D+ Administrator Manual

Version 1.0.0

REV01-210203

GENERAL INFORMATION

DIVUS GmbH
Pillhof 51
I-39057 Eppan (BZ) - Italy

You are always welcome to inform us of errors or make suggestions for improving the program.

The present agreement also applies to special appendices to the manual.

This manual can contain terms and descriptions, which improper use by third can harm the copyrights of the author.

Please read the manual before beginning and keep the manual for later use.

The manual has been conceived and written for users who are experienced in the use of PCs and automation technology.

CONVENTIONS

[KEYS]	Keys that are to be pressed by the user are given in square brackets, e.g. [CTRL] or [DEL]
COURIER	On-screen messages are given in the Courier font, e.g. `C:\>`
COURIER BOLD	Keyboard input to be made by the user are given in Courier bold, e.g. `C:\>`**`DIR`**
„…“	Names of buttons to be pressed, menus or other onscreen elements and product names are given within double quotes. (e.g. “Configuration”).
PICTOGRAMS	In this manual, the following symbols are used to indicate particular text blocks.
	*Caution!* A dangerous situation may arise that may cause damage to material.
	*Hint* Hints and additional notes
	*New* New features

SAFETY INSTRUCTIONS

The present operating instructions contain those safety instructions that are required to safely operate the machine.

All persons working with the machine must heed the present operating instructions, especially the safety instructions.

In addition, all local stipulations governing the prevention of accidents must be heeded.

Only trained and authorized personnel may INSTALL AND OPERATE the machine.

PROPER APPLICATION: The machine has been designed for application inside the building automation and must not be used to control security functions.

The machine has been built using state-of-the-art technology and all applicable safety regulations. However, damage or negative effects to the machine or other material cannot be excluded if the machine is operated.

The machine meets the requirements of the EMC guidelines and of the harmonized European standards. Modifications to the machine hardware may affect the system's EMC compatibility.

Without special protection measures, the machine must not be used in EX areas and in plants that require special monitoring.

Danger of explosion. Do not expose the buffer batteries to heat. Serious injury may be the result.

The operating voltage of the machine must be within the specified range! The product label provides the required information.

LICENSES

DIVUS GmbH makes use of open source software inside its products, e.g. the Linux operating system and its kernel.

Those software components are licensed under specific licenses, like the following:

- GNU General Public License (GPLv2)
- GNU Lesser General Public License (LGPL)

If you own one of our products, for three years after the latest factory production, you may request from DIVUS GmbH the source code for those software components which are licensed under the GNU General Public License or GNU Lesser General Public License, and make use, distribute and modify them accordingly to the respective licenses.

Note that re-use of source code released by DIVUS GmbH is unguaranteed, and DIVUS GmbH shall not bear any responsibility whatsoever for the source code.

We shall bear no responsibility whatsoever for any damage arising from changes (additions/ deletions) made to the software for this product by a third party other than DIVUS GmbH (or party authorized by DIVUS GmbH).

For any further information please contact our support service.

STANDARDS

The DIVUS KNX SERVER and DIVUS KNX SUPERIO meet the following guidelines and standards:

Low Voltage Directive 2014/35/EU (ex 73/23/CEE – 93/68/CEE – 06/95/CE)
Standard to which conformity is declared:
EN 50491-3:2009, EN 60950-1:2006+A11:2009+A1:2010+A12:2011 Safety

EMC Directive 2014/30/EU (ex 89/336/CEE – 92/31/CEE – 93/68/CEE – 04/108/CE)
Standard(s) to which conformity is declared:
EN 50491-5-1:2010, EN 50491-5-2:2010 Conducted & Radiated Emissions

RoHS2 Directive 2011/65/EU (ex 02/95/EC)
Standard(s) to which conformity is declared:
EN 50581:2012 Restriction of hazardous substances

The installation and wiring instructions contained in this documentation must be heeded. Conformity is indicated by the attached CE label.

The EC conformity statements can be obtained from:

DIVUS GmbH
Pillhof 51
I-39057 Eppan (BZ)

Regarding Directive 2012/19/EU (ex 2002/96/EC) waste electrical and electronic equipment has to be collected separately and is not allowed to dispose as unsorted municipal waste.

INDEX

1 Access

1.1 INTRODUCTION

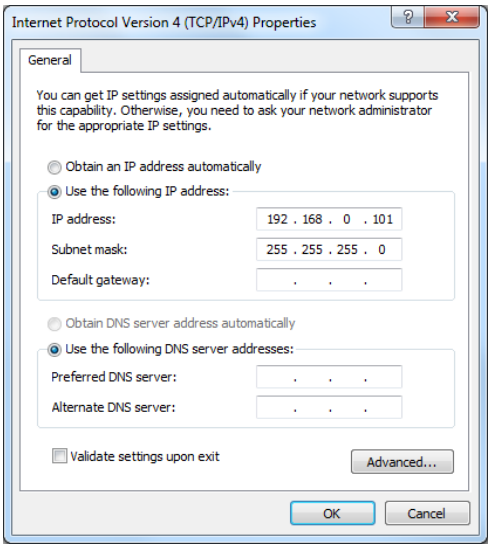
OPTIMA is a web-based visualisation system for monitoring and visualising home & building automation systems that have been realised on the basis of the worldwide KNX standard. OPTIMA is configured and used directly via web interface, which can be displayed through a conventional browser (from any device / operating system). OPTIMA is used for different products of the KNX CONTROL series (KNXSERVER, D+, KNX SUPERIO). The uniform software makes the use of the different products simple and extremely flexible. More about the individual products can be found in the product-specific documentation.

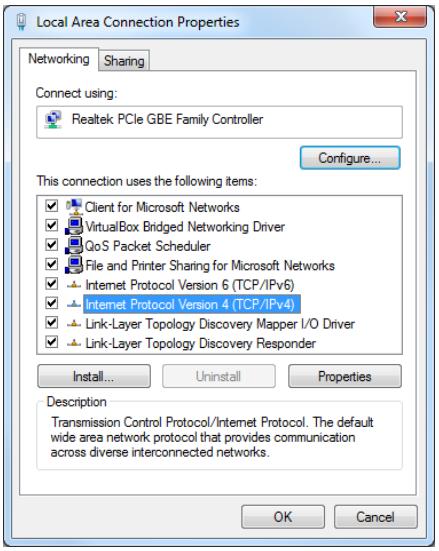
1.2 NETWORK CONNECTION

For the usage/configuration of OPTIMA a working network connection to the used KNX CONTROL device is required. For the first access to OPTIMA or if no working network is available, follow these steps:

- Connect the KNX CONTROL device directly with your PC through a network cable
- Go to the network settings of your PC
- Change the settings of the TCP/IP protocol (Version 4) of the network interface on which you connected the network cable and enter the following values:
- IP address: 192.168.0.101
- Subnet mask: 255.255.255.0
- Save the new settings; depending on the installed OS a restart may be necessary.

The following screenshots show how to change the network settings on Windows 7:

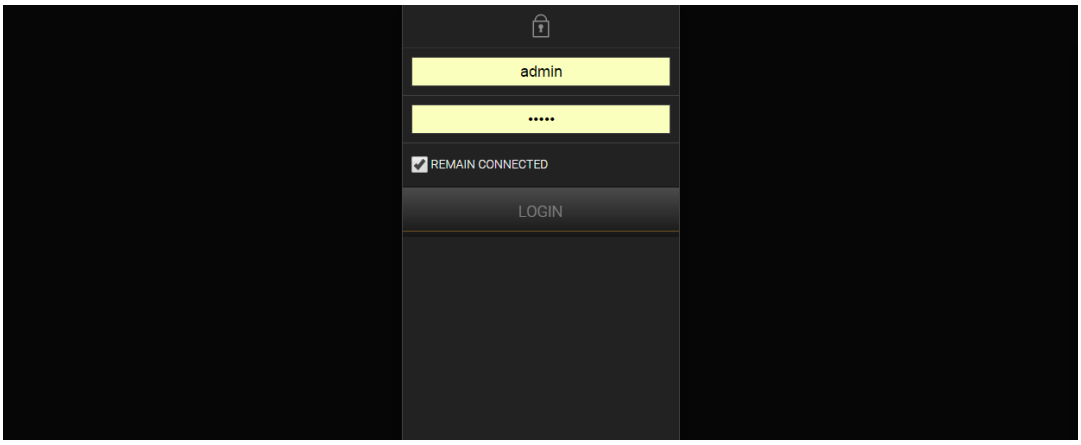




Once the network settings are set, open a browser on your PC (Google Chrome preferred) and enter the following URL into the address bar of the browser:

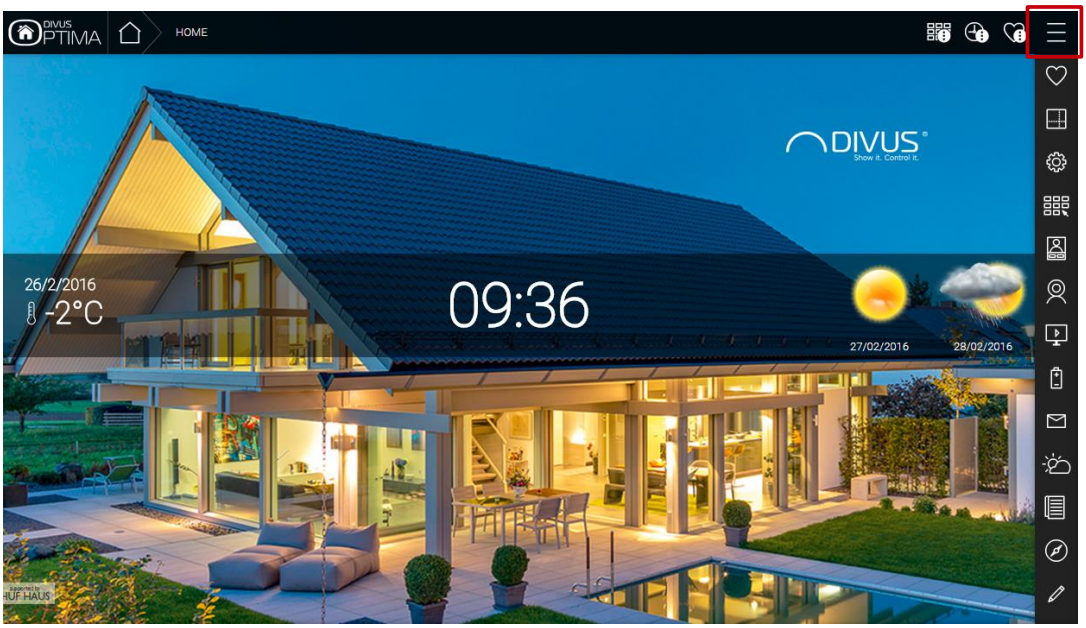
http://192.168.0.110

This link will directly open the login page of OPTIMA; if the network connection is working properly, you will see the following screen:

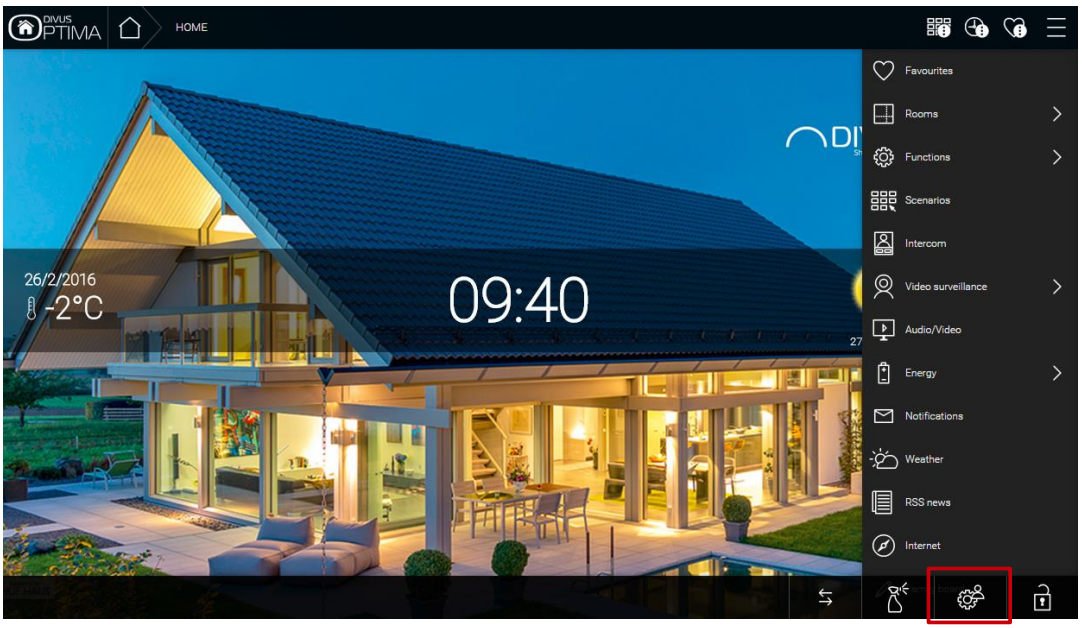


After a successful login (see next chapter) you may access the administration area through the ADMIN-button in the toolbar at the bottom right.

1.) Open the side menu by clicking on the menu symbol in the upper right.



2.) After a successfull login (see next chapter) you may access the administration area through the ADMIN-Button in the toolbar at the bottom right.



The best possible user experience with OPTIMA may be achieved using the following browsers in their current version:

- Google Chrome
- Apple Safari

- Microsoft Edge

It is not recommended to use the following browsers, because they currently can't represent all the functions of OPTIMA correctly:

- Mozilla Firefox
- Microsoft Internet Explorer
- Opera

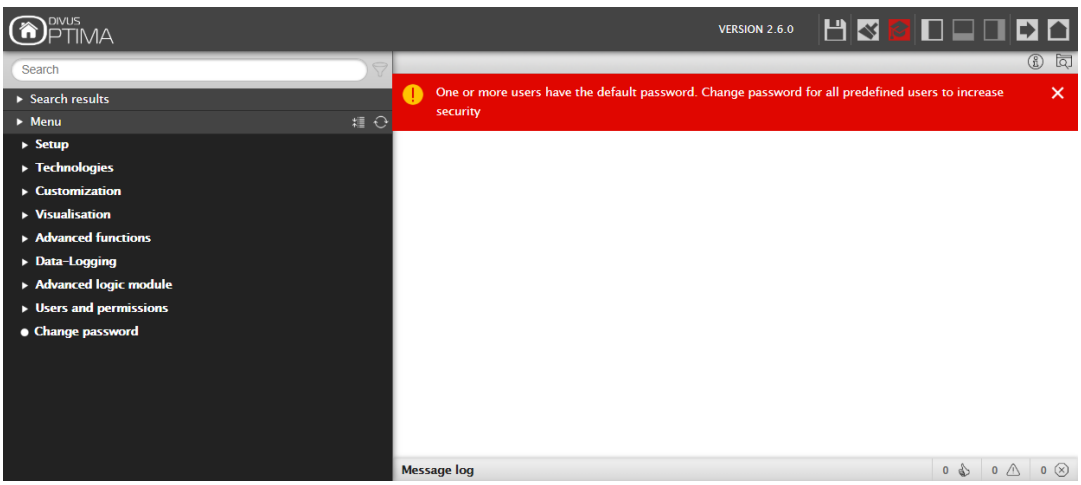
The browser compatibility is continuously under development. It is therefore recommended to check out the list of compatible browsers in the documentation of newly released product/software versions.

1.3 ACCESS

OPTIMA comes with the following preconfigured default users (and roles):

USERNAME	PASSWORD	DESCRIPTION
admin	admin	System Administrator. Can edit the visualisation, create users and change their access rights / permissions
manager	manager	User for the installation / configuration of the system. May change all settings regarding the visualisation but has no access to system settings.
user	user	Basic user for client-access. May navigate through the whole visualisation but has no or very limited access to the administration area.

For the first configuration of OPTIMA you must log in with the "admin" user account. Do this by entering the appropriate data into the login screen; once logged in, you will see the following screen:

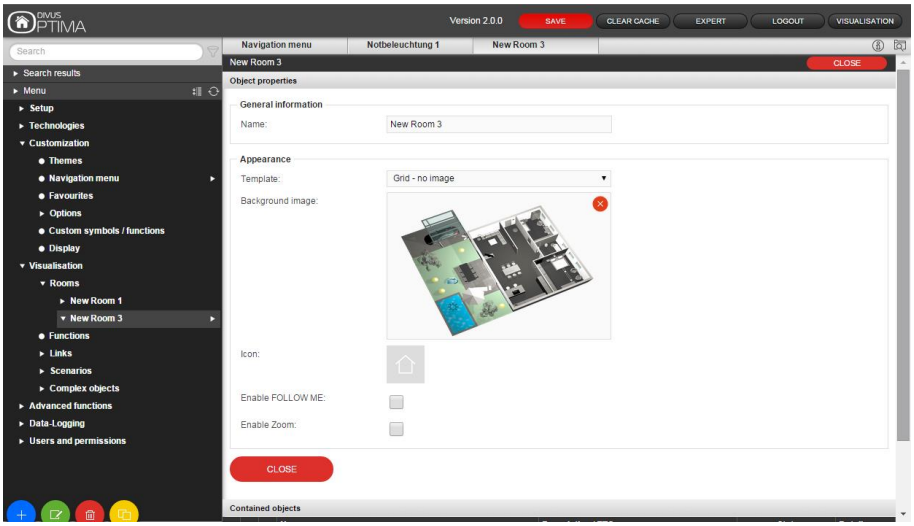


1.4 ADMINISTRATION AND VISUALISATION AREA

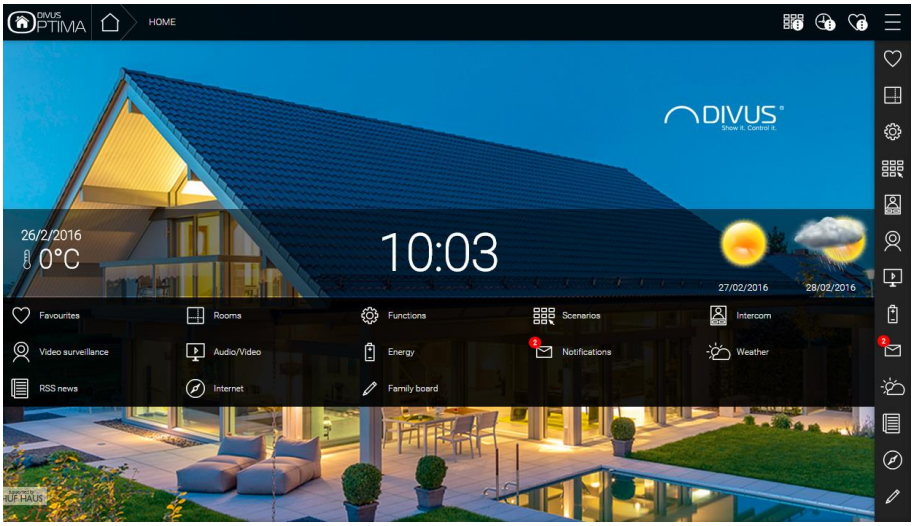
The interface of OPTIMA is split into two areas:

- **ADMINISTRATION**: Configuration area, in which (depending on the users permissions) each aspect of the system configuration and visualisation can be modified
- **VISUALISATION**: Visualisation area, designed for being used by the final user. It allows to navigate inside the single rooms/pages of the visualisation, which were configured in the ADMINISTRATION before, and controlling KNX objects in real-time

Both areas are based on web technologies and can therefore be controlled from within a browser window. The main difference between the two levels is the graphical design.The ADMINISTRATION is kept in a simple graphical style and is optimized to show the maximum amount of information and option windows in a clear form.



The VISUALISATION was designed to deliver an intuitive and user friendly navigation even to inexperienced users. The result is a fancy design which moreover allows to be customized in almost every aspect.



To switch between the two areas, use the appropriate button:

- From within the ADMINISTRATION, use the VISUALISATION button on the button bar (upper right)
- From within the VISUALISATION, use the ADMIN button on the lower right. If you can't see it, you might need to open the navigation menu using the menu button in the upper right corner; of course the user must have the permissions to access the ADMINISTRATION area (further information can be found in the „Optima User-Manual").

Hint: To save time during configuration, both areas should be displayed simultaneously in different tabs of the browser. That allows to switch between the areas faster when checking changes.

2 General overview

2.1 INTRODUCTION

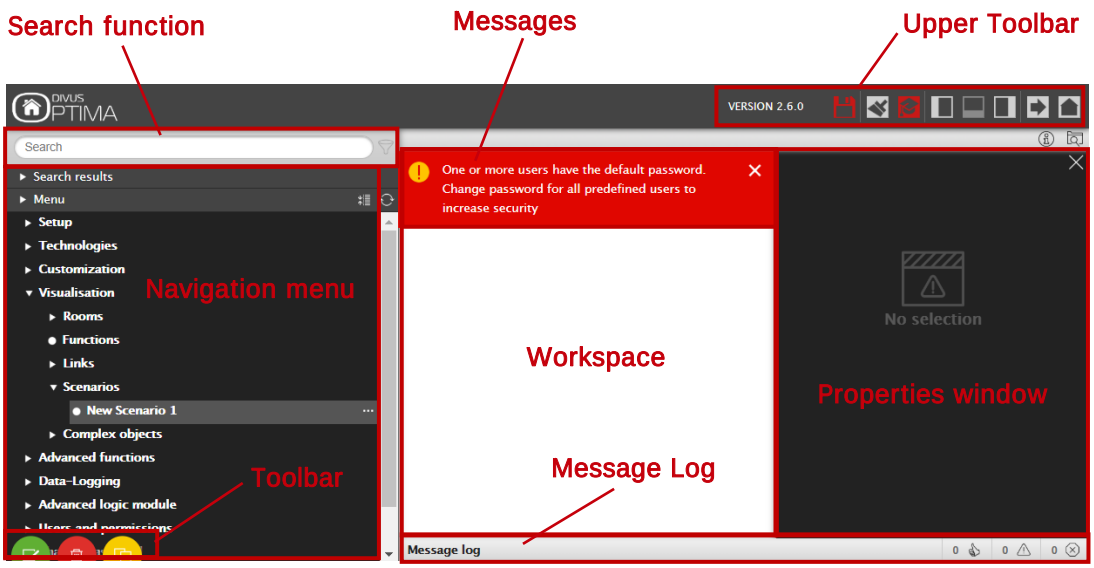
This chapter shows an overview of the administration area of OPTIMA and describes in detail the different tools and menus.

2.2 ADMINISTRATION AREA – GRAPHICAL USER INTERFACE

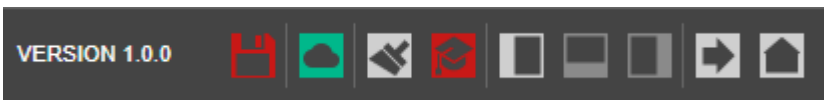
The ADMINISTRATION is divided into the following sections:

UPPER TOOLBAR	The menu bar in the upper side of the ADMINISTRATION is always shown and allows a quick access to the most used functions through its buttons.
NAVIGATION MENU	Main menu of the administration area, shown as a tree-view. Through this menu all sections of the software are accessible and objects can be created / modified / deleted.
TOOLBAR	The toolbar in the lower left corner appears whenever an object in the navigation menu is marked, which allows one or more of the actions: NEW, EDIT, DELETE, COPY.
SEARCH FUNCTION	The search function can be found in the upper left. It allows to find objects quickly by entering keywords (or even a few letters) related to the searched objects.
WORKSPACE	Main area for showing the chosen configuration options; the single menus and configuration windows of the objects are shown in here. It is possible to open more menus / windows in the main area at the same time; the different menus / windows will be accessible through different tabs in this case.
MESSAGE LOG	Area under the workspace which can slide up and down, shows the notifications so they may be checked also from the administration.
MESSAGES	Messages appear here on certain occasions; some close automatically after a short time, all of them can be closed in any case through the "X" at the top right.

The following screenshot shows the single sections of the ADMINISTRATION area:



2.3 UPPER TOOLBAR



You may have noticed the current OPTIMA version is shown at the beginning of the toolbar. The following functions are always present in the toolbar:

SAVE		Allows saving all changes into the flash memory of the KNX CONTROL device to preserve the data even if the device is powered off. The button turns red whenever there are unsaved changes. OPTIMA has an automated saving

function which runs once every 5 minutes. Therefore, clicking this button is only necessary if the system is to be shut down/restarted immediately after making the changes.

CLOUD SYNC		Shows the status of the cloud synchronisation (if the cloud account is active) and allows you to call up the cloud synchronisation page and perform a new synchronisation at the touch of a button.
CLEAR CACHE		Allows to delete the HTML SERVER CACHE. This is especially necessary if changes made in the ADMINISTRATION are not displayed correctly in the VISUALISATION, despite the HTML CLIENT CACHE was already deleted.
BASE / EXPERT		Changes the visibility of advanced options/parameters in the detail views of objects. The base mode shows only the essential options, while the expert mode shows also the advanced options as well as hidden objects.
HIDE/SHOW NAVIGATION AREA		Allows you to show or hide the navigation area. By hiding it, one has more space for the workspace, which can be useful, for example, when working out logics.
HIDE/SHOW MESSAGE LOG		Allows you to show or hide the message log area. The same function is available by clicking on the message log bar itself.
HIDE/SHOW PROPERTIES AREA		The properties area allows quick access to the essential properties of the currently selected or edited object. The button can be used to show or hide the right-hand window.
LOGOUT		Ends the current session allowing to log in as a different user.
VISUALISATION		Links to the visualisation of the current project allowing to see the effect of the applied changes.

Hint: changes in the ADMINISTRATION are immediately effective and visible in the VISUALISATION. If not, you may need to refresh/reload the browser window or – in rare cases – clear the browser's cache. Most of the times using the SAVE function will therefore be superfluous. Allowing OPTIMA to take care of the data saving every 5 minutes will also help to avoid multiple storage writings.

2.4 NAVIGATION MENU

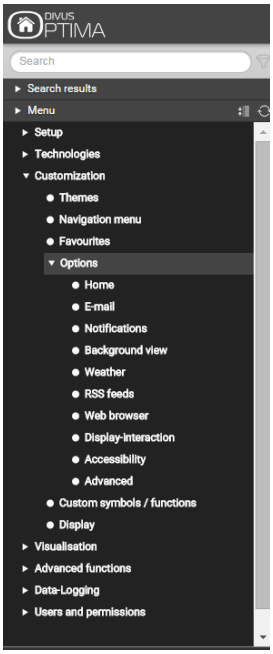
The navigation menu is a typical tree-view-menu. After accessing the ADMINISTRATION area all the main entries are shown; the sub-menus are accessed by extending the corresponding main menu. The navigation in this menu is done entirely with a mouse.

Clicking on an entry in the navigation menu turns the clicked entry to gray; if the entry has additional submenus,

the entry will be extended and the sub-menus are displayed. Another click on the selected entry will close the section and hide the submenus again.

There are the following symbols before each entry in the menu:

▶	Menu entry with a currently hidden submenu
▼	Menu entry with a currently expanded submenu
●	Menu entry without submenu



If the selected entry supports the EDIT-action, 3 points will be displayed on the right side of the entry.

Clicking on these points has the same effect as clicking on the EDIT-button in the lower TOOLBAR.

If the configuration window of an entry is opened through the EDIT-button, the entry will show an arrow instead of the 3 points on the right side.

This arrow will be displayed as long as the configuration window of the entry stays opened and shall facilitate the navigation if multiple tabs are opened in the workspace.

On the right of the Menu label, you will find two small icons

The first one is used to close all the submenus, the second one will refresh all the menu tree showing the changes you may have done in the current work session.

2.5 TOOLBAR

If actions can be performed for the selected entry, they will be displayed in the TOOLBAR at the bottom left corner of the navigation menu. The following buttons may be displayed:

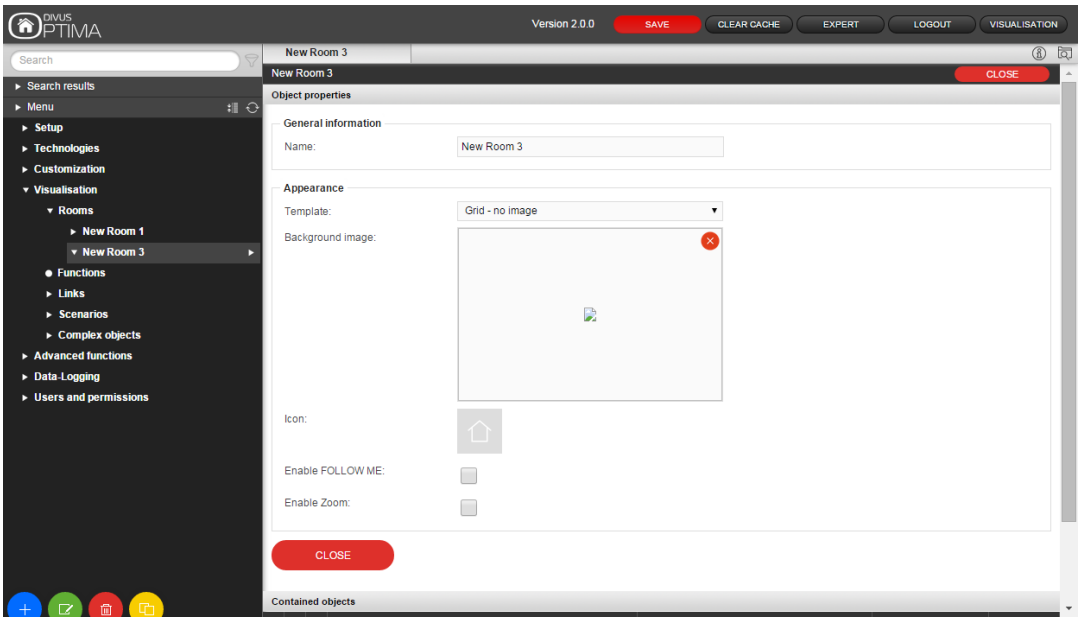
	NEW/ADD	Allows the creation of a new object within the selected entry. Depending on the selected item different types of objects are created; if a menu allows the creation of multiple types of objects, then a context menu will be displayed in order to select the object type to create.
	EDIT	Allows editing the selected entry though the appropriate configuration window, which will be opened automatically by clicking this button.
	DELETE	Deletes the selected object from the project
	CLONE	Creates an identical copy of the object, usually called Copy of...(previous object's name)

When an object is cloned, not only the objects itself is duplicated, but also all of its connections/relations with other objects. This means that the cloned object will be contained in the same rooms, logics, scenarios etc. as the original object is. Therefore, after the creation of a cloned object, all relations and connections should be checked and if necessary corrected.

Note: if the original object was present in a room with BACKGROUND view, the cloned object will be positioned AT THE SAME PLACE in the room and will cover the original object. In this case, please edit the BACKGROUND view and place the cloned object in a different position.

As mentioned before, some of the entries of the navigation menu permit to create submenus or to insert new objects. This is done using the NEW/ADD-button in the TOOLBAR: by pressing this button a new object (the object type depends on the selected entry) will be created and selected automatically. If the EDIT-button (or the 3 points in the entry itself) is clicked, the configuration window of the newly created object will be opened.

Example: To create a new room, just select the entry "VISUALISATION → ROOMS" and click on the NEW-button. The new room will be created and shown as last entry of the sub-menu:



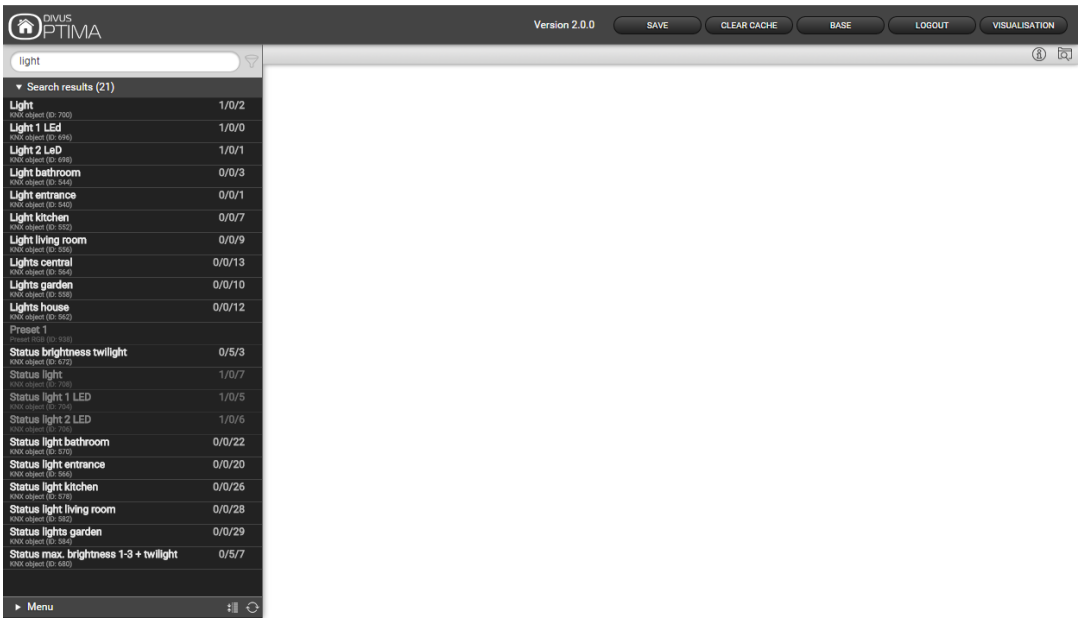
Rooms may contain other rooms in OPTIMA. This feature may be used to reproduce complex building structures or to build custom groupings. The resulting tree-structure will then be used in the visualisation.

The DELETE-button removes the selected entries from the project. This action is blocked for the system menus and indispensable objects, to prevent the user from removing them by accident.

2.6 SEARCH FUNCTION

By entering one or more keywords into the search box in the upper left corner, the software searches for all objects, which include the specified keyword in their names or other primary properties. The character "%" can be used as placeholder for any number of characters inside the keyword.

The results are displayed in the left area instead of the navigation menu, which is minimized for this purpose.



The results are shown together with the following information:

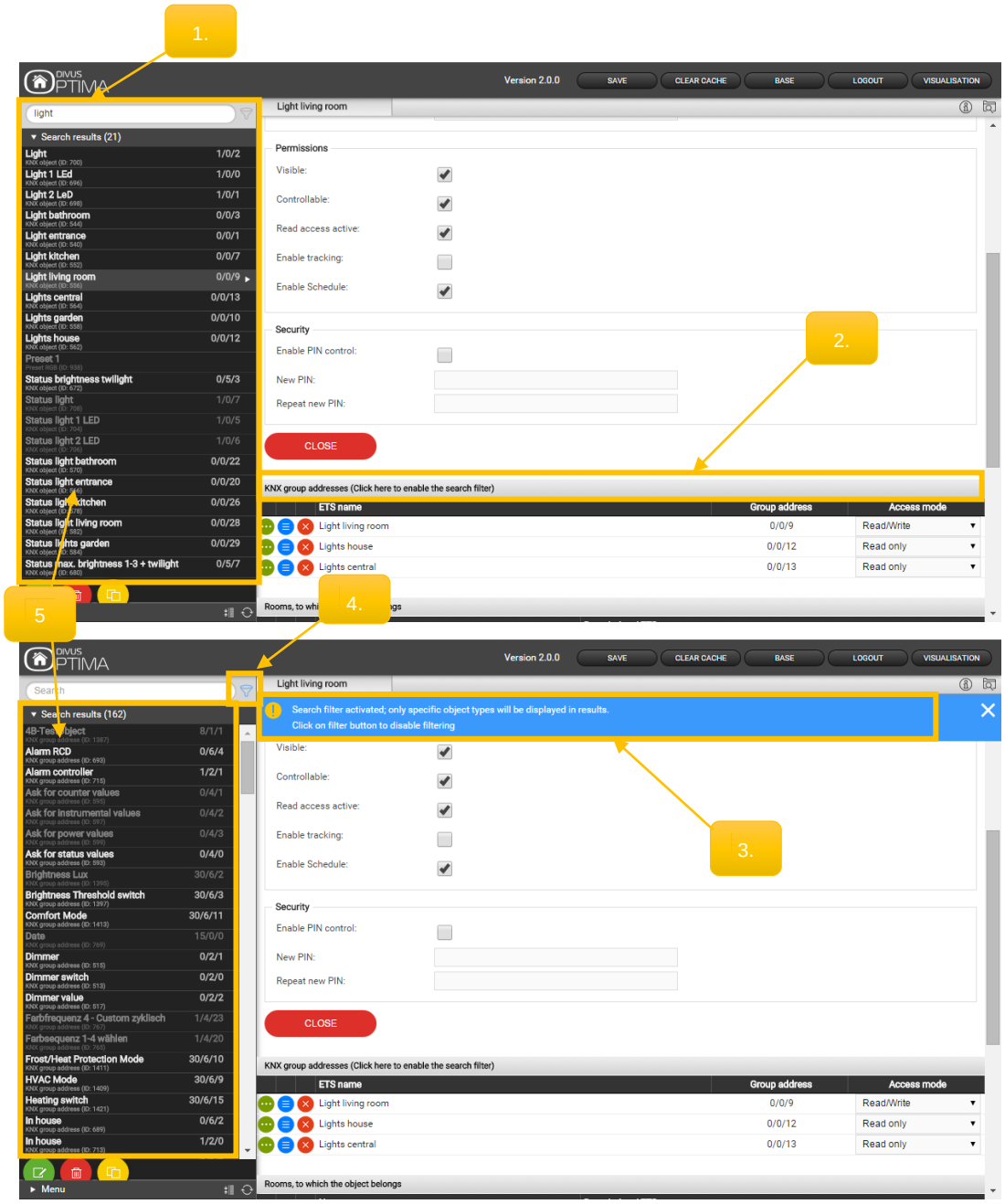
NAME Name of the object inside OPTIMA's database

TYPE AND ID	Object type, and ID in brackets; shown directly under the name of the object
PRIMARY PROPERTY	If available, on the right side the primary property of an object is shown (for example: the group address of a KNX object)

By setting a search filter, only relevant object types are displayed in the search result. Search filters can be activated by clicking on the title bar of the corresponding table of an object's settings page. If, for example, a search filter for KNX group addresses is active, only objects of type "KNX group address" are displayed in the search results that match the specified search word. By clicking on the FILTER icon (to the right of the search box), such a search filter is removed.

Let´s make a step-by-step example of this important procedure:

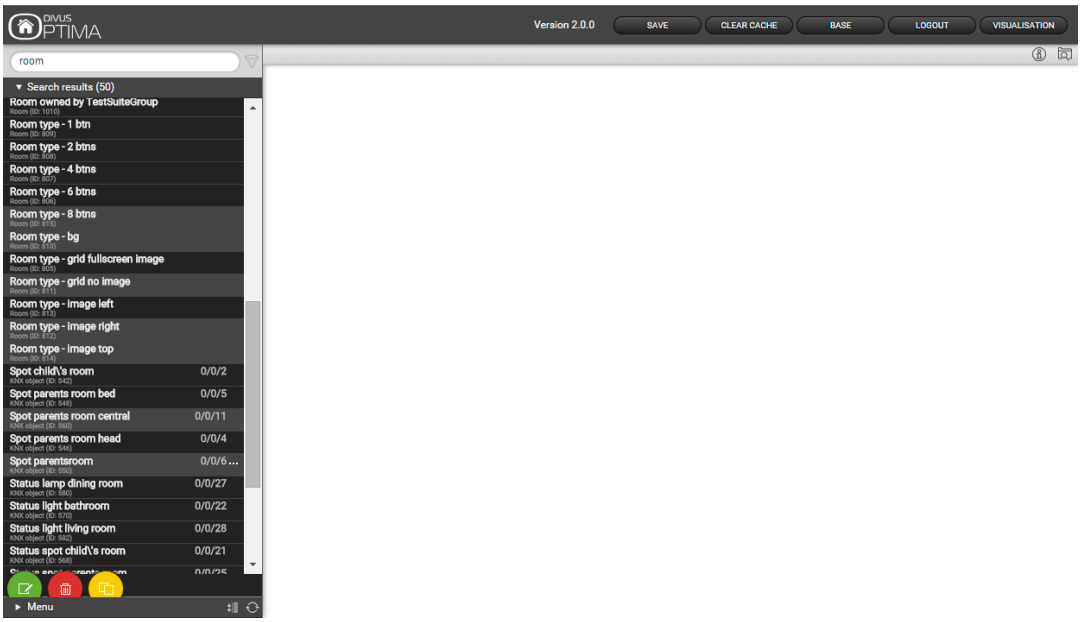
1. You search something using the **search function**
2. You then want to remove some of the results, because you actually search for (e.g.) *KNX group addresses* to relate to the currently opened **KNX object** – so only that type of result is relevant to you. You therefore activate the search filter by clicking on the title bar (titled "KNX Group Addresses")
3. A **message** alerts about the filtering function
4. The search filter is now active, as shown by the colored  FILTER-icon . A click will turn it off and bring you back to the unfiltered results of the search at point 1.
5. Look at the difference in the search results with and without the filter.



A result entry will be highlighted in light gray if it is clicked; as within the navigation menu, there shall appear some action buttons in the bottom toolbar if the selected object allows editing. In that case, the 3 points on the right side of the selected entry will be visible, enabling a quicker access to the property window.

It is also possible to change the object's name directly in the search engine with a simple double click on the item in the search results list.

The search function also supports the multiple selection of objects by holding the Control ([CTRL]) key of your keyboard while selecting the desired objects with the mouse. The selected objects will all be highlighted in light gray:



The TOOLBAR can show the following action buttons in this case:

	EDIT	Opens the configuration window of the selected objects
	DELETE	Removes the selected objects from the project
	CLONE	Clones the selected objects

The CLONE-action creates a 1:1 copy of the selected objects. After the execution of this command, the search results are refreshed and also the cloned objects is shown (can be recognized from the prefix "Copy ...").

When cloning an object, not only the object itself is duplicated, but also all of its connections / relations with other objects. This means that the cloned object will be contained in the same rooms, logics, scenarios etc. as also the original object. Therefore, after the creation of a cloned object, all relations and connections should be checked and – if necessary – corrected.

Note: if the original object was present in a room with BACKGROUND view, the cloned object will be positioned IN THE SAME PLACE in the room and will cover the original object. In that case edit the BACKGROUND view and place the cloned object in a different position in order to be able to access both of them.

2.6.1 DRAG AND DROP

There's another action which is very important for the use of the administration area of OPTIMA: it's the drag and drop of objects of different types, used to create relations of various kind.

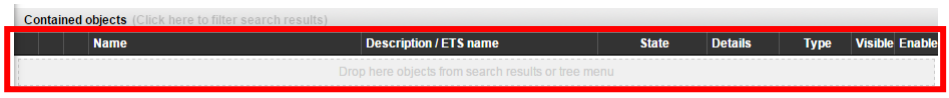
Almost all of OPTIMA's administration sections show objects which may have relations with other objects, or are part of other objects, or need objects as input or for output (e.g. object A is in room B, scenario A starts script B and turns on light C, complex object A is made of objects B, C, D etc.)

Example:

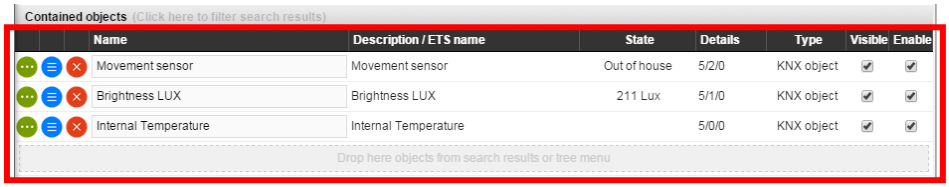
In the example of "*object A is inside room B*" the process would be:

1. Open room B. For this you may either:
    a. Search room B with the search function and open it.
    b. Open room B using the navigation menu
2. Search object A in the menu or with the search function and drag it to the desired area. That means (in detail):
    a. Click on "object A" in the menu or the search results and hold the left mouse button pressed
    b. Drag the object to the right area onto the dark grey bar beneath the "contained objects" title bar, or the light grey bar beneath. (See below for details)
3. Drop the object there by releasing the mouse button. If everything worked as expected, you shall see a new row added to the area of room B, showing details about object A.

When the list of objects where you want to drop an object is currently empty, the area (drop zone) where your mouse cursor must be before you release the mouse button is the the dark gray bar and the light gray row below



Once you added one or more objects, the drop area grows as shown here, thus making the drop action easier:



2.7 WORKSPACE

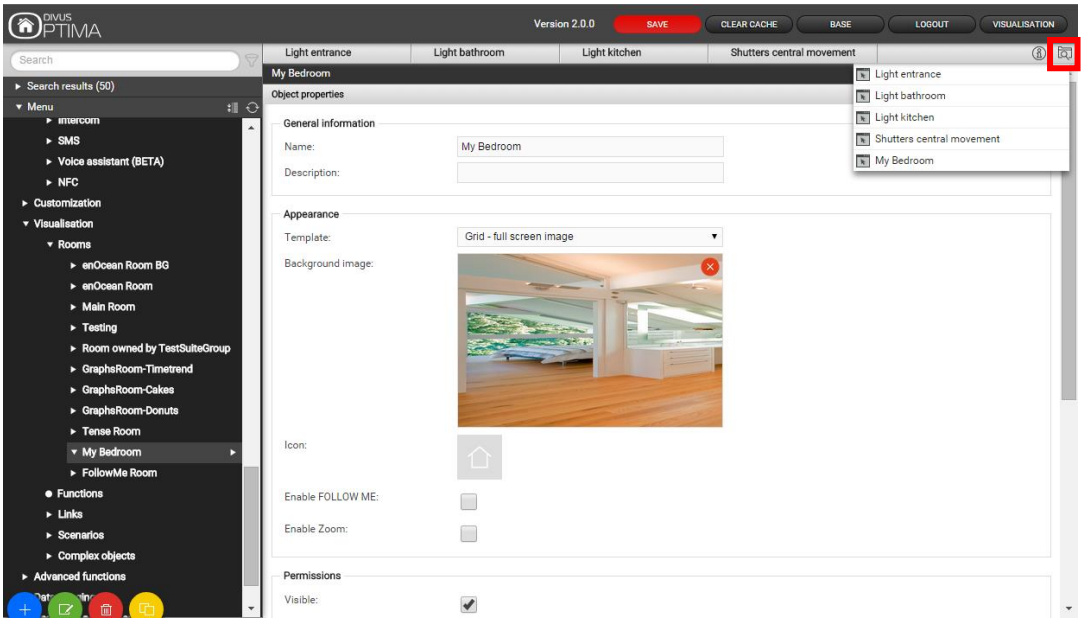
2.7.1 OVERVIEW

The WORKSPACE is the working surface of the ADMINISTRATION area. It offers the possibility to open several configuration windows at the same time in different tabs. The configuration window of a selected entry will be

opened when the EDIT action (either the 3 points of the selected entry or the EDIT button in the TOOLBAR) is executed.

2.7.2 USAGE OF THE TABS

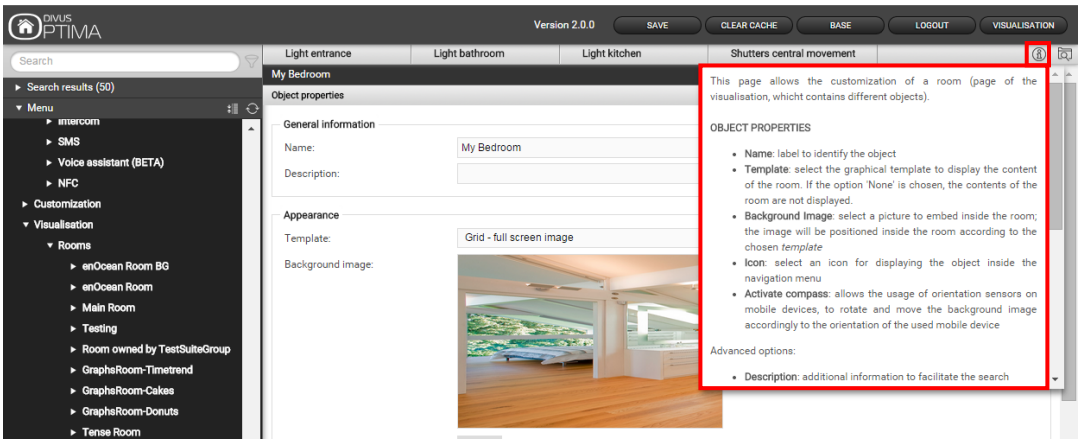
All opened tabs are displayed in the tab bar in the upper area of the WORKSPACE:



If a large number of tabs is opened, they cannot all be shown in the tab bar. The hidden tabs can be accessed through the small button at the end of the tab bar, which on click shows a complete list of all available tabs. To close an opened tab, move the mouse pointer on the tab title and close the tab through the appearing "X" or use the red CLOSE button inside the opened tab.

2.7.3 HELP

A click on the help button ⓘ opens a pop-up with information about the current WORKSPACE content:



When you switch into another tab, the help pop-up will be closed. For showing the help of the new tab, click the help button again.

2.8 MENU STRUCTURE

The navigation menu allows to access all of OPTIMA´s settings and hast he following structure:

SETUP	Contains generic settings and parameters of the used KNX CONTROL device
TECHNOLOGIES	Contains the configuration pages of all supported technologies (KNX, Video surveillance, Intercom etc.)
CUSTOMIZATION	Contains the configuration pages for customizing the graphical design of the visualisation and the different plugins of OPTIMA
VISUALISATION	Allows the configuration of the visualisation itself (rooms, functions, scenarios etc.)
ADVANCED FUNCTIONS	Allows the configuration of additional functions (e.g. logics, notifications etc.)
DATA-LOGGING	Allows the configuration of graphical diagrams for logging different data types
ADVANCED LOGIC MODULE	Allows to build powerful logic functions of any complexity.
USER AND PERMISSIONS	Allows the configuration of new users and their access permissions
CHANGE PASSWORD	This menu entry gives quick access to the current user's account page. **It appears as long as any of the predefined user accounts still has its default password and serves as a reminder to do this important step for higher security** – along with a message on login.

Some menu items have a different position on DIVUS D+ compared to the OPTIMA of the DIVUS KNX SERVER.

2.8.1 SETUP

The menu SETUP contains the following entries:

LANGUAGE	Permits to change the language of the GUI
NETWORK	Permits to configure the network parameters of the KNX CONTROL device

QR CODE	New function to make the configuration of mobile devices faster and easier by preconfiguring it on a user level and generating a QR code which can then be read/transferred to the mobile device.
UPDATE	Permits to update the OPTIMA version through product specific update-packages
BACKUP / RESTORE	Permits to create a backup of the current database, to import an already created backup or to reset the database to factory settings
DATE / TIME	Permits to configure date/time of the KNX CONTROL device and all date/time related settings
LICENSE AND MODULES	Enables the editing of the license code for the activation of additional functions
MAINTENANCE	Gives the possibility to restart the communication service or to reboot the D+ device and contains other relevant information for maintenance purposes.

Further information can be found in the appropriate section of this manual (Setup).

2.8.2 TECHNOLOGIES

Here you will find a set of technologies used inside OPTIMA – for its core functionality (KNX, energy) as well as for extended functionality available through additional modules:

- KNX
- Energy
- Video surveillance
- Sonos
- Philips Hue

2.8.2.1 KNX

This section contains all the settings regarding the KNX bus:

ADD KNX OBJECTS	Allows to add KNX objects manually
ETS-IMPORT-RULES	Permits to configure import-rules, through which the imported group addresses will automatically be configured and connected to the desired icon/function, in dependence of the defined keywords
ETS/TERMINAL IMPORT	Allows the import of a project from the ETS or from Bürkle's *Terminal* into OPTIMA

VPN	Permits to use the KNX CONTROL device as ETS programming interface, even via internet
CONFIGURE COMMUNICATION	Permits to change the parameters of the used KNX communication interface
KNX-DEVICES	Allows the control / management of the physical KNX devices of the system
ETS PROJECT	Permits to navigate through the single group addresses and to edit them; the navigation structure will be the same as the one in ETS.

2.8.2.2 Energy

This section contains these entries:

CONSUMPTION	Allows to set up energy counters for the consumption/production of energy
LOADS	Here you may manage energy loads
IMPORT/EXPORT	Allows to import or export the collected energy data through CSV-files

Further information about energy management may be found in chapter 13 (Energy management) of this manual.

2.8.2.3 Video Surveillance

In this section IP cameras can be integrated into the visualisation.

2.8.2.4 Philips HUE

Allows to command lights of the Philips HUE family. After the first setup of the bridge device you can define individual lights and manage them through the visualisation. Further details may be found in the *IoT modules manual*.

2.8.3 CUSTOMIZATION

This section contains the following entries:

THEMES	Permits to change the graphical design (theme) of the VISUALISATION

NAVIGATION MENU	Permits to personalize the navigation menu of the VISUALISATION
FAVOURITES	Permits to change the favourites page of the VISUALISATION
OPTIONS	Allows the configuration of several aspects / plugins of the VISUALISATION
CUSTOM ICONS / OBJECTS	Allows the customization of the existing icons/objects as wells as the creation of completely new renderings.

Further information about customization can be found in chapter 4 (Customization) of this manual.

2.8.4 VISUALISATION

2.8.4.1 Rooms

This section allows the configuration of the rooms inside the visualisation. This section is initially empty and allows the creation of new rooms, which can contain other rooms or other objects supported by OPTIMA.

For each room a *Template* may be selected. The currently available room templates are:

NONE	Choosing this option makes the room not visible. This is useful for rooms that are used as containers (e.g. for a structure based on floors or building sections) and are therefore not meant to be shown but to make the navigation easier.
GRID **NO IMAGE** **FULL SCREEN IMAGE** **IMAGE ON TOP** **IMAGE ON THE LEFT** **IMAGE ON THE RIGHT**	Shows the contained objects placing them into predefined grid slots. Depending on the type of object, it may be controlled directly by clicking on its rectangular area, its buttons or a pop-up window which is opened with additional controls when the object is clicked. A grid room may include an image file that is positioned depending on the selected template.
BACKGROUND	Has a background image (photo, graphic rendering, plan), on which the single control objects are positioned. Clicking on a control object, it either sends the related command onto the KNX bus directly or opens a box containing further control options.
BUTTONS: **1 BUTTON**	The button views can be used to create a room without any background, where the contained Buttons fill the display area completely. This view supports only sim-

2 BUTTONS **4 BUTTONS** **6 BUTTONS** **8 BUTTONS**	ple ON/OFF functions (1 bit) e.g. "Light ON/OFF" or "Shutters UP/DOWN". Detailed information about the button views can be found in chapter 6.6 of this manual.

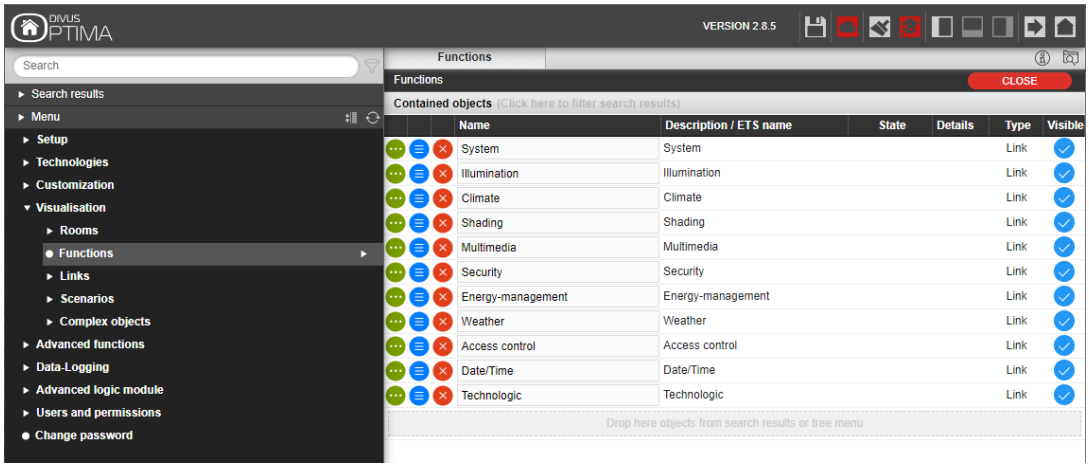
Note: If the entry ROOMS is selected directly and its configuration window is opened by clicking on the EDIT button, the order of the contained rooms can be changed. Since this group belongs to the system, no other modifications are allowed.

See chapter 6 (Rooms) for further details.

2.8.4.2 Functions

This section allows the organization of the FUNCTIONS, which group the KNX objects automatically based on their typology. If an object is linked with e.g. the FUNCTION "Illumination", it is automatically shown in the group "Illumination" of the FUNCTIONS. This group can be called directly in the VISUALISATION, providing quick access to the objects of the same typology.

After activating the EXPERT mode (see chapter 2.3) through the appropriate button in the **upper toolbar**, each entry in the FUNCTIONS list may be made visible or hidden and enabled / disabled using the checkboxes at the right:



Furthermore, the order of the single entries can be changed. Click on the ORDER-button of an entry, drag it up or down to the desired position and drop it there to fix the entry in the new position. The new sequence is shown in the VISUALISATION after the FUNCTIONS menu is refreshed.

Further information can be found in chapter 7 (Functions) of this manual.

2.8.4.3 Scenarios

This section allows the configuration of scenarios. With scenarios, multiple actions can be launched sequentially - if necessary also time-delayed – with only one click. Scenarios can also be started as a passive event by other objects or via scheduling.

The order of the single scenarios can be changed by opening the configuration menu of the SCENARIOS entry and by moving the single scenarios to the desired position through drag and drop. In EXPERT mode it is also possible to define each scenario's visibility in the visualisation.

Further information can be found in chapter 9 (Scenarios) of this manual.

2.8.4.4 Complex Objects

This section allows the configuration of so-called complex objects, in which KNX objects of the same device can be grouped and therefore will be accessible and operable in one of the available templates (for example: thermostats, blinds, dimming, RGB control, etc.).

For more information, refer to chapter 8 of this manual.

2.8.5 ADVANCED FUNCTIONS

This section permits to extend the system with functionalities that are not programmed on KNX level. The following advanced functions are available:

VIRTUAL OBJECTS	Permits to create virtual objects for example for saving values, for connecting passive and active events etc.
NOTIFICATIONS	Permits to send notifications (either "on screen" or via mail) in dependency of events within the installation
CLOCKS	Allows to create scheduled events which can command one or more devices using the configured schedule. May also be used in programmable events.

2.8.6 DATA LOGGING

This section allows to configure and manage the objects (i.e. their values) which you want to log in the long term and visualize in diagrams. It requires a license to be usable. Please refer to the OPTIMA Data-Logging Manual for more details.

2.8.7 SERVICES

2.8.7.1 Weather services

The weather service-related data can be found and configured here. Individual weather data can be used in OPTIMA, similar to other objects, e.g. directly in rooms or also in logics.

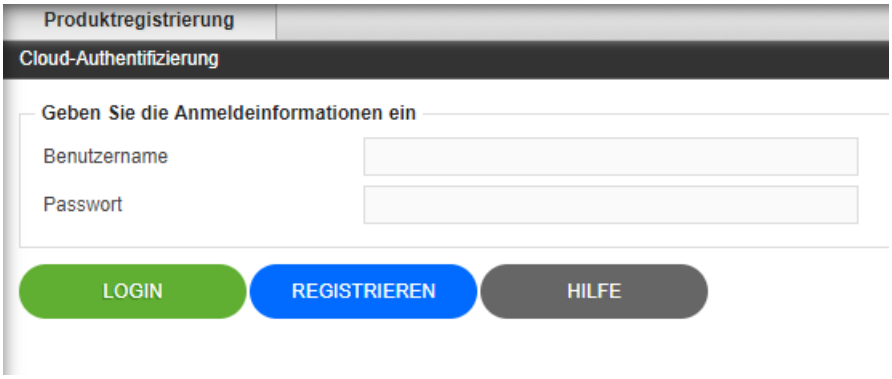
2.8.7.2 Cloud

Two functions can be managed through this module:

1. Remote access via cloud - this allows you to reach and control your system from the internet without port forwarding on the internet router.

2. The synchronisation of the objects with the cloud for the purpose of voice control service can also be managed from here.

The registration enables remote access to be activated freely. On mobile devices, the address for remote access must be adjusted accordingly to the new cloud domain address assigned to the device.

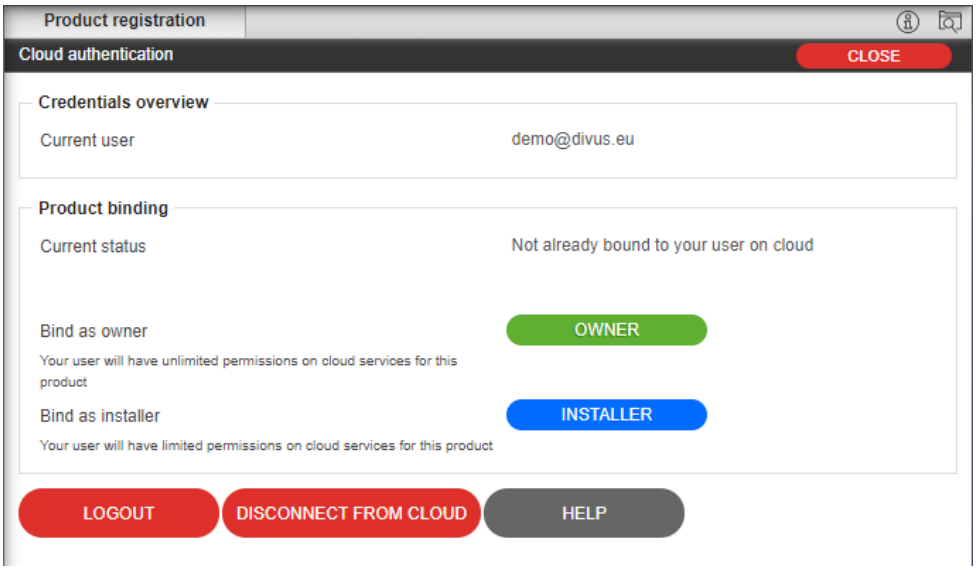


1. First register using the blue button.

2. Enter your email, a password and your name via the website

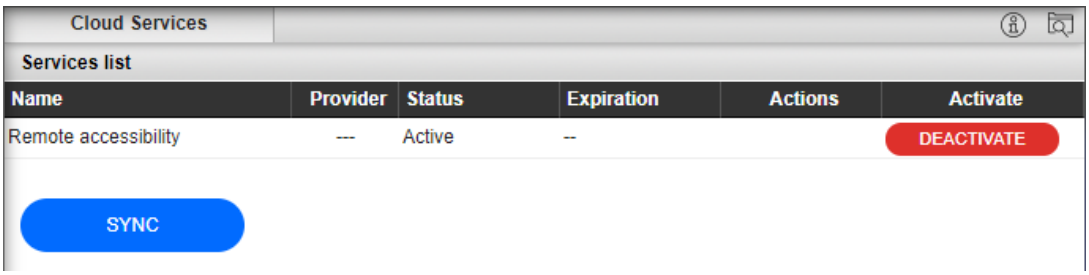
3. After registering, you will receive a message on the email provided, which will allow you to activate your account.

4. Once the account is activated, you can return to the window above and log in from there.



5. Assign your account to the *owner to* have normal remote access to the machine.

6. You can then activate the desired services under Cloud Services.



In the future, new cloud services will be available here.

The DIVUS cloud service is freely available on supported devices.

2.8.7.3 IFTTT

Enables the integration of IFTTT services. For more information, see the IoT module manual.

2.8.8 ADVANCED LOGIC MODULE

Through this module, values and events can be logically linked, graphically set up, tested and finally implemented. More detailed information is available in the dedicated OPTIMA Advanced Logic Module Manual.

2.8.9 USERS AND PERMISSIONS

This last section allows to access the user rights management of Optima.See chapter 15 (Users) for further details.

2.8.9.1 Users

Here you can manage the existing and add new users.

2.8.9.2 User Groups

The user rights structure makes use of user groups. Access rights to objects are then configured over those user groups.

2.8.10 CHANGE PASSWORD

This menu entry gives quick access to the user account page of the current user. There you should change the default password to something more secure.

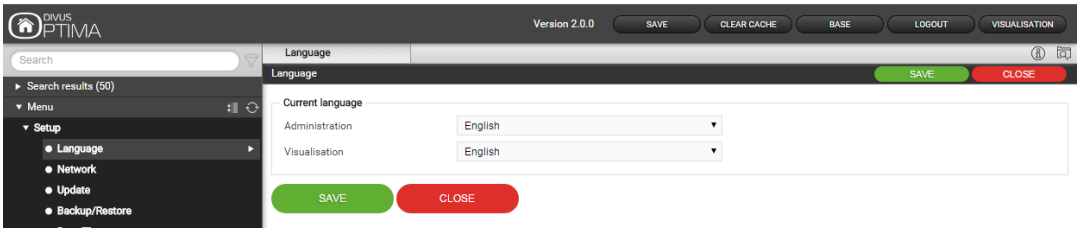
3 Setup

3.1 INTRODUCTION

This chapter explains the configuration pages for installation, commissioning and maintenance of OPTIMA. All sections and menus described in this chapter can be found in the SETUP section of the navigation menu. To have access to all of these settings, you must be logged in as administrator.

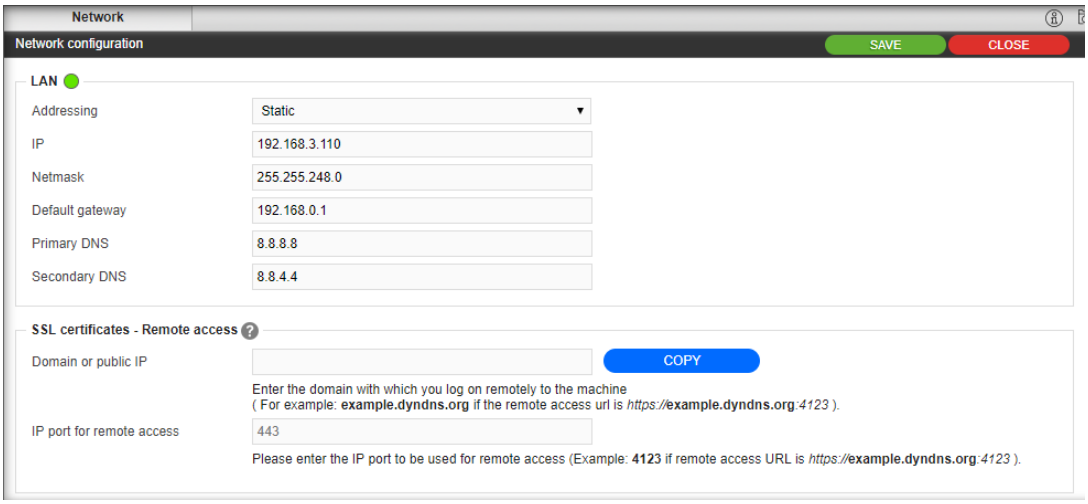
3.2 LANGUAGE

This page allows the configuration of the language that should be used for the different areas of OPTIMA. Currently the language can be set separately for the ADMINISTRATION and the VISUALISATION area. Select the desired language for the appropriate area and click on "SAVE". Once the storage procedure is completed, the page will be refreshed and displayed in the selected language.



3.3 NETWORK

This page allows the configuration of the network parameters of the KNX CONTROL device:



The available parameters are:

ADDRESSING	Choose Static or DHCP here.
IP	IP (V4) address of your KNX CONTROL device; the address has to be set manually – it's a so-called static address. If you're unsure on how to set it up, please contact your network administrator. Factory setting: 192.168.0.110.
NETMASK	If no special network configuration is used, don't change the standard value 255.255.255.0
DEFAULT GATEWAY	Enter the IP address of your router (if present) or the referenced server of the network (if unsure, please contact your network administrator).
PRIMARY DNS **SECONDARY DNS**	DNS servers used by OPTIMA to access web resources (e.g. web pages or weather forecasts). At least one (the primary) DNS server IP address must be present to use such services. You may, as an alternative, try to insert your gateway IP address here also. If that should not work, please contact your network administrator.
DOMAIN OR PUBLIC IP	If access to the OPTIMA server is also to be guaranteed via the internet, cloud access or a fixed public IP address or alternatively a domain name of a service such as DynDns is required. However, enter only the domain name (e.g. optima.duckdns.org) or the IP address (e.g. 234.123.12.34) here - without the "http://" at the beginning and without any port number after it. The following examples on the left are not correct because the input is to be used to generate the SSL certificate and addresses like the one shown on the right are needed for this. An SSL certificate is needed to guarantee an encrypted connection via HTTPS.

Incorrect	Correct
http://optima.duckdns.org:2345	optima.duckdns.org
http://234.123.12.34	234.123.12.34
234.123.12.34:5678	234.123.12.34

The domain name of the cloud is automatically entered here as soon as the registration has taken place.

PORT FOR REMOTE ACCESS	Insert the port used to access the system from the internet (if used)

After modifying the single parameters, please click on "SAVE". If the IP address was changed, the new IP address must be entered in the address bar of the browser for reconnecting with the device.

Hint: In order to be able to guarantee remote access to OPTIMA, the address set under "Gateway" must correspond to that of the Internet router via which you want to access OPTIMA. For further details, please refer to the relevant section of this manual.

Hint: Ensure that all entered data is correct before you save! If incorrect settings are saved, your D+ device might become inaccessible. After the save procedure, this jump to the new address is made automatically by the system - so do not interrupt the save and change procedure but wait until OPTIMA is displayed at the new address.

3.4 QR CODE

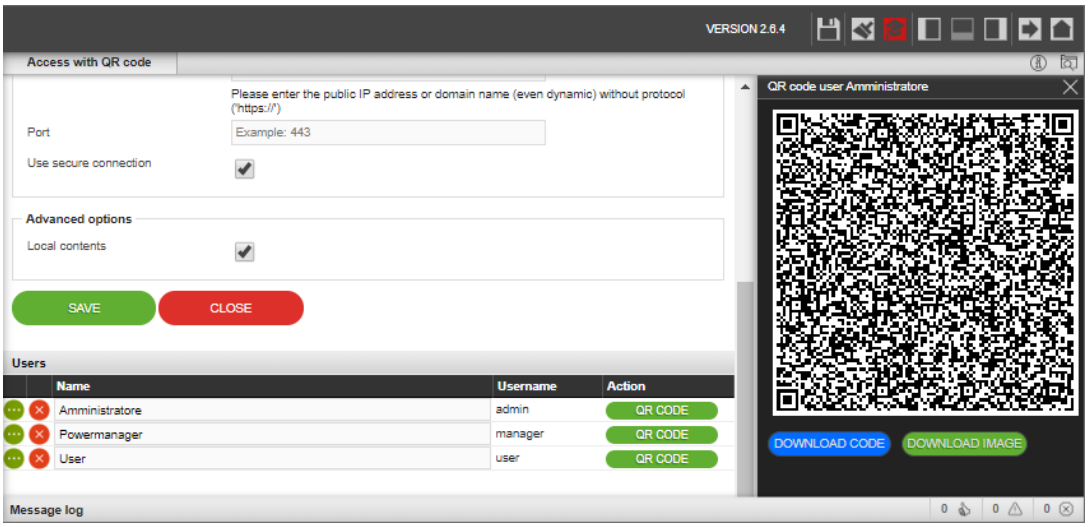
This page may be used to preconfigure mobile devices. On the mobile device itself the configuration is then read through a QR code reader from the OPTIMA mobile app and the system can be accessed immediately. The configuration also contains the user account, making it possible to distribute different configurations to different users easily.

The fields to be filled out are the following:

DEFAULT LABEL	Allows to assign a name/label to the project. This needs to be filled out for the QR code to be valid.
SERVER ADDRESS	IP address of the KNX SERVER
PORT	Port of the KNX SERVER
USE SECURE CONNECTION	Should HTTPS be used?
HOME NETWORK(S)	Insert one or more WIFI networks OPTIMA should use to distinguish between local access and remote access data

SERVER ADDRESS (REMOTE)	IP address or domain name of the KNX SERVER from the internet
PORT (REMOTE)	Port of the KNX SERVER when accessing OPTIMA from the internet
USE SECURE CONNECTION	Should HTTPS be used? (recommended)
LOCAL CONTENTS	Local contents is a special technology for mobile devices which fastens the system navigation in OPTIMA and is therefore recommended.

When all these fields have been filled out, the QR codes can be generated in the bottom part of the page. There are green *QR code* buttons next to each user for this sake.



The QR code can be read directly from the mobile device through the OPTIMA mobile App, or you can print it out, or download as a file which you can then send to the mobile device and import from there.

You can also download it as an image to scan or print it elsewhere.

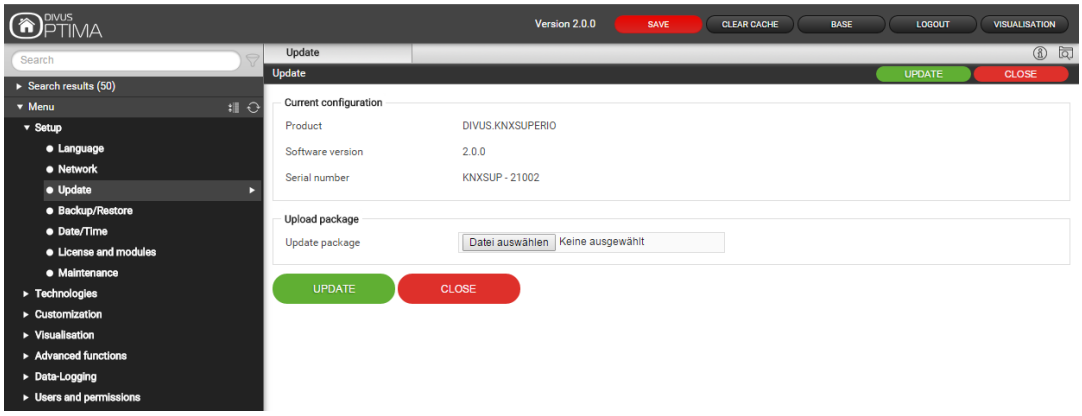
Note: Fill in all fields before generating QR codes so that they can be read correctly by the OPTIMA app.

3.5 UPDATE

This page permits to update the software of OPTIMA to a newer version; please use only official update packages matching your KNX CONTROL device published by DIVUS, in order to avoid malfunctions. To update OPTIMA, please proceed as follows:

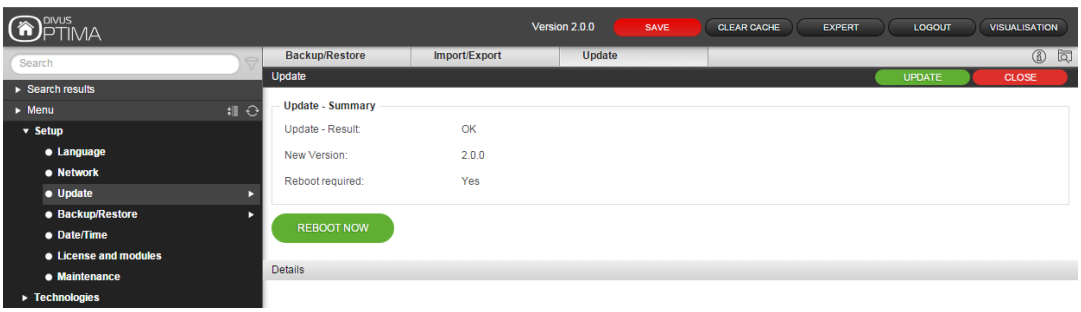
- If not already present, configure/connect the device so that it has Internet access.

- Then go to the update page. A message in the blue background appears. The system automatically searches for new versions on the update server on the Internet.
- The UPDATE button is then deactivated if the device already has the latest version. Otherwise, the button is activated and you can carry out the update:
    - Press the UPDATE button
    - The download and update procedure now starts automatically.
    - Wait for the message that the update procedure is complete and the unit can be restarted. Never interrupt this phase!



The update process runs completely automatically; please **wait for feedback from the page without performing any other tasks or exiting the browser** (risk of data loss / malfunction). Depending on the configuration and software version, the update may take several minutes.

Once the update process is completed, a brief summary as well as the new software version is displayed. To complete the update, click on the "Reboot now" button, which will restart the operating system of your KNX CONTROL device in order to apply the changes.

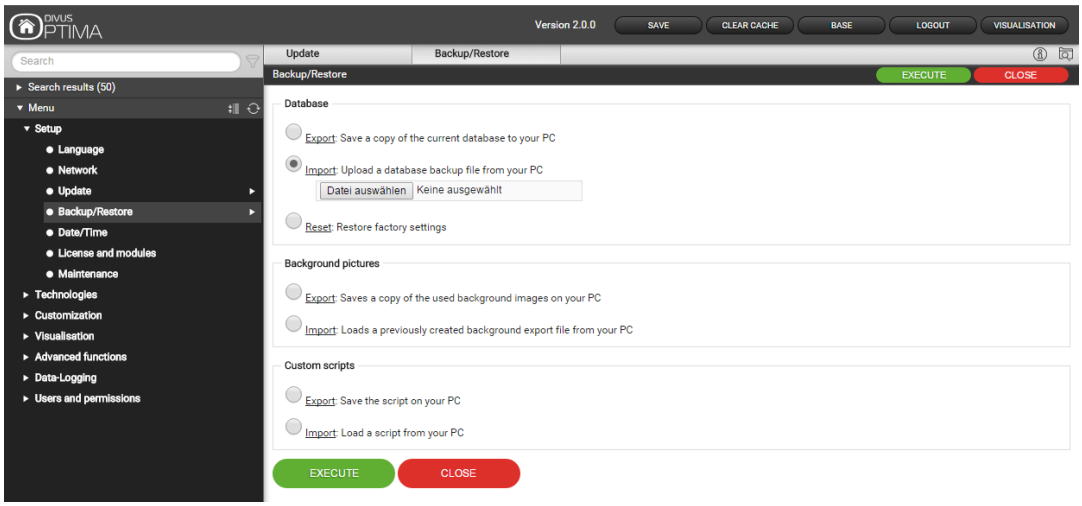


Hint: If it is not possible to put the device online for the update, you may contact support@divus.eu providing the device's serial number to request the appropriate update package. That may then be uploaded to the server using the file upload field which appears in EXPERT mode.

3.6 BACKUP / RESTORE

This page allows the creation of a backup of your project, or also to import a previously created backup (even from another KNX CONTROL device or the KNX CONTROL PDK).

In addition, OPTIMA can be restored to factory settings (the IP address will NOT be affected by the reset).



As you can see, there are different options for backing up or restoring data in OPTIMA.

The most important part of a running OPTIMA system is its database. All the settings, all the KNX objects and all the advanced features of your project are stored in the database.

Background images are stored separately because of their relatively big size and because they're not changed often, once chosen.

Script files are also stored separately. Scripts are one of OPTIMA's great features, allowing to expand its base functionality with php scripts that you may program and then store on your KNX CONTROL device. If you do not plan to use any of them, you don't have to care about their backups either, of course.

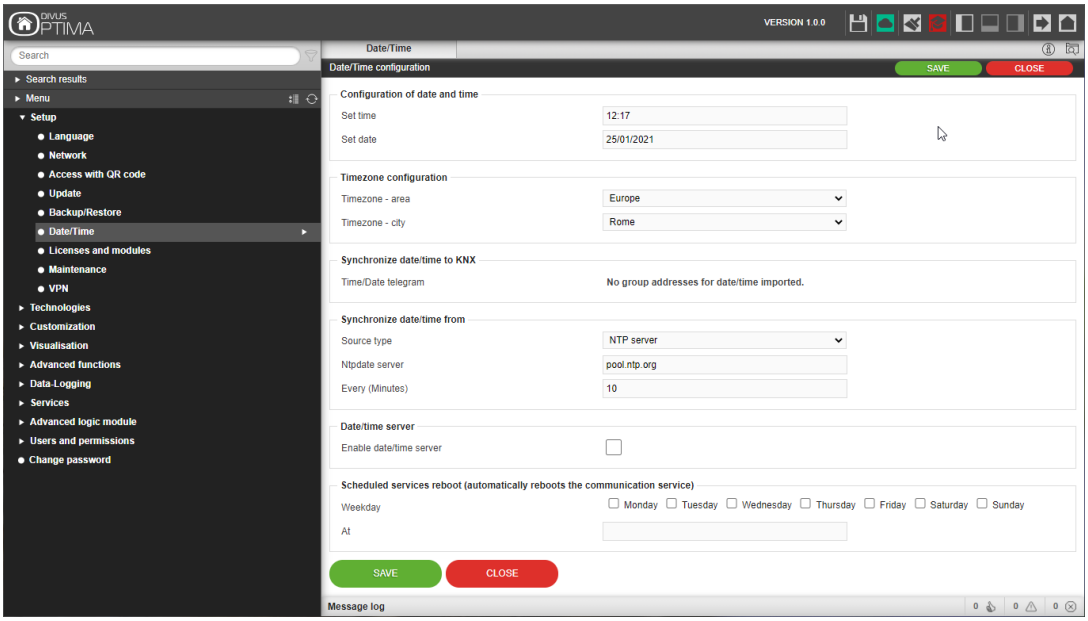
After the desired action has been selected (and - in case of the import action – the desired backup has been chosen), click on "EXECUTE" and wait for the desired action to be processed. Neither cancel the started action nor close the browser window during this process.

Hint: To complete the backup and restore topic, the data gathered through energy counters (and loads) should be mentioned and added to this list of files which may be saved to a PC or restored back to OPTIMA. See chapter 13.5 (Import/Export) for further details.

According to the importance of the data and the system you are planning (for you / for your customers), you should consider a backup strategy to apply on a regular basis. This will make it easier and painless if your system should one day have to be set up from scratch or restored.

3.7 DATE / TIME

This page allows setting several parameters related to date and time.



Note: The D+ does not have a battery for storing the date and time. Therefore a power loss might cause it to loose its correct date/time settings.

CONFIGURATION OF DATE / TIME

Permits to manually adjust the system time of the KNX CONTROL device.

TIMEZONE CONFIGURATION

Allows configuring the timezone in which the KNX CONTROL device is located.

SYNCHRONIZE DATE/TIME TO KNX

If there is at least one pair of knx objects holding date and time respectively, the options to use the KNX CONTROL device as a time server on the KNX bus are activated and may be changed here.

SYNCHRONIZE DATE/TIME FROM

Allows defining a time server and a time interval to automatically update the system time; if no special settings are required, it is recommended to use the default settings. If there is a GPS device in the system, it may be chosen as source of the current date and time.

TIME SERVER

The KNX CONTROL device may be used in the LAN to act as time server for other devices. This option allows to activate/deactivate this function.

SCHEDULED SERVICES REBOOT

Provides an automatic restart of the services running on the KNX CONTROL device in the background; week day and time for the automatic restart of the services can be configured here. Normally, the automatic restart of the services is not required, therefore it is recommended to not change the factory settings.

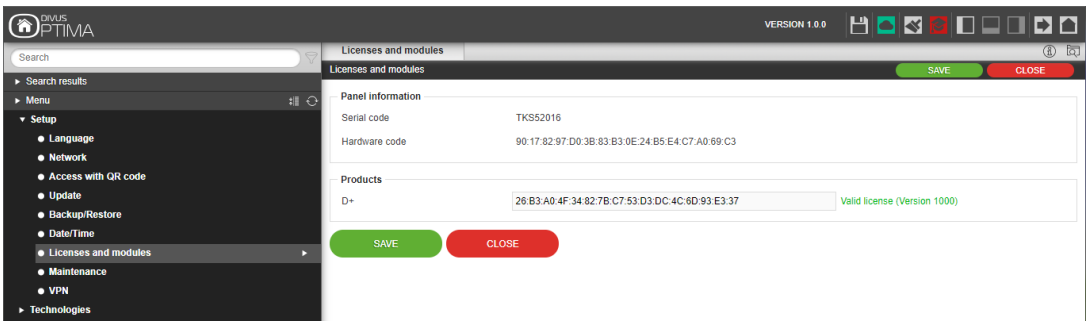
3.8 LICENSES AND MODULES

On this page, the current licence key as well as the serial number and the hardware code of the D+ can be read out. On delivery, the required licence and any additionally purchased licences are already activated.

The DIVUS D+ comes with a licence as standard, which allows you to import up to 1000 KNX group addresses into the project. With an additional licence, this limit can be increased to 1250 KNX group addresses.

If the additional licence is acquired at a later date, after the purchase of the D+, it can be entered here in the form of a hexadecimal number code.

To do this, simply enter the licence code received in the corresponding field and confirm by clicking the "SAVE" button; as soon as the saving process is complete, the status "Valid licence" or "Invalid licence" appears below the licence entered. If the licence appears as not valid, please check the entered value for correctness and for the presence of spaces

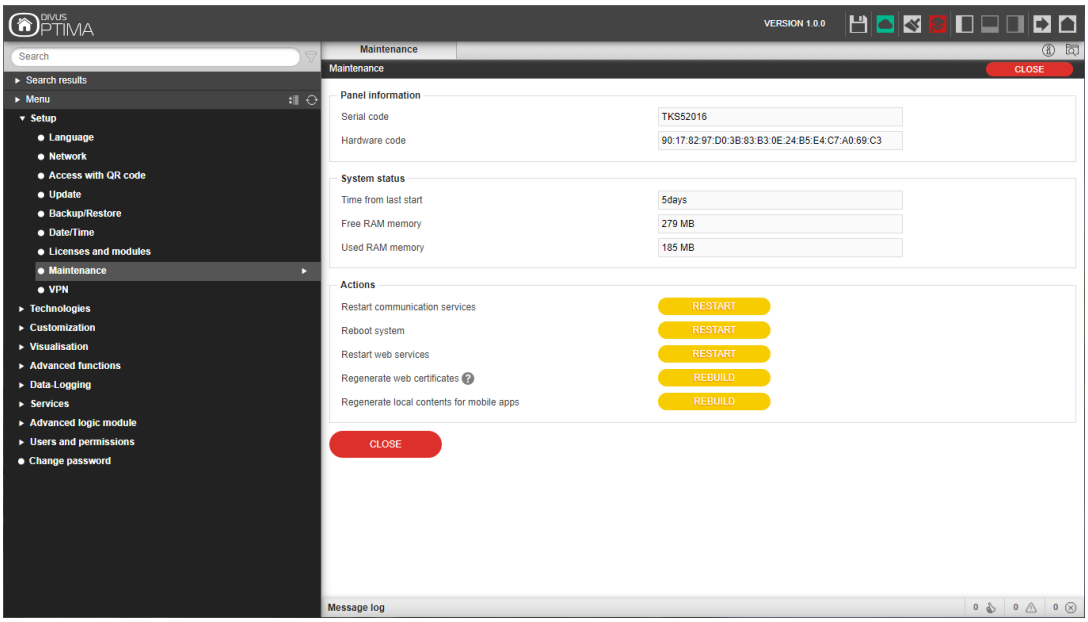


Note: the licences are bound to the respective device and cannot be transferred to other devices.

Note: DIVUS D+ does not allow the activation of other additional modules.

3.9 MAINTENANCE

On this page you'll find some important maintenance related commands.

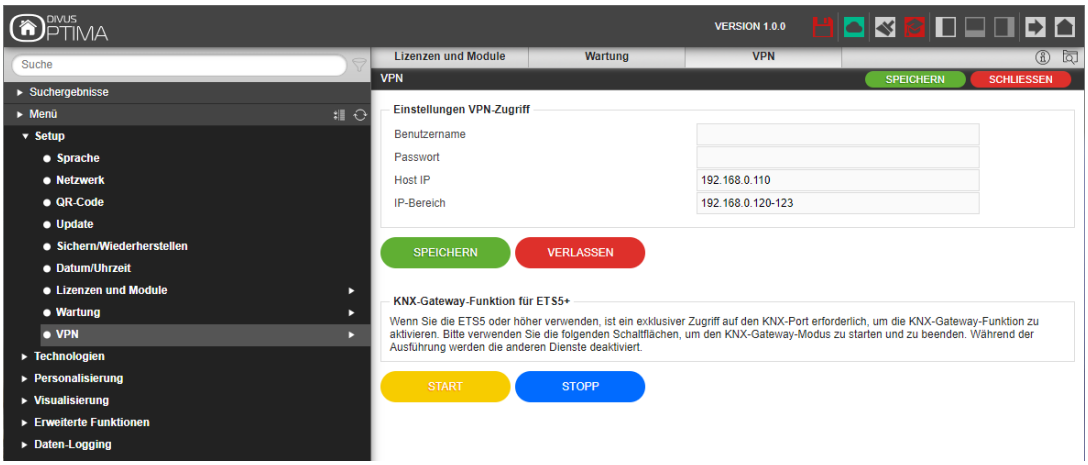


SERIAL CODE	To be communicated for any support: the serial code is unique and identifies the device
HARDWARE CODE	Device's hardware specific id code
CHIPSET	For newer devices, gives information about the used chipset
TIME FROM LAST START	Shows since when the device is running
FREE RAM MEMORY	Shows the amount of available memory
USED RAM MEMORY	Shows the currently used amount of memory
LOG FILE	Allows to download the log file which might help in troubleshooting
RESTART COMMUNICATION SERVICES	All of OPTIMA's base services are restarted
REBOOT SYSTEM	The whole device is rebooted
RESTART WEB SERVICES	OPTIMA's web services are restarted
REGENERATE WEB CERTIFICATES	The SSL certificate is rebuilt overwriting the old one
REGENERATE LOCAL CONTENTS FOR MOBILE APPS	This option allows to prepare the contents of a finished project in a way that mobile devices using the new OPTIMA Mobile App can download and then use. This allows to increase the navigation speed greatly.

Hint: If you're having trouble managing OPTIMA's SSL certificates or if you're continuously getting security warnings from your browser when accessing OPTIMA, please visit the FAQ on our homepage to find the up-to-date instructions to solve your issues.

3.10 VPN

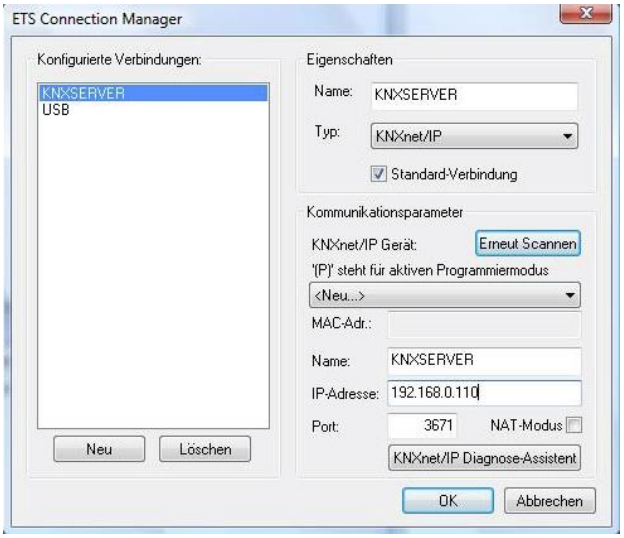
OPTIMA offers the possibility of making the KNX interface of the device available as a gateway in order to use it as a programming interface in ETS - both locally and via the Internet. Thus, the device can be used to reprogram KNX devices or to start diagnostic operations without having to connect a separate interface (e.g. USB/KNX) to one's own PC and without having to be on site.



3.10.1 USE IN THE LOCAL NETWORK

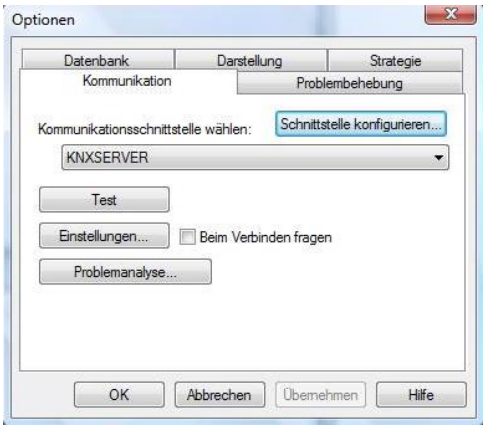
In the local network, your own PC with the ETS installation can be connected directly to the KNX CONTROL device without detours (also wirelessly if a WLAN connection is available).

When using ETS3, the following steps are necessary:



- Click on "Options" in the "Extras" menu and select the "Communication" tab.

- Select the button "Configure interface".



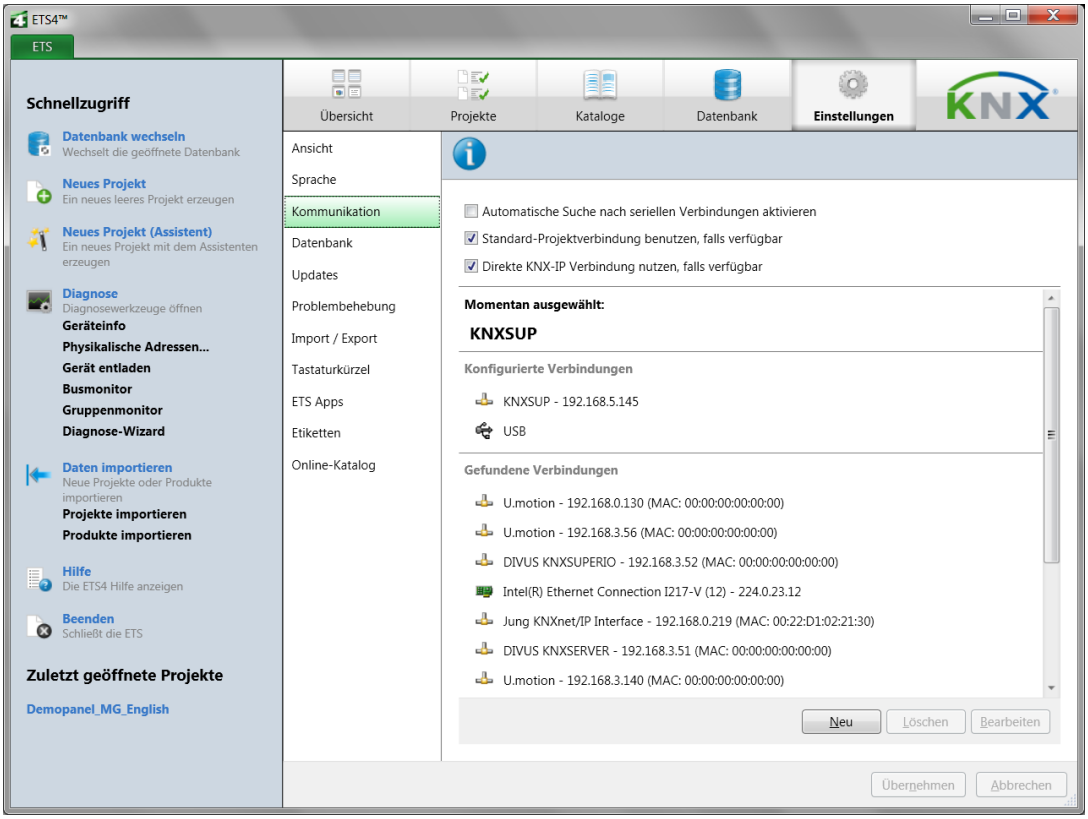
- Click on "New" and enter any name and set "KNXNet/IP" as the type.
- Manually set the designation and IP address of the KNX CONTROL device and "3671" as the port (do NOT activate NAT mode).
- Confirm the changes with "OK".

Select "KNXSERVER" (name given first) as the active connection and check the connectivity via the "TEST" button. If the message "OK" is displayed after a few seconds, the KNX CONTROL device can be used as an interface.

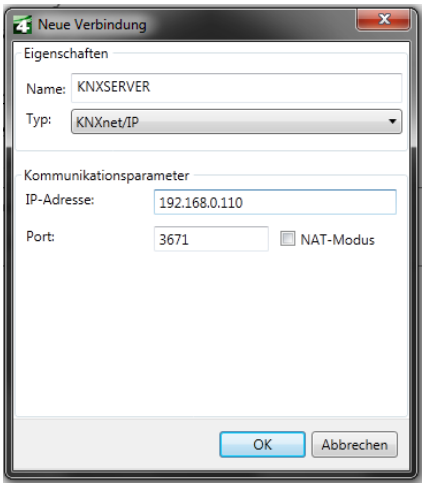
Proceed as follows with ETS4:

- Select the "Settings" entry in the main menu

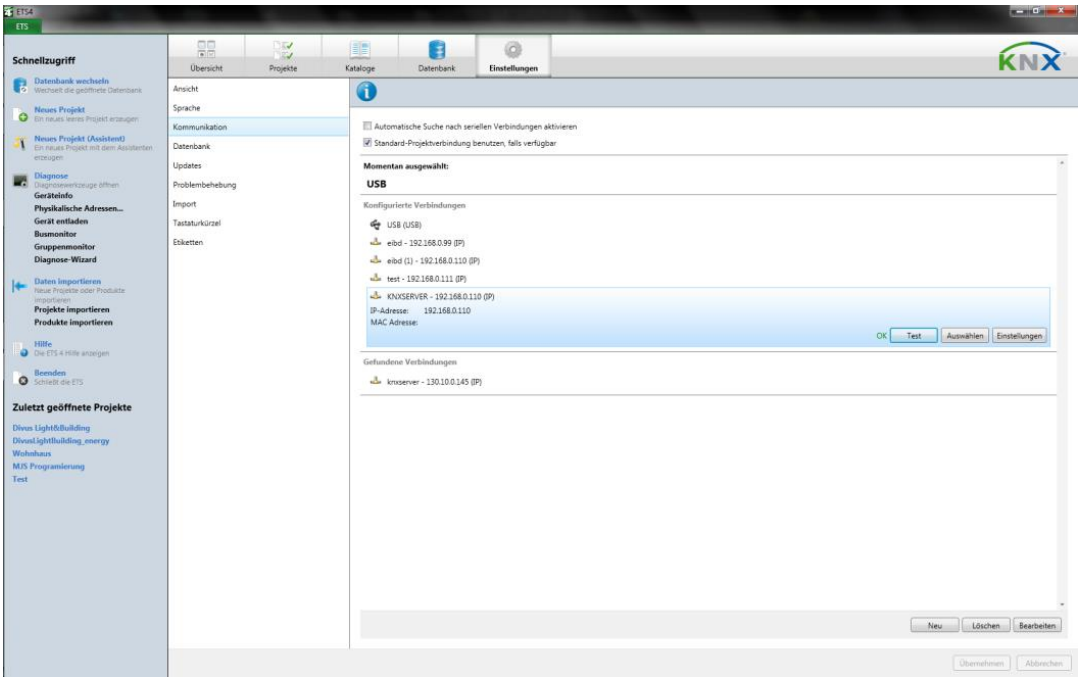
- Click on "Communication" in the side menu



- Click on "New" to open the pop-up "New connection"; enter a name for the connection, specify "KNXNet/IP" as the type and manually enter the IP of the server and define "3671" as the port (do NOT activate NAT mode!).



- After confirmation via the "OK" button, the connection appears in the "Configured connections" section. Select the connection you have just created and click on "TEST" to check the connectivity; once you have received the "Ok" response, click on "Select" to be able to use the KNX CONTROL device as the active interface.



Note: The gateway function of OPTIMA can only be used with the diagnostic function "GROUP MONITOR"; the diagnostic function "BUSMONITOR" requires a specific KNX interface (serial, USB, IP). This applies to all versions of the ETS software.

Note: The ETS gateway functionality of OPTIMA with ETS5 is only supported by KNX SERVER from version 2.5.0. This version does not allow parallel operation of KNX visualisation and control with ETS programming via the gateway function, as is possible with ETS3 and ETS4. You will find more details in the following paragraph.

3.10.2 ETS GATEWAY FUNCTION WITH ETS5+

This function differs from the one supported by ETS3 and ETS4. While it was possible for the older versions of ETS to simultaneously control the KNX bus via the visualisation and use the ETS gateway function for programming or monitoring, with ETS5 or newer it is necessary to switch between two modes:

VISUALISATION MODE (STANDARD)	Allows the use of the KNX interface for controlling and displaying KNX devices
GATEWAY MODE	Enables the use of the KNX interface from the ETS5+

3.10.3 USE VIA THE INTERNET

If the gateway function is also to be accessible via the Internet, the "KNXNet/IP" traffic must be routed via the integrated VPN service of OPTIMA. The first step is to configure this forwarding:

- In the OPTIMA management level, select the item "TECHNOLOGIES KNX→ETS-GATEWAY"→.
- Fill in the fields shown:

USERNAME / PASSWORD	Login data for connecting to the VPN service
HOST IP	Enter the IP address of the VPN server (normally the IP address of the KNX CONTROL device itself, if not configured otherwise by the network administrator).
IP RANGE	IP address range in the format XXX.XXX.XXX.RANGE BEGINNING-RANGE END that OPTIMA may use to assign an address to VPN clients. Example: 192.168.0.120-130 (range with 11 IP addresses) The selected address range must be freely available and must not be occupied by other devices in the network.

After all fields have been filled in, please press the "SAVE" button. After a few seconds, the saving will be confirmed by a message; from this moment on, the VPN service is active.

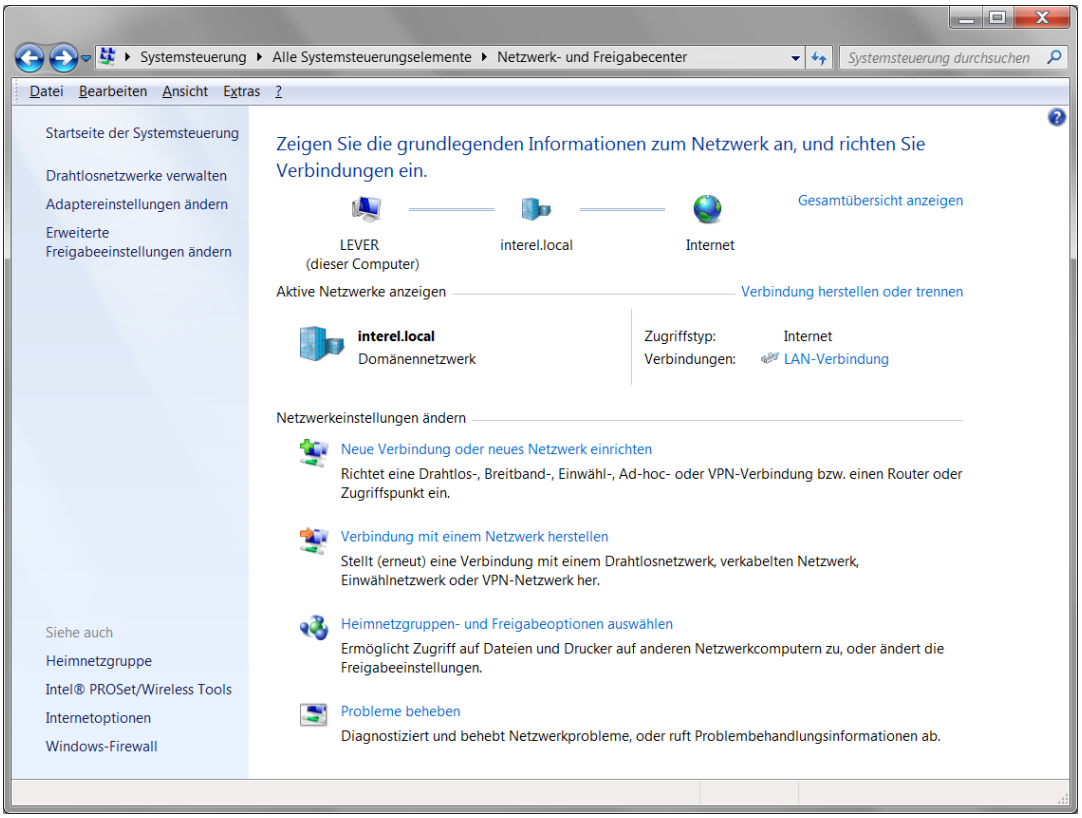
Now a *port forwarding rule* must be configured in the own Internet router (or DSL modem), so that incoming VPN connections are correctly forwarded to OPTIMA. Depending on the setting options of your own router, please create a rule with the following properties:

- External port: 1723
- Internal port: 1723
- Internal IP address: IP address of the KNX CONTROL device see chapter 3.3 (Network**Fehler! Verweisquelle konnte nicht gefunden werden.**)
- Transport (protocol): TCP + UDP
- If available (e.g. on Fritz!Box devices) also forward the GRE protocol to the IP address of the KNX KONTROL device.

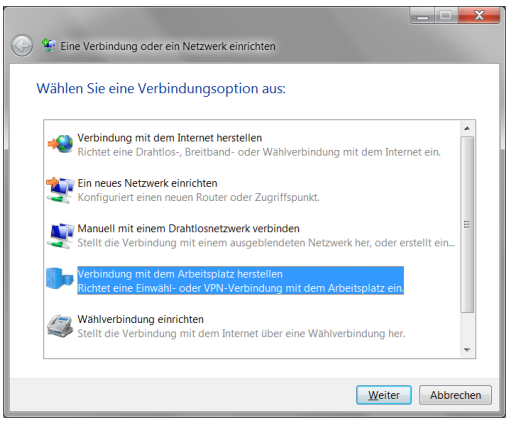
After this rule has been created in the router, a remote connection can be established. This must be a VPN connection with the network in which OPTIMA is installed. The external (public) IP address or the domain name must be known.

Proceed as follows:

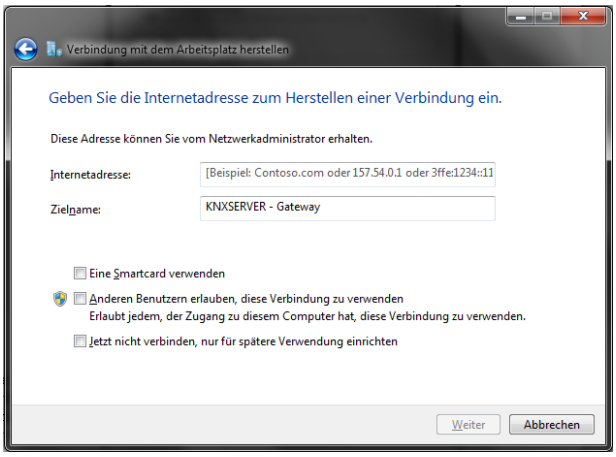
- In Windows, open the Control Panel and select "Network and Sharing Center".
- Select the "Set up new connection or network" entry



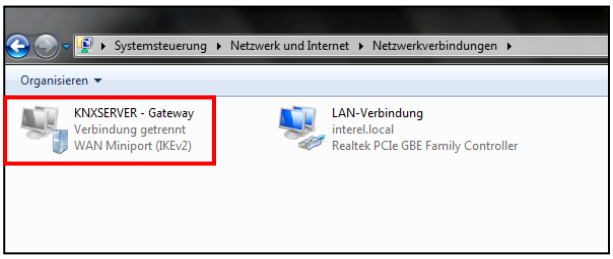
- Now select "Connect to the workplace" and then " Use the internet connection (VPN)".



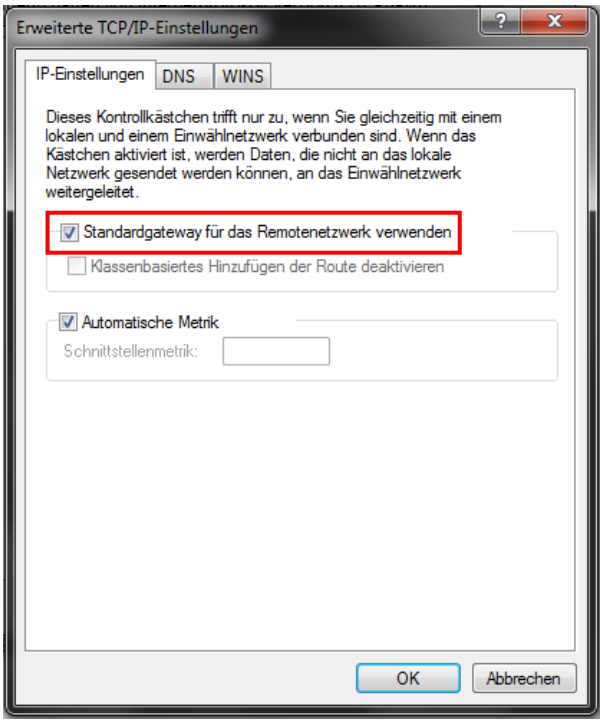
* Enter the IP address that accepts the VPN connection (public address / domain of the router / network) as the "Internet address" and assign a name for the connection (e.g.: "KNX CONTROL").



- In the next window, enter the login data as defined in OPTIMA and leave the "Domain" field empty.
- Complete the connection setup without immediately establishing a connection. The new connection should now be listed among the existing connections. ("Change adapter settings" in the side menu of the "Network and Sharing Centre").



- Open the properties window via the context menu (right-click - Properties); In the "Network" section, double-click the entry "Internet Protocol Version 4".
- Click on "Advanced" in the pop-up window and select the entry "Use standard gateway for the remote network" in the section "IP settings"; then save and close all configuration windows.

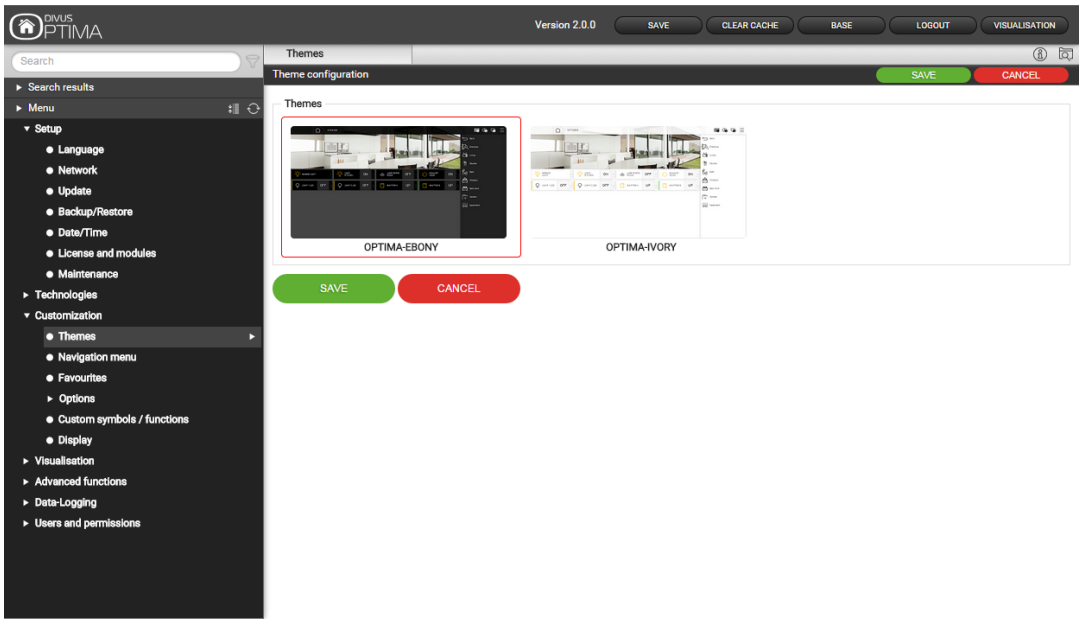


Now the connection can be used; after double-clicking on the connection, a login window is displayed, in which the login data, which have been stored in the configuration of OPTIMA, must be entered. If the connection was established correctly, the own PC is assigned one of the IP addresses from the IP address range that was configured in OPTIMA. Now the KNX CONTROL device can be set up as a programming interface in ETS, as already described for local use.

4 Customization

4.1 THEMES

OPTIMA offers different themes for changing the design of the VISUALISATION; in this page one can choose which theme should be used for the VISUALISATION of OPTIMA:

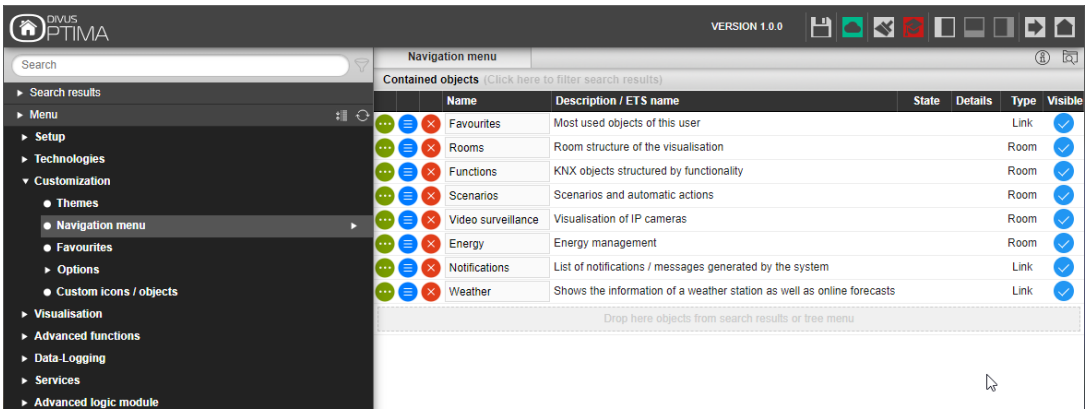


On delivery, the theme "OPTIMA-EBONY" is preconfigured; all screenshots in this manual refer to this theme.

Hint: If the theme is changed, the browser cache of the used client device must be cleared and OPTIMA must be reloaded to show the visualisation in the new theme; on KNX SUPERIO this can be done by rebooting the device.

4.2 NAVIGATION MENU

This page permits to personalize the navigation menu which is shown vertically on the right in the visualisation. The individual links can be defined, as well as their order within the navigation menu. If the EXPERT mode is active, all customisation options of the navigation menu are accessible:



Through the "VISIBLE" checkbox the individual menu items for the navigation menu can be activated or hidden; all hidden menu items are displayed semi-transparent (grayed out) and are not visible in the visualisation's navigation menu. Menu items of the system itself can't be deleted, but only hidden.

To change the position of a menu item, it can be moved through "drag and drop" using the ORDER-button .

It's also possible to add rooms to the navigation menu so that they are directly accessible from the navigation menu and the HOME page. This can be done by pulling it onto the list (per drag and drop).

Once the visualisation is refreshed, the changes made in the navigation menu will be visible.

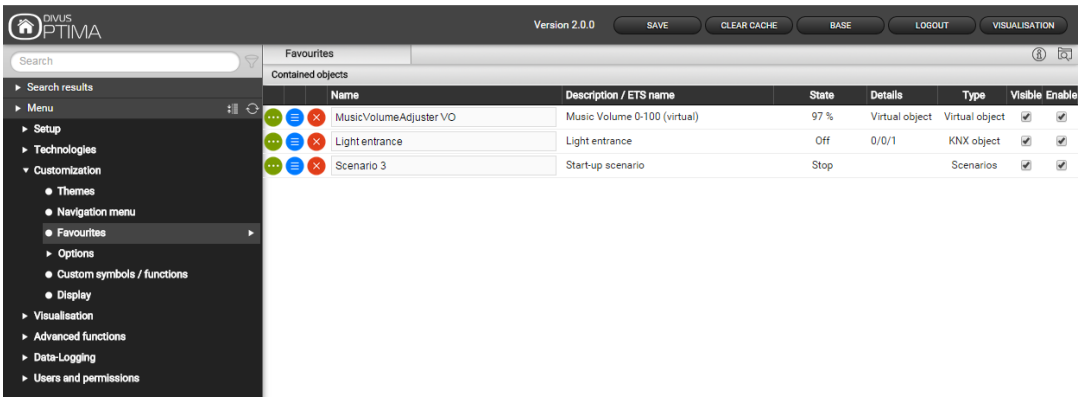
4.3 FAVOURITES

All objects that in the visualisation have been marked as "FAVOURITES" can be managed here. On delivery this list is empty. The end user can define various objects in the VISUALISATION as FAVOURITES on his own. These objects will be automatically added to the list shown below.

The FAVOURITES are reachable either through the navigation menu or through the HOME page (in the visualisation).

In this configuration window, the list with the features cna be modified:

- Objects can be deleted from the list with the DELETE-button
- The order of the single objects can be changed by dragging them (using the ORDER-button) to the desired position in the list and dropping them there.
- New objects can be added by dragging them in, directly from the search function.



4.4 OPTIONS

In this configuration menu the main aspects of OPTIMA's visualisation area can be customized to match your needs.

4.4.1 HOME

This menu allows the customization of the graphical interface of the HOME page. The HOME page may contain different information from the system, the local weather forecast and different information from the created visualisation; the background image is also customizable:

REDIRECT TO FAVOURITES	This option redirects any access to the HOME page directly to the FAVOURITES page, which contains the objects that are mostly used from the customer
SHOW CURRENT WEATHER INFO	This option embeds the weather forecast into the HOME page; the forecast information for the defined location are set in the menu "Technologies – Weather Services"
SHOW WEATHER FORECAST	Enables/Disables the weather forecast for the next 2 days
USE WEATHER INFO AS BACKGROUND IMAGE	Enables/Disables the adaption of the HOME page's background in dependency of the current weather information.
BACKGROUND IMAGE (IF NOT WEATHER)	As an alternative to the already mentioned options, a static image can be loaded and/or defined as background image of the HOME page. Click on the shown image to choose one.
SHOW DATE **SHOW TIME**	Enables/Disables the display of date and time inside the HOME page.

SHOW MENU CONTENTS IN PAGE	This option permits to show all sub-menus of the navigation menu also directly in the HOME page for a faster and more comfortable navigation.
ROOM FOR HOMEPAGE	As the field shows, you may choose a room as homepage by dragging and dropping it here.
AUTOMATIC REDIRECT TO HOMEPAGE [S]	Value in seconds after which the visualisation will automatically jump (back) to the defined homepage. The value 0 disables the jump function.

Hint: Date and time are synchronized through the used KNX CONTROL device and not through the local browser.

4.4.2 E-MAIL

This section allows configuring all parameters required for sending mails through OPTIMA:

SMTP SERVER	SMTP-Server for sending mails (e.g. smtp.gmail.com for Gmail)
PORT	Port for the communication with the SMTP server (e.g. 465 for Gmail)
USE SSL-PROTOCOL	Defines whether the SSL protocol shall be used for the communication with the SMTP server or not. (e.g. check for Gmail)
ACTIVATE AUTHORIZATION	Defines whether a user authentication is required for the communication with the SMTP server (e.g. check for Gmail)
USERNAME	Username for accessing the SMTP server
FORWARDER (E-MAIL ADRESS)	Mail address of the sender; will be shown in the sent mail as address from which the mail comes from
PASSWORD	Password for accessing the SMTP server

4.4.3 NOTIFICATIONS

This page permits to configure the behaviour of OPTIMA for incoming notifications, depending on their type / priority level. For each type you can define whether the notification central should automatically pop up or just an advice (a small red badge on the notifications icon) should be shown in the HOME screen / navigation menu. Moreover, an acustic signal may be defined for the onscreen notifications.

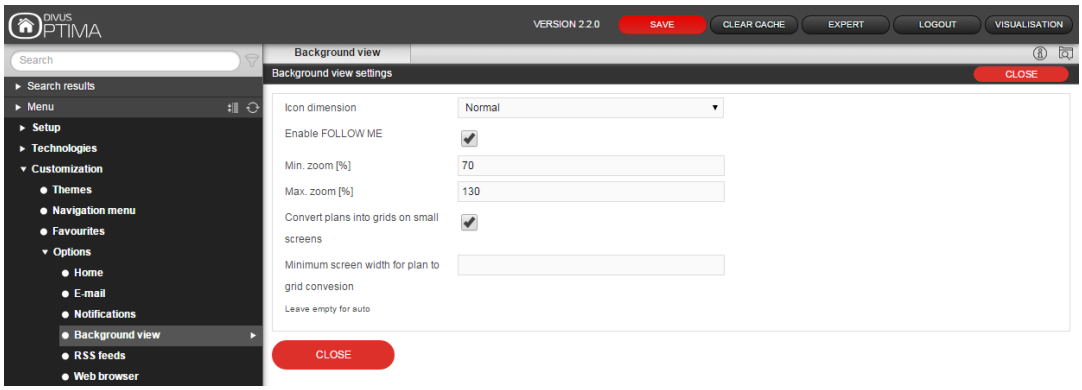
SHOW NOTIFICATION CENTER FOR ALARM / WARNING / INFORMATION MESSAGES	When checked, notifications of this level will be shown in a popup window, covering the currently shown room until it is closed. When unchecked, notifications of level alarm will be written to the notifications page without popping it up. A small red badge on the notification icon will be the only signal of the new message. A number in the red badge indicates the amount of new notifications. Only by opening the notifications page you will be able to read them.
ENABLE SOUND NOTIFICATION FOR NOTIFICATIONS OF TYPE 'ALARM'	Enables/disables the function.
ENABLE CYCLIC SOUND NOTIFICATION 'ALARM'	The notification sound may be repeated in cycles. Enables/disables the function.
SOUND NOTIFICATION 'ALARM' EVERY (SECONDS)	Defines the repetition cycle if it was activated above.
ENABLE SOUND NOTIFICATION FOR NOTIFICATIONS OF TYPE 'WARNING'	Enables/disables the function.
ENABLE CYCLIC SOUND NOTIFICATION 'WARNING'	The notification sound may be repeated in cycles. Enables/disables the function.
SOUND NOTIFICATION 'WARNING' EVERY (SECONDS)	Defines the repetition cycle if it was activated above.
ENABLE SOUND NOTIFICATION FOR NOTIFICATIONS OF TYPE 'WARNING'	Enables/disables the function.
ENABLE CYCLIC SOUND NOTIFICATION 'WARNING'	The notification sound may be repeated in cycles. Enables/disables the function.
SOUND NOTIFICATION 'WARNING' EVERY (SECONDS)	Defines the repetition cycle if it was activated above.

By default only *alarm* notifications cause the popup window to appear.

4.4.4 BACKGROUND VIEW

This page permits to customize the BACKGROUND view mode of rooms.

The min. and max. zoom settings allow to automatically adapt the background image size to the screen size by zooming in or out – to the extent defined here (in percent).



The last parameter allows to set a limit in display size: below the inserted value (in pixels) the background view will be transformed to a grid view to allow smaller screen devices to access the room's functions comfortably.

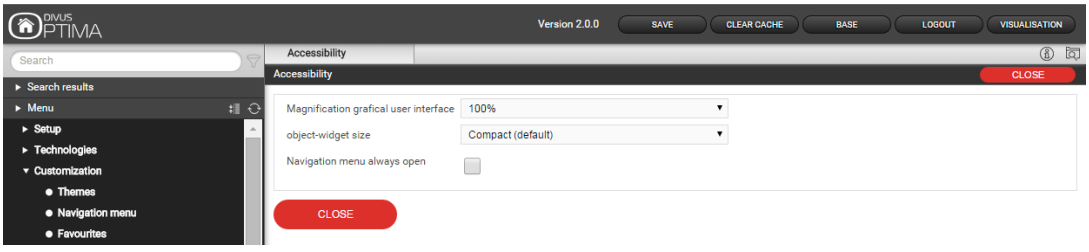
4.4.5 DISPLAY INTERACTION

This page contains different options regarding the usage / interaction of the software on client devices. The following options are currently available:

ON-SCREEN-KEYBOARD (LOCAL & REMOTE)	Permits to enable – both locally or remote via network – an on-screen-keyboard, through which it is possible to make text inputs within the software even on touch devices that don't have their own soft- or hardware keyboard.
CLEANING MODE (LOCAL & REMOTE)	Permits to enable – both locally or remote via network – a special button within the TOOLBAR of the VISUALISATION; by clicking on this button, a cleaning page will be shown that blocks any interaction with the software for 30 seconds and therefore permits to clean the touch display avoiding the risk of unwanted clicks within the visualisation.

4.4.6 ACCESSIBILITY

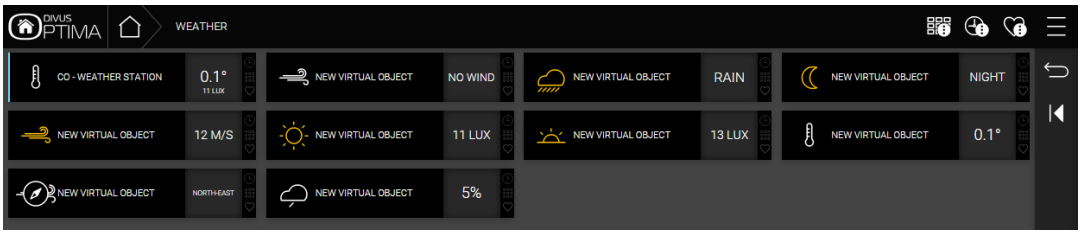
Some important settings regarding the visualisation may be found here



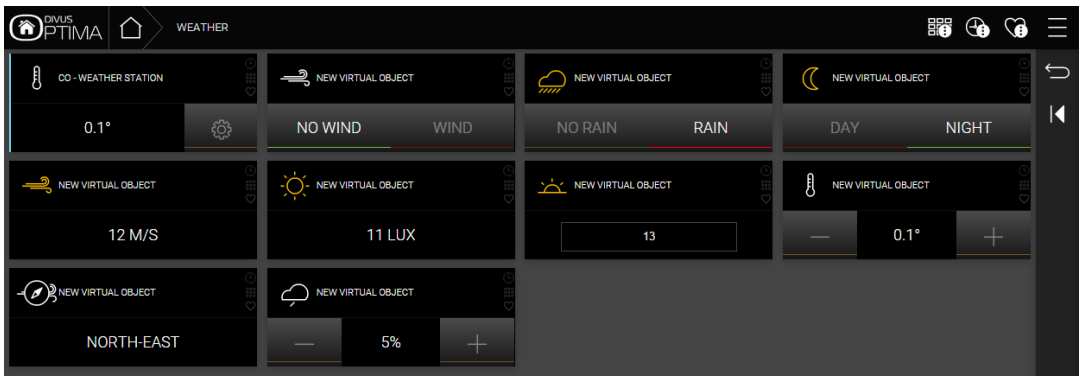
MAGNIFICATION GRAPH-ICAL USER INTERFACE	The whole GUI may be magnified by up to 150% for easier reading and handling

OBJECT-WIDGET SIZE	*Object-widgets* are the graphical objects representing command or status functions of your system in the visualisation. The choice is between a compact, more mobile friendly and an expanded, more comfortable view. This setting is adopted by all rooms. Setting different sizes for different rooms is not possible. See below for a comparison example.
NAVIGATION MENU ALWAYS OPEN	Allows to choose between the opening and closing menu and a fixed, always opened menu setting.

Example showing the differences:
Object-widgets: compact



Object-widgets: expanded (same room)



4.4.7 TOOLBAR

Enables the buttons for favourites, scheduling and scenarios to be individually enabled or hidden. Accordingly, they are then displayed or not in the visualisation at the top right and thus give access to the corresponding functions or block it.

4.4.8 ADVANCED

This page contains some advanced settings which should generally remain untouched. In special cases, our support might recommend you to change one of them to handle those special circumstances.

DISABLE IP CHECK	During the normal communication between client and server, both the authentication and the IP of the requesting client are checked. Some special routers/switches might

	change the requesting IP address making the communication fail. Only in such cases this option should be changed (i.e. the check disabled).
AUTO-REFRESH INTERVAL [S]	The frequency by which the visualisation is synchronized with the KNX bus and/or other data sources and – accordingly – the status of the objects is updated graphically. It is recommended not to change the default value of 1 second.
INACTIVITY TIMEOUT FOR ENTERING IDLE MODE [S]	Here you can define the time in seconds before the device switches from the active to the idle mode by changing its refresh frequency.
AUTO-REFRESH INTERVAL IN IDLE MODE [S]	When in idle mode, usually a lower refresh frequency is used. May be configured here. In seconds.
ENABLE "TAP"	Enables a special mode where touches ("taps") on mobile devices are immediately sent to the server instead of having a small delay (which is used to intercept e.g. scrolling actions). Should be enabled only in special cases!

4.5 CUSTOMIZATION OF ICONS/OBJECTS

It is possible to extend the predefined object library and to customize the different objects used to represent the various object types of OPTIMA within the visualisation.

Hint: The different customization possibilities have been designed for advanced users. In order to prevent malfunctions of the software, the standard objects can't be modified directly; it is necessary to clone them. Afterwards the copy can be edited.

Since this topic is quite extensive, it is handled in its own chapter 15.1 (Icons/objects).

5 KNX

5.1 INTRODUCTION

The following chapters will show in detail how OPTIMA has to be configured in order to work in a KNX system. Prerequisite for creating the VISUALISATION in OPTIMA is a KNX project that has been programmed with ETS. The focus of the subsequent chapters is initially on how the individual data points are imported and what options for these data points are available. The creation of the graphical interface of the VISUALISATION will be explained in chapter 6, Rooms.

5.2 REQUIREMENTS AND EXPORT OF THE ETS PROJECT

OPTIMA allows the import of KNX projects that have been realized with ETS3, ETS4 or ETS5. OPTIMA automatically takes over the structure and functionality of the single group addresses contained in the ETS project; the entire import process only takes a few minutes. To import an ETS project into OPTIMA requires the project to be in a compatible format.

Hint: If dummy devices are used in the ETS project, they must have a valid physical address, otherwise all related group addresses will be ignored during the ETS-Import process of OPTIMA!

5.2.1 OPC EXPORT

With the *OPC export* of ETS it is possible to create a pair of project files (an .esf and a .phd file). These files can then be used to import the needed information of the ETS project into OPTIMA.

- Open the ETS software
- Open the project you want to import into OPTIMA
- Execute the OPC export to create the files:
  - ETS3: "Data exchange" → "Export to OPC-SERVER"
  - ETS4 and 5: "Extras" → "OPC export"
  - ETS 5.5: "Export" → change fron knxproj file type to OPC export (*.esf)

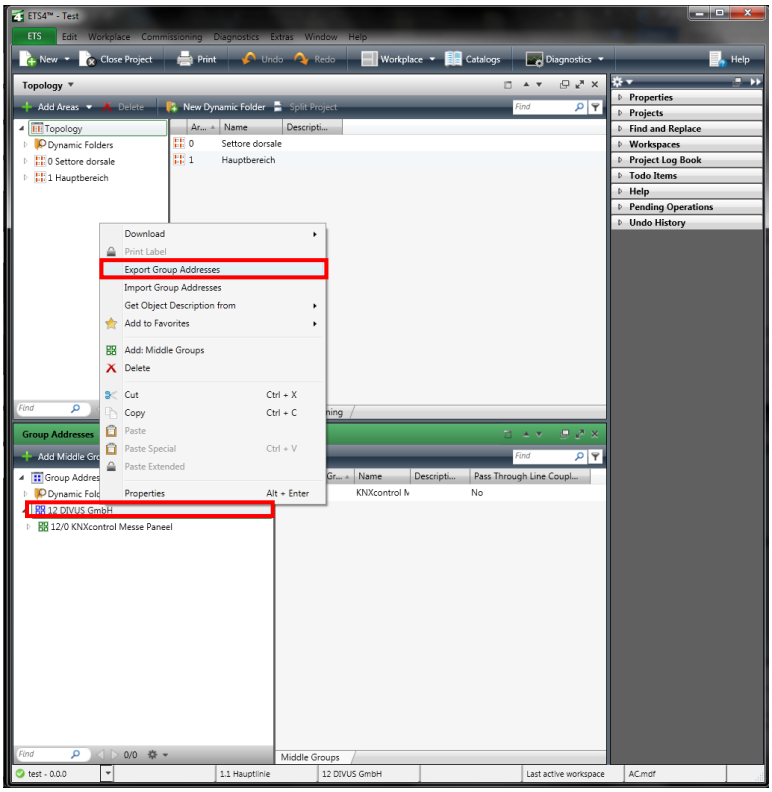
5.2.2 CSV IMPORT

OPTIMA also supports the import of KNX group addresses through a CSV file; the file must have the following properties:

- Columns divided through tabulator
- Name of the group address in the first column
- Group address in the second column
- Bit length (optional) in the third column (e.g. 1 bit -> value **1**, 1 Byte (=8 bits) -> value **8**, etc.)

This file can be created manually (for example using Microsoft Excel or a simple text editor) or exported directly from ETS. In the second case, please proceed as listed below:

- Please select the group addresses that you want to export (by right-clicking on their middle or main group)
- Select the entry "Export Group Addresses" from the context menu:



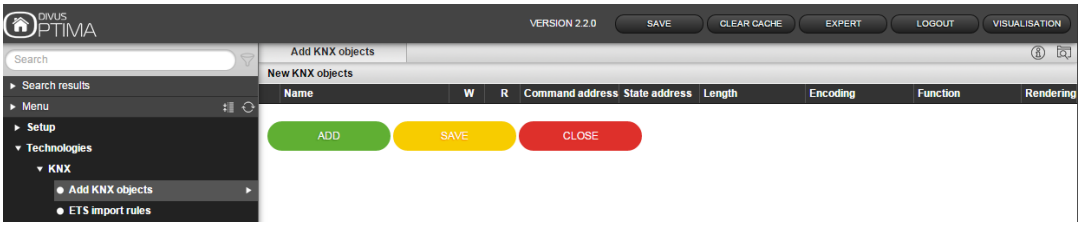
- In the pop-up window please select "CSV" and set the following parameters (as shown in the screenshot on the next page):
  - As CSV format select *2 columns* (1/1 – Name /Address)
  - As CSV separator select "***Tabulator***"

Hint: The CSV import can be useful when you want to create / import group addresses manually into OPTIMA, without using ETS. In this case you will just have to create a CSV file with the corresponding group addresses and to import it into OPTIMA.

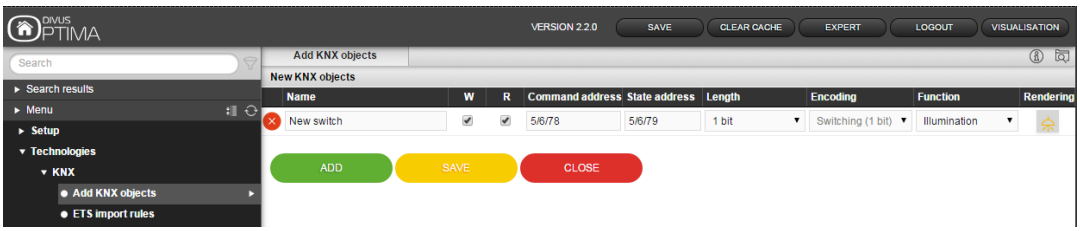
The CSV files created this way can then be imported into Optima using the same procedure described in detail in chapter 5.4 (ETS Import).

5.3 ADD KNX OBJECTS

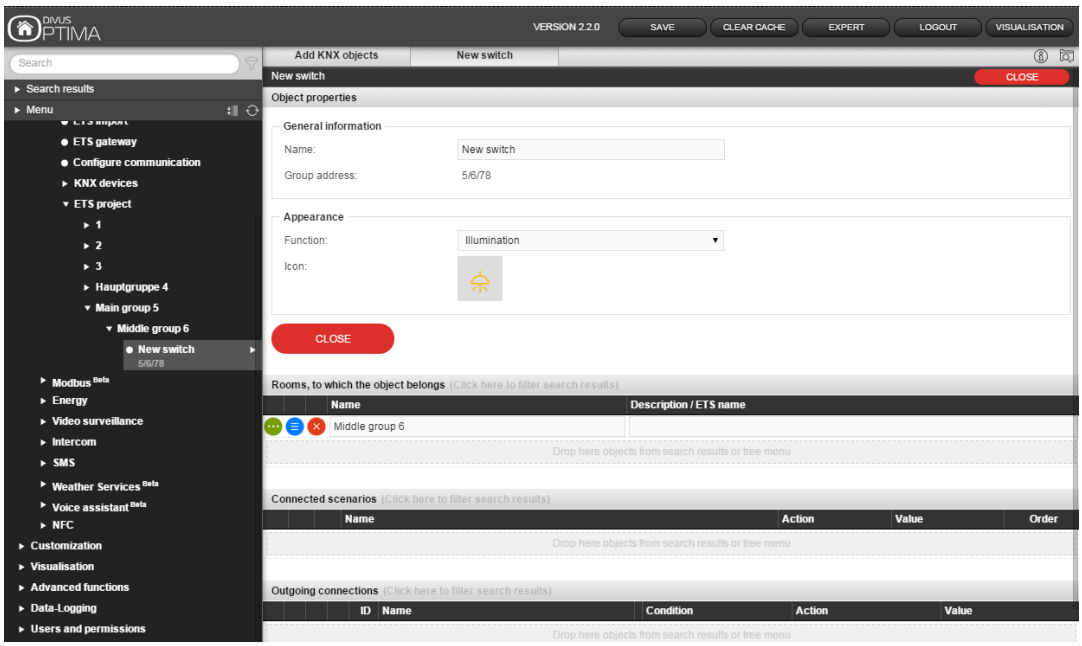
This function allows to add KNX objects manually, setting all the main parameters and the group address(es). To add a new KNX object, start by clicking the green ADD button.



Then enter all the required data and confirm with the yellow SAVE button.



The new object may then be found through the search field or in the ETS project entry in the menu.

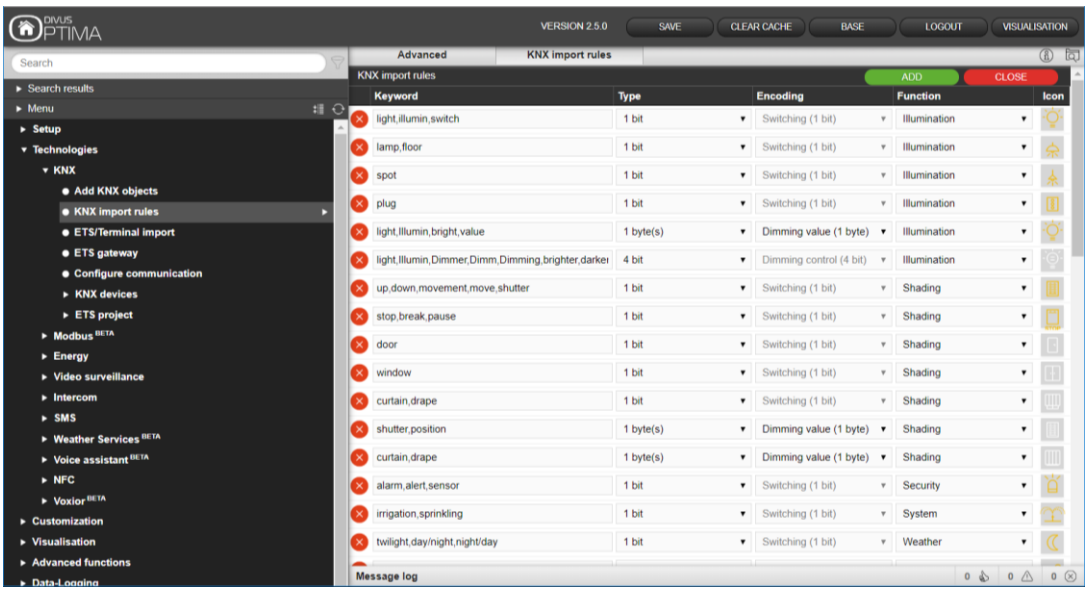


There it can be further edited and connected to Optima's many functions.

Hint: Every manually added KNX object must have the same basic properties as the underlying real device. Specially the ETS encoding and the read and write rights must correspond. Moreover, the device must have been programmed using the ETS before. If these pre-requisites are not met, the correct functioning of the device through the visualisation may not be guaranteed.

5.4 KNX IMPORT RULES

Before the KNX project is imported into OPTIMA, you should take the time to prepare and/or evaluate the KNX import rules. The administration of the KNX import rules can be found in the ADMINISTRATION of OPTIMA under "TECHNOLOGIES → KNX":



The KNX import rules automate the import process by assigning function and graphical appearance to the single data points depending on the configured criteria. The available criteria are data type (length), encoding and user-definable keywords which have to be included in the name of the group addresses for whom the corresponding KNX import rule should be applied. In OPTIMA some KNX import rules, which apply to generically used data points, are already predefined; adjusting the KNX import rules is worthwhile, since it will make the personalization of many data points after the import no more necessary.

Following parameters can be defined:

KEYWORD	One or more keywords, of which at least one must be present in the name of a group address of the imported KNX-project, so that the KNX import rule will be applied correctly. When multiple keywords are specified, they must be separated by a comma; blank spaces are recognized as part of the keyword!
TYPE	Length (in bit/byte) of the target group addresses in the KNX project
ENCODING	Encoding to be used by OPTIMA in order to interpret the KNX bus data correctly; the available encodings depend on the data length defined in "TYPE"
FUNCTION	During the import process OPTIMA, for each group address present in the KNX-project, creates a KNX object in its internal database. Each KNX object, created from a group address for which an KNX import rule was applied, will be automatically assigned to the here defined FUNCTION category during the import process

SYMBOL	Icon for showing the object graphically inside the VISUALISATION, assigned automatically by the defined KNX import rule

The KNX import rules are used by OPTIMA as follows: during the import process, all group addresses within the import file are scanned and for each address a KNX object is created. If at least one of the keywords defined in an KNX import rule is found in the name of a KNX object, OPTIMA checks whether the data length of this object matches the one defined in the KNX import rule ("TYPE"). If this second parameter matches, the KNX import rule is applied for this KNX object.

For the matching KNX object the encoding defined in the KNX import rule will be applied automatically, furthermore it will be assigned to the FUNCTION category defined in the KNX import rule and also it will get the symbol specified in the rule. Any further editing of KNX objects, which have already been customized by an KNX import rule, is normally not needed, what can save a lot of time.

All KNX objects, which do not match at least one KNX import rule, must be edited manually during or after the import process, in order to assigning data length, encoding and the icon. Especially for large ETS projects with numerous group addresses it is recommended to make use of the KNX import rules, since the manual configuration of the single KNX objects can take a lot of time depending on the number of KNX objects.

Hint: The KNX import rules can be modified also during the import process, in the moment when those KNX objects are listed, which do not match with any KNX import rule.

5.5 ETS/TERMINAL IMPORT

To be able to import an ETS project, you must first create a compatible project file, like described in chapter 5.2 (Requirements And Export Of The ETS Project). After selecting the file(s) that you want to import, make sure to configure the following options correctly!

There is an additional option of importing the XML file from Terminal. Terminal offers the possibility to export a *.terminal file which contains all the properties of the project: the rooms with the assigned devices in each of them. You may use this *.terminal file as alternative to the *.esf file. The rest of the procedure is then almost the same. The additional advantages of using a *.terminal file are:

- Objects are automatically put inside the rooms, as defined
- Rooms, when using recognizable names, automatically have a background picture assigned

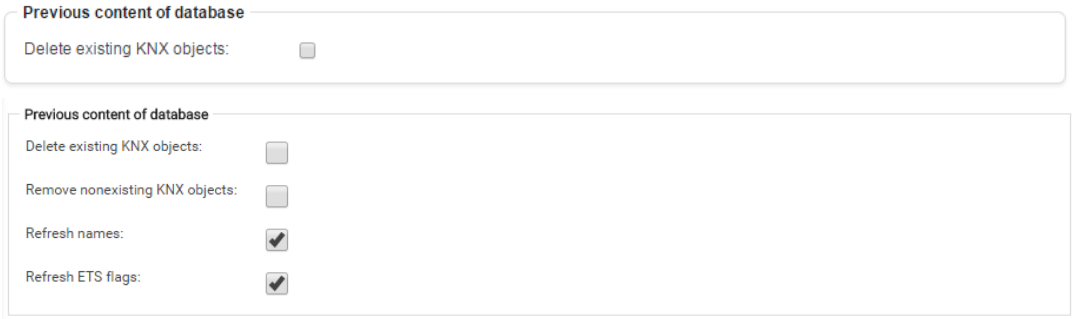
After you selected the file(s) to be imported, there is a set of options to configure before starting the import in order to get the best possible result, requiring as few extra steps as possible once imported.

Hint: Once a valid "*.esf"-file is selected as project file for the ETS Import a second file selection filed appears. With the ".phd" file, which is created in parallel with the "*.esf" file during the OPC-Export, Optima will create the KNX devices present in the ETS project with their physical addresses (see chapter 5.8 of this manual).

These options are grouped into sections which will be described herafter.

5.5.1 PREVIOUS CONTENT OF DATABASE

The BASE-mode merely offers the possibility to delete or to update existing KNX objects from a previously imported project. If you decide to update the current project (option unchecked), the single data points will be updated in order to keep the currently working configuration.

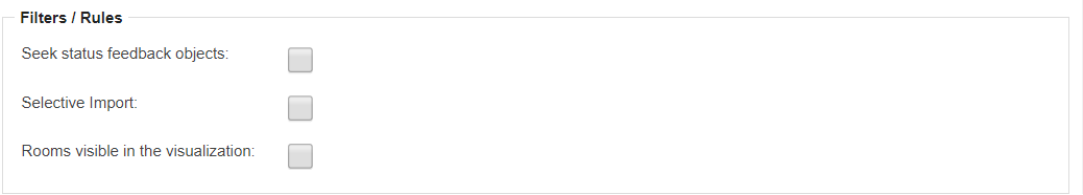


The EXPERT mode offers these options additionally:

DELETE EXISTING KNX OBJECTS	When checked, all existing KNX objects will be deleted from OPTIMA's database
REMOVE NON-EXISTING KNX OBJECTS	Removes all those KNX objects from OPTIMA's database, that are not present in the new project file
REFRESH NAMES	If an existing database is updated, these options are used to update existing object's names and flags (or not).
REFRESH ETS FLAGS	These options should not be checked if you already started changing something on the KNX objects in the database – independently from the ETS project.

5.5.2 FILTERS / RULES

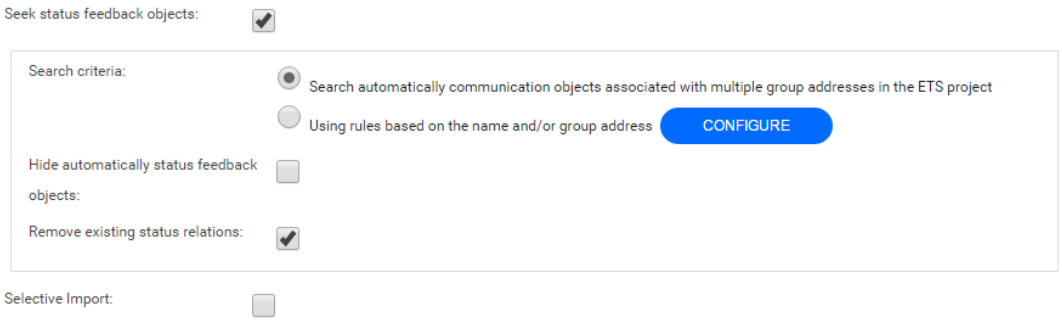
The main options in this area are about status feedback, selective import, and rooms:



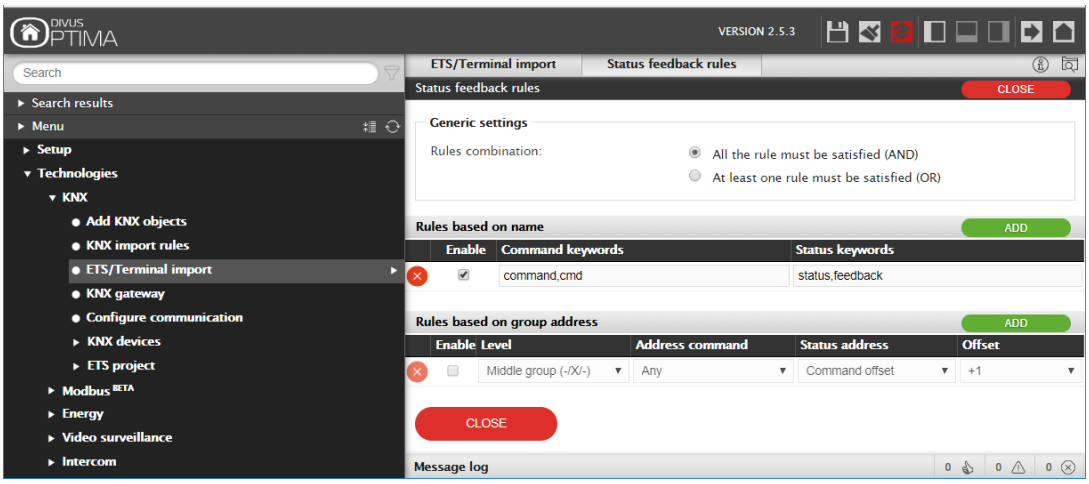
SEEK STATUS FEEDBACK OBJECTS	When checked, OPTIMA will try to identify those objects that are responsible for giving status feedback on the KNX layer during the import process. OPTIMA will then use that information to grant a correct graphical representation of the system. The checkbox makes other dependent options visible when checked (see below).
SELECTIVE IMPORT	This option allows to choose between importing the whole project as a block or to add an additional step where you may check and select individual objects or addresses to be imported – or left behind. See below for more details.
ROOMS VISIBLE IN THE VISUALISATION	By default, rooms are not adopted from the import file – only under ETS project you'll find the hierarchy of the original file. When activated, rooms present in the file are directly transferred into the OPTIMA project – and through this also the objects will be placed into their respective rooms. This option should be checked for Terminal projects, or ETS projects structured through rooms (instead of functions).

Status feedback options:

OPTIMA searches for status feedback objects by analysing the connections between group addresses found in the esf file by default. This corresponds to the option "*Search automatically communication objects associated with multiple group addresses in the ETS project*".



The light blue "CONFIGURE" button leads to the **STATUS FEEDBACK RULES** page. Here you can set up rules through which OPTIMA will recognize the addresses which have a command – status feedback relation using the addresses' names or addresses or both.



Generic settings (rules combination)

There are 2 possibilities to logically compare the evaluation of the following rules. This table explains the respective settings:

ALL THE RULES MUST BE SATISFIED	At least one name rule and at least one group address rule must be matched to have a match (AND). If one of the two rule groups has no active rule at all, this setting will have no effect.
AT LEAST ONE RULE MUST BE SATISFIED	Any one rule matched is enough to have a match (OR). If one of the two rule groups has no active rule at all, this setting will have no effect.

The rules of the same type are always logically evaluated with the OR function. This means that for any case where multiple name based rules are enabled, the implicit rule is "at least one of them must be matched". The same goes for any cases with multiple group address based rules.

Rules based on name

Using the green "ADD" button at the right end of the title bar, new rules can be added. The single options of a rule are:

OPTION	DESCRIPTION
⊗	Deletes the selected rule
ENABLE	Single rules may be enabled/disabled. By default, a new rule is enabled.
COMMAND KEYWORDS	The search terms, words or strings used to identify commanding objects during import. You may insert more than one search term, separating them by a comma without empty spaces. Otherwise empty spaces will be considered part of the search term.

STATUS KEYWORDS	The search terms, words or strings used to identify status feedback objects during the import. You may insert more than one search term, separating them by a comma without empty spaces.

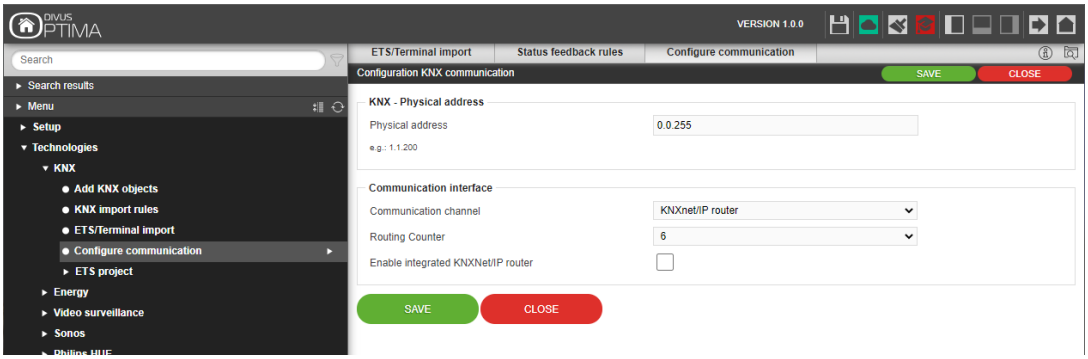
Rules based on group address

Also here, using the green "ADD"-button on the right end of the title bar, new rules can be added. This rules are helpful if your project uses consistent assignment conventions for objects and functions. The single options of a rule of this type are:

OPTION	**DESCRIPTION**
	Deletes the selected rule
ENABLE	Single rules may be enabled/disabled. By default, a new rule is enabled.
LEVEL	Which of the 3 parts should be searched (main, middle, subgroup)
ADDRESS COMMAND	Which address the control object has. The values available for selection depend on the previous setting (level).
STATUS ADDRESS	Which address the status feedback object has. Can be independent (any) or dependent on the control address (offset to...), or a fixed value.
OFFSET	Depending on the previous option, may be used to express the numerical relation of the status object to the commanding object inside a group address

5.5.3 COMMUNICATION

Here the physical address of the D+ can be changed and the interface can be selected via which OPTIMA is to communicate with the imported KNX group addresses. The choice is between the integrated KNX interface (direct bus connection) or KNXNet/IP routing (via the network interface - requires a KNX/IP router as counterpart). The checkbox at the end also allows both communication paths to be operated in parallel. KNX telegrams are sent directly to the bus as well as to the IP network and read in from both interfaces if you select the integrated KNX interface as the communication channel and at the same time set the checkbox of "Enable integrated KNXNet/IP router".



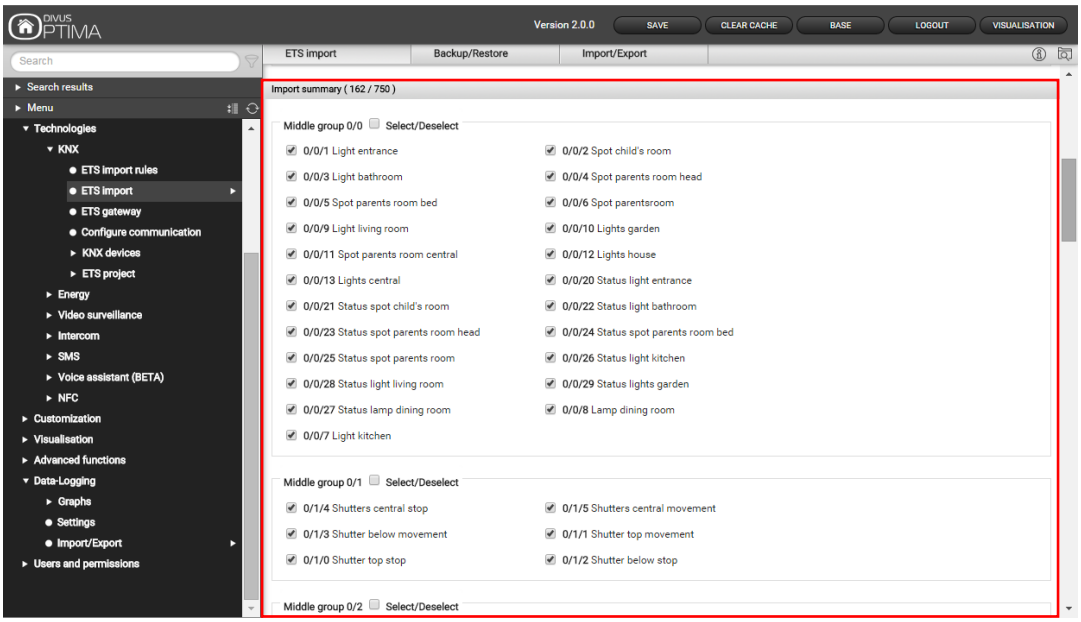
5.5.4 SELECTIVE IMPORT

As mentioned before, this option may be used to control and define exactly which objects should be imported from the ETS project into OPTIMA and which ones not.

This option is automatically checked (activated) if the count of group addresses to be imported is higher than the maximum number of group addresses available with the current product license. At the same time, the NEXT button is disabled. You then have the possibility to choose what parts of the project to import and what parts to uncheck in order to keep the amount of group addresses under the given limit.

The NEXT-button then starts the import process. If you chose a selective import, a new section called "IMPORT SUMMARY" similar to the following will be shown and you will be given the choice: checked items are imported, unchecked items are not imported.

Note that the items are not imported yet. You may also interrupt the process at this point. After the "Import summary" title, you can see the count of the currently implemented group addresses versus the maximum amount, which depends on your product license. In the screenshot below, 162 of the 750 available group addresses are currently in use.
Also note that group addresses are grouped according to their middle group and have a group checkbox. This allows to select or deselect the whole group in one step if needed.
When you are done with the selection, the import can finally be started with the NEXT-button. This may last a few minutes depending of the size of the ETS project to import. OPTIMA will automatically create the appropriate KNX objects, which can be used to create the graphical visualisation. Once the import process is finished, a summary of all actions is shown:

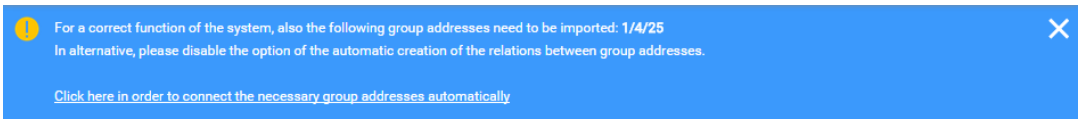


As soon as the project is imported, OPTIMA checks if the single KNX objects are matching any KNX import rule. If for a KNX object at least one KNX import rule is matching, it will be applied; no additional configuration of these objects will be necessary.

If all created KNX objects match at least one KNX import rule, after some seconds the section "KNX IMPORT RULES" will disappear and by clicking "NEXT" the import procedure can be completed (the communication service is restarted automatically, so that OPTIMA can manage all the new created objects).

Hint: When making a selective import, you should pay attention to dependencies between group addresses!

When a selective import detects that there are dependencies not matched with the current selection, it will alert the user through a message and interrupt the import process.



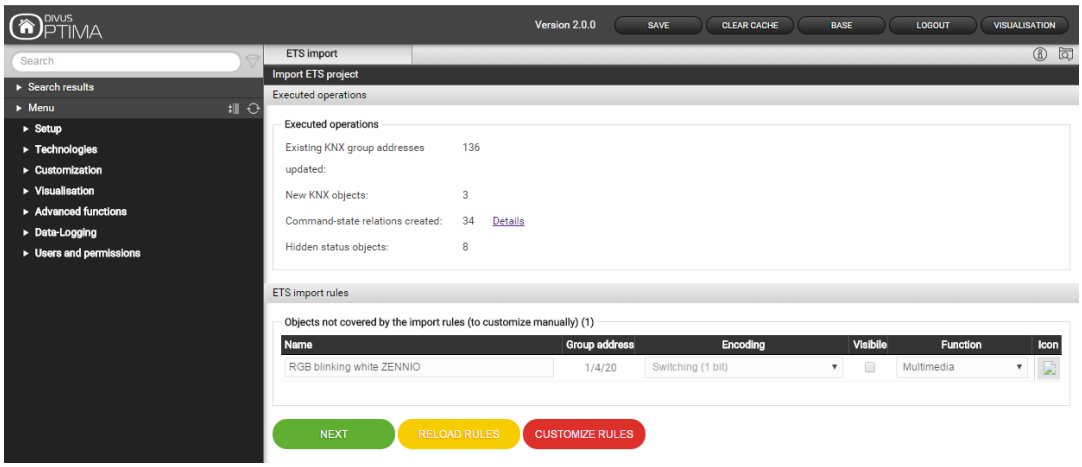
Now you can select between the following actions:

- Automatic integration of the missing group addresses by clicking the link in the message box
- Manual selection of the related group addresses or deselection of group addresses that are causing the warning
- Removal of the option "**SEEK STATUS FEEDBACK OBJECTS**"

Hint: If the missing group addresses are added, it's still possible that the message will appear again during the import, since also the newly added group addresses could have relations to other group addresses. In this case, just repeat the procedure until all relations are created correctly.

5.5.5 CONCLUDING THE IMPORT

If some of the created KNX objects do not match any KNX import rule, they are all listed at the last import step and can be personalized manually:

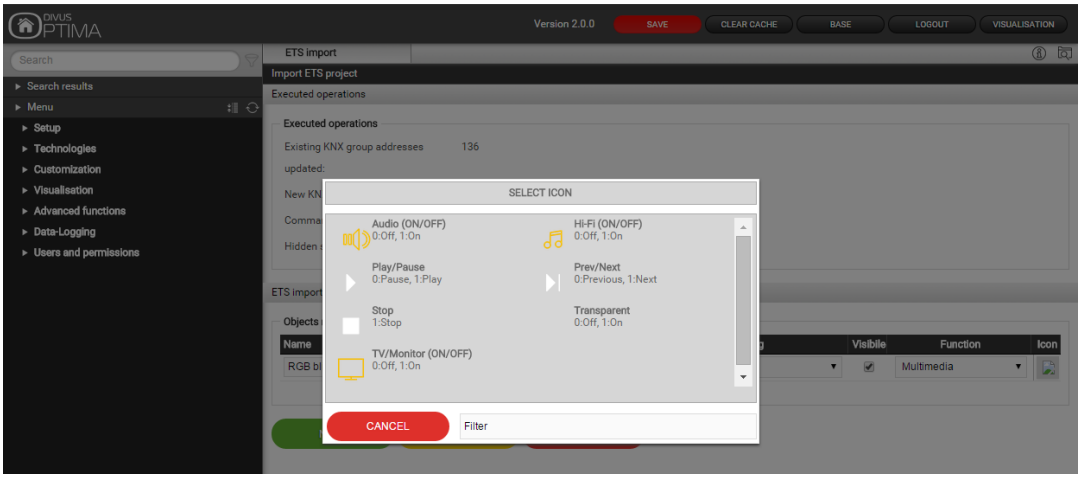


The available options are the same as the ones you find in the KNX import rules: encoding related to the settings inside the ETS project, function and icon (the shown icons depend on the selected encoding and function for the related object).

At this stage it is also possible to modify the KNX import rules again. This is very useful if the list shows a lot of KNX objects that have similar keywords in their names and could use the same configuration settings. In this case the appropriate KNX import rule could be added in the following way:

- By clicking "CUSTOMIZE RULES" the KNX import rules configuration menu is opened in a new tab
- Add new KNX import rules or modify already existing rules
- Afterwards change back to the tab containing the ETS import and click on "RELOAD RULES"
- Repeat this process again, if needed

Once all objects are customized as desired, please click on "NEXT" to complete the ETS import.

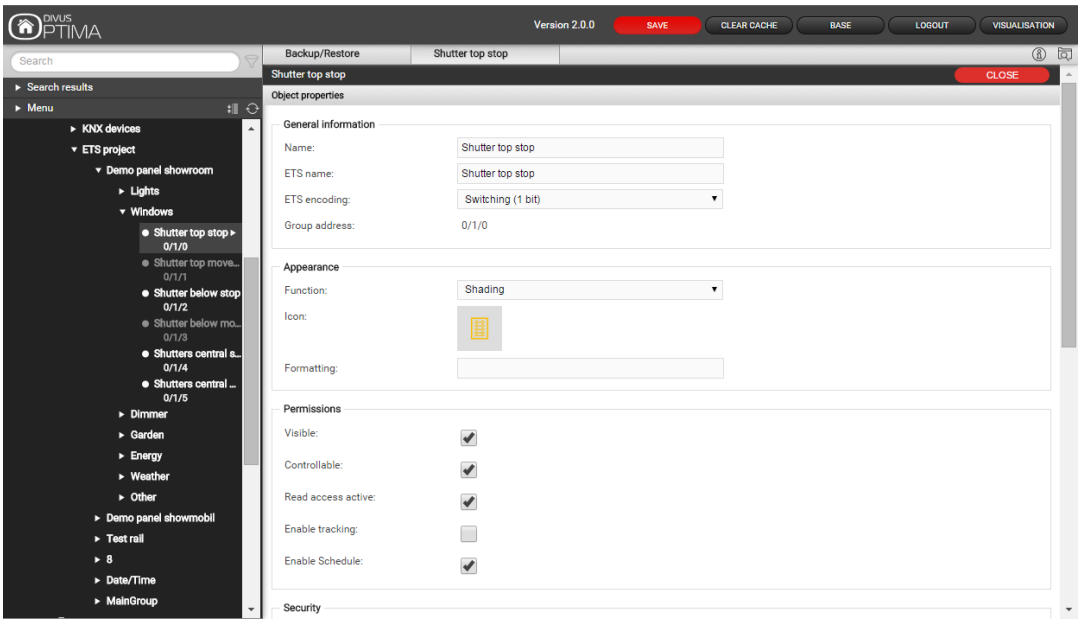


Hint: The selection of the icon during this phase may be seen as the definition of the"graphical function" (a combination of icons, buttons, properties, etc.) which is used in order to show the object correctly within the VISUALISATION. Further information regarding the graphical function can be found in chapter 15.1 (Icons/objects) of this manual.

Hint: The software allows the termination of the ETS import process even without assigning a graphical symbol to the single KNX objects: nevertheless, this is not recommended, since such objects cannot be visualised correctly. However, it is also possible to edit the individual objects after the ETS import and therefore to assign a graphical symbol to them in a second moment.

Once the import is completed, the single KNX objects are available under "TECHNOLOGIES → KNX → ETS-PROJECT.

The tree structure of ETS is directly imported and can be very helpful to find and to edit single KNX objects.

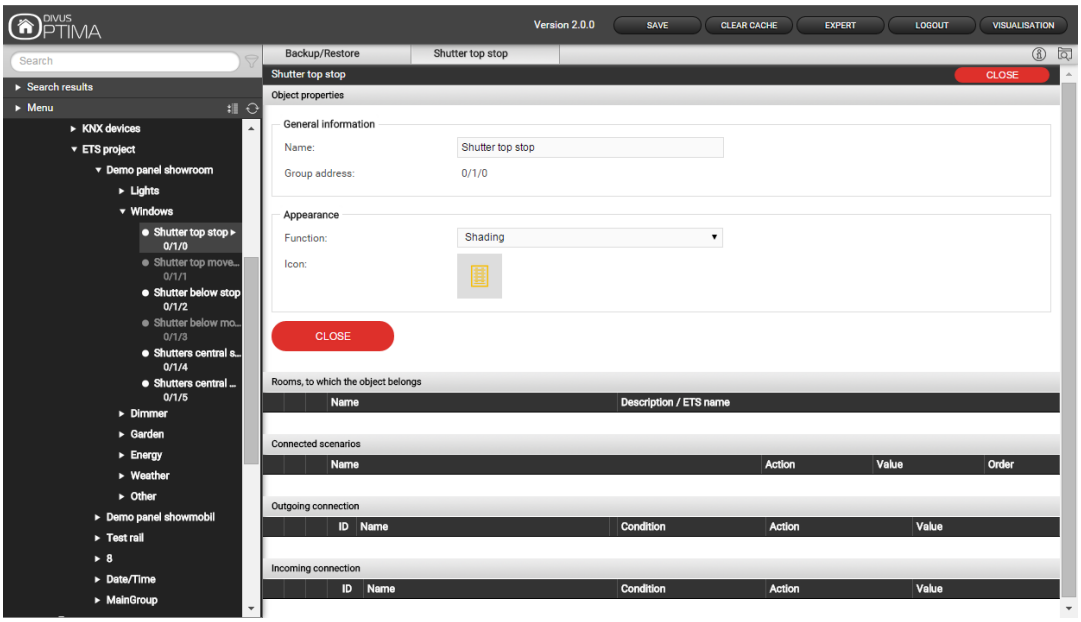


5.6 KNX OBJECT PROPERTIES

5.6.1 KNX OBJECT DETAILS

Through the ETS/Terminal import, group addresses become KNX objects. In OPTIMA there are a lot of different kinds of objects which represent virtual or physical objects and functions of your smart home system. KNX objects certainly play a central role and are therefore analyzed further in this chapter.

If a KNX object is selected in the navigation menu or through the search function and the green EDIT-button is clicked, the following screen will appear:

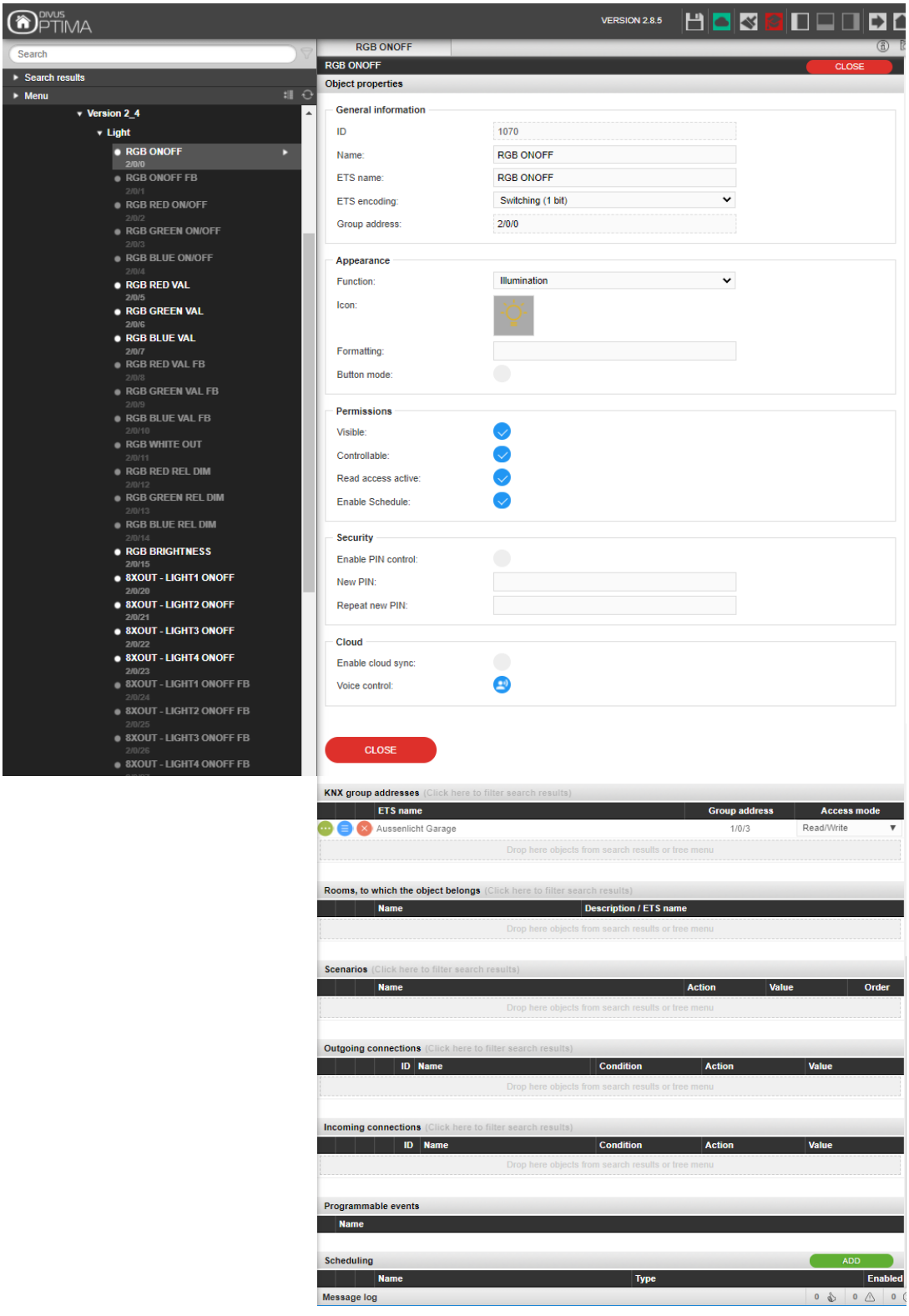


This page allows modifying all settings of the selected object and its relations to other objects present in the visualisation.

The first part of this configuration page contains all specific settings regarding the object itself. In BASE mode the following settings are accessible (as also shown in the screenshot):

NAME	Name of the object, which identifies it within the software. During the import process, the name of the corresponding group address from the ETS project is taken over; this setting can be changed here, if needed.
GROUP ADDRESS	Main group address used by the object for the communication with the KNX-bus; this setting can't be changed, but its value can be used as keyword for the search engine.
FUNCTION	Category to which the object belongs to; the selection here determines which icons are available in the next option. It is also possible to assign the object to no function, if the object should not be listed inside any FUNCTIONS page in the VISUALISATION.
ICON	In a popup window the icon can be selected, through which the object will be shown in the VISUALISATION. The available icons depend on the type of the KNX object and the function assigned to it. If "None" is defined as function, all icons matching the type of the KNX object will be available.

Enabling the EXPERT mode, the following additional options are available:



ETS NAME

Name of the related group address from the imported ETS project; this name can be used as keyword in the search engine to find the object. It does not appear in the visualisation and is equal to the name per default.

ETS ENCODING

This setting determines which encoding OPTIMA will use to communicate with the related group address via the KNX bus.

Hint: Changes to this setting should be considered carefully, since an encoding that does not match the settings of the related device can lead to incorrect behaviour of the VISUALISATION.

FORMATTING

This option allows you to personalize the display format of an objects value. The syntax is "%{X.Y}{Type} {Unit}":

- %: Indicator for the beginning of a formatting syntax
- X.Y: Digits before the decimal point (X) and after the decimal point (Y)
- TYPE: Defines the output format to use for the value to be displayed:
  - b: Binary format
  - c: Character (numerical value required)
  - d: Decimal number
  - e/E: Scientific floating-point format
  - f: Floating point format
  - s: String
  - x/X: Hexadecimal format
- Unit: Separated by a space from the rest of the formatting, here can be specified which measure unit should be appended to the formatted value. In this way it is possible to customize the default measure unit of an object.

E.g.:

Value	Formatting	Visualisation
143.58674	%0.2f kW	143.59 kW
143.58674	%d kW	143 kW

Hint: This formatting affects only objects whose value is represented in textual form (numbers, strings), not objects which are only represented through icons inside the visualisation.

BUTTON MODE

Allows to send 1 on push and 0 on release. Only for 1 Bit type objects.

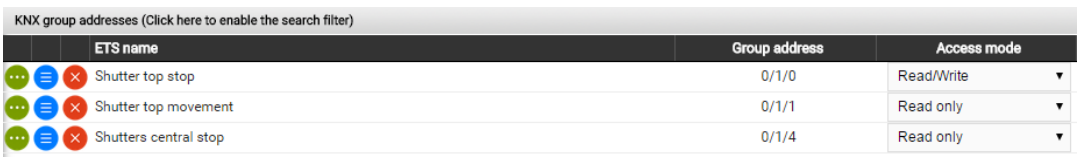
VISIBLE

Defines if the object shall be visible inside the VISUALISATION or not.

CONTROLLABLE	Enables the operation of the object in the VISUALISATION through the defined graphical icon; this setting is normally configured automatically during the ETS import. If an object should be used only as a status display in the VISUALISATION, even if in the ETS project it was basically configured with write permissions, it is sufficient to disable the write access here. Hint: To enable write access for objects, which were initially imported as read-only, the corresponding group address with write access must be configured, too (detailed information can be found ahead in this manual); improper settings can compromise the proper function of the system
READ ACCESS ACTIVE	Permits to read the current status of the object over the KNX bus; this flag is active by default.
ENABLE SCHEDULE	This checkbox is set by default, allowing schedules on the object. Unchecking it will deny user attempts to schedule commands on the object.
ENABLE PIN CONTROL	Allows to lock the access to a function in the visualisation through a PIN code. When checked, the fields for entering or changing the PIN code become visible whenever you try to use/command the object.
ENABLE CLOUD SYNC	Used for the VOXIOR service, allowing it to access the set of enable objects to be voice commanded through Google Home or Amazon Echo enabled devices.
VOICE CONTROL	Shows whether the object type supports voice control

5.7 KNX GROUP ADDRESSES

This section is only visible in the EXPERT mode and allows the handling of the group addresses that are associated to an object. Depending on how the imported project is structured, not only the main group address, from which the object was created during the import, but also additional group addresses might be found here, which update the status of the object in the VISUALISATION (status feedback, central functions, etc.) .



For each linked group address various communication options can be set: "Read only", "Write only" and "Read / Write"; before this communication options are changed, please make sure that in the ETS project the needed permissions for a correct functionality are configured.

Hint: OPTIMA can send active commands to only one of the listed group addresses. It is very important to ensure that only one of the linked group addresses has write permissions.

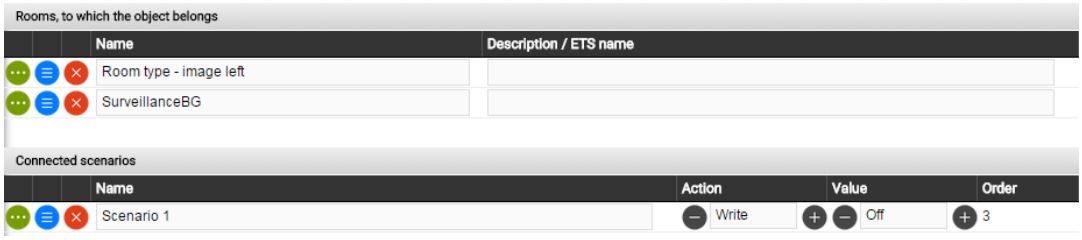
KNX group addresses, which shall refresh the status of a KNX object, can also be added after the ETS import (if not already done automatically by the import procedure:

- Activate the search filter for KNX group addresses (Click on the title of the corresponding table "KNX group addresses")
- Search the desired KNX group addresses with the search function
- Select the desired KNX group addresses from the search results list.
- Then drag the selected group address into the list of linked group addresses of the object and drop it there.
- Define permissions (normally "Read only" when the added group address is mentioned for refreshing the status of the object)
- The activated search filter can be deactivated by a click on the filter symbol near the search box

Hint: The order of the linked KNX group address is extremely important. Only the first group address is used to create the graphical information related to the object. It must therefore be ensured that the main group address, from which the object has been created during the ETS import, is at the first place in the list. If this is not the case, the order of the linked group addresses can be changed by dragging the single group addresses with the MOVE-button to the desired position. To ensure that actions (Active Events, logics, conditions, scripts) which are associated with a KNX object will not be triggered multiple times, the main group address must be defined as "Write Only" and any additional associated group address must be defined as "Read Only"!

5.7.1 ROOMS AND CONNECTED SCENARIOS

The section "ROOMS, TO WHICH THE OBJECT BELONGS" includes all rooms of the software, in which the object is visible and accessible through the VISUALISATION. An object can exist in several rooms, but also in none; after the first ETS import an object belongs to no room, since the single rooms have to be created before an object can be assigned to them.



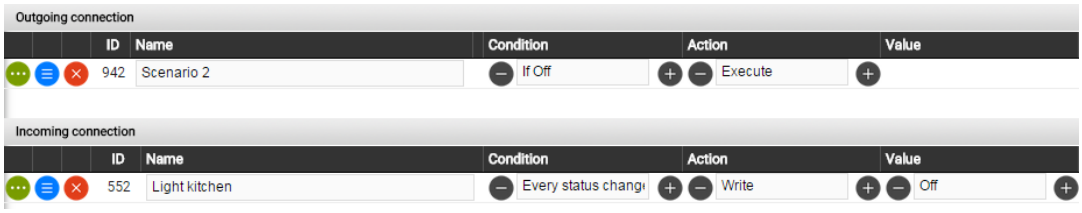
If any rooms are already configured, the object can be assigned to a room by searching the desired room through the search function and pulling it into the "ROOMS, TO WHICH THE OBJECT BELONGS" area of the object using drag and drop. The other way around, it is also possible to use the configuration page of a room to add the individual KNX objects; more information about configuring the VISUALISATION by adding objects to the single rooms can be found in the appropriate chapter of this manual.

The list "LINKED SCENARIOS" shows all the created scenarios that contain the current object; more information about the scenarios can be found in the corresponding chapter of this manual.

5.7.2 INCOMING AND OUTGOING CONNECTIONS

These two sections of the KNX objects configuration page allow the creation of events, which can offer the following actions:

- Change status of another object in dependency of the current object status (outgoing)
- Change status of the current object in dependency of another object status (incoming)



To create an outgoing or incoming connection the following steps are necessary:

- Search for the objects that should interact with the current object
- Drag the desired objects into the corresponding area ("Outgoing connection" or "Incoming connection") and drop them there

For each created event, the following settings are available:

CONDITION	Determines the state of the object for which the event should be triggered; depending on the type of the object different statuses are available. The selection "Every status change" means that the event will be triggered at any status change of the reference object.
ACTION	Depending on the type of the object, different actions can be selected. If a KNX object is selected normally you can only choose between "Write" (write a command on the KNX bus) or "Read" (send a status request to the KNX bus); for more information about the possible actions with other objects consult the appropriate chapters of this manual.
VALUE	If the target object supports it, you can set the value the target object should be set whenever the event is triggered; the available values depend on the type of the target object. It is also possible to set the target object to the same value as the triggering object ("Value of ...") or its inverted value ("Inverted value of ...").

When you create an outgoing connection, the object you are editing is the one triggering the action. If you create an incoming connection, the object dragged onto the list will be the one to trigger the action. In other words:

Outgoing connection: when the condition which you defined is true for the object of the current detail page, the action will be executed on the object in the outgoing connection section.

Incoming connection: for the defined condition of the object in the incoming connection section, the action will be executed on the object of the current detail page.

So the condition refers to the object whose detail page you are on for outgoing connections, while it refers to the *other* object for incoming connections.

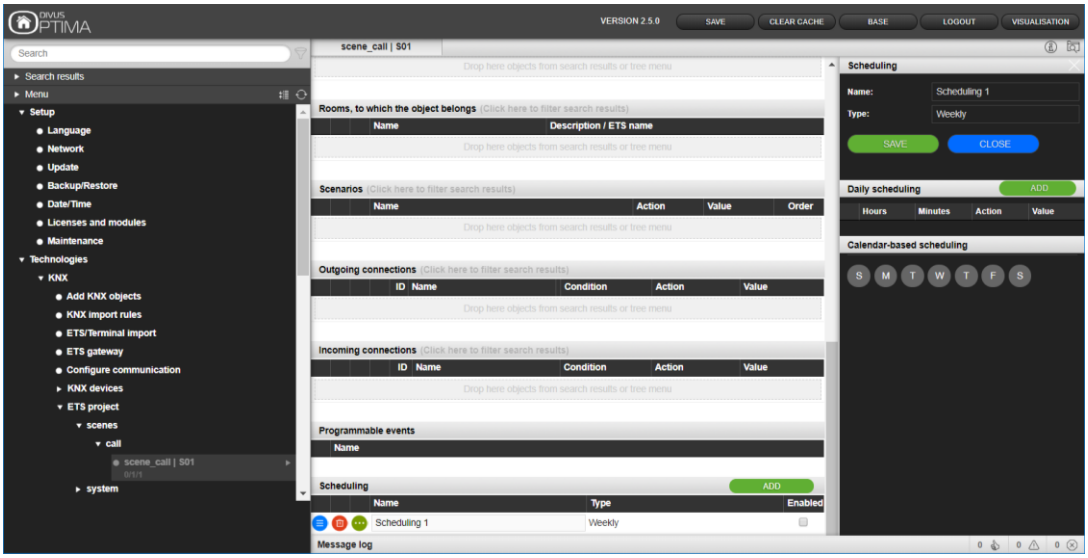
5.7.3 PROGRAMMABLE EVENTS

This section shows the logics of the logic module in which the object is used. More detailed information can be found in chapter 2.8.8 Advanced logic moduleand in the *Advanced Logic Module Manual*.

5.7.4 SCHEDULING

This section now allows to create or edit existing schedules for the current object also through the adminstration.

Also those created in the visualisation will be visible and editable from here.



You can add a new schedule through the green ADD button. Then the green icon with the 3 dots will open the side menu offering the schedule's details for configuration.

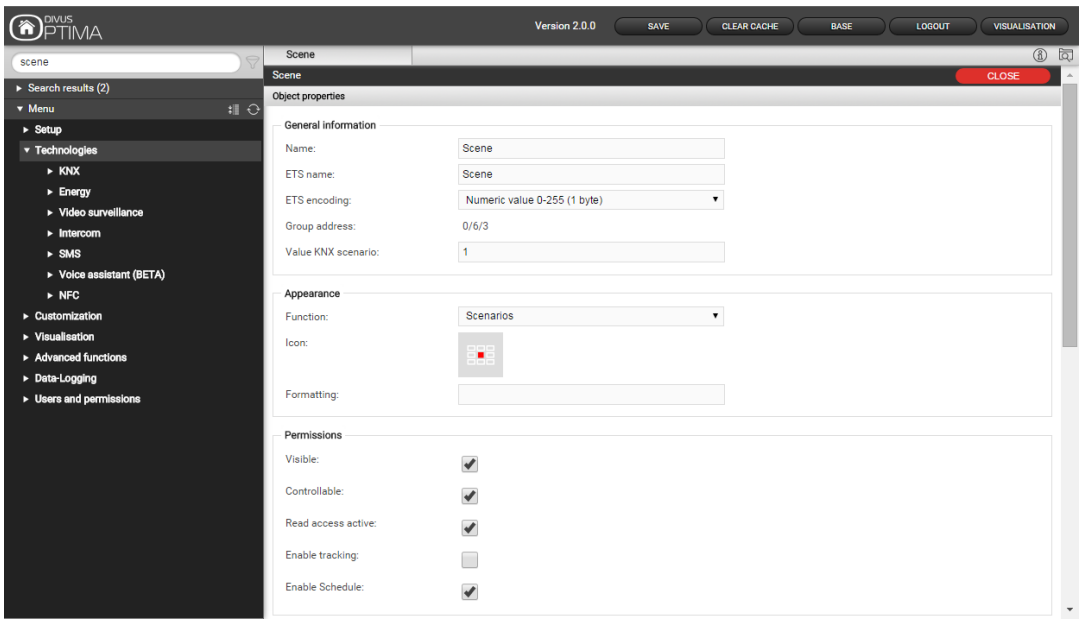
5.8 KNX SCENES

Objects of type 1 byte during the ETS import can be defined as KNX scenes. With these objects no status feedbacks or single commands are transferred, but a number, usually between 1 and 64, which tells the installed devices the KNX scene they should load from their memory; all states saved for the loaded scene will be set from the device. Some KNX devices can save various states for such a KNX scenario. Depending on the value they receive on the group address of the scenario, they can launch different actions and set different states of devices.

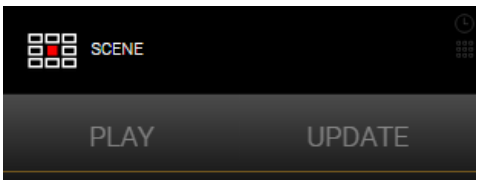
A KNX object can be defined as *KNX scene* as follows:

- Open the ADMINISTRATION menu and open the desired object's detail page
- Activate the EXPERT-mode
- Ensure, that the "ETS ENCODING" is set to "Numeric Value 0-255 (1byte)"
- Configure the parameter "FUNCTION" to "SCENARIOS". (If this entry should not be available, change the "ETS ENCODING" to another value and then back to "Numeric Value 0-255 (1byte)".)

- Select an appropriate icon
- Set the value for the scenario to send onto the bus in the input field "VALUE KNX SCENARIO"



Once the configuration of such a scenario is done, this is how it is shown in the visualisation:



or

By clicking the PLAY-button (or first on any part of the rectangle in the compact representation), the value configured for the parameter "VALUE KNX SCENARIO" will be sent to the KNX bus and the KNX devices configured for the usage of the KNX scenario will start the actions memorized for the received value. By clicking on "UPDATE", all the values of the involved KNX objects are stored to the KNX devices as new scenario values. This way you have the same possibilities inside the VISUALISATION as in the KNX installation for a KNX scenario (also called "light scene"): *start* a scenario or *update* a scenario.

5.9 PHYSICAL ADDRESS

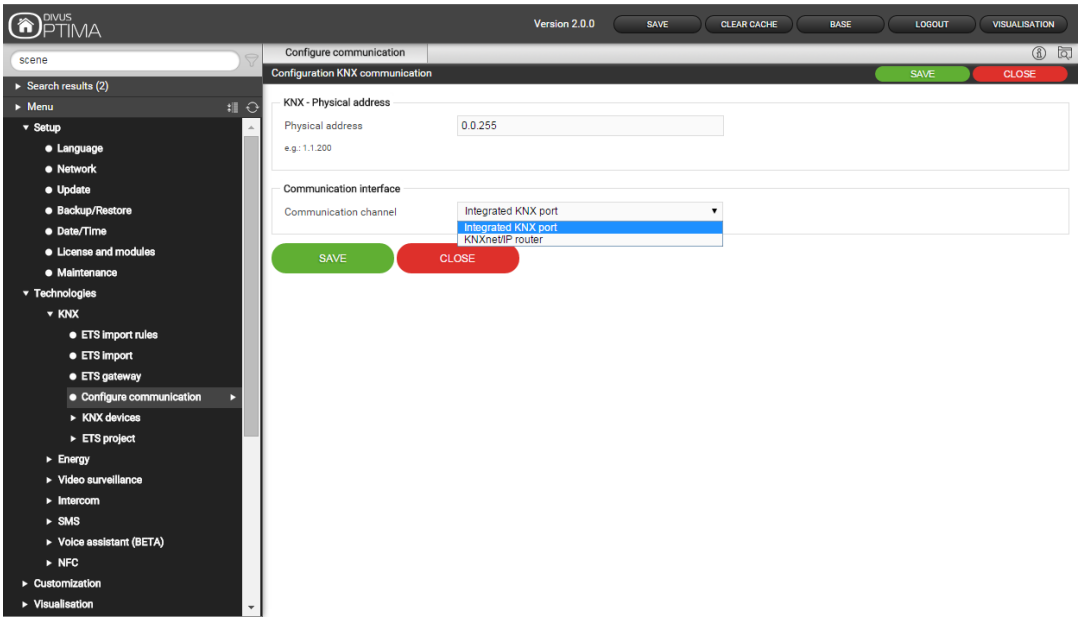
Through the point „CONFIGURE COMMUNICATION" under "TECHNOLOGIES → KNX" you can change the physical address of the KNX CONTROL device, used for the communication with the KNX bus.

The address must be entered in the format X.Y.Z as detailed in the KNX specification:

- First number between 0 and 15
- Second number between 0 and 15
- Third number between 0 and 255

Hint: As opposed to most KNX devices, which necessarily have to use a physical address which corresponds to the line they are installed, OPTIMA is able to communicate with all devices of the system, independently from the physical address of the hosting KNX CONTROL device. Therefore, modifying the physical address of the KNX CONTROL device has merely the purpose to avoid conflicts with other devices and to keep a certain alignment with the KNX system.

Moreover, you can choose between using the built-in interface or an external device under "COMMUNICATION CHANNEL". As external devices only KNXnet/IP router are supported. As these devices work with multicast protocols, no further configuration is necessary.



6 Rooms

6.1 INTRODUCTION

This chapter deals with the creation and customization of rooms, in which the various objects are grouped in the visualisation. Normally it is recommended to keep the structure of the rooms similar to the structure of the building itself. It will be easier for the user to control the building through the visualisation, when the navigation in the visualisation is the same as the user would have to do in the building for reaching a KNX device (light switch etc.). Such a visualisation can only be created when the rooms are structured inside the visualisation at the same way they are structured in the real building and when in each room all the object are located, which are also truly installed as KNX devices in the real rooms of the building. This is only a recommendation; in OPTIMA the rooms can also be created freely and filled with any kind of object / function desired.

Rooms can be nested as desired. Similar to a folder structure on a computer, you can use this feature of OPTIMA, for example, to group rooms that are located on the same floor, wing or part of a building.

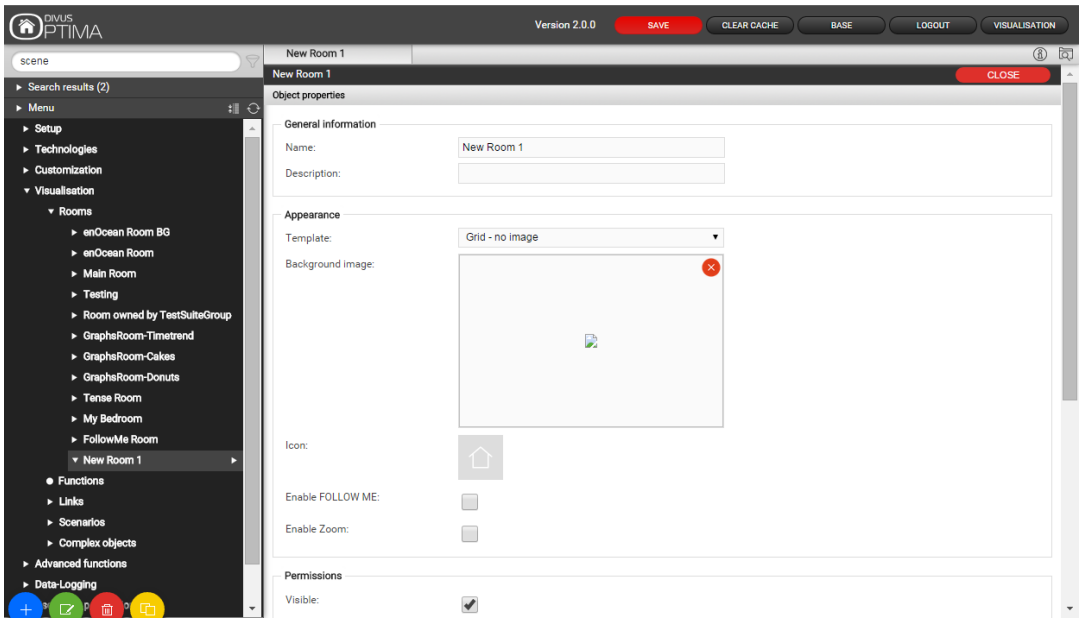
6.2 CREATE A NEW ROOM

In order to create a new room in OPTIMA:

- Access the ADMINISTRATION area
- Select VISUALISATION → ROOMS
- Click on the ADD Button  in the toolbar at the bottom

The new room will be added to the sub-menu "ROOMS". If an already existing room is selected when the ADD-button is pressed, the new room will be added within the selected room; in this way also a tree-structure for navigation in the VISUALISATION can be created (e.g. a room "1.floor" could contain other rooms like "kitchen" or "living room"; in the VISUALISATION by accessing the room "1.floor" will be like accessing a sub-menu containing two other rooms "kitchen" and "living room").

The configuration page of the new created room looks like the one shown below:

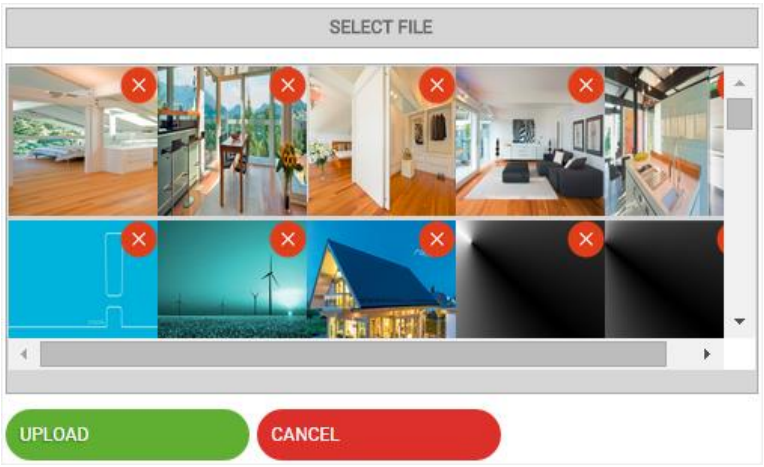


The settings for a new room are:

NAME	Name of the room that will also be shown in the VISUALISATION and the navigation menu of the VISUALISATION.
TEMPLATE	Defines the graphical layout through which the room will be shown inside the VISUALISATION; following templates are available: GRID: the contained objects are shown in a table grid. It is possible to embed a picture at the top, at the right, at the left or as full screen background of the contained objects. BACKGROUND: The contained objects are positioned directly upon a background image. Button 1-8 (Template): The contained objects are shown as extra-large buttons without any Background; detailed information can be found in chapter 6.6. The option "None" means that the room acts as sub-menu for the navigation inside the VISUALISATION and so no objects will be shown in this room; only the contained sub-rooms will be shown in the navigation menu of the VISUALISATION.

BACKGROUND IMAGE

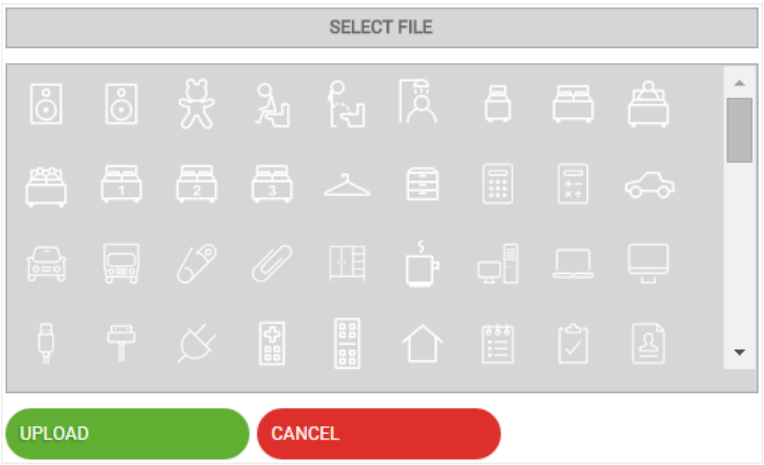
If the chosen template provides embedding a background image, here the desired image can be defined; with a simple click on the empty square a pop-up window will appear, showing all uploaded pictures and allowing their selection:



Through the UPLOAD button further images can be uploaded to OPTIMA; after a successful upload, the new images can be selected from inside the pop-up window.

ICON

For each room an appropriate icon can be selected:



Simply click on the desired icon inside the appearing pop-up window to select it for the current room. If you want to use your own icons, see chapter 14.1.3 for details.

ENABLE ZOOM

If this option is enabled, OPTIMA tries to adapt the background picture in rooms with template "background" and the contents to the given screen resolution to provide optimum graphical representation.

VISIBLE

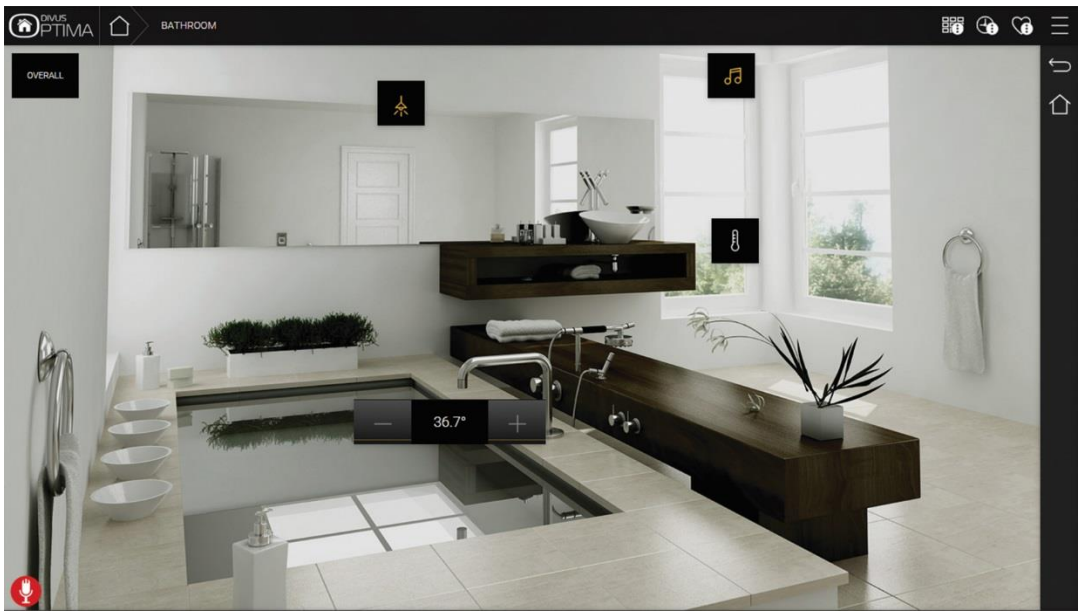
Defines if the room is visible in the VISUALISATION.

Enabling the EXPERT mode, the following additional options are available:

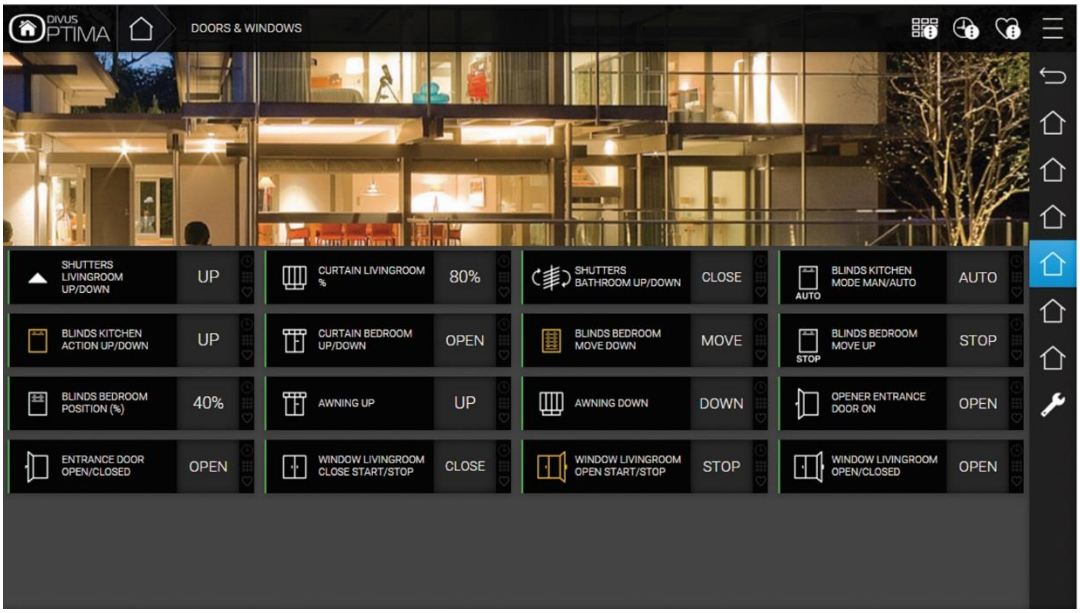
ID	Object identifier (read only)
DESCRIPTION	Additional information that can simplify the search.
OPEN IN NAVIGATION MENU	With this option it can be defined if navigation object present in the room should be opened inside the navigation menu or not. Note: This option is automatically activated if the room contains navigation objects (e.g. links).
ENABLE PIN CONTROL **NEW PIN** **REPEAT NEUEN PIN**	Whit this option the room can be PIN protected. To enable the PIN-protection the PIN must be inserted into the field “NEW PIN” and in “REPEAT NEW PIN”.

The following screenshots shows some rooms with different templates in the OPTIMA visualisation.

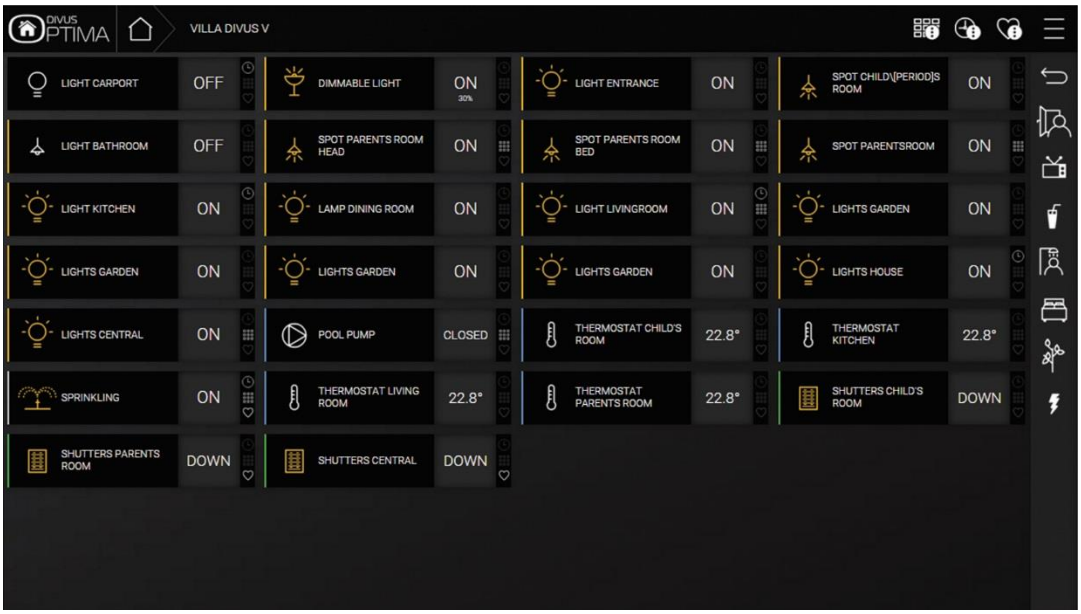
BACKGROUND



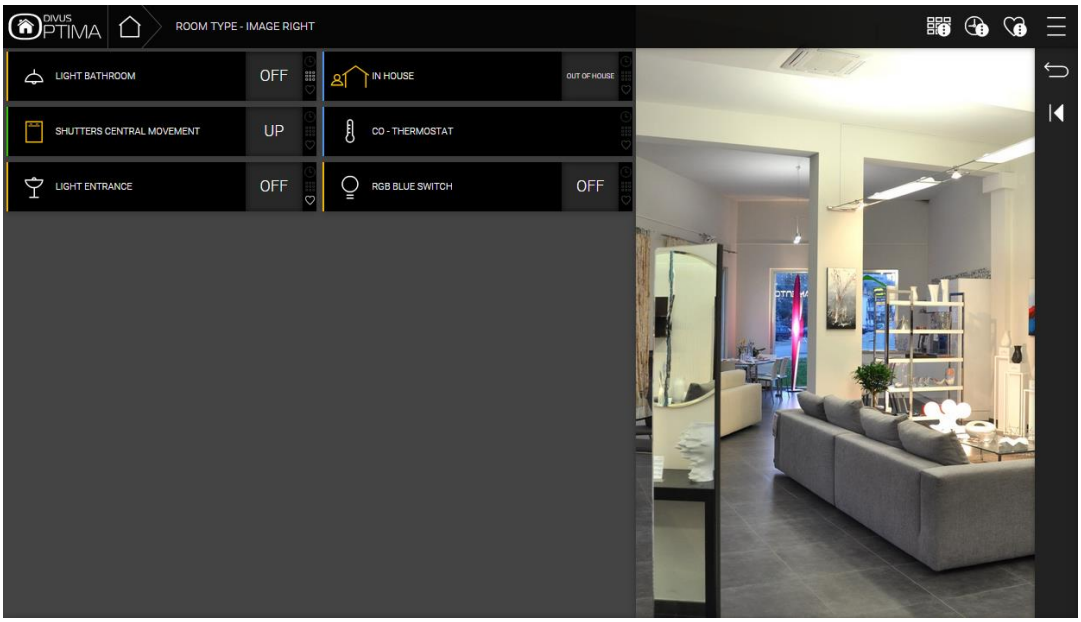
GRID WITH IMAGE AT THE TOP



GRID WITHOUT IMAGE



GRID WITH IMAGE ON THE RIGHT



The image used as background image must have a format that can be shown in a browser. It is recommended to use only images in JPEG or PNG format (also supports transparency). The size of the images (h x w) must be adjusted before the image is uploaded to OPTIMA; please consider the following points:

- If you use the template "BACKGROUND" to visualise a room, the background image will be displayed in real size (pixels) without any automatic scaling; the image is aligned to the upper left corner.
- If you use one of the "GRID" templates for the visualisation of a room, the image is scaled, in order to have the optimal size at the defined position.

The usage of high resolution images (e.g. HD photos) has therefore a double disadvantage: on one side, the upload of such large size images to OPTIMA takes longer and on the other side, the loading times increase when a room is opened inside the VISUALISATION, because of the high data volumes caused by the image.

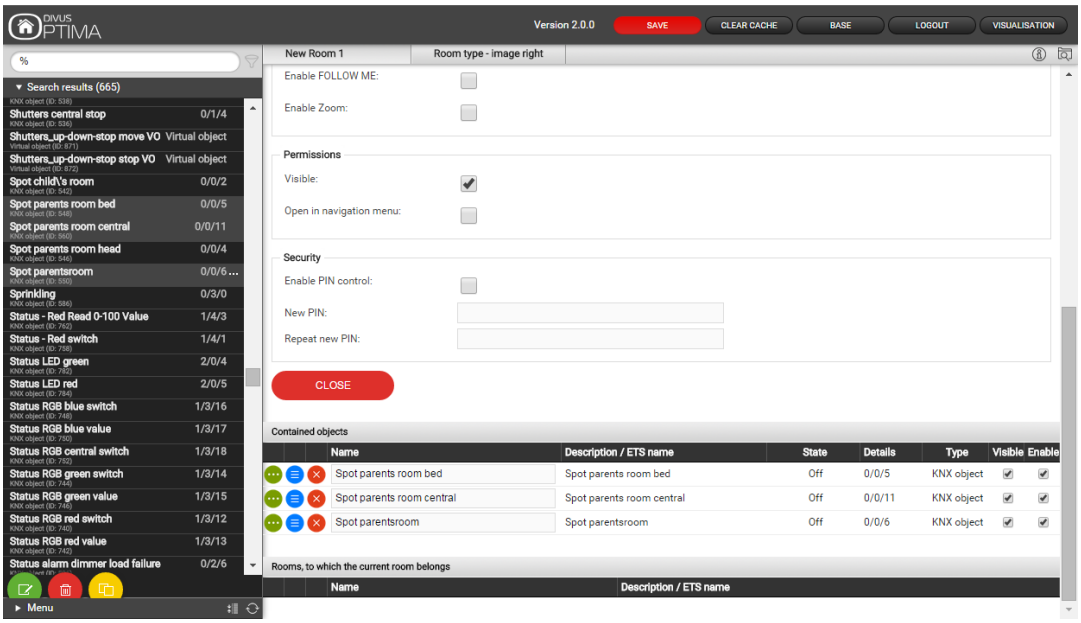
Furthermore, when using the template "BACKGROUND", high-resolution images may be so large that only part of the entire background image is visible on displays with average resolutions.

6.3 INSERTING OBJECTS INTO ROOMS

As soon as a room is created, it is possible to add objects to it:

- Open the detail window of the desired room
- In the "CONTAINED OBJECTS" area all the objects contained in the room are listed (initially empty)
- Search the desired objects and drag them inside the area

- The order of the single objects can be changed by dragging the single objects using the MOVE-button to the desired position (for the „GRID" templates only)



Of course it is also possible to remove objects from a room. Simply press the Remove-button of an object in the list and the object is removed from the room; however, this DOES NOT delete the object from the project!

Hint: All sub-rooms contained in a parent room are listed in the same area as all the other objects. Such sub-rooms are not visible in the VISUALISATION of rooms displayed with a template of type "GRID" and are only shown in the navigation menu of the VISUALISATION;

Attention: The amount of objects inside a room increases the loading time of the page. Depending also on the client devices in use, the consequence might be a slower navigation. Please inform your customer and test before delivery. Should the result not be satisfactory because of a high number of objects in the same page, please consider dividing the navigation into smaller parts with less objects each.

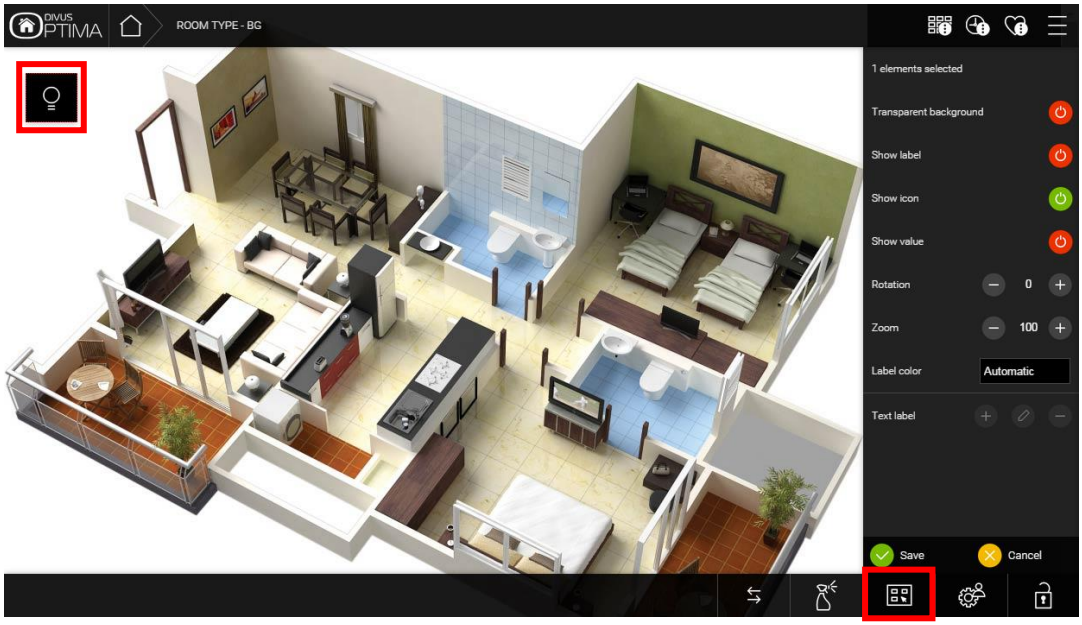
6.4 DELETING ROOMS

To delete a room, the desired room must be selected through the search engine or the ADMINISTRATION menu and then the DELETE-button must be pressed, just as for deleting any other object in OPTIMA.

Hint: Deleting a room does not delete the objects contained in that room; they still remain available in the database and for example in the pages of the FUNCTIONS menu.

6.5 CUSTOMIZING A BACKGROUND VIEW ROOM

The personalization of a room with the template "BACKGROUND" is done directly within the VISUALISATION. If the user has the necessary permissions, there will be an icon called "EDIT PLAN" in the toolbar (see screenshot), through which the user can switch into the editing mode. The editing mode permits the following actions:



- The single objects can be dragged to the desired position. Initially they will all be placed in the upper left corner of the room.
- Moreover, the special functions on the right allow the following:

X ELEMENTS SELECTED	Shows the amount of currently selected objects. To deselect an object or select multiple objects use the CTRL key while clicking.
TRANSPARENT BACKGROUND	Shows/hide the background of the icon
SHOW LABEL	Shows/hides the text label of the object
SHOW ICON	Shows/hides the icon
SHOW VALUE	Shows/hides the value of object
ROTATION	Allows to rotate the selected object(s) of the degrees set here
ZOOM	Icons may be adjusted in size in the range between 25% and 500%.
LABEL COLOR	Allows to customise the label's colour
TEXT LABEL	Allows to add an independent text label to a room. To activate the PLUS icon, no object must be selected.

It is also possible to place transparent areas on the background image, which are linked to the corresponding sub-rooms; when using the template "BACKGROUND", sub-rooms will be represented through a touch sensitive, transparent rectangle which can be placed on the background image and used for navigation.

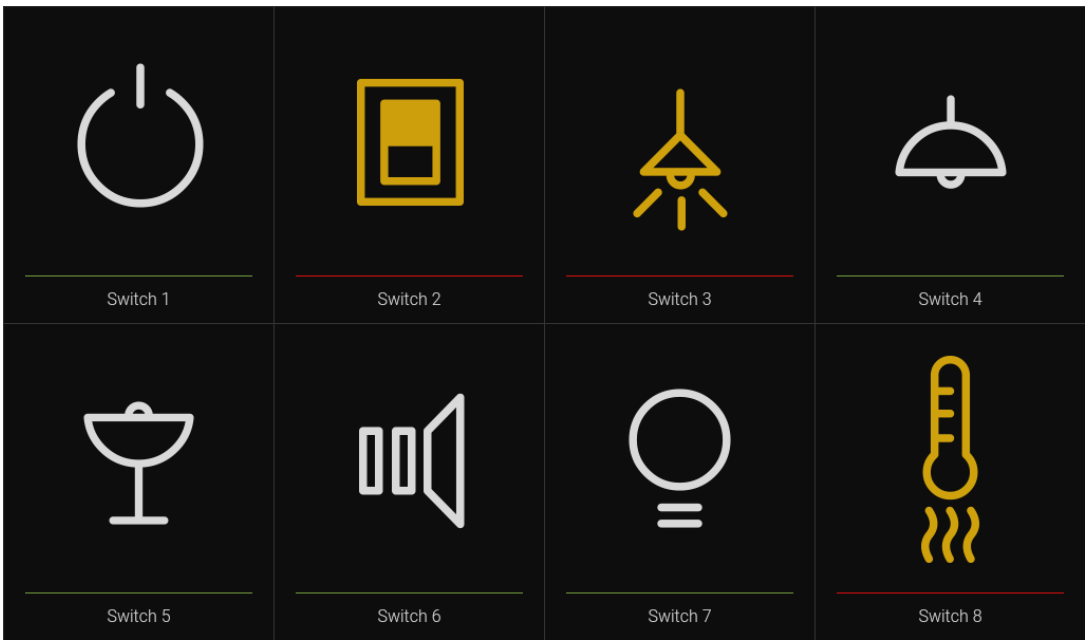
Hint: Remember to save any changes through the SAVE-button before leaving the edited view!

For detailed information, please refer to the user manual.

6.6 BUTTONS VIEWS

OPTIMA offers a TEMPLATE view for rooms, supporting layouts for 1, 2, 4, 6 or 8 buttons (or objects) per page.

This TEMPLATE has been designed to create pages with only a few objects and to show them in a very simple and easily controllable form. This kind of representation does not support any kind of additional functions (like scheduling, favourites etc.). When using this functionality in combination with the expressions to hide the navigation area (see chapter 18.1.4), very simple user interfaces can be created that permit to control the KNX functions just like through a keypad:



Hint: The buttons templates support only simple KNX objects of type "ON/OFF" (1 bit), e.g. "Light ON/OFF" or "Shutters UP/DOWN". These templates are especially useful when implemented in combination with the "Lockscreen" function of the DIVUS Touchzone panels: they allow to make big, very user-friendly and always available switches out of the panels. See the DIVUS Touchzone manual for further details.

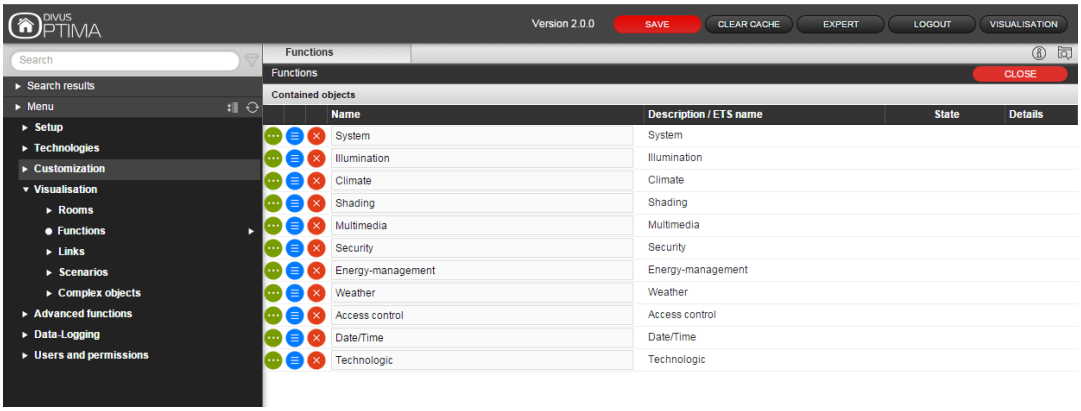
7 Functions

7.1 INTRODUCTION

This chapter describes how to navigate in the VISUALISATION with the help of the FUNCTIONS menu and provides information on how to optimally configure objects for the navigation with the FUNCTIONS.

7.2 ADMINISTRATION OF THE FUNCTIONS

The FUNCTIONS can be configured under"VISUALISATION → FUNCTIONS":

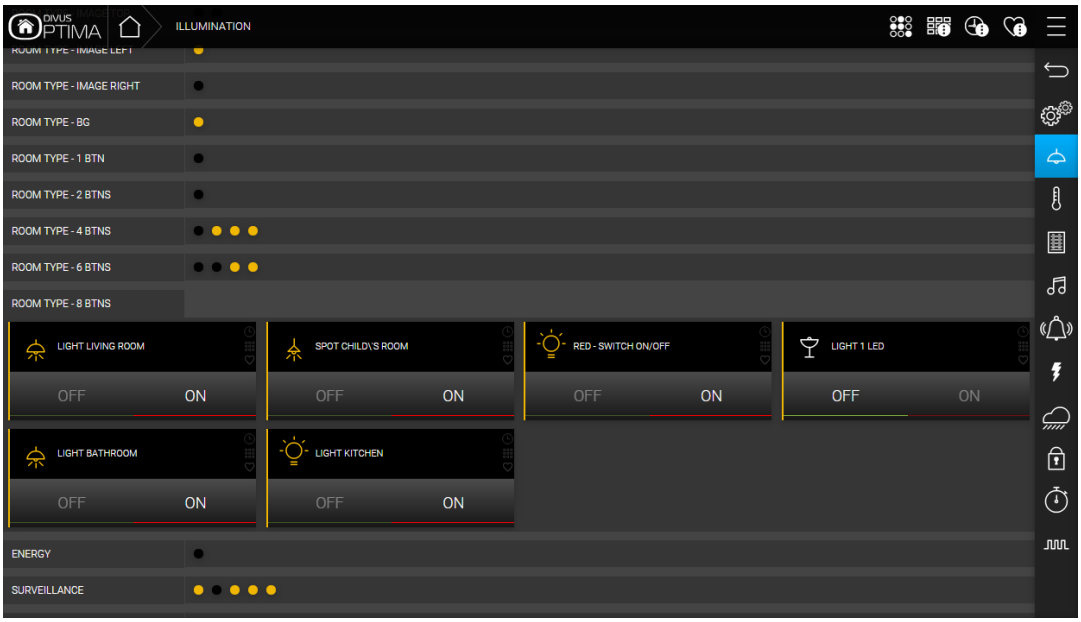


In the displayed list you may:

1. Change the names of the single functions
2. Change the order of the functions via drag and drop, pulling the single functions to the desired position (the ordering will also be used in the VISUALISATION).
3. Hide not used functions, so that they are not visible in the navigation menu of the VISUALISATION.

7.3 FUNCTIONS IN THE VISUALISATION

If you click on "FUNCTIONS" in the navigation menu of the VISUALISATION, all visible FUNCTIONS are listed inside the navigation menu and all the objects assigned to the currently open FUNCTION page are shown in GRID layout without background image. Depending on the selected FUNCTION, the related objects are displayed. So it is possible to reach objects with certain functionalities directly, instead of navigating to the individual objects through the rooms, in which they are located. Especially when different objects of the same functionality shall be controlled together, this type of navigation can be very convenient (for example changing the set points for air conditioning, controlling more blinds, alarm functions, etc.). Optima 2.0 introduced a new, compact overview of the single rooms showing their respective content as black (for off devices) or coloured (for on devices) dots. This instantly shows where there are e.g. lights turned on or off. When you click on a room, it shows/hides its content and allows to regulate the single contained functions.



Moreover, an additional icon appears in the title bar to filter the shown items: cyclically clicking on it will cause the following:

[Filter objects by their Status]

	**Show all**: no filter applied.
	**Show items turned on**: Filters elements showing only those turned on/active
	**Show items turned off:** filters items showing only those turned off.

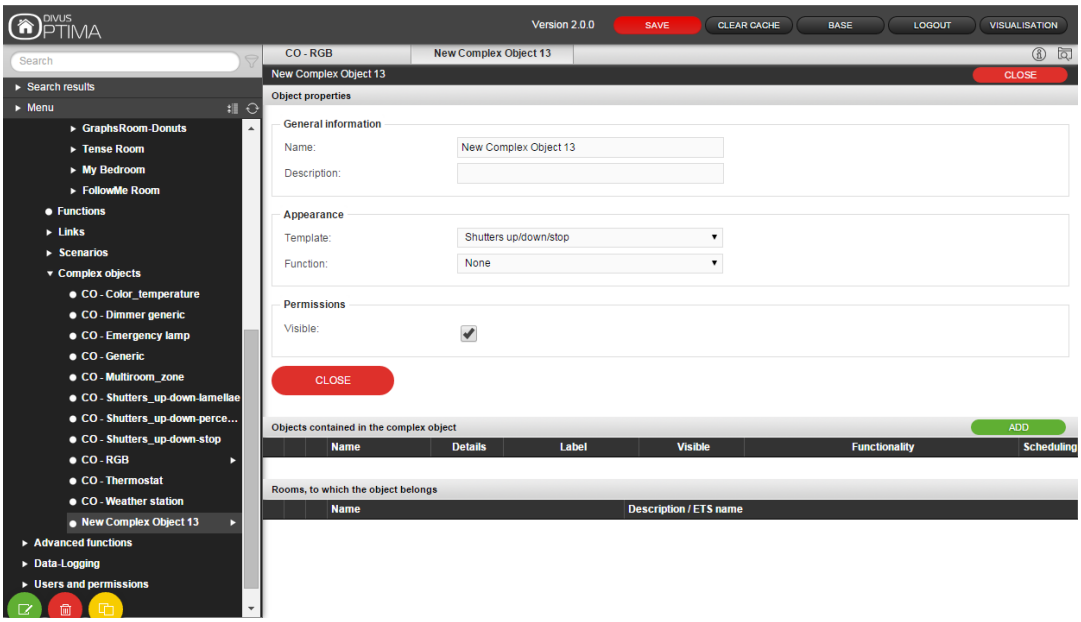
Note: Functions that contain a large number of objects can appear confusing in the visualisation and can be particularly impractical when accessed from mobile devices. Therefore, you should consider which objects are assigned a function and which are not in order to keep the number of objects per function page manageable.
An alternative here is offered by the "COMPLEX OBJECTS", which make it possible to combine several KNX objects into one complex object (e.g. all objects of a thermostat); for more detailed information, please refer to the next chapter.

Note: Not all objects are displayed in the pages of the individual functions, but only those that have been assigned to a room and are visible.

8 Complex Objects

8.1 INTRODUCTION

This chapter deals with COMPLEX OBJECTS, which allow grouping different KNX objects in a single object. Different KNX objects, which are necessary for the operation of the same KNX device, can be combined into a single object with a special layout (e.g. thermostats); complex objects are handled inside the visualisation just like any other object of the VISUALISATION.



8.2 CREATING COMPLEX OBJECTS

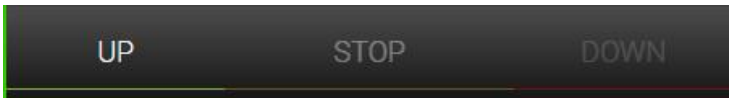
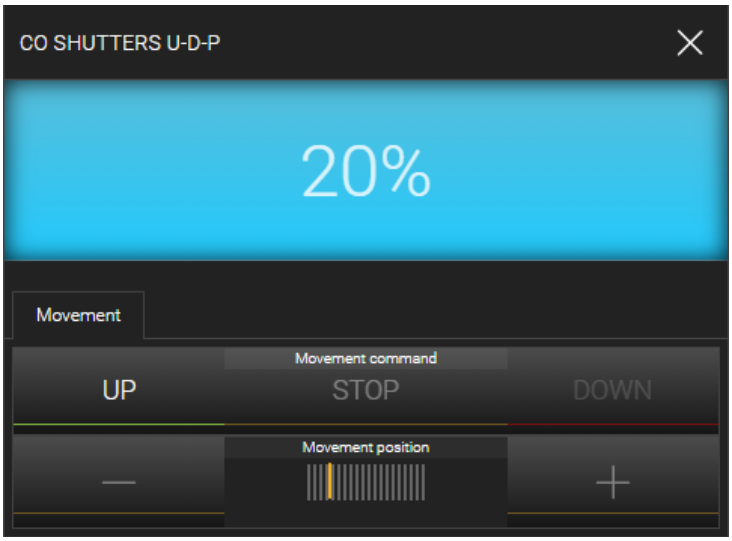
To create a new COMPLEX OBJECT, the procedure is identical to the creation of any other object in the software:

- Open the ADMINISTRATION area and select "VISUALISATION → COMPLEX OBJECTS"
- Press the NEW / ADD-button
- Open the configuration page of the newly created COMPLEX OBJECT by selecting it and pressing the EDIT-button

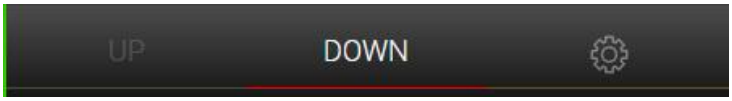
The following settings will be available:

NAME	Name of the COMPLEX OBJECT
TEMPLATE	Graphical icon, used to display the COMPLEX OBJECT inside the VISUALISATION
FUNCTION	Function assigned to the COMPLEX OBJECT (optional)

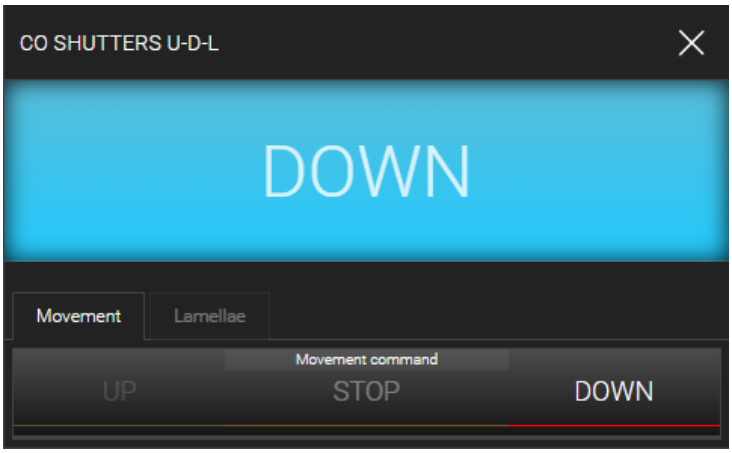
The chosen TEMPLATE defines not only which icon the object should use for representation inside the VISUALISATION, but also which kind of sub-objects it can contain; the following TEMPLATES are available:

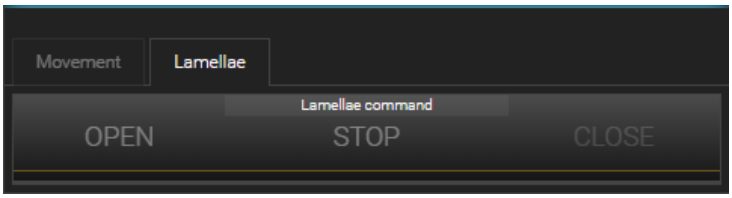
SHUTTERS **UP/DOWN/STOP**	With this TEMPLATE the commands "UP", "DOWN" and "STOP" of a shutters actuators channel can be controlled in the same object.  
SHUTTERS **UP/DOWN/PERCENTAGE**	Similar to the previous object, it also provides a percentage control of the shutter position through a slider with +/- buttons.  

Permits to control the shutter as well as the opening/closing of its lamellae. While the basic up/down is available through a single click or tap, the full functionality is revealed when you click the settings wheel icon in a pop-up window.



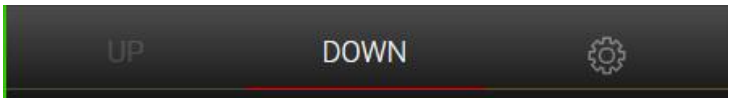
SHUTTERS
UP/DOWN/LAMELLAE

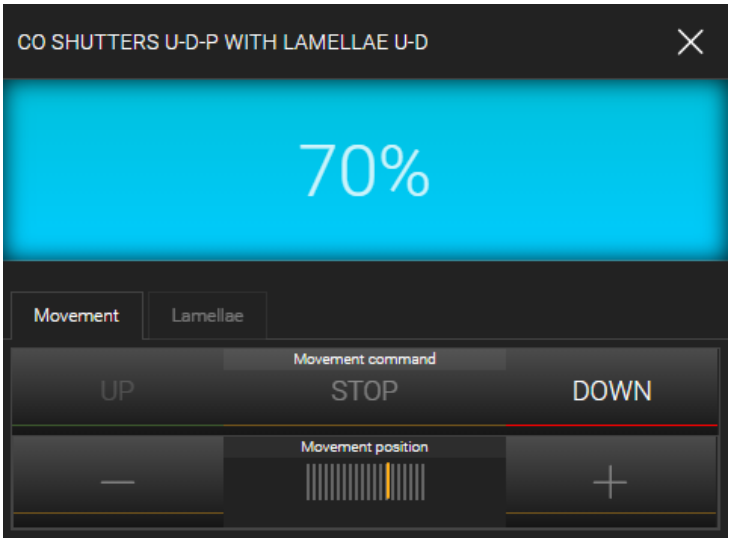


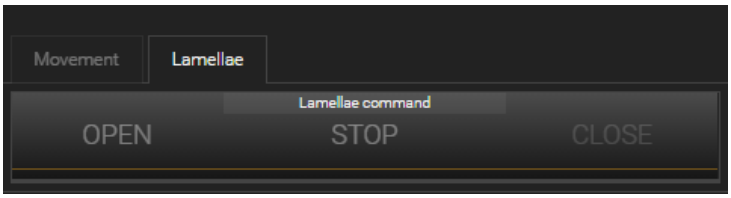


Permits to control the shutter position as well as the opening/closing of its lamellae

SHUTTERS UP/DOWN/PERCENTAGE WITH LAMELLAE UP/DOWN

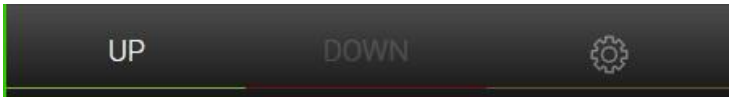


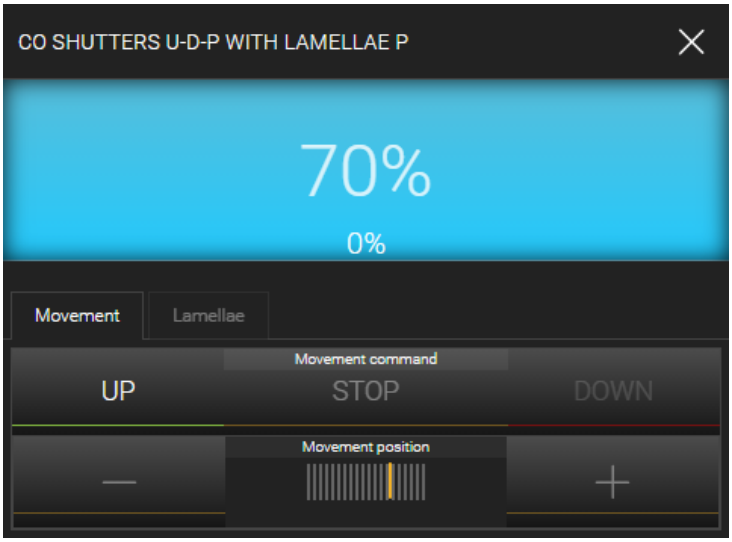


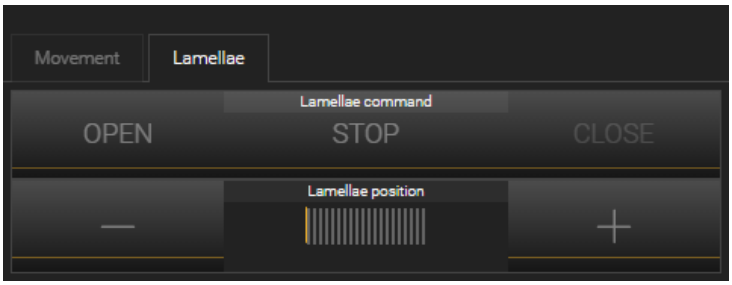


SHUTTERS UP/DOWN/PERCENTAGE WITH LAMELLAE PERCENT

Permits to control the shutter position as well as the opening/closing of its lamellae. This is the most complete shutters control template.

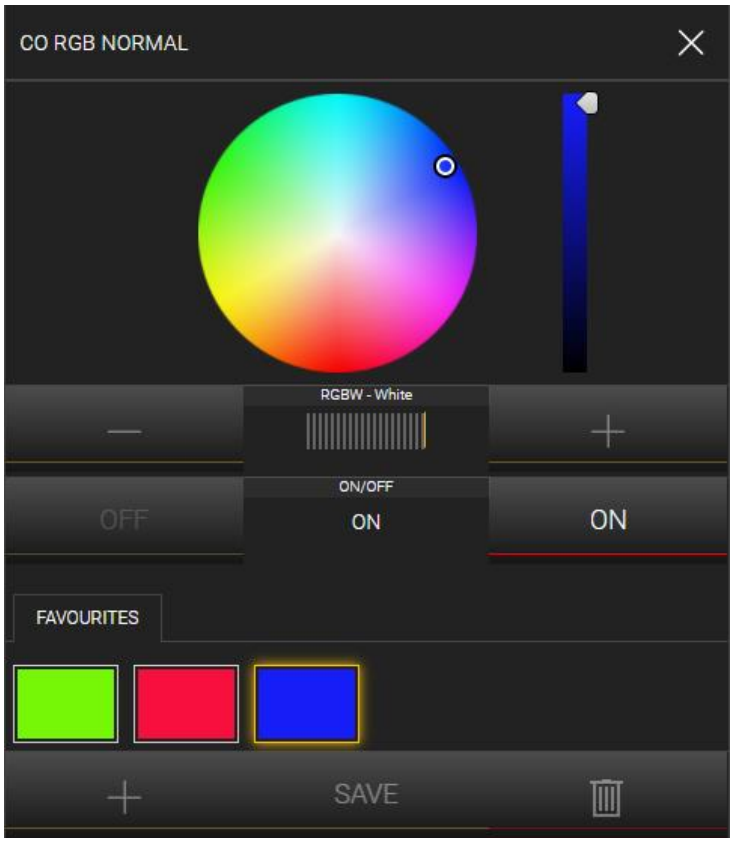
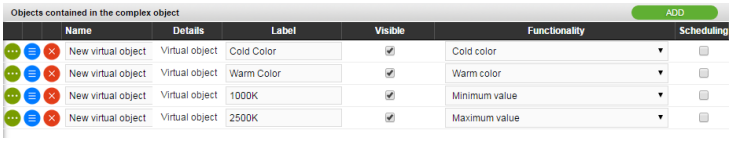


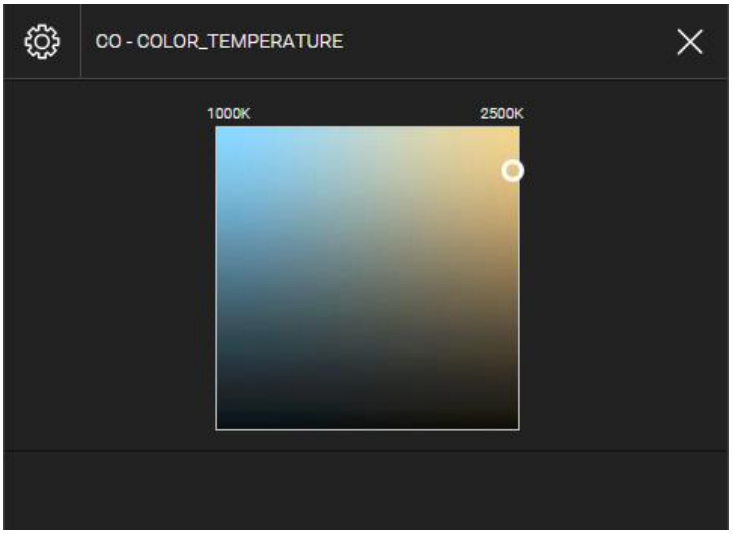




DIMMER

With this TEMPLATE the command "ON/OFF" and the percent value of a KNX dimming actuator can be controlled.

RGB	Allows grouping all necessary objects for the control of RGB lights in one object (control of the individual colour channels, "ON / OFF" commands, colour intensity, etc.)  
RGB (HSV)	The same Complex Object for RGB now also supports using HSV (hue, saturation and value) for devices where RGB is not available. The user interface of the object is always the same (only the White slider for RGBW will be hidden compared to above)
COLOUR TEMPERATURE	Permits to select the colour temperature by regulating 2 dimmer objects, one for warm colour and one for cold colour: Beneath the 2 objects for the dimmer control it is also possible to connect other 2 objects (typically virtual objects, check out the corresponding chapter in this manual) in order to label the maximum and minimum temperature; in this case you can just insert the values in the "LABEL" column of the administration page of the complex object: 

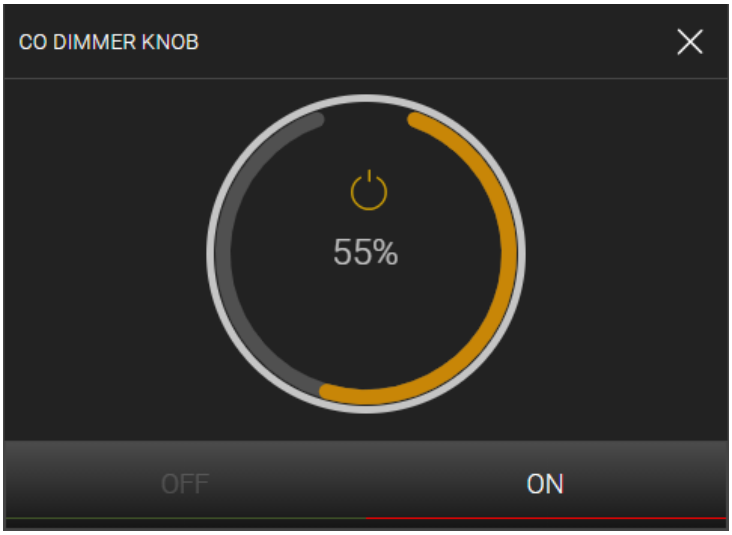


NEW

Now this Complex Object also supports devices which specify the colour temperature using a single 2 Bytes object. In that case, the representation changes slightly to this:

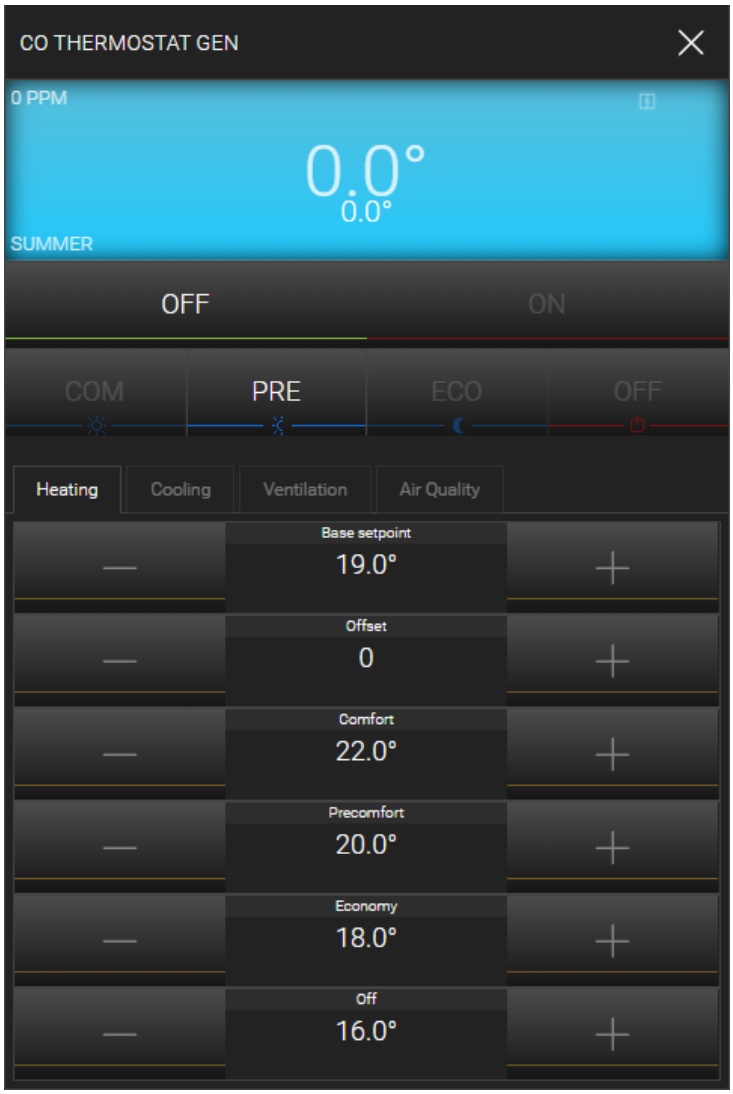
DIMMER KNOB

Alternative GUI for dimmers. Allows to control the exact value precisely with your finger – even on smaller displays.

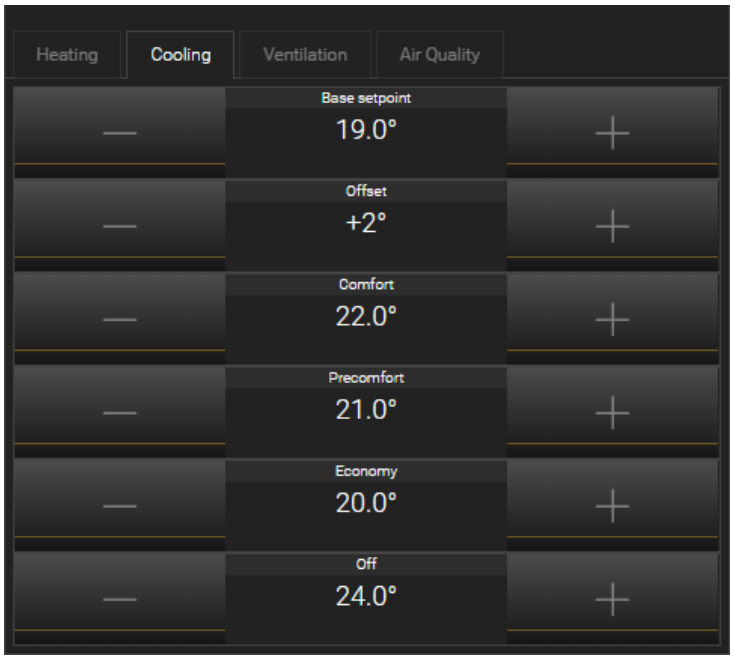


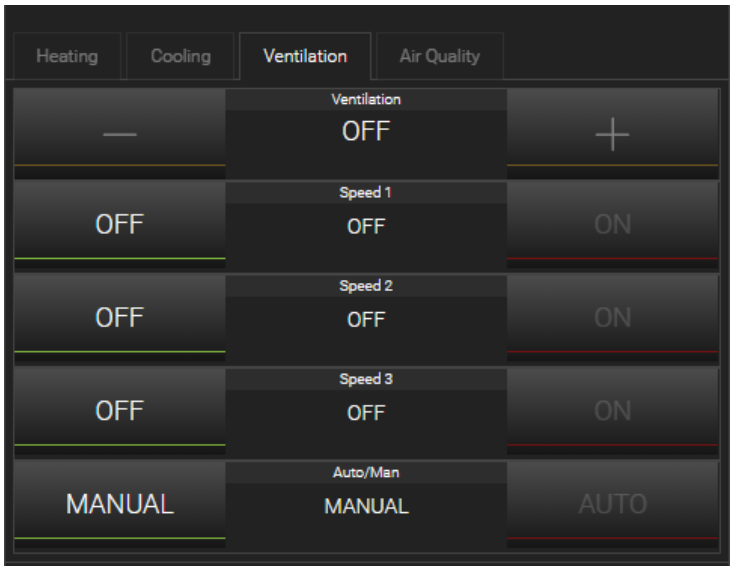
THERMOSTAT

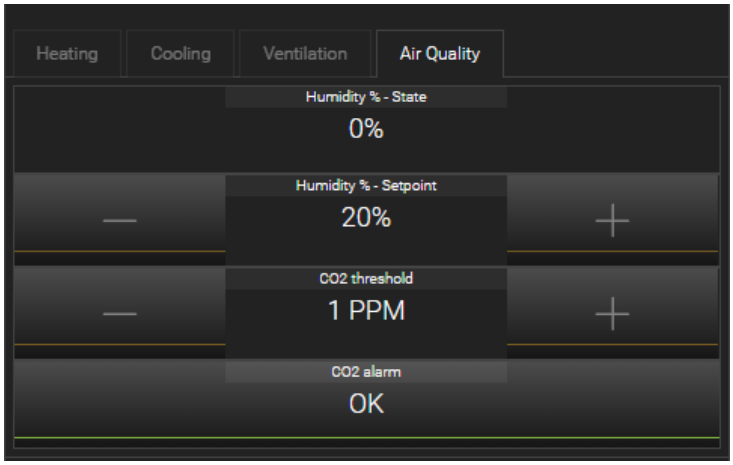
Allows grouping of different commands and status feedbacks from KNX thermostats into one object; in the VISUALISATION itself only a small icon with the key information is shown; by clicking on the corresponding icon of such an object, a popup window containing all objects defined as visible in the COMPLEX OBJECT will appear. For different types of thermostats different templates / options are available.



This main Complex Objects has four tabs for the functions Heating, Cooling, Ventilation and Air Quality.

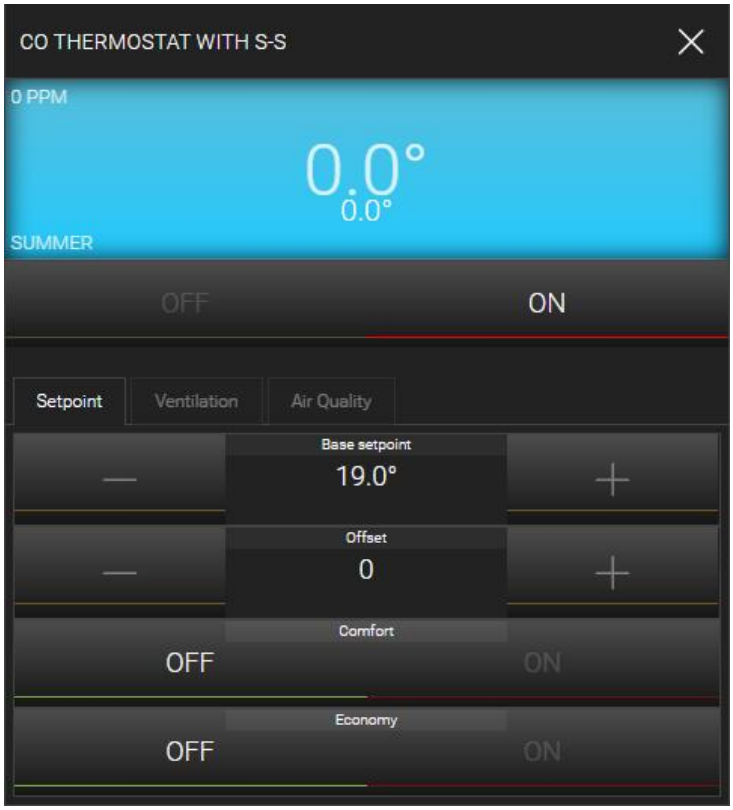

Heating
Cooling
Ventilation
Air Quality
Base setpoint
19.0°
Offset
+2°
Comfort
22.0°
Precomfort
21.0°
Economy
20.0°
Off
24.0°

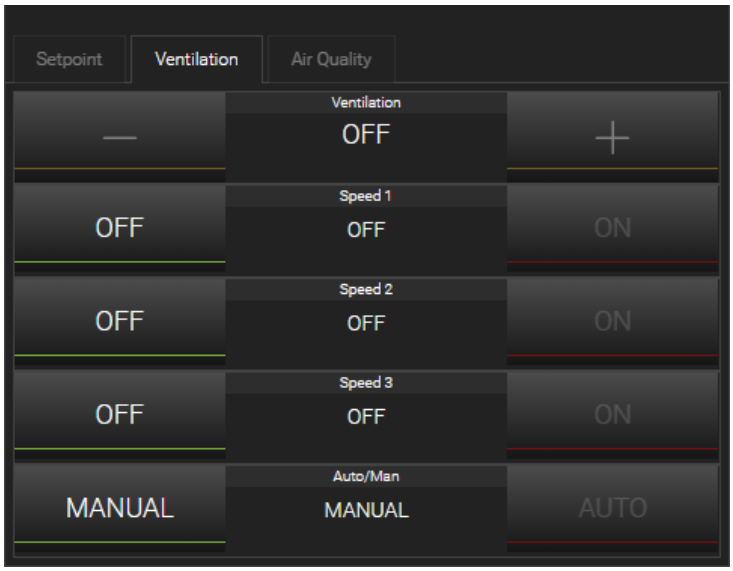

Heating
Cooling
Ventilation
Air Quality
Ventilation
OFF
Speed 1
OFF
OFF
ON
Speed 2
OFF
OFF
ON
Speed 3
OFF
OFF
ON
Auto/Man
MANUAL
MANUAL
AUTO

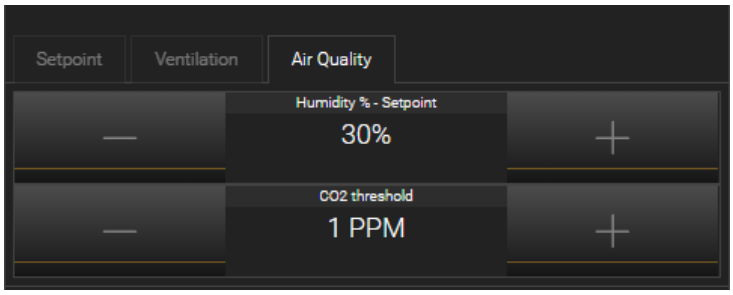

Heating
Cooling
Ventilation
Air Quality
Humidity % - State
0%
Humidity % - Setpoint
20%
CO2 threshold
1 PPM
CO2 alarm
OK

Variation of the previous template with only one setpoint (comfort).

THERMOSTAT WITH SINGLE SETPOINT

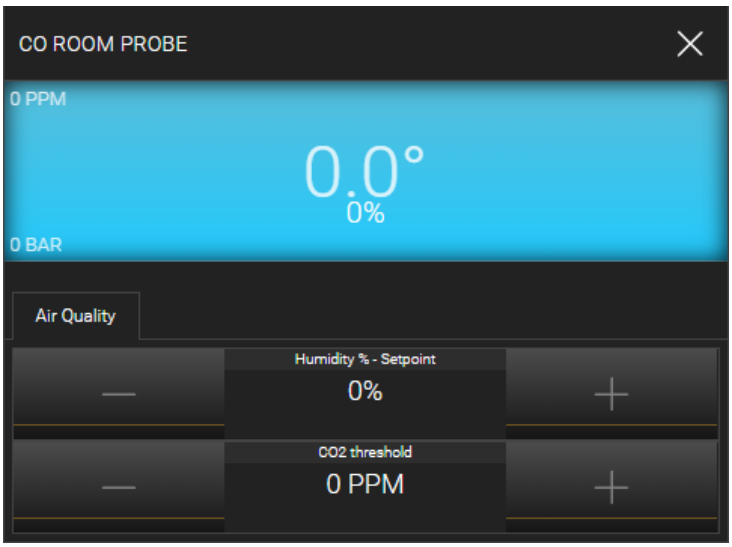






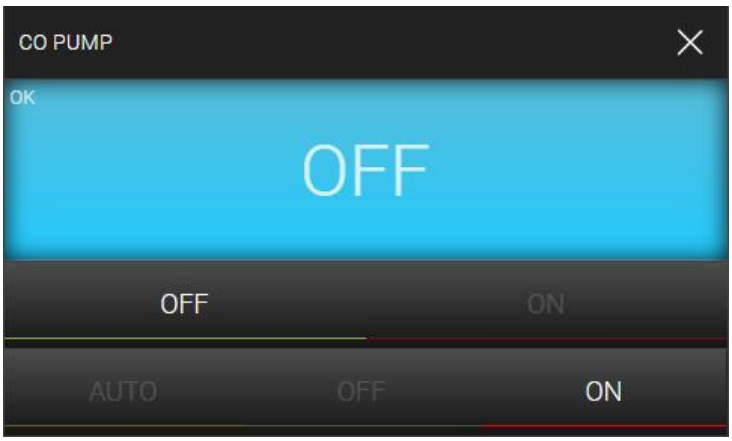
ROOM PROBE

Complex Object to manage values for humidity, CO_2, temperature and pressure within a room.



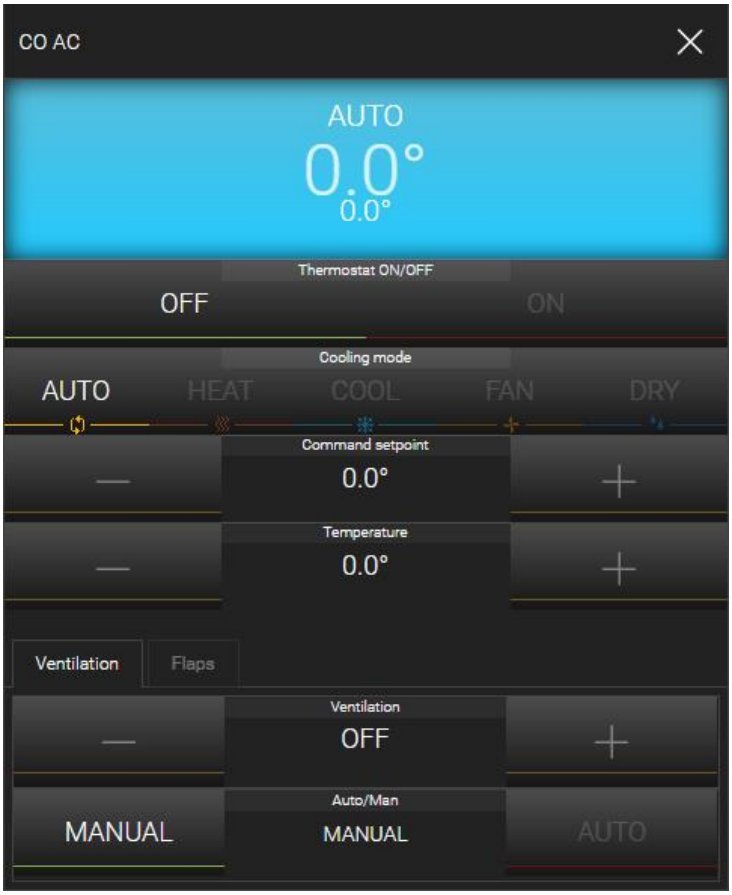
PUMP

Simple Complex Object to manage a pump with On/Off, Selector (auto/on/off), alarm and state.



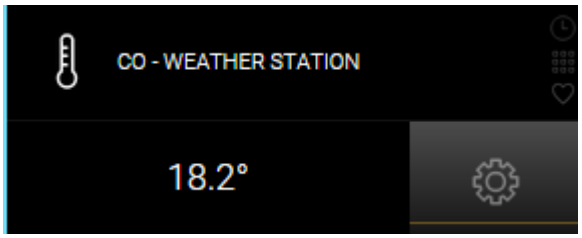
SPLIT (AC)

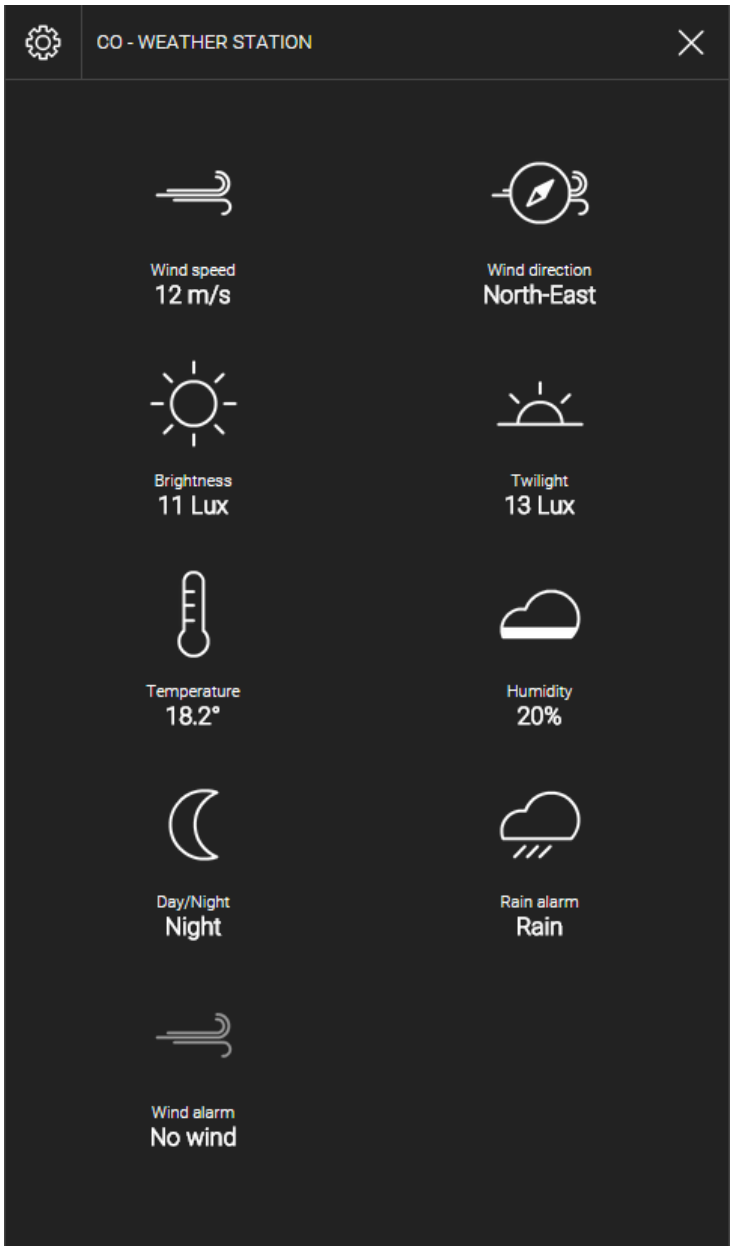
Other variation of the thermostat specialized for air conditioning systems.



WEATHER STATION

Allows to group all objects related to a weather station into one object.

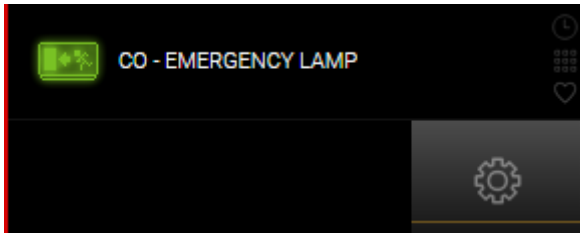



CO - WEATHER STATION
Wind speed
12 m/s
Wind direction
North-East
Brightness
11 Lux
Twilight
13 Lux
Temperature
18.2°
Humidity
20%
Day/Night
Night
Rain alarm
Rain
Wind alarm
No wind

EMERGENCY LAMP

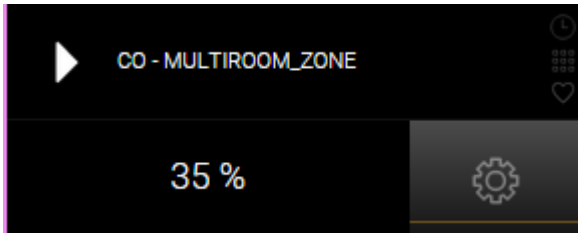
Permits to configure a KNX emergency lamp and to connect the necessary functions.

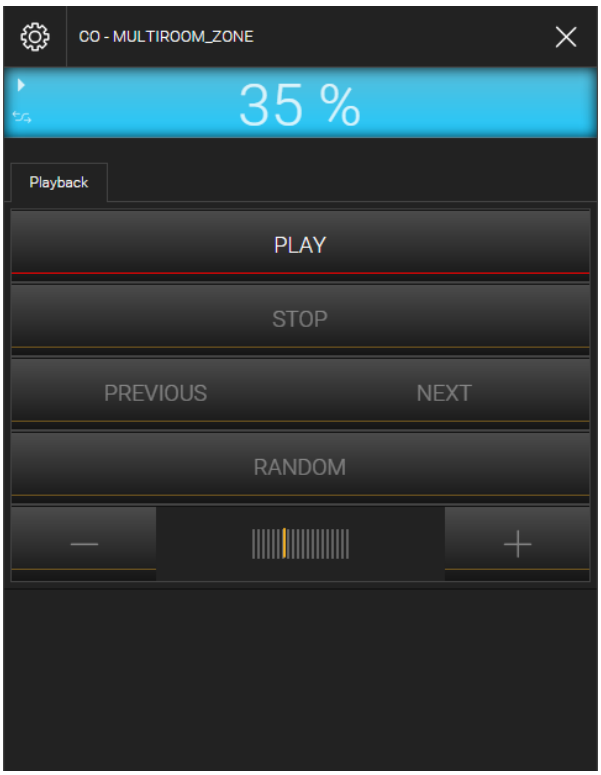
Hint: the sub-objects – in order to be operated correctly – must use the special symbols defined for emergency lamps, which are part of the function "SECURITY".



MULTIROOM

Permits to combine into a single pop-up all control objects of a Multiroom audio zone, connected either via KNX or via custom scripting (e.g.: SONOS, DUNE)





GENERIC	Allows grouping several objects into a pop-up window, where the structure and the objects to be shown can be freely chosen (refer to chapter 8.4 of this manual)
STEP BY STEP COMMAND	This new complex object may have different representations depending on the data type. Its peculiarity is that of having two sub-objects which have different tasks, similar to KNX objects: one is for sending a command, the other one for the status feedback. Thus it is possible to e.g. use Virtual Objects to create functions which get values from different sources but still show the current status correctly. 

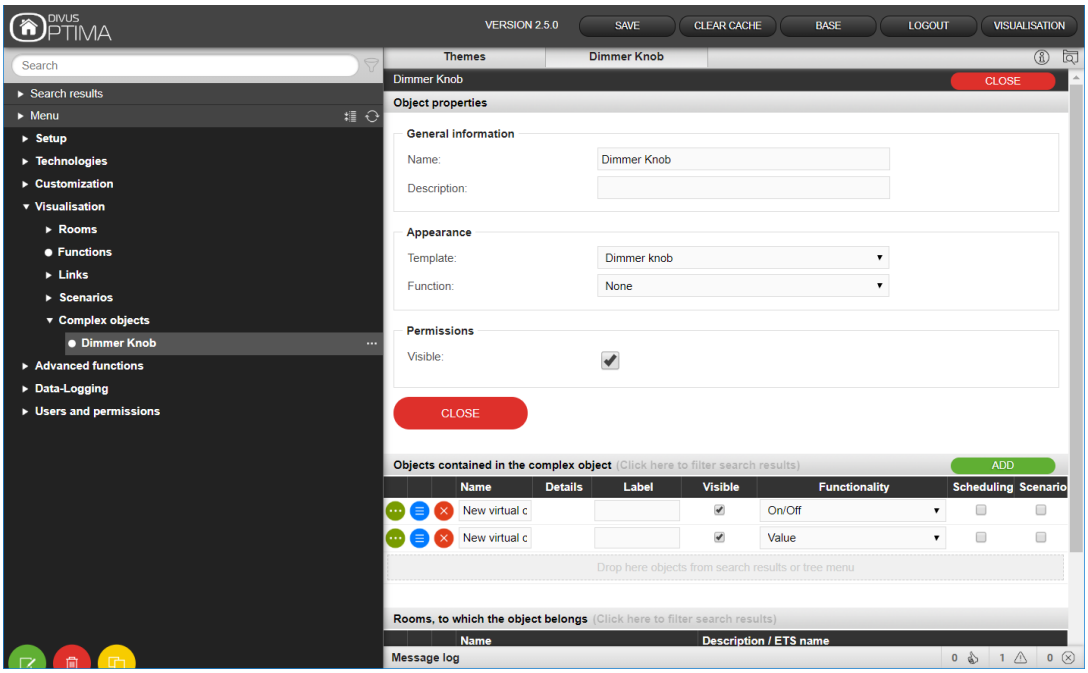
Depending on the selected TEMPLATE, only compatible objects can be added, since the COMPLEX OBJECT needs to understand where each object must be positioned and which functionality they will have to assume; for the available functions of a COMPLEX OBJECT, only compatible objects can be used.

8.3 OBJECT ASSIGNMENT

Once a Complex Object is defined, the desired objects can be inserted into the area "Objects contained in the Complex Object " for being assigned to one of the functions the Complex Object offers. Search for the desired objects with the search function and pull them inside the area ("drag and drop"). Each object must be assigned to the corresponding function of the Complex Object . Through the "FUNCTIONALITY" parameter the corresponding function for an object can be selected; the available functions will depend on the objects type; e.g. if a 2-byte temperature value was added, you could select only between the functionality "Measured temperature" or one of the "set point" functionalities (but not the operating mode, since it is either a 1 byte or different 1 bit objects).

Hint: The entry in the column "FUNCTIONALITY" also defines the graphical aspect of the related sub-object. In past versions the graphical aspect was depending directly on the configured function of the sub-object and therefore needed to be adapted manually by the user.
Naturally it is still possible to change the function of the sub-object also in a second moment; in this case also the visualisation within the complex object will change. By re-changing the entry of the column "FUNCTIONALITY" of the selected sub-object, also the graphical aspect of the sub-object will change again.

Hint: It is possible to add sub-objects to a complex object directly through an ADD-button in the section of the contained objects. This will create a Virtual Object (check out chapter 11.4 for details) and connect it with the complex object. The graphical aspect of the new sub-object can be defined directly through the entry within the column "FUNCTIONALITY".



Through the "VISIBLE" option it is possible to hide objects, which have been inserted in the Complex Object , in the rest of the VISUALISATION. Since the individual objects are now grouped in a Complex Object , it could be desired that they are not visible in other pages of the VISUALISATION (this mainly concerns the FUNCTIONS page).

Finally, through the last columns, it is possible to configure one of the objects of a Complex Object for being scheduled and/or for scenarios. When the user configures a schedule for the COMPLEX OBJECT, the sub-object with the set checkbox will be the one he can control; only one object can be enabled for scheduling inside a Complex Object . For example a Complex Object with the TEMPLATE "Thermostat" could be configured to enable scheduling for the operation mode of the thermostat (time based switching between comfort- and standby-mode). If one of the objects of a Complex Object is enabled for scheduling, the icon of the Complex Object will show the related symbol on it in the VISUALISATION; if the related symbol is not shown on the icon of a Complex Object, no time scheduling is possible. The same goes for scenarios: the selected object will be the one the user can insert in a scenario when tapping on the Complex Object.

8.4 GENERIC COMPLEX OBJECT

The "GENERIC" TEMPLATE for Complex Objects permits to group different objects into a custom structure, which in the VISUALISATION will be shown inside a pop-up window; structure and objects can be chosen freely.

The general settings for the GENERIC TEMPLATE are the following:

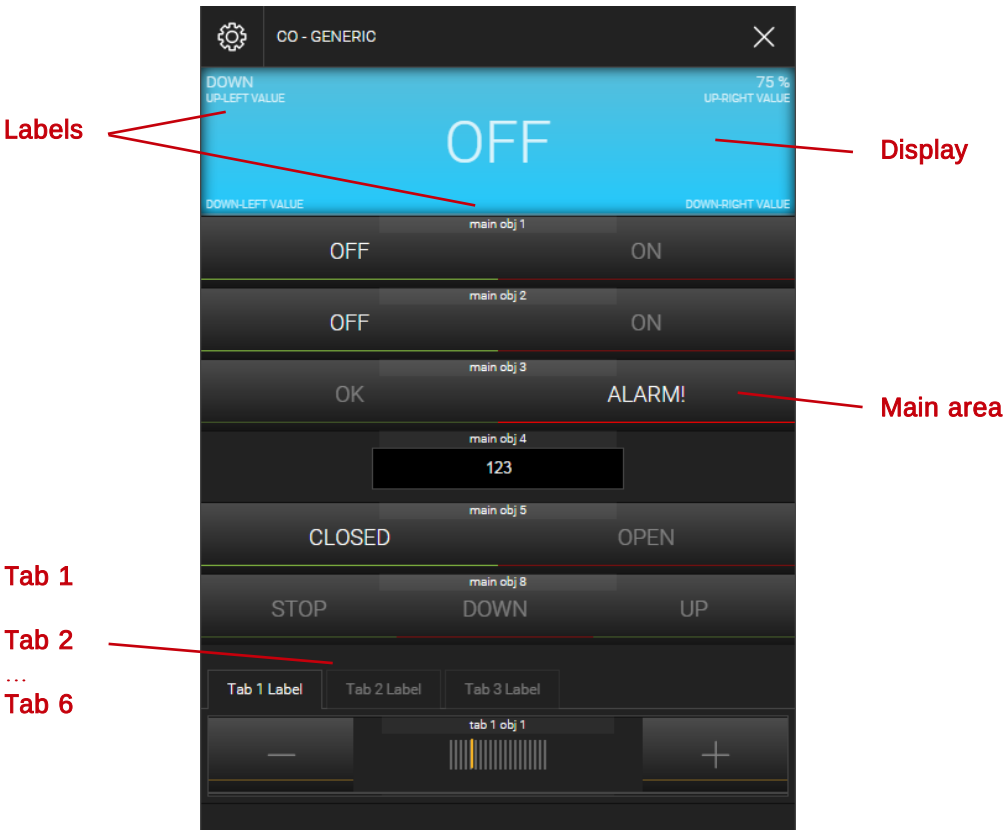
LABEL TAB 1 Label of the related tab in the COMPLEX OBJECT.

LABEL TAB 2

...

LABEL TAB 6

The "GENERIC" TEMPLATE allows displaying different objects on different positions in a pop-up window with the following characteristics:



The "DISPLAY" is an area for showing status and feedback information of KNX objects. It is divided in the following sections:

DISPLAY-VALUE CENTER	Value shown in the centre of the display area
DISPLAY-VALUE UP/LEFT **DISPLAY-VALUE UP/RIGHT** **DISPLAY-VALUE DOWN/LEFT** **DISPLAY-VALUE DOWN/RIGHT**	Value displayed in the configured corner of the display area. Each value can be displayed in combination with a selectable label.

The MAIN AREA can contain up to 10 objects, which will be positioned one under the other. If a label is defined for one of these objects, it will be displayed above the corresponding object in the MAIN AREA.

The lower section allows adding up to 30 additional objects, structured in 3 tabs, where each tab can contain up to 10 objects. If a label for an object is defined, this label will be shown above the corresponding object. Switching between the various tabs is done by clicking on the label of the corresponding tab; tabs not containing any objects won't be displayed.

Even for complex objects with the TEMPLATE "GENERIC" always the same approach for adding objects is used: search the desired objects with the search function and pull them into the corresponding area. Afterwards select functionality, define the label (optional), if desired enable an object for scheduling and select the functionality; the selection of functionality determines where the object is displayed in the COMPLEX OBJECT: e.g. an object with the functionality "Display - Value center" will be displayed in the centre of the DISPLAY area of the COMPLEX OBJECT.

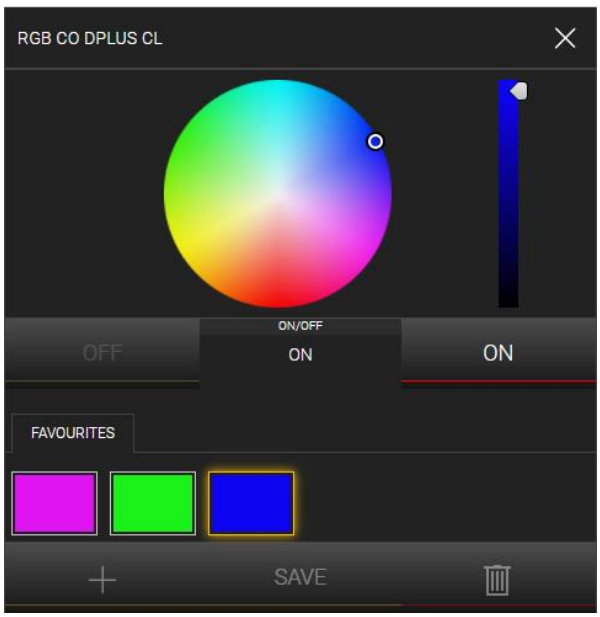
For each added object a label can be defined, which will be displayed above the corresponding object in the COMPLEX OBJECT.

Attention: If the same functionality has been selected for more than one object, it is possible that the objects are not being displayed correctly in the VISUALISATION!
Vice versa, it is possible to add the same object several times into the COMPLEX OBJECT and assign different functionalities (e.g.: display an object on one side in the DISPLAY AREA as status and at the same time add it to the MAIN AREA to permit also operation of the object)!

The current state of the object chosen for "DISPLAY VALUE CENTER" will be shown in the reduced complex object, on the left side of the button intended to open the popup window.

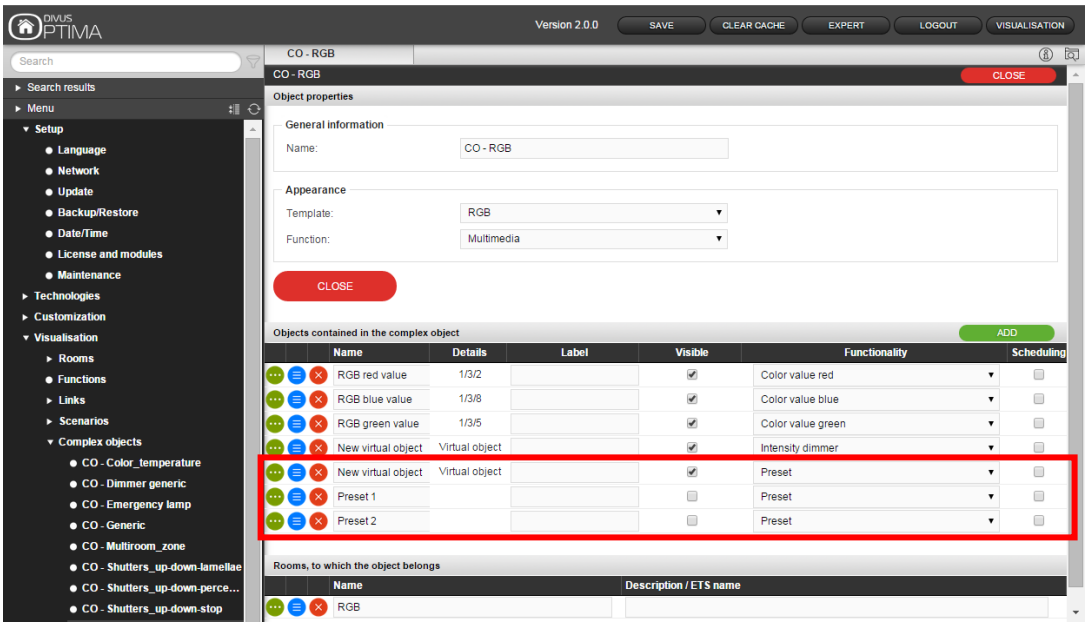
8.5 RGB LED CONTROL - PRESETS

The complex object for the control of RGB lights permits to create one or more FAVOURITES (or "PRESETS"), which can be saved and used also in a second moment:



In order to create a new favourite colour, just click on the "+" button to create a new favourites box; then select the desired colour using the colour wheel and bar in the upper area. By clicking on the SAVE-button the selected colour will be stored. In order to set the saved colour in a second moment, just open the complex object again and click on the desired favourite box. The DELETE button on the right can be used to remove unused favourites.

The favourite colours are handled by OPTIMA just like other objects; therefore, you will also see them in the administration when accessing the properties page of the complex object (as objects of type "PRESET"):



These objects can be used also for other purposes e.g. inserted into scenarios, events or logics, just like all other objects in OPTIMA.

9 Scenarios

9.1 INTRODUCTION

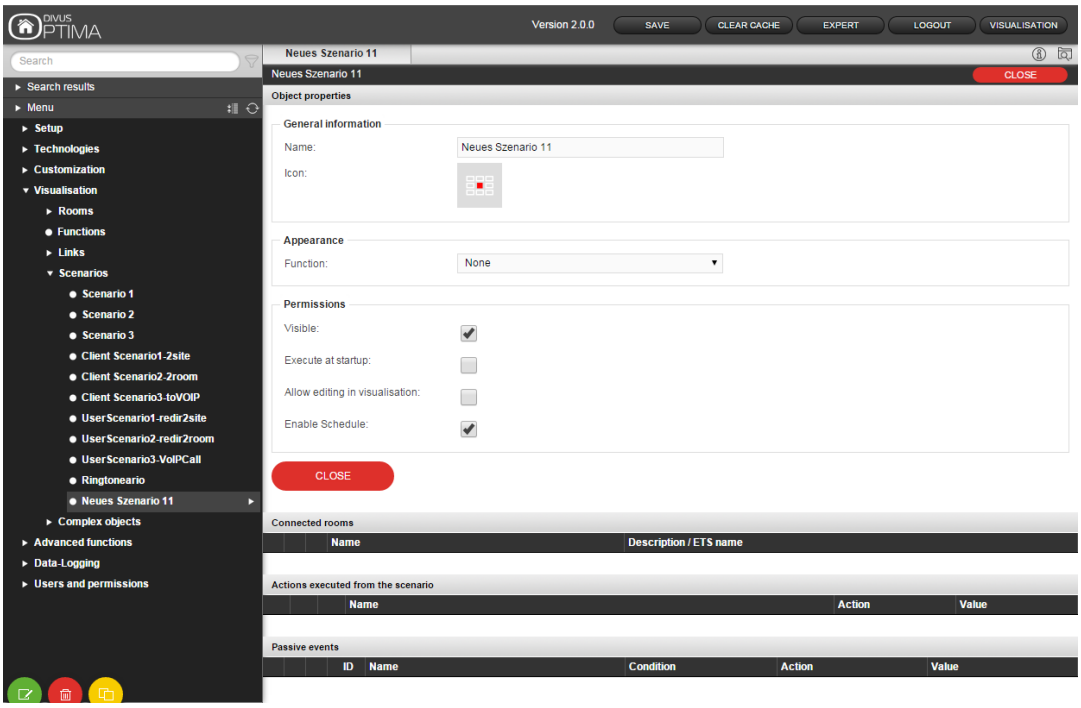
This chapter describes the extensive possibilities offered by the SCENARIOS in OPTIMA. With SCENARIOS, different sequences can be created, which can be launched manually, through a scheduling or depending on events.

Hint: The SCENARIOS must not be confused with the "KNX SCENARIOS". The "KNX SCENARIOS" (also called "light scenes") are basically KNX objects that write a numeric value onto the KNX bus and are created in the ETS-project. The SCENARIOS of OPTIMA are part of the software and are not integrated in the ETS project; they are stored in OPTIMA and also operate from the used KNX CONTROL device. Those SCENARIOS are much more flexible than the "KNX SCENARIOS" because the software offers more possibilities for the SCENARIOS than only writing a numeric value on the KNX bus (e.g. start any kind of command on the KNX bus but also command network devices through scripting).

9.2 CREATE SCENARIOS

To create a new scenario:

- Open the ADMINISTRATION area of OPTIMA
- In the navigation menu choose "VISUALISATION→ SCENARIOS"
- Press the NEW / ADD-button
- The new created SCENARIO will appear in the navigation menu and can be opened in a new tab for configuration:



In the BASE-mode the following settings are available:

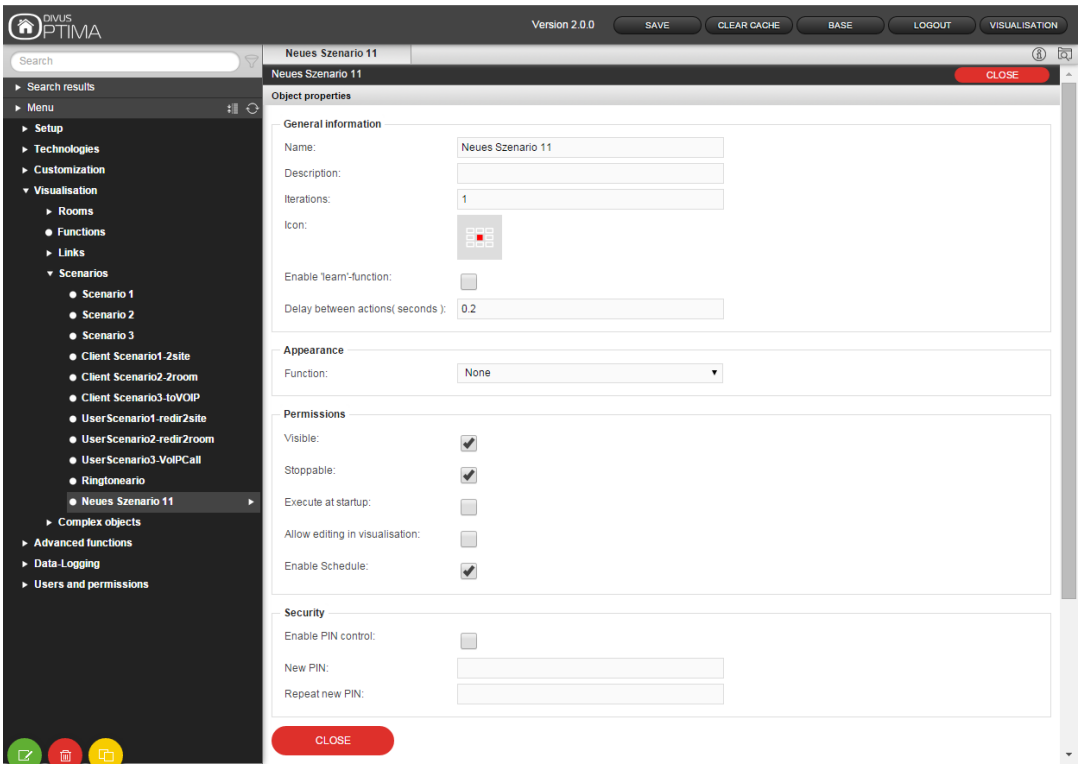
NAME	Name of the SCENARIO inside the VISUALISATION
ICON	Graphical icon through which the SCENARIO is displayed inside the VISUALISATION
VISIBLE	Defines whether the scenario should be visible or not within the visualisation
EXECUTE AT STARTUP	If enabled, the scenario will be started after the start-up of the software.

Hint: the execution takes place after OPTIMA has terminated its internal function routines and controls, so after each reboot and also after a restart of the communication services.

By switching to EXPERT-mode, the following additional options will be shown:

DESCRIPTION	Additional information which can simplify the search.
ITERATIONS	Number of repetitions. This number will indicate how often the SCENARIO will be repeated. Normally, this parameter is set to "1"; if the scenario shall be repeated several times, the desired repeat value can be configured here.
ENABLE LEARN-FUNCTION	With this function it is possible to save the state of the contained KNX objects. With this function the end user can customize the scenarios for his needs, by setting the system in the desired state and clicking on "UPDATE".

DELAY BETWEEN ACTIONS (SECONDS)	Defines the delay between one and another action executed by the scenario, including wait-commands. Factory setting is 0.2 seconds.
STOPPABLE	If you activate this option, the SCENARIO can be stopped again after it has been started; this only applies to scenarios with wait commands.
ENABLE PIN CONTROL **NEW PIN** **REPEAT NEW PIN**	Whit this option the room can be PIN-protected. To enable the PIN-protection the PIN has to be inserted into the field "NEW PIN" and in "REPEAT NEW PIN".
ENABLE CLOUD SYNC	If supported by the voice control service, allows to add the Complex Object to the cloud for voice control.
VOICE CONTROL	Shows whether the Complex Object supports voice control. In some cases, only a subset of functions may be supported.



Hint: SCENARIOS will be automatically included in the corresponding page of the VISUALISATION, which is accessible from the navigation menu; of course the single SCENARIOS can also be inserted into different rooms.

9.3 ADD ACTIONS TO A SCENARIO

In order to add actions to a created SCENARIO, proceed as follows:

- Open the area "ACTIONS EXECUTED FROM THE SCENARIO"
- Search the desired objects with the search function and pull them inside the list by drag & drop
- For each object dragged in the list the appropriate "Action" and, if necessary, the corresponding "Value" can be defined. For KNX objects you may choose between "Read" and "Write" for "Action"; "Read" will send a status request for the corresponding group address on the KNX bus, "Write" sends the configured "Value" as command on the corresponding group address on the KNX bus.

An example of a SCENARIO with defined actions can be seen in the following screenshot:

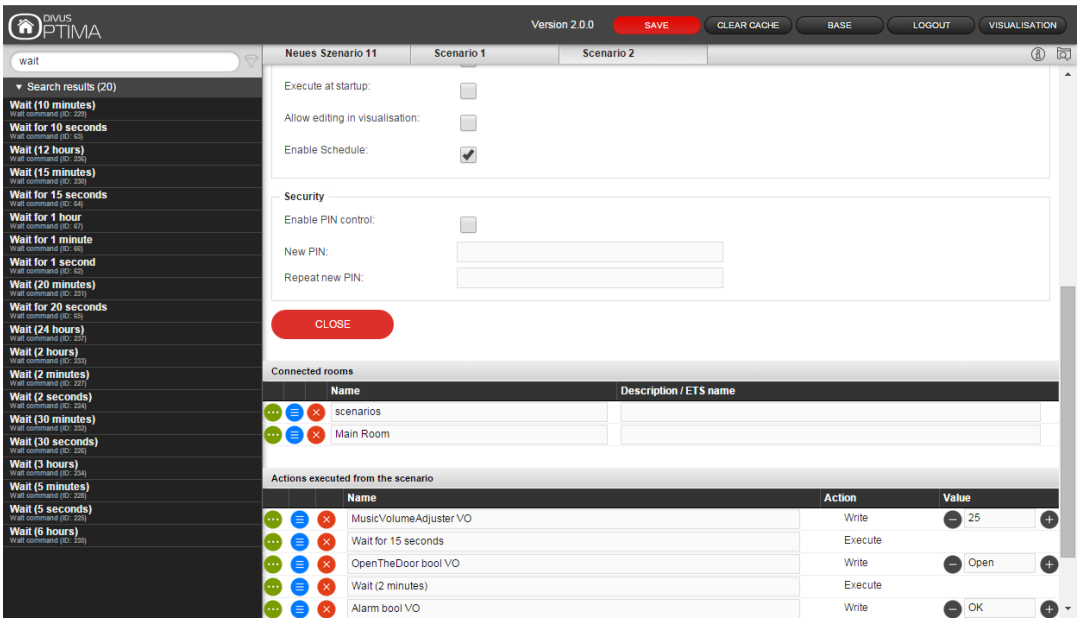
9.4 SCENARIO WITH WAIT COMMANDS

It is possible to create a delay between the individual actions of a SCENARIO using WAIT COMMANDS, which cause the SCENARIO to pause for a certain period of time. Thus makes it is possible to shift the various actions of a SCENARIO in time. The WAIT COMMANDS are objects, which are added to the area "ACTIONS EXECUTED FROM THE SCENARIO" just like KNX objects. For adding a WAIT COMMAND, search for the keyword "wait" with the search function and pull the desired WAIT COMMAND into the desired position of the area ("drag and drop"). In OPTIMA the following waiting times are available:

1 second, 2 second , 5 second, 10 second, 15 second, 20 second, 30 second, 1 minute, 2 minutes, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 1 hour, 2 hours, 3 hours, 6 hours, 12 hours, 24 hours

The WAIT COMMANDS can be found through the search function, by searching for the keyword "sleep".

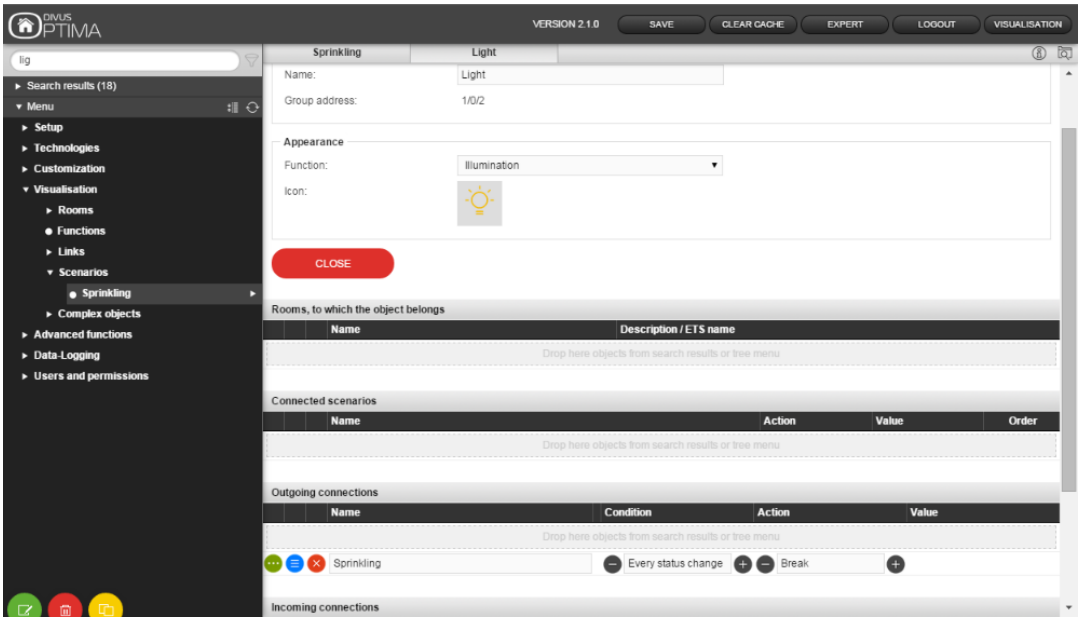
Warning: The WAIT COMMANDS can only be seen by searching "sleep" or "wait" with the search function, because they are directly integrated inside OPTIMA. If you'd like to have WAIT COMMANDS filtered by time unit in the search results list, the time unit "sec", "min" or "hour" must be added to the keyword "sleep" (e.g. sleep sec).



Using English as language for the Administration area of OPTIMA, you may also search for "wait" obtaining the same results. From other languages, please use "sleep" for searching wait commands!

Scenarios with built-in WAIT COMMANDS can be stopped after they have been started; for this purpose the graphic icon of the SCENARIOS includes a STOP-button. If this STOP-button is pressed, the SCENARIO is interrupted. The states of the object contained in the SCENARIO, which were already changed by the SCENARIO, will not be restored, just the further execution of the SCENARIO will be stopped.

Stopping a SCENARIO can also be triggered by an event, in dependence of the status change of another object (e.g. a KNX object):

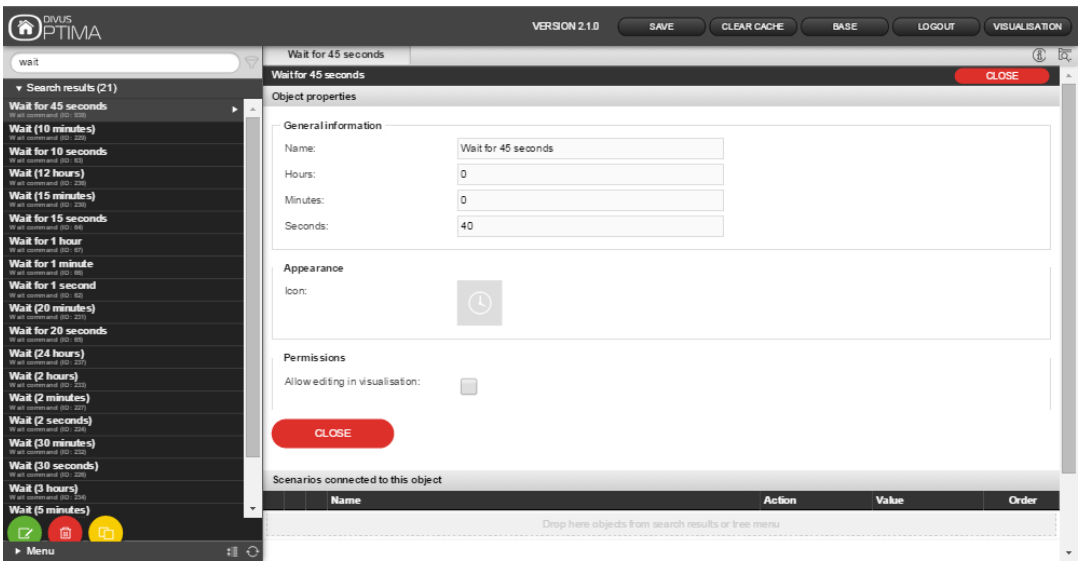


9.5 CUSTOMIZATION OF THE WAIT COMMANDS

Objects of the type "WAIT COMMAND", which allow to insert delays into SCENARIOS, can be customized in the following way:

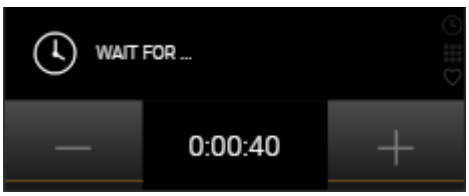
- Locate the desired WAIT COMMAND using the search function
- Before modifying the WAIT COMMAND, create a clone using the CLONE-button in the TOOLBAR (by modifying the original WAIT COMMAND there is the risk that other functionalities using this WAIT COMMAND could stop working as desired)
- Access the configuration window of the cloned WAIT COMMAND

The configuration window of a WAIT COMMAND permits to configure HOURS, MINUTES and SECONDS, through which the desired delay can be created. Please fill in only integer values; furthermore the overall time must be between 1 second (minimum delay) and 23 hours, 59 minutes, 59 seconds (maximum delay).



The configuration window also gives you an overview in which scenarios the current WAIT COMMAND is included. Please do not use this area to add the command to further scenarios. Instead, always drag the WAIT COMMAND into the configuration page of the scenario.

The WAIT COMMANDS can also be integrated into the visualisation (into rooms as well as into complex objects). This has the advantage that also the final user will be able to change the value of the WAIT COMMAND, without needing the permission to access the ADMINISTRATION. The following screenshot shows the representation of a WAIT COMMAND in a room with GRID view:



Attention: When WAIT COMMANDS are added to the VISUALISATION, it is even more important that you only work with CLONED objects. Otherwise there is the risk that the final user unintentionally changes also the way other functions / scenarios work.

Hint: Via visualisation, such personalized waiting commands can also be implemented very easily.

10 Advanced functions

10.1 INTRODUCTION

In this chapter, the ADVANCED FUNCTIONS of OPTIMA are explained in detail; they can be used to expand the functionality of the bus system. These functions are mostly invisible for the end user in the VISUALISATION and therefore accessible only through the ADMINISTRATION menu.

10.2 VIRTUAL OBJECTS

The VIRTUAL OBJECTS are objects that exist only in OPTIMA. These objects can be handled the same way as KNX objects, with the difference that VIRTUAL OBJECTS have no direct connection to the KNX bus (no KNX group addresses is connected to these objects). These objects can be used for various tasks: storing values, entering values for comparisons, displaying special status etc.

Since VIRTUAL OBJECTS are not included in the count of group addresses on OPTIMA, they can also be used to keep the group addresses count on OPTIMA low. This is very useful, if a lot of so-called "dummy" group addresses are present in the KNX project. Furthermore, VIRTUAL OBJECTS can be integrated in the VISUALISATION, connected to scenarios or events (passive as well as active) etc. Another example for the use of VIRTUAL OBJECTS is the creation of central functions, where a VIRTUAL OBJECT controls numerous KNX objects simultaneously.

To create a new VIRTUAL OBJECT, open the ADMINISTRATION menu, select "ADVANCED FUNCTIONS → VIRTUAL OBJECTS" and press the NEW / ADD-button ; a new VIRTUAL OBJECT will be created, which offers the following settings:

NAME	Identifies the object inside the VISUALISATION
DESCRIPTION	Additional information that can simplify the search.
ICON	Graphical symbol through which the object is represented in the VISUALISATION. All symbols available for KNX objects are available also for this object; the choice of the corresponding icon is upon the user.
VALUE TYPE	The value type of the object can be defined here: • „Boolean": can assume only the value „1" or „0" • „Numeric – Integer": numeric value without comma • „Numeric – Float": numeric value with decimal places • „String": text

FUNCTION	Useful to assign the object to a category (function).
BUTTON MODE	For Boolean objects, allows to have two values sent: 1 on press, 0 on release.
ENABLE SCHEDULE	Allows to enable/disable the object for schedules. Default is enabled.
ENABLE CLOUD SYNC	Enables the objects to be made accessible for the voice control services.
VOICE CONTROL	Shows whether the object type supports voice control. Cannot be set manually.

In the EXPERT mode, these additional settings are available

ID	Shows the object's unique ID. Can't be edited.
FORMAT	This option allows personalisation of the display format of an object. The syntax for formatting is "%{X.Y}{Type} {Unit of Measurement}": %: Indicator for the beginning of a formatting specification X.Y: Decimal places before the decimal point (X), as well as after the decimal point (Y). TYPE: Defines which output format is to be used for the value to be displayed: b: Binary format c: Character (to be specified as a numeric value) d: Decimal number e/E: Floating point number with exponent f: Floating point number s: Alphanumeric string) x/X: Hexadecimal number UNIT OF MEASUREMENT: Separated from the rest of the formatting by a space, the unit of measurement to be attached to the formatted value can be specified here. This allows the given unit of measurement for a value to be personalised as desired. For example:
VISIBLE	Sets the object's visibility in the VISUALISATION.
CONTROLLABLE	This is usually set automatically during the ETS import, according to the properties of the group address. If you disable it, the user will not be able to change the value/command the object but will only see its current status.

Value	Formatting	Visualisation
143.58674	%0.2f kW	143.59 kW
143.58674	%d kW	143 kW

WRITE ACCESS ACTIVE	This is always enabled except there is a reason to deny access to a group address.
ENABLE PIN CONTROL **NEW PIN** **REPEAT NEW PIN**	With this option the room can be PIN protected. To enable the PIN-protection the PIN must be inserted into the field “NEW PIN” and in “REPEAT NEW PIN”.

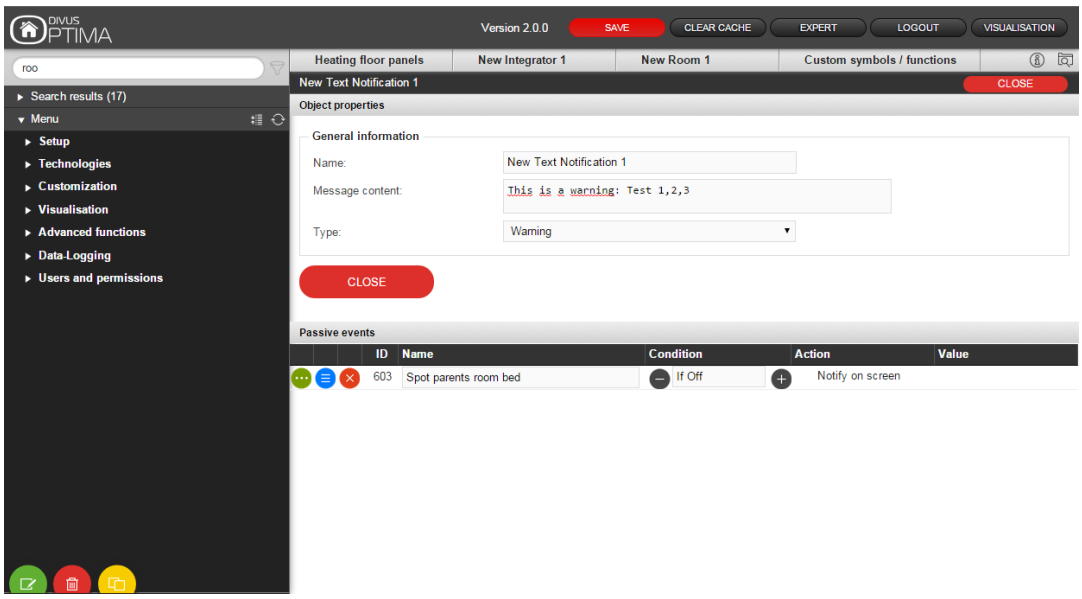
10.3 NOTIFICATIONS

NOTIFICATIONS are messages that OPTIMA sends to one or more recipients, if the connected events take place. There are three types of notifications:

ON-SCREEN NOTIFICATIONS	These notifications are shown inside the VISUALISATION in a special pop-up window.
E-MAIL NOTIFICATIONS	These notifications are sent to the configured recipients through the configured SMTP server.
PUSH NOTIFICATIONS	These messages are sent via push technology to mobile devices and then appear similar to text messages - even if the OPTIMA app is currently not running.

Depending on the notification type, you will see different settings. In the field "MESSAGE" the text must be entered, which the corresponding NOTIFICATION should contain.

If you create a new NOTIFICATION, at least one object must be configured that triggers the sending of the NOTIFICATION (active event in the configuration page of the corresponding object or passive event in the configuration page of the NOTIFICATION); if a NOTIFICATION is not linked to any event, it will never be displayed or sent. An example for an ON-SCREEN NOTIFICATION can be seen below:



It is possible to use special placeholders in the text of a notification, which will then be replaced with the corresponding value depending on the triggering object. These placeholders are:

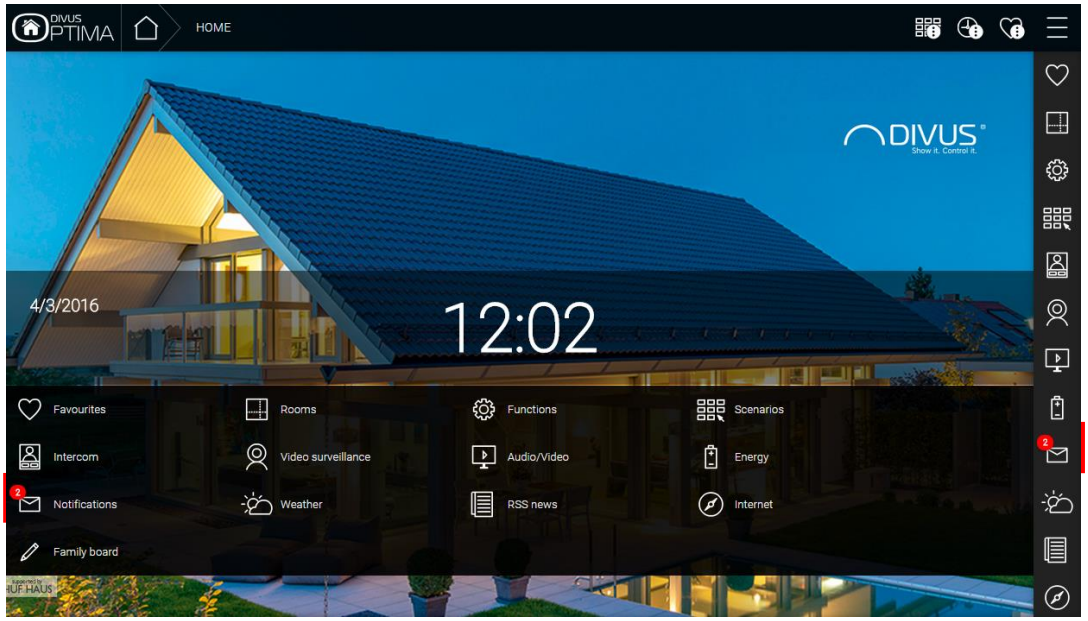
{{OBJ.NAME}}	Placeholder for the name of the triggering object
{{OBJ.CURRENT_VALUE}}	Placeholder for the current value of the triggering object
{{OBJ.ID}}	Wildcard for the unique ID of the triggering object

An example of a notification content with these wildcards would be:

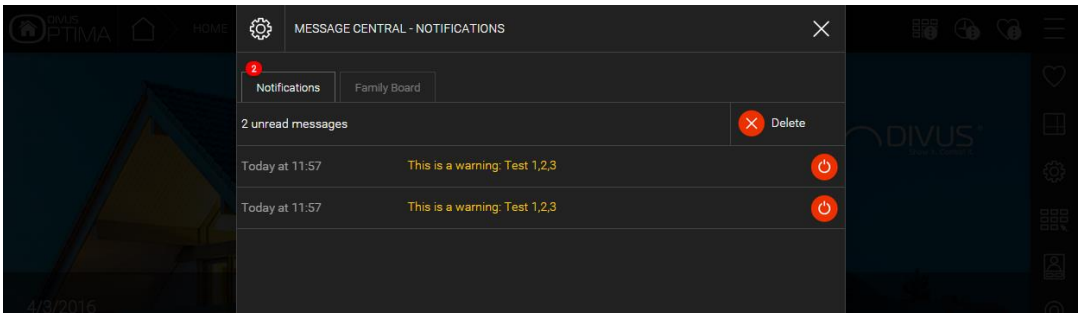
```
Attention! {{obj.name}} has reached the value {{obj.current_value}}!
```

MAIL NOTIFICATIONS will be sent each time the associated event is triggered by the corresponding object; OPTIMA must be connected to the internet in order to guarantee the MAIL NOTIFICATION functionality.

Since the ON-SCREEN NOTIFICATIONS are visible only inside the VISUALISATION, in the navigation menu of the VISUALISATION a corresponding icon will appear whenever new ON-SCREEN NOTIFICATIONS are available:



Individual NOTIFICATIONS can be consulted in a special popup window; the NOTIFICATION popup window will be opened when the NOTIFICATION-icon in the navigation menu of the VISUALISATION is clicked:



If the CONFIRM button of a single NOTIFICATION is pressed, the corresponding NOTIFICATION will vanish from the list of unread messages, but it will not be deleted from the OPTIMA database.

By pressing the DELETE-button, all existing NOTIFICATION will be confirmed and therefore disappear from the popup window.

Each ON-SCREEN NOTIFICATION can be combined with a specific priority ("alarm", "warning", "information"). Whether the NOTIFICATION popup window shall be opened automatically or not whenever a new NOTIFICATION with the appropriate priority is triggered, it can be configured in the ADMINISTRATION menu of OPTIMA under "CUSTOMIZATION" → "OPTIONS" → "NOTIFICATIONS".

There you can additionally choose whether to add an acoustic signal to any of these 3 notification levels and whether to repeat that signal cyclically.

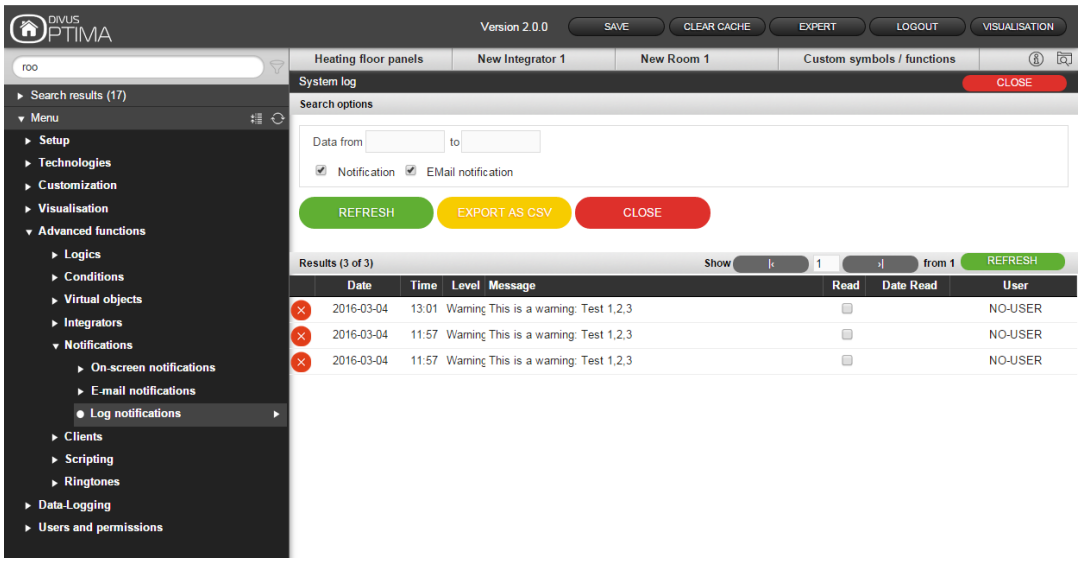
Push notifications are similar to set up. There is also an option to send out the generic on-screen notifications as push notifications automatically. Thus you get the double advantage of reaching both your local control panels as well as remote mobile devices with your important notifications.

Hint: Push notification are supported through the new OPTIMA Mobile App.

For more detailed information about the NOTIFICATION pop-up window, refer to the user's manual.

10.3.1 NOTIFICATION LOG

Any triggered on-screen message is recorded and stored in the so-called system log. In the administration area the system log is available under the entry " NOTIFICATION LOG". Messages that have been read are not automatically deleted from the memory, and so still available in the system log.



For each message, the trigger time and the time at which the message has been read are displayed. In addition it is possible to change the status of a message from "READ" to "UNREAD" or from "UNREAD" to "READ" through the corresponding checkbox.

A date-based filter function allows filtering certain messages. Simply enter the start and end dates for the period of interest and update the result using the "REFRESH"-button.

The resulting messages in the lists can then be exported to a CSV file. Filter the messages of the desired time period and then export them into CSV-file by using the button "EXPORT AS CSV".

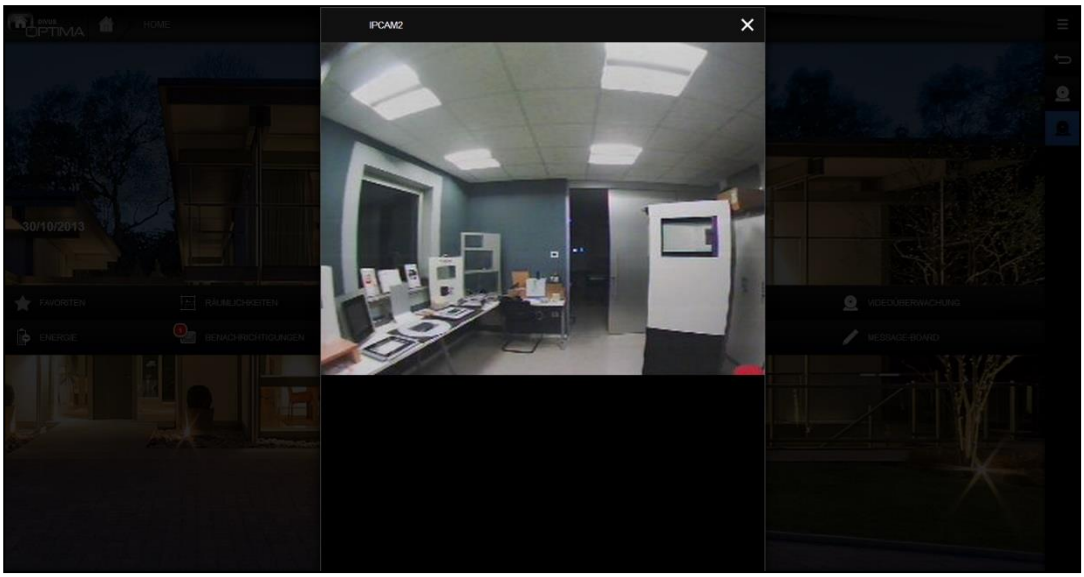
10.4 CLOCKS

Scheduled events can be created here. What is the difference between such a scheduled event and usual scheduling? A scheduled event allows you to schedule any number of commands instead of just one. These are fetched and configured as usual in the outgoing connections. In addition, a scheduled event can be used in Programmable Events.

11 IP Cameras

11.1 INTRODUCTION

OPTIMA permits to integrate the stream of one or more IP cameras / video servers within the pages of the visualisation. The cameras can be reached through the corresponding entry inside the navigation menu of the visualisation area. The following screenshot shows the representation of a camera using the "OPTIMA-EBONY" theme:



In general, this module is designed for calling up the camera stream from the OPTIMA app. There it is fully supported because the video display is handed over to a media player. In a pure web browser window, only a small set of cameras is supported (JPG format) because web technology presents several hurdles for streaming video.

OPTIMA offers built-in support for certain camera models on the market. It is sufficient to enter the core data of the camera to display the video image. In addition, the software offers a general template that also enables the integration of cameras from other manufacturers; in this case, however, it must first be checked whether the camera model provides the image data in a supported format.

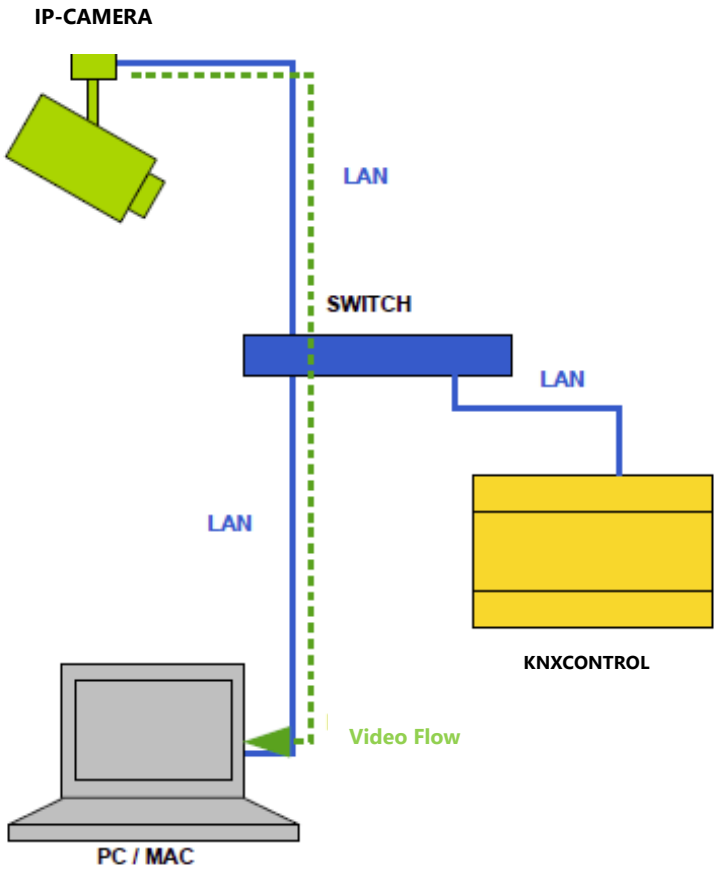
The camera images can be accessed both on the local network and via the Internet; OPTIMA can automatically determine whether the connected client is connecting on the local network or from outside; accordingly, the path to the camera signal is adjusted so that a correct display can be made.

More information on these topics follows on the other pages of this manual.

11.2 VISUALISATION IN LOCAL NETWORK

When the camera image should be accessed in the local network, a direct connection between the Client and the IP camera is created: OPTIMA just adds a direct link to the IP address (and the port) of the camera to the pages of the visualisation, so that the browser can get the video stream directly from the camera. Therefore, the video signal must not pass through the KNX CONTROL device, what guarantees the best performance and spares the resources of the KNX CONTROL device.

The following graphic shows the video flow within the local network:



11.3 CAMERA OBJECTS

OPTIMA provides the possibility to integrate IP cameras into the visualization. For each used camera a camera object has to be created. To use the supported cameras in the visualization the correct configuration of the cameras are presupposed. To create a new camera objects in OPTIMA, follow these steps:

- Access the ADMINISTRATION area

- Select "TECHNOLOGIES → VIDEO SURVEILLANCE"
- Click on the NEW / ADD-button to create a new camera and access its configuration window through the EDIT-button
- Afterwards configure the following parameters

VIDEO-FORMAT	The video format defines in which format the images should be integrated into the visualization. The format varies from product to product and therefore the used format must be selected: AXIS cameras and video server IPV-CAMERA video server MOBOTIX cameras 2N HELIOS IP cameras GENERIC (JPG) cameras
IP-ADDRESS	Local IP address of the camera / video server with full path to the image/stream The image path must be defined without protocol ("http://", "https://",) and without the used IP port, because this information is specified over the corresponding parameters.
IP-PORT	IP port through which the video stream can be accessed. Please select port 80 for the HTTP protocol or 443 for the HTTPS protocol, except the camera is using a special configuration
REMOTE IP ADDRESS	IP address to connect to your KNX CONTROL device over the internet. Do not use port, protocol or path here
REMOTE IP PORT	Port for the remote connection. This is the external port opened on your LAN's router where requests are forwarded to the KNX CONTROL device. The external port may differ from the internal port on the target device.
PROTOCOL	Please select HTTP or HTTPS depending on the port number specified before (default: HTTP)
WIDTH **HEIGHT**	Please specify the size (in pixel) of the box containing the video signal in the pages of OPTIMA1
MAX. FPS	The maximal frame rate (frames per second) which should be used to reproduce the video can be defined here.
WEBCAM (NOT IN LAN)	Check this if this camera is not in the local network. Then the same path will be used independently from where the client is connecting.

* When accessing through mobile devices with a resolution lower than the value of the box, OPTIMA will automatically resize the dimensions of the box in order to make possible the visualisation of the camera signal also on these devices. Therefore, please specify the desired size of the box, as shown on devices with sufficient resolution.

APPEARANCE **IN BACKGROUND**	Camera objects can also be used in rooms. With this setting can be defined how a camera object should be shown inside a room in BACKGROUND mode: ICON: The camera is shown only as icon. If the icon is clicked the video stream is shown in a popup window. PREVIEW: The camera object is shown as window with the video stream inside, like a preview; the size can be adapted as needed. If you click inside the video window, a popup window with the video stream inside will appear.

Depending of the used video format it could be possible that additional parameters are requested:

CHANNEL	Number of the channel transferring the video signal (default = 1)
STREAM	If supported by the camera, you can define whether to use the primary or the secondary camera stream
USERNAME **PASSWORD**	Login data for the connection to the camera
ENABLE **HTTPS PROXY**	Specify whether for remote access the HTTPS proxy method should be used or not i.e the KNX CONTROL device should play that role.

If for the video formats "Generic (JPEG)" and "RTSP" an authentication is needed for viewing the camera video, it must be integrated into the image path. Generally, the path shows the following structure:

<username>:<password>@<IP-Adress>:<IP port>/<path>

Example:
Given the following parameters

User: `admin`

Password: `12345`

IP-Address: `192.168.0.111`

Path: `/jpg/image.jpg`

IP Port: `554`

The resulting URL would be:
`http://admin:12345@192.168.0.111:554/jpg/image.jpg`

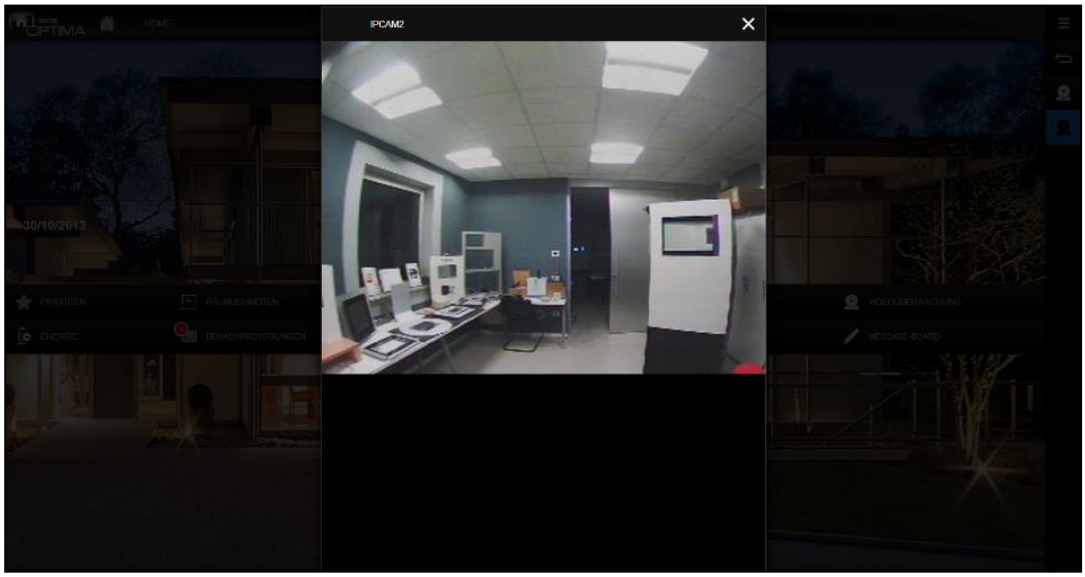
Hint: The „Generic (JPEG)" video format has the advantage - even if it isn't as powerful and fluid as other formats - that it can be used in a universal way: The camera / video server only has to provide a path to the fixed-image. This method can also be used on mobile devices without problems.

11.4 VISUALISATION

Once the camera objects have been configured as described in the last chapters, they can be implemented in the VISUALISATION area in two different ways:

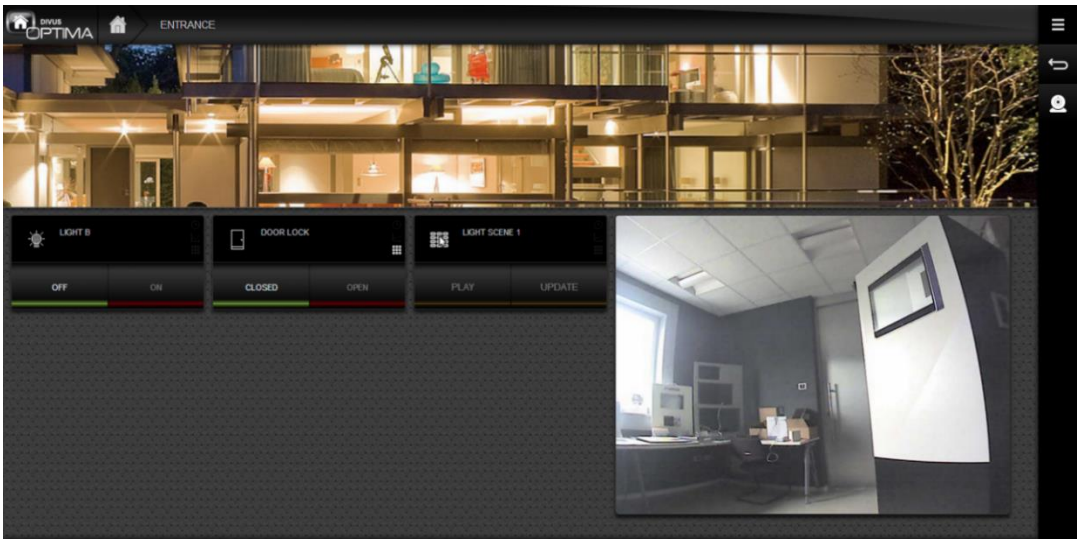
- Either using the pre-configured menu entry "VIDEO SURVEILLANCE" in the NAVIGATION MENU
- Or within rooms in GRID view and also in BACKGROUND view

The software creates the first implementation method automatically. If the entry "VIDEO SURVEILLANCE" is opened, a list of the configured cameras will be shown; a click on one of the listed entries will open a popup window showing the camera stream, as visible in the screenshot below:



If the cameras are also inserted into one or more rooms, their signal can also be shown directly inside the pages of the VISUALISATION (preview).

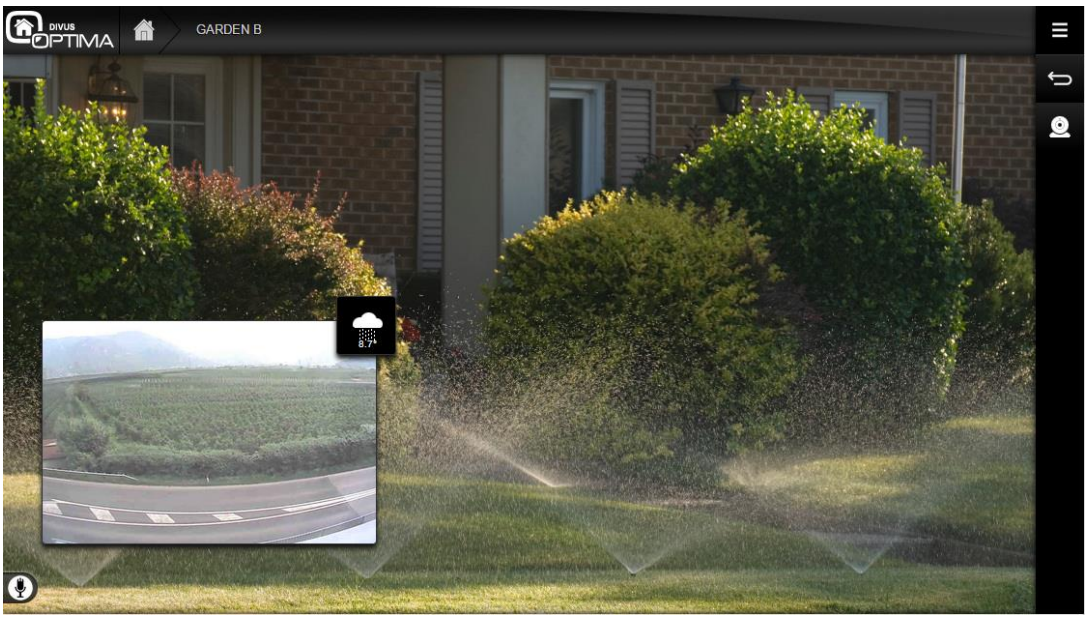
If the room was created using the GRID view template, the camera is shown together with the "function boxes" of the other objects, with the difference that the camera object takes the place of 6 normal objects (3 rows, 2 columns), as shown in the following screenshot:



Depending on the resolution of the Client, the other objects are placed around the video signal, occupying the free space on the right and bottom side of the video box.

Hint: Since the objects are placed on the RIGHT and BOTTOM side of the video box, it is recommended that the video box is placed in the FIRST column of the page. Otherwise on the left side an empty, not usable space will be shown. Therefore, the ORDER of the objects within the room should be adapted: if the camera object is placed on TOP of the contained objects list, it is assured that the video box will be placed at the first position in the GRID view and the empty space will be filled cor-rectly with the remaining objects.

If the room uses the BACKGROUND view template, the video box can be freely positioned, as all other objects. Compared to other objects, which have a fixed size, the video box can also be resized in order to fit perfectly into the visualisation page. The screenshot shows an example of a room with BACKGROUND view and integrated camera:



As you can see, it is also possible to place objects directly on top of the video signal[3]. In this case, when clicking on an object, the corresponding action will be executed; when clicking on the video signal, the camera stream will be shown in a popup window, showing the resolution that was specified in the settings of the camera object.

Hint: In order to place objects on the video signal, they must have a lower ORDER than the video signal. This means that in the configuration window of the room, the objects must be shown ABOVE the video signal. Only in this case objects can be placed on top of the video box. You can change the ORDER of the objects by using the MOVE button and dragging the objects to the desired position.

Hint: A nice graphical effect can be created by using camera objects in combination with KNX objects with a TRANSPARENT symbol (available only for ON/OFF objects). In this case, a transparent object can be placed on top of a real object displayed in the camera image (e.g. a lamp); is this transparent area is clicked, the lamp will turn on, which will be shown directly through the camera image, without need-ing a symbol for the representation of the state.

In both named visualisation methods it is possible to add more than one camera objects per page. Nevertheless it is not recommended, since the camera signals can have a significant impact to the performance of the Client and therefore can slow down the whole visualisation.

12 Energy management

12.1 INTRODUCTION

This chapter explains in detail how to log and display energy consumption in OPTIMA. For being able to measure energy consumption, appropriate KNX devices must be installed in the system and integrated in the ETS project of the system.

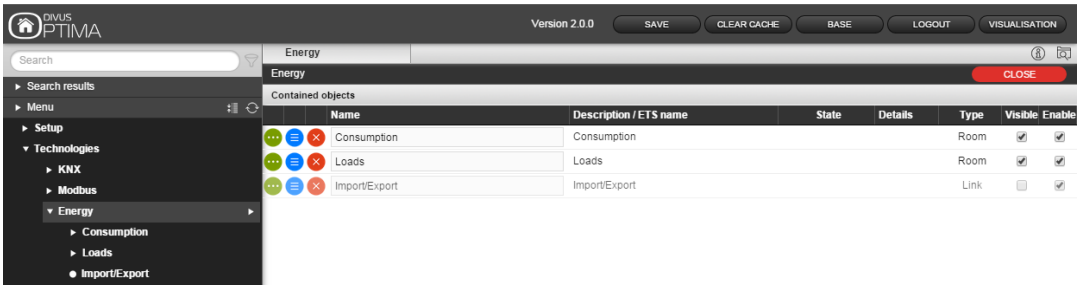
In order to configure the energy management features, please access the section "ENERGY" within the menu "TECHNOLOGIES" in the configuration area of OPTIMA.

12.2 SECTIONS

The ENERGY MANAGEMENT is structured in different sections. Each section is assigned to a special aspect of the energy consumption of a building:

CONSUMPTION	This page shows a summary of the generic energy consumption and energy production (photo-voltaic) of a building using ENERGY COUNTER objects.
LOADS	Shows the energy consumption of configured energy loads in real-time and permits to turn off/on loads depending on configurable logics
IMPORT / EXPORT	Simple page to import or export CSV files containing the collected energy related data.

If you open the configuration page of the "ENERGY" entry, the order of the different sections can be changed; in EXPERT mode it is also possible to define whether a section should be visible in the VISUALISATION or not:



12.3 CONSUMPTION

12.3.1 CREATION OF A NEW ENERGY COUNTER

After selecting the entry "CONSUMPTION" from the "ENERGY" menu, one or more objects of the type ENERGY COUNTER can be created. These objects basically are a special type of COMPLEX OBJECTS, optimized for the visualisation of energy values received from a KNX counter hardware. Furthermore, these objects can also be used as reference objects for the load control functionality, which will be explained in the further chapters of this manual.

After the creation of a new ENERGY COUNTER you can access its properties window, just like for every other object, too. The following parameters can be configured:

POWER:

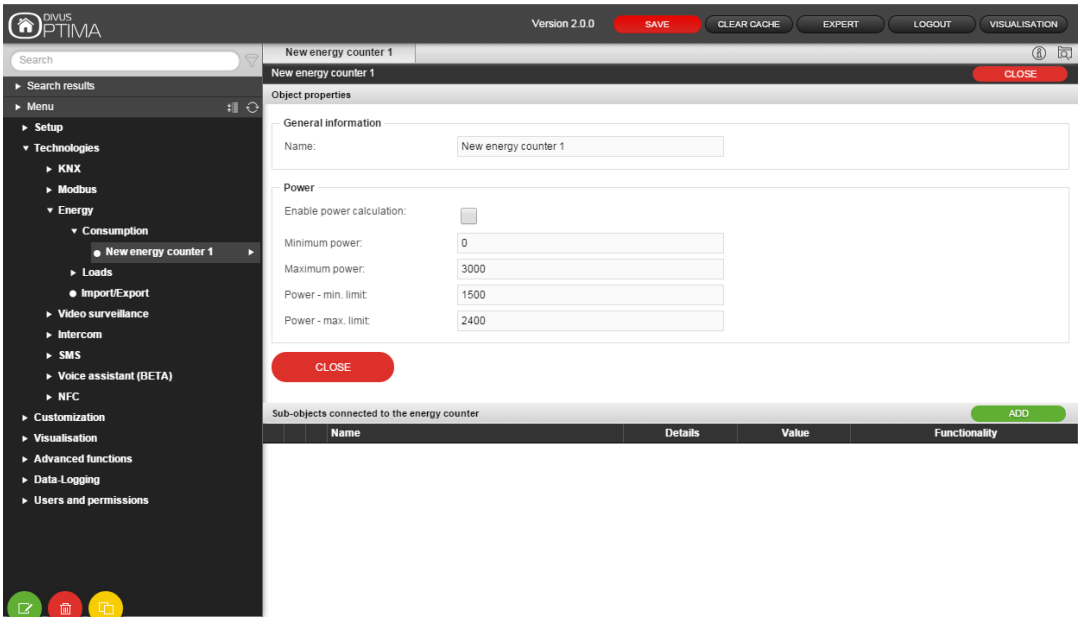
ENABLE POWER CALCULATION	If this checkbox is enabled, the calculation of the power consumption is done using the received current and voltage data. In this case, in the lower area of the properties window the section „SUB-OBJECTS FOR POWER CALCULATION" will appear, which is explained more in detail on the following pages.
MINIMUM POWER **MAXIMUM POWER**	These values define the maximum and minimum power consumption, through which the percentage values of the current power consumption are calculated and shown in the graphical display of the object.
POWER – MIN. LIMIT **POWER – MAX: LIMIT**	These levels define how the energy counter is shown in the VISUALISATION; on the other hand, they are used for the load control (if the energy counter is used for that), The display mode changes the colour of the battery depending on the shown value: Measured power < Power - Min. Limit: GREEN Power - Min. Limit < Measured power < Power - Max. Limit: ORANGE Power - Max. Limit < Measured power: RED

GRAPHS:

SCALE FACTOR	Permits to define a scale factor through which the representation of the selected graph can be adapted Default: 1
UNIT	Permits to define a measuring unit, which is shown behind the energy values within the graph

SHOW DATA IN GRAPH	If this option is selected, the data of the ENERGY COUNTER will be shown in graph form, depending on the time period selected by the user (check out next chapter for further details)
SHOW COMPARISONS IN GRAPH	If this option is selected, in addition to the base graph also the calculated average value, depending on the time period selected by the user, is shown
SHOW RANGE IN GRAPH	If this option is selected, in addition to the base graph also the range between minimum and maximum value of the ENERGY COUNTER, always depending on the time period selected by the user, is shown as coloured area

Hint: The section "GRAPHS" will only be visible if a sub-object of type POWER is connected to the ENERGY COUNTER. This will be explained more in detail in the next chapter.



All of these parameters can be overwritten by sub-objects that can be added to the ENERGY COUNTER. The parameters of such an object therefore must not be of static nature, but can also be changed dynamically, for example through inputs of the user (using VIRTUAL OBJECTS), received values of KNX OBJECTS etc. For this section, the following actions are available:

- Creation of a new sub object directly through the ADD-button. In this case, a VIRTUAL OBJECT is created and connected to the counter. Take care, this object doesn't have any own function after its creation; this must be defined - if necessary - by creating events within the properties window of the object.

- Connection of an existing object (e.g. KNX object) via drag & drop from within the search function

In both cases it is necessary to assign to the connected objects a FUNCTIONALITY within the counter. The following options are available:

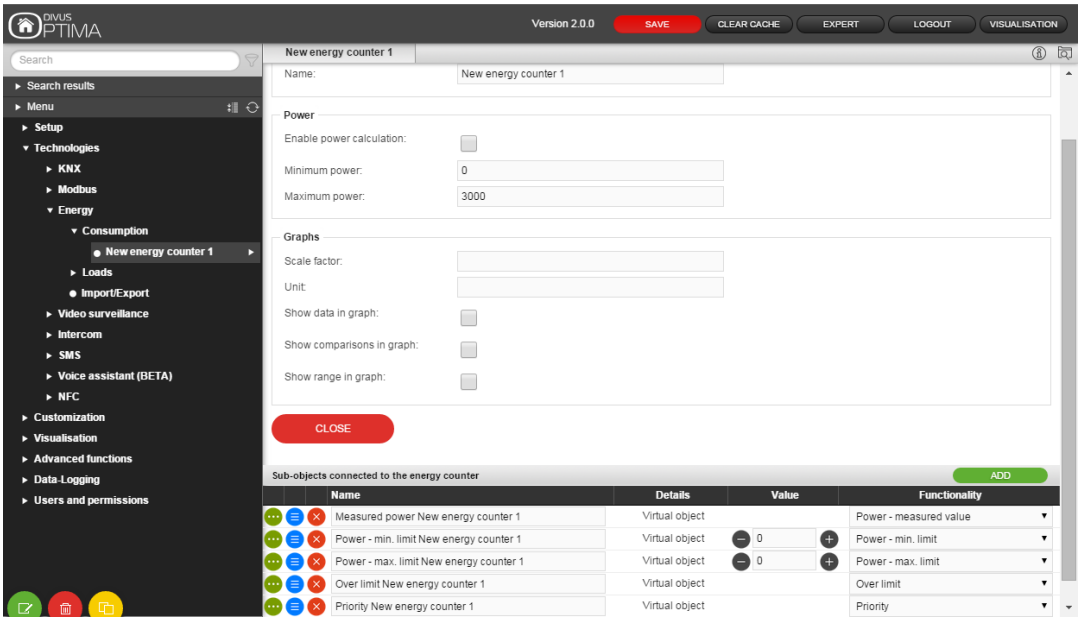
POWER - MEASURED VALUE	Electrical power measured by a KNX network analysis device, typically provided through a KNX object.
POWER - MIN. LIMIT **POWER - MAX. LIMIT**	Thresholds determining the graphical representation of the power values within the VISUALISATION (can also be used by the load control if the ENERGY COUNTER is used for that purpose). Hint: if these functionalities are used, previously entered static values (as explained before) will be ignored and hidden from the properties page.
LOAD OVER LIMIT	ON/OFF object that is triggered automatically when the limits are exceeded (only when the load control is active, check out next chapter).
LOAD PRIORITY	Priority of the load, used for switching on/off when load control is active (check out next chapter).
LOAD ON OFF **LOAD AUTO/MAN**	Please use these functionalities only if the ENERGY COUNTER is used for active load control (check out next chapter)

The selection of a FUNCTIONALITY also automatically determines the graphical aspect of the related object as well as its representation in the VISUALISATION. Consequently, no further alterations / adaptations of the connected objects are necessary.

Hint: This lastly described feature accelerates the configuration of the ENERGY COUNTERS enormously and offers, especially in cases where no corresponding KNX object is available (for example for limit ad-justment), the possibility to get the desired result fast by using VIRTUAL OBJECTS.

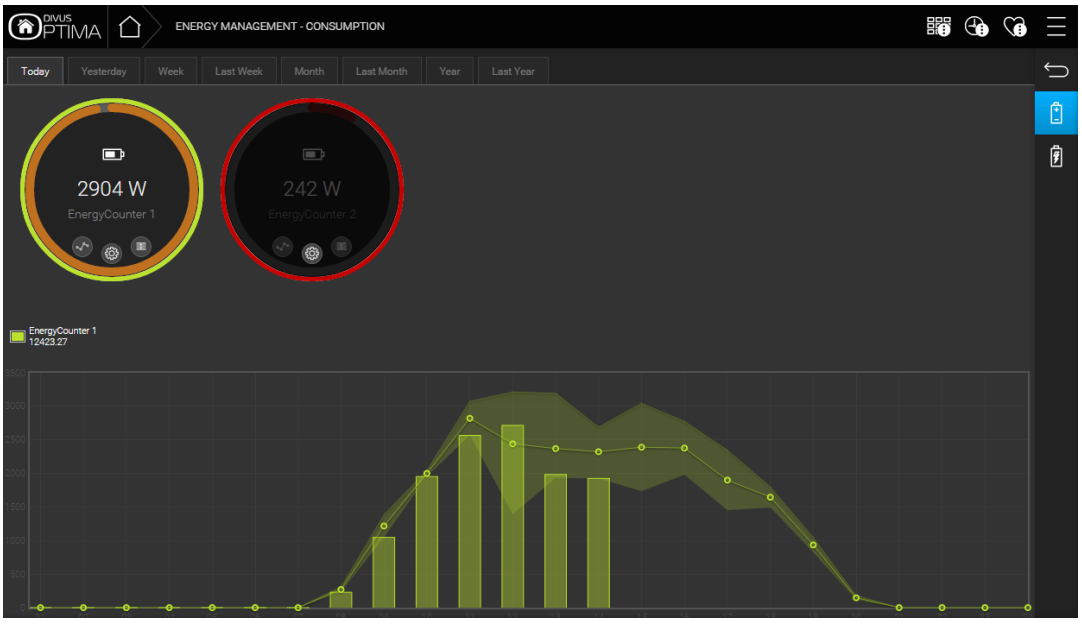
Some FUNCTIONALITIES allow a value input directly within the configuration area; this for example applies for the limit values. This accelerates the configuration and furthermore it is possible to insert default values for the end customer (who can adapt these values at any time in the VISUALISATION).

The following screenshot shows the configuration of an ENERGY COUNTER with connected sub-objects:

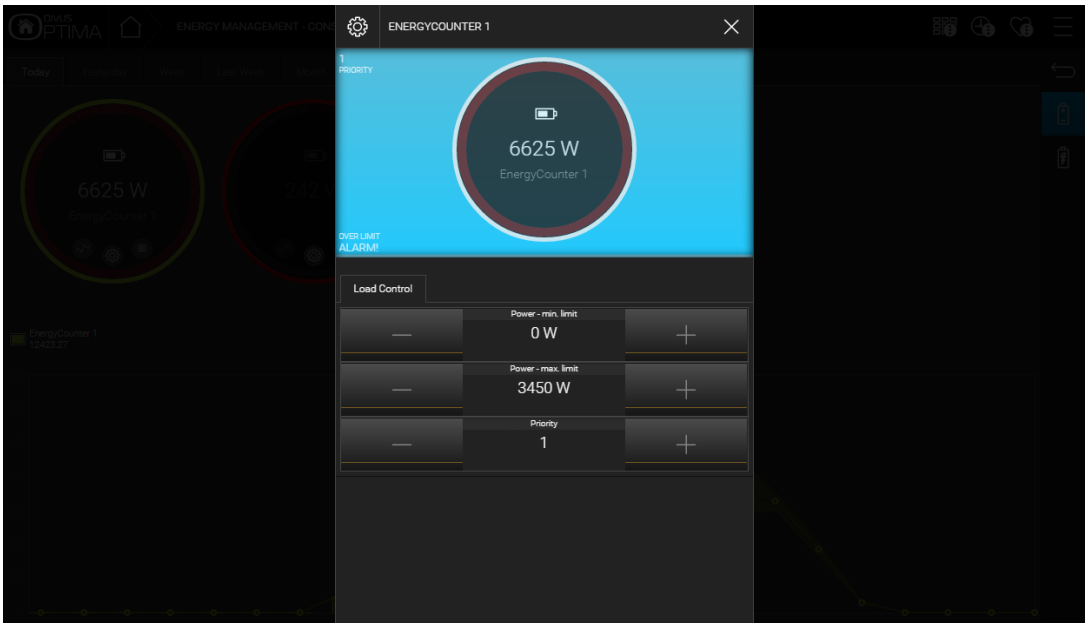


12.3.2 REPRESENTATION IN THE VISUALISATION

In the VISUALISATION it is possible to access the consumption values by selecting the entries "TECHNOLOGIES → ENERGY → CONSUMPTION" from the NAVIGATION MENU:



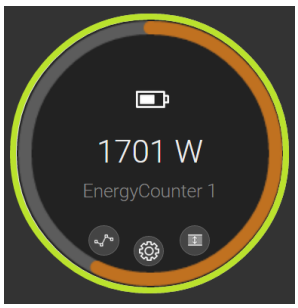
In the upper area of the page, one or more circular objects are shown, one for every ENERGY COUNTER previously created. They show the current power consumption in real time. The colour (green - orange - red) of the inner coloured circle indicates graphically when the configured limits are exceeded. If the limits were not configured in a static way, but using sub objects, you can click on the gear wheel icon to open the following pop-up window, which provides the possibility to change the limits gives access to the configurable parameters, which are organized in different TABS:



The sub-objects are (if present) arranged in the following tabs:

- Load control (priority, load over limit...)
- Power(min. and max. limits)
- Energy (min. and max. limits)

Every energy counter has functions to customize the representation of its data in the lower part of the page:



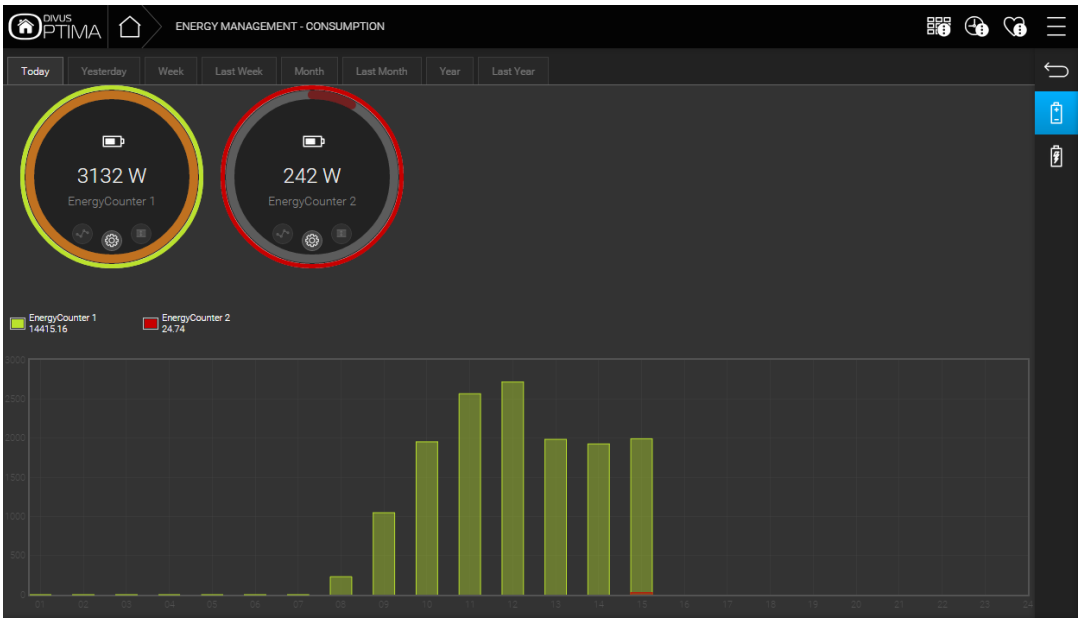
The colour of the box is the same as the one of the corresponding graph, which permits to easily recognize it even when more than one graph is visualised.

One click in the area of the circle toggles the visibility of its data in the graph.

Furthermore, the 3 icons allow to change some options of the graphical representation of the shown data:

SHOW		Shows / Hides the energy counter's details in the popup window
COMPARE		Shows hides the comparison values, which are calculated from the average value of the lastly measured values
RANGE		Shows / Hides the coloured area which marks the range between the minimum and maximum values of the energy counter (in dependence of the selected time period)

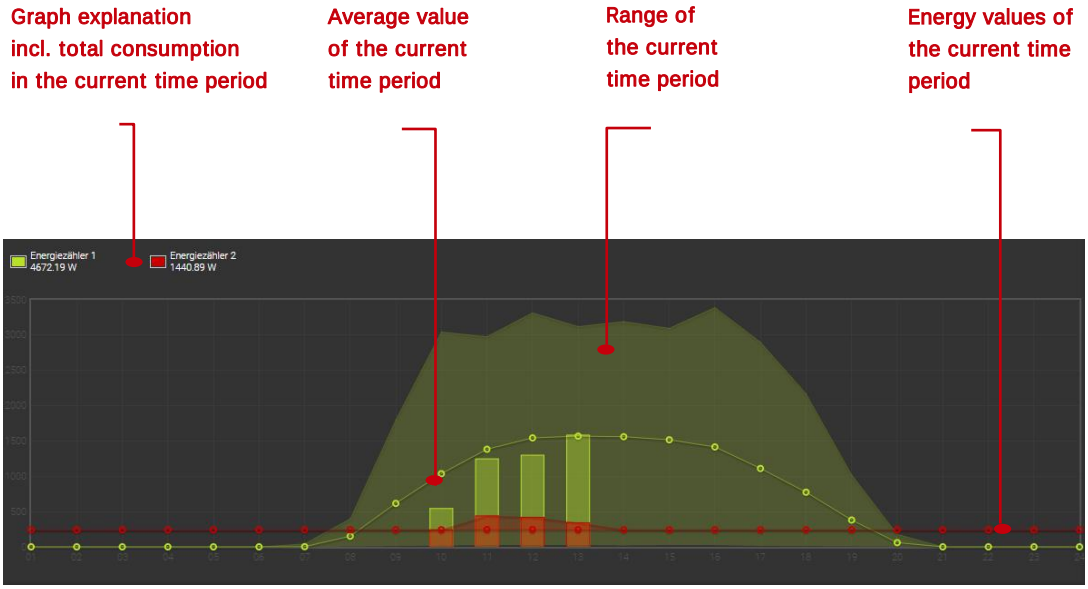
The following screenshot shows an example, in which the options "COMPARE" and "RANGE" have been disabled; in this case, only the real energy values are shown:



The lower area of the page contains the graphs of the single energy counters (batteries) from the upper area. The data shown in the graphs always refers to a certain time period, which can be selected by the user through the different TABS on the top of the page:

TODAY	Data of the current day (from 00:00); the comparison value – if enabled – is calculated from the average of the daily values logged
YESTERDAY	Data of the previous day; the comparison value – if enabled – is calculated from the average of the values logged the previous day
WEEK	Data of the current week (from Monday, 00:00); the comparison value – if enabled – is calculated from the average of the weekly values logged
LAST WEEK	Data of the previous week; the comparison value – if enabled – is calculated from the average of the values logged the previous week
MONTH	Data of the current moth (from the first day, 00:00); the comparison value – if enabled – is calculated from the average of the monthly values logged
LAST MONTH	Data of the previous month; the comparison value – if enabled – is calculated from the average of the values logged the previous month
YEAR	Data of the current year (from the first day, 00:00); the comparison value – if enabled – is calculated from the average of the yearly values logged
LAST YEAR	Data of the previous year; the comparison value – if enabled – is calculated from the average of the values logged the previous year

The following screenshot explains the different elements within the visualisation area of the graphs:



In order to change the order of the ENERGY COUNTERS (in which they are shown within the section CONSUMPTION), please follow the steps listed below:

- Select the entry "CONSUMPTION" under "TECHNOLOGIES → ENERGY" in the configuration area
- Click on the EDIT-button (or the 3 dots right of the entry)
- Change the order of the ENERGY COUNTERS using the blue button, as already seen for other objects

12.3.3 POWER CALCULATION

In case the electrical power should not be available as a KNX objects, it is also possible to calculate it using a VOLTAGE object and one or more CURRENT objects. To achieve this, the flag "ENABLE POWER CALCULATION" must be checked; this causes the section "SUB-OBJECTS FOR POWER CALCULATION" to become visible. Now you can follow the steps below to set up the power calculation:

- Add a VIRTUAL OBJECT to the section "SUB-OBJECTS CONNECTED TO THE ENERGY COUNTER" and define its FUNCTIONALITY as "POWER – MEASURED VALUE"; this value will be refreshed by OPTIMA every time the values of the voltage or current change.
- Now please drag the KNX objects with the voltage and current data into the section "SUB-OBJECTS FOR POWER CALCULATION" or add them in form of VIRTUAL OBJECTS using the corresponding ADD-button. The calculation is only executed when:
    - There is ONLY one object with the functionality "VOLTAGE"
    - There is at least one object with the functionality "CURRENT"

Hint: Normally the power calculation will use KNX objects for current and voltage; nevertheless, also here the usage of VIRTUAL OBJECTS can make double sense:

- If the voltage value is not delivered by the bus, it can be set as a constant value using a VIRTUAL OBJECT (actuators with current values not always will also provide the voltage)

- It is possible to introduce a constant power factor (as "virtual" current value) for devices which do not provide any measured data, in order to get at least an estimated consumption report.

After the configuration of the necessary objects, OPTIMA will refresh the power value automatically, just as it would come directly from the bus. This value can now either be shown in the VISUALISATION or it can be used again, through the ENERGY COUNTER, for example for the load control.

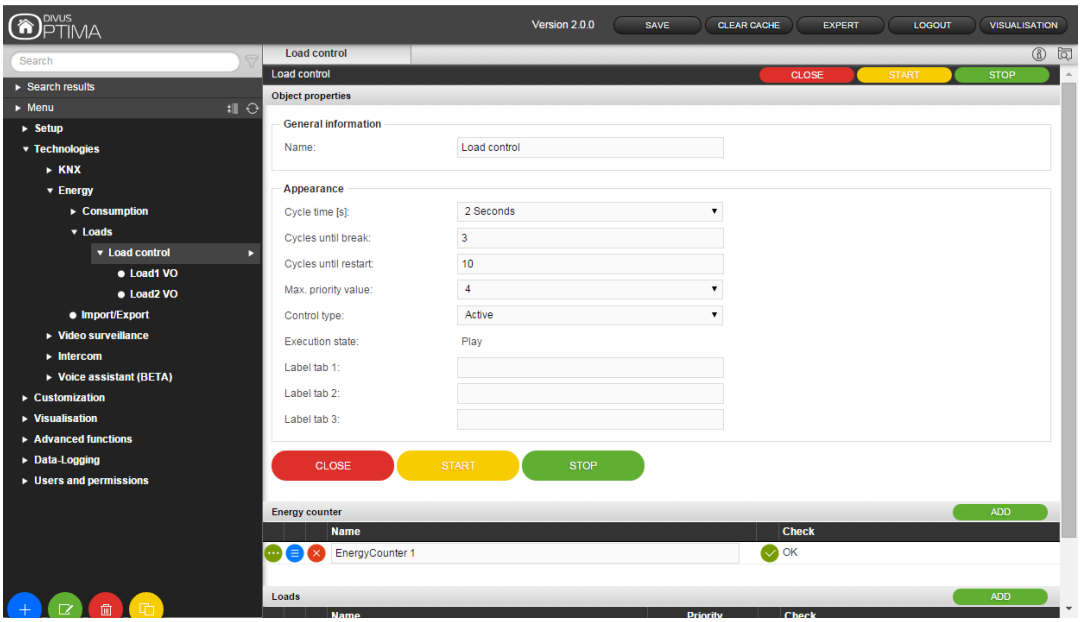
12.4 LOAD CONTROL

12.4.1 GENERAL SETTINGS

OPTIMA is able to control loads (consumers) in the installation and also to turn them off at elevated consumption (by configuring limits and priorities). After return to the normal consumption, the loads are activated again in reverse sequence.

OPTIMA offers an integrated load control, which can be reached in the ADMINISTRATION area by selecting "TECHNOLOGIES → ENERGY → LOADS → LOAD CONTROL". Of course it is possible to create additional load controls, which then can be used in parallel to the standard configuration (e.g. one load control per phase in a 3-phase system).

If the pre-configured LOAD CONTROL entry is selected and its properties window is opened, you will see the following screen:

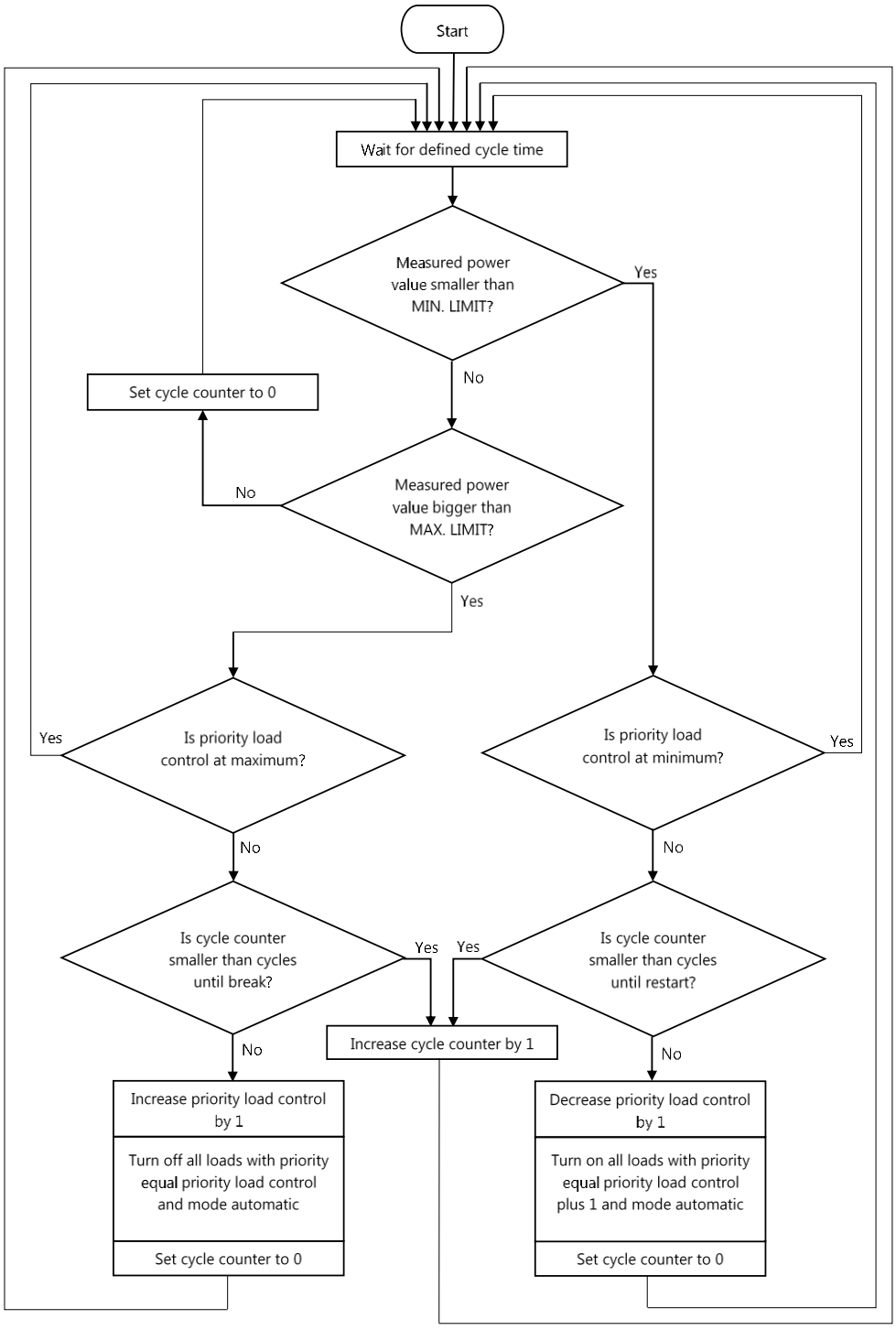


The section REPRESENTATION offers the following parameters:

CYCLE TIME	Time (in seconds) of the "base cycle" of the integrated load control logic. When this time expires, the loads are controlled, the configured limits are checked and eventual actions take place.
CYCLES UNTIL BREAK **CYCLES UNTIL RESTART**	Amount of base cycles (whose cycle time depends on the previous setting) to be executed before the logic increments the priority (and therefore turns off loads), or, in the contrary case, amount of cycles before the logic decrements the priority and switches loads back on. Normally a low amount of cycles is used for the break, meanwhile a high amount of cycles should be set for the restart, in order to prevent a continuous switching of loads.
MAX. PRIORITY VALUE	Maximum amount of handled priority values; the system will not pass the configured value, loads with higher priorities are ignored.
CONTROL TYPE	Defines whether OPTIMA is responsible for the load control (active, default setting) or if the control should be passive, which means through an external load controller. In the second case, OPTIMA is limited to the visualisation of the received information and doesn't start any actions.
EXECUTION STATE	Shows the state of the load control; normally this field will always show "PLAY"; nevertheless, the load control can be started and stopped using the corresponding buttons inside the properties window, for example in order to adapt changes like adding new loads.

12.4.2 PRINCIPLE OF OPERATION

The following flow chart shows how the load control works.

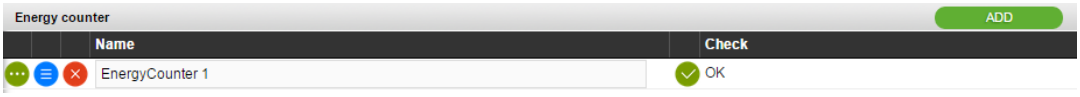


12.4.3 CONNECTION OF AN ENERGY COUNTER

In order to work correctly, each load control must be connected to an ENERGY COUNTER. In order to achieve this, please follow one of the steps below:

- Either use an existing ENERGY COUNTER (check out previous chapter) and drag it into the corresponding section of the load control
- Or create a new ENERGY COUNTER by using the ADD-button

In both cases the connected object is shown in the section „ENERGY COUNTER" and beneath its name also the result of an automatic control (check) is shown, which assures that the used ENERGY COUNTER was configured correctly in order to work in combination with the load control.



The following parameters must be configured correctly within the ENERGY COUNTER in order to be used as reference object:

- Power value (either directly or using the power calculation, as seen before)
- Minimum and maximum power limit, either as "static" value or as sub-objects
- Sub-object "priority"

Preferably also the sub-object "Load over limit" should be configured, which is automatically set to 1 if the logic of the load control is enabled and starts switching off loads, and is set back to 0 as soon as the total load falls back under the configured limit.

If the load control is active, the value connected as „POWER – MEASURED VALUE" within the ENERGY COUNTER is used as reference; if this value surpasses the configured limit, the load control logic is enabled (once the configured cycles expire) and increments the priority value (in idle state = „0") to 1; as a result, all loads that have been set to this priority value will be turned off. This process is repeated as long as the total load falls back under the configured limits; until this happens, the priority value is continuously incremented and the corresponding loads are switched off.

Once the total load falls back, the load control logic will work in the opposite way: as long as the load stays within the limit, the loads are turned back on again in the inverted way, naturally always respecting the configured cycle times and amounts.

Hint: The load control logic uses a two-level limit in order to prevent hysteresis phenomena (continuous switching of loads); with one-level limits, the total load would fall back under the limit immediately after switching off a single load, which would cause the logic to turn the load back on again. So the min. limit and max. limit settings are the two bounds of this two level limit. Only when passing the upper limit the load control mechanism will be triggered.

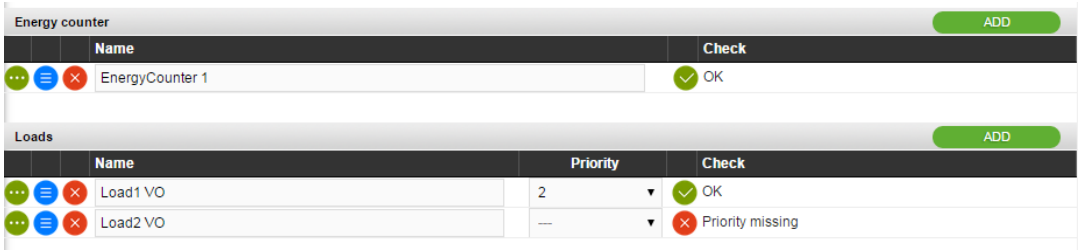
12.4.4 Connection of one or more loads

The section "LOADS" within the properties window of the load control it is possible to connect one or more ENERGY COUNTERS, which act as loads (consumers) and must be configured for all the devices that should be actively controlled by the load control logic, as described before.

Even in this case:

- either a previously configured ENERGY COUNTER can be connected
- or a new ENERGY COUNTER can be created using the ADD-button

In the same way as for the „ENERGY COUNTER" section, also here an automatic check is done, in order to control if all loads present the necessary settings. If this is not the case (e.g. when adding a new counter using the ADD-button), the properties window of the related counter must be opened and the missing parameters must be set.



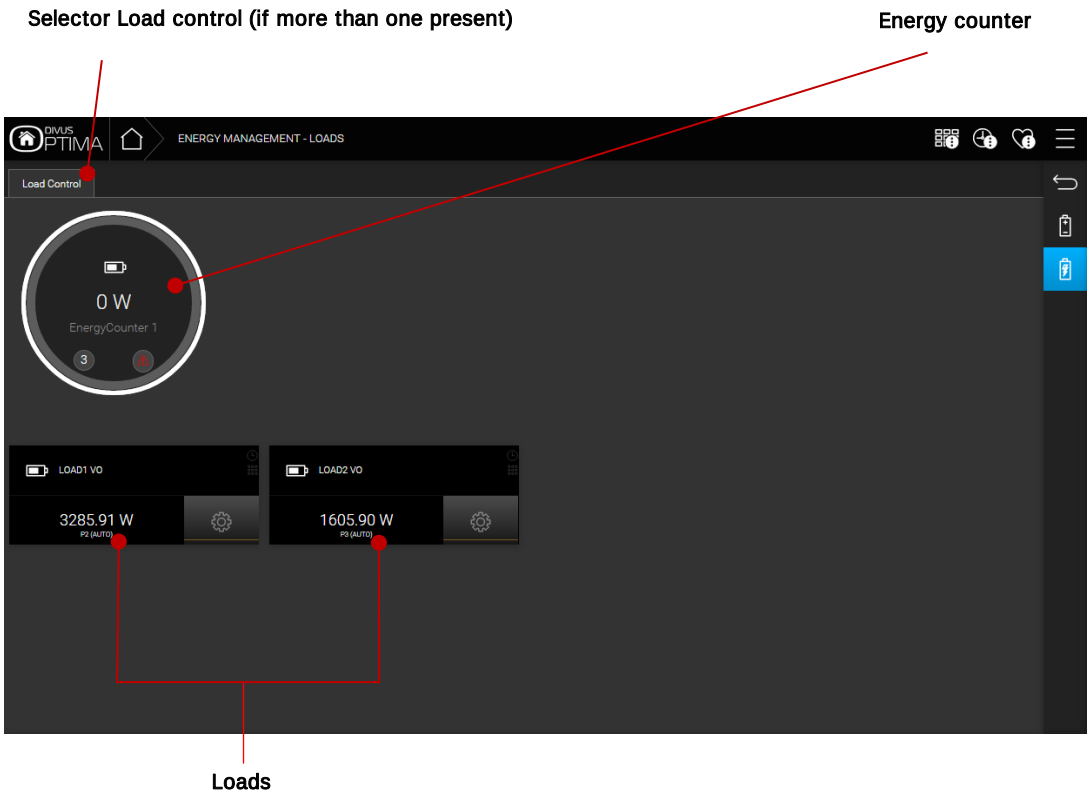
The required parameters are exactly the same as seen in the last chapter. The only difference lies in the following 2 sub-objects, which are required for the single loads:

LOAD ON/OFF	Control object used by the load control logic in order to turn the load on or off. This can be either a KNX object of 1bit or 2bit; in the first case, the corresponding output is just turned on or off by OPTIMA (with the risk that the state of the output might be changed by another sensor or another event of the software); in the second case a force (=priority) control of the output is executed, which brings the following 2 advantages: The state of the load can't be changed by other events (e.g. push buttons in the installation or the VISUALISATION of OPTIMA) The base state of the object is not changed by the priority control, which helps avoiding erroneous control (like unwanted activation) of the loads
LOAD AUTO/MAN	If present, this object permits the user to independently define through the VISUALISATION whether a load should be controlled by the load control (AUTOMATIC) or should permit only manual control; in the second case, the load control logic will not turn off/on the load, which can be helpful if loads should be temporarily excluded from the load control.

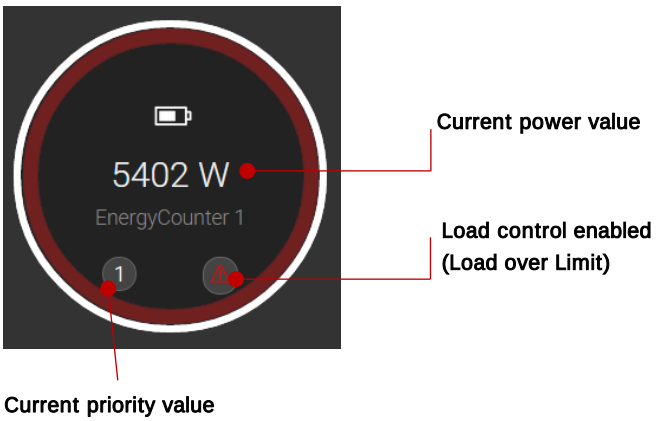
Hint: After making changes to the loads connected to a running load control, it is necessary that the load control is restarted using the corresponding buttons in its properties window. Only in this way the changes will be taken over.

12.4.5 REPRESENTATION IN THE VISUALISATION

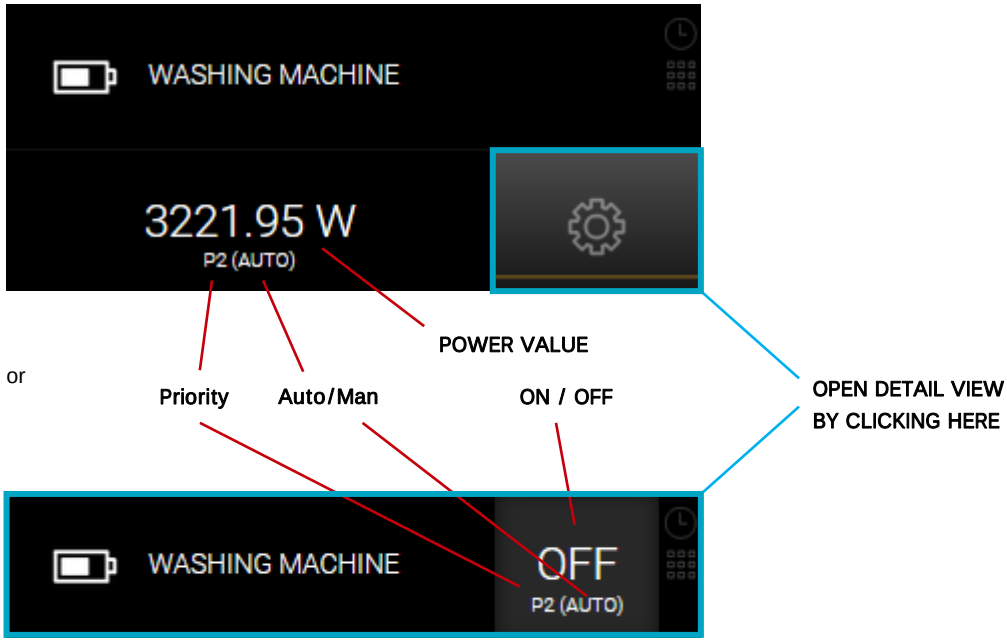
At completed configuration of a load control, the user can find it in the VISUALISATION in the section "LOADS" (by selecting the entry "ENERGY" from the NAVIGATION MENU):



The energy counter in detail shows the following information:

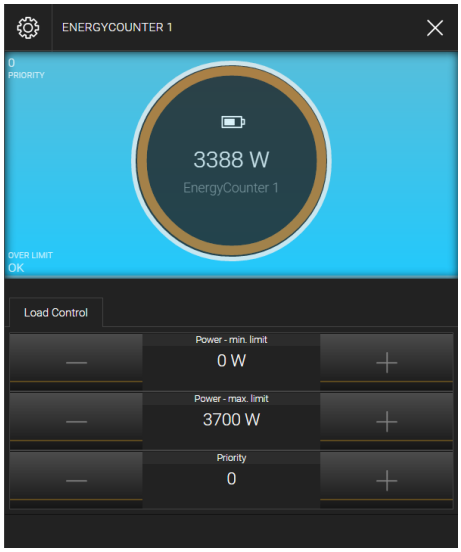


The loads instead are shown in the following way:

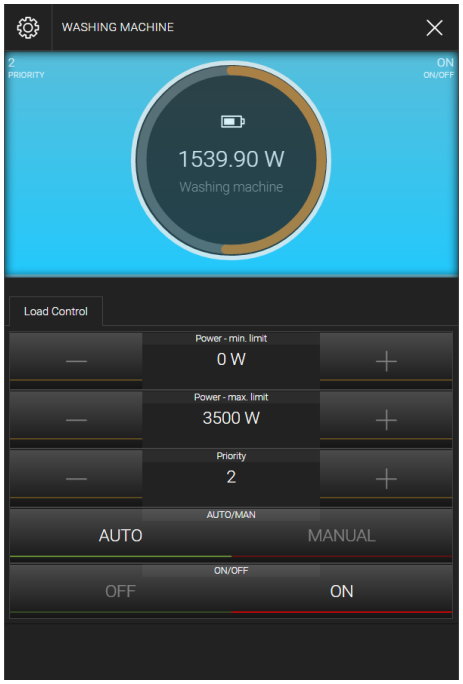


A click on the icon (compact design) or on the whole rectangle area (expanded design) will open a pop-up window, which permits to adapt the settings of the load control; furthermore, additional details regarding the general consumption or the single loads / consumers can be viewed.

If the ENERGY COUNTER is clicked, it is e.g. possible to adapt the limits of the load control:



If a load is clicked, it is possible to modify parameters like the priority of the load or the operating mode (AUTO/MAN) and it is possible to control the load manually:



12.5 IMPORT/EXPORT

Here you may export or import data related to your power plant measurings (measured through KNX devices or ap-proximated through virtual objects which simulate your power consumptions/productions):

- To import, chose the import radio button, choose the CSV file to load and press the EXECUTE button.
- To export, chose the export radio button which reveals a set of related options; not making specific choices will export everything. The EXECUTE button will start the export process.

Optima offers the possibility to export the data logged through its data-logging module directly by calling a URL. This may be useful if you want to regularly export the data to save it and/or to analyze it through specialized software. The special URL for this task can be customized by changing the parameters contained in its so called query string. The general form of such an URL is this:

```
http://IPADDRESS/smartdomuspad/modules/reporting/track_import_export.php?op=export&language=LANGUAGE&interval=INTERVAL&object_id=XXX
```

You may refer to the following table for the explanation of the parameters

IPADDRESS	If IP address of the OPTIMA device
LANGUAGE	used for the labels of the export data, to be written in English (e.g. `english`, `german`, `italian`)
INTERVAL	possible values are: `today`, `yesterday`, `week`, `week-prev`, `month`, `month-prev`, `year`, `year-prev`
XXX	the ID of one single object whose values are being logged and which you want to export into a file. Default is to export all data, so you should completely remove this parameter if you wish to export everything. It is not possible to choose multiple IDs at once.

A URL configured this way may also be used with a Link (see chap. 10) inserted into one or more rooms, offering the user the possibility to manage his collected data autonomously.

Here some examples:

Export the data of object with ID 1234 regarding yesterday in English from my server with IP address 192.168.0.110:

```
http://192.168.0.110/smartdomuspad/modules/reporting/track_import_export.php?op=export&language=english&interval=yesterday&object_id=1234
```

Export from my server 192.168.2.210 all data of last year in German:

```
http://192.168.2.210/smartdomuspad/modules/reporting/track_import_export.php?op=export&language=german&interval=year-prev
```

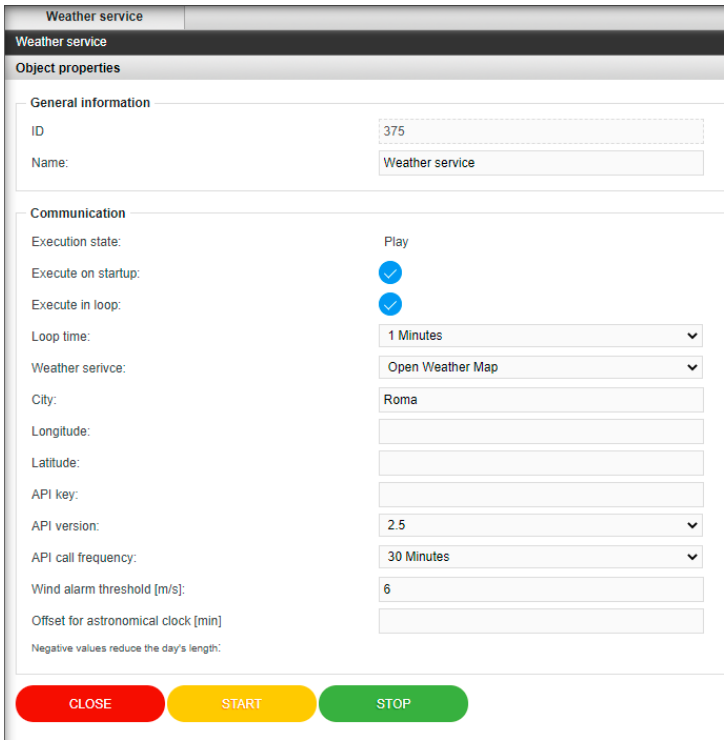
13 Weather services

The weather-related configuration can be found in a separate area under Services - Weather Services. By configuring an online weather service, it is possible to integrate the current weather values as well as some forecast values in the OPTIMA visualisation.

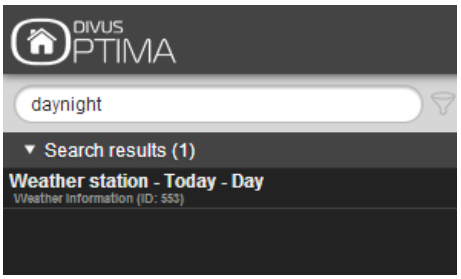
In addition, there are further possibilities which, on the one hand, concern the configuration of the service and, on the other hand, extend the use of weather data in the system.

13.1 CONFIGURATION

These values can be configured under *Wetter services – weather service* (in expert view):



NAME	The name of the service may be customized if desired
EXECUTION STATE	Shows whether the service is running (Play) or stopped (Stop)
EXECUTE ON STARTUP	Choose whether the service should be executed automatically on system start up – or not.
EXECUTE IN LOOP	Choose whether the service should be executed in a loop. (see also loop time)

LOOP TIME	The time between one execution of the service and the following. Default is 1 minute.
WEATHER SERVICE	The choices are: • None • Open weather map • World weather online
CITY	Input the desired location, nearest city or region to show its weather data
LONGITUDE/ LATITUDE	Allows to insert the location for the weather data requests using the coordinates. At the same time, these fields are filled in automatically if the location inserted in the previous field found matching data and – in this case – may be used to verify the correct choice.
API KEY	The online weather service require a so called API key. Such a key may be obtained from the web site when you create an account. See below for more details.
API VERSION	Insert one of the following values here: 2.5 if you use an *openweathermap.org* account
API CALL FREQUENCY	How often the online service should be called requesting updated values. Make sure to compare your setting with the maximum amount of requests/day allowed by your account. And also consider that weather data changes with a low frequency.
WIND ALARM THRESHOLD [M/S]	This value is used to trigger the wind alarm basing on the online service's data. Set it accordingly.
OFFSET FOR ASTRONOMICAL CLOCK [MIN]	You may insert an offset in minutes which will be added to the calculated dawn/sunset time in order to e.g. switch a light 10 minutes before dawn. Use the object "Weather station – Today – Day" for such tasks. You may find it searching for "daynight": 

Using the functionalities connected to online weather data in OPTIMA requires a valid API key which may be requested for free from this URL:

https://home.openweathermap.org/users/sign_up

Use the following page to check whether the location you want to use is found and is unique:

http://openweathermap.org/find?q=

Note: Please do not separate words in the location field using commas – that is not allowed. Use empty spaces instead to separate words.

Warning: The default procedure starts the weather service on boot. When the service is unable to reach the online service for 3 times in the first minutes, it will reset its currently stored weather values! (see the last note in the following section if you are not going to use the weather service and want to deactivate it)

13.2 INTEGRATING WEATHER DATA INSIDE OPTIMA

If you use the search term **`weather`** in OPTIMA's administration's search function, all the values obtained from the online weather service become accessible. You can also find them directly in the menu under weather service. The weather service automatically takes care of refreshing those values when needed.

In this way, these "weather value objects" can be used for all kinds of tasks, e.g.:

- To be directly shown in the visualisation (a room)
- To trigger a scenario or single commands (e.g. for a wind alarm)
- To set a thermostat's set point or mode
- To be integrated in logics or conditions

Note: please consider that the reliability of online weather data is not comparable to that of e.g. a local sensor. Therefore, their use should be considered with care and specially in relevant situations, their value should not be used as the only decision criterion.

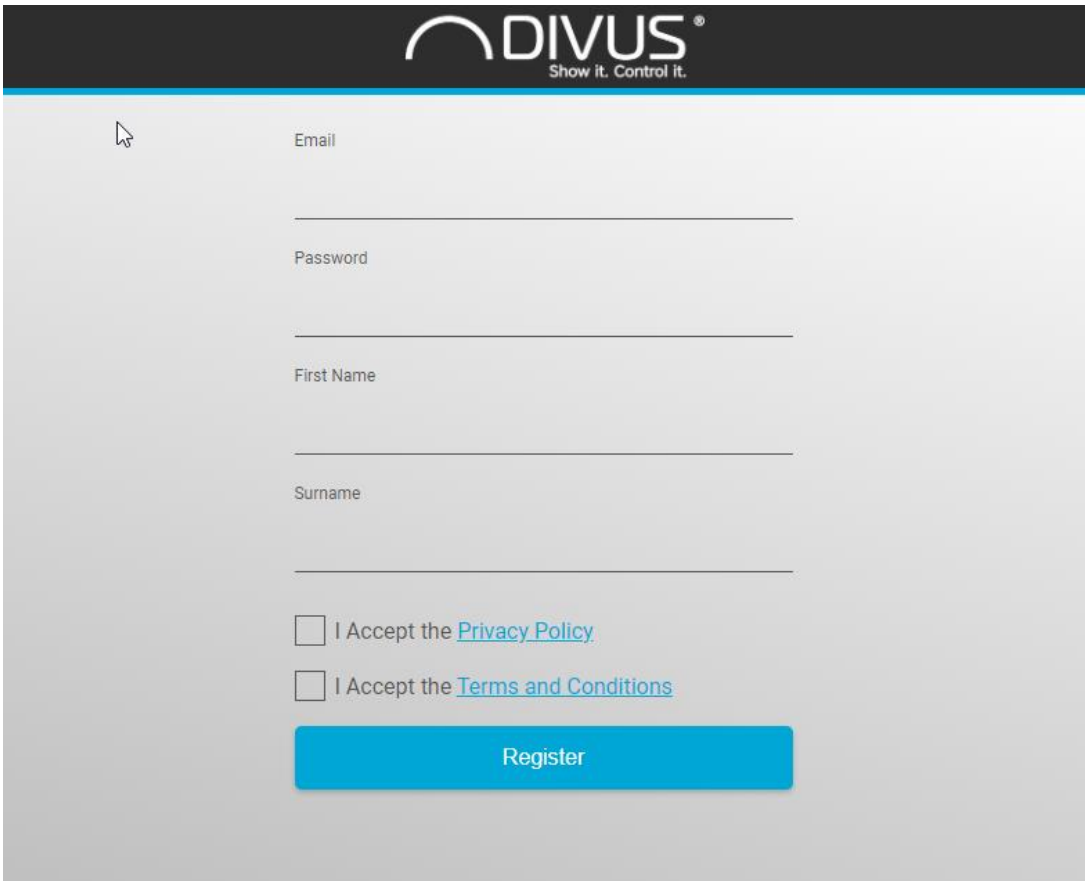
Note: If you do not want/need these services, you may deactivate them. In that case please also deactivate all the weather dependent settings under *Customization – Options – Home*, as explained in the previous chapters.

14 Cloud services

14.1 REGISTRATION

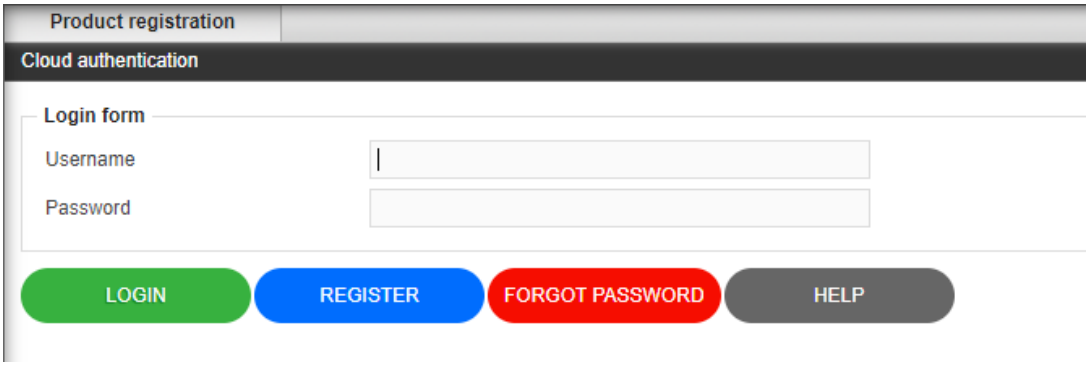
The DIVUS D+ can be registered on the DIVUS Cloud in order to be able to use its extended services.

The Register button or directly the URL https://cloud11.divus.eu/account/ lead to the website where you can create and register a new user. All you need to do is enter your e-mail address, password, first name and surname.

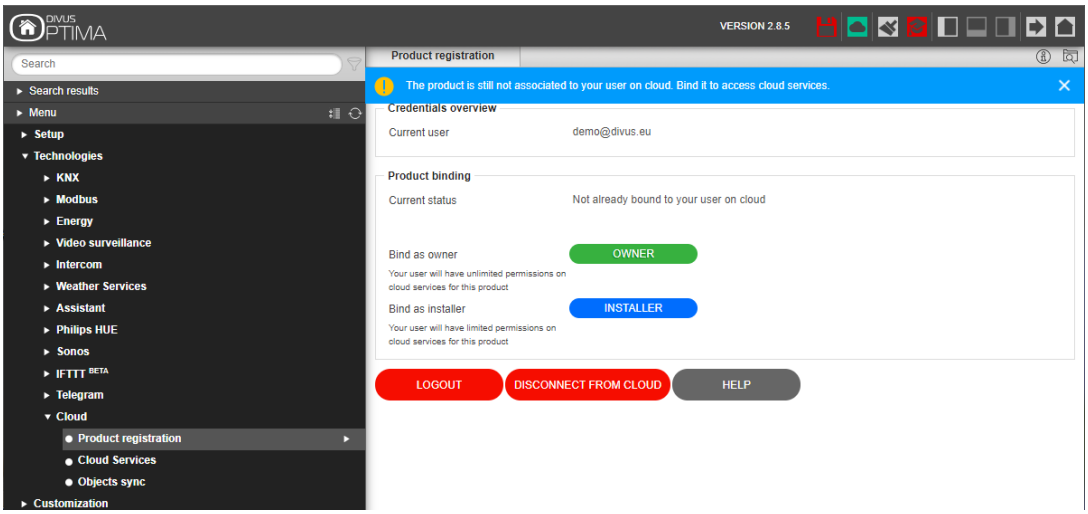


After registering, you will receive an automated reply with a confirmation link on the e-mail address used. Click on the link to confirm the registration and activate the new account. The email also contains the cloud domain that has been assigned to the device. You can enter this later as the server address for remote access on the mobile devices you use.

After this activation you can use the new account:



Enter the relevant data here and press the green LOGIN button.

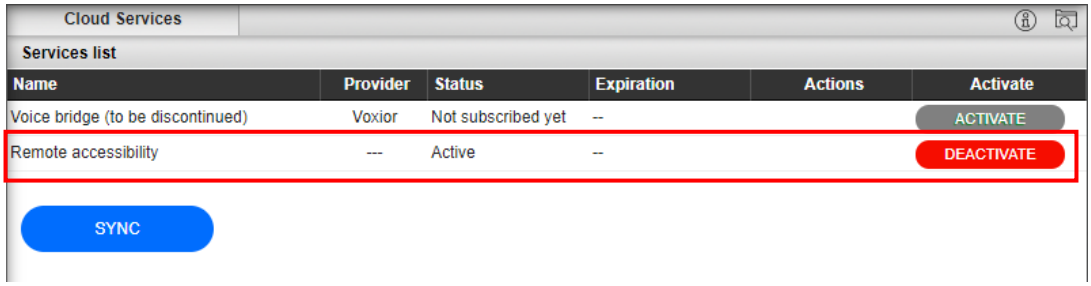


On this page, you now normally select OWNER. This person then has full rights to manage the cloud services of the machine. The device is bound to the account entered and activated in the DIVUS cloud. At the same time, the cloud services and cloud synchronisation page are activated.

As an installer, the unit is assigned to you for installation and configuration, but you cannot control it via voice command services or the cloud.

14.2 REMOTE ACCESS

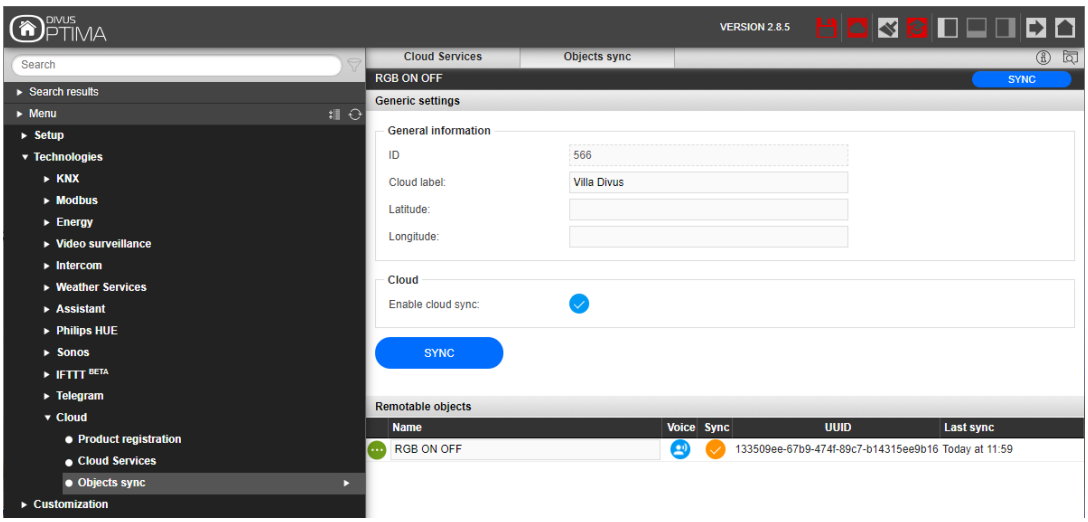
On the Cloud Services page, you can activate (or deactivate) remote access after successfully logging in to the Cloud. This access does not require any port forwarding or other intervention on the system's internet router.



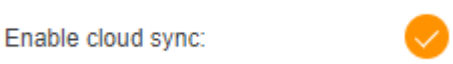
As already mentioned, you received the assigned cloud domain in the confirmation e-mail. Moreover, you can also find it on the Network and QR Code pages, where it is automatically entered after activating remote access and, as long as the service remains active, cannot be changed manually.

14.3 CLOUD SYNCHRONIZATION

Here, the cloud data of the KNX SERVER can be synchronised with the cloud. First enter a designation (cloud label) for the device, which you can then use to identify it on the cloud side. Latitude and longitude are optional. After a change, the Sync button should be pressed. The result can then be viewed in detail in the table below.



On most of the detail pages (of KNX objects but also Rooms, Complex Objects, etc.) it is possible to configure objects for cloud synchronisation.



As soon as you have activated all the desired objects, the quickest way to return to the Cloud synchronisation page is via the Cloud symbol in the upper toolbar. If you now press the Sync button, the orange icons turn green

if the procedure was successful. From this moment on, these objects are "in the cloud" - they can be voice-controlled if the conditions are right.

If a symbol should remain orange despite synchronisation, check the detail page of the object again. In the case of a Complex Object, for example, an essential sub-object could be missing.

14.4 CONTROLLING OVER VOICE-COMMAND SERVICES

As soon as there is at least one successfully synchronised object, you can control or query your Optima visualisation via the voice control services Alexa (Amazon) or Google Assistant by voice command.

The prerequisite in the case of Alexa is an Amazon Echo device (or also a third-party "Alexa enabled" device such as the SONOS One, which among other things also contains the Google Assistant at the same time), in the case of Google a Google Home device.

The procedure for the two services is very similar, which is why only the Alexa variant is explained here.

As a link between the Alexa world and the OPTIMA world, a separate software is needed. Amazon calls it Skill, Google calls it Action. So, find the DIVUS OPTIMA Skill on your smartphone in the Alexa app, activate it and enter the access data for your cloud account (once).

These access data are not passed on to Amazon. Amazon only receives an anonymous token with which it can establish communication with your KNX SERVER in the DIVUS Cloud.

As soon as the skill is active, the Alexa app automatically searches for new devices (or you can start such a scan manually at any time). This imports the objects shared in OPTIMA into Alexa. From this moment, you can control them directly by voice or switch them via the GUI within Alexa. If necessary, you can also rename them here if their names would be incomprehensible or misunderstood via voice control.

14.4.1 OPTIMA OBJECTS CONTROLLABLE THROUGH VOICE-COMMAND SERVICES

Not all the objects you have in OPTIMA are supported by Alexa / Google Home currently – although this situation will surely evolve over time. The following table shows what devices you can load into the cloud and command by voice then:

OBJECT TYPE	SUPPORTED FUNCTION(S)	NOT SUPPORTED FUNCTION(S)
1 BIT OBJECTS	• Generic On/off • Switch • Light • Blinds up/down	All others
OPTIMA SCENARIOS	• Play command supported	• Stop command • Learn command
COMPLEX OBJECTS	• **DIMMER** • **RGB** fully supported only if using HSV values instead of the 3 (or 4) colours • **THERMOSTAT** if containing at least 1 setpoint, 1 measured temperature and operating mode • **BLINDS** only up/down command is supported	All others

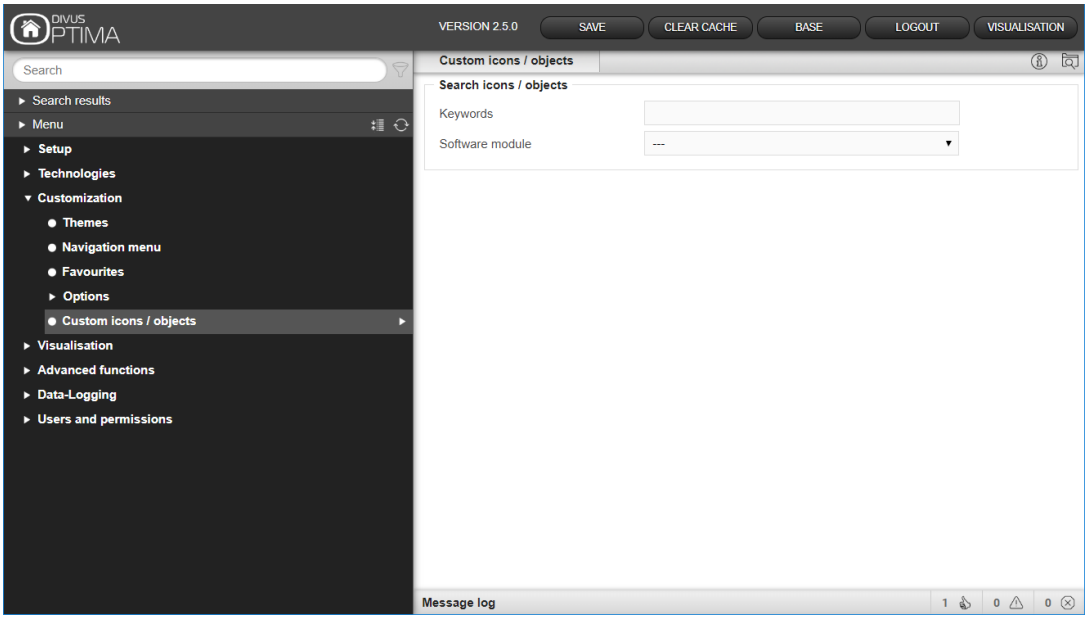
15 Extended Customisation

15.1 ICONS/OBJECTS

The function of an object defines its symbol(s) and options within the VISUALISATION and determines the interaction possibilities of the user. OPTIMA offers a huge standard function library, which can be customized and extended by the user, as described on the next pages.

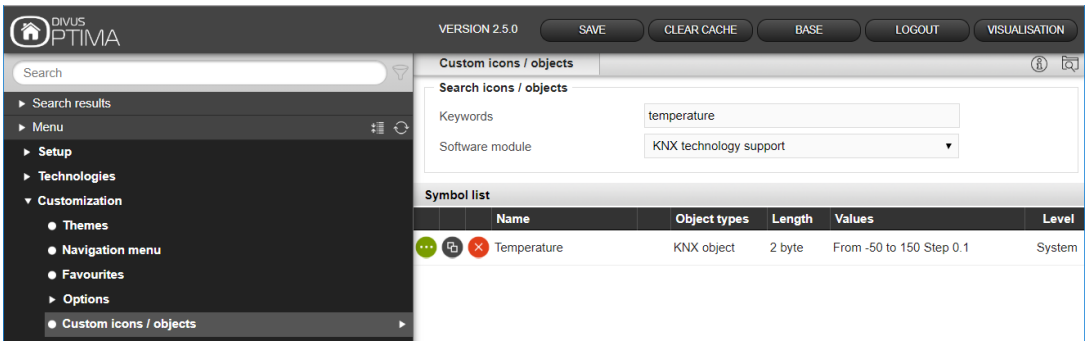
15.1.1 LIST OF ICONS/OBJECTS

In order to customize the icons/objects, please access the configuration area and select "CUSTOMIZATION → CUSTOM ICONS/OBJECTS". The following page will be shown:



Choose a keyword and a software module (usually you will need the *KNX technology support* module). The matching objects will be shown automatically.

The list of objects shows the following columns:



NAME	Name that identifies the function within the software and also is shown in the drop down menus within the properties page of the objects.
OBJECT TYPE	Object type, to which the function can be assigned (e.g. KNX object, scenario, ...)
LENGTH	if provided (e.g.: KNX objects), this column shows the data length of the supported objects.
VALUES	if provided, this column shows the possible values of the function.
LEVEL	Indicates whether the function is part of the default library (SYSTEM) or if it was created manually (USER).

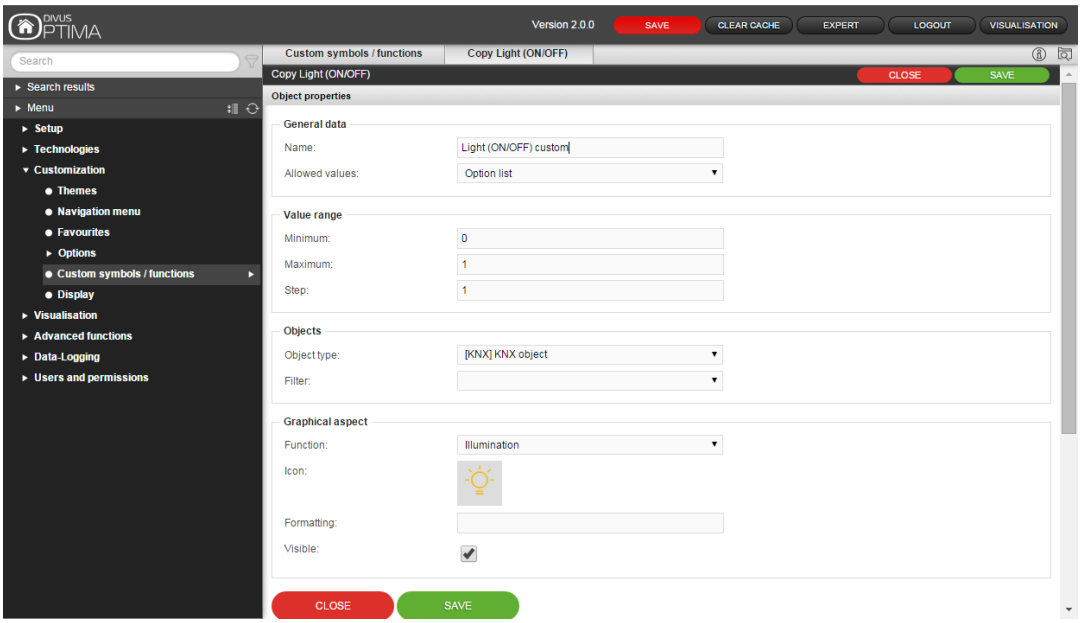
The buttons on the left side allow to execute the following operations:

EDIT	Opens the properties window of the function and permits to edit various parameters. This operation can only be executed on functions of level USER.
CLONE	Creates a copy of the current icon/object. The copy will be of level USER and therefore editable. SYSTEM level icons/objects need to be cloned because they can't be edited.
DELETE	Deletes the function from the database. This operation can only be executed on functions of level USER.

Hint: In order to create a new customized function, you will always have to start by creating a copy of an existing standard function using the CLONE button. It is recommended to start from the existing function most similar to the function to be created, in order to keep the necessary customizations as small as possible.

15.1.2 CREATION OF A CUSTOMISED FUNCTION

The following screenshot shows the properties page of a function that was created by cloning the standard function "LIGHT ON/OFF":



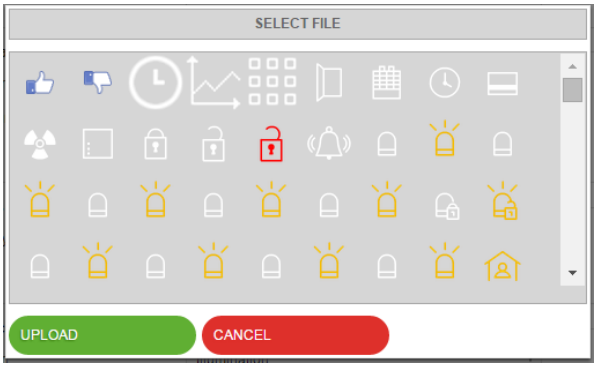
Folgende Parameter können bearbeitet werden:

NAME	Name which identifies the function
ALLOWED VALUES	Here can be defined whether the function should dispose of a set of options ("OPTION LIST") or of a range of values between a configurable maximum and minimum value („VALUE RANGE").
MINIMUM **MAXIMUM** **STEP**	If "VALUE RANGE" has been selected, these fields must be used to determine the minimum and maximum values as well as the step size, in which the values should be changed. The step value also defines the accuracy, in which the values of the function can be changed in the VISUALISATION using the „+/-" buttons (for example steps of 5, of 10...).
OBJECT TYPE	The object type for the function can be defined here (e.g. KNX object, condition, ...)
FILTER	If the previously selected object type provides it, this field permits to configure an additional object filter (like for example the data length). In case of KNX objects you can define the length of the KNX telegrams (in bit/byte, corresponding to the DPTs).
FUNCTION	Here can be defined the category (FUNCTION) that an object needs to be connected with, in order to be able to select the current function from the symbol pop-up window.

ICON	Permits to assign a graphical symbol to the function; this can either be an icon from the standard library or a custom icon, uploaded from your PC. Hint: functions that work with an OPTION LIST will use this symbol only for preview purposes, since the symbols of the function itself are defined through the option list and therefore must be defined for every single option (please check out the next section). Hint: If customized pictures should be uploaded, it should be ensured that their format is *.png and their size is 50x50 pixels. If the symbol should be used in the background view mode with the "small icons" option enabled, it is recommended to make the picture still with a size of 50x50 pixels, but to use only the central 24x24 pixel area. See below for further details.
FORMATTING	Permits to format the numeric values of the function; the formatting is realized through so called "printf – placeholders, like for example: • %s → String without formatting (used if field is left empty) • %0.2f → Numeric value with 2 decimal positions • %s kWh → String with unit "kWh" • %s %% → String, followed by the character "%" Further information regarding the formatting can be found in chapter 5.6.1of this manual. Hint: this parameter can only be used for functions with VALUE RANGE
VISIBLE	Here can be defined whether the function should be visible inside the selection drop down menu (in the detail page of an object) or not.

15.1.3 UPLOAD OF CUSTOM ICONS

When the currently selected icon is clicked, the following small window opens:



Through the „UPLOAD" button you can choose an icon file to upload. Please follow this rules to have a flawless behavior of the new icons, thus being able to use them wherever you can use OPTIMA's default set of icons:

Image type: PNG (Portable Network Graphics)

This image type supports lossless compression as well as transparent backgrounds. No other image types are supported for this purpose.

Resolution: 50 x 50 pixel (or more but with same ratio)

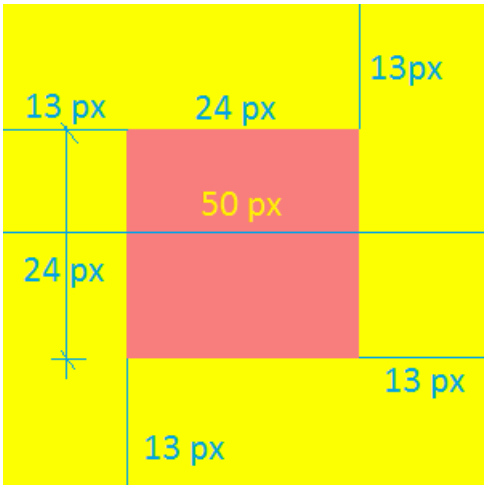
The image should be a square. Also see design.

Naming: the following table shows how the files should be named for OPTIMA to recognize them and show them in the right places:

CATEGORY	PREFIX FOR FILENAME
ROOMS	ico_environment_ (for example ico_environment_fitness.png)
CAMERAS	ico_camera_ (for example ico_camera_odcam1.png)
OTHER CATEGORIES	ico_ (for example ico_special-device.png)

So generally icons should have the "ico_" prefix in their filenames – plus the special cases shown above.

Design: the following scheme shows the optimal dimensions of an icon for OPTIMA



The dimensions are 50x50 pixel externally. In order to be published correctly with both normal and small icons (see chapter 4.4.4), the graphical content should occupy only the inner, red area measuring 24x24 pixel.

That means it should have a border of 13 pixels in any direction. Here are some examples:

Transparency: to perfectly integrate on any background (colour), the icons should have a transparent background as you can see e.g. in the icons above, where the white background of the first icon and the black background of the second are not part of the images but the background colour.

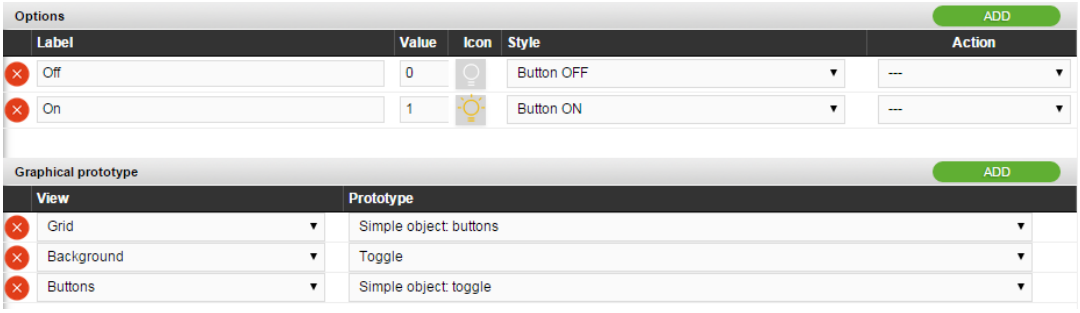
Hint: The prepared and uploaded icons will only be available inside the currently used theme (see chapter 4.1)! Therefore, if you should change theme afterwards you will not find your custom icons, but you may of course upload them also there.

Hint: Please be aware that the current version of OPTIMA does not save your custom icons with its backup routines. To prevent problems you should therefore keep a folder with all the uploaded icons on your pc.

15.1.4 OPTION LIST OF A FUNCTION

If the function uses the OPTION LIST, through the section "OPTIONS" in the lower area of the properties page it is possible to configure the single states of the function. Every single state / option offers the following parameters:

LABEL	Label, used to show the current value of the function in text format (e.g. "on", "off", "open", "close",...)
VALUE	Numeric value, corresponding to the state of the current option (e.g. 1,0)
ICON	Icon used to show the current value of the function in graphical format. This can either be an icon of the standard library or your own one, uploaded from your PC.
STYLE	Here can be defined the style of the buttons of the function. This parameter is applied only to the BUTTONS of the function in BACKGROUND and GRID view. Functions that don't use buttons (e.g. all functions using a slider, a text field, „+/-„ buttons, etc.) do not require this parameter.
ACTION	Permits to select a specific action that should be executed for the current option. Normally it is not necessary to insert any value, since the function will select the correct action on its own, depending on the previously configured object type. So please keep this field empty.



New options can be created using the ADD-button. By doing so, the value of the new option will just be incremented; naturally you can still change the value on your own. The red button on the left side permits to delete options permanently.

15.1.5 GRAPHICAL PROTOTYPES

Finally, the function must be connected to one or more graphical prototypes. Those objects contain the basic HTML definition, over which the representation of the function within the VISUALISATION (in the different view modes and in the pop-ups) is realized. Different functions can also use the same prototypes within the same page; just take as example the different light functions (standard lamp, floor lamp,...), which are presented in the same way (same prototype),but use different symbols.

The section at the bottom of the properties page of the function is used for the connection of the prototypes for the different view modes. Those view modes are:

GRID	Defines the representation of the objects in ROOMS using the GRID view, in the FUNCTION pages and in the FAVOURITES page.
BACKGROUND	Defines the representation of the objects in ROOMS using the BACKGROUND view.
BUTTONS	Defines the representation of the objects in ROOMS using the BUTTONS view.
POP-UP	Defines the representation of the objects within pop-up windows; this view mode can only be used for complex objects.

After the selection of the desired view mode, a drop down menu permits to select one of the available prototypes, in order to adapt the function in the best way to the own needs.

Hint: A function can't be shown correctly within a room or a pop-up window if the corresponding graphical prototypes for the respective view mode were not connected before. If a function is cloned, the copy is automatically connected to the graphical prototype of the original. Therefore it is normally not necessary to make adaptions in this section. Nevertheless, the control of this section is always recommended since the lack of the prototype can lead to unsightly representation problems in the VISUALISATION.

16 Users

16.1 INTRODUCTION

In this chapter the user management of OPTIMA is explained and the possibilities of personalization of each user are presented, which allow a safe and convenient use of the VISUALISATION.

16.2 Users and user groups

The authentication on OPTIMA is defined through 2 different object types:

- USER: these objects represent the accounts for accessing the VISUALISATION; the authentication is done by entering user name and password, configured for each USER in OPTIMA. Every USER must belong to a USER GROUP, so that they get certain access permissions (for example: see the whole VISUALISATION, but no access to the ADMINISTRATION area);
- USER GROUP: A USER GROUP has several access permissions assigned. Each USER of a USER GROUP automatically gets the access permissions defined for the USER GROUP.

16.3 Create a new user

In order to create a new user, proceed as listed below:

- Open the ADMINISTRATION area
- Select "USERS AND PERMISSIONS → USERS"
- Click the NEW / ADD-button

The following settings will be available for each USER:

NAME	Identifies the USER inside the OPTIMA database (not used for the login)
USERNAME	Username for the authentication on the system – must be at least 4 characters long (alphanumeric characters only)

PASSWORD	Password for the authentication on the system – must consist of alphanumeric characters only
TRUSTED IP	Optional – enables the automatic authentication on the system when the VISUALISATION is accessed on a PC with the IP address specified here. Use only if the IP is a static address!
ROOM FOR HOMEPAGE	Choose an individual room as homepage for the current user. After logging in, the user will directly see the chosen room instead of the default homepage, which will still be used for all the users which did not have any room assigned directly.

Once you have created a new USER, it must be assigned to a USER GROUP to receive the desired access permissions. Simply drag the desired USER GROUP into the area "USER GROUPS TO WHICH THE USER BELONGS".

Furthermore it is possible to connect the user to events; they permits to execute the following actions on every client device that is currently logged in with the selected user:

- **PAGE JUMP**: permits to create a page jump to a certain page on all client devices currently running with the selected user (page jump within the browser on default clients and within the app on mobile clients)
- **VOIP CALL**: permits to start a VoIP call towards all devices currently running with the selected user

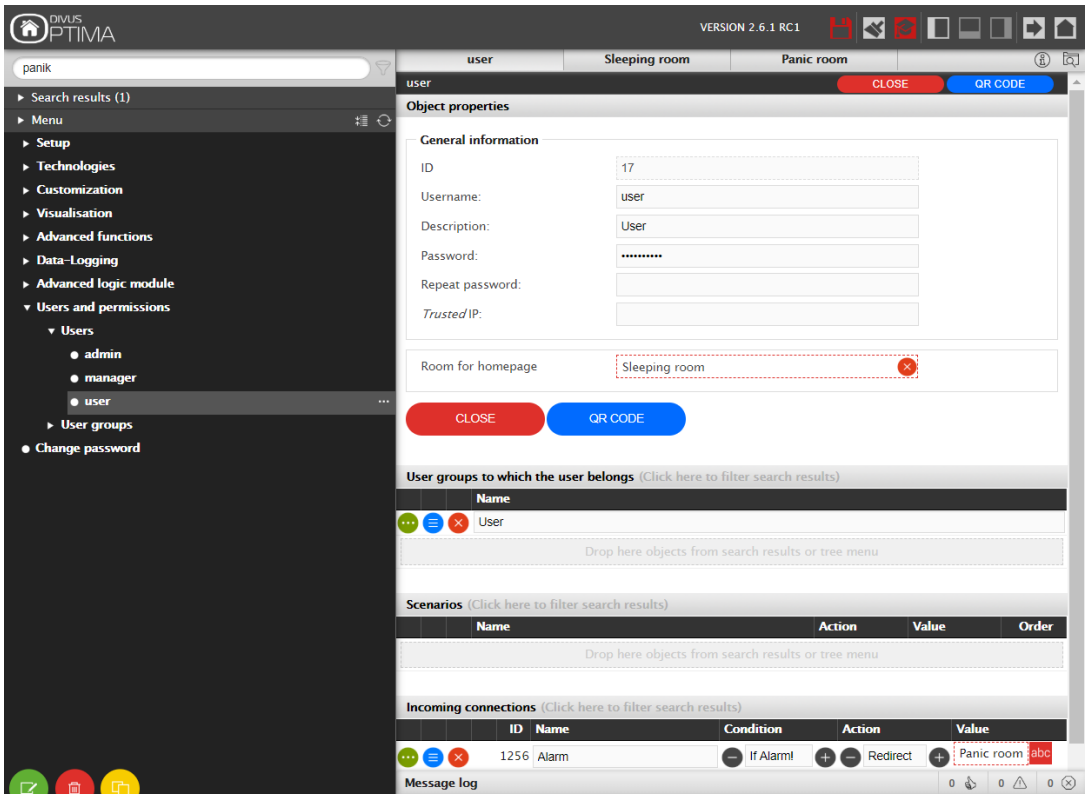
In order to configure a PAGE JUMP, please follow the instructions below:

- Drag the object that should cause the page jump (e.g. a KNX object) into the section „PASSIVE EVENTS"
- Define the CONDITION that should trigger the page jump (the available options depend on the previously selected object)
- Please select "REDIRECT" as ACTION

Now use the column VALUE in order to define the target page, which could be:

- Either an external web page (homepage, web server, etc.)
- Or a ROOM of the software

In the first case it is sufficient to insert the URL of the desired page into the text box. In the second case instead, the text box can be changed into a drop zone using the red button; now a ROOM can be selected using the search function and can be dragged into the drop zone. The following screenshot shows an example configuration, in which the room "ALARM CENTRAL" should be opened at every condition change of the object "ALARM", in fact exclusively on the client devices that are currently running with the chosen user:

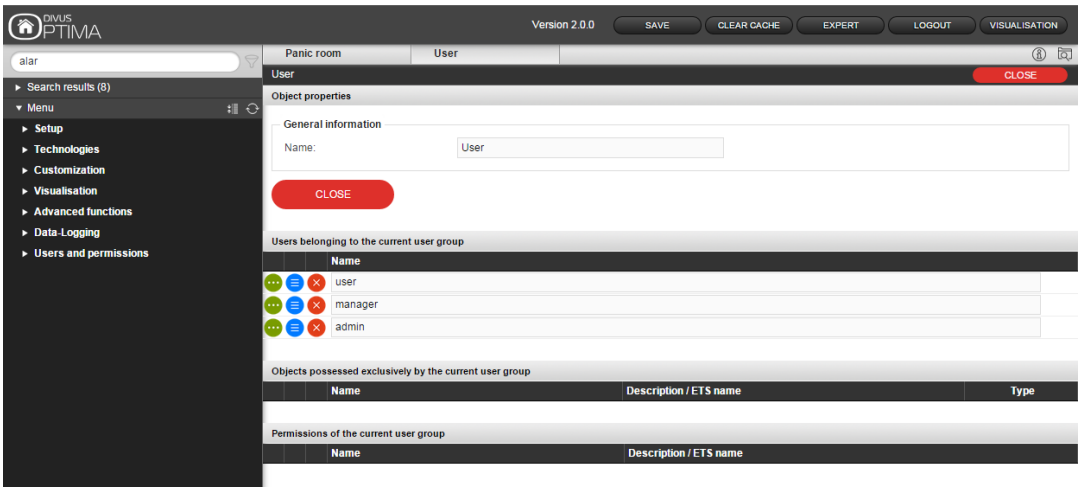


Hint: The configuration of EVENTS for single USERS is very similar to the configuration of EVENTS for objects of type CLIENT (please refer to chapter 11.7 -Clients and page jumps- of this manual); meanwhile in that case events are limited to one client device, in case of the user the events are executed on all client devices on which the user is currently logged in.

The configuration of an EVENT of type VOIP CALL is described in the OPTIMA INTERCOM MANUAL.

16.4 User groups and permissions

Through the properties window of an USER GROUP it is possible to define - beside its name - the different users that should belong the group; even here the users can be localized over the search function and then connected to the section "USERS BELONGING TO THE CURRENT USER GROUP" via drag & drop:



Furthermore, each USER GROUP can be connected to one or several objects of the VISUALISATION; this has the consequence that these objects from now on belong to the USER GROUP and consequently can only be seen by users that belong to the chosen group. The allocation of objects takes place over the search function, using drag & drop into the section "OBJECTS POSSESSED EXCLUSIVELY BY THE CURRENT USER GROUP".

Hint: After the allocation of an object to a USER GROUP, the object won't be visible / accessible to users of other groups any longer. Therefore is very important to pay attention on how objects are assigned to groups, in order to avoid situations in which certain objects or even rooms become inaccessible.

17 Remote access

17.1 Introduction

This chapter explains how to configure the network for allowing remote access to OPTIMA and therefore be able to check out the VISUALISATION also from outside of the building.

17.2 Remote Access Through Internet

To enable the remote access to OPTIMA through internet, please follow the steps below:

- The parameter "GATEWAY" in the network settings of OPTIMA must be set to the IP address of the installed internet router
- The configuration of the installed internet router must be changed and a port forwarding rule to the IP address of the installed KNX CONTROL device on port 443 and 22 (data type "TCP") must be created.

If the external ports 443 or 22 are already used for other remote accesses, then the port forwarding can be realized through other ports, where the external ports must be forwarded to the IP address and the ports 443 and 22 of the installed KNCONTROL device.

Example: access through URL https://www.myUrl.com:1443 port 1443 of the internet router must be forwarded to the IP address and port 443 of the installed KNX CONTROL device).

For detailed information on setting up a port forwarding rule, please refer to the documentation of the installed internet router.

18 Product Specific Characteristics

In this chapter are described the functions of OPTIMA, that are available only on specific products of the KNX CONTROL series.

18.1 KNX SERVER

KNXSERVER is a small Box-PC that can be mounted on DIN rail. The device has therefore no screen to display the visualisation of OPTIMA directly, and each access has to be made remotely over client devices.

Technical information about KNXSERVER can be found in the corresponding INSTALLATION GUIDE or DATASHEET.

18.1.1 URL

The following table shows the whole URL for the direct access to the different areas of OPTMA:

AREA	URL
Administration	`http://192.168.0.110/www/modules/system/externalframe.php?context=configuration`
Visualisation	`http://192.168.0.110/www/modules/system/externalframe.php?context=runtime`

18.1.2 RESET OF THE IP ADRESS

If needed, the IP address of KNXSERVER can be reset to factory settings through the RESET-button on the bottom side of the device:

- Localize the RESET-button on the device and get a screw driver or a similar tool with a small diameter to reach the RESET-button through the small cutout in the housing of the device.
- Press the RESET-button until the SERVICE-LED starts blinking (about 10 seconds); afterwards release the RESET-button.
- Press the RESET-button again within the next 5 seconds for max. 2 seconds and then release the button again; after a short pause the SERVICE-LED stays on for some seconds.
- As soon as the SERVICE-LED turns off, KNXSERVER is reachable under the factory-IP address (“192.168.0.110”)

If the SERVICE-LED stops blinking after the RESET-button was pressed for the first time (10 seconds) and before you were able to press the RESET-button again, please repeat the whole procedure.

18.1.3 RESET OF THE DATABASE AND IP ADDRESS

If needed, the database and the IP address of KNXSERVER can be reset to factory settings through the RESET-button on the bottom side of the device:

- Localize the RESET-button on the device and get a screw driver or a similar tool with a small diameter to reach the RESET-button through the small cut-out in the housing of the device.
- Press the RESET-button until the SERVICE-LED starts blinking (about 10 seconds); afterwards release the RESET-button.
- Press the RESET-button again within the next 5 seconds and hold it until the SERVICE-LED turns off.
- Now KNXSERVER is restarting, after about 2 minutes the server is reachable under the factory-IP address ("192.168.0.110").
- On the first access after the reset procedure a system check is executed; this takes some minutes.
- Afterwards the database is empty and the device is ready for use.

If the SERVICE-LED stops blinking after the RESET-button was pressed for the first time (10 seconds) and before you were able to press the RESET-button again, please repeat the whole procedure.

18.1.4 HIDE NAVIGATION AREA

It is possible to show the visualisation pages of OPTIMA even without the graphical navigation area (title bar, navigation bar, toolbar). In order to enable this, please add one (or more) of the following expression into the address bar of the browser:

SKIPHEADER=TRUE	Hide title bar (on top)
SKIPMENU=TRUE	Hide navigation bar (on the right side)
SKIPFOOTER=TRUE	Hide toolbar (on the bottom)

Attention! When inserting the expressions into the address bar of the browser, please pay attention that the inputs are case sensitive!

Furthermore, the expressions must be inserted following the typical directives for web parameters:

- The first entry must be led by the character"?"
- Following entries must be separated by the character "&"

Example:

http://192.168.0.110/www/modules/system/externalframe.php?context=runtime&skipmenu=true&skipheader=true&skipfooter=true

The following screenshot shows a visualisation page with buttons template view (4 buttons), with disabled navigation area:

This special way of representing the pages of OPTIMA can be created thanks to the template view, which permits to create pages with limited access (max. 8 objects) that do not permit to access other areas of the visualisation.

Hint: Without navigation area it is not possible to access all areas of the visualisation. Please consider this during the creation of the visualisation and BEFORE enabling this kind of visualisation!

18.2 KNX SUPERIO

KNX SUPERIO is a Touch-PC with integrated display, to display the visualisation of OPTIMA directly on the device itself. Additionally it is possible to access the visualisation using (remote) client devices.

Technical information about KNX SUPERIO can be found in the corresponding INSTALLATION GUIDE or DATASHEET.

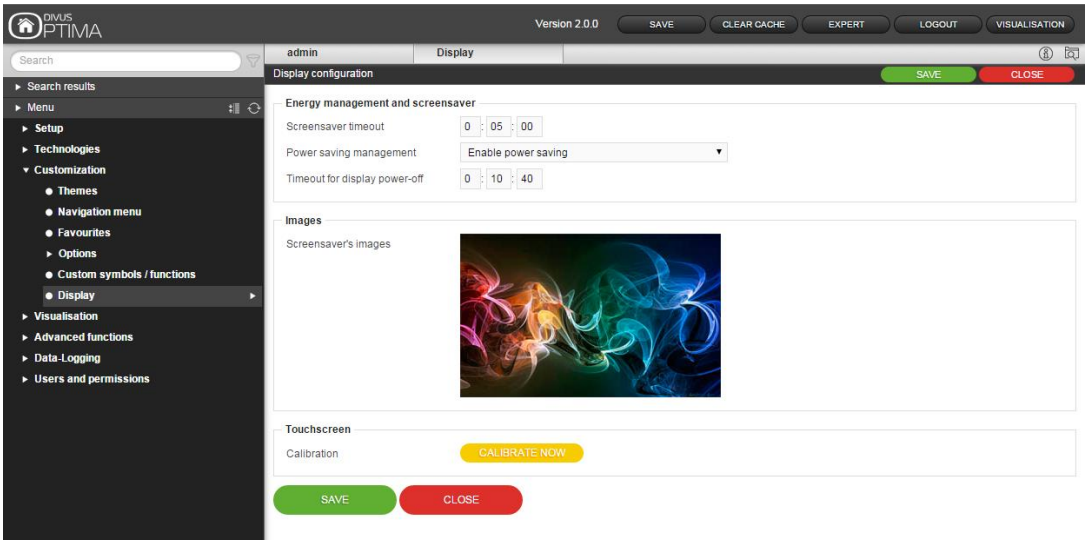
18.2.1 URL

The following table shows the whole URL for the direct access to the different areas of OPTIMA:

AREA	URL
ADMINISTRATION	`http://192.168.0.110/www/modules/system/externalframe.php?context=configuration`
VISUALISATION	`http://192.168.0.110/www/modules/system/externalframe.php?context=runtime`

18.2.2 DISPLAY

In the section "CUSTOMISATION DISPLAY" all the settings for the display of your KNX SUPERIO can be configured and also the touchscreen calibration can be started.



18.2.2.1 POWER MANAGEMENT AND SCREENSAVER

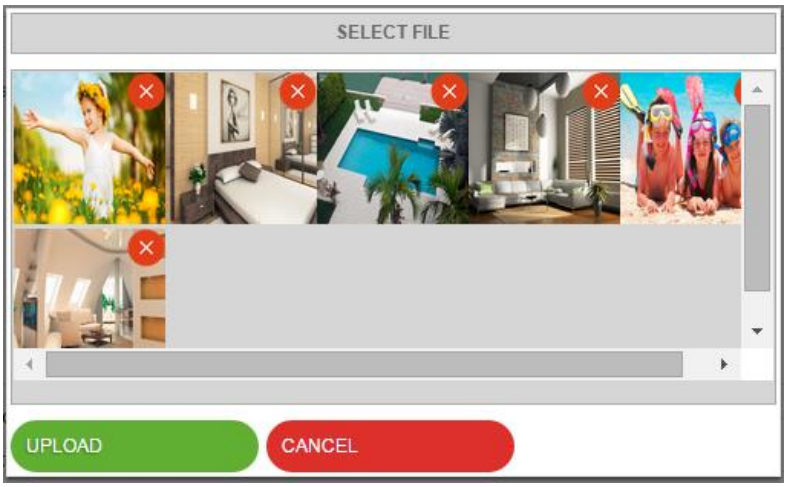
The following options are available:

SCREENSAVER TIMEOUT	If for the defined timeout the touchscreen of KNX SUPERIO is not operated, the screensaver function will start.
POWER SAVING MANAGEMENT	This enables / disables the power saving mode. If the power saving mode is turned on, the display of KNX SUPERIO will be powered off, if for a defined timeout the touchscreen of the device is not used.
TIMEOUT FOR DISPLAY POWER-OFF	If the power saving mode is enabled, this field permits to set the timeout after which the display should be turned off, if not operated.

The settings will be saved correctly only when the „SAVE"-button is pressed. The graphical surface of KNX SUPERIO will be restarted as soon as the „SAVE"-button is pressed; this procedure can take up to 1 minute.

18.2.2.2 IMAGES

Through this option custom images can be uploaded to KNX SUPERIO for being used from the integrated screensaver.

SCREENSAVER PICTURE MANAGEMENT	Through the „UPLOAD"-button further pictures can be uploaded to KNX SUPERIO . Through the "X"-button the corresponding picture can be removed from KNX SUPERIO . 

18.2.2.3 TOUCHSCREEN

Through the calibration the touchscreen can be optimized for the customer:

CALIBRATION	A single click on the button „CALIBRATE NOW" starts the calibration procedure on the display of KNX SUPERIO . During this procedure, 4 crosses appear on the display of KNX SUPERIO, which must be pressed by the customer one after another. Once all crosses have been pressed, the calibration process is done.

HINT: The calibration process can be started only from the administration menu, which is accessible only by a remote PC (desktop PC/ notebook). This permits to start the calibration even when the touchscreen can't be used anymore, e.g. because of a wrong calibration.

18.2.3 RINGTONES

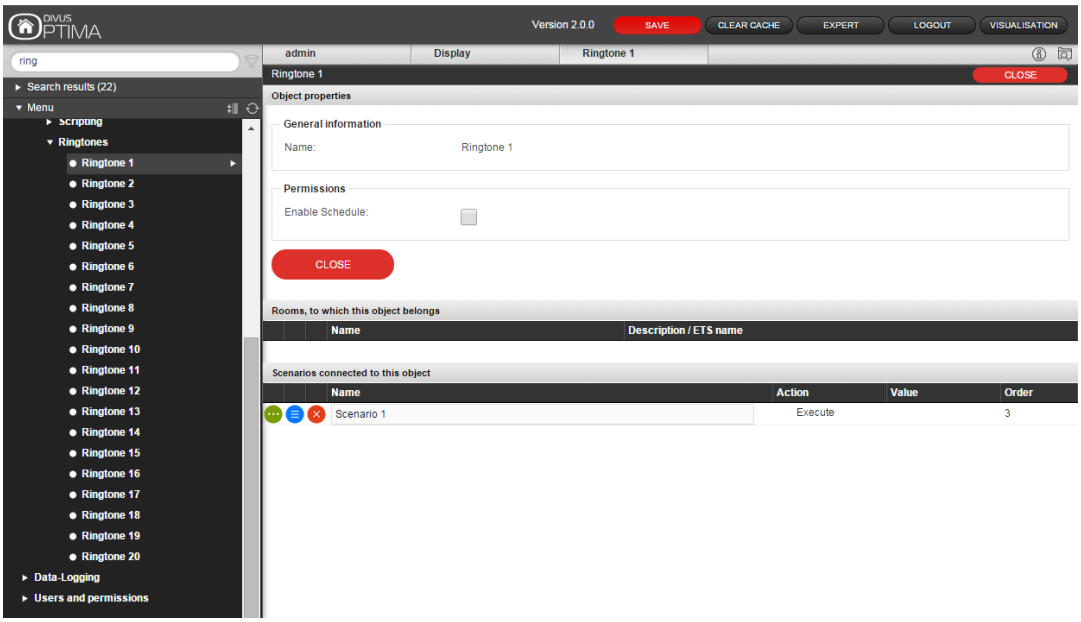
On KNX SUPERIO, OPTIMA provides the possibility to play acoustic signals called "ringtones", which can be triggered through scenarios.

With the following steps the playback of the ringtone can be configured:

- Access the ADMINISTRATION area
- Use the search engine to search for „ringtone", as result all 20 ringtones are displayed

- Create a new scenario and open it in a new tab
- Add the desired ringtones o the actions executed by the scenario using drag & drop.

Ringtones can only be played directly on the loudspeaker of KNX SUPERIO , not on other client devices that are connected to KNX SUPERIO . The playback is only possible through scenarios. So first a scenario must be created, then the ringtones can be added to the scenario and the event, which will start the playback of the ringtones, can be defined.



For more detailed information about scenarios in OPTIMA, please refer to chapter 9 of this manual.

19 Appendix

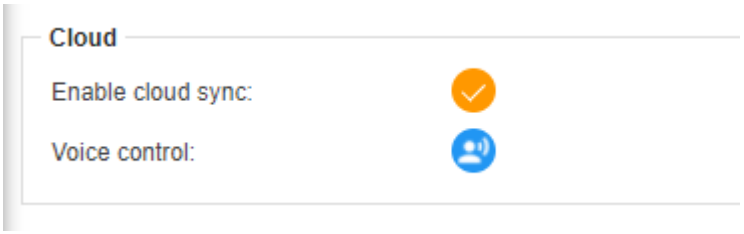
19.1 CONFIGURATION OF VOICE CONTROL USING ALEXA/GOOGLE

For this functionality there are the following prerequisites:

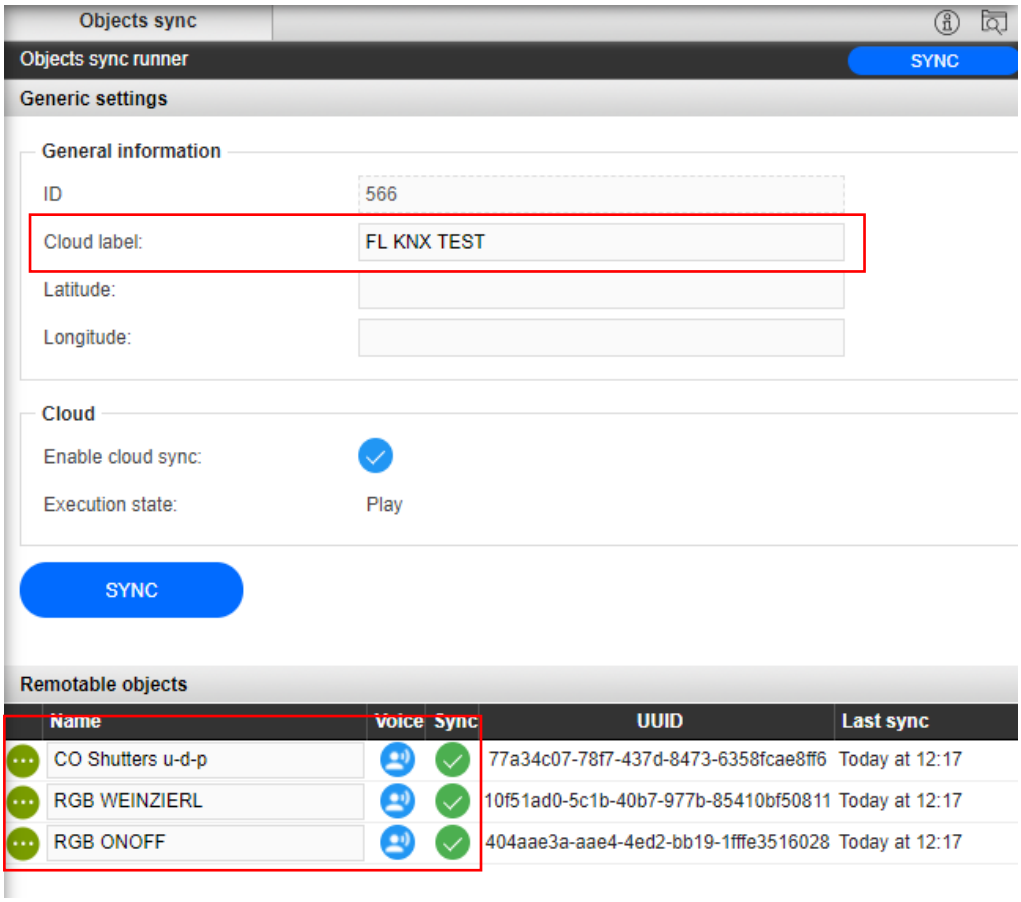
- DIVUS D+
- Device capable of handling voice commands (Amazon Echo device, Google Home device etc. Please note that other systems e.g. SIRI or Cortana are not supported at this time)
- An active cloud account on the D+ (see chapter 14.1)
- At least one object in the D+ project enabled for cloud sync (more about this later)
- The OPTIMA skill, activated through the Alexa App for the *Amazon/Alexa* world or the OPTIMA action activated in similar fashion, for the *Google Assistant* world.

The procedure is then the following:

1. Register a cloud account for your D+ if not done so already and login, associating the device to your account.
2. Go to the device you want to command by voice and enable it for cloud synchronization. The orange colour means the object is enabled but not synchronized yet. If will become green then.



3. Go to *Objects sync* in the Cloud menu. Make sure to define a Cloud label. In the list below, you'll find the voice-controllable devices and their synchronisation status. If some are not green yet, push the sync button.



4. Go to the Alexa / Google Home app and activate the DIVUS OPTIMA skill/action if not already done so. It will then require your cloud credentials to be able to access the objects set for voice control.

5. The app will then scan for new devices and show those found. The new devices can be renamed inside the app, if desired. The name shown in the app is the one you need to use in your voice commands. If possible, use names which have a clear difference in pronunciation between each another, to avoid misunderstandings. For Echo devices, you may now say e.g. "Alexa, turn the KITCHEN LIGHT on". Where KITCHEN LIGHT is the name you defined for one of your lights. The equivalent for Google might be "Ok Google, turn the KITCHEN LIGHT on".

6. You can repeat the scan/discovery procedure through the app at any time and of course when you added or removed the devices you want to control by voice commands.

7. Please not that only those objects showing the blue voice control icon in the OPTIMA administration can currently be controlled through Alexa/Google.

19.2 RELEASE NOTES

VERSION 1.0.1

NEW:

- First release

19.3 NOTES