smartengine | wtec

Commissioning and Administration User Guide

smartengine software version 5.1

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1 Introduction

This document describes how to use the smartmanager user interface to manage the smartdirector/smartengine implementation. It discusses how to perform various tasks such as setting up the systems, sensors, and lighting as well as monitoring, and maintenance tasks.

1.1 smartengines and smartdirector

The smartengines and smartdirector are the hardware appliances that run smartengine software. The smartengines power and communicate with the fixtures – ultimately managing smartsensor data and controlling connected smartengine ready LED lights. The smartdirector provides unified management, communication, controls, and reporting on the platform. You can network together multiple smartengines and a single smartdirector to form a smartengine cluster for centralized management and control.

1.2 Connecting to the user interface

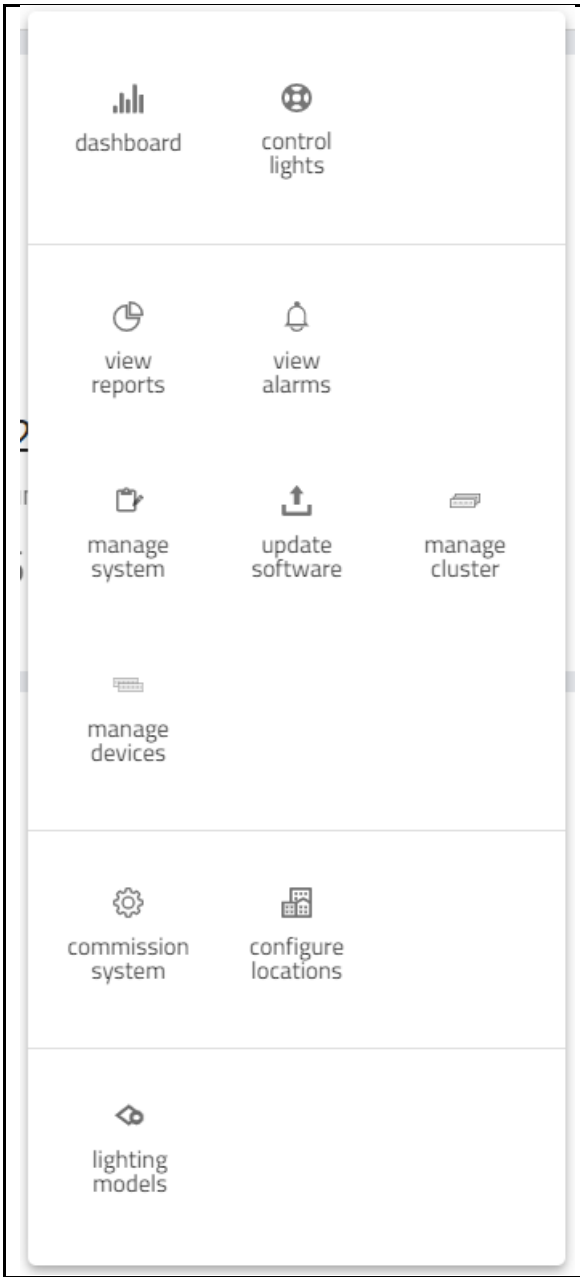
You may use any modern browser such as Mozilla Firefox, Google Chrome, Microsoft Edge and access the user interface by entering to the IP address of the smartdirector/smartengine that you wish to manage. You will require an admin account username and password to access the platform. The default administrator user is admin, and the password is smartengine. You can change the password after you sign in for the first time. Once you log in you will be presented with main dashboard.

Note: The communication with the browsers using HTTPs protocol, and browsers will warn about validity of the default certificate. This can be addressed by installing a valid certificate for the system.

1.3 Navigating the application

The user interface is divided into collection of smaller applications that can be used to manage the system.

The following applications are available (click on the titles to jump to the corresponding section):



Dashboard:

Main dashboard view for the entire system

Control Lights:

Adjust lights in any room for short time

View reports:

View the power, occupancy sensor data

View Alarms:

Examine the alarms active in the system

Manage System:

Perform administrative tasks

Update Software:

Update the software on the system

Manage Cluster:

View smartengine cluster and perform cluster software updates

Manage Devices:

View and troubleshoot installation details

Commission System:

System level configuration, including networking, clustering, and Schedules and Policies

Configure Locations:

Create and edit events, policies and scenes for locations

Lighting Models

Configure lighting models for lighting fixtures

Emergency Lighting

Configure emergency lighting

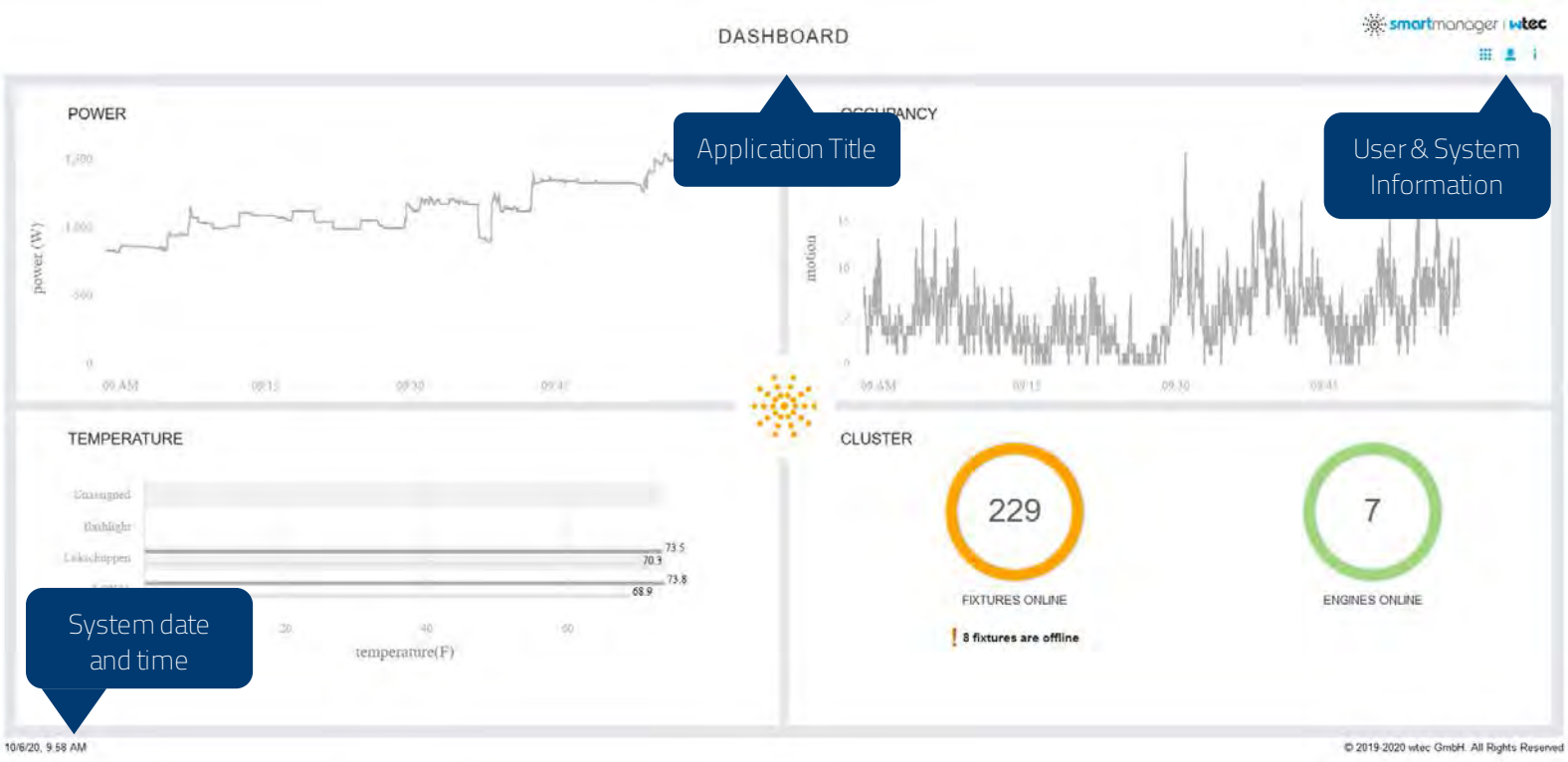
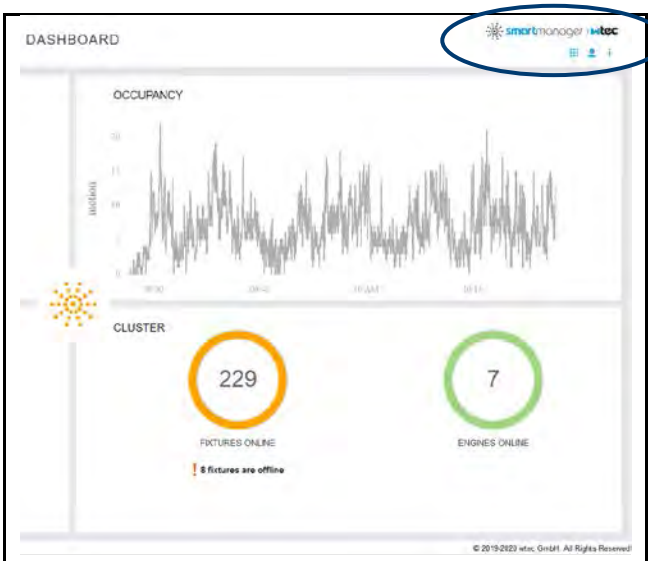


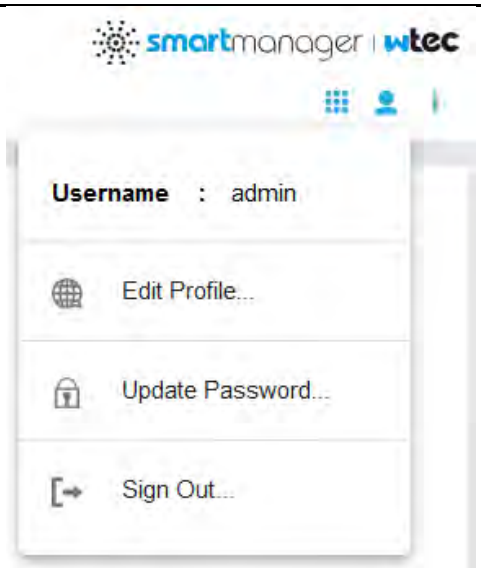
Fig. 1: smartmanager Dashboard

The header section and footer section are standard across applications and provide user information as highlighted in the figure above. Legacy applications may have different look and feel and will change in future releases.

1.4 Cluster and User information



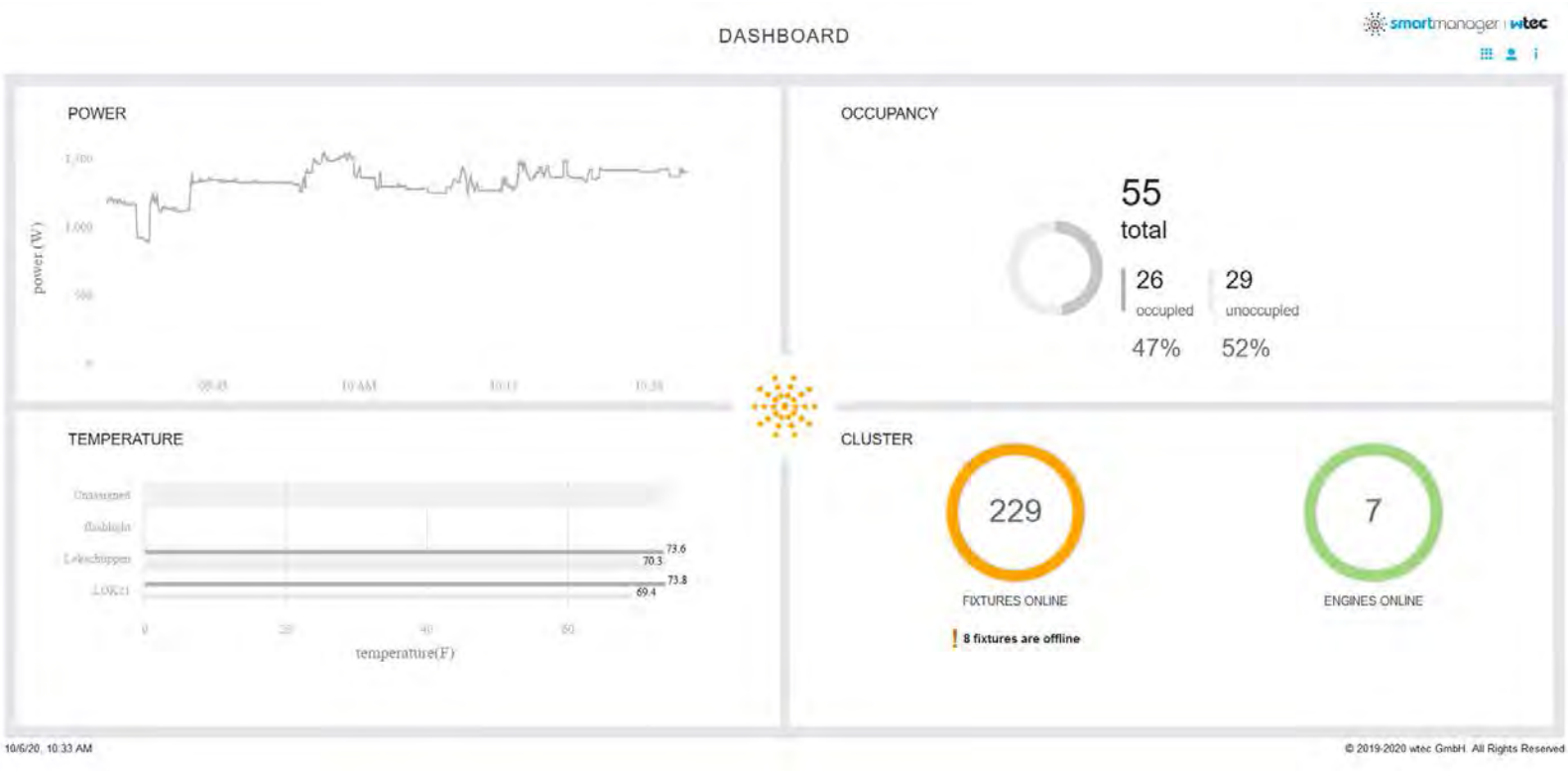
You may click on the icons on the right top to view the information about the current logged in user and the cluster information.

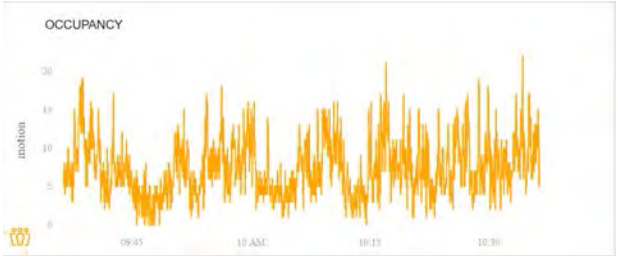
<table>
<tr>
<td> 
</td>
<td>Click the information icon to view the name of the cluster, and the version of the software installed.</td>
</tr>
<tr>
<td> 
</td>
<td>Click the user icon to edit the profile (language, email id and other preferences), or change password or to log out.</td>
</tr>
</table>

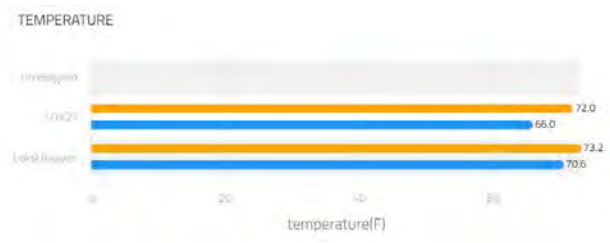
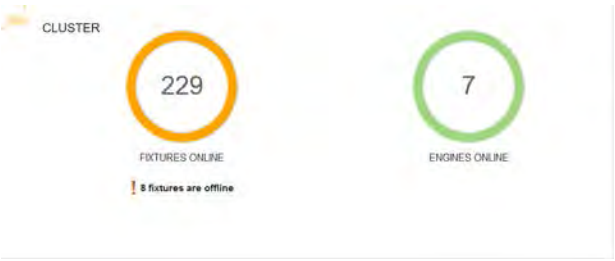
2 Applications

2.1 Dashboard

The dashboard displays four types of information – power usage, occupancy information, indoor environment information, system health.



	The power chart shows the power consumed by the fixtures (lights and sensors) for the previous one hour.
	The occupancy chart switches between a chart showing the motion activity for the previous one hour, and percentage of locations (with sensors) that are currently occupied.

	The temperature chart shows the current temperatures in the top-level locations.
	The cluster quadrant displays the number of the fixtures and engines that are in cluster (and count of the fixtures and engines that are offline for any reason).

Clicking on the power, occupancy, and temperature data will navigate to the view reports application to display the same data.

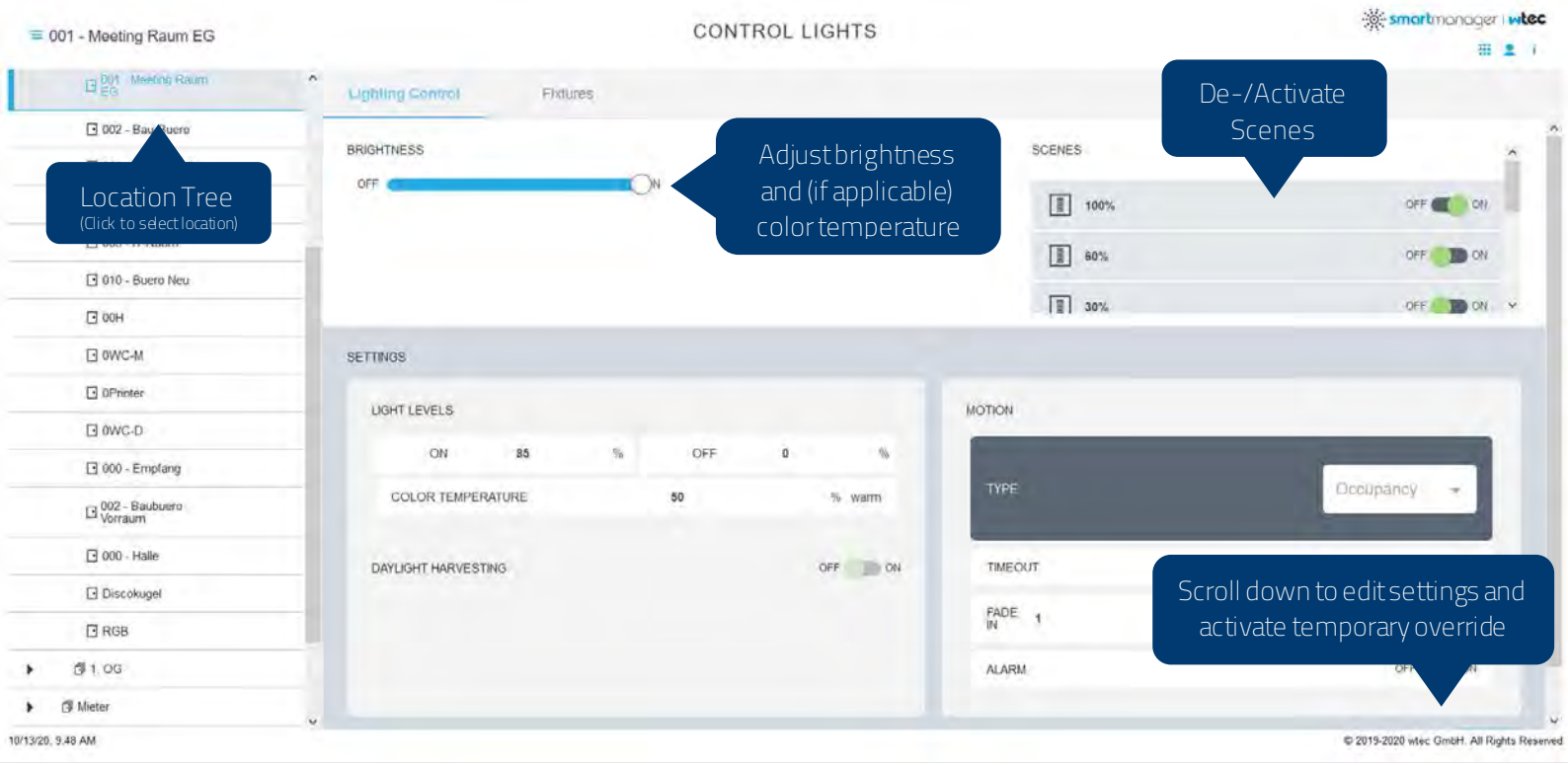
2.2 Control Lights

This application allows you to view and adjust the lighting behavior in a location.

The side navigation bar contains the location tree that can be used to select the location to control. You may search for specific locations by entering the name of the location in the search bar. The side navigation bar can be hidden by clicking on the icon above it.

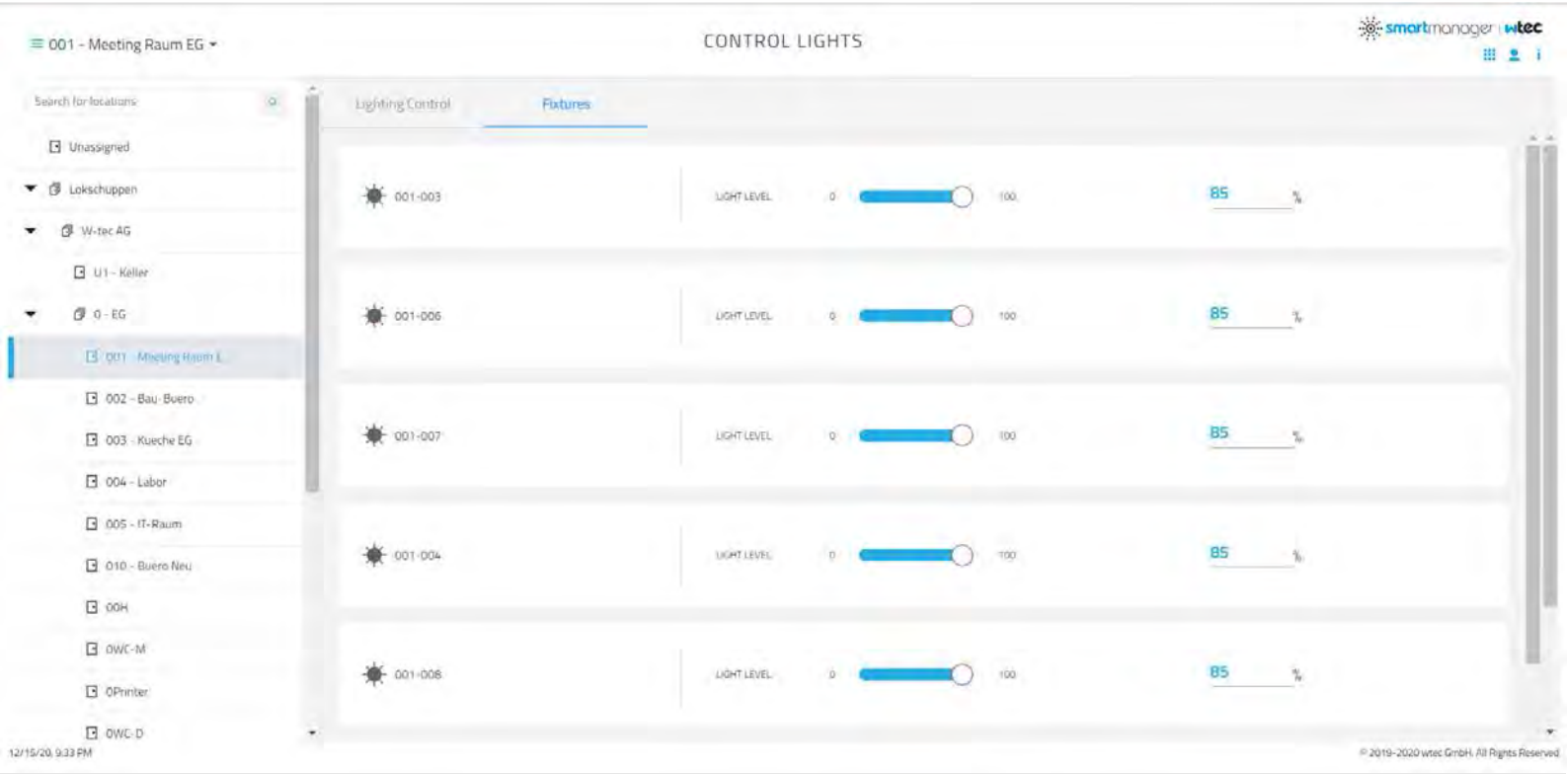
The Lighting control tab allows to adjust the settings for the location. These settings are temporary.

The brightness and color temperature settings affect all applicable fixtures in the location. If there are any scenes configured for the location, then they can be activated here. These settings remain as long as the space is occupied. They are cleared and restored to the original settings once the location is determined as unoccupied based on timeout settings.



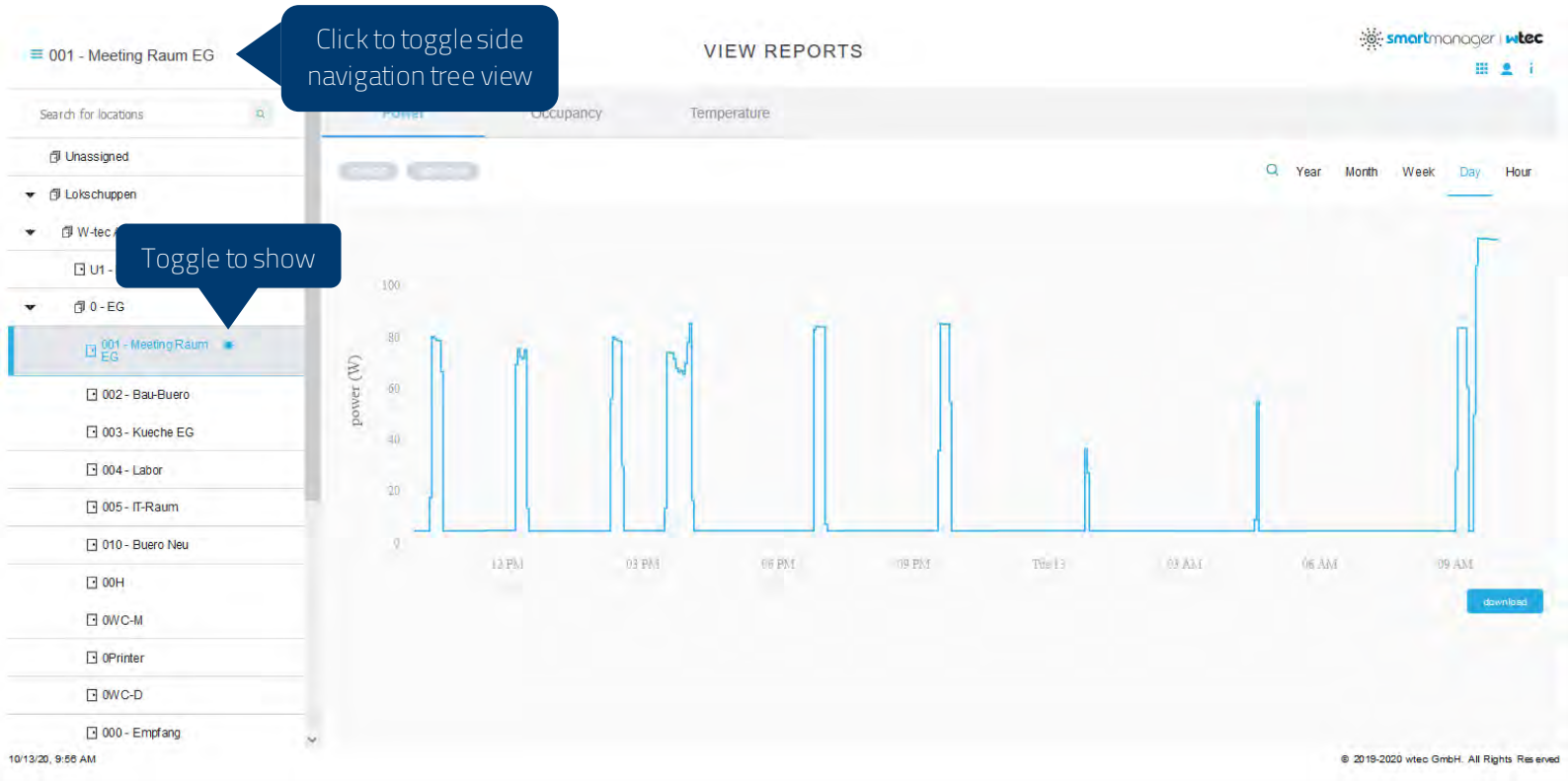
The Settings section refers to location lighting policy configuration. These can be edited after clicking on edit button. However, any changes are recorded as an override, and remain in effect for the duration that it is set for (as part of the editing).

The fixtures tab is used to perform task tuning. It is not available when a scene is active in the location. These light adjustments are retained with the current schedule that is active so that when the schedule becomes active again, the same light settings become active.



2.3 View reports

The view reports application allows you to view the sensor data for a specific location or a specific fixture. The side navigation bar allows you to select a location of a fixture.



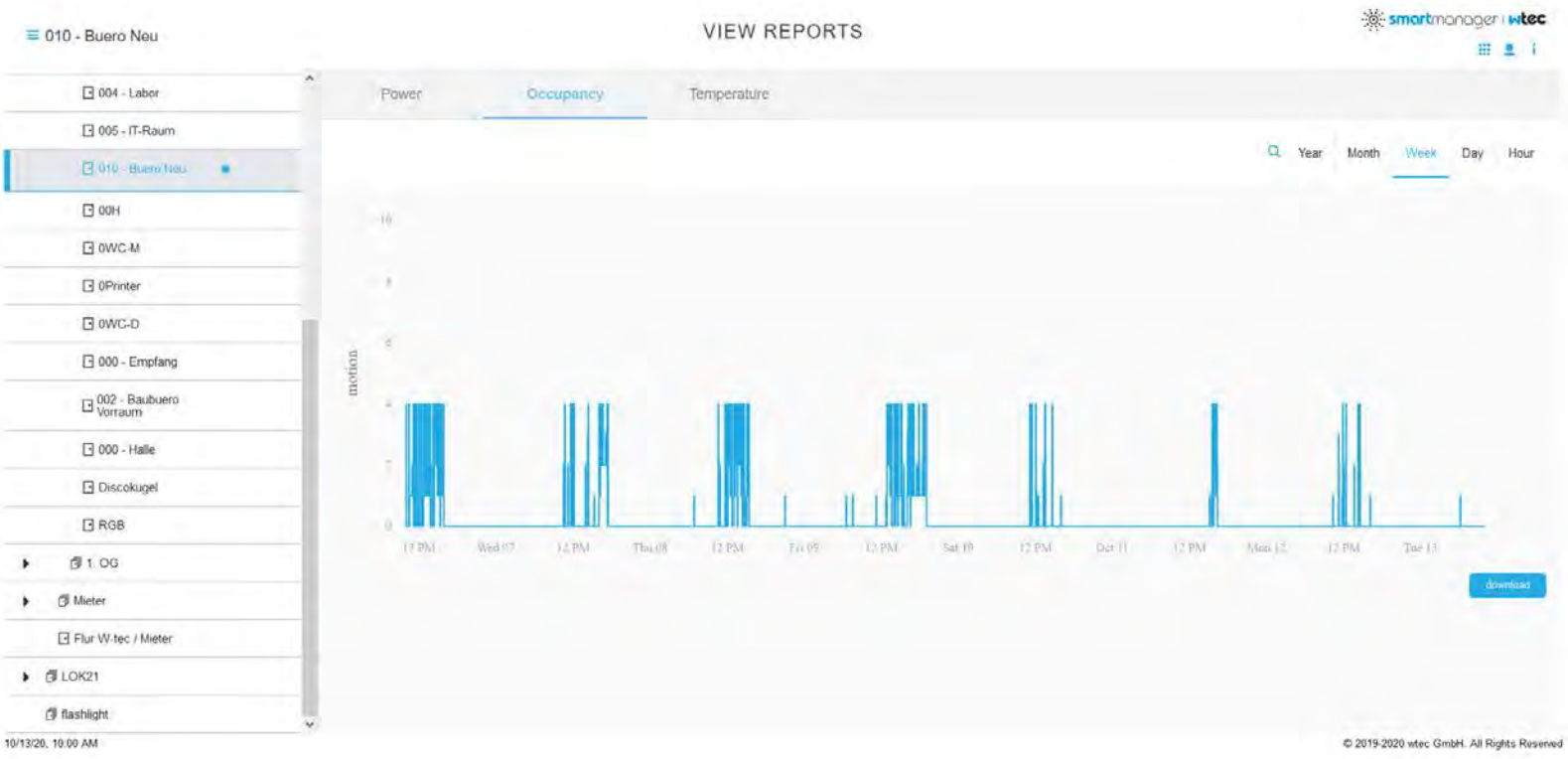
The power tab shows the power graphs for selected period (top right) for the selected location or fixture. This data can be viewed with accompanying motion or light level data by clicking on the associated buttons on the top left.

Note: the light level metric is an internal number and is used to view the relative changes in light level.

The zoom icon next to the time periods on top right can used to enable a zoom in view of the same data.

The download button allows you to download the data that is presented in the charts in a csv (comma separated values) format.

The occupancy and temperature tabs similarly show the data for motion count, and temperature readings for the selected location/fixture for the selected period.



2.4 View Alarms

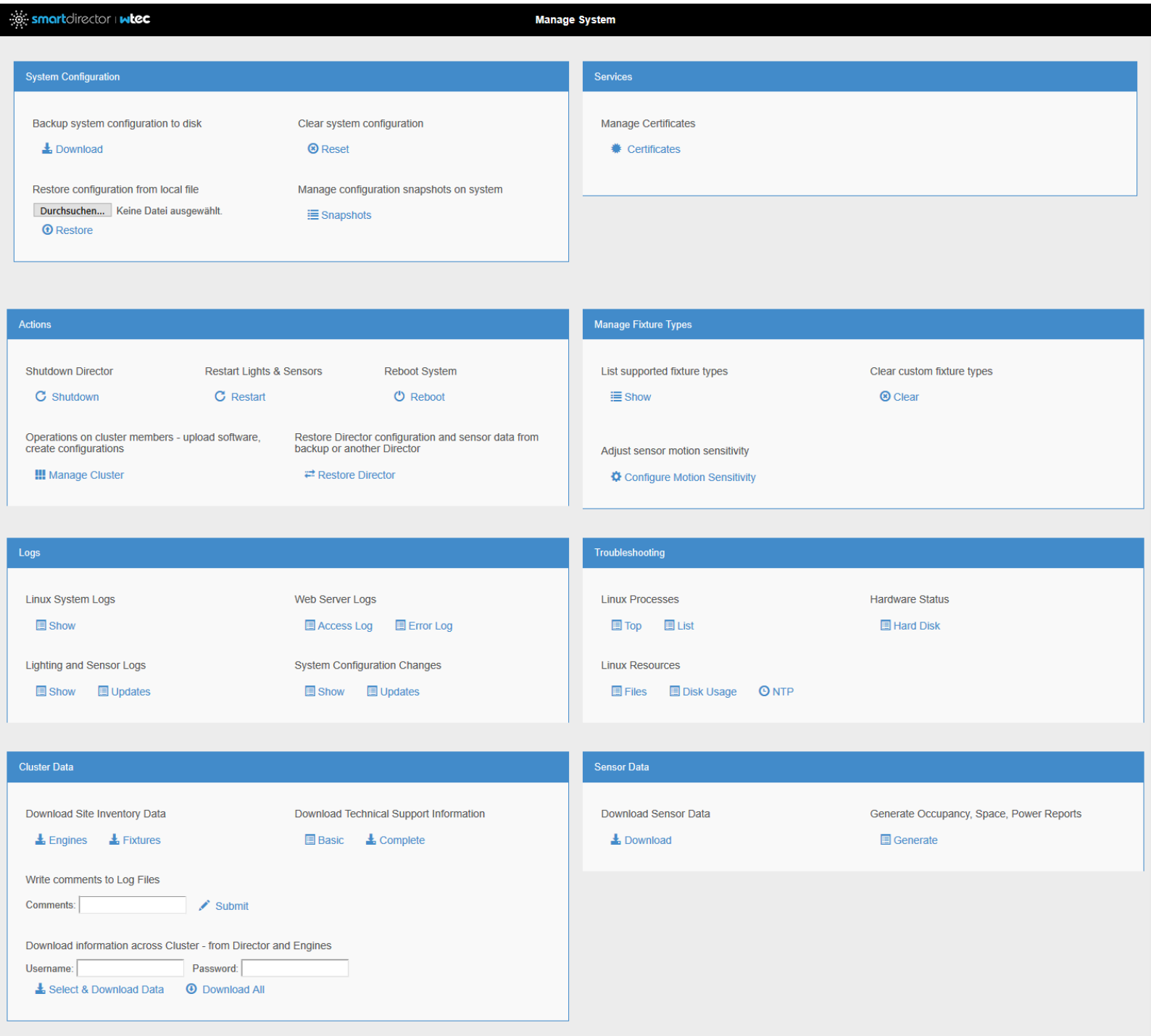
The view alarms application can be used to view the alarms that are active in the system. When the condition that causes the alarm is cleared, the associated alarm is also cleared.

These alarms range from minor informational points to major notifications about potential system issues, so it is important to monitor these on a regular basis. Common system alarms include:

- Cluster coming online or going offline.
- smartengine coming online or going offline.
- smartfixture connecting or disconnecting.
- smartsensor ambient temperature reading exceeding maximum limit (smartfixture configuration).
- smartfixture power exceeding power rating maximum limit (smartfixture configuration).
- Location seeing motion (location policy configuration).

2.5 Manage System

This application offers alternative methods to monitor and manage the platform system and hardware, including administration tools to manage system configuration, and extract system statistics, logs and technical support information.



This application presents various methods to backup and manage system configuration files, and to verify system health. During a smartengine Support call, you may be asked to open this application since it contains a number of important links to diagnose the system status. You can access this page from the smartdirector and from each smartengine in the cluster.

2.5.1 System Configuration

- Download configuration – Save the system configuration file (named "engine.cfg") to your local computer. You can use this file to restore the system.
- Revert configuration – Revert the system to the factory default configuration (system reboot required). Warning: Reverting the configuration cannot be undone.
- Configuration snapshot – Save a system configuration snapshot to the host appliance. Restore the system from a snapshot (system reboot required).
- Restore configuration – Restore the system from a system configuration file located on your local computer (system reboot required).

2.5.2 Services

- Manage Certificates – The certificates link provides you with an interface to manage the certificates used by the web server for HTTPS connections. You can upload your own certificate to be used with the web browser. You can upload a certificate for the director or engine – use a certificate authority to generate certificates for the entire cluster.

2.5.3 Actions

- Cluster Management Operations (only on smartdirector) such as upgrade all engines
- Restore smartdirector from a backup or another director.
- Restart – Restart system software
- Reboot – Reboot host appliance.
- Shutdown smartdirector – Shutdown host appliance (only available for smartdirector appliance).

Note: These actions will cause the lights to turn off.

2.5.4 Manage Fixtures

- Show and clear list of custom fixture types

- Gateway Hardware Programming tool (available only on engine)
- Configure motion sensitivity for multiple smartsensors.

2.5.5 Logs Section

smartengine support will use these links to extract system logs, and diagnostic information.

2.5.6 Troubleshooting Section

smartengine support will use Linux process diagnostics for troubleshooting

2.5.7 Cluster Data

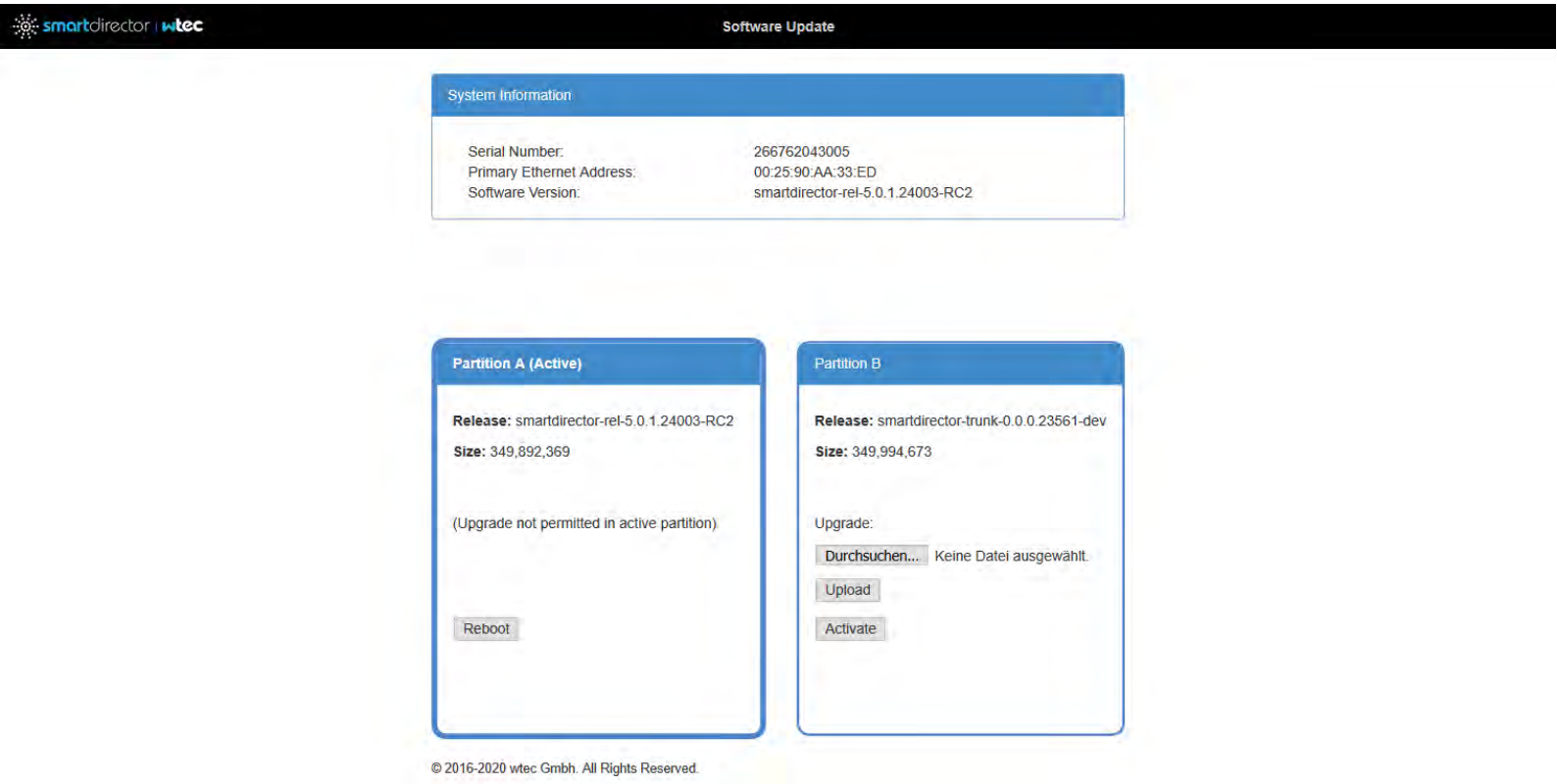
- Download site inventory data
- Download troubleshooting information from cluster
- Stamp Log: Description – Add comment to system log.

2.5.8 Sensor Data Section

- Download statistics – Save platform smartsensor data and system configuration file to your local computer. Note: the data is stored in a proprietary format.
- Download occupancy, power usage and other sensor data in CSV format.

2.6 Update Software

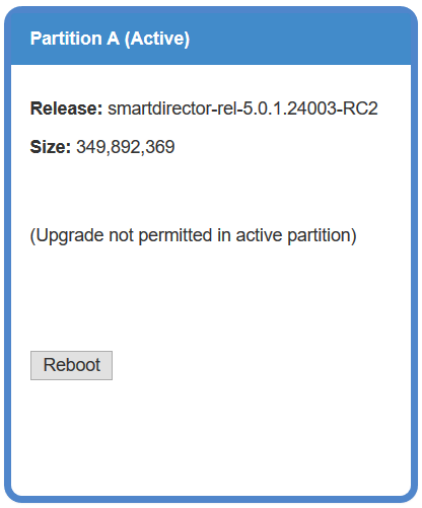
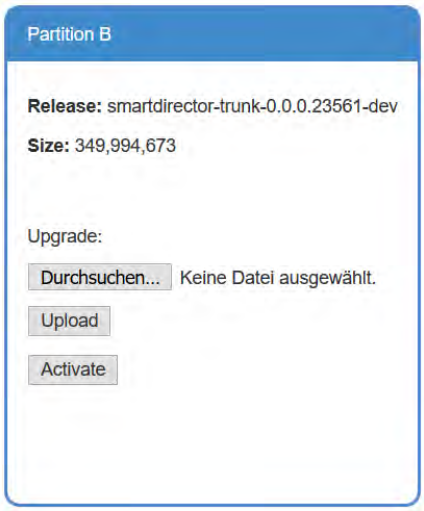
The Update Software application lists the host appliance hardware, network and system information, and facilitates the update of system software.



2.6.1 Updating system software

You can update the system software in the Update Software application. wtec will periodically release software updates that add functionality and new features. Contact the smartengine Support team for information on how to update your platform system.

	System Information Pane: Review system hardware and software information.

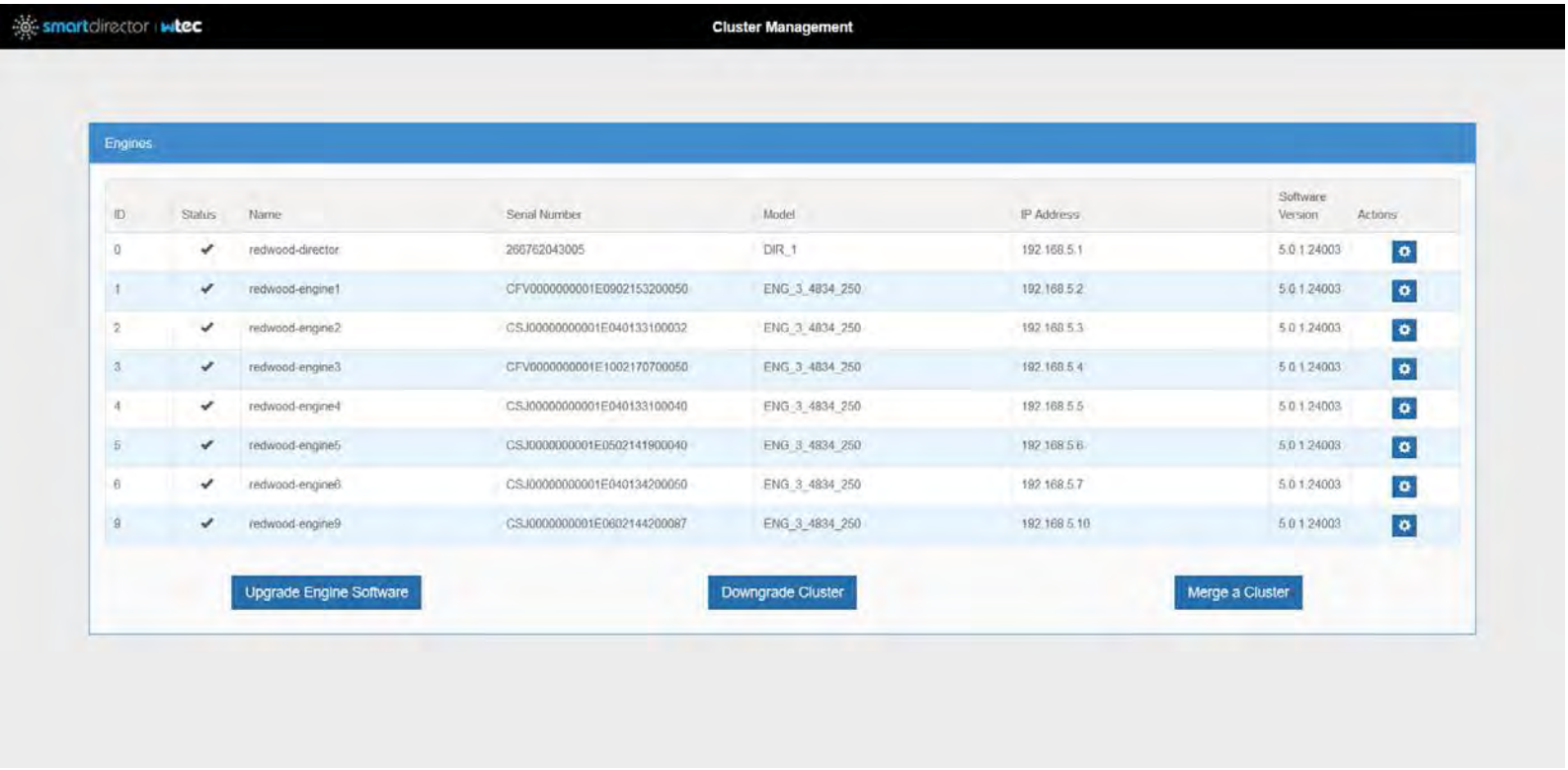
	Partition A Pane: Review partition state and Uploaded software version. Software Upload is not possible in partition marked as active.
	Partition B Pane: Review partition state and Uploaded software version. Upload software and activate as required.

2.6.2 Upload and activate software disk image

1. Review System Information pane and note current software version.
2. Review both Partition A and Partition B and note which partition is labeled **Active.**
3. In the inactive partition, click **Choose File** to open a file browser.
4. Select the .img (provided by wtec) on your computer and slick the confirmation button.
5. Click **Upload** to transfer the selected file to the inactive partition.
6. After the file transfer has completed, then click **Activate** to activate the inactive partition.
7. Wait until the system requests permission to reboot, and then click the confirmation button to reboot the system. The lights will turn off during the reboot and come back on when the system is running again.

2.7 Manage Cluster

The Manage Cluster application is available only on the smartdirector, and is used to view the status of the cluster as well upgrade or downgrade software on all the engines in the cluster.



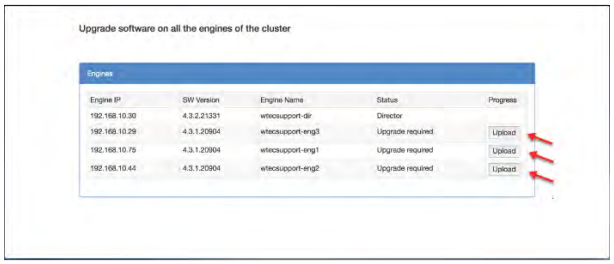
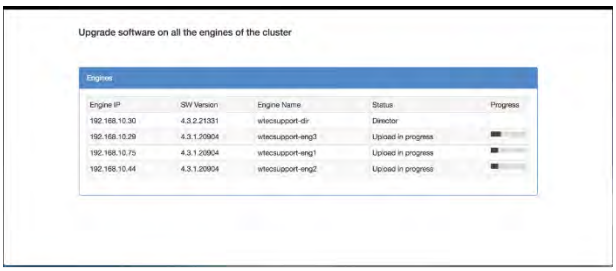
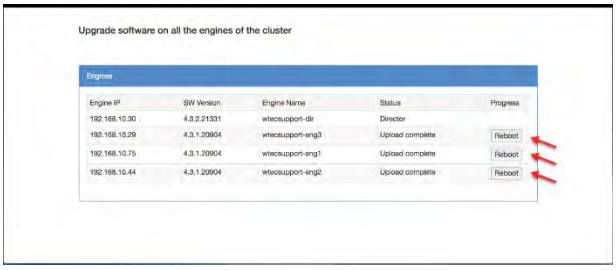
The above figure shows the smartdirector and smartengines that form the cluster in a tabular form. The status column indicates whether the smartengine is connected to the cluster or not. The actions button can used to download a minimum configuration for smartengine which can be used when you want to smartengine to reset with the default settings and join the cluster.

The smartdirector and smartengines in a cluster must always be running the same version of the software to be able to form a cluster. In order to update the software, the smartdirector must be loaded with new version of the software (see Update Software). However, depending on whether the new version of the software is higher (upgrade) or lower (downgrade), the smartengines must be updated after or before the new version has been activated on the smartdirector.

Note: Downgrade of the system software must be done carefully because the current configuration may not be compatible with the previous version of the software.

Note: As a best practice, we recommend that you download the configuration and technical support data prior to any software update.

2.7.1 Upgrading the cluster

	When the director software has been upgraded with a higher version of the software that is running on the smartengines, you can use the Upgrade Engine Software button to systematically update all the smartengines to the same version.
	When you click the Upgrade Engine Software option, you are provided with the option to upload the software to the smartengines.
	You may upload the software to multiple smartengines at the same time. Once the uploads have started the web page should not be refreshed as the upload progress is displayed.
	Once the software has been uploaded to a smartengine, you have the ability to reboot the engine to activate the software that has been uploaded.

Once a smartengine has been rebooted, it will rejoin the cluster and the upgrade will be complete. The cluster upgrade process is complete when all the smartengines have been successfully upgraded.

You can validate that the smartengines and smartdirector are clustered by reloading the application and examining the status of each smartengine.

2.7.2 Downgrading the cluster

The downgrade of cluster is more involved procedure and must be implemented carefully. After the lower version of the software has been loaded (but not activated) into inactive partition as discussed in the Update Software section, you can click on the downgrade cluster button.

This procedure starts with a check of the version of the software on the inactive partition and the configuration that was last used with that version of the software. If the configuration file is not already available on the system, you will be required to load the configuration to be used.

This is then followed by uploading the image to the engines in the same way as discussed in the upgrade section earlier.

Once all the smartengines have been activated with the version of software, you will be prompted to activate version on the smartdirector itself.

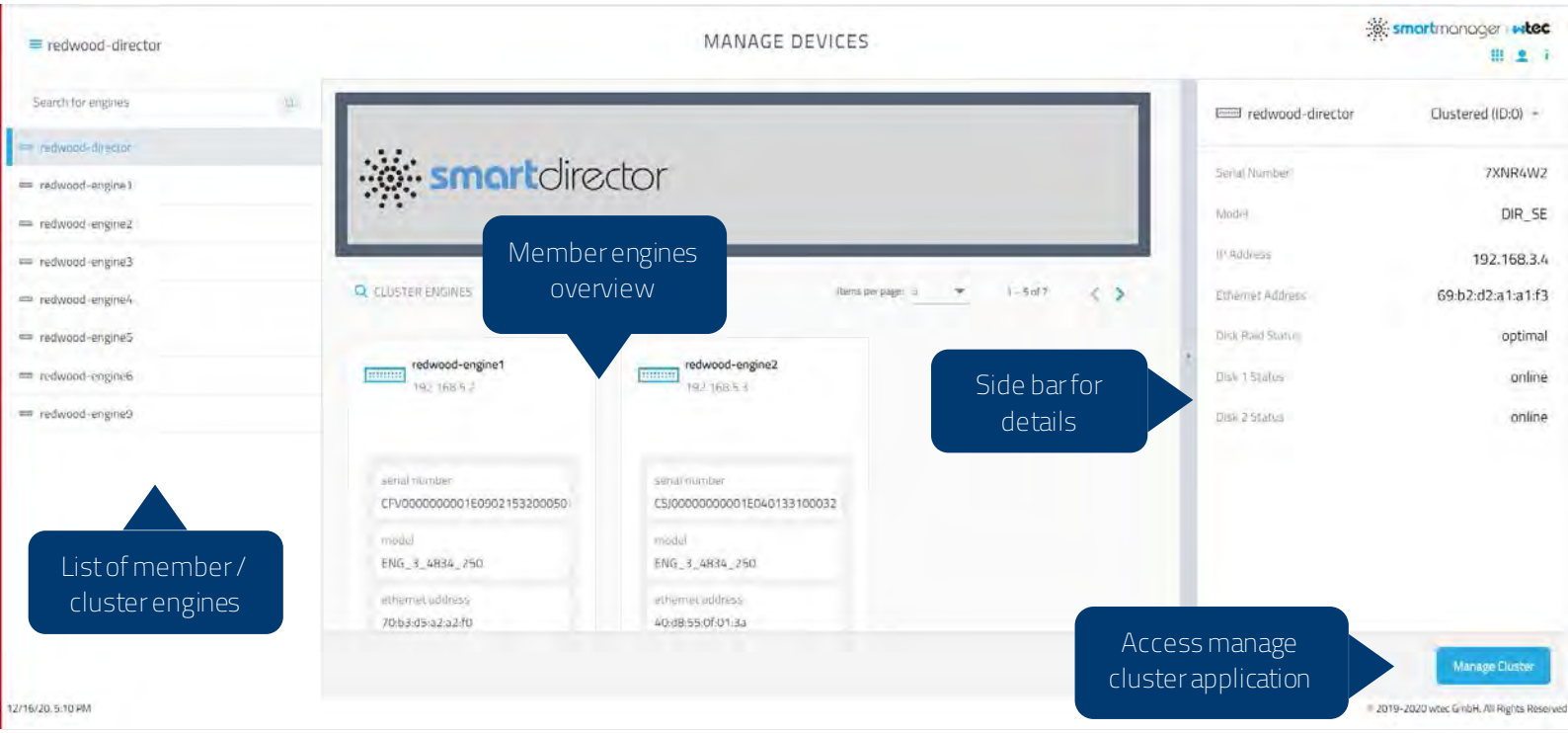
2.7.3 Merging the cluster

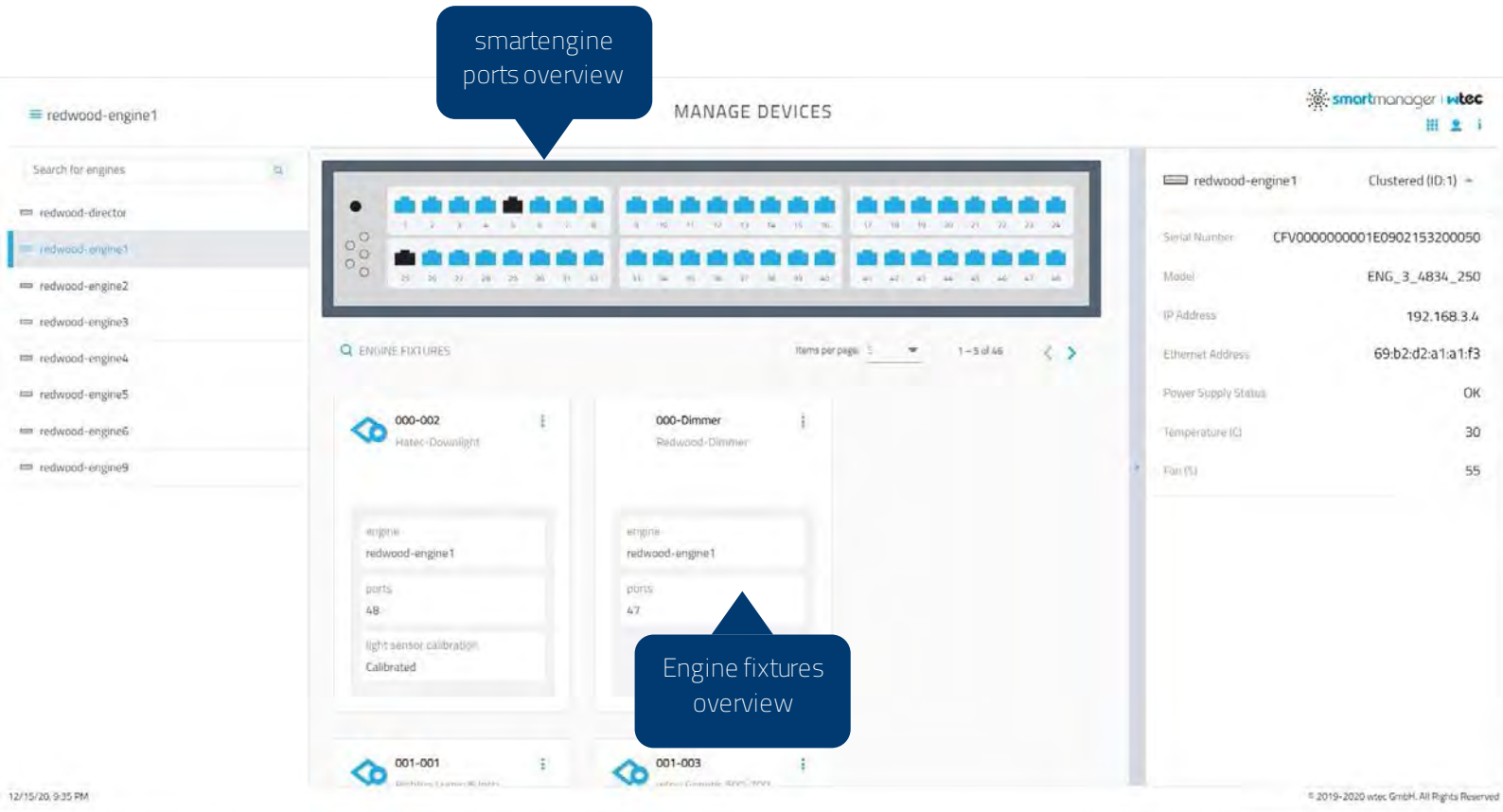
During early commissioning times, it may be required to merge existing clusters into a single cluster under the director.

The procedure comprises of following steps:

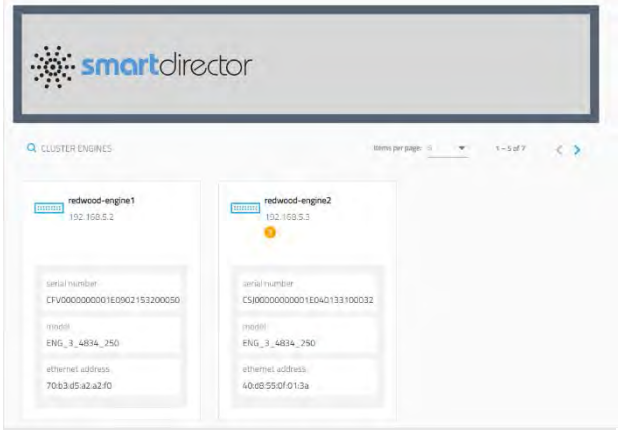
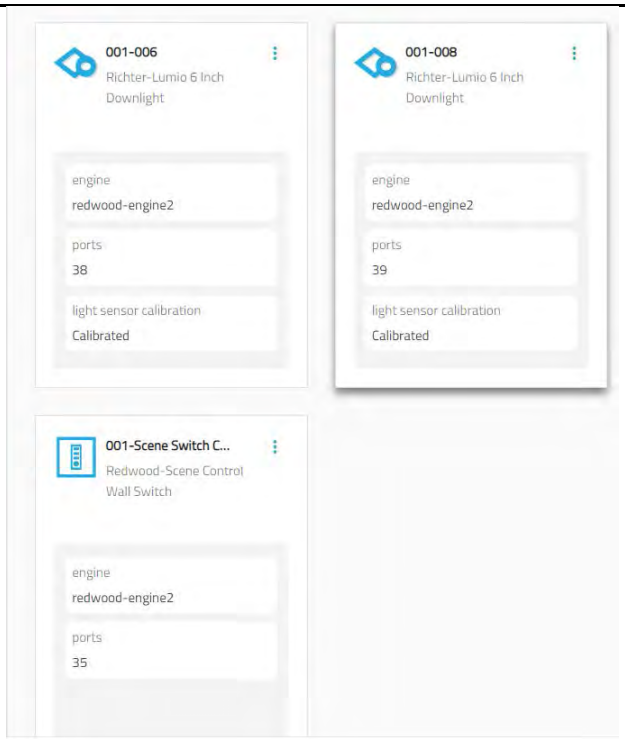
1. Provide the IP address and admin user credentials for the cluster to be merged.
2. The cluster to be merged does not have same version of the software as the smartdirector, then upload the software and activate them on the cluster.
3. Once the cluster is upgraded, you can initiate the merge process by clicking on merge button
4. During the merge process the following steps happen:
    a. The smartdirector fetches the configuration for the cluster and saves the location information under a new node in the location tree identified by cluster name
    b. All cluster fixtures are assigned to unassigned location
    c. The engines are configured with new engine ids, and provided minimum configuration for them to join the smartdirector cluster.
5. Once the merge is successfully, you can complete the commissioning of the locations and fixtures as discussed in the later sections of the document.

2.8 Manage Devices





The manage devices application provides platform installation information, including status of cluster network, smartengine ports, and connected fixtures.

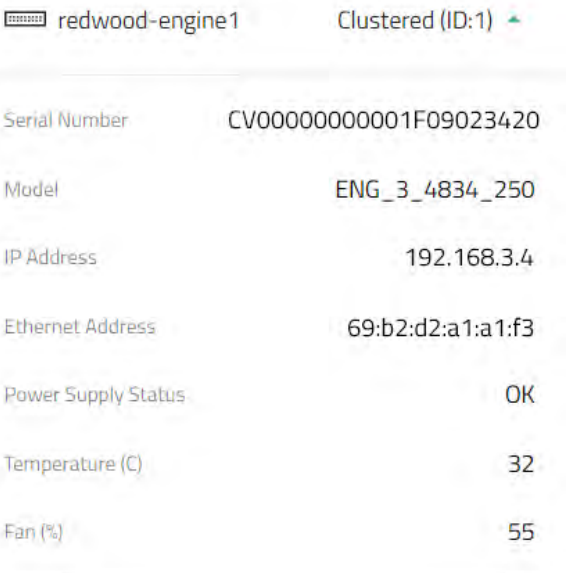
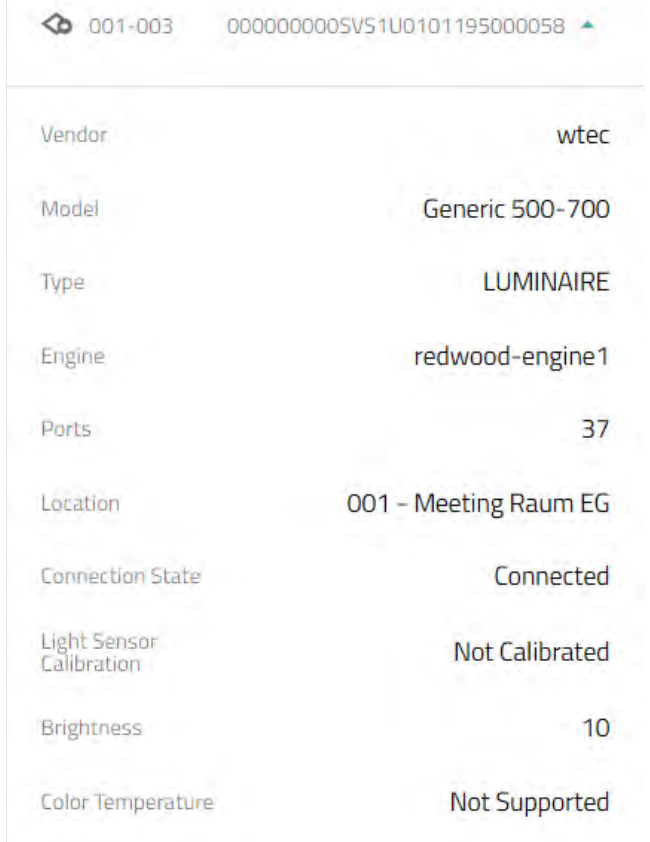
	<u>Cluster overview:</u> Overview of member engines as well as director specific information on the right-sided detail pane. Cluster Master can be smartdirector or Master Engine. Click on member engines for engine specific details.
	<u>smartengine ports overview:</u> Graphic representation of selected smartengine front panel. Click the port to see details for the port, and fixture connected to the port.
	<u>smartengine fixtures:</u> Click on the fixture title to see the details of the fixture in the sidebar.

2.8.1 smartengine port status

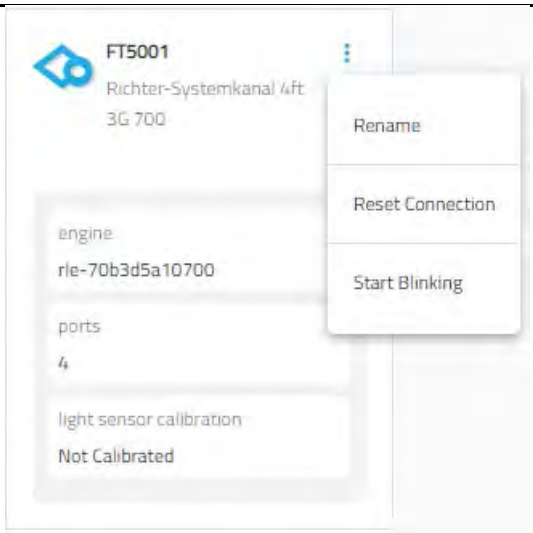
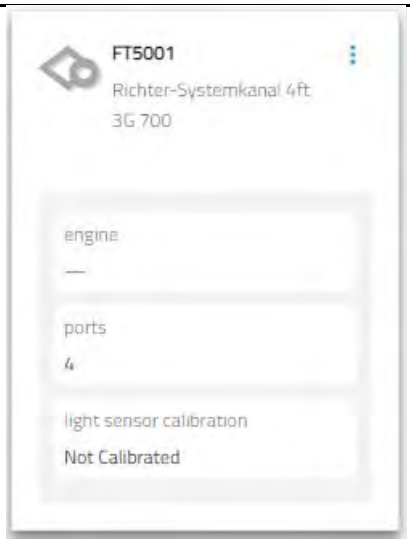
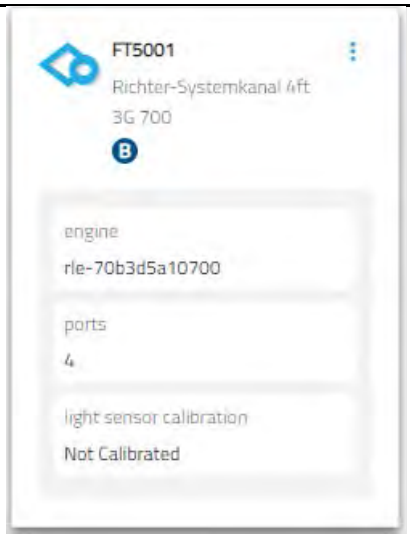
Indicator	Status
	No connection is detected on this port.
	Connection is active.
	Attention is required.

2.8.2 Detail sidebar

The detailed sidebar shows you engine/fixture specific information. By clicking on an engine/fixture the respective information will show up on the right handed sidebar.

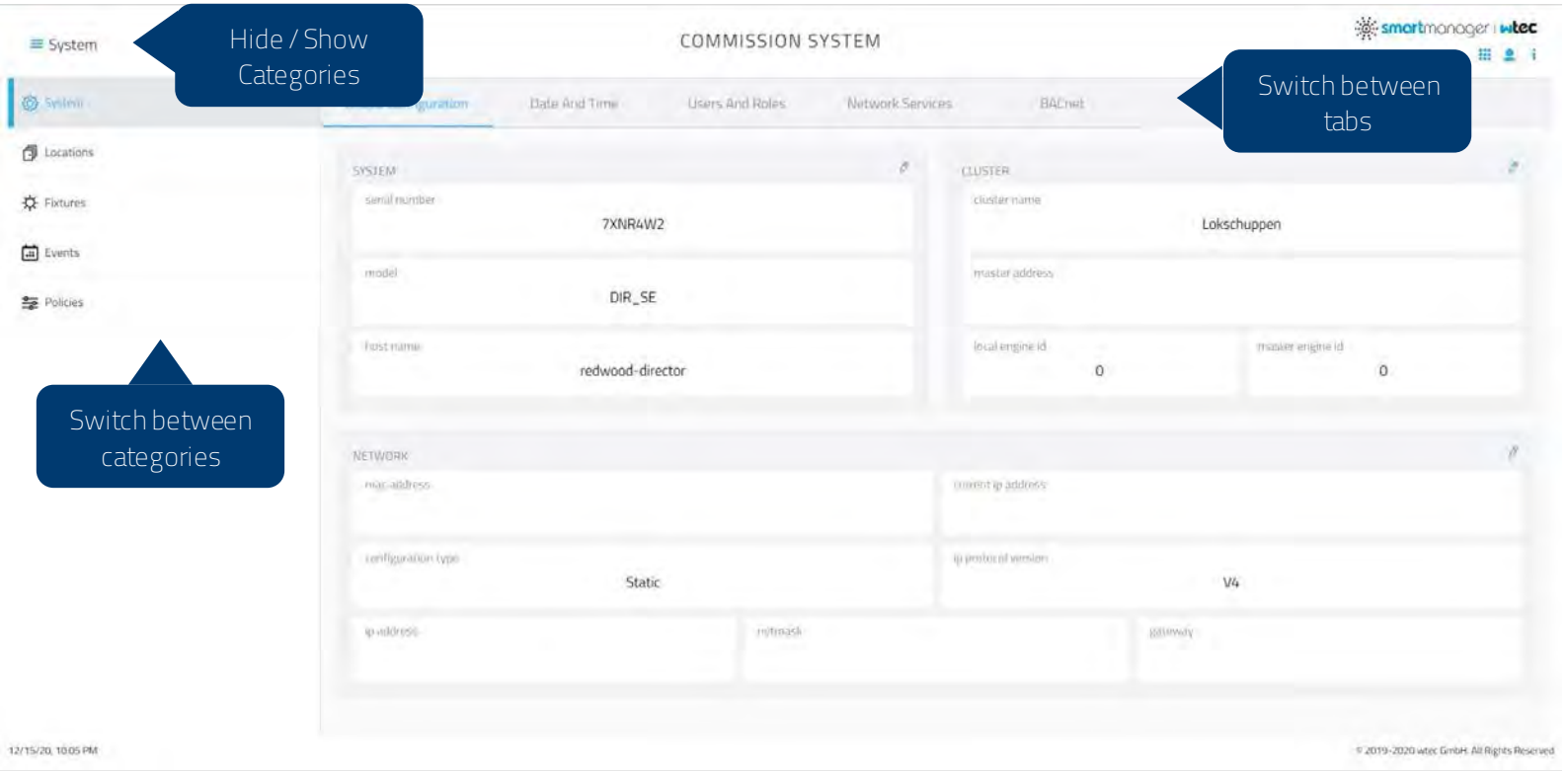
Engine specific information	Fixture specific information
	

2.8.3 Fixture configuration

	Click on the icon in the top right corner of the fixture you would like to configure.
	<u>Reset connection:</u> You can use this to help troubleshoot a faulty fixture. By clicking on this button smartengine will try to reestablish a connection with the fixture.
	<u>Start/Stop blinking:</u> Identify your fixture by switching into blink mode. You can switch back to the normal mode by once again clicking on the button.

2.9 Commission System

The commission system application may be used to provision the smartdirector and smartengines to work together and deliver the desired solution. The icon on the top left can be used to hide or show the different category of functionality that can be configured.

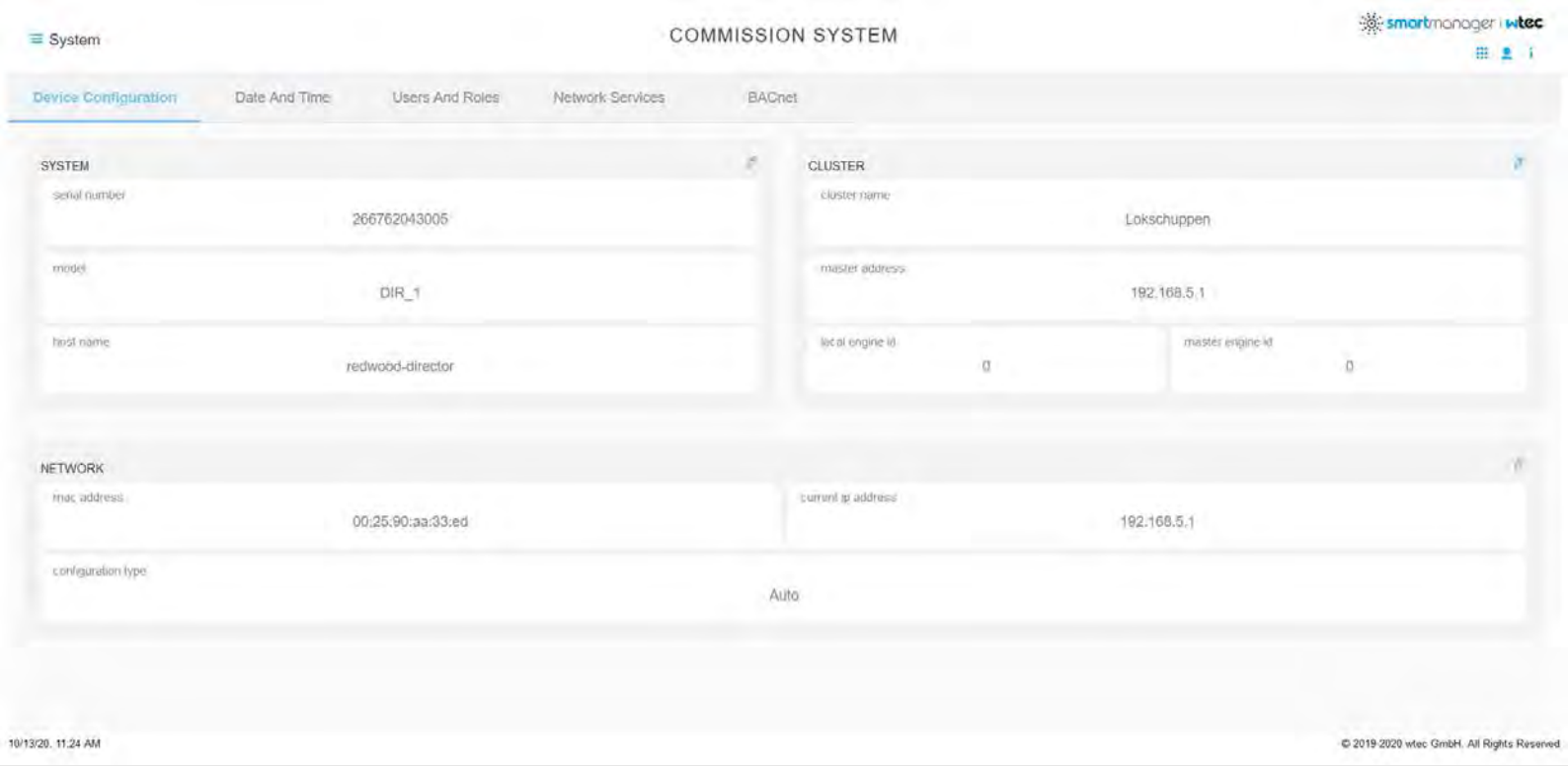


Categories	Short description
System	Configure the parameters to network the system, form a cluster, secure the system, and use services such as BACNet.
Locations	Create, move and edit locations and hierarchically categorize these locations within a tree structure. Create and add tags to your location.
Fixtures	Shows all fixtures that are connected to the Cluster. When connecting a new fixture, it will show up under uncommissioned fixtures.
Events	An event is a time-based set of rules that define when to enable a certain policy.

Policies	A policy is a set of rules that define lighting behavior - which actions are performed. (e.g. do lights turn on with motion, how long is the timeout, how bright is the light level)

2.9.1 System

You can access and manage platform configuration settings in the commission system application.



2.9.1.1 Device Configuration

The system section displays Hardware identification:

- Serial number
- Hardware model
- Host name within the network (editable)

The Cluster section displays cluster information and settings:

- Cluster Name: The cluster name is a unique name that identifes the cluster formed by the smartdirector and the smartengines. You must configure the same cluster name on all the smartdirector and smartengines that need to work together as a cluster.

- Master engine ID: Each smartengine and the smartdirector is assigned a unique identifier (from 0-128). Master Engine ID is the identifier for the master node in the cluster (if a smartdirector is in the cluster, then it must be the master). You can view and manage the entire cluster by connecting to this master smartdirector or smartengine.
- Master address.
- Local engine ID: The Local Engine Id is the identifier for the system you are connected to.

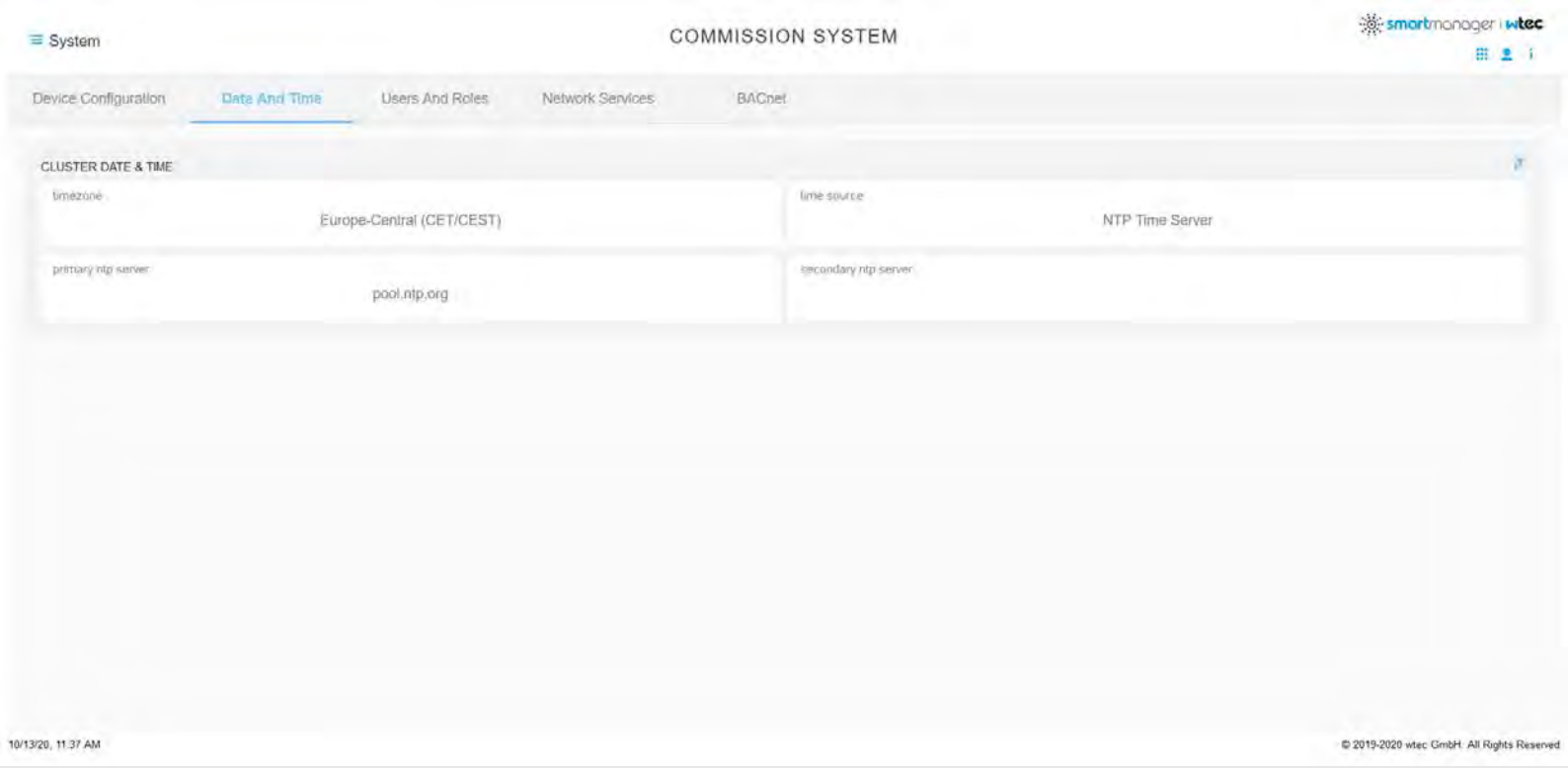
The Network section displays the host IP communications settings:

- MAC Address (read only).
- Current IP address: Primary Port network information
- Configuration Type: STATIC or AUTO
- If STATIC, you must provide the networking parameters -- IP address, subnet, and gateway address. If you select AUTO, the device will use DHCP to automatically get an address for itself. NOTE - it is recommended to use a fixed IP address for the device -- either configured using STATIC option, or using fixed reservations on the DHCP server.
- IP protocol version: IPv4 or IPv6
    - By Default, IPv4 is used. You can switch to IPv6 by enabling it with the switch and rebooting the entire Cluster.
    - Note: You can enable cluster-wide IPv6 communication. When using 'Auto' setting, make sure your networks DHCP server is IPv6-enabled. Also, remember to specify cluster-Masters IPv6 address (or FQDN) on each member Engine individually

For cluster network setup, see the "smartengine Networking User Guide".

2.9.1.2 Date and Time

The Date and Time tab displays the system time settings:



- Time Zone.
- Time Source: System Clock or NTP Server.
- Primary & secondary ntp server: Provide at least one ntp server. The secondary ntp server is optional.

Note: NTP configuration requires UDP Port 123 to be open (inbound and outbound). If an external NTP server is configured and identified with DNS name (instead of IP address), then DNS services (in network services tab) must also be enabled.

For cluster network setup, see the "smartengine Networking User Guide".

2.9.1.3 Users and Roles

The Users and Roles tab displays the list of platform users. Click on a user name to display further information:

- User ID (unique).
- Name.
- Email.
- Role.
- Emergency lighting admin (Enabled / Disabled).
- Temperature scale (Fahrenheit or Celsius).
- Language.

The default administrator user is admin, and the password is smartengine. You can change the password after you sign in for the first time. You cannot delete this user. You can create individual user accounts for each person that will access the platform. The Role determines user application access and available actions.

Application	Role			
	Administrator	Emergency Lighting Admin	API User	User
Dashboard	X	X	X	X
Control Lights	X	X	X	X
View reports	X	X	X	X

View alarms	X	X		
Manage System	X			
Update Software	X			
Commission System	X			
Configure Locations	X			
Lighting Models	X			
Emergency Lighting	optional	X		

Create a user:

1. Click the + button to open the "Add User" dialog.
2. Enter the new user account information, including a unique User ID, Name, and Email address.
3. Select a Role.
4. If you select "Administrator", then you also have the option to enable access to the smart emergency Lighting application by enabling the "emergency lighting admin" switch.
5. Enter and retype a Password.
6. Choose between Celsius or Fahrenheit.
7. Select your preferred language.
8. Click Save to update the user list.

Modify a user:

1. Select a user in the list and click the 3 dots icon to access more user options.
2. Click on Edit (pencil).
3. Modify Name, and Email address and role as required.
4. As admin: Enter a new password into the password section if required.
5. Click Save to save the changes and update the user.

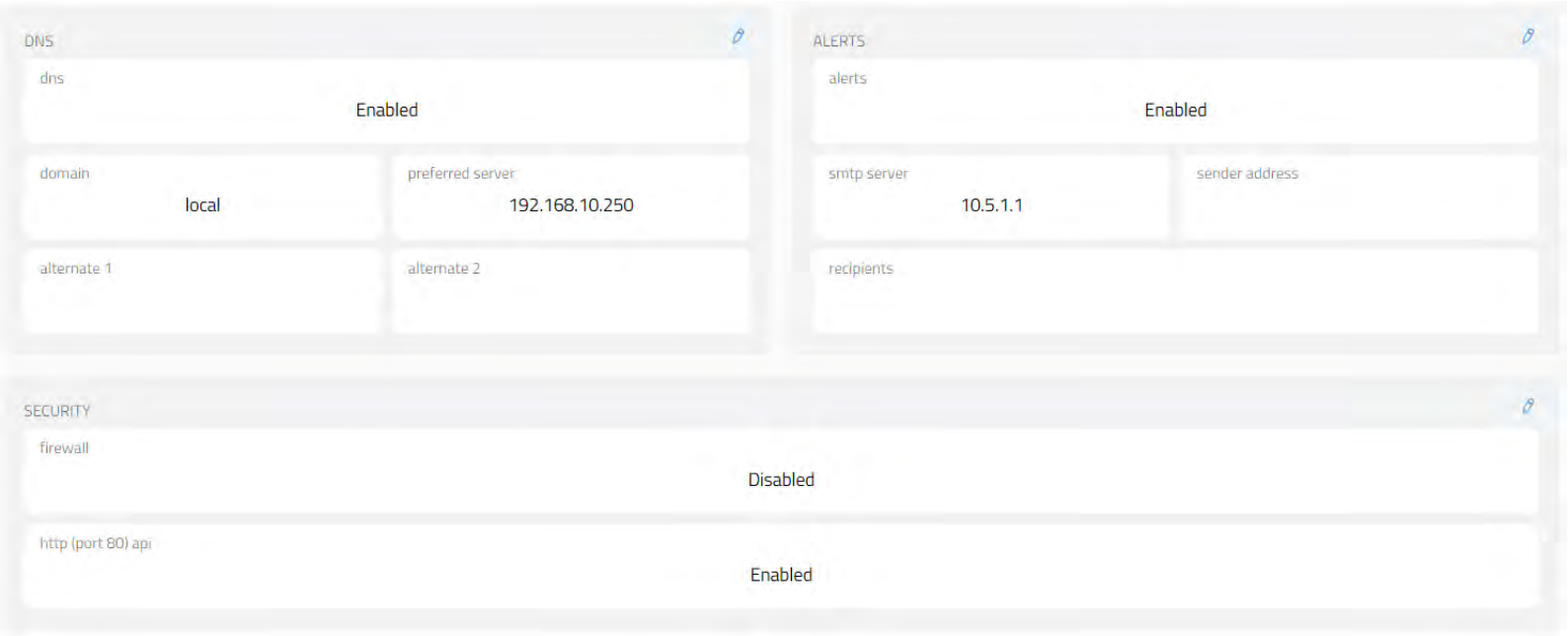
Delete a user:

1. Select a user in the list and click the 3 dots icon to access more user options.
2. Click on Delete

3. Confirm by pressing Delete on the popup.

Note: You can also edit your profile by clicking on the user icon on the top right of your screen (see Cluster and User information)

2.9.1.4 Network Services



The DNS section displays the DNS settings:

- Enabled or Disabled (switch).
- Domain: Specify domain.
- Preferred server: Specify preferred DNS server IP address
- Alternate: specify alternative DNS servers (optional)

The Alerts section displays system alarm email notification settings:

How to Configure email notifications for system alarms:

1. Switch to "Enabled" to enable email notifications.
2. Enter the domain name or IP address of the SMTP server in the "SMTP Server" text box.
3. Enter the sender email address in the "Sender Address" text box.
4. To add an email address to the "recipients" list, enter an email address in the text box below and click Save.
5. To remove an email address from the "Recipients" list, select an email address in the list and click X.

6. Click Save to save Alerts settings.

The Security section allows you to restrict network traffic to and from the smartdirector:

The firewall can be enabled to stop all network services other than ones that are required for the system to operate -- such as HTTPs, NTP etc. By default HTTP and NTP ports are open when firewall is enabled, since HTTP accesses are redirected HTTPs, and NTP is used to synchronize the clock between smartengines and smartdirector. If these are also blocked, it is necessary to ensure that all smartengines can access the configured NTP server.

Further, the administrator can choose to configure the following (available only if Firewall is enabled):

- Allowed ports: By default, HTTP (TCP/ Port 80) and NTP (UDP/Port 123) is enabled, even when the firewall is active. You can choose to disable in- and outgoing traffic from those ports here.
- Autolock: This service, if enabled, will monitor incoming web login requests to the smartdirector:
    - Autolock max attempts: The maximum number of consecutive failed login attempts
    - Autolock ban (mins): During this period all access to the cluster master and members from the specific Host are blocked
    - Locked ip addresses: Shows a real time list of all banned ip addresses.

Note: When firewall is enabled, the http and ntp services are still allowed. These can be blocked by clicking on respective checkboxes. However, it is advisable to leave settings unchanged. Unless the HTTP api service is enabled, any HTTP requests will be redirected to equivalent HTTPs request.

NTP is used for cluster master to synchronize time with other engines in the cluster. If this is blocked, then it is necessary to ensure that external NTP server has been configured on the Date and Time section. This server must be reachable for each engine in that situation. Inability to synchronize clock can result in unexpected behaviors.

Http (port 80) api:

Note: You can access the API by default via HTTPS (TCP/Port 443). However, if you want to use HTTP, you may enable it here.

By default, API access over HTTP (TCP/Port 80) is disabled on the system. By clicking on the Enable/Disable link, an administrator can enable and/or disable that specific access along with restarting of the web server.

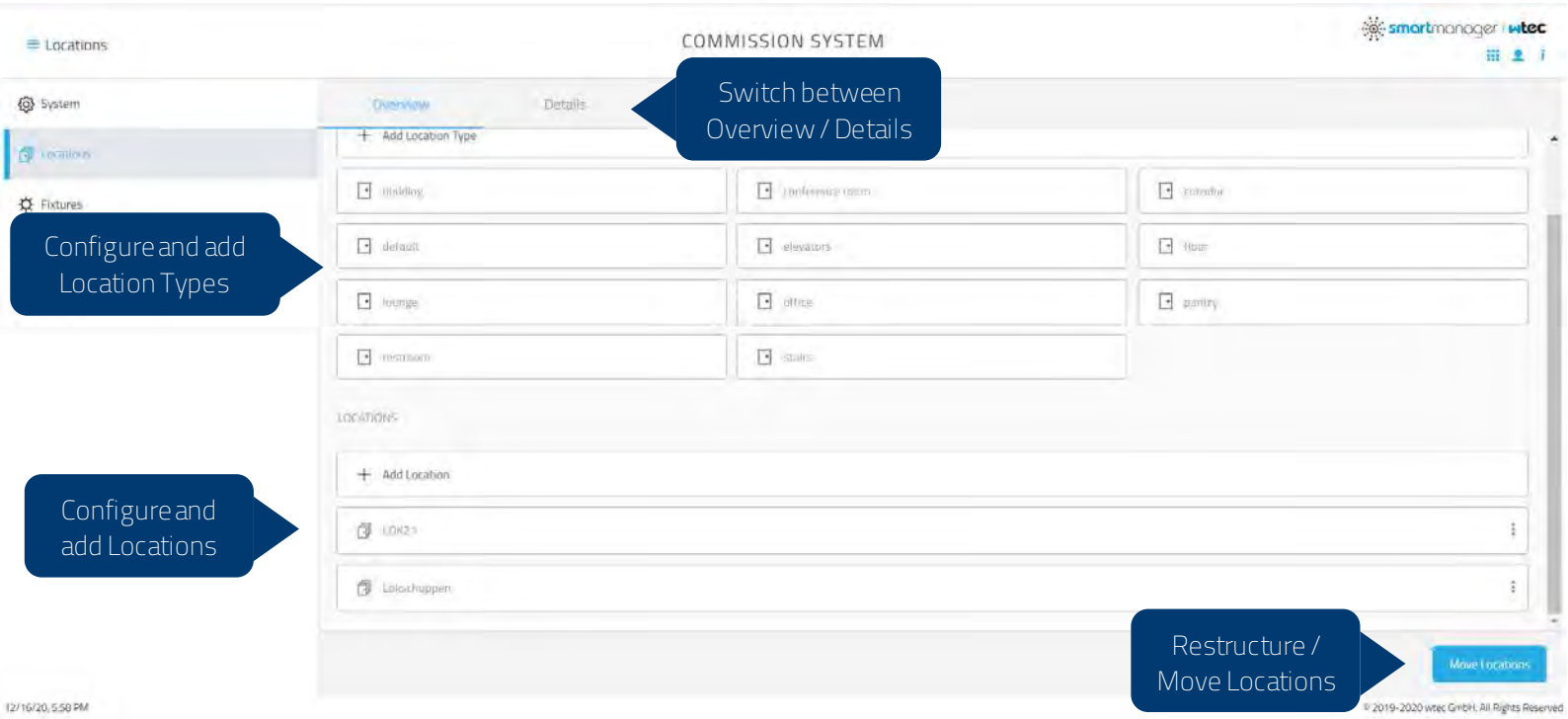
Note: The firewall option is only available on smartdirector

2.9.1.5 BACnet

By default, BACnet Service is not running on the system. An administrator can configure BACnet communication in the BACnet tab and then restart the service with the desired parameters.

For more information head over to the BACnet/IP User Guide.

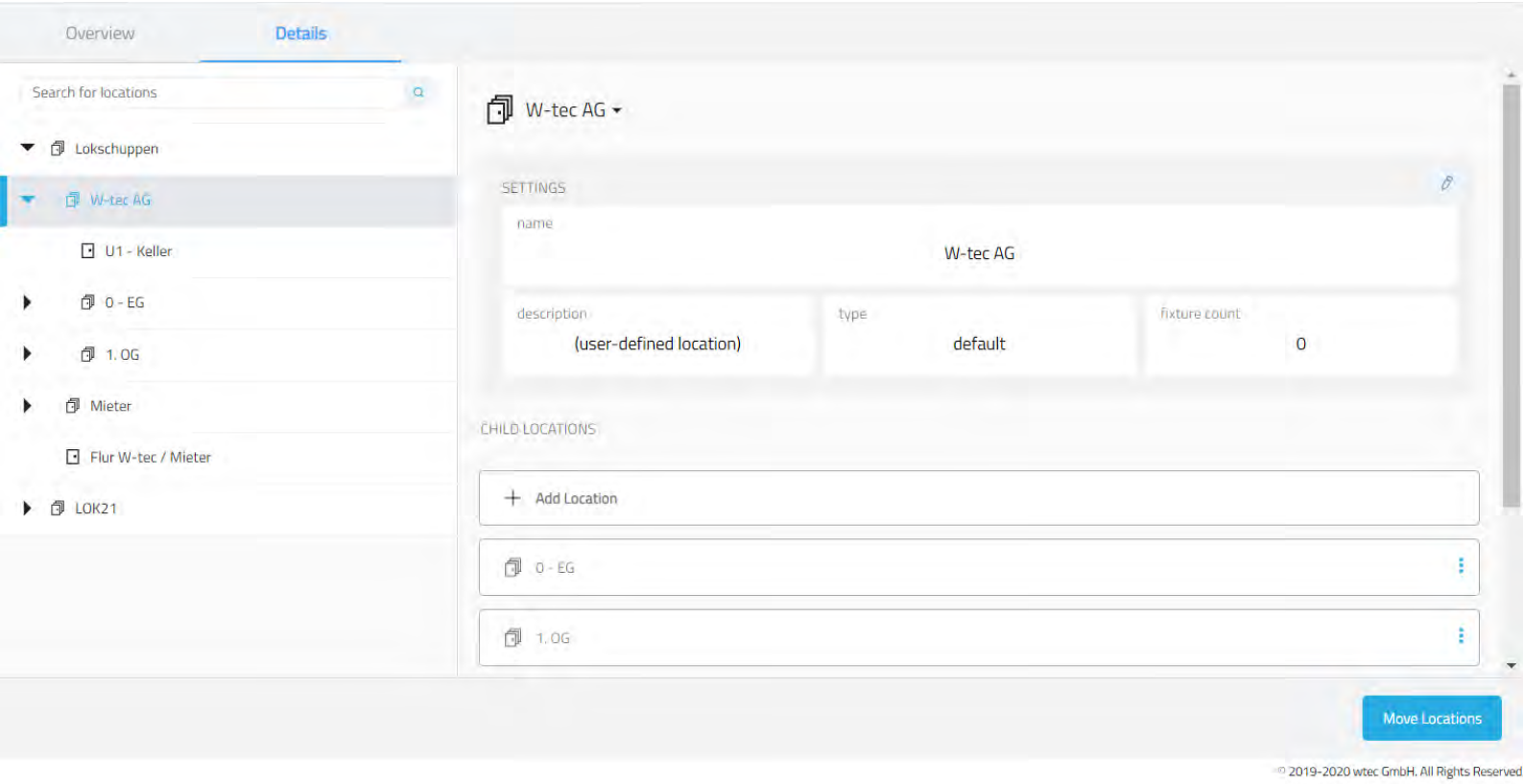
2.9.2 Locations



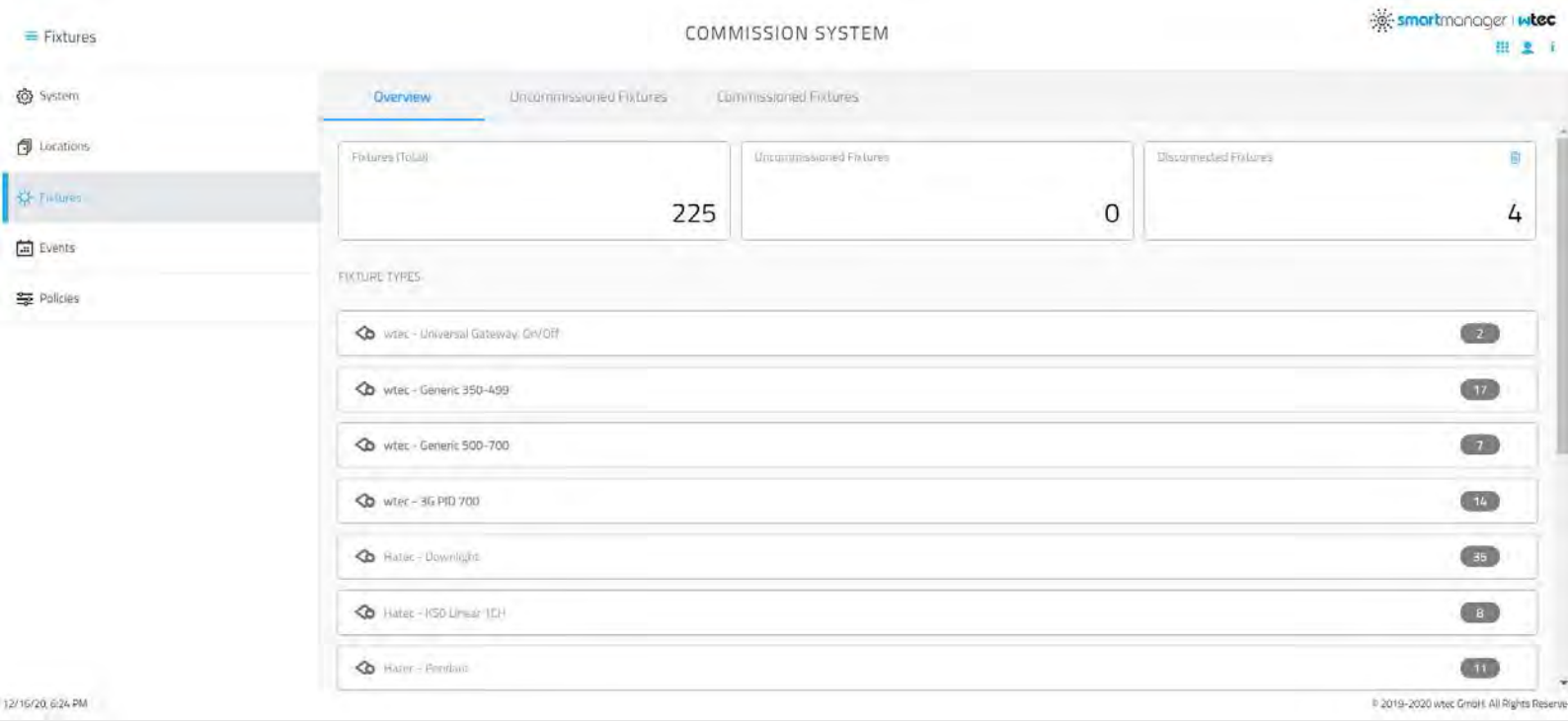
You can configure and add Locations and Location Types in the Overview tab. Location types are tags that you can apply to any location to help categorize locations into certain types (e.g. Office, Conference Room, Stairs). Locations are the digital representation of certain building areas such as conference room X and open office Y. Typically a location contains lighting fixtures of a certain building area.

Locations are organized in a hierarchical list. Top level locations can be created in the overview section. Open the details pane to add sub-locations (children). For example, you can have a parent

location named "Floor 1", which is divided into offices, meeting rooms, and common areas. Before configuring locations, plan the location hierarchy based on the site and occupant needs. This planning makes platform management easier and more intuitive, and enables you to assign policies and events to a single location, particular areas of a location, or multiple locations that have the same requirements.



2.9.3 Fixtures



2.9.3.1 Overview

Shows all fixtures that are physically connected to the cluster. When a fixture is disconnected from the cluster, the cluster will remember its details. You can permanently remove a disconnected fixture by clicking on the trash icon in the top right corner of the overview tab.

2.9.3.2 Uncommissioned Fixtures

When connecting a fixture to the cluster for the first time, it will show up in 'Uncommissioned Fixtures'. In order to commission fixtures, move them to the desired location. You can also move fixtures to different locations

You can identify and rename smartfixtures with more descriptive names in the smartmanager application 'Commission System', using one of the following methods:

- Use the flashlight naming process.
- Blink a smartfixture.
- By serial number.

The Flashlight Naming process :

Flashlight Naming is the quickest and most efficient method to identify and name smartfixtures. You can walk the site to visually identify smartfixtures in the physical locations, and then automatically name a smartfixture by shining a flashlight (or pressing a switch button). To do so click on the button "Flashlight Naming".

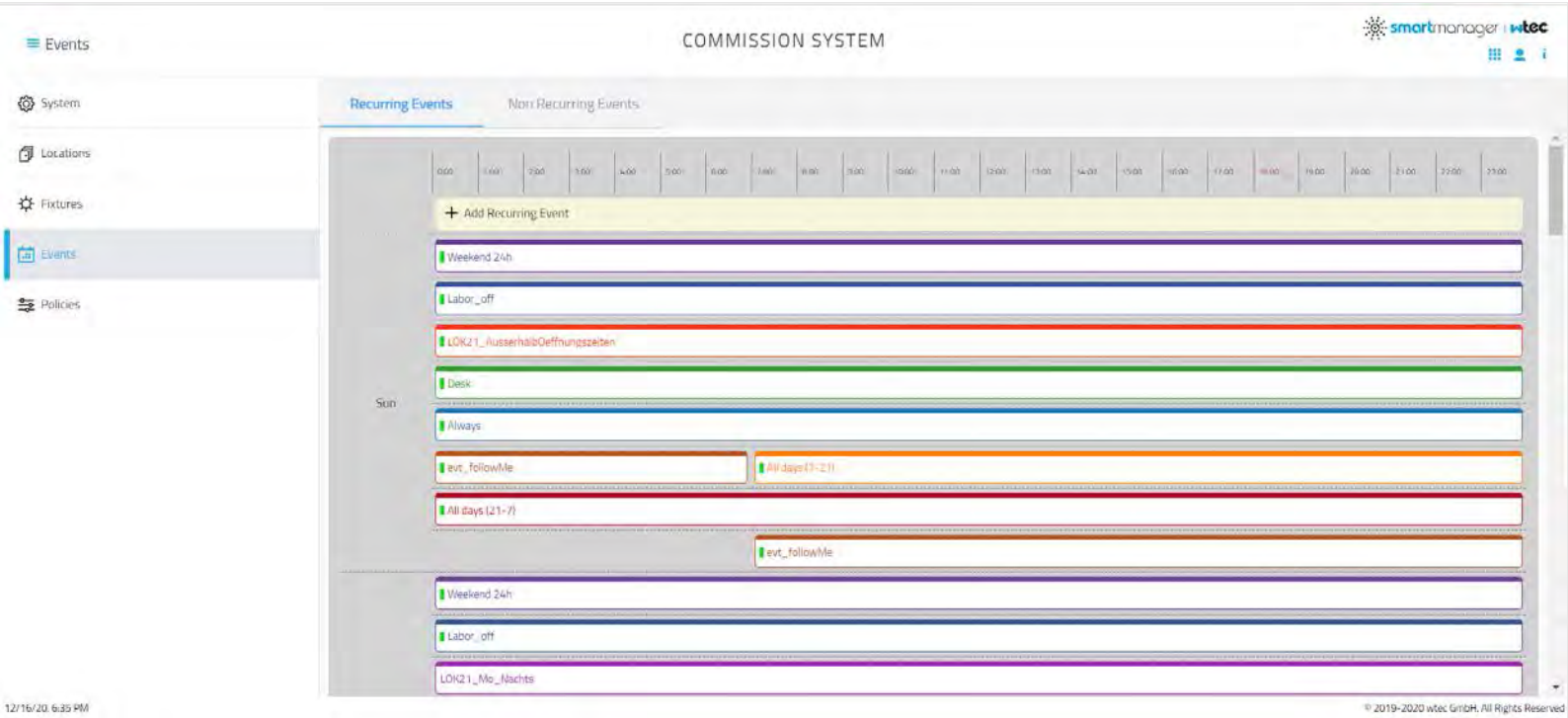
2.9.3.3 Commissioned Fixtures

All fixtures that have been commissioned can be found inside the 'Commissioned Fixtures' tab, inside their respective location within the tree hierarchy.

To calibrate fixtures, click 'Calibrate Fixtures' and follow the assistant. Calibration will match fixture light levels and illumination to the environment they are installed in.

Click the 'Move Fixtures' button to move fixtures into a different location.

2.9.4 Events



An event is a set of rules that define when to enact a specified policy. An event can be:

- Scheduled and recurring, such "Do this every workday."
- Scheduled, nonrecurring, such as "Do this on a holiday."
- Manual, such as "Do this on demand."

You assign an event with a policy to a location. The policy becomes active when the event schedule specifies or when the event receives a manual or an external signal. A policy can be associated to more than one event.

2.9.4.1 Create a recurring event

1. In the Events tab, go to "Recurring Events".
2. Click the Add Recurring Event button to open the "Create Event" dialog.
3. Enter an event name in the "Name" field. This name will be how the event will be identified in the platform and must be unique in the cluster.
4. Define the time slot of your event (start and end time)
5. Define on which weekdays your event should be scheduled
6. Click Save

2.9.4.2 Modify a recurring event

1. In the Events tab, go to "Recurring Events".
2. Select an event in the list and click on the pencil.
3. Modify the event settings.
4. Click Save to save modifications to the event.

2.9.4.3 Delete a recurring event

1. In the Events tab, go to "Recurring Events".
2. On the Events pane, select an event in the list and click the Trash icon.
   Note: You cannot delete an event if it is in use by a location.
3. Click Remove on the "Remove Event" confirmation dialog to delete the event.

2.9.4.4 Create a non-recurring event

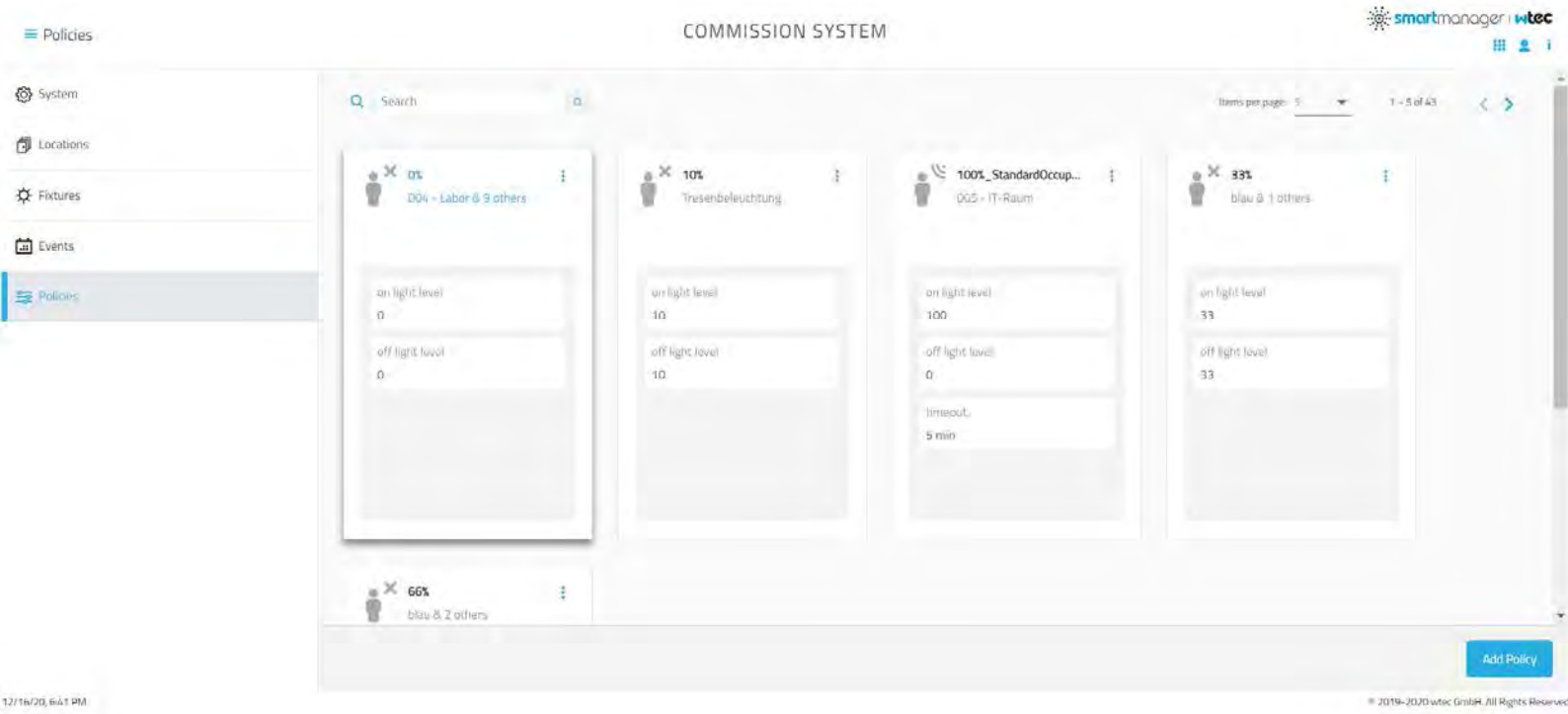
1. In the Events tab, go to "Non Recurring Events".
2. You can choose between a manual and scheduled (non recurring) event on the bottom right
   a. Manual event: Event can be initiated on demand by the user.
   b. Scheduled event: Event is scheduled to a fixed date but non recurring (happens only once)
3. Enter an event name in the "Name" field. This name will be how the event will be identified in the platform and must be unique in the cluster.
4. When creating a scheduled event: Define the time slot and date of your event

5. Click **Save**

2.9.4.5 Delete a non-recurring event

1. In the Events, select "Non Recurring Events".
2. Select an event in the list and click the 3 dots icon.
3. Click **Delete**
4. Confirm by clicking Delete on the "Delete Event" confirmation dialog to delete the event.

2.9.5 Policies

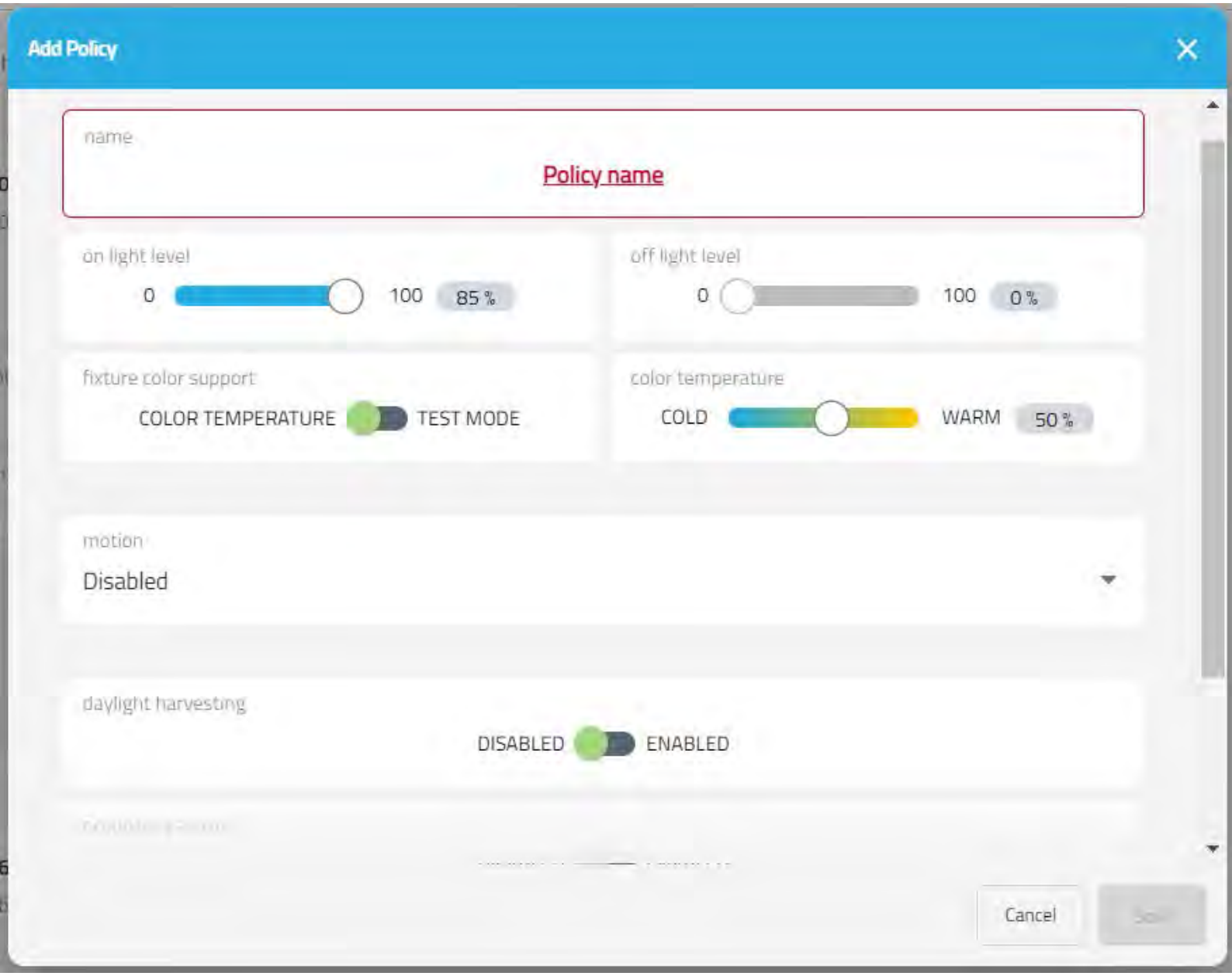


A policy is a set of rules that define what to do—which actions are performed by the lights in a specific location. Policy configuration includes the on/off light levels, occupancy mode, timeout and fade settings, and the ability to enable or disable occupancy alarms or daylight harvesting.

You assign an event with a policy to a location. The policy becomes active when the event schedule specifies or when the event receives a manual or an external signal. A policy can be associated to more than one event.

Locations are automatically assigned a system default policy. This default policy can be modified in each location if required.

2.9.5.1 Create or modify a policy



1. On the Policies tab:
    a. To create a policy, click the “Add Policy” button on the bottom right to open the "Add Policy" dialog.
        i. Enter a policy name in the "Name" field. This name will be how the policy will be identified in the platform and must be unique in the cluster.
    b. To modify a policy, select a policy in the list and and click Edit to open the "Edit Policy" dialog.

2. Use the "Light Level" slider to specify the maximum light percentage for the location's fixtures. If the location has an occupancy policy, you can also define a minimum/off light level.
3. Enable Shutoff - Particularly useful in open spaces. Enable this feature in certain cases when using background lighting: It can prevent looking into darkness at a neighboring space, however when two neighboring spaces are unoccupied, it may be preferable to turn off lights completely. Option only available when non zero minimum light level is configured.
    a. Shutoff after - Specify the Shutoff interval, after which the lights will transition from the off level to completely shut off.
4. Color Temperature - Allows to adjust light color temperature for HCL capable fixtures. Color temperature ranges between cold (0 %) and warm (100%). If you toggle the fixture color support switch to test mode, then the setting indicates the temperature of the warm channel (the cold channel will have to be configured on light level).
5. Motion – Define how your lighting fixtures should be controlled:
    a. Occupancy (Default) – Lights will turn on from motion detected by one smartsensor, and turn off if no motion is detected in the location for the timeout duration.
    b. Multi-sensor – Lights will turn on from motion detected by two or more smartsensors. Select the number of smartsensors from the "smartsensor Count" drop-down menu. Lights will remain on if a single smartsensor detects motion, and turn off if no motion is detected in the location for the timeout duration.
    c. Follow-Me – Lights are controlled individually, and will turn on/off, based on motion detected/not detected by the associated smartsensor.
    d. Disabled – Lights are not controlled by motion. Lights are controlled either by the associated event or manually.
    e. Vacancy – Lights must be turned on manually and will turn off if no motion is detected in the location for the timeout duration.
6. Select the "Timeout" to specify the duration lights remain on after no motion is detected in the location.
7. Select the "Fade In" and "Fade Out" settings to define the duration for which the light(s) will brighten and dim.
8. If the location is naturally lit, then you can enable "Daylight Harvesting" to take advantage of natural daylight and save energy. Adjust the minimum light level and light sensor sensitivity setting as required.

Note: You must calibrate smartfixture sensors to enable daylight harvesting. Single ballast locations do not support daylight harvesting.

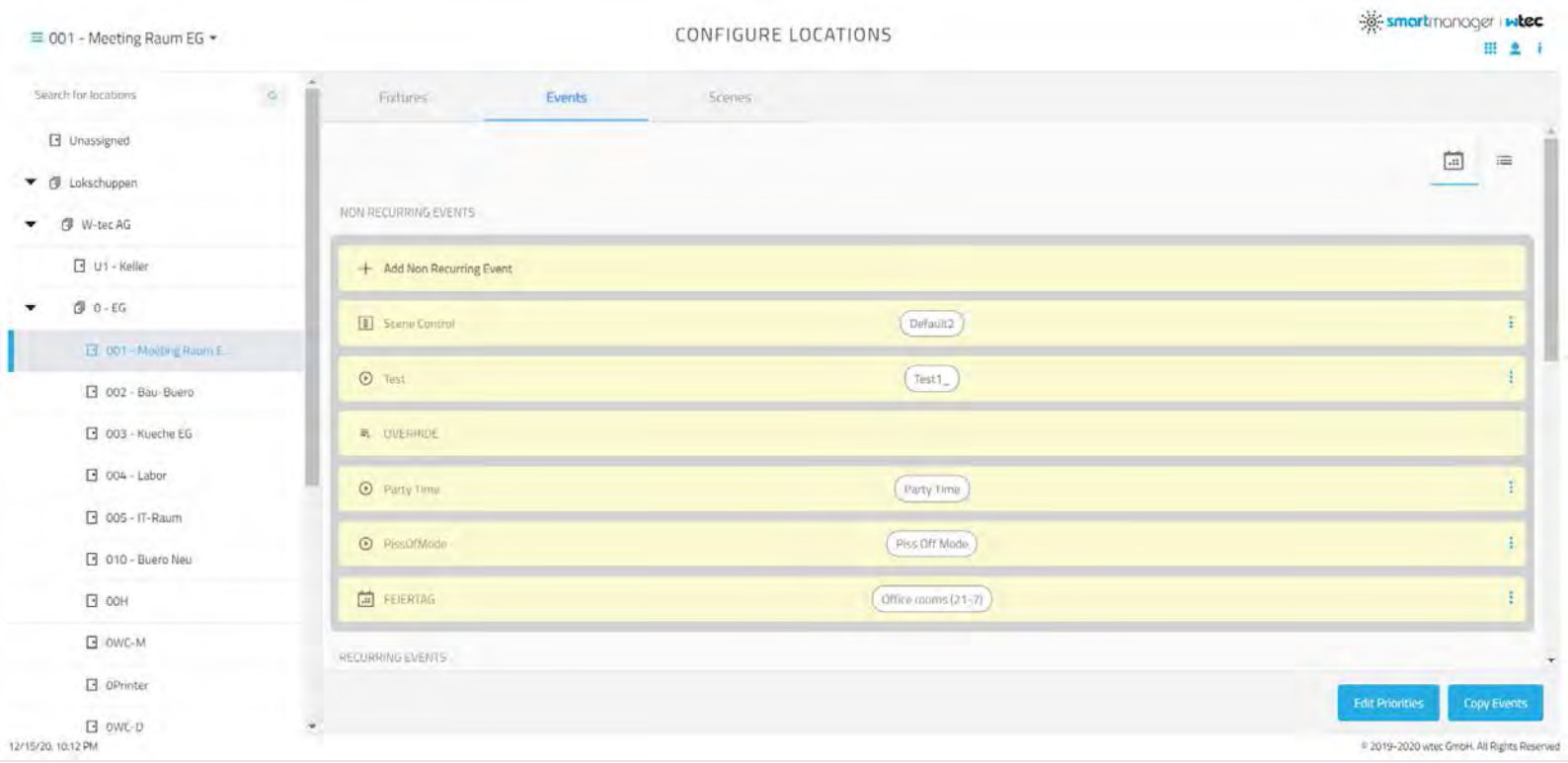
9. Occupancy Alarm - If enabled and a location is occupied, then the system will display a system alarm entry in the view alarms application and send email alert notifications if enabled.
10. The "locations used in" field will show every location where this policy is currently being used
11. Click Save to save the policy.

2.9.5.2 Delete a policy

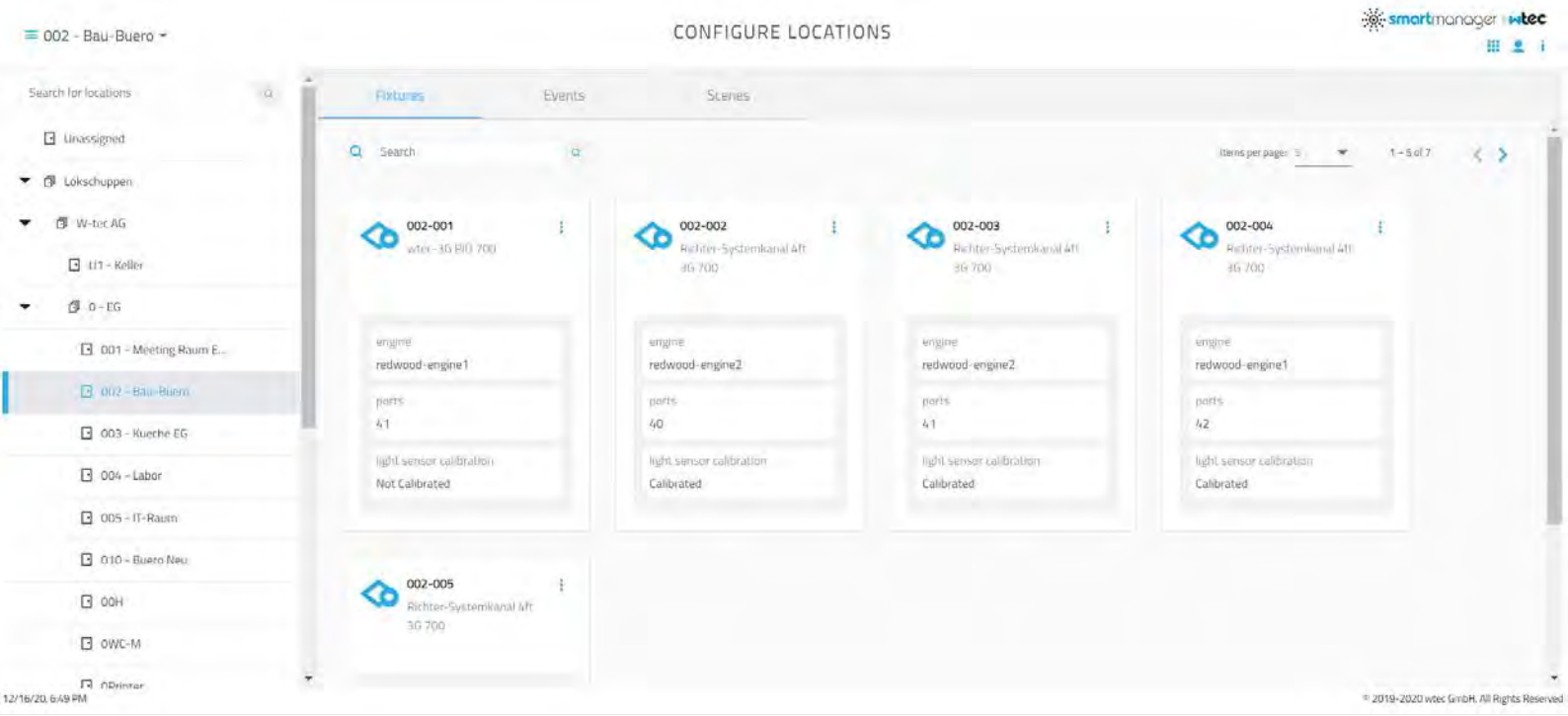
1. On the Policies tab, select a policy in the list, open the context menu and click on Delete.
   Note: You cannot delete a policy if it is in use by a location.
2. Click Delete on the "Delete Policy" confirmation dialog to delete the policy.

2.10 Configure Locations

The Configure Location application can be used to configure fixtures within a location, as well as assign events and scenes to a location.



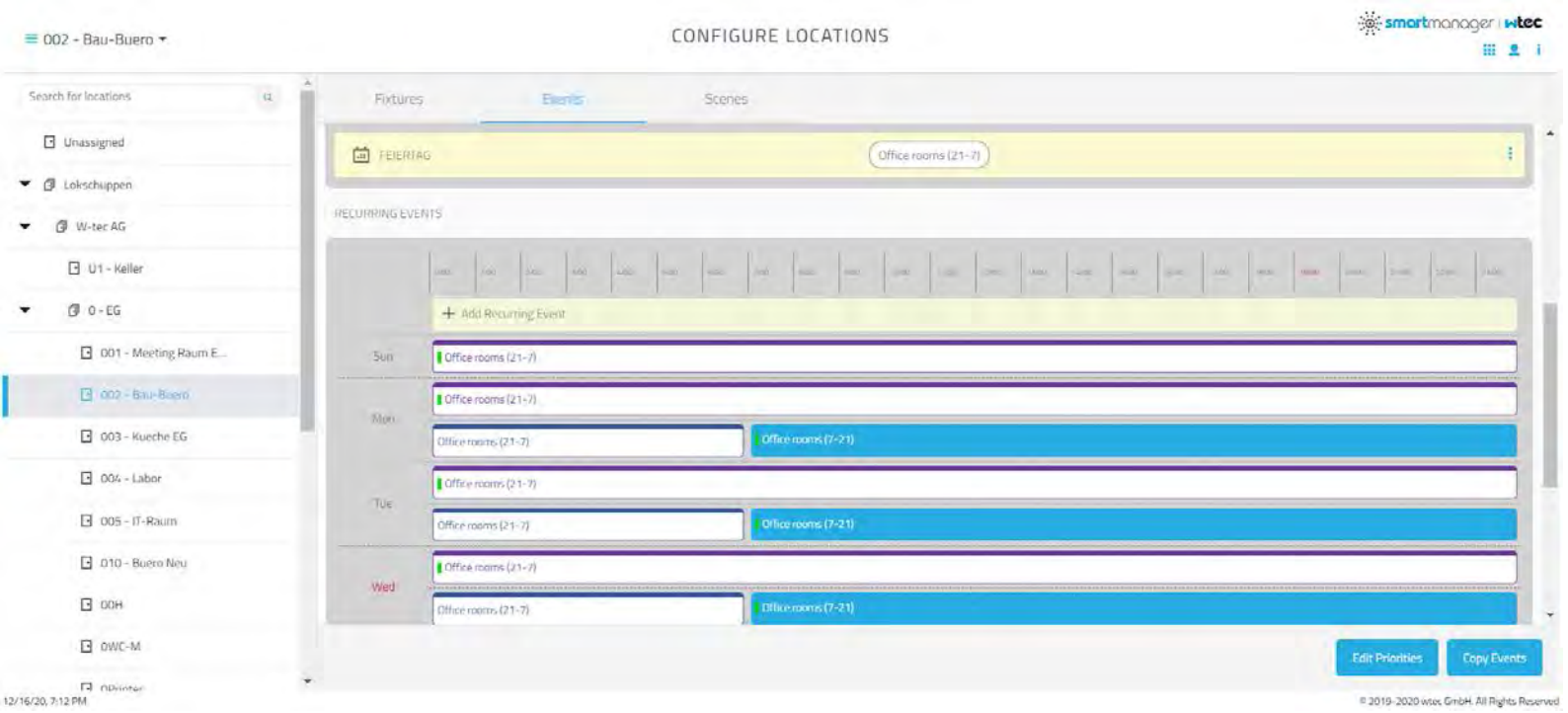
2.10.1 Fixtures



Go into the "Fixtures" tab to see all lighting fixtures within a specific location. For fixture specific options head over to Fixture configuration.

2.10.2 Events

In the Events tab, you can assign events to the selected Location. Assign multiple Events to a location and sort them by priority to configure the lighting of the selected location.



2.10.2.1 Add a non-recurring event

1. Select a location from the tree structure
2. On the Events tab, click the **Add Non Recurring Event** button.
3. Choose a predefined Event on your left or create new one by clicking on **New Event**
4. When creating a new Event:
    a. You can now choose between a manual and scheduled (non recurring) event
        i. Manual event: Event can be initiated on demand by the user.
        ii. Scheduled event: Event is scheduled to a fixed date but non recurring (happens only once)
    b. Enter an event name in the "Name" field. This name will be how the event will be identified in the platform and must be unique in the cluster.
    c. When creating a scheduled event: Define the time slot and date of your event
5. Click **Add**

2.10.2.2 Delete a non-recurring event

1. Select a location from the tree structure
2. On the Events tab, select an event in the list, open the context menu and click "Remove event".
3. Click Delete on the "Delete Event" confirmation dialog to delete the event.

2.10.2.3 Add recurring event

1. Select a location from the tree structure
2. On the Events tab, click the Add Recurring Event button to open the "Add Recurrent Event" dialog.
3. Choose a predefined Event on your left or create new one by clicking on New Event
4. When creating a new Event:
5. Enter an event name in the "Name" field. This name will be how the event will be identified in the platform and must be unique in the cluster.
6. Define the time slot of your event (start and end time)
7. Define on which weekdays your event should be scheduled
8. Click **Add**

2.10.2.4 Delete a recurring event

1. Select a location from the tree structure
2. On the Events pane, select an event in the list and click the Trash icon.
   Note: You cannot delete an event if it is in use by a location.
3. Click Delete on the "Delete Event" confirmation dialog to delete the event.

2.10.2.5 Change the policy for an event

1. Select a location from the tree structure
2. On the Events tab, select an event in the list, open the context menu and click on "Change Policy".
3. Select an existing policy from the presented list, or click the Create a Policy button to create a new policy.
4. Click Apply to change the policy for the selected event in the location.

2.10.2.6 Change event priorities

1. Select a location from the tree structure
2. Click on Edit Priorities in the bottom right corner
3. Select an event from the presented list and drag to the target priority position.
4. Repeat as required.
5. Click Submit to change the priority of the selected event(s) in the selected location.

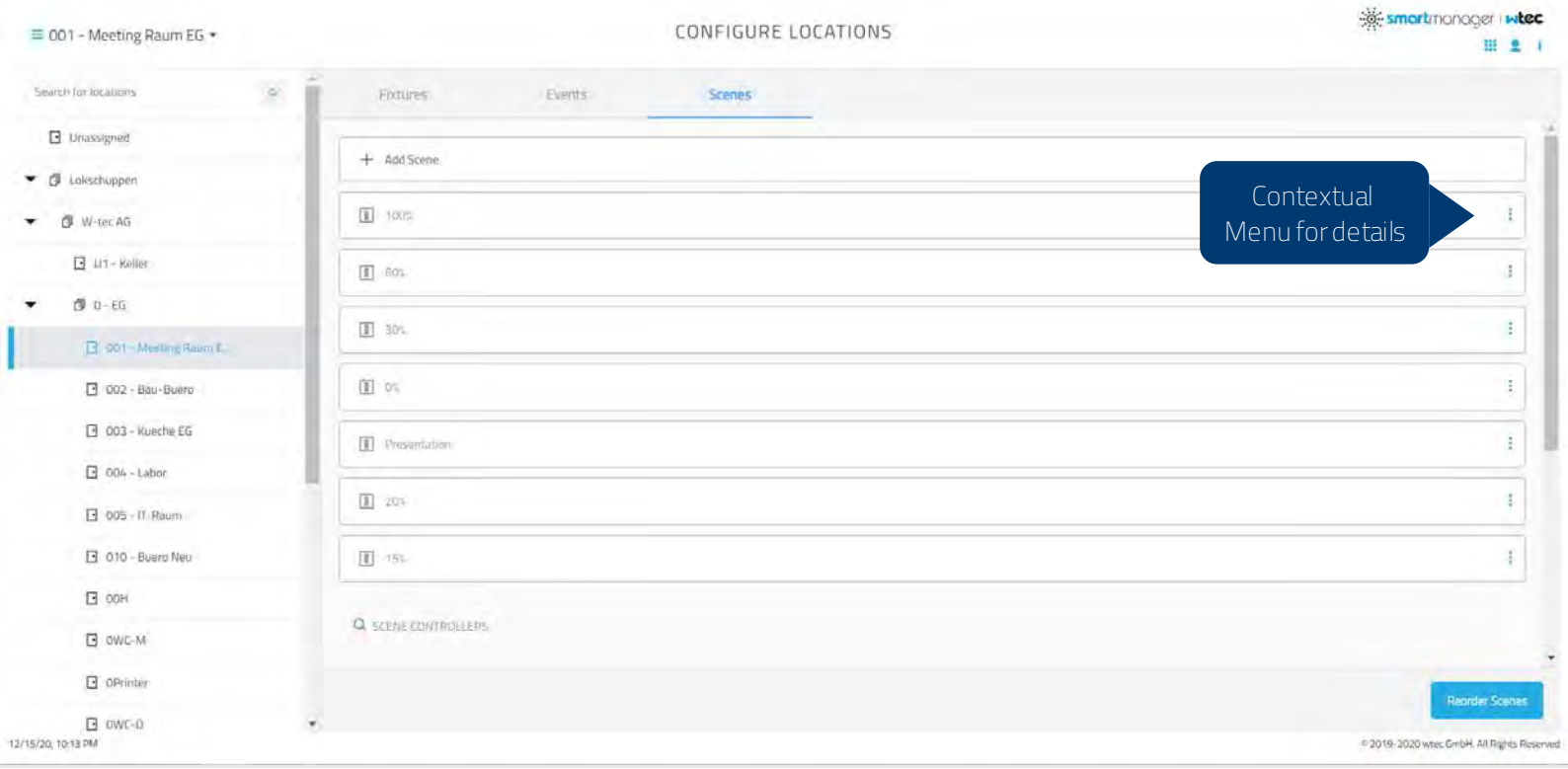
2.10.2.7 Change the default policy

1. Select a location from the tree structure
2. On the Events tab, scroll down to recurring events
3. Click on the "Default" event at the bottom to open the contextual menu
4. Click on the pencil to edit the default policy
5. Select an existing policy from the presented list, or click the Create a Policy button to create a new policy.
6. Click Apply to change the policy for the selected event in the location.

2.10.2.8 Copy events with policies to another location

1. Select a location from the tree structure
2. On the Events tab, click the Copy Events icon on the bottom right to open the "Copy Events" dialog.
3. Select the event(s) to copy from the presented list and click Next.
4. Select the location(s) to copy to from the presented list.
5. Click Finish to copy the selected events to the selected locations.

2.10.3 Scenes



A scene is a location-based custom lighting setting to achieve a desired lighting effect for a specific period of time. For example, a common scene in a conference room is "Presentation", which has the lights near the projector screen turned off and the other smartfixtures slightly dimmed.

You can configure scenes in the Configure Location application Scenes tab. When configuring a scene, you should enable that scene beforehand to receive real-time feedback from the lights.

2.10.3.1 Add a scene

1. Select a location from the tree structure
2. On the Scenes tab, click the Add Scene button to open the "Add Scene" dialog.
3. Enter a scene name the "Name" field
4. Click Done to save the scene.
5. To specify fixture light levels, follow "Modify a Scene" procedures below

2.10.3.2 Modify (Tune) a scene

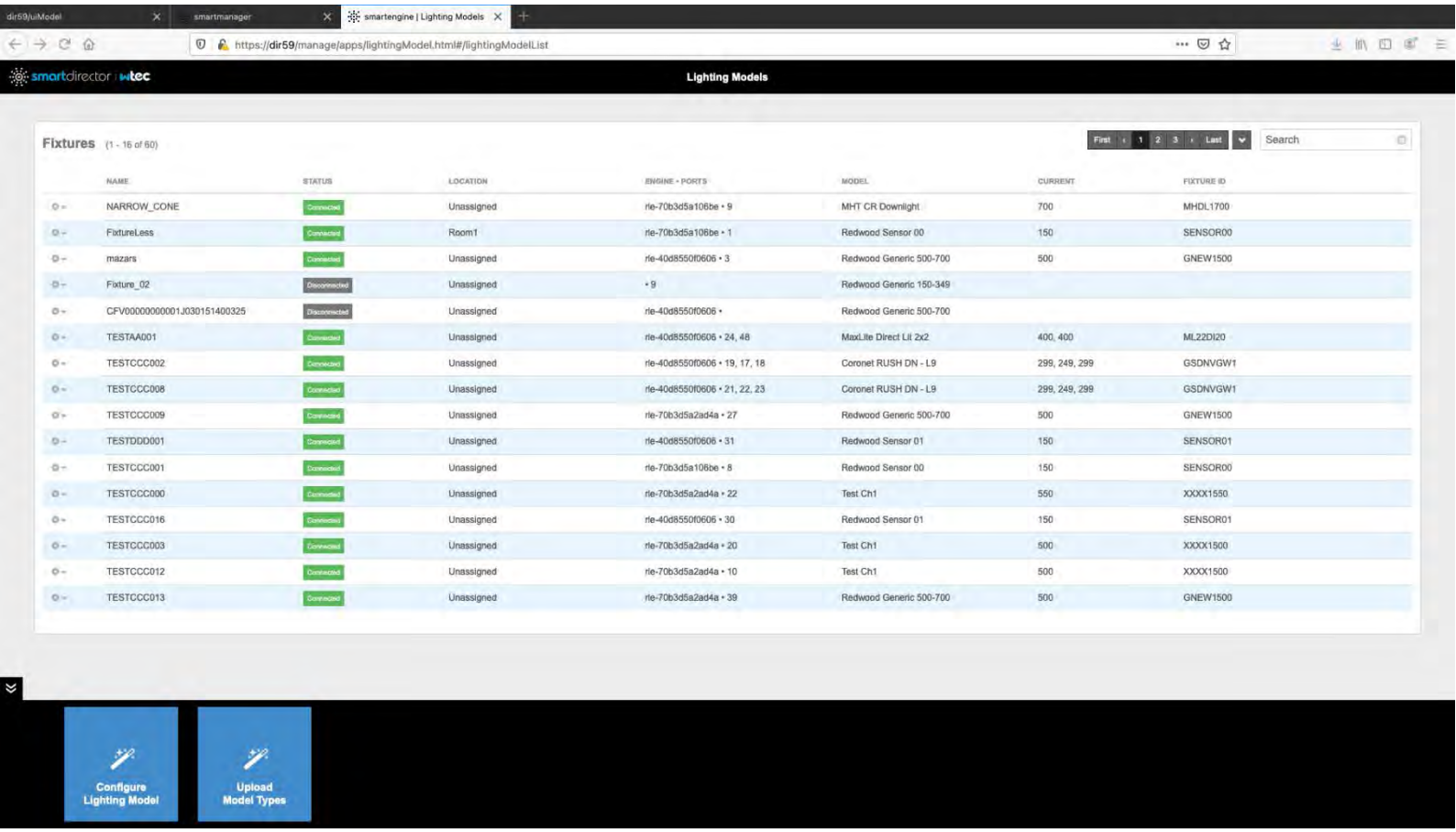
1. On the Scenes tab, click the Tune Scenes button on the bottom right to open the "Tune Scenes" dialog.
2. Select a scene from the presented list to display a list of light smartfixtures with scene light level settings, and any scene control switches (if installed). For HCL capable fixtures, the light color settings can be adjusted also.
3. Select a light and use the slider control to adjust the smartfixture light levels as required. The brightness of the light will change.
4. To map the scene to a scene control switch button, select a button from the switch drop-down menu.
5. Click Done to save modifications to the scene.

2.10.3.3 Reorder scene list

1. Select a location from the tree structure
2. On the Scenes tab, click the Reorder Scenes button to open the "Reorder Scenes" dialog.
3. Select a scene and drag to the target position.
4. Click Submit to save scene order.

2.11 Lighting Models

The lighting models application is used to configure the fixture specifications for the fixture to be used with the gateway. This can be used to assign the specifications matching the fixture to replace the generic specifications that the gateway may be associated with.



Click on the configure lighting model button to change the fixture specification associated with the gateway. This should be done carefully to ensure that the correct specification is selected the connected fixture. Incompatibility in the specifications with the connected fixture can damage the fixture.

You may upload custom fixture specifications by clicking on the Upload Model Types button.

2.12 Emergency Lighting

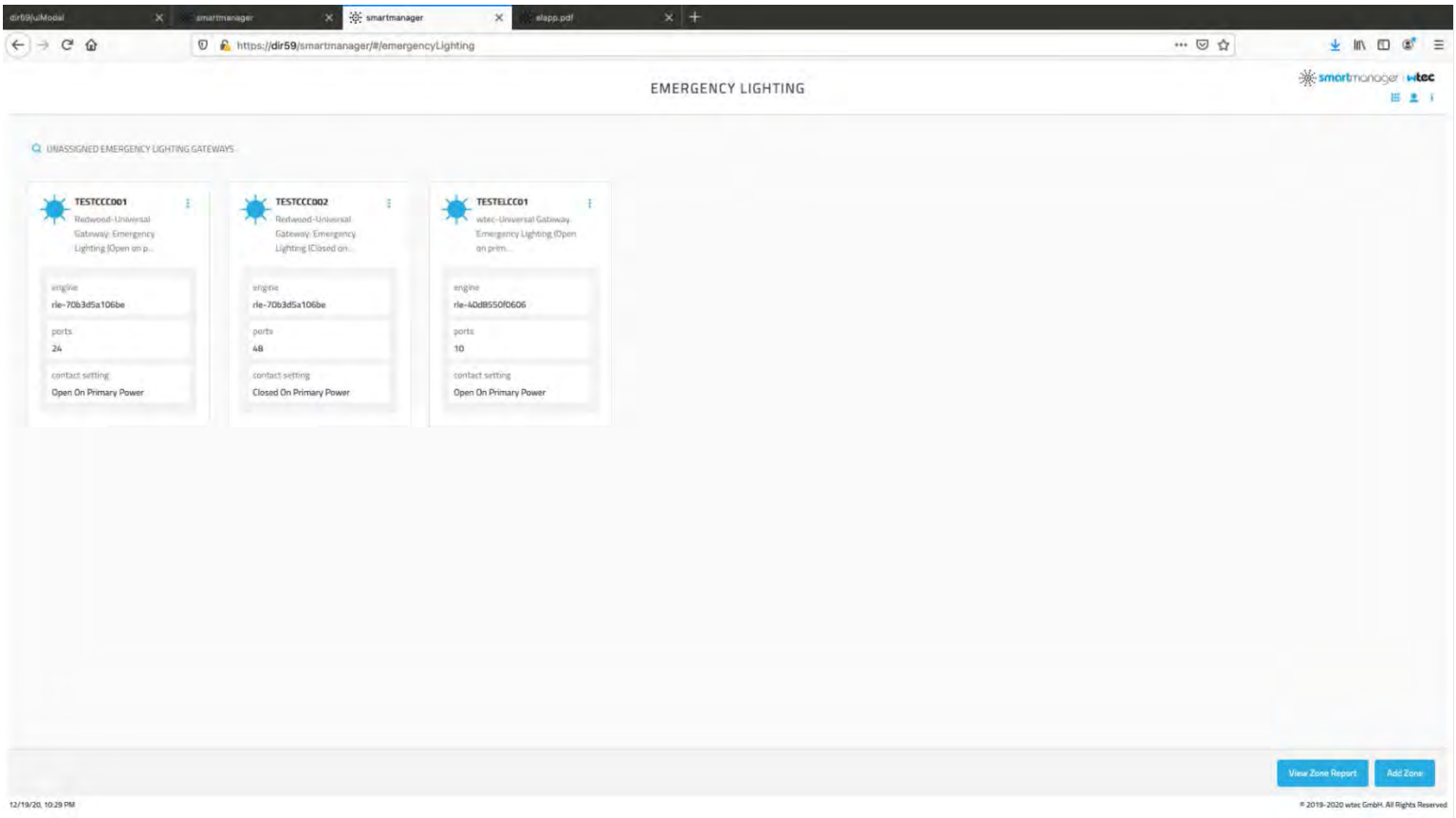
The emergency lighting application can be used to configure the fixtures that must operate when engines are powered from emergency backup power source. The user must privileges for administering emergency lighting. This can be set up through the smartmanager when a new user is created, or edited through the commission system application. Refer to the Emergency Lighting Guide for details on the components required and how they should be wired to set up an emergency lighting solution.

Setting up an emergency lighting solution comprises of the following tasks –

- Add zone with engines
- Configure emergency fixtures to the zones
- Test the zone

The overview section of the application displays the emergency lighting gateways that are already connected to the engines in the cluster, but have not been assigned to any zone.

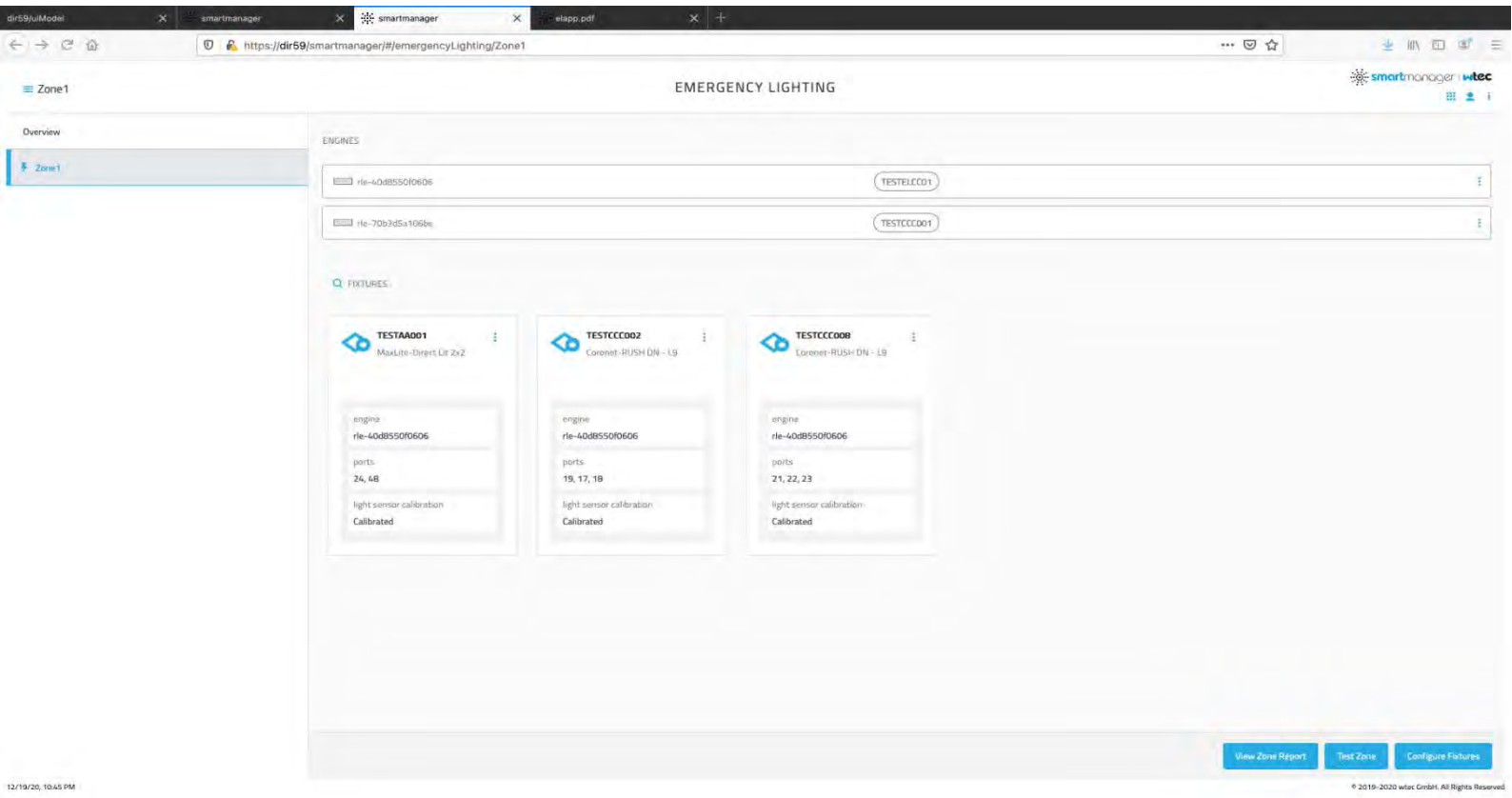
Note : Only engines connected to an emergency lighting gateway can be configured to be a part of the solution.



An emergency lighting gateway provides signal to the engine to indicate whether it is operating on primary power or emergency power. You must ensure that the gateways are configured for the correct method of indication as indicated by the contact setting property. You may change that setting by clicking on the actions icon for the gateway and selecting "Change Contact Setting". This cannot be done once the gateway has been configured as a part of the zone.

You can create a zone by clicking the "Add Zone" button at the bottom. This option is available only while there are gateways available to be added to a zone. The dialog allows you to select the name for the zone, and the contact setting as well as the engines that have emergency lighting gateways matching that setting.

The overview section will also show the list of zones that have been created, and you may click the zone to view the details. The following picture shows the details for a zone. The engines list shows the list of engines, and the corresponding emergency lighting gateway on the engine that provides the signal for the power source. The fixtures list shows the list of fixtures on the engines that will operate at 100% light level when the power source is the emergency backup power.



You can use the configure fixtures dialog to add or remove fixtures on the individual engines that must be part of the zone.

Once you have added the fixtures, you may run the test operation by clicking on the "Test Zone" button. The test operation will need to be run for at least a minute in that mode, as power consumption on the engines are measured. The results of the test can be viewed at the end of the test operation, or by clicking the "View Zone Report". This is useful to evaluate the power consumed by the engines when operating in emergency power mode.

You may use the View Alarms application to examine any alarms pertaining to the emergency lighting solution. The following alarms pertain to the emergency lighting –

Alarm	Severity	Message
Zone in emergency power	Emergency	Zone <name> is emergency power mode
Engine Power Supply Failure	Critical	Emergency Lighting Engine <ENGINE> is down, PowerSupply<A/B> Failed, <FAILUREREASON>
Engine Fan Failure	Critical	Emergency Lighting Engine <ENGINE> is down, Fans have failed (<COUNT> total, id of first bad fan:<ID
Engine configured in zone is down	Error	Emergency Lighting Engine: <ENGINE> is down
Fixture configured in zone is down	Error	Emergency Lighting Fixture: <FIXTURE> is down
Fixture configured in zone but Engine is not in zone anymore	Error	Emergency Lighting Fixture <FIXTURE> has been moved to an engine which is no longer part of the zone the fixture is configured to be in. Fixture zone is <Zone>. Engine zone is <ZONE>
Emergency Lighting Gateway is configured but not present	Error	EL Gateway fixture <FIXTURE> has operational state that does not match the configuration state. It is configured to be on engine <ENGINE>. It is currently not discovered
Emergency Lighting Gateway is configured but is of different type	Error	EL Gateway fixture <FIXTURE> has operational state that does not match the configuration state. It has configured to be on engine

and has moved engine or port		<ENGINE>. It has been disovered on engine <ENGINE> and has a type <FIXTURE_TYPE>
Emergency Lighting gateway present, but not configured in zone	Error	Configuration for EL Gateway Fixture <Fixture> not found in emergency lighting configuration
Engine configured to be in zone but is not emergency engine	Error	Engine <ENGINE> does not support emergency lighting, but has a configure zone of <ZONE>. Configuration is ignored.

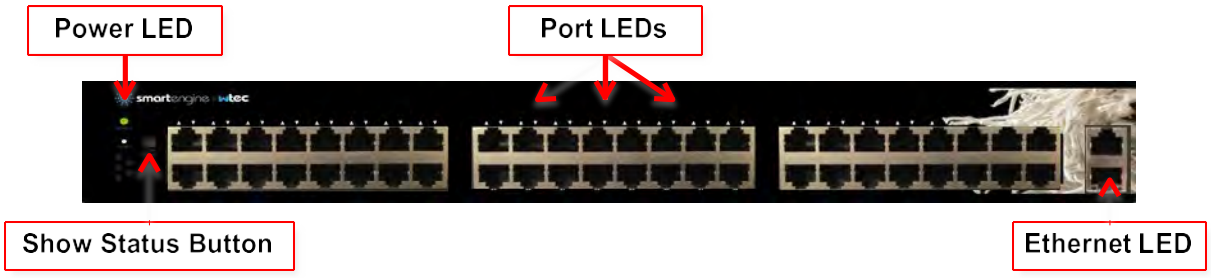
3 Troubleshooting

3.1 System Alarms

For checking system alarms, head over to section View Alarms

3.2 smartengine LED Indicator Lights

The front panel of the smartengine 3, Model 4834 has LED indicator lights to communicate the smartengine system status.



3.2.1 Power

LED Light	Status
	smartengine is not receiving power.
	smartengine is booting, but not yet running.
	smartengine is on and functioning normally.

	smartengine is experiencing a problem. Call smartengine Support.

3.2.2 Port

Press the **Show Status** button to turn on the Port LED indicator lights temporarily.

LED Light	Status
	smartengine does not detect a smartfixture connection on this port.
	smartengine is updating the smartfixture gateway firmware.
	smartengine recognizes the smartfixture connection.
	smartengine discovery of smartfixture is in progress / smartfixture discovery error.

3.2.3 Ethernet

LED Light	Status
	smartengine does not detect an Ethernet connection.
	smartengine recognizes an active Ethernet connection.

3.3 Manage devices

The Manage devices application provides smartengine and connected smartfixture information, including installation, network, and location details, connection and error states.

Click here to head over to section Manage Devices.

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