Data Collection Cloud Platform

DCC, Data Collection Cloud

v. 1

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Contents

Revision History

Revision	Date	Author(s)	Description
1.0	21/05/2021	MM	Document created

Chapter 1

Introduction

This document serves to explain and go in depth with the general interface of the Data Collection Cloud (DCC) platform.

The document is set up in sections, the first of which is the introduction, where this text is currently located. From here we will move through the pages available in the selection menu of the DCC, see figure 1.1.

Figure 1.1: This is the selection menu of the DCC.

This menu provides the following information:

What version of the DCC is currently available. In this case 1.8.

Account, which is set by the administrator.

The role (Administrator, Dashboard Designer, Dashboard User etc.) and company.

E-mail as well as server.

In the selection menu it is possible to log out (far right).

The menu also leads to (from left to right) Dashboards, Utilities (hereunder Alarms and Reports), Usage, Data Viewer, Account Setup and IoT Administration.

These will be covered in this document beginning with Usage. This is the landing page after logging in.

Chapter 2

Usage

This section will go through what overview is available on the tab "Usage".

2.1 Headlines within "Usage"

The Usage section is the first page that is presented, when logging in to the DCC. It looks like this:
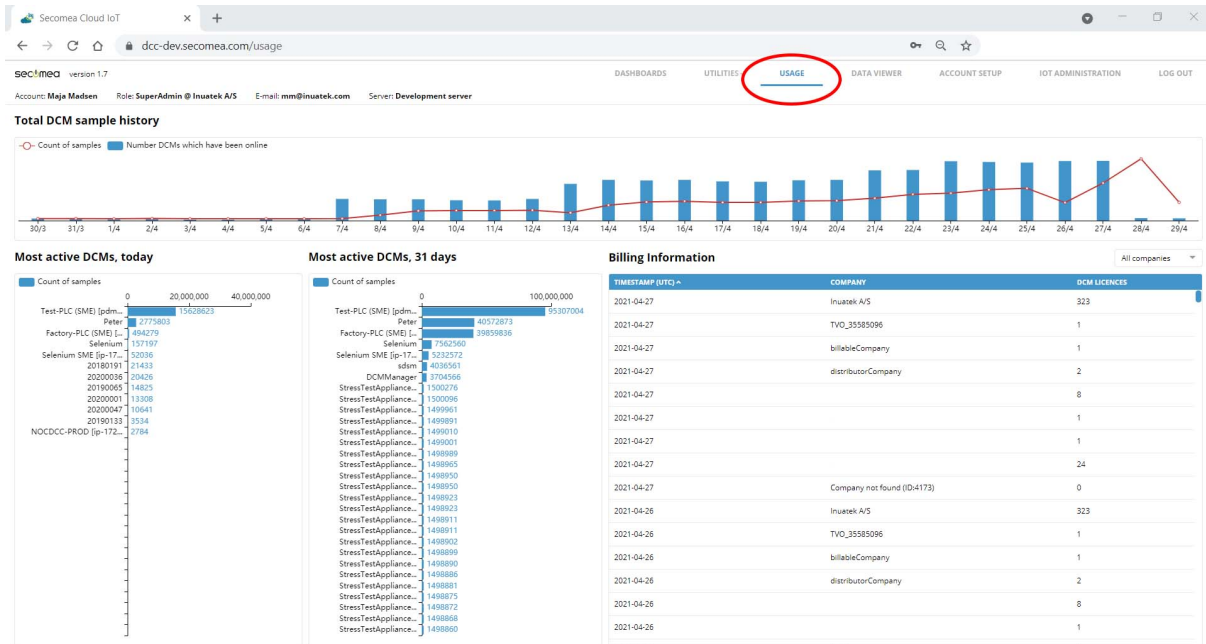

Figure 2.1: The headlines on this page is as follows:

- Total DCM sample history
- Most active DCMs, today
- Most active DCMs, 31 days
- Billing Information

2.1.1 Total DCM Sample History

The first overview is found at the very top and could look like this:
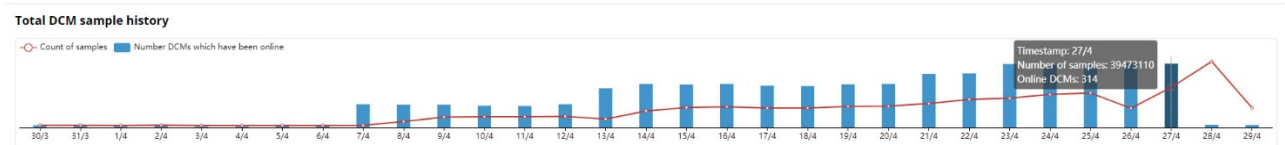
Figure 2.2: Note the legends at the top left corner.

This chart shows the activity of the platform day by day. How many unique DCM are active on a specific day and how many sample points are registered. Specific numbers are shown by mousing over a bar in the chart.

2.1.2 Most Active DCMs, Today

Underneath Total DCM Sample History, Most Active DCMs, Today are found to the far left.
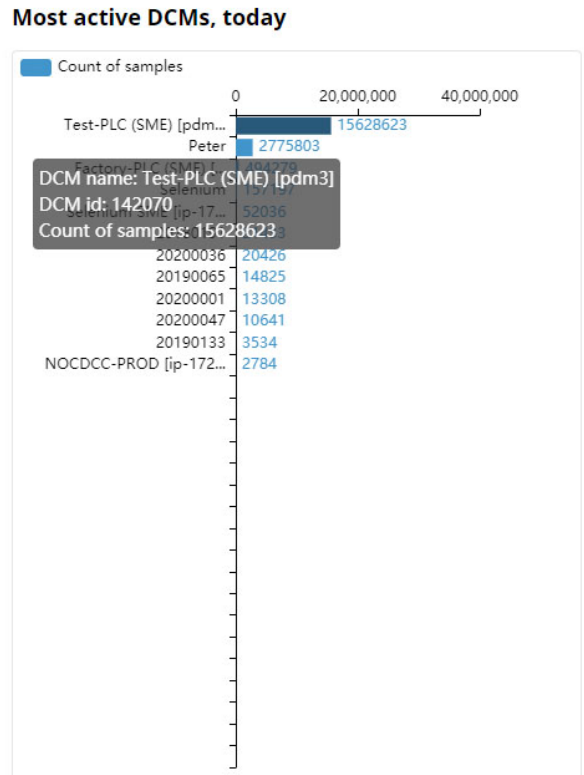

Figure 2.3: The bar charts are counting samples on the given day. More information is available through mousing over any given bar.

2.1.3 Most Active DCMs, 31 Days
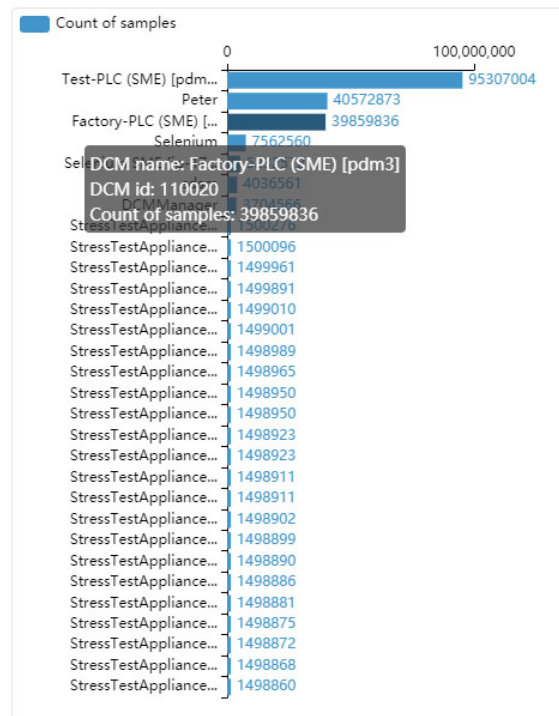
In the middle of the page the overview is found.

Figure 2.4: The bar charts are counting samples over the past 31 days from the given day. More information is available when mousing over any given bar.

2.1.4 Billing Information

The last overview on the page is the Billing Information. This shows the number of DCMs for each company, that is accessible.

Figure 2.5: At the top right, a drop down menu can filter Billing Information by company. Click any company to gain access to further information.

Figure 2.6: Once a company Is selected detailed information is shown. This is valuable for remote support or to check a specific DCM.

Chapter 3

Dashboards

The Dashboards page is the first possible choice from the selection menu at the top of the DCC.

3.1 Understanding the Dashboards landing page

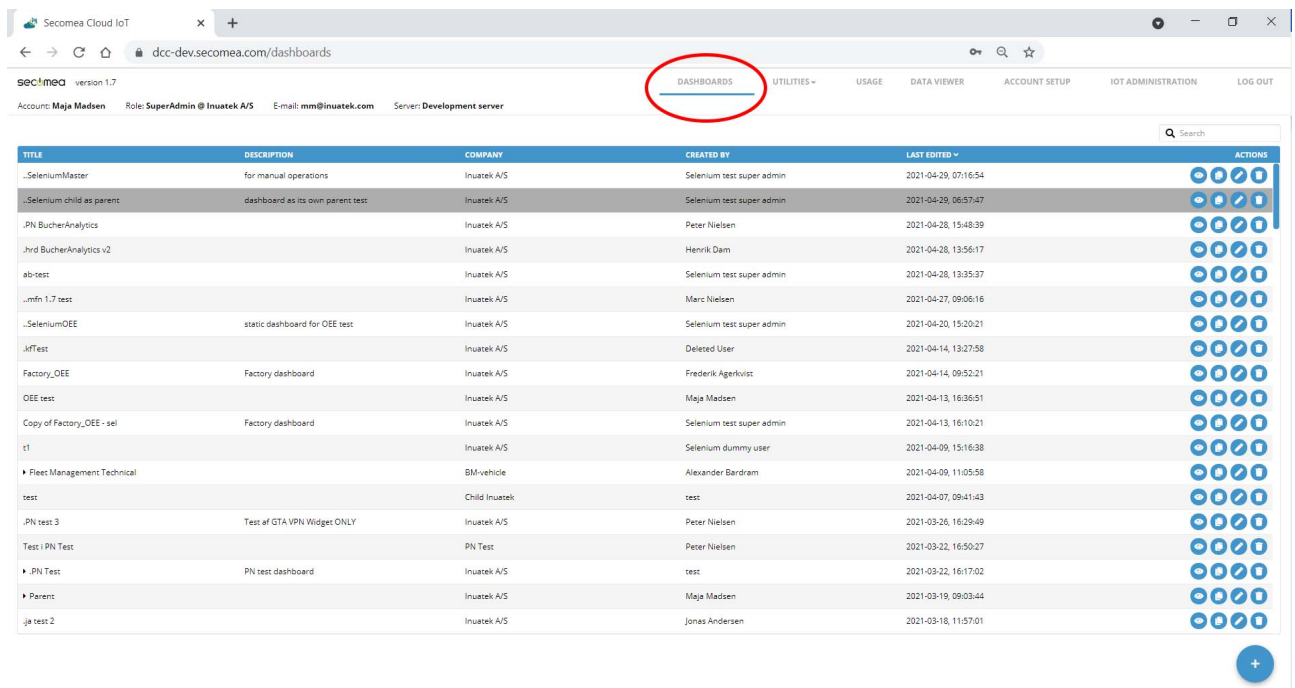When clicking the Dashboards tab, it will be presented as following:

Figure 3.1: This page grants an overview of all the available dashboards. At the right side of the screen are four blue action buttons for each available dashboard.
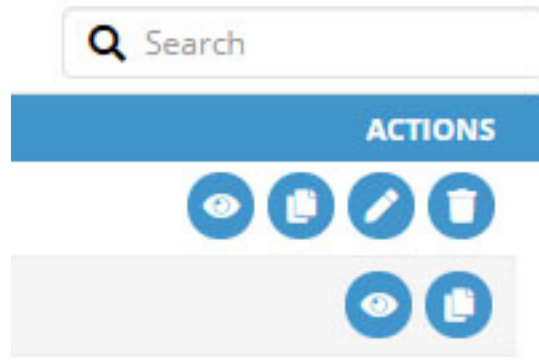
Figure 3.2: From left to right: View the dashboard, copy, edit and delete the dashboard.

Different actions are available depending on the role of the user. For most, only "view" and "copy" are presented. When a dashboard is copied, all four actions are available.

Add a new dashboard by clicking the round plus button at the bottom of the screen. This will unfold a menu. From here, click the plus sign again.

It is possible to search through the dashboards by typing the name, creator, company etc. at the top right.

Sort dashboards by clicking either Title, Description, Company, Created by or Last edited in the blue line above the dashboards. It will be sorted alphabetically or numeric ascending to descending (or descending to ascending if clicked twice).

If further information is needed regarding the dashboard widgets or function of these, please refer to the documentation regarding widgets.

Chapter 4

Utilities

The Utilities section covers the Alarm feature as well as the Scheduled Report Generator in the DCC. It is found in the selection menu under the drop down "Utilities" as "Alarms" and "Reports".

4.1 Alarms

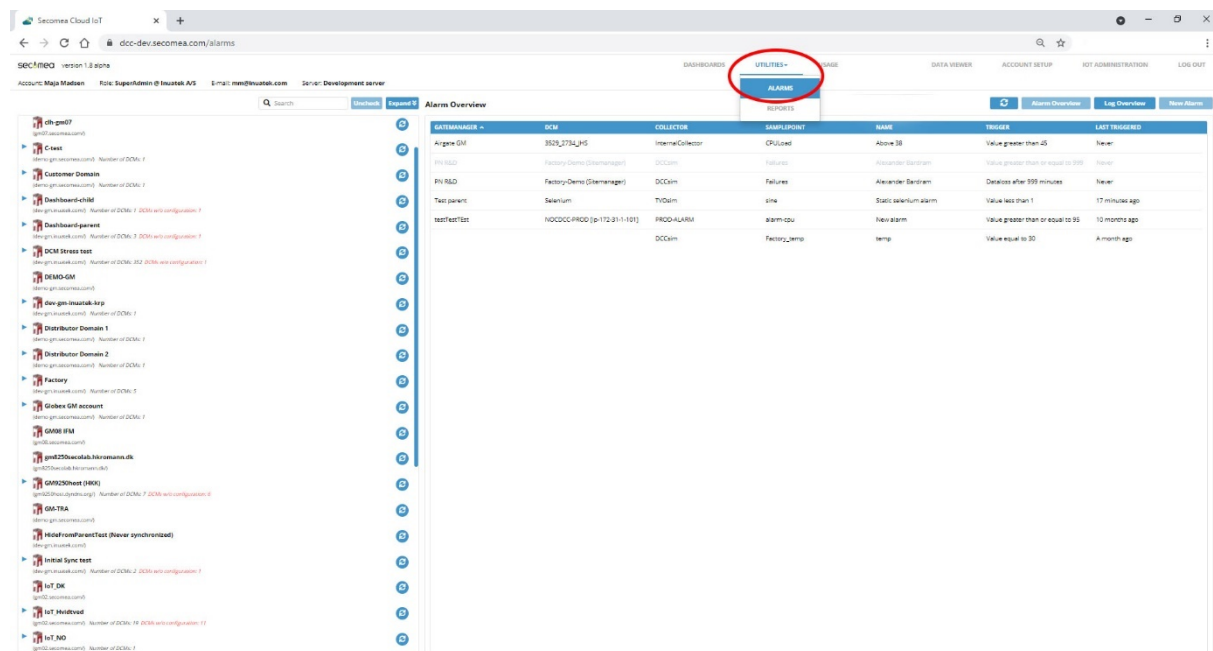The Alarms feature is used to send an e-mail or a text message if a given alarm value is "true".

Figure 4.1: When clicking "Alarms" in the selection menu, the page will look like this. From here all the Domains in the company is visible to the left side of the screen, and all current alarms appear to the right side of the screen.
Above the Domain overview to the left is a search bar as well as an option to deselect everything and expand everything.
Above the Alarm overview to the right is the option to refresh the alarms and to navigate from the Alarm Overview to the Log Overview and back. There is also the option to create a new alarm, once a sample point is selected from the Domain overview.

Alarms are created from a specific sample point, and not for an entire DCM.

Sort alphabetically or numerically both ascending and descending by clicking a headline from the blue header.

Figure 4.2: The Log Overview presents an overview of the times a given alarm has triggered. This can be sorted alphabetically or numerically both ascending and descending by clicking a headline from the blue header.

Figure 4.3: Clicking any text from the log overview to gain more information.
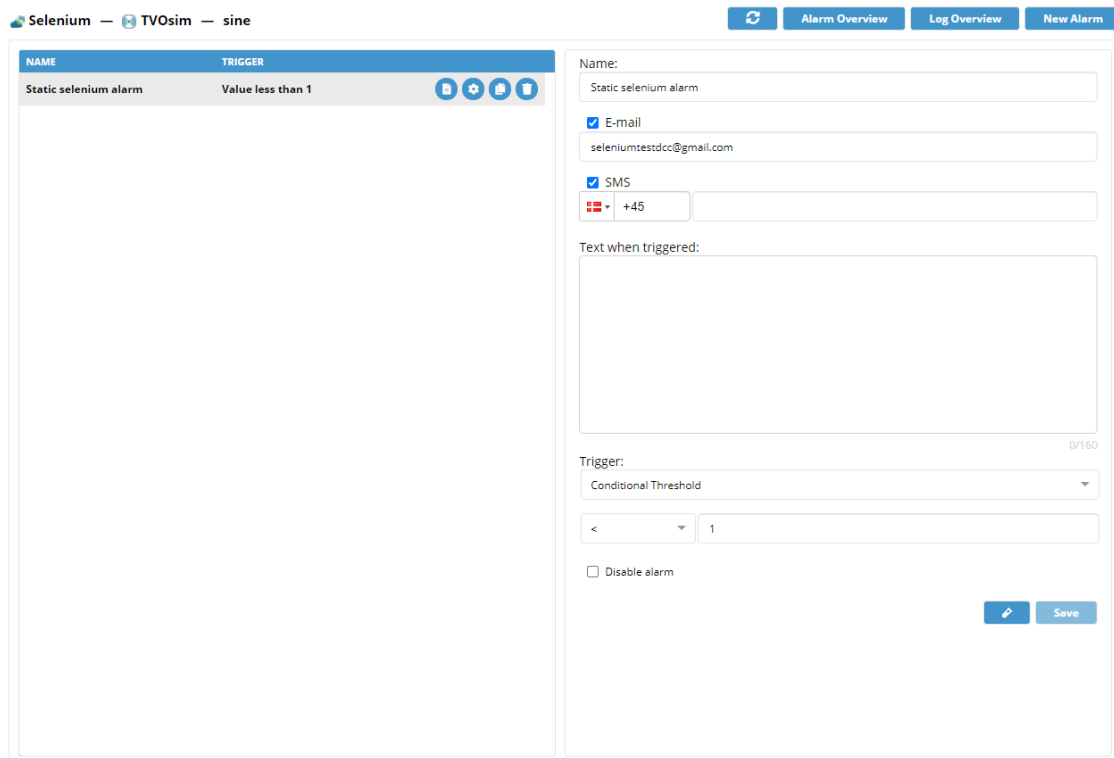
Figure 4.4: An alarm can be edited by clicking it from the Alarm Overview. When creating a new alarm the setup looks similar.

Note the blue circled actions buttons next to the alarm. From left to right:

- Alarm Log: Shows the log of events associated with this alarm.
- Configuration: Edit the alarm settings.
- Duplicate: Creates a similar alarm.
- Delete: Deletes the alarm.
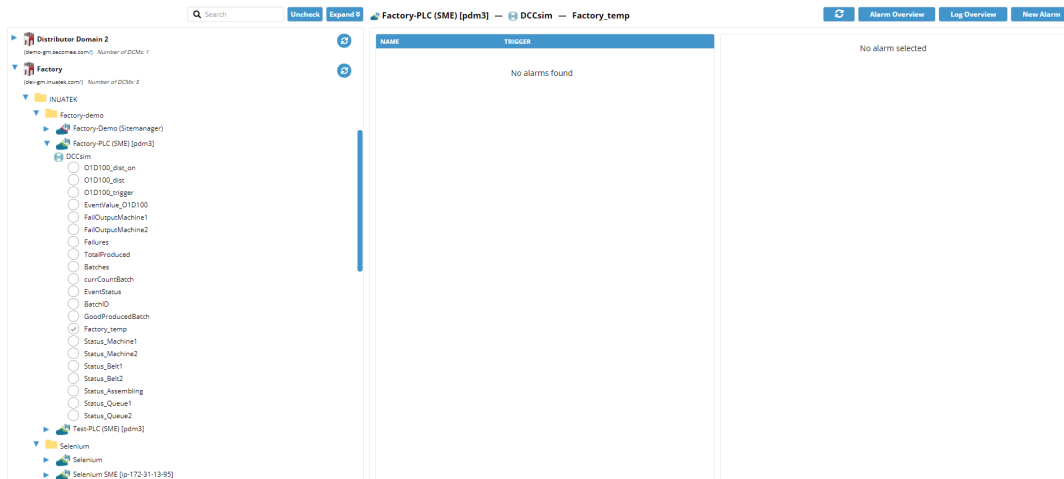
4.1.1 Creating an Alarm

Figure 4.5: When creating a new alarm, select a sample point from the Domain overview and click "New Alarm".
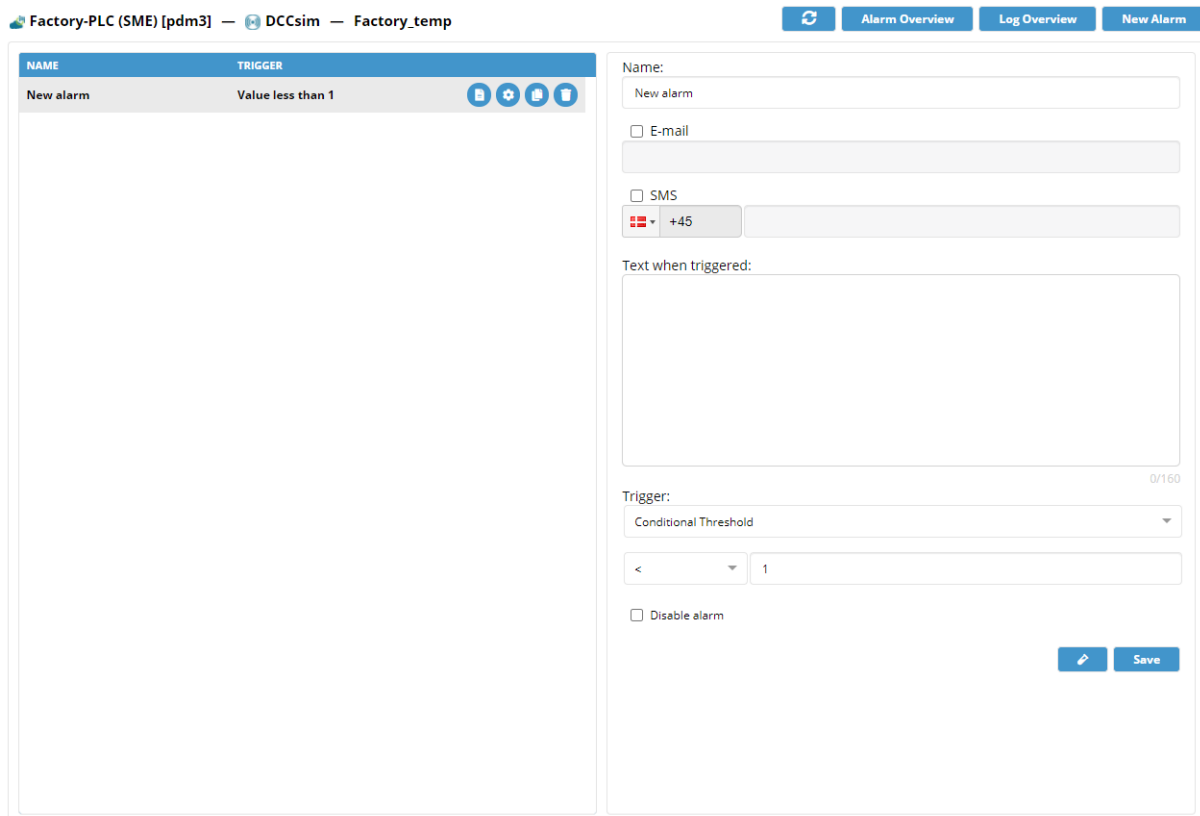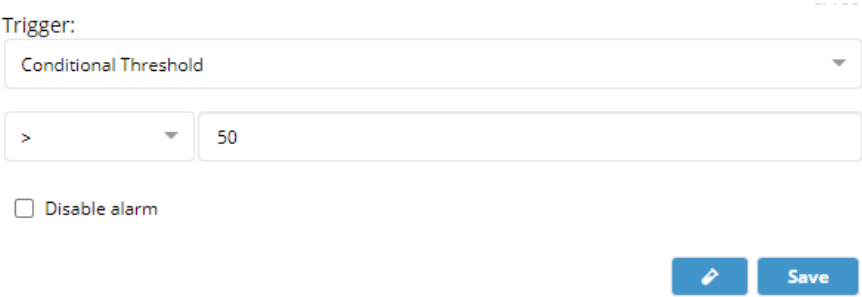

Figure 4.6: At the top of the editing screen the sample point path is shown as such: DCM -> Collector -> Sample point

Connect multiple alarms to a specific sample point by keeping the sample point marked in the Domain overview and clicking "New Alarm" again. The new sample point is now added.

Click the "Configure" action button next to the alarm to edit the name of the alarm and set the notifications. E-mail, text message or both are available.
Add the notification text for when the alarm is triggered, e.g. "Alarm! The temperature of Machine 22 is above 50 degrees."
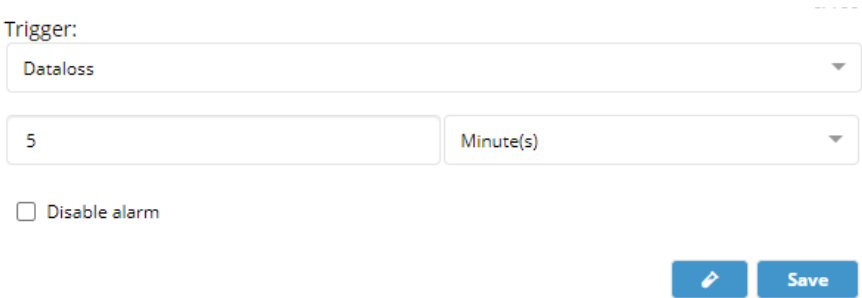
Next, it is possible to edit what triggers the alarm. There are two options:

- Conditional Threshold: Alarm triggers if a specific condition is met.
- Dataloss: Alarm triggers if no data is received (based on time).

Figure 4.7: When selecting "Conditional Threshold", a dropdown menu that enables selecting "more than", "less than", "equal to" and so on becomes available. Next to this menu is a text field to input a value (e.g. more than 50).

Figure 4.8: When selecting "Dataloss", a time selection setting is presented. First field is a value field (number), second is a drop down menu that spans from second(s) to hour(s).

Underneath the option to disable the alarm is available. This allows for creating alarms and have them available in the DCC, but deciding not to be alarmed by them at the moment.

Two action buttons are located at the bottom of the screen. From left to right:

- Test: Testing the alarm to make sure it is set up properly.
- Save: Saves the alarm with the current settings. This button is not available to click if no changes are made.

4.2 Scheduled Report Generator

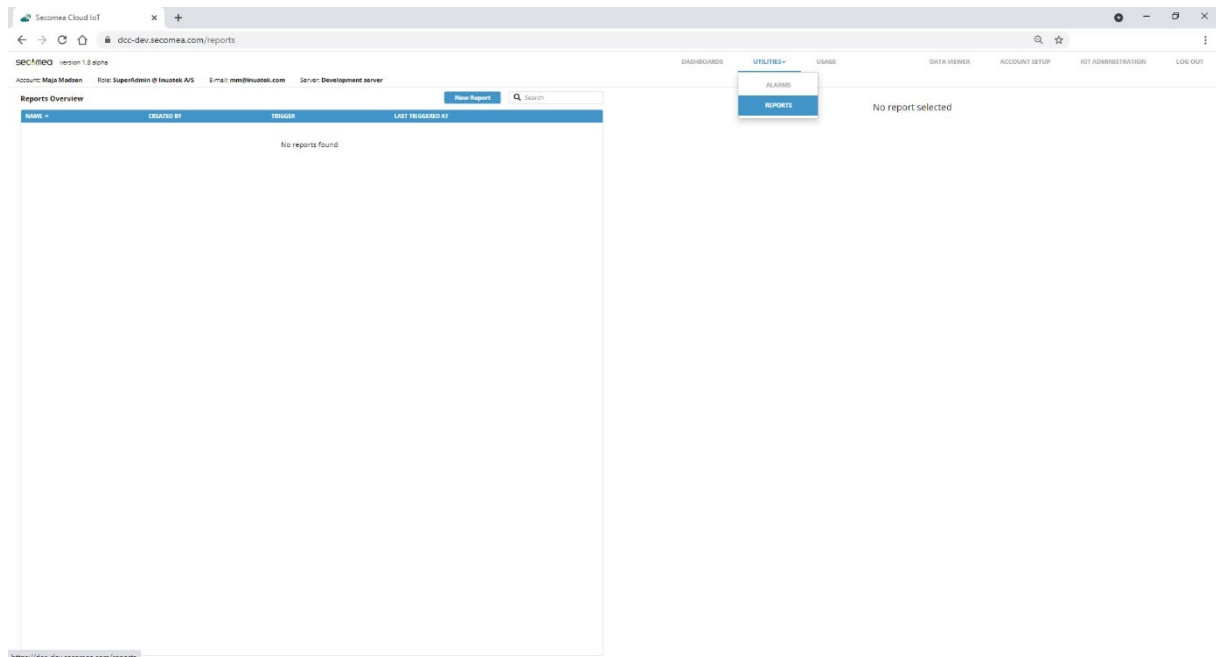This feature creates and sends a report automatically with a given interval.

Figure 4.9: When clicking the report page for the first time, this is what the page will look like. Create a new report by clicking "New Report" (found at the top).
Next to this is a search bar used for search through the old reports, had there been any.
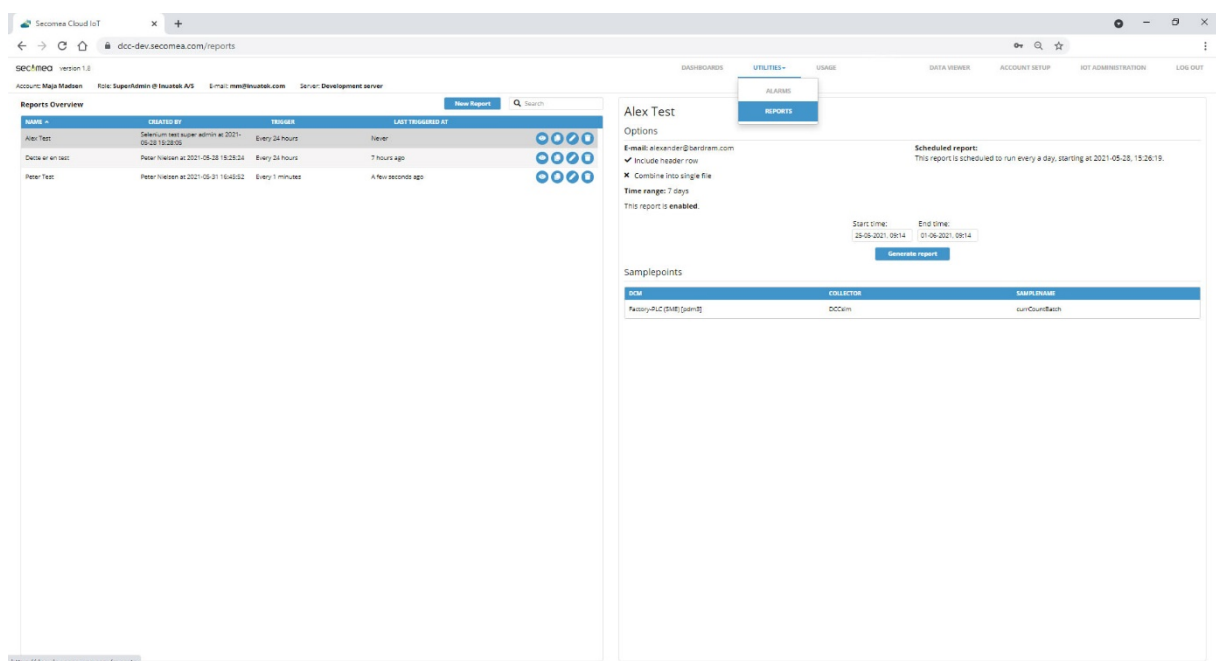
Figure 4.10: A list of old scheduled reports can be found on the left side.
It is possible to interact with reports by clicking any of the four actions buttons to the right side of this list. The buttons from left to right: View, duplicate, edit, delete.

An overview of the settings of a selected report will be presented to the right side when clicking view. Click the "Generate Report" button in the middle of the right side to generate a report instantly.
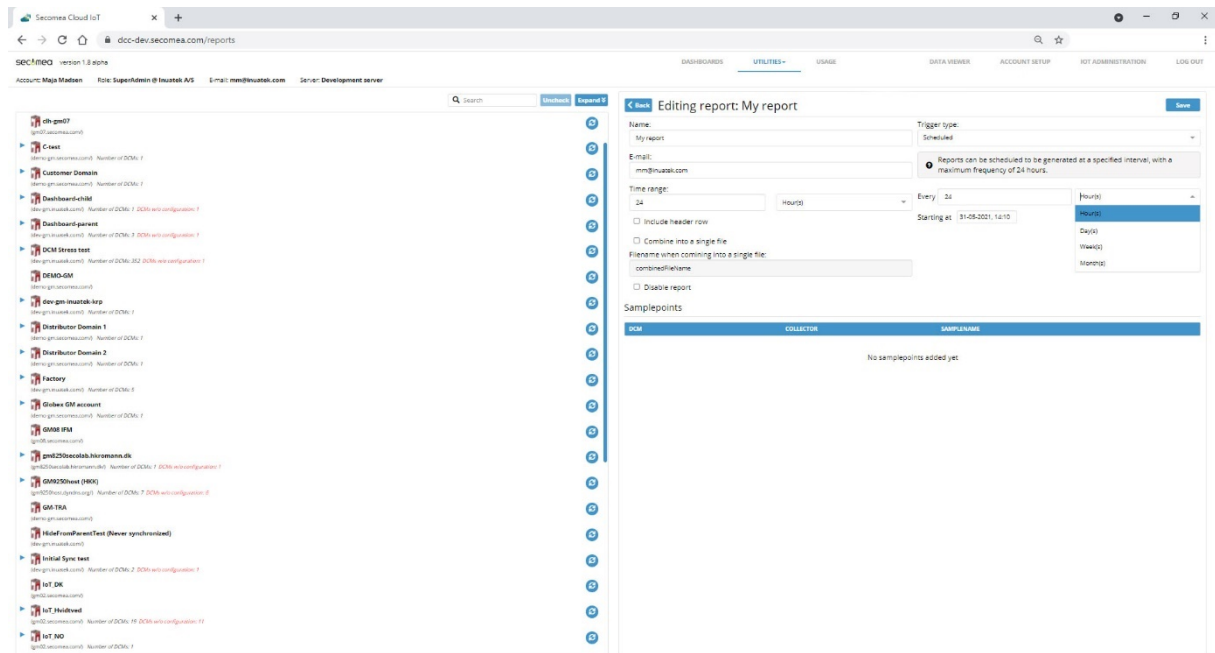

Figure 4.10: By clicking "New Report" or "Edit" on an old report, the page will be presented as above. All DCM within the company are shown to the left and the editor to the right. At the top to the left a search bar is available. It is possible to uncheck everything (if anything is checked) and expand every DCM.

To the right side, within the editor, the information that is shown in figure 4.10 is pre-filled with the following information:

- Name (default set to "My report")
- E-mail (default set to the e-mail that is logged in to the DCC)
- Time range (default set to 24 hours)
- Filename (default set to "combinedFileName"). This is only relevant if the "Combine file to a single type" is checked off.
- Trigger type (default set to "None")

The name is relevant for the report overview.

The E-mail setting determines which E-mail the report should be sent to.

"Time range" determines how much time the report should show. The drop down menu includes seconds, minutes, hours and days.

It is possible to check off "Include header" or "Combine into a single file". When checking off "Combine into a single file" the filename becomes changeable. If this setting is not wanted, the file name will be the name of the selected sample point.

Check off "disable report" to not receive a report at the moment without deleting the report altogether.

The "Trigger type" to the right side of the editor can be set as "None" or "Scheduled". If "None" is selected, there will be no further settings (except for what sample points the report should report on).
If "Scheduled" is selected the settings shown in figure 4.10 is available, allowing the interval of this report to be set. The maximum frequency is 24 hours.
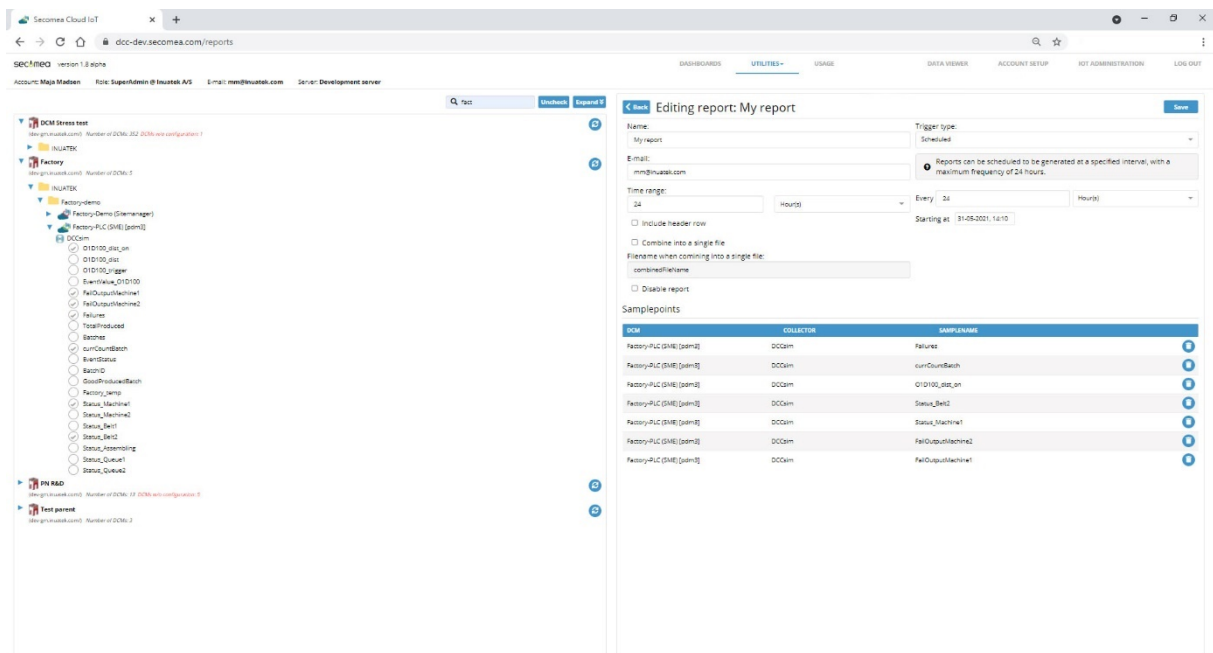

Figure 4.11: When selecting what sample points the report should include simply check them off from the DCM tree to the left. Deselect the sample point from the tree or remove the sample point by clicking the blue trash can button to the far right side.

Chapter 5

Data Viewer

The data viewer is used to gain a quick overview of specific sample points, both historic and real time. As such gain validation that the data is in fact collected.

5.1 Working with the Data Viewer

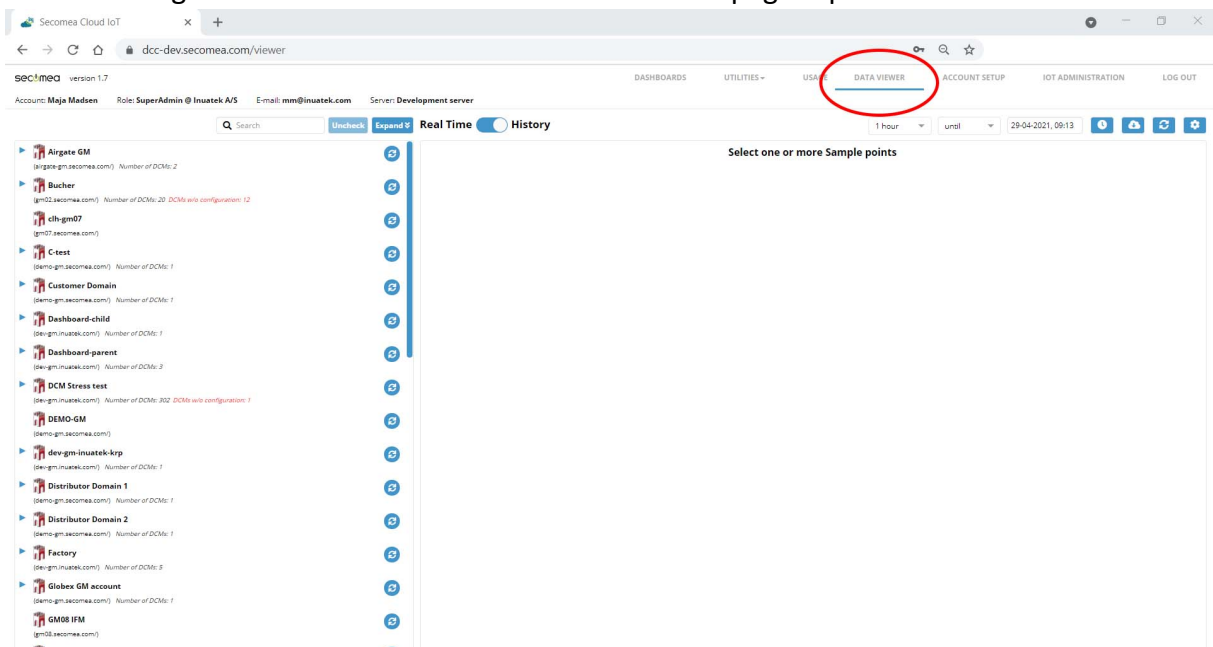When clicking "Data Viewer" in the selection menu this page is presented:

Figure 5.1: On the left side of the screen is all available DCMs. Expand these to show individual sample points.

Just above this a search bar is available to help locate a specific sample point, a DCM or a company.

Deselect multiple sample points by clicking "Uncheck" next to the search bar.

Expand everything by clicking "Expand".

Next to "Expand" the option to show the data from the selected sample point(s) in real time or historically are available.

When showing data in real time the "Window size" settings are available (x-axis), ranging from minimum 1 minute to maximum 1 hour.
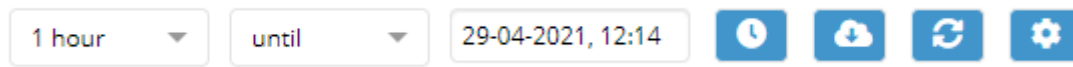

Figure 5.2: When showing historical data, settings for how far back the data should go is available. This ranges from a minimum of 5 minutes and a maximum of 7 days. Change the date and set "from" or "until" the chosen time.

The little clock symbol next to the date resets the timer to "now".

The cloud allows for downloading CSV files of the currently shown data.

The arrows allows for refreshing the data.

The gear opens "advanced settings". See 5.2.2: Setting the chart.

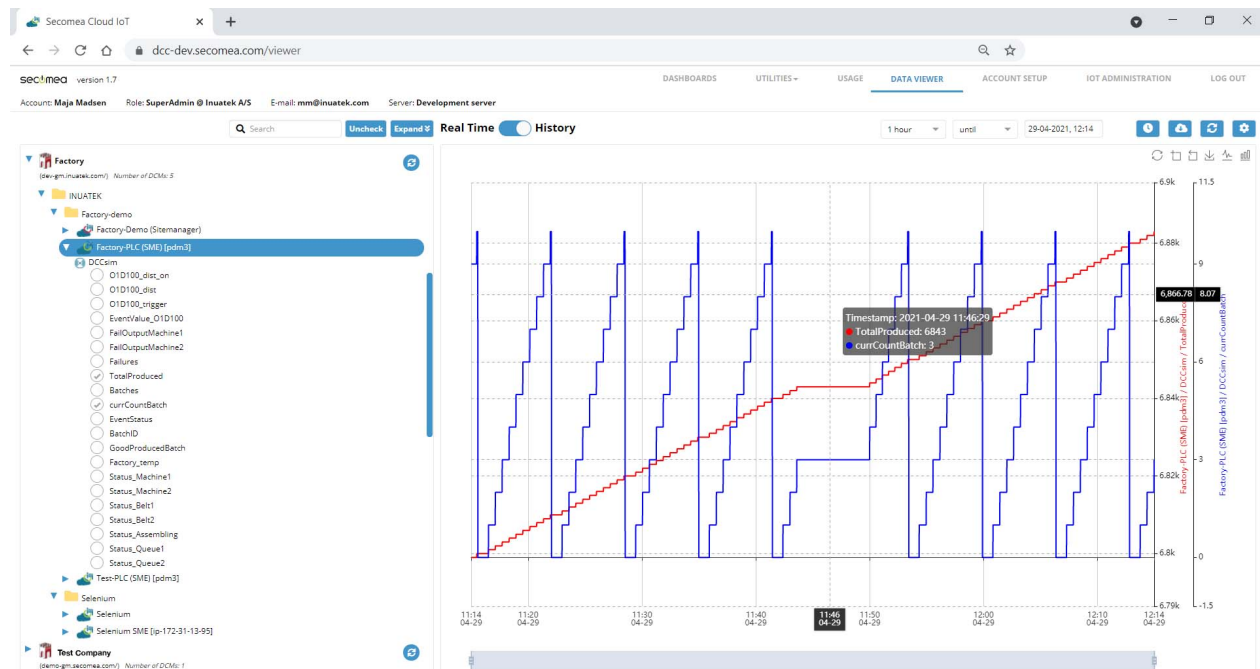## 5.2 Viewing the data

5.2.1 Sample Points

Figure 5.3: In this example two sample points have been selected. It is possible to select any number of sample points. More information will be shown by mousing over the chart.

This allows for viewing all the data simultaneously as well as on the same chart, even though the scale of the Y-axis differ from each other.

5.2.2 Setting the chart

Once the sample points are selected a number of settings becomes available.

Figure 5.4: These symbols appear in the top right corner of the chart. From left to right:

Restore: Resets to factory settings.
Area zoom: Enables zoom on an area by clicking it and then dragging to create a square on the chart.
Restore zoom: Undo area zoom.
Save image: Saves an image of the chart.
Line chart: Shows the data through a line chart.
Bar chart: Shows the data through a bar chart.

The blue "Advanced settings" bottom at the top right corner is also relevant when setting up how to view of the chart.

Figure 5.5: Clicking the "Advanced settings" button opens up this settings box.

"Max samples" is created to limit the number of data points that is shown at the same time. The limit is 10.0000. It will divide automatically. In the example two sample points are chosen, thereby dividing this to 5000.

Interval helps viewing maximum, minimum and average data points within a specific time interval. This can range from 1 minute to 24 hours. Choosing "All samples" (like in the example here), makes viewing every data point within the chosen historic time possible. This will depend on the data frequency.

The Y-axis configuration makes it possible to change the value minimum and maximum on the Y-axis for each individual sample point in the chart. This is useful if there is a spike in the chart that is not relevant for viewing.
If nothing is written this will be automatically configured.

Chapter 6

Account Setup

The Account Setup tab is an overview of the company, users and domains as well as the companies made available.
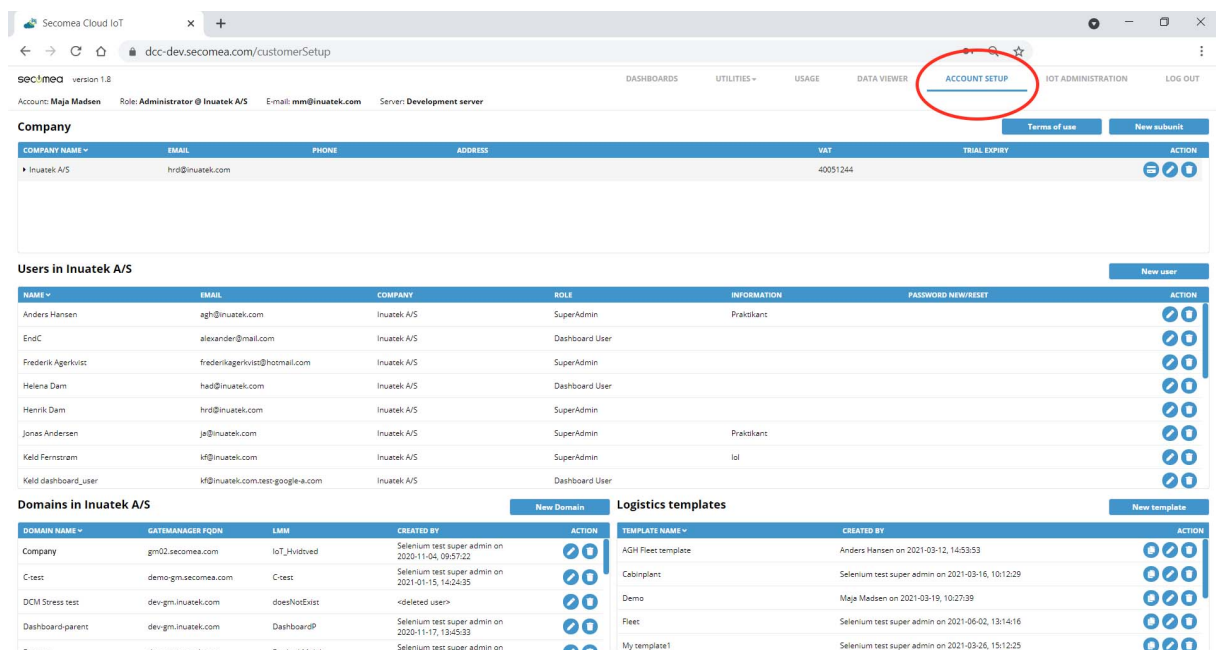
6.1 Headlines and buttons

Figure 6.1: When clicking the Account Setup tab from the selection menu this page is presented.
The headlines are: Company, Users in [company], Domains in [company] and Logistics templates.
Sort alphabetically through every headline in the blue lines (except action).

6.1.1 Company

This section shows every company and child company on the server that is available to the user.
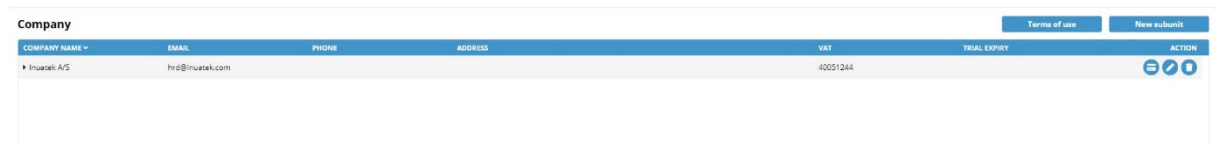

Figure 6.2: The company section is found at the top of the screen. At the top right is a search bar as well as the terms of use set by Secomea A/S. It is also possible to add a new subunit.

When clicking "New subunit" this form appears:

Create new subunit

Name*

Name

Email*

Email

Street

Street

City

City

Zip code

Zip code

Country

country

Phone

Phone

VAT/Company ID

40051244

Dashboards

Dashboards company has access to ▼

Close   **Create subunit**

Figure 6.3: The starred fields are required, these are name and e-mail.
Clicking "Dashboards" will fold down a menu. This sets which of the dashboards (available to the user) that the new subunit will be able to see. It is possible to choose more than one.

Click "Create subunit" to save and create company.

There are three blue action circles for each company in the company list.

Figure 6.4: The blue buttons are as following, from left to right:
API-keys menu, Edit and delete.
Both the API-keys menu and the Edit button opens a pop-up box.

6.1.1.1 API-Keys:

The pop-up box for API-keys looks like this:

API Keys

DESCRIPTION	CREATED AT	CREATED BY	UPDATED AT	KEY	ACTION
Test 12	2019-08-27, 15:27:58	Peter Nielsen	2019-08-27, 15:27:58	eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpYXQiOjE1	●✎🗑
Factory test	2021-02-23, 11:51:35	Frederik Agerkvist	2021-02-23, 11:51:35	eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpYXQiOjE2	●✎🗑

Close

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Figure 6.5: The keys are for external use. More information on this is found in the Knowledge Database documentation under "Building External Dashboard".

6.1.1.2 Edit

The pop-up box for Edit looks as follows:

Figure 6.6: For the most part the Edit form looks like the "New Company" form – with one important difference. At the bottom of this is a little check-box for "Distributor access". This feature allows a distributor to view and/or create domains and users for an end customer, which makes remote support fast and easy.

If this box is not checked off and a distributor tries to view users and domains within the company, the distributor will be met with these messages:
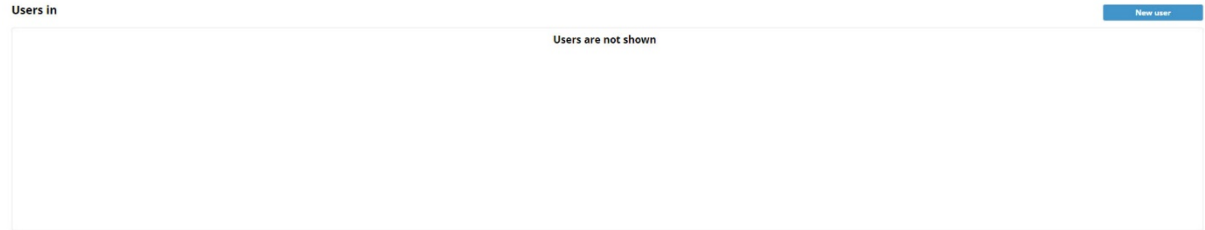
Figure 6.7: No distributor access for users.
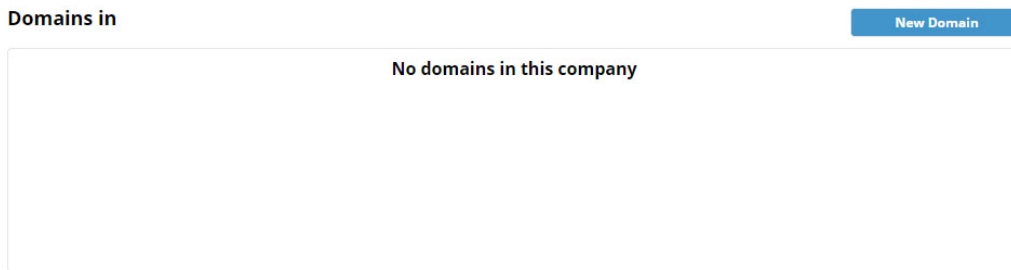
Figure 6.8: No distributor access for domains.

6.1.2 Users In [Company]

Figure 6.9: The Users section shows the users from within the selected company.

The blue circled action buttons are limited to "Edit" and "Delete".
When clicking edit this box pops up:

Figure 6.10: From here the e-mail, password, information, and role can be changed.

6.1.3 Domains In [Company]

"Domains In [company]" provides an overview of the domains in the Domains.

Figure 6.11: The list of domains from within the selected company.

The blue circled action buttons are "Edit" (left) and "Delete" (right). When clicking "Edit" this pop-up window is presented:

Figure 6.12: The Edit-pop up for domains.

6.1.4 Logistics Templates

This section of the Account Setup page is a little different since it is used for the IoT Administration page as well as within a dashboard. Both the Logistics template, the IoT Administration page and the Logistics (fleet) widgets found within Dashboards are valuable to the Fleet Management feature.

What the logistics template does is that it allows the user to input data via the frontend. Data does not have to be provided from the GateManager or the SiteManager. This makes it possible to combine data from the user with data from the GateManager or SiteManager. A way to look at it is like a translator. For the translator to work, it needs to know what sample points it should translate into what. This is what the Logistics Templates is used for.

After creating a template, a user will have to connect it with a DCM, which is done on the "IoT Administrations" page, and then apply it all to the logistics (fleet) widgets within the dashboard. Creating the template is the first step, however.

Figure 6.13: This is an example of how the Logistics Templates looks on the Account Setup page. Beside each template is the blue action-buttons. From left to right: Duplicate, edit, delete.

When clicking "New template" at the top right, this pop-up box appears:

Figure 6.14: A template name is required (default set to "My template").
Click the blue plus sign in the middle to add a data field.

Figure 6.15: Once a data field has been added, it can be named.
Set the data type (Text, Number or Sample point), check off if this data field is required, or pre-fill the data, if this will be the same for everyone using this template.
The data field can be deleted to the far right.

Figure 6.16: When pressing "Edit" on any Logistics template the same window as when adding a new template will be presented. This example will be used in the next chapter.

Set the translation to either "Raw Data Translation", "Binary Masking Translation" or "None" (meaning no translation).
The typical use for the Translation-settings would be to translate a status code (Status: 102) into something anyone can read (Status: Machine Broken).

6.1.4.1 Raw Data Translation

Figure 6.17: Once "Raw Data Translation" is selected, a "Default" setting, text field, color picker and symbol selector appears as well as another plus sign beneath. These are all placed under the new headline "Data translation" within the same data field.

Figure 6.18: When clicking the new plus sign it is possible to set a value received from the DCM (for example 0), translate that value into text ("Stopped") and select a color and symbol for this specific translation. The color picker sets the color for the chosen symbol to appear with (when the value 0 is being translated).
The default translation is used when no other translation is applicable. This applies to every individual part of the translation, e.g. if a translation is applicable but no icon is defined, then the icon of the default translation will be used.

This makes it possible for the user to gain an easy visual overview when using this template within the dashboard.

It is possible to set as many Raw Data Translations as needed within a data field, and it can be used for all data types, though it is most useful for a sample point.

6.1.4.2 Binary Masking Translation
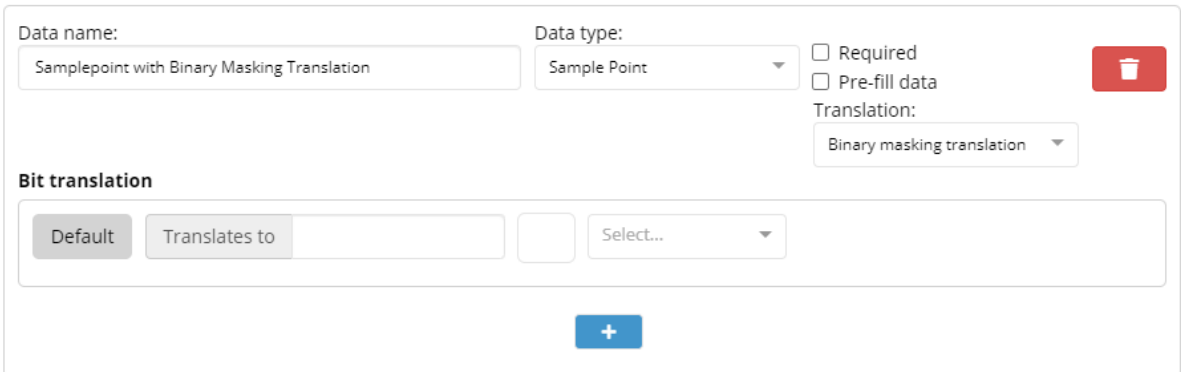
Figure 6.19: Once "Binary Masking Translation" is selected, a "Default" setting, text field, color picker and symbol selector appears as well as another plus sign beneath. This is all placed under the new headline "Bit translation". All of these are within the same data field.
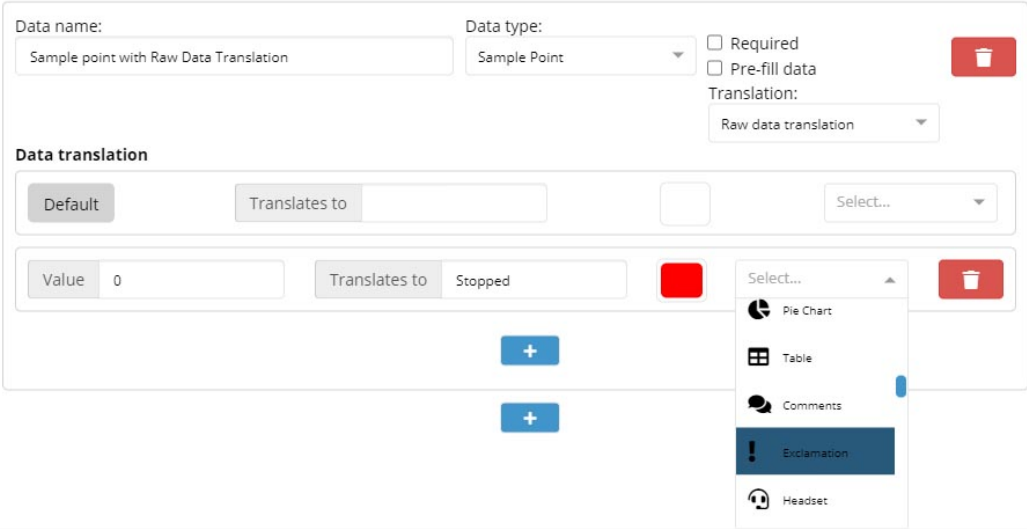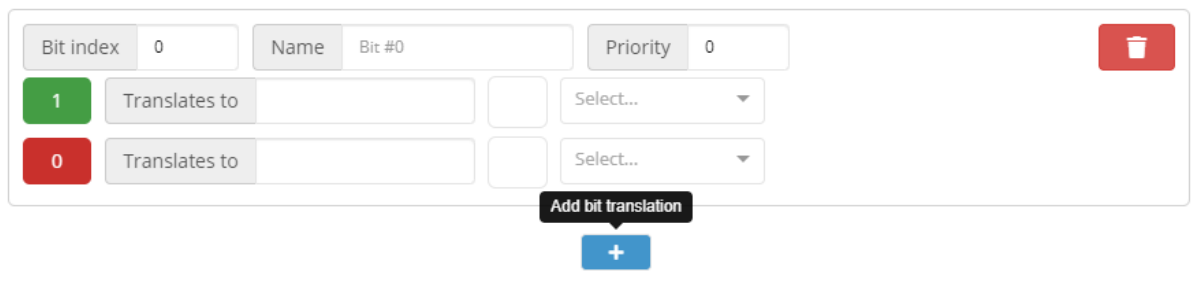
Figure 6.20: When clicking the plus sign the translation settings for a bit is presented. Typically the user would add more than one.

Every translation consists of a text, color, and symbol.

From left to right:
Bit index: Set what bit is being translated. The order is least significant first, and it is 0-indexed (meaning the first bit is 0, not 1).
Name: This has no effect on the widget, but it does provide an overview for the user.
Priority: Sets what priority this bit should take. Lower number priority is more important, i.e., a value of 0 takes priority over a value of 1.
Green 1 and red 0: Sets what bit index 0 (in this example) should be translated to when it is 1 or 0 (true or false – high or low).
If "1", then translate to "Text", "Color" (using the color picker) and symbol (using the drop-down menu).
Choose not to define color or symbol for a single bit to combine the translations.

As previously mentioned, bit-index is ordered after the least significant bit, meaning 0 takes presence over 1. If there is an overlap, priority decides.
If not, it will default to "default". The default translation is used when no other translation is applicable. This applies to every individual part of the translation, e.g. if a translation is applicable but no icon is defined, then the icon of the default translation will be used.

Here is an example of Binary masking translation with two Bit translations:

Figure 6.21: As mentioned, every translation consists of a text, color, and symbol.

The default setting is set to "Idle", has a grey color and a circle symbol. The way the rest of the translation is built, the default would most likely never be relevant, but should something unexpected happen, the default settings will show.

In this example colors are only chosen for bit index 0 and symbol for bit index 1 only (disregarding "Default").

Bit index 0 represents power.
Bit index 1 represents whether the machine is running or not.
The priority is set so that the text from bit index 1 can overwrite the text from bit index 0.
If nothing is set, such as the missing colors in bit index 1 and the missing symbols in bit index 0, the translator will show the color or symbol with the lowest priority (default if nothing is found).

The result is that if the machine is running a green recycle symbol with the text "Machine running" will appear.
If the machine is not running, but is turned on, a green circle with the text "power on" will appear.

Once the Logistics Template is set up, click "Save Changes".
The template can be found and edited in the Logistics overview on the "Account Setup" page and utilized under "Logistics" on the "IoT Administration" page. This will make it possible to be used with the Logistics (fleet) widgets in a dashboard.

Chapter 7

IoT Administration

In this chapter the IoT Administration page will be reviewed. This page can be separated into three headlines: "Status", "JSON Configuration" and "Logistics". As such, this page shows the statistics and settings for any available DCM as well as its agents.

3.1 Understanding the IoT Administration landing page

The IoT Administration landing place looks as follows:

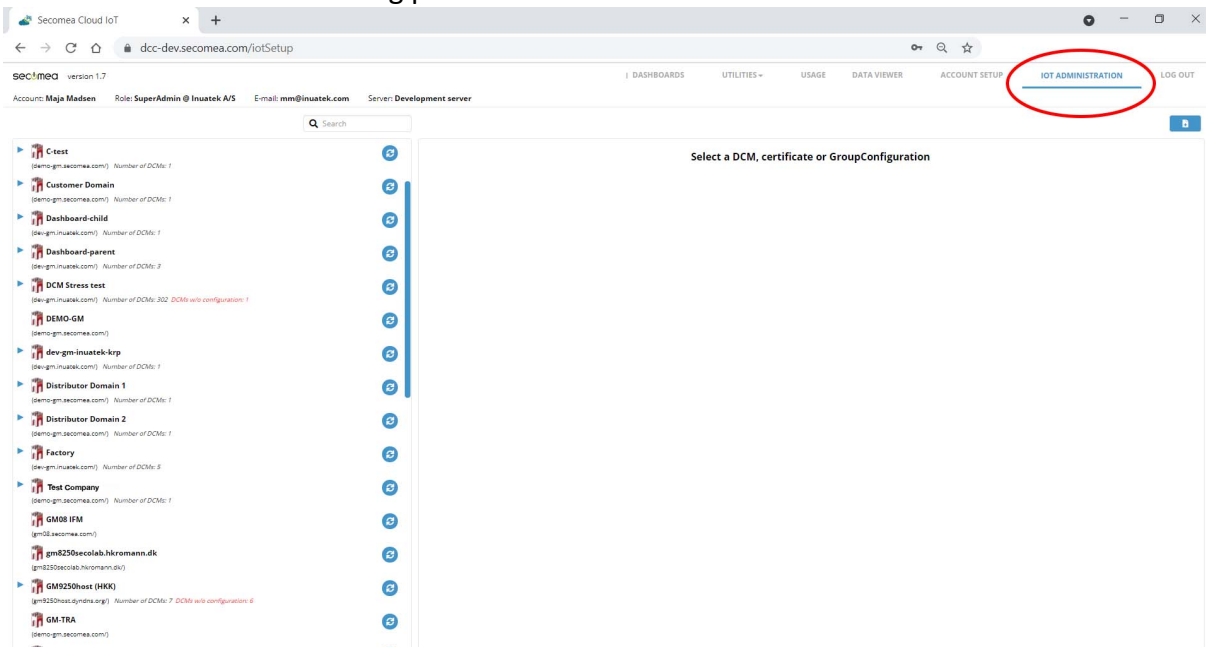

Figure 7.1: The DCMs are shown to the left. To the right the user is asked to select a DCM. For every Domain there is a blue action button. This synchronizes the Domains.

Above the DCM overview is a search bar.

When selecting a DCM, three options become available within the DCM. They are "Status", "JSON Configuration" and "Logistics".

Figure 7.2: This menu appears next to the search bar.

3.1.1 Status
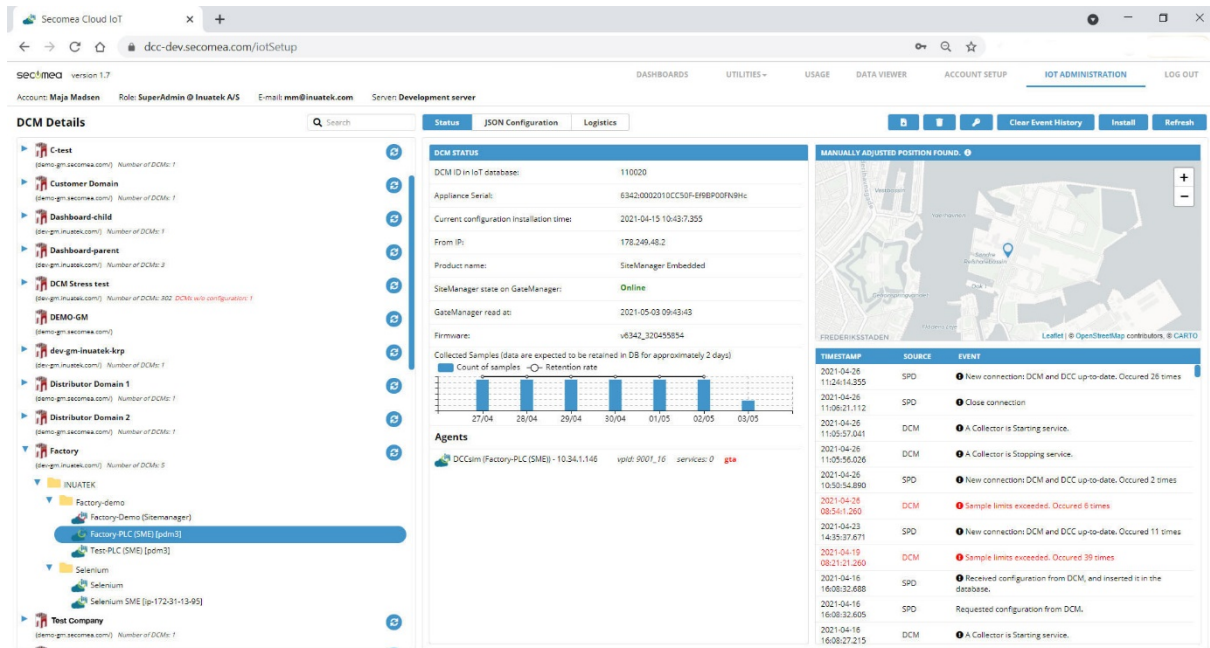
Figure 7.3: This is the first tab, "Status". This page shows how the DCM is running, if it's online, the sample point count, the psychical placement of the Site Manager and the historical events worth noting.

Figure 7.4: It is possible to mouse over the "Collected Samples" bar chart for further information as well as the black "!" under "Event".

In the top right corner, a few blue actions buttons become available once a DCM is selected. These will change a little depending on whether "Status", "JSON Configuration" or "Logistics" have been selected. For status they look as follows:

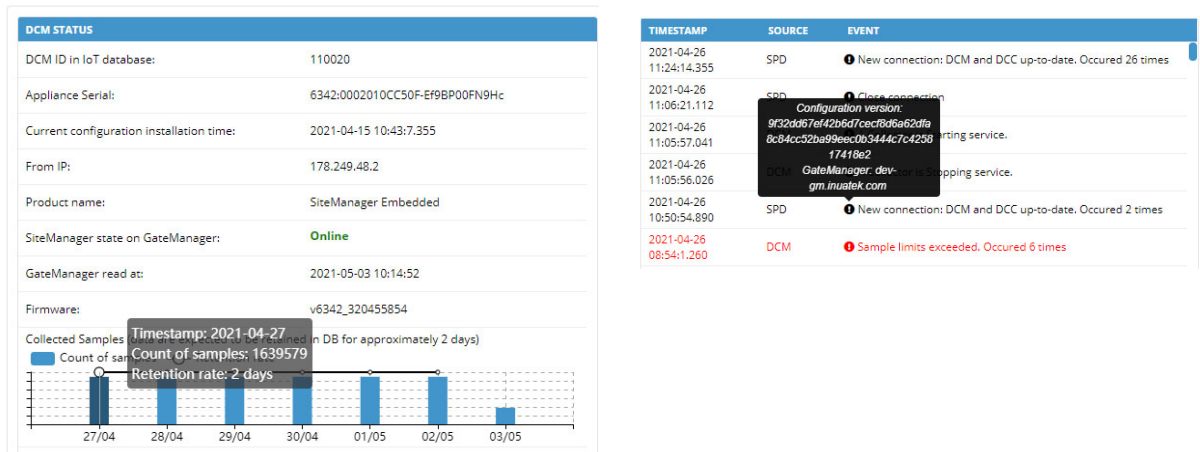Figure 7.4: From left to right:

- Create an initializing SiteManager configuration
- Delete DCM, history and children
- Setup certificate for this DCM
- Clear event history
- Install the current configuration
- Refresh or update from database

The first button will be explained hereunder, the others are self-explanatory:

3.1.1.1 Create an Initializing SiteManager configuration

Create initial SiteManager DCM configuration

SiteManager type:
- ● Hardware SiteManager models
- ○ SiteManager Embedded

Select **Download** to generate a SiteManager DCM configuration matching this DCC. Enter the SiteManager GUI and go to menu **Maintenance → Import** to install the generated *.xml* file.

Advanced options:
- ● DCC configuration
- ○ DCC configuration excluding Agent configuration

This will generate a fully functional configuration with a simulator collector. When the SiteManager has rebooted after the installation, click Synchronize GateManager in the DCC tree view to make the new DCM appear.

NOTE: When importing this configuration, all existing DCM configuration, Certificates and Agents will be deleted.

Close   Download

Figure 7.5: This is pre-made configurations for the SiteManager. It is designed to make it quick and easy for the user to set up and connect to the DCC.
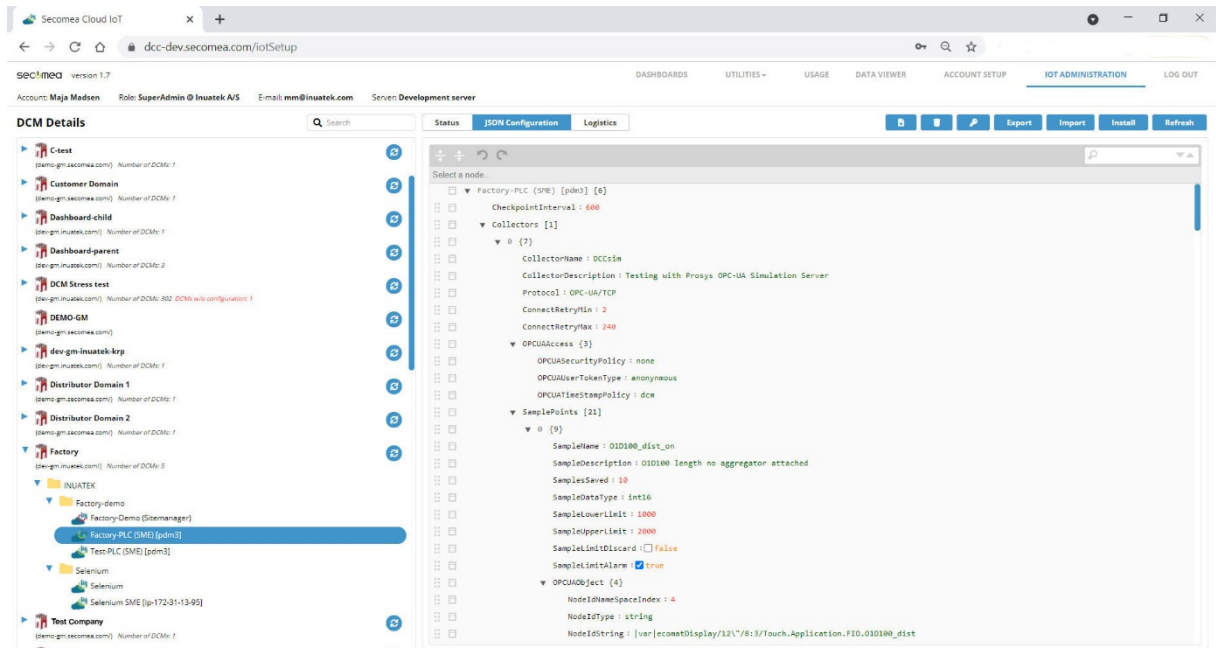
3.1.2 JSON Configuration

Figure 7.6: The "JSON Configuration" tab is used to set up the DCM and the sample points.

To learn more about how to work the JSON Configuration please refer to the Secomea Knowledge Base.

The blue action buttons at the top right changes a little.

Figure 7.7: Most of these are similar to "Status", but while "Clear setup history" has been removed, "Export" and "Import" have been inserted. From left to right, the list is:

- Create an initializing SiteManager configuration
- Delete DCM, history and children
- Setup certificate for this DCM
- Export to file
- Import from file
- Install the current configuration
- Refresh or update from database

This makes it possible to add the JSON Configuration code from a file or to export what has been made.

3.1.3 Logistics

The third tab under IoT Administration is the "Logistics" tab. When selecting it initially, it might look as follows:
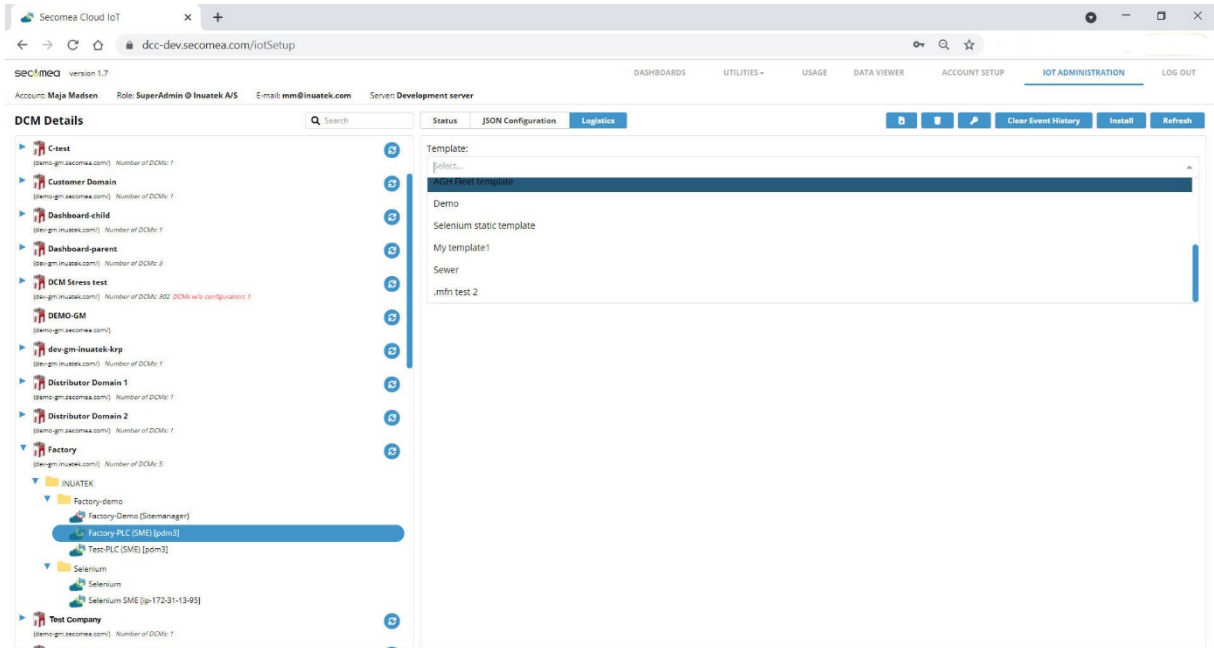
Figure 7.8: The drop-down menu holds every possible logistics template that is available.
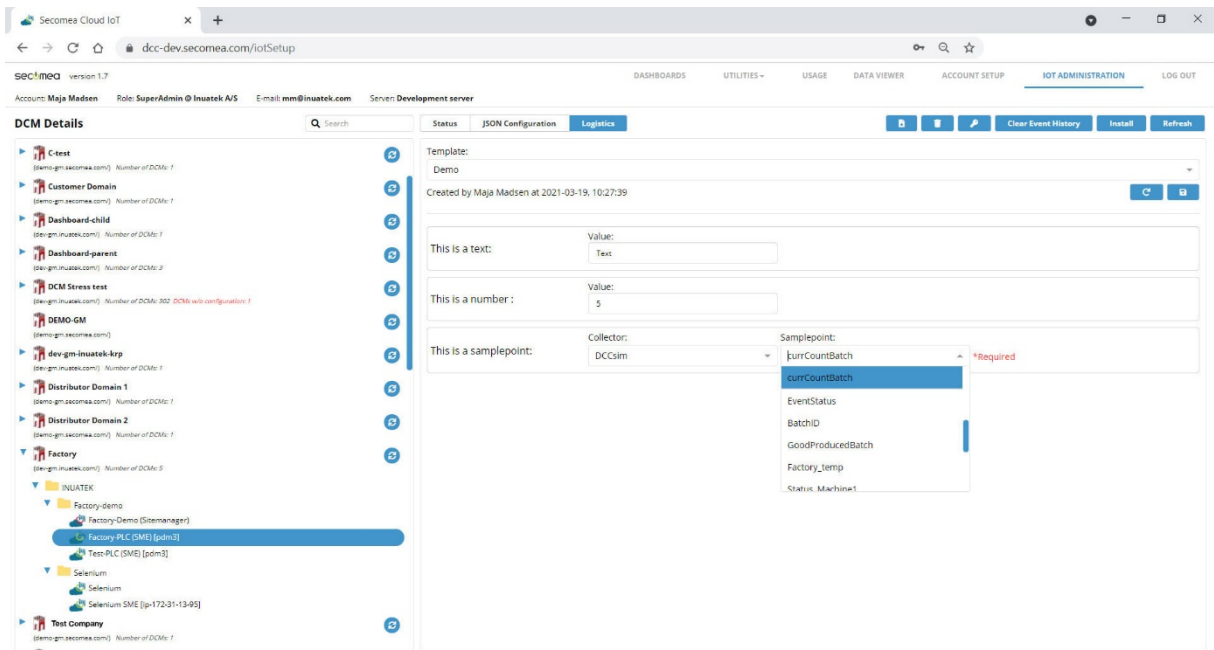*Note: If only one template is available this will be selected automatically.*

Figure 7.9: Once a template is selected the data fields that were dictated though the "Logistics Templates" from the "Account Setup" page appears.

Underneath the drop-down menu is two blue action buttons. The first resets the logistics data while the seconds saves the logistics data.