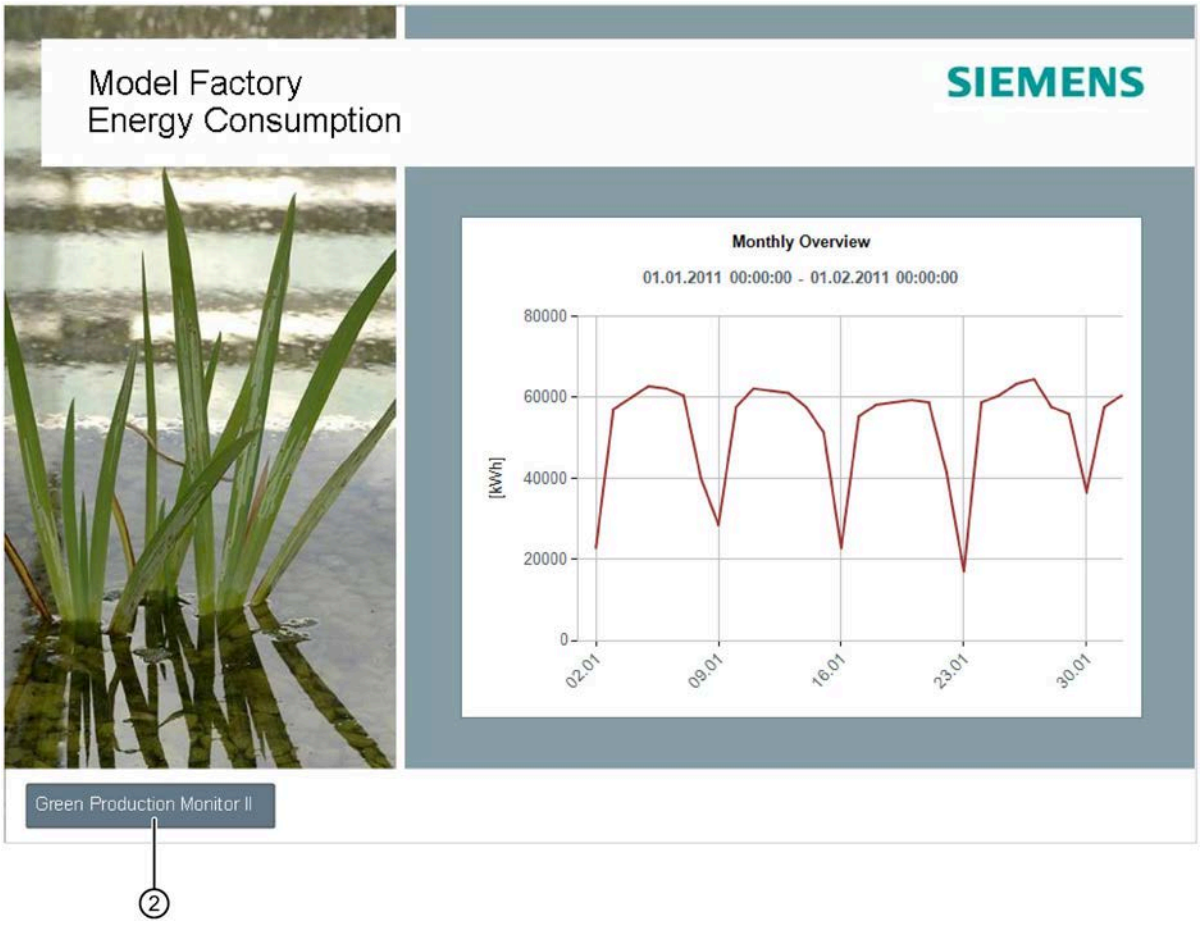
Inserts a button into the Dashboard that you can use to switch to another Dashboard .

Usage

Use the "Panel switch" dashboard object to distribute selected data to several dashboards. Use the new button to switch between these dashboards.

Example

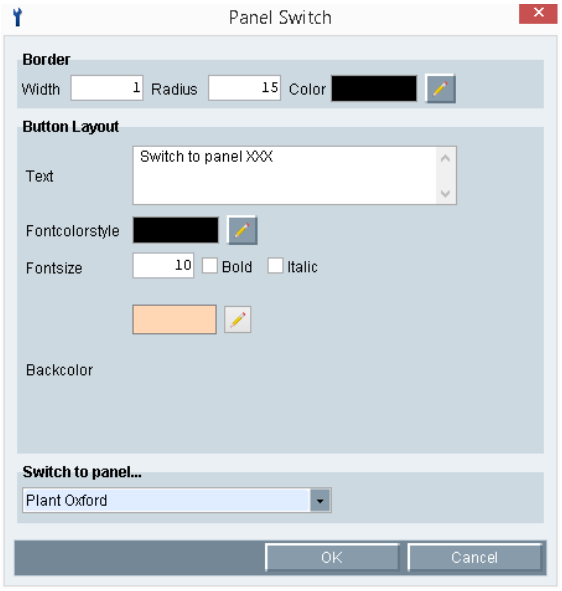




① Dashboard 1: Represents the annual consumption of a company in kWh. The "Green Production Monitor" button returns you to dashboard 2 to show the monthly consumption.

② Dashboard 2: The "Green Production Monitor II" button returns you to dashboard 1.

Necessary settings



- At "Switch to...", select the Dashboard to which you want to switch using this button.
- Enter a caption text for the button in the "Alignment" field.

Optional settings

- Set the border and text styles.

4.19.18 Data table

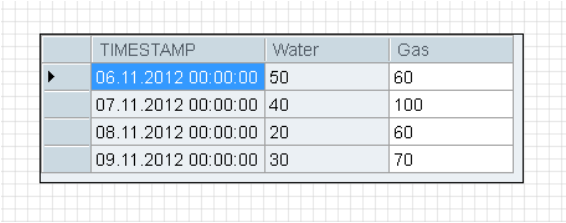
Function

Inserts a table object into the Dashboard to visualize the values of one or several data points.

Usage

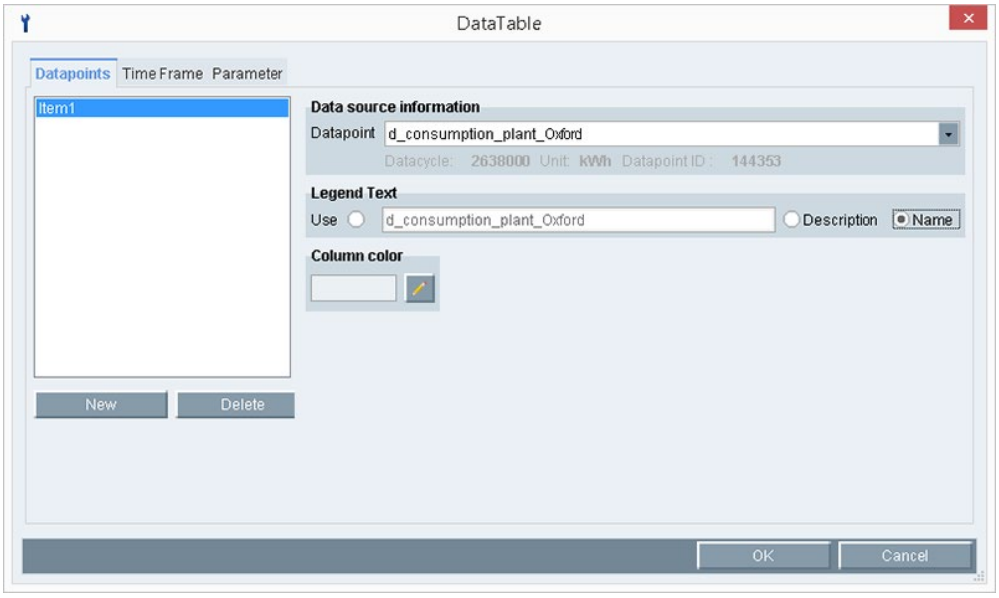
Use the "Data Table" dashboard object to display the values and time stamp of a measured value series of a specific time period in the form of a table.

Example



	TIMESTAMP	Water	Gas
▶	06.11.2012 00:00:00	50	60
	07.11.2012 00:00:00	40	100
	08.11.2012 00:00:00	20	60
	09.11.2012 00:00:00	30	70

Necessary settings



- Select "New" to set the number of data points to display in the table.
- Assign a data point to each entry in the "Data source information" field.
- Specify the period that you want to evaluate.

Optional settings

- Create the "Legend name".
  - Enter a text for the table header if you activate "Description".
  - The data point name is used for the table header if you activate "Name".
- Set the column color.
- Set the table style in the "Parameters" tab.

See also

Configuring the time range (Page 860)

4.19.19 Line for Sankey chart

Function

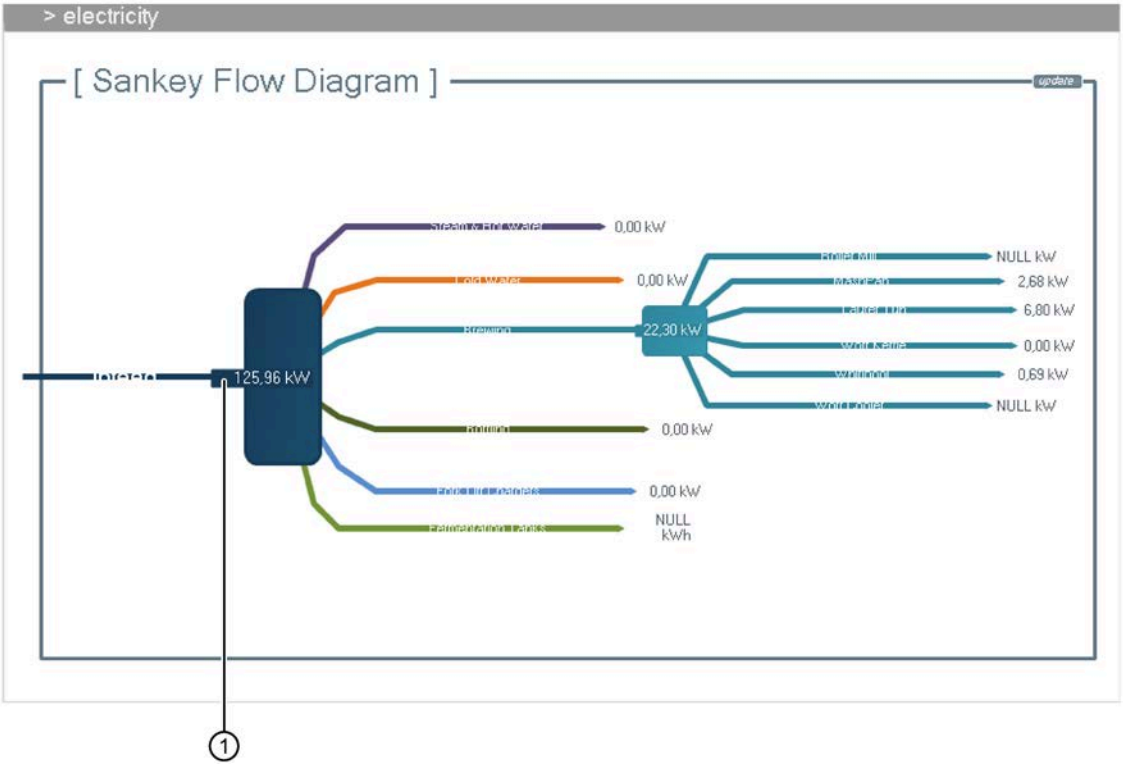
Inserts a line into the Sankey chart.

Usage

Use the "Line" dashboard object to visualize a quantity flow in the Sankey chart.

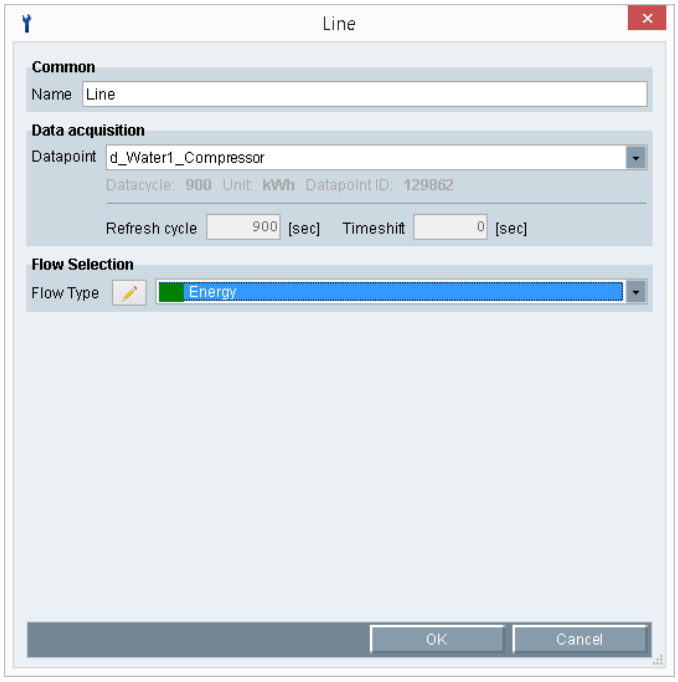
The line width is proportional to the quantity.

Example



① Power flow of a company

Necessary settings



- Name the dashboard object.
- Go to the "Data acquisition" field to select the data point that contains the values to be visualized by the line.
- Select the flow type for the line in the "Flow selection" field, for example, "Electricity".

Optional settings

- You can create a new flow type in the "Flow selection" field and set the scaling.
- Specify the update cycle for the Sankey objects by entering the selected value in the Dashboard configuration. This value is activated for all Sankey objects.

  The update cycle is set to five seconds by default.

  Note

  Specifying the update cycle

  You cannot set an update cycle that is shorter than five seconds.

See also

Configuring the dashboard (Page 859)

4.19.20 Polyline for Sankey chart

Function

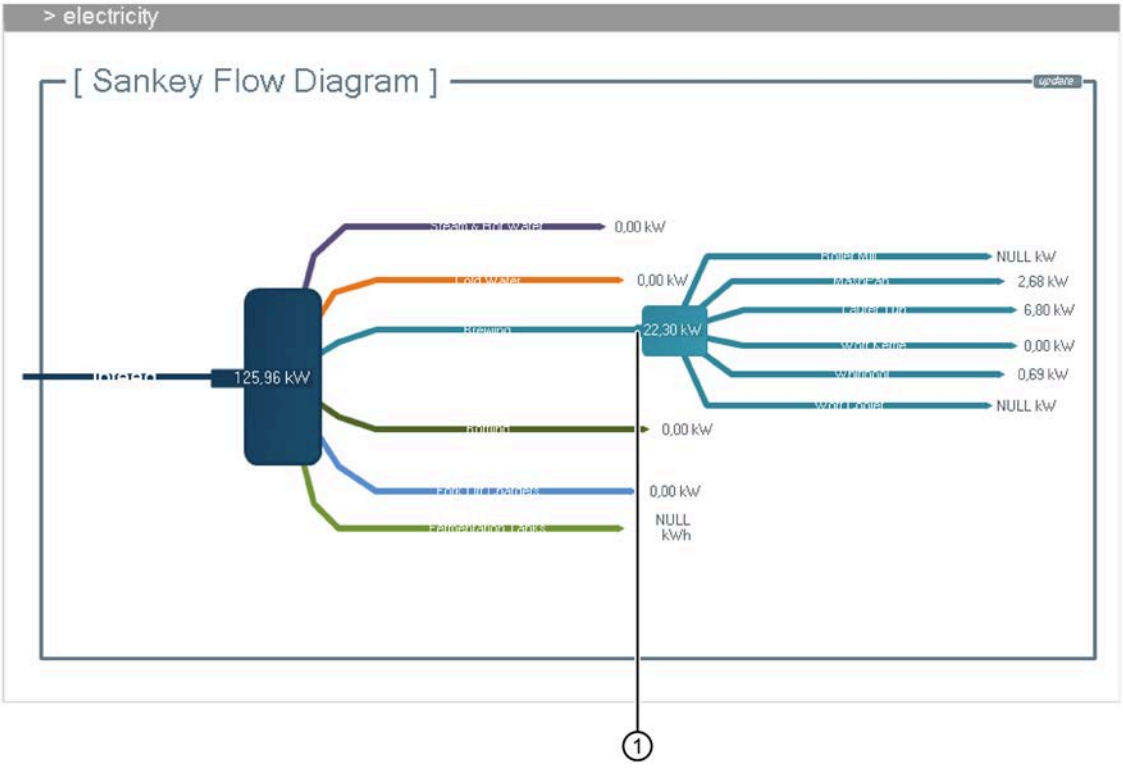
Inserts a polyline into the Sankey chart.

Usage

Use the "Polyline" dashboard object to visualize a quantity flow in the Sankey chart.

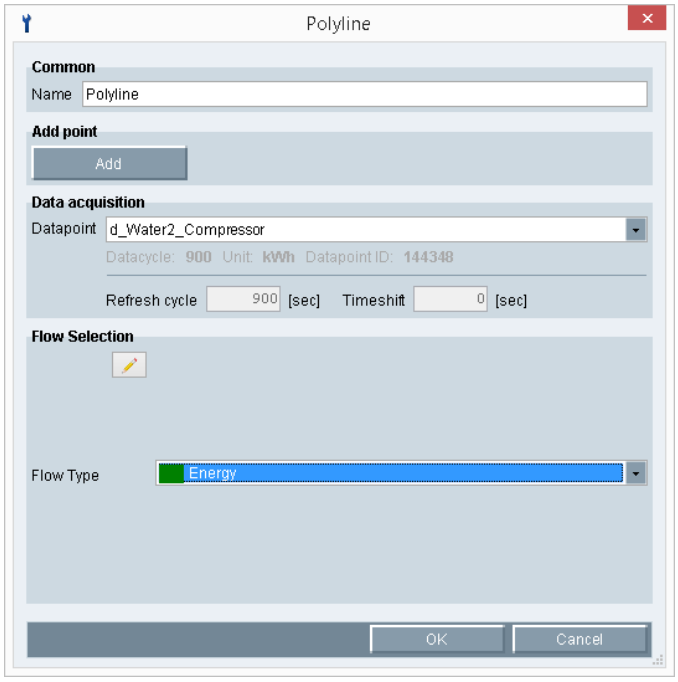
The line width is proportional to the quantity.

Example



① Power flow of a company

Necessary settings



- Name the dashboard object.
- Go to the "Data acquisition" field to select the data point that contains the values to be visualized by the line.
- Select the flow type for the line in the "Flow selection" field.

Optional settings

- You can create a new flow type in the "Flow selection" field and set the scaling.
- Add a new point if you want to add an extra line to the polyline.
- Specify the update cycle for the Sankey objects by entering the selected value in the Dashboard configuration. This value is activated for all Sankey objects.

  The update cycle is set to five seconds by default.

Note

Specifying the update cycle

You cannot set an update cycle that is shorter than five seconds.

See also

Configuring the dashboard (Page 859)

4.19.21 Flow info

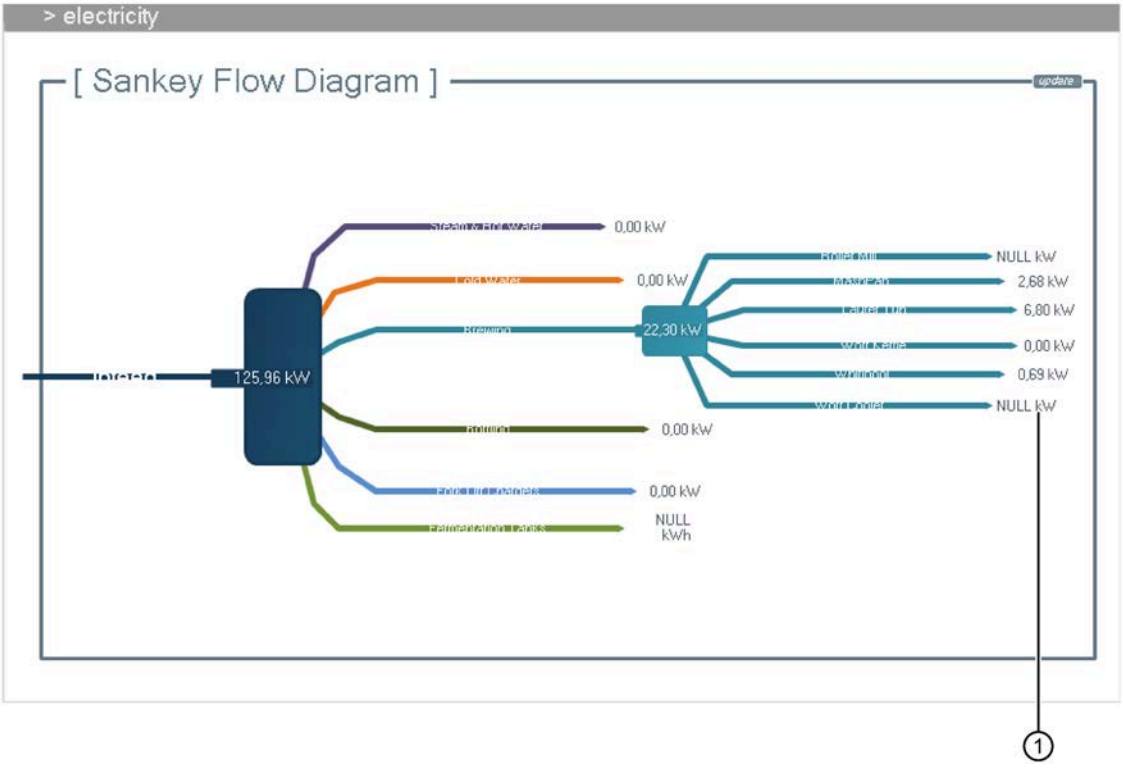
Function

Inserts a line or polyline into the Sankey chart.

Usage

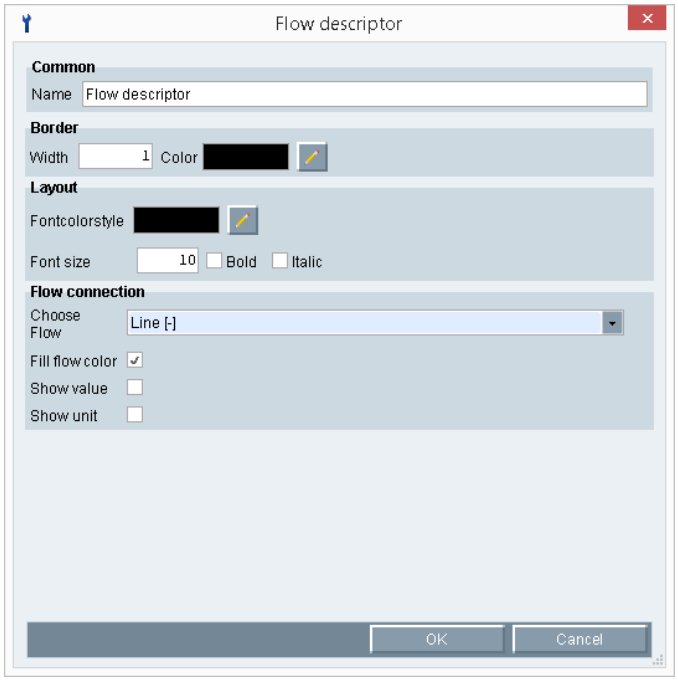
You can use the "Flow info" dashboard object to display the name and value of a line or polyline in the Sankey chart.

Example



① Flow quantity name

Necessary settings



- Name the dashboard object.
- Go to "Flow connections" and select the line you want to describe using the "Flow info" dashboard object.

Optional settings

- Set the border and text styles for the dashboard object.
- Activate the corresponding check box to display the value or unit in addition to the line name.

See also

Configuring the dashboard (Page 859)

4.19.22 Process

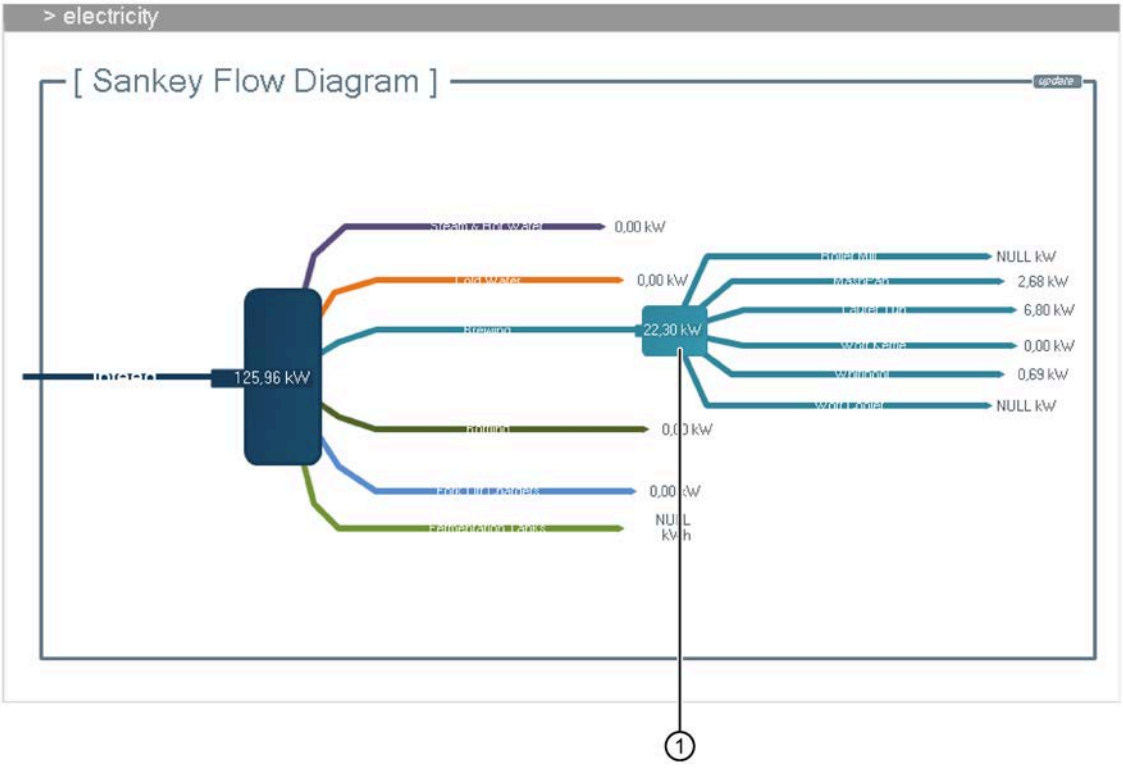
Function

Inserts a process step into the Sankey chart.

Usage

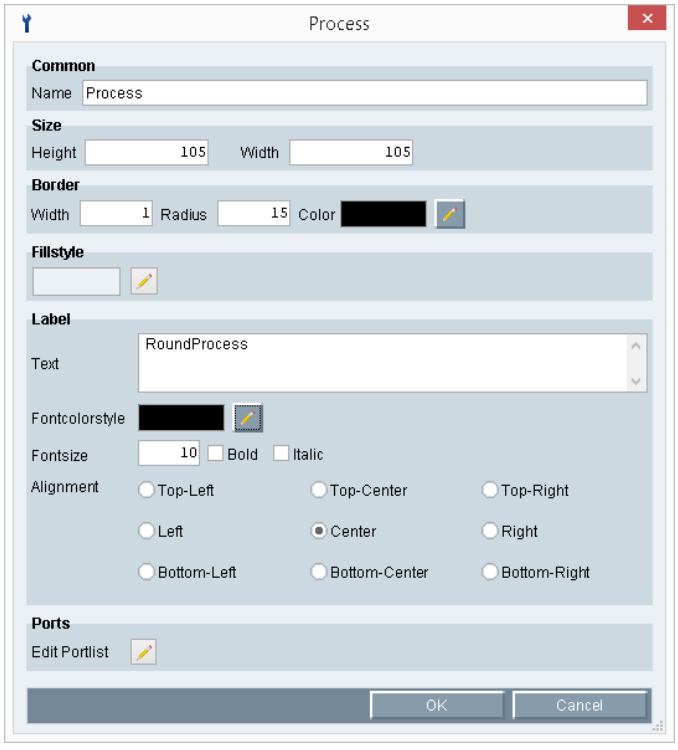
Use the "Process" dashboard object to visualize a process step for a quantity flow in the Sankey chart.

Example



① Process step "Transformer 10 kV" for the power and gas supply

Necessary settings



- Name the dashboard object.
- Enter a caption text for the dashboard object in the "Label" field.

Optional settings

- Set the size of the dashboard object.
- Set the border and text styles for the dashboard object.
- Set the fill color for the dashboard object.
- Adapt the ports list to define additional points for the line.

4.19.23 Process overview

Function

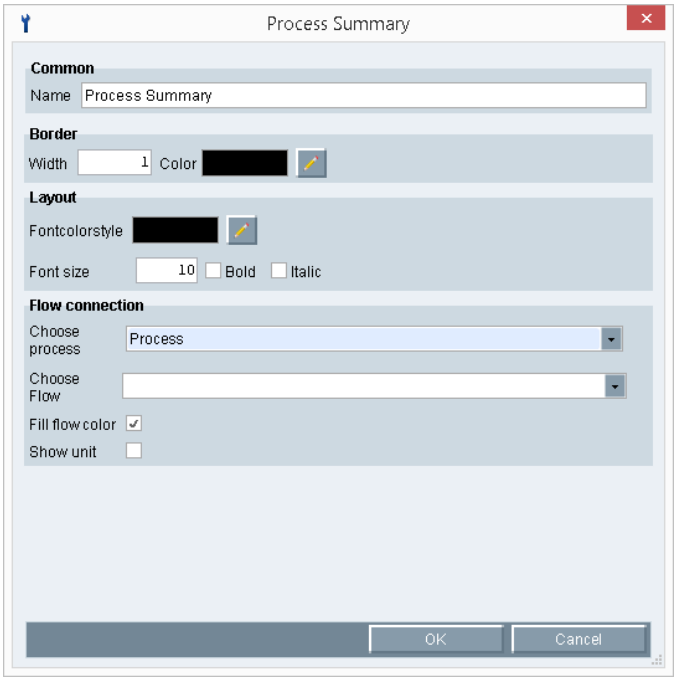
Calculates the difference between the inputs and outputs of a process step (delta calculation). The value "0" is the ideal result of this calculation. Other results indicate irregularities.

Example of two inputs and one output: Input 1 + Input 2 - Output = 0

Usage

Use the "Process overview" dashboard object to verify the result in the Sankey chart.

Necessary settings



- Name the dashboard object.
- Select the process step and the associated line at "Flow connection".

Optional settings

- Set the border and text styles for the dashboard object.
- Activate the corresponding check box to include the display of the unit or line color along with the process name.

4.20 Log files

The log files for all components except the tasks are stored in the "Installation directory\EnMPRO\GUI\mcl\trace".

The log files for the tasks are stored in the "Installation directory\EnMPRO\GUI\Logdateien".

4.20.1 Kernel

Structure of the messages

All messages in the kernel log file are structured as follows: **Date|Time|Number: Alarm**

The type of message is expressed by the number:

Number	Message type
1000	Information
2000	Warning
3000	Error

Starting the kernel

When the kernel is started, the following informational message is written to the log file when booting starts:

```
20190211|10:26:02:455|1000: ----------------------------------------

20190211|10:26:02:455|1000: Email Error Reporter started with user
defined warning level 'Severe'. Sending all messages >= 'Severe' to
operator.

20190211|10:26:02:455|1000: MessageReporter Settings

20190211|10:26:02:455|1000: MaxSize = 50000

20190211|10:26:02:455|1000: Files = 1000

20190211|10:26:02:455|1000: LastUsed = 85

20190211|10:26:02:455|1000: BaseName =
C:\EnMPRO\GUI\mcl\trace\Kernel\tr

20190211|10:26:02:455|1000: ----------------------------------------

20190211|10:26:02:471|1000: B.Data Kernel v702.00.500.53, Feb 1 2019
(23:14:25)...

20190211|10:26:02:486|1000: © Siemens AG, 2016. All rights reserved.

20190211|10:26:02:486|1000: Start Update-Subscription Worker

20190211|10:26:02:486|1000: no external startup processes configured

20190211|10:26:02:486|1000: Update-Subscription: poll interval 10000

20190211|10:26:02:486|1000: Please note: Daylight saving is on.
```

```
We are in time zone "W. Europe Standard Time"/"W. Europe Daylight
Time", this means 3600 offset of GMT.

Please don't forget to get up on last Sun of Mar at 02:00:00 and
advance your clock 3600 secs.

Never mind, you can sleep longer on last Sun of Oct.

On that day at 03:00:00 time changes back.
```

The kernel is then configured. At each data point, the kernel checks whether "Log to DB" is active.

The following message is written to the log file:

```
20190211|10:26:04:049|1000: create dblog d_PAC2200_E_Wh_T1_imp
"5151" mode 1
```

The meaning of the important sections of the message can be found in the following table:

Message section	Meaning
create dblog	Check where "Log to DB" is enabled
d_PAC2200_e_Wh_T1_imp	Data point name
mode	Test result: • mode 0 = "Log to DB" not active • mode 1 = "Log to DB" active

The acquired values are only forwarded to the Acquisition service when "Log to DB" is enabled.

Once the kernel is ready to acquire values, the following message is written to the log file:

```
20181212|20:34:48:132|1000: sending all constants...
```

Kernel update event

When the configuration of a data point or interface changes, a kernel update event occurs.

The following events cause a kernel update event:

- Changing the cycle time of a data point or interface
- Changing the data point name
- Changing the data point address

When a kernel update event occurs, the following message is written to the log file:

```
20190205|10:34:38:755|1000: Kernel: Update Event received!
```

The kernel then checks at each data point, as described above, whether "Log to DB" is active.

After the check, the changed data point and the corresponding interface are re-configured. The following message is written to the log file:

```
20190205|10:34:41:220|1000: Begin - Reconfiguration ----------------
----------------

20190205|10:34:41:226|1000: Update Tags in Buffer (11026)

20190205|10:34:41:232|1000: changes -> Update-Tag (11027)

20190205|10:34:41:243|1000: Linkin 11027->11027 : Parameter 0
already linked. Replacing it.

20190205|10:34:41:248|1000: Create Tag: Id= 11027 (BufferId= 11026)

20190205|10:34:41:254|1000: OPC-UA: Configured cycle time for Opc-Ua
buffer 'EnergySuite_IO' is 60 seconds

20190205|10:34:41:299|1000: Lastio of '11027' at 12.12.2018 20:29:00

20190205|10:34:41:344|1000: OPC-UA: Last IO for buffer was at
12.12.2018 20:29:00

20190205|10:34:41:391|1000: OPC-UA: WARNING: Creation of address
'ns=1;s=v|EnS_EnergyArchive\Ventilation_power' for 11027 was not
successful

20190205|10:34:41:437|1000: End - Reconfiguration------------------
---------------
```

Information on acquisition components

If values are transferred from an acquisition component, the following message is written to the log file:

```
20190206|10:04:25:170|1000: 2019-02-06 10:04:25 0-02:13:55 7296600
908.102/s (0s) 82
```

The meaning of the important sections of the message can be found in the following table:

Message section	Meaning
2019-02-06 10:04:25	Time stamp of acquisition
0-02:13:55	Time since the acquisition runs in the following format: Days-Hours:Minutes:Seconds
7296600	Number of measured values acquired since the acquisition component has been running.
908.102/s	Number of acquired values per second
(0s)	Time elapsed since the last measured value acquisition.
82	Number of measured values in the cache

Number of inserted values

If values are forwarded to the acquisition service, the following message is written to the log file:

```
20190205|13:34:41:437|1000: 500 numeric records inserted (32000
bytes)
```

In this example, "500" is the number of transmitted values and "32000 bytes" is the amount of data.

Process ID

Each channel has a unique process ID. Each message about a channel starts with the process ID of the channel in square brackets, as in the following example:

```
20190708|13:40:51:237|1000: [12508] ModBusDevice: OpenDevice: TCP/IP
connection error
```

In this example, 12508 is the process ID.

If you filter the log file by the process ID in square brackets, only the messages of the corresponding channel are displayed.

Shutting down the kernel

When the kernel is stopped or restarted, the following message is written to the log file:

```
20190211|10:21:04:189|1000: Sending answer 'OK|Shutdown in progress'
to client ''

20190211|10:21:04:194|1000: exit DELTAMANAGER

20190211|10:21:04:198|1000: Final Service Shutdown entered...

20190211|10:21:04:199|1000: Kernel: Update - Termination Event
receive!

20190211|10:21:04:199|1000: Kernel: Update Thread stopped!

20190211|10:21:04:199|1000: Stop Requester (4632) (bfs_modbus) ...

20190211|10:21:04:204|1000: Requester (4632) (bfs_modbus) -
stopped...

20190211|10:21:04:222|1000: Shut down database logger...

20190211|10:21:04:222|1000: Total Number of records stored: 82628

20190211|10:21:04:253|1000: Database Insertion thread stopped.

20190211|10:21:04:675|1000: shutdown ORA listener

20190211|10:21:04:768|1000: InsertionThread done.

20190211|10:21:04:768|1000: Wait for shutdown of database inserter
succeeded

20190211|10:21:04:768|1000: flush
C:\EnMPRO\GUI\mcl\sink\Kernel\sink00000n.bfs ...

20190211|10:21:04:768|1000: Wrote 128 records (8192 bytes) to file
C:\EnMPRO\GUI\mcl\sink\Kernel\sink00000n.bfs

20190211|10:21:04:768|1000: File Flush thread stopped.

20190211|10:21:05:284|1000: Wait for file flush thread succeeded

20190211|10:21:05:284|1000: Shut down command listener...

20190211|10:21:05:284|1000: SubscriptionWorkerThread stopped!
```

See also

Kernel fault (Page 740)

4.20.2 Acquisition service

The acquisition service is part of the acquisition component. There are several log files for the acquisition service. The acquisition service consists of several components, for each of which there is a log file.

The following table shows the various log files of the acquisition service and the tasks of the corresponding components.

Log file	Tasks
Compression	Compression, plausibility, gap detection
Synchronization	Synchronization of the local database of acquisition with the SQL server on the application server.
Raw File Provider	"Raw" files
Sink Data Importer	Imported "SINK" files
Data Deletion	Utilization of the local database, deletion of synchronized data
Acquisition Component Host	Management of acquisition service components
SQL Provider	Access to the local database of the acquisition

4.20.2.1 Compression

The "Compression" log file has a maximum size of 150 KB. The maximum number of log files is 100.

Startup of the component

The compression component is initialized after the acquisition service is started. The number of compression levels for each data point is logged as follows in the "Compression" log file:

```
2019-02-11 11:13:05,412 [ 5] [COP] - INFO - Initialize Compression
Component

2019-02-11 11:13:05,450 [ 5] [COP] - INFO - Load registry
settings...

2019-02-11 11:13:05,482 [ 5] [COP] - INFO - Load BData DB
settings...

2019-02-11 11:13:05,714 [21] [(null)] - INFO - LoginAccepted:
UserInfo= User ADMIN (505)

2019-02-11 11:13:06,969 [ 5] [COP] - INFO - Component Initialization
finished...

2019-02-11 11:13:06,971 [14] [COP] - INFO - Waiting until initial
configuration synchronisation is finished...

2019-02-11 11:13:11,973 [14] [COP] - INFO - Starting initialization
of compression configuration...

2019-02-11 11:13:12,173 [38] [(null)] - INFO - (PLSI) -
PlausibilityResult worker process started.

2019-02-11 11:13:12,178 [14] [COP] - INFO - Build Measurement list

2019-02-11 11:13:13,333 [14] [COP] - INFO - (SINK) - Cycle for open
sink data recalculation : 30000 [msec]
```

```
2019-02-11 11:13:13,480 [14] [COP] - INFO - [5621] - Compression
configuration ended. Measurement contains 3 compression levels to
calculate.

2019-02-11 11:13:13,491 [14] [COP] - INFO - [5623] - Compression
configuration ended. Measurement contains 3 compression levels to
calculate.

2019-02-11 11:13:13,507 [14] [COP] - INFO - [5624] - Compression
configuration ended. Measurement contains 3 compression levels to
calculate.
```

Reception of the acquired measured values

When measured values are acquired, the reception of the values from the kernel is confirmed with the following entry in the "Compression" log file:

```
2019-02-06 11:21:58,231 [13] [(null)] - INFO - Handle MemoryStream
time : 06.02.2019 10:21:58 length : 32000 starting
```

Calculation of the compression (RCAL)

If a compressed interval is calculated, the interval and the number of compressed values are specified:

```
2019-02-14 10:30:14,031 [34] [(null)] - INFO - (RCAL) - [13230]* -
tCLevel:2105 ENDTIME:14.02.2019 09:30:00 in recalculation...

2019-02-14 10:30:14,048 [34] [(null)] - INFO - (RCAL) - [13230] 1
recalculation orders found

2019-02-14 10:30:14,059 [34] [(null)] - INFO - (RCAL) - [13230]
fCLevel:2100 tCLevel:2105 fDT:14.02.2019 09:15:00 tDT:14.02.2019
09:30:00 in recalculation...

2019-02-14 10:30:14,138 [34] [(null)] - INFO - (RCAL) - [13230] -
467 msjoValues for fCLevel:2100 and range: fDT:14.02.2019 09:15:00
tDT:14.02.2019 09:30:00 found

2019-02-14 10:30:14,183 [34] [(null)] - INFO - (RCAL) - [13230]** -
tCLevel:2105 ENDTIME:14.02.2019 09:30:00 (fDT:14.02.2019 09:15:00)
recalculation finished...
```

Calculation for the defined compression levels (CMPR)

If compressions calculated by the acquisition service were written to the local database, the write operation is logged in the log file as follows with the following message:

```
2019-02-14 10:30:06,210 [35] [(null)] - INFO - (CMPR) - 1 open items
to handle

2019-02-14 10:30:06,267 [35] [(null)] - INFO - 1 measurement numeric
values inserted successfully
```

The acquisition service calculates all compressions up to the "Daily values" compression level.

Checking the plausibility limits (PLSI)

If limits of a data point are active, the acquired measured values are checked. If a limit is violated, an alarm is generated. In this case, the following message is written to the log file:

```
2019-02-14 10:36:42,157 [37] [(null)] - INFO - (PLSI) [13230] -
Alarm Upper Limit violation: PlausiResult: ID:13230 DT:1550136970
DV:0,866025403852806 ST:1 ME:17 CL:2
```

Gap detection (PLSI)

If a gap occurs and an alarm is generated, this generation is logged in the log file as follows:

```
2019-02-14 12:17:00,196 [32] [(null)] - INFO - (PLSI) GAP violation:
PlausiResult: ID:13230 DT:1550142952 DV:0 ST:1 ME:12 CL:2
```

Changes in the tables of the local database (SYNC)

If one of the tables in the local database is changed, the following entry is written to the log file:

```
2019-02-14 10:12:05,175 [ 6] [(null)] - INFO - (SYNC) - TB_MESSUNG
changed: 1 items to Insert

2019-02-14 10:12:05,240 [ 6] [(null)] - INFO - [13230] - Compression
configuration ended. Measurement contains 3 compression levels to
calculate.

2019-02-14 10:12:05,255 [ 6] [(null)] - INFO - (SYNC) - [13230]
measurement Insert

2019-02-14 10:12:05,265 [ 6] [(null)] - INFO - (SYNC) -
TB_COMPRESSION changed: 2 items to Insert2019-02-14 10:22:08,387
[31] [(null)] - INFO - (SYNC) - TB_MESSUNG changed: 1 items to
Update2019-02-14 10:22:08,398 [31] [(null)] - INFO - (SYNC) -
[13230] measurement Update

2019-02-14 10:36:12,795 [17] [(null)] - INFO - (SYNC) - TB_MESSUNG
changed: 1 items to Update

2019-02-14 10:36:12,802 [17] [(null)] - INFO - (SYNC) - [13230]
measurement Update

2019-02-14 10:36:12,809 [17] [(null)] - INFO - (SYNC) -
TB_MESS_PLAUSI_LIMIT changed: 1 items to Insert
```

Shutting down the component

When the component is stopped, the following message is written to the log file:

```
2019-02-11 11:12:28,397 [12] [(null)] - INFO - Shutdown compression
component.

2019-02-11 11:12:28,398 [12] [(null)] - INFO - Stop initialization
process

2019-02-11 11:12:28,574 [48] [(null)] - INFO - (MSTR) - Exit
MeasurementStringData worker process.

2019-02-11 11:12:28,576 [47] [(null)] - INFO - (CMPR) - Exit
CompressionResult worker process.

2019-02-11 11:12:28,604 [41] [(null)] - INFO - (PLSI) - Exit
PlausibilityResult worker process.

2019-02-11 11:12:28,604 [46] [(null)] - INFO - (RCAL) - Exit
Recalculation worker process.
```

4.20.2.2 Raw file provider

This log file is usually empty.

A "Raw" file with the acquired measured values is created for each day and each data point.

If an error occurs while creating or writing the values, this is logged in this log file.

4.20.2.3 SinkDataImporter

If the kernel cannot forward the acquired values to the Acquisition service, the values are written to "SINK" files. SinkDataImporter checks if new "SINK" files are available once every minute.

If there are no new "SINK" files, the following message is written to the log file:

```
2019-02-06 11:11:17,507 [28] [(null)] - INFO - (DATASINNK) -
Datasink Importer SearchFolders -> C:\EnMPRO\mcl\sink\Kernel |
C:\EnMPRO\mcl\sink\FTP

2019-02-06 11:11:17,508 [28] [(null)] - INFO - (DATASINNK) - Watch
for new sink files -> C:\EnMPRO\mcl\sink\Kernel

2019-02-06 11:11:17,509 [28] [(null)] - INFO - (DATASINNK) - Watch
for new sink files -> C:\EnMPRO\mcl\sink\FTP
```

When there are new "SINK" files, the SinkDataImporter tries to import the new files.

In this case, the following message is written to the log file:

```
2019-02-06 11:12:17,972 [28] [(null)] - INFO - (DATASINNK) - Import
-> sink00024n.bfs succeeded

2019-02-06 11:12:17,974 [28] [(null)] - INFO - (DATASINNK) - Move
File from C:\EnMPRO\mcl\sink\Kernel\sink00024n.bfs to
C:\EnMPRO\mcl\sink\Kernel\Imported\20190206_111217973_sink00024n.bfs
```

The imported values are written to the "Raw" files.

4.20.2.4 Data deletion

An overview is written to the "Data deletion" log file once every minute. The overview shows the size of the local database and information about the deleted values of the local database. The following figure shows the overview:

```
(DATA_DEL) Database Name: | Size | Free | Used in MB | Usage in %
(DATA_DEL) BDataLocalDB | 2050.00 MB | 2045.40 MB | 4.60 | 10 GB max: 0.22
```

4.20.2.5 Acquisition component Host

This log file is empty by default.

If an error occurs when initializing components of the acquisition service, this error is logged in the log file.

4.20.2.6 SQL provider

This log file is empty by default.

If it is not possible to access to the local database, a corresponding error message is written to the log file.

4.20.3 Calculation service

4.20.3.1 Calculation service

The calculation service is part of the application server. There are several log files for the calculation service. The calculation service consists of several components, for each of which there is a log file.

The following table shows the various log files of the acquisition service and the tasks of the corresponding components.

Log file	Tasks
Recalculation	Calculation and recalculation of compressions and data points
MEVA calculation	Calculation of MEVAs/KPIs
Counter calculation	Calculation of counter differences of acquired values
Machine calculation	Calculation of the consumers
Calculation component host	Management of calculation service components

4.20.3.2 Recalculation

The "Recalculation" log file is for messages related to the compression of the acquired measured values. The log file has a maximum size of 151 KB. The maximum number of log files is 100.

Calculation of compressions (RCAL)

If a compressed interval is calculated by the Acquisition service, the interval and the number of compressed values are specified:

```
2019-02-14 12:31:34,348 [31] [(null)] - INFO - (RCAL) - [9887] 1
recalculation orders found

2019-02-14 12:31:34,352 [31] [(null)] - INFO - (RCAL) - [9887]
fCLevel:2105 tCLevel:2110 fDT:23.11.2019 02:00:00 tDT:23.11.2019
03:00:00 in recalculation...

2019-02-14 12:31:34,367 [31] [(null)] - INFO - (RCAL) - [9887] - 4
msjoValues for fCLevel:2105 and range: fDT:23.11.2019 02:00:00
tDT:23.11.2019 03:00:00 found

2019-02-14 12:31:34,378 [31] [(null)] - INFO - (RCAL) - [9887]** -
tCLevel:2110 ENDTIME:23.11.2019 03:00:00 (fDT:23.11.2019 02:00:00)
recalculation finished...
```

Retroactive billing of derived data points (DCAL)

When a derived data point is re-calculated, the interval and the number of compressed values is specified:

```
2019-03-12 12:17:00,582 [39] [(null)] - INFO - (DCAL) - ## Begin
automatic recalculation of derived recalculation entrys...

2019-03-12 12:17:00,587 [39] [(null)] - INFO - (DCAL) - Search for
open derived datapoints to (re)calculate

2019-03-12 12:17:00,623 [39] [(null)] - INFO - (DCAL) - 140 open
derived datapoints to (re)calculate

2019-03-12 12:17:00,629 [39] [(null)] - INFO - (DCAL) - [13732] -
Autom. Calculate f:12/31/2018 11:00:00 PM t:3/11/2019 11:00:00 PM

2019-03-12 12:17:01,016 [39] [(null)] - INFO - (DCAL) - [13733] -
Autom. Calculate f:12/31/2018 11:00:00 PM t:3/11/2019 11:00:00 PM

2019-03-12 12:17:01,549 [39] [(null)] - INFO - (DCAL) - 140 open
derived measurement orders recalculated

2019-03-12 12:17:01,554 [39] [(null)] - INFO - (DCAL) - ## End
automatic recalculation of derived recalculation entrys...
```

Substitute values (REPV)

The Calculation service cyclically checks whether new gaps must be filled and fills these gaps if necessary. For each cyclic check for missing replacement values, an entry is written to the log file:

```
2019-02-14 13:52:31,762 [35] [(null)] - INFO - (REPV) - Missing Gaps
filled for 13235; set last corr timestamp to 14.02.2019 12:51:00
```

Extrapolation and interpolation (EXPA)

The Calculation service cyclically checks whether new interpolations or extrapolations must be calculated and calculates these interpolations and extrapolations. For each cyclic check for missing interpolations and extrapolations, an entry is written to the log file:

```
2019-02-14 14:03:23,110 [37] [(null)] - INFO - (EXPA) - ** Begin
search of complevel configuration for expansion...

2019-02-14 14:03:23,129 [37] [(null)] - INFO - (EXPA) - Found 0 rows
to check for expansion

2019-02-14 14:03:23,135 [37] [(null)] - INFO - (EXPA) - ** End
search for expansion values...

2019-02-14 14:03:23,140 [37] [(null)] - INFO - (EXPA) - ** Begin
search of complevel configuration for interpolation...

2019-02-14 14:03:23,158 [37] [(null)] - INFO - (EXPA) - Found 0 rows
to check for interpolation

2019-02-14 14:03:23,164 [37] [(null)] - INFO - (EXPA) - ** End
search for interpolation values
```

Calculation of compressions on the application server (NLCO)

With the following exceptions, the Acquisition service calculates all compressions up to daily values. If values are entered in a matrix or values are transferred directly to the SQL server (compression of acquisition values to acquisition values), the Calculation service calculates the corresponding compressions. The Calculation service cyclically checks whether a calculation of such compressions is available:

```
2019-02-14 13:52:39,485 [36] [(null)] - INFO - (NLCO) - Check
compression level: 2120

2019-02-14 13:52:39,505 [36] [(null)] - INFO - (NLCO) - Check
compression level: 2105

2019-02-14 13:52:39,538 [36] [(null)] - INFO - (NLCO) - Check
compression level: 2110

2019-02-14 13:52:39,561 [36] [(null)] - INFO - (NLCO) - Check
compression level: 2101
```

In the same interval, the Calculation service checks the counter value filter:

```
2019-02-14 13:47:52,365 [36] [(null)] - INFO - (NLCO) - Start
Counter filter check...

2019-02-14 13:47:52,624 [36] [(null)] - INFO - (NLCO) - Update 14
compression until dates

2019-02-14 13:47:52,691 [36] [(null)] - INFO - (NLCO) - End of
Counter filter check...
```

Automatic compression

ACOP messages indicate the number of compression intervals for which a recalculation is due. When the recalculation of a compression interval is pending, a RCAL message is written to the log file.

```
2019-02-14 14:03:32,912 [32] [(null)] - INFO - (ACOP) - Search for
pending compression calculation...

2019-02-14 14:03:32,949 [32] [(null)] - INFO - (ACOP) - No pending
automatic compressions found

2019-02-14 14:03:32,956 [32] [(null)] - INFO - (ACOP) - Search for
past changes to recalculate compression calculation...

2019-02-14 14:03:33,901 [32] [(null)] - INFO - (ACOP) - No pending
past changes recalculations found
```

4.20.3.3 MEVA calculation

If the calculation of a MEVA/KPI is triggered, a message is written to this log file.

The following objects can trigger the calculation of a MEVA/KPI :

- Report
- Chart
- Dashboard
- Derived data point

4.20.3.4 Counter calculation

If values of a counter are entered directly via the matrix, the Calculation service calculates the counter differences. The Calculation service cyclically checks whether calculation counter differences are available. The number of counter differences the Calculation service calculates is written to this log file:

```
2019-02-11 11:43:36,458 [35] [(null)] - INFO - (CRCL) - ** Begin
search for open counter recalculation...

2019-02-11 11:43:36,473 [35] [(null)] - INFO - (CRCL) - Cleanup of
closed counter recalculation items performed successfully

2019-02-11 11:43:36,475 [35] [(null)] - INFO - (CRCL) - Read counter
recalculation rows to handle

2019-02-11 11:43:36,506 [35] [(null)] - INFO - (CRCL) - Calcuation
ended; no values for DB saving calculated

2019-02-11 11:43:36,516 [35] [(null)] - INFO - (CRCL) - Counter
recalc ended; Update 0 recalc items in DB

2019-02-11 11:43:36,517 [35] [(null)] - INFO - (CRCL) -
intMainObjektReaderCnt: 0

2019-02-11 11:43:36,518 [35] [(null)] - INFO - (CRCL) - 0 open
counter recalculation items merged

2019-02-11 11:43:36,519 [35] [(null)] - INFO - (CRCL) - ** End
search for open counter recalculation...
```

4.20.3.5 Machine calculation

The calculation of consumers is recorded in the "Machine calculation" log file.

4.20.3.6 Calculation component host

The Calculation component host component manages the components of the Report service.

If an error occurs when initializing components of the Acquisition service, this error is recorded in the log file.

Otherwise this log file is empty.

4.20.4 Report Server

The server of the Report service is on the same system as the SQL server.

The reporting service performs the following tasks:

- Report generation
- Conversion of EXEL files into PDF files
- Sending reports
- Saving reports
- Printing reports

The "Report Server" log file has a maximum size of 200 KB. The maximum number of log files is 1000.

Starting a report

When a report is started manually or automatically, the actions are logged during report generation.

The main actions are as follows:

- Loading the template
- Filling the template
- Executing macros

Report automation

The following automated actions are logged:

- Sending the report
- Saving the report
- Print the report

See also

Reporting service error (Page 744)

4.20.5 MindUpload

The "MindUpload" log file has a maximum size of 121 KB.

A new log file is created for each day.

The following events are logged in this log file:

- Onboarding

  The onboarding of the Energy Manager in the MindSphere is recorded in this log file.

  If onboarding does not work, an error message is written to the log file.

- Data transfer

  The number of uploaded values is written to the log file for each data transfer cycle to MindSphere.

4.20.6 Tasks

When a task is executed, a "Tasks" log file is created. The log file consists of the following three entries:

```
2019-01-16 10:19:04,892 - INFO - Start Task "Export measurement
values" for Node "Export values as xml_h_Local_PC" (NodeID: 4737).
```

This entry enables you to find which task is executed.

```
2019-01-16 10:19:05,683 - INFO - Export file
"Export_000004737_20190114000000_20190116000000.xml" written.
```

This entry contains the name of the file with the exported values.

```
2019-01-16 10:19:05,740 - INFO - End Task after runtime of
00:00:02.100: 3 entries have been exported.
```

This entry enables you to find the time in which the task was executed and the number of exported values.

4.21 Cipher Suites

If you are hosting the web server yourself, do not configure insecure connections.

Configure the connection with a Cipher Suite from the following list. Prioritize a Cipher Suite with a security rating of 5 over a Cipher Suite with a security rating of 4.

List of recommended Cipher Suites

Cipher Suites are registered in TLS up to version 1.2 for the Internet Assigned Numbers Authority (IANA). The following table is based on the Cipher Suites registered with IANA and has been extended with a Siemens security rating. The following table lists only Cipher Suites that have a security rating of at least 4.

Cipher Suite	Value for IANA	Siemens security assessment
TLS_RSA_WITH_AES_128_CBC_SHA256	0x00, 0x3C	4
TLS_RSA_WITH_AES_256_CBC_SHA256	0x00, 0x3D	4
TLS_DH_DSS_WITH_AES_128_CBC_SHA256	0x00, 0x3E	4
TLS_DH_RSA_WITH_AES_128_CBC_SHA256	0x00, 0x3F	4
TLS_DHE_DSS_WITH_AES_128_CBC_SHA256	0x00, 0x40	5
TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	0x00, 0x67	5
TLS_DH_DSS_WITH_AES_256_CBC_SHA256	0x00, 0x68	4
TLS_DH_RSA_WITH_AES_256_CBC_SHA256	0x00, 0x69	4
TLS_DHE_DSS_WITH_AES_256_CBC_SHA256	0x00, 0x6A	5
TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	0x00, 0x6B	5
TLS_RSA_WITH_AES_128_GCM_SHA256	0x00, 0x9C	4
TLS_RSA_WITH_AES_256_GCM_SHA384	0x00, 0x9D	4
TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	0x00, 0x9E	5
TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	0x00, 0x9F	5
TLS_DH_RSA_WITH_AES_128_GCM_SHA256	0x00, 0xA0	4
TLS_DH_RSA_WITH_AES_256_GCM_SHA384	0x00, 0xA1	4
TLS_DHE_DSS_WITH_AES_128_GCM_SHA256	0x00, 0xA2	5
TLS_DHE_DSS_WITH_AES_256_GCM_SHA384	0x00, 0xA3	5
TLS_DH_DSS_WITH_AES_128_GCM_SHA256	0x00, 0xA4	4
TLS_DH_DSS_WITH_AES_256_GCM_SHA384	0x00, 0xA5	4
TLS_RSA_WITH_CAMELLIA_128_CBC_SHA256	0x00, 0xBA	4
TLS_DH_DSS_WITH_CAMELLIA_128_CBC_SHA256	0x00, 0xBB	4
TLS_DH_RSA_WITH_CAMELLIA_128_CBC_SHA256	0x00, 0xBC	4
TLS_DHE_DSS_WITH_CAMELLIA_128_CBC_SHA256	0x00, 0xBD	4
TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA256	0x00, 0xBE	4
TLS_RSA_WITH_CAMELLIA_256_CBC_SHA256	0x00, 0xC0	4
TLS_DH_DSS_WITH_CAMELLIA_256_CBC_SHA256	0x00, 0xC1	4
TLS_DH_RSA_WITH_CAMELLIA_256_CBC_SHA256	0x00, 0xC2	4
TLS_DHE_DSS_WITH_CAMELLIA_256_CBC_SHA256	0x00, 0xC3	5
TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA256	0x00, 0xC4	5
TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	0xC0, 0x23	5
TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	0xC0, 0x24	5
TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA256	0xC0, 0x25	4
TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA384	0xC0, 0x26	4
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	0xC0, 0x27	5
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	0xC0, 0x28	5
TLS_ECDH_RSA_WITH_AES_128_CBC_SHA256	0xC0, 0x29	4
TLS_ECDH_RSA_WITH_AES_256_CBC_SHA384	0xC0, 0x2A	4

TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	0xC0, 0x2B	5
TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	0xC0, 0x2C	5
TLS_ECDH_ECDSA_WITH_AES_128_GCM_SHA256	0xC0, 0x2D	4
TLS_ECDH_ECDSA_WITH_AES_256_GCM_SHA384	0xC0, 0x2E	4
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	0xC0, 0x2F	5
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	0xC0, 0x30	5
TLS_ECDH_RSA_WITH_AES_128_GCM_SHA256	0xC0, 0x31	4
TLS_ECDH_RSA_WITH_AES_256_GCM_SHA384	0xC0, 0x32	4
TLS_ECDHE_ECDSA_WITH_CAMELLIA_128_CBC_SHA256	0xC0, 0x72	5
TLS_ECDHE_ECDSA_WITH_CAMELLIA_256_CBC_SHA384	0xC0, 0x73	5
TLS_ECDH_ECDSA_WITH_CAMELLIA_128_CBC_SHA256	0xC0, 0x74	4
TLS_ECDH_ECDSA_WITH_CAMELLIA_256_CBC_SHA384	0xC0, 0x75	4
TLS_ECDHE_RSA_WITH_CAMELLIA_128_CBC_SHA256	0xC0, 0x76	5
TLS_ECDHE_RSA_WITH_CAMELLIA_256_CBC_SHA384	0xC0, 0x77	5
TLS_ECDH_RSA_WITH_CAMELLIA_128_CBC_SHA256	0xC0, 0x78	4
TLS_ECDH_RSA_WITH_CAMELLIA_256_CBC_SHA384	0xC0, 0x79	4
TLS_RSA_WITH_AES_128_CCM	0xC0, 0x9C	4
TLS_RSA_WITH_AES_256_CCM	0xC0, 0x9D	4
TLS_DHE_RSA_WITH_AES_128_CCM	0xC0, 0x9E	5
TLS_DHE_RSA_WITH_AES_256_CCM	0xC0, 0x9F	5
TLS_ECDHE_ECDSA_WITH_AES_128_CCM	0xC0, 0xAC	5
TLS_ECDHE_ECDSA_WITH_AES_256_CCM	0xC0, 0xAD	5
TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_	0xCC, 0xA8	5
TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_	0xCC, 0xA9	5
TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256	0xCC, 0xAA	5

Key length

Use a recommended Cipher Suite with a recommended key length for the encryption algorithm.
The following table lists the recommended key lengths:

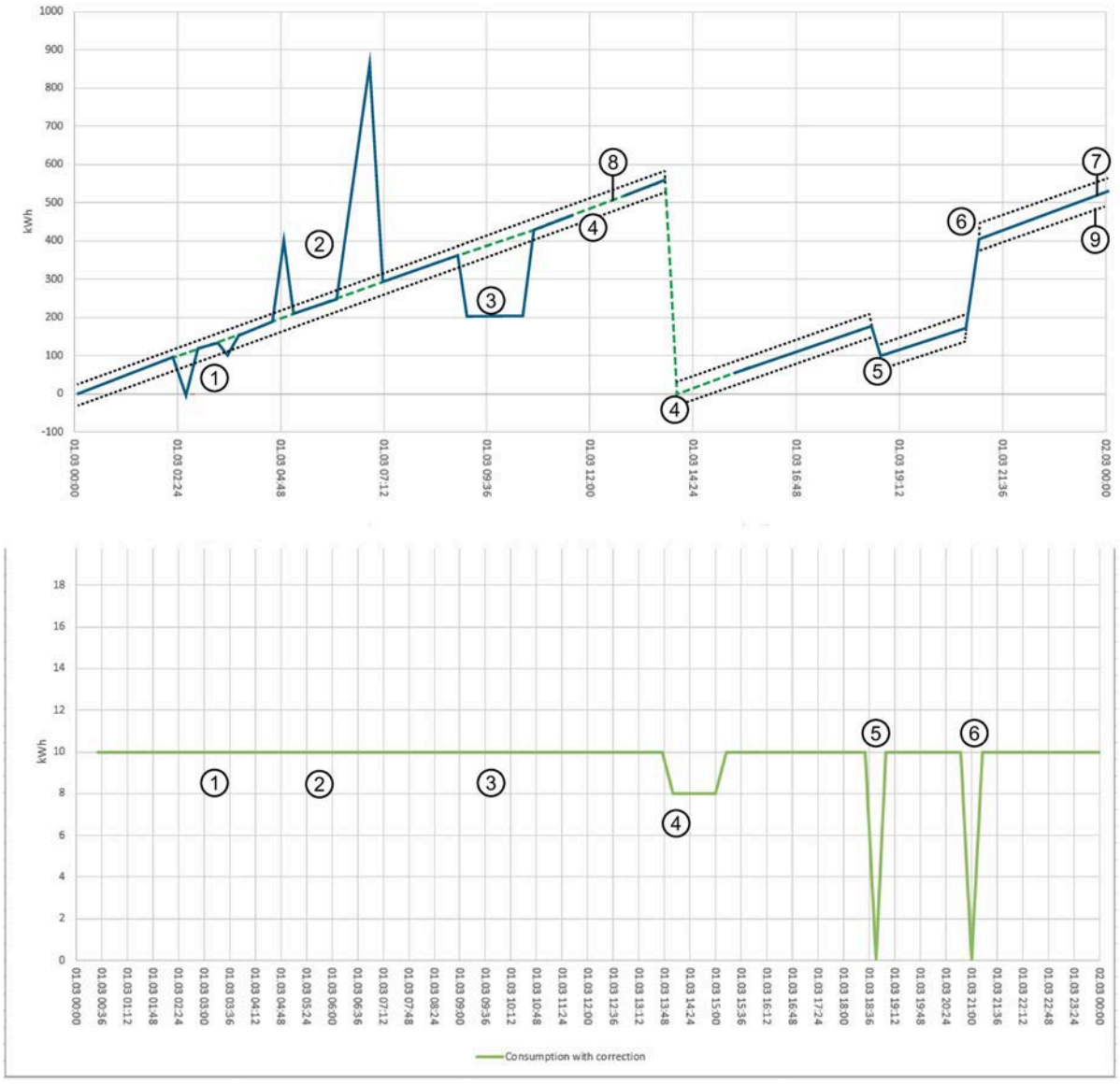
Algorithm	**Minimum key length**
Key length for signature key for certificates and key agreement	
ECDSA	250 bit
DSS	2000 - 3000 bit*
RSA	2000 - 3000 bit*
Key length for Diffe-Hellmann	
ECDH/ECDHE	250 bit
DHE	2000 - 3000 bit*

*Starting in 2023, use a key length of at least 3000 bits.

4.22 Counter value filtering

Energy Manager filters values of data points for which a counter is configured differently to values of other data points. You configure this filter at the configuration of the counter.

The following representation shows the possible error cases that are detected by the counter value filter and how they are corrected. A constant consumption of 10 kWh is used in this example.



① One to three negative deviations
② One to three positive deviations
③ Offset downwards with subsequent constant values
④ Gaps

⑤ Offset downwards
⑥ Offset upwards
⑦ Blue line: Counter values before counter value correction
⑧ Green, dashed line: Counter values after counter value correction
⑨ Black, dashed line: Upper and lower limit of the counter value that results from the consumption limits

Figure 4-1 Diagram of counter value filtering

Filtering options

- Counter value filtering

  Invalid counter values are deleted.

- Counter value difference filtering

  Consumption values that are outside of the valid range are corrected.

- Gap recognition

  Missing counter values filled in automatically and subsequent calculation of consumption.

The following table specifies through which criteria the different error cases are detected and how the error cases are corrected:

Error case	Detection of the error case	Correction of the error case
One to three negative deviations	Through counter value filtering or through the low limit of counter value difference filtering	With invalid counter values, the counter value is deleted and the resulting gap is filled in through linear interpolation. With invalid consumption values, the consumption value is deleted and the resulting gap is filled in through linear interpolation.
One to three positive deviations	Through the high limit of the counter value difference filtering	With invalid counter values, the counter value is deleted and the resulting gap is filled in through linear interpolation. With invalid consumption values, the consumption value is deleted and the resulting gap is filled in through linear interpolation.
Offset downwards with subsequent constant values	Counter value difference - lower limit and constant values	Correction of the constant values through linear interpolation. The number of constant values after the offset is not limited.

Error case	Detection of the error case	Correction of the error case
Gaps in the counter values	Gap recognition	If the counter value after the gap ≥ the counter value before the gap, the gap is filled in through linear interpolation. If the counter value after the gap < the counter value before the gap, a counter overflow is assumed. There are the two following overflow options: • With a cyclic (triggered) reset, interpolation takes place between the start value of the counter and the counter value after the gap. • With a normal overflow, interpolation takes place between the last value before the gap and the first value after the gap.
Offset of the counter values downwards	Counter value difference - lower limit and as a result increasing values	Correction of negative consumption to zero.
Offset of the counter values upwards	Counter value difference - upper limit and as a result increasing values	Correction of excessive consumption to zero.

Linear interpolation

Linear interpolation is used to fill in gaps. The duration of the gap is not limited.

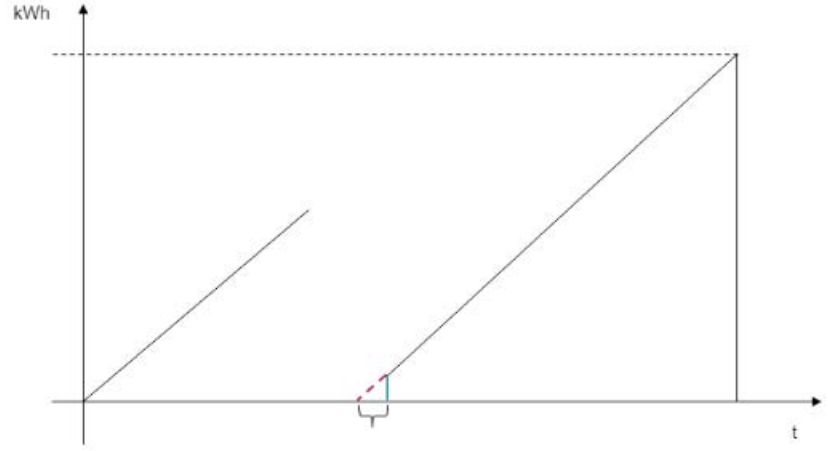
With linear interpolation, the counter value difference between the last valid counter value and the current counter value is calculated. This counter value difference is then divided by the number of intervals between the two values.

In the Energy Manager, a distinction is made between the following cases:

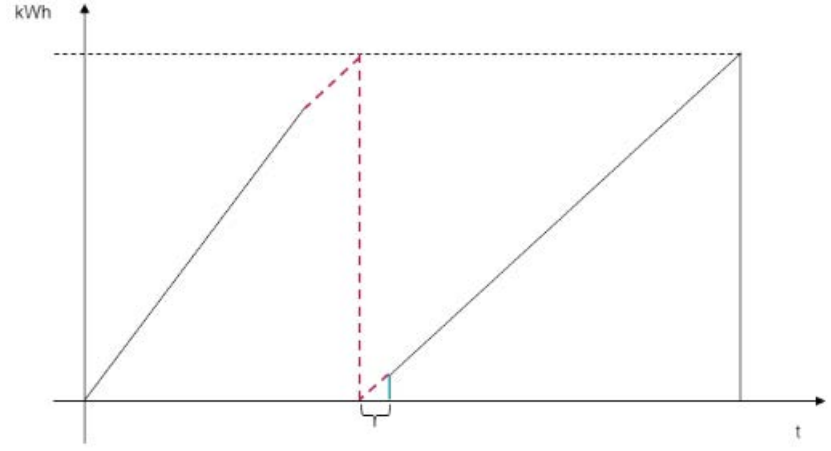
- Current counter value ≥ last valid counter value

  No overflow of the counter is assumed.
- Current counter value < last valid counter value

  An overflow of the counter is assumed. There are the two following overflow options:
  - Cyclic reset activated



  - Normal overflow



Note

Entry of counter values via the matrix

If you enter an invalid counter value in the matrix and the filters are activated, the entered value is removed and is not visible. Linear interpolation is applied with the input of the next value.

4.23 Manual acquisition with Energy Manager PRO Mobile

4.23.1 Configuring a mobile device in Energy Manager

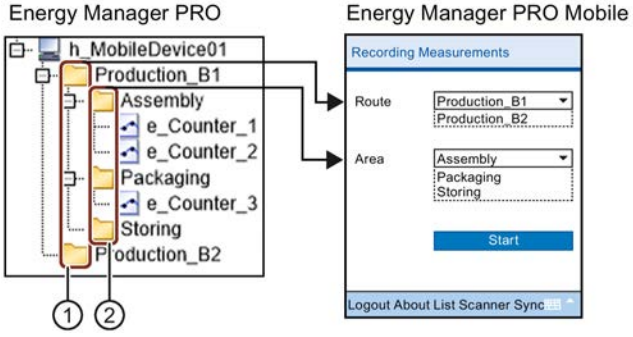
Overview

NOTICE
Secure connection between the Energy Manager PRO Mobile and the web server If you configure the connection between Energy Manager PRO Mobile and the web server, use only secure Cipher Suites. A list of secure Cipher Suites can be found in the reference under "Cipher Suites".

In Energy Manager assign the data points that you want to acquire on the mobile device to the hardware object. Improve the overview by setting up a two-layer folder structure that you can use, for example, to reproduce the production site.

in addition, you may define an existing folder structure as route for a read operation.

The following figure highlights the mapping of a folder structure in Energy Manager to the mobile device:



① Folders of the first hierarchy level are organized on the mobile device under "Route".

② Folders of the second hierarchy level are organized on the mobile device under "Area". The content of the selection list depends on the "Route" selected under ①.

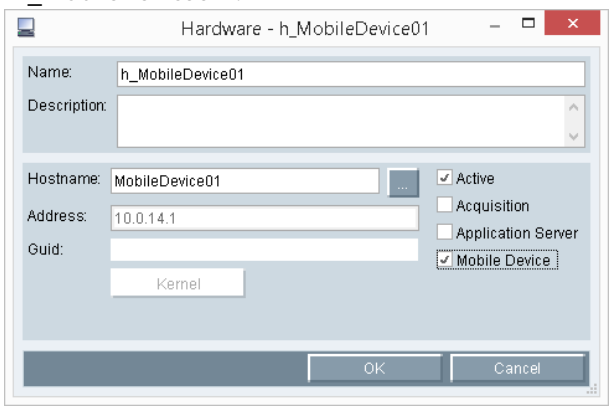
Requirements

- The mobile device is configured and interconnected with the PC.

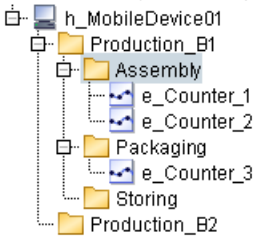
  For more information on this topic, refer to the "Energy Manager - Installation" manual, keyword "Installing Energy Manager PRO Mobile and configuring it on the mobile device".
- The data points are set up in Energy Manager.

Procedure

1. Create a hardware object in Energy Manager for the mobile device, for example, "h_MobileDevice01".



2. Set up a folder structure that consists of no more than two layers if you want to use routing for reading the meters.
3. Copy the data points to acquire with the mobile device to the folder structure below the hardware object. Assign the data points to the folder structure:



4. Add the "Job for route synchronization" to the job queue to generate one or several routes based on a folder structure.

   Note
   "Job for route synchronization" prepares the route for the synchronization process. Run this job whenever you have made changes to the folder structure.

5. Start synchronization on the mobile device for the initial transfer of the data points to the mobile device.

Result

The data points are inserted in Energy Manager below the hardware object of the mobile device. On completion of this initial synchronization, the measured values of the data points are available on the mobile device as well.

When you connect the mobile device after the first synchronization to the Energy Manager PRO Client, the measurement values are synchronized automatically.

See also

Creating hardware (Page 76)
Synchronizing data (Page 434)
Cipher Suites (Page 919)

4.23.2 Generating barcode

Overview

Provided your mobile device supports scanner functionality, you can use the scanner of the mobile device to identity the meters of your plant by means of barcode. You need to generate this barcode for each meter that you have configured in Energy Manager.

Note

Configuring meters for barcode generation

Observe the following naming conventions when configuring meters:

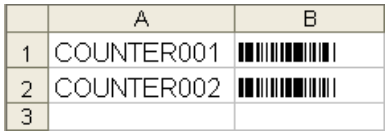
- You may only use uppercase letters from "A" to "Z" and numbers from "0" to "9".
- Use the hyphen "-" as delimiter.

Requirement

- The "Free 3 of 9 Extended" font is installed on the PC.
- Microsoft Excel is installed and opened on the PC.
- The meter is configured in Energy Manager.

Procedure

1. Enter the name of the meter in Microsoft Excel.
2. Use the "Free 3 of 9 Extended" font to assign the barcode to the meter name, for example:



Note

Font size for the barcode

The font size of the barcodes you generate may not be smaller than 12 pt.

3. Print the generated barcode and attach it to the selected meter.

Result

You can now identify the meter by its generated barcode using the scanner of the mobile device.

4.24 Importing data

4.24.1 ODBC connector

4.24.1.1 Basics on the ODBC interface

Overview

The ODBC Connector represents an interface that you can use to transfer process data from ODBC-capable data sources to Energy Manager . The process data may be transferred manually or automatically. ODBC-capable data sources are, for example, Oracle, SQL Server, MySQL, Access, or Excel.

The next chapters cover the following contents:

- Manual import
- Automatic import
- Restrictions of the files to transfer

Requirement

Successful installation of all software components.

The data must be available in a suitable structure in Excel (always ensured in a database).

- Variant 1 - one column per data point, identification by column name

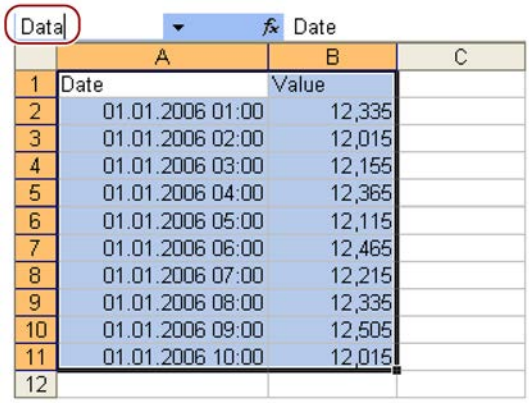
Time stamp	Data point 1	Data point 2
01.01.2008 00:15	125.36	220
01.01.2008 00:30	225.23	151

- Variant 2 - Data point identification by means of a separate column

Time stamp	Datapoint_ID	Value
01.01.2008 00:15	125	125.36
01.01.2008 00:15	200	220
01.01.2008 00:30	125	225.23
01.01.2008 00:30	200	151

The date must be available in "DD.MM.JJ HH24:MI" format (hours in 24-hour format). The date and value columns need a column header that may not contain special characters.

It must be possible to address the table (values, including column headings) by name. Open the table in Excel and enter a name on the top left. Confirm with <return>. Do not use special characters and mutated vowels.



	A	B	C
1	Date	Value	
2	01.01.2006 01:00	12,335	
3	01.01.2006 02:00	12,015	
4	01.01.2006 03:00	12,155	
5	01.01.2006 04:00	12,365	
6	01.01.2006 05:00	12,115	
7	01.01.2006 06:00	12,465	
8	01.01.2006 07:00	12,215	
9	01.01.2006 08:00	12,335	
10	01.01.2006 09:00	12,505	
11	01.01.2006 10:00	12,015	
12			

The data point to which the data is to be written must have been created and activated in the system.

Note

The ODBC Connector must be created below the datapoint in which the values are to be imported.

DSN-related properties, such as the DSN, table, or columns, can only be modified if the client is running on the PC that is set up by means of the hardware reference.

Always use system DSN types.

You can run imports on the client or portal, depending on the PC that is set up by means of the hardware reference.

If the client is running on a PC that is also used as portal host, the import is carried out using the portal application.

Data flow

The ODBC Connector can only detect unidirectional data flows, i.e. from the ODBC-capable data source to Energy Manager.

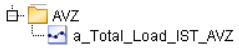
4.24.1.2 Configuring manual data import

Requirement

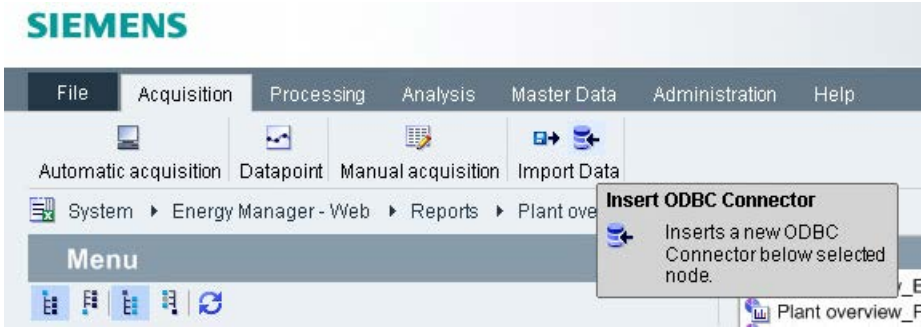
The data and data point are available in a suitable format. New objects can only be created on a PC that is set up as active application hardware.

Creating the ODBC data channel and data source

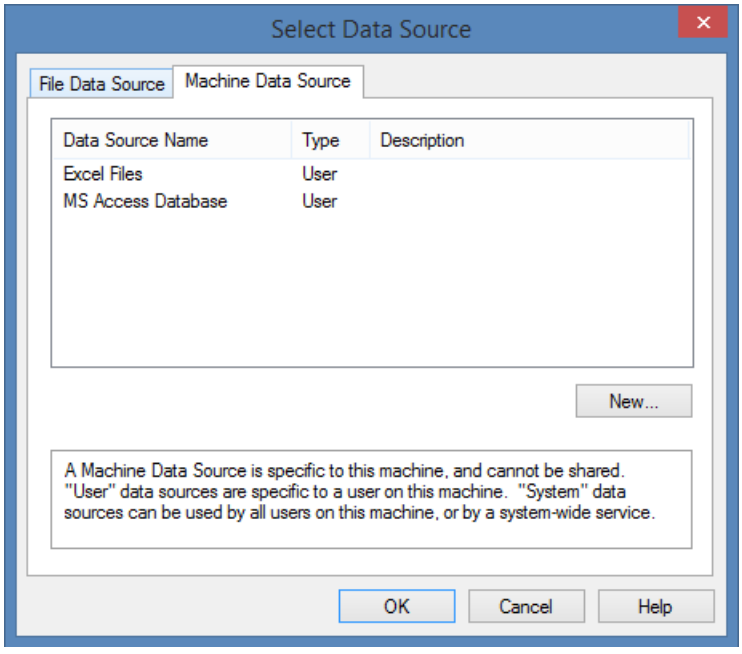
1. Mark the data point under which the ODBC Connector is going to be created.



2. Click the "Insert ODBC Connector" button in the menu bar under "Insert > Import measured values".

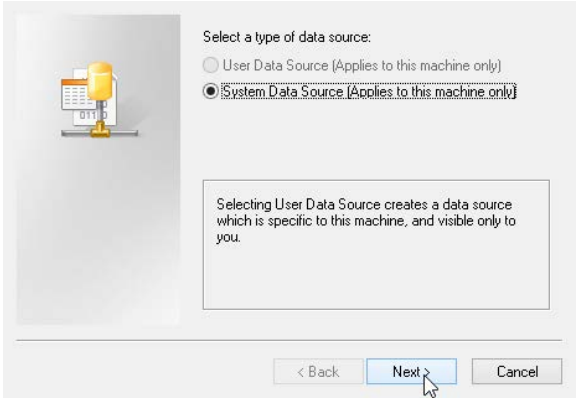


The "Select Data Source" dialog opens.

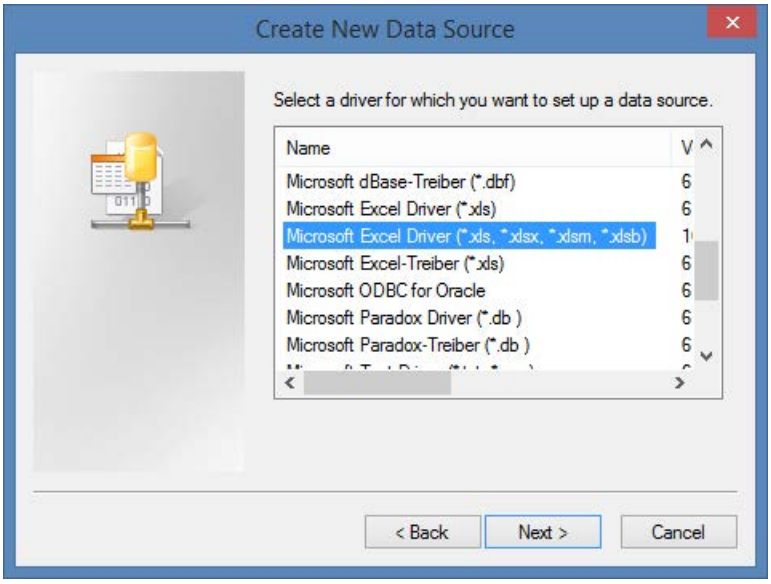


3. On the "Machine Data Source" tab, click "New".

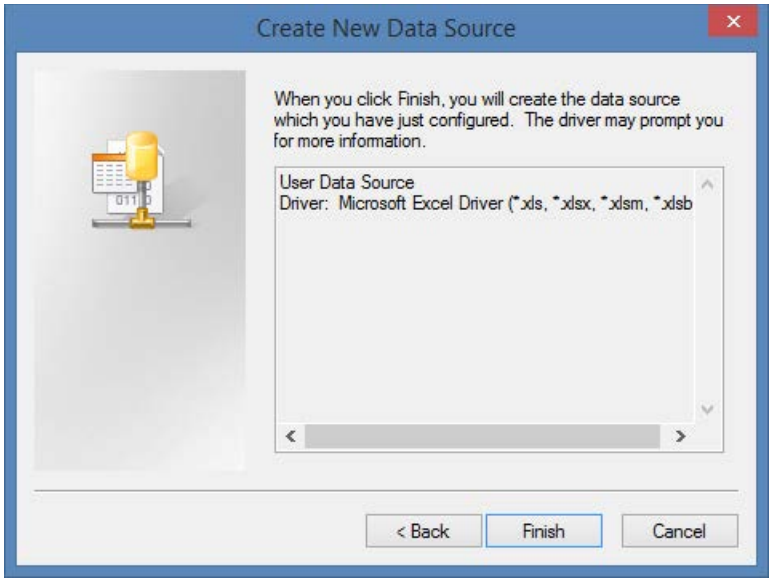
   The "Create New Data Source" dialog opens.



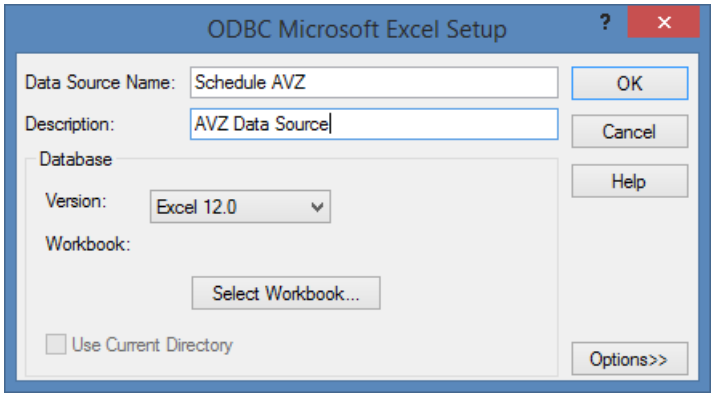
4. Activate "System Data Source" and click "Next".
5. Select the Excel driver and click "Next".



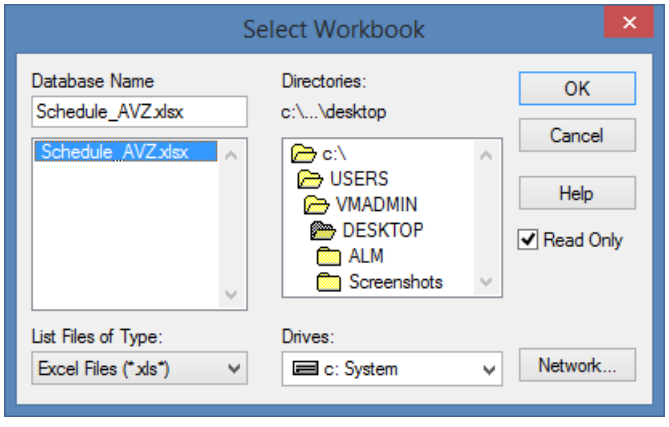
6. Click "Finish".



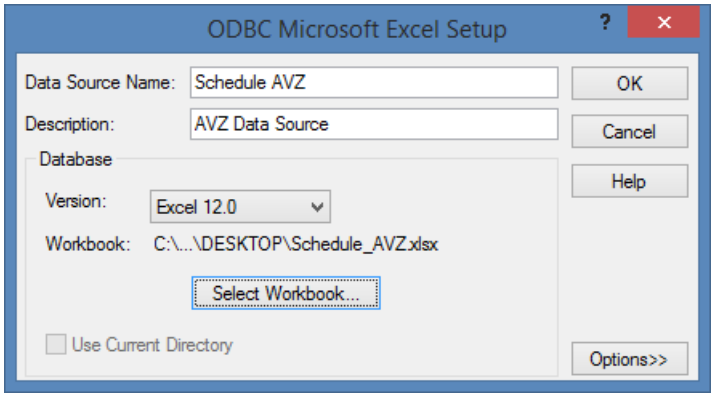
7. Enter a meaningful data source name and an optional description. Click Select Workbook.



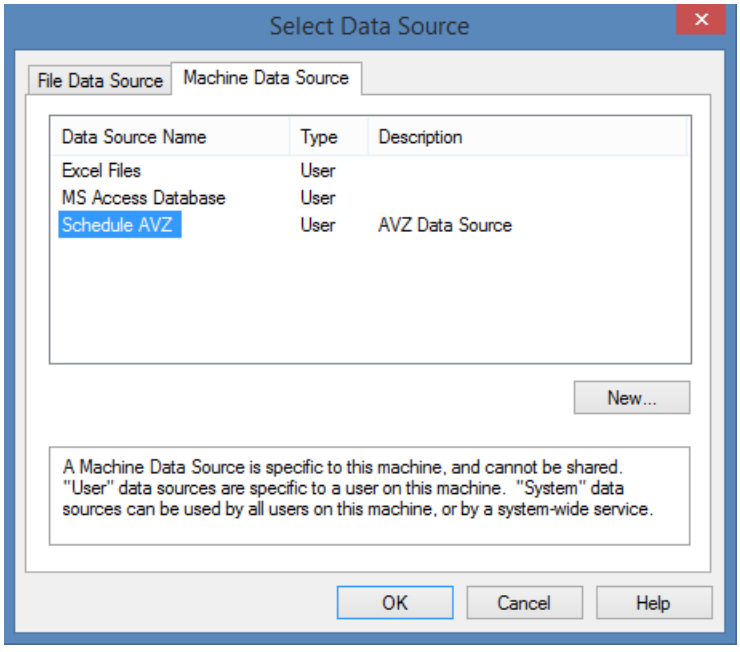
8. Select the Excel file that contains the load profile and click "OK".



9. The MS Excel version is pre-assigned in accordance with the version of the MS Excel file. The path and selected worksheet are displayed below the "Workbook". Confirm with OK.



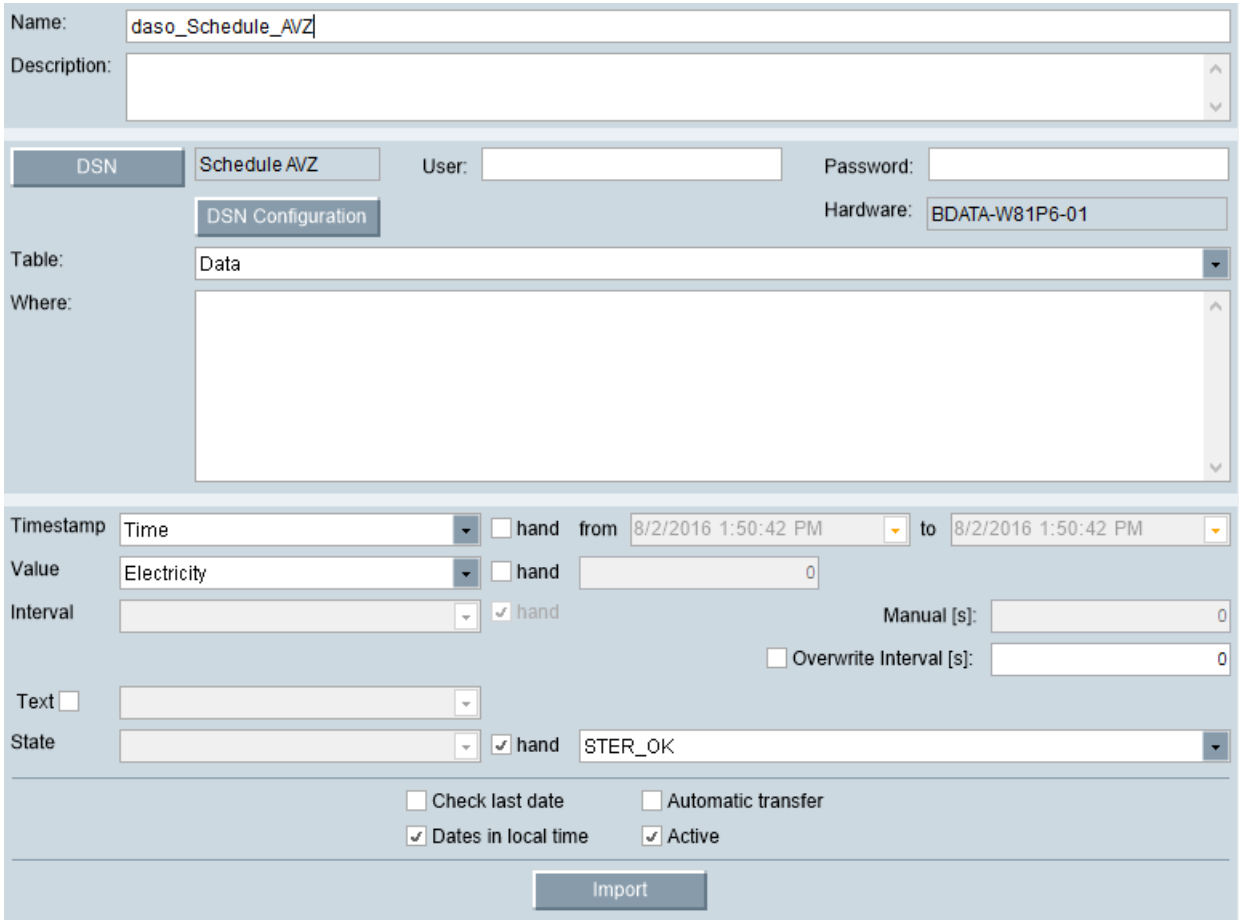
10. You have successfully created the system data source and you can now save your entries with "OK".



Configuring an ODBC data source for Energy Manager

The configuration dialog of the ODBC data source opens in Energy Manager.

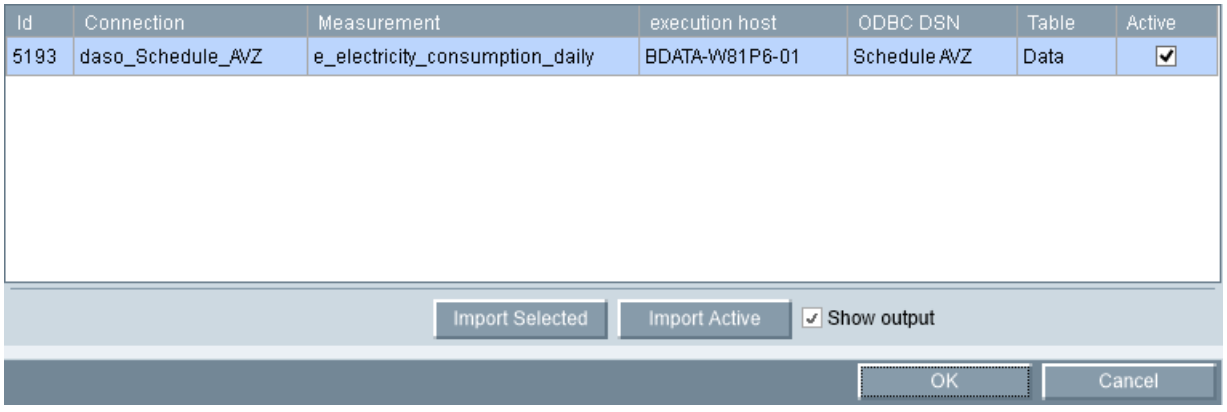
1. Enter a "Name" and an optional "Description".



2. Select the correct table from the areas that have been marked and named in Excel.
3. Assign the correct column header to the "Time stamp" and "Value" fields.
4. As a rule activate "Date in local time".
   - Activated: The time stamps are available in the local time and are accepted without change.
   - Deactivated: The time stamps are available in the UTC time format and are converted into the local time.
5. Confirm your settings with "OK".
6. Double-click the object you created to re-open the configuration dialog.

7. Click "Import" to launch the data import. The data point and ODBC data source must be active accordingly.

8. Select the desired connection in the "ODBC Connections" dialog. Select "Show trace information" if you want to verify successful completion of the data import. Then click "Import marked" or "Import active" depending on whether you want to import the connections marked in color or those activated by a check mark.



On completion of the import, the data is displayed in the application that is associated with the *.txt files. The dialog also displays the path, the file name, and the storage location for the output data.

4.24.1.3 Configuring automatic data import

Overview

If you want to cyclically import data from an ODBC data source to Energy Manager, define data channels for automatic data transfer using the Client.

Requirement

B.Data Task Management is installed.

Procedure

Two tasks are available in the Task Manager folder with which data can be transferred automatically by means of ODBC Connector.

The task called with "ODBC Import" imports all active data channels connected to the task node. The task "ODBC Import all" imports all active data channels in the system.

4.24.1.4 Configuring restrictions for the files to transfer

Overview

The data import volume should be restricted in the following scenarios:

- Cyclic data transfer to Energy Manager
- Table contains several data points

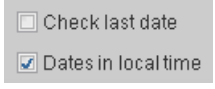
Requirement

The ODBC data channels have been created.

Procedure

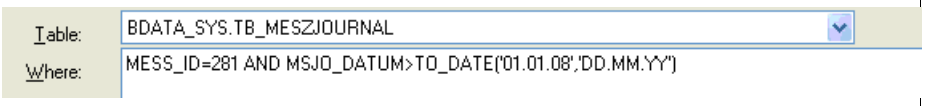
1. To import only the latest values to Energy Manager, select the "Check last date" check box.

   With this setting, only values that have a more recent time stamp than the oldest value present in Energy Manager are imported to Energy Manager.

2. If you need to apply restrictions on the import data source, define a restriction in the "Where" field.

The following examples show the procedure for external systems:

External system	Where condition
ORACLE	DAT_KANALID=12533 AND MWP_GMT > SYSDATE-2 AND MWP_GMT < SYSDATE+2 Restriction to measurement data generated in a period from the previous two days to the next two days, starting at the transmission date. 
SQL Server	MESS_ID=1263 AND ZEIT > GETDATE()-2 Restriction to measurements and measured values that are no older than two days, starting at the transfer date.
Access	"DATUM" > DATE()-21 Restriction to measured values that are no older than three weeks, starting at the transfer date.
MySQL	DB='620-.SAN-01-.-03ZW' Restriction to the data of one measurement.
Excel	Time > 39479 Restriction to measured values newer than 01.02.2008. 39479 is equivalent to 01.02.2008 (days since 01.01.1900) and is calculated using the Excel function =DATUM(2008;2;1).

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