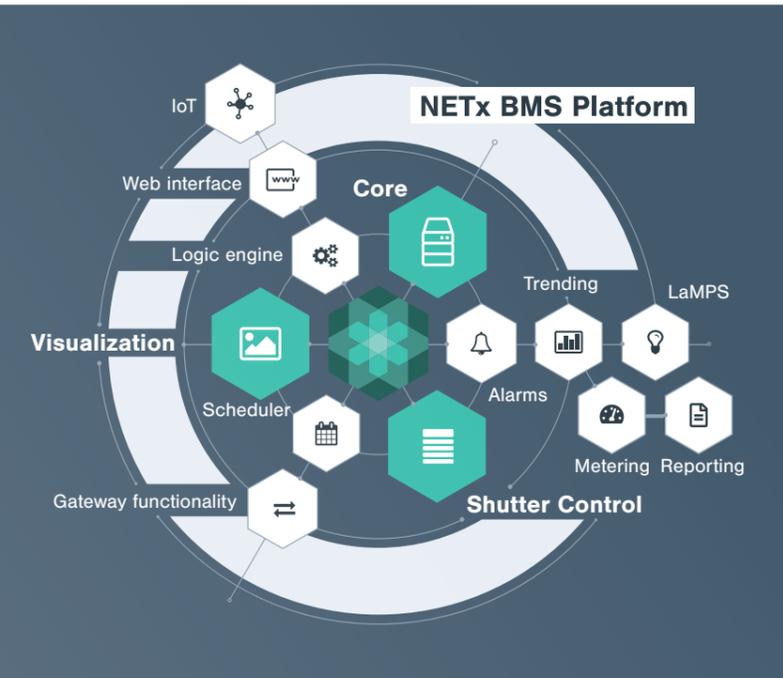


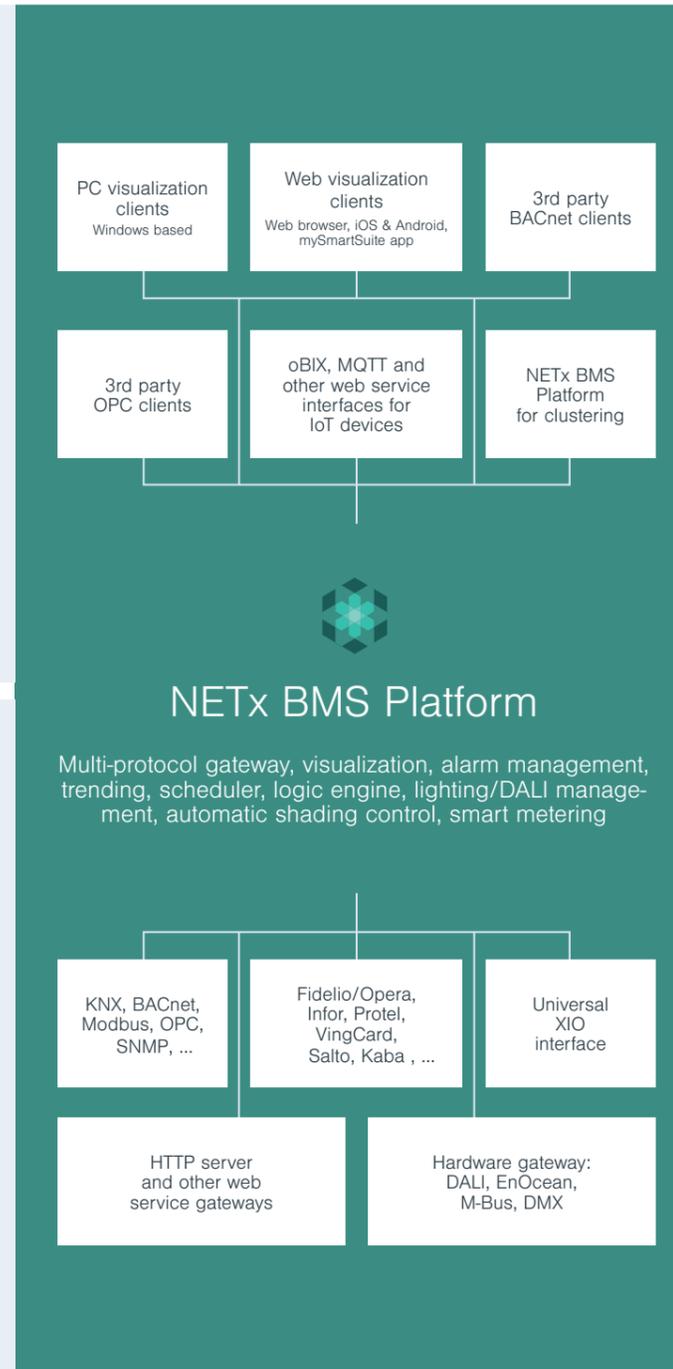


How does our software solution work in a building automation project?





Modern building automation systems are distributed systems where the control functionality is spread across a network. Due to the differing requirements of these systems, there is no single technology that can be used to satisfy all needs. As a result, building automation systems are extremely heterogeneous where many different network technologies and communication standards are used.



The integrated devices and their data points are managed in a uniform information model where the data is represented in a transparent, technological-independent way. Thanks to this uniform information model and the global view at the management level of the building automation system, the NETx BMS Platform is able to provide and realize various building management functions:

- Open protocols and standards KNX, BACnet, Modbus, SNMP, OPC, oBIX and more
- Hotel management systems Fidelio/Opera, Protel, Infor
- Door lock systems VingCard, Salto, Kaba
- HTTP gateways or other web services for interfacing to the Internet-of-Things (IoT)
- Integration of interfaces to other fieldbus technologies that are not available in the current version is possible

The aim of the NETx BMS Platform is to solve this problem that arises when heterogeneous building automation systems are used. Located at the management level, the NETx BMS Platform is able to collect data and information from the building automation system using different technologies, protocols and systems.

- Multi-protocol gateway
- Visualization
- Alarm management
- Trending
- Scheduler
- Logic engine
- Smart metering

In addition, enhanced features for specific use cases are available:

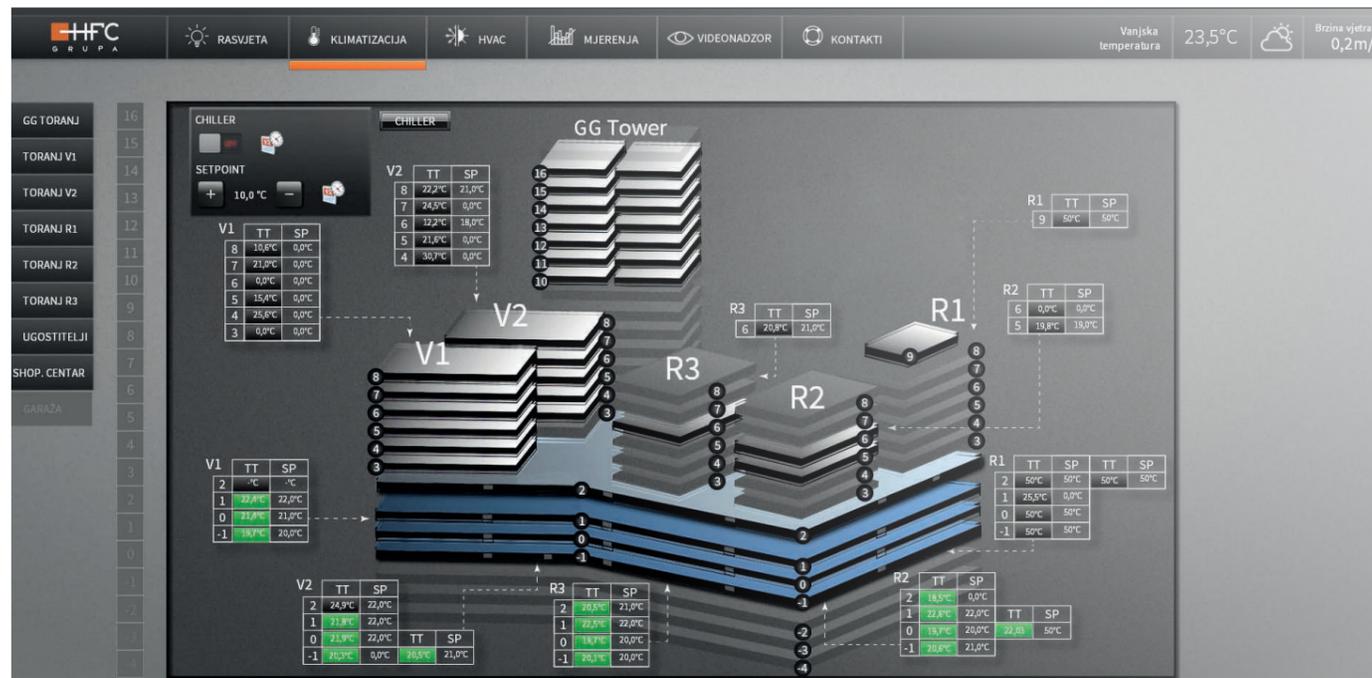
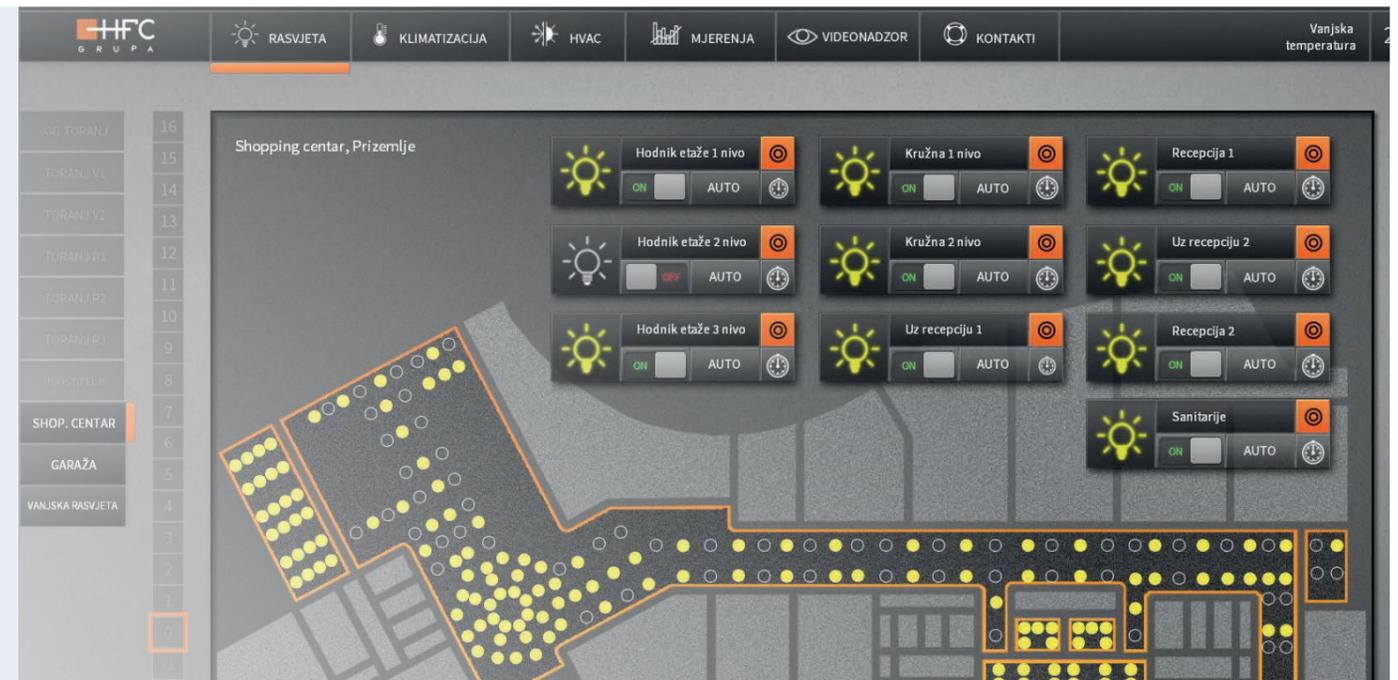
- Lighting/DALI management
- Automatic shading control

Unlimited

There is no limit on the amount of used graphical control elements and visualization pages. You can create small visualization projects with just a few elements or large projects for enterprise buildings. Only the amount of simultaneously connected visualization clients is counted by the NETx BMS Platform license.

Versatile

There is no difference between web and PC based visualization. You just create your visualization projects and provide them to web and/or PC based clients. You can even use a mixture of them – PC based visualization for Windows based operator workstations and any device with a web browser (workstations, touch panels, tablets, smart phones) as web based visualization client.

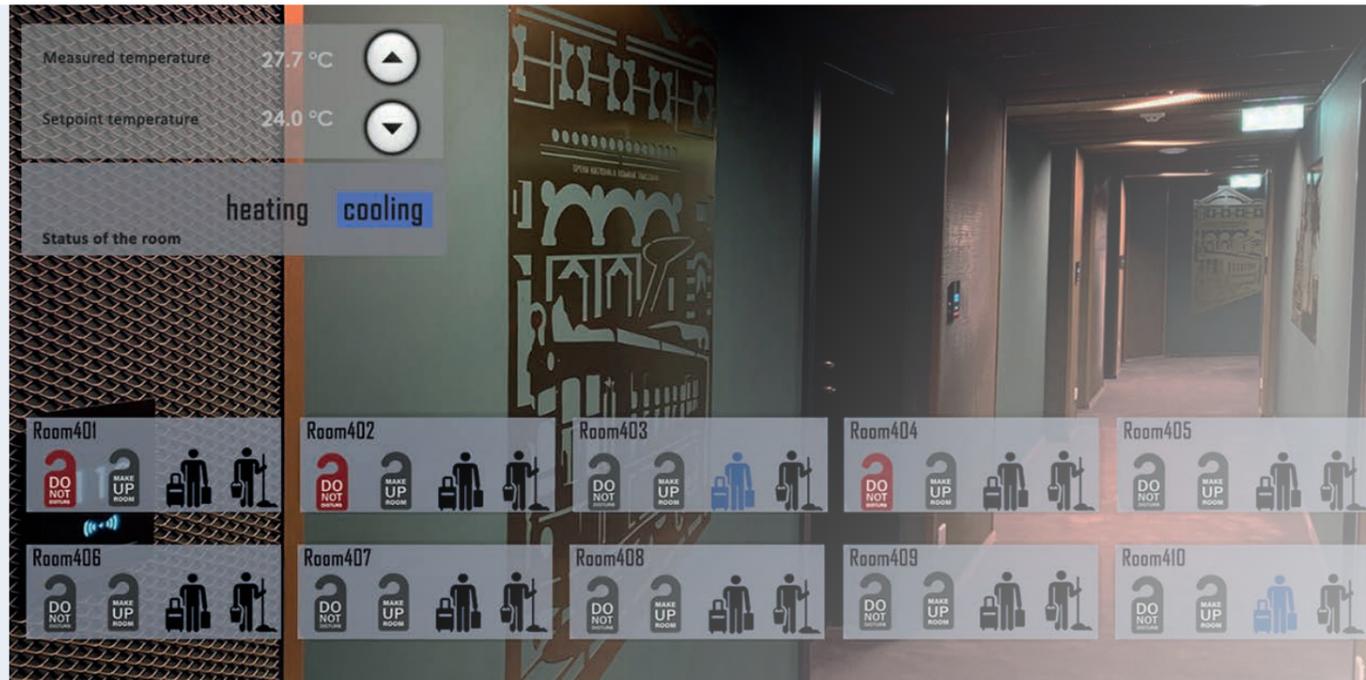


Scalable

Creating visualization projects can be a time-consuming task – especially for large building projects with a high amount of data points where a high number of visualization pages is needed. The BMS visualization editor provides enhanced concepts like variables and templates that allow the fast creation of large visualization projects.

Customizable

You can adapt the level of details and the look of your visualization to your individual needs. You can choose between the following elements: background images, user defined buttons, images, multi-state control elements, web based content (e.g. web cams), animated images. Due to the scalability of the system you can use it for small projects up to large building projects where a high amount of pages and control elements is required.



Control Elements

For providing a visualization, you can use many different graphical control elements. In addition to labels, buttons, sliders and images, extended elements like analog instruments, Link Area, Multi-Picture, Multi-Internet and RGB Controls can be used.

Vector graphics

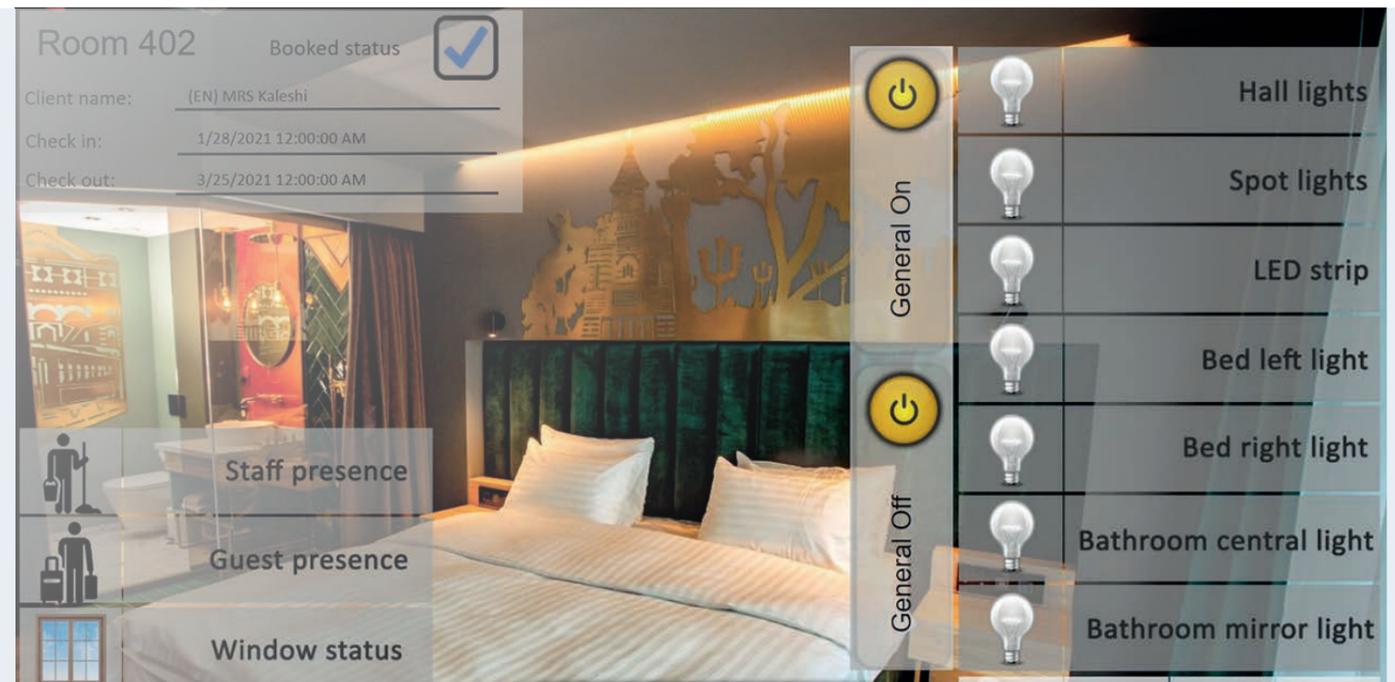
In the visualization, vector graphic like SVG files can be included as background or images for defining the button appearance. In addition, AutoCAD files can be imported. Vector graphic elements have the advantage that they are scaling within showing graphical artifacts.

Auto scaling

As every Windows PC and device with standard web browser is usable as a visualization client, the screen resolution may vary. Therefore, the PC and web based visualization supports auto scaling. The visualisation is dynamically adjusted to the resolution of the hardware.

Usability

By drag & drop, data points can easily be linked with control elements. Within short time, you can generate and modify professional visualizations.

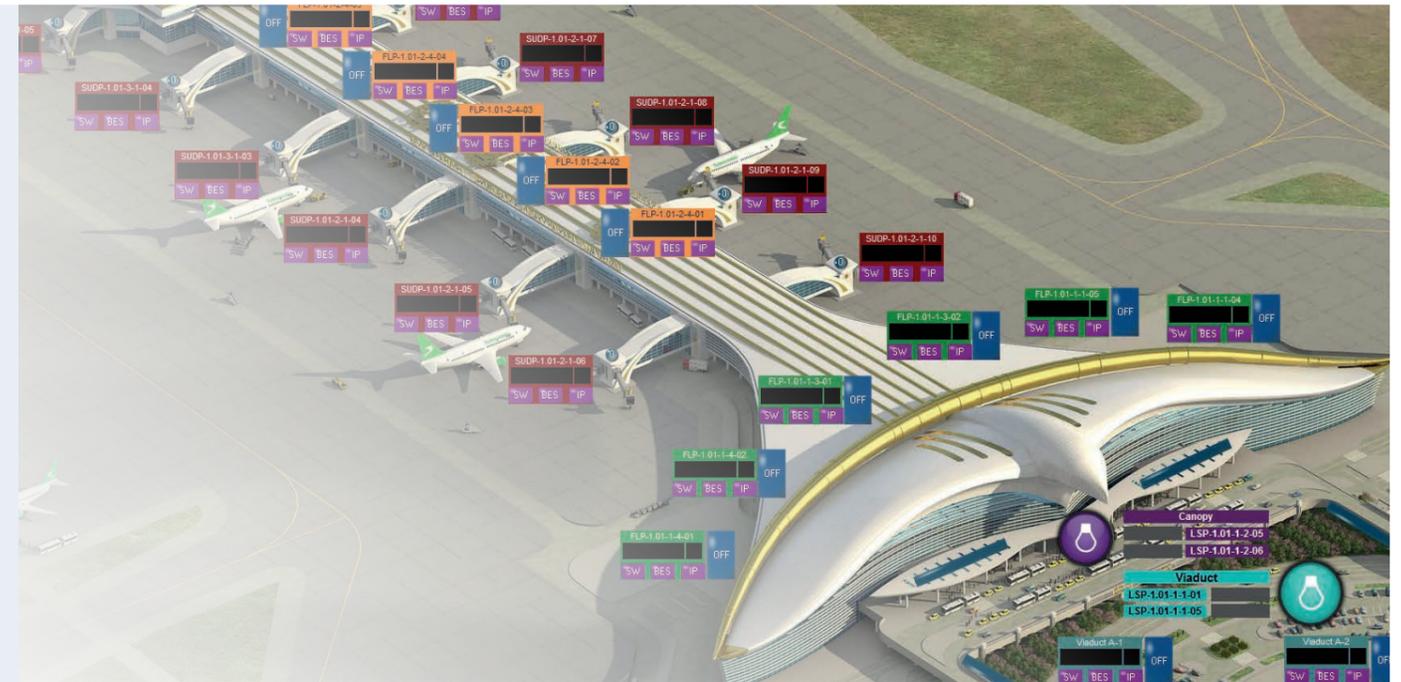


Variables

Creating large visualization with a high amount of control elements and pages can be a time consuming task. Variables are available for projects, pages, layers, groups and blocks. Using clickable elements like buttons, link areas and polygons, the value of variables can be exchanged dynamically during runtime.

Multiple Views

The visualization supports the use of multiple views. These views help to present the visualization to the end user in a clear and structured way. Views can be shown in separated Window dialogs or browser tabs. The use of multiple screens is possible too. Views are available within web based and PC based visualizations.

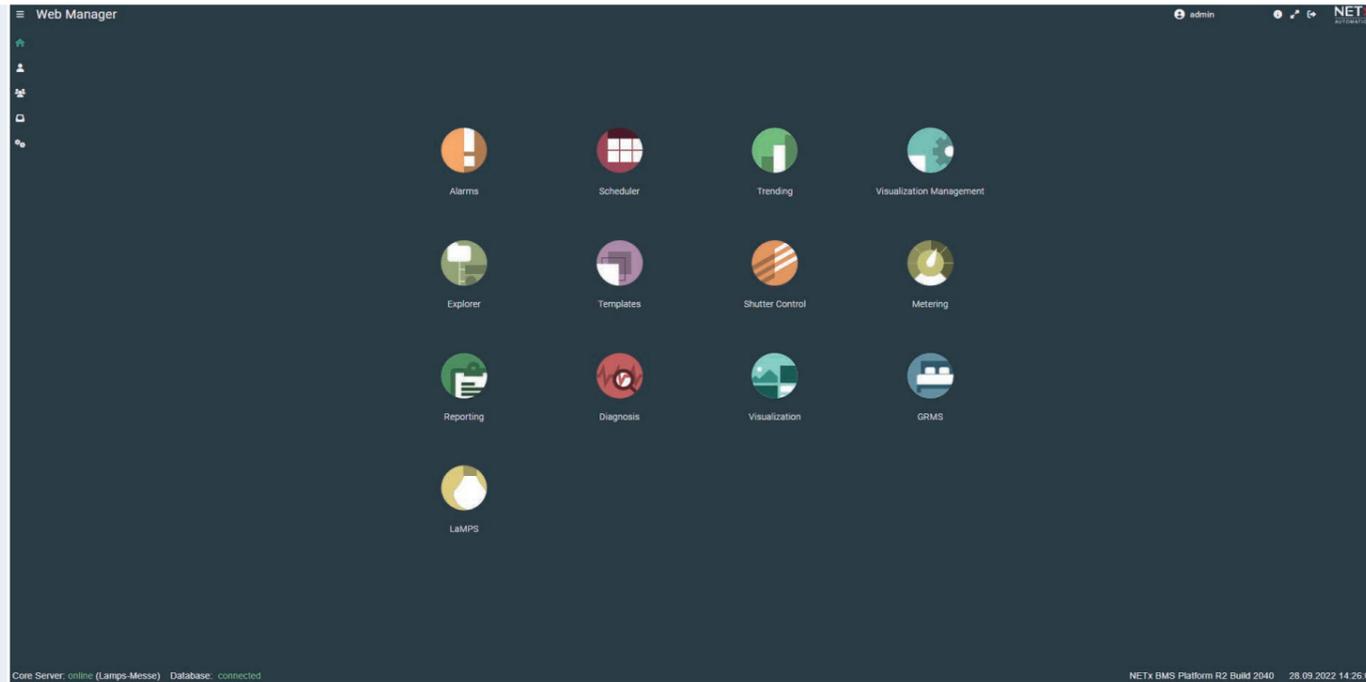


BMS Functions

The visualization has full access to the BMS functions that are managed by the NETx BMS Platform. By integrating content from the Web Manager, alarm lists from the alarm management module and the graphical interfaces to the scheduler can be integrated. In addition, charts and tables from the trending module can be provided to the visualization user.

User Administration

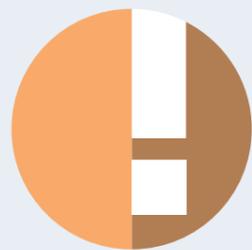
Most of the time, different users work with visualization. Therefore, the users' access rights can be restricted. In addition to the administrator, users with limited rights can be defined. Certain areas of the visualization can be shown individually or hidden for different users.



Dashboard

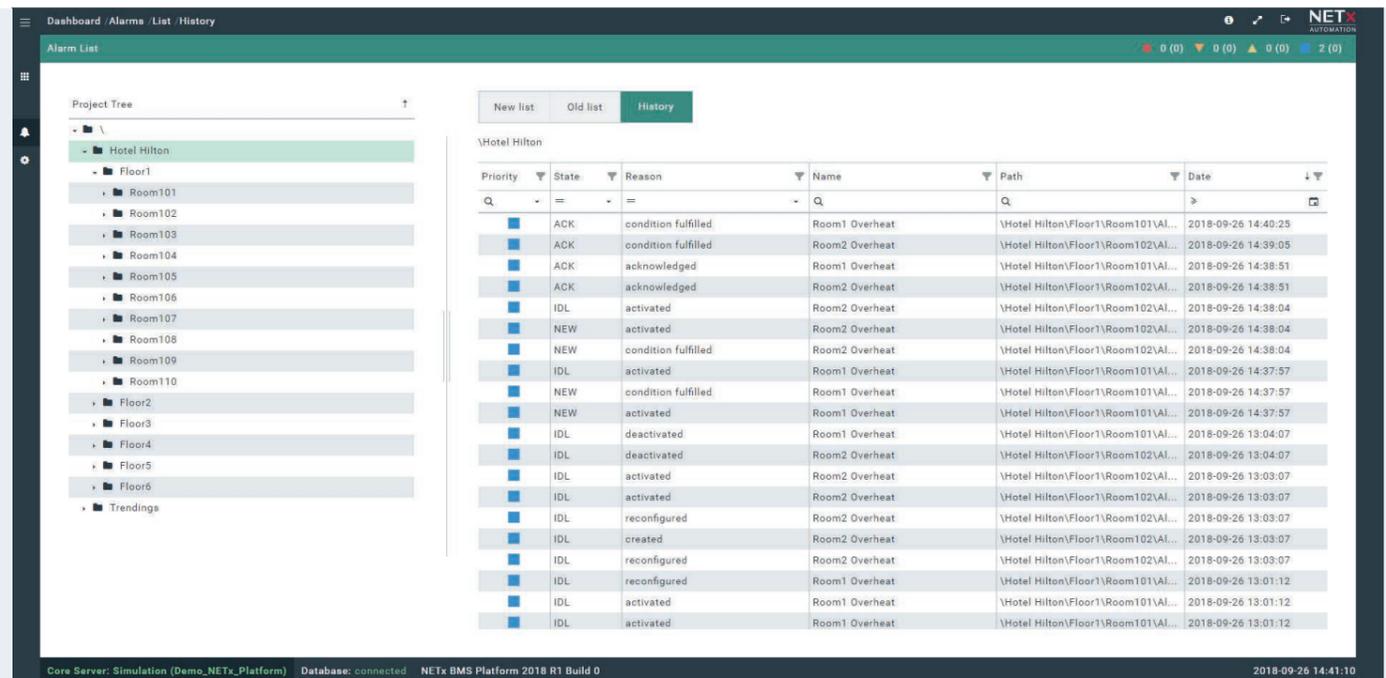
The dashboard is the entry point of the Web Manager. Here it is possible to navigate to the other apps. In addition, the users, groups and their access rights can be managed within the dashboard.

- Web based user interface for managing the BMS functions
- Can be accessed by any client with a web browser
- TLS secured https and user authentication



Alarms

Within the alarm app, alarms as well as their conditions and actions can be created and managed. To get an overview of alarm states, all currently configured alarms can be visualized within an alarm list. The alarm list is divided into the new list, old list and the history. The presentation of these lists follows the standard VDI/VDE 3699.



Dashboard / Scheduler

Scheduler

Project Tree

- Hotel Hilton
 - Floor1
 - Room101
 - Alarms
 - Scheduler
 - Lights ON
 - Room101 Lights ON
 - Room102 Lights OFF
 - Room102
 - Room103
 - Room104
 - Room105
 - Room106
 - Room107
 - Room108
 - Room109
 - Room110
 - Floor2
 - Floor3
 - Floor4
 - Floor5
 - Floor6

Start-Stop Time Event - Lights ON

Enabled

Name* Lights ON

Description Turn Lights ON

Start date/time 2018-09-26 18:30:00

End date/time 2018-09-26 22:30:00

Different Actions

Start Action \Hotel Hilton\Floor1\Room101\Scheduler\Room101 Lights ON

Stop Action \Hotel Hilton\Floor1\Room101\Scheduler\Room102 Lights OFF

Recurrence Daily

Repeat Every day Every days

January	February	March	April	May	June
July	August	September	October	November	December

Holidays Ignore

Ends Never On After recurrences

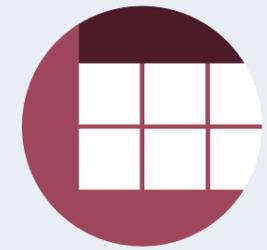
Additional recurrence None

Save

Core Server: Simulation (Demo_NETx_Platform) Database: connected NETx BMS Platform 2018 R1 Build 0 2018-09-26 14:09:10

Scheduler

Within the scheduler, time based as well as so called conditional events can be defined. A time based event can be a simple timer, a start-stop event or a cyclic event. A condition event triggers an action whenever a dedicated condition is fulfilled. All events can be presented in a list view called event program. Time based events can also be visualized within a calendar view.



Trending

A trend saves past values of a data point. These are collected in a historical SQL database. The trend app creates and manages these trends. In addition to store all data point changes, other storing schemes like change of value (COV), sampling, ... are possible too. To analyse these historical values and to present them to the user, trending charts and tables are available. Different trends can be combined within a single chart. Comparing values of the same trend for different time periods is also possible.

Dashboard / Trending

Trending

Project Tree

- Hotel Hilton
 - Trendings
 - Room1-Temperature
 - Room2-Temperature
 - TempChart

Chart - TempChart

Aggregation Day

2018-09-25 Today

Sep 25, 2018

Room2-Temperature Room1-Temperature

Time	Room1-Temperature (°C)	Room2-Temperature (°C)
25 6:00 AM	13	13
25 8:00 AM	25	25
25 10:00 AM	28	26
25 12:00 PM	28	26
25 2:00 PM	27	26
25 4:00 PM	27	26
25 6:00 PM	27	26
25 8:00 PM	27	26
25 10:00 PM	27	26
26	27	26

Core Server: Simulation (Demo_NETx_Platform) Database: connected NETx BMS Platform 2018 R1 Build 0 2018-09-26 14:19:03

Devices

Name	Project	Connections	Enabled
Device1	FloorController	0/∞	<input checked="" type="checkbox"/>
Device2	RoomController	0/∞	<input checked="" type="checkbox"/>

Edit - Device1

Name *

MAC address

Auto login

Connection limit off

Project

Core Server: Simulation (Demo_NETx_Platform) Database: connected NETx BMS Platform 2018 R1 Build 0 2018-09-26 14:29:58

Visualisation Manager

Within this app, the visualizations projects are managed, the available devices are configured, the current connections can be monitored and the available visualization users can be managed. In addition, visualization configurations can be defined. A configuration contains dedicated parameters that influence the behavior of the visualization runtime (e.g. how alarm notifications are handled) and the user access rights.



LaMPS

- Extension module for NETx BMS Platform
- Provides manufacturer-independent view of KNX/DALI gateways
- Uniform data point view
- Triggering DALI tests
- Show common DALI errors and errors for each device separately
- Support for DALI emergency tests
- Stores test results in SQL database
- Reporting tool for generating customized reports
- Automatic export from ETS5 using NETx BMS App Secure
- Support for multiple KNX/DALI gateways: ABB, Gira, Hager, IPAS, Jung, MDT, Schneider, Siemens, Zennio, EAE, ...

Web Manager

LaMPS

Name: DALI

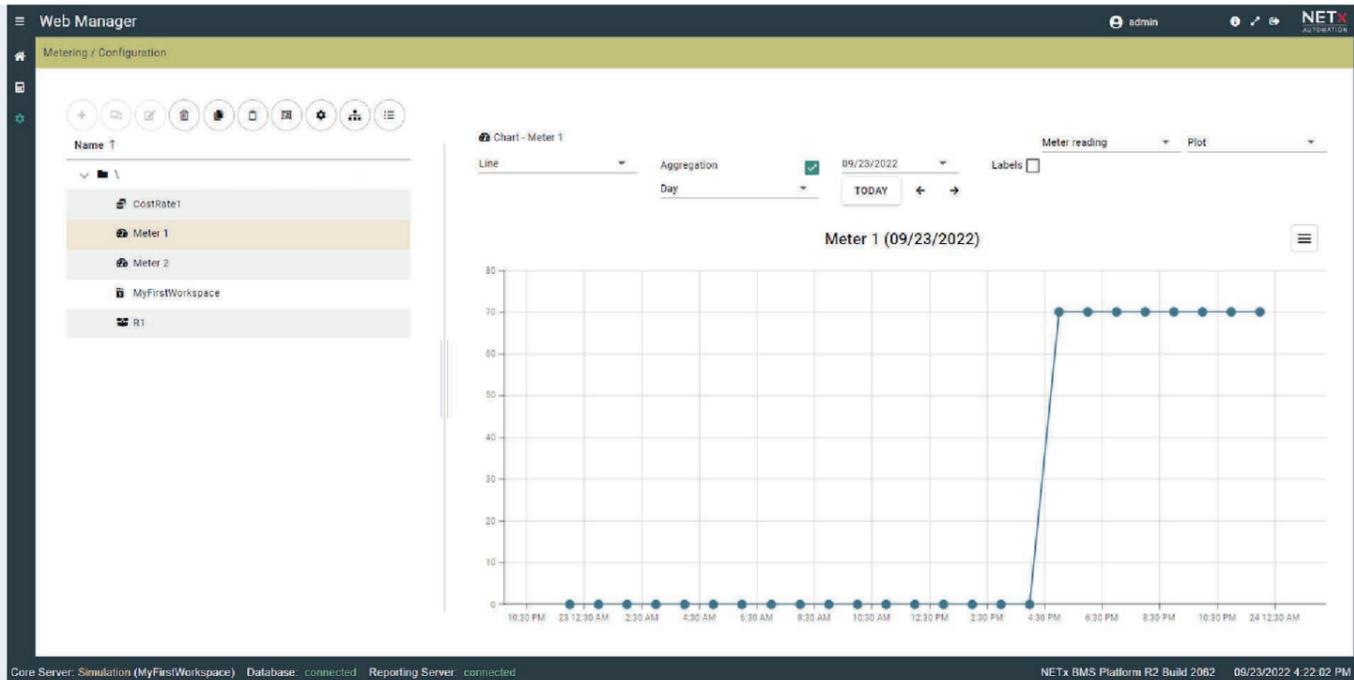
- Demo_LaMPS
 - Floor1
 - Corridor
 - Cabinet
 - 1.1.10 ABB DG/S1.1 DALI-Gateway (Channel A)
 - 1.1.10 ABB DG/S1.1 DALI-Gateway (Channel B)
 - 1.1.15 Merten DALI gateway MEG 6725
 - 1.1.6 Jung KNX DALI-Gateway Plus
 - 1.1.8 ABB DGN/S1.16.1 DALI-Gateway
 - 1.1.9 ABB DG/S1.64.1.1 DALI Gateway
 - Floor2

Path: NETx\Module\LaMPS\DALI\Demo_LaMPS\Floor1\Corridor\Cabinet\1.1.6 Jung KNX DALI-Gateway Plus

KNX IP Connection: Status:

GATEWAY	DEVICES	EMERGENCY	OPERATING HOURS
Emergency Test <input type="checkbox"/>	Test <input type="checkbox"/>	Operating Hours Exceeded operating hour thresholds: 0 Reset counters: <input type="button" value="↻"/>	Devices 7 <input checked="" type="checkbox"/> / 3 <input checked="" type="checkbox"/> / 0 <input checked="" type="checkbox"/>
Fault <input checked="" type="checkbox"/>	Fault Devices <input checked="" type="checkbox"/>	Fault Lamp <input checked="" type="checkbox"/>	Fault Ballast <input checked="" type="checkbox"/>
Fault Converter <input checked="" type="checkbox"/>	Faulty devices 2,3,5	Fault Power Failure <input checked="" type="checkbox"/>	Fault Short Circuit <input checked="" type="checkbox"/>

Core Server: online (Lamps-Messe) Database: connected NETx BMS Platform R2 Build 2040 27.09.2022 17:17:36



Metering

- The metering module enables you to use any smart meter (KNX, BACnet, Modbus, M-Bus, ...) from different sources (electricity, water, air, heating, ...).
- All calculated consumption values (hourly, daily, weekly, monthly, yearly) are provided as normal data points.
- Within the metering module, other trending values can also be included in calculation charts. This provides the possibility to use data points that influence the consumption of energy resource (e.g. temperature values) as comparative values.
- The results of the consumption calculations can be exported in different formats. You can show the results online within our web interface as chart elements or tables. In addition, you generate report in different file formats like PDF, Excel etc.



Reporting

Using the reporting app, reports that show trending and historical data point values are managed. Based on predefined report templates, alarm and trending reports as well as reports for showing DALI testing results can be generated. In addition, so called report instances can be configured that can be triggered by the Scheduler to generate reports in a periodical interval. A sophisticated report designer is also included for generating your own report designs and templates.

The screenshot shows the 'Reporting Designer' interface. The main canvas displays a report template for 'Emergency Lighting Status Report'. The report includes a header with 'Project Name' and 'Report information'. Below this is a table with columns for 'Device name', 'Last function test', 'Last duration test', and 'Last battery test'. The table contains data for levels 5, 4, 3, and 2. The interface also features a sidebar with design tools and a right-hand 'PROPERTIES' panel with various configuration options like 'Data Source', 'Data Member', 'Filter String', and 'Measure Units'.

Dashboard / Diagnosis

Item Tree

Write Item Value

Item Id: NETx\XIO\KNX\NETx KNX IP Router\00/0/003

Value: true

Write to device:

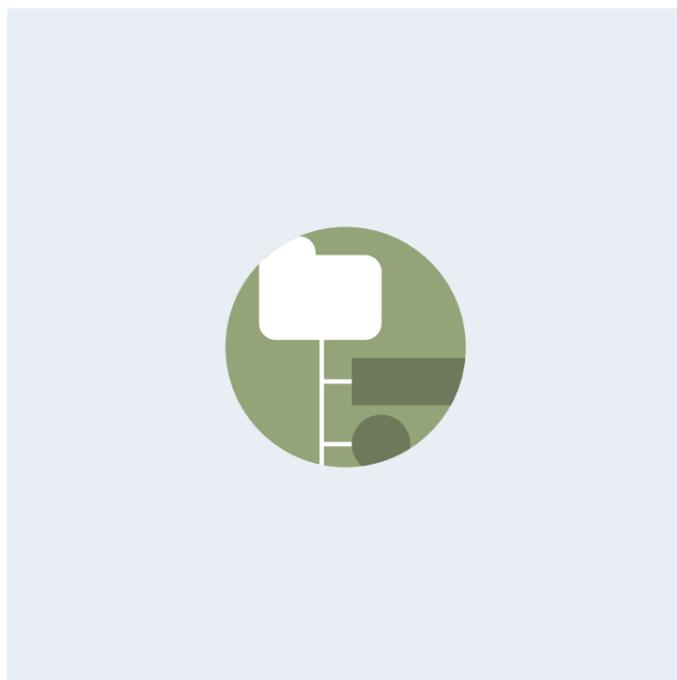
OK Cancel

Name	Id	Value
Item Canonical DataType	1	BOOL
Item Value	2	false
Item Quality	3	UNCERTAIN
Item Timestamp	4	06/19/2019 6:12:51 AM
Item Access Rights	5	Read and Write
Server Scan Rate	6	10
Item Unit	100	
Item Description	101	Check_out
High Value Limit	102	
Low Value Limit	103	
Item Local Timestamp	400	06/19/2019 8:12:51 AM
Handle	1000	110
Access Level	1001	0
Persistent	1002	false
Redundant	1004	true
~	----	

Core Server: Simulation (Demo_Case_Large) Database: connected Reporting server: connected NETx BMS Platform 2018 R1 Build 1013 06/19/2019 8:12:52 AM

Diagnosis

Monitoring the current state of your system is of utmost importance. The Web Manager includes a Diagnosis app which can be used to check and observe the system behavior. The gateway manager shows the connection state of all router and interfaces used to access the building automation system. The embedded Item Tree can be used to take look at the current data point values and their properties. For analyzing problem and unexpected behavior, the log files for the Core Server and other system components can be displayed and downloaded.



Explorer

The explorer is a master app which combines the functionality of all other apps. Within the master app, all available events (alarms, time based events, actions, conditions, ...) can be managed within a single place. In addition, advanced functions like export/import are available too.

Dashboard / Explorer

Explorer

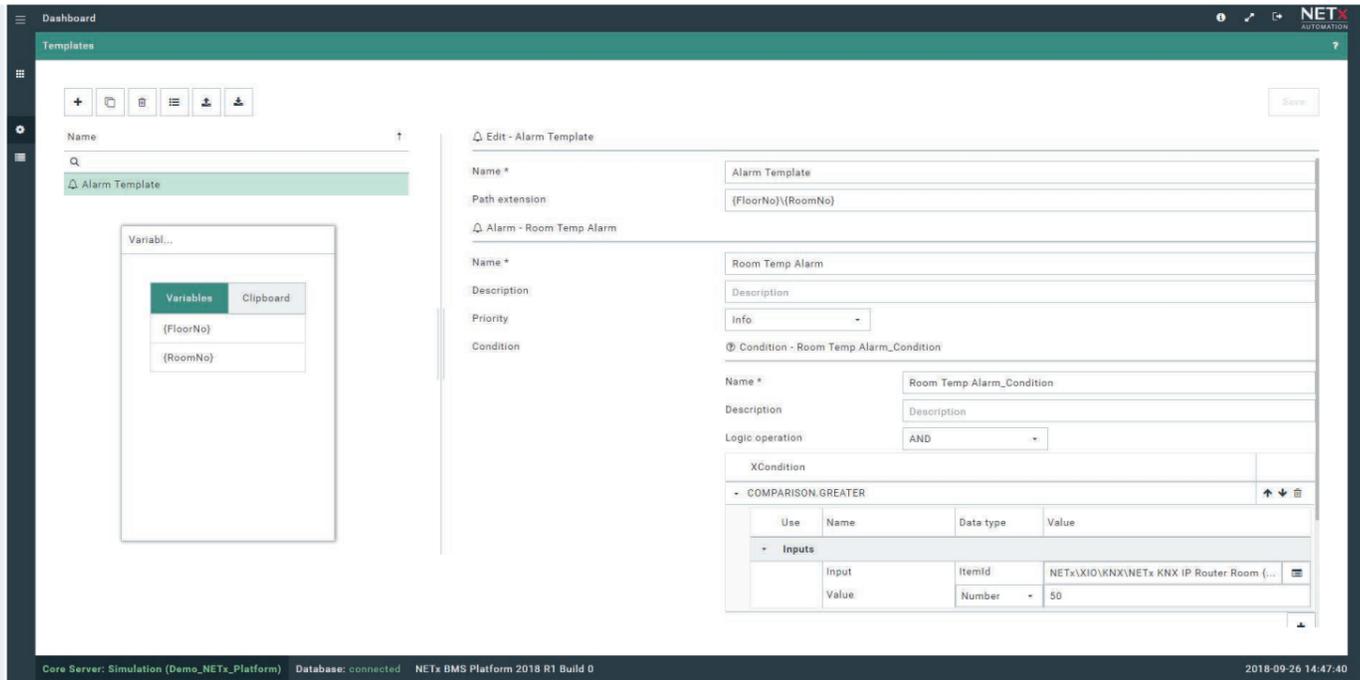
Project Tree

- \
 - Hotel Hilton
 - Floor1
 - Room101
 - Alarms
 - Scheduler
 - Room102
 - Room103
 - Room104
 - Room105
 - Room106
 - Room107
 - Room108
 - Room109
 - Room110
 - Floor2
 - Floor3
 - Floor4
 - Floor5
 - Floor6
 - Trendings

Folder - Alarms

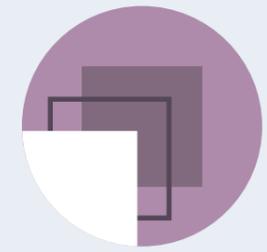
Name
Alarm Notification
Cool down
Room1 Overheat Condition: \Hotel Hilton\Floor1\Room101\Alarms\Room1 Temperature over 50 (Details)
Room1 Temperature over 50

Core Server: Simulation (Demo_NETx_Platform) Database: connected NETx BMS Platform 2018 R1 Build 0 2018-09-26 14:44:36



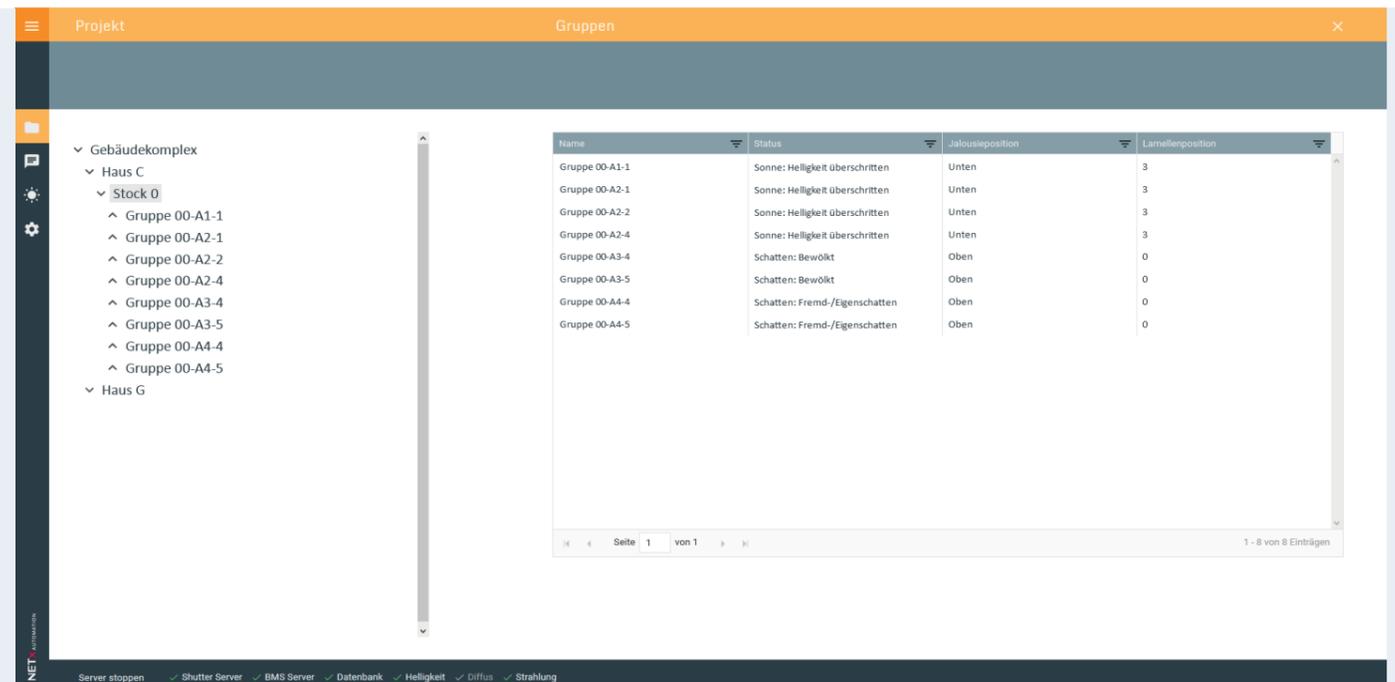
Templates

To speed up the integration process, templates can be used. A template is a generic definition which contains variables. A template does not provide a dedicated function but it can be used to generate several instances in an automatic way. During the instantiation of a template, an Excel list that contains the values for the template variables has to be provided. For each list entry, a definition is created where the variable values are substituted. It is possible to create hundreds or even thousands of alarms, time based events, trends, ... with just a few clicks.



Shutter Control

The shutter control app provides the management user interface for the NETx Shutter Control system. Within this app, the user gets an overview of all managed blinds and their states. In addition, it is possible to change configuration parameters like threshold values.





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