



**ComBridge Studio**  
— EVOLUTION —

# Version 2.0.1 User manual

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## 1 . P r e f a c e

Thank you for choosing ComBridge Studio Evolution (CBSE). IPAS is one of the leading providers of web-based visualisations. With its previous HTML-based visualisation software CBS Suite, IPAS was already able to offer a widely used solution for many large-scale projects such as airports, shopping centres, office buildings and multi-site premises. All our experience with these projects with their hundreds of users, large quantities of data and hundreds of KNXnet/IP gateways has now gone into our latest development: CBS Evolution. In addition to status display and function control, CBS Evolution also offers the opportunity to project and configure increasingly complex tasks such as scenes, annual schedules, graphic logic and many more. Based on Adobe Flash®, design-oriented elements and functions can now be easily integrated into the visualisation making the representation of reality easier than ever before. With CBS Evolution even a complex database analysis can be displayed in an individual and attractive design. Another major advantage is that CBS Evolution is independent from the operating system as it is directly configured on the CBS Evolution Server. All that is required is a standard browser in connection with Adobe Flashplayer®. Flash players can be downloaded free-of-charge from the Internet. The project designer connects to the CBS Evolution server via the browser to project the application directly onto the server. No additional software is required.

IPAS offers the ComBridge Editor, which is part of the ComBridge Software, also for other visualisation devices in the ComBridge range (e.g. ComBridge HCC). For more information about our ComBridge HCC, please go to [www.ipas-products.com](http://www.ipas-products.com). For system integrators this is a major advantage as they only need to be able to use one single software to control the whole IPAS ComBridge device range.

ComBridge Studio Evolution is continually being developed further. Feedback and suggestions from our customers will help us to ensure the product continues to meet customer requirements at the highest level. A simple update mechanism ensures that CBS Evolution can always be brought up-to-date. Information regarding updates and upgrades is available on our website [www.ipas-products.com](http://www.ipas-products.com).

Figure 1 shows a typical CBS Evolution system structure. A KNXnet/IP gateway is used to connect to the KNX installation. The projecting PC, the CBS Evolution server and the KNXnet/IP gateway are connected via the TCP network.

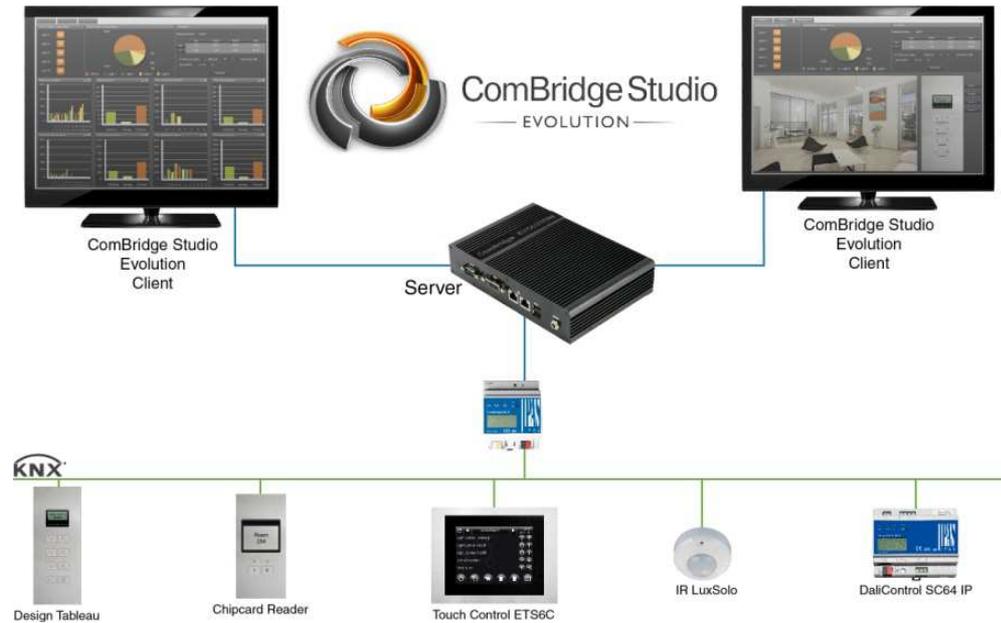


Abbildung 1:

KNXnet/IP network

With the above configuration the user has numerous services and protocols at his disposal, all of which can be configured and projected easily with CBS Evolution Editor. Figure 2 gives an overview of these services and protocols.

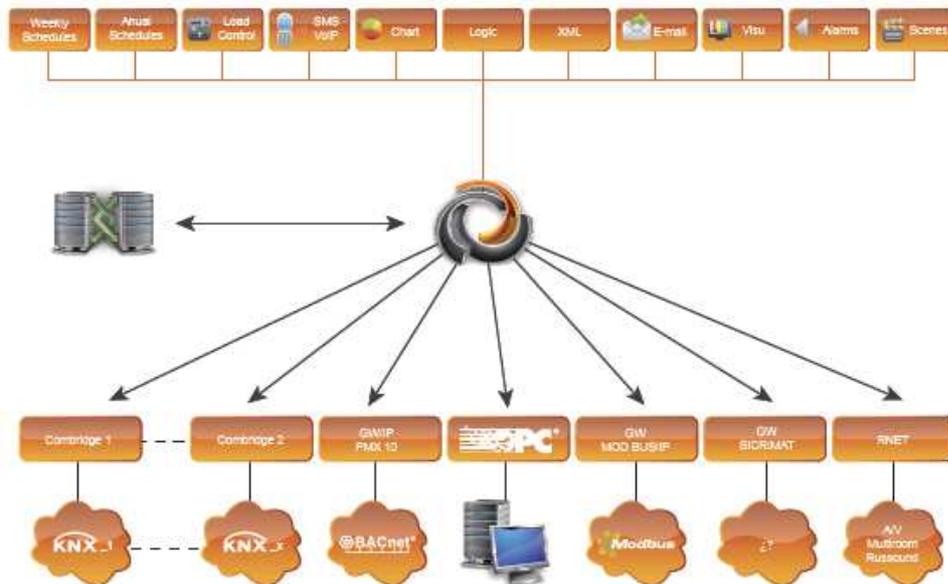


Abbildung 2:

CBS Evolution services and protocols

CBS Evolution enables the integration of additional protocols such as BACnet, Modbus or OPC. For more information about these products and our training and capacity building please go to [www.ipas-products.com](http://www.ipas-products.com).

## 2 . S y s t e m r e q u i r e m e n t s

CBS Evolution requires only one browser for both configuration and application, e.g. Internet Explorer, Firefox or Safari. In addition, a current version of Adobe Flash from version 10 upwards needs to be installed. Adobe Flash is imperative in order to use CBS Evolution. The CBS Evolution delivery package includes:

*CBS Evolution Server PC with pre-installed software*

*Power supply 12V DC 3 A*

*Installation Quick Guide*

*Wall holder*



Abbildung 3:

CBS Evolution Server



Abbildung 4:

CBS Evolution Server front

panel

Abbildung 4: shows the front panel of the ComBridge Evolution server with the following connectors:

- 1: RS232 COM Port 1 (/dev/ttyS0)
- 2: RS232 COM Port 2 (/dev/ttyS1)
- 3: RS232 COM Port 3 (/dev/ttyS2)
- 4: ON/OFF switch
- 5: 2xUSB ports



Abbildung 5: CBS Evolution Server rear panel

Abbildung 5: shows the rear panel of the ComBridge Evolution server with the following connectors:

- 1: RS232 COM Port 4 (/dev/ttyS3)
- 2: DVI monitor connector
- 3: RJ45 power supply connector (eth0)
- 4: RJ45 power supply connector (eth1)
- 5: 2xUSB ports
- 6: 12V DC connector

## 2.1. System limitations

ComBridge Studio Evolution has been developed to process large amounts of data. Theoretically there is no limit in the number of projectable data points. The limits of ComBridge Studio Evolution are only determined by the following factors: Network traffic, RAM memory size and hard disk space.

### 3. Commissioning

ComBridge Studio Evolution can be commissioned “remotely” via a local network or locally on the CBSE server.

#### 3.1. Commissioning via a network

Use the network connector *eth0* or *eth1* (see Abbildung 5:) to integrate the CBSE server into the existing network. The default network settings are as follows:

eth0: DHCP  
eth1: 192.168.1.131



If you use *eth1*, the client PC has to have an IP address in the same network, i.e. 192.168.1.xxx.



If you use *eth0*, the CBSE server is automatically given an IP address via the DHCP server. In this case, please ask your network administrator for the assigned IP address.

To start configuring the CBS Evolution Server, open the browser on the client PC and enter the URL <http://192.168.1.131> (or the DHCP IP address) to load the log-in screen.



Attention: To display the CBS Evolution application in the browser, it is imperative that Adobe Flash from version 10 upwards be installed on the client PC. A free download is available on [www.adobe.com](http://www.adobe.com).

#### 3.2. Commissioning using the keyboard

Before you switch the device on, a keyboard (USB), mouse (USB) and monitor (DVI) need to be connected to the appropriate ports shown in Abbildung 4: and Abbildung 5: above.



Keyboard, mouse and monitor are not part of the delivery package.

After the device has been switched on and the booting is complete, the following screen appears:

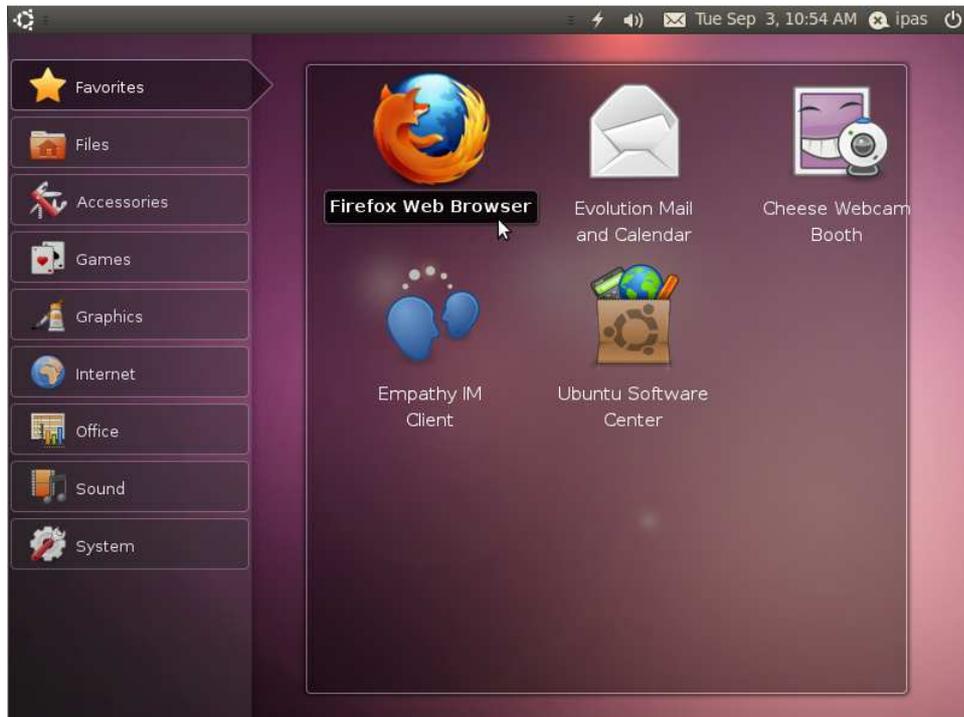


Abbildung 6:

CBSE Server desktop

If you start the *Firefox Web Browser* application, the URL <http://localhost/cbse/index.html> is loaded automatically and the log-in screen appears (see following chapter). From CBSE server version 2.0 upwards, the browser application starts automatically. All configuration steps are the same for both the local browser application and the browser connection via a network.

### 3.3. Log-in

After loading <http://192.168.1.131>, the log-in screen shown in **Fehler! Verweisquelle konnte nicht gefunden werden.** appears. By default, there are two user options:

*User* (without password) opens the demo project that is included in the delivery package. If you want to be able to configure, edit and project, however, you need to log in as *Editor* using password "00000". Click on *Ok* or hit the return button to proceed. Use the icons next to the login name to select the start application and language. The available start applications are *Flash*, *HTML*, *SmartVisu* and *SmartEditor*.

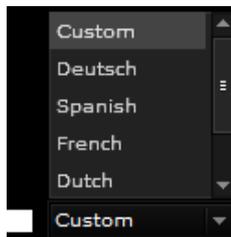
Flash starts the Flash project visualisation. HTML opens an HTML page if HTML have been exported in the project. SmartVisu is a visualisation projected with the SmartEditor, which has been specifically designed for mobile display devices.



Abbildung 7:

CBS Evolution log-in screen

Users that are not already displayed can log in by entering their username and password in the entry fields in the top left-hand corner of the log-in screen. Use the icon (+) in the top right-hand corner to load admin pages for upgrades, licenses and system re-start.



CBS Evolution can be used in a number of languages. The language can be selected either via the language icon next to the username or in case of a user that is not displayed via the drop-down menu in the bottom left-hand corner of the screen. At present CBS Evolution supports German, English, Spanish, Dutch, French and Chinese.

### 3.4. CBS Evolution license conditions

The CBS Evolution server is licensed. The license conditions are displayed when a user logs in for the first time. Abbildung 8: shows the license conditions.



Abbildung 8:

License conditions in CBSE

The language can be selected in the footer. Use *Next* to go to the next page and *Previous* to go one page back. Press *OK* to accept the terms and conditions. Once you have accepted the agreement, the license window closes. You can now open the application.



If there are several users, each one has to agree to the terms and conditions when logging in for the first before the visualisation can be displayed.  
The license terms and conditions are not displayed when starting CBSE Editor.

## 4. Project administration

In CBS Evolution a visualisation is always created based on a project.



To open the Editor you need to either open an existing project or create a new one. You will be asked which of the two you would like to do directly after logging in as *Editor*.



Several projects can be administered on a CBSE server. However, only one project can be *active* at any one time. Only the configuration and data points of the active project communicate with the system. By default, the demo project *CBSE\_Demo* is pre-installed and active.

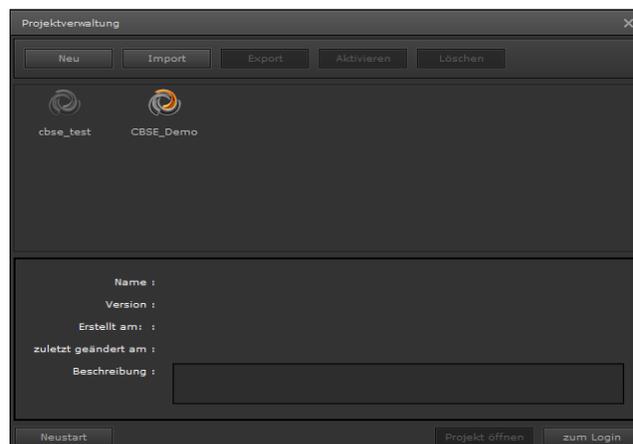


Abbildung 9:

Project administration



A coloured symbol indicates that a project is active.



A gray tone indicates that a project is inactive.

### 4.1. Creating a new project

Click on *New* to open the entry mask (Abbildung 10:) for a new project. Use the *Identifier* field to enter the name of your project. You can use the *Description* field to enter an optional short description.

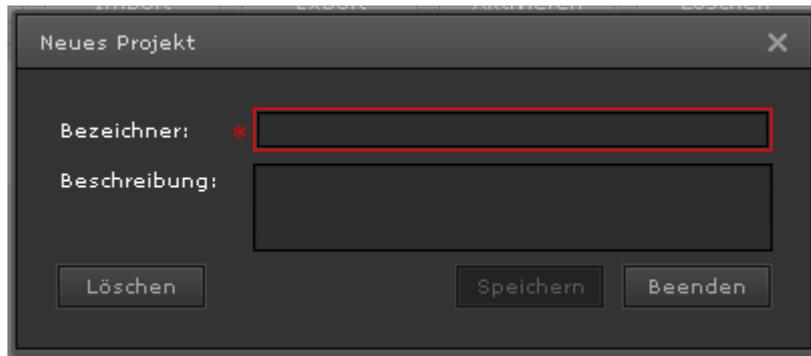


Abbildung 10: Entry mask for a new project

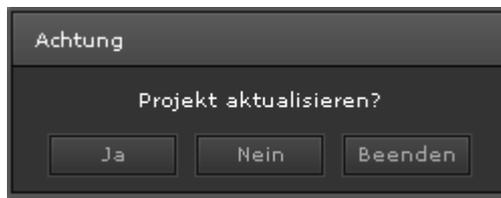


The project name can only contain letters, numbers and an underscore. Invalid symbols are filtered and cannot be entered.

## 4.2. Opening an existing project

To open an existing project go to the project administration window and click on the corresponding symbol followed by the *Open project* button. The system checks whether the project version is the same as the current CBSE version. If they are the same, the Editor window opens.

If the two versions are not the same, you will be asked to update the project.



If you press Yes the project is automatically updated to the current version. If there are any errors during the project update, e.g. because this particular version of

the project does not support an automatic update, it is possible to force an update. To do so, please press the right mouse button on the project symbol and select the entry *Check project/restore* from the popup menu.

## 4.3. Project import

Click on *Import* to open the import dialogue in Abbildung 11: for an already existing project. Use the tick box *backup directory* to choose between a backup location on the CBSE server (box ticked) or a backup directory on the client PC (box unticked). Click on  to open a file search dialogue box from which you can choose the project.

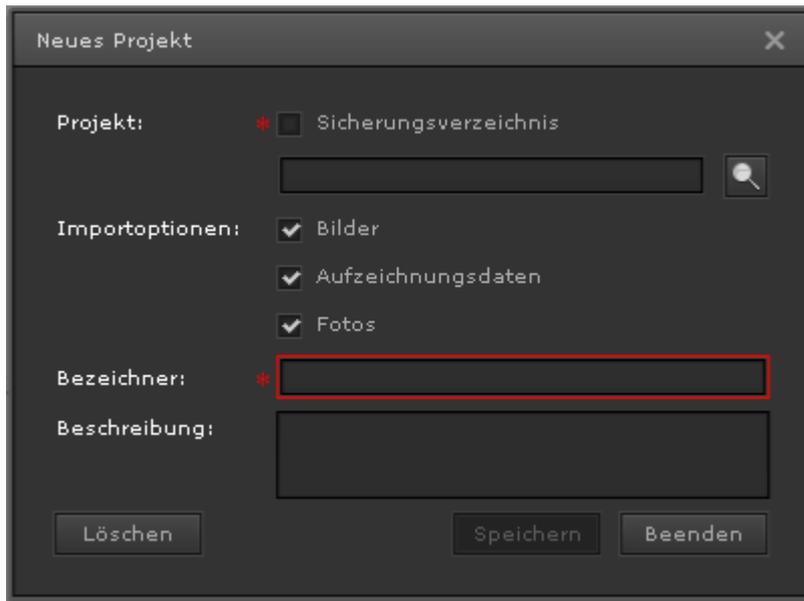


Abbildung 11:

Import dialogue

**Import options:** tick boxes that determine whether visualisation images, recorded data and photo galleries should be imported from the project back-up.

**Identifier:** project name

**Description:** optional short description of the project

If the backup file is on the client PC, the maximum transfer volume is 100MB. Larger backup files are only possible via an external data directory.



#### 4.4. Project export

Select the project that is to be exported by clicking the corresponding symbol in the project administration window. Press *Export* to open the project export dialogue. Use *Export options* (Abbildung 12:) to save visualisation images, recorded data and photo galleries.

The entire configuration is performed in the CBSE Editor and saved on the CBSE Server. No project data or other configuration data are saved on the client PC. Please avoid potential data loss by regularly exporting project changes to external devices.



Start the export by pressing the *Export* button in the project export dialogue window. Once all data for the export has been accumulated, a file storage dialogue box on the browser will ask you select a file name and specify a location to store the file. The export is now complete.



Abbildung 12:

Project export dialogue

Use the tick box *external data directory* to save the project data on an external network drive. If you tick the box, the following additional options appear.

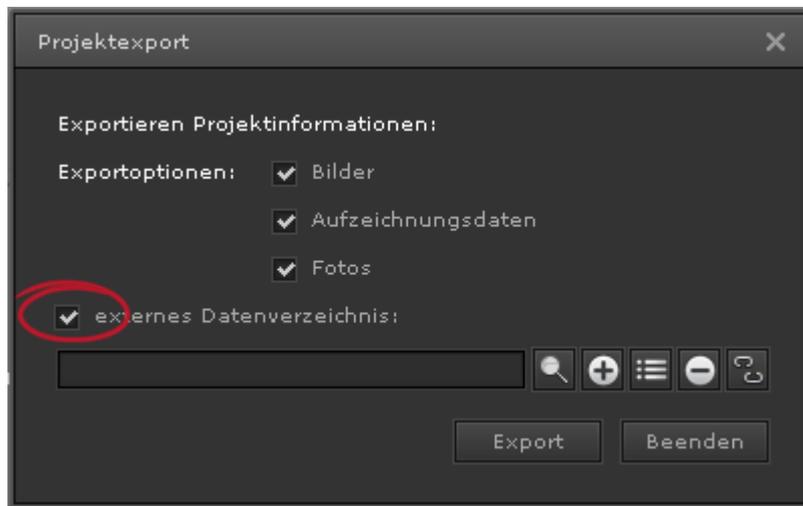


Abbildung 13:

Project export dialogue for  
external data directory

Use  to select a data directory. If the external directory has not yet been configured on the system, use the  button to integrate a new external data directory. The following dialogue window opens:



Abbildung 14: Dialogue to integrate an external data directory

Please enter the following details:

- Name:** Name to identify the external data directory
- Path:** Target path on the network drive
- Type:** At present CIFS/Windows is supported
- Font:** Font (utf8 by default) that is to be used.  
From version 1.1.6 upwards this can no longer be edited
- User:** User for authentication purposes (if required)
- Password:** Password for authentication purposes (if required)

### 4.5. Activating a project

The *Activate* button can only be used if you select a project from the project administration window that is not currently active. If you activate a project, the system will direct data communication and visualisation towards this project. Only users with access to the active project can log onto the CBSE Server.

### 4.6. Deleting a project

Select the project that is to be deleted by clicking the corresponding symbol in the project administration window. Press *Delete* to permanently delete the project.



All project data on the CBSE Server are deleted irretrievably. This means data can only be restored if you have a backup file. Please remember that the active project cannot be deleted. If you wish to delete the active project, you need to activate another project first and then delete it.



## 5. CBS Evolution - Editor

Log in as *Editor* and select a project to open the CBSE Editor desktop. Abbildung 15: shows the structure of the CBSE Editor. The main tool bar is located at the top. Beneath the tool bar are symbols for the most important editing functions such as Save, Delete, Copy, Cut, etc.

The work space in the middle of the screen is used for the visualisation. To the left of the work space is the function menu and to the right the properties menu, which is displayed according to the selected element.

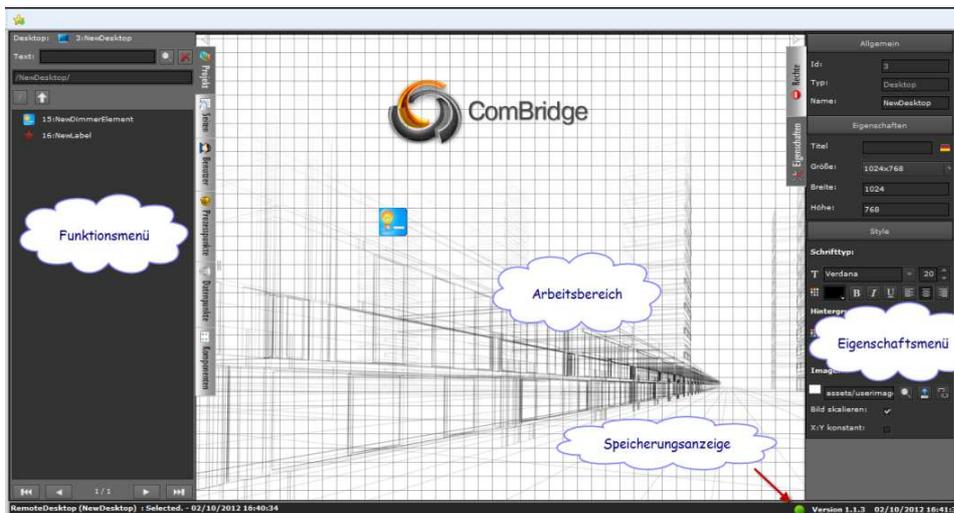


Abbildung 15:

CBS Evolution desktop

In the footer, project data is displayed on the left and the current project version on the right. The save icon to the left of the current version indicates whether changes have been saved or not. A green circle means that all changes have been saved. A red circle, however, indicates that some changes have not been saved.

### 5.1. Menu overview

The following is a brief overview of the Editor menu. For a more detailed description of individual functions, please see subsequent chapters.

#### 5.1.1. Menu: File

**New:** Click on this menu item to open a sub-menu with the following entries:

 **Project:** Opens the project administration to enter a new project name. See chapter 4 Proje.

-  **Desktop:** Creates a new desktop for the visualisation.
-  **Menu:** Creates a new menu for the current desktop. If a menu already exists, the action is ignored.
-  **Page:** Creates a new page and opens the page in Editor.
-  **Pages:** Several pages can be created at the same time. The page size is the same for all pages.
-  **KNXnet/IP interface:** Opens a dialogue window to integrate a new KNXnet/IP interface in CBSE. See chapter 5.2.4 Integrating KNXnet/IP gateways.
-  **Data point:** Opens a sub-menu to create either a new KNX group address or a new “virtual data point”.
-  **Process point:** Opens the dialogue window to enter a new process point. See chapter 5.8 Finding CBS Evolution process points.
-  **User:** Opens the dialogue window to administer project users. For more information, please see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**

-  **Change project:** Opens the project administration window so that a new project can be selected for editing.
-  **Activate project:** Activates the currently open project.
-  **Save:** Saves the project after changes have been made. Otherwise this icon is disabled.
-  **Import:** Click on this icon to open a submenu with the following entries:
-  **Export:** Click on this icon to open a submenu with the following entries:
-  **Login:** Closes the Editor and changes to the log-in screen.

### 5.1.2. Menu: Edit

-  **Move to front:** A selected element is moved to the top of the level structure.
-  **Move to back:** A selected element is moved to the back of the level structure.
-  **Select all:** All elements in the editing area are selected.
-  **De-select all:**
-  **Lock-Unlock**
  -  **Lock selection:** Selected elements are locked for editing which means that no changes can be made.
  -  **Unlock selection:** Selected elements can again be edited.



**Lock all:** All elements in the editing area are locked.



**Unlock all:** All elements in the editing area are unlocked.



**Cut:** Cuts the selected element and copies it to the clipboard.



**Copy:** Copies the selected element to the clipboard.



**Paste:** Pastes the content from the clipboard to the position of the mouse.



**Delete:** Deletes the selected element.

### 5.1.3. Menu: View



**Tool bar:** Shows/hides the icon tool bar.



**Properties:** Opens the properties tab.



**User rights:** Opens the user rights tab.



**Desktops:** Opens the desktop tab.



**Pages:** Opens the pages tab.



**User:** Opens the user tab.



**Process points:** Opens the process points tab.



**Data points:** Opens the data points tab.



**Components:** Opens the components tab.

### 5.1.4. Menu: Modules



**Time schedules**



**Weekly schedules:** Opens the configuration window to edit and configure weekly schedules.



**Annual schedules:** Opens the configuration window to edit and configure annual schedules.



**Alarm configuration:** Loads the alarm management module.



**Smart metering configuration:** Loads the smart metering module.



**Logic module:** Loads the logic editor.



**Scene control:** Loads the scene control module.



**Project report:** Loads the project report module.

**Non EIS types:** Defines Non-EIS data types.

**Ping Control**

### 5.1.5. Menu: Configuration



**Network configuration:** Configures the network parameters.



**Editor configuration:** Configures the Editor user.



**E-Mail Service configuration:** Configures the e-mail notification service.



**SMS Service configuration:** Configures the SMS notification service.



**Configure backup directory:** Defines external directories.

-  **Smart Metering configuration**
-  **System time configuration**
-  **User rights for online modules**
-  **PP display (process points)**
-  **Components style browser**
-  **User groups**

### 5.1.6. Menu: Tools

-  **Diagnostic:** Starts the diagnostic application. See chapter 8.1.
-  **Database manager:** Opens the database manager. See chapter 8.2
-  **Delete memory buffer:** Deletes the memory buffer on the CBSE Server.  
See chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**
-  **CSV Export Manager:** Opens the configuration mask for the CSV Export Manager. See chapter 8.4.
-  **Memory management:** Opens the configuration mask for memory management. See chapter 8.5.
-  **System Re-start:** The CBSE server is re-started.

### 5.1.7. Menu: Help

-  **Help**
  -  **Quick Guide:** Brief description of the commissioning process
  -  **Handbook:** This handbook
  -  **Smart Metering:** Handbook for the Smart Metering Module
- (Optional)
-  **License agreement**
-  **About CBS Evolution**

### 5.1.8. Keyboard shortcuts

- Ctrl+S** Save
- Ctrl+A** Select
- Esc** De-select
- Ctrl+X** Cut
- Ctrl+C** Copy
- Ctrl+V** Paste
- Del** Delete

## 5.2. System configuration

The system configuration contains settings that are project-independent. This means these remain the same independent of the project that is currently open or active.

### 5.2.1. Network configuration

Network settings are necessary to adjust the default settings to the network conditions of the project. Select *Configuration/ Configuration network* from the main menu.



Abbildung 16:

Opening the network  
configuration

The following configuration mask opens.

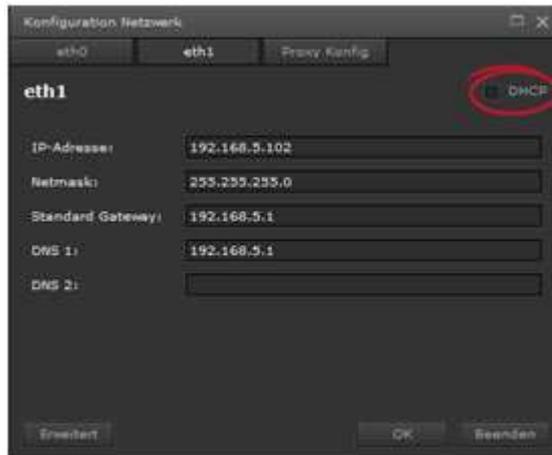


Abbildung 17: Network configuration

The CBS Evolution server has two network connectors (eth0 and eth1). Depending on the application, one network connector can, for example, be used for the KNX Bus connection and the other for the visualisation or configuration.

Attention: If you use both connectors, please ensure that you configure a different network for each connector. IP address and net mask must not address the same network.



If you use both network connectors, only one must be configured for access to the Internet, meaning that only one network connector can contain the standard gateway.

Do not tick the *DHCP* box in Abbildung 17: if you want the CBSE Server to work with a fixed IP address. Enter the fixed address in the field *IP address*. Use the *standard gateway* field to enter the IP address of the router which connects to the Internet. To enable access via the Internet, this entry is imperative. To access the Internet it is usually necessary to also have a DNS server (Domain-Name-Service) to break down the hostnames. This service is normally also provided via the standard gateway (in this case the IP address of the standard gateway is entered into the field *DNS 1*) You can, however, also enter an alternative DNS server (field *DNS 2*).

If you are using both network connectors, you need to repeat these steps for the second connector.

If you wish to access the Internet via a proxy server, you can make the respective settings in the mask shown in Abbildung 18: below.

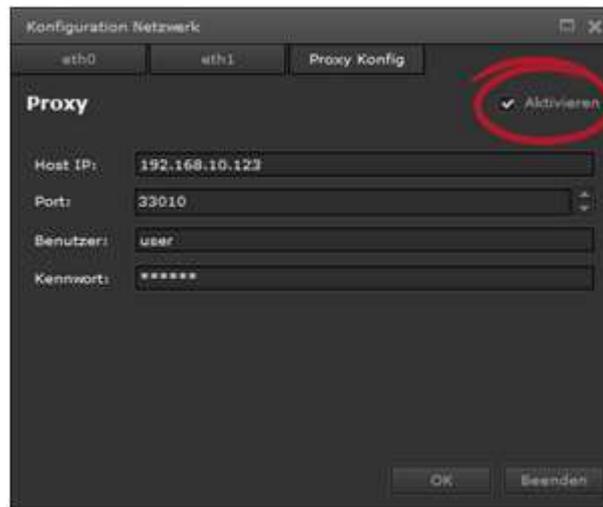


Abbildung 18: Configuring a proxy server

- Activate:** activates the connection to the proxy server.
- Host IP:** IP Address of the proxy server
- Port:** Port number of the proxy server
- User and password:** Authorisation of the proxy server

Data for the proxy configuration is provided by the network administrator.



### 5.2.2. System- date/time settings



To ensure that weekly and annual schedules work correctly it is essential that the CBSE server is configured with location-specific time and date settings. Use *Configuration/System time* to load the configuration dialogue.

The following dialogue (Abbildung 19:) opens to set the current date, time, time zone and optional NTP time server. NTP time servers enable the automatic synchronisation of the system time. Select the settings and use *Save* to accept the changes.

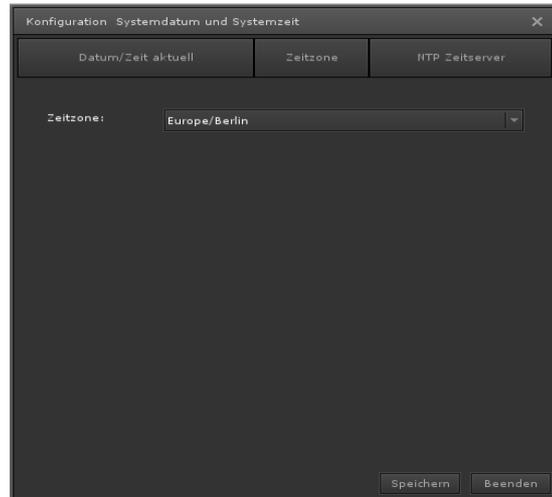
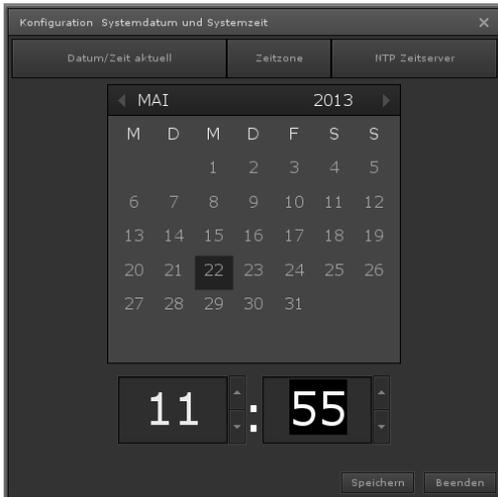


Abbildung 19:

Setting the date, clock and

time zone

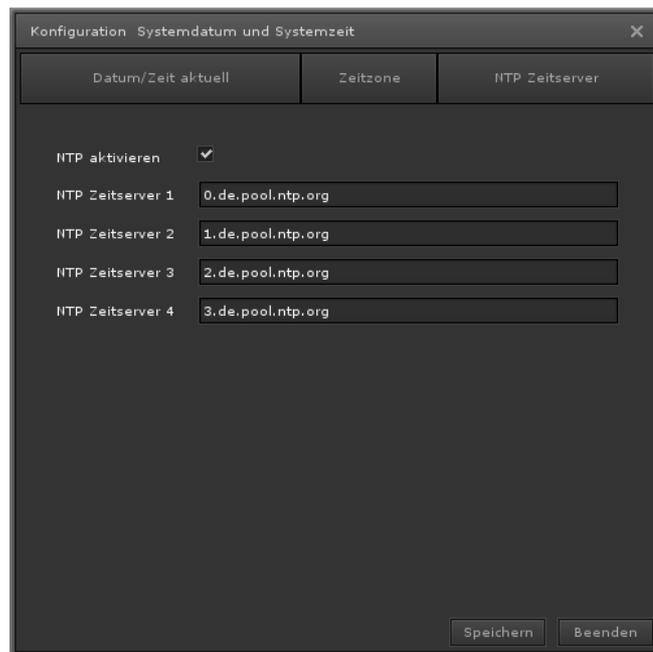


Abbildung 20:

Selecting NTP time servers



To use an NTP service on the Internet, a successful network configuration is essential. If the system environment does not allow an internet connection, you should de-activate the NTP service.

Please choose time servers which are located in your time zone. A list of available time servers is available from [www.pool.ntp.org](http://www.pool.ntp.org)



### 5.2.3. Configuration of Editor log-in details



The Editor log-in details are not restricted to one project. This means changes in any of the log-in details have an impact on all projects that are installed on the CBSE server. By default the CBS Evolution Editor is opened with the user name “editor” and the password “00000”. To configure the

Editor please select the menu point *Konfiguration/Configuration Editor* (see below).

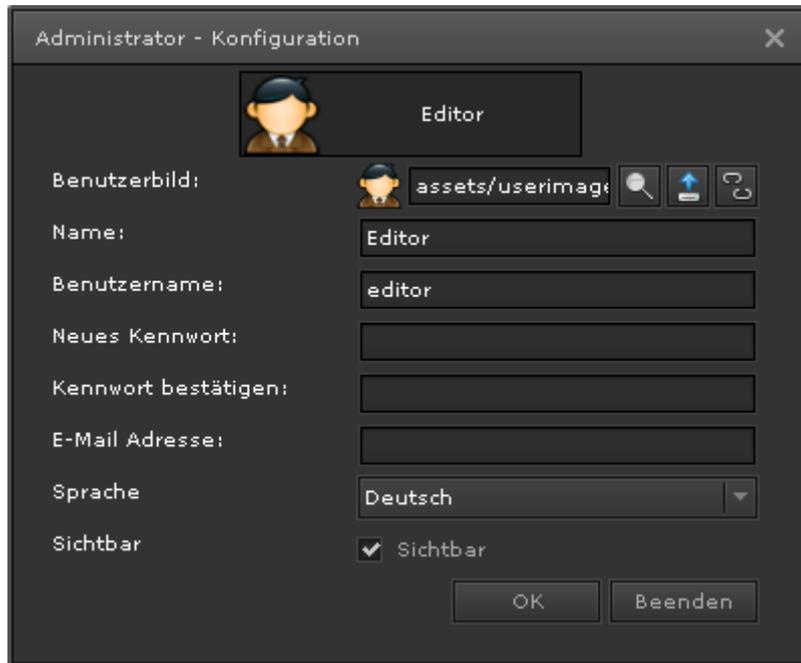


Abbildung 21: “Editor“ user - configuration

The following settings are possible for the user “Editor“:

- User image:** Allows you to select an image or symbol for the user “Editor“. The user image has the format 43x43 pixels.
- Name:** The name is displayed next to the user image.
- User name:** Log-in name for the user.
- New password:** New password (the password can only consist of numbers between 0 and 9)
- Confirm password:** Confirms the new password (enter the same password as in “new password“)
- E-mail address:** This is the e-mail address to which all information about the system (such as available hard drive space) is sent. You can only use this function if the database management license is active.
- Language:** User language for the Editor

**Visible:** If you tick this box, the Editor is visible on the log-in screen.



If the field “Visible” is **not** selected, the “Editor” does not appear on the login screen. If you still want to open the Editor, enter the Editor user name and password manually via the keyboard in the respective fields on the log-in screen.

## 5.2.4. Integrating KNXnet/IP gateways

CBS Evolution connects to a KNX installation via a KNXnet/IP gateway. Several KNXnet/IP gateways can be registered with a CBS Evolution Server at the same time. The number of possible connections is determined by the gateway license and can be extended if required.

Use *File/New/KNXnet/IP Gateway* or the  button to open the configuration menu “KNXnet/IP Gateway configuration”.

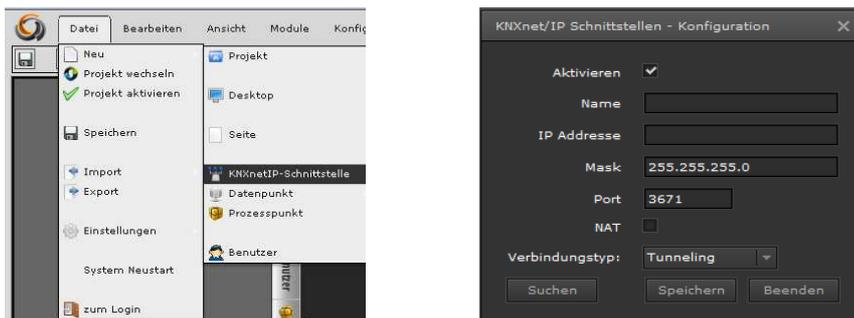


Abbildung 22: KNXnet/IP gateway menu and registration

Abbildung 22: shows the configuration window for the registration of KNXnet/IP gateways. To ensure that group addresses are unique within CBS Evolution, each registered gateway is given a unique name and a corresponding IP address. Enter the unique name in the field *Name*. Invalid characters cannot be entered. In the *IP Address* field below, enter the IP address of the KNXnet/IP gateway. The subnet mask of the network has to be entered in the field *Mask*. Communication with the KNX-Bus is via Port 3671. This port is reserved for KNX communication and is not usually changed.

*NAT* (Network Address Translation) is used in KNXnet/IP communication to determine the IP address and port number of the communications partner. If *NAT* is de-activated, the IP address and port number given in the KNXnet/IP-telegram are used. However, if *NAT* is active, the IP address and port from the IP/UDP telegram are used.

For access via the Internet, it is essential that NAT is activated, as the router uses NAT to “translate” local IP addresses into public IP addresses. It is recommended that NAT be activated for the integration of KNXnet/IP gateways.



From version 1.1.6 upwards NAT is always active. The corresponding tick box in the configuration dialogue no longer exists.

The KNXnet/IP protocol supports not only tunnelling but also object-server connections. A tunnelling connection is a point-to-point connection to a device. This type of connection is, for example, used for ETS programming. An object server connection only transmits group addresses. If the object server connection is available for KNX communication with CBS Evolution, it should be used instead of the tunnelling connection.

If no object server connection is available, a tunneling connection will be used instead.

All IPAS ComBridge gateways support both connection types. A ComBridge gateway can therefore simultaneously provide the tunnelling connection for ETS programming and the object server connection for the visualisation.



The KNXnet/IP protocol supports functions which make it possible to search for KNXnet/IP gateways within a network. The search function is performed via a Multicast command. To enable the functioning of Multicast in connection with KNXnet/IP devices, a special Multicast address is required. The KNX Association has registered the Multicast address 224.0.23.12 for KNXnet/IP devices.

Click on *Search* to find KNXnet/IP gateways within the network.

To find KNXnet/IP gateways, Multicast has to be available in the network.

All available gateways are listed (see Abbildung 23:). The required gateway can be selected from the list.

Name	IP	Port	Netzwerk	Typ
WCI03	192.168.2.32	3671	udp	Tunneling
WCI03	192.168.2.32	3671	udp	ObjectServ
MCG3	192.168.2.31	3671	udp	Tunneling
MCG3	192.168.2.31	3671	udp	ObjectServ
ComBridge	192.168.2.200	3671	udp	Tunneling
ComBridge	192.168.2.200	3671	udp	ObjectServ
MCG_LB08	192.168.2.96	3671	udp	Tunneling
MCG_LB08	192.168.2.96	3671	udp	ObjectServ

Abbildung 23:

Gateway search view

Abbildung 23: gives an example of a list of KNXnet/IP gateways after a successful search.

Click on *Add* to save the settings and on *Cancel* to exit without saving.



Connections to gateways outside the local network always need to be added manually as multicast telegrams cannot be transmitted via routers to other networks and the automatic search therefore does not find those gateways.

### 5.2.5. Backup directory configuration

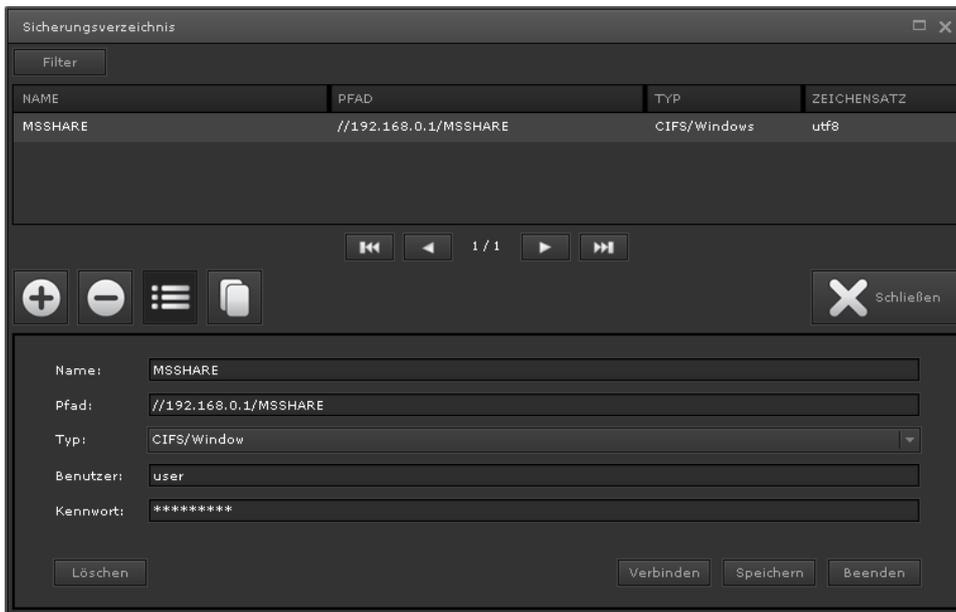
Use menu item *Configuration/configure back-up directory* to enable network



storage or PC share. This means that data can be backed up independent of the local hard drive. The optional extension module CSV Export Manager offers an automated data backup. The configured backup directory can also be used for other storage

processes such as project backup or to save recorded data.

Enter the details required for the configuration in the form shown below in *Abbildung 24:*



*Abbildung 24:* Bearbeitungsmaske für die Backup directory configuration

The buttons and entry fields have the following meaning:



Opens the editing area to create new backup directories.



Removes the configuration of the selected backup directory. No data in the backup directory is deleted.

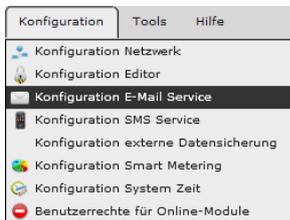


Opens the editing area so that details in the selected backup directory can be edited.



Opens the editing area with a copy of the selected backup directory's settings.

### 5.2.6. SMTP service configuration



Go to menu item *Konfiguration/Configuration SMTP Service*. A table with all previously configured e-mail accounts appears. Use *Add* to add new e-mail accounts. Enter the account details in the bottom part of the editing area. *Abbildung 25*: gives an example of an SMTP Service configuration.

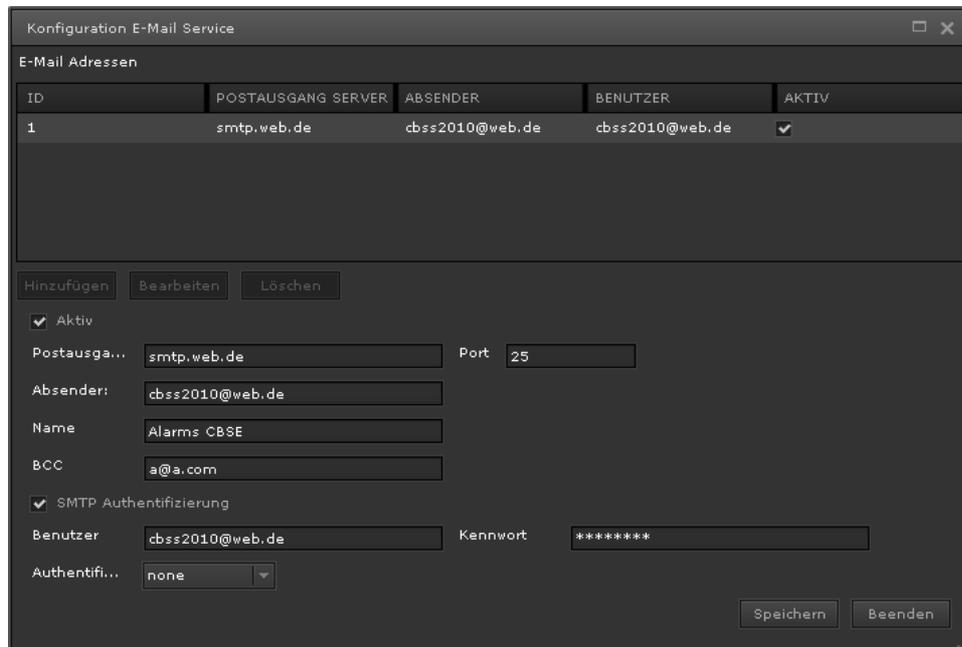


Abbildung 25:

SMTP configuration



You will need an e-mail account for the SMTP Service. Please pay attention to the requirements and settings of your service provider.

Properties	Value	Description
Active	<input type="checkbox"/>	E-Mail account is inactive, i.e. no e-mails are

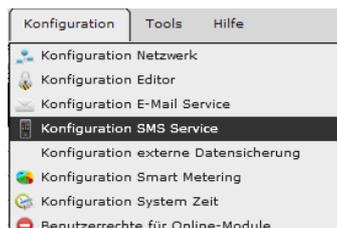
		sent via this account.
	<input checked="" type="checkbox"/>	E-Mail account is active.
<i>SMTP Server</i>		Hostname of the SMTP server.
<i>Port</i>		Port number of the SMTP server
<i>Sender</i>		E-Mail address of the sender
<i>Name</i>		Name of the e-mail account
<i>BCC</i>		BCC (Blind Carbon Copy) is a list of e-mail addresses separated by semicolon who will also receive the message. The message recipient stipulated in the alarm configuration cannot see these additional recipients.
<i>SMTP authentication</i>	<input type="checkbox"/>	The service provider does not require authentication to send e-mails.
	<input checked="" type="checkbox"/>	The service provider requires authentication. The required details are entered in the fields below. Please see the documentation of your service provider for these details.
<i>User</i>		User name as registered with your service provider.
<i>Password</i>		Corresponding password
<i>Authentication</i>	none	Sets the security level of the connection. Please see your service provider's documentation for available settings.
	ssl	
	ttls	
	sasl	

Use *Save* to complete the configuration

Chapter 9.7 in the appendix shows the configuration data of some free-of-charge SMTP service providers for which the CBSE SMTP service has been tested. It may be that other providers use other e-mail parameters.



### 5.2.7. SMS/VoIP service configuration



Go to *Configuration/configuration SMS/VoIP Service*. Click on *Add* to enter the required account details.

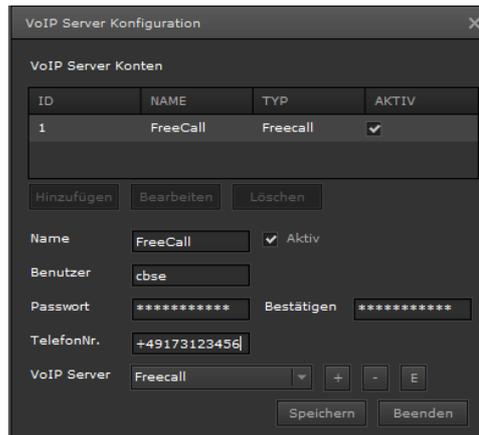


Abbildung 26: SMS/VoIP Server configuration

Abbildung 26: gives an example of an SMS/VoIP Service configuration.

Properties	Value	Description
Name		Name to identify the account
Active	<input type="checkbox"/>	The account is inactive, i.e. no SMS messages are sent via this account.
	<input checked="" type="checkbox"/>	SMS account is active
User		User name as registered with the service provider
Password		Corresponding password
Confirm		Password confirmation
Telephone no		Telephone number of the VoIP account.
VoIP Server	+	List of registered VoIP service providers. Use "+" to add further service providers. "-" removes an entry from the list. Use "E" to edit an entry.
	-	
	E	

The providers listed in the pull down menu have been tested for the SMS/VoIP service.

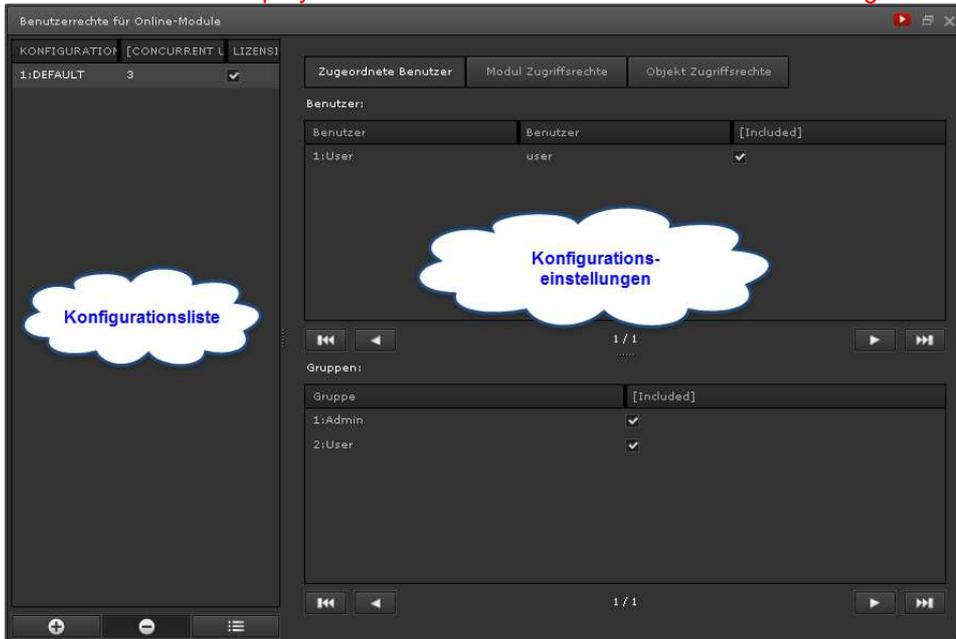


### 5.3. User rights for on-line modules



The user rights administration for on-line modules makes it possible for the project administrator to create user-specific configurations that set control levels for the CBSE applications scene control, alarm - management, weekly schedules and annual schedules in the visualisation (i.e., in on-line

mode). The basic CBSE server version supports 3 simultaneously logged-in users. Any users and configurations can be freely assigned to each other. However, you cannot create more configurations than there are licensed users. This flexible design makes it possible to provide, for example, several visualisations for separate locations on one CBSE server without having them influence each other. Select menu item *Configuration->User rights for online modules* to display the screen shown in *Abbildung 27*.



*Abbildung 27:* User  
rights configuration screen for online modules

The configuration list is shown on the left-hand side. In the standard DEFAULT configuration access rights to online modules are not restricted. Use the command bars in the footer to add, delete or edit configurations. Each configuration can be assigned a number of simultaneously logged-in users. The basic version supports 3 simultaneously logged-in users. This means you can create 3 configurations, each one of which enables one user to be on-line.

The configuration settings are divided into the areas *Assigned users*, *Access rights module* and *Access rights object*, all of which can be accessed via the corresponding tabs.

*Assigned users* lists all users and groups. Use the tick box *Included* to assign a user to the selected configuration. This means that the user after log-in in online mode only has those access rights that have been assigned in the configurator.

The *Access rights* tab lists the configurable CBSE applications.

For each of the applications, the following options are available:

Option	Description
<i>Only display</i>	The settings configured in the CBSE Editor cannot be changed in the visualisation.
<i>Edit switch events</i>	The events that have been pre-configured in the CBSE Editor can be changed in the visualisation.
<i>No restriction</i>	There are no restrictions to the control of the module. All editing functions are the same as in CBSE Editor.

Use the *Access rights object* tab to assign application specific access rights. The configurable options for the application specific objects are: *Not visible*, *Only display*, *Edit switch events* and *No restriction*. The different options are explained in the table above. After you have selected the application that is to be configured, all objects that have been configured for it are listed.

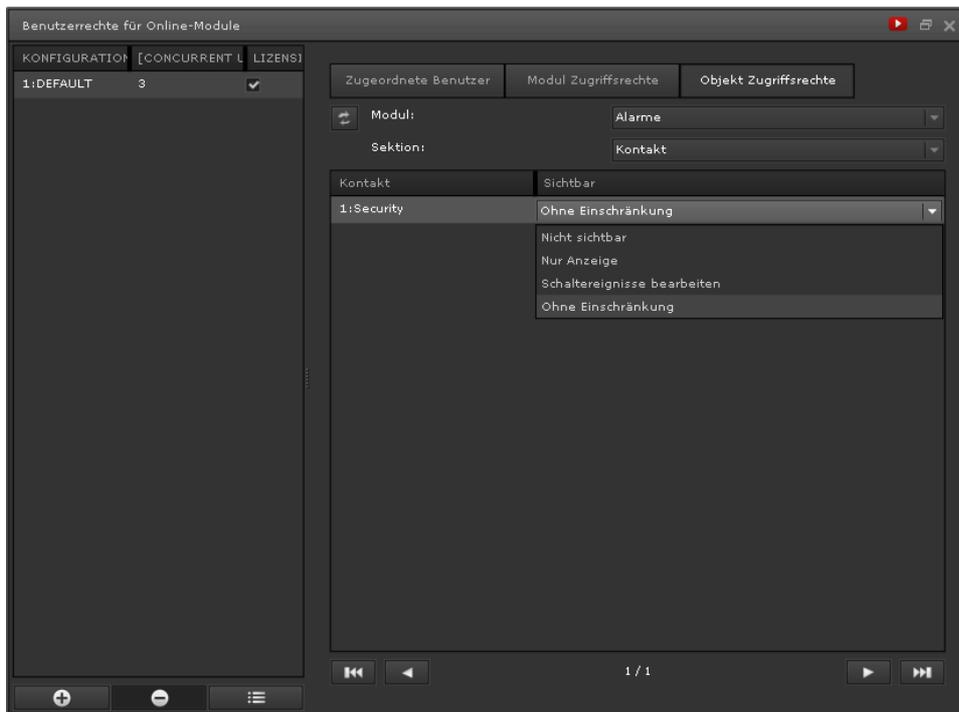


Abbildung 28: User rights configuration for alarm contacts

Each object can now be assigned the required access option. In the example in Abbildung 28: the alarm contact address (1:Security) has been given certain access rights. The following table lists the applications and their configurable sections:

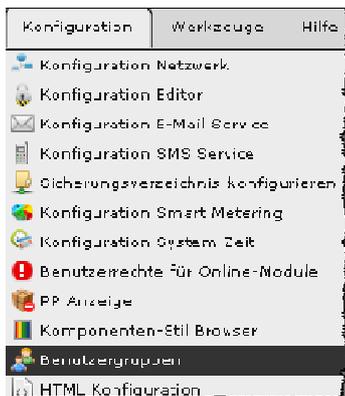
Application	Object/section	Description
-------------	----------------	-------------

<i>Alarm</i>	<i>Contacts</i>	Each alarm contact address can be assigned separate access rights.
	<i>Notification</i>	Each alarm notification can be assigned separate access rights.
	<i>Categories</i>	Each alarm category can be assigned separate access rights.
<i>Scenes</i>	<i>Categories</i>	Each scene category can be assigned separate access rights.
<i>Weekly schedules</i>	<i>Categories</i>	Each weekly schedule category can be assigned separate access rights.
<i>Annual schedules</i>	<i>Periods</i>	Each period can be assigned separate access rights.
	<i>Kategorien</i>	Each annual schedule category can be assigned separate access rights.
<i>Smart Metering</i>	<i>Verzeichnis</i>	Each smart metering directory can be assigned separate access rights.



If more configurations have been defined for an imported project than the number of licenses that are available on the target platform, users may no longer be able log in because the maximum number of simultaneously allowed users has already been reached.

## 5.4. User groups



With the user groups editor, new groups can be created in addition to the pre-defined groups *Admin* and *User*. A user group is defined by its name. User groups make it possible to restrict or permit access to components and modules to certain groups.



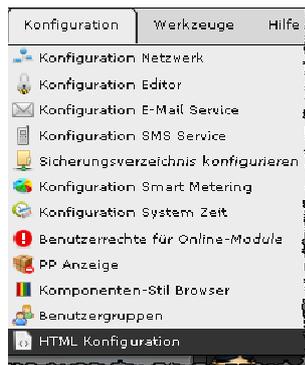
A user can only belong to one group. See chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** "Creating new users".

The pre-defined user groups have the following function:

Group	Functions
<i>Admin</i>	Access to visualisation pages, scene, scheduling, alarm and smart metering configuration, access to all priorities
<i>User</i>	Access to all visualisation pages, control elements and modules for which permission has been given by the project administrator.

New user groups are treated in the same way as the pre-defined user group *User*.

### 5.5. HTML configuration



Pages that have been created in the Editor can be exported as HTML pages thereby making it possible to use display devices without Flash support. **Use the display option full screen mode to determine whether you want the HTML pages to be equipped with device-specific settings for full screen display.**

You can use the HTML configuration dialogue to change the password for the HTML update page <http://<cbse-server-ip>:8181/upload.php> and to set the option that HTML pages are shown in full-screen mode on mobile devices.

### 5.6. Changing system accounts



The CBSE Server offers two pre-configured user system accounts. The user *admin* is responsible for the system update process. To start the update process, load the page <http://<cbse-server-ip>:8181/upload.php>. The second user account *veuser* is the standard user, in whose access range all user-specific files (e.g. user-specific image files, configuration files, exported HTML pages, etc.) are saved. You can also use this menu item to change the user passwords.

## 5.7. Data and process points

CBS Evolution supports several data communications protocols such as KNXnet/IP, OPC, BACnet, Modbus etc. All of these protocols have their specific data point addressing:

KNXnet/IP – group addresses

OPC – OPC items

BACnet – BACnet object instances

Modbus – Register, Coils

CBSE itself only distinguishes between KNX data points and so-called “virtual data points“. OPC, BACnet and Modbus data points are integrated into CBSE Evolution as “virtual data points“. The conversion into the required data communications protocol is done via software modules.

CBSE goes even one step further. In CBSE the communication end points mentioned above are encapsulated into process points. The advantage of this is that several data points can be summarised thereby creating a processing unit or process point. In CBS Evolution a process point is hence the connection between application and data point.



Abbildung 29:

Process and data point in

CBSE

The process point as a virtual level between the application and data point (as shown in Abbildung 29:) makes it possible to manipulate data points so that application-specific functions such as logic gates, conversions and calculations can be realised very easily. Abbildung 30: shows the functional sequence in the processing of a KNX event:

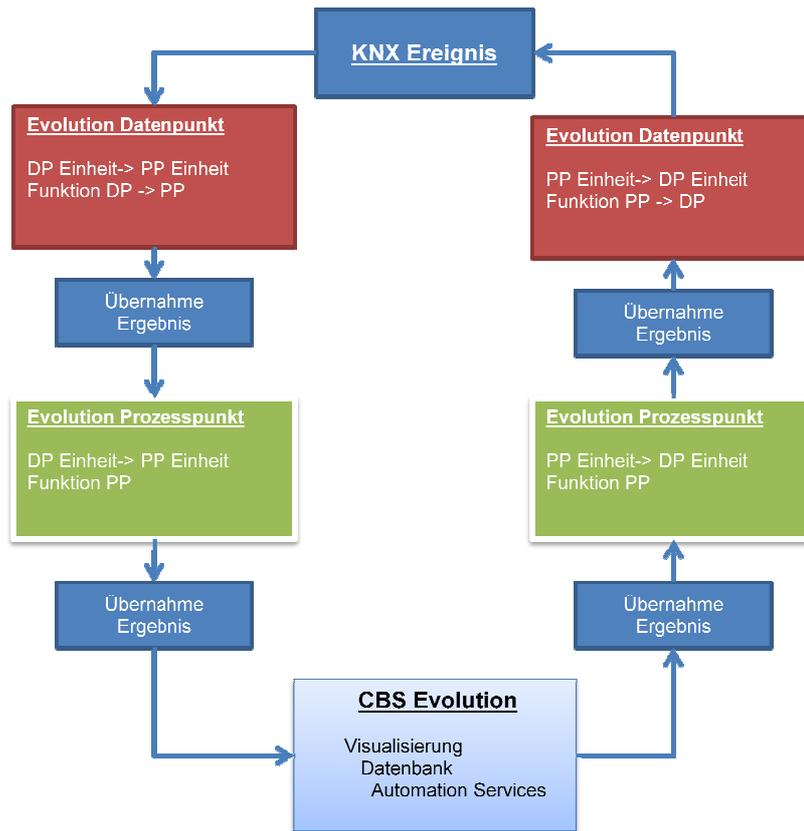
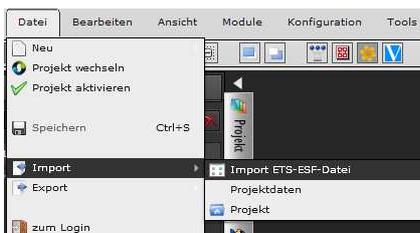


Abbildung 30: Functional sequence in the processing of an event

CBS Evolution receives a KNX event via the Client Manager and registers it as a data point. CBS Evolution checks if the value of the data point should be converted into a different unit or whether a mathematical function should be calculated with the value. Once the check and calculation are complete, the result is transmitted to the process point. At this point there is another check to determine whether the unit needs to be re-calculated or whether a function is to be calculated with the transmitted value. Once this process is complete, the result is applied, i.e. it may be displayed in the visualisation, processed in the automation service or saved in the database.

### 5.7.1. ETS group addresses as data points



In CBS Evolution ETS group addresses can be imported in form of an ETS-OPC export. The ETS OPC export is a text file with file extension ".esf" (Appendix: ETS OPC export).

Use *File/Import/Import ETS-ESF file* to open the import mask. The already uploaded *ESF projects* are listed at the bottom. New *ESF projects* are uploaded

by using the  button, which starts a file selection dialogue. Select the *ESF project* you would like to import (in Abbildung 31: Training\_PC1 has been selected) and click on *Next* to get to the actual dialogue window (Abbildung 32:).

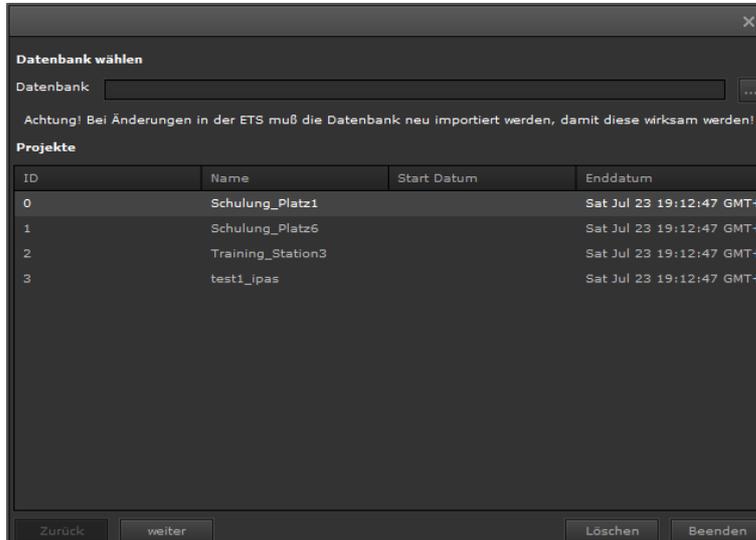


Abbildung 31: ETS ESF file selection

Use the Import dialogue window to enter the font (Standard UTF-8) and click on *Load ESF* to list the group addresses of the selected ESF project.

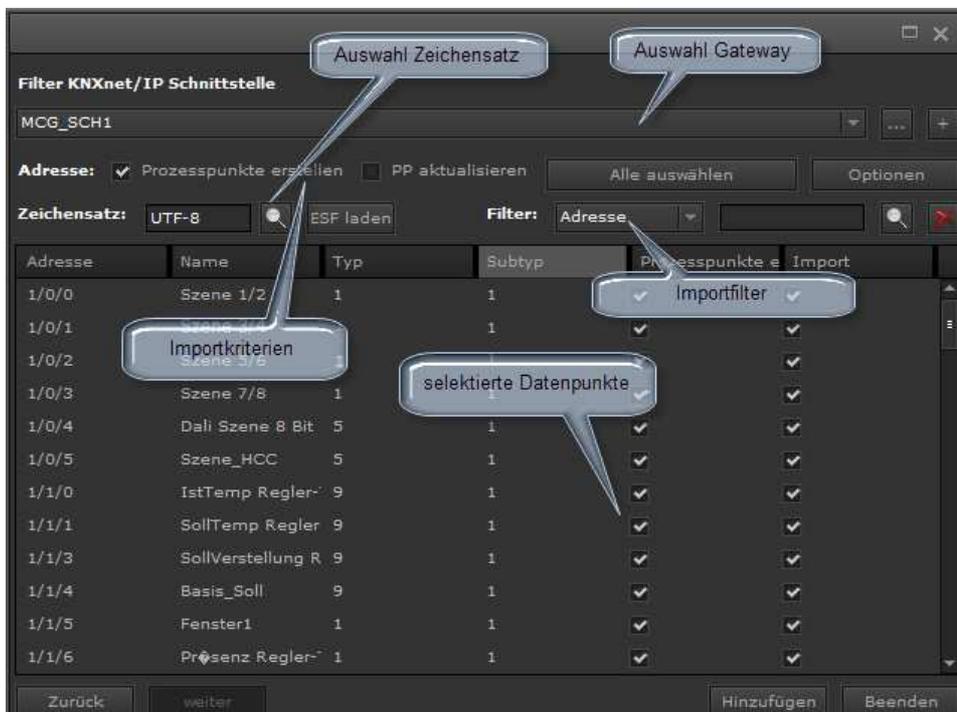


Abbildung 32: ETS group address import

You can either select the group addresses you would like to import by pressing

the button *Select All*, or you can select the required data points by ticking the *Import* box. In order to be imported as data points the group addresses need to be assigned to a KNXnet/IP gateway. Select the gateway from the pull-down list in the top bar. If the gateway is not yet listed, use the  button to add a new gateway. Once you have selected the required data points, click on *Add* to insert them into CBS Evolution.

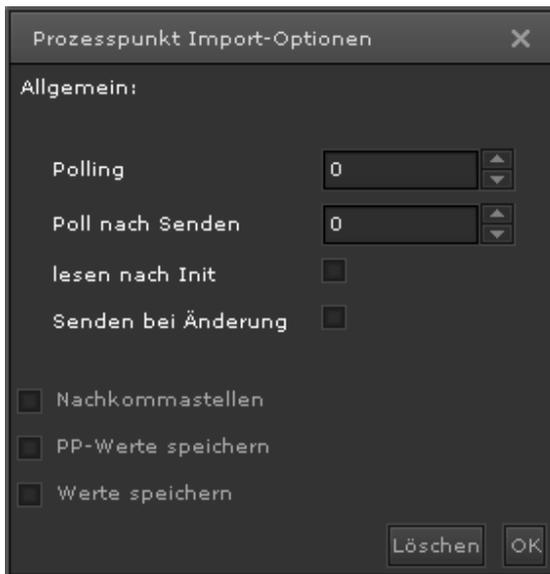
We suggest that you automatically generate the process points that correspond to the imported data points as they are required to link the data points to CBSE elements and functions.

Links to elements and functions in CBS Evolution are only possible via process points.



To do so, please tick the box *Create process points*. If you would like to create the corresponding process points for all data points, please select the global tick box at the top *Create process points*.

Tick the box *Update PP* if you would like to overwrite already existing data and process points with the currently imported data (e.g. changes in the data point type).



In addition, you can use the *Options* button to set process point parameters. The parameters are applied to process points that were generated through the import. For a detailed description of the parameters, please see the chapter CBS Evolution process points.

Abbildung 33:  
options

PProcess point import

Large group address lists can be easily managed by using the *Filter* settings. The following filters are available:

- Address:** Filters according to the address or part thereof.
- Main group:** Filters according to the main group entered.
- Middle group:** Filters according to the middle group entered.
- Name:** Filters according to the part of the address name that has been

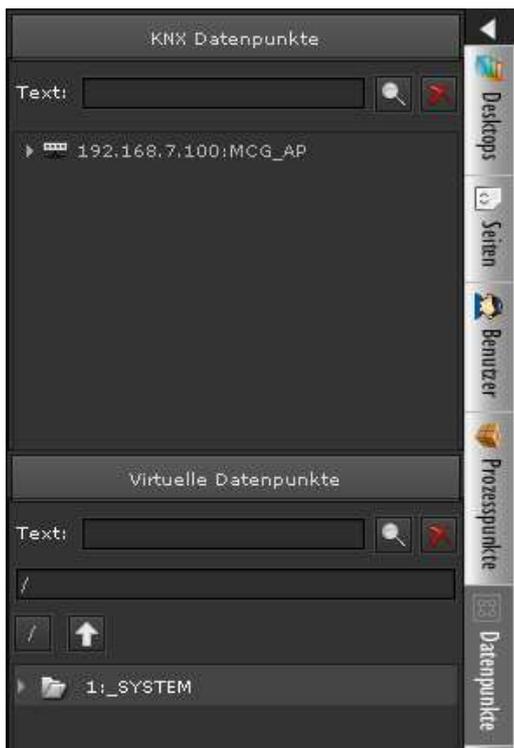
entered.

**Type, Subtype:** Filters according to the type or subtype of the address.

CBS Evolution makes it possible to import updated ESF files at any time. During the import, CBS Evolution checks whether a data point or process point already exist. If this is the case, the data point is not imported again. Only the updated ESF file is imported as long as the *Update PP* box is ticked.

### 5.7.2. Virtual data points

Virtual data points are CBSE internal communications objects that are not linked to a specific type of data point. They are used to “exchange” values or events between different CBSE modules. If, for example, you would like to start a scene from the CBS Evolution visualisation, you can create a virtual object as scene trigger. Virtual data points are also used in CBS Evolution to connect to other communications protocols such as Modbus or BACnet.



In the Editor virtual data points are listed in the folder *Virtual datapoints* underneath the function menu Data Points. You can create new virtual data points either via the global pictogram  or via the context menu (right mouse click in the menu Data Points). Click on the item *Create new virtual object*. You will be asked to enter a name for the data point. This data point can then be assigned to a process point.

Abbildung 34:  
Data points view

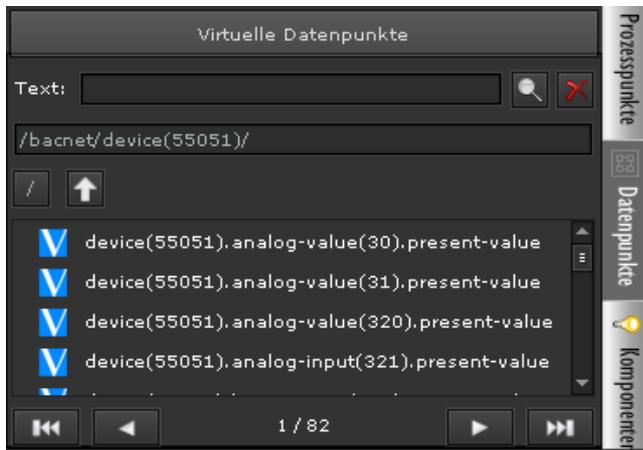
D

### 5.7.3. Importing BACnet data points

The BACnet connection is an optional gateway that requires a license. The data points of the BACnet configuration can be imported via an Import Filter in CBSE in order to create the required virtual data points and corresponding process points. Information about the BACnet configuration file syntax are enclosed with

the module description.

The BACnet import is carried out via the menu item *File/Import/BACnet Configuration*. Select the item to open the File-Open-Dialogue to choose the file you would like to import.



Once the import has been successfully completed, you can access the imported data and process points via the *bacnet* folder in the function menu called data points or process points.

Abbildung 35:  
points

Imported BACnet data

#### 5.7.4. Importing Modbus data points

The Modbus connection is an optional gateway that requires a license. The data points of the Modbus configuration can be imported via an Import Filter in CBSE in order to create the required virtual data points and corresponding process points. Information about the Modbus configuration file syntax are enclosed with the module description.

The Modbus import is carried out via the menu item *File/Import/Modbus Configuration*. Select this menu item to open the File-Open-Dialogue to choose the file you would like to import.

If you would like to import an already existing XML file, please select file type "XMLFile" in the file selection dialogue. These files have the file extension ".xml".

The Modbus import tool cannot only import the CBSE's own configuration files but it can also import the WAGO-CoDeSys format and use it to create the required configuration file. Please select the file type "ModbusFile" in the file selection dialogue (pre-selection). All files with the file extension ".sym" are displayed. After selecting the file, the following screen appears:

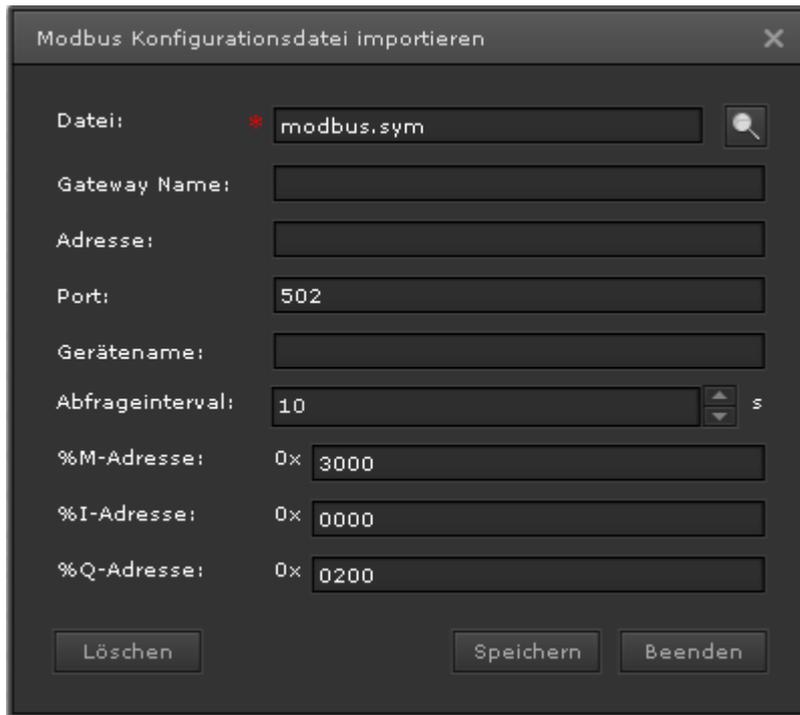


Abbildung 36: Modbus WAGO-CoDeSys import dialogue

The entry fields are:

- Gateway Name:** Name of the WAGO Controller
- Address:** IP Address of the WAGO Controller
- Port:** Communications Port for Modbus (Standard 502)
- Device name:** WAGO supports only one Modbus device per Controller. The name is therefore automatically set to "device" with Modbus identification number 1.
- Query interval:** Time in seconds between querying each status. Any changes are immediately transferred from CBSE to Modbus.
- %M-address:** Basic address of the memory area (standard 0x3000)
- %I-address:** Basic address of the input register (standard 0x0000)
- %Q-address:** Basic address of the output register (standard 0x0200)

When a new *sym*-file is imported, the gateway name and IP address are used to decide whether already existing process points and data points will remain the same, be updated or be deleted. If the Modbus gateway name and the corresponding IP address are unknown, the relevant process points and data points will be newly created. If the gateway name is already known, the new variables from the *sym* file are imported as process/data points. No longer existing (deleted) variables in the *sym* file will be removed as process/data points.

If you delete process points that are linked to certain components or functions, you need to link these functions and components to other process points. Otherwise the components no longer work.



Once the import has been successfully completed, the imported data and process points are stored in the *modbus* folder.

## 5.8. CBS Evolution process points

CBS Evolution uses process points for the internal communication. The basic information from a data point corresponds to the parameters of a process point. For special functions, a process point can be individually configured or newly created.

Click on the left-hand side menu *process points* to display the existing process points.

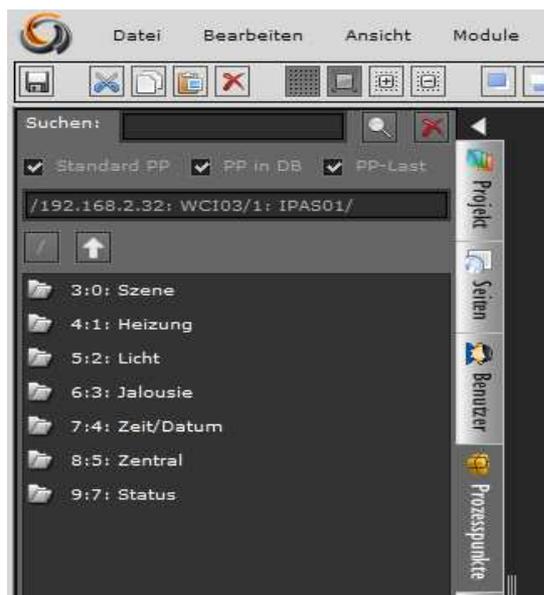


Abbildung 37: Process points display

Like data points, process points are displayed in a hierarchical directory structure. A double-click on the main group opens the next level. The full text search engine is located in the menu header. The search engine filters according to standard process points (PP Standard), process points whose value is saved on the database (PP in DB) or process points used in the load administration (PP Load).

Click on  to return to the previous level. Click on  to get directly to the gateway source. If you have a large number of data and/or process points the filter and navigation elements make the search for process points significantly

easier.

Double click on a process point to open its configuration window.



In the automatically created directories `_SYSTEM`, `alarm`, `dali`, `bacnet`, `modbus`, `ping` and `noneis`, no self-defined process points can be created. It is not possible either to manually create directories with these reserved names.

*Abbildung 38:* Configuration mask for process points

- Name:** Name of the process point (you can freely choose a name). If a process point is created automatically, its name consists of the gateway name and group address.
- Name in module:** The name shown in this field will be displayed in the online versions of the scheduling, scene and alarm modules.
- Description:** Description field for the process point.
- Delay after reads:** If two or more data points with a ticked Read box are assigned to a process point, you can enter the time in milliseconds after which the next telegram is read by the bus.
- Delay after sending:** If two or more data points with a ticked Send box are assigned to a process point, you can enter the time in

	milliseconds after which the next telegram is sent to the bus.
<b>Polling:</b>	Polling time in milliseconds after which the process points are periodically queried.
<b>Polling time after sending:</b>	This is the delay time (in milliseconds) to query the status of all assigned data points with a ticked Read box after a value has been sent. This is used for devices that do not automatically send a change in status.
<b>DPT and SubDPT:</b>	KNX data point type and sub-type of the process point.
<b>Status conditions:</b>	<p>Conditions which define the status value of the process point. The following options are available:</p> <p><b>NORMAL:</b> The status value is determined by the current status of a data point with an enabled <i>Write</i> flag</p> <p><b>OR (SUM):</b> The status value is the result of the OR conjunction (DPT 1:1 bit) or the sum of all current status values of the assigned data points (whose <i>Write</i>-flag has been enabled).</p> <p><b>AND (MUL):</b> The status value is the result of the AND conjunction (DPT 1:1 bit) or the multiplication of all current status values of the assigned data points (whose <i>Write</i>-flag has been enabled).</p> <p><b>HIGHER:</b> The status value results from the highest of the assigned data points' current values (whose <i>Write</i>-flag has been enabled).</p> <p><b>SMALLER:</b> The status value results from the smallest of the assigned data points' current values (whose <i>Write</i>-flag has been enabled).</p> <p><b>AVERAGE:</b> The status value results from the average of the assigned data points' current values (whose <i>Write</i>-flag has been enabled).</p>
<b>Read on init:</b>	If the box is ticked, the Bus initially reads the current value of all assigned data points whose Read flag has been enabled.
<b>Send only on change:</b>	If this box is ticked, the process point value is only sent if the value changes.
<b>Unit:</b>	In a process point the unit of both a data point and a process point can be calculated. The direction of the signal flow is crucial for the calculation: To convert, for example, the unit of a data point that is shown on a control element, please enter the unit of the data point on the left-hand side and the unit you would like to use for the process point on the right hand side. For example, an

energy meter provides the energy in Ws but you would like to save the value in KWh in the Evolution database. As the unit Ws is sent from the direction of the data point, please select Ws in the "Unit" field on the left-hand side. To convert this into KWh, please enter KWh in the "Unit" field on the right-hand side.



The other way round, if you send the process point to the data point, the unit KWh is converted back into Ws.

**PP function:**

Click on this window with the right mouse button to insert and mathematically link the data points that have been projected in this process point. Enter a condition to complete the entry. The result of the calculation is the effective value of the process point. **Attention! The data type of the process point has to be adjusted.**

**Decimal places:**

Process points that provide analogue values may be broken rational and therefore have a number of decimal places. If you would like to limit these or define a certain format, please tick the box Decimal Places. Once the box is ticked, the following parameters appear:



Use the parameter *min. number* to enter the minimum number of decimal places. For example, if you enter 1 and the process point value is 24.23, the value is rounded off to 24.2 and displayed as such. If you enter 3 for the parameter *max. number*, all process point values are rounded off to three places after the decimal point. Depending on the condition a process point value will need to fulfill, either one or three decimal places may be displayed. If the value in both parameters is the same, then that amount of decimals will always be displayed.

As shown in Abbildung 39: below, the data points assigned to the process points are listed at the bottom of the process point mask.

Datenpunkte														
Adresse	Name	DPT	DPST	Senden	Spiegeln	Lesen	Schreibe	Invertieren	Poll nach Senden	Polling	Einheit	Einheit Disp.	Funktion Disp.	PP Funktion
WC103:1/2/22	H1-schalten	1	1	true	false	false	true	false	0	0	-	-		
WC103:1/7/2	Beleuchtung-H1	1	1	false	false	true	true	false	0	0	-	-		

Abbildung 39:

Data point view in the PP

mask

In the example above, WCI:1/2/22 is a binary switch object and WCI:1/7/2 the corresponding status object. Via the *Read* flag the process point is informed which data points are addressing status objects (*Read=true*). The *Send* flag, on the other hand, marks those switch objects that receive values. This way, the process point uses two objects to process an event.

Use *Add* to add further data points to the list and *Delete* to remove data points from the list. Select a data point and click on *Edit* to open the data point editor as shown in Abbildung 40::

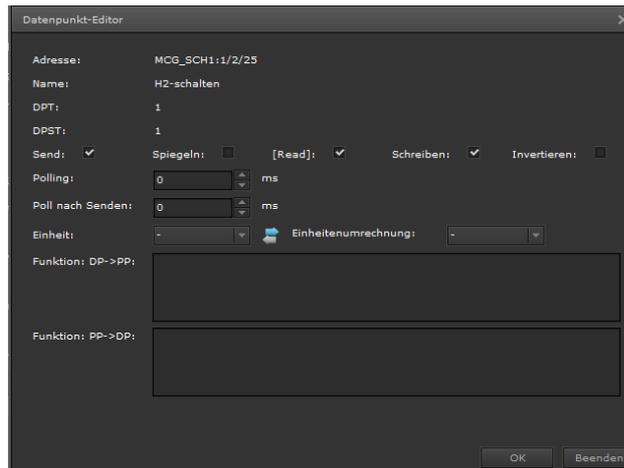


Abbildung 40:

KNX Data point Editor

The following data point properties can be configured:

- Address:** Data point address, e.g. for KNX objects  
*Gatewayname: Group address.*
- Name:** Name of the data point.
- DPT und DPST:** Data point type and sub-type.

Attention: An OPC-Export from the ETS does not provide any information about data types. A 2-Byte data type import is always interpreted as temperature. The data types of both data and process points should therefore be checked for their format in the visualisation before they are processed!



- Send:** If "true": The data point sends values to the bus.
- Mirror:** If "true": The data point passes its sent value straight on to the process point without waiting for a positive acknowledgement from the bus.
- Read:** If "true": The data point value is read when required.
- Write:** If "true": The data point updates the process point value.
- Invert:** The data point value is inverted.
- Polling:** Shows the polling time in milliseconds after which the data point value is read periodically.

**Polling time after sending**

Shows the delay in milliseconds after which the data point status is queried following the sending of a value. This is used for devices that do not automatically send a change in status.

**Unit:** see process point

**Function DP->PP:** see process point

**Attention! The data type of the process point may have to be adjusted.**

**5.8.1. Saving a PP**



**Save PP values:** The process point values are saved in the database.

**Save only when changed:** Values are only saved in the database if there has been a change.

**Interpolate:** Values are interpolated.

**Update status from DB:** After re-initialisation of the CBSE Server (e.g. restart, project activation), the last value of a process point is taken from the database and used to initialise the process point status so that further values can be correctly calculated.

**Send last value from DB:** After a restart of the CBSE Server, the last value of a process point is read from the database and used to initialise the system.

**5.8.2. Process point visibility**

In the on-line configuration all process points that have been projected for a particular model, are, by default, visible to any user who has access rights to this

model. Abbildung 41: shows a configuration mask which enables you to restrict the visibility of certain process points to selected users, user groups and modules.

The supported modules include the online modules Smart Metering Editor, annual scheduling, weekly scheduling, scene editing, alarm editor, diagram display and the Dali management module. Amendments are made via the icons on the right-hand side. Selecting an icon opens a window with users and user groups which you can use to put security measures into place and prevent unauthorised or incorrect configuration of central modules.

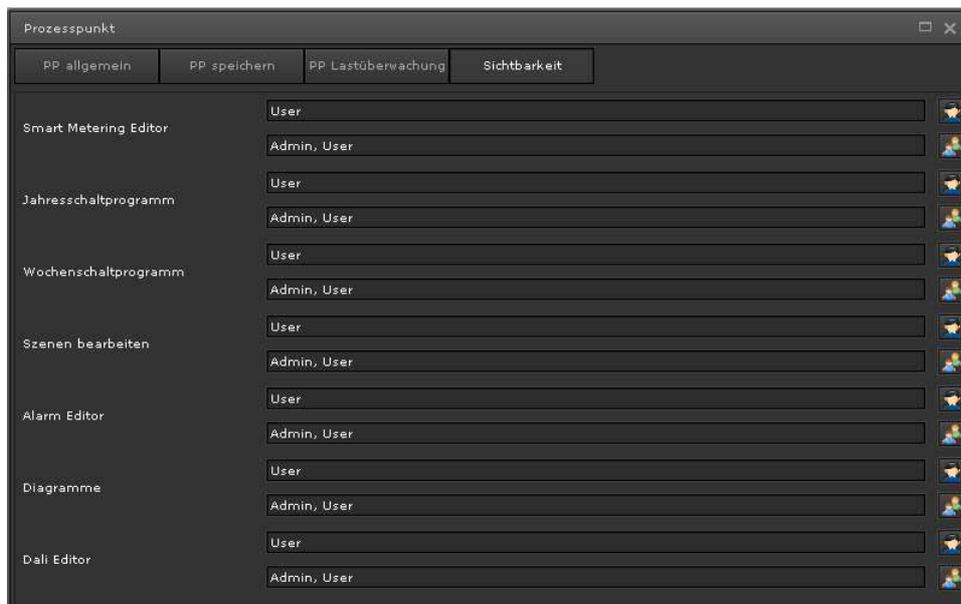


Abbildung 41: Setting the visibility of process points

## 5.9. Creating a new desktop

In CBS Evolution the desktop is the basis of a visualisation. Each user can be assigned an individual desktop ( see chapter Fehler! Verweisquelle konnte nicht gefunden werden.). Control elements, graphics, images and the desktop menu can all be projected onto the desktop.

Use *File/New/Desktop* to create a new desktop. Abbildung 42: shows the result.

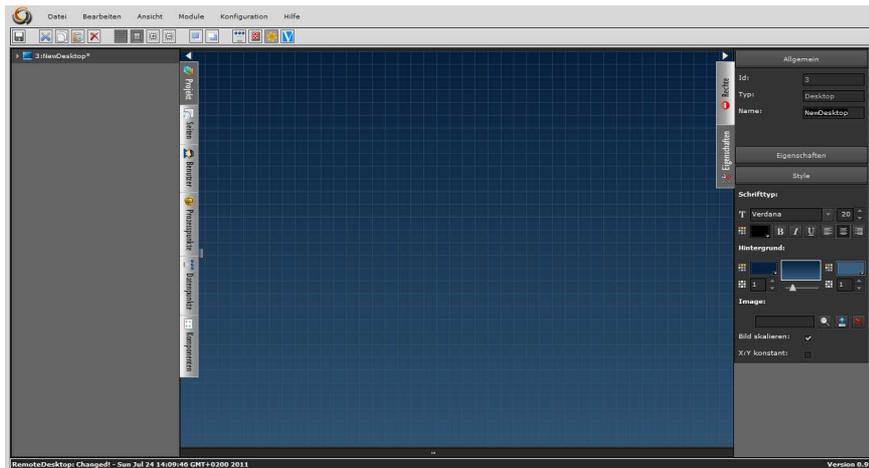
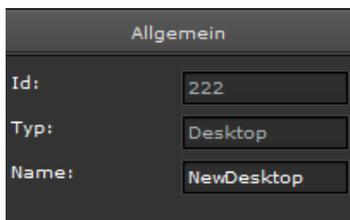


Abbildung 42:

New Desktop view

The screen is divided into three parts. The left-hand column lists all available desktops. If a desktop has not yet been saved, it is simply called *NewDesktop*. Once saved, the desktop name will appear in this column. The middle part is the work space. The right-hand section lists the parameters for all configurable desktop properties. All desktop properties are divided into three parts:



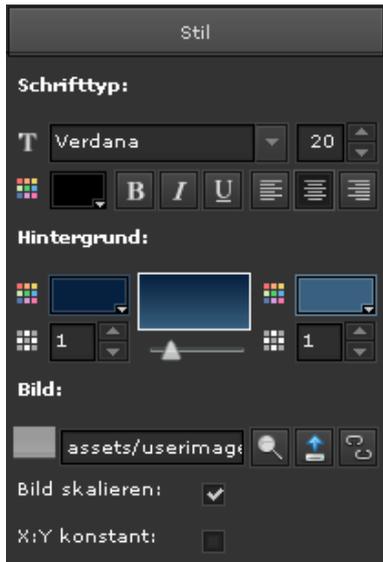
**General:** Enter the desktop name in the Name field. The desktop type and the internally assigned (non-changeable) ID are also displayed.



**Properties:** The Title field shows the desktop heading in the respective national language. Click on  (languages are displayed via country flags) to open the entry mask for desktop headings in different languages. You can also use the properties section to define the size of the desktop. The pull-down menu **Size** offers a selection of standard measurements. You can, however, also enter any other size via the fields **Width** and **Height**.

Principally, the desktop size needs to be adjusted to the screen resolution of the display device. If different display resolutions are required, a different user should be created for each display.





**Style:** Defines the display properties of the desktop.

**Font type:** Defines the font properties for desktop title such as size, colour, alignment, etc.

**Background:** Enables the setting of background properties such as colour, colour gradients and transparency.

**Image:** Offers the possibility to define a background image for the desktop. Use  to select an image which already exists on the CBSE server and  to upload new images to the server. Use  to remove the

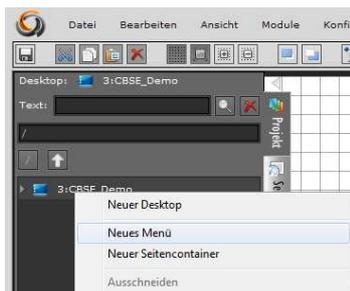
background image from the desktop environment. The corresponding file is still available on the server. Tick the **Scale image** box to adjust the image to the desktop size that has been defined under Properties. If you also tick **X:Y constant**, the scaling takes the aspect ratio into consideration.

All changes within the Editor are accepted when they are saved. They are displayed in the browser only after pressing the refresh button.



## 5.10. Desktop menu

The desktop is a user's individual working environment. For each desktop you can set up a desktop menu, which is used to load either other sub-menus, individually created visualisation pages or pre-defined function windows.



To create a desktop menu, select the required desktop with the right mouse button. Choose "New Menu" from the context menu. To display further menu elements, change to the desktop level by double-clicking on the desktop symbol. You can now select the previously created desktop menu with the right mouse button and click on *New menu element* in the context menu.

The inserted menu elements are displayed at the bottom of the desktop (see Abbildung 43:).

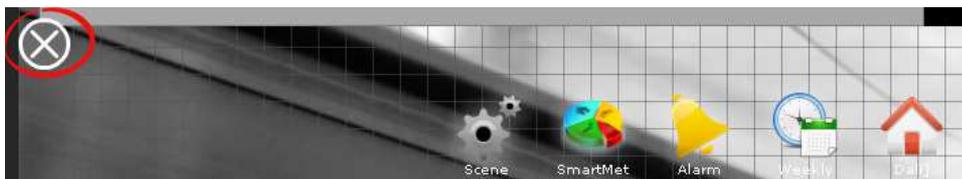


Abbildung 43:

Desktop menu example in

the demo project

The symbol marked in red is used to blend in or blend out the menu. Select an element to edit it via the right-hand side editor area in the properties menu. The following properties can be assigned to an element:

**Name:** Display text underneath the image symbol.

**Password:** Allows for the optional setting of a password which will be requested when the menu symbol is activated.



Opens an image library to select a menu symbol from a list.



Opens a file selection window to upload an image to the CBSE server, which can also be used as a menu symbol.



Removes the existing link to an image.

**Sub-menu:** If you want the menu element to open a sub-menu, please use the symbol buttons  and  to select and add a menu. Use the  symbol to break an existing link.

**Window:** If you want the menu element to open an individual window, please use the symbol buttons  and  to select and

add a window. If you add a new window, the required entry fields for the page and display frame appear. A visualisation page can then be assigned to the frame. For a detailed description of the display frame, please see the next chapter.

**CBSE function:** Enables you to assign functions such as alarm management, scenes, etc to the menu element. The available CBSE functions are:

**1:Log Out** – Brings up the log-in screen.

**2:Save** – Saves changes in the database.

- 3:Save & LogOut** – Saves changes and brings up the log-in screen.
- 6:Window in full screen** – Windows are displayed as full screens.
- 7:Alarm Management** – Opens the alarm management tool.
- 8:Smart Metering** – Opens the smart metering tool.
- 9:Scene control** – Opens the tool for the on-line configuration of scenes.
- 11:Weekly scheduling programmes** – Opens the tool for the on-line configuration of weekly schedules.
- 12:DALI e64 management** – Opens the tool for the DALI e64 management. This extension module requires a license.
- 13:Annual scheduling programme** – Opens the tool for the on-line configuration of annual schedules.

### 5.11. Navigation and page view

Although you can place any number of control elements onto the desktop, the navigation and display of additional pages are important tools to create a user-friendly visualisation. CBSE offers navigation elements to display windows or page frames (see the chapter Navigation elemen). The principal design concept of CBSE is shown in Abbildung 44: The desktop menu is created on the desktop in order to load certain pages or functions. Press a navigation button to open a window. Within the window is the display frame which is used to display visualisation pages.

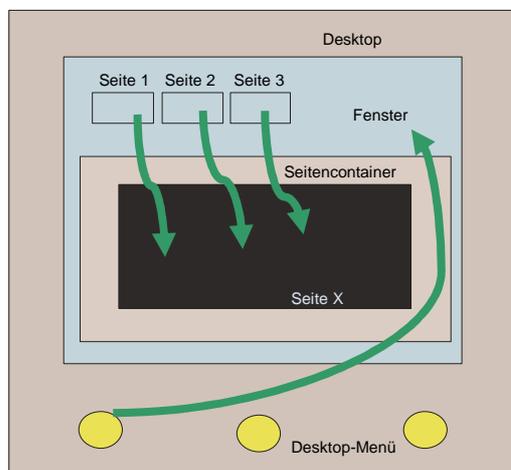


Abbildung 44:

Visualisation structure in

CBS Evolution

Based on this concept you can choose your preferred working method. You can either use a top-down concept (Navigation -> Window -> Page) or a bottom-up concept (Page-> Window -> Navigation).

### 5.11.1. Window (pop-up window)

Windows are containers with a frame and a heading. They can be moved around on the desktop and re-sized. Windows are used in the same way as a *WINDOW* in *HTML*. In CBS Evolution several windows can be open at the same time. To create a new window, press on an element in the left-hand side function menu with the right mouse button and choose the command "New window". This command creates a window which will be listed underneath the element with the name of the new window. After it has been saved, it will be displayed in the work space in the middle (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).

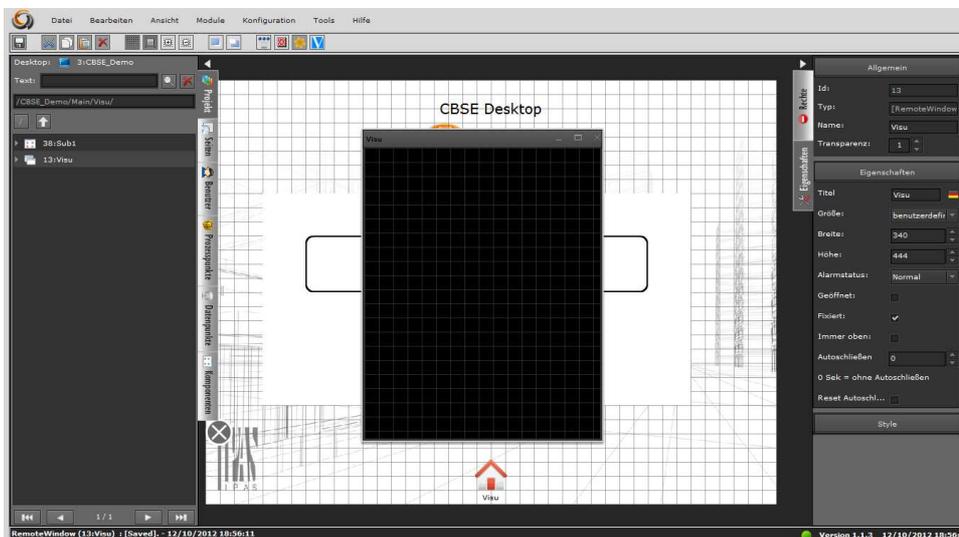
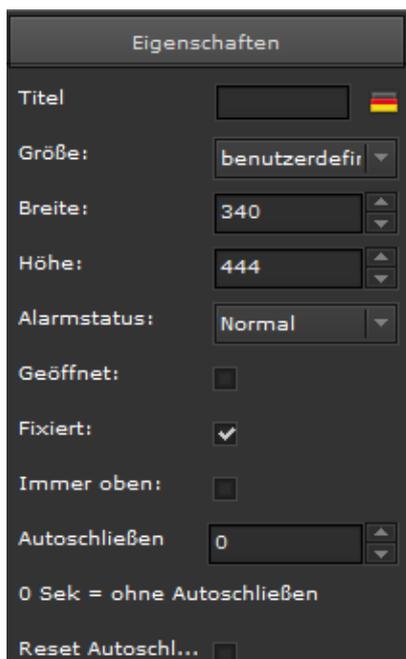


Abbildung 45:

Creating a window



**Title:** Title of the window.

**Size:** Offers standard measurements for selection.

**Width and height:** Window size in pixels.

**Alarm status:** Defines the fault status in case of an alarm (normal, minimised, maximised).

**Open:** Tick this box if you would like to open the window automatically after login.

**Fixed:** If you tick this box, the window cannot be moved around.

**Always at the top:** Tick this box if you would like the window to stay above all other levels in the application.

**Auto-close:** The window is closed automatically after the time period entered in

seconds has expired.

**Reset auto-close:** Each time a user performs an action in the window, the „Auto-close” time is re-started.

Control elements from the components menu and/or frames for the display of pages can now be configured in the window. Select a window from the left-hand side menu by pressing the right mouse button and use *”New frame for window”* to assign a frame to the window. A selection window opens from where you can choose the required page or create a new one.

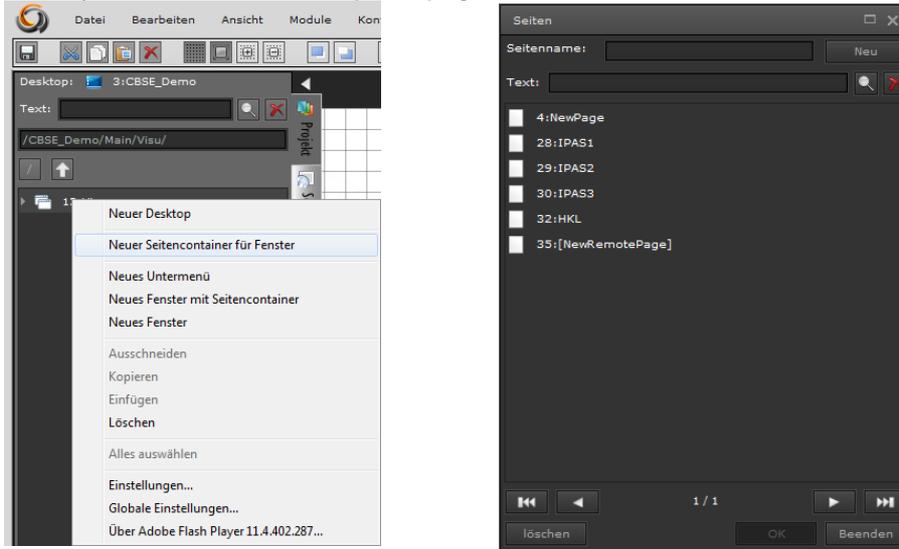


Abbildung 46:

Inserting a window with display frame

You can also create a window and a frame in one single step. Select an element from the function menu with the right mouse button and choose the command “New frame”. This command automatically creates a window with a frame. As in Abbildung 46:, a window opens to assign a page to the frame.

A window (pop-up window) can be assigned to several navigation elements or display frames. To do so, select the already existing window from the properties menu via the field **Fenster:** 288:NewWir



### 5.11.2. Display frame

The display frame defines a display area in which a visualisation page is displayed. Page frames are used like IFRAME in HTML. A frame can be placed on a desktop, inside a window or on a visualisation page. To create a new frame,

use the context menu of the desktop (right mouse-click on the desktop symbol) or drag & drop it from the components menu “Navigation elements“.

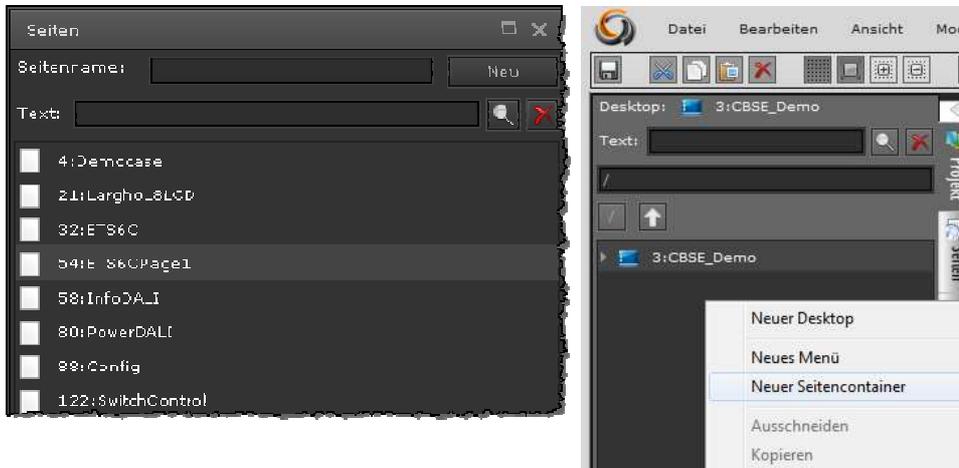


Abbildung 47: New display frame and page selection

Before you can create a frame, you will be asked to select the page that you want to display in the frame.

Use the **Text** field in the page selection window to filter for certain pages. Enter a name in the field **page name** and press the button *New* to create a new page with the selected name. Abbildung 48: gives an example of a display frame on a desktop. After selecting the display frame, its properties can be edited via the properties menu on the right-hand side.

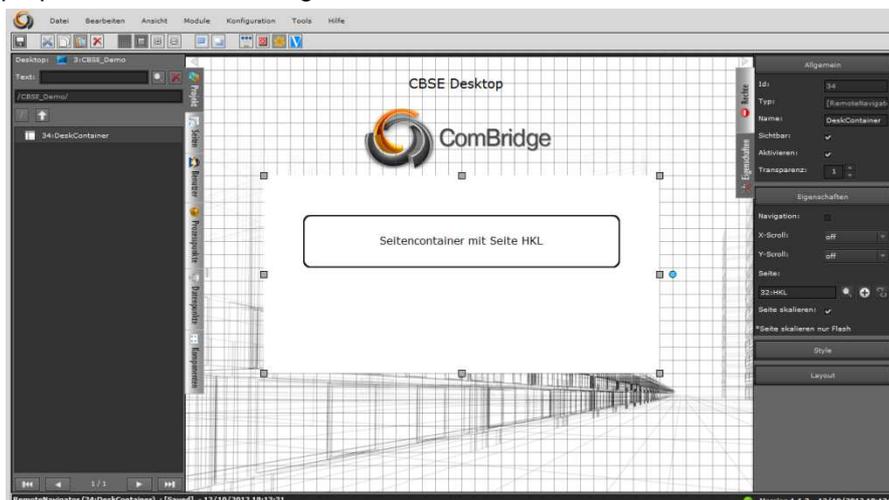
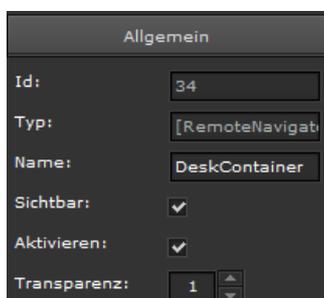


Abbildung 48: Display frame on a desktop



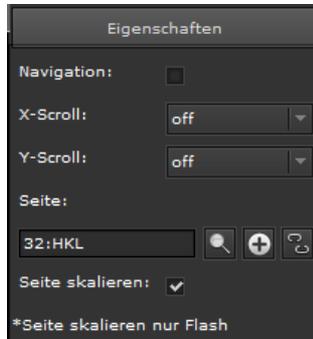
**Name:** Name of the display frame.

**Visible:**  The frame is visible.

**Activate:**  The frame displays pages.

**Transparency:** Transparency factor: 1 = no

transparency, 0 = invisible/transparent.



**Navigation:** If the box is ticked, an additional navigation line is displayed at the top.

**X and Y-Scroll:** *auto*, *on* and *off* are available. *on*: Scroll bars are always displayed.

*auto*: Scroll bars are only displayed if the dimension of the frame is smaller than the displayed page.

*off*: No scroll bars are displayed.

**Page:** Use the pull-down menu to select a page from a list of available pages or create a new page that you would like to display in the frame.

**Scale page:**  Forces the size of the page to adjust to the size of the display. Please remember that in this case all components on the page are also scaled. This may lead to some undesired effects. You should therefore make sure that the size of the page and the size of the frame are in line with each other.

Use the properties parameters in the *Style* menu to set text or background properties.

If required, several frames can be placed on a desktop, window or page.



By default, the frame and page size are adjusted to the size of the window. If you want to create individually sized frames in a window, go to the properties menu "Layout" and select the required settings.

The figure on the left shows the properties window. The fields at the bottom are used to configure the size of the frame via the clearance between the frame and the surrounding window. The value "0" means that the clearance between the frame and the margin is 0 pixels. If you delete the "0" values, you can change the parameters at the top

individually.

**Width, height:** Define the dimensions of the frame in pixels.

**X, Y:** Clearance from the left in relation to the top in pixels.

**Z:** Display level

**A:** Rotation angle in relation to the top, left-hand side corner.

This method can be used to place other navigation elements in a window outside of a frame.

### 5.11.3. Visualisation pages

A visualisation page is used to display images and control elements. A visualisation page works like a document in HTML. Use the left-hand side menu in the Editor to create a page. Select the *Pages* tab. All available pages are listed on the left-hand side. Abbildung 49: shows an example list of available pages. Press the right mouse button within the list section. This opens the context menu where you can select menu point *New page*. This creates a new page. Select *NewPage* to edit the page in the work space. The corresponding page properties are displayed in the properties menu on the right-hand side. Set the basic page properties, such as name, background and page size before you start designing the page.

When setting the size of the page, please remember that the page always needs to be displayed in a frame. If you are scaling the page in the display frame (an option provided by the frame), please make sure that the dimensions of the frame and the page are the same.

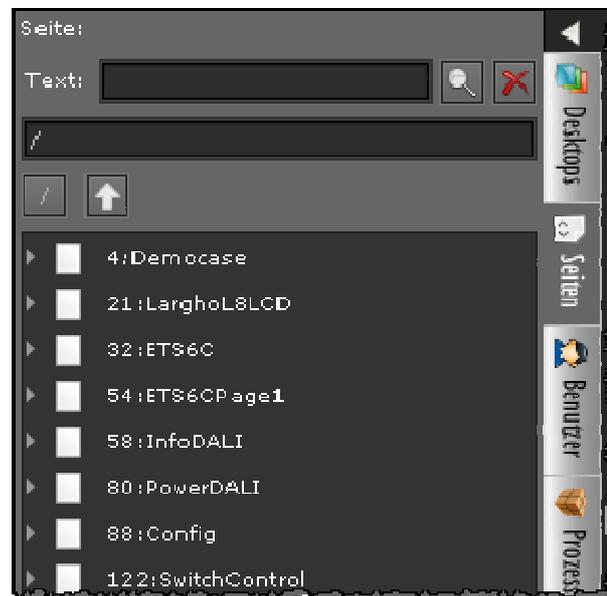


Abbildung 49: Page listing in the left-hand side function menu

The following properties can be assigned to a page:

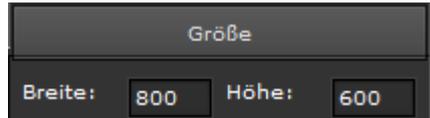
Allgemein	
Id:	249
Typ:	Pagina
Name:	NewPage

**Name:** Name of the page. The name of the page should relate to the project so that the page can be easily identified within the project.

**Font type:** Defines the font properties for the page heading such as size, colour, alignment, etc.

**Background:** Defines the background colour, colour gradients and transparency.

**Image:** Gives you the option to upload a background picture. Use  to select an existing image from the database and  to upload new images to the database.  deletes background images. Tick the Scale box to adjust the image to the resolution that has been set under Properties.

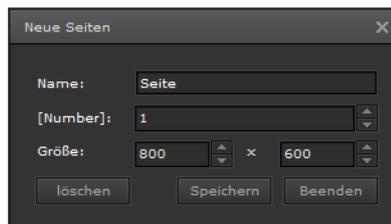


Use the **Size** menu to define the size of the page. **Width** and **Height** show the size in pixels. In order to display the page in the visualisation a display frame is required.

We recommend you coordinate the page format, frame format and window format with each other. This means the page size should correspond to the frame size. As a page is always adjusted to the format of the frame, a page that is bigger than a frame would be reduced to the frame size meaning that control elements may be reduced in size and may no longer be operable.



It is often the case that several pages with the same size are required for a project. Click on the right mouse button within the list of available pages to open the menu shown on the left. Select *New pages* to open the form below.



**Name:** This is the basic name for all the created pages. A number is automatically added to the name so that the first page is called page1, the second page is called page2, etc.

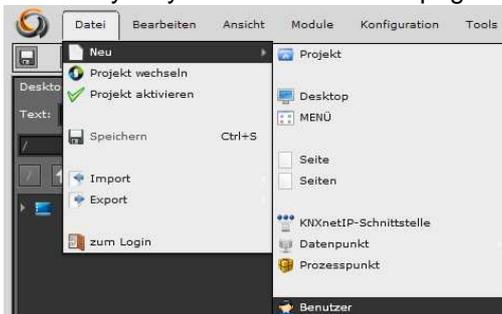
**Number:** The number of pages you want to create.

**Size:** Defines the page size.

### 5.12. Creating a user

CBS Evolution is desktop oriented. This means that all users can be assigned

their own desktop and individual visualisation. The project administrator determines which pages and functions a user can access. For example, a certain user may only be able to use web pages with a certain display resolution.



Select *File/New/User* from the main menu to open the configuration screen for a new user.

Abbildung 50:

Loading a user configuration

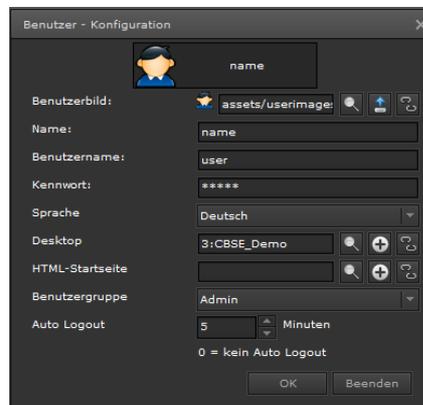
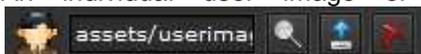


Abbildung 51:

User configuration

An individual user image or icon can be chosen for each user.



Click on  in the *User image* field to find an image in the list of images available on the CBSE server. Click on  to upload user-specific images. Own images should be saved in PNG format and in the size 43x43 pixels. Click on  to break the link to an image.

- Name:** The name is displayed next to the image.
- User name:** User name
- Password:** User password (the password has to consist of numbers between 0 and 9)
- Language:** User language (Each user can be assigned a language. This means that, for example, description texts will be displayed in the user's language). Choose the required language from the pull-down menu in the *Language* field.
- Desktop:** Use the pull-down menu to assign the user a desktop

from the list of available desktops.

**HTML start page:** Select the page which you would like to assign as start page to the user if the project provides an HTML visualisation.

(  Chapter HTML-Export)

**User group:** You can choose a user group from the list of defined groups. A user can only be assigned to one group. CBS Evolution offers two pre-defined user groups. Depending on the user group, different functions are available.

Group	Functions
<i>Admin</i>	Access to visualisation pages, scene configuration, time scheduling, alarm and smart metering configuration, access to all priorities
<i>User</i>	Access to visualisation pages

If you create any other groups, they will be treated in the same way as the *User* group.

**Auto Logout:** Defines the time in minutes until a user is automatically logged out and the system returns to the login screen. If you enter "0", there is no automatic logout.

Click on *Save* to save the settings and on *Exit* to exit the application without saving.

User properties can be changed in the Editor at any time. To do so, please select *User* from the function menu on the left hand side. All users are listed under *LoginDesigner*. Once you have selected a user, you can make changes in the properties menu on the right.

In addition to the details on the user configuration page, the following settings are possible in the properties menu:

- Visible:**  The user is displayed on the log-in screen.  
 The user is not displayed.
- Enable:**  Login is enabled.  
 Login is disabled



CBSE makes it possible to individually re-design the login screen. Please select the entry *LoginDesigner*. The following properties can be configured in the properties menu:

**Title:** Title of the login screen.

**Login window:** Text in the title bar of the log-in

screen.

**Font type:** Changes font properties such as size, colour and type for headings, titles and texts.

**Background:** Changes the background colour, colour gradient and transparency.

**Image:** Selects a background image.

**Scale image:** The image is scaled to the size of the window.

## 6 . C B S E c o m p o n e n t s

CBS Evolution offers its users a wide range of control elements to configure functions, displays, information, graphics, etc in the visualisation. Control elements can be placed on pages, within a frame, in windows and on the desktop. Control elements are always selected in the components menu on the left and then placed on the work space in the middle via drag & drop. Select a control element to set the element properties in the properties menu on the right..

CBS Evolution offers several different component styles. To select a style, please go to *configuration/component style browser*. Each style offers numerous pre-defined elements. They are core elements with only slight visual differences (e.g. colour, image, etc.). The aim is to provide the project administrator with a wide range of components that can be easily used via drag & drop without any time-consuming and complicated style configurations. The pre-set component style **default** is a reduced set of essential components, which aims to demonstrate the principal use of CBS Evolution based on a few core components.

Control elements are divided into groups under the components tab in the left-hand side function menu. For the **default** style, the groups are as follows:



**Standard control elements:** Simple switches and displays.

**Advanced control elements:** Complex function elements and graphical displays.

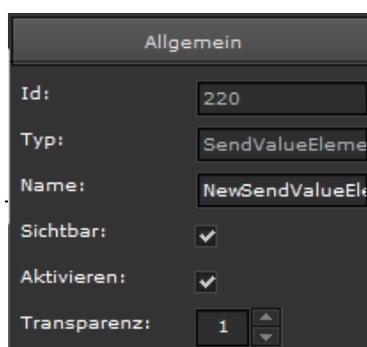
**Navigation elements:** Navigation buttons, display frames.

**Info elements:** RSS feed, clock, camera, photo album

**Chart elements:** Graphical display of measured values.

Each control element has **General** settings, **Properties**, “function-related properties” and properties which influence the design and display. In addition, user rights can be assigned to each control element. The following properties are identical for all components. Component-specific attributes will be explained together with the respective components.

### 6.1. General



The figure on the left shows the properties section **General**. The attributes are explained in the following table:

Properties	Value	Description
<i>Id:</i>	No.	This is the internal element reference number. It is assigned automatically and cannot be modified. The reference number can be used to search for an element via a filter function.
<i>Type:</i>		This is the basic type of the element. The basic type determines the elementary functionality and cannot be modified.
<i>Name:</i>	Text	Please enter a name for the element. We recommend you choose a meaningful name that is related to the project. This makes it easier to search for the element in an extensive project.
<i>Visible:</i>	<input checked="" type="checkbox"/>	The element is visible in the visualisation.
	<input type="checkbox"/>	The element is not visible in the visualisation. The function remains active though, i.e. calculations, events, etc continue to be processed.
<i>Enable:</i>	<input checked="" type="checkbox"/>	The control is enabled. The function that is linked to the element will be performed when the element is used.
	<input type="checkbox"/>	The control is disabled. Only the process point status is displayed.
<i>Transparency:</i>	0-1	The transparency value range lies between 0 and 1 (0% - 100%). Values are changed in 0.01 increments (1%). For the value 0, the object is transparent (invisible). For the value 1 the object is not transparent.

## 6.2. Properties



The **Properties** section is used to assign process points and to set visual attributes:

Properties	Value	Description
<i>Click effect:</i>		If you click on the element, a visual effect occurs.
		No visual effect
<i>Value status:</i>		The current status value is displayed as text on the element.
		The status value is not displayed.
<i>Show tooltip:</i>		Tooltip text is shown when the mouse hovers over the element.
		Tooltip text is not shown.
<i>Tooltip:</i>		Enter the text you want to display when the mouse hovers over the element. Use the country flag (circled in red above) to enter text in other languages, if required.
<i>Process point</i> 		Opens the process point list.
		Opens the process point editor to create a new process point.
		Opens the process point editor to edit the assigned process point.
		Removes the link between control element and process point.

### 6.3. Design properties

Control elements process the status of a process point. One of the main properties of a control element is the display of a process status. Generally, a process point can have different types of status, which can be displayed visually. For this, CBS Evolution offers numerous configuration options.

The display requirements are: Process point connected and process point not connected. This may result in further requirements to display the process status for **Status "ON"** or **Status "OFF"**. The display possibilities are identical for each status. In the following, the properties for **Status connected** are described.



The number of configurable status types depends on the component and is shown in separate properties sections (e.g.: **status not connected, first status, second status, status connected**). The display options and configuration parameters are identical for each status, so that the following description for **status not connected** equally applies to every other status. Component-specific attributes will be explained together with each component.

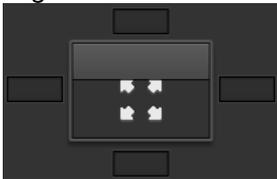
Properties	Value	Description
<i>Common setting:</i>	<input checked="" type="checkbox"/>	A change in status also has an impact on other status types. This attribute is only available when different status types are available for the component.
	<input type="checkbox"/>	Any change in settings only applies to this particular status.
<i>Pre status text:</i>		Enter the text that is to be displayed <u>in front of the value status text</u> . Use the country flag to display the text in other languages. The

			text will also be displayed if there is no <i>value status</i> display.
			Enter the text that is to be displayed <u>after</u> the <i>value status text</i> . Use the country flag to display the text in other languages. The text will also be displayed if there is no <i>value status</i> display.
<i>Font type:</i>		Verdana 8	Font type and size
		black	Font colour. Click on the colour to open a colour selection window.
			Font type: Bold, Italic, Underline
			Align text: left, center, right
<i>Colour:</i>		white 0	Left-hand colour and transparency
		0	Colour gradient. A colour gradient is calculated between left-hand and right-hand colour. Use the slider to set the rotation angle of the colour gradient (0-359°).
		Schwarz 0	Right-hand colour and transparency
<i>Frame:</i>		Schwarz	Frame colour. Click on the symbol on the right-hand side to open a colour selection window.
		0	Thickness of the frame border. If you enter 0 no border is displayed.
		0	Corner radius. Draws round edges.
<i>Image:</i>			Opens the image selection dialogue.
			Offers the possibility to upload an image to the CBSE Server.
			Breaks an existing link to an image. The image file will not be deleted.

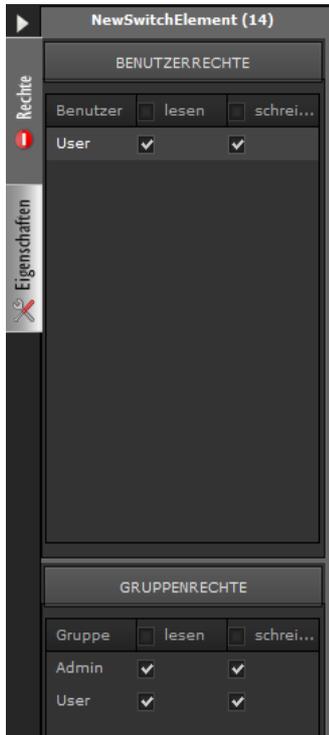
## 6.4. Layout



Use the properties section **Layout** to set the size and position of a component. The settings are optional as the positioning and size adjustments can also be done via the mouse in the work space. If you select an element it is shown in an editing frame. Use the frame to change the size of the respective component. To change the position of a component in the work space, hold down the right mouse button and move it to the required position.

Properties	Value	Description
<i>Width:</i>	800	Width of the component in pixels. This setting can only be changed if no clearance from the margin has been entered.
<i>Height:</i>	600	Height of the component in pixels. This setting can only be changed if no clearance from the margin has been entered.
<i>X:</i>	0	Position of the left-hand side border in pixels.
<i>Y:</i>	0	Position of the top border in pixels.
<i>Z:</i>	1	Display level when several components are placed on top of each other.
<i>A:</i>	0	Rotation angle in relation to the top left-hand corner
<i>Verriegelt:</i>	<input type="checkbox"/>	Position of the component is changeable.
	<input checked="" type="checkbox"/>	Position of the component is locked, i.e. cannot be changed.
<i>Clearance from the margin:</i> 		Input fields to enter the margin between the component and the border of the surrounding display frame (page / page frame / window). If you enter a margin, all other size parameters become invalid.

## 6.5. User rights



If you select an element in the editing section, you can choose the corresponding user rights from the right-hand side properties menu.

The user rights for a switch component are displayed in the figure to the left. All users of the visualisation are listed under **user rights**. In the example only one user called *User* is configured. The system grants a user read-only and writing rights. With read-only rights, a user can only see (read) a status notification. With writing rights, an event would also be sent to the bus. If all users are to have the same rights, tick the respective boxes next to *User* in the top bar. For individual rights, tick the boxes next to the individual user names. In addition, CBS Evolution allows for the administration of user rights via user groups. By default the groups **Admin** and **User** are pre-defined. The group

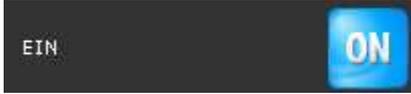
membership is set when a user is created. The admin group has special rights, for example when it comes to the editing of online scenes or online time scheduling programmes.

## 6.6. Standard control elements

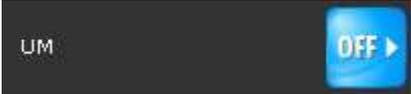
### 6.6.1. Off switch

	This component is based on the core type "send single value" and is used to send a switch off value.	
Properties	Value	Description
		Process point selection. The process point usually has the data type (DPT) 1:1bit
Status		
<i>Value</i>	OFF	Value that is sent to the process point when the button is pressed.

### 6.6.2. On switch

	This component is based on the core type "send single value" and is used to send a switch on value.	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
		Process point selection. The process point usually has the data type (DPT) 1:1bit
<b>Status</b>		
<i>Value</i>	ON	Value that is sent to the process point when the button is pressed.

### 6.6.3. Toggle switch

	<p>Alternatively sends a binary value to switch on and off. On first use, toggle switches need a status so that the inverse value of the current status can be set.</p> <p>The toggle switch receives the current status directly from the process point with which it is configured.</p> <p>The basic type of the component ist "Switch/toggle".</p>	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
		Process point selection. The process point usually has the data type (DPT) 1:1bit
<b>Status not connected</b>		Process point status is unknown.
<i>Image</i>		Status display when the current status is unknown.
<b>First status</b>		
<i>Value</i>	OFF	Value that is sent to the process point to change status.
<i>Image</i>		Standard display for this status
<b>Second status</b>		

<i>Value</i>	ON	Value that is sent to the process point to change status.
<i>Image</i>		Standard display for this status.

The following is an example of a process point configuration of a toggle switch component. Abbildung 52: shows a process point with two assigned data points. The data point "H1 switching" is the switch object (*Read=false, Send=true*) and "lighting-H1" is the corresponding status object (*Read=true, Send=false*). If the process point is connected to a toggle switch, it reads the status of "lighting-H1" and when activated switches to "H1-switching".

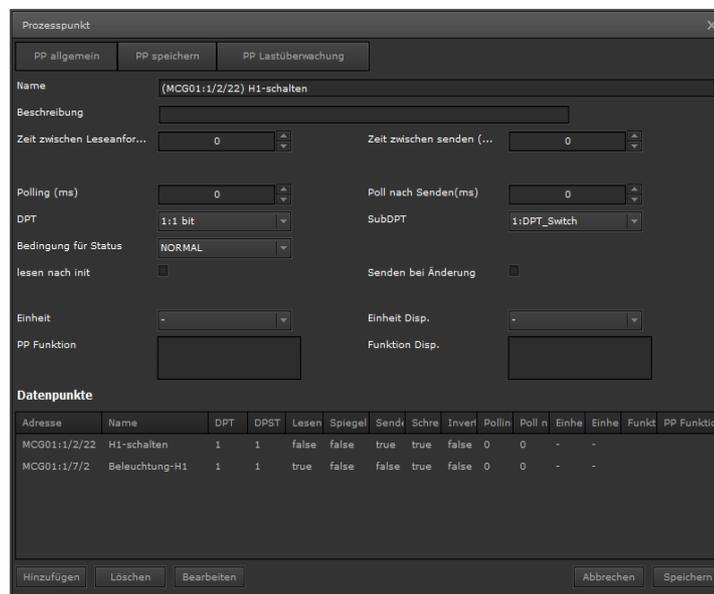


Abbildung 52: Process point with read request on status object

### 6.6.4. Dimmer

	One push-button dimmer. For the configuration several process points are required. The basic type of the component is "Dimmer".	
Properties	Value	Description
<i>Direction:</i>	<i>change</i>	Direction:dim up and down
	<i>up</i>	Direction:dim up
	<i>down</i>	Direction:dim down

<p><i>Status:</i></p> 		<p>Process point selection. The status process point processes the acknowledgement from the dim actuator. The process point needs to have the data type 5:8 bit unsigned value (SubDPT: DPT_Scaling).</p>
<p><i>Short pulse:</i></p> 		<p>Process point selection. The status process point processes a short pulse. The short pulse activates the switch function ON/OFF.</p>
<p><i>Long press:</i></p> 		<p>Process point selection. The status process point processes a long keypress. The long press activates the dim function. The process point needs to have the data type (DPT) 3:4bit.</p>
<p><i>Time short pulse:</i></p>	600	<p>Time in milliseconds after which a short pulse is interpreted as a long keypress.</p>
<p><b>Status not connected</b></p>		<p>Process point status is unknown.</p>
<p><i>Image</i></p>		<p>Status display when the current status is unknown.</p>
<p><b>Status Off</b></p>		
<p><i>Image</i></p>		<p>Status display for the OFF status</p>
<p><b>Status On</b></p>		
<p><i>Image</i></p>		<p>Status display for the ON status</p>

### 6.6.5. Dim up

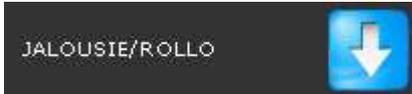
	<p>One push-button dimmer. This is a component which is also based on the "Dimmer" type. It is initially set to dim "up". The configuration is identical to the</p>
---	---

	dimmer configuration. See chapter 6.6.4
--	---

### 6.6.6. Dim down

	<p>One push-button dimmer. This is a component which is also based on the “Dimmer” type. It is initially set to dim “down”. The configuration is identical to the dimmer configuration. See chapter 6.6.4</p>
---	---

### 6.6.7. Blind / shutter

	<p>One push-button control for blinds/shutters. Several process points are required for the configuration. The basic type of the component is „Blind/Shutter“.</p>	
Properties	Value	Description
<i>Direction:</i>	<i>Change</i>	Shutter moves up and down
	<i>up</i>	Shutter moves only up
	<i>down</i>	Shutter moves only down
<i>Status:</i> 		<p>Process point selection. The status process point processes the acknowledgement from the shutter actuator. The process point needs to have the data type 5:8 bit unsigned value (SubDPT: DPT_Scaling)..</p>
<i>Short pulse:</i> 		<p>Process point selection to change the slats/start/stop. The assigned process point needs to have the data type (DPT) 1:1bit.</p>
<i>Long keypress:</i> 		<p>Process point selection for the up/down command. The assigned process point needs to have the data type (DPT) 1:1bit.</p>
<i>Time short pulse:</i>	600	<p>Time in milliseconds after which a short pulse is interpreted as a long keypress.</p>

<b>Status not connected</b>		Process point status is unknown.
<i>Image</i>		Status display when the current status is unknown.
<b>Status connected</b>		Valid process point status exists.
<i>Image</i>		Status display in connected status.

### 6.6.8. Blind / shutter up

	<p>One push-button control for blind/shutter. The initial direction is “up“. The configuration is identical to the blind / shutter configuration above. See chapter <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b></p>
---	--

### 6.6.9. Blind / shutter down

	<p>One push-button control for blind/shutter. The initial direction is “down“. The configuration is identical to the blind / shutter configuration above. See chapter <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b></p>
---	--

### 6.6.10. Binary status

	<p>Shows the current status. This is a component which has been specifically created for the status display. It is based on the type “Switch / toggle“, but the <i>Enable</i> box is not ticked.</p>	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
		Process point selection. The process point usually has the data type (DPT) 1:1bit
<b>Status not connected</b>		Process point status unknown

<i>Image</i>		Status display when the current status is unknown.
<b>First status</b>		
<i>Value</i>	OFF	Standard status value for this status
<i>Image</i>		Standard display for this status
<b>Second status</b>		
<i>Value</i>	EIN	Standard status value for this status
<i>Image</i>		Standard display for this status

### 6.6.11. Value setting

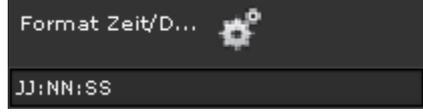
	Sends a configurable value. If you press the send button, the displayed value is sent. If, however, you use the value change buttons next to the value field, each change will be sent. The type of the component is "input value".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Send button:</i>	<input checked="" type="checkbox"/>	Shows the send button of the control element.
	<input type="checkbox"/>	Does not show the send button of the control element.
<i>Keyboard</i>	<input checked="" type="checkbox"/>	 A keyboard symbol is shown on the control element so that for touchscreens values can be entered via an on-screen keyboard. The display depends on the data type of the process point.
	<input type="checkbox"/>	Keyboard symbol is not displayed.
		Process point selection. If the process point also has a data point for this status, the current status is shown on the display.

<b>Status</b>		
<i>Image</i>		Selects a background image.

### 6.6.12. Value status

	Textual status display. The type of the component is "label".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
		Process point selection
<b>Status</b>		
<i>Image</i>		Selects a background image.

### 6.6.13. Time

	Time display. The type of the component is „digital clock“.	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
	JJ:NN:SS	Time and date format for the display. Use  for a description of the possible formats.
<i>Server time</i>	<input checked="" type="checkbox"/>	The time is set by CBS Evolution Server.
	<input type="checkbox"/>	The time of the client PC is displayed.
<i>Time static:</i>	<input checked="" type="checkbox"/>	The time and date display remain static after initialisation and do not change.
	<input type="checkbox"/>	The time and date display

		carry on automatically after initialisation.
		Process point selection. If a process point has been assigned, the parameter <i>Server Time</i> is not shown. The data type (DPT) has to be 10:Time or 11:Date.
<i>Text</i>		Description text in front of the time/date display.
<i>Image</i>		Selects a background image.

### 6.6.14. Date

	Date display. The type of the component is „Digital clock“. This means the configuration is identical to the time component configuration. See chapter <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b>
---	---

Attention! The OPC export from the ETS does not provide any details about the data type. If you import a date object via the OPC-Export, the data type will be automatically in the time format. The data format has to be manually adjusted.



### 6.6.15. Text field

	Text field to display a static text. The type of the component is "Simple label".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Text</i>		Display text
<i>Image</i>		Selects a background image.

### 6.6.16. Background image

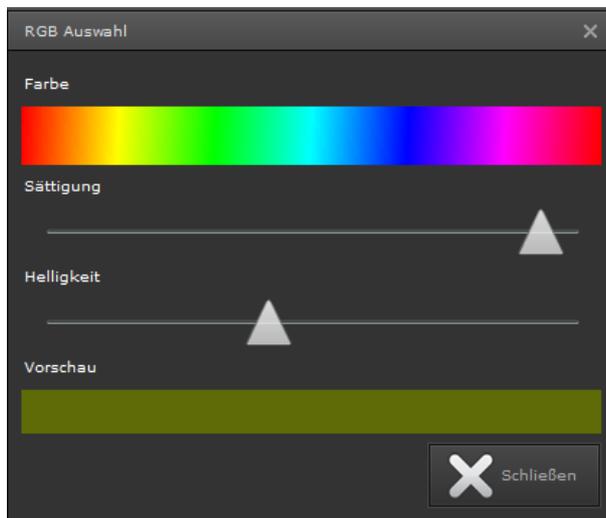
	Display field for images and graphics. Both Bitmap formats and vector graphics are supported. The type of the component is "RemoteImageUI".	
Style	Value	Description
<i>Background</i>		Design of the element background
<i>Image</i>		Selects an image.
<i>Scale image</i>	<input checked="" type="checkbox"/>	The image size is adjusted to the element size.
	<input type="checkbox"/>	Keeps the original image size.
<i>X:Y constant</i>		Retains the width-to-height ratio when the image is resized.

## 6.7. Advanced control elements

### 6.7.1. RGB element

	The RGB element allows for the setting of an individual colour via the elementary colours red, green and blue. The type of the component is "RGB".	
Properties	Value	Description
<i>Value Red::</i> 		Process point selection to set the red value. The assigned process point needs to have the data type (DPT) 5:8 bit unsigned value.
<i>Value Green:</i> 		Process point selection to set the green value. The assigned process point needs to have the data type (DPT) 5:8 bit unsigned .
<i>Value Blue:</i> 		Process point selection to set the blue value. The assigned process point needs to have

		the data type (DPT) 5:8 bit unsigned .
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>Status connected</b>		
<i>Image</i>		Display when the status is connected. In this status, the element appears in the set colour shade.



The colour is only set in the visualisation (not in the Editor). Press the RGB control element in the visualisation to open the window on the left. Use the colour palette, the saturation slider and the brightness slider to set your preferred colour shade. The result is shown in a preview area and the corresponding RGB-values are automatically

calculated.

If the dim curve of the activated RGB actuator is adjusted to the light source, the selected colour corresponds to the mixed value. If the dim curve is not adjusted, differences in colour may arise.



### 6.7.2. Step button

	This control element is used to incrementally increase or decrease values. Each key press increases or decreases the current value by the configured increment size. The type of the component is "Send increment value".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
Direction:	<i>Change</i>	Direction: up / down. The direction is changed following a long keypress.

	<i>Up</i>	Direction: only up
	<i>Down</i>	Direction: only down
<i>Time short pulse:</i>	600	Time in milliseconds after which a short pulse is interpreted as a long keypress.
<i>Increment:</i>	1	Increment by which the current value increases or decreases when a pushbutton is pressed. The size of the increment depends on the data type. You should therefore first assign the process point.
<i>Step:</i>	0	During a long key press the values defined under Step (in milliseconds) are added up. Only when the pushbutton is released, will the process point value be updated with the added up sum
<i>Maximum</i>		Maximum value that can be set. The setting depends on the data type.
<i>Minimum</i>		Minimum value that can be set. The setting depends on the data type.
		Process point selection.
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>Status connected</b>		
<i>Image</i>		Status display in connected status.

### 6.7.3. Pulse sensor

	The pulse sensor sends the value configured under <i>First Status</i> when the control element is pressed and the value
---	---

	configured under <i>Second Status</i> when the element is released. The type of the component is "pressure switch".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
		Process point selection
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown
<b>First status</b>		
<i>Value</i>	AUS	Value setting for this status, i.e. when a button is pressed. The entry depends on the data type.
<i>Image</i>		Status display for this status.
<b>Second status</b>		
<i>Value</i>	ON	Value setting for this status, i.e. when a button is released. The entry depends on the data type.
<i>Image</i>		Status display for this status.

#### 6.7.4. Pulse button

	The pulse button is a delay switch which sends the value configured under <i>First Status</i> after a certain, configurable time period following activation of the control element has elapsed. The type of the component is "stair case switch".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Time period</i>	1	Switch delay in seconds
		Process point selection
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>First status</b>		

<i>Value</i>	ON	Value setting for this status, i.e. when a button is pressed. The entry depends on the data type.
<i>Image</i>		Display for this status.

### 6.7.5. Pulse button+

	The pulse button+ combines the features of the pulse sensor and the pulse button. The control element sends two different types of status with an individually configurable time behaviour. It can be used, for example, to control staircase lighting. The type of the component is "Advanced staircase switch"	
Properties	Value	Description
		Process point selection
<i>Delay first status</i>	1	Sets the time in seconds by which the sending of <i>First Status</i> is delayed.
<i>Switch time</i>	1	Sets the time period in seconds (switched-on time).
<i>Time prewarning</i>	1	Sets the time in seconds after which a change from <i>Second Status</i> to <i>First Status</i> is sent to signalise that the on-time is about to come to an end.
<i>Reset time:</i>	<input type="checkbox"/>	Reset time is inactive
	<input checked="" type="checkbox"/>	If the button is pressed again during the <i>switched-on time</i> , the activation period of the <i>First status</i> is extended by the <i>on-time</i> .
<i>Show delay time:</i>	<input type="checkbox"/>	Delay time is not shown.
	<input checked="" type="checkbox"/>	Delay time is shown on the control element.
<i>Show switch time:</i>	<input type="checkbox"/>	Switch time is not shown
	<input checked="" type="checkbox"/>	Switch time is shown on the

		control element.
<i>Switch extension ON:</i>		On-period can be extended.
		On-period cannot be extended.
<i>Switch extension time</i>	0	<p>This entry allows for the repeated pressing of the pushbutton within the time <i>Switch extension ON</i>. The on-period changes as follows:</p> $\text{On-time} = \text{On-time} + (\text{number\_clicks} * \text{extension time})$ <p>After this time period has expired, the time is reset to its original value.</p>
<i>Switch extension active</i>	1	Time in seconds within which the extension button can be pressed.
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>First Status</b>		
<i>Value</i>	OFF	Value setting for this status. The entry depends on the data type.
<i>Image</i>		Display for this status.
<b>Second Status</b>		
<i>Value</i>	EIN	Value setting for this status. The entry depends on the data type.
<i>Image</i>		Display for this status.

### 6.7.6. Matrix button

	<p>This element makes it possible to arrange several value sending buttons within a matrix field. Each button is assigned an individual value. The matrix field is displayed when the control element is</p>
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	<p>activated. The matrix field closes if you press a value sending button, the mouse leaves the matrix field or after you press the symbol  in the top right-hand corner of the matrix field. The type of the component is "Value sending".</p>	
Properties	Value	Description
<i>No status:</i>	Unknown	Unknown status is displayed
	Higher value	If a non-configured value is received, the next higher, configured status value is displayed.
	Lower value	If a non-configured value is received, the next lower, configured status value is displayed.
	No display	Status values that are not configured are not displayed.
<i>Refresh:</i>	<input type="checkbox"/>	
	<input checked="" type="checkbox"/>	
		Process point selection
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>Status connected</b>		
<i>Image</i>		Display for this status
<b>Advanced object properties</b>		Lists all value setting buttons. If you add or select a button, the configuration fields <b>Field-ID General</b> and <b>Field-ID Value</b> are shown.
		Adds a new value sending button
		Removes a selected button
<b>Field-ID General</b>		
<i>Field-ID</i>		Position number within the matrix field
<b>Field-ID Value</b>		
<i>Value</i>	ON	Sets the value of the value

		sending button. The entry depends on the data type.
<i>Image</i>		Design of the value sending button



In the example on the left, the matrix element has been configured for 4 values (0, 5, 7, 9). Each field has an individual design. Press the control element to open the matrix field and press the required value setting button.

### 6.7.7. Slider

	The slider enables the setting of a value via the continuous adjustment of the slider knob with the mouse. The type of the component is "slider".	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Send value:</i>	<input checked="" type="checkbox"/>	Sends the set value. The send flag needs to be set for the configured process point.
	<input type="checkbox"/>	The slider is only used for display purposes.
<i>Minimum</i>	0	Minimum configurable value. The setting depends on the data type.
<i>Maximum</i>	1	Maximum configurable value. The setting depends on the data type.
<i>Increment size</i>	1	Increment size of a change. The setting depends on the data type.
		Process point selection.
<b>Design</b>		
<i>Display: Text</i>	Minimum, Maximum	Text separated by a comma (e.g. numbers), which is displayed on the scale. The position of the text has no

		direct link to the scale values.
<i>Display: Margin</i>	-7	Defines the position of the scale in relation to the principal scale line. For negative values the scale is underneath the middle line, for positive values above the line.
<i>Scale: Display</i>	<input checked="" type="checkbox"/>	Scale is displayed
	<input type="checkbox"/>	Scale is not displayed
<i>Scale: Main interval</i>	1	Size of scale intervals.
<i>Scale: Colour</i>		Text colour of the scale
<i>Slider: Show position</i>	<input checked="" type="checkbox"/>	The main scale from the initial value to the position of the slider is highlighted with a thick line.
	<input type="checkbox"/>	The slider position is not highlighted.
<i>Slider: Value with click</i>	<input checked="" type="checkbox"/>	If you click on the main scale, the slider jumps to this position.
	<input type="checkbox"/>	Mouse click has no effect
<i>Slider: Big</i>	<input checked="" type="checkbox"/>	The slider knob is magnified and displayed in a bigger size. This is particularly important for touch control.
	<input type="checkbox"/>	No magnified display.
<i>Show value: Display</i>	<input checked="" type="checkbox"/>	Shows a value when clicking on the slider.
	<input type="checkbox"/>	No value is displayed when clicking on the slider.
<i>Show value: Position</i>	top	Position of the displayed value
	bottom	Position of the displayed value
	left	Position of the displayed value
	right	Position of the displayed value
<b>Style</b>		
<i>Image</i>		Selects a background image.

### 6.7.8. Analogue display

	Shows a status value in an analogue
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	<p>display. The current value is textually displayed underneath the pointer. The scale range can be shown in intervals that differ in colour. The type of the component is "Measuring instrument".</p>	
Properties	Value	Description
<i>Bounce effect:</i>	<input checked="" type="checkbox"/>	The pointer levels off when the display value is set.
	<input type="checkbox"/>	No effect carried out.
<i>Send value:</i>	<input checked="" type="checkbox"/>	Sends the set value. The send flag needs to be ticked for the configured process point.
	<input type="checkbox"/>	The slider is only used for display purposes.
<i>Surface:</i>	Gauge Skin	
	Dial Skin	
<i>Scale size:</i>	0°-360°	Use the slider to set the minimum and maximum angle of the scale.
<i>Y-pos value:</i>	0.0-1.0	Use the slider to set the Y-position of the displayed status value. 0 is up and 1 is down.
<i>X-pos value:</i>	-100..+100	Use the slider to set the X-position of displayed the status value. 0 is the middle. -100 is on the right and +100 on the left.
<i>Post status text:</i>		Here you may enter, for example, a unit.
<i>Min value</i>	0	Minimum configurable value. The setting depends on the data type.
<i>Max value</i>	100	Maximum configurable value. The setting depends on the data type.
<i>Thresholds:</i>	0-3	Separates the scale into

		different coloured areas. Up to 3 areas can be defined.
<i>Threshold 1:</i>	0	Value where the first coloured area begins. The first area ends with the value for <i>Threshold 2</i> . The value depends on the data type.
<i>Threshold 2:</i>	33	Value where the second coloured area begins. The second area ends with the value for <i>Threshold 3</i> . The value depends on the data type.
<i>Threshold 3:</i>	66	Value where the third coloured area begins. The third area ends with the value for <i>Threshold 4</i> . The value depends on the data type.
<i>Threshold 4:</i>	100	End value for the third area. The value depends on the data type.
		Process point selection
<b>Style</b>		
<i>Background colour:</i>	Black	Background colour and transparency
<i>Slider colour:</i>	Silbergau	Colour and transparency of the slider
<i>Pointer colour:</i>	rot	Colour and and transparency of the pointer
<i>Slider axis colour:</i>	Silbergrau	Colour and and transparency of the axis
<i>Scaling</i>	weiss	Colour and and transparency of the scaling
<i>Colour threshold 1:</i>	grün	Colour and transparency of the 1st coloured area
<i>Colour threshold 2:</i>	orange	Colour and and transparency of the 2nd coloured area
<i>Colour threshold 3:</i>	rot	Colour and and transparency of the 3rd coloured area
<i>Text:</i>		Font type for the text display

### 6.7.9. Bar display

	<p>The bar display is a graphically animated object that is particularly useful to display the fill quantity in a container. The type of component is "RemoteTankElement".</p>	
Properties	Value	Description
<i>Volume display:</i>	1	Maximum hold capacity of the container. The entry depends on the data type.
		Process point selection
<b>Status not connected</b>		
<i>Image</i>		Status display when the current status is unknown.
<b>Status connected</b>		
<i>Image</i>		Display for this status. The current filling level is displayed in form of a gauge.

### 6.7.10. Room operating mode

	<p>This matrix element has been devised specifically for the 1 Byte room operating mode control (Typ Value Sending). KNX individual room regulators can change operating modes via a 1 Byte object. The matrix element is pre-configured with suitable values and acknowledgement pictograms so that the system integrator only needs to configure the respective process point. The process point can contain the status for the operating mode in the data point list, so that the operating mode element can also be used as a status display.</p>	
Properties	Value	Description
<i>Kein Status:</i>	Unknown	Unknown status is displayed
	Higher value	If a non-configured value is received, the next higher, configured status value is

		displayed.
	Lower value	If a non-configured value is received, the next lower, configured status value is displayed.
	None	Status values that are not configured are not displayed.
		Process point selection
<b>Field-ID value</b>		
1		Comfort mode
2		Pre-comfort (Standby)
3		Economy (Night-time mode)
4		Protected (antifreeze protection)
<b>Status not connected</b>		
<i>Image</i>		Status display when the process point status is unknown.
<b>Status unknown</b>		
<i>Image</i>		Status display for the case that <i>No status = unknown</i>

## 6.8. Navigation elements

CBS Evolution provides the user with elements for an individual navigation across pages, display frames and windows.

### 6.8.1. Display frames

	See chapter <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b>	
<b>Properties</b>	<b>Value</b>	<b>Description</b>

<i>Navigation:</i>	<input checked="" type="checkbox"/>	The header of the display frame shows navigation elements for page up, page down and close page.
	<input type="checkbox"/>	No navigation bar is displayed.
<i>X-scroll:</i>	auto	Displays a horizontal scrollbar if the page is wider than the frame.
	on	Horizontal scrollbar is always displayed.
	off	Horizontal scrollbar is not displayed.
<i>Y-Scroll:</i>	auto	Displays a vertical scrollbar if the page is higher than the frame.
	on	Vertical scrollbar is always displayed.
	off	Vertical scrollbar is not displayed.
<i>Page:</i>		Opens a page selection window.
		Creates a new pages and scales it to the size of the frame. We recommend you immediately change the automatically generated name "New page" to a different name.
		Breaks the link to an existing page. The page is not deleted.
<i>Scale page:</i>	<input checked="" type="checkbox"/>	The embedded page is scaled to the size of the frame. This option only exists for flash visualisation. There is no scaling for the HTML Export version of a page.
	<input type="checkbox"/>	Embedded pages are not scaled.

### 6.8.2. Page navigation

		Use this element to open other frames or pages. If this element is integrated into a window in which a smaller frame, is embedded, you can use the page navigation element to open different pages within the frame.
General	Value	Description
<i>Password:</i>		If you enter a password, the page can only be loaded by those with knowledge of the password.
<b>Properties</b>		

<i>External link:</i>	<input checked="" type="checkbox"/>	An external page is loaded.
	<input type="checkbox"/>	The page has been created in the Editor.
<i>Page:</i>		Opens the page selection window.
		Creates a new pages and scales it to the size of the frame. We recommend you immediately change the automatically generated name "New page" to a different name.
		Breaks the link to an existing page. The page is not deleted.
	<input type="checkbox"/>	If no pictogram is displayed, <i>External Link</i> is selected. The referenced page is an external page.
<i>Page frame:</i>		Opens the selection window for a page frame.
		Breaks the link to an existing frame. The frame is not deleted.
<i>Is in the menu:</i>	<input checked="" type="checkbox"/>	Additional input fields are displayed to configure the menu functionality of the navigation element.
	<input type="checkbox"/>	The navigation element does not use menu functionality.
<i>Menu name</i>	<input type="checkbox"/>	Name of the menu in which the navigation element is embedded. Navigation elements that refer to the same menu are put into groups. This means only one of the elements in the menu can be selected.
<i>Standard selection:</i>	<input checked="" type="checkbox"/>	The element is displayed according to the configuration of the section <b>Status selected</b> .
	<input type="checkbox"/>	The element is displayed according to the configuration of the section <b>STATUS</b> .
<b>Process point properties</b>	<input type="checkbox"/>	
<i>Process point:</i> 	<input type="checkbox"/>	Process point selection. If you select a process point, the configured <i>value</i> is assigned to the process point when you press the navigation button.
<i>Send value:</i>	<input checked="" type="checkbox"/>	The value is also sent to the bus.
	<input type="checkbox"/>	The value is not sent to the bus.
<i>Go to page:</i>	<input checked="" type="checkbox"/>	Enables the settings for <i>Go to page PP</i>

	<input type="checkbox"/>	<i>Go to page PP</i> is disabled.
<p><i>Go to page PP:</i></p> 		Process point selection. If you select a process point, the page is automatically loaded when the configured <i>condition</i> is fulfilled. To enable this option, please tick the box <i>Go to page</i> .
<i>Bedingung:</i>	=	The condition is fulfilled when the process point value equals the configured <i>value</i> .
	<>	The condition is fulfilled when the process point value is not equal to the configured <i>value</i> .
	<	The condition is fulfilled when the process point value is less than the configured <i>value</i> .
	>	The condition is fulfilled when the process point value is greater than the configured <i>value</i> .
	Each value	The condition is fulfilled for each process point event.
<i>Value:</i>		Comparator value for the <i>condition</i> . The setting depends on the “ <i>go to page PP</i> ” process point.
<b>STATUS</b>		Configures the visual element properties such as font, colour, frame and image. These properties are active when the element is not selected.
<b>Status selected</b>		Configures the visual element properties such as font, colour, frame and image. These properties are active when the element is selected.

The navigation element menu supplements the many different design options of the CBSE Editor. It can also offer the user a form of visual acknowledgement via the active navigation element.



Abbildung 53:

Example of a navigation

menu



The menu functionality is not available for the HTML-Export of the page

### 6.8.3. MCG

	<p>The MCG element is an advanced page navigation element. The advanced properties of the <b>POPUP</b> section are explained below. The settings for the POPUP section are only valid for the case that the navigation element references an external page and the selected display frame is <code>_blank</code>. This leads to the page being loaded in a popup browser window. For general page navigation properties, please see chapter 6.8.2.</p>	
Properties	Value	Description
<i>External link:</i>	<input checked="" type="checkbox"/>	
<i>Page:</i>		Initially, if you activate the <i>External Link</i> option, a URL appears to load the MCG Configurator: <code>/_ipascfg/main.php?al=1&amp;ua=10&amp;url=/_cbc onfig/cbconfig.devices.php?AddOns=ABCD ENFGNO</code>
<i>Display frame:</i>	<code>_blank</code>	
POPUP	Value	Description
<i>Name:</i>	CBSE Window	Name of the browser window. All external links that refer to the same browser window replace the previously displayed page. Only a browser window with the same name can be open.
<i>Left:</i>	0	Window position left in pixels
<i>Top:</i>	0	Window position top in pixels
<i>Width:</i>	800	Window width in pixels
<i>Height:</i>	600	Window height in pixels

<i>Full screen:</i>	<input checked="" type="checkbox"/>	Full screen  Browser support: InternetExplorer: Yes Firefox: No Chrome: No Safari: No
	<input type="checkbox"/>	No full screen
<i>Size can be adjusted:</i>	<input checked="" type="checkbox"/>	The size of the browser window can be adjusted.  Browser support: InternetExplorer: Yes Firefox: No Chrome: No Safari: No
	<input type="checkbox"/>	Size of the browser window cannot be adjusted.
<i>Show scrollbar:</i>	<input checked="" type="checkbox"/>	Show scrollbar in browser window  Browser support: InternetExplorer: Yes Firefox: Yes Chrome: Only displayed if needed Safari: Only displayed if needed
	<input type="checkbox"/>	No scrollbars are displayed
<i>Show address:</i>	<input checked="" type="checkbox"/>	Show address list of the browser window  Browser support: InternetExplorer: Always visible. Enabled /disabled Firefox: is always displayed Chrome: is always displayed Safari: is displayed when pressing Alt+D
	<input type="checkbox"/>	Address bar is not displayed
<i>Show menu:</i>	<input checked="" type="checkbox"/>	Show menu bar of the browser window.  Browser support: InternetExplorer: Yes

	<input type="checkbox"/>	Firefox: Yes Chrome: No Safari: only when tool bar is displayed
	<input type="checkbox"/>	Menu bar is not displayed
<i>Show toolbar:</i>	<input checked="" type="checkbox"/>	Display tool bar of the browser window  Browser support: InternetExplorer: Yes Firefox: Yes Chrome: No Safari: Yes
	<input type="checkbox"/>	Tool bar is not displayed.
<i>Show status bar:</i>	<input checked="" type="checkbox"/>	Show status bar of the browser window  Browser support: InternetExplorer: Yes Firefox: No Chrome: No Safari: Yes
	<input type="checkbox"/>	Status bar is not displayed.

The MCG element, although suitable for all external links, has primarily been devised to load the MCGConfigurator. The MCGConfigurator is a web application to configure IPAS IP gateways (MCG).

#### 6.8.4. Window navigation

	Opens a window or loads a CBSE function.	
<b>General</b>	<b>Value</b>	<b>Description</b>
<i>Password:</i>		If you enter a password, the window can only be loaded by those with knowledge of the password.
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Window:</i>		The window selection

		dialogue opens.
		Creates a new window.
		Breaks the link to an existing window. The window is not deleted.
<i>Frame</i>		Opens a frame selection window.
		Creates a new display frame. We recommend you immediately change the automatically generated name "New frame" to a different name.
		Breaks the link to an existing frame. The frame is not deleted.
<i>Page:</i>		Opens a page selection window
		Creates a new page and scales it to the size of the frame. We recommend you immediately change the automatically generated name "New page" to a different name.
		Breaks the link to an existing page. The page is not deleted.
<i>CBSE function:</i>		Opens a function selection window.
		Breaks the link to an existing function.
<b>STATUS</b>		
<i>Image</i> CBSE Funktionen		Pushbutton pictogram

- 1:Log Out
- 2:Speichern
- 3:Speichern&LogOut
- 6:Fenster im Vollbildschirm
- 7:Alarm Management
- 8:Smart Metering
- 9:Szenensteuerung
- 11:Wochenschaltprogramme
- 12:DALI e64 Management
- 13:Jahresschaltprogramme
- 14:Aktuelles Fenster schließen
- 15:Fenster schließen
- 16:Alle aktiven Fenster schließen

The function selection window is shown on the left. The following CBSE functions are available:

- 1: Closes the application and opens the login screen.
- 2: Saves the last screen view.

- 3: Saves the last screen view and opens the login screen.
- 6: Switches windows into full screen mode.
- 7: Opens the alarm management in on-line mode.
- 8: Starts smart metering.
- 9: Opens scene control.
- 11: Opens weekly schedules in on-line mode. If you select this CBSE function, an additional menu appears to select the required category for the weekly scheduling module (see chapter weekly schedules)
- 12: Opens the DALI Management Module for IPAS DALI gateways e64 in on-line mode.
- 13: Opens the annual schedule module in on-line mode. If you select this CBSE function, an additional menu appears to select the required category for the annual scheduling module (see chapter annual schedules).

### 6.8.5. Sensitive Link

	This component opens a window dependent on a configurable process point status.	
Properties	Value	Description
		Process point selection. If you select a process point, the page is automatically loaded when the configured <i>condition</i> is fulfilled. To activate this option, please tick the box <i>Go to page</i> .
<i>Condition:</i>	=	The condition is fulfilled when the process point value equals the configured <i>value</i> .
	<>	The condition is fulfilled when the process point value is not equal to the configured <i>value</i> .
	<	The condition is fulfilled when the process point value is less than the configured <i>value</i> .
	>	The condition is fulfilled when the process point value is greater than the configured <i>value</i> .
	Each value	The condition is fulfilled for each process point event.

<i>Value:</i>		Comparator value for the <i>condition</i> . The setting depends on the "go to page PP" process point.
<i>Window:</i>		The window selection dialogue opens.
		Creates a new window
		Breaks the link to an existing window. The window is not deleted.
<i>Display frame:</i>		Opens a frame selection window.
		Breaks the link to an existing frame. The frame is not deleted.
<i>Page:</i>		Opens a page selection window
		Creates a new page and scales it to the size of the frame. We recommend you immediately change the automatically generated name "New page" to a different name.
		Breaks the link to an existing page. The page is not deleted.
<i>CBSE function:</i>		Opens a function selection window.
		Breaks the link to an existing function.
<b>STATUS</b>		Configures the visual properties such as font, colour, frame and image.

## 6.9. Info elements

### 6.9.1. Clock

	<p>Use drag &amp; drop to place the clock component on the desktop/window/page. You can change the size by pulling the marker points. The design cannot be changed. The clock shows the system time.</p>
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### 6.9.2. Photo album

Use the photo album component to display alternating image files. The image files are loaded to the CBS Evolution Server using FTP (File Transfer Protocol). If no FTP program is available, you can also use Internet Explorer. Enter the URL <ftp://IP-CBSE-Server>. You will now be asked for login details. Abbildung 54: shows the Internet Explorer login screen. The login details are:

**User:** veuser

**Password:** veadmin

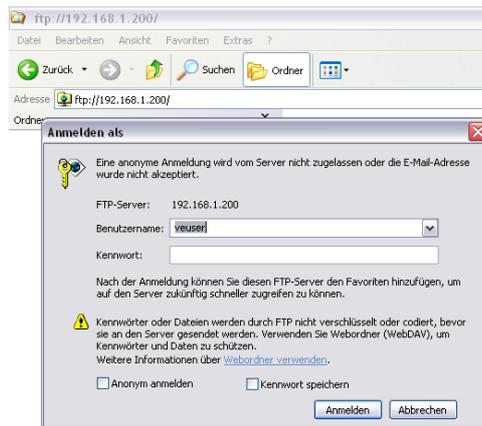


Abbildung 54:

FTP login



After successful login, the file system of the CBSE server is displayed (Abbildung 55:).

Please copy images and photos for your photo album presentation into the directory "galleries".

The added pictures have to be in the directory "galleries" or in a sub-directory.

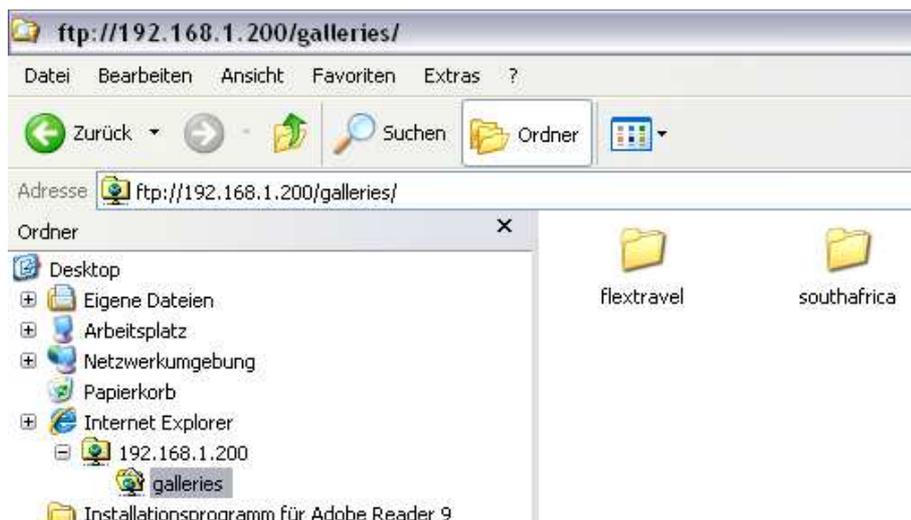


Abbildung 55:

File system on the CBS

Evolution server

### 6.9.3. RSS Reader

More and more providers offer news items, so-called RSS feeds as part of their service. These “news tickers” can provide the user with a wide range of information. CBS Evolution offers an RSS reader in which RSS feeds are loaded and displayed in the application. The requirement for this service is an internet connection.

		<p>Use drag &amp; drop to place the RSS feed component on the desktop/window/page. You can change the size by pulling the marker points. Abbildung 56: shows the components with their control elements.</p>
URL-FEED		Description
<i>URL feed list</i>		Opens the dialogue “Edit RSS sources“ to enter a new RSS feed address.
		Deletes an RSS source from the list of RSS readers. The configuration continues to be saved in the database.
		Opens the dialogue “Edit RSS sources“ with the details of the selected source for editing purposes.
		Opens the RSS feed selection list.

The RSS sources can also be edited in the visualisation. Use the  button for additional editing options.



Abbildung 56:

RSS reader components

	Refreshes the view
	Adds a new RSS source (see Abbildung 57:)
	Deletes an RSS source from the list
	Opens a selection list to add a new source
	Searches for RSS sources
	Terminates the editing mode

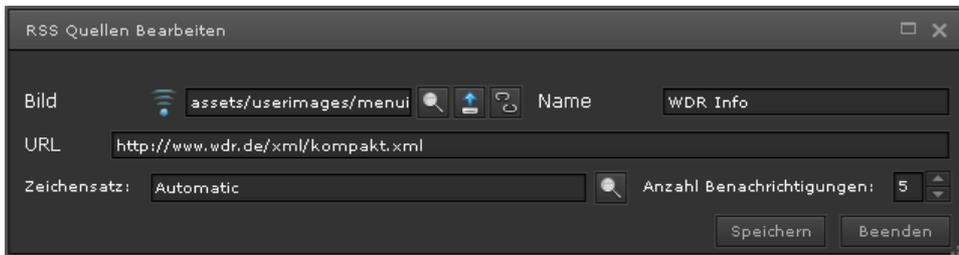


Abbildung 57:

Example of an RSS source

#### 6.9.4. IP camera

	<p>The IP camera component makes it possible to embed IP cameras. The supported video formats are JPG and MJPG. The video is displayed within the area created with the component.</p>	
CONNECTION	Value	Description
Host IP:		The camera's IP address
Port:	80	The camera's port address

<i>User:</i>		Optional login name
<i>Password:</i>		Optional password
<i>Format:</i>	jpg	JPEG image format
	mjpg	MPEG video format
<i>Path:</i>		File path to the camera images

For the URL path to the camera images, please see the description/manual of the respective camera. For tools to support the configuration, please check our IPAS Wiki page [Howto Config IPCamera](#).

### 6.10. Chart elements

In CBS Evolution process point data (events) can be written on the project database ( see chapter process points). This data is thereby available for further applications.

The component *Chart elements* uses the data for a graphical presentation.

	Use drag & drop to pull the component into the work space. The size of the drawing area depends on the size of the element.	
Properties	Value	Description
<i>Interpolate:</i>	<input type="checkbox"/>	No interpolation
	<input checked="" type="checkbox"/>	The values are interpolated.
<i>Tooltip:</i>	<input type="checkbox"/>	Tooltip display disabled.
	<input checked="" type="checkbox"/>	If the mouse hovers over a data point in the chart, its value and time stamp are displayed.
<i>Legends:</i>	<input type="checkbox"/>	Legends are not displayed
	<input checked="" type="checkbox"/>	Shows the name of the measurement series as a legend in the chart.
Style	Value	Description
<i>Title:</i>		Text heading for the chart
<i>Scale image:</i>	<input type="checkbox"/>	Background image is not scaled to the size of the chart component.
	<input checked="" type="checkbox"/>	Background image is scaled to the size of the chart component.
<i>X:Y constant:</i>	<input type="checkbox"/>	The aspect ratio is <u>not</u> taken into consideration for the background scaling.
	<input checked="" type="checkbox"/>	The aspect ratio is taken into

			consideration for the background scaling.	
<b>Display</b>			This section defines the different ways in which measurements can be displayed. Each series of measurements can be assigned to a different process point.	
			Series is displayed in the form of a bar chart.	
			Series is displayed in the form of a line chart.	
			The selected series is deleted. The very last available series cannot be deleted.	
<b>X-axis</b>	<b>Value</b>	<b>Description</b>		
<i>Skalierung</i>			Tick mark colour	
			Tick mark transparency	
			Tick mark thickness	
		inside		Tick marks are displayed inside the chart
		outside		Tick marks are displayed outside the chart
		cross		Tick marks go across the axis line
		none		No tick marks are displayed
	<i>Scale length</i>	5		Tick mark length
	<i>Sub-interval:</i>			Value of the distance between sub-intervals
	<i>Show line:</i>	<input type="checkbox"/>		Axis line is not displayed
		<input checked="" type="checkbox"/>		Axis line is displayed
	<i>Show scale:</i>	<input type="checkbox"/>		Scale division is not displayed
		<input checked="" type="checkbox"/>		Scale division is displayed
	<i>Main interval:</i>			Vale of the distance between main intervals
<i>Show value:</i>	<input type="checkbox"/>		Main values are not displayed.	
	<input checked="" type="checkbox"/>		Main values are displayed	
<i>Sub-values:</i>	<input type="checkbox"/>		Sub-values are not displayed	
	<input checked="" type="checkbox"/>		Sub-values are displayed	
<i>Line:</i>		white	Colour of the axis line	
		1	Transparency of the axis line	
		1	Thickness of the axis line	
<i>Position:</i>		Top	X-axis is displayed at the top	

		Bottom	X-axis is displayed at the bottom
<i>Default:</i>	<i>Default time</i>		Configurable time unit for the x-axis: minutes, hours, days, weeks, years
	<i>Time from</i>		Start time
	<i>Time to</i>		End time
<b>Y-axis</b>		<b>Value</b>	The Y-axis is largely configured in the same way as the X-axis. The deviating parameters are explained below:
<i>Position:</i>		Left	Y-axis position:left
		Right	Y-axis position:right
<i>Base at zero</i>	<input type="checkbox"/>		Base line is not displayed
	<input checked="" type="checkbox"/>		Base line is displayed
<i>Auto adjust:</i>	<input type="checkbox"/>		Automatic scaling of the Y-axis is switched off.
	<input checked="" type="checkbox"/>		Automatic scaling of the Y-axis. The scaling depends on the values in each series of measurements.
<i>Prefix:</i>			Text in front of a Y-axis value
<i>Suffix:</i>			Text after a Y-axis value, e.g. the value unit.
<i>Maximum:</i>			Maximum Y-value
<i>Minimum:</i>			Minimum Y-value
<b>Grid lines</b>		<b>Value</b>	<b>Description</b>
<i>Visible:</i>	<input type="checkbox"/>		Grid lines are not displayed
	<input checked="" type="checkbox"/>		Grid lines are displayed
<i>Richtung:</i>		both	Show both vertical and horizontal grid lines.
		horizontal	Show only horizontal grid lines.
		vertical	Show only vertical grid lines.
<i>Horizontal line:</i>		black	Colour of the horizontal grid line
		1	Transparency of the horizontal grid line
		1	Thickness of the horizontal grid line
<i>Y-Interval size</i>		1	Defines at which intervals on the Y-axis a horizontal grid line is shown. 1 means at every interval, 2 means at every second interval, etc.
<i>Vertical line</i>		black	Colour of the vertical grid line
		1	Transparency of the vertical grid line
		1	Thickness of the vertical grid line
<i>X-Interval size</i>		1	Defines at which intervals on the X-

		axis a vertical grid line is shown. 1 means at every interval, 2 means at every second interval, etc.
--	--	---



Several process points can be displayed within a chart. The chart type needs to be chosen for each process point.

Depending on the chart type, further configuration parameters are available.

	The configuration parameters of the bar chart contain the link to a process point as well as the visual properties of the bar.	
General	Value	Description
<i>Name:</i>		Name of the measurement series.
		Process point selection. <i>Save PP</i> has to be enabled for the selected process point.
Properties	Value	Description
<i>Click effect:</i>	<input type="checkbox"/>	No effect
	<input checked="" type="checkbox"/>	Highlights the data point if you hover over it with the mouse.
<i>Function</i>	[PROCESSPOINT]	Initially displays the process point value at the time of the event. Use the formula editor to adjust the calculation to your requirements.
<i>Value:</i>	Average	Calculates the average value of an observation period.
	Minimum	Displays the minimum value of an observation period.
	Maximum	Displays the maximum value of an observation period.
	Increment	The increment values are

		displayed.	
	Operating hours	Shows the operating hours of a process point.	
Bar	Value	Description	
Outline		black	Outline colour of a bar
		0.55	Line transparency
		1	Line thickness
Fill		green	Fill colour of the bar
		1	Transparency of the bar
Bar width	0.82	A value between 0 and 1 shows the percentage width in relation to the scaling of the X-axis.	

	The configuration parameters of the line chart contain the link to a process point as well as the visual properties of a line.	
General	Value	Description
Name:		Name of the measurement series.
		Process point selection. <i>Save PP</i> has to be enabled for the selected process point.
Properties	Value	Description
Click effect:	<input type="checkbox"/>	No effect
	<input checked="" type="checkbox"/>	Highlights the data point if you hover over it with the mouse.
Function	[PROCESSPOINT]	Initially displays the process point value at the time of the event. Use the formula editor to adjust the calculation to your requirements.
Value:	Average	Calculates the average value of an observation period.
	Minimum	Displays the minimum value of an observation period.
	Maximum	Displays the maximum

		value of an observation period.	
	Increment	The increment values are displayed.	
	Operating hours	Shows the operating hours of a process point.	
Line		Value	Description
		grey	Line colour
		1	Line transparency
		2	Line thickness
<i>Line form</i>		segment	
		step	
		vertical	
		horizontal	
		reverseStep	
		curve	
Value point		Value	Description
<i>Shape of the point:</i>		Box	Point displayed as a rectangular box
		Circle	Point as circle
		Cross	Point as cross
		Diamond	Point as diamond
		ShadowBox	Point as shaded box
		Triangle	Point as triangle
		none	Value point is not displayed
<i>Outline</i>		grau	Line colour
		1	Line transparency
		1	Line thickness
<i>Füllen</i>		orange	Fill colour of the value point
		1	Transparency of the value point
<i>Radius</i>		5	

**Attention! To be able to display the process point, you need to select the option Save PP.**



### 6.10.1. Online chart configuration

The chart component makes it possible to perform different settings in the visualisation. You might, for example, want to provide a central visualisation page but leave it up to the user to select the data he wants to display on the page.

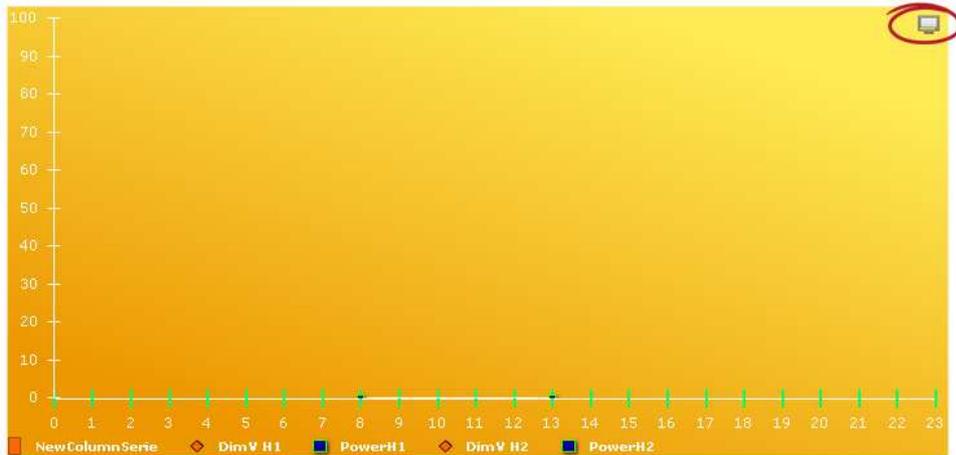


Abbildung 58: Chart component in the visualisation

Abbildung 58: shows a chart component in the visualisation. Click onto the symbol highlighted in the top right-hand corner to change into editing mode. The control elements are displayed in the top left-hand section. You can leave the editing mode by pressing .



: Opens a preview window with the option to print the chart.



: Shows a calendar underneath the chart to select the observation period. Values can be displayed on a minutely, hourly, weekly or monthly basis. If you select automatic, the setting will be based on the selected observation period. Press *Accept* to activate the changes. Click on  to close the calendar.



: Opens the on-line configuration window to display or remove additional charts. You can also change the display properties (colour, change between bar and curve chart, etc). Abbildung 59: shows the configuration window.



Abbildung 59: Online configuration window



: Lists the data in form of a table. You can also use this view to export the data in CSV format. This enables further processing in a table calculation program (e.g. Excel). Use  for the CSV export and  to leave the view.

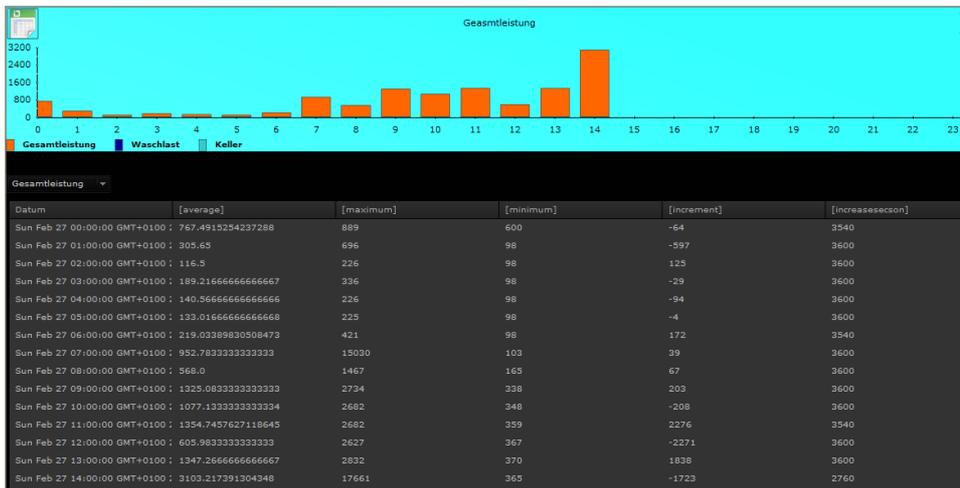


Abbildung 60: Table view of data



: Changes from the on-line chart display to the off-line mode. In the on-line mode the displayed curves are continuously updated. In the off-line mode the automatic update of the chart is disabled.



: Changes from off-line mode back into on-line mode.

## 7. Modules



CBS Evolution offers the user numerous functions to automate and monitor an installation. The functions are structured in module form and can be configured via the main menu *Module*. In addition to the basic configuration of function modules you can also modify the configuration in the visualisation.

### 7.1. Time schedules

In CBSE weekly and annual schedules can be configured. Select the modules from the menu *Modules/Schedules*. To carry out schedules correctly it is essential that the system time of the CBSE server is correct (see chapter 5.2.2).

#### 7.1.1. Weekly schedules

Use the menu item *Modules/Schedules/Weekly* to open the weekly scheduling programme (see Abbildung 61:). In a weekly schedule, the configured instructions are repeated on a weekly basis on the defined days and at the defined times. Individual commands can be assigned to categories such as lighting, shutters, heating, etc. Assigning commands to categories not only ensures a clear layout but also makes it easier to control system safety as users can be given access to only those areas that they should have access to.

Categories are defined via the control elements in the top left-hand corner of the editor window. The standard category display shows the name ALL. This means no particular category has been selected. All commands are displayed independently of which category they have been assigned to.



Abbildung 61: Configuration weekly schedules

		Opens the configuration selection window.
		Creates a new category.
		Opens a text field to change the category name.
		Deletes the displayed category. The time schedules in this category are listed under ALL.
		The command is inactive and will not be performed.
		The command is carried out when the weekly schedule is activated.
	<i>Time</i>	The time of the scheduling command in hours and minutes.
	<i>Week days</i>	Selects the week days when the schedule is to be performed.
		Process point selection
	<i>Value</i>	Value that is assigned to a process point. The value is dependent on the data type.
	<i>Activate</i>	Activates a weekly schedule. The details are sent to the executing system unit. If you do not use Activate, the settings will only become active when the system is re-started.
		Schedule navigation. The list is set up in page format. Use the navigation buttons to go a page forward, a page back or to the end.

		Adds a new schedule to the end of the list for further editing.
		Deletes the selected schedule.
		Adds a copy of the selected schedule to the end of the list.
		Opens the category selection window to assign the selected schedule to another category.
		Saves the settings.
		Closes the editing window.

### 7.1.2. Online schedules

A weekly schedule is embedded in the visualisation via a window navigation element or a desktop menu entry. You can configure the schedule together with the required category via the CBSE function Weekly Schedule (see chapter 5.10 and. 5.11.1).

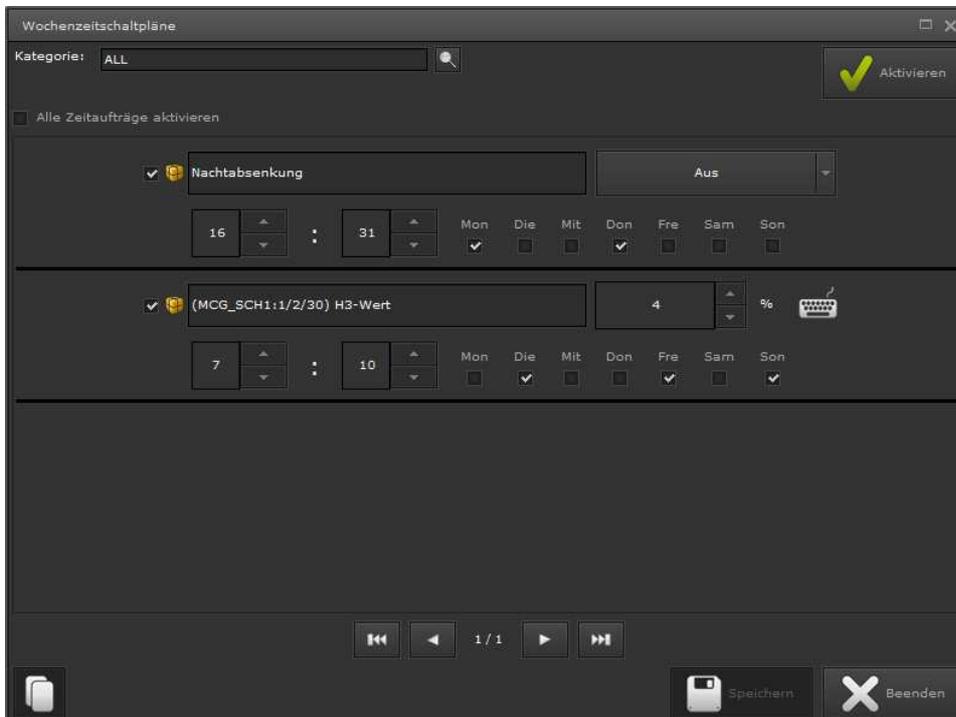


Abbildung 62:

Online schedules

The on-line editor lists all schedules that belong to a category and makes it possible to change time and value of an entry. However, it is not possible to define schedules for new process points. The design of the work space and the

size and position of the control elements are set up for touch screen control. The first schedule “night time mode“ (see Abbildung 62:) shows the name that was entered via the process point configuration *PP general>Name in Module* (Abbildung 63:).

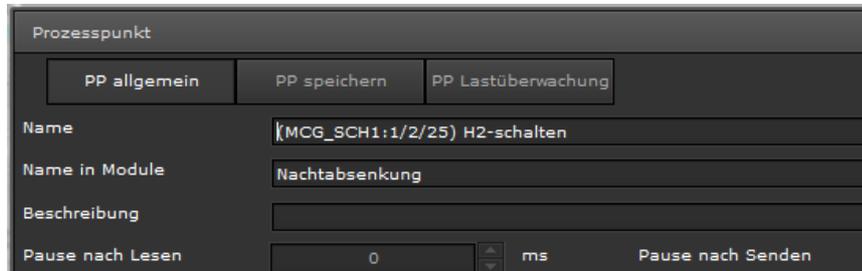


Abbildung 63:

Properties of *Name in*

*Module*

### 7.1.3. Annual schedules

CBSE annual schedules offer great flexibility in the description of time sequences. The flexibility comes primarily from the underlying structure. Annual schedules consist of switch sequences, that are activated at freely configurable event times (switch event). A switch sequence can consist of many individual actuators (switch action = setting the value of a process point). The essential task when creating an annual schedule is to display the required time commands in “subtasks“ (=switch sequences) and to trigger them at the required time as a switch event.

Go to *Modules/Annual Schedules/Annual* to open the module. Annual schedules can be used in parallel to weekly schedules. The configuration mask for annual schedules is shown in Abbildung 64:.

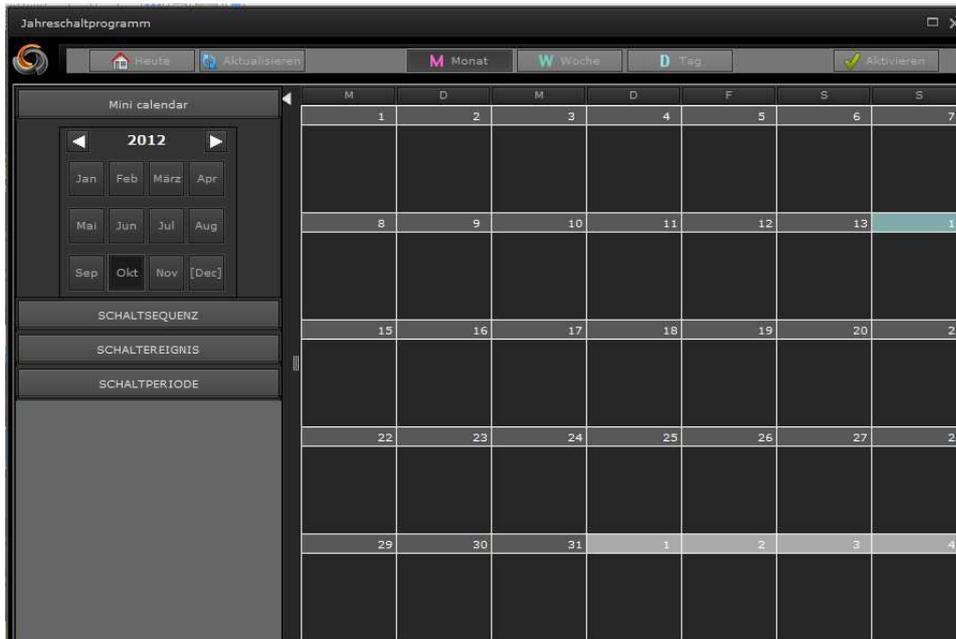


Abbildung 64: Annual schedules window

The window is divided into three areas: the header, the left-hand side navigation bar and the calendar view which shows the already configured switch events.

The icons in the header have the following functions:

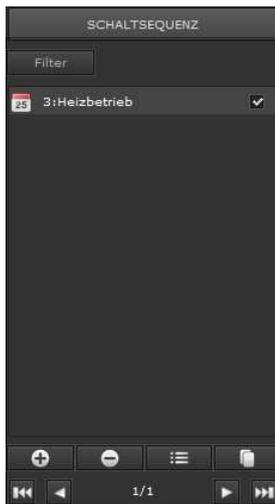
	Changes the calendar view to today's date.
	Refreshes the view so that the data currently saved in the database will be displayed.
	Changes the calendar view to the monthly view (standard display).
	Changes the calendar view to the weekly view.
	Changes the calendar view to the daily view.
	Activates the annual scheduling programme. The data is sent to the executing unit. You should activate the schedule once the configuration is complete. Otherwise it will only be activated after the system has been re-started.

The following chapters describe the configuration of a switch sequence as well the assignment of a sequence to a switch event.

### 7.1.3.1. Creating a switch sequence

The switch sequence defines a series of switch actions. Switch sequences are listed under the navigation button *SWITCH SEQUENCE*. Click on the button to open the switch sequence administration mask.

<i>Filter</i>	Displays a filter to limit the number of sequences shown in the list.
	Opens the switch sequence editing window (see Abbildung 65:) to create a new sequence.



	Deletes the selected sequence.
	Opens the switch sequence editing window to edit the selected sequence.
	Makes a copy of the selected sequence and opens the editing window to edit the copy.

Use the arrow buttons at the bottom to navigate within the switch sequence list. The tick box  next to a list entry shows whether the sequence has been enabled or not. You can also use the box to enable/disable a sequence.

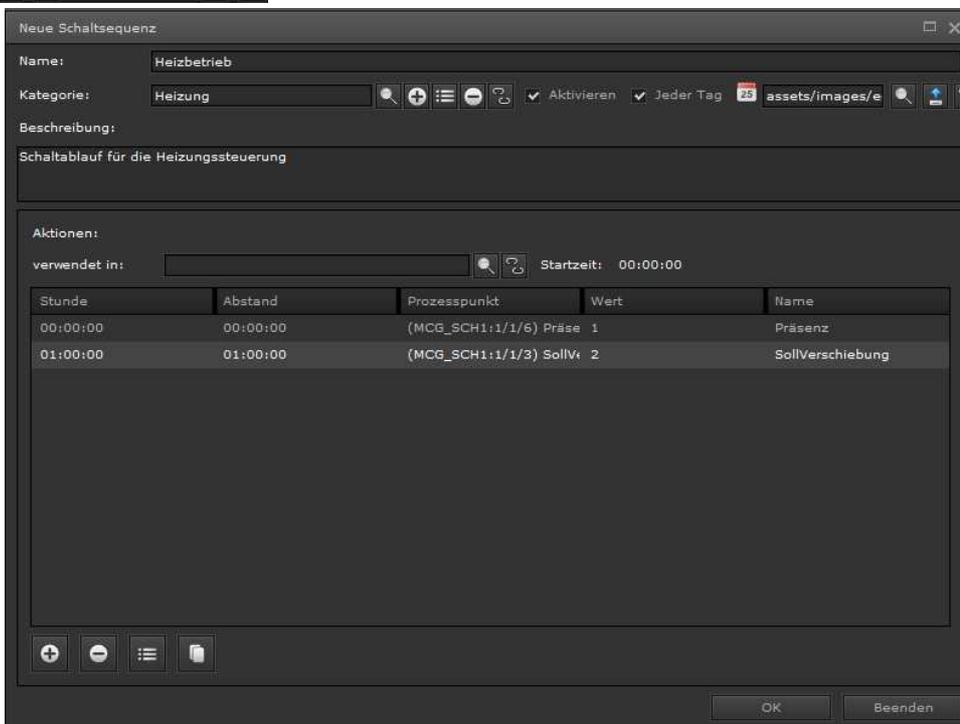


Abbildung 65:

Editor switch sequences

Properties	Value	Description
<i>Name</i>		Name of the switch sequence
<i>Category</i>		Opens the category selection window.
		Adds a new category.
		Opens an input field to change the name of the selected category.
		Deletes the displayed category
		Breaks the link between the switch sequence and the displayed category.

<i>Enable</i>	<input type="checkbox"/>	Switch sequence is not enabled.
	<input checked="" type="checkbox"/>	Switch sequence is disabled.
<i>Image</i>		Image for the sequence. Use the buttons to select or upload a new image or remove an existing link between an image and a sequence.
<i>Description</i>		Optional description text
<i>Actions:</i>		Opens the switch action window (see <b>Fehler! Verweisquelle konnte nicht gefunden werden.</b> ) to add a new switch action.
		Deletes the selected action.
		Opens the switch action window to edit the selected action.
		Copies the selected action and opens the switch action window to edit the new action.
	<i>Used in</i>	Loads the switch event administration to link an action to a switch event.

In the example above, the switch sequence has been called “Heating mode“ and has been assigned to the category “heating“. The optional description text can be used for documentation purposes. The switch actions “Presence“ and “Set point change“ have been defined via the switch action window.

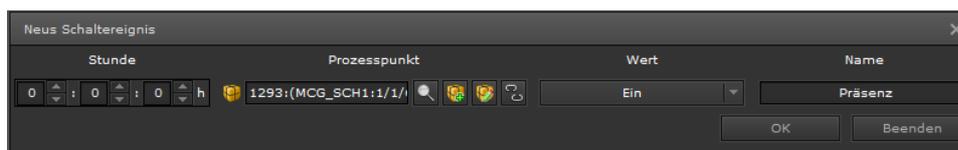


Abbildung 66:

Creating a switch action

Select the required process point from the list of process points in the switch action window, define the switch value and name the action. The time display is used to set the offset time, i.e. the time that is added to the start time of the switch event before the switch action is carried out. In the example sequence “Heating mode“, the first switch action is performed at the time of the switch event. The second action, however, is only carried out an hour later.

### 7.1.3.2. Defining switch events

The switch event is a point in time that is used to trigger a switch sequence. A switch sequence can be triggered via different switch events, i.e. at different

moments in time. You can create switch events either via the navigation button *SWITCH EVENT* or via the switch sequence editing window.

Use  in the switch event list to create, delete, edit or copy switch events. Abbildung 67: shows the editing window for switch events.

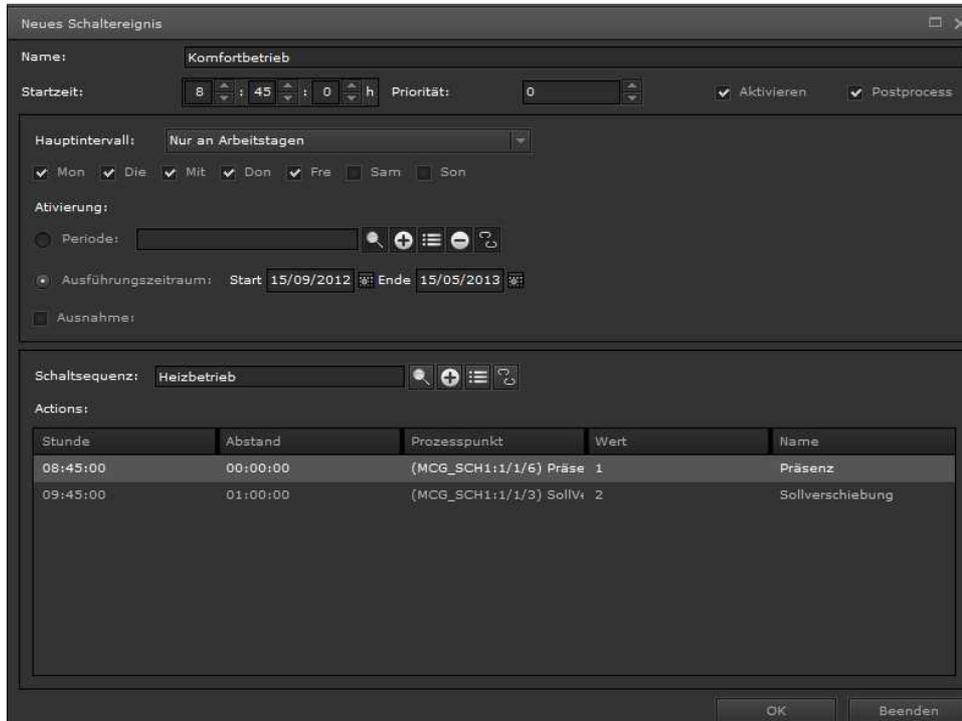


Abbildung 67: Creating switch events

Properties	Value	Description
<i>Name</i>		Name of the switch event
<i>Start time</i>	hh:mm:ss	Time at which the event is triggered.
<i>Priority</i>	0-99	If you define different events with an identical start time, the priority determines the starting order.
<i>Enable</i>	<input type="checkbox"/>	Switch event is disabled.
	<input checked="" type="checkbox"/>	Switch event is enabled.
<i>Postprocess</i>	<input type="checkbox"/>	In case switch actions cannot be performed because of a bus connection failure, they will not be performed after the connection has been restored.
	<input checked="" type="checkbox"/>	In case switch actions cannot be performed because of a bus connection failure, they will be performed subsequently after the

		connection has been restored.
Main interval:	None	The switch sequence is only performed once at the defined <i>Start date/Start time</i> .
	Daily	Within the <i>execution period</i> the switch sequence is performed daily at the defined <i>start time</i> .
	Only on working days	Within the <i>execution period</i> the switch sequence is performed from Monday to Friday at the defined <i>start time</i> .
	Only at weekends	Within the <i>execution period</i> the switch sequence is performed on Saturdays and Sundays at the defined <i>start time</i> .
	Weekly	Within the <i>execution period</i> the switch sequence is performed on the week day of the start date at the defined <i>start time</i> . If, for example, 19 October is a Saturday, the sequence is only performed on Saturdays.
	Monthly on the day (Day of the start date)	Within the <i>execution period</i> the switch sequence is performed every month on the day of the start date at the defined <i>start time</i> . If, for example, 21 October is a Monday, the sequence is performed on the Monday of the respective week of the month.
	Monthly on the date (Start date)	Within the <i>execution period</i> the switch sequence is performed every month on the start date at the defined <i>start time</i> . If, for example, the start date is 19 October, the sequence is performed on the 19th of each month..
	Yearly on the day (Day of the start date)	The switch sequence is carried out yearly on the day of the start date.
	Yearly on the date (Start date)	The switch sequence is carried out yearly on the start date.
	Repeat every minute	In the field <i>Repetition</i> enter the time in minutes after which you would like to repeat the switch sequence during the <i>execution period</i> .
Repeat every hour	In the field <i>Repetition</i> enter the time in hours after which you would like to repeat the switch sequence during the	

		<i>execution period.</i>
	Repeat every day	In the field <i>Repetition</i> enter the time in days after which you would like to repeat the switch sequence during the <i>execution period.</i>
	Week days	Defines the week days on which the switch sequence is performed within the <i>execution period.</i>
	Repeat annually	This option shows a calendar where you can mark the days when the switch sequence is to be carried out.
<i>Repetition</i>	1	This field appears optionally if the main interval is set to minutely, hourly or daily repetition.
<i>Execution period</i>	<i>Period</i>	The periodical execution defines a time period that is repeated annually. Within this time period, switch events are triggered as defined in their main interval. Periods can be, for example, holidays, summer or winter. To visually distinguish period sections, each period can be assigned a colour.
	<i>Section</i>	This execution period is defined through a <i>start date</i> and an <i>end date</i> . The end date is limited to the year 2100. Within this time period, switch events are triggered as defined in their main interval.
<i>Exception</i>	<i>Start</i>	The start date from which the exceptional rule applies.
	<i>End</i>	The end date up to which the exceptional rule is valid.
	<i>New start time</i>	Defines the start time of a switch event for the period of the exception.
	<i>Enable</i>	<input type="checkbox"/>
<input checked="" type="checkbox"/>		The switch event is triggered at the <i>New start time</i> throughout the exception.
<i>Switch sequence</i>		Assigns the switch sequence. The corresponding switch actions are listed in table form.

Once all the settings are complete, all the switch event details are displayed at the bottom of the editing window.

Stunde	Abstand	Prozesspunkt	Wert	Name
08:45:00	00:00:00	(MCG_SCH1:1/1/6) Präse 1		Präsenz
09:45:00	01:00:00	(MCG_SCH1:1/1/3) SollV: 2		Sollverschiebung

In the example the switch event “comfort mode” carries out the switch sequence “heating mode” on working days at 8:45 with the switch action “presence”. One hour later the switch action “set point change” is performed.

Press *OK* to accept the settings. They will now be displayed in the calendar view.

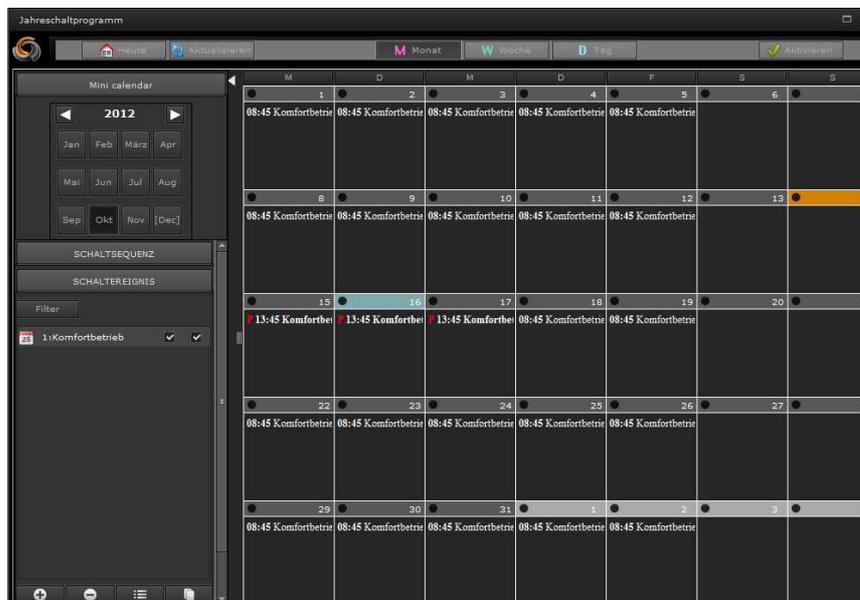


Abbildung 68:

Projected switch events

The calendar displays switch events with start time and name. In addition, you can load a context menu with the the right mouse button. Switch events can be easily edited (e.g. to define exceptions). Simply click on the required event in the calendar with the right mouse button. The context menu opens and you can select the required menu item to open the editing window.

The settings are only sent to the executing unit after the annual schedule has been enabled.



## 7.2. Alarm configuration

In installations with particular safety and security requirements, the CBSE alarm service can alert users to a critical system status. In the alarm configuration, actions can be defined that pass on information when an alarm has been triggered. One way to pass on information is to simply display a message on the screen. If it is not certain, however, that such information will be read, other services such as e-mail or SMS notification are also available. An Internet provider is required for both e-mail and SMS notifications. The required access details are configured under *Configuration/SMTPConfiguration* or *Configuration/VoiP Service* (see chapter 5.2.6. and 5.2.7).

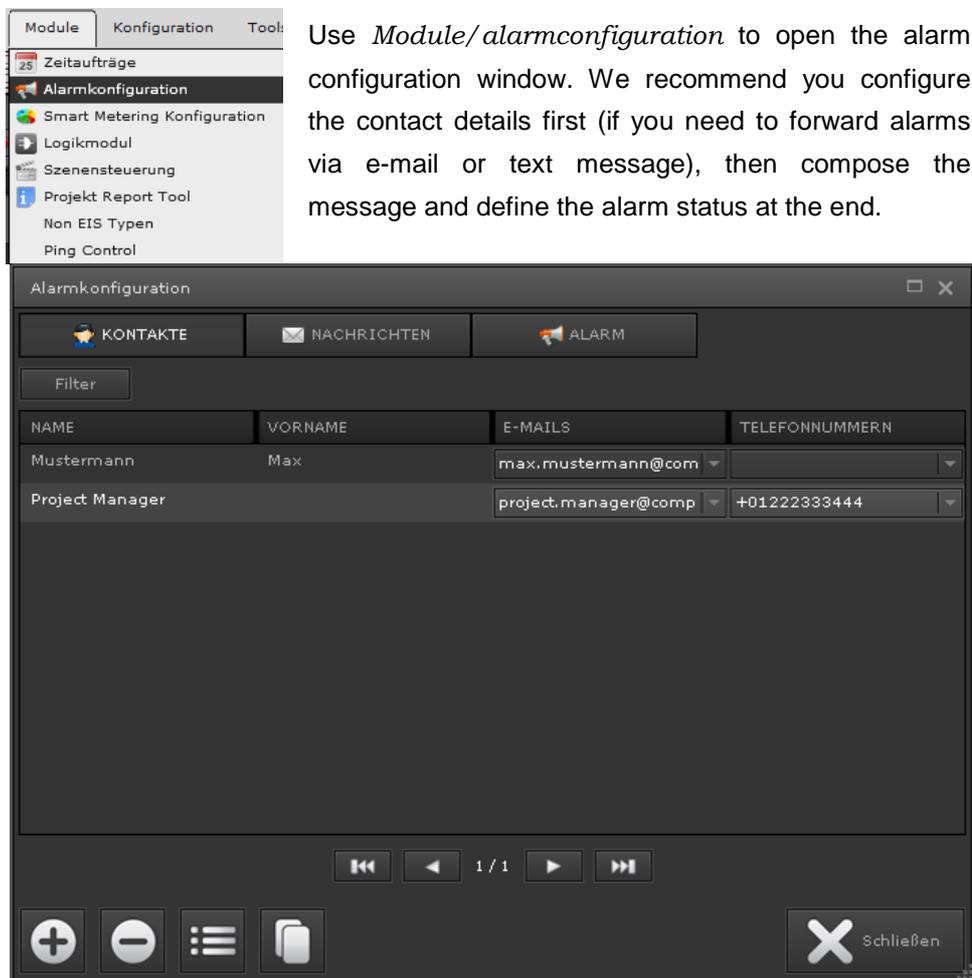


Abbildung 69:

Alarm configuration

Abbildung 69: shows the main window of the alarm configuration. Use the tabs *CONTACTS*, *MESSAGES* and *ALARM* in the header to display the different editing areas. Use the *Filter* function to pre-select entries. Use the function buttons at the bottom of the window to add, delete, edit and copy an entry.

### 7.2.1. Contacts

Contact details are only required if you would like to forward an alarm via e-mail or text message. **Fehler! Verweisquelle konnte nicht gefunden werden.** shows the contact configuration window.

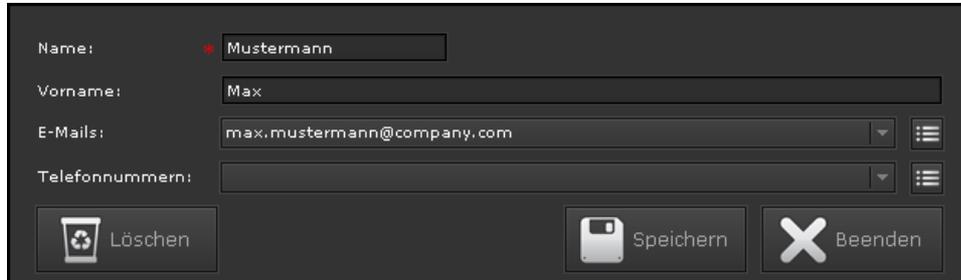


Abbildung 70:

Contact configuration

Contact details consist of surname, first name, e-mail address and telephone number for text messages. Press *Save* to accept the settings. Several e-mail addresses and phone numbers can be assigned to a contact. Press  to open the respective input fields.

### 7.2.2. Messages

Use the Message section to enter the message you would like to display or send if an alarm occurs. All texts can also be placeholders which will be replaced by current values when an alarm occurs. You can insert placeholders via the context menu of a text field (right mouse click).

Placeholder	Description
[PROCESSPOINT]	Name of the process point that has triggered the alarm.
[VALUE]	Process point value
[CONDITION]	Comparator condition
[THRESHOLD]	Threshold value or comparator value
[UNITS]	Unit

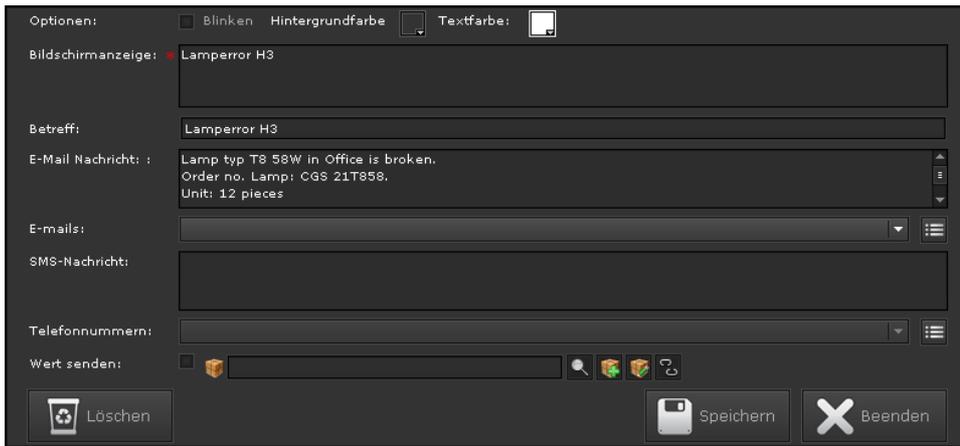


Abbildung 71:

Alarm messages

Properties	Value	Description
<i>Blinking</i>	<input type="checkbox"/>	Message does not blink.
	<input checked="" type="checkbox"/>	Blinking message
<i>Background colour</i>	black	Background colour of the text message.
<i>Text colour</i>	white	Text colour
<i>Screen display</i>		Message that is displayed on the screen.
<i>Subject matter</i>		Subject line for e-mails
<i>E-Mail message</i>		Text of the e-mail
<i>E-Mails</i>		E-Mail recipient list. Use  to create the address list.
<i>SMS message</i>		SMS message text
<i>Phone numbers</i>		Text message recipient list. Use  to create the list of phone numbers.
<i>Send value</i>	<input type="checkbox"/>	The option "set process point value on alarm" is not used.
	<input checked="" type="checkbox"/>	The option "set process point value on alarm" is used. The process point can be defined in the input field. You could, for example, use the process point to open a window in the visualisation with further instructions for the user.

### 7.2.3. Alarm

Use the *Alarm* to configure an alarm status. A list of previously defined alarms appears at the top. Use the editing buttons     to add, delete, edit or copy an alarm. A configuration mask opens to create/edit an alarm. The mask is divided into the areas: alarm, properties, status and fault notification.

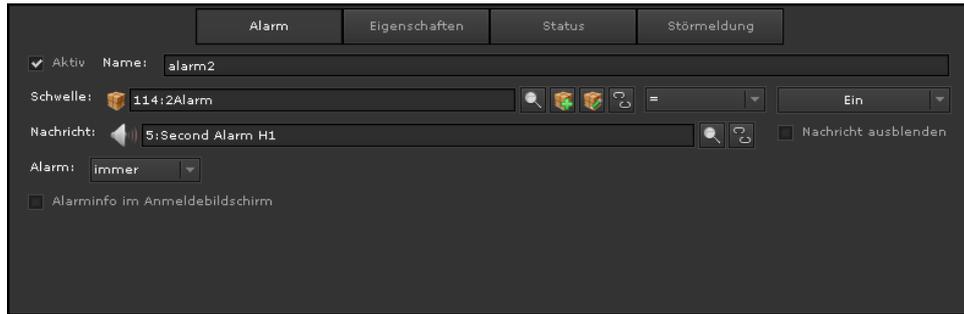


Abbildung 72:

Definition of an alarm status

Alarm	Value	Description
<i>Enabled</i>	<input type="checkbox"/>	The alarm status is disabled.
	<input checked="" type="checkbox"/>	The alarm status is enabled.
<i>Name</i>		Name of the alarm status.
<i>Threshold= alarm condition</i>		The alarm condition consists of process point, comparator operator and comparator value. With the comparator operator the process point value is compared to the comparator value. If the condition is met, an alarm is triggered. The comparator value depends of the data type (of the selected process point).
<i>Message</i>		Assigns the notification message to the alarm.
<i>Message display</i>	<input type="checkbox"/>	The notification message is not shown on the screen.
	<input checked="" type="checkbox"/>	The notification message is shown on the screen.
<i>Alarm</i>	Once	The alarm is generated once when the alarm condition is first met.
	Always	The alarm is generated for each process point event that meets the alarm condition.
<i>Alarm info on log-in screen</i>	<input type="checkbox"/>	The occurrence of the alarm is not displayed on the log-in screen.
	<input checked="" type="checkbox"/>	The occurrence of the alarm is displayed on the log-in screen.



Abbildung 73:

Alarm status properties

Properties	Value	Description
<i>Priority</i>	ADMIN ALARM	These alarms can only be displayed and edited on the Administrator desktop.
	MAX	Alarms with these priority levels can be displayed on each desktop.
	MEDIUM	
	LOW	
<i>Category</i>	ALL	An alarm can be assigned to a category. Use the editing buttons to create or edit the category.
<i>Acoustic acknowledgement</i>	<input type="checkbox"/>	No acoustic acknowledgement.
	<input checked="" type="checkbox"/>	The acoustic acknowledgement when an alarm occurs is switched on.
<i>Alarm repetition</i>	0	Number of times that an alarm message is sent by e-mail or text if the alarm is not acknowledged. 0 means no restriction, i.e. the alarm message is re-sent continuously until the alarm has been acknowledged.
<i>Delay until repetition</i>		The delay in seconds before an alarm notification message is re-sent. In the example, the alarm is sent 3 times every 30 seconds to the e-mail / text message service if it is not acknowledged. After this, the alarm is no longer sent.

The alarm management in CBSE can be used for numerous applications with both automatic and manual alarm management being supported. Abbildung 74: shows the status chart of the alarm management. Status changes resulting from an alarm acknowledgement or changes from/into maintenance mode can be

triggered by process point events (automatic) or manual user actions in the visualisation. The following status types are differentiated:

- 0 – Unknown. The status of the corresponding alarm process point is unknown.
- 1 – Normal, acknowledged (Normal Acked). No alarm condition exists.
- 2 – Alarm, not acknowledged (Alarm, UnAked). The alarm condition is fulfilled. The alarm has not yet been acknowledged.
- 3 – Alarm, acknowledged (Alarm, Aked). The alarm condition continues to be present and has been acknowledged.
- 4 – Normal, not acknowledged (Normal, UnAked). The alarm condition no longer exists. The previous alarm status, however, has not been acknowledged.
- 5 – Maintenance mode/disabled (Maintenance/Disabled). The alarm is in maintenance mode or is disabled. If a time period for the maintenance has been set, the maintenance mode automatically comes to an end after the time has expired.

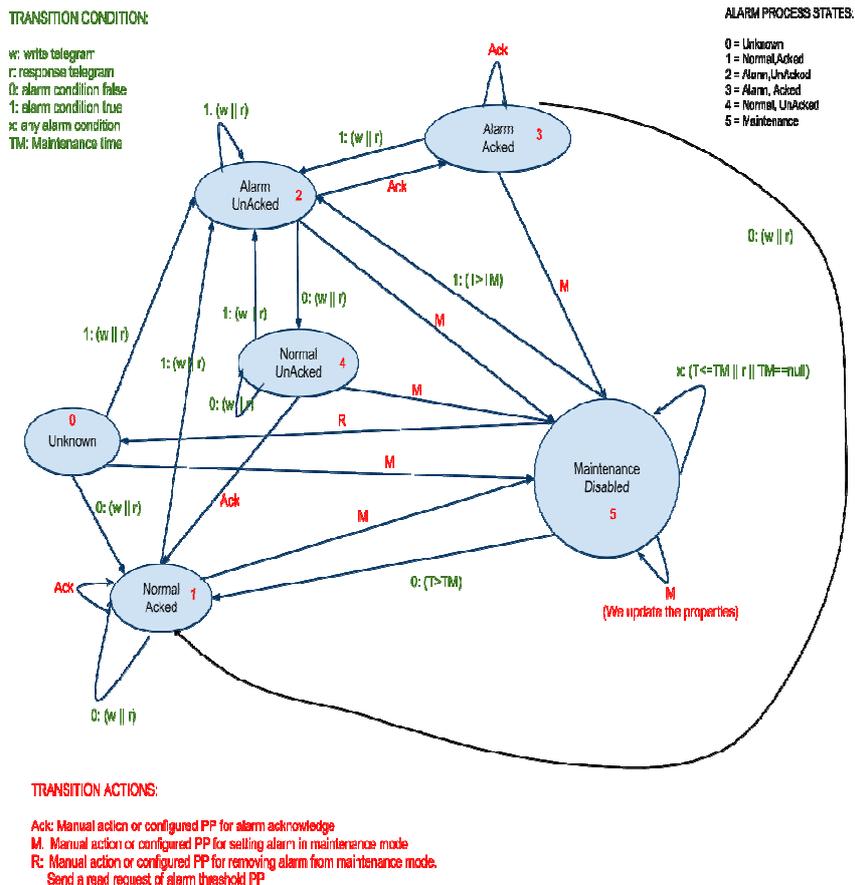


Abbildung 74:

Status chart of the alarm

management

For each alarm definition an alarm management status is provided via

automatically created process points for further individual processing. The following process points are available:

Alarm.<Alarm-Name>.Status – is sent every time the alarm process status changes (see Abbildung 74:). The status takes on the values 0-5 depending on the current alarm process status.

Alarm.<Alarm-Name>.Enabled – signals whether the alarm is enabled (1) or disabled (0). The process point is sent when the alarm process status changes into maintenance mode (5) or leaves the maintenance mode.

Alarm.<Alarm-Name>.Acked – signals whether the alarm has been acknowledged (1) or has not been acknowledged (0).

The automatically created process points are listed in the process point selection in the sub-directory *alarm/ <Alarm-Name>*.

You can enter process points for automatic alarm management in the *Status* section.



**Abbildung 75:** Status process points of the alarm status

Status	Value	Description
<i>For acknowledgement</i>		Process point for the automatic acknowledgement of an alarm. If the alarm process is in the status alarm,unacknowledged (2) it changes to alarm,acknowledged(3) when the configured value is sent.
<i>To enable</i>		Process point to automatically enable the alarm (from disabled or maintenance mode). If the process point is sent whilst the alarm status is in disabled or maintenance mode, the alarm process status changes to the status 0 and sends a read request to

		re-check the alarm condition.
<i>To disable</i>		Process point to automatically disable the alarm (or change it to maintenance mode) If the set value is sent, the alarm process status changes to maintenance mode (5).

Use the error notification configuration to record if an alarm has not been managed correctly, for example, because the alarm has not been acknowledged or because an error has occurred when the message (e-mail/text) was sent.



Abbildung 76: Fault notification configuration

Error message	Value	Description
<i>Send when no acknowledgement has been received</i>		If the alarm has not been acknowledged after all repetitions have come to an end, this process point is sent.
<i>Send if no e-mails or text can be sent</i>		If the alarm message cannot be sent, because no connection could be made to the service provider, this process point is sent.

### 7.2.4. Online alarm management

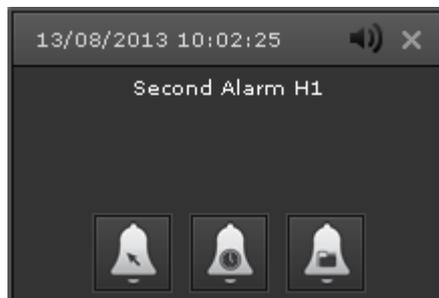


Abbildung 77: Alarm info window

The header of the info window shows the time stamp of the last alarm. The message that is linked to the alarm is shown inside the window. You can edit the alarm via the following symbols:



**Check alarm:** Opens a text input field in connection with the alarm management window. See Abbildung 78:.

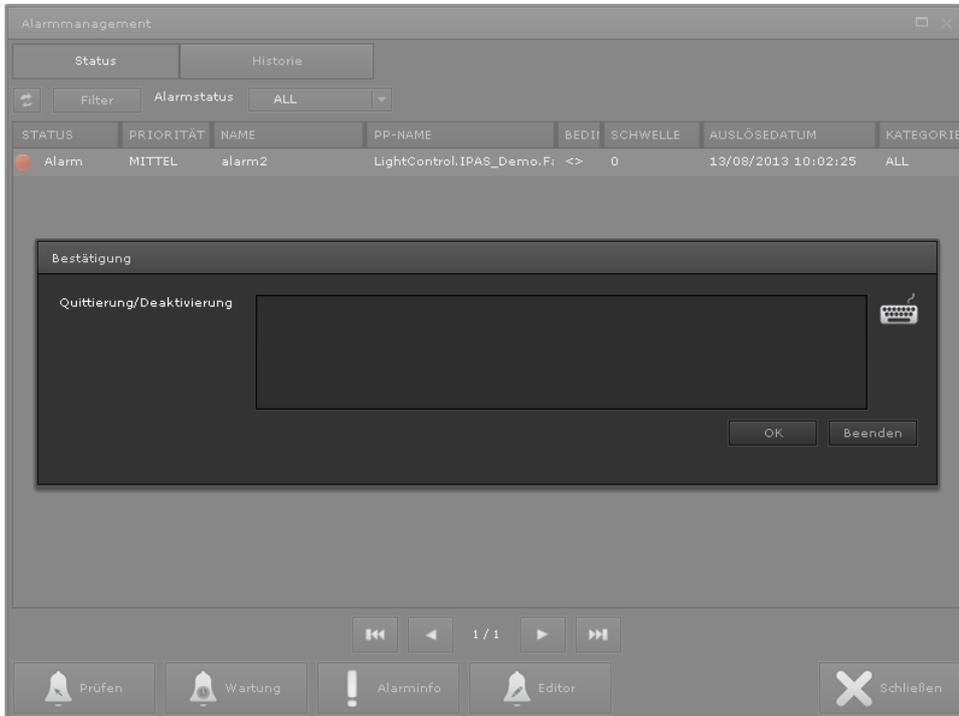


Abbildung 78:

Alarm acknowledgement

Use the text field acknowledge/disable to enter a comment that is saved together with the acknowledgement.



**Maintenance:** Setting an alarm to maintenance mode temporarily disables the alarm. This function is useful, for example, to enable reconstruction or maintenance work, which would otherwise lead to permanent alarm messages.



**Recorded data:** Opens the alarm management window shown in Abbildung 79: and lists all alarms. Use *Filter* and *Alarm status* to adjust/restrict the list of alarms displayed.

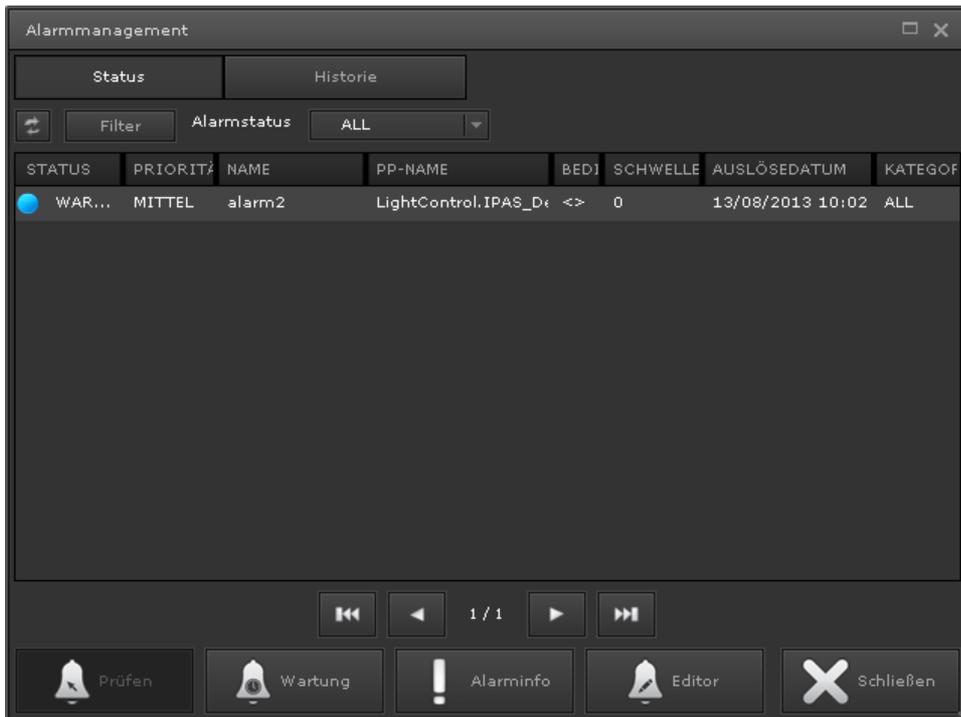


Abbildung 79: Alarm management window

The table shows the alarm status, priority, name, assigned process point name, trigger condition, trigger date and category. For each list entry you can press the alarm info button at the bottom to see a plain text display of the corresponding information (see Abbildung 80:)

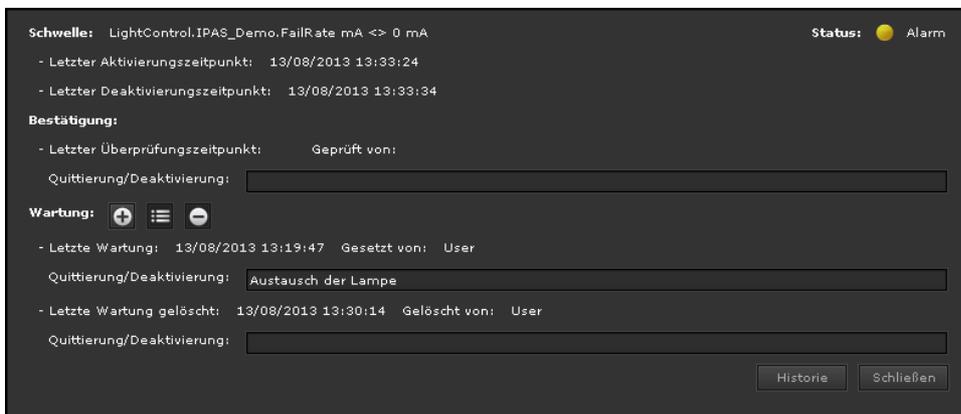


Abbildung 80: Alarm info display

Use *Check* and *Maintenance* to open the previously discussed dialogue windows to acknowledge or disable the selected alarm.

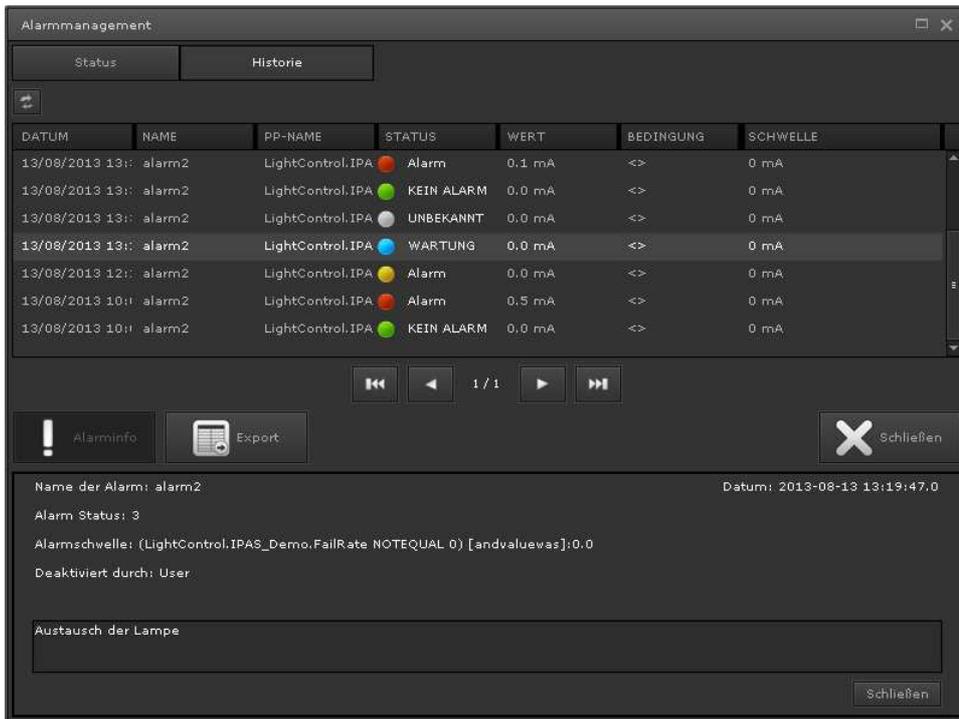
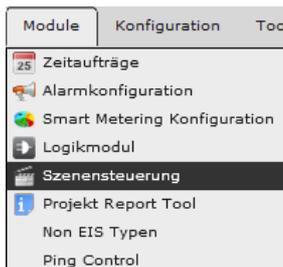


Abbildung 81:

Alarm history

Use the History button to change the view as shown in Abbildung 81:. The info field at the bottom appears after you have selected a list entry with the alarm info button. The info field can remain open whilst you navigate through other entries. Use *Export* to export data in CSV format.

### 7.3. Scene control



The CBS Evolution scene control module can define any number of scenes. A scene consists of a list of actions that are executed depending on a trigger event. An action can either involve setting a process point or carrying out the delay function. Go to the main menu of the Editor and select *Modules/Scene Control*.

Abbildung 82: shows the scene configuration window. Use *Scenes* or *Events* in the header to move between the action and trigger editor view. Previously defined scenes are listed in the middle of the action editor window. Input fields to create an action list appear in the bottom part. The following example shows how to create a list of actions and how to define the corresponding trigger event.



Creates a new scene (list of actions). Input fields appear at the bottom of the configuration window.



Deletes the selected scene after confirmation from the user.



Opens or updates the editing area at the bottom to edit the selected scene.



Opens or updates the editing area with a copy of the selected scene.

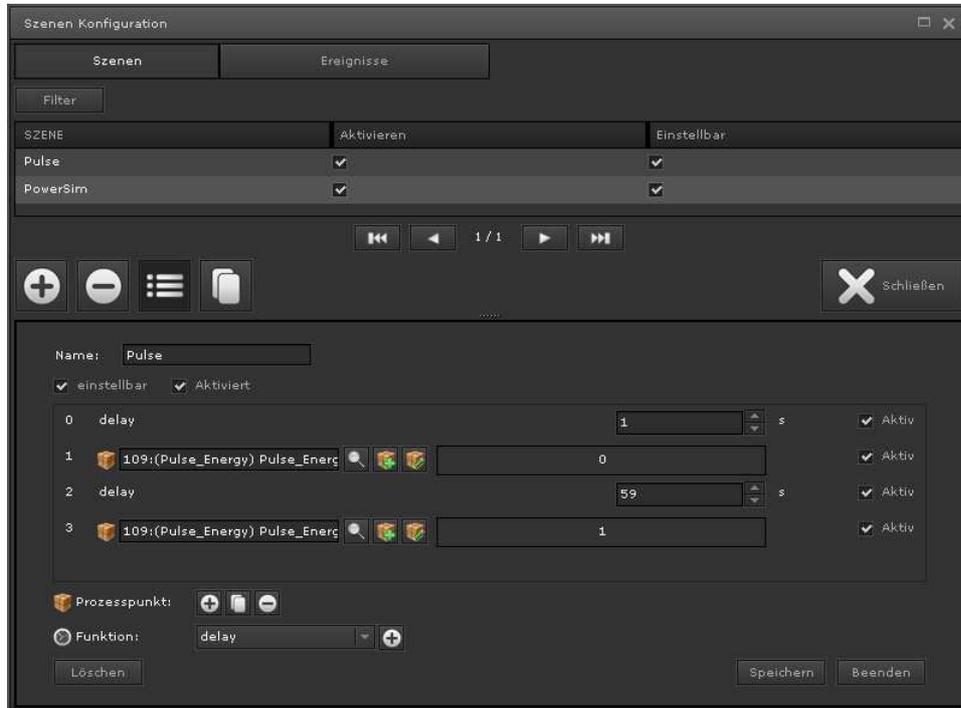


Abbildung 82: Scene configuration – List of actions

Properties	Value	Description
<i>Name</i>		Freely configurable name of the scene.
<i>Editable</i>	<input type="checkbox"/>	The scene cannot be edited in the visualisation.
	<input checked="" type="checkbox"/>	The user can edit the scene in the visualisation.
<i>Enabled</i>	<input type="checkbox"/>	The scene is not executed.
	<input checked="" type="checkbox"/>	The scene is enabled and is performed when a trigger event occurs.
<i>Process point</i>		Inserts a process point editing field into the list of actions.
		Inserts a copy of the selected process point into the list of actions.
		Deletes the selected process point from the list of actions
<i>Function</i>	delay	Inserts a delay into the list of actions. The time is entered in milliseconds.

Use *Save* to accept the settings.



You can use drag & drop to change the order of the lines (and thereby the order in which they are performed).

To create a trigger event click on *Events* to change into the corresponding view. The editing window is similar to the one for actions. The filter function in the header helps to limit the displayed trigger events to those required.



Creates a new trigger event. Input fields appear at the bottom of the configuration window.



Deletes the selected trigger event after confirmation from the user.



Opens or updates the editing area with a copy of the selected trigger event.

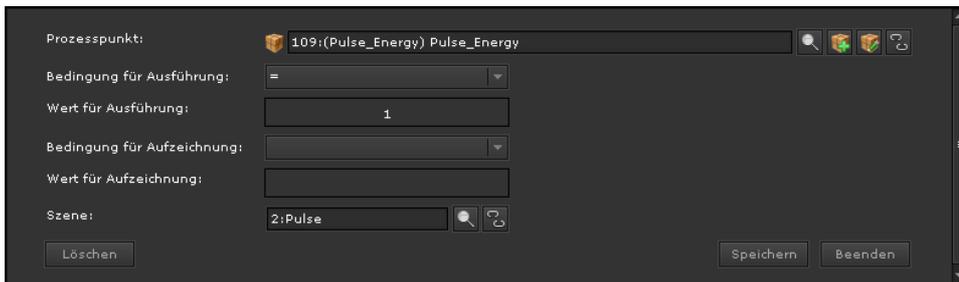


Abbildung 83:

Event configuration

Properties	Value	Description
<i>Process point</i>		Opens the list of process points.
		Opens the process point editor to create a new process point.
		Opens the process point editor to edit the assigned process point.
		Removes the link between scene trigger and process point.
<i>Condition for execution</i>	=	Checks whether the process point is equal to the value <i>for execution</i> .
	<>	Checks whether the process point is not equal to the value <i>for execution</i> .
	<	Checks whether the process point

		value is less than the value <i>for execution</i> .
	>	Checks whether the process point value is greater than the value <i>for execution</i> .
	Each value	The scene will be executed with each process point event.
<i>Value for execution</i>		Comparator value for the execution condition
<i>Condition for recording</i>		Recording mode is disabled.
	=	Checks whether the process point is equal to the value <i>for recording</i> .
	<>	Checks whether the process point is not equal to the value <i>for recording</i> .
	<	Checks whether the process point value is less than the value <i>for recording</i> .
	>	Checks whether the process point value is greater than the value <i>for recording</i> .
	Each value	The scene will be executed with each process point event.
<i>Value for recording</i>		Comparator value for the recording condition
<i>Scene</i>		Opens the list of all available scenes to select the scene that is to be linked to the scene trigger.
		Removes the link between scene trigger and scene.

So that values can be read by the KNX Bus, the Read flags for the respective process points need to be selected. We suggest you connect the process point for the scene value both with the data point for value setting and the corresponding data point for status value. Tick the write flag for the value setting data point and the read flag for the status data point. If the scene is executed, the writing data point passes the scene values on to the bus. New scene values are read via the status data points.



### 7.3.1. Online scene editing

In CBSE all scenes that were configured with the “editable” tick box can be edited in the visualisation. Open the on-line scene module via a navigation element with the CBSE function SCENES. **Fehler! Verweisquelle konnte nicht gefunden werden.** shows the on-line scene control window. The main window lists all scenes. Use the text field in the header to filter the list. You can edit a selected scene as long as it has been configured as being “editable”.

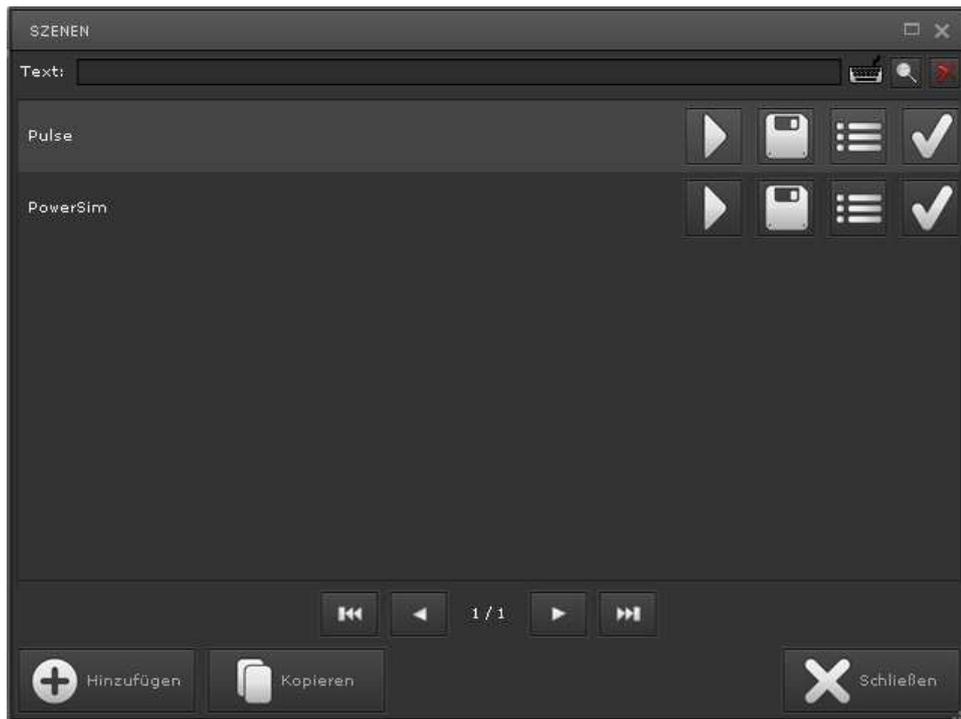


Abbildung 84:

On-line scene control

-  Play scene: Starts the selected scene.
-  Saves the scene with the currently set scene values.
-  Enables/disables the selected scene.
-  Opens the scene editor (Abbildung 85:) to edit the scene.
-  Copies the selected scene.
-  Adds a new scene.

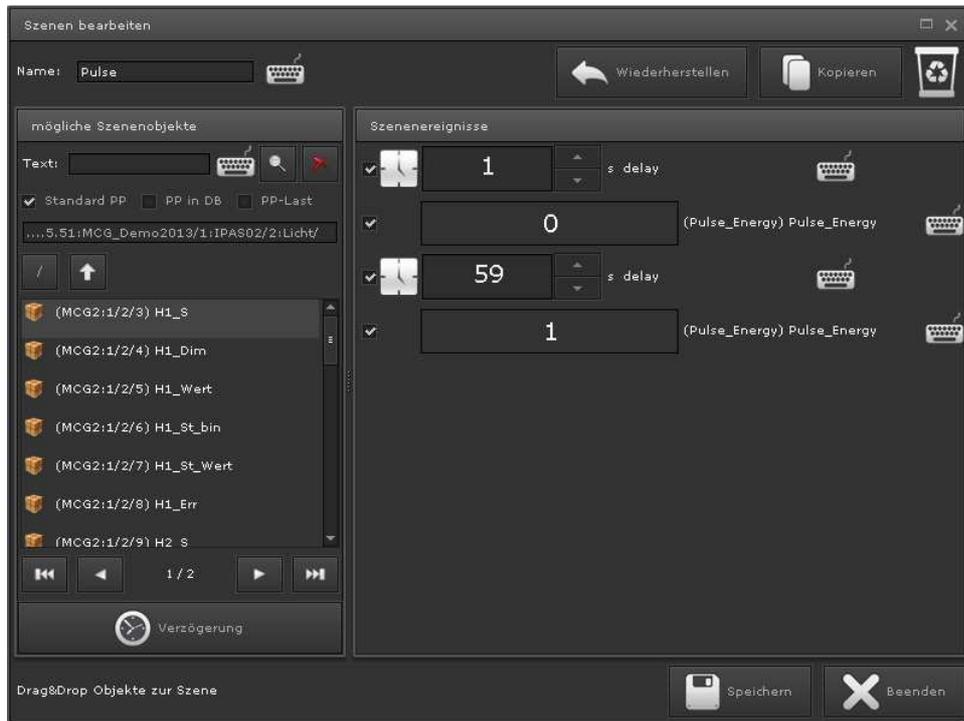


Abbildung 85:

On-line scene editor

The on-line scene editor is optimised for the touch screen application. An optional on-screen keyboard is available for your entries. Use drag & drop to add or delete actions. To add an action, drag an object from the list of *possible scene objects* and drop it into the *scene events* section on the right. You can also add the delay function with drag&drop.



Re-sets the original scene settings.



Drag&drop a scene element onto this symbol to delete it.



Opens an on-screen keyboard to enable input via touch screen.

## 7.4. Logic module

CBSE offers the user a powerful, graphical logic module. In addition to standard gates such as “AND”, “OR”, “INVERT”, etc., comparators, mathematical operators, converters, gates and others can be used in complex logic plans. Start



the logic editor that is used to create logic plans with *Modules/Logic Control*.

**Fehler! Verweisquelle konnte nicht gefunden werden.** shows the logic editor window.

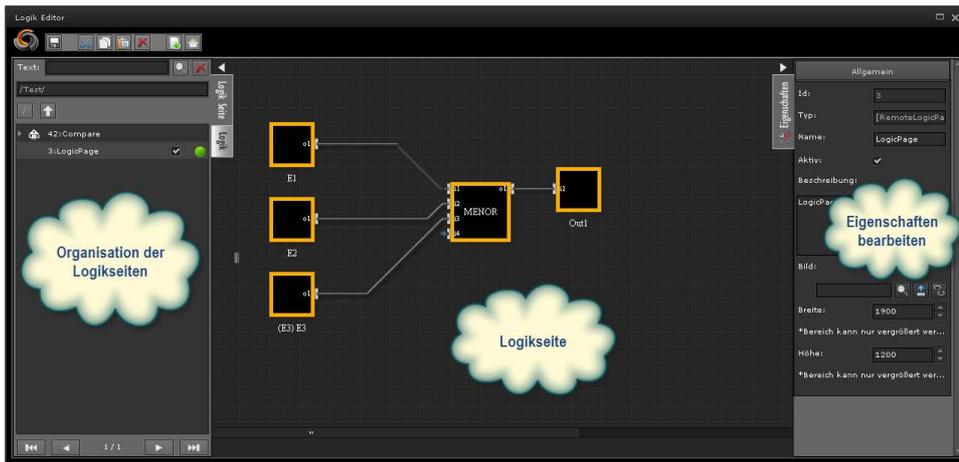


Abbildung 86:

Logic editor structure

Logic plans are created on logic pages. To structure complex function blocks, logic pages can be sorted into folders. Use the context menu (right mouse click) to create or edit a folder in the admin area on the left. The following functions are available in the context menu:

- New folder:** Creates a new folder for logic pages at the currently selected level (folder).
- New logic page:** Creates a new logic page in the currently selected folder.
- Properties:** Determines the number of displayed pages in the page navigation window.
- Cut:** Copies the selected page onto the clipboard and deletes it from the current position.
- Copy:** Copies the selected page onto the clipboard.
- Insert:** Inserts the page from the clipboard into the currently open folder.
- Delete:** Deletes the selected page
- Keep folder:** This menu item appears if a folder is selected. It enables you to change the name and icon of the folder if required.

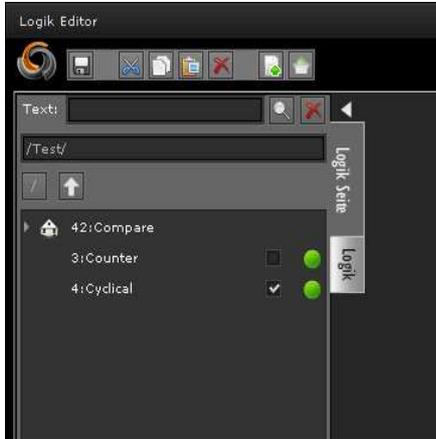
The buttons in the header relate to the editing functions of the logic page:

-  Saves the logic page in the Editor.
-  Cuts the selected element and places it on the clipboard.
-  Copies the selected element onto the clipboard.
-  Inserts the element from the clipboard into the currently open logic page.
-  Deletes the selected element.
-  Enables the currently displayed logic page in CBSE.
-  Enables all logic pages in CBSE.

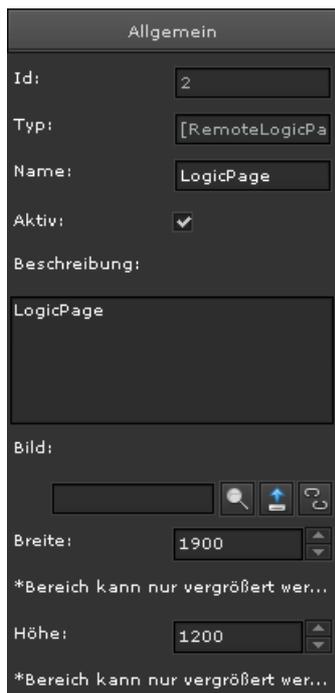


If a logic page is not enabled, the functions projected on the page are not immediately executed in CBS Evolution. They will only become effective after the system has been re-started. Saving only stores the settings in the Logic Editor.

The logic page navigation window lists all pages with their current status (see image on the left). The tick box next to the page name shows the execution status. Pages that are not marked as being executable are ignored by the executing unit. Next to the tick box is the activation status display. Green means the page is enabled and grey that it is disabled.



After you have created a new logic page or selected an existig one, you can use the properties menu to edit its properties.



- Name:** Name of the page
- Execute:** Executes the logic when the page is enabled.
- Description:** Description text for the page
- Image:** Page symbol for the logic page navigation window.
- Width/ Height:** The standard size of a logic page is 1900x1200 pixels. The page can be enlarged for complex logic plans but it cannot be made smaller.

Fundamentally a logic plan is based on drag&drop actions. Simply drag the required element from the list of available logic elements and dropt it onto the work sheet. The elements are displayed as rectangles. The inputs are located on the left and the outputs on the right. **Fehler! Verweisquelle konnte nicht gefunden werden.** gives an example of a simple logic circuit. Principally a logic circuit consists of inputs, outputs and function elements. Inputs and outputs serve as gateways to the process points.

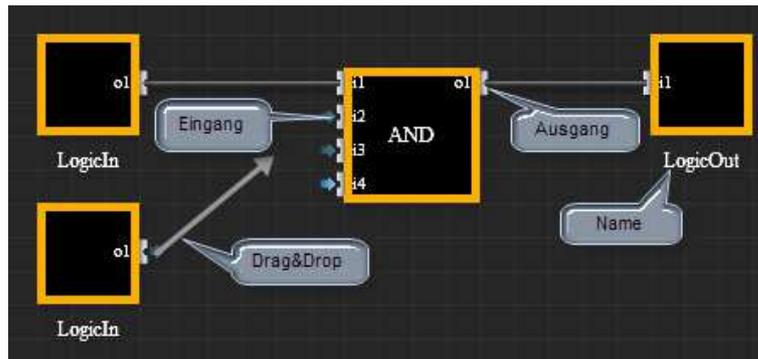


Abbildung 87: Structure of the logic elements

To connect different elements, select the connector point of an element and create a line to the connector of another element by pressing down the left mouse button. You can only connect element inputs with element outputs. To visually support this “wiring” process, the line turns green as soon as the logic editor has “recognised” a connection. You can now release the mouse button and the logic editor does the connection by itself. If you re-position a connected element, the logic editor moves the connection automatically.



You can break existing connections by clicking on one of the connection end points.

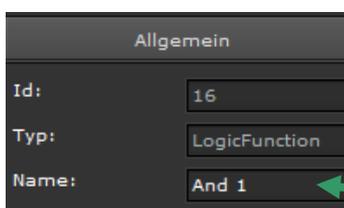
All available logic elements are listed under the tab *Logic* (in the left-hand side navigation field). Elements are sorted into groups according to their functionality. The groups are: *inputs*, *logic gates*, *advances gated* and *outputs*. CBSE logic plans can contain both binary and mathematical functions. If you use numbers on a binary signal path, the following rule applies:

If required, numbers are automatically changed into binary values (0|1). The following operation is used:  $[Bin] = ([Number] \neq 0)$ . The binary value is equal to 1 when the number value is not equal to 0. In reverse this means the binary value is equal to 0 when the number value is equal to 0.

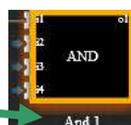


Select a logic element on the work sheet to display and edit its properties in the properties menu on the right. All logic elements have the following properties:

**General**



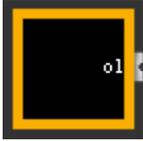
Name of the element. The name is displayed underneath the element.



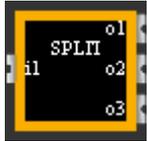
The element specific properties are described with the element function.

### 7.4.1. Input elements

#### 7.4.1.1. Input elements

		The input is a gateway to the process point system and is used to transmit process point events to the connected logic element.	
Properties		Value	Description
			Process point selection
<i>Standard value</i>			Initialisation value in case that the process point value is unknown.
Outputs			
O1	Inverter	<input type="checkbox"/>	The process point value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value. Inverted connectors are shown in the logic plan with a red dot.
		 (E1) E1	

#### 7.4.1.2. Connecting element – Split

		Split divides one input signal into up to three output signals. As the logic plan editor only connects the elements once, this is the only possibility to connect an element output with several inputs.	
Inputs		Value	Description
I1	Inverter	<input type="checkbox"/>	Input is not inverted
		<input checked="" type="checkbox"/>	Input is inverted
Outputs			

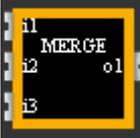
01,02,03	<i>Inverter</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

## 7.4.2. Output elements

### 7.4.2.1. Output

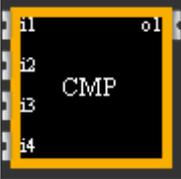
	The output is also a gateway to the process point system and is used to transmit logic events to the process point.		
Properties		Value	Description
			Process point selection
Inputs			
i1	<i>Inverter</i>	<input type="checkbox"/>	Transmits the input value without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted input value to the process point.

### 7.4.2.2. Connecting element – Merge

	The Merge element merges up to three input signals to one output signal (OR gate). As with all element connectors, these connectors can also be inverted.		
Inputs		Value	Description
i1,i2,i3	<i>Inverter</i>	<input type="checkbox"/>	Input is not inverted.
		<input checked="" type="checkbox"/>	Input is inverted.
Outputs			
O1	<i>Inverter</i>	<input type="checkbox"/>	Transmits the input value without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted input value to the process point.

### 7.4.3. Logic gate elements

#### 7.4.3.1. Comparator function - CMP

	<p>This element compares the connected inputs with one another according to the set conditions. Elements that are not connected are not considered. If the condition is met, the output is set to true (1).</p>	
Properties	Value	Description
<p><i>Function</i></p>	<p>CUSTOM</p>	<p>A customised comparator function can be entered in the function field. Syntax and pre-defined functions are described in chapter 7.4.5.</p>
	<p>EQUAL</p>	<p>Checks whether inputs are equal according to the following rule:  <math>(([i1]==[i2])\&amp;\&amp;([i2]==[i3])\&amp;\&amp;([i3]==[i4]))</math>                      The output is true (1) when all inputs have the same value.</p>
	<p>MINOR</p>	<p>Checks whether an input is “less than” according to the following rule:  <math>(([i1]&lt;[i2])\&amp;\&amp;([i2]&lt;[i3])\&amp;\&amp;([i3]&lt;[i4]))</math>                      The output is true (1) when <math>i1 &lt; i2 &lt; i3 &lt; i4</math>.</p>
	<p>MAJOR</p>	<p>Checks whether an input is “greater than” according to the following rule:  <math>(([i1]&gt;[i2])\&amp;\&amp;([i2]&gt;[i3])\&amp;\&amp;([i3]&gt;[i4]))</math>                      The output is true (1), when <math>i1 &gt; i2 &gt; i3 &gt; i4</math>.</p>
	<p>DISTINCT</p>	<p>Checks whether inputs are not equal according to the following rule:  <math>(([i1]!= [i2])\&amp;\&amp;([i2]!= [i3])\&amp;\&amp;([i3]!= [i4]))</math>                      The output is true (1) when all inputs have a different value.</p>
	<p>&lt;=</p>	<p>Checks whether an input is “less than/equal to” according to the following rule:  <math>(([i1]&lt;=[i2])\&amp;\&amp;([i2]&lt;=[i3])\&amp;\&amp;([i3]&lt;=[i4]))</math>                      The output is true (1) when <math>i1 &lt;= i2 &lt;= i3 &lt;= i4</math> ist.</p>
	<p>&gt;=</p>	<p>Checks whether an input is “greater than/equal to” according to the following rule:  <math>(([i1]&gt;=[i2])\&amp;\&amp;([i2]&gt;=[i3])\&amp;\&amp;([i3]&gt;=[i4]))</math></p>

			The output is true (1) when $i1 \geq i2 \geq i3 \geq i4$ .
<i>Send always</i>		<input type="checkbox"/>	Sends the output value only when the value has changed.
		<input checked="" type="checkbox"/>	Sends the output value each time the function is re-calculated.
Inputs		Value	Description
<i>i1,i2,i3,i4</i>	<i>Inverter</i>	<input type="checkbox"/>	Input is not inverted
		<input checked="" type="checkbox"/>	Input is inverted
	<i>Send</i>	<input type="checkbox"/>	An input event or change of value does not automatically lead to the function being re-calculated.
		<input checked="" type="checkbox"/>	An input event automatically leads to the function being re-calculated.
Outputs			
<i>O1</i>	<i>Inverter</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

Please remember to tick the send box for at least one input as otherwise the comparator function cannot be performed.



### 7.4.3.2. Mathematical function - MTH

	The MTH element calculates a mathematical function in relation to the input values. The inputs are linked with an operator and calculated. The result is sent to the output. Only connected inputs are taken into consideration.	
Properties	Value	Description
<i>Function</i>	CUSTOM	A customised function can be entered in the function input field. Syntax and pre-defined functions are described in chapter 7.4.5.
	PLUS	Applies the following function: $([i1] + [i2] + [i3] + [i4])$ This means the output value is the sum of all input values.
	MINUS	Applies the following function: $([i1] - [i2] - [i3] - [i4])$

	MULTIPLIED	Applies the following function: $([i1] * [i2] * [i3] * [i4])$ This means the output value is the product of all input values.	
	DIVIDED	Applies the following function: $([i1] / [i2] / [i3] / [i4])$	
	MODULO	Applies the following function: $([i1] \% [i2] \% [i3] \% [i4])$ . It makes sense to use this function only with 2 inputs. The calculation then results in the integral modulo of the division $([i1] / [i2])$ .	
	EXPONENT	Applies the following function: $([i1] ^ [i2] ^ [i3] ^ [i4])$ . It makes sense to use this function only with 2 inputs. The calculation results in the square $[i1]^{[i2]}$ .	
<i>Send always</i>	<input type="checkbox"/>	Sends the output value only when the value has changed.	
	<input checked="" type="checkbox"/>	Sends the output value each time the function is re-calculated.	
<b>Inputs</b>	<b>Value</b>	<b>Description</b>	
<i>I1,I2,I3,I4</i>	<i>Inverter</i>	<input type="checkbox"/>	Input is not inverted.
		<input checked="" type="checkbox"/>	Input is inverted.
	<i>Send</i>	<input type="checkbox"/>	An input event or change of value does not automatically lead to the function being re-calculated.
		<input checked="" type="checkbox"/>	An input event automatically leads to the function being re-calculated.
<b>Ausgänge</b>			
<i>O1</i>	<i>Inverter</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

### 7.4.3.3. Logic Function - LOG

	This element performs logic functions. Pre-defined functions are AND and OR. However, you can also define customised functions. The binary output status will be either false (0) or true (1).	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Function</i>	CUSTOM	A customised function can be entered

			in the function input field. Syntax and pre-defined functions are described in chapter 7.4.5.
		AND	Applies the AND relation: ([i1] && [i2] && [i3] && [i4]) The output is true (1) when all linked inputs have the value 1.
		OR	Applies the OR relation: ([i1]    [i2]    [i3]    [i4]) The output is true (1), when one of the linked inputs has the value 1.
<i>Send always</i>		<input type="checkbox"/>	Sends the output value only when the value has changed.
		<input checked="" type="checkbox"/>	Sends the output value each time the function is re-calculated.
Inputs		Value	Description
<i>1,2,3,4</i>	<i>Inverter</i>	<input type="checkbox"/>	Input is not inverted.
		<input checked="" type="checkbox"/>	Input is inverted.
	<i>Sende</i>	<input type="checkbox"/>	An input event or change of value does not automatically lead to the function being re-calculated.
		<input checked="" type="checkbox"/>	An input event automatically leads to the function being re-calculated.
Outputs			
<i>O1</i>	<i>Inverter</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

## 7.4.4. Advanced logic gates

### 7.4.4.1. Signal DELAY

	<p>The DELAY element delays the signal transmission. To set the delay time use the <i>set</i> input. To reset the delay use the <i>reset</i> input.</p>	
Properties	Value	Description
<i>Delay</i>	1000	Delay time in ms. If required, this

		value can be changed via the <i>set</i> input.	
<i>Accumulated</i>	<input type="checkbox"/>	If a new input event occurs during the delay, the delay countdown starts again from the beginning and the previous event is discarded.	
	<input checked="" type="checkbox"/>	Each event is delayed by the configured delay time and sent on to the output.	
<b>Inputs</b>	<b>Value</b>	<b>Description</b>	
<i>in</i>		Events at this input are transmitted to the output <i>out</i> with the configured delay time.	
<i>set</i>		Use this input to overwrite the initial delay time.	
<i>reset</i>		Use the <i>reset</i> input to delete all events that are due to be sent to the output. The delay countdown starts again with the next event at the input <i>in</i> .	
<b>Ausgänge</b>			
<i>out</i>	<i>Inverted</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

#### 7.4.4.2. Signal relay - GATE

	Depending on the status of the input <i>enable</i> , the GATE element is used to either transmit events at the input <i>in</i> to the output or to block them.	
<b>Properties</b>	<b>Value</b>	<b>Description</b>
<i>Send</i>	<input type="checkbox"/>	If you enable the <i>in</i> input via <i>enable</i> , the <i>out</i> output does not automatically take on the current status of the <i>in</i> input. Only the subsequent event is transmitted to the <i>out</i> output.
	<input checked="" type="checkbox"/>	As soon as you enable the <i>in</i>

			input via <i>enable</i> , the current status of the <i>in</i> input is transmitted to the output <i>out</i> .
Inputs		Value	Description
<i>in</i>			Input whose events are sent to the output <i>out</i> .
<i>enable</i>		0	The value 0 at the <i>enable</i> input leads to events at the input <i>in</i> being blocked.
		!= 0	Values that are not equal to 0 at the <i>enable</i> input automatically enable the <i>in</i> input and the output <i>out</i> takes on the same status as the input <i>in</i> .
Outputs			
<i>out</i>	<i>Inverted</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

#### 7.4.4.3. Impulse sequence - STAIR

		The element STAIR sends "1" for a configurable time period and "0" after this time has expired. You can change the duration of the "1" status via the input <i>set</i> .	
Properties		Value	Description
<i>Time interval</i>		1000	Duration of the "1" status in ms. If required, you can overwrite this value via the input <i>set</i> .
<i>Reset when 1:</i>		<input type="checkbox"/>	The duration of the "1" status at the output cannot be prolonged by re-sending a "1" status.
		<input checked="" type="checkbox"/>	If during the time interval "1" is sent again to the input <i>in</i> , the time is reset and the interval is re-started.
<i>Off when 0:</i>		<input type="checkbox"/>	Sending a "0" to the <i>in</i> input has no impact on the output <i>out</i> .
		<input checked="" type="checkbox"/>	A change from "1" to "0" immediately switches the output

			<i>out</i> to "0".
<b>Inputs</b>		<b>Value</b>	<b>Description</b>
<i>in</i>			A "1" event sets the output for the configured duration to "1". After the time has expired, the input returns to "0".
<i>set</i>			Use this input to overwrite the initial delay time.
<b>Outputs</b>			
<i>out</i>	<i>Inverted</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

#### 7.4.4.4. Counter

		The element COUNTER can count forwards and backwards. It counts the events at the respective inputs (+) and (-). Use the input <i>set</i> to pre-set an initial counter value.	
<b>Properties</b>		<b>Value</b>	<b>Description</b>
<i>Save value</i>		<input type="checkbox"/>	The current value is not saved. The counter is reset to the initial value after restart.
		<input checked="" type="checkbox"/>	The current value is saved in the database. After a restart, the counter starts with the saved value.
<i>Increment</i>		1	Sets the increment size for counting.
<i>MAX value</i>			Maximum possible value. Once the maximum counter reading has been reached and if the <i>reset</i> parameter is active, the counter starts again with the <i>MIN value</i>
<i>MIN value</i>		0	Minimum possible value. Once the minimum counter reading has been reached and if the <i>reset</i> parameter is active, the counter starts again with the <i>MAX value</i>
<i>Initial value</i>		0	Initial value if no counter

		readings exist yet. The initial value is also restored if you use <i>reset</i> .	
<i>Current value</i>		Shows the currently saved value. This value cannot be changed with the Editor.	
<i>Reset</i>	<input type="checkbox"/>	If the maximum or minimum counter reading has been reached, the counter is not reset.	
	<input checked="" type="checkbox"/>	If the maximum or minimum counter reading has been reached, the next impulse will reset the counter to either the <i>MAX</i> or <i>MIN</i> value.	
<b>inputs</b>	<b>Value</b>	<b>Description</b>	
+		With each event at this input the counter moves up one increment.	
-		With each event at this input the counter moves down one increment.	
<i>set</i>		The counter can be set to the required reading. If the reading is outside of the validity area [MIN, MAX], the counter value is restricted to the valid MIN and MAX values.	
<i>reset</i>		A "1" event at this input resets the counter reading to the initial value.	
<b>Outputs</b>			
<i>out</i>	<i>Inverted</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

#### 7.4.4.5. CYCLICAL repetition

	<p>The CYCLICAL repetition element transmits the input value with a configurable number of repetitions (input <i>cycles</i>) and a configurable time interval at</p>
---	--

		the output (input <i>time</i> ). Start (1) and stop (0) the repetition sequence via the input <i>ON/OFF</i> .	
Properties		Value	Description
<i>Time interval</i>		1000	Time interval between output events in milliseconds
<i>Restart cycle</i>		<input type="checkbox"/>	An input event is immediately sent to the output and the cycle continues afterwards.
		<input checked="" type="checkbox"/>	An input event starts the complete cycle from the beginning with the input value.
<i>Cycle</i>		0	Number of repetition cycles. The value 0 means an unlimited number of repetitions.
Inputs		Value	Description
<i>in</i>			Input value
<i>Time</i>			Use this input to overwrite the configuration parameter <i>Time interval</i> .
<i>Cycles</i>			Use this input to overwrite the configuration parameter <i>Time cycles</i> .
<i>ON/OFF</i>		0	Stops the repetition cycle. Value changes at the input are immediately sent to the output (without repetition).
		1	Starts the repetition cycle
Outputs			
<i>Out</i>	<i>Inverted</i>	<input type="checkbox"/>	The input value is transmitted without changes.
		<input checked="" type="checkbox"/>	Transmits the inverted process point value

#### 7.4.5. Standard functions of the function editor

The elements that belong to the group logic gates such as *LOG*, *CMP* and *MTH* can realise customised functions if you select the function tick box *CUSTOM*. The following standard functions can be used in the corresponding input field. The inputs *i1*, *i2*, *i3* and *i4* of the logic elements are special variables that need to

be placed between square brackets in the function instructions (e.g. [i1]). Instructions must be separated by a semicolon. Calculation variables do not have to be explicitly declared. However, they do need to be assigned a value before they can be used. The following example shows some simple instruction sequences:

Correct:

Incorrect (b is unknown at time of use):

a=50\*[i1]; if(a>=100, 1, 2);

a=b\*[i2]; if(a>=100, 1, 2);

The function result, i.e. the value that has been assigned to the output o1 of the element, comes from the last instruction:

a=2\*[i1]; b=[i2] / 2; a+b;

In this example, the output has been assigned the value of the instruction a+b. The common mathematical algebra rules such as commutative law, associative law, distributive law, etc. apply.

### 7.4.5.1. Operators

	Operator	Number	String	Example
Sign	+x, -x	*		(-[i1])
Exponent	^	*		([i1]^i2)
Scalar product, cross product	.,	*		([i1].[i2])
Modulo	%	*		([i1]%i2)
Division	/	*		([i1]/i2)
Multiplication	*	*		([i1]*i2)
Addition, Subtraction	+, -	*	* (+)	([i1]+[i2])
Less than or equal to, Greater than or equal to	<=, >=	*	*	([i1]<=i2)
Not equal to, equal to	!=, ==	*	*	([i1]>=i2)
Boolean NOT	!	*		(![i1])
Boolean AND	&&	*		([i1]&&i2)
Boolean OR		*		([i1]  i2)
Assignment	=	*	*	a=[i1]*5

### 7.4.5.2. Bit operators

	Operator	Example
Bit and	&	([i1] & [i2])
Bit or		([i1]   [i2])

Bit xor	^*	([i1] ^* [i2])
Bit complement	~	(~[i1])
Move to the left	<<	([i1] << 4)
Move to the right with sign	>>	([i1] >> 4)
Move to the right without sign	>>>	([i1] >>> 16)

### 7.4.5.3. Trigonometric functions

Description	Function name
Sine	sin(x)
Cosine	cos(x)
Tangent	tan(x)
Inverse (arc)sine	asin(x)
Inverse (arc)cosine	acos(x)
Inverse (arc)tangent	atan(x)
Inverse (arc) tangent with 2 arguments	atan2(y, x)
Secant	sec(x)
Cosecant	cosec(x)
Cotangent	cot(x)
Hyperbolic Sine	sinh(x)
Hyperbolic Cosine	cosh(x)
Hyperbolic Tangent	tanh(x)
Area Hyperbolic Sine	asinh(x)
Area Hyperbolic Cosine	acosh(x)
Area Hyperbolic Tangent	atanh(x)

### 7.4.5.4. Log and exponential functions

Description	Function name
Natural logarithm	ln(x)
Log to the base 10	log(x)
Log to the base 2	lg(x)
Exponential function (e^x)	exp(x)
Power function	pow(x)

### 7.4.5.5. Statistical functions

Description	Function name
Average value	avg(x1, x2, x3,...)
Minimum	min(x1, x2, x3,...)
Maximum	max(x1, x2, x3,...)
Vector sum	vsum(x1, x2, x3,...)

### 7.4.5.6. Rounding functions

Description	Function Name
Round	round(x)
Round to integer	rint(x)
Round down	floor(x)
Round up	ceil(x)

### 7.4.5.7. Different functions

Description	Function name
Condition. If the condition (1st parameter) is true, the value of the 2nd parameter is returned, otherwise the value of the 3rd parameter is returned.	if(cond, trueval, falseval)
Changes a number to a string	str(x)
Absolute value function	abs(x)
Random number [0..1]	rand()
Modulo function	mod(x,y) = x % y
Square root	sqrt(x)
Sum	sum(x,y,...)
Binomial co-efficient	binom(n, i)
Signum (-1,0,1)	signum(x)

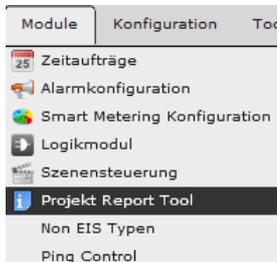
### 7.4.5.8. String functions

Description	Function Name
Left string of the length len	left(str, len)
Right string of the length len	right(str, len)
String of the length len starting with the character at the position start	mid(str, start, len)
String starting with the character at the position <i>start</i> and ending at the position <i>end</i> (optional), or up to the end of the string.	substr(str, start, [end])
Lower case letters. Changes all characters in the string to lower case letters.	lower(str)
Upper case letters. Changes all characters in the string to upper case letters.	upper(str)
Length of the string	len(str)
Deletes the not printable characters at the beginning and the end of a string.	trim(str)

### 7.4.5.9. Other functions

Description	Function name
Changes a number to a string related to the given base.	ToBase( <i>base</i> , <i>x</i> )
String to base 10. The same as ToBase(10, <i>x</i> )	ToDec( <i>x</i> )
String to base 16. The same as ToBase(16, <i>x</i> )	ToHex( <i>x</i> )
Changes a string to base into a number.	FromBase( <i>x</i> , <i>base</i> )
Changes a decimal string into a number, e.g. fromDec("123.45")	fromDec( <i>x</i> )
Changes a hexadecimal string into a number, e.g. fromHex("0xff")	fromHex( <i>x</i> )
Tests whether the argument is null.	isNull( <i>x</i> )
<p>Selection condition. The first argument is the condition that needs to be checked followed by argument pairs with comparator condition and return value. Example: The first argument is evaluated and subsequently compared to the second, fourth and sixth argument. The return value for the first applicable comparison is returned. The result of case("c","a",5,"b",6,"c",7,8) is 7.</p>	Case( <i>c</i> , <i>v1</i> , <i>r1</i> [, <i>v2</i> , <i>r2</i> ...][,default])
Logarithm function where the second argument is the base.	LogTwoArg( <i>x</i> , <i>base</i> )
<p>Selection condition. Returns the value of the <i>n</i> argument. Example: switch(2, 5, 6, 7, 8) returns the value 6.</p>	switch( <i>n</i> , <i>a</i> , <i>b</i> , <i>c</i> ....)
<p>Selection condition with standard return value as last argument. If the first argument is greater than the number of arguments -2, the last argument is returned. Example: switchDefault(1,5,6,7,8) returns 5 and switchDefault(9,5,6,7,8) returns 8.</p>	switchDefault( <i>n</i> , <i>a</i> , <i>b</i> ....,default)
Checks whether the floating point value is Not-a-Number.	IsNaN( <i>x</i> )
Checks whether the floating point value is Infinite.	IsInfinite( <i>x</i> )
Checks whether a string represents a number.	IsNumber( <i>x</i> )

## 7.5. Project Report Tool (PRT)



CBS Evolution offers the integrator a powerful tool for project calculations. The PRT supports the integrator in calculating the scope and cost of the projection. Open the Project Report Tool via menu item *Module/Project Report Tool*. Abbildung 88: shows the PRT screen.

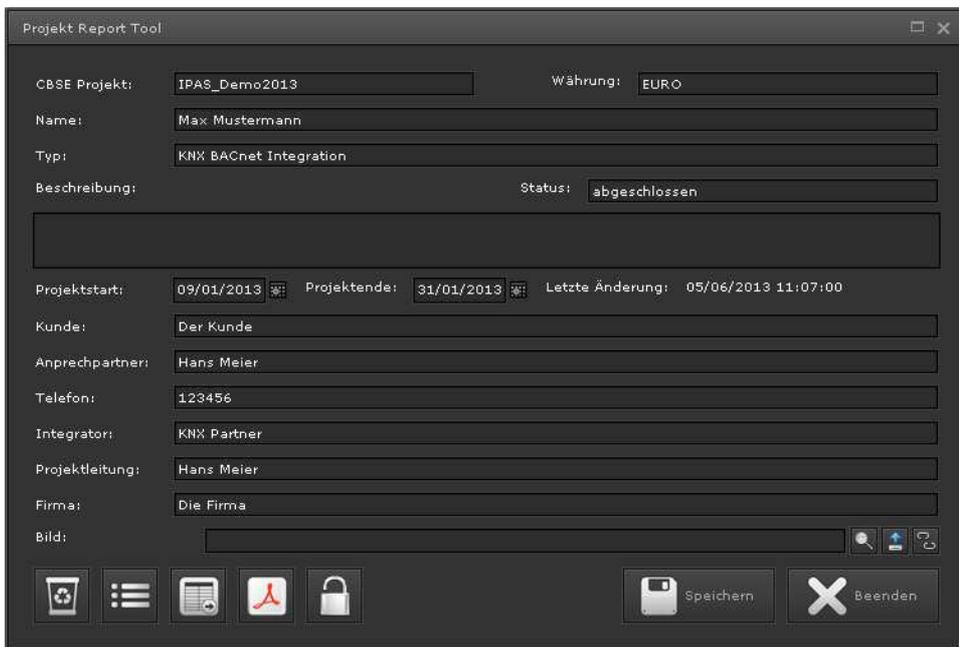


Abbildung 88:

PRT overview

Enter the project data in the PRT overview.

Click on  to open the PRT price list. Enter the price for each individual performance feature in the list. **Fehler! Verweisquelle konnte nicht gefunden werden.** gives an example of different parts of a price list. You can enter an individual price for each configuration item. Click on *Export* to export the price list and *Import* to import it, for example, to an another CBSE server. After all prices have been entered, press *Save* to save your settings.

Click on  in the main view to open the calculation as a PDF preview. Use the preview to print the PDF document. Use  to export the calculation in a CSV file.

You will need to buy a license to use the PRT. IPAS offers project integrators special CBSE servers that are equipped with a PRT license on preferential terms



Name	Einzelpreis
Desktops	2 EURO
Seiten	1 EURO
Fenster	0 EURO
KNXnetIP-Schnittstellen	1 EURO
Gruppenadresse	0,2 EURO
Virtuelle DP	0,2 EURO
Modbus	6,8 EURO
BACnet	6,8 EURO
OPC	0 EURO
Nicht KNX	2 EURO
Prozesspunkte	0,5 EURO
Prozesspunkte einloggen	0 EURO
Prozesspunkte Lastüberwachung	0 EURO
Prozesspunkte mit Logik	0 EURO

Abbildung 89:

Price list



Use  to password protect the project. The project can only be changed and exported with the password.

## 7.6. Non EIS types



Use the menu item *Module/Non EIS Types* to load the Non\_EIS Type Module. The Non-EIS Type Module is used to define data types that do not belong to any standard data type. Usually they are made up of different standard data types. The module makes it possible to extract parts of the data sent by the data point and display them via standard data types.

Weather stations, for example, send their weather data together with a date and time stamp. The extracted data is available via virtual data points and their corresponding process points for further processing. The look and display of the extracted data is regulated by extraction rules and the respective standard data types. Abbildung 90: shows the Non-EIS Type selection window which lists the existing Non-EIS types.

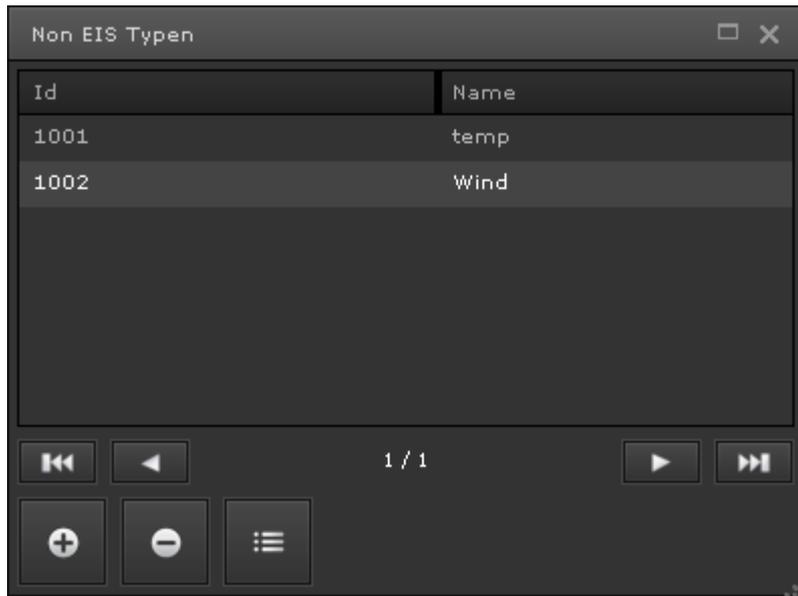
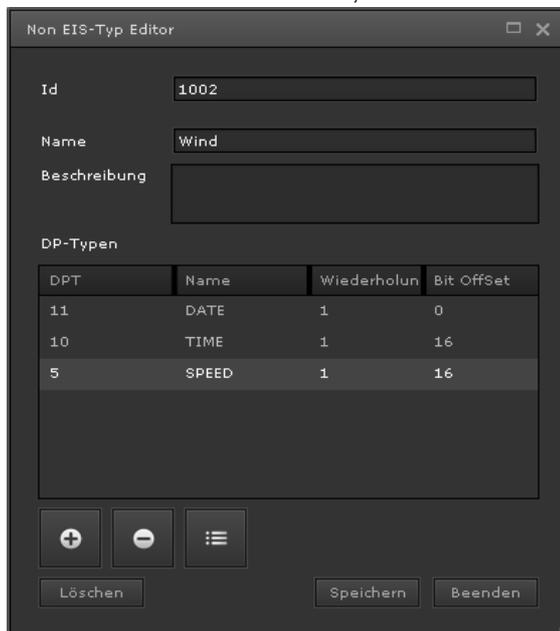


Abbildung 90: Non-EIS Type selection window

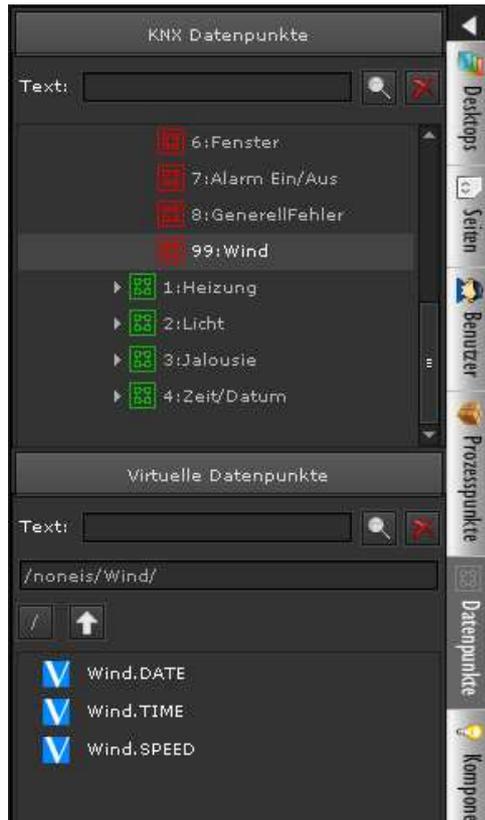
Use the buttons at the bottom to define new Non-EIS types and edit or delete existing ones. Press the + button or the Edit button to open the editor window as shown in Abbildung 91:. You can now define the data you want to extract. The definition contains the name, the bit-offset where the date starts, the data type and a repetition number. The defined Non-EIS types are added to the list of data types for data points. Data points can now be given a Non-EIS type.



The defined Non-EIS types are added to the list of data types for data points. Data points can now be given a Non-EIS type.

Abbildung 91: Non-EIS Type definition

Once a data point has been assigned a Non-EIS type, the process points and corresponding virtual data points for the data to be extracted are automatically generated. The process and data points are listed in sub-folders of the respective noneis folder (as shown in the following figures).



## 7.7. Ping control

Devices can be checked for their availability and accessibility in the network via the Ping control module. The standard protocol *ping* is used for this purpose. Go to *Module/Ping Control* to load the module. The configuration window (see Abbildung 92:) lists the already configured device IP addresses. Use the buttons at the bottom of the window to add, delete or edit IP addresses. The interval at which devices are checked, is set centrally for all devices via the input field *Update*.



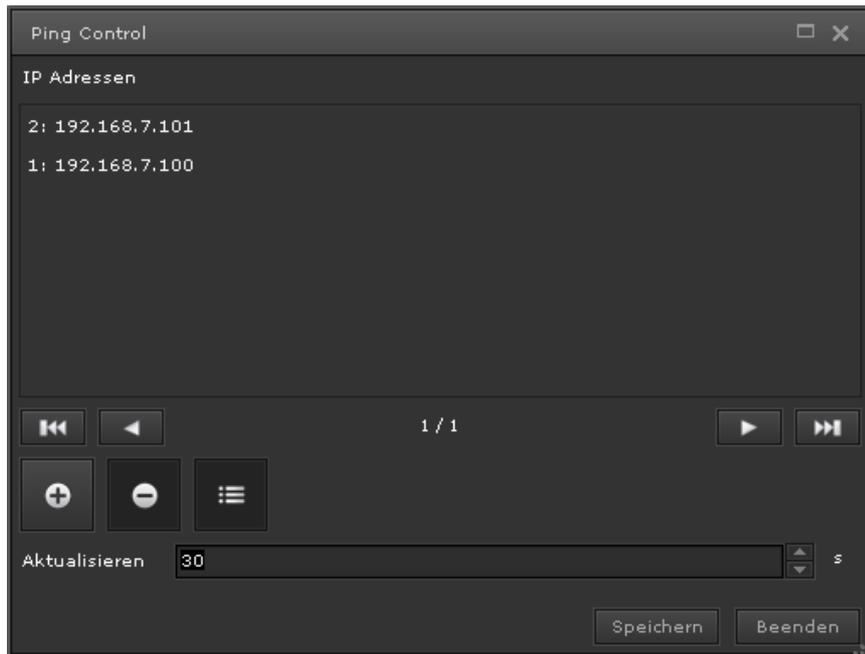


Abbildung 92:

Ping Control configuration



A process point is automatically generated for each device that is to be checked so that the device status can be easily linked to the alarm management or the visualisation. The process points are listed in the process point selection list in the *ping* folder. The process point name is formed according to the following order *\_PING\_<ip>*. The data type is DPT1. A 0 is sent if the device is not available and a 1 when it is available.

## 8. Tools

Further applications for diagnostic and administration purposes are available in the Editor menu *Tools*.

### 8.1. Diagnostic

The diagnostic tool helps to search for problems if the system does not behave as expected. The middle part of the diagnostic window (see **Fehler! Verweisquelle konnte nicht gefunden werden.**) shows the currently used licences, the clients connected to the Client Manager, the visualisation clients connected to the CBSE Service and the connection status of the KNX gateways. The connection status of the configuration manager, a service to administer the KNX gateways, is recorded in the last line.

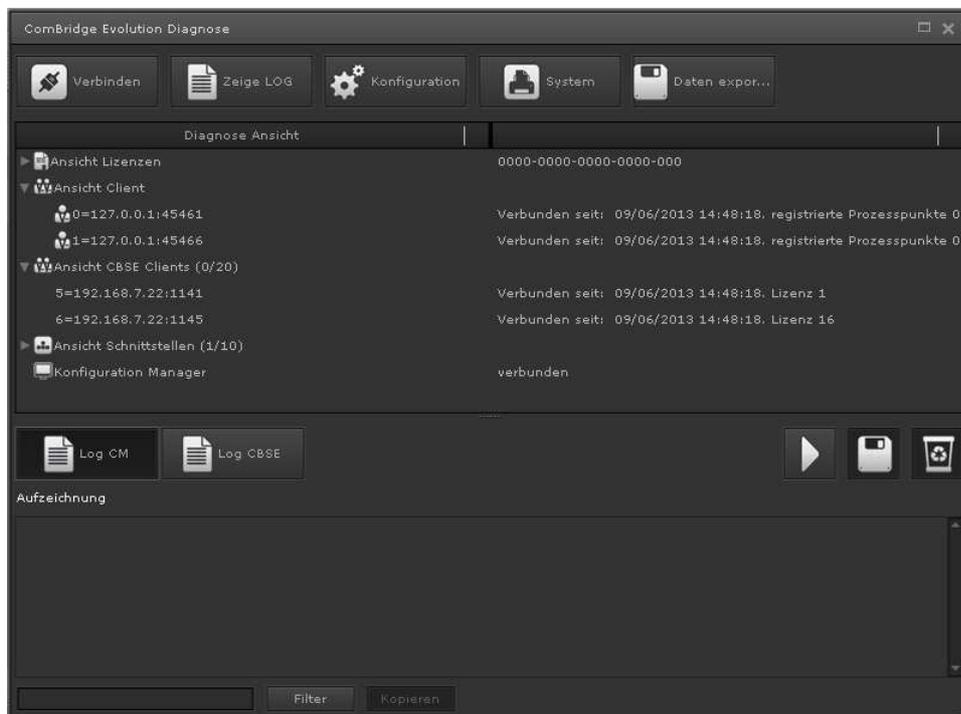


Abbildung 93:

The diagnostic tool

Function of the individual buttons:

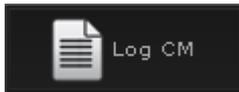


shows the current status of the connection to the Client-Manager. If you press this button, the status changes (connected -> not connected -> connected).



Toggle button to show and hide the recording view at the

bottom of the window. The amount of detail in the recorded data depends on the recording level. The level cannot be freely chosen, as it can only be changed by authorised personnel in order to validate the correct operation of the device. Use the *Filter* button to limit the display to certain data and process points. Use *Copy* to copy the recorded data onto the clipboard so that it can be easily analysed with an external word processing program.



shows the recorded data of the Client Manager. The Client Manager communicates solely via data points. This means that process points are not displayed in this view.



shows the recorded data of the CBSE Service.



starts the recording process in the display window.



stops the current recording process in the display window.



deletes the recorded data in the display window.



makes it possible to save the recorded data as a file.



shows the general system status such as remaining processor and memory capacity.



enables the export of the recorded data.

## 8.2. Database manager

The database manager displays recorded events and alarms in table format. In addition, data can be exported as a CSV file for archiving purposes and processing with external applications (e.g.. Excel). Go to menu item *Tools/Database manager* to start the database manager and open the application window shown in Abbildung 94:.

The screenshot shows the 'Datenbankmanager' interface. At the top, there are tabs for 'Prozesspunkt' and 'Alarme'. Below them, the 'Prozesspunkt ID' is set to '24' and the search term is '24:Total volume m3'. A 'Filter' button is visible. Below the filter are buttons for 'AUFZEICHNUNG', 'STUNDE', 'TAG', 'WOCHE', 'MONAT', and 'JAHR'. The main area contains a table with the following columns: ID, DATUM, VON, WERT, Erhöhen, PRIORIT, Datentyp, Routingz, Wiederhi, ACK, STATUS, BIS, and INKREME. The table lists 15 rows of data for the date 09/05/2020. At the bottom, there are navigation buttons (back, forward, search, etc.) and a 'Schließen' button.

ID	DATUM	VON	WERT	Erhöhen	PRIORIT	Datentyp	Routingz	Wiederhi	ACK	STATUS	BIS	INKREME
70469	09/05/20		0,000976	0	w	0			✓	620,453	Total vol	0
70465	09/05/20		0,001037	0	w	0			✓	620,452	Total vol	1
70455	09/05/20		0,000976	0	w	0			✓	620,451	Total vol	1
70445	09/05/20		0,001037	0	w	0			✓	620,45	Total vol	0
70441	09/05/20		0,000976	0	w	0			✓	620,449	Total vol	1
70425	09/05/20		0,000976	0	w	0			✓	620,448	Total vol	1
70421	09/05/20		0,001037	0	w	0			✓	620,447	Total vol	0
70417	09/05/20		0,000976	0	w	0			✓	620,446	Total vol	1
70400	09/05/20		0,001037	0	w	0			✓	620,445	Total vol	1
70394	09/05/20		0,000976	0	w	0			✓	620,444	Total vol	0
70390	09/05/20		0,000976	0	w	0			✓	620,443	Total vol	1
70380	09/05/20		0,001037	0	w	0			✓	620,442	Total vol	1
70369	09/05/20		0,000976	0	w	0			✓	620,441	Total vol	0
70365	09/05/20		0,000976	0	w	0			✓	620,44	Total vol	1

Abbildung 94: Database manager: process point view

Use the process point and alarm buttons to change the data view. Process points are only saved if you tick the corresponding box (save PP values) during the configuration. Select the process you would like to be displayed either by entering the process point ID or via the search function . Click on *Search* to fill the table with the recorded data. You can limit the amount of data displayed by setting a start and end date in the *Filter* function. Use the HOUR/DAY/WEEK/MONTH/YEAR buttons for an interpolated display of the data.

The following functions can be performed via the buttons below:



deletes a selected data set. Select the data set by pressing <Shift> or <Ctrl>+mouse click.



deletes all selected data sets.



makes it possible to change the process point ID.



exports the listed data sets in CSV format.



enables the re-import of previously exported CSV data sets.



compresses the database. This is a database-specific administration function, which you should perform after data sets have been deleted.

The alarm view of the database manager lists the status of selected alarm process points. Use *Filter* to show the selection criteria. The criteria are applied when you press *Search*.

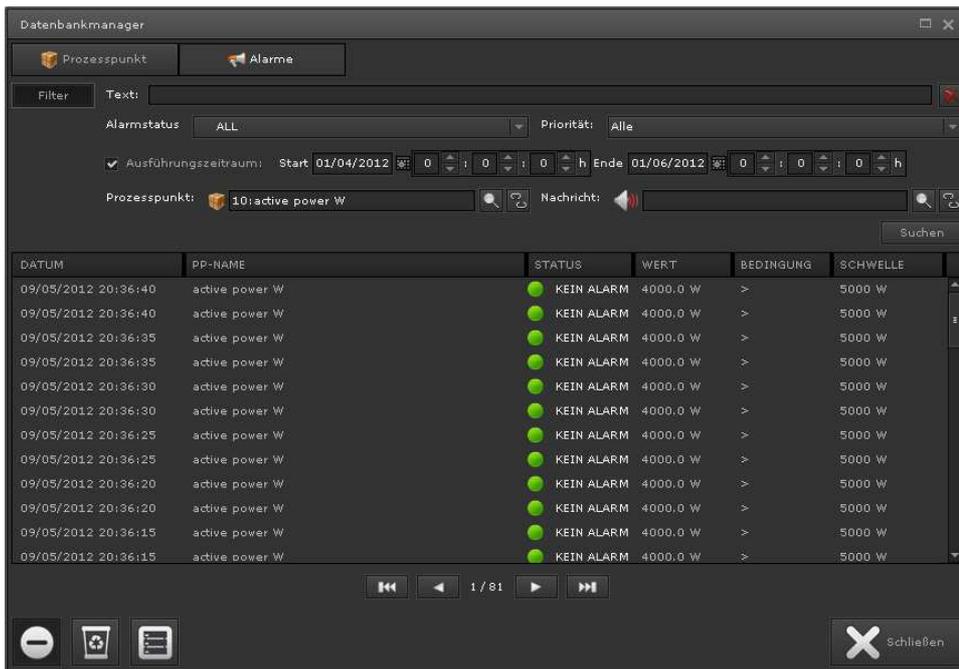


Abbildung 95: Alarm view of the database manager

### 8.3. Delete memory

Go to *Tools/Delete memory* to load the admin function “delete memory“. This function deletes the internal Cache memory, which is used for visualisation elements. If process points are deleted through the import of new configuration files (e.g. KNX-ESF, BACnet, Modbus), this function ensures that existing links remain active in the visualisation.

### 8.4. CSV Export Manager

The CSV Export Manager is an optional tool that requires a license. The CSV Export Manager enables the automatic export of recorded data in configurable intervals. Go to *Tools/CSV Export Manager* to start the configuration. An example of a configuration mask is shown in Abbildung 96:.

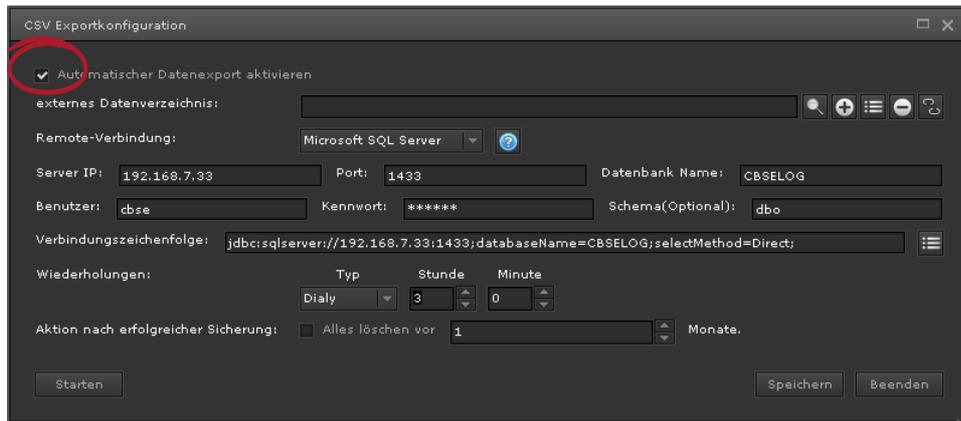


Abbildung 96:

CSV Export Manager

Enable the function via the tick box *Enable automatic data export* (red circle). The data is exported to an external data directory and/or a Microsoft SQL database. To create an external data directory (network or enabled PC), use the  button. Enter the details in the dialogue window “External data backup” (Abbildung 97:). For the export to an external database, log-in details are required for the database connection. Set the *Remote connection* field to “Microsoft SQL Server” to display the input fields for the database connection. Enter the connection details (*Server-IP*, *Port* and *Database name*) either via the input fields or as a *connection string*.

For a database export into a Microsoft SQL database a table structure has to be created by the database administrator. Press  to display the required SQL instructions and copy and paste them. Two tables are required. One to save process point events and one for alarms. The SQL instructions are shown below (the structure of the CSV file export corresponds to this table structure).

**SQL instruction for logpp table**

**Explanation of the data fields**

CREATE TABLE [schema.]logpp ( id integer NOT NULL PRIMARY KEY, datetime datetime, date date, time time(3), pp_id integer, pp_name text NOT NULL, value text NOT NULL, knxhex text NOT NULL, source text NOT NULL, datapoint character varying(100) NOT NULL, telegramtype character varying(10) NOT NULL );	Primary key of the table entry Date and time of the event Date (Day/Month/Year) Time (Hour/Minute/Second) Reference key of the PP Name of the process point Event value Hex display of the event value Physical address of the device Data point name „r“ (read), „w“ (write)
---	---

**SQL instructions for logalarm**

```
CREATE TABLE [schema.]logalarms (
id integer NOT NULL PRIMARY KEY,
datetime datetime,
date date,
time time(3),
pp_id integer,
pp_name text,
condition character varying(10),
threshold character varying(14),
msgvisu character varying(200),
priority integer,
emails character varying(200),
phones character varying(200),
status integer NOT NULL,
value text,
"user" character varying(30),
maintenancedatetime datetime,
maintenancedate date,
maintenancetime time(3),
commentary character varying(500)
);
```

**Explanation of the data fields**

Primary key of the table entry  
Date and time of the event  
Date (Day/Month/Year)  
Time (Hour/Minute/Second)  
Reference key of the PP  
Name of the process point  
Comparator condition of the alarms  
Comparator value for alarm definition  
Message text  
Alarm priority  
Configured e-mail addresses  
Configured phone numbers for SMS  
Alarm status (0-5 see Abbildung 74:)  
Event value  
User name  
End of maintenance status  
Date content of maintenancedatetime  
Time content of maintenancedatetime  
Comment

Use the **repetition** fields to set the back up interval to daily/weekly/monthly or to yearly with the corresponding time and date settings.

So as not to exceed the memory capacity of the CBSE server, it is possible to delete old data sets after a successful data backup. Tick the box **Delete all before** and select a long-enough time period (in months). All data sets that are older than x months will be deleted.

The backup interval and the length of time that data stays in the database should be adjusted to the data volume in the system. If the backup interval is too infrequent or if data sets remain in the database over many months, the capacity of the local hard drive may be exceeded.



Press *Start* to start the automatic back up.



Abbildung 97: Dialogue window to configure an external data directory

- Name:** Name of the external backup directory (you can freely choose a name)
- Path:** The path for the external backup directory  
*//<ip-address>/path (z.B.: //192.168.0.100/MSSHARE)*
- Type:** Only the CIFS/Windows protocol is supported
- Font:** By default, the font is UTF-8.
- User:** Optional entry of a user name to log into the external backup directory.
- Password:** Optional entry of a login password.

Press *connect* to connect the server with the external backup directory. Press *Save* to accept the settings and save these in the database.

## 8.5. Memory management

The memory management controls the available hard drive capacity. The settings ensure that the system functions properly in case the hard drive is almost full.

There are three different action levels: Level 1 lies within 10% to 50% remaining hard drive capacity and can be freely chosen within this range. The default setting is 15%. If the remaining capacity goes below 15%, a message can either be displayed as an alarm on the log-in screen or an e-mail can be sent to the system administrator. You can choose both the title and a text for the message. You will need to tick the corresponding boxes to activate the message option.

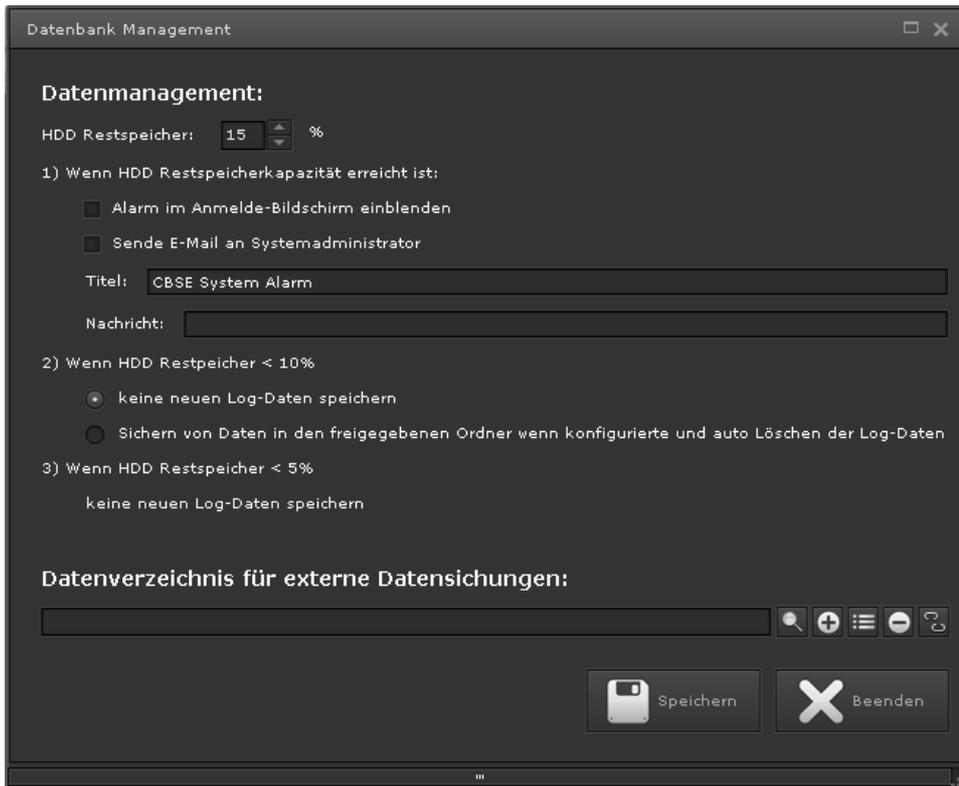


Abbildung 98: Memory management configuration

If the remaining hard drive capacity is less than 10%, action level 2 is automatically activated. In this case, any new log data can be saved in an external backup directory (network/enabled PC). Please see chapter 8.4 for the configuration of an external backup directory. By default, the recording of data stops as soon as the remaining hard drive capacity is less than 10%.

If the remaining capacity is less than 5%, no more data is backed up in an external backup directory if this option has been selected at action level 2.

## 8.6. System restart

Go *Tools/System restart* to restart the CBSE server. You will be asked to confirm that you want to restart the system.

## 9. Appendix

### 9.1. CBSE server data sheet

<b>System</b>	
· Processor	Intel® Atom™ N270 1.6GHz
· CPU Socket	On Board
· Chipset	Intel® 945GSE + ICH9M
· Memory	1 x DDR2 533/667 MHz SO-DIMM, up to 2GB
<b>I/O Interfaces</b>	
· Display Port	1 x DVI-I
· Super I/O	Front I/O : 2 x USB, Power Button, 3 x COM Rear I/O : 2 x RJ45, DVI-I, 2 x USB, 1 x COM, DC Jack
· USB	4 x USB 2.0
· LAN	2 x Intel® 82574L GbE LAN
· Storage	1 x SATA II HDD
· Application	Automation, POS, Digital Signage, Car PC
· Power Source	DC 12V
<b>Mechanical and Environmental</b>	
· Dimension	220 mm x 135 mm x 43 mm (L x W x H)
· Operating Temperature	0°C–40 °C
· Storage Temperature	-20°C–80 °C
· Regulatory Compliance	CE, FCC, BSMI, VCCI, C-tick RoHS Compliant

### 9.2. License agreement

A CBS Evolution user is entitled to use CBS Evolution applications after agreeing to the CBSE terms and conditions. When you first log in, the license terms and conditions appear in the browser. You are asked to read these carefully. When you have reached the last page (page 8/8) of the license agreement, you can accept the conditions by clicking on **OK**. The information page closes and changes to the visualisation. If, however, you do not accept the license conditions and go straight to the login screen by pressing **zum Login**, the license agreement will appear again next time you log in.

The Editor user can see the license agreement at any time via the menu item *Help/License agreement*.

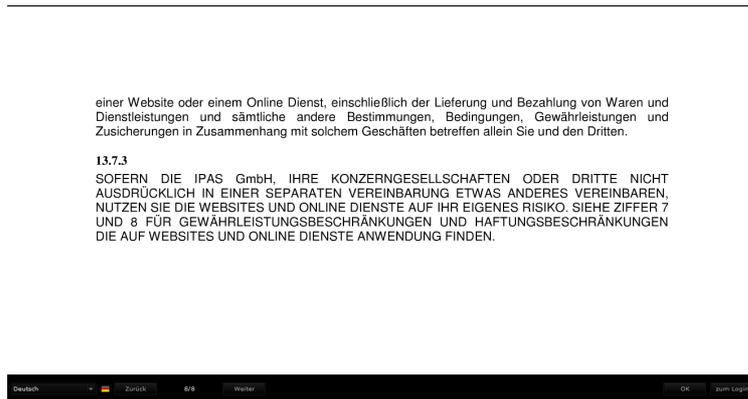


Abbildung 99: Confirmation of the license agreement

### 9.3. License upgrade

CBS Evolution comes with a basic license for 3 users and one gateway. A license upgrade enables you to use additional modules, gateways or users. Go to [www.ipas-products.com](http://www.ipas-products.com) for information on a license upgrade. To upgrade the license, IPAS requires the MAC address of the CBS Evolution server. You will receive a license file that has to be installed on the CBS Evolution server. CBS Evolution offers a download page on the server for this installation. To install the license upgrade, open a browser window with the following URL:

<http://IP-CBSE-Server:8181/license.php>



You will now be asked for security details. The user name is "admin" and the password is "ipas4u". The following download page opens.

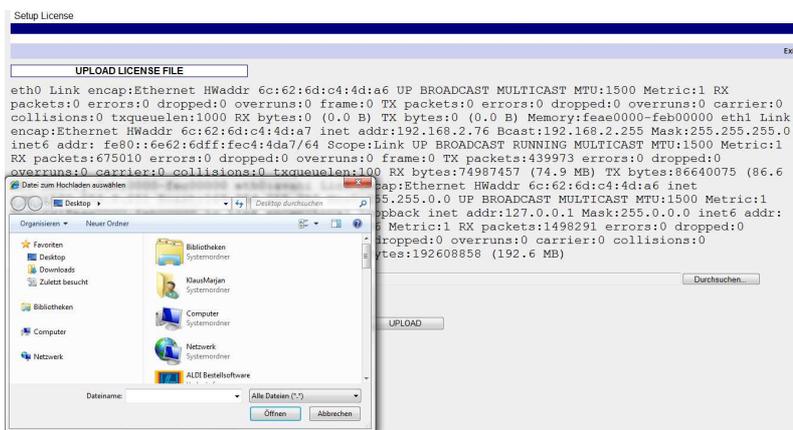


Abbildung 100: CBSE Lizenzupdate

Click on **Durchsuchen...** to enter the path for the license upgrade. Click on **UPLOAD** to install the upgrade. Before you start the installation, please make

sure that the license belongs to the MAC address.

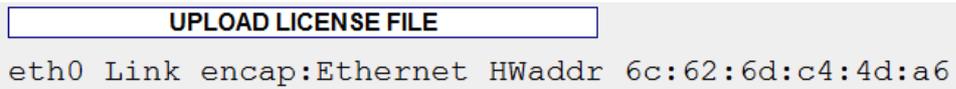
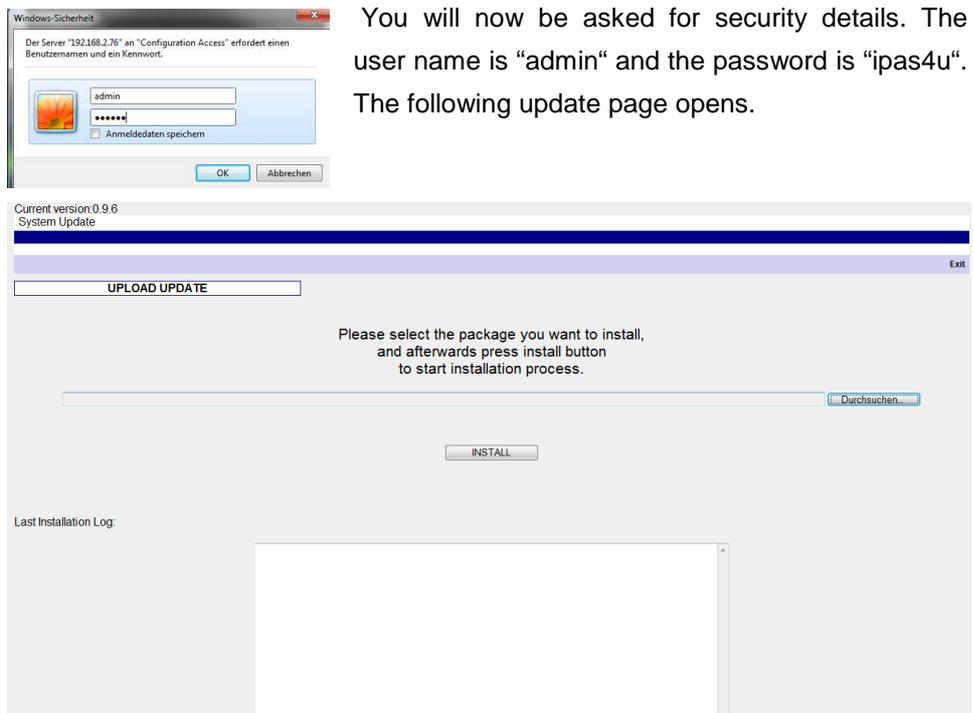


Abbildung 101: Information about the MAC address

## 9.4. Software update

IPAS endeavours to improve its CBS Evolution software all the time. The CBS Evolution software can therefore be updated at any time. IPAS offers software upgrades for this purpose which can be installed via a CBS Evolution update page.

Open the page with the URL <http://IP-CBSE-Server:8181/upload.php>.



You will now be asked for security details. The user name is "admin" and the password is "ipas4u". The following update page opens.

Abbildung 102:

CBSE update page

The currently installed CBS Evolution version is displayed in the upper left hand corner.



Updates are incremental. You can only ever install the next higher version. If, for example, the installed version is 1.1.1 ist and the most current update is version 1.1.3, you need to install version 1.1.2 first.

Click on  to select the current update. Click on  to start the installation. The information window underneath  tells you

when the installation has finished. You need to restart the CBS Evolution server after the installation.

### 9.5. FTP access

Use FTP to upload user-specific data such as images or backgrounds to the CBS Evolution Server.

Enter the following URL for FTP access:

<ftp://IP-Address>.

You will now be asked for security details.

The user name is “veuser” and the password is “veadmin”.

If access has been successful, the file structure is displayed as shown in Abbildung 103:. You can now, for example, copy images for the slide show into the directory *galleries*.

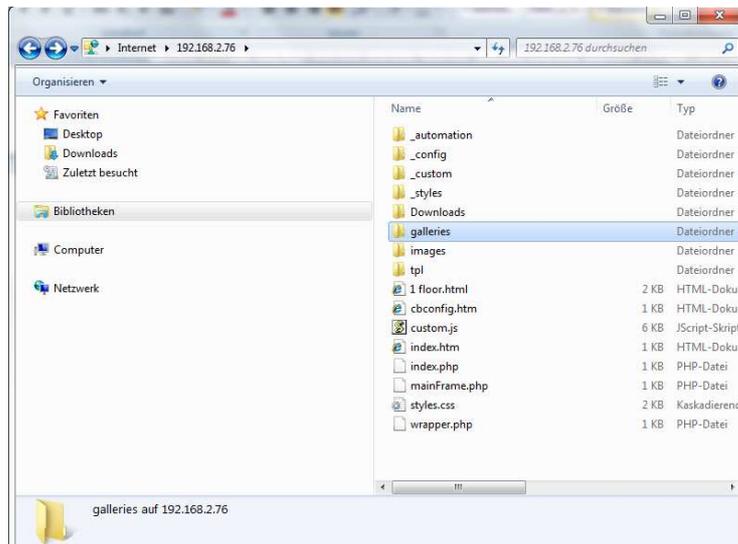


Abbildung 103: FTP file structure on the CBSE Server

You can also use FTP to copy project images into the directory <ftp://IP/CBSE/images/custom/Projectname> or to delete them.

### 9.6. CBSE diagnostic tool

CBS Evolution offers the integrator a powerful diagnostic tool. This tool informs about the available licenses and the number of connected and unconnected gateways.

Abbildung 104: gives an example of available licenses and registered process points.

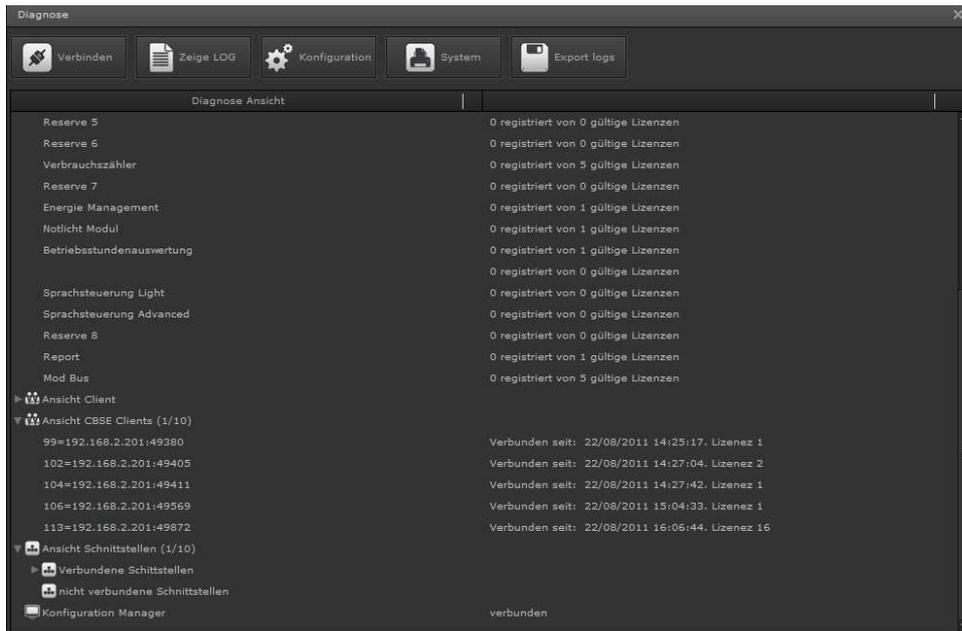


Abbildung 104:

Start page diagnostic tool

Use the menu list for additional functions.



: Click on this element to manually break the connection to the Client Manager. When you start CBSE, the connection is normally made automatically.



Click on this element to open CBSE Log Manager. The Log Manager records the entire communication that occurs either via the Client Manager or the CBSE application gateway. The recordings can be saved and sent to IPAS if you have a support request.

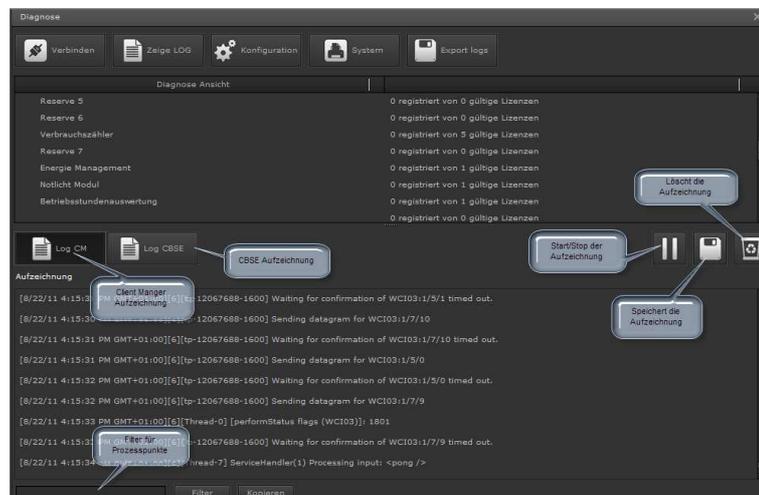
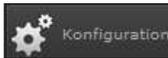


Abbildung 105:

Diagnostic: Recording



Click on this element to open the configuration of the diagnostic tool. The tool connects to the CBSE Configuration Manager via the IP address of the CBSE Server and port 7680. All information can be read from the system via this connection.

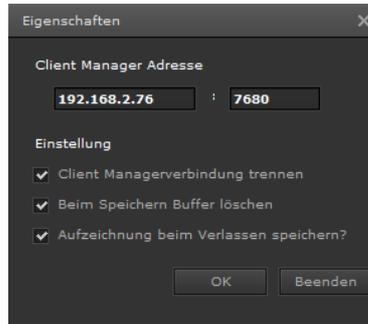


Abbildung 106:

Example configuration

**Fehler! Verweisquelle konnte nicht gefunden werden.** gives an example of a possible configuration.



Click on this element to open a window with the system data.

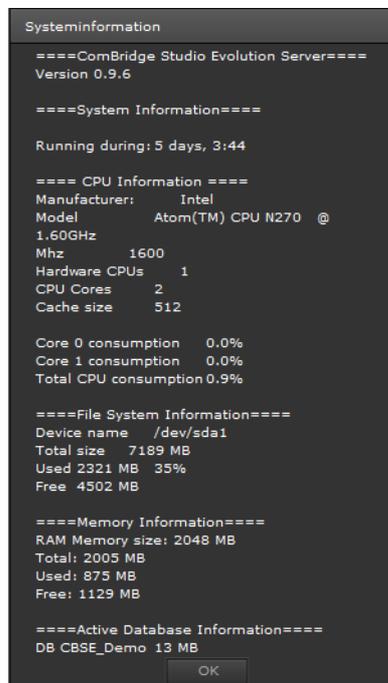


Abbildung 107:

System data view



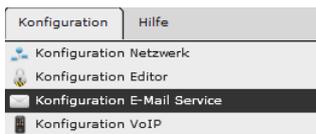
Click on this element to export all logs into a file. The file can then

be sent to IPAS for support.

## 9.7. Different E-Mail configurations

### 9.7.1. GoogleMail

To use the provider Google for the CBSE SMTP Service, you first need to create an e-mail account at [www.googlemail.com](http://www.googlemail.com). Once the account has been created, you need to set the required PoP Download. To do so, open the E-Mail settings:



Afterwards the following E-mail service needs to be configured in CBSE:

SMTP Host:	smtp.gmail.com	Port	587
<input checked="" type="checkbox"/>	SMTP Authentifizierung	<input checked="" type="checkbox"/>	TTLS EIN

E-Mail Adr.	cbse.gm@google	Passwort	*****
-------------	----------------	----------	-------

Advice: If your client does not support SMTP authentication, you will not be able to access your google Mail news.

## 9.8. Online support

IPAS offers its customers the best possible support. We offer an online support for quick help. With the remote control software TeamViewer (you can download the required software free of charge from [www.teamviewer.com](http://www.teamviewer.com)) IPAS can offer direct online support for all questions around the projection. For system related technical questions, IPAS requires direct access to the CBS Evolution Server. To enable the access, you need to set port forwarding in your internet router.

The following ports are required for a faultless operation and support. They may potentially need to be enabled in the network:

- |            |    |  |
|------------|----|--|
| Port 80:   | -> | Web access Flash application           |
| Port 1088  | -> | Policy security request (Flash player) |
| Port 3671: | -> | KNX Communication                      |

Port 7680:           ->    Configuration Manager  
Port 22:             ->    Support  
Port 8181:           ->    Updates and Licenses  
Port 21:             ->    FTP

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