VS LIGHTING SOLUTIONS

LiCS OUTDOOR

Operating Manual iLIC Software

Installation and Operation

Version 2.1

iLIC Software

Contents

Thank you for choosing the LiCS System made by Vossloh-Schwabe. Please read this operating manual to acquaint yourself with the product functions and to enable more effective use to be made of it prior to first using the software. Once you have read it, please keep this manual in a safe place for future reference. All personnel tasked with the set-up, commissioning, operation, maintenance and repair of this system must
- be suitably qualified and
- closely observe the instructions found in this manual.

■ LEGAL NOTES

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■ **1 GENERAL INFORMATION**

1.1 Preliminary Note

This manual is for the luminaire information centre (portal or iLIC for short), a Java-based and cross-platform application whose purpose is to receive, evaluate and present data generated by luminaires in an easily understandable form. The manual details the functions available at the time of writing and has been put together to the best of Vossloh-Schwabe's knowledge. However, as technical development is ongoing, no guarantee can be given for completeness. Customer-specific adaptations are not detailed in this manual. Furthermore, all parts of the manual associated with the software's operation refer to the English-language version. Other language versions apply accordingly.
The terms iDC, SmartServer or data concentrator are synonyms for the same device.

1.2 Motivation

The PL controllers integrated into street luminaires (installed in the lampposts or luminaires) are capable of automatically or interactively controlling and adjusting light levels to suit the respective requirements. The data generated during such processes are transferred to a central device (iDC – intelligent data concentrator), are then stored in data loggers and finally made available online. A connection to the portal software can be established in various ways, such as UMTS/3G/4G, fibre optics, satellite, DSL or Ethernet.
The transmission format is based on international standards and is established via SOAP-XML.

1.3 Software Operation, System Requirements

This purely web-based client-server software comes with the advantage that the online platform and therefore the controller data can be accessed using any commonly available internet browser (IE, Firefox, Safari, Opera, etc.). The server can either be a computer administered by Vossloh-Schwabe or a computer operated by the customer. If the customer uses its own computer system, responsibility also rests with the customer for ensuring the necessary resources, also including a designated IP address, are made available.
Any computer system that satisfies the following minimum requirements is suitable:

– Intel© Xeon© Processor E3-1200 v5 or better
– Min. 4 GB RAM DDR4-DIMMs
– Enterprise-class SATA hard disk, min. 1TB
  preferably RAID 1-mirrored.
– Windows 2012 R2 Server Software (preferably) or Ubuntu/Debian 64-bit Linux Distribution

It is recommended to use a second computer for databank administration purposes when operating the software to manage larger systems with more than 20,000 light points. Data backup measures such as RAID hard disks and backup systems must be provided by the operator. Vossloh-Schwabe Deutschland GmbH provides no guarantee for data security in the event of customer-operated systems.

Vossloh-Schwabe can make its own servers available for unlimited use by customers. All tasks such as data backup, administration and update services can be carried out by Vossloh-Schwabe for a fee.

■ **2 INSTALLATION PROCESS**

2.1 Preparation

The following applies for all Windows operating systems: the individual software packages must be installed in accordance with the instructions found below. These packages also include software provided by third parties such as Oracle©, JAVA™, SDK, a PostgresSQL databank as well as Apache-activemq, a so-called message broker. All of the software named above is freely available on the internet, but is also included in the installation package. The current versions of the various programs should be used. Possible upgrades and patches must be applied by the user. In addition, there are two further installation packages that comprise the actual iLIC software.

Installation on a Linux operating system is fundamentally possible, but is limited to Debian or Ubuntu distributions.

In the event of systems administered by Vossloh-Schwabe, no special installation is needed since Vossloh-Schwabe will set up the portal.

If VPN services are used such as the 3G/4G routers integrated in our iDC, the respective clients must be installed on the system.
The manual for our iCT commissioning software also contains instructions for using an OpenVPN client.

2.2 Functions

All further details refer to systems administered by Vossloh-Schwabe. Deviations caused by customer-specific modifications or older versions are possible.

2.3 Overview

First of all the URL or web address must be known with which to register using a conventional internet browser.
The IE11 browser made by Microsoft® was used in the examples shown below, but any other browser can be used in an analogue fashion and is independent of the software.

2.4 Required Programs, Installers and Files

- Java JDK in its latest version
- Apache activemq
- PostgresSQL
- CenterSight iLIC
- CenterSight Photon

Furthermore (also see Annex Chapter 5)

- ON/OFF DIM Object
- OLC Profile
- SmartServer Profile

2.5 Step-by-step Installation

The installation begins with creating a directory in the root directory of the operating system.
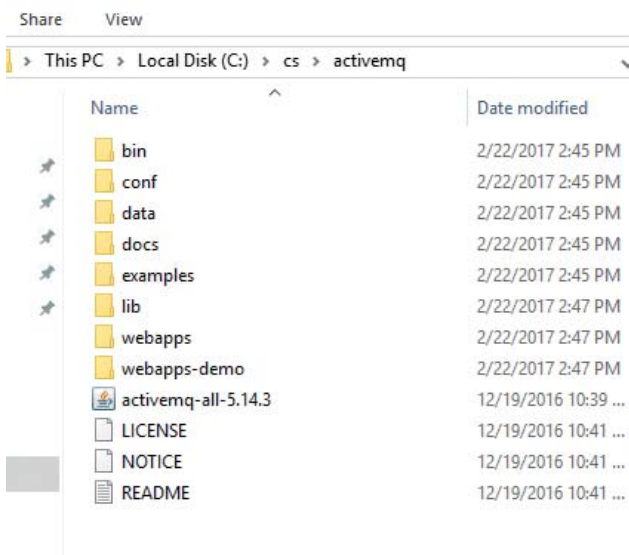To ensure secure access, it is recommended to use "cs" as the name of the directory:
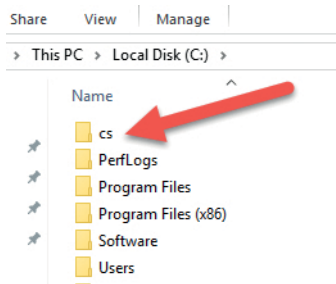
2.5.1 Installation of Java™ JDK

The Java™ SDK software package must be installed as described. All default settings can be accepted.

2.5.2 Installation of Apache activemq

This package is delivered as a ZIP file, the contents of which must be copied to the c:\cs\activemq directory:

2.5.3 Installation of PostgresSQL

The PostgresSQL program must also be installed with its default settings; the password is "postgres" and the default port is "5432", which must be used. If the databank is not to be run on the same hard disk, e.g. if an external hard disk or a separate server is used, this can be entered under "Data Directory". To finish off, you will be asked whether to install the stack builder, but this is not necessary and can be deactivated.
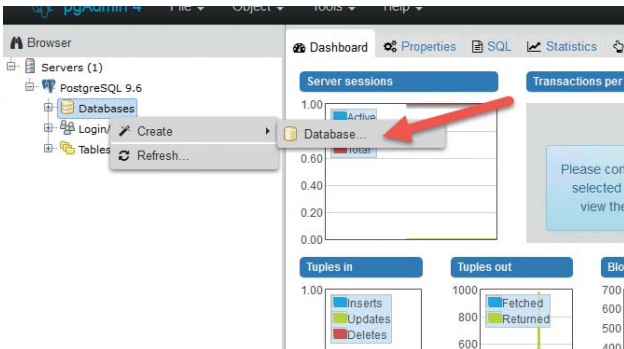
Following successful installation, the "pgAdmin" tool must be started in order to make several entries:
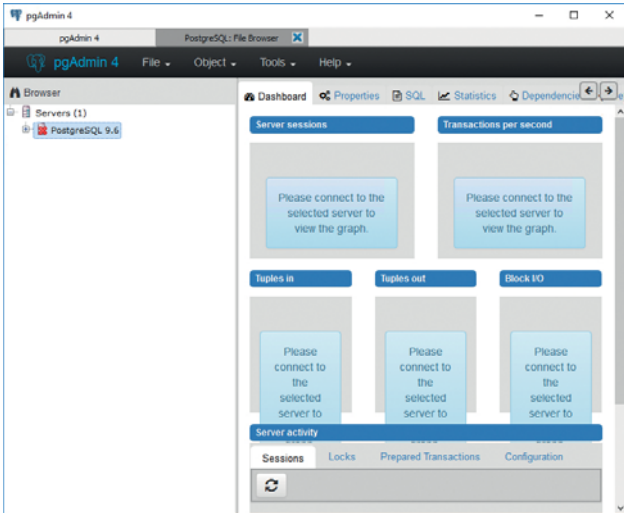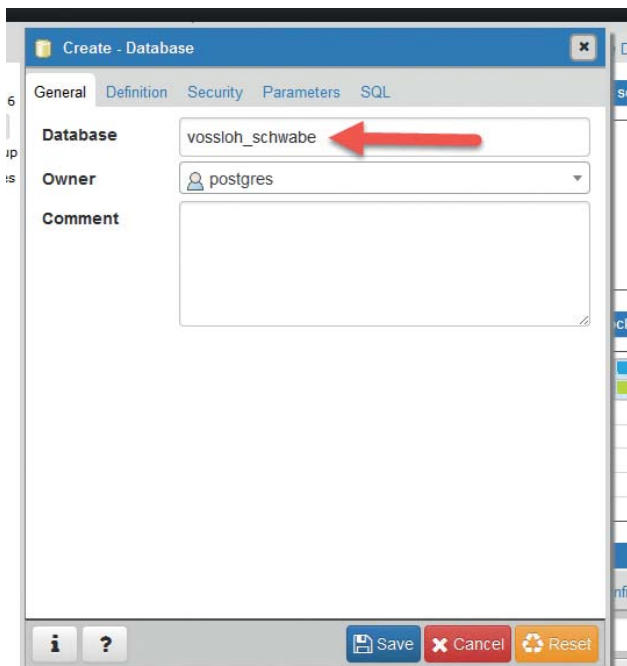

First select and connect the "PostgresSQL x.x" databank with a right mouse click:
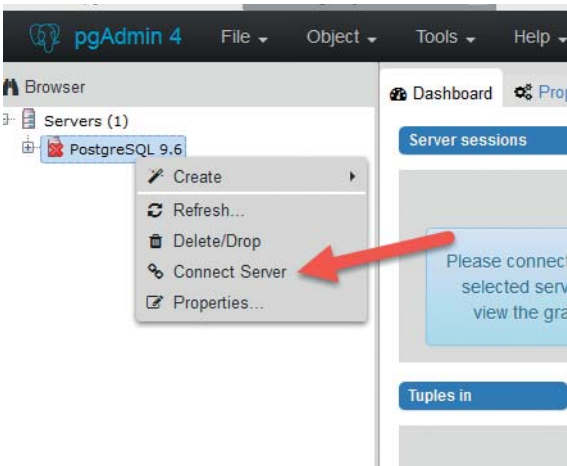
Then you will be asked for the password, which was already predefined as "postgres" during installation.
After that, use a right mouse click to select "Databases >Create >Database…":

A new window will open. Enter "vossloh_schwabe" as a name for the new data:

Complete installation of the databank with a final save and then close the pgAdmin tool.

2.5.4 Installation of CenterSight iLIC

To this end, run the respective "centersight_iLC_x-y-z.exe" installer. The program initially responds by asking you to accept the licence agreement, for which you must click on "Accept". Do not activate component selection.

The next step involves defining the installation path.

Contrary to the program's suggestion, though, the program should be directly installed in the root directory, i.e. c:\cs:

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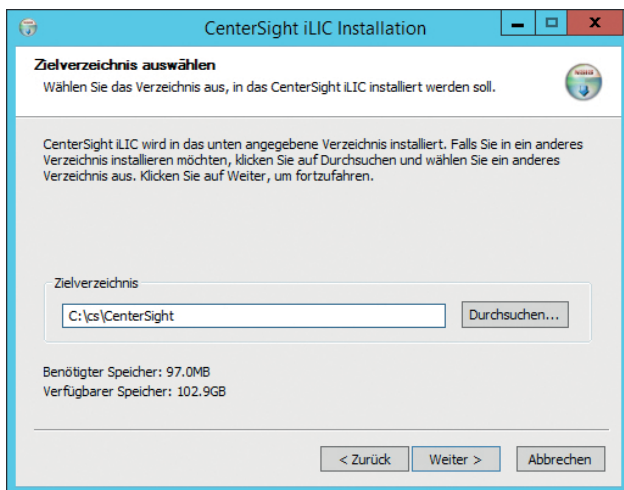
Next, enter the path for the JAVA application:

The entry regarding the size of the available storage space can be left unchanged.
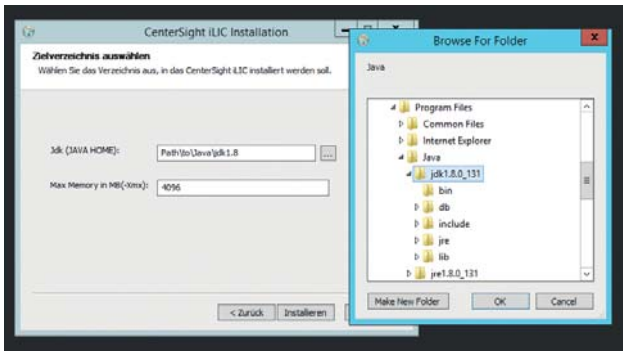To finish off, the installer will ask you whether iLIC should be started, which you must confirm with "Yes".

2.5.5 Installation of CenterSight Photon

To install CenterSight Photon, the second part of the CenterSight software, please run the centersight_photon_x.y.z.exe installer. You will again first be required to accept the licence agreement and in the following step, the installation components should again not be selectable. Preferably, the program should then be installed in the same target directory as the first part of the software:
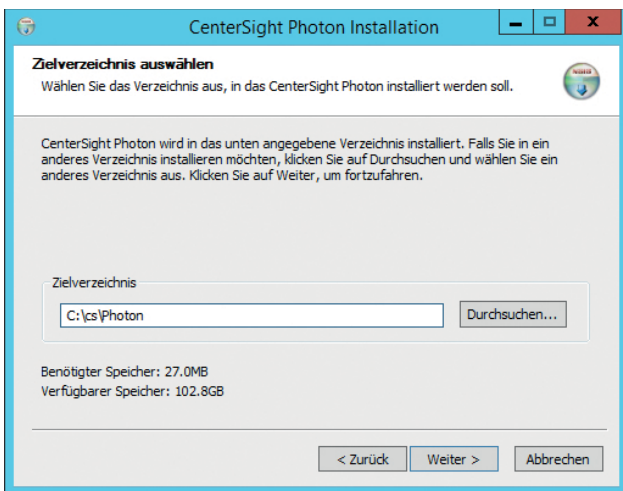
After that, the path for the JAVA program again needs to be defined:
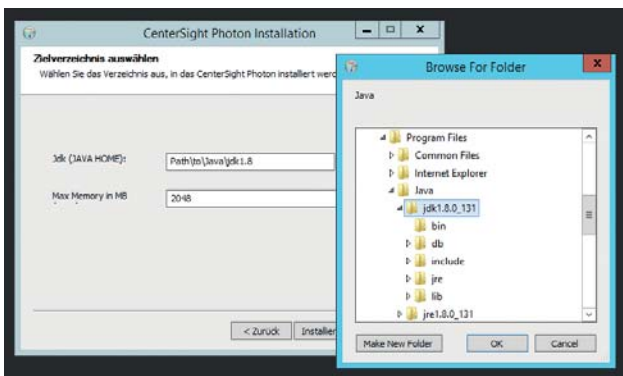
The entry regarding storage space can remain at the predefined value. The program finally asks whether it should be started.

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In some cases, though, the following message can appear:

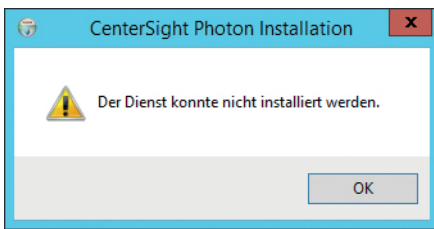

This does not affect further installation, though.

2.5.6 Prestart Preparation

A few final preparatory touches are now necessary before CenterSight can be started. However, these are only necessary in the event of a new installation. If the system runs without any problems, this step can be skipped.

To begin with, Apache activemq must be installed as a service.
To this end, select the file ../activemq/bin/win64/InstallService.bat and run in administrator mode:
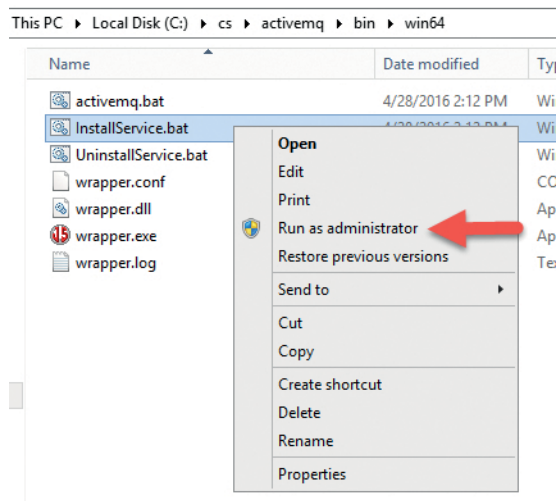
Next, Windows "Services" need to be opened
to check the status of the following entries:

– ActiveMQ

– iLIC

– PhotonVossloh

All three services must be started. Wherever this is not the case, the process must be triggered manually by clicking on "Start":

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2.5.7 First CenterSight Access

Since CenterSight is a web-based service, a commonly available internet browser (e.g. IE, Firefox, Chrome, Safari) will be required as a GUI.

It is recommended to carry out a first test on the local device.
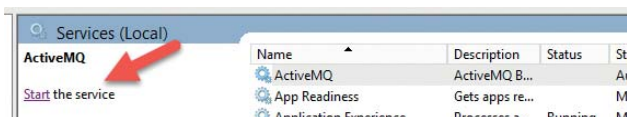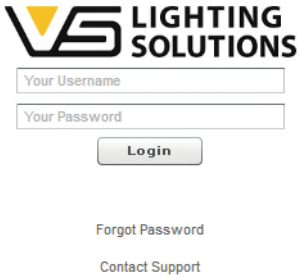To this end, the following address must be entered in your browser: http://localhost:8080.
The following registration window should then appear:

For the purpose of first registration, enter "test" as the user and "LuxUser456" as the password, after which an error overview window will open.

2.5.8 Further Required Steps

To enable operation, profiles and objects need to be defined. Using JSON as the data format, profiles serve to describe the function of devices, which in our case refers to the variables of luminaire controllers and data concentrators. Functions such as ON/OFF or dimming can then be defined in these profiles. Both sections are preworded, but must still be saved in CenterSight. The necessary formats can be found in Chapter 5, Annex.

2.5.8.1 Installation of Objects

Objects must always be defined first since they may be required for the profiles.
A submenu with an entry called "Object types" can be found under the "Administration" menu item:
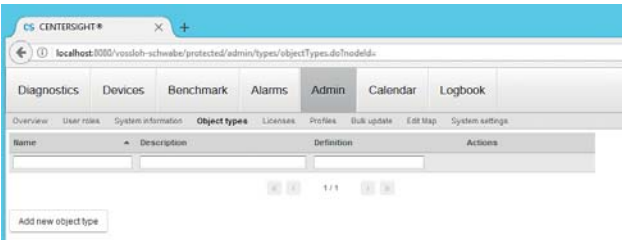
Select "Add new object type", after which the following window will open:

ON/OFF must now be entered as a name and a freely selectable text as a description. In principle, any other name can also be used as the profile name. The actual object description, as defined in Chapter 5.3.1. ON/OFF, DIM Object, then needs to be entered in the definition field:

Please then "Save" your work, after which the ON/OFF function first needs to be described. If necessary, the function can be visualised by enabling the respective checkbox. The process needs to be performed again for the DIM function, with the only difference being that the object now needs to be called DIM. However, the object description remains the same as for the ON/OFF function as this also contains the slider function and should therefore be copied into the new profile 1:1.

On completion, two objects will have been entered in the system:
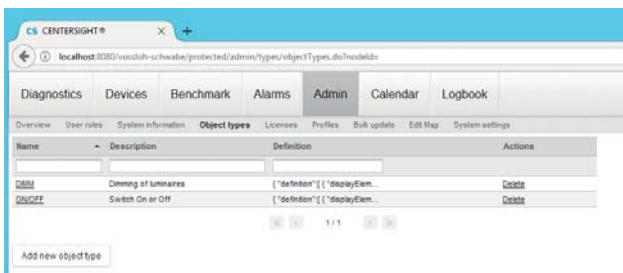
2.5.8.2 Installation of Profiles
Two preworded text files are available for defining profiles, both of which can be found in the annex.
Start by selecting "Administration" in the main menu, in which a submenu with an entry called "Profiles" can be found.

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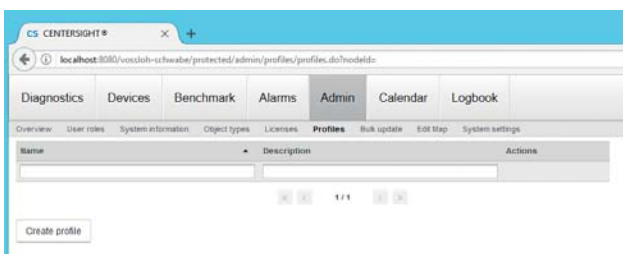
Then create a new profile with "Create Profile", to which end a window will open in which the definition must be entered.
In this case, the profile name is "OLC". Since this is a luminaire profile, the respective checkbox also needs to
 be enabled. The previously defined "DIM" must then be entered as the standard object, after which you must "Save" the profile:
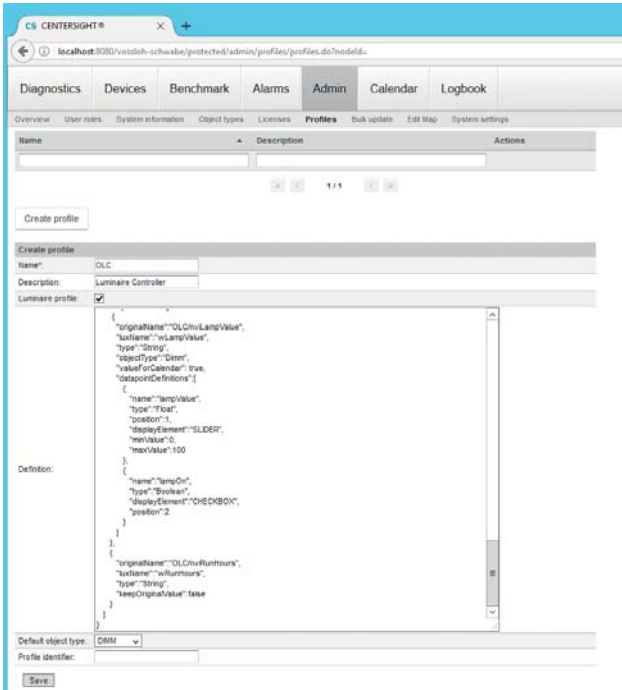
A further profile then needs to be created for the iDC/SmartServer.
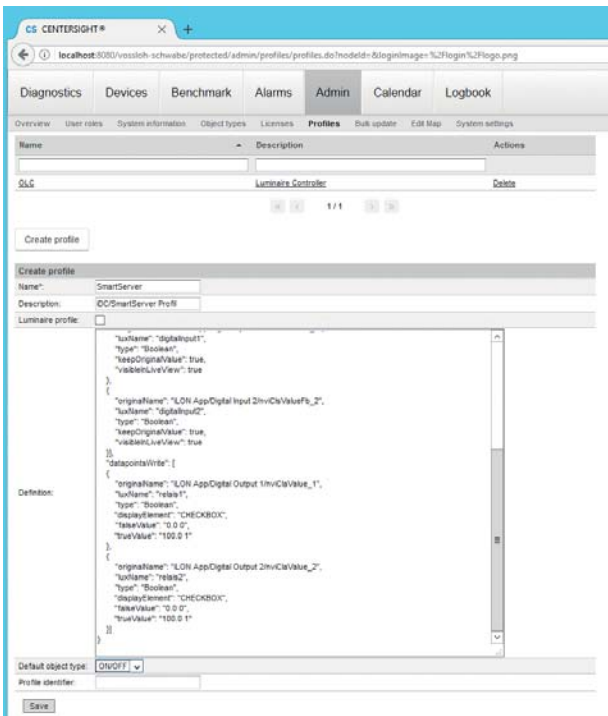
However, the checkbox for luminaire profiles must remain blank since the iDC/SmartServer is a data logger.

This completes all the preparatory steps for using the iLIC/CenterSight programs.

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■ 3 CREATING PROJECTS

This chapter serves to describe how a light management project is created. All further steps presuppose that a data connection exists to the iDC/SmartServer and that this is available for use. All following settings are carried out in administrator mode, which can be selected from the menu bar.

3.1 Defining Users

Prior to commissioning the software, a user with full user rights must first be defined in the root directory.
To this end, there is a predefined user role called "Super-Admin", in which all program rights are enabled.
After selecting "Administration" in the menu, the left-hand field first contains only "Root" and "test" as the user.
The user is also predefined by default, but should be deleted after defining a new user for security reasons.
A new user is defined by selecting the respective symbol:
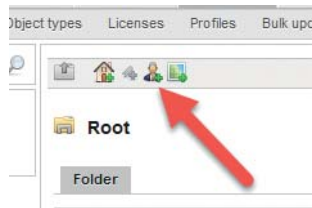
An input screen will then open:

All fields marked with an asterisk (*) must be filled in, which fundamentally applies to all input screens in the system.
In particular, the password must be at least eight characters in length, contain lower- and upper-case letters, numbers and special typographical characters (e.g. hdfETr8! or NewYork1999$). The email address is equally important so that your password can be reset should it ever be forgotten. The respective language and start screen must also be selected. All other fields can optionally be filled in. To finish off, all entries should be saved by clicking on the respective button at the bottom of the input screen.

3.2 Structuring a Project

The program provides the option of fully structuring a project, to which end there are several buttons for selection.
As the system is capable of managing multiple clients, it is first necessary to define a client:

Entering the name of the client is again a minimum requirement. Further entries are optional:

Further entries can be made in three additional tabs:

– gateway data retrieval: entry of the time when logged data are to be retrieved from the data concentrator,

– alarm configuration: selection of the displayed alarms and

– logbook: for logging all activities.

Once the client has been saved, further symbols will be displayed that permit more in-depth structuring of the project:

The symbols mean the following, from left to right:

– Move up a level

– Creation/system integration of a data concentrator (iDC)

– Defining a street

– Defining a suburb (district)

– New client

– Creation of a datapoint (only possible for devices)

– Defining a city

– Defining a further user
– Creating a user-specific map

Ideally, a possible structure could look as follows:

Client, > City, > Suburb, > Street, > Data Concentrator
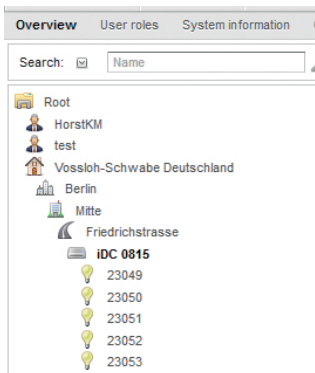
These structures also provide an option for defining the geographical position,
which makes it easier to locate street luminaires on maps.

By the way, users can be added at any point, which helps in assigning responsibilities:
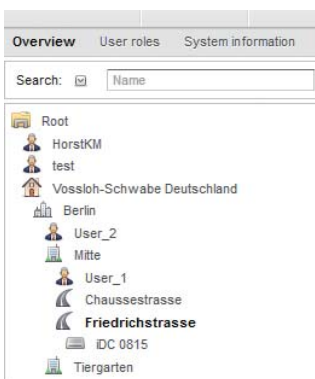
In this example, "User_2" can access the centre and Tiergarten districts and all data concentrators in these zones, while "User_1" can only access streets in the centre district. Any number of constellations and dependencies can therefore be created in this way.

In a similar manner, any number of data concentrators (iDC) can be defined on individual streets:

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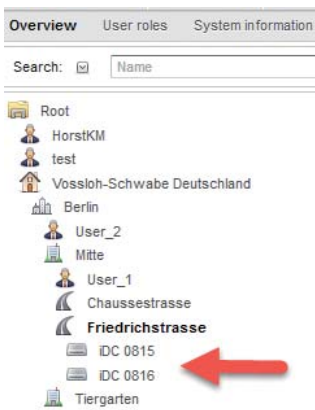
3.3 User Rights

The Administration > User Roles submenu lets you define every operating point to which an individual user will be permitted to have access within the program. Menu items must be explicitly activated in order to be visible.

When defining a user role, note should be taken of the following: the super-administrator (Super-Admin) is granted the highest level of user rights and the top security level of 0. If a user is defined with a security level of 20, this means a user of security level 21 will be unable to change the access rights of any other users with a security level < of 21.

Clicking on the "New User Role" button lets you define a new user with restricted rights:
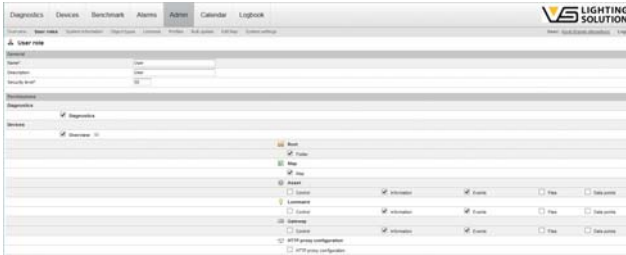
3.4 System Integration

In order to make all information in the system visible it is necessary to carry out a system integration.
This process makes the field devices known to the iLIC system.

First, select the Administration >Overview menu item. Now that the project has been structured,
a data concentrator (iDC) with all its luminaire controllers can then be defined.

In our example, such an iDC is defined for Straße des 17. Juni as the street.
Once the respective symbol has been activated, the following becomes visible:
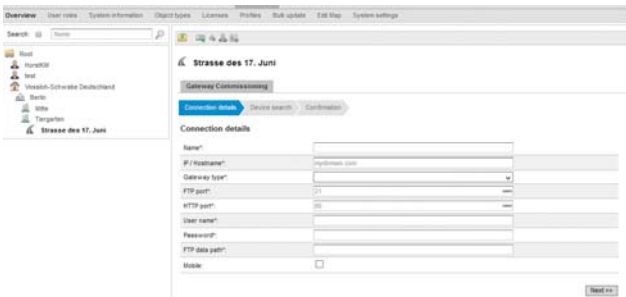
It is absolutely indispensable that the iDC can be reached for data purposes. Failing this, it would be impossible to export the data contained in an iDC. To begin with, several entries must be made:

 – A freely selectable name

 – The IP address or the host name of the iDC

 – Select "SmartServer" as the gateway type

 – The port to be used for FTP; default setting is 21

 – The port to be used for http; default setting is 80

 – User name; default setting is "ilon"

 – Password; default setting is "ilon"

 – FTP data path: enter a "/" here.

 – Should you want to make wireless access via a router or a modem, this checkbox must be activated.

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Then click on "Next" to proceed to the next step. The software will attempt to establish a connection to the iDC.
If successful, all controllers will then be displayed:

As a next step, the controller type and profile need to be entered (type = DIM, profile = OLC) in the first row for every controller. The next column contains the geographical coordinates as long as these were previously entered using the iCT tool. Entries can be edited at any time. Furthermore, it is also possible to select individual controllers as long as the checkbox in the first column was marked accordingly. However, it is important to select only controllers whose name begins with OLC_. Clicking on "Install" will transfer data stored in the internal databank to the iLIC software.

A few further steps then need to be completed for the iDC
since the profile and the object type need to be entered in the "Gateway" menu item:

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In the next step, the software will check whether the system integration was successful.
To this end, the "Systems" entry in the menu merely needs to be selected:
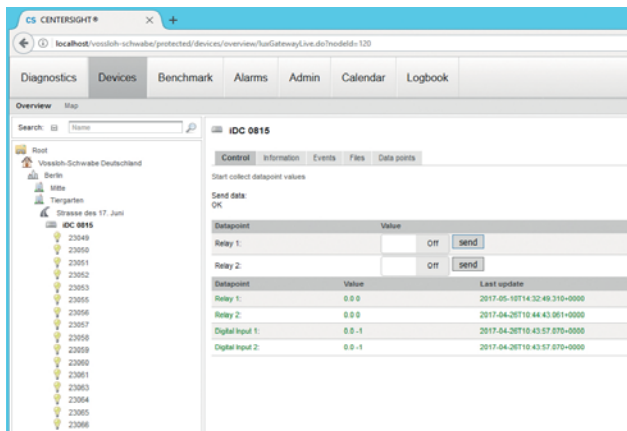
The internal relay contacts of the SmartServer (iDC) can be switched in the datapoint fields.
If these contacts are connected to the contactor of the lighting system, lighting can be switched on or off at any time.
An additional message is shown as to whether the digital inputs of the SmartServer were activated.

The same can now be carried out for the controllers:
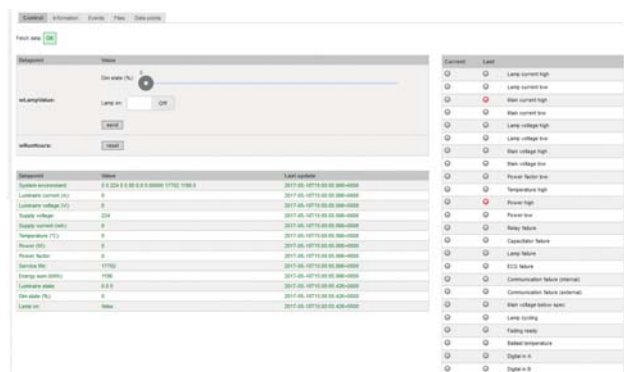
If the entry is shown in green, the controller is online and can deliver data.
If the entry is shown in red, the controller is offline and will not be able to deliver any current data.

All critical steps needed to work with the software will now have been completed.
The following chapters deal with routine tasks and settings.

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■ **4 FURTHER STEPS**

4.1 Daily System Operation

The bulk of the work carried out using the system will centre around locating possibly defective luminaires.
In addition, there are also analysis tools that can be used to show energy consumption or provide a graphic evaluation of data.

4.1.1 Error Overview

Once a user has logged on, the program will automatically display the error overview, which provides the user with a list of all incorrect parameters in the entire system. The causes of such errors can be highly varied in nature, ranging from defective light sources right up to faulty electronic assembly groups within the ballasts:
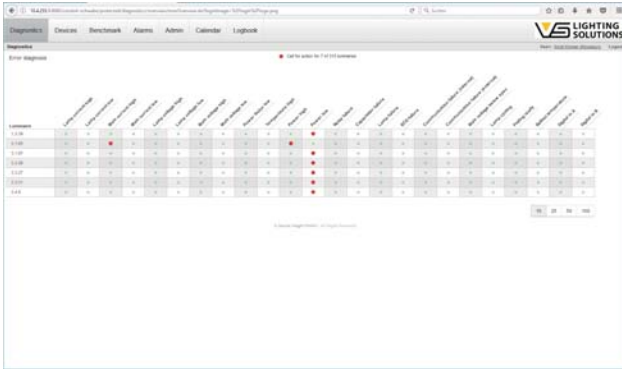
Clicking on one of the listed controllers will then take you to that controller's detail overview.

If the user is listed directly under "Root", all possible errors will be shown.
But if the user is listed under the client, the displayed error messages can be modified.
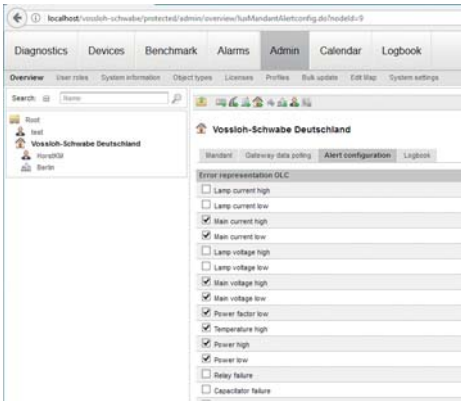
4.1.2 Systems:– Controllers

This section contains details of all devices.
Individual devices can be selected to obtain further details.

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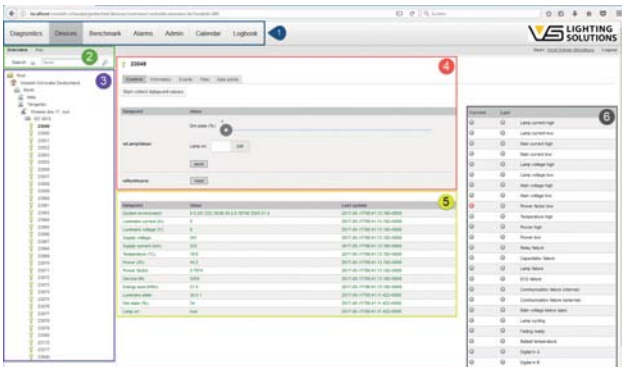
The visible sections in detail:

1. Main menu to select the various sections:
   - a.   Error overview
   - b.   Systems
   - c.   Analysis
   - d.   Alarms
   - e.   Administration
   - f.   Logbook

2. Search field to aid in quickly locating individual devices:
the search can be restricted to certain sections with the small arrow in between the word "Search" and the entry field.

3. Systems tree to select individual devices.

4. There are four entries at the upper edge:
   - a.   Control: displays all online data of the device
   - b.   Information: displays relevant information
   - c.   Events: events such as updating information
   - d.   Files: as long as files were saved to the administration section
   - e.   Datapoints: datapoint content with a time stamp of the last update

A field called "Start collecting datapoint values" may appear immediately beneath the above mentioned. The background to this is as follows: as already described in Chapter 3.4, it is necessary to state whether data exchange is to be effected wirelessly (3G/4G). If this checkbox is left empty, the program will constantly attempt to retrieve data, which increases both traffic and transfer costs. If the checkbox is activated, the field described above will appear. Data will then only be retrieved if this field is clicked, which is to say the transfer is started manually. Then a slider field follows to set dimming levels between 0–100% as well as a switch for turning lighting on or off. Once the settings have been completed for the two components, the "Send" button must be clicked. This enables individual luminaires to be addressed. The "Reset" button will set the accrued and measured operating hours back to 0.

This should always be carried out after replacing either light sources or entire luminaires.

5. An overview field of all measured values of the selected device. The previously defined profile will dictate what exactly is shown here. Any changes made to the profile would therefore also have an immediate effect on the information displayed. If the information is shown in green, the device is online; if it is shown in red, the device is offline.

6. Error overview for various messages. The previously undertaken definition of the client will dictate which messages are shown here (also see Chapter 4.1.1). This section is divided into two columns: the left-hand column shows the current state, the right-hand column shows the state that was previously active, which is to say an older and no longer current state. This can be helpful if, for instance, the limit value for the power factor was under-dimensioned and the luminaire is excessively dimmed, in which case the message will be registered under "Current". If the luminaire is dimmed up again to 100%, this message will shift into the "Previous" column. This ensures the previous value does not simply disappear after a value is within its limits again.

4.1.3 Systems: – iDC
The iDC is displayed as follows under "Systems":

In this case, the details are structured in a simple manner: both relays on the SmartServer can be controlled, which means can be switched on or off. This means that, for instance, light could also be switched on during the day for maintenance purposes using respective contactors. In addition, the two digital inputs are also shown. In this case it would, for instance, be possible to connect and address door contacts. All further points are identical to the previous chapter.

4.2 Creating Groups and Scheduling

One of the most important tasks of this program is to ensure that light levels can be modified at times defined by the user. This is designed to ensure that users can define their own switching times without requiring any special programming or directly influencing the SmartServer.

4.2.1 Creating Groups

To begin with, a key piece of information:
a luminaire can be integrated into a group only once and will then not be available for any further groups.
The following image illustrates the situation:
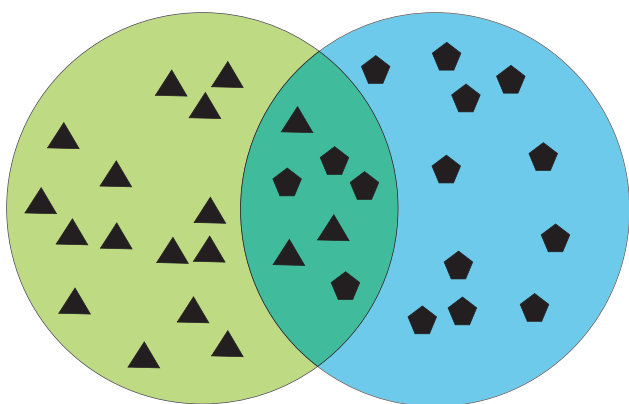
Two groups are defined in the example shown above, in which case individual devices can be found in both groups. If Group A is dimmed down to 60% at 20:00 hours and Group B is dimmed down to 40% at 22:00 hours, this has the following effect on the luminaires in the intersection: at 20:00 hours, the luminaires will dim down to 60% and at 22:00 hours down to 40%.

But since luminaires can be assigned to only one group, a third group (Group C) needs to be defined:
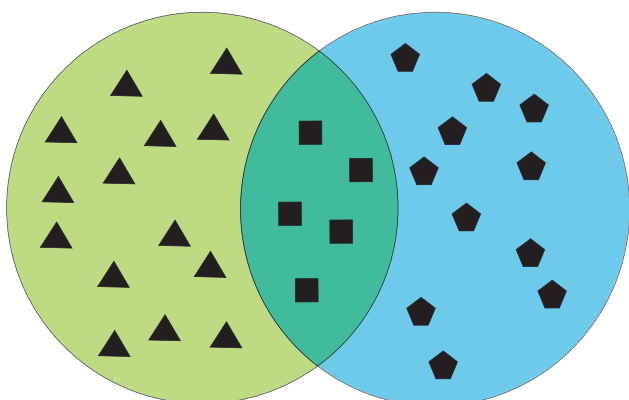
To ensure the same effect can be achieved, programming must be as follows: Group 1 is dimmed down to 60% at 20:00 hours, Group B down to 40% at 22:00 hours and Group C down to 60% at 20:00 hours and then to 40% at 22:00 hours, which would result in the same effect.

This is absolutely indispensable as the scheduling program works with differing priorities and overlapping groups would cause conflicts.

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It is fundamentally possible to structure groups hierarchically in the client, city and suburb sections. This also makes selection easier. If all luminaires need to be addressed, the group should be created in the client. But if addressability is to be restricted to only a certain city or a suburb, these groups can be created in the respective section.

However, it should be remembered that in the "Client" section a user will have access to all groups, even those in subordinate sections such as city or suburb.

The following procedure must be followed to define groups and remains the same for all sections.
In this example, a group is defined in the "Suburb" section, which means that it will be possible to integrate all luminaires under "Suburb" into the group. Clicking on the respective symbol in the structure tree will display the input screen for groups.
Clicking on the "Create New Group +" button will start the process, whereupon the following image will be displayed:
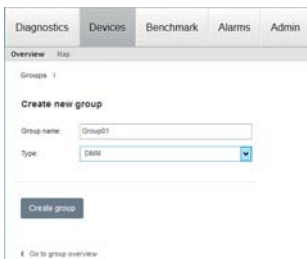
Please enter a group name, in which there must be neither spaces nor special typographical characters. Furthermore, the type needs to be entered, which can be selected from the combination box. Since this example presupposes dimmable luminaires, the respective entry must be selected. Clicking on the "Create Group" button will define the group, but without assigning any luminaires at this point.

The input screen for the luminaires to be selected then appears. In the right upper corner, the following symbol will appear with a list of luminaires that have not yet been assigned to any groups:

All luminaires will now be visible. Filter criteria can still be added which will then simplify the selection. In the example shown below all luminaires whose description begins with "2305" and that are located in Berlin, in the Tiergarten suburb and on Straße des 17. Juni have been selected:

Clicking on the green "Assign selected luminaires +" button will preselect these luminaires, after which it will be possible to assign further luminaires to the group in the same manner as already described. Clicking on the "Save changes" button will then define the group, after which a control screen will appear in which any necessary modifications can be made.
Clicking on "Go to Group Overview" will take you back to your starting point.
The group as such will now be listed:

It will then be possible to switch and dim lighting per group,
to which end a click on the "Switch luminaire group" button will open the following window:
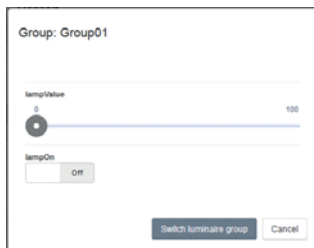
Any desired dimming value and a command to switch on and off can be defined or activated, respectively, here, which will then be applied to the respective group.

Furthermore, clicking on the "Delete" button on the right-hand side will completely delete the group.
Any luminaires previously assigned to the deleted group will then be available again for other groups.

4.2.2 Creating Timer Programs

An item called "Calendar" can be found in the main menu. Clicking on this will open the following input screen:

Only the predefined groups will initially be listed on this screen. As these groups are directly linked to the scheduling behaviour, these must be selected accordingly. The top row again contains a filter that lets data be presented in a clearer way.

Clicking on one of the groups will make the following image appear:

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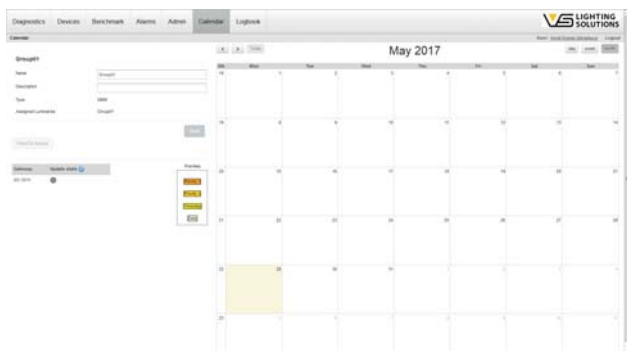
Next, a description must be entered as it would otherwise be impossible to save the defined switching programs. Clicking on one of the date fields will then open an input screen for entering switching and dimming behaviour:

The "New Rule" then needs to be entered. Apart from a name for the event (no spaces or special characters), the priority of the switching process must also be selected. The simplest forms of priority are "Every Day" and "Weekday", in which case the latter is the higher of the two. If "Every Day" is selected, the switching process will repeat itself every day, beginning with the start date. The end date must be left open. The weekly switching process behaves similarly. In this case, a certain weekday can be selected on which the process is repeated, week after week, again without an end date.

Priorities 2 and 3 are different and more variants can be programmed.
Apart from the possibility of modifying the repeat rhythm, an end date can also be entered here:

A dimming value as well as switching on and off are defined under lamp status. It is also possible to set a repeat function. The date on which the switching cycle is to start must then be entered, along with the associated time of day. Clicking on "Save" will transfer the data to the internal calendar, after which the following image will appear in our specific examples:

Clicking on "Save" will then transfer the definitions to the databank and clicking on "Send to device" will finalise the process. A local scheduling service will then be created on the SmartServer, of which there can be several. This means that these switching processes will not be carried out via the iLIC, but rather locally by the SmartServer(s).

Clicking on the times noted in the calendar will reopen the window and entries can then be edited.

4.2.3 Priorities
To better understand how switching processes are to be carried out it is necessary to understand the purpose served by priorities:
– Every day, lowest priority
– Weekday
– Priority 2
– Priority 3, highest priority

A priority is always active for 24 hours and always begins at midnight. Within this time period, switching processes with a low priority will not be active. If, for instance, a daily switching process exists that is meant to dim light down to 50% at 22:00 hours and if an additional, weekly switching process also exists for light to be dimmed down to 30% at 23:00 hours on a Saturday and Sunday, light levels will only be dimmed at 23:00 hours during weekends and the switching process at 22:00 hours will not be actioned.
The following graphic serves to illustrate priorities:
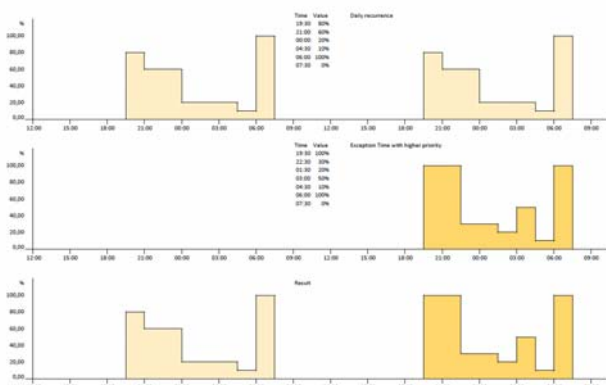
The upper graphic shows a scheduled switching process that repeats itself every day. The following graphic contains an exception that is to be carried out only once. But as this was given a higher priority, the actual switching profile that results from this is shown in the final graphic.

4.3 Data Evaluation

The system makes it possible to log historical data. To enable this, the data loggers in the SmartServer need to be activated. During regular operation, these data loggers record any changes and store these locally. The iLIC software will then retrieve these data at defined times, which can be precisely specified. This is possible at client level under Administration> Overview. The "Gateway Data Retrieval" menu item serves this purpose:
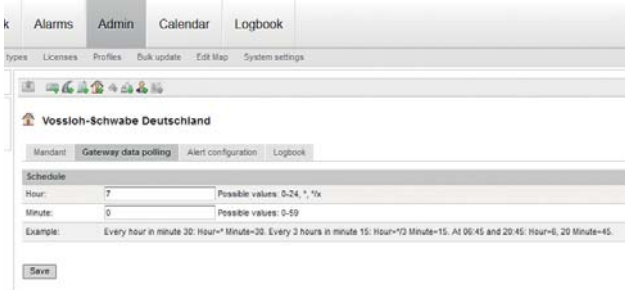
Various data retrieval times can be defined. An entry like the one above would involve data being retrieved at 07:00 hours every 24 hours. But other times can be specified if required. If "*" is entered as a value under "Hours", data will be retrieved on an hourly basis. Entering "*/4" would trigger data retrieval every four hours. In addition, minutes can also be specified.
An entry such as "6, 10, 17" would also be possible in the hours field, which would then trigger data retrieval at the specified times.

Data can also be retrieved manually, to which end the "Information" menu item must be selected in the iDC section of the structure tree. A button called "Start retrieving datapoint values" will then appear at the bottom of the screen.

Among others, the "Event" section provides information about whether and when a transfer took place.
Information will also be provided should a transfer be unsuccessful.

Note: each retrieval creates data traffic that can lead to additional costs. Usually, one retrieval per 24 hours will suffice. Should several clients have been defined, it makes sense to stagger retrieval times so that network resources are not overtaxed.

Data evaluation is carried out by clicking on the "Analysis" menu item. The structure tree is on the left-hand side and above that the three data evaluation options:

- Analysis
- Trend report
- Energy evaluation

4.3.1 Analysis

The analysis function serves the graphic presentation of the measured values that were captured. Up to eight different measured values from various controllers can be presented. To begin with, select the desired controller in the structure tree on the left. The measured values will then be displayed beneath the selected object. The graphic presentation will be provided immediately after selection of one of these measured values:
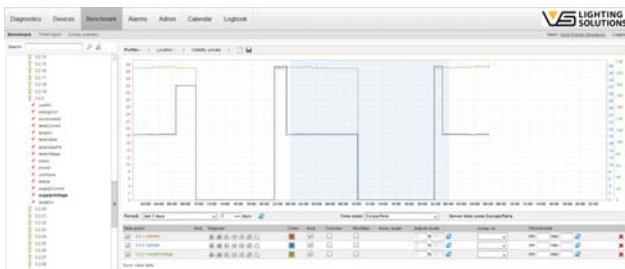
The way the graph is presented can be modified.

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Mousing over the graph will make the following symbols appear at the upper left-hand edge:
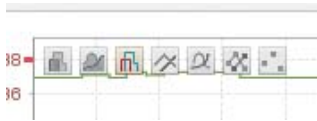
Clicking on the desired option will immediately change the presentation.

The following graphic appears at the upper right-hand edge:

From left to right:
- – Save the graph as a PNG file
- – Save as a CSV file for further use in other programs
- – Print the graphic
- – Full-screen mode

Further symbols for zooming and shifting the graph can be found at the lower edge.

The X and Y axes are both automatically scaled. Further parameters are listed beneath the graph that are designed to make evaluation easier:
- – Time period: –defines the period of time being presented
- – Time zone: –required to correctly present the time axis
- – Server time zone: not amendable, for information purposes only
- – Datapoint: –with a checkbox to display the graph
- – Unit: –physical unit (not amendable)
- – Presentation: individually adjustable for each measured point
- – Colour: –selectable graph colour
- – Axis: –with a checkbox for visible or invisible
- – Counter: –shows deviations from the mean value
- – Min/Max: – for displaying the minimum or maximum measured values within the selected measuring cycle
- – Auto-scale: –automatically scales the Y axis
- – Adjust scale: –for manual scaling
- – Compare to: –serves the purpose of adding a comparative graph from the past
- – Limit values: –graphic representation of limit values
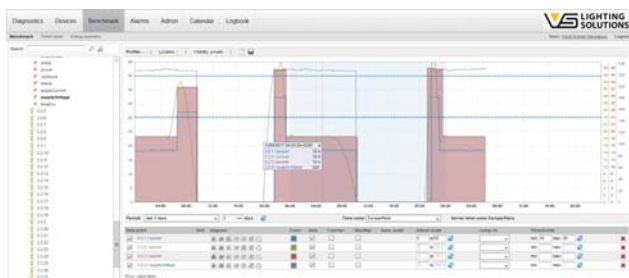
Clicking on the graph will open a window with further information on the selected point in time:
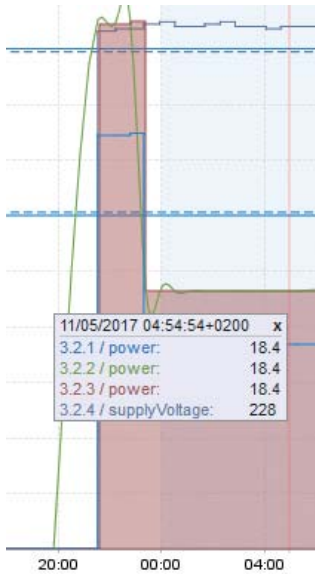
It is also possible to highlight a section on the time axis by extending and selecting it.

All entries made can also be saved. Clicking on the left-hand symbol will delete all settings, including any graph settings. The middle symbol serves to save the graphic display. Any point in the structure tree can be used to save the graph. A setting can also be made as to whether the profile should be visible to all users or not.

4.3.2 Trend Report
The trend report enables previously defined profiles to be sent to a recipient via email at regular intervals.
Either the graphic itself or a CSV file can be sent:

4.3.3 Energy Evaluation

The energy evaluation function is another option to present corresponding data, for which the already defined groups and the controllers they contain serve the purpose of delivering the data. These data can also be exported since the controllers constantly log the amount of energy consumed. These data are part of the data loggers defined in the SmartServer(s). From there, data are exported using the method described above.

For that reason, only three entries are basically necessary:

– Luminaire group

– Timing or interval (daily or monthly)

– Time period "From" / "To"

Data can also be exported as a CSV file:

Data are then displayed in tabular form.

4.4 Alarms

In comparison to conventional light control solutions, light management systems come with the great advantage of not only being able to switch and dim lighting, but also of delivering feedback from the system. Depending on the precise configuration of the system, the diagnostic depth can extend right down to ballast level. As the software was developed with a view to the maximum system depth, the user can undertake individual adjustments, with a particular focus on the alarm notification section. Thanks to their internal evaluation programs, the controllers themselves transfer status information. But due to logging the transferred data, the portal also makes it possible to perform a dynamic check of the captured information and to trigger events on this basis, e.g. sending an email. Such an event will appear in the menu item of the same name and can be acknowledged, handled or deleted. Regardless of which action is carried out, the system will log it, which means it remains possible to track who made changes and at which time.

The "Alarms" menu consists of four subsections:

– Alarm Message List

– Alarm Definition

– Notification Templates

– Criteria Templates

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4.4.1 Alarm Message List

The alarm message list will always be displayed when "Alarms" is opened in the menu.
This lists the current status of all alarm messages:

The "Filter" menu item can filter information in line with specific criteria. Especially when a system has been active over a longer period of time it can be helpful not to delete the history and to document the sequence of events. The filter then provides an effective tool for quickly selecting relevant information. Alarms can be selected in accordance with the following criteria:

– All Alarms
– Alarm active
– Alarm not acknowledged
– Alarm active or not acknowledged
– Alarm active and not acknowledged

The lower selection field lets you select what happens next with an alarm:

– Acknowledge selected messages
– Mark selected messages as gone
– Acknowledge selected messages and mark as gone
– Delete selected messages

4.4.2 Alarm Definitions

Before any alarm notifications can be issued, they first need to be defined. Alarm definitions always exert their effect where they are located in the structure tree. This lets alarms be restricted to certain sections only or extended to encompass the entire system. The principle of defining alarms largely remains the same in every case: the section to be monitored needs to be stated. Clicking on the bell symbol will then start the actual process of setting of parameters.

The following entries need to be made:

– Name of the message
– Establishing an escalation
– Urgency of the alarm

Once this information has been saved, a further field opens at the lower edge. This is where the actual alarm definition is entered.
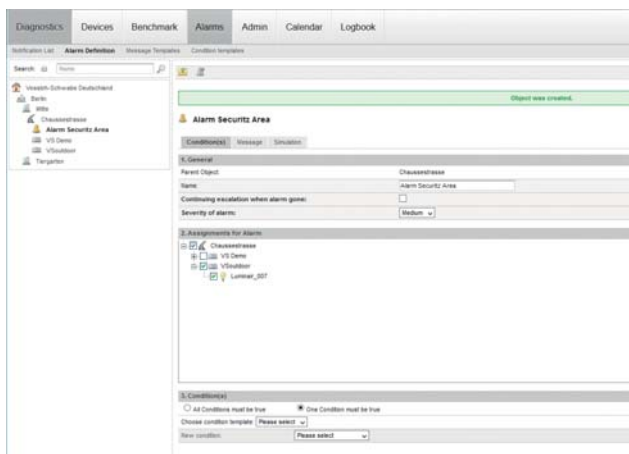
There are two basic ways in which an alarm can be generated: either all the following criteria are met or at least one is met.

The actual criteria then need to be defined. A whole row of different options exist for monitoring connectivity or individual datapoints. The simplest form is monitoring limit values, which will already have been integrated into the controllers during the system integration. However, the system supports only the following parameters:

– Min./max. supply voltage
– Min./max. supply current
– Min./max. output
– Min. power factor
– Max. temperature

This corresponds exactly to the information contained in the overview of individual luminaires:

A further individualised option is to use own limit values, which need to be defined in the iLIC software.
The datapoint comparison function can be used to this end:
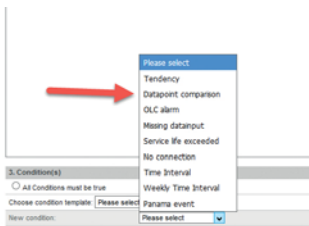
In the example shown below, an alarm is generated when the measured current is greater than 200 mA or less than 50 mA.

Online monitoring can equally be generated.
But if street lighting is to be switched off during the day, this criterion must be coupled with a time interval:

In this example, the system checks whether the data on all devices within a section are addressable ONLINE. The system will check for TRUE or FALSE to this end. If the first criterion applies, the second criterion also needs to be met, which means that monitoring will always be carried out during the night between 22:00 and 03:00 hours.

A further example shows how a light source could be monitored.
This presupposes that the current equals 0 if the luminaire is switched on:

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The service life of a light source can also be monitored using the alarm management function, with an associated definition that would look as follows:

The maximum service life can be set in "Mass Update" in the "Administration" menu.
Chapter 4.5.3 contains further details on the function.

These are just some of the options provided by the alarm management function.

4.4.3 Alarm Notification
Three methods exist for ensuring onward transfer of alarms:

– Email
– SMS
– FAX

The two last named options require special drivers and use of a fee-based service.

The simplest way of distributing accrued messages is to send them via email,
for which several options again exist.

Once "Alarm Notification" has been selected, the following screen appears, which has been filled out here for illustration purposes:
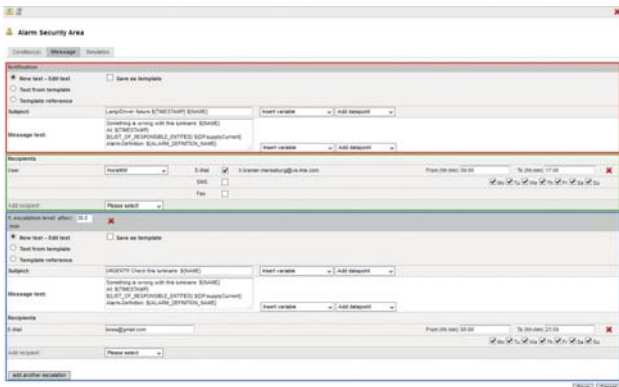
The notification template can be created in the red section. Next to a reference line, there is also a text field in which any text can be entered. Placeholders can also be defined for a time stamp, name of the affected device, measured values and a confirmation link.

The recipient or recipients are entered in the green section. The email addresses can be taken from the system based on ones already defined, but can also be freely defined.

Notifications that have already been written can be saved as templates and used again.

However, escalation steps can also be defined which would then become active after a certain amount of time and would notify a further responsible person about the urgency of a generated alarm. This notification chain will be interrupted and completed only when the respective alarm is acknowledged.

An alarm can be simulated under "Simulation" and the notification chain can be kicked off.

4.4.4 Notification and Criteria Templates

These two items in the alarm menu can be used to create texts for notifications and the conditions governing the selection of alarms. The individual steps are very similar to those already discussed and will therefore not be described here again in detail.

4.5 Editing Entries
4.5.1 Deleting Entries

In the "Administration" menu, every entry that is marked with a red cross can be deleted from the input screen. However, this should only be undertaken with caution since a deletion can also cause other linked elements to disappear due to the referential integrity of the databank.

4.5.2 Shifting Entries

Entire sections can be shifted using the symbol to the left of the red cross. This process will change the structure of the tree on the left-hand side and can be carried out with all objects that show this symbol. Clicking on the symbol will open a context menu in which the target of the action can be selected.

4.5.3 Mass Update

A further key function is the "Mass Update" of parameters, which are also located in the administration section.

This enables batch changes to be made to the following device entries:

- Installation date
- Version
- Object type
- Profile
- Service life in hours
- Description

Devices needing to be changed are selected in the same way as defining groups, details of which can be found in Chapter 4.2.1.

Entries must be activated at the checkbox before they can be carried out:
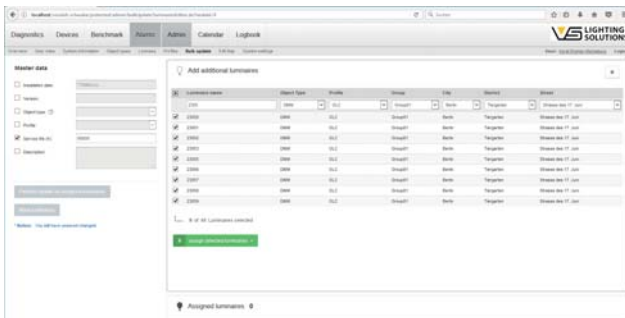
The selected devices are preselected with the green button and the action is finalised with "Carry out update of assigned luminaires".

Individual luminaires can also be assigned to other sections in a manner similar to the way entries are shifted, only that the "Shift luminaires" button is used in this case.

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■ **5 ANNEX**

This chapter contains a few final
important points that need to be observed.

5.1 Licensing
This section is key inasmuch as it serves to unlock all the functions of the system.
The licence model therefore requires that a separate licence is ordered and installed for every single iDC/SmartServer.

For licensing purposes, you will need to know each SmartServer's neuron ID, which can be found by clicking on the respective SmartServer/iDC in the "Systems" menu in the structure tree. The "Information" section contains an entry called "Gateway UUID:". This 12-digit ID must be transferred to Vossloh-Schwabe.

Once the licence has been validated, the user will receive a text file with encrypted information. This file then needs to be entered under "Administration >Licences". Copying and pasting the entire file in the field provided is the easiest way to do this.
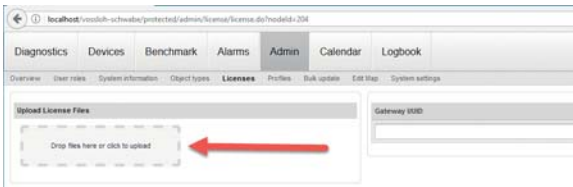
Following installation, licensing must be carried out within 40 days
or communication with the respective iDC/SmartServer will become impossible.

5.2 Interactive Geographical Positioning
5.2.1 OpenStreetMap
The system uses "OpenStreetMap" as a basis for positioning luminaires. If geographical coordinates were not already entered during system integration, they can be entered here. Click on "Edit map" under the "Administration" menu item, after which a map will open on the left and a device selection menu on the right:
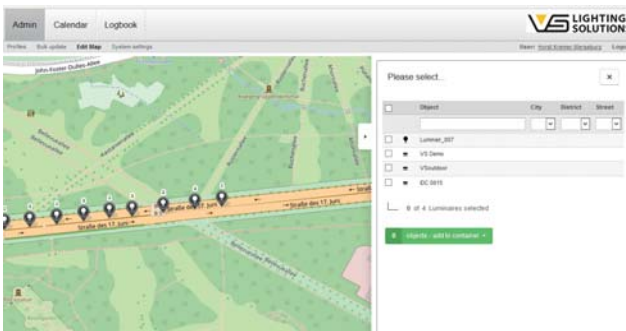
The desired devices can be selected and also pre-filtered here. Clicking on the green button will then copy these into a virtual container, after which each individual device can be precisely positioned on the map with a right mouse click.

5.2.2 User-specific Maps

In exceptional cases it is also possible to integrate user-specific maps – such as GIS maps – into the system. However, this is restricted to the "Root" section, which is to say the top user level. First, the map data need to be integrated into the system, for which "Administration >Overview" is used. Clicking on the "Root" symbol lets a map be defined at precisely this point, just like for all other entries in the structure tree, after which it will appear in the overview:
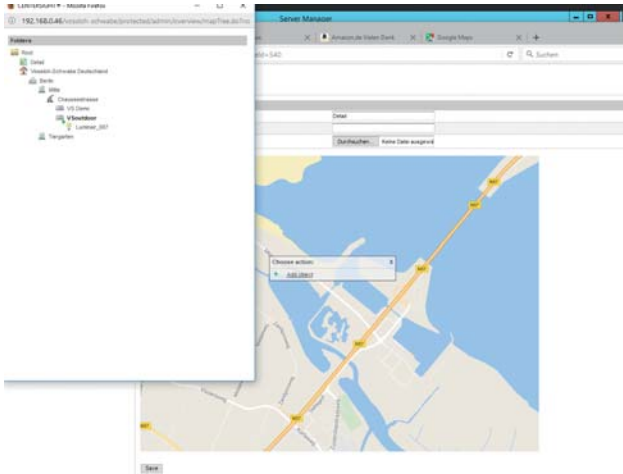
A right click on the map will open a window and then "Add Objects" will open a context menu for selection purposes.

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5.3 Objects
5.3.1 ON/OFF DIM Object

```
{
  "definition":[
    {
      "displayElement":"SLIDER",
      "position":1,
      "name":"lampValue",
      "minValue":0,
      "maxValue":100,
      "visible":true
    },
    {
      "displayElement":"CHECKBOX",
      "position":2,
      "name":"lampOn",
      "falseValue":0,
      "trueValue":1,
      "visible":true
    }
  ]
}
```

5.4 Profiles
5.4.1 OLC Profile

```
{
  "datapointsRead":[
    {
      "originalName":"OLC/nvoEnvironment",
      "luxName":"environment",
      "type":"String",
      "delimiter":" ",
      "keepOriginalValue":true,
      "visibleInLiveView":true,
      "datapointDefinitions":[
        {
          "name":"lampCurrent",
          "type":"Integer",
          "visibleInLiveView":true,
          "position":1
        },
        {
          "name":"lampVoltage",
          "type":"Integer",
          "visibleInLiveView":true,
          "position":2
        },
        {
          "name":"supplyVoltage",
          "type":"Integer",
          "visibleInLiveView":true,
          "position":3
        },
        {
          "name":"supplyCurrent",
          "type":"Integer",
          "visibleInLiveView":true,
          "position":4
        },
        {
          "name":"tempEnv",
          "type":"Float",
          "visibleInLiveView":true,
          "position":5
        },
        {
          "name":"power",
          "type":"Float",
          "visibleInLiveView":true,
          "position":6
        },
        {
          "name":"cosPhi",
          "type":"Float",
          "visibleInLiveView":true,
          "position":7
        },
        {
          "name":"runHours",
          "type":"Integer",
          "visibleInLiveView":true,
          "position":8
        },
        {
          "name":"energyCnt",
          "type":"Float",
          "visibleInLiveView":true,
          "position":9
        }
      ]
    },
    {
      "originalName":"OLC/nvoLampValueFb",
      "luxName":"lampValueFb",
      "type":"String",
      "delimiter":" ",
      "keepOriginalValue":true,
      "visibleInLiveView":true,
      "datapointDefinitions":[
        {
          "name":"lampValue",
          "type":"Float",
          "visibleInLiveView":true,
          "position":1
        },
        {
          "name":"lampOn",
          "type":"Boolean",
          "visibleInLiveView":true,
          "position":2
        }
      ]
    },
    {
      "originalName":"OLC/nvoOLCStatus",
      "luxName":"status",
      "type":"String",
```

```
      "keepOriginalValue":true
    }
  ],
  "datapointsWrite":[
    {
      "originalName":"OLC/nviLampValue",
      "luxName":"wLampValue",
      "type":"String",
      "objectType":"DIMM",
      "valueForCalendar": true,
      "datapointDefinitions":[
        {
          "name":"lampValue",
          "type":"Float",
          "position":1,
          "displayElement":"SLIDER",
          "minValue":0,
          "maxValue":100
        },
        {
          "name":"lampOn",
          "type":"Boolean",
          "displayElement":"CHECKBOX",
          "position":2
        }
      ]
    },
    {
      "originalName":"OLC/nviRunHours",
      "luxName":"wRunHours",
      "type":"String",
      "keepOriginalValue":false
    }
  ]
}
```

5.4.2 SmartServer Profile

```
{
    "datapointsRead": [{
        "originalName": "iLON App/Digital Output 1/nvoClaVal-
ueFb_1",
        "luxName": "relais1",
        "type": "Boolean",
        "keepOriginalValue": true,
        "visibleInLiveView": true
    },
    {
        "originalName": "iLON App/Digital Output 2/nvoClaVal-
ueFb_2",
        "luxName": "relais2",
        "type": "Boolean",
        "keepOriginalValue": true,
        "visibleInLiveView": true
    },
    {
        "originalName": "iLON App/Digital Input 1/nviClsVal-
ueFb_1",
        "luxName": "digitalInput1",
        "type": "Boolean",
        "keepOriginalValue": true,
        "visibleInLiveView": true
    },
    {
        "originalName": "iLON App/Digital Input 2/nviClsVal-
ueFb_2",
        "luxName": "digitalInput2",
        "type": "Boolean",
        "keepOriginalValue": true,
        "visibleInLiveView": true
    }],
    "datapointsWrite": [
    {
        "originalName": "iLON App/Digital Output 1/nviClaV-
alue_1",
        "luxName": "relais1",
        "type": "Boolean",
        "displayElement": "CHECKBOX",
        "falseValue": "0.0 0",
        "trueValue": "100.0 1"
    },
    {
        "originalName": "iLON App/Digital Output 2/nviClaV-
alue_2",
        "luxName": "relais2",
        "type": "Boolean",
        "displayElement": "CHECKBOX",
        "falseValue": "0.0 0",
        "trueValue": "100.0 1"
    }]
}
```

Whenever a light goes on around the world, Vossloh-Schwabe is likely to have made a decisive contribution to ensuring everything works at the flick of a switch.

Headquartered in Germany, Vossloh-Schwabe has been a member of the global Panasonic Group since 2002 and counts as a technology leader within the lighting sector. This success is based on the quality and efficiency of our products.

The range covers the entire spectrum of lighting technology components for LED systems with optimally matching control gear, highly efficient optical systems, modern control systems (LiCS) as well as electronic and magnetic ballasts and lampholders. The future of the company is geared towards the topic of smart lighting.

A member of the Panasonic group **Panasonic**

VS LIGHTING SOLUTIONS

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