Efento Cloud

User Manual

Ver. 1.0

Efento Cloud User Manual

1. Registration and logging in Efento Cloud

Using Efento Cloud system requires creating an account. In order to register an account go to **cloud.efento.io** and click on the Register button. You will be asked to insert data required in the registration process (username, name, surname, e-mail address, password) and also to accept the terms of use of the Efento Cloud platform. A message containing an activation link will be sent to the e-mail address you have inscribed. After filling in every required field, click on *Register* and then open activation link in your e-mail box. After you have clicked on the activation link, your account should be activated and you should be able to log in.

Users who have already registered an active account may skip the above described steps and log-in by inserting their e-mail address / username and password on **cloud.efento.io**.

2. Organisation Registration

Organisation registration allows you to share measurement data from sensors with many other users. Additionally, as a part of an Organisation, you can create a structure of localisations which will allow you to organise your sensors. Users with access to your Organisation can be given a specific permission to view and modify individual localisations. Organisations are given their own unique key, that allows them to assign sensors to it. It can be done by inserting the Organisation's key into the Efento Gateway configuration. Efento Gateway is a device that sends measurements from wireless sensors to Efento Cloud. All mentioned features will be described in detail later in this manual.

If you have registered in Efento Cloud and you are not a member of any Organisation, you will be asked to create a new one and to choose its name and abbreviation. After you insert this data, you will be able to fully manage your Organisation, invite new members and configure sensors connected with your Organisation. If a user has been invited to an already existing Organisation, then he will be automatically assigned to it after the registration process is completed.

3. Configuration of Efento Gateway

Efento Gateway is a network device which downloads data from wireless sensors in its range and then sends the information to the Efento Cloud. The device may be powered by USB power supply (5V, 1A) or by PoE (802.3af).

3.1 Network Settings Configuration

First thing you need to do in order to send data from sensors to Efento Cloud platform is to configure the Efento Gateway settings. To do this, connect the Efento Gateway to its power supply with a USB cable and to the computer by Ethernet cable. After setting the connection, choose the IP address from subnet 192.168.120.0/24 (e.g. 192.168.120.2, subnet mask 255.255.255.0) and set it on the network card, to which Efento Gateway is connected. Next open an Internet browser on your computer and go to address 192.168.120.89 (default Efento Gateway address).

Configure the Efento Gateway, so that it has Internet access. In the *Configuration* section, configure all network connection settings (IP address of the Efento Gateway, IP address of network gateway, subnet mask, DNS address). Apply all changes by clicking *Save*. Efento Gateway supports DHCP. If you chose option *ON,* next to DHCP, then all Efento Gateway network configurations will be downloaded from the router (Do not forget to turn on the DHCP on router!). After finishing this part of configuration, unplug the Efento Gateway from the computer and connect it to the network with an Ethernet cable. Efento Gateway can be powered by PoE (Power over Ethernet). If you have a switch / router / injector that supports PoE technology (802.3af), then you can only plug in an Ethernet cable, which can also be used to set up a connection to the network and will also work as a power supply. Otherwise, you also have to plug in a USB power supply (5V, 1A).

3.2. Organisation token

Organisation token is a unique number assigned to your Organisation. After inserting the token into the Efento Gateway configuration, all measurement data from all sensors within its range will be sent to your Organisation account in Efento Cloud. One Organisation token can be inscribed in many Efento Gateway devices, located in areas far away from each other. Thanks to that, measurement data can be sent to your Organisation account from many places away from each other, even hundreds of kilometres. You can find your Organisation token after signing in on your account in Efento Cloud. Mouse over the abbreviated name of your Organisation, in the upper right corner of the page, and then click the Organisation token.
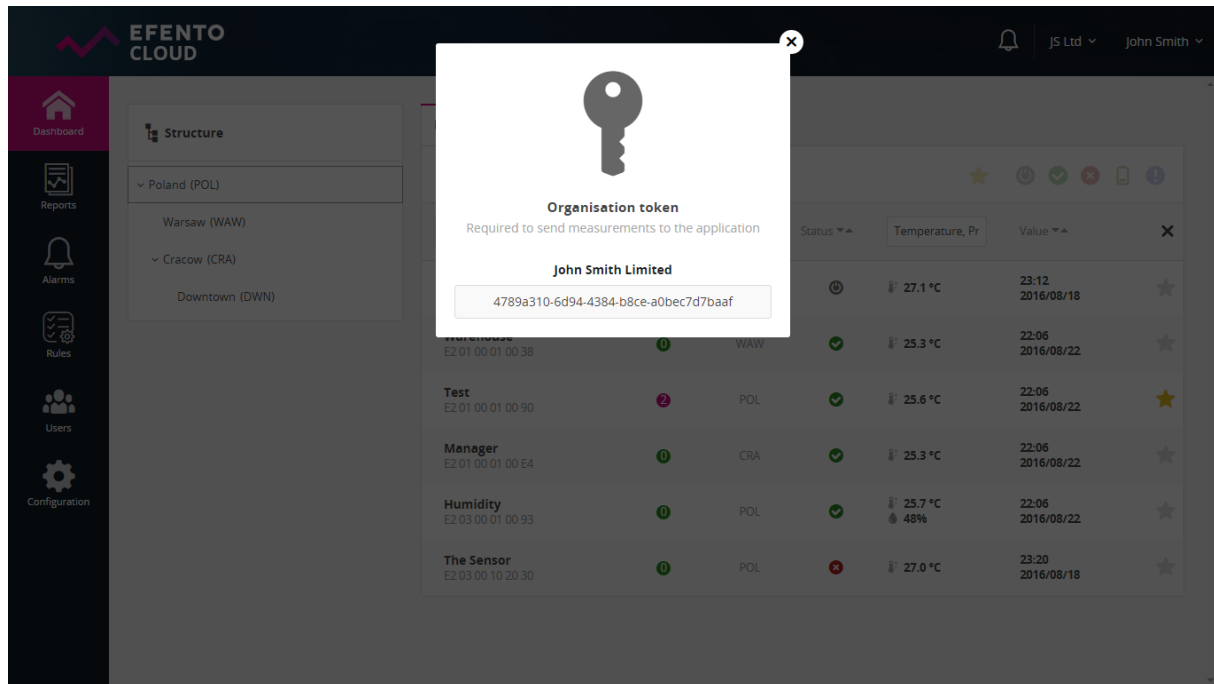
Organisation token should be inscribed in field *Key* on the Efento Gateway configuration page. After inscribing the token, measurements from all sensors within Efento Gateway range will be automatically sent to Efento Cloud platform and assigned to your Organisation. If you have inscribed the token, go to **cloud.efento.io**, then to menu *Configuration* and check if there are serial numbers for sensors within Gateway range in section *New Sensors*. A list of sensors that are within the Efento Gateway range can be checked on the configuration page in the *Sensors* section.

4. Dashboard - preview of sensors added to Efento Cloud platform

Menu *Dashboard* presents measurements and other important information about all sensors added to your Organisation in Efento Cloud. You will find there: current sensors measurements with date and time of the measurement, the number of alarm occurrences, the localisation for sensors in your Organisation structure. In the *Alarms* column, you can see the number of unconfirmed alarms for each sensor (active alarms and those waiting to be confirmed). *Dashboard* can be used only to view information, without the ability to modify any settings. That is why every user in your Organisation can access it, regardless what role he/she has (Analyst / Manager / Admin). In addition you can give users access only to select localisation. As a result of that, *Dashboard* will show information about sensors from localisation, to which a user has at least permissions of Analyst.

4.1. Filtration of displayed information

Data displayed in *Dashboar*d can be filtered, so you can easily find information you need. The first method of filtration is based on location. In *Structure* section, on the left side of *Dashboard*, choose the location you are interested in and the list of sensors will show only sensors from that location. The next methods described in this manual work only on sensors from selected locations.

The second method of filtration is searching the sensor by name or by its serial number. There is a field called *Name / Serial number* in the header of list which presents information about sensors. Insert in that field a serial number or name of a sensor which you wish to find and the list will only show the information you are interested in. If a couple sensors have similar names / serial numbers, then typing in a part of the name will filter the list, leaving only sensors that include the inscribed phrase. In order to remove all filters and get back to default sorting, click the cross mark on the right side of the list's header.

Sensors can be also sorted by any value from the list. To do so, click the arrows symbol next to selected value (Name / Serial number; Alarms; Loc.; Status; Value). You can also choose the type of sensor measurement (temperature / humidity / pressure) in order to, for example, display only sensors measuring humidity. To do so, click the header of the last column on the list and mark what values you are looking for.
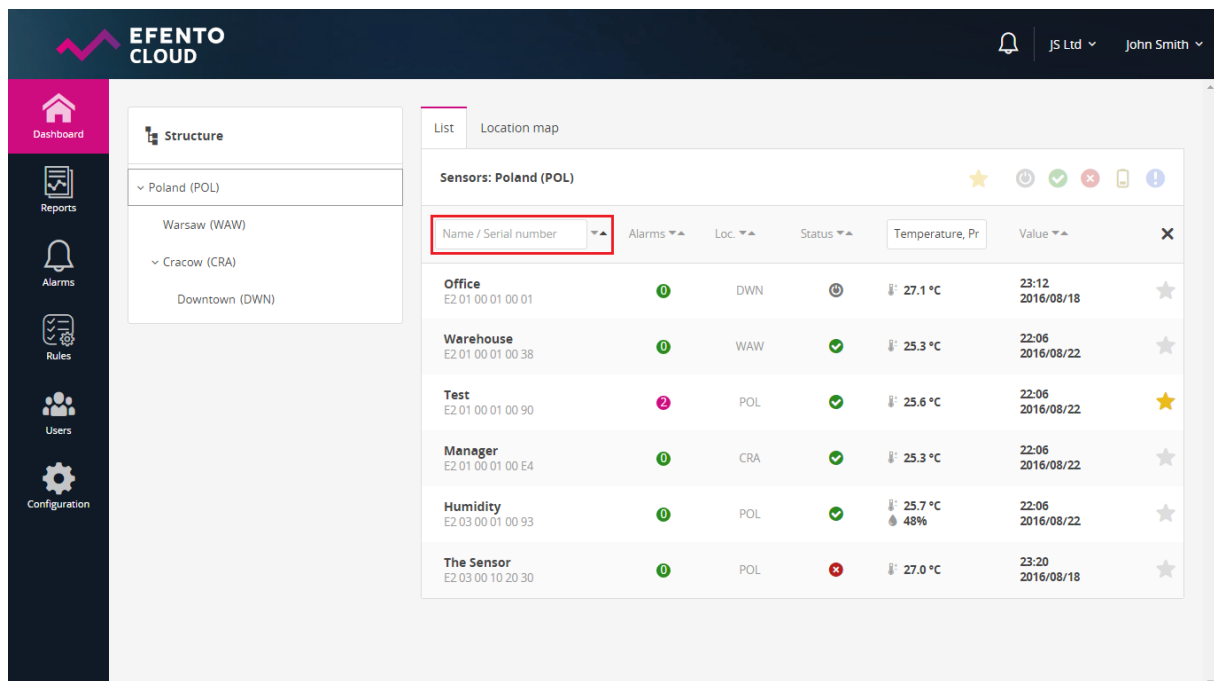

The fourth method of sensor list filtration depends on sensor's status: Disabled, Working, Lost, Warning, Low battery level. The filtration can be enabled by clicking the selected status icon in the right upper corner of the list. It is possible to choose more than one status to display. By default all sensors are being displayed regardless of their status.

Another way of filtering the list is marking selected sensors with a star, by clicking the star icon on the right side of the list. After marking selected sensors it is possible to filter the list, leaving only starred sensors. From the bar above the list, click the star icon and the list will only display starred sensors.
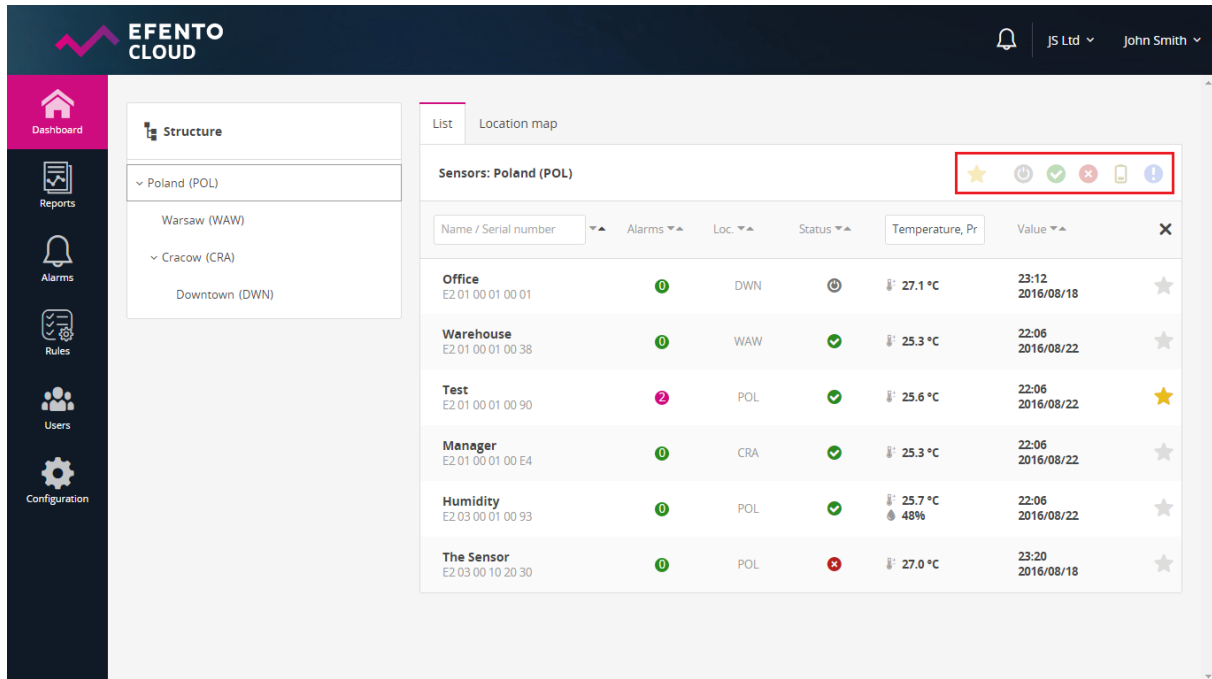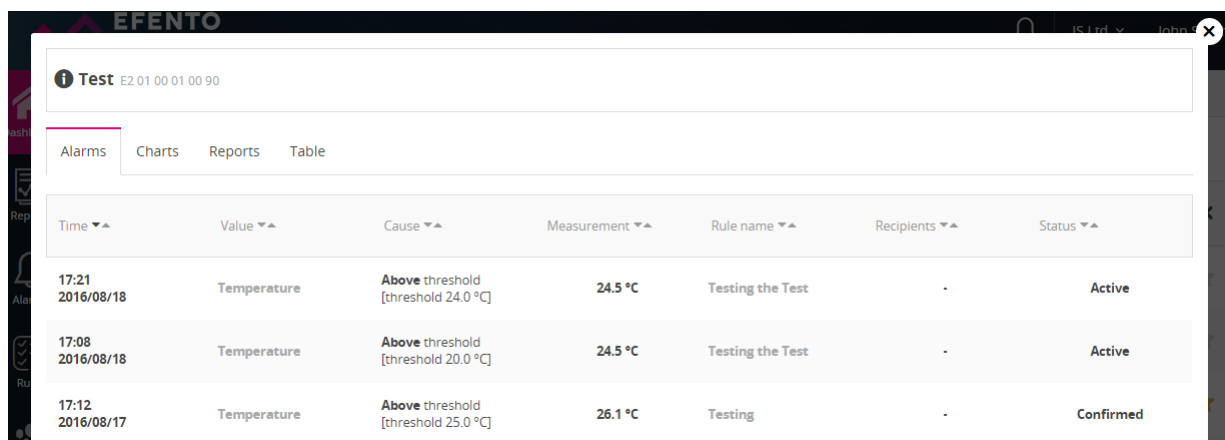

4.2 Location map

Location map allows you to upload a map or a plan of a building. After uploading a map or a plan, you can arrange sensors on it to project their real locus and to make simple monitoring their status. Location map can be uploaded by any user with permissions of Administrator or Manager. The platform allows you to upload one map for each location. Sensors preview along with their location on the map can be accessed in the *Dashboard* menu in tab *Location map*. The map will display current sensor statuses and their measurements. After clicking the sensor on the map, you will be able to see its detailed data. The map can be freely moved (by grabbing it with a cursor and moving it) and also zoomed in / out with "+" and "-" buttons. The map can be also viewed in full-screen mode after clicking the full-screen button located under the "+" and "-" buttons.
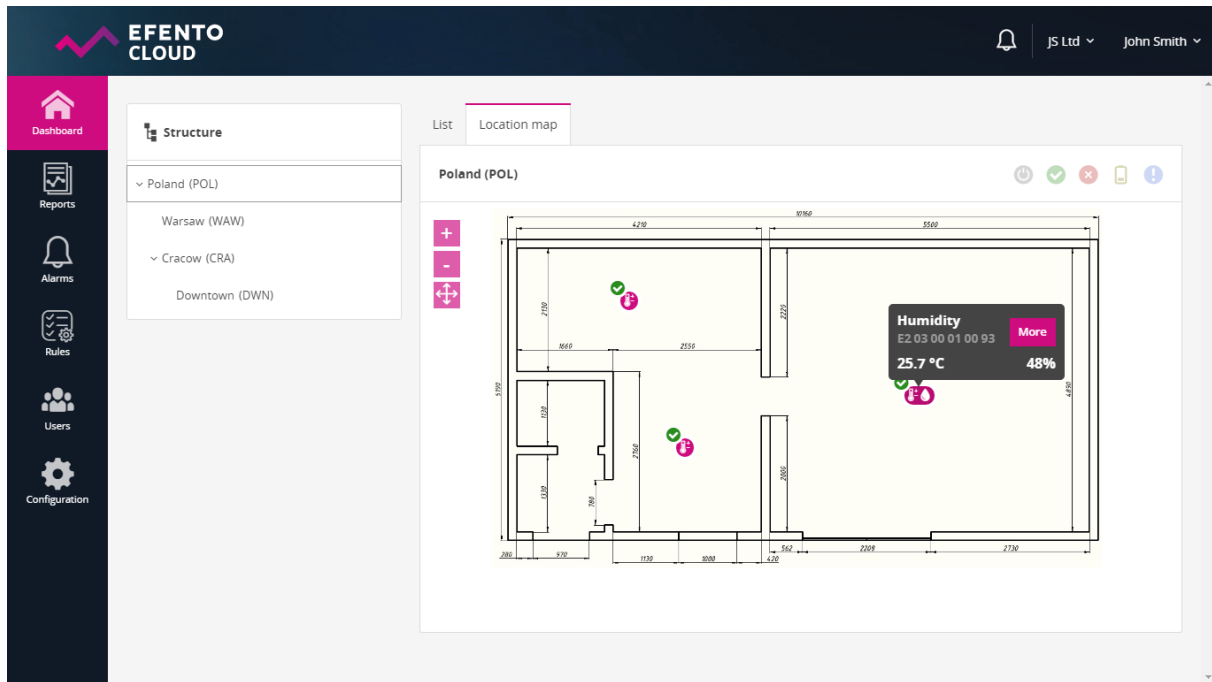
4.3. Preview of detailed sensor data

After clicking the sensor on the list in *Dashboard* menu or on a *Location map,* you will be able to browse detailed information about the selected sensor such as alarm occurrence with date and time of the occurrence and measurement data in a form of a chart or table. You will also be able to export sensor's measurements from any time period in the form of a PDF or CSV report.

The *Alarm* tab contains a list of occurrence of all kinds of alarms (detailed alarms description can be found in chapter *6. The configuration of alarm rules*). You will find there detailed information about date and time of alarm occurrence and also the reason of alarm initiation, including the name of alarm rule. If the sensor has returned back to its safe state, the user can confirm the alarm was seen. After confirming the alarm, notifications about it will not be displayed again in the platform.

The *Charts* tab contains a chart with measurements in time. Depending on the physical values measured by the sensor, it can be a chart with temperature, humidity or pressure. In the right upper corner of the chart you can choose what value should be presented on the chart, set the presented timeline (Day / Week / Month) and also choose the time period from which you wish to display data. The chart can be freely zoomed in by selecting the area you are interested in with a cursor. To return to default scale, click the *Zoom out* button in the right upper corner of the chart.
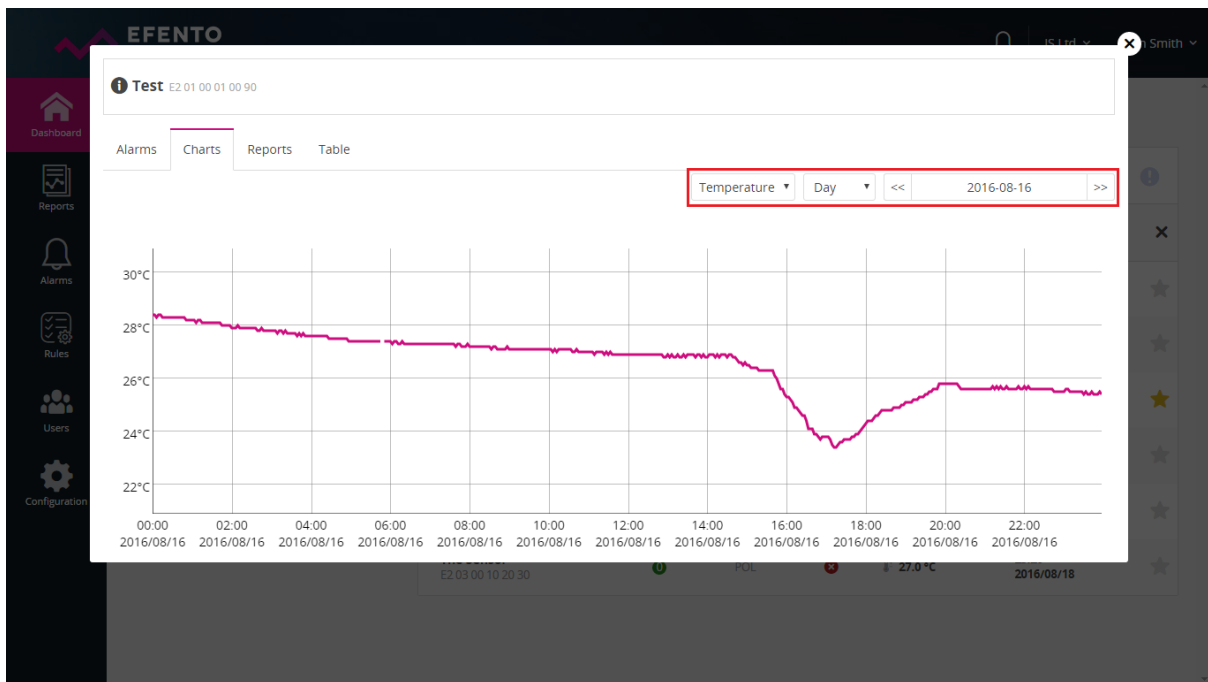
The *Report* tab allows you to generate reports with measurements from any period of time. To generate the report, choose the date of first and last measurement that should be included in the report and set the measurements density (3 / 15 / 30 / 60 minutes). The report will cover all data sent to the platform by the selected sensor, including the list of events (violation of alarm threshold, connection lost, etc.) in prior selected time periods and measurements density. After clicking the *Export to PDF* or *Export to CSV* button the report will be automatically generated and sent to your e-mail address within a few minutes.
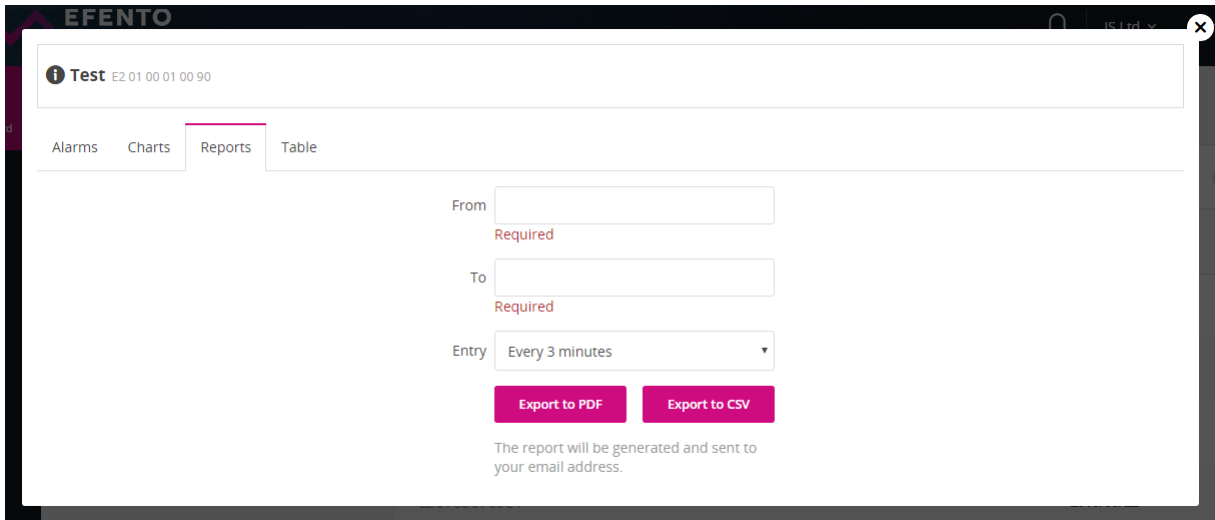
The *Table* tab contains a table with all measurements sent by the selected sensor, including date and time of those measurements. The table allows you to easily access data in need of finding a certain measurement. The date from which you want to browse measurements can be selected from the calendar in the right upper corner of the table.
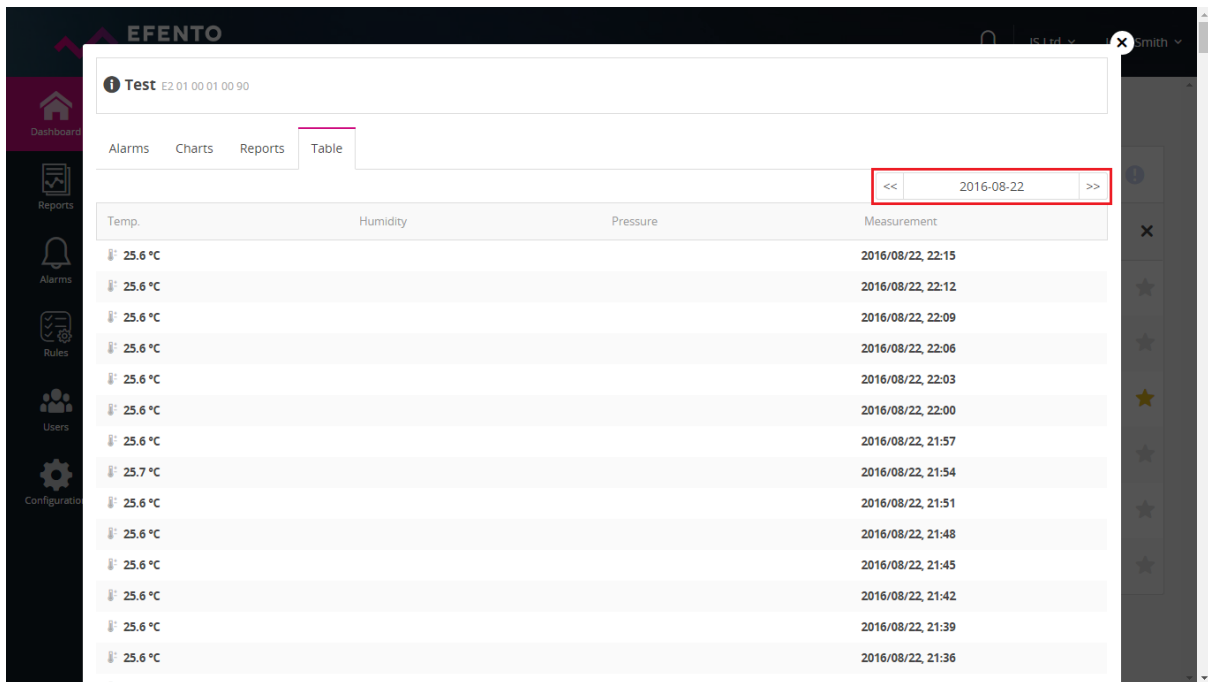
5. User management

Each user that is assigned to your Organisation can be granted one of three different levels of permissions: Administrator, Manager or Analyst. Additionally the permissions are granted for specific location. For example, the user can be an Administrator in one location and an Analyst in another one, which allows you to divide permissions and duties between different users for different locations. In the Efento Cloud platform, the permission levels are called roles.
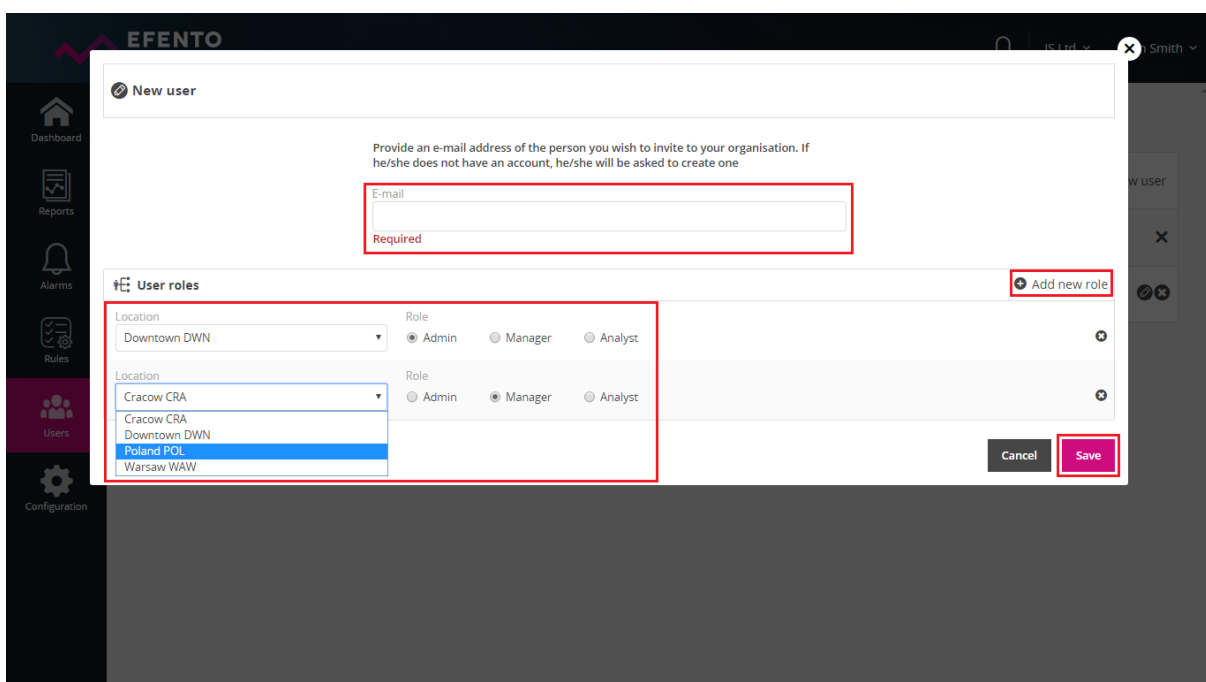
By creating a new Organisation, you automatically apply the role of Administrator to all its locations. When you invite new users to your Organisation, you can grant them any level of permission to the selected locations.

Each group of permissions have access to different platform functions, as presented in the table below:

	Administrator	Manager	Analyst
Dashboard preview	✔	✔	✔
Report generation	✔	✔	✔
Alarm preview	✔	✔	✔
Configuring automatic reports	✔	✔	✘
Configuring alarm rules	✔	✔	✘
Configuring sensors, structures and location maps	✔	✔	✘
Permissions editing, adding and deleting users	✔	✘	✘
System logs preview	✔	✘	✘
Managing the Organisation's account	✔	✘	✘

### 5.1. Adding new users to your Organisation

Adding new users is done by invitations which can be sent only by a user with an administrator role. In the *Users* menu click the *Add new user* button. You will see a window which allows you to send invitations to your organisation. You must type in each new user's e-mail address and choose the role which will be given to him after accepting the invitation. Roles can be different for different locations. After saving the changes, the new user will receive an e-mail with an invitation to your Organisation. After opening the activation link, the new user will be redirected to the Efento Cloud website. If user does not already have an account in the platform, before joining your Organisation he will have to create one. If the new user has not accepted your invitation yet, you can dismiss it by clicking *Cancel* icon next to the invitation.

You can invite any number of users to your Organisation and give them any permission level. Remember that administrator permissions allow the user to access configuration of sensors, users, alarm rules and to edit your Organisation's account, therefore you should not give these permissions to unauthorised persons.

In the *Invitations* tab there is a list of generated invitations with their current status: Sending (the invitation is being send), Waiting (the invitation awaits to be accepted), Error (sending the invitation has failed - e.g. wrong e-mail address has been entered), Accepted (the invitation has been accepted by the user and he is now a member of your Organisation). You can filter the invitations by e-mail address to which the invitation has been sent or by its status. If the invitation has not yet been accepted then you can dismiss it by clicking the cross icon next to it. If you have cancelled the invitation then even if the user clicks on the activation link in the e-mail, he will not be able to join your Organisation.
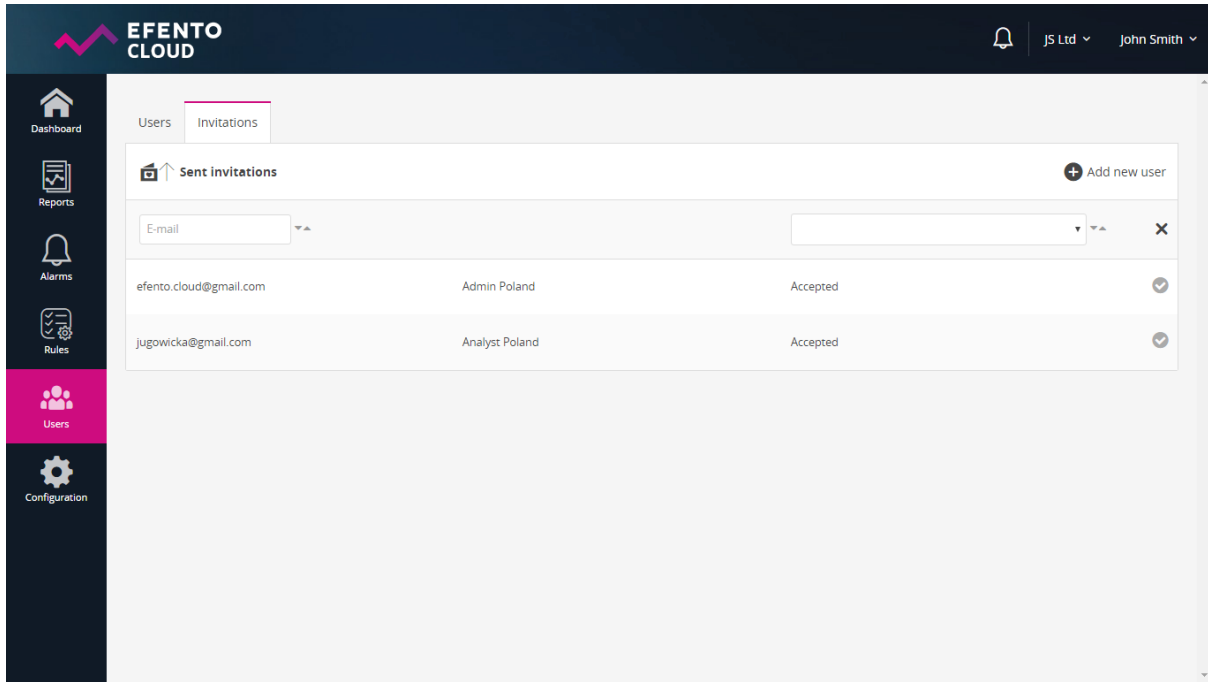
5.2. Editing user's permissions and deleting users

Adding and editing users can be done in the *Users* menu by users with the role of an Administrator.

Editing user's permissions can be done after clicking the pencil icon next to the user's name. The editing possibilities include changing user's roles in particular locations of your Organisation.

You can also delete users added to your Organisation by clicking the cross icon next to their names on the list in the *Users* menu. The user's account will not be deleted entirely; he will only lose the access to your Organisation. Only a user can completely delete his account from the platform (see *10.1 Changing username, language and password / deleting the account)*.
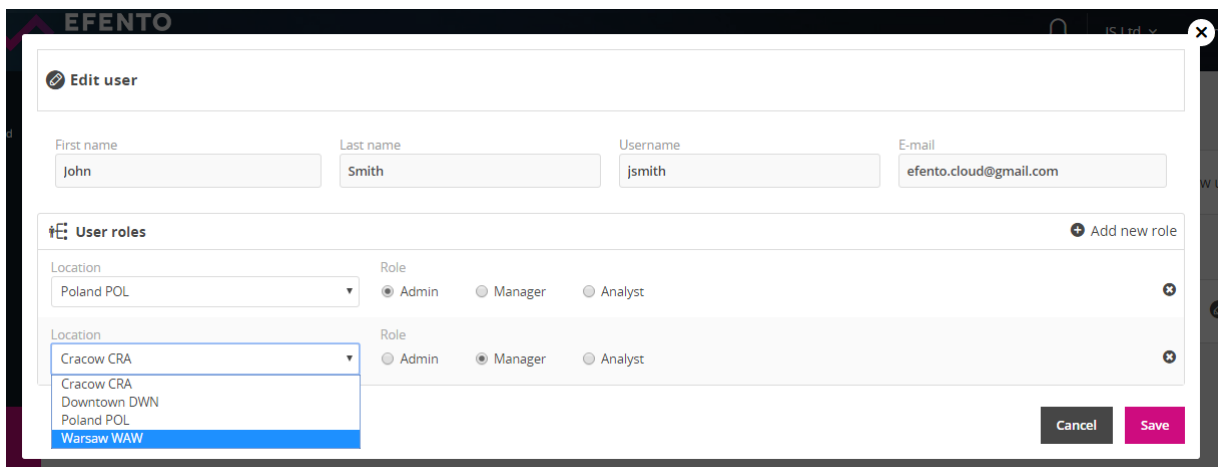
6. Configuration of the alarm rules

Alarm rule is a formula that defines what events in Efento Cloud should initiate the alarm. The rule consists of impulse, condition and action, e.g. if the temperature (impulse) increases above 10 degrees (condition) then the platform will send a text message notification to selected recipients (action). The rules can be configured as you wish - e.g. sending notifications to different recipients depending on temperature level; violation of thresholds will be only registered in the platform (without sending a notification) and so on. You can define any number of alarm rules and assign sensors to each of them.

Alarm rules can be configured in the *Rules* menu by users with permissions of Administrator or Manager.

6.1. Types of alarm rules

In the Efento Cloud platform you can configure a few different types of rules depending on the impulse that initiated the alarm. These are:

- Violation of threshold (depending on physical value measured by the sensor, e.g. temperature, humidity or pressure);
- Low battery level - if the sensor's battery is low then the platform will inform you about it. After initiation of low battery alarm the sensor will work for about 21 days;
- Connection lost - a situation in which the sensor does not send measurements to the platform for 15 minutes.
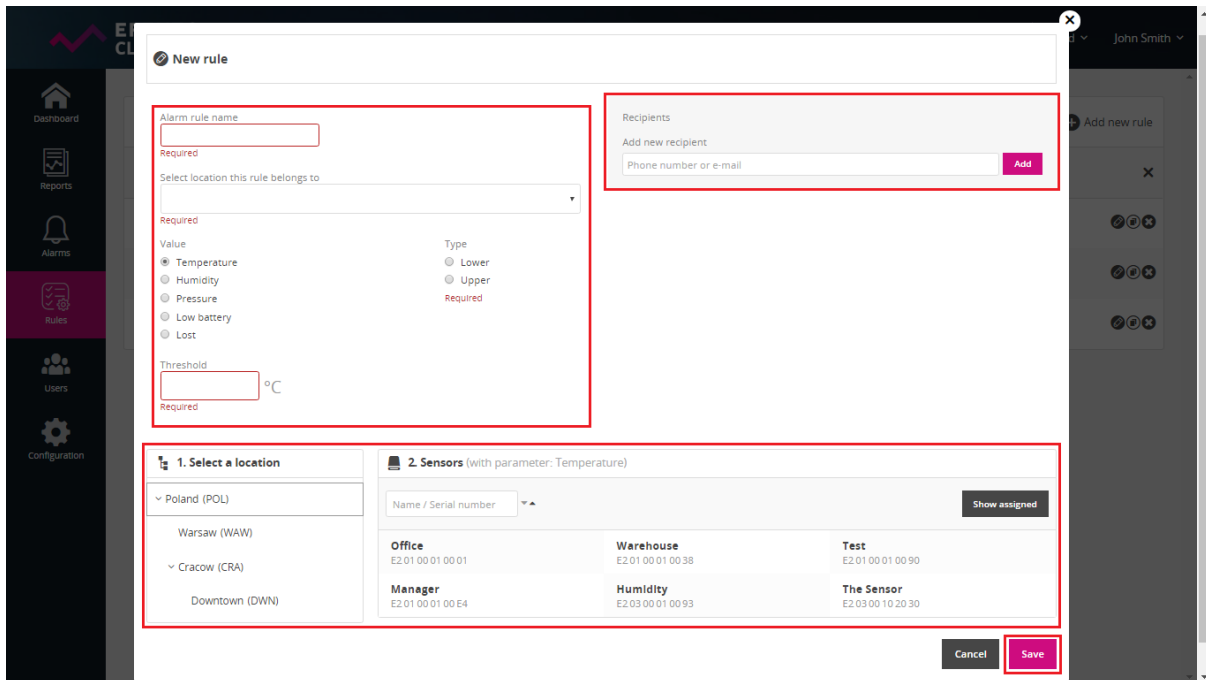
6.2. Configuration of the alarm rules

In order to add a new alarm rule go to the *Rules* menu and click the *Add new rule* button in the right upper corner. The first field you need to fill is the rule's name, which can be maximum 20 characters long. Next, choose what type of event should initiate the alarm. If you have chosen option temperature / humidity / pressure, then you also have to choose whether the alarm should be initiated after exceeding the upper threshold (the value increase above selected threshold) - option *Upper* or after exceeding the lower threshold (the value decrease below selected threshold) - option *Lower* and key in the threshold value in selected field. In case of alarm rules that cover low battery level or loss of connection, you do not need to fill in any additional fields.

On the right side of the configuration window there is a notification's recipients adding panel. You can add e-mail addresses and telephone numbers. Not adding any recipient will result in displaying the notifications only in the Efento Cloud platform. After keying in the e-mail address / telephone number, apply the changes by the *Add* button. You can type in any number of recipients. The e-mail notifications are free of charge, but if you would like to receive text message notifications it is necessary to have the Efento platform text message balance topped up (the description of topping up the balance is in chapter *11. Charging the text message balance)*.

The last step of configuring the alarm rule is choosing the location and sensors it should cover. In order to do that from the drop-down list below the rule's name field choose a location to which the rule should be assigned. Then, in order to find a specific sensor, in section *1. Select a location y*ou can browse the subordinate locations of the location you have previously chosen. Next, from the field *2. Sensors,* choose the sensors that should be assigned to the alarm rule. Selected sensors will be marked with a check symbol on the right side of their name. After selecting the sensors you can verify which ones you have chosen by clicking *Show assigned* button - the list will only display selected sensors. In order to apply the changes click *Save*. From this moment forward, the rule is active until its removal. The alarm rule can be edited any time by clicking on it in the rules list.

7. Configuration

In the *Configuration* menu, you can add new sensors to the platform, configure their settings and manage locations. Only users with permissions of an Administrator or Manager have access to this menu.

7.1. Adding sensors

In order to start saving the sensor's measurements in the Efento Cloud platform and to be able to use all the platform's functions (text message notifications, automatic reports, etc.) you need to activate the sensor in the platform by keying in its Cloud Key. Cloud Key is a unique, six character number which is assigned to each sensor. To activate the sensor in the platform go to the *Configuration* menu. In the *New sensors* section there is a list of sensors whose measurements are sent to the Efento Cloud by the Efento Gateway and that can be activated. In order to add a sensor, click the lock icon next to sensor's serial number. Type the Cloud Key into the pop-up window. If the entered Cloud Key is valid then the sensor will be activated and you will see a configuration window after clicking the *Save* button. Enter the new sensor's name (by default all sensors are named Efento) which will be displayed in the platform with its serial number. You also need to choose a location to which the sensor will be assigned. After doing that click *Save*. If you want to change sensor's name or move it to another location in the future, you will be able to do that anytime. The description of how to do this is included further in this chapter.

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7.2. Editing sensor's name and location

To change a sensor's name and/or location click on it in the list. In the upper part of the editing window, change the sensor's name and/or location and save the changes with the *Save* button. You can also edit several sensors at once by marking the checkboxes on the left side of their names and then by clicking the *Edit* button above the list. In the pop-up window type in the new sensor's name, choose its new location and save the changes with the *Save* button. All selected sensors will be given the same name and will be transferred to the chosen location.
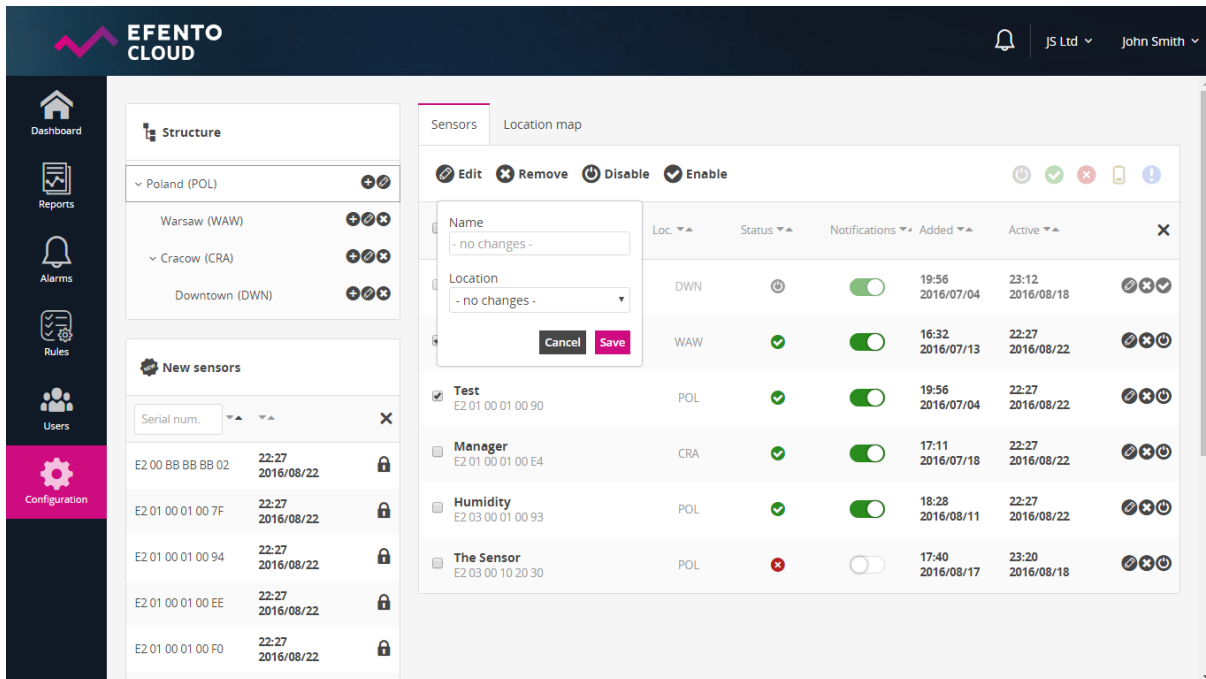
7.3. Disabling and enabling the sensors

If you disable a sensor, its measurements will not be saved in the platform and in case of alarm rules violation, the notifications about that sensor will not be displayed. In order to disable a sensor, click the *Disable* button on the right side of the sensors list. To enable disabled a sensor, click the *Enable* button which is located in the same place. If you wish to enable / disable several sensors at once, mark the checkboxes next to their names and then click *Enable* or *Disable* button above the list.
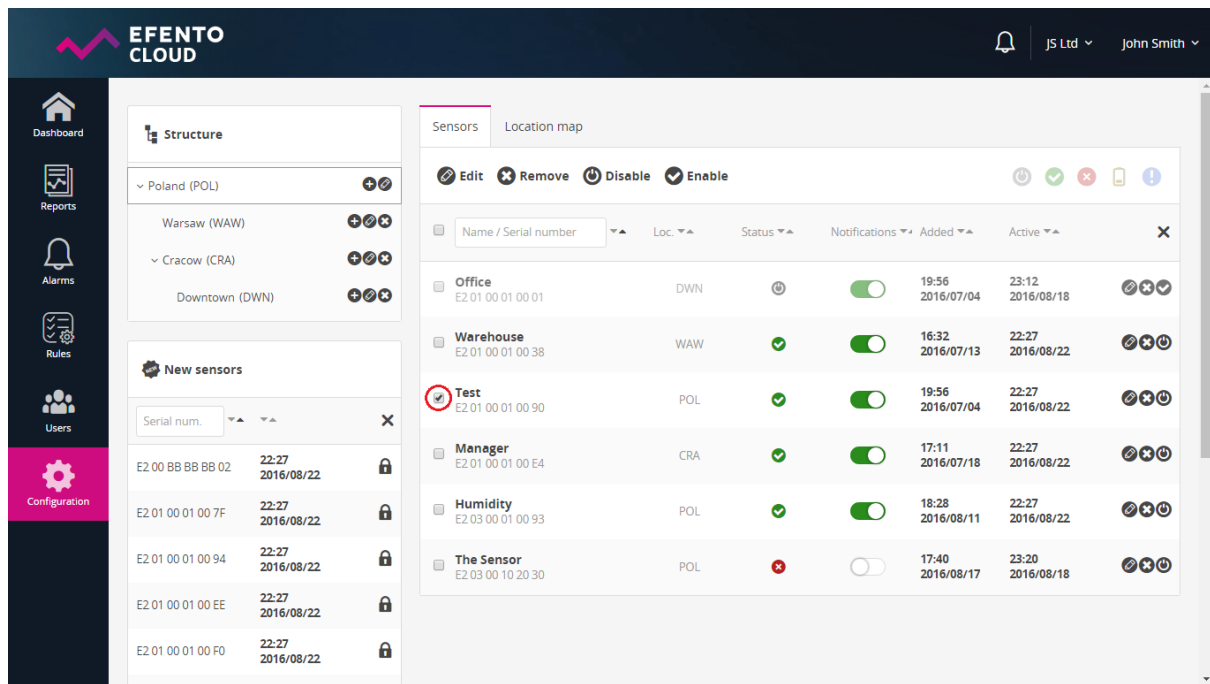
7.4. Turning the sensor's alarms off

Turning the sensor's alarm off causes the sensor, which is assigned to any rule, to not display information about the event described in this rule and to not initiate the alarm. To turn the alarm off, click the slider located next to the sensor's name in the *Alarms* column. If the alarms of a selected sensor have been turned off then the slider is yellow. If the sensor has not been assigned to any rule then this feature will be disabled (the slider will be white).
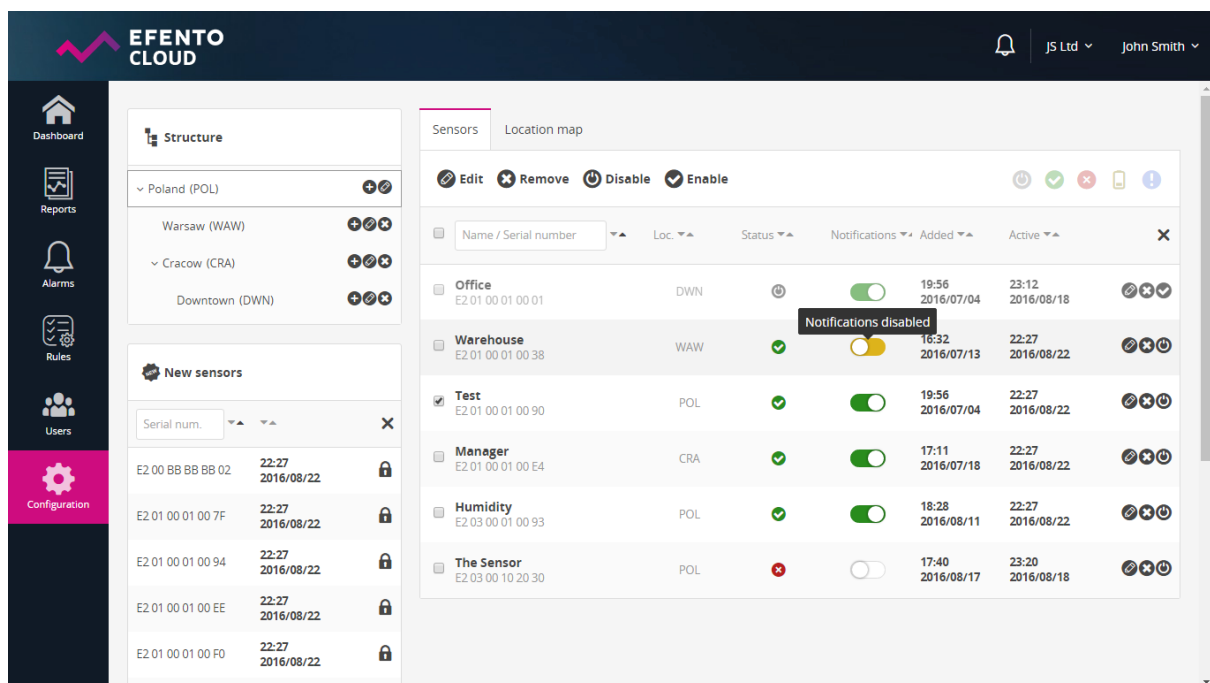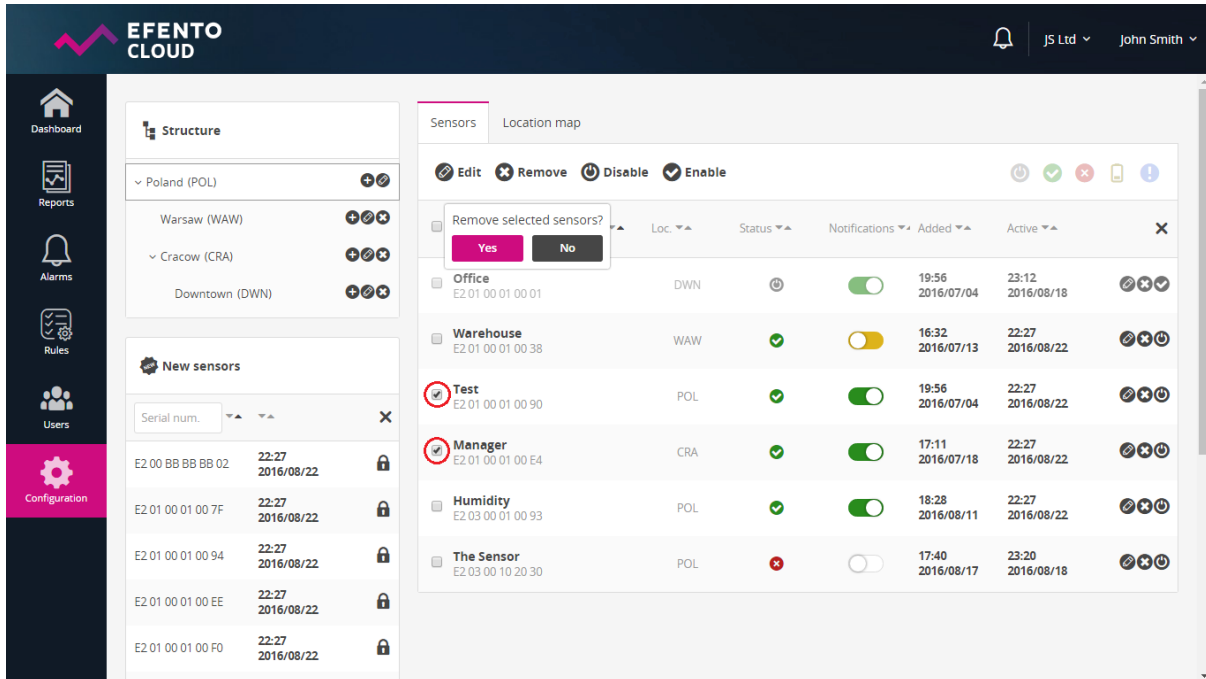
7.5. Removing the sensor

Removing the sensor causes its complete removal from the Efento Cloud platform. All measurements sent by this sensor will also be deleted. To remove a sensor click the "X"

button located on the right side of the sensor's name on the list and confirm the removal. In order to remove several sensors at once mark their checkboxes on the list and then click the *Remove* button above the list.

It is impossible to restore a removed sensor's measurements, but you can again add the sensor to the platform the same way you add a new sensor (see chapter *7.1. Adding sensors*).


7.6. Creating and managing locations

Efento Cloud allows you to easily organise and manage the locations and sensors assigned to them. Thanks to the platform, you can create a projection of your Organisation's structure in the form of a tree and assign a sensor to each of its branches. The way you group the sensors is unlimited, you can use geographic distribution (e.g. Country -> Districts -> Cities -> Objects), function distribution (e.g. Type of object -> City -> Exact location) or any other method depending on your needs. Additionally, the users assigned to your Organisation can be granted specific permissions to different locations. Locations greatly simplify system administration and give full control over user access.

The configuration of locations is done in the *Configuration* menu in the *Structure* section, that can be accessed only by users with a role of Admin or Manager. You will find there a tree of already created locations whose root is impossible to remove from the main location. By default its name is the abbreviation of your Organisation's name and its abbreviation is TOP, but it is possible to change both of them.

To add a new location click on the plus icon located next to an existing location's name and then enter the new location's name and abbreviation. In order to change the location's position in the tree, hover your cursor over the left side of the location's name, grab it with

the left mouse button and move the location to the selected place in the hierarchy. If you want to relocate a location and make it subordinate to another one, then the superordinate location must have at least one subordinate location. In order to delete a location click the delete icon on the right side of its name. Deleting a location results in deleting its subordinate locations too. All sensors from a deleted location will be moved to section *New sensors*. The sensor's measurements will not be deleted but all the rules and automatic reports assigned to the deleted location will be deleted.
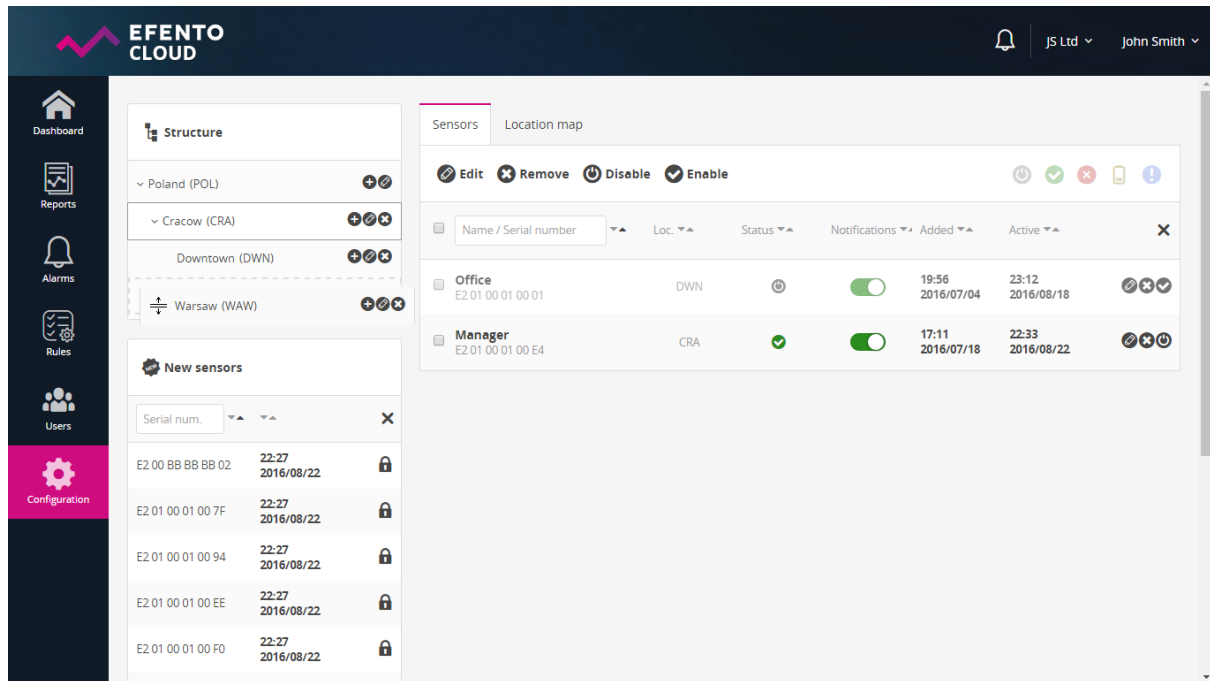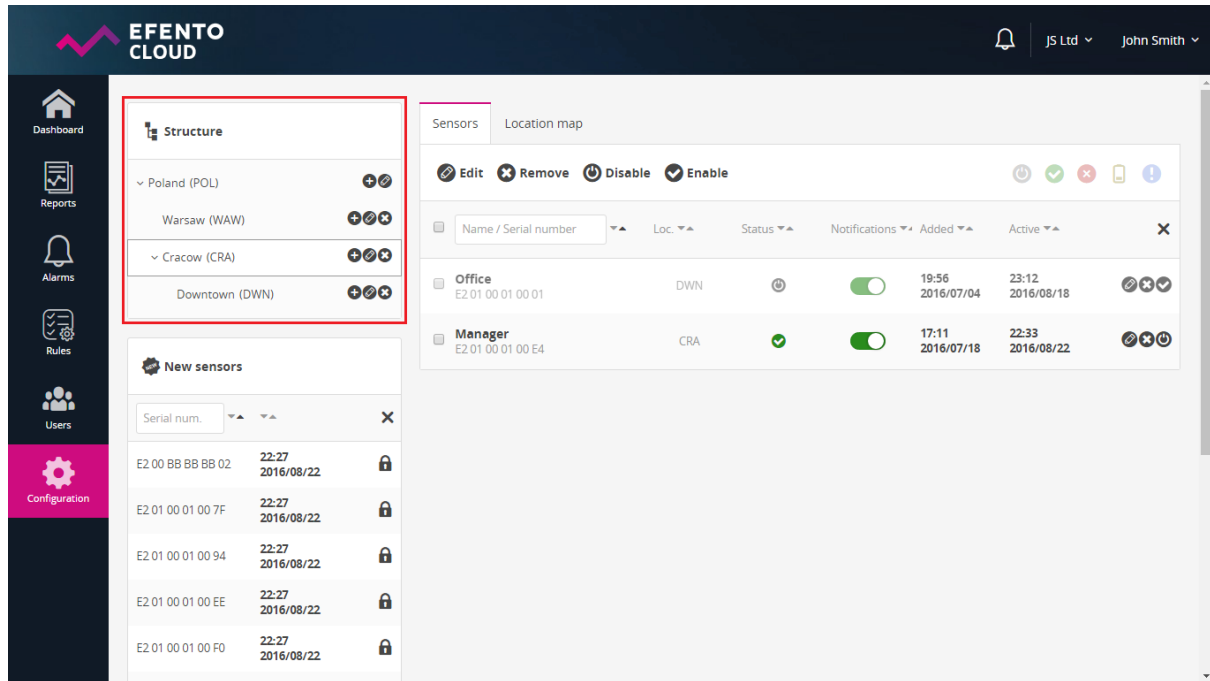
7.7. Location map

To each location you can add a map or a building plan. In the *Configuration* menu go to *Location map* tab. In the section *Structure,* choose the location to which you wish to add a map. If you have not added a map yet, then you will see a blank field with *Add Map/Image* button in the middle. Choose a file you wish to upload and click *Open*. The platform allows you to upload maps/plans in PNG or JPEG format, and the maximum size of the file is 4 Megabytes. Uploading a large image may take up to several minutes. If you wish to delete a previously added map, click on *Remove* button in the upper left corner of the map. To place a sensor on the map, grab it with the cursor from the box below the map and drop it in a selected place on the map. To remove the sensor from the map, grab it with the cursor and drop it in *Drop here to remove* field. After adding and configuring the location map it will be visible in *Dashboard* menu for all the users with access to that location.
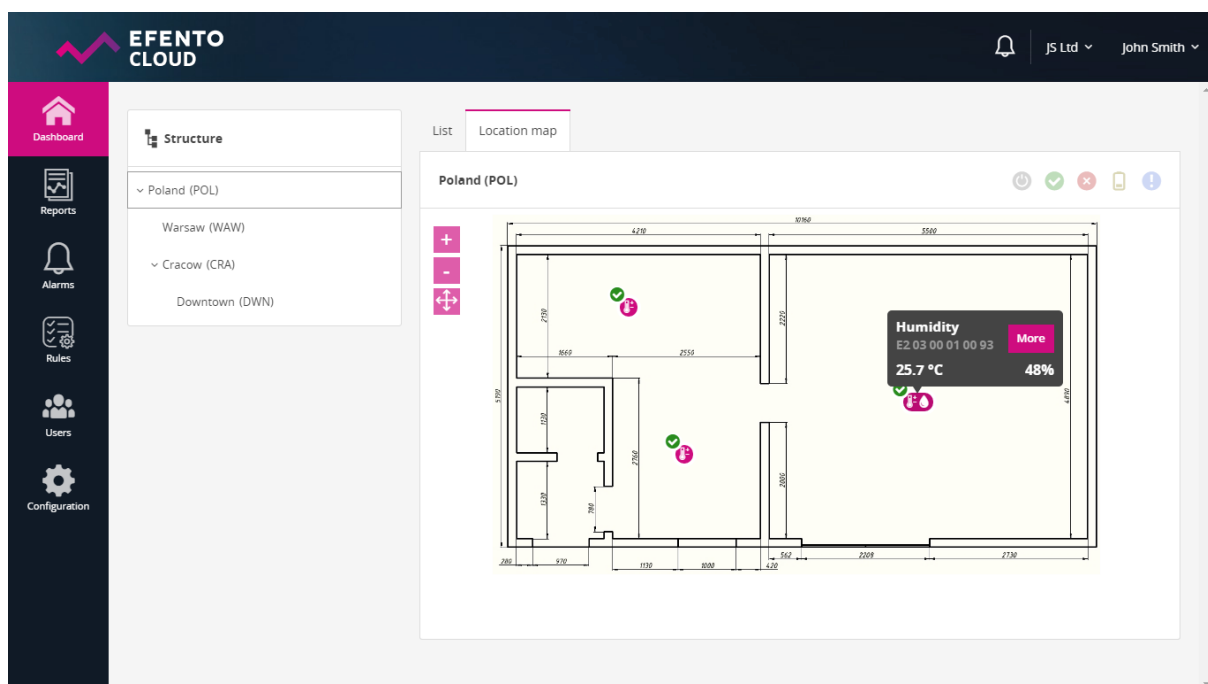
8. Reports

Measurements from selected period can be exported as a PDF or CSV report anytime you wish. Additionally, Efento Cloud allows you to configure automatic reports which will be sent with selected frequency (e.g. daily, once a week or once a month) to any e-mail address you type in.
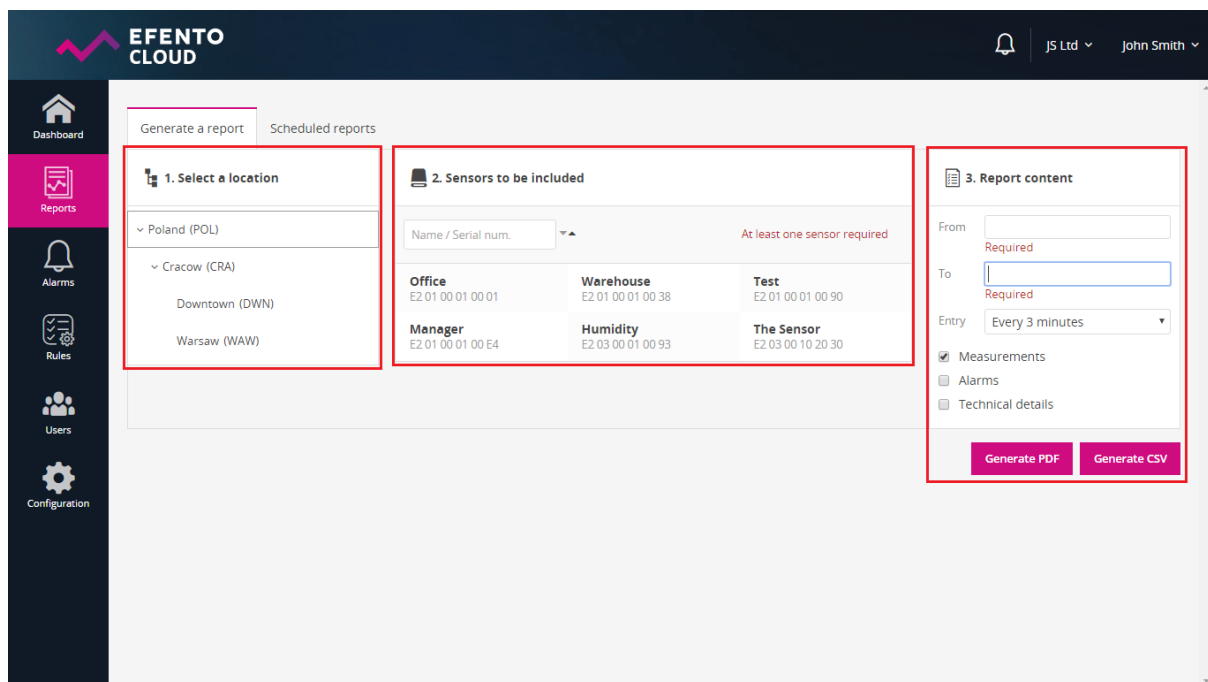
The reports include measurements made by sensors. Additionally they can include information about events such as violation of alarm rules, connection lost or low battery level. The measurements can be saved in reports with density of 3 / 15 / 30/ 60 minutes.

Reports can be generated on user's demand or periodically (automatic reports) with selected frequency (daily, once a week, once a month) and sent to any e-mail address. Reports on

demand can be generated by each user (Analyst, Manager and Administrator), whereas automatic reports can be configured by users with permissions of Manager or Administrator.

8.1. Generating a report on demand

Generating a report on demand allows you to export measurements from one or more sensors from any period of time in a PDF or CSV file. To generate a report go to *Reports* menu and then to *Generate a report*. Select a location containing sensors whose measurements you wish to export, and then mark the sensors by clicking their names. You can select any number of sensors. If you have a problem finding a specific sensor in the location you have chosen, then type in its name or serial number in the field above the sensor panel. After selecting the sensors, in *Report content* section set a time period from which you wish to export measurements (choose from and to dates), set a density of measurements (3 / 15 / 30 / 60 minutes) and choose what should be included in the report (*Measurements* - all measurements made by the sensor and sent to the platform with previously selected density; *Alarms* - information about alarms initiated in selected period of time; *Technical details* - information about low battery level / connection lost / disabling or enabling the sensor). Click *Generate PDF* or *Generate CSV* to generate a report and send it to the e-mail address you entered while creating an account in Efento Cloud. The report will be delivered within a few minutes.

8.2. Configuration of automatic reports

Automatic reports allow you to automate sending reports to selected e-mail addresses. The reports will be generated and sent periodically, depending on configuration. To configure automatic reports you need to have Administrator or Manager access permission. In *Report* menu go to tab *Scheduled reports* and then click on *Add new scheduled report*. Type in report name and then, same as in report on demand, choose sensors which should be

included in the report, choose report content and its format and the density of measurements. Next choose report generation frequency - in *Schedule* section mark one of three options: daily, every Monday or 1st day of each month. The last step of automatic report configuration is adding the recipients. In *Recipients* section, type in e-mail addresses to which the automatic report should be sent. You can add any number of addresses and they do not need to be registered in Efento Cloud platform. If you have filled all required fields, click *Save* which will result in creating an automatic report. From that moment, automatic report is active and it will be sent with the previously configured frequency. Automatic reports are generated and sent to recipients a few minutes after midnight.

All configured automatic reports including information about report creator, sending frequency, report content and report recipients are visible in *Scheduled reports* tab. To delete an automatic report, click the delete icon on the right side of the report. You can also edit already existing reports by clicking on the pencil icon. If you wish to create a new automatic report, similar to an existing one, click the *Clone* button, that is located between the delete and pencil icon. Automatic reports can be disabled - the report configuration will not be deleted, only sending the report will be suspended. In order to disable an automatic report, switch the slider on the left side of the report into the off position.
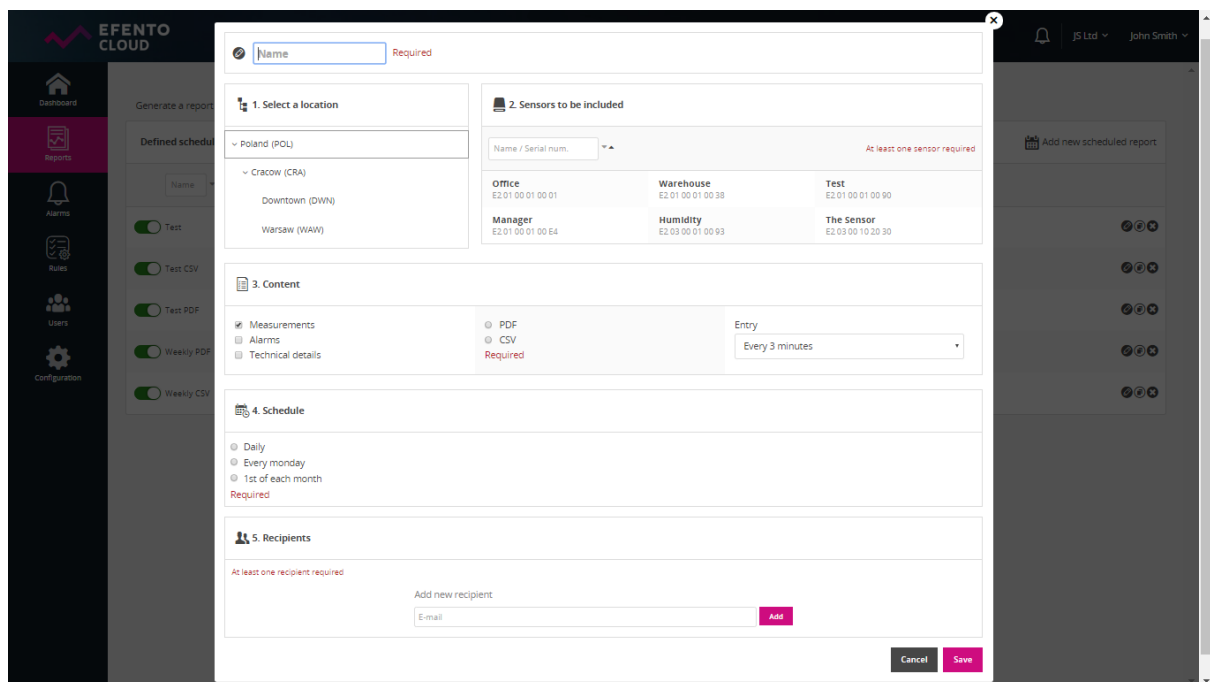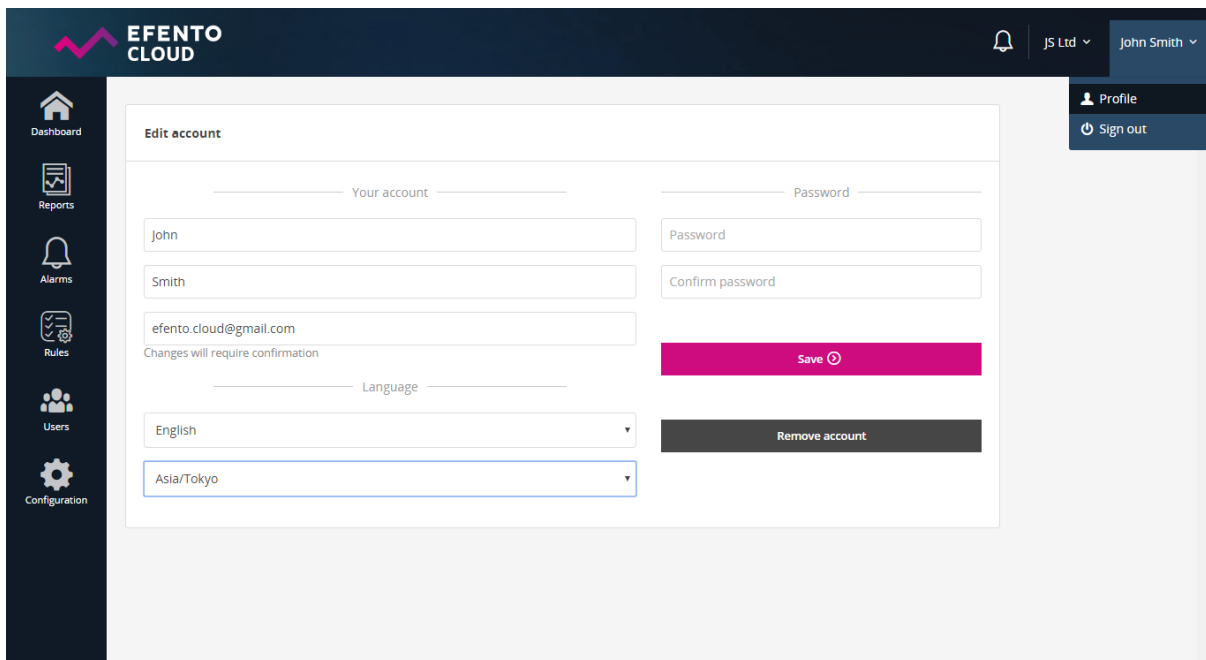

9. Alarm preview

Notifications about all (including confirmed) alarms which occurred since your last login will be visible on the bell icon in the right upper corner of platform site. You will see there a number of alarms initiated during your absence in the platform. By going to the *Alarm* menu, you can find a list of all current and past alarms. Column status indicates whether the alarm is *Active* (the alarm rule is still violated), *Confirmed* (other user has reacted to the alarm; the

alarm rule is not violated anymore) or it is waiting for *Confirm* (the alarm rule is not violated but none of the users has confirmed noticing the alarm). The alarms can be confirmed only when its cause has been fixed. The alarms can be sorted depending on date of their occurrence, alarm type, alarm cause, current sensor measurement, alarm rule name or recipients assigned to the alarm. You can also find a selected sensor's alarms by entering its name or serial number in the field *Name / Serial number* above the list. In the *Dashboard* menu in the *Alarms* column, you can see the number of unconfirmed alarms of a selected sensor (active and those waiting to be confirmed).

10. Editing user and Organisation data

10.1 Changing username, language and password / deleting the account

Hover your cursor over your name and surname in the right upper corner of the platform and you will see user account options. You will be able to sign out or go to the user profile. In the *Profile* tab, you can edit your data such as: name, surname, e-mail address and Efento Cloud account password. You can also change language and time zone. After making changes save them with the *Save* button. If you wish to delete your account, including all your data in the platform, click *Remove account* button.


10.2. Editing Organisation information

In order to edit your Organisation information, hover the cursor over its name in the upper right corner and then choose *Edit Organisation* tab. You will be able to change the Organisation's name and its abbreviation. On the right side of this tab you will also find Organisation Key, but it is impossible to modify it. After making changes, save them with *Save* button.
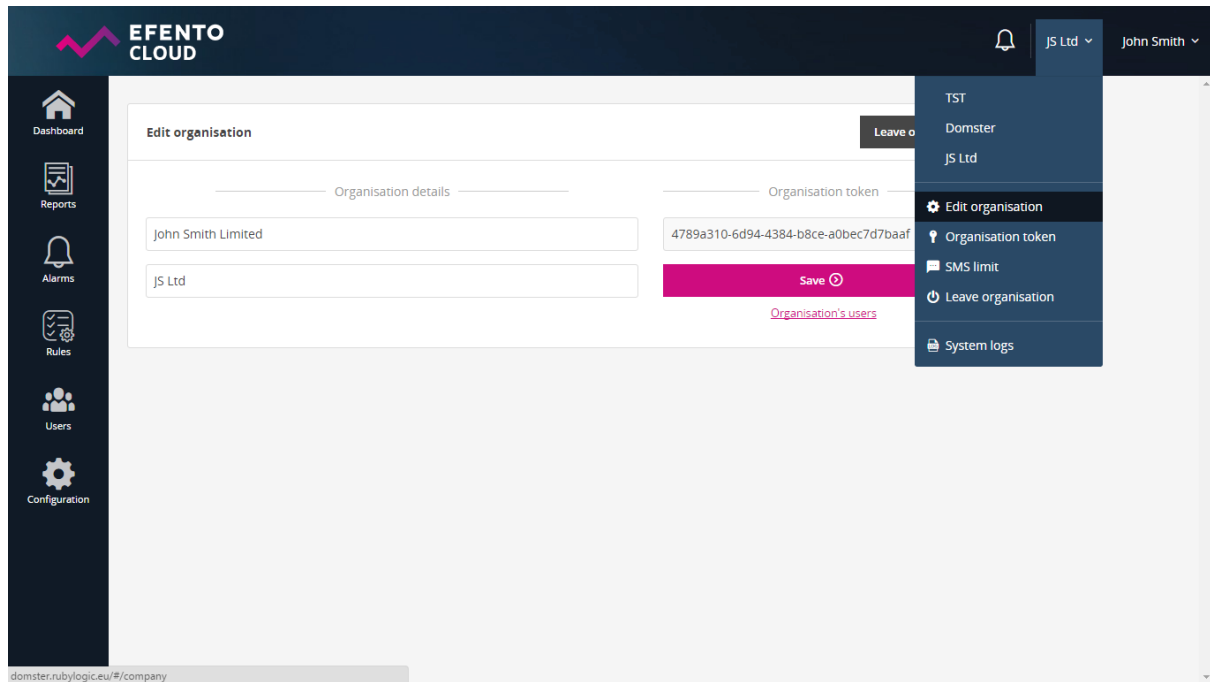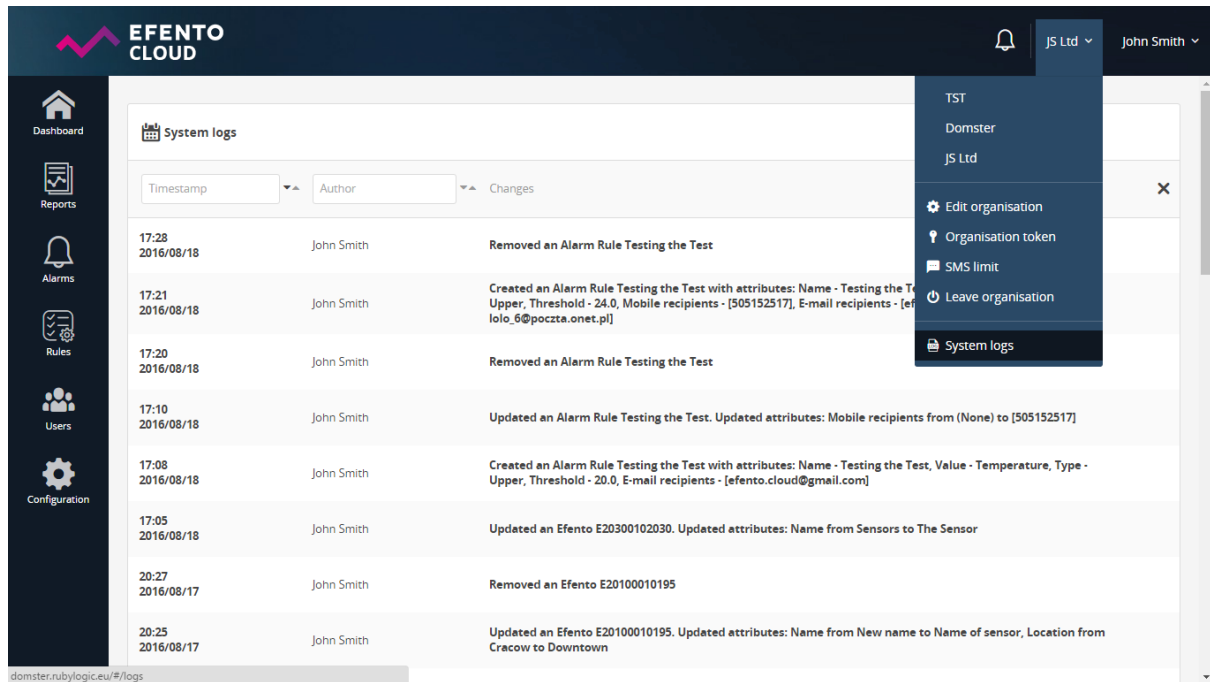
11. Charging the text message balance

Efento Cloud allows you to configure text message notifications about rules violations. If you have configured text message notifications, then in order to receive them it is necessary to top the text messages balance up. You can top-up the text messages balance by hovering the cursor over your Organisation's name in the right upper corner of the screen and then going to *SMS Limit*. In the popup window, you will see the current text messages balance and, if necessary, top it up by keying in the top-up code. If the code was valid, then the balance should increase by a specified amount (100 / 500 / 1000 SMS).
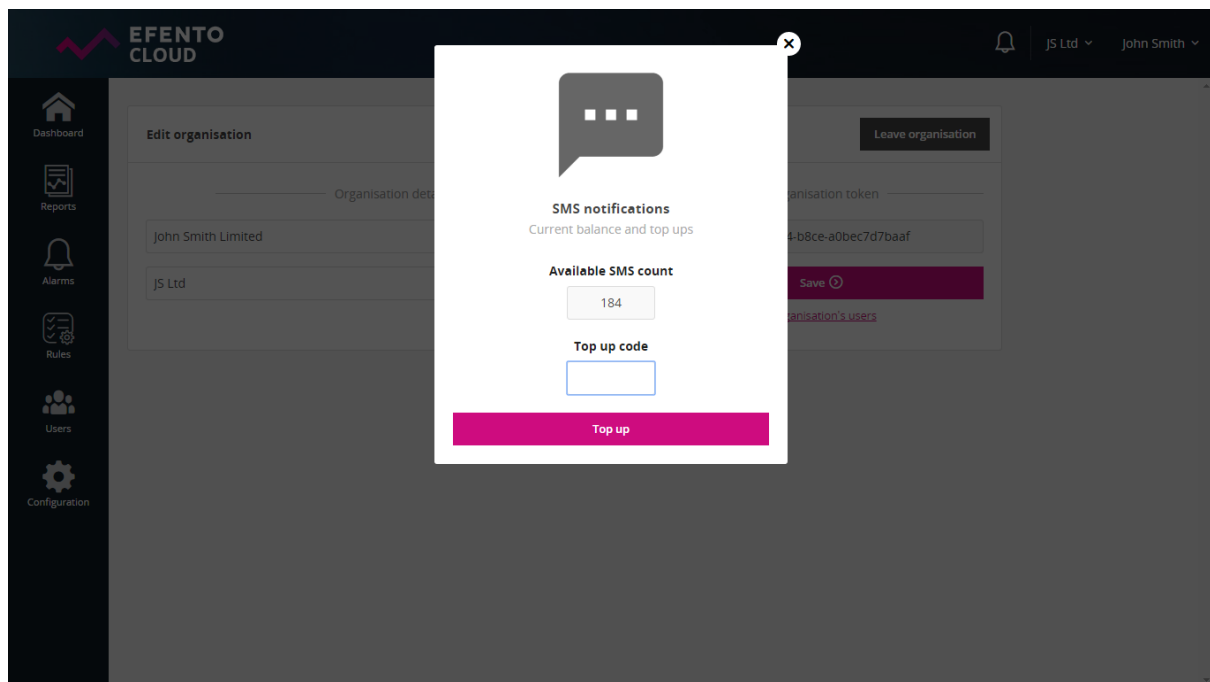
12. System logs

System logs, which are the list of all changes made in Efento Cloud platform, can be browsed by users with permissions of an Administrator. To browse system logs, hover your mouse over your Organisation's name in the upper right corner of the screen and then click *System Logs*. You will find there information about all changes made in sensors configuration, locations, reports, rules, users and Organisation. The list can be filtered depending on the date of the log or the user that made the change. In order to remove all filters and display all logs click "X" button on the right side of the filters.